

Shadow Habitats Regulations Assessment

February 2024

Outline planning application for the development of up to 190no. homes (including 50% affordable homes), 0.13ha of land reserved for Class E uses, allotments, car parking, earthworks to facilitate sustainable drainage systems, open space and all other ancillary infrastructure and enabling works with means of access from Shiners Elms for consideration. All other matters (means of access from Chescombe Road, internal access, scale, layout, appearance and landscaping) reserved for subsequent approval.

Assessment of likely significant effect with regards to the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 – North Somerset and Mendip Bats Special Area of Conservation (SAC).

Prepared by



On behalf of

Persimmon Homes, Severn Valley



**Shadow Habitats Regulations Assessment
February 2024:**

Residential development of up to 190 dwellings with supporting infrastructure and enabling works including new vehicular access, parking facilities and public open space at Land to the North of Rectory Farm, Yatton

Assessment of likely significant effects with regards to the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 – North Somerset and Mendip Bats Special Area of Conservation (SAC).

Introduction.....3
 Physical Scope of the Assessment.....9
 Results..... 14
 Potential Adverse Impacts (Prior to the application of mitigation and compensation).....21
 Mitigation and Assessment of Effects22
 HEP Calculations.....32
 Analysis of Cumulative Impacts / In-Combination Effects.....37
 Recommended conditions52
 Appendix: detailed lux contour plan54

Project title	Land to North of Rectory Farm, Chescombe Road, Yatton	
Project number	7942	
Document title	Shadow Habitats Regulations Assessment	
Client	Persimmon Homes, Severn Valley	
Author	Chris Poole MSc ACIEEM & Henry Sturgess BSc MCIEEM	
Status	Checked & Approved for C&W by	Date
V1.0		08.08.2023
	Tom Clarkson	
V2.0 Changes to HEP clarifications on lighting and compensation habitat provision	Tom Clarkson	22.02.2024



Introduction

Clarkson and Woods were commissioned by Persimmon Homes Severn Valley to produce a report to inform a Habitats Regulations Assessment (HRA) of the proposed residential development (the Proposed Development) at Land North of Rectory Farm, Yatton (the Site), National Grid Reference (NGR) ST 42468 65501. This will be submitted to North Somerset Council to support the planning application for the Proposed Development.

The UK is bound by the terms of the Habitats Directive (92/43/EEC). Under Article 6(3) of the Habitats Directive, an appropriate assessment is required, where a plan or project is likely to have a significant effect upon a European Site, either individually or in combination with other projects. The Directive is implemented in the UK by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 (the "Habitats Regulations").

The objective of this Report is to identify any aspects of the Proposed Development that would be likely to lead to significant effects upon any sites afforded protection under the Habitats Regulations. In the UK, this comprises Special Areas of Conservation (SACs), candidate Special Areas of Conservation and Special Protection Areas (SPAs). In accordance with Government policy, assessment is applied to sites designated under the Ramsar Convention as Wetlands of International Importance (Ramsar sites) and potential SPAs. These sites are referred to collectively in this Report as "European Sites".

This updated Report is intended to inform an HRA made by North Somerset Council. Amendments from the original version are marked in red for clarity and ease of interpretation. These include a summary of off-site bat activity surveys along with minor amendments to the lighting, HEP calculations and off-site land management as a result of comments received from Natural England and North Somerset Ecology Officer.

Legislative Context

The need for an assessment of impacts on European sites is set out within Article 6 of the Habitats Directive, and transposed into UK law by the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019. The ultimate aim of the Habitats Directive is to "maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest" (Article 2(2)). This aim relates to habitats and species, not the European Sites themselves, although the European Sites have a significant role in delivering favourable conservation status.

The Habitats Directive applies the precautionary principle to European Sites. Consent should only be granted for plans and projects once the relevant competent authority has ascertained that there will be no adverse effect on the integrity of the European Site(s) in question. Where an appropriate assessment has been carried out concludes that a likely significant effect will occur, or if uncertainty remains over the significant effect, consent will only be granted if there are no alternative solutions and there are Imperative Reasons of Over-riding Public Interest (IROPI) for the development and compensatory measures have been secured.

In order to ascertain whether or not site integrity will be affected, an Appropriate Assessment should be undertaken of the plan or project in question. The competent authority is entitled to request the applicant to produce such information as the competent authority may reasonably require for the purposes of the assessment, or to enable it to determine whether an appropriate assessment is required. Box 1 provides the legislative basis for an Appropriate Assessment.



Box 1. The legislative basis for Appropriate Assessment

Habitats Directive 1992

Article 6 (3) states that:

“Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site’s conservation objectives.”

Conservation of Habitats and Species Regulations 2017

The Regulations state that:

“A competent authority, before deciding to ... give any consent for a plan or project which is likely to have a significant effect on a European site ... shall make an appropriate assessment of the implications for the site in view of that sites conservation objectives... The authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site”.

Over the years, ‘Habitats Regulations Assessment’ has come into wide currency to describe the overall process set out in the Habitats Regulations, from screening through to identification of IROPI. This has arisen in order to distinguish the overall process from the individual stage of “Appropriate Assessment”. Throughout this Report the term HRA is used for the overall process and restricts the use of Appropriate Assessment to the specific stage of that name.

Policy Context

North Somerset Council published a new guidance document aimed at informing the assessment of impacts of development upon the North Somerset and Mendip Bats SAC¹. It provides a clear and consistent basis by which impacts upon rare horseshoe bats should be assessed with a view to informing strategic planning to accommodate the area’s future housing needs. The guidance, which is currently being considered as a Supplementary Planning Document (SPD), allows the effects of habitat loss upon horseshoe bats to be assessed using a combination of the distance of the Site from known SAC roosts, the nature of habitats on Site (their suitability for bats and how they are managed) and the findings of bat surveys to identify an area of ‘bat habitat’ required post-construction to ensure the effects of habitat loss are mitigated as far as possible.

This assessment method has therefore been used to characterise the impacts of habitat loss associated with the development upon the SAC and to evaluate the contribution of the retained and newly created habitats towards offsetting the loss. It seems likely that where a development is able to incorporate sufficient ‘bat habitat’ within the scheme that the conclusion of any subsequent impact assessment of habitat loss upon the SAC will be identified as both neutral and policy/guidance compliant. This assessment method does not however consider other impacts which might occur on the SAC; in particular fragmentation. These impacts are discussed in this document but are not subject to a quantitative assessment in the same way as habitat loss.

¹ L. Burrows (May 2017) North Somerset and Mendip Bats Special Area of Conservation (SAC): Guidance on Development. <https://www.n-somerset.gov.uk/wp-content/uploads/2017/02/ED29-Guidance-Note-North-Somerset-and-Mendip-Bats-SAC.pdf>



Also of relevance is the North Somerset Council planning policy DM8 (Nature Conservation) from the adopted Development Management Policies of the North Somerset Local Plan. This policy sets out a series of measures aimed at ensuring that adverse impacts upon legally protected species and habitats and species of principal importance in England are avoided, mitigated or compensated wherever possible.

Details of Scheme

The outline planning application proposals consist of the construction of up to 190 dwellings, access roads, gardens, parking facilities and other associated infrastructure. The construction of the proposals will remove a large area of the improved grassland from the eastern portion of the red line boundary and smaller areas to the west to construct the SUDS and allotment spaces. Hedgerows and ditches will largely be retained and protected with the exception of portions of Ditches 7, 21 and 24 which will require sections culverting to create the access roads. Hedgerows 2, 6 and 16 along with their associated ditches will also require short lengths to be removed and hedgerow ditches to be culverted to allow creation of the access roads. In addition, some impacts from lighting on these features are anticipated. The following habitats indicated in the landscaping are within the parameters of the Outline application and have been used for the BNG calculations and HEP calculations. However, at RM stage a different combination and amount of habitat could be provided, within approved parameters.

- Overall, approximately 10.35ha of modified grassland will be removed to allow the construction of the proposals and formation of the landscaping, along with 71m length of poor quality ditch habitat and a further 33m of hedgerows and associated ditches.
- The following habitats are proposed which will mitigate for the loss of low-quality grassland and to compensate for the loss of foraging habitat extent for horseshoe bats.
- 2.6ha of other neutral grassland with scattered native scrub retained and enhanced from the retained modified grassland in field 3, 4, 5 and 6 (2.3ha of which is accessible to horseshoe bats).
- A further 3ha of habitat surrounding the retained ditches within the development will be created and enhanced through grassland management and planting of scrub mature trees and hedgerow features (Approximately 1.9ha of this habitat will be available to horseshoe bats.)
- 0.77ha of native plantation woodland will be planted alongside the western boundary (Available to horseshoe bats)
- 0.69ha of SUDS engineered to hold water throughout the year and planted with a fringe of native aquatic plant species to provide maximum wildlife value (0.63ha of which will be available to horseshoe bats)
- 0.15ha of allotment space will also be provided
- Existing hedgerows totalling 266m (H1, H6, H7 and H11) will be enhanced through infill planting and sympathetic management.
- 858 linear meters of new species-rich hedgerow with trees and new species-rich hedgerow with trees associated with a bank or ditch will also be planted (579 linear meters of which will be available to horseshoe bats)
- 0.263 hectares of formal park (modified grassland managed for amenity) will be created with a scattering of other neutral grassland patches and native cultivars of urban trees planted within it and other public open space grassland (all of which are available to horseshoe bats).
- 0.51ha of modified grassland managed for amenity will be established within and surrounding and development areas (which will be unavailable to horseshoe bats). –



-
- 1.06ha of vegetated gardens will also be created – (Unavailable to horseshoe bats)
 - 0.46ha of newly created hoggin paths and surfaced play areas will be created.
 - Approximately 117 small urban trees are to be provided within the formal landscaping as street trees
 - A further 68 small urban trees and 30 medium sized urban trees (approx.) will be planted within the wildlife mitigation area (available to horseshoe bats)
 - Up to a further 2.9 ha of off-site habitat contained in two fields to the west of the strawberry line will be enhanced including the off-site land surveyed for bats and an additional adjacent field (which has now been surveyed) to compensate for the loss of foraging habitat for both greater and lesser horseshoe bats. This will be enhanced over a fifteen-year period to target a species rich neutral grassland habitat with scattered belts of native scrub.

The mitigation has been designed to fulfil the requirements of the North Somerset and Mendip Bat SAC Habitat Evaluation Procedure (HEP), the details of which are provided within the ecological impact assessment report². The scheme provides buffers from the key western hedgerows which form the edge of the strawberry line these buffers are a minimum of 75m from housing or roads

² Clarkson & Woods Ltd. (March 2023) *Ecological Impact Assessment: Land North of Rectory Farm, Yatton*



Figure 1: Extract of Landscape Masterplan – SLR, March 2023 (Drawing Reference – yw-034-Rev C)

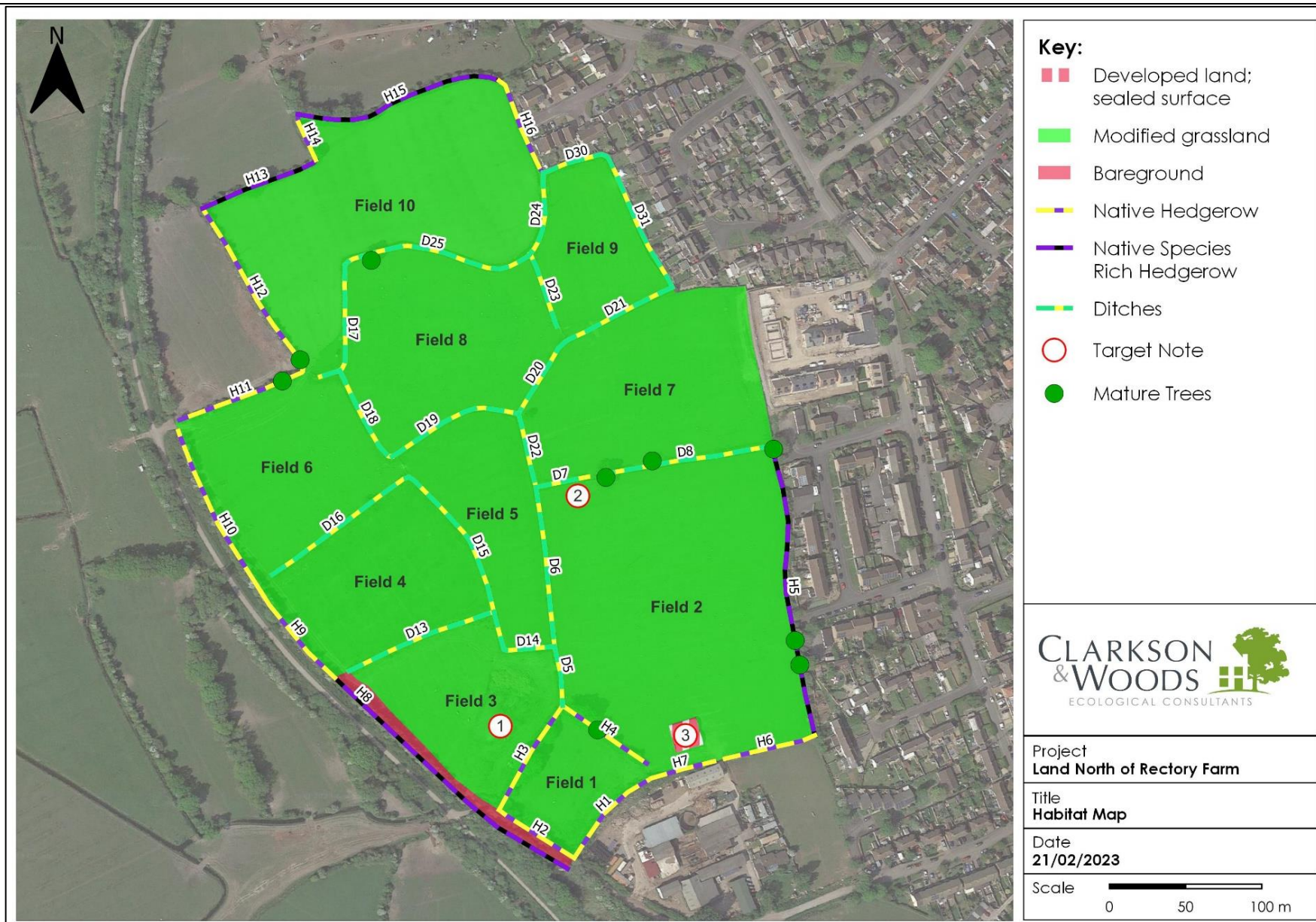


Figure 2: UKHab Habitat Survey Map



Physical Scope of the Assessment

There is little guidance that rigidly dictates the physical scope of a HRA. However, the North Somerset Planning Guidance document indicates that impacts upon the North Somerset and Mendip Bats Special Area of Conservation (SAC) should be considered at distances of up to 10km from the nearest component of the SAC. This guidance has been used together with the professional judgement of Clarkson and Woods to identify European Sites which should be considered under this HRA.

There are no European sites that lie within or adjacent to the Site.

The following listed sites lie within proximity of the Site and have been identified by Clarkson and Woods as requiring consideration under this HRA; their locations and extents within 10km are shown on Figure 3:

- North Somerset and Mendip Bats SAC
- Mendip Limestone Grasslands SAC
- Severn Estuary SAC/SPA

The North Somerset and Mendip Bats SAC is located within 2.1km of the Site at its nearest point and has been identified by Clarkson and Woods as requiring consideration under this HRA. The location of the SAC relative to the Site can be seen within Figure 3.

Clarkson and Woods have used professional judgement to identify the following impacts that require consideration for the North Somerset and Mendip Bats SAC. These are:

- Bat Foraging Habitat Loss
- Fragmentation of Commuting Routes
- Cumulative Impacts

The Mendip Limestone Grasslands SAC is located much further from the proposals (9.2km at its closest point) and greater horseshoe bats are an annex two feature identified as a qualifying feature of the SAC but not a primary reason for selection. However, the bats associated with this SAC are effectively the same population as that associated with the North Somerset and Mendip Bats SAC. In order to avoid pseudo replication of the impact assessment and to avoid assessing the impacts of the scheme upon the same population of bats twice, the decision has been taken to scope out consideration of the greater horseshoe bats associated with the Mendip and Limestone Grasslands SAC from this HRA.

The Severn Estuary SAC SPA is also situated a significant distance from the Site (4.1km at its nearest point). This internationally designated site is designated for its estuarine habitats, specialist aquatic organisms and overwintering waders. It is considered highly unlikely the proposals will affect this internationally designated site due to its proximity and the poor quality of the habitats within the site in terms of the habitats and species associated with this internationally designated site. A breeding bird scoping survey was undertaken to ensure no species specifically associated with the Severn Estuary SAC were present in the habitats to be affected.



Details of the North Somerset and Mendips Bats SAC

The North Somerset and Mendip Bats SAC is primarily designated due to the Annex I habitats it supports - "Semi-natural dry grasslands and scrubland facies on calcareous substrates" and "Tilio-Acerion forests of slopes, scree and ravines". It is also designated due to the range of hibernation sites used by nationally important populations of the Annex II Lesser *Rhinolophus hipposideros* and greater horseshoe *Rhinolophus ferrumequinum* bat species and maternity sites for greater horseshoe bats. This assessment applies to greater and lesser horseshoe bats as these species are listed on Annex II of the Habitats Directive, which are the primary reason for designation of the SAC.

The following designated sites within 5km of the Site are component units of the North Somerset and Mendip Bats SAC:

- King's Wood and Urchin Wood SSSI is situated approximately 2.05km east of the Site. This is a large area of ancient woodland supporting nationally important populations of greater horseshoe bats and hibernating greater and lesser horseshoe bats.
- Brockley Hall Stables SSSI is situated 4.6km north-east of the Site and is an important maternity site for greater horseshoe bats.

