

Ecological Impact Assessment Addendum

Land North of Whychurch Farm, Malmesbury

Gleeson Land

July 2025

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1 Introduction, background and approach

1.1 Introduction

- 1.1.1 EAD Ecology was commissioned by Gleeson Land to undertake an Ecological Impact Assessment (EclA) of a proposed residential development at Land North of Whychurch Farm and west of Crudwell Road, Malmesbury (approximate OS Grid Ref: ST937881; refer to Figures 1 and 2), hereafter referred to as 'the Site'. An EclA Report was prepared by EAD Ecology in February 2025 (EAD Ecology, 2025; hereafter referred to as 'the EclA Report') to accompany the Outline Planning Application (reference PL/2025/02257) for the proposed development. A number of protected-species surveys were undertaken to inform the EclA. However, due to seasonal constraints, it was not possible to complete the update surveys for great crested newt, reptile, breeding bird, bat activity, bat roost, otter and water vole prior to the planning submission. This EclA Addendum Report details the results of these update surveys and any consequent changes to the assessment, avoidance/mitigation and residual conclusions previously documented in the EclA Report. This EclA Addendum Report should be read in conjunction with the EclA Report.

1.2 Legislation and planning policy

- 1.2.1 Relevant legislation and planning policy are detailed in Section 1.2 and Appendices 1, 2 and 3 of the EclA Report.

1.3 Approach

Ecological baseline

- 1.3.1 Baseline information was determined by desk study and an Extended Phase 1 Habitat Survey, followed by further (Phase 2) protected-species surveys; refer to Section 2 of the EclA Report. The update surveys documented in this EclA Addendum Report are detailed below.

Great crested newt survey

- 1.3.2 Updated Habitat Suitability Index and eDNA surveys of suitable waterbodies within 250m were undertaken on 16 April 2025 in accordance with standard methodology (Oldham *et al* 2000, Biggs *et al* 2014); refer to Appendix 1.

Reptile survey

- 1.3.3 An update reptile survey was undertaken according to standard methodology ((English Nature 1994; Froglife 1999) between April and June 2025. A total of 120 artificial refuges were placed in suitable habitat within the Site and checked on seven occasions in appropriate weather conditions; refer to Appendix 2.

Breeding bird survey

- 1.3.4 A breeding bird survey based on an adapted Common Bird Census (CBC) methodology (Gilbert *et al* 1998) was undertaken between April and June 2025, and included the recording of all bird species and associated breeding behaviour observed within the Site over three survey visits; refer to Appendix 3.

Bat activity survey

Night-time bat walkover survey

- 1.3.5 Three night-time bat walkover (NBW) surveys were undertaken in August 2024, October 2024 and April 2025 (one per season) using bat detectors. The surveys were undertaken in accordance with

Bat Conservation Trust Guidelines (BCT; Collins, 2023); refer to Appendix 4. The results of the 2024 NBW surveys only were detailed in the EclA Report; this EclA Addendum Report includes the results from all three NBW surveys in full.

Static detector surveys

- 1.3.6 Six static bat detectors were deployed for a minimum of five nights per month between July - October 2024 and April – June 2025 in accordance with BCT Guidance (Collins, 2023); refer to Appendix 4. The recorded calls were downloaded and analysed to determine species abundance and diversity within the Site. The results of the static detector surveys from April – October 2024 were detailed in the EclA Report; this EclA Addendum Report includes the results from 2024 and 2025 in full.

Bat roost survey

- 1.3.7 A ground-based assessment of trees was undertaken to identify potential bat roost features on 25 July 2024, followed by aerial tree climbing surveys of two trees in August 2024, September 2024 and May 2025; refer to Appendix 5. The results of the 2024 tree climbing surveys were detailed in the EclA Report; this EclA Addendum Report includes the results from all three tree climbing surveys in full.

Otter and water vole survey

- 1.3.8 Two survey visits were undertaken to search for signs of otter and water vole (e.g., spraints, latrines, burrows, tracks, feeding remains) along ditches within the Site, and for any potential otter holts or resting sites within or immediately adjacent to the Site. The surveys were undertaken on 4 September 2024 and 8 May 2025, and in accordance with Chanin (2003) and Strachan and Moorhouse (2011); refer to Appendix 6. The result of the September 2024 survey was included within the EclA Report; this EclA Addendum Report includes the results from both survey visits.

Survey limitations

- 1.3.9 There were no significant limitations to the surveys that are considered to affect the reliability of the assessment. A number of minor limitations were recorded during the bat activity surveys (refer to Appendix 4) that are not considered to be significant. These were as follows:
- Static detector Position 1 malfunctioned in September 2024, with no data collected for this Position during this month. Due to the large dataset including data collected in all other surveyed months, this is not considered to be a significant limitation.
 - Static detector Position 6 malfunctioned in October 2024 and was subsequently re-deployed at a later period within the same month for the correct number of nights, creating only minor variations in the total hours deployed. The data are still considered to be comparable between positions on Site and this was not considered to be a significant limitation or constraint to the assessment.

Evaluation, assessment, mitigation and residual effects

- 1.3.10 The evaluation of ecological features; assessment of the effects of the proposed development; identification of proposed avoidance, mitigation and enhancement measures; and assessment of residual effects were undertaken following Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (2018); refer also to Paragraphs 1.3.10 – 1.3.16 of the EclA Report.

2 Ecological baseline

2.1 Protected and notable species

Great crested newt (GCN)

- 2.1.1 No breeding habitat for amphibians occurred within the Site boundary. A review of OS mapping identified three ponds within 250m of the Site; Habitat Suitability Index (HSI) assessments of these ponds were undertaken in April 2025, followed by GCN environmental DNA (eDNA) survey of the two ponds (Ponds 1 and 3; refer to Appendix 1) that contained water at the time of survey. Both ponds tested negative for great crested newt eDNA. Pond 2 was found to be dry in April 2025 and therefore unsuitable for breeding GCN, consequently no further survey was undertaken.
- 2.1.2 Based on the negative eDNA result from Ponds 1 and 2, the unsuitability of Pond 2 for breeding GCN, and the lack of previous GCN records from these ponds, GCN is considered to be absent from the Site. An evaluation of the suitability of the Site for common amphibian species is provided in the EclA report.

Reptiles

- 2.1.3 A 'Good' population of slow-worm (maximum count ten; based on Froglife (1999) criteria) was recorded within the Site in 2025; refer to Appendix 2. Suitable reptile habitat was restricted to the field margins, with the majority of the short-grazed grassland within the Site providing sub-optimal reptile habitat. Hedgerows also provide hibernation habitat and movement corridors for reptiles.
- 2.1.4 Whilst a 'Low' population of grass snake was recorded within the Site during surveys undertaken in 2020 (refer to the EclA Report), this species was not recorded during the 2025 update survey. However, the continued presence of very low numbers of grass snake within the Site is possible and has been assumed for the purposes of this EclA.

Birds

- 2.1.5 A total of 19 species were recorded during the course of the breeding bird survey undertaken in 2025 (refer to Appendix 3), of which 13 species were 'confirmed', 'probably' or 'possibly' breeding within the Site. These included Priority Species and Red and Amber-listed Birds of Conservation Concern (BoCC; Stanbury *et al* 2021):
- Linnet, which possibly bred; this is a Red-listed BoCC and Priority Species.
 - Dunnock, which probably bred; this is an Amber-listed BoCC and Priority Species.
 - Woodpigeon and wren, which probably bred; these are Amber-listed BoCC.
 - Herring gull (Red-listed BoCC and Priority Species) and rook (Amber-listed BoCC) were recorded during the survey, however, neither species were considered to be breeding within the Site.
- 2.1.6 Peregrine was considered to have 'possibly bred' on an offsite water tower located approximately 10m from the eastern Site boundary; this species is protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). The habitats within the Site may form part of a peregrine territory.

Bats

Activity survey – Nighttime Bat Walkover (NBW) survey

- 2.1.7 At least three bat species were recorded within the Site during the NBW survey, with the majority of calls coming from common pipistrelle and soprano pipistrelle bats; refer to Appendix 4. Both species were recorded foraging along boundary hedgerows with the highest levels of activity concentrated around mature hedgerow trees in the southwest of the Site which provided a sheltered foraging area; refer to Appendix 4, Figure A4.1. Low numbers of *Myotis* bat calls (a total of four registrations) were recorded in August 2024 and April 2025 only.

Activity survey – static detector survey

- 2.1.8 At least nine bat species were identified during the static detector surveys in 2024 and 2025, with a cumulative total of 79,095 registrations recorded across six static detector locations; refer to Appendix 4. Common pipistrelle accounted for the highest number of registrations recorded within the Site (73.33%), followed by *Myotis* bat species (12.71%), soprano pipistrelle (10.02%), noctule (1.57%) and 'noctule, serotine or Leisler's bat' (1.10%). Other species recorded but accounting for less than one percent of the registrations included *Nyctalus* species, long-eared bat, lesser horseshoe bat, serotine, barbastelle and *Nathusius*' pipistrelle.
- 2.1.9 During the static detector surveys, the highest levels of activity were recorded along the eastern boundary of the northern field, where *Myotis* bat activity was also highest. Activity levels at all other locations was significantly lower for most bat species.
- 2.1.10 Light-averse bat species recorded within the Site included *Myotis*, long-eared, lesser horseshoe, greater horseshoe and barbastelle bats. Activity levels for most of these species was highest along the eastern boundary of the northern field, which correlated with the area where overall bat activity levels were highest. This location appears to be located at the greatest distance from potential sources of light spill i.e. roads and residential/commercial development and has several large, mature trees.

Roost surveys of trees

- 2.1.11 All trees within the Site were subjected to a ground-level tree assessment (GLTA) in 2024 to evaluate their potential for supporting roosting bats, in accordance with BCT Guidelines (Collins, 2023); refer to Appendix 5. Two trees were identified as having potential roosting features for bats (provisionally assessed as PRF-M; refer to Appendix 5); neither of these trees would be directly affected by the development proposals, however indirect effects were considered possible. Aerial climbing surveys of these trees completed in August 2024, September 2024 and May 2025 did not record evidence of roosting bats. On the basis of these surveys, the presence of bat roosts within these trees is considered unlikely.

Otter

- 2.1.12 No evidence of otter was recorded within the Site during surveys; refer to Appendix 6. The ditch on the north-western boundary of the Site was considered unlikely to be regularly used by this species due to the absence of standing water for the majority of the year, and only low water levels during wetter months.

Water vole

- 2.1.13 The ditch on the north-western boundary of the Site was considered to provide sub-optimal habitat for water vole due to the absence of standing water for the majority of the year and only

low water levels during wetter months. No evidence of water vole was recorded during surveys; refer to Appendix 6. This species is therefore considered absent from the Site.

2.2 *Evaluation and confirmation of important ecological features*

- 2.2.1 An evaluation of the surveyed ecological features is provided in Table 2.1 below; refer to Section 2.5 of the EclA Report for the evaluation of other ecological features within the zone of influence of the proposed development. The results of the update surveys confirmed the provisional ecological valuations of the Site for amphibians, reptiles, birds, bats, otter and water vole set out in the EclA report (EAD Ecology, 2025).

Table 2.1: Evaluation and confirmation of important ecological features

Ecological feature	Ecological importance	Included in detailed assessment?	Reason
<i>Protected and notable species</i>			
Amphibians	Sub-Parish	Yes (but not great crested newt)	No breeding habitat within Site, however there was terrestrial habitat suitable for common and widespread amphibians. Potentially impacted by the development. Due to the absence of breeding habitat within Site, and the negative eDNA survey results from ponds within the dispersal range, great crested newt is considered absent from Site and is not considered further within this assessment.
Reptiles	Sub-Parish	Yes	'Good' population of slow-worm recorded within the Site. Continued presence of very low numbers of grass snake is assumed. Potentially impacted by the development.
Birds	Sub-Parish	Yes	The Site contained suitable foraging and nesting habitat for a range of breeding bird species, including widespread but declining species such as linnet, dunnoek, herring gull, rook, woodpigeon and wren. Peregrine (a Schedule 1 species) was identified as 'possibly breeding' immediately adjacent to the Site and habitats within the Site may form part of a peregrine territory. Potentially impacted by the development.
Bats	Parish	Yes	No bat roosts identified. At least nine species were recorded commuting/foraging, although activity was dominated by common pipistrelle. Records of greater horseshoe, lesser horseshoe, barbastelle and long-eared bat accounted for fewer than 1% of registrations. Commuting/foraging bats potentially impacted by the development.
Otter	Negligible	No	No evidence of otter activity was recorded during surveys and onsite habitats were considered to be sub-optimal; this species is therefore considered to be absent from Site and is not considered further within this assessment.
Water vole	Negligible	No	No evidence of water vole activity was recorded during surveys and onsite habitats were considered to be sub-optimal; this species is therefore considered to be absent from Site and is not considered further within this assessment.

3 Assessment of ecological effects

3.1 *The proposed development*

Development description

- 3.1.1 The proposed development comprises an Outline Planning Application for residential development, including the construction of up to 149 dwellings, the creation of a new vehicular access with footways and cycle ways and ancillary road infrastructure, public open space, children's play area, allotments, landscape planting, surface water attenuation and associated infrastructure.