The following designated sites sit within 10km of the development proposals are component units of the North Somerset and Mendip Bats SAC:

- Banwell Ochre Caves SSSI (approximately 6.2km south/south-west of the Site). As a SSSI it has been designated for its geological interest, in addition to supporting hibernating greater and lesser horseshoe bats.
- Banwell Caves SSSI (approximately 7.7km south-west of the Site). As well as its geological interest, Banwell Caves has also been designated as a SSSI because of hibernating greater and lesser horseshoe bats.

Although beyond a 10km radius of the Site, the following components of the North Somerset and Mendip Bats SAC are also known to feature maternity and hibernation sites for greater and/or lesser horseshoe bats:

- Cheddar Complex SSSI (10.2km south of the Site at its closest point) - Extensive geographic and biological features including large numbers of hibernating horseshoe bats.
- Wookey Hole SSSI (18km south-east of the Site). Designated for its geological and biological interest as well as supporting important roosts for greater horseshoe bats.

Due to the proximity of the SAC components listed this assessment will focus on the horseshoe bats associated with the King's Wood and Urchin Wood SSSIs; it is considered impacts to the other components of the SAC will be far lower due to their distance from the proposed development site. Nonetheless, the maintenance of connectivity and an assessment of the integrity of all of the SAC sites identified will be undertaken as part of this assessment.

In accordance with the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019, this HRA and the associated planning conditions must be agreed with Natural England prior to the determination of this planning application.

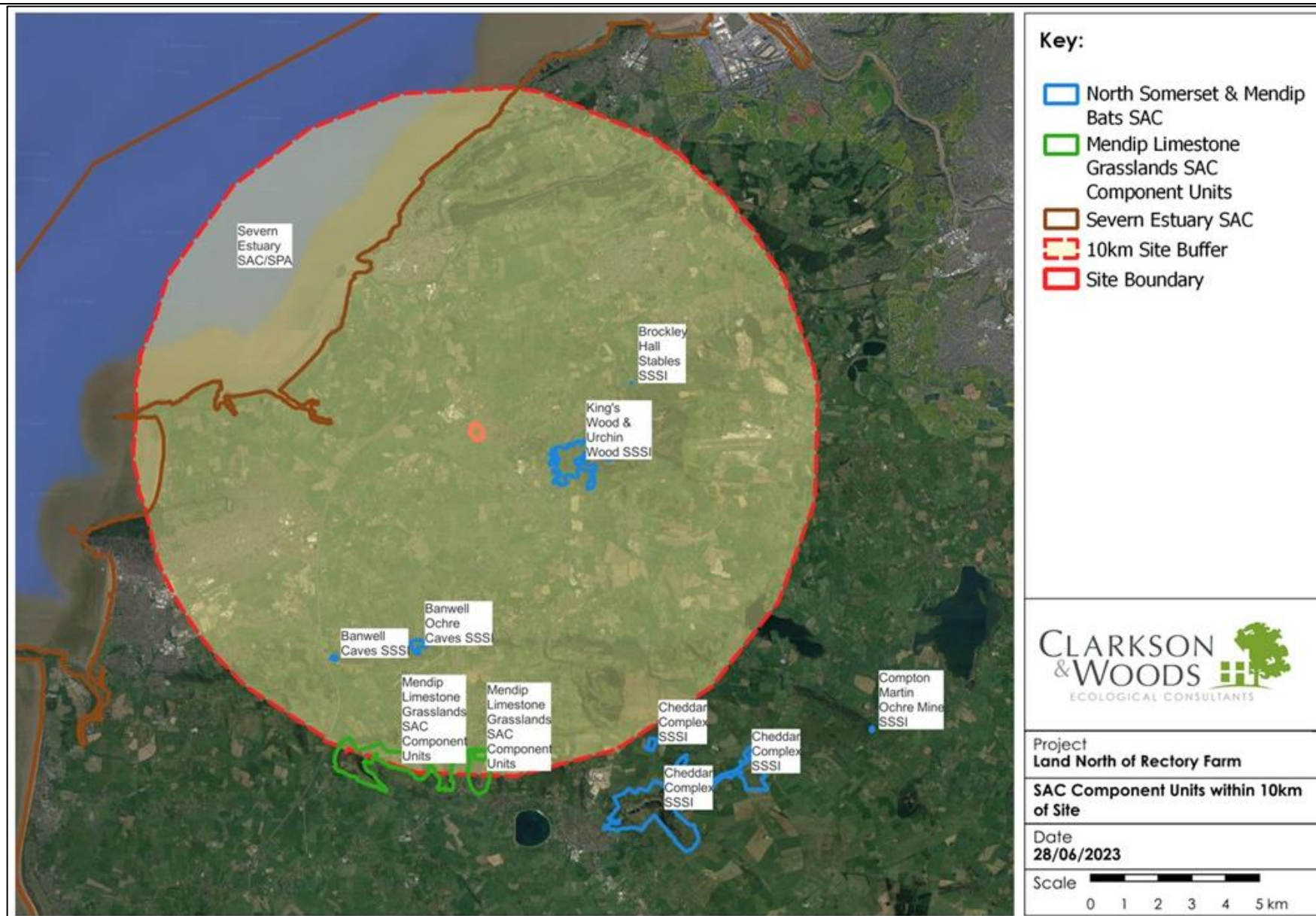


Figure 3: SAC Component Units within 10km of the Site



Baseline Conditions

Bat surveys were undertaken by Clarkson and Woods of all fields within the Site between April and October 2022. This included undertaking static detector surveys to meet the minimum survey standards set out in the North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development Version 1.2 (April 2018). A further seven surveys were undertaken on the northern field of the off-site land to determine the relative use of this land by horseshoe bats. **In 2023 additional 7 activity surveys were undertaken of both the northern and southwestern fields of the compensation land to inform the compensation proposals.**

Data on bat activity within the Site were collected from walked transect surveys with stop points which covered the field boundaries and areas within the fields. A total of 10 transect surveys were undertaken between April and October 2022. At least one survey was completed every month during this period, with an additional transect survey being conducted in June and September 2022, as well as a further dawn transect survey being completed in September 2022. Additionally, eight static bat detectors were deployed per month between April and October 2020 for a minimum of seven consecutive nights per deployment to ensure a minimum coverage of fifty nights of static detectors.

It should be noted that the offsite land referred to in the results below relates to a field present to the west of the red line boundary which is proposed as horseshoe bat compensation land. A further field which is present to the southwest of the field surveyed is also proposed to be used for this purpose. **Further activity surveys of this land have been undertaken in 2023 to fully inform the current use of these fields by both lesser and greater horseshoe bats.** Figure 4 below shows the site (red line boundary) and the offsite compensation land (blue line boundary) for clarity.

The full findings of these previous surveys can be found in "Ecological Impact Assessment, Land North of Rectory Farm, Yatton (Clarkson & Woods, March 2023)" and Bat Survey Report, Land North of Rectory Farm, Off-Site Land (2023 surveys) C+W Ltd. For the purpose of this document, the findings of these surveys have been summarised below, focusing exclusively on horseshoe bats. It is therefore recommended that this HRA is read alongside the detailed bat survey data in the initial Ecological Impact Assessment report and subsequent Bat Survey report – Land North of Rectory Farm, Off-Site Land (2023).



Figure 4: Site boundary (red line) and proposed offsite compensation land (blue line)



Results

Greater Horseshoe Bats

Bat Activity Surveys

On site activity

The walked transect surveys conducted during 2022 recorded a total of 3 passes by greater horseshoe during all of the surveys undertaken covering the red line boundary. This comprised 2 passes in July, and a single pass in September. A single greater horseshoe bat was also observed foraging in the centre of Field 7 during the September survey. Overall recorded activity during the transect surveys was reasonably low.

Compensation land (offsite field) activity (2022)

Greater horseshoe was recorded as a higher proportion of the total calls within the off-site land surveyed (1.5%) compared to on-site land, with 6 calls recorded over three of the seven surveys. On two occasions greater horseshoe were observed engaging in obvious foraging behaviour adjacent the Strawberry Line on the eastern boundary of the off-site land. The other call recorded was attributed to a commuting individual at stopping point 8 where it was observed commuting from Biddle Street up the Strawberry Line LNR path. Overall use of the off-site land by greater horseshoe bats was sporadic and is considered to be influenced by the strength of the prevailing wind.

Compensation Land (Off-Site fields) Activity (2023)

Greater horseshoe bats were recorded occasionally during the transect surveys, with a call recorded on three separate surveys (in April, June, and August). This is a slightly higher level of activity than was recorded during the activity surveys completed on the application site in 2022 (where a total of 3 passes were recorded across all surveys). It had a lower level of use than the Off-site surveys undertaken in 2022. Given the low detectability of this species, the levels of activity recorded in the off-site land was still considered significant. On two occasions, greater horseshoe bats were recorded foraging adjacent to the Strawberry Line (H1/D1) on the eastern boundary of Field 1. The other call recorded was attributed to a commuting individual at stopping point 4, where it was observed commuting along the vegetated boundary to the east (D8/H3) of Field 2.

Static Detector Surveys on site land (2022)

The static detector surveys were undertaken between April and October 2022, the full results of which can be seen in Section 2.5.50-2.5.64, Figure 8, Table 9 and Appendix D of the Ecological Impact Assessment Report. Overall, across all detectors and all months, the survey recorded a total of 322 passes by greater horseshoe bats within the onsite land. Passes were relatively evenly spread across all detector locations although frequency of calls varied from month to month. The highest levels of greater horseshoe bat activity were recorded at Location 8 (on the eastern boundary of Field 2) with a total of 84 passes recorded (most of which were in June and July), and at Location 3 (on the western boundary of Field 4) with 67 passes recorded. Combined calls across all deployment periods for these species at other locations were generally between 30-50 calls. The lowest levels of greater horseshoe bat activity were recorded at Locations 5 (along the ditch between Fields 8 and 10) and Location 6 (on the eastern boundary of Field 7), with 8 and 15 passes recorded at these locations respectively. This result is somewhat expected, as Location 6 is subject to some light pollution from artificial lighting arising from adjacent residential dwellings.



In terms of the frequency of calls per night per detector location greater horseshoes were recorded fairly consistently across the site. as noted previously peaks were recorded at Location 8 and Location 3. Although Location 3 was used much more consistently with each month other than April, June and October having over 1 pass per night on average. At location 8 this was far lower with only three months with over 1 pass per night. June and July having frequent persistent calls recorded indicating foraging at this location. Overall detection rates for greater horseshoe was reasonably low with most detectors recording less that 1 pass per night on average across all months. In combination the on site land averaged 0.78 passes per detector per night.

Table 1: Average greater horseshoe passes per month per static detector

Location	1	2	3	4	5	6	7	8	A	B
April	0.75	0.125	0.25	0.25	0	0.25	0.25	0.375	1	0.5
May	1.857	1.571	1	0.571	0.142	0.285	0	0.714	1	0.285
June	2.714	1.142	0.571	1.571	0.285	0.142	0	5	0.142	3.571
July	1.142	0.428	3	3.142	0.285	1.142	0.428	5.142	2.571	0.285
August	0	0.142	1.857	0	0	0.142	0.428	0.571	1.714	0
September	0	0.857	1.857	0.285	0.428	0.142	2.857	0.142	0	0.857
October	0.125	0.125	0.875	0.125	0	0	0	0	0.25	0
Combined per location	0.921	0.607	1.313	0.823	0.156	0.294	0.54	1.64	0.941	0.764

Peaks of activity from this species were noted in May, June and July, which is broadly in line with the maternity season for this species. Overall greater horseshoe bats accounted for 0.36% of the total bat calls recorded from all detectors. Static detectors at Location 3 recorded a consistent number of passes over the deployment periods, suggesting this is used as a commuting route for the species.

Within the onsite land peaks of greater horseshoe calls at location 8 and location 7 were recorded in June and July, where foraging using the Millers index was reached on a single occasion at each location. Due to the fairly inconsistent level of use of these locations it is considered these areas are under for intermittent foraging rather than greater horseshoe bats commuting along the eastern site boundary. This is further evidenced by Location 6 which had very low numbers of passes from this species around 1 pass per 7 days recorded at this location.

In summary the static detector surveys recorded moderate levels of greater horseshoe activity across the site, which indicates portions of the Site are of value to foraging and commuting greater horseshoe bats, particularly during the maternity season.



Static Detector Surveys Off-site land (2022)

The offsite land statics recorded a similar level of use by greater horseshoes than the onsite locations with between 48 passes recorded at location A and 39 passes attributed to this species at location B. The average passes per night from both Location A and Location B were relatively high as can be seen in Table 1 above and in line with the level of use found on the application site suggesting they are of similar value to this species.

There was a peak of use by greater horseshoe in June at Location B and July and August had higher average number of passes at Location B. These peaks are in line with the maternity season and indicate the site is being used for occasional foraging. It should be noted foraging in line with the Millers index was not reached by the detectors placed in the offsite land although the number of contact passes came close to qualifying on several occasions. Foraging was recorded during the transect surveys undertaken.

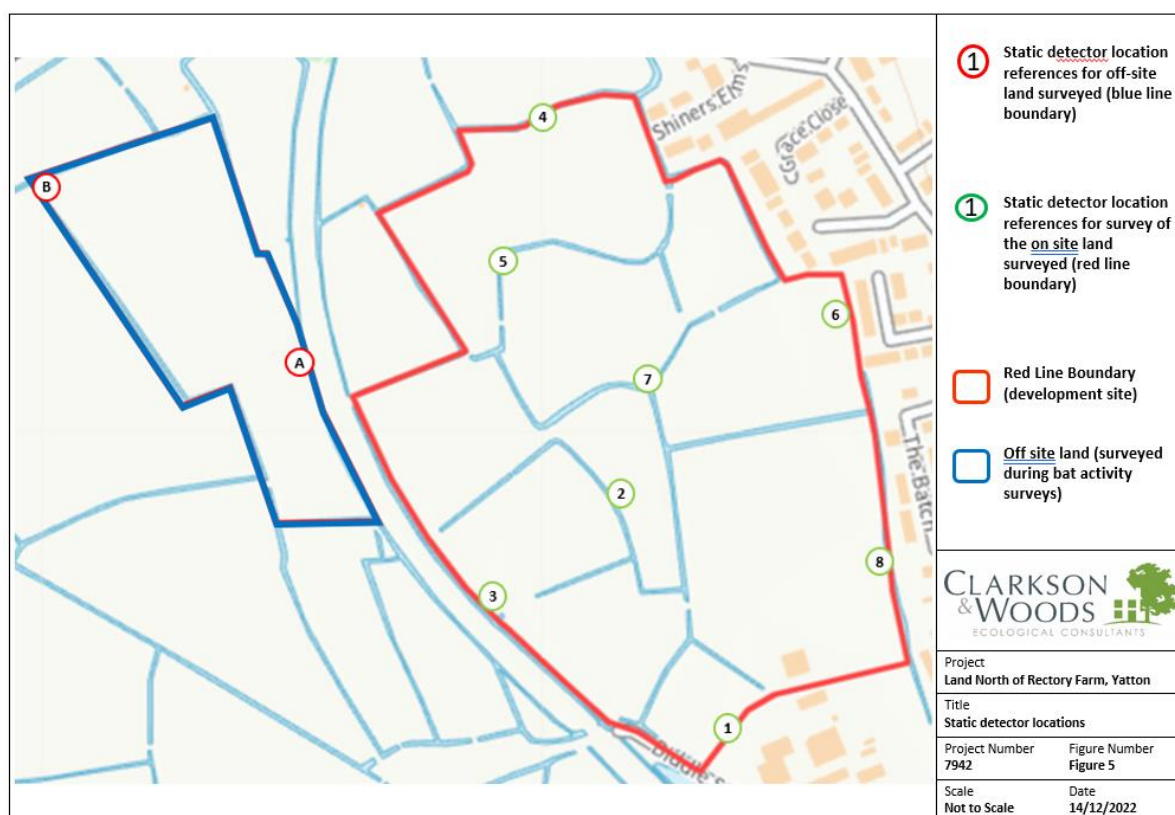


Figure 5: Static detector locations 2022

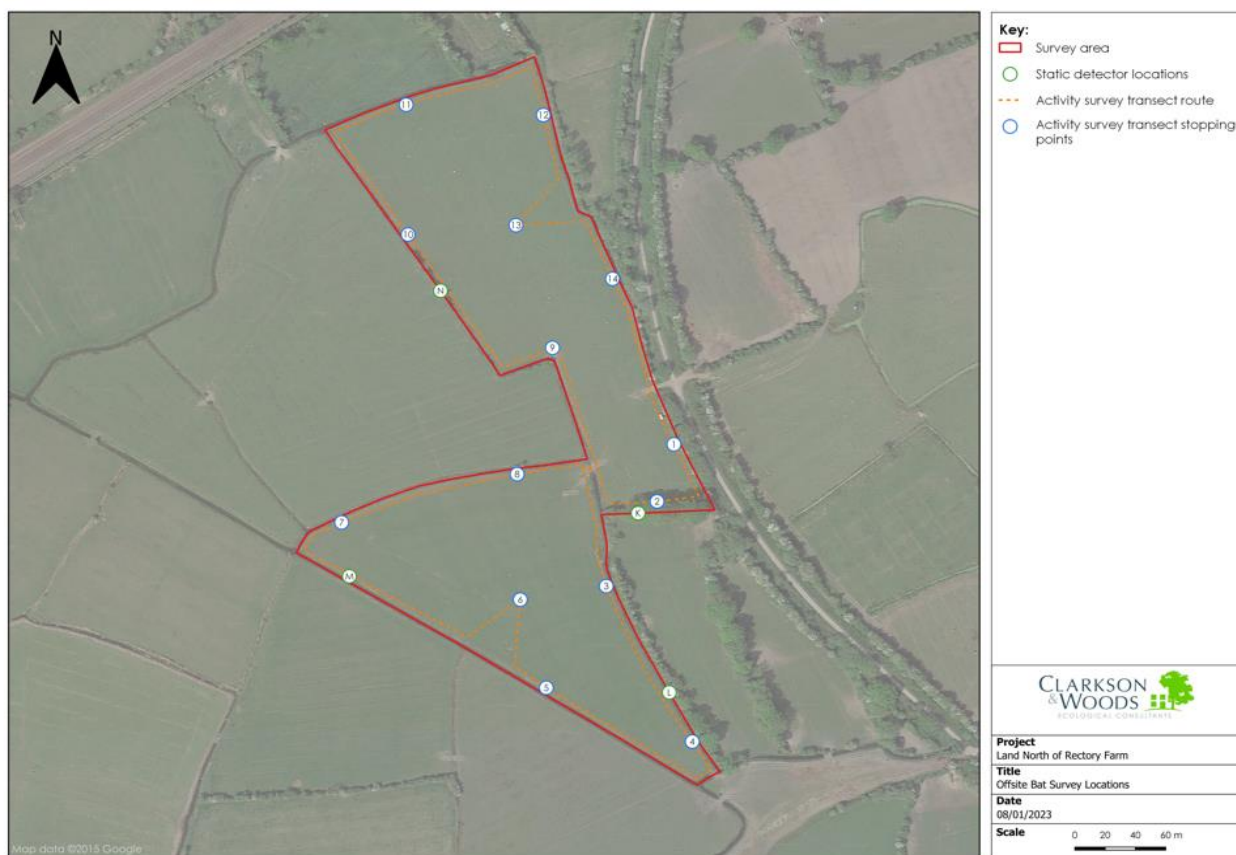


Figure 6: Static detector locations 2023

Static Detector Surveys Off-site land (2023)

Greater horseshoe bats were also recorded relatively frequently but in low numbers, with a total of 86 passes recorded across the deployment periods. Greater horseshoe activity was highest during the maternity season with the greatest level of use recorded in June, July and August. Activity was relatively evenly split between the four detector locations, with 26 passes recorded at Location N (30.2%) and 27 passes at Location L (31.4%), 20 passes at location K (26.7%) and 13 at Location M (15.1%). The greater horseshoe bat activity recorded by the static detectors met the foraging criteria defined by the Millers Foraging Index on a single occasion in June at Location L with 6 foraging contacts recorded over three nights within a five night period (in the southern portion of Field 2). In addition, greater horseshoe bats have been observed during previous activity surveys undertaken in 2022 repeatedly foraging within the centre of Field 1 during a single survey. Given the level of use recorded it is considered likely that the site supports a low number of greater horseshoe bats which forage on the site occasionally.