Ecological design and avoidance measures

- 3.1.2 The proposed development would include the following features (refer to Figures 2 and 4):
- New habitat creation to include native broadleaved woodland, wildflower grassland, native scrub and orchard planting, as well as SuDS ponds with associated wetland meadow seeding and marginal vegetation planting;
 - Existing boundary hedgerows to be retained and buffered from new development as far as possible, and new boundary hedgerows to be planted along currently undefined sections of the Site boundary to strengthen the existing habitat network for bats and other species;
 - Creation of significant landscape buffers along the southern, western and northeastern Site boundaries, including woodland planting, wildlife grassland and SuDS ponds, which will provide functional 'habitat corridors' for a range of species;
 - Provision of bat tubes/boxes and bird boxes within the fabric of new buildings and on retained trees;
 - Hedgehog passes within residential garden fences;
 - Creation of a minimum of three reptile hibernacula within the Public Open Space; and
 - Provision of insect/ bee bricks within new dwellings and walls, located in proximity to suitable pollinator habitat.
- 3.1.3 A Construction and Ecological Management Plan (CECoMP) would be produced to detail measures to ensure habitat and species protection during construction. A Landscape and Ecological Management Plan (LEMP) would be produced to detail how retained and proposed habitats will be managed in the long-term. Both of these documents would be agreed with Wiltshire Council prior to the start of construction.

3.2 *Unmitigated effects during construction*

Protected and notable species

Reptiles and amphibians

- 3.2.1 Removal of grassland and hedgerow sections would lead to a reduction in foraging and breeding habitat for slow worm and grass snake. It could also result in direct effects (e.g., killing/injury). Mitigation measures would be implemented to ensure legal compliance; refer to Paragraphs 4.1.2 - 4.1.4.

Birds

- 3.2.2 Depending on the timing of Site clearance, there could be a direct effect on nesting birds, their eggs and young. Avoidance and mitigation measures are proposed to ensure legal compliance; refer to Paragraphs 4.1.5 - 4.1.6. Habitat clearance, particularly hedgerow removal, would result

in the loss of nesting and foraging habitat used by a range of common/widespread species. This would be mitigated by new habitat creation in the medium-term onwards.

- 3.2.3 Construction activity has the potential to cause localised noise and visual disturbance which may cause displacement of nesting birds in the immediate vicinity, although some would be tolerant of disturbance or would become habituated. Given the temporary nature of the construction works, it is likely that any impact of disturbance on individual breeding pairs will not affect the local populations of affected species.
- 3.2.4 Peregrine is a highly territorial species and is known to return to the same nest site year after year. The location of the potential peregrine nest site on the water tower immediately adjacent to the A429 road and a service station would indicate that the individuals nesting at this location are habituated to high levels of background noise and visual disturbance. Disturbance generated during construction is unlikely to be significantly higher than the existing background levels and it is therefore considered unlikely that construction would result in significant disturbance to breeding peregrine. Measures to further minimise any potential risk of disturbance are proposed; refer to Paragraph 4.1.6.

Bats

- 3.2.5 The hedgerow network, which provided flight-lines and foraging habitat for bats, would be predominantly retained. However, Site clearance would result in the removal of 160m of hedgerow over several sections to facilitate vehicular and pedestrian accesses, resulting in the degradation of their function as bat commuting / foraging corridors. Habitat removal elsewhere would further reduce the value of the Site to bats. Loss of hedgerows and grassland would be partially-mitigated in the long term by the habitat creation proposals; refer to Figures 4 and 5.
- 3.2.6 Lighting associated with the construction phase has the potential to disrupt foraging activity for 'light-averse' bat species such as *Myotis*, long-eared, lesser horseshoe, greater horseshoe and barbastelle bats; refer to Paragraph 4.1.8 for proposed mitigation. No bat roosts would be affected.

3.3 Post-construction effects

Protected and notable species

Reptiles and amphibians

- 3.3.1 New hedgerows, wildflower grassland and the SUDS features would provide suitable foraging and hibernating habitat for reptiles and amphibians, once established, and their presence would be taken into account during landscape management. Creation of reptile hibernacula within the Public Open Space would also provide suitable habitat for hibernating reptiles.

Birds

- 3.3.2 Native tree, scrub and hedgerow planting would result in an increase in habitat available for nesting birds, and nest boxes would benefit a range of species, including Species of Conservation Concern / Priority Species such as house sparrow and swift. Residential gardens would also be likely to provide suitable foraging and nesting habitat as they became established.
- 3.3.3 Peregrine is known to be relatively tolerant to anthropogenic disturbance and breeds successfully in urban environments. It is also very likely that peregrines would continue to hunt within the Site post-development, with some studies indicating that urban peregrines experience greater

breeding success than their rural counterparts (Kettel *et al.*, 2019). Therefore, any disturbance caused by the development is unlikely to be significant to this species.

- 3.3.4 It would be expected that a proportion of residents within the new development would own cats, and therefore local bird populations may also be adversely affected by increased predation. However, it would be expected that a proportion of new residents within the development would provide supplementary feeding for birds, which is likely to help winter survival rates within the local population of some species and has been shown to improve breeding success in the following spring (Robb *et al.*, 2008). There is likely to be a change of species composition from an 'agricultural' species assemblage to a more 'urban' species assemblage.

Bats

- 3.3.5 Retained habitat, including the hedgerow network and broadleaved woodland, would continue to provide suitable foraging habitat and functional flight routes for bats from within the Site to the wider landscape. The green infrastructure proposals include the creation of significant landscape buffers along the southern, western and northeastern Site boundaries, including woodland and hedgerow planting, which would buffer these linear features from the development and provide robust functional flight routes for bats, including light-sensitive species. New habitat planting of wildflower meadow, scattered trees, broadleaved woodland and attenuation basins would also provide suitable foraging habitat for bats across the Site.
- 3.3.6 Surveys recorded the highest levels of activity of light-averse bat species along the eastern boundary hedgerow of the northern field (refer to Paragraph 2.1.10); whilst this hedgerow would be retained, it, and other central sections of hedgerow, would likely be subject to light spill from street lighting and residential lighting from properties, which could have an adverse effect on bats, particularly these more light-sensitive species. The impact of public-realm lighting on foraging and commuting bats is variable and depends upon the species concerned and the nature of their activity, as well as on the type and intensity of the lighting. Certain bat species are known to be relatively tolerant of artificial lighting e.g. common pipistrelle, and noctule (Stone *et al.* 2009, Stone 2013). These species are likely to continue to forage over the urban areas of the Site and are unlikely to be significantly impacted by public-realm lighting. Lighting directed to features used by light-sensitive species such as lesser horseshoe bat, greater horseshoe bat, long-eared bat, barbastelle and *Myotis* bats could potentially inhibit use of flight-paths with such species likely to avoid illuminated areas (Stone 2013). Given the recorded levels and patterns of occurrence of these species during the surveys, it is considered unlikely that the development would compromise the local conservation status of any bat species.

4 Avoidance, mitigation, compensation and enhancement

4.1 *Avoidance, mitigation, compensation and enhancement during construction*

General

- 4.1.1 A Construction Ecological Management Plan (CECoMP) would be produced to detail measures to ensure habitat and species protection during the pre-construction and construction phases. The Ecological Clerk of Works (ECW), as required by the CECoMP, would be appointed to provide advice and undertake ecological supervision, as required.

Protected and notable species

Reptiles and amphibians

- 4.1.2 Habitats where amphibians and reptiles were found, or assumed to be present, would be subject to habitat manipulation prior to construction to prevent killing/injury of reptiles during Site clearance. This would involve two-stage cutting any time between late March and early October:
- Grassland within 5m of field margins would first be cut to 150mm and then left for a week, to allow reptiles to move into adjacent retained habitats.
 - After a week, the grassland would be cut to ground level to discourage reptiles from re-entering the cut areas.
- 4.1.3 The topsoil would subsequently be stripped from the area, rendering it unsuitable for reptiles. The ECW would undertake a watching brief during the topsoil strip of field margins to search for any remaining reptiles present; any reptiles found would be moved by the ecologist to suitable retained habitat in the vicinity. Retained hedgerows would be protected during construction through the use of temporary barriers (e.g. Heras fencing; refer to Paragraph 4.1.3 of the EclA report).
- 4.1.4 Three hibernacula would be created, located in suitable habitat within Public Open Space, which would enhance the new habitats onsite for reptiles until they became established; refer to Figure 5.

Birds

- 4.1.5 Clearance of hedgerow sections would be undertaken between September and February inclusive (i.e. outside of the main bird breeding season) to ensure that there were no direct effects on nesting birds. If clearance was required during the nesting season, an ecologist would first check the affected habitats for active nests. If any were found, the nest(s) and immediate surroundings would be left undisturbed until the eggs had hatched and young had fledged, or the breeding attempt was otherwise concluded i.e. nest abandoned/predated. The ecologist may establish a buffer zone around the nest (e.g. 5m) to minimise the risk of accidental damage/destruction.
- 4.1.6 Appropriate measures would be undertaken to ensure that construction machinery and plant is adequately maintained to reduce excessive noise levels and minimise disturbance to nesting peregrine.
- 4.1.7 Schwegler Type 1A swift boxes (or similar approved) would be incorporated into new buildings within the Site, at a minimum ratio of one box per dwelling; refer to Figure 5. These would be suitable for use by swift, which is an 'Red' Species of Conservation Concern (Stanbury *et al* 2021) and can also be used by other declining urban species such as house sparrow. Boxes would be

integrated into the walls of new buildings at a minimum height of 4m; the precise locations of boxes would be detailed in the CEcoMP.

Bats

- 4.1.8 During construction, all contractors' compounds would be located a minimum of 10m away from retained trees and hedgerows to minimise potential lighting and disturbance impacts on commuting/foraging bats. Between April and October inclusive, any construction lighting within the Site would be turned off prior to sunset; any security lighting would be positioned at low-height and motion-activated on short-timers only.
- 4.1.9 1FR Schwegler bat tubes (or similar approved) would be incorporated into new buildings within the Site, at a minimum ratio of one per two dwellings, to provide new roosting opportunities for bats; refer to Figure 5. Boxes would be integrated into the building's walls at a minimum height of 3m, close to eaves, avoiding north facing elevations with limited fenestration and in proximity to green infrastructure. The number, specifications and exact locations would be included the CEcoMP.

4.2 Avoidance, mitigation, compensation and enhancement post-construction

Protected and notable species

Amphibians and reptiles

- 4.2.1 Habitats would be managed in accordance with the LEMP, which would include habitat management measures designed to benefit reptiles and amphibians. Although the primary function of the proposed SUDS features is for surface-water attenuation, wherever possible, they would be managed to maximise its value to amphibians through restricting the timing of any required works to avoid the amphibian breeding season (approximately February to June).

Birds

- 4.2.2 Bird boxes within buildings are designed to be maintenance-free and no management would be required; refer to Figure 5. Measures to avoid impacts on nesting birds during landscape management works will also be included in the LEMP.

Bats

- 4.2.3 Bat boxes within buildings are designed to be maintenance-free and no management would be required; refer to Figure 5.
- 4.2.4 The detailed design of public-realm lighting would seek to minimise the adverse effects on bats in accordance with current research and guidance (ILP, 2023; Rowse et al., 2016). Lighting would be designed to direct light away from Site boundaries and new and retained hedgerows. Lighting along roads and footpaths, where required, would be kept to the minimum required for security and public health and safety, and avoided as far as possible within the public open space.
- 4.2.5 Measures that could be provided to minimise lighting impacts include:
- Narrow Spectrum lights with no ultraviolet (UV) content.
 - Luminaires with a restricted upward light ratio.
 - Directional downlights - illuminating below the horizontal plane.
 - Height of light units minimised (whilst ensuring light does not spill above horizontal plane).
 - Avoidance of upward light (e.g. ground-mounted floodlights up-lighting trees, buildings and vegetation).

- Variable lighting regimes (motion sensors or part-night lighting) in areas close to Site boundaries.
- Use of fore/rear shields to restrict light direction used as a last resort only.

4.2.6 The final lighting design would be reviewed by a suitably qualified ecologist and would be subject to approval by Wiltshire Council, for example through an appropriate Planning Condition.

4.3 *Ecological monitoring*

4.3.1 An Ecological Clerk of Works (ECW) would be appointed to assist in the delivery of avoidance and mitigation during the pre-construction/construction period. This would be set out in the CECoMP.

4.3.2 Post-construction monitoring of the retained, created and enhanced habitats would be undertaken to ensure successful establishment and management; a monitoring protocol would be contained in the LEMP.

4.4 *Mechanisms for mitigation delivery*

4.4.1 Preparation and implementation of the proposed CECoMP, LEMP and lighting strategy could be secured via a planning condition. These management documents would also detail responsibilities for the delivery of the construction and post-construction mitigation and management measures. The statutory BNG condition would be automatically applied to the planning permission.

5 Residual effects

5.1 *Summary of residual effects*

- 5.1.1 Table 5.1 below provides a summary of the ecological assessment and identifies the residual ecological effects arising from the proposed development.

5.2 *Cumulative effects*

- 5.2.1 Any cumulative effects would not be above the levels identified for these species groups in isolation i.e. cumulative effects would remain as Sub-Parish and would not be significant.

5.3 *Conclusion*

- 5.3.1 On the basis of the implementation of all avoidance, mitigation, compensation and enhancement measures identified in this report, all long-term effects on amphibians, reptiles, birds, bats would be neutral or positive.

Table 5.1: Summary of ecological assessment

Ecological feature	Potential unmitigated impact	Avoidance, mitigation, compensation and enhancement	Residual effect
Protected and notable species			
Amphibians and reptiles	Potential killing/injury and loss of terrestrial habitat for small numbers of common amphibians (excluding great crested newt). Potential killing/injury and habitat loss for small numbers of reptiles (slow-worm and grass snake).	Habitat manipulation would prevent direct impacts during construction. New habitat creation and hibernacula provision would be suitable for reptiles and amphibians.	Negative, short-term effect at Sub-Parish level. Minor positive (Sub-Parish) level effect in the medium-term onwards.
Birds	Potential direct effects on individual birds, their nests and eggs. Loss of nesting and foraging habitat. Localised noise disturbance to nesting birds in adjacent / retained habitats. No significant disturbance to peregrine predicted. Potential increase in cat predation post-construction, although new gardens likely to provide supplementary food.	Clearance of hedgerow sections outside of main bird nesting season (i.e. undertaken between September and February), or subject to pre-clearance check by an ecologist. Measures taken to minimise noise disturbance from machinery and plant. Habitat creation and provision of nest boxes within new buildings. Landscape proposals will provide suitable new habitat for birds once established.	Negative, short to medium-term effect at Sub-Parish level, not significant. Minor positive (Sub-Parish) level effect in the medium-term onwards.
Bats	No effects on bat roosts predicted. Loss of bat commuting/foraging habitat. Potential disruption to light-averse bat species through construction and post-construction lighting.	All contractors' compounds located a minimum of 10m away from retained trees, hedgerows and woodland. Restrictions on construction lighting between April and October. Habitat creation and provision of bat boxes within new buildings and on trees. Post-construction lighting designed to minimise impacts on bats.	Negative, short-term effect at Sub-Parish level, not significant. Neutral effect in the medium-term onwards (on the basis that a mitigated lighting strategy is delivered).

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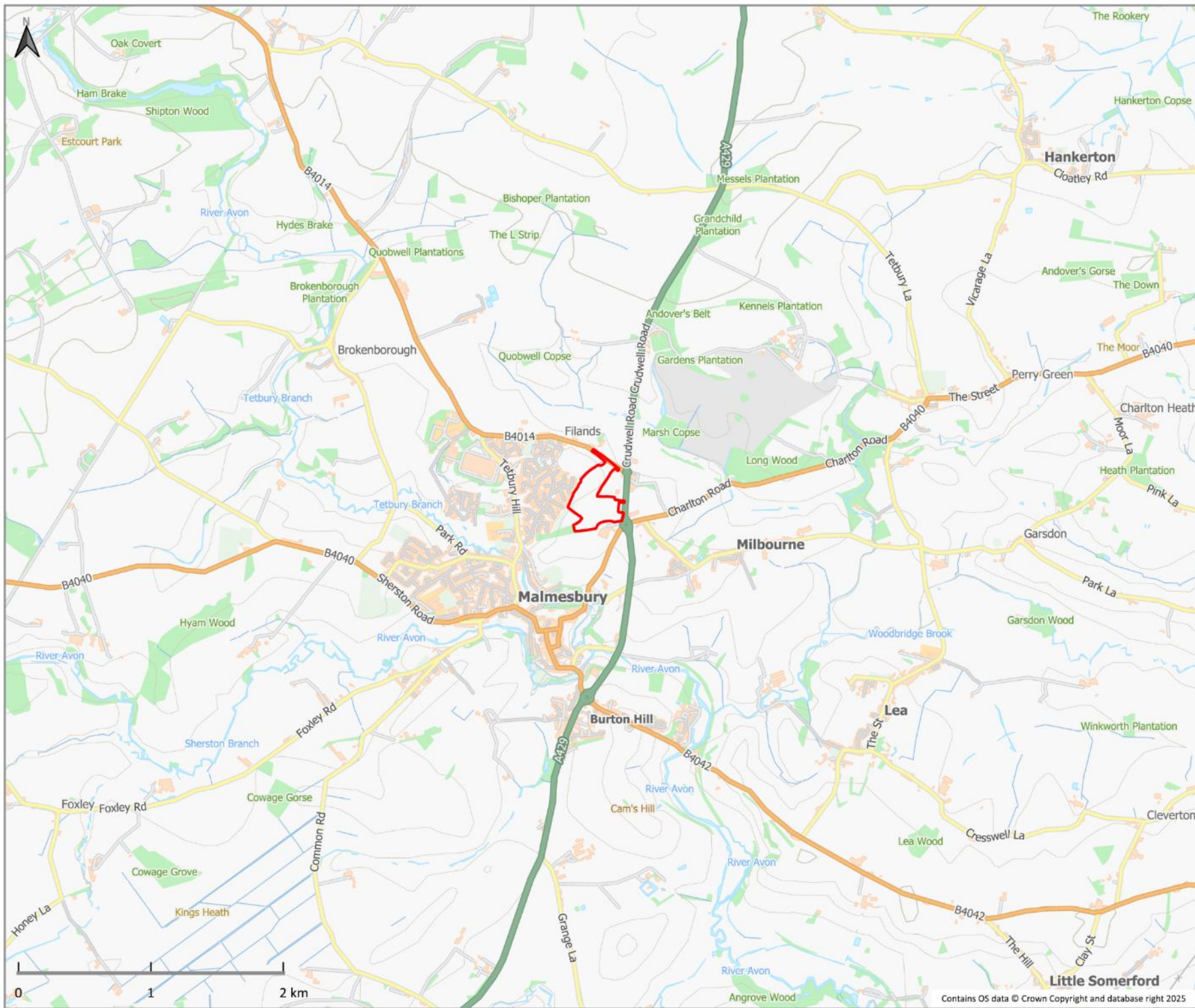
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Figure 1: Site location plan



Key

Site boundary

ead
ecology

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Gleeson Land
Land North of Whychurch Farm, Malmesbury
Site Location Plan
18/02/2025

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Figure 2: Illustrative masterplan



Romsey T: 01794 367703
Portishead T: 01275 407000
London T: 01794 367703

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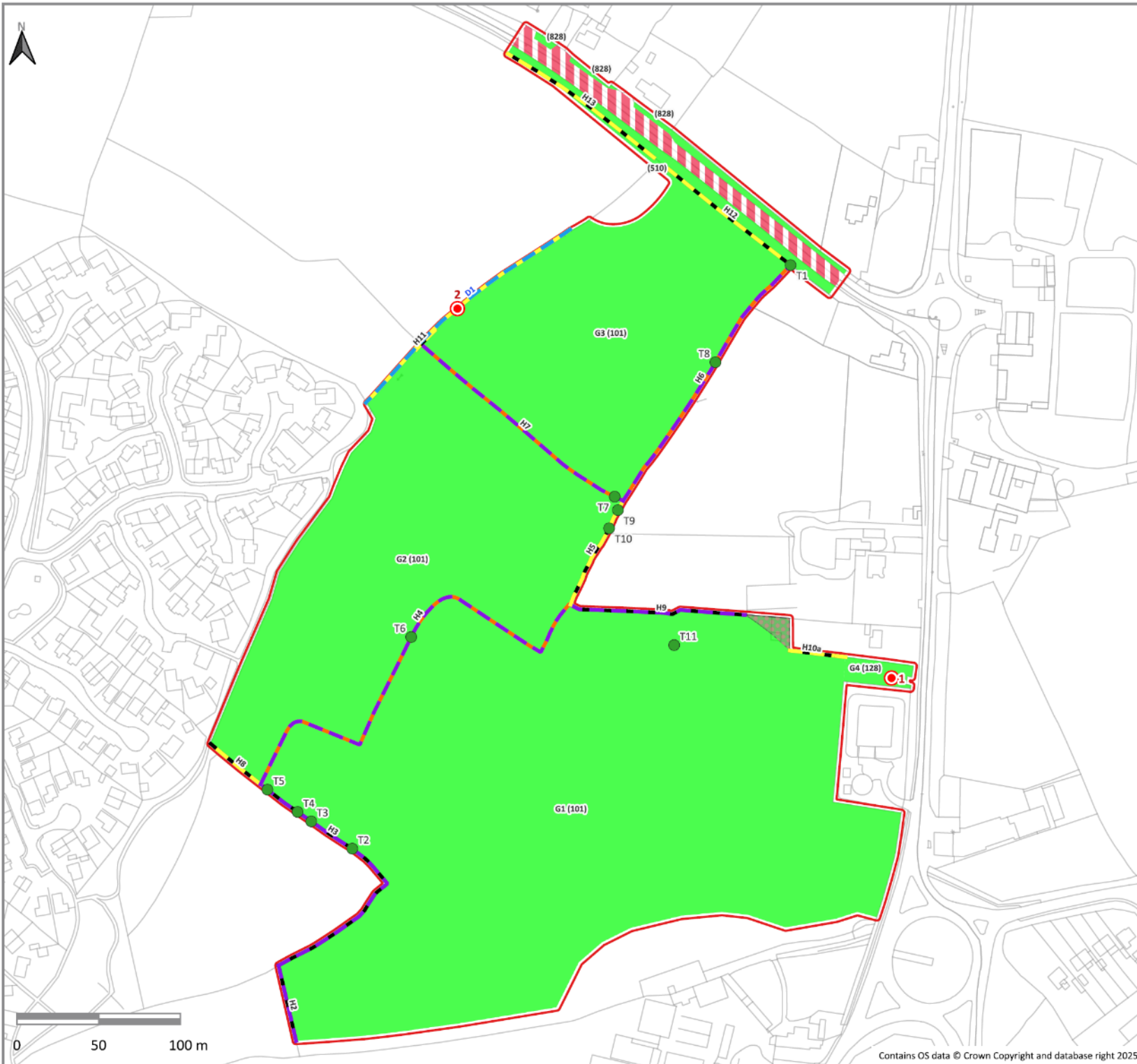
Rev	Description	Date	Au	Ch
A	Issued For Planning	24.02.25	NJ/TM	NJ

Project	Land north of Whychurch Farm and west of Crudwell Road
Drawing	Illustrative Masterplan

Client	Gleeson Land	Date	31.01.25
Job no.	GLEE240917	Rev.	A
Dwg no.	IMP.02	Scale	1:1250@A2
Author	NJ/TM	Checked	NJ
Status	PLANNING	Office	Portishead
Client ref.	-		



**Figure 3: UKHab Habitat plan, target notes and
photographs**



Key

- Site boundary
- Target Notes
- Native individual tree
- Ditches
- Native hedgerow
- Species-rich native hedgerow
- Species-rich native hedgerow - associated with bank or ditch
- g4 - modified grassland
- w1g - other woodland-broadleaved
- u1b - developed land, sealed surface

UKHab code	Description
31	Secondary woodland
50	Ditch
101	Cattle grazed
128	Tall and tussocky sward

Target Notes	
Number	Description
1	Lower lying area of grassland regularly flooded. Floating sweet-grass and duckweed sp. dominant. 
2	Ditch (approximately 0.5 - 1m wide), damp at time of survey, and likely to hold water for more than four months of the year. Vegetation on banks included frequent to abundant soft rush, common sorrel, common nettle and broad-leaved willowherb. 

Figure 4: Land Use Parameter Plan



Romsey T: 01794 367703
Portsmouth T: 01275 407000
London T: 01794 367703

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Rev	Description
A	Issued For Planning

Date	Au	Ch
24.02.25	LC	NJ

Project	Land north of Whychurch Farm and west of Crudwell Road
Drawing	Land Use Parameter Plan

Client	Gleeson Land				
Job no.	GLEE240917	Date	11.02.25		
Dwg no.	LUPP.01	Rev.	A		
Author	LC	Checked	NJ	Scale	1:1250@A2
Status	PLANNING	Office	Portsmouth		

Client ref: -



Figure 5: Ecological Constraints and Opportunities Plan



Bat and bird habitat (e.g. bat tubes / bricks; swift boxes) to be incorporated into new buildings and also on trees to provide roosting / nesting habitats.

Insect / bee bricks are also proposed to be incorporated into walls within the residential development.

Creation of significant landscape buffers along the southern, western and northeastern site boundaries which will provide functional Ecological Corridors for a range of species.

Creation of SUDs would provide potential suitable breeding / foraging habitat for amphibians and reptiles.

Native hedgerow creation, woodland, wildflower meadow and wetland habitat creation around the SUDs pond would partially offset habitat loss, and provide habitat for a range of notable species.

One outlier sett located on boundary of Site. A 20m exclusion zone would be set out around this sett prior to construction to avoid any accidental damage. Should the retention of this sett not be feasible, a Natural England Badger Development Licence would be obtained for its closure.

Prior to commencement of construction, update survey to be carried out to reconfirm the site baseline in respect of invasive plant species. Production of an Invasive Species Method Statement if required.

Reptile mitigation strategy to include habitat manipulation, to be undertaken prior to start of construction.

Sensitive lighting strategy has been designed to ensure that light levels do not exceed 0.5lux within the proposed 'dark corridors'.

Site clearance (including hedgerow removal) undertaken outside of bird-nesting season or preceded by a search of suitable habitats for nesting birds.

Loss of hedgerow to facilitate site access.