Table 2: Average greater horseshoe passes per month per static detector (2023)

Month/ Detector Location	K	L	M	N
April	0	0.285714286	0.285714286	0.142857143
May	0.375	0.375	0.125	0
June	0.714	2.143	0.429	0.143
July	0.571	0.429	0.286	1.143
August	0.625	0.375	0	1.625
September	0	0.125	0.625	0.25
October	0.429	0	0	0.1429
Average Combined	0.388	0.533	0.25	0.492



Table 2 above which shows the average number of passes per detector per month and total average combined passes for each detector location. The results are similar to the 2022 survey findings with passes from greater horseshoe being recorded in all locations. Each detector had one or two deployments where no calls were registered from greater horseshoe bats. This is a similar frequency of detection as the previous surveys. Registrations of greater horseshoe calls were relatively even between detectors with locations K, L and N receiving between 20-27 calls each across the surveys. Location M was less frequently used receiving 13 calls across all deployments. It is considered Location M was the most exposed location likely to be the least suitable for foraging. When compared with the 2022 results the average number of passes by greater horseshoe bat was roughly half that recorded during the 2022 surveys. This is potentially due to the lack of management applied to the fields in the previous year.

Lesser Horseshoe Bats

Bat Activity Surveys

The full results of the bat activity surveys are included in section 2.5.34, 2.5.42 Table 7, Table 8 and Figure 7 of the Ecological Impact Assessment Report. The full 2023 bat survey results for both Off-site fields are contained in the Bat Survey Report, Land North of Rectory Farm, Off-Site Land (2023 surveys) C+W Ltd

Onsite Land

The onsite land recorded a total of 6 passes attributed to lesser horseshoes over the ten surveys undertaken. All of these were recorded during the September survey and attributed to a single bat foraging within the site alongside the strawberry line. Overall, the level of detection of this species during the walked transects was considered relatively low.

Offsite Land (2022)

The transect surveys undertaken on the offsite land did not record any passes attributed to this species during the walked transects undertaken.

Offsite Land (2023)

Lesser horseshoe had 6 passes attributed to this species. These were recorded during the October survey with all passes attributed to foraging bats alongside (H1/D1) the Strawberry Line in Field 1.

Static Detector Surveys (Onsite land)

The static detector surveys undertaken between April and October 2022, the full results of which can be seen in Section 2.5.50-65, Figure 6 & 8, Tables 10 and Appendix D of the original EclA. The automated static bat detector surveys undertaken recorded a total of 2987 passes by lesser horseshoe within the red line boundary. Lesser horseshoe was the fourth most frequently recorded species overall with 2.9% of the overall bat calls from all detectors.

Table 3 Average lesser horseshoe passes per month per static detector (2022)

Location	1	2	3	4	5	6	7	8	A	B
April	6.5	0.25	0.75	0.75	0	0.75	0.75	1.625	13.875	0.375
May	18.71	16.57	6.285	1.142	0	0.857	0.142	0.428	5.142	0



June	3.857	0	0	0.142	1	0.142	0	14.57	0	0.142
July	0.571	0	8.142	1	0.142	0.142	0	0.857	2	0
August	0.142	0	15.87	0.142	0.285	0	0.571	4	6.571	0
September	3.714	4.571	35.85	42.85	16.14	10.14	0.285	0.571	0.428	2
October	7	20.5	136.8	7.25	0	4.875	1.875	0	2.875	0.25
Combined per location	5.823	6.156	30.66	7.470	2.411	2.431	0.549	3.058	4.568	0.392

This species was most frequently recorded at Location 3 with an average of 30 passes per night from this species. This indicates the Strawberry Line forms an important commuting and foraging habitat for this species. The seasonal distribution of calls was highest in the late season with September and October seeing the highest numbers of calls. A large proportion of these were related to Location 3 but good numbers of calls were recorded at Locations 2 and 4. All locations had over 100 calls attributed to this species other than Location 7 which received less than 1 pass on average per night. Much like the results for greater horseshoes the highest numbers of average calls were at locations on the western side of the red line boundary including locations 1, 2 and 3 and 4 which sit adjacent to the strawberry line or on the northern boundary. Locations 5, 6, 7 and 8 had slightly lower numbers of call overall and feature high variability between months indicating these are used for intermittent foraging rather than as regular commuting routes.

Foraging by this species using the Millars foraging index was met in every month with the exception of July. In summary the site is used extensively by lesser horseshoe bat with much higher levels of use than that recorded for greater horseshoes.

Static Detector Surveys Off-site land (2022)

Survey of the offsite land illustrated that lesser horseshoe bats are using the northern field frequently but there was a marked difference in use between the two locations surveyed by Static detector Location A which sits alongside the strawberry line and is on a reasonably sheltered position had relatively high numbers of calls per month with the exception of June. The average number of passes per night was 4.5 which is a high rate of detection for this species. Location B which was situated on the north east corner of the field was far more exposed to the prevailing winds and weather. This detector had far fewer passes recorded averaging 0.389 calls per night with three months where no calls were recorded.

In summary the static detector surveys of the offsite land recorded relatively high levels of activity from lesser horseshoe at Location A with lower levels at Location B. This suggests that one of the limiting factors for use of the offsite land by lesser horseshoes is the prevailing wind and lack of shelter. It also suggests that habitat alongside the strawberry line is used for commuting.

Static Detector Surveys Off-site land (2023)

Lesser horseshoe bats were recorded relatively frequently during the static detector survey, with most of the passes being recorded at Location K (on the southern boundary of Field 1), where 49% of the 153 lesser horseshoe passes were recorded. This indicates that the well vegetated southern boundary is likely to be a key foraging habitat for this species within the survey area. Locations L



and N had similar levels of calls attributed to lesser horseshoe bats of between 21.5-26.7% of the total calls. Location M was poorly used with only 2.6% of lesser horseshoe calls being detected at this location. The levels of lesser horseshoe activity recorded within the off-site land also met the foraging threshold level defined by the Millers Foraging Index in at Location K in August and October and at Location N in October. This indicates that the Field 1 is used periodically for foraging by this species

Table 4: Average lesser horseshoe passes per month per static detector Off-site static detectors (2023)

Month/ Detector Location	K	L	M	N
April	0.857143	0	0	0
May	0.25	0.5	0	0.25
June	0.285714	3.142857	0	0.571429
July	0.714286	0.142857	0	0.142857
August	5.25	0.25	0.25	0.625
September	0	0.25	0.25	0.375
October	2.571429	0.285714	0	3.714286
Combined	1.418367	0.653061	0.071429	0.811224

Lesser horseshoe passes were recorded at a similar frequency in the 2023 surveys to those of the 2022 surveys with 3 of the 4 locations having more passes than Location B in 2022. All detectors had fewer passes that were recorded at Location A in 2022 which was positioned alongside the strawberry line and received over 5 calls per night. This is considered to be due to this boundary's use as a significant commuting habitat. Overall calls from this species were relatively frequent with an average of 0.74 passes per detector per night within the off-site land and evidence suggesting this species uses the offsite fields for foraging on an occasional basis.

Summary

Overall bat activity across the red line boundary was variable with the in-field trees, western and northern boundaries being the most valuable in terms of the species recorded and the frequency of use by rarer species. This includes horseshoe bats, with lesser horseshoes regularly recorded using these habitats for 'foraging'. The Site is considered valuable due to the general lack of illumination and excellent off-site habitat connectivity. Bat activity was relatively high throughout the year and the representation of bat calls recorded that were attributed to greater and lesser horseshoe bats illustrates the significant importance of the Site to these species. As initially indicated during the walked activity transects both species of horseshoe bat have been confirmed as foraging within the Site and both species met the threshold of foraging as defined by Millers index in the supplementary guidance through successive foraging contacts. It should be noted that greater horseshoes in particular recorded low rates of foraging than in land surveyed to the south as part of the surveys to inform the Rectory Farm site. Foraging using the Millar's index was recorded in limited locations within the Site including Locations 7 and 8



The off-site land surveyed is of a similar level of importance to bats locally with a high proportion of greater horseshoe calls and the confirmation of foraging using the Millers index for both greater and lesser horseshoe species. Overall numbers of bat calls were generally lower than those recorded within the red line boundary presumably due to the lower availability of sheltered areas and well established linear vegetation supporting commuting. **A full survey of Fields 1 and 2 undertaken in 2023 recorded similar results to the 2022 surveys covering the offsite land and illustrate both fields are used by greater and lesser horseshoe frequently and that foraging by both species occurs within this land.**

Overall, it is considered that the Site is of Regional importance to horseshoe bats.

Potential Adverse Impacts (Prior to the application of mitigation and compensation)

The potential impacts detailed below relate to horseshoe bats and the SAC only. Mitigation and compensation for impacts relating to other bat species are detailed in Clarkson and Woods' Ecological Impact Assessment Report (March 2023).

Potential impacts from the development have been identified as:

- Loss of foraging habitat for horseshoe bat species due to direct impacts (the loss of open grazed pasture) or indirect impacts (e.g. light spill and increased human activity). This includes the permanent loss of modified species-poor grassland, which is managed by sheep grazing. Grazed pasture can be a particularly valuable foraging habitat for greater horseshoe bats.
- There is some potential for commuting bats currently utilising the Site to be negatively impacted through the inaccessibility of the eastern hedgerows (due to the impact of new gardens in close proximity to these features) and lighting associated with the main access road. However, mitigation measures to ensure that this impact is reduced as far as possible have been provided by retaining and enhancing the key hedgerows along with planting of the existing hedgerow gaps to improve the connectivity and foraging value of the key bat corridors which have been identified and are present on the western boundary
- Removal of sections of hedgerow have the potential to sever the commuting routes identified. However, the proposals within the red line boundary will not remove significant lengths of linear woody vegetation with the exception of the small sections of H2, H5, H6 and H16 (up to 35 meters in total) to create the access into the Site. This represents just 2.45% of the total hedgerow length within the red line boundary.
- Impacts to the infield ditches are similar to those associated with the hedgerows with sections to be culverted for the creation of the access road. Impacts are anticipated to D7, D21, D24 and D25. 9m sections will be culverted from D7 and D21. A 15m section will be require culverting along D25 and a 38m section from D24. Further sections associated with hedgerow loss are also anticipated. The cumulative removal of 104 linear meters of ditch represents just 3% of the total length of ditches within the Site (or 7% of the currently open ditches not associated with hedgerows). The ditches to be impacts are predominantly running from east to west or are associated with the eastern boundary which reduces their use as potential commuting routes (due to most of these leading to developed and lit areas not suitable for use by horseshoe bats).
- If unforeseen impacts were to occur the proposals could at worst stop bats including both greater and lesser horseshoe bats from commuting north to south across the Site to reach



adjacent farmland and also reduce movement east to west. The north to south commuting is particularly important to local horseshoe bats as it is considered highly likely to play a role in allowing them to commute from known SAC-component roosts such as Kings Wood and Urchin Wood to adjacent habitat to the North and West.

- There is some potential for bats to be disturbed through construction activities such as temporary lighting or the storage of materials in key habitats. There is also potential for the increased number of domestic cats to predate bats associated with the Site.
- Compensation habitat which has been secured to offset the loss of foraging value within the Site has the potential if not managed correctly to reduce the foraging potential for horseshoe bats locally.

Mitigation and Assessment of Effects

Fragmentation / Loss of Flight Lines

Gaps in Boundary Features

The retention and protection of the vast majority of hedgerows will allow bats to continue to commute around the Site. The eastern hedgerows will become predominantly inaccessible to horseshoe bats. These hedgerows were relatively poorly used during the bat activity and static detector surveys suggesting they were already sub-optimal as commuting structures for these species although Location 8 on the south east corner was used by foraging greater horseshoes on a few occasions. Of the hedgerow gaps proposed the 9m opening in Hedgerow 2 to allow the creation of access to the allotments is the most significant as this is a well-used hedgerow however this section will not be lit and has a parallel hedgerow within 5m which significantly reduce the potential for severance of this commuting route. The creation of a number of new hedgerows on the western portion of the site following but set back from the ditches which separate the field are shown in Figure 1. These new hedgerows will create sheltered fields and improve the potential for foraging and commuting as well as ensuring light pollution such as glare will not impact the western fields. The aim of this mitigation is to enclose the western fields much as Field 1 is currently. These would be bounded by thick species rich hedgerow features which will not only provide shelter but also foraging opportunities and additional commuting structures significantly enhancing this portion of the site for horseshoe bats.

The 12m of hedgerow removal anticipated in relation to the access from Shiners Elms will remove a section of predominantly non-native hedgerow which is poorly used by bats and partially lit. A 2m gap created in H5 to allow a pedestrian access is thought to have limited impacts due to its width and location on a poorly used hedgerow.

There is also potential for a 12m gap to be created in H16 if the development connects to the proposed development at Rectory Farm, this is also a relatively poorly used defunct hedgerow which does not provide key connectivity within the wider landscape. Sections of predominantly dry ditch associated with these hedgerows will also be culverted. Due to the location and use of these hedgerows it is unlikely that the proposals will physically sever any known commuting routes for the local horseshoe bat population. The loss of these hedgerows to horseshoe bats will not prevent these species from navigating through and around the Site.

The mitigation and enhancement measures associated with the western hedgerows which include enhancement of the existing hedgerows (H2, H8, H9 and H10) through management and infill planting will ensure horseshoe bats can continue to utilise these features to aid their movement



from the Site into the wider local landscape. Planting of additional hedgerow sections in alignment with any rhyme management requirements will significantly enhance the existing commuting structure with new sections proposed creating additional shelter and connectivity in the fields to the west. The proposals to create native linear woodland belts will further enhance the foraging and commuting potential of the western side of the site for horseshoe bats.

A large swathe enhanced other neutral grassland along with a traditional orchard feature, scattered scrub and SUDs engineered to hold water throughout the year will bound the key retained and planted hedgerows along the western side of the Site. These features will strengthen the commuting corridor along the southern, western and northern boundaries whilst significantly increasing the foraging capacity of site.

Culverting of ditch habitats.

Cumulatively up to 107 linear meters of existing ditch habitat will be culverted to allow the road connections required. The majority of this is associated with the main access road. Initially culverts under the roads which pass over the key ditches at two locations were earmarked for lighting controls to allow horseshoe bats to continue to fly under the crossings and reach the hedgerows and grassland buffers to the east. However, modelling of the lighting proposed at these locations indicates that control of lighting associated with the road cannot be adequately mitigated to under 0.5lux and as such crossing under the junctions by these species cannot be assured.

Noting that this is an outline planning application, the screening, adjustment of luminaire position and height along with consideration of the levels of these features has been carefully considered. However, the Reserved Matters stage where a greater level of detail of layout, siting and design is provided will allow an area to the east which is currently grassland and hedgerow and which may be inaccessible to be reviewed. Due to the location and direction of the ditches which will be lost this will not result in significant issues with overall connectivity. This is due to the ditches being in the centre of the site and the majority running from east to west from the existing developed areas of Yatton towards the strawberry line. Due to the existing lighting and lack of suitable commuting and foraging habitat within the village of Yatton it is not considered these features fulfilled a significant commuting function.

Enhancement of the ditches through cessation of intensive agricultural management are considered to have additional beneficial effects in relation to the quality of the retained ditches. These enhancements include better water quality, enhanced vegetation structure and diversity which will contribute to the enhancement of foraging opportunities particularly for horseshoe bats.