Retained trees and hedges protected during construction in accordance with BS 5837:2012 Trees in relation to design, demolition and construction.

All trees with bat roost suitability retained and protected.

Three reptile hibernacula created in suitable public open space area.

General construction management measures to minimise impacts on badgers and hedgehogs to be implemented and adhered to during construction.

Hedgehog passes to be provided in garden fences.

Key

- Site boundary
- Badger outlier sett - active
- Ecological Corridors
- New species-rich native hedgerow
- Native hedgerow retained
- Woodland planting open space (10% woodland planting, 30% amenity grassland, 60% wildflower grassland)
- Ownership Line
- Site Access
- Developable Area
- Informal open space (including amenity green space, natural and semi-natural green space, existing tree planting, allotments, drainage and attenuation, tree and structure planting, ecological enhancements, play spaces and natural play, to be resolved in Reserved Matters application).
- Copse Planting
- Retained Vegetation

0 100 200 m

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Gleeson Land

Land North of Whychurch Farm, Malmesbury

Ecological Constraints and Opportunities Plan

25/02/2025

Created by: ML

Scale at A3 1:2,500

Appendix 1: Great crested newt survey results

Great crested newt survey

1 Methodology

Identification of ponds

A desktop study was undertaken using Ordnance Survey mapping and aerial photography to locate ponds and other waterbodies potentially suitable for great crested newt (GCN) within 250m of the Site boundary at the time of survey. Three waterbodies (Ponds 1-3) were provisionally identified; refer to Figure A1.1.

Habitat Suitability Index

A Habitat Suitability Index (HSI) assessment was undertaken of Ponds 1, 2 and 3 on 16 April 2025. HSI is a numerical index, between zero and one; zero indicates unsuitable habitat, one represents optimal habitat. The HSI for great crested newt (Oldham *et al*, 2000) incorporates ten suitability indices, all of which are factors thought to affect the species. The suitability of the ponds to support GCN was then categorised using the following scale (ARG UK 2010):

Table A1.1: Categorisation of HSI scores

HSI score	Pond suitability
<0.5	Poor
0.5 – 0.59	Below average
0.6 – 0.69	Average
0.7 – 0.79	Good
>0.8	Excellent

Presence/absence survey (eDNA)

Environmental DNA (eDNA) samples were collected from Ponds 1 and 3 on 16 April 2025 by a Natural England GCN-licensed ecologist in strict adherence to the methodology stated in the DEFRA Technical Report (WC1067; Biggs *et al*, 2014). Samples were immediately couriered to an independent laboratory (ADAS) for analysis following the Natural England approved methodology. Pond 2 was found to be dry on this date and was consequently not suitable for eDNA water sampling.

2 Limitations

There were no limitations to survey.

3 Results

Habitat Suitability Index (HSI)

Pond 1 was considered to have 'Average' suitability for GCN; refer to Table A1.2 for the detailed HSI assessment 2.

Pond 2 was considered to have 'Poor' suitability for GCN; refer to Table A1.3 for the detailed HSI assessment.

Pond 3 was considered to have 'Average' suitability for GCN; refer to Table A1.4 for the detailed HSI assessment.

Table A1.2: Pond 1 HSI score result

Habitat Suitability Index				SI value
SI1.	Map location	A/B/C	A	1.00
SI2.	Surface area	rectangle/ellipse/irregular	irregular	
	length (m)		0	
	width (m)		0	
	OR estimate (m ²) if irregular		100	
	area (m ²) =		100	0.20
SI3.	Dessication rate	never/rarely/sometimes/frequently	sometimes	0.50
SI4.	Water quality	good/moderate/poor/bad	moderate	0.67
SI5.	Shade	% of margin shaded 1m from bank	90	0.40
SI6.	Waterfowl	absent/major/minor	absent	1.00
SI7.	Fish population	absent/possible/minor/major	absent	1.00
SI8.	Pond density	number of ponds within 1km	15	1.00
SI9.	Terrestrial habitat	good/moderate/poor/isolated	poor	0.33
SI10.	Macrophyte cover	%	55	0.86
			HSI =	0.61
Use provisional HSI value if above 0.75			provisional HSI =	0.58
			Date undertaken	16.04.2025

Table A1.3: Pond 2 HSI score result

Habitat Suitability Index				SI value
SI1.	Map location	A/B/C	A	1.00
SI2.	Surface area	rectangle/ellipse/irregular	irregular	
	length (m)		0	
	width (m)		0	
	OR estimate (m ²) if irregular		50	
	area (m ²) =		50	0.10
SI3.	Dessication rate	never/rarely/sometimes/frequently	frequently	0.10
SI4.	Water quality	good/moderate/poor/bad	moderate	0.67
SI5.	Shade	% of margin shaded 1m from bank	90	0.40
SI6.	Waterfowl	absent/major/minor	absent	1.00
SI7.	Fish population	absent/possible/minor/major	absent	1.00
SI8.	Pond density	number of ponds within 1km	8	1.00
SI9.	Terrestrial habitat	good/moderate/poor/isolated	moderate	0.67
SI10.	Macrophyte cover	%	10	0.41
			HSI =	0.49
Use provisional HSI value if above 0.75			provisional HSI =	0.45
			Date undertaken	16.04.2025

Table A1.4: Pond 3 HSI score result

Habitat Suitability Index				SI value
SI1.	Map location	A/B/C	A	1.00
SI2.	Surface area	rectangle/ellipse/irregular	irregular	
	length (m)		0	
	width (m)		0	
	OR estimate (m ²) if irregular		100	
	area (m ²) =		100	0.20
SI3.	Dessication rate	never/rarely/sometimes/frequently	sometimes	0.50
SI4.	Water quality	good/moderate/poor/bad	poor	0.33
SI5.	Shade	% of margin shaded 1m from bank	65	0.90
SI6.	Waterfowl	absent/major/minor	absent	1.00
SI7.	Fish population	absent/possible/minor/major	absent	1.00
SI8.	Pond density	number of ponds within 1km	6	1.00
SI9.	Terrestrial habitat	good/moderate/poor/isolated	moderate	0.67
SI10.	Macrophyte cover	%	10	0.41
			HSI =	0.62
<i>Use provisional HSI value if above 0.75</i>			provisional HSI =	0.59
			Date undertaken	16.04.2025

Presence/absence survey (eDNA)

GCN eDNA was not detected in samples from Pond a 1 and 3, and a negative result was returned. All samples passed inhibition and degradation controls. Refer to Figure A1.2 for the eDNA laboratory report.

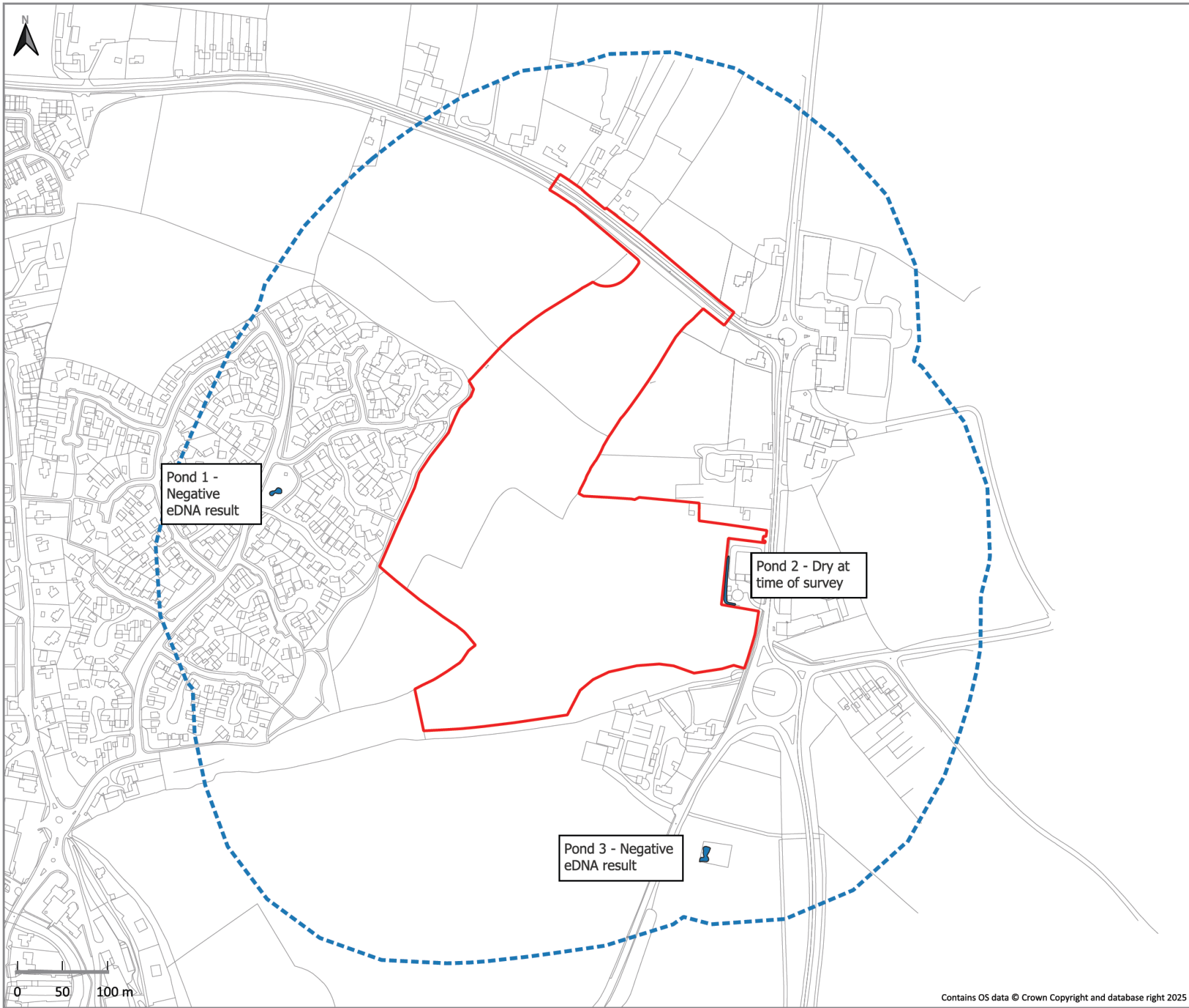
4 References

Biggs J, Ewald N, Valentini A, Gaboriaud C, Griffiths RA, Foster J, Wilkinson J, Arnett A, Williams P and Dunn F (2014) Analytical and methodological development for improved surveillance of the Great Crested Newt. Defra Project WC1067. Freshwater Habitats Trust: Oxford.

English Nature (2001) Great Crested Newt Mitigation Guidelines. English Nature, Peterborough.

Oldham RS, Keeble J, Swan MJS & Jeffcote M (2000) Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10, 143-155.

Figure A1.1: Great Crested Newt Survey Plan



Key

-  Pond
-  250m buffer
-  Site boundary

Figure A1.2: Great Crested Newt eDNA Results

Client:
Amy Clack, EAD Ecology
1040079-AC-EAD



RSK ADAS Ltd
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-7878

Client Identifier: Pond1 Malmesbury

Grid references/coordinates: ST9337988235

Description: pond water samples in preservative

Condition on Receipt: Good

Date of Receipt : 22/04/2025

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	30/04/2025
Degradation Control [§]	Within limits	Real Time PCR	30/04/2025
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	30/04/2025
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN
Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	30/04/2025	Date of issue:	30/04/2025

eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for GCN if all of the replicates are negative; positive for GCN if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Client:
Amy Clack, EAD Ecology
1040079-AC-EAD



RSK ADAS Ltd
Spring Lodge
172 Chester Road
Helsby
WA6 0AR

Tel: 01159 229249
Email: Helen.Rees@adas.co.uk

www.adas.uk

Sample ID: ADAS-7869

Client Identifier: Pond3 Malmesbury

Grid references/coordinates: st9385987835

Description: pond water samples in preservative

Condition on Receipt: Low Sediment and Algae Present

Date of Receipt : 22/04/2025

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	30/04/2025
Degradation Control [§]	Within limits	Real Time PCR	30/04/2025
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	30/04/2025
Negative PCR Control (Nuclease Free Water)	0 of 4	Real Time PCR	As above for GCN
Positive PCR Control (GCN DNA 10 ⁻⁴ ng/μL) [#]	4 of 4	Real Time PCR	As above for GCN
Report Prepared by:	Dr Helen Rees	Report Issued by:	Dr Ben Maddison
Signed:		Signed:	
Position:	Director: Biotechnology	Position:	MD: Biotechnology
Date of preparation:	30/04/2025	Date of issue:	30/04/2025

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** If all PCR controls and extraction blanks give the expected results a sample is considered: negative for GCN if all of the replicates are negative; positive for GCN if one or more of the replicates are positive.*

[†] Recorded as the number of positive replicate reactions at expected C_t value. If the expected C_t value is not

[§] No degradation is expected within time frame of kit preparation, sample collection and analysis.

[#] Additional positive controls (10⁻¹, 10⁻², 10⁻³ ng/μL) are also routinely run, results not shown here.

Appendix 2: Reptile survey results

Reptile survey results

1 Methodology

A reptile survey was undertaken according to standard methodology (English Nature 1994; Froglife 1999). 120 artificial refuges (0.5m x 0.5m roofing felt tiles) were deployed on 28 April 2025 and checked on seven occasions in appropriate weather conditions between 8 May 2025 and 6 June 2025.