Physical Degradation of Boundary Features

Without mitigation construction activities may degrade the hedgerows, through physical damage by machinery such as root compaction or by personnel, or through pollution events such as dust deposition. This may weaken the structural integrity of the hedgerows and reduce their viability as commuting corridors. Increased human activity within the operational Site may also result in incidental damage to hedgerows.

General best-practice management measures outlined in the CEMP and enforced through conditions will mitigate for these construction-phase impacts and therefore preserve the hedgerows' capacity to support commuting bats. The use of buffers and fencing to keep the boundary hedgerows outside the ownership of properties, and the fencing of wildlife mitigation



corridors during the operational phase of the development will reduce the likelihood of impacts arising as a result of increased human activity within these areas.

Lighting of Boundary Features

The Site is currently relatively unlit, with the exception of some light spill from housing associated with the Titan Ladders development to the east of the site which illuminated a small area of the grassland in close proximity to this development. Any proposed lighting within the scheme is likely to introduce higher levels of illumination than presently exists within the Site. Horseshoe bats are particularly sensitive to light sources and will actively avoid well-lit areas. Light spill onto commuting corridors therefore has the potential to fragment these features and inhibit their use by horseshoe bats.

A lux contour plan indicating the impacts from all external lighting has been produced as part of the application (see Figure 7 below and a clearer version attached as an Appendix), which was designed in accordance with the latest guidance produced by The Bat Conservation Trust and Institution of Lighting Professionals in 2018⁴. This will protect all field boundaries from detrimental levels of artificial lighting. It should be noted that as the proposals are at outline stage and there is a lack of detail regarding the housing types and as such no modelling of internal light spill has yet been undertaken. This is in line with the general level of detail required in an outline planning application. Figure 8 shows the areas expected to be lit and those which will remain unlit and suitable for use by foraging horseshoe bats. These areas have been used to inform the subsequent HEP calculations with areas unavailable or lit marked in red in the calculations.

The street lighting installed will be highly directional to minimise light spill outside of the area within which it is required. Figure 7 shows that the vast majority of wildlife mitigation habitat will be unaffected by light spill, receiving less than 0.5 lux from the proposed street lighting or PIR security lighting. A small area of grassland immediately adjacent to the access road will be subject to a low degree of light spill from the street lighting as will sections of ditch and small areas of grassland to the east of the mixed-use land initially earmarked for a doctors surgery. Some light pollution is also forecast on the habitat buffer to the northern boundary. This is predominantly from a 10m potential lighting buffer applied to a dwelling to account for potential internal lighting but the majority of this buffer will remain unlit and the boundary will remain accessible to horseshoe bats. Additional modelling to show external PIR lighting has also been undertaken and the figure produced for this is included as an Appendix due to the high resolution required to interpret the results. The additional land illuminated by the PIR lighting was modest clipping a number of amenity areas and the edge of some mitigation habitat. These areas have been excluded from the HEP calculations. The majority of this was already illuminated by street lighting. None of the PIR lighting impacted the boundary habitats.

The most obtrusive additional artificial lighting proposed results from the road where it enters and leaves the red line boundary to the south and north east. These sections along with the ditch crossings effectively isolate the buffers hedgerows and ditches to the east of the development and will likely prevent reliable access to these areas by horseshoe bats. However, give the relatively low existing use of this habitat and the lack of features of value to horseshoe bats outside of the site in this direction it is not considered to impacts overall connectivity of significant foraging habitat outside of the red line boundary. This lighting will isolate a disused lesser horseshoe night roost provided as an enhancement for the Titan ladders scheme to the east. Due to this an additional accessible enhancement night roost structure will be provided within the site itself. This structure will be in a more suitable location and provide a significant enhancement for night roosting horseshoe bats.

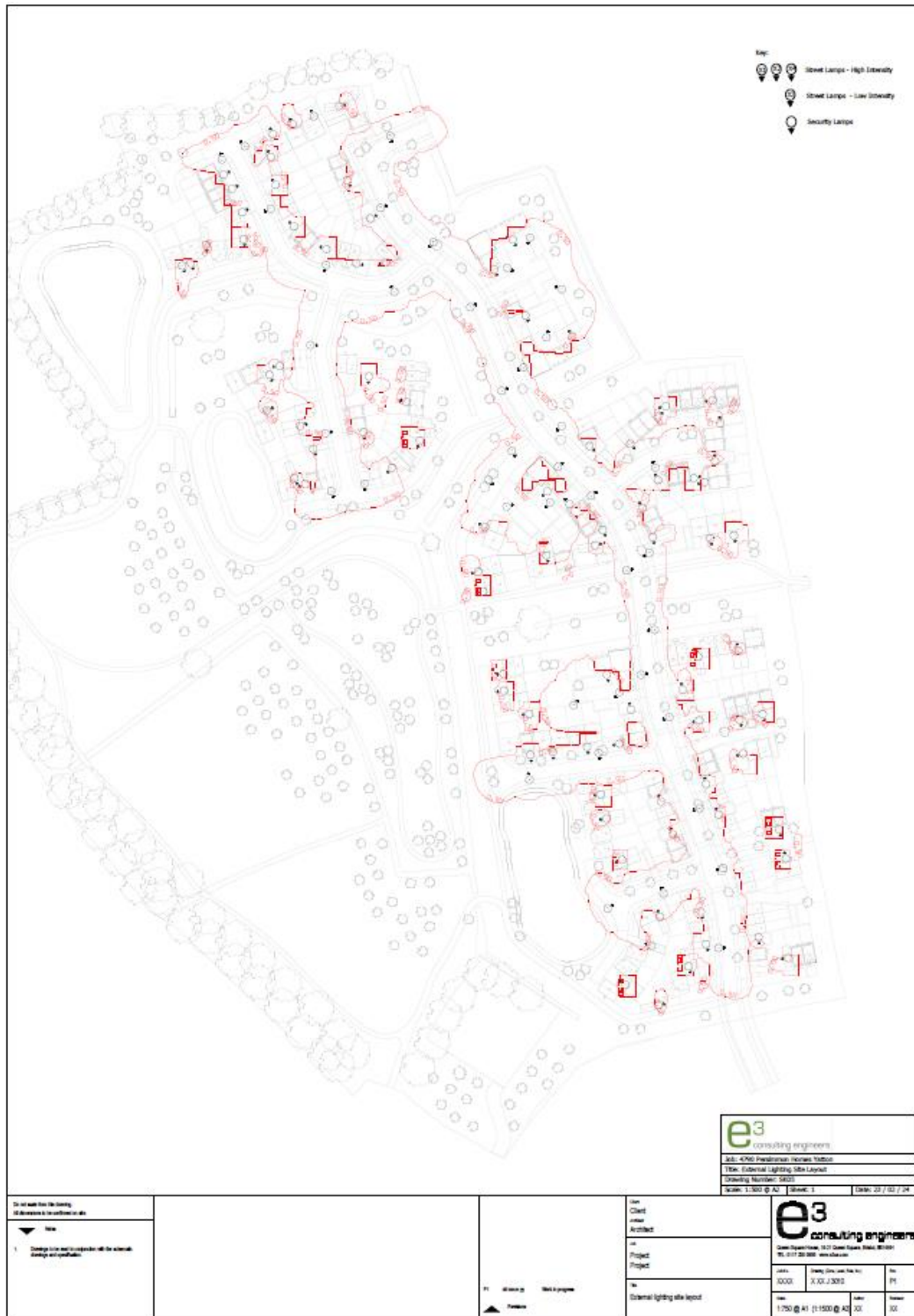


Figure 7: External Lighting (lux contour plan) based on the illustrative masterplan.



Figure 8: Dark Corridor Plan (showing indicative exclusions of habitat from HEP calculations including 10m buffer from dwellings alongside mitigation habitat)

Figure 7 shows that the proposed street lighting will not result in an increase in artificial lighting upon any of the key boundary hedgerows, other than those to the east which are previously described. Therefore, the proposals are unlikely to result in any impacts associated with the fragmentation of key commuting routes/flight paths through the Site.

Lighting of foraging habitat

Lighting which has not been fully modelled at this stage includes the internal light spill from dwellings which is anticipated to have minor impacts on habitats which bound the western fringe of retained habitats where they adjoin new dwellings. To ensure internal light spill does not reduce the foraging value of the site below that which is required for the HEP calculations a 10m buffer from houses facing onto the mitigation habitats have been applied to ensure internal lighting is adequately accounted for. This has removed a further 800m² of grassland habitat and 428m² of SuDs habitat in close proximity to dwellings in addition to habitat removed by the street and PIR lighting. This has been factored into the HEP calculations for the proposals. Figure 8 above shows the indicative areas which have been excluded using the lux contour plans in the appendix and a 10m buffer applied to the dwellings on the edge of the mitigation areas. If necessary to control obtrusive internal lighting the following additional mitigation measures can be put in place: removal of large windows from dwellings overlooking mitigation areas, close-board fencing or other solid screening installed within the back gardens of properties and within communal spaces to prevent light spill from encroaching upon the dark corridors.

Internal lighting will need to be assessed at reserved matters with select dwellings having internal lighting modelled to ensure that the habitat for horseshoe bats proposed remains unlit. This will form



a combined lighting model with any external light specified to ensure the worst-case lighting impacts are modelled.

Given the above proposed measures, as well as the additional tree and vegetation planting proposed within the scheme, it is considered that the suitability of the boundary features can be maintained and protected, and it is therefore considered unlikely that bats would be dissuaded from using the boundary features for commuting and foraging. As a result, no significant impacts associated with increased artificial light spill on boundary features are anticipated. Furthermore, monitoring of artificial lighting levels and bat activity on Site post-construction will also allow any residual effects from lighting on Site in relation to bats to be identified and remediated, should they occur. This will be secured through amendments to the LEMP which will be in place for an initial 20 years with a review of management every 5 years thereafter.

Conclusion

Effective measures have been carefully considered and sensitively incorporated into the design of the scheme to ensure that impacts associated with fragmentation and the loss of flight lines for horseshoe bats are avoided and mitigated as far as possible within the site itself. These measures include supplementary planting to bolster the structure of currently utilised flight lines and to create new suitable commuting routes; the implementation of protective measures during the construction phase to ensure that valuable habitats are not inadvertently damaged during Site clearance/construction; and the design of a sensitive lighting scheme, which will seek to protect key boundary features and bat mitigation habitats from artificial light spill.

In view of the above measures and the careful design of the Site layout, it is therefore concluded that the development will not have any adverse impacts locally or on wider ecological designations. When considered in isolation, there will not be any residual adverse impacts upon flight lines or commuting bats and applying the precautionary principle, the risk of adverse effect on the integrity of the SAC can be ruled out.



Reduction of Foraging Habitat Area

Foraging, as defined in the North Somerset and Mendip bats SPG, was attributed to both greater and lesser horseshoe bats, due to the frequency of passes recorded during the static detector surveys, or through surveyor observations during the transect surveys which confirmed the exhibition of foraging behaviour. This has allowed the application of the foraging multiplier in line with the guidance for both species of horseshoe bat. This foraging multiplier has been applied to both the onsite and offsite land for the foraging mitigation/compensation proposed.

The proposals will result in the removal of around 5.35ha of poor-quality grassland within the Site for the provision of housing, gardens and other infrastructure. The proposals will also result in the removal of 104 linear meters of ditch habitat, 34m of hedgerow and has the potential to fragment an additional 1ha of grassland, 285 linear meters of ditch habitat and 245 linear meters of hedgerow and associated ditch to the east of the proposed access road.

Mitigation for foraging bats has been focused on horseshoe bats and quantified using the Habitat Evaluation Procedure contained in the North Somerset and Mendip Bat SAC Supplementary Guidance for Development. Within the red line boundary for the Site approximately **4.25ha of suitable available and unlit** grassland habitat for horseshoe bats will be established including scattered scrub. In addition 0.73ha of traditional orchard. 0.77ha of broadleaved woodland will also be planted along with 858 linear meters of native hedgerow (579 meters of which are fully available to horseshoe bats). 0.67ha of naturalised SUDS basins are proposed (**0.63ha** of which are available to horseshoe bats), designed to hold water throughout the year and planted with a fringe of native emergent vegetation. The removal of grazing from the Site will reduce potential for dung beetles to be present which will reduce this potential foraging resource for horseshoe bats. However, the grassland proposed (MG1 tall tussocky sward) will be managed to promote macro moths favoured by both lesser and greater horseshoes bats which should reduce this impact as far as possible. The traditional orchard and woodland planting proposed will also enhance foraging opportunities for horseshoe bats considerably. Management of ditches is proposed to improve their quality substantially which will increase the ability of these features to support foraging lesser horseshoes which favour linear water features.

The majority of the foraging habitat provision for horseshoe bats is delivered on-site. Including the retained hedgerows this totals a minimum of 7.37ha of suitable, connected, unlit foraging habitat of varying quality. This provides over 86.3% of the value required in equivalent hectares under the HEP calculations to satisfy the foraging requirements of greater horseshoe bats and 116.7% of the foraging habitat required for lesser horseshoe bats.

The diversity of habitats described above will constitute an enhancement of the retained habitats quality with the other neutral grassland managed to have a better longer structure and where necessary seeded and turf stripped to increase the floristic species diversity. These habitats will continue to provide suitable foraging areas for use by horseshoe bats and therefore ensure that the development will continue to support horseshoe populations associated with the SAC.



An analysis of the proposed development has been completed following the Habitats Evaluation Procedure (HEP) detailed within the North Somerset and Mendip Bats SAC Guidance Note³. Alongside the guidance, advice was also sought from Larry Burrows on the correct methodology for following the guidance. The pre-construction habitats present and the proposed post-construction habitats have been characterised based on the criteria set out within the Guidance Note, and the data from the completed bat surveys have also been used to inform these calculations. This analysis is set out within the section below.

Preconstruction habitats used to determine the site's existing value to horseshoe bats characterised using the updated Phase 1 survey data, as well as data gained from the landowner regarding the long-term management of the Site. Information regarding the long-term management indicated that the Site is grazed by sheep at high stocking densities throughout most of the year. The grassland is regularly 'improved' with inorganic fertilisers and reseeded of areas to allow the grass to recover from the high intensity grazing. Due to the low quality of the species diversity and low species diversity it has been categorised as an improved sward.

Given that the grassland is grazed by horses and sheep, providing the stock are not regularly treated with antibiotics the Site should support an assemblage of dung beetles such as *Geotrupes* and cockchafer. *Aphodius rufipes*, a key prey species for young greater horseshoe bats, are also likely to be available as a result of grazing. This type of management necessitated the application of the sheep grazed management code (0.75) for fields associated with sheep and the horse grazed management code (0.80) for grassland associated with sheep grazing. Occasional silage cuts are also taken on this habitat but the highest value codes have been used in this instance as a precautionary measure. Other habitats to be removed including the track and turkey raising structure are of very low value to foraging horseshoe bats

As can be seen from the HEP calculations, at least 4.61ha of optimal greater horseshoe foraging habitat is required to ensure the scheme remains compliant with the SPD. The Site also requires this mitigation to provide 3.29ha of optimal foraging habitat for lesser horseshoe to achieve foraging equivalence. The scheme has incorporated the equivalent of at least 4ha of greater horseshoe habitat and 3.81ha of suitable lesser horseshoe habitat. This is below what is required to be compliant with the guidance for greater horseshoe bats the loss of habitat value within the site is equivalent to 0.61ha or 13.23% loss of habitat value within the red line boundary. For lesser horseshoes this was a gain of 15.8% of the foraging value within the red line boundary.

The mitigation habitat provided was as large in area and of as high a value as was practical to provide within the constraints presented by the proposals. Habitat retention has prioritised the most valuable areas of habitat to horseshoe bats and has preserved the most valuable foraging and commuting features. To offset the shortfall in habitat value (for greater horseshoe bats) off-site compensation habitat has been secured which is described in the following section.

Offsite Compensation

To address the shortfall in onsite habitat mitigation the development proposes to compensate by enhancing suitable offsite land to increase its value to foraging horseshoe bats. Two fields have

³ North Somerset and Mendip Bats Special Area of Conservation (SAC): Guidance on Development (Adopted January 2018). <https://www.n-somerset.gov.uk/sites/default/files/2020-03/North%20Somerset%20and%20Mendip%20Bats%20SAC%20guidance%20supplementary%20planning%20document.pdf>



been identified within 12m - 260m of the red line boundary to the north east which could be enhanced to fulfil this purpose. This land also sits within Band B of the consultation zone making it suitable for use as offsite compensation being of broadly equivalent distance from the same known SAC sites.

Currently the field which contains this land is managed as intensively sheep grazed pasture which receives occasional silage cuts. It is species poor and in relatively poor condition as described in the appendices of the initial ecological report. The field is bounded by ditches associated with units 1 and 7 of the Biddle Street SSSI which are both currently assessed by Natural England (Latest available assessment available on the DEFRA MAGIC map) as 'unfavourable declining' based on a number of poor factors in terms of the condition of the ditches. These include water depth, bank structure, late succession woody vegetation, high levels of shading and poor aquatic plant diversity. The single largest factor in the unfavourable condition is the water quality and levels of phosphate, nitrates from farming practices, this encourages blooms of duckweed and has resulted in a loss of aquatic invertebrate diversity. The proportion of the field which will be used to deliver the compensation is present to the north and is set eight meters from all of the ditches associated with the adjacent ditch features which form the SSSI on all sides. A figure showing the location of the offsite compensation is provided in Figure 9 below. This figure clearly shows the compensation habitat proposed at the Land to the North of Rectory Farm application. The Land at Rectory Farm offsite compensation habitat is the proportion of the northern field marked in green. The area for the Land North of Rectory farm application totalling 2.9ha is marked in orange. An eight meter offset from the banks of all ditches has been applied to demonstrate this land does not count towards the total compensation proposed.



Figure 9: Off-site Compensation Land



The area of compensation habitat proposed is 2.9ha in area and will be managed through cutting and removal of arisings. This will take place during the optimum season with open grassland cut rolled and collected and smaller areas in close proximity to shelter features being managed by hand cutting and collection. This will allow the nutrients present in the soil to be removed over time and create a floristically rich tall grassland suitable for use by foraging greater and lesser horseshoe bats. This grassland will be seeded with a species rich neutral grassland mix appropriate to establish a floristically diverse neutral grassland habitat.

To provide some additional shelter from the prevailing winds a small number of native trees or shrubs will be planted in belts within the centre of the field and will include locally suitable species such as crack willow *Salix fragilis*, alder *Alnus glutinosa* and Hawthorn *Crataegus monogyna*. These trees and shrubs will create additional shelter and further improve foraging conditions for horseshoe bats.

Connectivity between the habitats within the red line boundary and the offsite compensation land is excellent with the woody vegetation and ditches associated with the Strawberry Line directly connecting the two land parcels. The short distance of approximately 12m between the Site and the nearest portion of the compensation land proposed will ensure the same population of bats to be impacted by the proposals can reach the compensation habitat without significant additional energy being expended.

The existing value of the compensation land has been calculated based on a recent habitat survey and full survey of the off-site land. This factor is important in determining the baseline value of the land. By applying the foraging multiplier to the calculations to provide offsite habitat, the mitigation provided covers the worst-case scenario in terms of existing horseshoe activity. The baseline value for greater horseshoe bats of the compensation land is 1.09 equivalent hectares and for lesser horseshoe bats this was 0.73 equivalent hectares. This existing value is taken into account when calculating the value of compensation habitat.

Taking into account the existing habitat value of the offsite land the enhancement proposed would deliver 0.621 equivalent hectares of greater horseshoe habitat 0.41 equivalent hectares for lesser horseshoe bats. This takes into account the existing value of the habitat (1.09 for greater horseshoe bats and 0.73 for lesser horseshoe).

As can be seen from the HEP calculation spreadsheets provided below with the provision of both the on-site mitigation and off-site compensation habitats proposed taking into account the impacts of proposed lighting, lit habitats are shown in red and are excluded from the total habitat provision) the quantum of habitat provided provides a minor uplift in the provision of foraging habitat for greater horseshoe and a significant enhancement of habitat value for lesser horseshoe bats locally.

It can therefore be concluded that the development, when considered in isolation, will not have any residual adverse impact upon foraging bats. The risk of adverse effect on the integrity of the SAC can be ruled out, applying the precautionary principle.



HEP Calculations

Habitats Present Pre-Construction

Greater Horseshoe Bats (4.61ha equivalent habitat required as a result of baseline habitat value)

Habitat	Primary Habitat		Matrix		Formation		Management / Land use		HSI Score	Density Band Score	Hectares	Habitat Units	
	Code	Score	Code	Score	Code	Score	Code	Score					
Modified Grassland (Grazed by sheep)	GUI	3		0		1.00	GM12	0.75	2.25	2.5	9.54	53.66	
Modified grassland (Grazed by horses)	GUI	3		0		1.00	GM13	0.80	2.40	2.5	3.68	22.08	
Track and turkey structures	UR0	1		0		1.00	UA1	0.10	0.10	2.5	0.21	0.05	
H1	LF11	6		0		1.00	LM2	0.90	5.40	2.5	0.014	0.19	
H2	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.012	0.18	
H3	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.016	0.24	
H4	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.014	0.21	
H5	LF111	6		0		1.00	LM31	1.00	6.00	2.5	0.038	0.57	
H6	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.012	0.18	
H7	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.008	0.12	
H8	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.026	0.39	
H9	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.016	0.24	
H10	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.023	0.35	
H11	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.018	0.27	
H12	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.026	0.39	
H13	LF111	6		0		1.00	LM3	1.00	6.00	2.5	0.016	0.24	
H14	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.006	0.09	
H15	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.026	0.39	
H16	LF11	6		0		1.00	LM1	0.30	1.80	2.5	0.012	0.05	
D1	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.007	0.07	
D2	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.012	0.12	
D3	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.008	0.08	
D4	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.007	0.07	
D5	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.008	0.04	
D6	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.02	0.10	
D7	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.007	0.04	
D8	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.02	0.10	
D9	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.038	0.38	
D10	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.006	0.06	
D11	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.004	0.04	
D12	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.0426	0.43	
D13	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.02	0.10	
D14	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.012	0.06	
D15	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.022	0.11	
D16	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.022	0.11	
D17	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.017	0.09	
D18	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.013	0.07	
D19	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.018	0.09	
D20	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.011	0.06	
D21	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.015	0.08	
D22	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.01	0.05	
D23	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.01	0.05	
D24	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.011	0.06	
D25	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.026	0.13	
D26	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.013	0.13	
D27	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.0081	0.08	
D28	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.0138	0.14	
D29	AS0	4		0	AC11	1.00	LT12	1.00	4.00	2.5	0.0068	0.07	
D30	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.0084	0.04	
D31	AS0	4		0	AC11	1.00	LT15	0.50	2.00	2.5	0.0098	0.05	
											14.160		
											Habitat Units	82.96	
											Hectares Required	4.61	
											Value from 'Replacement Habitat' worksheet	Equivalent Hectares Provided	5.71
											If required, Value from Receptor Habitat Worksheet	Equivalent Hectares of Existing Habitat on Receptor	1.09
											Gain/ Deficit	0.02	



Lesser Horseshoe Bats (3.29ha equivalent habitat required as a result of baseline habitat value)

Habitat	Primary Habitat		Matrix		Formation		Management / Land use		HSI Score	Density Band Score	Hectares	Habitat Units	
	Code	Score	Code	Score	Code	Score	Code	Score					
Modified Grassland (Grazed by sheep)	GU1	2		0		1.00	GM12	0.75	1.50	2.5	9.54	35.78	
Modified grassland (Grazed by horses)	GU1	2		0		1.00	GM13	0.80	1.60	2.5	3.68	14.72	
Track and turkey structures	UR0	1		0		1.00	UA1	0.10	0.10	2.5	0.21	0.05	
H1	LF11	6		0		1.00	LM2	0.90	5.40	2.5	0.014	0.19	
H2	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.012	0.18	
H3	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.016	0.24	
H4	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.014	0.21	
H5	LF111	6		0		1.00	LM31	1.00	6.00	2.5	0.038	0.57	
H6	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.012	0.18	
H7	LF11	6		0		1.00	LM31	1.00	6.00	2.5	0.008	0.12	
H8	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.026	0.39	
H9	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.016	0.24	
H10	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.023	0.35	
H11	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.018	0.27	
H12	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.026	0.39	
H13	LF111	6		0		1.00	LM3	1.00	6.00	2.5	0.016	0.24	
H14	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.006	0.09	
H15	LF11	6		0		1.00	LM3	1.00	6.00	2.5	0.026	0.39	
H16	LF11	6		0		1.00	LM1	0.30	1.80	2.5	0.012	0.05	
D1	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.007	0.11	
D2	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.012	0.18	
D3	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.008	0.12	
D4	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.007	0.11	
D5	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.008	0.06	
D6	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.02	0.15	
D7	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.007	0.05	
D8	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.02	0.15	
D9	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.038	0.57	
D10	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.006	0.09	
D11	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.004	0.06	
D12	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.0426	0.64	
D13	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.02	0.15	
D14	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.012	0.09	
D15	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.022	0.17	
D16	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.022	0.17	
D17	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.017	0.13	
D18	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.013	0.10	
D19	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.018	0.14	
D20	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.011	0.08	
D21	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.015	0.11	
D22	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.01	0.08	
D23	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.01	0.08	
D24	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.011	0.08	
D25	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.026	0.20	
D26	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.013	0.20	
D27	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.0081	0.12	
D28	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.0138	0.21	
D29	AS0	6		0	AC11	1.00	LT12	1.00	6.00	2.5	0.0068	0.10	
D30	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.0084	0.06	
D31	AS0	6		0	AC11	1.00	LT15	0.50	3.00	2.5	0.0098	0.07	
											14.160		
											Habitat Units	59.24	
											Hectares Required	3.29	
											Value from 'Replacement Habitat' worksheet	Equivalent Hectares Provided	4.95
											If required, Value from Receptor Habitat Worksheet	Equivalent Hectares of Existing Habitat on Receptor	0.73
												Gain/ Deficit	0.93



Baseline Value of Offsite Compensation Habitat

Greater horseshoe bat receptor habitat worksheet (1.09ha equivalent hectares existing habitat value of offsite compensation land)

Habitat	Primary Habitat		Matrix		Formation		Management / Land use		HSI Score	Development site	Receptor Site	Hectares	Equivalent Hectares
	IHS Code	Score	Code	Score	Code	Score	Code	Score		Density Band Score	Density Band Score		
improved grassland Ini	GU1	3				1.00	GM12	0.75	2.25	2.50	2.50	2.900	1.09
		0		0		1.00		1.00	0.00	2.50	2.50	0.000	0.00
		0		0		1.00		1.00	0.00	2.50	2.50	0.000	0.00
		0		0		1.00		1.00	0.00	2.50	2.50	0.000	0.00
Equivalent Value of Habitat on Receptor Site												1.09	

Lesser horseshoe bat receptor habitat worksheet (0.73ha equivalent hectares existing habitat value of offsite compensation land)

Habitat	Primary Habitat		Matrix		Formation		Management / Land use		HSI Score	Development site	Receptor Site	Hectares	Equivalent Hectares
	IHS Code	Score	Code	Score	Code	Score	Code	Score		Density Band Score	Density Band Score		
Improved grassland Ini	GU1	2				1.00	GM12	0.75	1.50	2.50	2.50	2.900	0.73
		0		0		1.00		1.00	0.00	2.50	2.50	0.000	0.00
		0		0		1.00		1.00	0.00	2.50	2.50	0.000	0.00
		0		0		1.00		1.00	0.00	2.50	2.50	0.000	0.00
Equivalent Value of Habitat on Receptor Site												0.73	



Replacement Habitats Present Post-Construction

Greater Horseshoe Bats (5.71 equivalent hectares provided)

Habitat	Primary Habitat		Matrix		Formation		Management /		HSI Score	Hectares	Delivery Risk	Temporal Risk	Spatial Risk		Equivalent Hectares
	IHS Code	Score	Code	Score	Code	Score	Code	Score					Development Site Band Score	Replacement Site Band Score	
ONG/ Semi improved + scattered scrub (retained/enhar	GU0	4	sc21	1		1.00	GL211	1.00	5.00	2.334	1.00	0.83	2.5	2.5	9.69
Allotments	UR0	1		0		1.00	UA33	0.00	0.00	0.15	1.00	1.00	2.5	2.5	0.00
H1	LF11	6		0		1.00	LM2	0.90	5.40	0.014	1.00	0.71	2.5	2.5	0.05
H2	LF11	6		0		1.00	LM31	1.00	6.00	0.011	1.00	1.00	2.5	2.5	0.07
H3	LF11	6		0		1.00	LM31	1.00	6.00	0.016	1.00	1.00	2.5	2.5	0.10
H4	LF11	6		0		1.00	LM31	1.00	6.00	0.014	1.00	1.00	2.5	2.5	0.08
H5	LF111	6		0		1.00	INAC	0.00	0.00	0.0375	1.00	1.00	2.5	2.5	0.00
H6	LF11	6		0		1.00	INAC	0.00	0.00	0.03	1.00	1.00	2.5	2.5	0.00
H7	LF11	6		0		1.00	LM2	0.90	5.40	0.008	1.00	0.71	2.5	2.5	0.03
H8	LF11	6		0		1.00	LM3	1.00	6.00	0.026	1.00	1.00	2.5	2.5	0.16
H9	LF11	6		0		1.00	LM3	1.00	6.00	0.016	1.00	1.00	2.5	2.5	0.10
H10	LF11	6		0		1.00	LM3	1.00	6.00	0.023	1.00	1.00	2.5	2.5	0.14
H11	LF11	6		0		1.00	LM3	1.00	6.00	0.018	1.00	1.00	2.5	2.5	0.11
H12	LF11	6		0		1.00	LM3	1.00	6.00	0.026	1.00	1.00	2.5	2.5	0.16
H13	LF111	6		0		1.00	LM3	1.00	6.00	0.016	1.00	1.00	2.5	2.5	0.10
H14	LF11	6		0		1.00	LM3	1.00	6.00	0.006	1.00	1.00	2.5	2.5	0.04
H15	LF11	6		0		1.00	LM3	1.00	6.00	0.026	1.00	1.00	2.5	2.5	0.16
H16	LF11	6		0		1.00	LIT	0.00	0.00	0.01	1.00	1.00	2.5	2.5	0.00
D1	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.007	1.00	1.00	2.5	2.5	0.03
D2	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.012	1.00	1.00	2.5	2.5	0.05
D3	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.008	1.00	1.00	2.5	2.5	0.03
D4	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.0061	1.00	1.00	2.5	2.5	0.02
D5	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.008	1.00	1.00	2.5	2.5	0.03
D6	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.02	1.00	1.00	2.5	2.5	0.08
D7	AS0	4		0	AC11	1.00	INAC	0.00	0.00	0.0061	1.00	1.00	2.5	2.5	0.00
D8	AS0	4		0	AC11	1.00	INAC	0.00	0.00	0.02	1.00	1.00	2.5	2.5	0.00
D9	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.038	1.00	1.00	2.5	2.5	0.00
D10	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.005	1.00	1.00	2.5	2.5	0.00
D11	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.004	1.00	1.00	2.5	2.5	0.02
D12	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.0426	1.00	1.00	2.5	2.5	0.17
D13	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.02	1.00	1.00	2.5	2.5	0.08
D14	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.012	1.00	1.00	2.5	2.5	0.05
D15	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.022	1.00	1.00	2.5	2.5	0.09
D16	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.022	1.00	1.00	2.5	2.5	0.09
D17	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.017	1.00	1.00	2.5	2.5	0.07
D18	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.013	1.00	1.00	2.5	2.5	0.05
D19	AS0	4		0	AC11	1.00	LT13	1.00	4.00	0.018	1.00	1.00	2.5	2.5	0.07
D20	AS0	4		0	AC11	1.00	LT15	0.50	2.00	0.011	1.00	1.00	2.5	2.5	0.02
D21	AS0	4		0	AC11	1.00	INAC	0.00	0.00	0.01	1.00	1.00	2.5	2.5	0.00
D22	AS0	4		0	AC11	1.00	LT15	0.50	2.00	0.01	1.00	1.00	2.5	2.5	0.02
D23	AS0	4		0	AC11	1.00	LT15	0.50	2.00	0.01	1.00	1.00	2.5	2.5	0.02
D24	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.0072	1.00	1.00	2.5	2.5	0.00
D25	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.024	1.00	1.00	2.5	2.5	0.00
D26	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.013	1.00	1.00	2.5	2.5	0.05
D27	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.0081	1.00	1.00	2.5	2.5	0.03
D28	AS0	4		0	AC11	1.00	LT12	1.00	4.00	0.0138	1.00	1.00	2.5	2.5	0.06
D29	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.0053	1.00	1.00	2.5	2.5	0.00
D30	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.0084	1.00	1.00	2.5	2.5	0.00
D31	AS0	4		0	AC11	1.00	LIT	0.00	0.00	0.0098	1.00	1.00	2.5	2.5	0.00
ONG/ Semi improved + scattered scrub (Created)	GU0	4	sc21	1		1.00		1.00	5.00	1.92	1.00	0.71	2.5	2.5	6.82
ONG/ Semi improved + scattered scrub (inaccessible or	GU0	4		0		1.00	LIT	0.00	0.00	1.07	1.00	0.71	2.5	2.5	0.00
Traditional orchards	GU0	4		0		1.00	CL31	1.00	4.00	0.73	1.00	0.71	2.5	2.5	2.07
SUDS (Lit portion)	AS0	4		0	A01	0.25	LIT	0.00	0.00	0.0428	1.00	0.83	2.5	2.5	0.00
SUDS	AS0	4		0	A01	0.25		1.00	1.00	0.6282	1.00	0.83	2.5	2.5	0.52
New linear woodland	WB0	6		0	WF2	0.75	WM2	1.00	4.50	0.77	1.00	0.59	2.5	2.5	2.04
New hedgerows unavailable to bats	LF11	6		0		1.00	Exclud	0.00	0.00	0.058	1.00	0.71	2.5	2.5	0.00
New hedgerows	LF11	6		0		1.00	LM21	0.80	4.80	0.115	1.00	0.71	2.5	2.5	0.39
Modified grasslands	GU0	3		0		1.00	GL1	0.10	0.30	0.26	1.00	0.89	2.5	2.5	0.07
Modified grasslands unavailable to bats	GU0	3		0		1.00	LIT	0.00	0.00	0.51	1.00	1.00	2.5	2.5	0.00
Vegetated gardens	UR0	1		0		1.00	UA32	0.00	0.00	1.09	1.00	1.00	2.5	2.5	0.00
Developable areas sealed surfaces	UR0	1		0		1.00	UA3	0.00	0.00	3.23	1.00	1.00	2.5	2.5	0.00
Paths and active travel areas	UR0	1		0		1.00	UA2	0.00	0.00	0.52	1.00	1.00	2.5	2.5	0.00
Neutral grassland (Compensation habitat)	GN0	6	sc21	1		1.00	GL211	1.00	6.00	2.90	1.00	0.59	2.5	2.5	10.27
									17.06						
									Value of Habitat Provided in Hectares						5.71



Lesser Horseshoe Bats (4.95 equivalent hectares provided)