2 Limitations

There were no limitations to survey.

3 Results

The reptile survey recorded a ‘Good’ populations of slow worm; refer to Figure A2.1 for locations. Suitable reptile habitat was restricted to grassland margins and hedge banks, with the majority of the modified grassland within the Site unsuitable for reptiles.

Survey conditions and results are provided in Table A2.1 with locations shown on the Figure A2.1.

Table A2.1: Reptile survey results

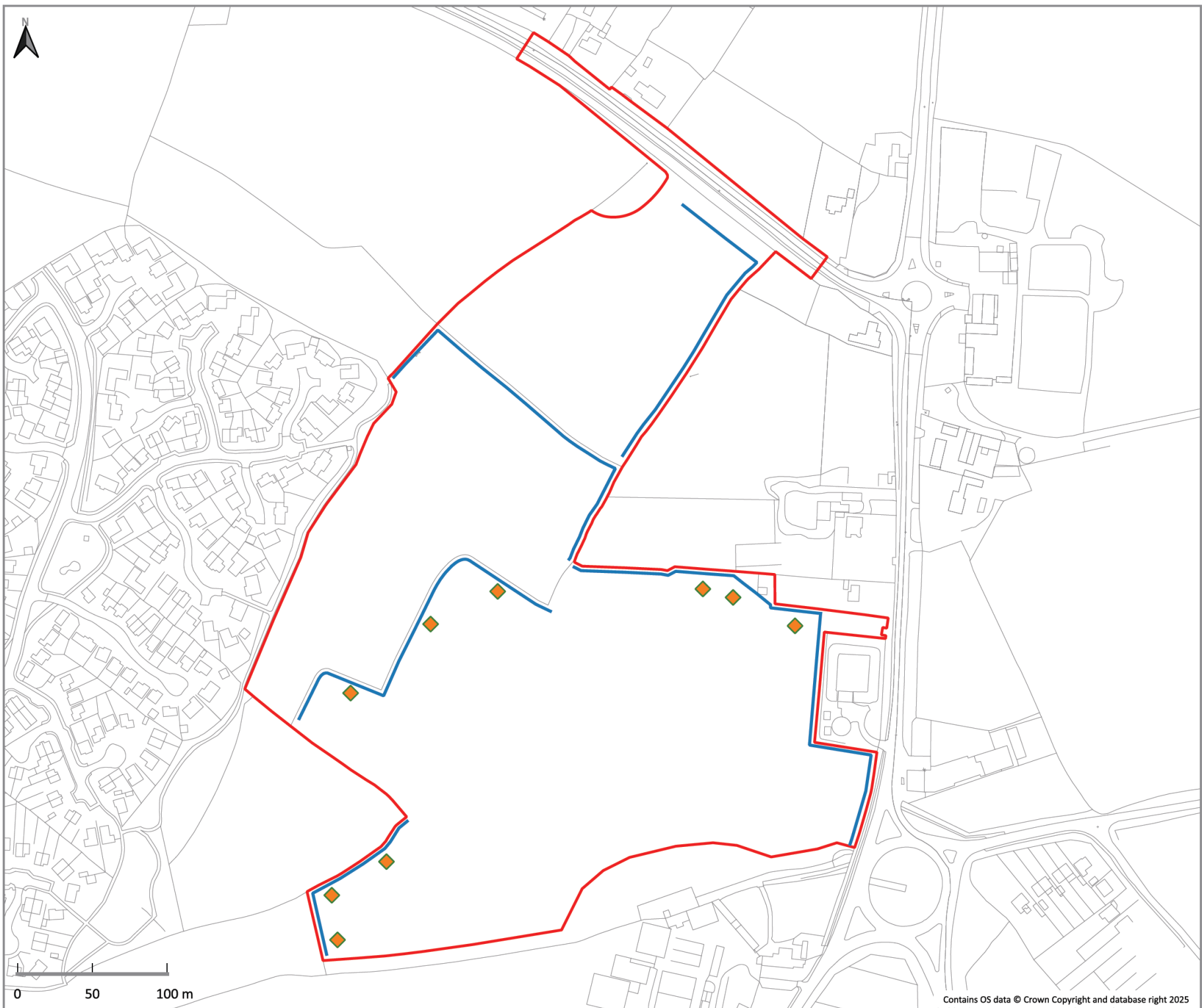
Visit no.	Date	Start Time	Temperature (°C)	Cloud cover (Oktas)	Wind force	Results
1	08.05.25	09:30	12	4/8	2	2 x female slow worm, 1 male slow worm
2	13.05.25	09:00	15	4/8	0-1	1 x female slow worm
3	22.05.25	09:00	13	5/8	1	1 x female slow worm
4	26.05.25	08:30	12	5/8	1-2	3 x female slow worm, 1 male slow worm
5	30.05.25	09:00	14	6/8	2	5 x female slow worm, 2 x male slow worm
6	02.06.25	08:00	14	2/8	2	9 female slow worm, 1 male slow worm
7	06.06.25	11:30	17	3/8	4	4 female slow worm, 2 male slow worm

4 References

English Nature, (1994). Species Conservation Handbook. JNCC, Peterborough.

Froglife (1999). Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth.

Figure A2.1: Reptile Survey Plan



Key

- Reptile felt location
- Slow worm location
- Site boundary

Appendix 3: Breeding bird survey results

Breeding bird survey results

1 Methodology

A breeding bird survey was undertaken of the Site based on an adapted Common Bird Census (CBC) methodology (Gilbert et al 1998) and in accordance with the Bird Survey Guidelines (Bird Survey & Assessment Steering Group, 2025). Survey effort was considered consistent with the Bird Survey Guidelines, based on factors including suitability of onsite habitats related to relevant nearby designated sites, presence of onsite habitats of high value for breeding birds and size of the Site. Three survey visits were carried out between April and June 2025 by an experienced ornithologist, following a transect route that allowed full coverage of the Site. Visits were made during the morning in suitable weather conditions (avoiding rain and strong winds, although showery days were acceptable). The locations of all birds seen and/or heard during each visit were mapped and any breeding-related behaviour was recorded (such as singing, displaying or carrying food). Data from the three visits were analysed to produce an estimate of the number of breeding pairs or territories within the Site.

2 Limitations

There were no limitations to the survey.

3 Results

Survey dates, times and weather conditions are presented in Table A3.1.

Table A3.1: Weather conditions during breeding bird surveys

Visit number	Date	Time	Weather
1	17 April 2025	08:00 – 09:30	Cloud 7/8, wind F2-3, temperature 14°C
2	13 May 2025	07:15 – 09:00	Cloud 6/8, wind F0-1, temperature 13°C
3	11 June 2025	07:15 – 08:45	Cloud 8/8, wind F0-1, temperature 16°C

Table A3.2 provides a summary of the survey results and categorises each species’ breeding status within the Site based on the BTO’s categories of breeding evidence:

- Confirmed breeding (e.g. recently fledged young, adult carrying food to nest);
- Probable breeding (e.g. permanent territory, courtship display);
- Possible breeding; (e.g. singing male in suitable nesting habitat); or
- Non-breeding (e.g. flying over only).

A total of 19 species were recorded during the course of the survey, of which 13 species were confirmed, probably or possibly breeding within the Site. These included:

- Linnet, which possibly bred. This is a Red-listed Bird of Conservation Concern and Priority Species (Stanbury et al 2021).
- Dunnock, which probably bred. This is an Amber-listed Bird of Conservation Concern and Priority Species.
- Woodpigeon and wren, which probably bred. These are Amber-listed Birds of Conservation Concern.
- Herring gull (Red-listed Bird of Conservation Concern and Priority Species) and rook (Amber-listed Bird of Conservation Concern) were recorded during the survey, however, neither species were considered to be breeding within the Site.

Peregrine was considered to have 'possibly bred' on an off-site water tower located immediately adjacent to the eastern survey boundary. This species is protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended).

The estimated locations of the territories of Red or Amber Birds of Conservation Concern, Priority Species and / or Schedule 1 WCA species is shown in Figure A3.2.

4 References

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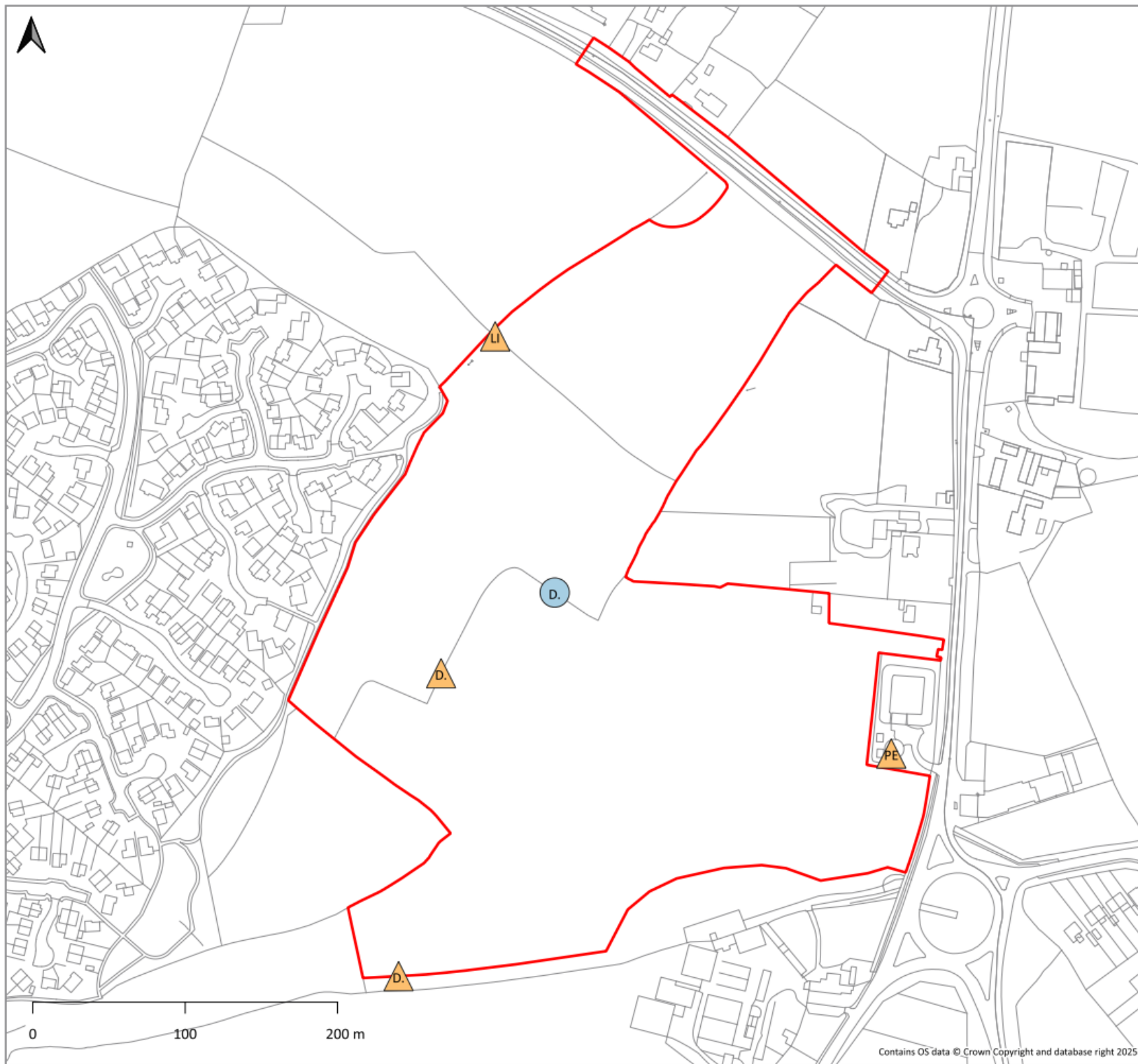
Table A3.2: Breeding bird survey results

Common name	BTO species code	Legal & Conservation Status (standard protection and Green/unlisted (Stanbury <i>et al</i> 2021) unless stated)	Date & no recorded			Breeding status				Notes
			17 April 2025	13 May 2025	11 June 2025	Confirmed	Probable	Possible	Non-breeding	
Blackbird	B.		1	2	4			✓		0-2 pairs. Adult male recorded singing in suitable breeding habitat.
Blackcap	BC			1				✓		0-1 pair. Adult male recorded singing in suitable breeding habitat.
Blue tit	BT			1	6	✓				1 pair. Recently fledged juveniles recorded.
Carrion crow	C.		3	3	3			✓		0-1 pair. Adults recorded in suitable breeding habitat.
Chiffchaff	CC		1	1	2			✓		0-1 pair. Adult male recorded singing in suitable breeding habitat.
Dunnock	D.	Priority, Amber	1	3	1		✓			1-2 pairs. Adult males recorded singing in suitable breeding habitat.
Goldfinch	GO		4	9	6			✓		1-2 pairs. Adult males recorded singing in suitable breeding habitat.
Great tit	GT		1	2	4	✓				1 pair. Recently fledged juveniles recorded.
Herring gull	HG	Priority, Red		7					✓	Recorded flying over the Site only.
Jackdaw	JD			8	1				✓	Recorded foraging within the Site. No breeding habitat present.
Linnet	LI	Priority, Red			2			✓		0-1 pair. Two adults present in the north-east of the Site during the third survey visit only. Suitable breeding habitat present.
Magpie	MG			4				✓		0-1 pair. Adults recorded in suitable breeding habitat.
Peregrine	PE	Sch 1 WCA	1					✓		0-1 pair. Single adult recorded perched on water tower immediately adjacent to the eastern boundary of the Site during the first survey visit only. Suitable nesting habitat present on water tower, however, no conclusive evidence of nesting recorded.
Pied wagtail	PW		2						✓	Recorded flying over the Site only.