Habitat	Primary Habitat		Matrix		Formation		Management /		HSI Score	Hectares	Delivery Risk	Temporal Risk	Spatial Risk		Equivalent Hectares
	IHS Code	Score	Code	Score	Code	Score	Code	Score					Development Site Band Score	Replacement Site Band Score	
ONG/ Semi improved + scattered scrub (retained/e	GU0	3	sc21	1		1.00	GL211	1.00	4.00	2.334	1.00	0.83	2.5	2.5	7.75
Allotments	UR0	1		0		1.00	UA33	0.10	0.10	0.15	1.00	1.00	2.5	2.5	0.02
H1	LF11	6		0		1.00	LM2	0.90	5.40	0.014	1.00	0.71	2.5	2.5	0.05
H2	LF11	6		0		1.00	LM31	1.00	6.00	0.011	1.00	1.00	2.5	2.5	0.07
H3	LF11	6		0		1.00	LM31	1.00	6.00	0.016	1.00	1.00	2.5	2.5	0.10
H4	LF11	6		0		1.00	LM31	1.00	6.00	0.014	1.00	1.00	2.5	2.5	0.08
H5	LF111	6		0		1.00	INAC	0.00	0.00	0.0375	1.00	1.00	2.5	2.5	0.00
H6	LF11	6		0		1.00	INAC	0.00	0.00	0.03	1.00	1.00	2.5	2.5	0.00
H7	LF11	6		0		1.00	LM2	0.90	5.40	0.008	1.00	0.71	2.5	2.5	0.03
H8	LF11	6		0		1.00	LM3	1.00	6.00	0.026	1.00	1.00	2.5	2.5	0.16
H9	LF11	6		0		1.00	LM3	1.00	6.00	0.016	1.00	1.00	2.5	2.5	0.10
H10	LF11	6		0		1.00	LM3	1.00	6.00	0.023	1.00	1.00	2.5	2.5	0.14
H11	LF11	6		0		1.00	LM3	1.00	6.00	0.018	1.00	1.00	2.5	2.5	0.11
H12	LF11	6		0		1.00	LM3	1.00	6.00	0.026	1.00	1.00	2.5	2.5	0.16
H13	LF111	6		0		1.00	LM3	1.00	6.00	0.016	1.00	1.00	2.5	2.5	0.10
H14	LF11	6		0		1.00	LM3	1.00	6.00	0.006	1.00	1.00	2.5	2.5	0.04
H15	LF11	6		0		1.00	LM3	1.00	6.00	0.026	1.00	1.00	2.5	2.5	0.16
H16	LF11	6		0		1.00	LIT	0.00	0.00	0.01	1.00	1.00	2.5	2.5	0.00
D1	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.007	1.00	1.00	2.5	2.5	0.04
D2	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.012	1.00	1.00	2.5	2.5	0.07
D3	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.008	1.00	1.00	2.5	2.5	0.05
D4	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.0061	1.00	1.00	2.5	2.5	0.04
D5	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.008	1.00	1.00	2.5	2.5	0.05
D6	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.02	1.00	1.00	2.5	2.5	0.12
D7	AS0	6		0	AC11	1.00	INAC	0.00	0.00	0.0061	1.00	1.00	2.5	2.5	0.00
D8	AS0	6		0	AC11	1.00	INAC	0.00	0.00	0.02	1.00	1.00	2.5	2.5	0.00
D9	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.038	1.00	1.00	2.5	2.5	0.00
D10	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.005	1.00	1.00	2.5	2.5	0.00
D11	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.004	1.00	1.00	2.5	2.5	0.02
D12	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.0426	1.00	1.00	2.5	2.5	0.26
D13	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.02	1.00	1.00	2.5	2.5	0.12
D14	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.012	1.00	1.00	2.5	2.5	0.07
D15	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.022	1.00	1.00	2.5	2.5	0.13
D16	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.022	1.00	1.00	2.5	2.5	0.13
D17	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.017	1.00	1.00	2.5	2.5	0.10
D18	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.013	1.00	1.00	2.5	2.5	0.08
D19	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.018	1.00	1.00	2.5	2.5	0.11
D20	AS0	6		0	AC11	1.00	LT15	0.50	3.00	0.011	1.00	1.00	2.5	2.5	0.03
D21	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.01	1.00	1.00	2.5	2.5	0.00
D22	AS0	6		0	AC11	1.00	LT13	1.00	6.00	0.01	1.00	1.00	2.5	2.5	0.06
D23	AS0	6		0	AC11	1.00	LT15	0.50	3.00	0.01	1.00	1.00	2.5	2.5	0.03
D24	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.0072	1.00	1.00	2.5	2.5	0.00
D25	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.024	1.00	1.00	2.5	2.5	0.00
D26	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.013	1.00	1.00	2.5	2.5	0.08
D27	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.0081	1.00	1.00	2.5	2.5	0.05
D28	AS0	6		0	AC11	1.00	LT12	1.00	6.00	0.0138	1.00	1.00	2.5	2.5	0.08
D29	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.0053	1.00	1.00	2.5	2.5	0.00
D30	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.0084	1.00	1.00	2.5	2.5	0.00
D31	AS0	6		0	AC11	1.00	LIT	0.00	0.00	0.0098	1.00	1.00	2.5	2.5	0.00
ONG/ Semi improved + scattered scrub (Created)	GU0	3	SC21	1		1.00		1.00	4.00	1.92	1.00	0.71	2.5	2.5	5.45
ONG/ Semi improved + scattered scrub (inaccessibl	GU0	3	SC21	1		1.00	LIT	0.00	0.00	1.07	1.00	0.71	2.5	2.5	0.00
Traditional orchards	GU0	3		0		1.00	CL31	1.00	3.00	0.73	1.00	0.71	2.5	2.5	1.55
SUDS (Lit portion)	AS1	6		0	A01	0.75	LIT	0.00	0.00	0.0428	1.00	0.83	2.5	2.5	0.00
SUDS	AS0	6		0	A01	0.75		1.00	4.50	0.6282	1.00	0.83	2.5	2.5	2.35
New linear woodland	LF10	6		0		1.00	LM21	0.80	4.80	0.77	1.00	0.59	2.5	2.5	2.18
New hedgerows unavailable to bats	LF11	6		0		1.00	Exclud	0.00	0.00	0.058	1.00	0.71	2.5	2.5	0.00
New hedgerows	WB0	6		0	WF2	0.80	WMZ	1.00	4.80	0.115	1.00	0.71	2.5	2.5	0.39
Modified grasslands	GO	2		0		1.00	GL11	0.10	0.20	0.26	1.00	0.89	2.5	2.5	0.05
Modified grasslands unavailable to bats	GO	2		0		1.00	GL11	0.10	0.20	0.51	1.00	1.00	2.5	2.5	0.10
Vegetated gardens	UR0	1		0		1.00	LIT	0.00	0.00	1.09	1.00	1.00	2.5	2.5	0.00
Developable areas sealed surfaces	UR0	1		0		1.00	UA3	0.00	0.00	3.23	1.00	1.00	2.5	2.5	0.00
Paths and active travel areas	UR0	1		0		1.00	UA2	0.00	0.00	0.52	1.00	1.00	2.5	2.5	0.00
Neutral grassland (Compensation habitat)	GNO	3	sc21	1		1.00	GL211	1.00	4.00	2.900	1.00	0.59	2.5	2.5	6.84
										17.06					
															4.95



Analysis of Cumulative Impacts / In-Combination Effects

Detailed analysis has been completed, not only of the effects of the scheme when considered in isolation, but also when considered in the context of other developments of a similar scale within the surrounding landscape. The effects of habitat loss and fragmentation are therefore considered below, taking into account the impacts of other nearby applications.

Applications Considered within the Assessment

*****major applications from 2018 were considered, All applications approved in 2017 that were included in previous Rectory Farm HRA are not included in this assessment, as it is assumed that these have now been completed.*****

Applications were considered if they were received (and not rejected) within the past 5 years; of a similar scale to the Site (i.e. housing developments of at least 25 dwellings); and within 10km of the SAC components most likely to be impacted (Kings Wood and Urchin Wood SSSI). Applications were manually searched for using the planning application map available on the North Somerset Districts' planning websites as well as the Bristol City Council planning portal. Although a best effort has been made to identify any major applications within the search area, it is possible that some applications may have been missed. Pre application advice is screened from the assessment due to the high level of uncertainty regarding development of such sites. 27 applications were recorded within North Somerset with a further two applications were recorded in the Sedgemoor district, no applications of a similar size were recorded using the Bristol or Bath and North East Somerset planning portal. Details of these applications are provided in Tables 4, 5 and 6 below. 6 of these occurred within 1km of the SAC components, 13 within 1-5km, and 10 within 5-10km. Figure 9 below shows the location of these developments on a map.

It is reasonable to assume that the schemes with the greatest potential to result in cumulative effects will be those located closest to the components of the SAC, in particular the closest proposals within 1km which include Land South of Cobthorn Way Wrington Lane, Congresbury and Land at Smallway Congresbury BS49 5AA developments. Land East Of Smallway Congresbury 22/P/1142/FUL, Gatcombe Farm Industrial Estate West Hay Road Wrington BS40 5GF 22/P/1256/RM, Land Off Wrington Lane Congresbury 19/P/1657/RM and Land North Of Mulberry Road Congresbury 22/P/0459/OUT

The next closest developments within 1-5km include Land At Claverham Works Bishops Road Cleeve Bristol BS49 4NF (20/P/0467/PR3) which is just outside the 1km buffer. A further 1km to the west are the land relating to this application for Land to the North of Rectory Farm (23/P/0664/OUT) along with the initial Land at Rectory Farm development to the south (21/P/0236/OUT) Land at Rectory Farm is considered to have the highest potential to have in combination impacts with the proposals. Two further developments are present to the northern fringe of Yatton in the Horsecastle area. These include Land East of North End road, Yatton (19/P/1884/RM) and Land off Moor Rd, Yatton (19/P/3197/FUL) which are around 2.7km to the north east of the Kings and Urchin Woods SAC component. A further development Land at Cox's Green, Wrington (18/P/3625/OUT) is around 2.2km to the south west. A further cluster of applications are present in the northern portion of the 5km buffer around Nailsea. These include Land to the West of Engine Lane, Nailsea (22/P/2991/RM), Land West of Rodey Rd Backwell (20/P/1847/OUT) Land South of Uplands Nailsea (20/P/1847/OUT) and Land North of Youngwood Lane and East of Netherton Wood Lane, Nailsea (20/P/2347/RM).



On the fringe of the 5km buffer to the south there are a further cluster of 4 developments surrounding Churchill and Sandford which include Land South Of Dinghurst Road Churchill (22/P/2991/RM), Land Off Bristol Road Churchill (18/P/4241/RM), Land To The North Side Of Greenhill Lane Greenhill Road Sandford (18/P/3625/OUT) and Land To The North Of Greenhill Road Sandford (20/P/1120/OUT).

Spanning both the 1-5km buffer and 5-10km buffer is the Banwell Bypass application which is one of the most significant linear proposals separating the Kings and Urchin wood component with those to the south such as the Cheddar Complex and Banwell Ochre Mines. This is shown as a point in the centre of the scheme but it spans from Sandford to the M5.

Beyond the 5km buffer are 9 additional developments Land To South Of William Daw Close Banwell (23/P/0674/RM) and Land West Of Wolverhill Road, North Of Wolverhill Park And Knightcott Park Banwell (21/P/1735/RM) which are situated at the fringes of Banwell.

A further 5 developments are clustered within and surrounding Weston-super-mare some of which have large areas of land associated with them. These include Land At Haybow, North Of The A370 And East Of The M5 Motorway Hewish North Somerset (22/P/3067/OUT), Phase 4 Locking Parklands Locking Moor Road Weston-super-Mare Somerset (21/P/3241/RM), Land South Of Somerset Avenue Weston-super-Mare (21/P/1220/RM), Elm Grove Nursery Elm Grove Locking Weston-super-mare BS24 8EN (18/P/2652/OUT), Land At Nightingale Court Nightingale Close Weston-Super-Mare BS22 8SX (20/P/2446/OUT).

Finally two applications have been recorded in the Sedgemoor district around 9.5km to the south of the Kings and Urchin Woods component these include Land To The South Of, Houlgate Way, Axbridge, Somerset (02/22/00021) and Round Oak Farm Cheddar (17/21/00072) these sit on the very fringe of the 10km buffer.

The more distant the scheme, the less likely that cumulative impacts will result, although it should be noted that the general cumulative effects of incremental habitat loss has the potential to have a bearing upon the conservation status of horseshoe bats within the SAC. This is especially true of sites nearest SAC components, as shown in Figure .

The status of the applications within 5km of the SAC components were correct as of 09/08/2023 when the North Somerset and Sedgemoor District planning websites were accessed. The status of the applications between 5-10km from the SAC components, were last updated on 09/08/2023.



Table 5: Planning Applications Within 1km of SAC component								
Map Ref.	District	Planning Ref.	Site	Type	Postcode / Grid	Proposal	Status	Area
1	NS	18/P/3708/RM	Land South Of Cobthorn Way Wrington Lane Congresbury	Reserved Matters	BS49 5BJ	38 dwellings	Approved	8.2ha
2	NS	18/P/3905/OUT	Land At Smallway Congresbury BS49 5AA	Outline	BS49 5AA	20 dwellings	Approved	0.62ha
3	NS	22/P/1142/FUL	Land East Of Smallway Congresbury	Full	BS495AA	47 dwellings	Approved	2.7ha
4	NS	22/P/1256/RM	Gatcombe Farm Industrial Estate West Hay Road Wrington BS40 5GF	Minor Material Amendment	BS40 5GF	37 dwellings	Approved	3.8ha
5	NS	19/P/1657/RM	Land Off Wrington Lane Congresbury	RM	BS49 5BJ	50 dwellings	Approved	3.4ha
6	NS	22/P/0459/OUT	Land North Of Mulberry Road Congresbury	Outline	BS49 5HD	90 dwellings	Approved	3.3ha



Table 6: Planning Applications situated between 1-5km of SAC component								
	District	Planning Ref.	Site	Type	Postcode / Grid	Proposal	Status	
7	NS	21/P/0236/OUT	Land At Rectory Farm Yatton	Outline	BS49 4EY	100 dwellings	Approved at appeal	3.9 ha
8	NS	19/P/1884/RM	Land East Of North End North End Road Yatton	RM	BS494AW	170 dwellings	Approved	5.5ha
9	NS	20/P/1120/OUT	Land To The North Of Greenhill Road Sandford	Outline	Winscombe BS25 5PF	37 dwellings	Registered	3.4ha
10	NS	22/P/2991/RM	Land South Of Dinghurst Road Churchill	Reserved Matters	BS25 5SE	25 dwellings	Approved	2.6ha
11	NS	22/P/1145/FUL	Land To The West Of Engine Lane Nailsea	Full/ vary condition 33	BS48 4RL	171 dwellings	Approved	8.3ha
12	NS	20/P/0467/PR3	Land At Claverham Works Bishops Road Cleve Bristol BS49 4NF	Full	BS49 4NF	24 dwellings	Awaiting decision	1.4ha
13	NS	18/P/2691/RM	Land At Cox's Green Wrington	Outline	BS40 5QU	59 dwellings	Approved	3.3ha
14	NS	18/P/4241/RM	Land Off Bristol Road Churchill	Reserved Matters	BS25 5NL	40 dwellings	Approved	1.9ha
15	NS	20/P/1847/OUT	Land West Of Rodney Road Backwell	Outline	BS48 3HR	65 dwellings	Awaiting decision	2.6ha
16	NS	20/P/2000/R3	Land South Of The Uplands Nailsea	Unknown	BS48 4RR	52 new dwellings and one substation.	Approved	2.4ha
17	NS	20/P/2347/RM	Land North Of Youngwood Lane And East Of Netherton Wood Lane Nailsea	Reserved Matters	BS48 4NP	168no. dwellings with site wide infrastructure.	Approved	11.3ha
18	NS	18/P/3625/OUT	Land To The North Side Of Greenhill Lane Greenhill Road Sandford	Outline	BS25 5PA	85 dwellings	Registered	2.7ha
19	NS	19/P/3197/FUL	Land Off Moor Road Yatton	Full	BS494AX	60 dwellings	Decided	2.5ha



Table 7: Planning Applications Situated between 5-10km of SAC component								
20	NS	23/P/0674/RM	Land To South Of William Daw Close Banwell	RM	William Daw CI, Banwell BS29 6HQ	26 dwellings	Approved	1.5ha
21	NS	22/P/3067/OUT	Land At Haybow, North Of The A370 And East Of The M5 Motorway Hewish North Somerset	Outline	BS246RD	300 Dwellings	Awaiting decision	27 ha
22	NS	21/P/3241/RM	Phase 4 Locking Parklands Locking Moor Road Weston-super-Mare Somerset	Reserved Matters	BS24 7NP	124 dwellings	Approved	3ha
23	NS	21/P/1735/RM	Land West Of Wolvershill Road, North Of Wolvershill Park And Knightcott Park Banwell	Reserved Matters	BS29 6DJ	54 dwellings	Approved	3.8ha
24	NS	21/P/1220/RM	Land South Of Somerset Avenue Weston-super-Mare	Reserved Matters	BS24 7NA	425 dwellings	Approved	14.2ha
25	NS	22/P/1768/R3EIA	Banwell Bypass Land To North And East Of Banwell Including Mitigation Highway Land In Sandford, Winscombe And Churchill	Outline	Various Spanning several villages	Highway application	Registered	
26	NS	18/P/2652/OUT	Elm Grove Nursery Elm Grove Locking Weston-super-mare BS24 8EN	Outline	BS24 8EN	110 dwellings	Registered	6.7ha



27	NS	20/P/2446/OUT	Land At Nightingale Court Nightingale Close Weston-Super-Mare BS22 8SX	Outline	BS22 8SX	29 dwellings	Approve with legal agreement	0.6ha
28	SDC	02/22/00021	Land To The South Of, Houlgate Way, Axbridge, Somerset, BS26 2DL	Reserved matters	BS26 2DL	53 dwellings	Granted	3.5ha
29	SDC	17/21/00072	Round Oak Farm Cheddar	Reserved Matters	BS273EP	96 dwellings	Granted	7.5ha