Table A3.2: Breeding bird survey results

Common name	BTO species code	Legal & Conservation Status (standard protection and Green/unlisted (Stanbury <i>et al</i> 2021) unless stated)	Date & no recorded			Breeding status				Notes
			17 April 2025	13 May 2025	11 June 2025	Confirmed	Probable	Possible	Non-breeding	
Robin	R.		4	4	2			✓		3-4 pairs. Adult males recorded singing in suitable breeding habitat.
Rook	RO	Amber		5	1				✓	Recorded flying over the Site only.
Swallow	SL			4	4				✓	Recorded flying over / foraging over the Site only.
Woodpigeon	WP	Amber	7	13	15		✓			3-5 pairs. Adult males recorded singing in suitable breeding habitat.
Wren	WR	Amber	7	10	9		✓			5-7 pairs. Adult males recorded singing in suitable breeding habitat.

Figure A3.1: Breeding Bird Survey Plan



Key

- Site boundary
- D.** Dunnock
- LI** Linnet
- PE** Peregrine
- Probable breeding
- Possible breeding

Notes:

1. Symbols indicate approximate centre points of territories.
2. Although wren and woodpigeon are Amber-listed Birds of Conservation Concern due to population change at a European scale, they have been omitted from this plan as they are common and widespread in the UK.

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Gleeson Land

Land North of Whychurch Farm, Malmesbury

Breeding Bird Survey Plan

19/06/2025

Created by: LA

Scale at A3 1:2,400

Appendix 4: Bat activity survey results

Bat activity survey

1 Background

Night-time Bat Walkover

Following current BCT guidelines (Collins [ed.] 2023), seasonal night-time bat walkover surveys were undertaken on 17 August 2024, 17 October 2024 and 9 April 2025. Ecologists were stationed at predetermined locations, primarily at potential flight lines close to potential roost sources such as groups of buildings or trees. The surveys commenced at sunset and the ecologists remained in position for 30-60 minutes to count, observe behaviour and make acoustic recordings of bat activity with detectors (Anabat Scout). The ecologists then walked a predetermined route taking acoustic recordings and noting a time-stamped narrative of their observations. All echolocation calls were recorded and subsequently analysed using 'Anabat Insight' (Titlley Electronics) to species or genus.

Static detector survey

Stratified sampling of the Site using static bat detectors was undertaken between July - October 2024 and April – June 2025. Six static bat detectors (Anabat Express) were deployed for a minimum of five nights per month on habitat features likely to be of value for commuting bats; refer to Table A4.1 and Figure A4.1. Detectors were programmed to record from 30 minutes prior to sunset to 30 minutes post-sunrise.

Table A4.1: Static Detector Survey details; refer to Figure A4.1 for locations

Static Location	Static Detector location	2024 Survey period	2025 Survey period	Total number of nights
1	Central hedgerow sub-dividing the southern and central field parcels with the microphone facing south-east (modified grassland).	25/07 – 29/07 20/08 – 24/08 09/10 – 13/10	11/04 – 15/04 08/05 – 12/05 11/06 – 15/06	30
2	Northern portion of the Site – located on a fence post adjacent to a species-rich hedgerow dividing the northern and central field parcels with the microphone facing north (modified grassland).	25/07 – 29/07 20/08 – 24/08 04/09 – 09/09* 09/10 – 13/10	11/04 – 15/04 08/05 – 12/05 11/06 – 15/06	35
3	Eastern boundary of the southern field parcel – located on a fence post adjacent to A429 road, with microphone facing west (modified grassland).	25/07 – 29/07 20/08 – 24/08 04/09 – 09/09* 09/10 – 13/10	11/04 – 15/04 08/05 – 12/05 11/06 – 15/06	35
4	South-west boundary of the Site – located on a fence post with microphone facing east (modified grassland).	25/07 – 29/07 20/08 – 24/08 04/09 – 09/09* 09/10 – 13/10	11/04 – 15/04 08/05 – 12/05 11/06 – 15/06	35
5	Central portion of the Site along the north-eastern boundary – located on fence post with microphone facing south-east (modified grassland).	25/07 – 29/07 20/08 – 24/08 04/09 – 09/09* 09/10 – 13/10	11/04 – 15/04 08/05 – 12/05 11/06 – 15/06	35
6	North-east boundary of the Site – located on a fence post with the	25/07 – 29/07 20/08 – 24/08 04/09 – 09/09*	11/04 – 15/04 08/05 – 12/05	35

Static Location	Static Detector location	2024 Survey period	2025 Survey period	Total number of nights
	microphone facing south-west (modified grassland).	17/10 – 21/10	11/06 – 15/06	

*Due to a low number of recordings as a result of poor weather on the 05/09, this night was excluded from analysis

2 Limitations

There were no limitations to the surveys that are considered to affect the reliability of the bat activity assessment. Minor limitations are as follows:

- Static detector Position 1 malfunctioned in September, with no data collected for this Position during this month. Due to the large dataset including data collected in all other surveyed months, this is not considered to be a significant limitation.
- Static detector Position 6 malfunctioned in October and was subsequently re-deployed within the same month.

3 Analysis

All bat detector data was downloaded and analysed using 'Anabat Insight v2.0.8' (Titley Electronics).

For the night-time bat walkover and static detector surveys, bat registrations for each species were defined as a series of pulses within a single Anabat Insight Full Spectrum (WAV) file. The maximum WAV file length of recordings was set to five seconds to optimise the performance of the British Trust for Ornithology (BTO) Acoustic Pipeline software.

Night-time Bat Walkover survey

The bat registrations recorded during the NBW survey were analysed manually by EAD Ecology staff, using Anabat Insight, against bat call characteristics using reference data from known bat roosts, as well as stock recordings from other bat workers and call parameters detailed in relevant literature (Russ, 2012).

Static detector survey

All recordings were analysed using species identification algorithms (BTO Acoustic Pipeline; <https://www.bto.org/our-science/products-and-technologies/bto-acoustic-pipeline/how-acoustic-pipeline-works>). The BTO pipeline processes recordings from the UK with regional classifiers using full spectrum data processing. Each five-second file was assigned to species level using this system, along with an independent estimate of error in species identification. Following this analysis, all non-Pipistrellus calls (excluding Pipistrellus nathusii) and low confidence calls (less than 0.5 probability) were manually checked by EAD Ecology staff to confirm identification, using Anabat Insight v2.0.08 (Titley Electronics).

Species groups

Species identification from sound files and use of associated sonogram analysis software is constrained where overlaps in the parameters of call structure occur between closely related species. In addition, bats will alter their call characteristics in relation to both habitat structure and their behaviour. This can limit the ability to accurately analyse calls to species level, particularly in the genera's Myotis and Nyctalus/Eptesicus.

Myotis species

Registrations from Myotis genus bats are virtually impossible to separate to species level due to their plasticity in call structure and as such, where no other information was available, such as visual observation of bat behaviour, habitat structure, position in relation to known roosts, or clear registrations

allowing detailed slope profile analysis, identification to species has not been attempted and registrations were grouped as 'Myotis sp'.

Big bats

Registrations from *Nyctalus* and *Eptesicus* genus bats demonstrate overlapping sound characteristics and can therefore be subject to misclassification. For the purposes of this assessment, registrations have only been separated to species level where clear distinction can be made. Calls showing some of the characteristics but not meeting all of the parameters set out in Table A4.2 were identified as 'big bat' or *Nyctalus* / *Eptesicus* bats.

Table A4.2. Registration parameters used to distinguish *Nyctalus* / *Eptesicus* bats

Species	Characteristic Registration Parameters
Noctule <i>Nyctalus noctula</i>	Registration shows two types of alternating frequency Peak frequency below 21 kHz
Leisler's <i>N. leisleri</i>	Registration shows two types of alternating frequency Peak frequency above 24 kHz
Serotine <i>Eptesicus serotinus</i>	Registrations are of a single, consistent type Peak frequency between 24 kHz and 32 kHz

4 Results

At least nine bat species were recorded during the NBW and static detector surveys. Species name abbreviations used in the results hereafter are provided in Table A4.3.

Table A4.3 Bat name abbreviations used in results

Common name	Scientific name	Species code
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	Pp
Soprano pipistrelle	<i>P. pygmaeus</i>	Ppyg
Nathusius pipistrelle	<i>P. nathusii</i>	Pn
Noctule	<i>Nyctalus noctule</i>	Nn
<i>Nyctalus</i> bat	<i>Nyctalus sp.</i>	Nysp
Serotine	<i>Eptesicus serotinus</i>	Es
Noctule, serotine or Leisler's bat	<i>Eptesicus/ Nyctalus sp.</i>	EorNy
Barbastelle	<i>Barbastelle barbastellus</i>	Bb
<i>Myotis</i> bat	<i>Myotis sp.</i>	Mysp.
Long-eared bat	<i>Plecotus sp.</i>	Plsp.
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	LHS

Night-time Bat Walkover Surveys

At least three bat species were recorded within and adjacent to the Site, with the majority of calls from common pipistrelle and soprano pipistrelle bats. These are both common and widespread bat species. Common pipistrelle and soprano pipistrelle were recorded foraging along boundary hedgerows with the majority of activity concentrated around mature hedgerow trees providing sheltered foraging areas. In April, common pipistrelle foraging activity was concentrated in the south-west portion of the Site; refer to Figure A4.1. A small number of *Myotis* sp. calls (four registrations) were recorded from bats commuting along boundary hedgerows in April (one registration) and August (3 registrations) only; refer to Figure A4.1.

Weather conditions recorded during the night-time bat walkover surveys are provided in Table A4.4

Table A4.4: Weather conditions recorded during the night-time bat walkover surveys

Date	Time at start/ end of survey period	Sunset	Cloud (Oktas)	Wind speed (Beaufort)	Temp. (C)
17 August 2024	20:26	20:26	2/8	2	18
	22:56		3/8	3	15
17 October 2024	18:09	18:09	2/8	0	13
	20:09		1/8	0	12
9 April 2025	19:55	19:55	0	1	10
	22:25		0	1	7

*Static detector surveys**General Bat Assemblage*

At least nine bat species were identified during the static detector surveys, with a cumulative total of 79,095 registrations recorded across six static detector locations. Common pipistrelle accounted for the highest number of registrations within the Site (73.33%), followed by *Myotis* species (12.71%), soprano pipistrelle (10.02%), noctule (1.57%) and noctule, serotine or Leisler's bat (1.10%). Other species recorded but accounting for less than one percent of the registrations included *Nyctalus* species, long-eared bat, lesser horseshoe bat, serotine, barbastelle and *Nathusius'* pipistrelle.

Position 2 was the only static to record levels of bat activity above the mean bat activity index (BAI) recorded across the Site (BAI 35.91). Bat activity levels were highest at Position 2, which recorded a BAI of 140.30, compared to a BAI of 24.55 at Position 1 which recorded the second highest bat activity levels. Activity at Position 2 was dominated by three species (common pipistrelle, *Myotis* bat and soprano pipistrelle), comprising 99% of registrations recorded at this location. Position 5 followed a similar trend to Position 1, with common pipistrelle, soprano pipistrelle and *Myotis* species comprising 98% of bat activity; refer to Figure A4.1.

The levels of bat activity were lowest along the eastern boundary (Position 3; BAI 7.29) and northern boundary (Position 6; BAI 4.52).

Light-averse bat species recorded within the Site included *Myotis* bat species long-eared bat, lesser horseshoe bat and barbastelle. Long-eared bat activity was recorded at all static detector locations, with the highest activity recorded at Position 2 (144 registrations; BAI 0.38). Barbastelle were recorded at all Positions except at Position 1 and in relatively low numbers within the Site (total of 52 registrations). The highest barbastelle bat activity recorded within the Site was recorded at Position 2 (24 registrations, BAI 0.06) and Position 5 (21 registrations; BAI 0.06). Barbastelle activity (BAI) was highest in September at Positions 2 and 5. The low levels of barbastelle registrations recorded between May and August indicate that there is no maternity roost in close proximity to the Site.

Myotis species

Myotis species were recorded at all static detector positions with a total of 10,056 registrations recorded. *Myotis* bat activity was highest at Position 2 (8,592 registrations, BAI 22.82); refer to Tables A4.5-A4.6. Seasonal variation was identified at this position with peaks in activity recorded in May and September. This indicates likely commuting and opportunistic foraging activity. The earliest registration on Site was approximately 24 minutes after sunset and 25 minutes before sunrise, which suggests the presence of a nearby roost.

Lesser horseshoe bat

Lesser horseshoe bats (LHS) were recorded at all static detector positions with a total of 216 registrations across the Site. The highest levels of activity were recorded at Position 5 (BAI 0.31), followed by Position 4 (BAI 0.13). These detectors were located along the western boundary of the Site; refer to Figure A4.1. The highest LHS activity was recorded at Position 5 in August (111 registrations; BAI 2.05) and Position 4 in August (31 registrations; BAI 0.57).