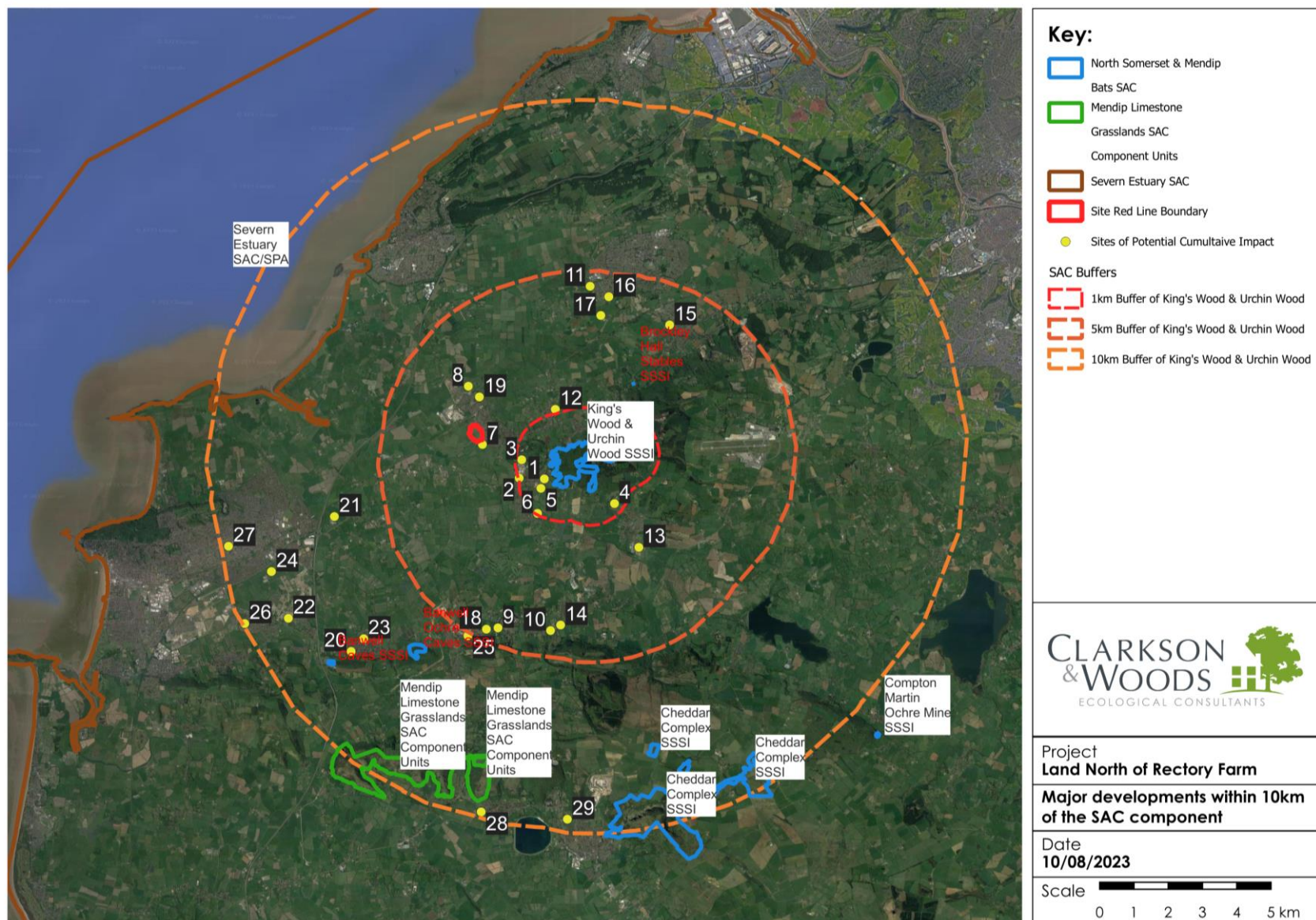


Figure 9: Major planning applications within 10km of the SAC Components (Map references correspond to Tables 1-3 above)



Analysis of Cumulative Impacts: Fragmentation / Loss of Flight Lines

An analysis of likely horseshoe bat commuting routes through the Site and the wider landscape has been undertaken, particularly with regards to the nearest SAC component. This is key to understanding the potential for cumulative (or in-combination) impacts associated with fragmentation. As such, both the application Site and developments within close proximity to Yatton have been assessed for their potential to sever horseshoe commuting routes.

As discussed above, important commuting routes through the Site included the western hedgerows. These are being retained, protected and enhanced as described in the 'Fragmentation/Loss of Flight Lines' section above. This will allow horseshoe bats associated with the SAC to continue to commute north to south and east to west along the retained unlit buffer features. This will maintain the key commuting route of the Strawberry Line feature and maintain the linkages in the centre of the site allowing bats to access the proposed foraging habitats.

The loss or degradation of minor flight lines such as those associated the eastern hedgerows are considered to be used infrequently by commuting horseshoe bats. These hedgerows are also in some cases partially lit by adjacent street lighting.

The Land at Rectory Farm development to the south for which outline planning was consented at appeal provides unlit habitat corridors which correspond with the mitigation provided within the red line boundary and will allow horseshoe bats to move through the landscape adjacent to the strawberry line unimpeded. Additional hedgerow planting and management associated with both schemes is designed to enhance commuting potential for foraging bats.

Taking these key factors into consideration the mitigation/compensation measures proposed within the design of the proposed development are sufficient to address the potential fragmentation impacts within and immediately surrounding the red line boundary. Given these factors the development will not significantly contribute to the fragmentation of the hedgerows in the local landscape.

Existing barriers to dispersal

The horseshoe bats recorded on the Site are considered to be associated with the Kings Wood and Urchin Wood SAC components located approximately 2km to the west. A proportion of these bats will also travel to other nearby SAC components such as those located in Brockley or Banwell. Given the development site is not within the consultation zones for these portions of the SAC they are not discussed extensively in this Shadow HRA. Due to the proximity of the proposals from the Kings and Urchin Wood SSSI's, potential migration corridors have been considered within the local area which might facilitate the migration of bats to and from the SAC. The most direct route considered to be the primary linkage between the Site and the SAC is shown as a orange hatched line in [Figure 10](#). Habitat to the West of the SAC is considered likely to be the most critical for linking the SAC and the habitats within and surrounding the application site. Immediately to the west of the SAC is the A37 which constitutes a fairly significant existing barrier to horseshoe bats. It is likely bats cross this barrier between the towns of Star and Cleeve as the next suitable crossing point would be following the River Yeo which passes under this carriageway approximately 1km to the south west of the SAC as shown by the blue hatched line.

It is considered likely that bats then use grassland or woodland habitat located at the fringes of the Cadbury Hill LNR to reach the open grassland to the south of the Site which would allow bats to reach the Site via open grazed pasture associated with Congresbury Moor or woody vegetation bounding the strawberry line. Further commuting horseshoe bats may approach from the west via a large ditch feature known as the Gang Wall from other roosts in the area. Grazed pasture associated with



Congresbury Moor, the fields immediately to the south associated with Canada Farm and those which bound the Biddle Street SSSI ditches to the west of the strawberry line are considered to be key commuting and foraging habitats for horseshoe bats in the local area and the primary destination for foraging bats associated with the SAC which also utilise the Site. The grazed pasture within this landscape is considered to be key to the foraging success of greater horseshoe bats and the ditches and fragments of woodland are considered to be a key foraging resources for lesser horseshoe bats.

Directly to the east of the Site the village of Yatton this village is fairly well lit and is considered to be of negligible importance to foraging and commuting horseshoe bats. It is considered horseshoe bats are extremely unlikely to commute to the site via the built up portions of Yatton. The villages of Yatton and Congresbury are considered to be the most significant barriers to horseshoe dispersal from the SAC to habitats to the west.

The development of the Site will stop horseshoe bats from being able to cut across the eastern portion of the site (due to lighting and loss of habitat) but this is not considered to be a significant lengthening of any existing commuting routes. The maximum additional distance required for a bat to circumnavigate the site would be 280m.

The area to the north of the Site is predominately characterised by agriculturally improved pasture of similar value to that contained within the red line boundary. To the north of this was further urban development associated with Yatton, the railway linking WSM to Bristol and a large factory development. This development and the M5 are major barriers to horseshoe dispersal heading north in the wider landscape.

In general, it is considered that the towns of Yatton and Cleeve along with the major roads present some fairly significant existing barriers to dispersing horseshoe bats, moving from The Kings and Urchins Wood SSSI's to suitable pasture within and surrounding the Site. Far fewer barriers appear to be present when reaching open pasture and hedgerow habitats to the south and east of the SAC components.

Local Developments within 1km

The closest proposed development to the SAC 'Land South of Cobthorn Way, Wrington Lane, Congresbury' marked on plans as reference 1 is primarily an extension to the town of Congresbury. Although this sits within a narrow undeveloped band of land between the northern and southern portions of the town which is likely to be critical for horseshoe bat reaching the River Yeo. The design of this development has sought to keep all residential development (38 units) as a fringe to the existing housing and preserve a wide corridor to allow bats to continue to reach the River Yeo preserving valuable foraging habitat within this buffer. It is considered as long as lighting is controlled and no further development of the corridor is undertaken no fragmentation issues will occur as a result of this proposal.

Similarly 'Land At Smallway Congresbury' marked on the maps as reference 2 is situated in a small field between the northern portion of Congresbury, the A37 and the Cadbury Garden Centre. Due to its constrained location and extensive development either side of the proposals it is considered unlikely the proposals will result in the severance of substantive commuting routes for horseshoe bats. Land East of Smallway, Congresbury is marked on maps as reference 3 has 47 dwellings approved and sits in a field which could provide a linkage from the SAC towards the site. Mitigation including dark corridors will ensure the key linkages east to west are maintained. Land of Wrington Lane, Congresbury marked as reference 5 is an extension to the east of Congresbury. Again in this instance the development provides a wide unlit buffer for horseshoe bats which will allow the SAC population to circumnavigate around the Site. Land North Of Mulberry Road Congresbury, marked on the map as reference 6 is similar



in design providing a wide dark corridor on the eastern site boundary and will not inhibit connectivity for horseshoe bats.

The final development identified within 1km of the SAC is the Gatcombe Farm Industrial Estate West Hay Road Wrington (reference 4) is predominantly redevelopment of an industrial site for housing and employment. This site provides a large foraging mitigation area for horseshoe bats, given its location it is highly unlikely to impact commuting horseshoe bats.

Development Proposals between 2km-5km

Proposals situated outside of the immediate 2km of the SAC are described with a brief summary of potential impacts to commuting routes provided. These developments fall broadly into clusters to the South and North of the SAC and those in close proximity to the Land North of Rectory Farm development. Those to the east of the SAC surrounding Yatton are considered most likely to have in combination effects with the proposals.

Land to the North of Rectory Farm which is the primary consideration of this assessment has been designed to compliment the original Land at Rectory Farm masterplan as consented at planning appeal. Both developments seek to create and maintain wide dark corridors for foraging and commuting which run alongside the Strawberry line and the dark corridors interconnect. These will ensure horseshoe bat habitat to the south of Yatton adjoining the Strawberry line will be maintained. References 8 and 19 (Land East of North End Road Yatton & Land off Moor road, Yatton) as shown on the map broadly interconnect and run alongside existing development in Yatton. It is not considered these sites form a key commuting function currently and both provide suitable dark corridors to maintain key connectivity for horseshoe bats. It is considered all of the Yatton developments are designed to maintain horseshoe bat commuting locally.

Those to the North include 11, 15, 16, and 17. Reference 17 at Netherton Wood Lane Nailsea is the largest proposal recorded and will provide the Phase 1 proposals for a larger development to the south of Nailsea which will comprise 450 homes. This development although in outline has the potential to have fragmentation effects if adequate mitigation is not applied. Reference 16, The Land South of The Uplands Nailsea site sits between the Netherton Wood development and the developed portion to the south of Nailsea further compounding connectivity between Land to the east and west of Nailsea. Reference 11 'Engine Lane Nailsea North Somerset' is located on the western fringe of the town. This development is situated on former playing fields which reduces the potential for impacts to important foraging habitat. Impacts to commuting bats that could result from the development are unlikely given the measures applied to preserve the function of the hedgerows. Reference 15 relates to Land West of Rodney Road Backwell. This is a further infill development on the eastern edge of Backwell and although some of the hedgerows are likely to be degraded due to the curtilages of gardens abutting these, there is little potential for the proposals severing significant commuting routes due to the existing development to the north, east and south of the red line boundary. Although development in this area to the north comprising references 11, 15, 16, & 17 is generally larger and more intensive, given the proximity from this portion of the closest portions of the SAC it is considered highly unlikely these proposals will have in combination effects with the proposed development.

The closest development outside of 2km to the South relates to Reference 13 'Land At Cox's Green Wrington' which is a development of 59 houses as an extension to the small village of Wrington. This Site is situated to the east of existing industrial development and sits between two roads. Although there is some potential for bats to have to commute around the proposals the retention of key flight lines has



been incorporated into the design and as such the severance of key commuting routes is considered highly unlikely.

References 9, 10, 14, & 18 are approximately 3.5km to the south of the SAC. These proposals are also situated close to one another surrounding the village of Langford which bounds the A38. Reference 9 relates to Land to The North Of Greenhill Road Sandford which provides a dark corridor to the north along the key hedgerow. It is considered this development in combination with the existing development in the village of Sandford reduces opportunities for bats to cross the Dinghurst road to the north. Reference 18 Land to The North Side Of Greenhill Lane Greenhill Road Sandford has been withdrawn since the mapping of the sites was undertaken and is therefore highly unlikely to have impacts on horseshoe bats. Reference 14 relates to Land Off Bristol Road Churchill. This Site is situated in a small field which is sandwiched between the A368 and A38 at a location which is currently very well lit. It is considered this application will have no impact on commuting horseshoe bats due to the low suitability of the location of the development. Reference 10 Land South of Dinghurst Road Churchill is located to the south of the A38. Although the retention of hedgerows and existing adjacent development and roads will stop these proposals from severing any key commuting structures, the development of this land in combination other existing housing reduces connectivity for horseshoe bats moving north to south at this location. These developments increase the existing fragmentation effects of local development at these locations but will not have in combination effects with the application site. Alternative crossing points are preserved closer to known SAC components to the south which will ensure overall connectivity is not compromised between the SAC components.

Proposed developments within 5-10km

All of the other planning applications which were recorded are between 5-10km from the proposals. The most impactful scheme recorded is likely to be the Banwell Bypass scheme which has the potential to create a long linear barrier from Sandford to the M5 to the west which could compromise the movement of horseshoe bats without adequate mitigation being applied. Consultation responses to Natural England have agreed that advanced bat surveys will be employed to identify and preserve existing crossing points but no detail is available in the planning portal at this stage. Further development in the Banwell area includes references 20 Land to South Of William Daw Close Banwell and 23 which relates to Land West Of Wolverhill Road, North Of Wolverhill Park And Knightcott Park Banwell. Land to the South of Wiliam Daw Close, Banwell is situated in a key location for connectivity across the Knightcross road however a corridor running north to south will allow horseshoe to continue to cross this key road. Land West Of Wolverhill Road, North Of Wolverhill Park And Knightcott Park Banwell is in a location sandwiched between existing development and provides a buffer to all boundary features. As such it is unlikely to result in significant fragmentation issues for horseshoe bats providing lighting is adequately controlled.

References 20, 21, 24, 26 and 27 are extensions to Weston-super-mare and are considered highly unlikely to result in connectivity issues with the wider SAC bat population. Either alone or in combination due to the location of this town in relation to the key components.

References 28 and 29 are within the towns of Axbridge and Cheddar and are fairly significant housing developments. These developments have sought to incorporate adequate foraging and commuting habitat in line with the requirements of the SPD to allow bats associated with the Cheddar Complex portion of the SAC to continue to use the local landscape. As such it is unlikely these will sever any flight lines associated with horseshoe bats or have in combination effects with the proposed development.



Given the relatively low impact of this proposed scheme at Land North of Rectory Farm, Yatton, which will allow bats to continue to commute through and around the Site to the adjoining habitats, it is considered unlikely that this scheme will contribute significantly to the fragmentation of flight lines within the local area.

Other assessed schemes within the local area that have been registered or granted generally provide substantial retained unlit buffers, and seek to preserve existing flight lines used by bat populations associated with the SAC. As such, these approved and registered applications are considered unlikely to contribute to any significant cumulative impacts associated with habitat fragmentation, which would be detrimental to local horseshoe bat populations.

Exceptions to this include a few small developments bounding the A38 and A378 these are considered to increase existing fragmentation effects associated with major roads. The Banwell Bypass is due the lack of detail regarding key crossing points is also a potential barrier to horseshoe bat dispersal. However, these sites will not have in combination effects with the proposed development.

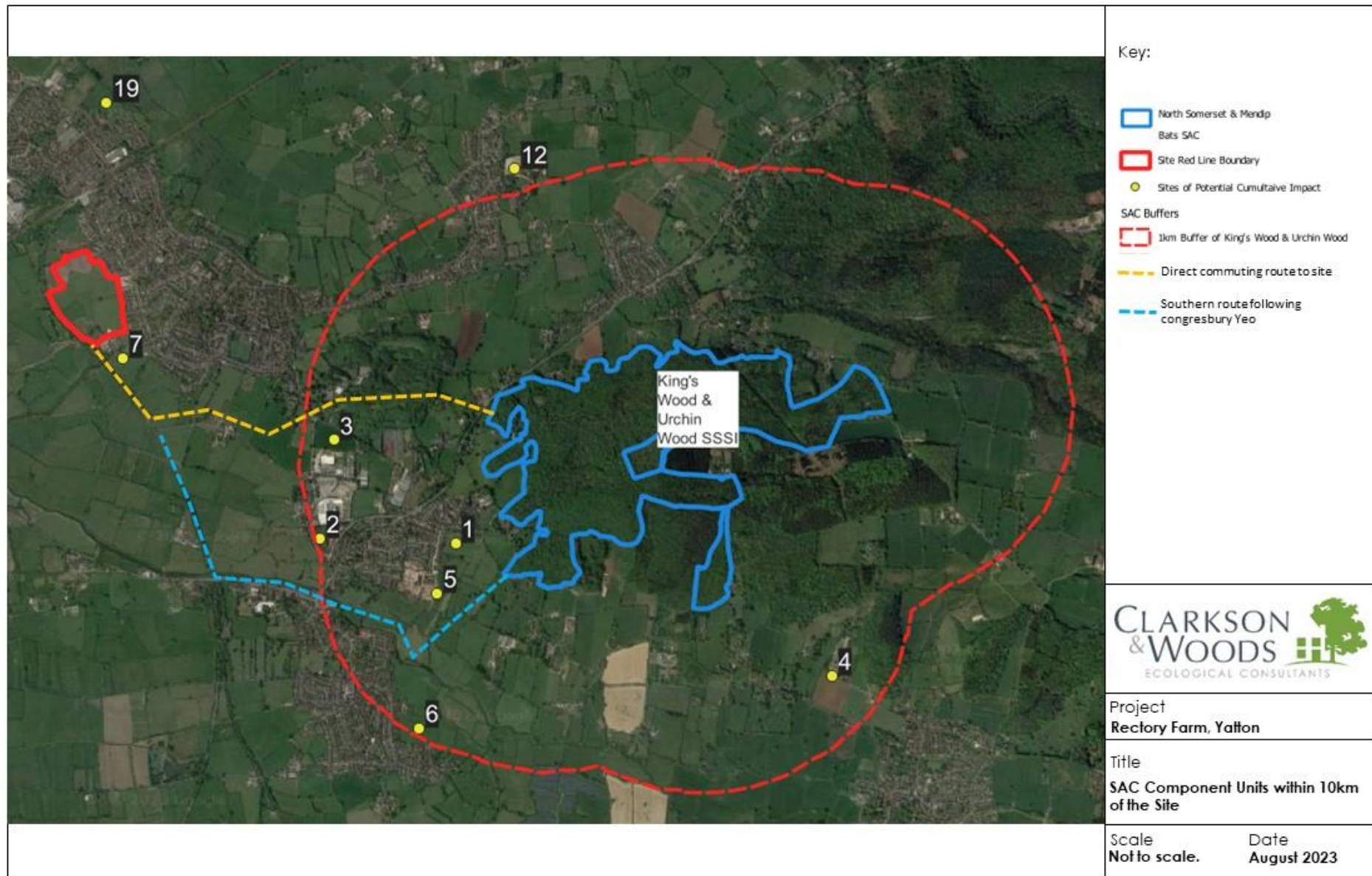


Figure 10: Major planning applications, and key commuting routes features between the Site and the SAC components



Analysis of Cumulative Impacts: Reduction of Foraging Habitat Area

The proposed scheme is compliant with the SPG document subject to agreement over the use of off-site compensation land (North Somerset and Mendip Bats SAC Guidance on Development) published by North Somerset Council, which is aimed at assessing foraging habitat loss. One of the objectives of this guidance is to ensure that schemes are treated equally and that, if compliant, there should be no direct or cumulative impacts associated with development on foraging horseshoe bats. Therefore, it seems highly unlikely given the compliance with the published guidance that the scheme will significantly contribute to a cumulative impact associated with habitat loss. It is assumed that no new developments will proceed within the surrounding area without being compliant with the requirements of the SPG.

However, detailed consideration is nevertheless required, particularly because many of the schemes approved within the surrounding area were permitted prior to the publication of this guidance and therefore may not have incorporated sufficient habitat to satisfy the requirements of the guidance. It is beyond the scope of this assessment to retrospectively assess whether other schemes in the area are compliant with the guidance. Instead therefore, and notwithstanding the findings of the HEP assessment, an assessment of the cumulative impacts of foraging habitat loss has been completed below.

The potential for cumulative impacts to arise is first considered at a local level (within 2km of the closest component of the SAC). There is approximately 2633ha of land within 2km of the Kings and Urchin Wood SAC component. Of this, approximately 325ha is estimated to currently be developed, and is considered likely unsuitable foraging habitat for horseshoe bats. This comprises areas within settlement boundaries as well as major roads and gardens within 2km of the SAC component. The majority of the remaining 2308ha of land within 1km of these SAC components is predominately undeveloped, with at least some potential to support horseshoe bats. The quality of this habitat of course varies markedly, however the majority of habitat within North Somerset which is not part of settlements is open pasture, grassland and woodland, which are generally considered to be habitats of value to horseshoe bats.

The eight applications are currently listed within 2km of these SAC components (Cobthorn Lane, Smallway, Congresbury, Rectory Farm Yatton, Smallway Congresbury, Land East of Smallway, Land at Wrigton Lane, Gatcombe Farm, Mulberry Rd, Congresbury and Claverham Works, North Field) up to 406 dwellings, and approximately 23.52ha of 'developable area' which excludes the land associated with the Gatcombe Farm site as this was previously developed. Assuming that all of these applications are approved and constructed, this constitutes less than 1% of the remaining undeveloped area within 2km of the SAC components. This does not take into account any mitigation habitat provision which would reduce this figure. This increase in developed area is considered to be minor, and is not anticipated to result in a significant cumulative impact upon the foraging area of horseshoe bats associated with these SAC components at a local level.

When considering the reduction of foraging habitat area at a wider scale (i.e. within 10km of the SAC components), there is approximately 31,430ha of land within 10km of the nearest SAC components. Of this, approximately 16.56% of the land is estimated to currently be unsuitable for use by foraging bats, comprising roads, quarries, open water (including a portion of the Bristol Channel), and open settlement. However, this still leaves approximately 26,223ha of potentially suitable habitat (notwithstanding the limitations of these calculated mentioned above, with regards to the varying suitability of this area for foraging horseshoe bats) within 10km of the SAC components, which may be used by foraging horseshoe bats associated with the wider SAC.



If all of the developments planned within assessment are brought forward, and assuming that these developments are not designed to include valuable mitigation habitat for horseshoe bats as per the requirements of the SPD guidance on development, an estimated 141.62ha of foraging habitat can be expected to be lost. This is approximately 0.54% of the estimated remaining potentially suitable foraging habitat available within 10km of the two closest components of the SAC. It should be noted that many of these applications have also sought to protect habitat of importance or potential importance for horseshoe bats which would reduce this figure significantly.

It is unlikely this entire area will be unsuitable for use by horseshoe bats if the proposals are compliant with the SPD guidance on development within North Somerset and Mendip Bat SAC, a significant proportion of the total of the 141.62ha which includes all major developments identified will be land to mitigate for the loss of horseshoe foraging habitat and to preserve commuting routes. As such, the figure of approximately 0.54% of total foraging habitat loss is a worst-case scenario for the sites and future development considered.

In conclusion, when considering the loss of foraging habitat extent at both a local level (within 2km of the SAC components) and more of a landscape level (within 10km of the SAC components), the proposed development, in combination with other planning applications and sites allocated within the SDL, will result in the loss of under 1% of the total potential foraging habitat at both geographic scales. This cumulative loss is not considered significant in the context of the remaining available area of foraging habitat. Applying the precautionary principle, no likely significant effects are anticipated when this assessment is considered alongside other nearby developments. It can similarly be concluded, beyond reasonable scientific doubt, that there would be no adverse effect on the integrity of the SAC.

Overall Assessment of Significance

The statistics published on the Bat Conservation Trust website suggest the total number of greater horseshoe bats in the UK is approximately >6,600. At the time of the SAC citation, it was estimated that the UK population of greater horseshoe bats was around 4,000, with the North Somerset Bat SAC supporting 3-6% of these (up to 250). Current population estimates for this species in the SAC are around 1000 individuals thanks to more comprehensive monitoring efforts of the various component sites.

The statistics suggest the UK supports in the region of 50,000 lesser horseshoe bats, with the SAC supporting important hibernation sites for this species, although no details regarding a percentage of the population are provided.

Based on the figures above, it is considered that the proportion of the population of greater horseshoe bats that have been recorded using the Site could be relatively high and given the rarity of these bats each individual is significant to the population associated with the SAC. Given the presence of the SAC close to the Site, the vegetated corridors within the Site may be of significant importance to the bats that utilise them. Therefore, in the absence of mitigation, the impacts identified would be expected to result in a decline in the conservation status of the SAC population and a potentially significant effect on the favourable conservation status of the SAC itself.

As detailed above, the proposed development scheme has been carefully designed to avoid the majority of potential impacts. Additionally, the following mitigation measures are proposed to minimise any residual adverse impacts, and to safeguard - as far as possible in the context of the current design - the favourable conservation status of the population of horseshoe bats recorded on the Site:



- A Construction Environmental Management Plan (CEMP) prepared for the Site will prescribe how the retained/newly created habitats and important features for bats will be protected during the construction phase. This CEMP should include details of when habitats and features will be created on Site. The early establishment of new habitats is considered to be a key objective for these habitats.
- A Landscape and Ecological Management Plan (LEMP) will also be prepared for the Site to specify how these newly created and retained habitats will be managed during the operational phase, to ensure the long-term viability of identified commuting routes and foraging habitat. This document will cover an initial period of 20 years with a reviewed every 5 years thereafter.
- A Landscape Planting Plan to be produced detailing the timing, phases, species composition, numbers and precise specifications for planting of a number of mitigation habitats.

In conclusion, despite the persistent presence of good numbers of greater horseshoe and lesser horseshoe bats commuting and foraging within the Site, the mitigation measures proposed can be reasonably expected to avoid and mitigate potential impacts upon horseshoe bats and, in turn, the SAC, to acceptable levels. In particular, lighting restrictions and landscaping proposals will combine to ensure the key boundary features are retained and remain suitable for continued usage. Additionally, sufficient habitat is to be created in accordance with the HEP guidance to mitigate for proposed foraging habitat losses. The provision of replacement foraging habitat both within the Site and habitat in close proximity to the Site will maintain foraging capacity of the local area for horseshoe bats. Furthermore, with the implementation of the recommended conditions below and their respective monitoring programmes, **it can safely be concluded, applying the precautionary principle, that the risk of adverse effect upon the North Somerset and Mendip Bats SAC can be ruled out beyond reasonable scientific doubt.**

Recommended conditions

Recommended planning conditions to ensure that the above avoidance and mitigation measures are implemented are set out below.

Condition 1

Before the commencement of development, a Construction Environmental Management Plan shall be submitted to and approved in writing by the LPA. The Construction Environmental Management Plan shall identify the steps and procedures that will be implemented to minimise the creation and impacts of noise, vibration, dust and waste disposal resulting from the Site preparation, groundwork and construction phases of the development and manage Heavy Goods Vehicle (HGV) access to the Site. It shall include a detailed working method statement to avoid/minimise impacts on protected and notable species and important habitats. A plan showing measures for habitat protection and retention shall be provided, including protection and retention of at least 6m buffer zones from hedgerows. Once approved, the Construction Environmental Management Plan shall be adhered to at all times, with any amendments agreed in writing with the LPA before proceeding.

Reason: To comply with the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 the Wildlife and Countryside Act 1981 (as amended) and the NERC Act 2006.

Condition 2

Before the commencement of development, a Landscape and Ecological Management Plan shall be submitted and approved in writing by the LPA. The plan shall cover an initial period of 20 years and include measures for establishment, enhancement and management of habitats



within the Site, including planting schedules and details of ongoing management and monitoring of new habitats. This shall also include details of the design and location of bird nesting and bat roosting features.

The LEMP will detail a monitoring schedule which will cover monitoring bat activity post-construction in years 1 and 3, which will include use of three automated static bat detectors deployed every season (spring, summer and autumn), along with a single manned transect survey undertaken in the autumn of those years. Monitoring of light levels within the dark corridors will also take place alongside the bat surveys in the first year after completion and occupation of the dwellings. Remedial action as a result of the surveys will be carried out where required. These surveys will measure lighting within the retained dark buffers and informally monitor habitat establishment. The plan should also detail the measures for the protection and enhancement of biodiversity, including those specifically for the benefit of European Protected Species, within the Site.

The LEMP will be updated if remedial measures to address excessive lighting are required and these will be reviewed annually until such issues have been resolved. Monitoring of the long term establishment of the habitats should be reviewed against the proposals in years 10 and 20 by a suitably qualified ecologist to measure the success of the mitigation habitat and steer the development of the LEMP to enhance the Site further.

Reason: To meet Adopted North Somerset Core Strategy Policy CS4 and to comply with the Conservation of Habitats and Species Regulations (Amendment) (EU Exit) 2019 .

The following Advice Notes should be added to the planning consent.

Note 1.

The applicant is advised that the North Somerset and Mendip Bats Special Area of Conservation is a highly protected suite of Sites for wildlife and ecology of international importance.






Note 2.

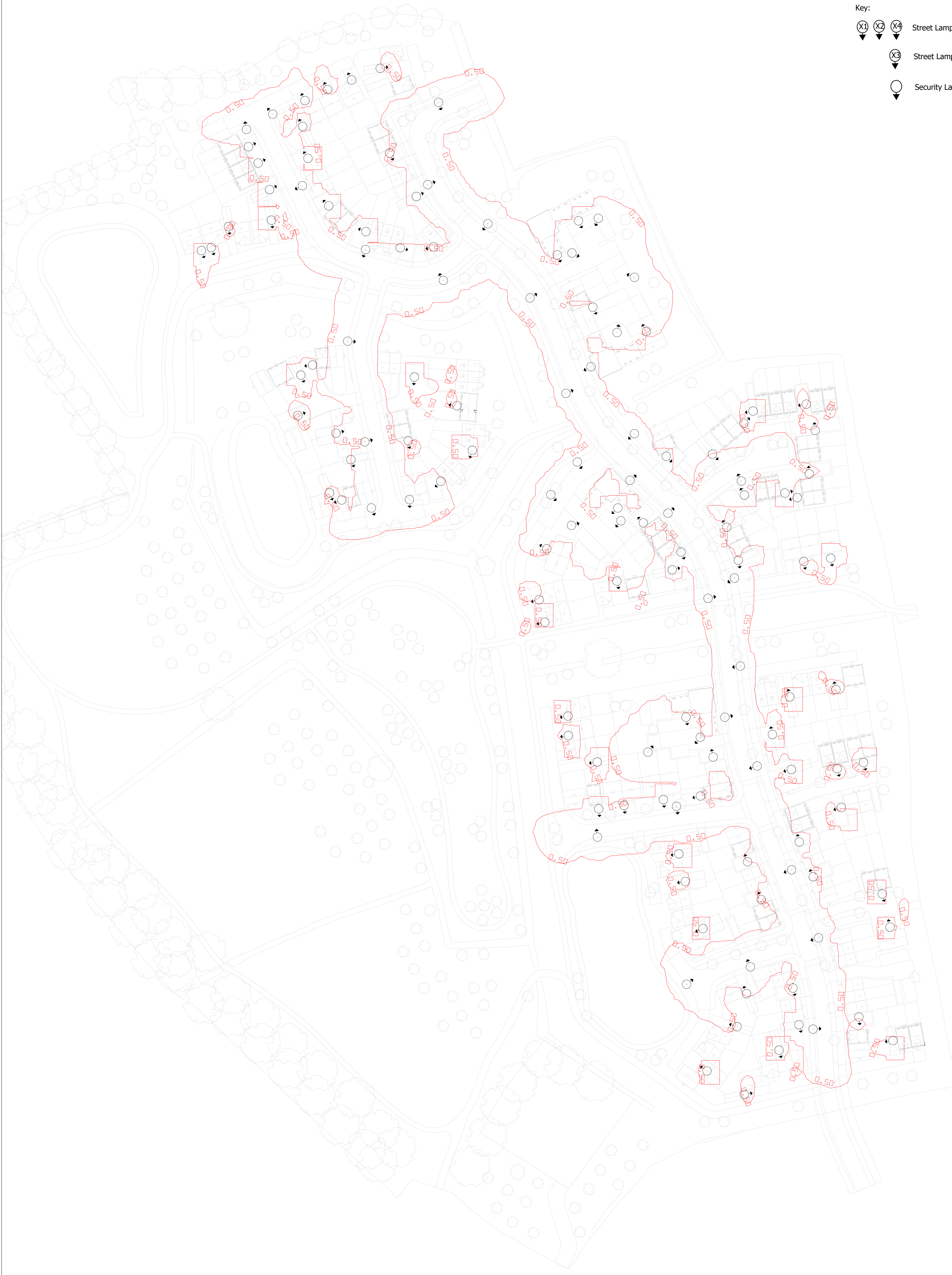
Qualifying Features

- Semi-natural dry grassland and scrubland on calcareous substrates.
- *Tilio-Acerion* forests of slopes, screes and ravines.
- Caves not open to the public.
- Lesser horseshoe bat.
- Greater horseshoe bat.



Appendix: detailed lux contour plan

- Key:
-    Street Lamps - High Intensity
 -  Street Lamps - Low Intensity
 -  Security Lamps



Do not scale from this drawing.
All dimensions to be confirmed on site.

- Notes
- Drawings to be read in conjunction with the schematic drawings and specification.

P1 05 Mar 24 Preliminary Issue
Revisions

Client
Persimmon Homes
Architect
Persimmon Homes
Job
Land at Rectory Farm, Yatton
Project
Title
External and Security Lighting Site Layout



Queen Square House, 18-21 Queen Square, Bristol, BS14NH
TEL: 0117 238 0909 www.e3ce.com

Job No. 4790	Drawing (Zone, Level, Role, No.) X XX J 3011	Rev. P1
Scale 1:750 @ A1 (1:1500 @ A3)	Author IMW	Reviewer MT