Monthly variation in LHS activity was observed within the Site. LHS activity (BAI) was highest in August at Positions 1, 3, 4, 5, and 6 and in September at Position 2. The largest observed peak in LHS activity was recorded in August. The peak number of LHS registrations recorded on a single night at a single detector location was 48 registrations (Position 5; 20/08/2024), 29 registrations (Position 5; 22/08/2024), 23 registrations (Position 5; 24/08/2024) and 19 registrations (Position 4; 23/08/2024). However, these nights are considered anomalies and a result of opportunistic foraging. The data indicates that on nights when LHS bat activity was recorded, excluding the above, between 1 and 7 registrations were recorded over any one-night period on any one detector.

The temporal activity patterns of LHS registrations across the survey period (April - October) are generally indicative of commuting and foraging activity within the Site; refer to Graph A4.4. The earliest registrations recorded on Site were approximately 17 minutes after sunset which suggests these bats are associated with a nearby roost.

A temporal breakdown of LHS registrations is provided for each month in Table A4.7. This shows the highest levels of LHS activity within 90 minutes of sunset in April and August.

LHS foraging activity was recorded within the Site as defined by Miller (2001) at Position 5 in August. Evidence of foraging contacts were recorded at Position 4 (April, May, August, October), Position 5 (September) and Position 6 (August).

5 References

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Russ J (2021) Bat Calls of Britain and Europe: A Guide to Species Identification. Pelagic Publishing, Exeter.

Table A4.5: Number of registrations recorded within the Site.

Static Location	Detector	Month	EorNy	Mysp	Nn	Nysp	Plsp	Pp	Ppyg	LHS	Pn	Es	Bb	Total
1		Apr	4	13	12	5	1	273	13	0	0	0	0	321
		May	16	10	11	2	11	4980	34	1	0	0	0	5065
		Jun	0	23	31	0	1	246	4	0	0	0	0	305
		Jul	2	23	10	31	14	159	86	0	0	0	0	325
		Aug	0	1	0	1	0	22	21	7	0	0	0	52
		Oct	0	87	0	0	1	1628	6	2	0	0	0	1724
		Total	22	157	64	39	28	7308	164	10	0	0	0	7792
2		Apr	10	1	5	0	0	77	16	2	1	0	0	112
		May	118	1636	5	17	82	6740	346	1	0	10	0	8955
		Jun	15	361	61	1	0	9419	90	2	1	0	2	9952
		Jul	6	340	28	14	6	6708	411	4	0	0	0	7517
		Aug	0	1624	13	13	37	5358	1818	1	0	4	0	8868
		Sep	158	3577	0	0	19	8306	3211	12	0	5	22	15310
		Oct	0	1053	0	0	0	1050	10	0	0	0	0	2113
		Total	307	8592	112	45	144	37658	5902	22	2	19	24	52827
3		Apr	5	0	13	0	0	56	8	0	0	0	0	82
		May	9	2	18	9	6	156	8	1	0	2	0	211
		Jun	3	6	61	12	0	108	7	0	0	0	0	197
		Jul	0	7	24	15	0	193	24	0	0	0	0	263
		Aug	18	5	9	10	5	216	25	1	0	0	0	289
		Sep	4	0	525	64	2	1055	16	0	0	0	2	1668
		Oct	0	0	3	5	0	16	9	0	0	0	0	33
		Total	39	20	653	115	13	1800	97	2	0	2	2	2743

Table A4.5: Number of registrations recorded within the Site.

Static Location	Detector	Month	EorNy	Mysp	Nn	Nysp	Plsp	Pp	Ppyg	LHS	Pn	Es	Bb	Total
4		Apr	6	9	10	0	1	421	43	3	0	0	0	493
		May	18	12	26	4	6	1447	18	2	0	0	0	1533
		Jun	10	46	90	3	4	1877	95	1	0	7	0	2133
		Jul	8	238	7	22	2	1185	574	0	0	2	0	2038
		Aug	64	65	0	0	22	288	35	31	0	0	2	507
		Sep	32	48	3	0	1	275	170	4	0	0	0	533
		Oct	0	195	0	0	2	0	13	9	0	0	0	219
		Total	138	613	136	29	38	5493	948	50	0	9	2	7456
5		Apr	2	4	0	0	0	54	4	0	0	0	0	64
		May	6	12	0	0	2	701	23	1	0	0	2	747
		Jun	151	13	36	6	1	1627	43	1	3	9	2	1892
		Jul	52	11	14	6	21	1157	121	1	0	1	1	1385
		Aug	69	149	2	10	39	614	414	111	0	1	0	1409
		Sep	0	277	22	34	28	612	55	3	0	5	16	1052
		Oct	0	2	0	1	0	9	1	1	0	0	0	14
		Total	280	468	74	57	91	4774	661	118	3	16	21	6563
6		Apr	6	0	4	5	0	30	4	3	0	0	0	52
		May	31	8	18	9	3	244	47	0	0	0	0	360
		Jun	1	4	49	2	1	178	8	0	0	0	0	243
		Jul	1	1	25	16	2	30	11	1	0	0	0	87
		Aug	30	17	12	11	10	278	39	7	0	0	1	405
		Sep	14	64	95	6	6	111	20	0	0	0	1	317
		Oct	0	112	0	14	0	95	24	3	0	1	1	250
		Total	83	206	203	63	22	966	153	14	0	1	3	1714
Total		-	869	10056	1242	348	336	57999	7925	216	5	47	52	79095

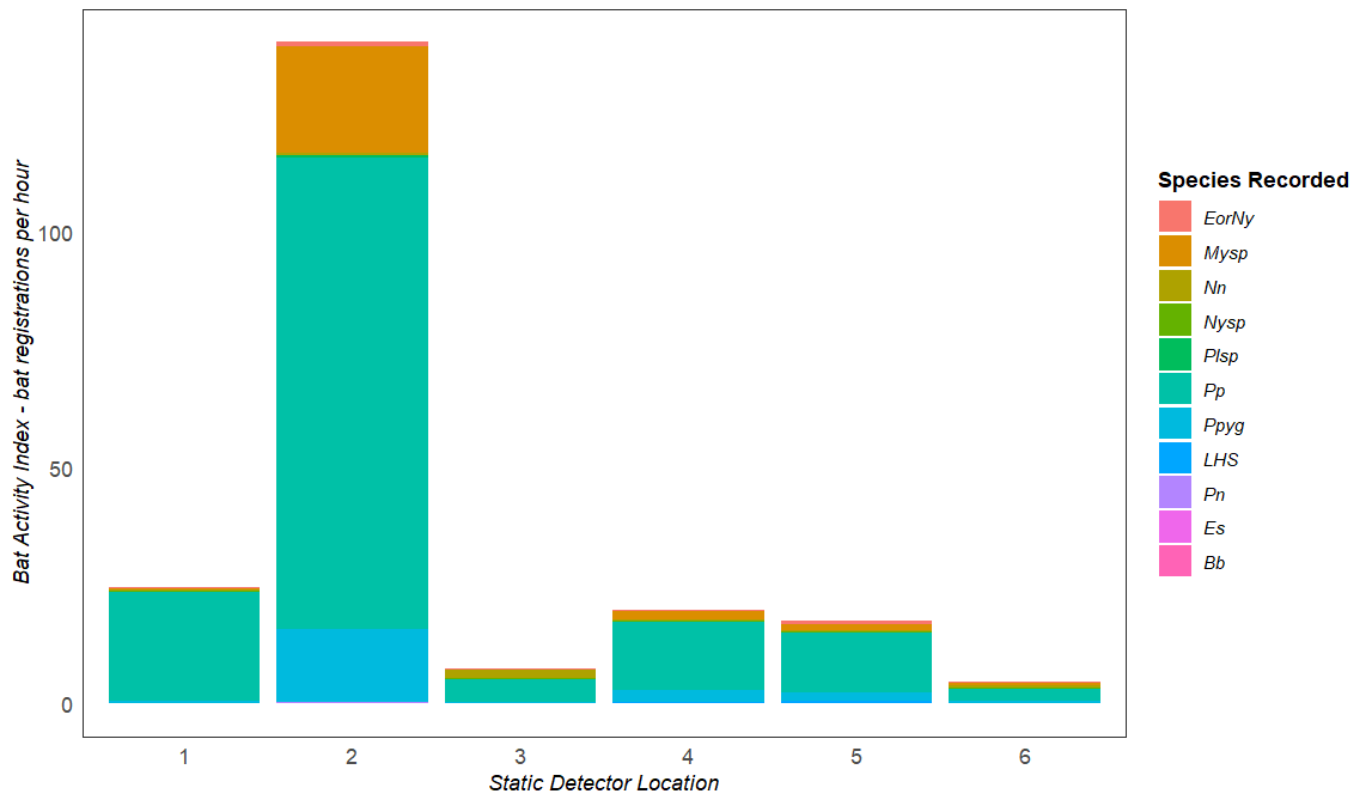
Table A4.6: Bat Activity Index (BAI) recorded within the Site.

Static Detector Location	Month	EorNy	Mysp	Nn	Nysp	Plsp	Pp	Ppyg	LHS	Pn	Es	Bb	Total
1	Apr	0.07	0.23	0.21	0.09	0.02	4.86	0.23	0.00	0.00	0.00	0.00	5.72
	May	0.33	0.21	0.23	0.04	0.23	103.62	0.71	0.02	0.00	0.00	0.00	105.39
	Jun	0.00	0.55	0.74	0.00	0.02	5.86	0.10	0.00	0.00	0.00	0.00	7.26
	Jul	0.04	0.49	0.21	0.66	0.30	3.40	1.84	0.00	0.00	0.00	0.00	6.95
	Aug	0.00	0.02	0.00	0.02	0.00	0.41	0.39	0.13	0.00	0.00	0.00	0.96
	Oct	0.00	1.24	0.00	0.00	0.01	23.16	0.09	0.03	0.00	0.00	0.00	24.52
	Total	0.07	0.49	0.20	0.12	0.09	23.03	0.52	0.03	0.00	0.00	0.00	24.55
2	Apr	0.18	0.02	0.09	0.00	0.00	1.37	0.29	0.04	0.02	0.00	0.00	2.00
	May	2.46	34.04	0.10	0.35	1.71	140.24	7.20	0.02	0.00	0.21	0.00	186.32
	Jun	0.36	8.60	1.45	0.02	0.00	224.34	2.14	0.05	0.02	0.00	0.05	237.03
	Jul	0.13	7.27	0.60	0.30	0.13	143.42	8.79	0.09	0.00	0.00	0.00	160.72
	Aug	0.00	30.00	0.24	0.24	0.68	98.98	33.59	0.02	0.00	0.07	0.00	163.83
	Sep	2.67	60.48	0.00	0.00	0.32	140.45	54.29	0.20	0.00	0.08	0.37	258.87
	Oct	0.00	14.98	0.00	0.00	0.00	14.93	0.14	0.00	0.00	0.00	0.00	30.05
	Total	0.82	22.82	0.30	0.12	0.38	100.01	15.67	0.06	0.01	0.05	0.06	140.30
3	Apr	0.09	0.00	0.23	0.00	0.00	1.00	0.14	0.00	0.00	0.00	0.00	1.46
	May	0.19	0.04	0.37	0.19	0.12	3.25	0.17	0.02	0.00	0.04	0.00	4.39
	Jun	0.07	0.14	1.45	0.29	0.00	2.57	0.17	0.00	0.00	0.00	0.00	4.69
	Jul	0.00	0.15	0.51	0.32	0.00	4.13	0.51	0.00	0.00	0.00	0.00	5.62
	Aug	0.33	0.09	0.17	0.18	0.09	3.99	0.46	0.02	0.00	0.00	0.00	5.34
	Sep	0.07	0.00	8.88	1.08	0.03	17.84	0.27	0.00	0.00	0.00	0.03	28.20
	Oct	0.00	0.00	0.04	0.07	0.00	0.23	0.13	0.00	0.00	0.00	0.00	0.47
	Total	0.10	0.05	1.73	0.31	0.03	4.78	0.26	0.01	0.00	0.01	0.01	7.29

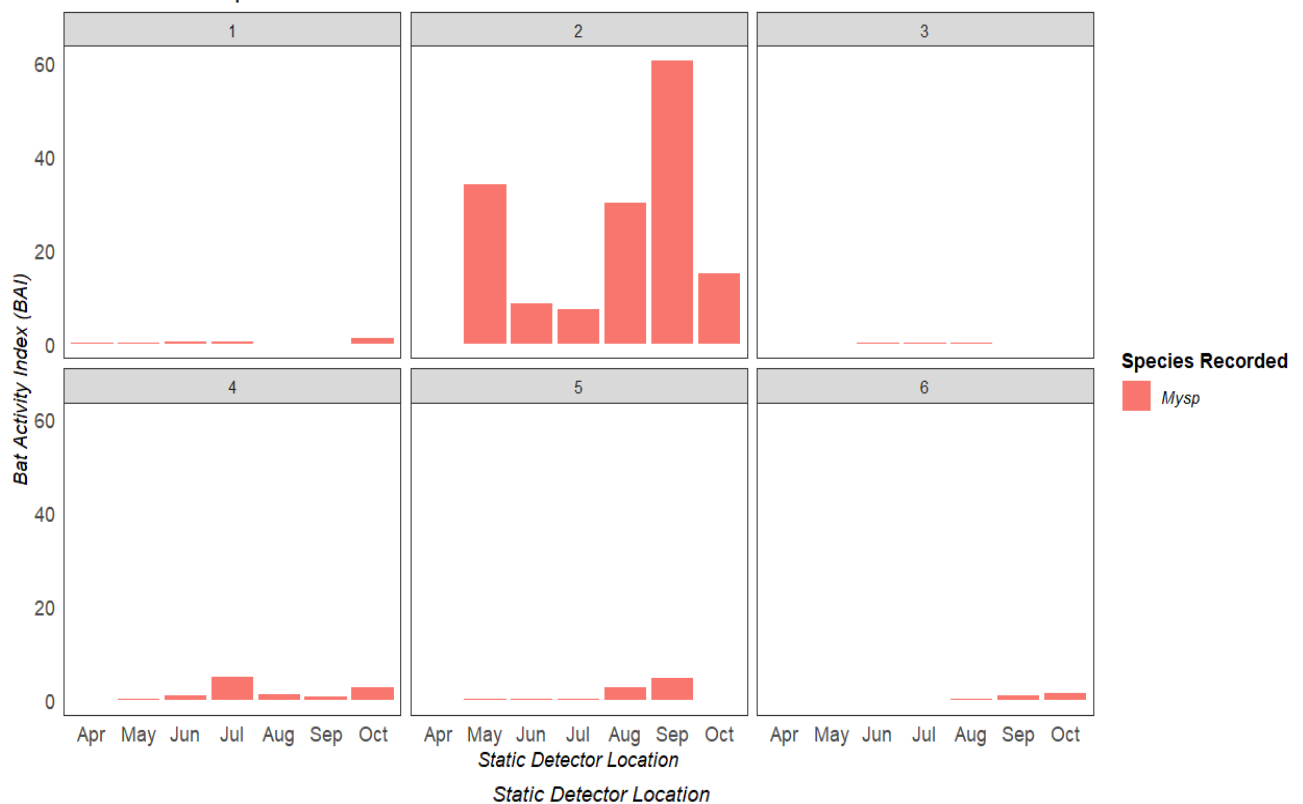
Table A4.6: Bat Activity Index (BAI) recorded within the Site.

Static Detector Location	Month	EorNy	Mysp	Nn	Nysp	Plsp	Pp	Ppyg	LHS	Pn	Es	Bb	Total
4	Apr	0.11	0.16	0.18	0.00	0.02	7.50	0.77	0.05	0.00	0.00	0.00	8.78
	May	0.37	0.25	0.54	0.08	0.12	30.11	0.37	0.04	0.00	0.00	0.00	31.90
	Jun	0.24	1.10	2.14	0.07	0.10	44.71	2.26	0.02	0.00	0.17	0.00	50.80
	Jul	0.17	5.09	0.15	0.47	0.04	25.34	12.27	0.00	0.00	0.04	0.00	43.57
	Aug	1.18	1.20	0.00	0.00	0.41	5.32	0.65	0.57	0.00	0.00	0.04	9.37
	Sep	0.54	0.81	0.05	0.00	0.02	4.65	2.87	0.07	0.00	0.00	0.00	9.01
	Oct	0.00	2.77	0.00	0.00	0.03	0.00	0.18	0.13	0.00	0.00	0.00	3.12
	Total	0.37	1.63	0.36	0.08	0.10	14.59	2.52	0.13	0.00	0.02	0.01	19.80
5	Apr	0.04	0.07	0.00	0.00	0.00	0.96	0.07	0.00	0.00	0.00	0.00	1.14
	May	0.12	0.25	0.00	0.00	0.04	14.59	0.48	0.02	0.00	0.00	0.04	15.54
	Jun	3.60	0.31	0.86	0.14	0.02	38.75	1.02	0.02	0.07	0.21	0.05	45.06
	Jul	1.11	0.24	0.30	0.13	0.45	24.74	2.59	0.02	0.00	0.02	0.02	29.61
	Aug	1.27	2.75	0.04	0.18	0.72	11.34	7.65	2.05	0.00	0.02	0.00	26.03
	Sep	0.00	4.68	0.37	0.57	0.47	10.35	0.93	0.05	0.00	0.08	0.27	17.79
	Oct	0.00	0.03	0.00	0.01	0.00	0.13	0.01	0.01	0.00	0.00	0.00	0.20
	Total	0.74	1.24	0.20	0.15	0.24	12.68	1.76	0.31	0.01	0.04	0.06	17.43
6	Apr	0.11	0.00	0.07	0.09	0.00	0.53	0.07	0.05	0.00	0.00	0.00	0.93
	May	0.65	0.17	0.37	0.19	0.06	5.08	0.98	0.00	0.00	0.00	0.00	7.49
	Jun	0.02	0.10	1.17	0.05	0.02	4.24	0.19	0.00	0.00	0.00	0.00	5.79
	Jul	0.02	0.02	0.53	0.34	0.04	0.64	0.24	0.02	0.00	0.00	0.00	1.86
	Aug	0.55	0.31	0.22	0.20	0.18	5.14	0.72	0.13	0.00	0.00	0.02	7.48
	Sep	0.24	1.08	1.61	0.10	0.10	1.88	0.34	0.00	0.00	0.00	0.02	5.36
	Oct	0.00	1.54	0.00	0.19	0.00	1.30	0.33	0.04	0.00	0.01	0.01	3.43
	Total	0.22	0.54	0.54	0.17	0.06	2.55	0.40	0.04	0.00	0.00	0.01	4.52
Total	-	0.39	4.57	0.56	0.16	0.15	26.33	3.60	0.10	0.00	0.02	0.02	35.91

Graph A4.1: Bat Activity Index (BAI) recorded across the Site.



Graph A4.2: *Myotis* bat (Mysp) activity recorded across the Site.



Graph A4.4: Temporal distribution of LHS registrations within the Site; all static detector locations.

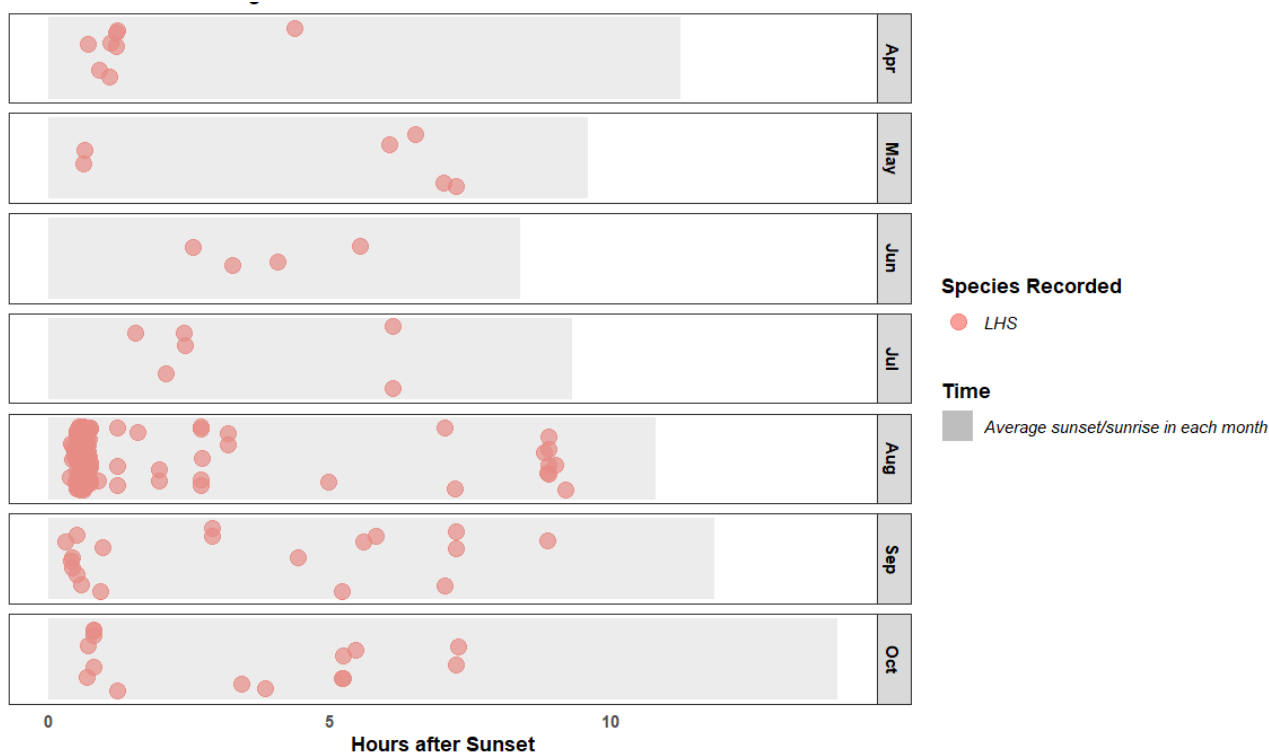
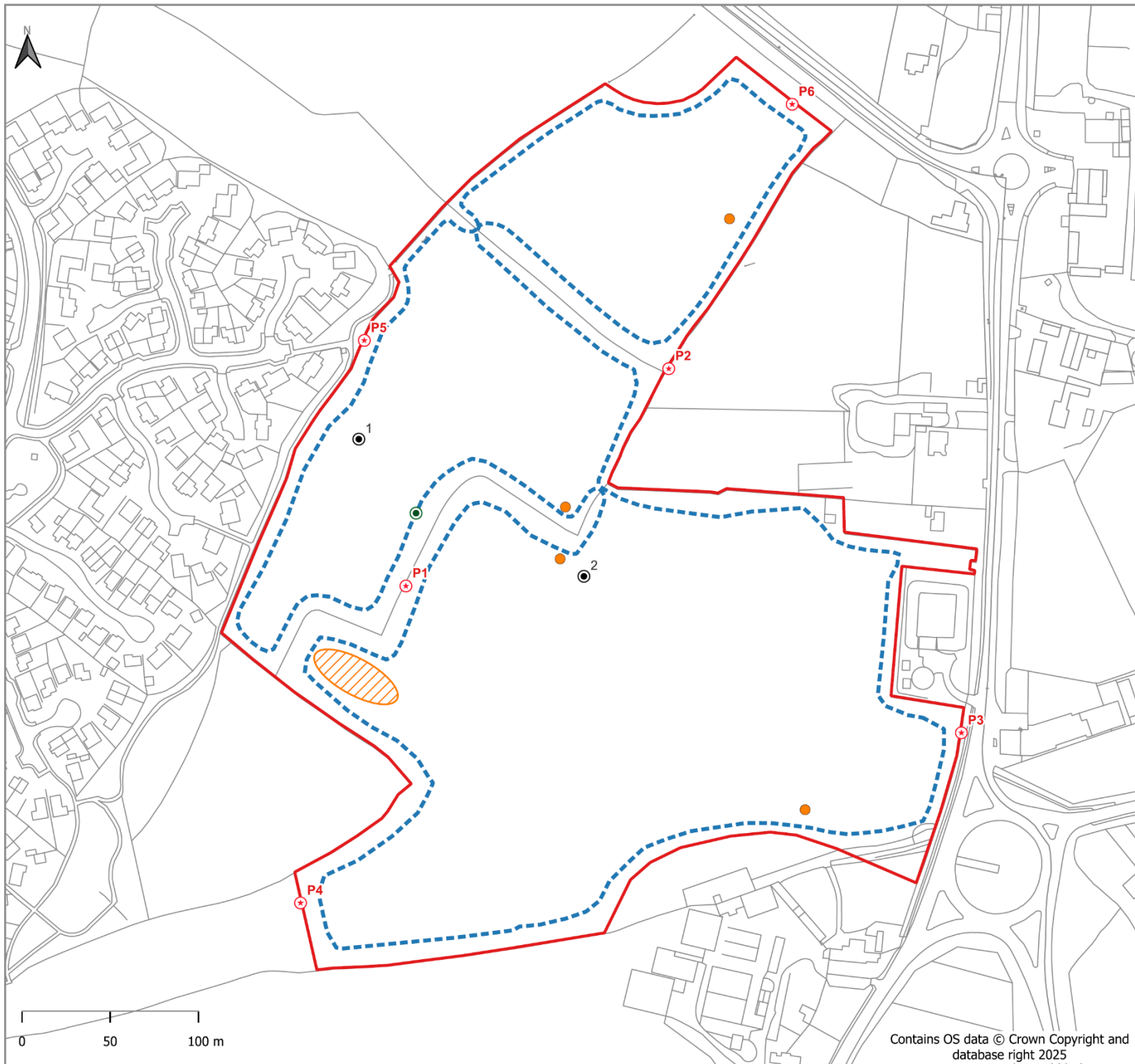


Table A4.7 Temporal distribution of LHS registrations throughout the night in each month

Month	Number of LHS registrations	Percentage of LHS registrations within 90 minutes of sunset	Percentage of LHS registrations recorded within the main portion of the night	Percentage of LHS registrations within 60 minutes of sunrise
April	8	87.5% (7 registrations)	12.5% (1 registration)	0.0% (0 registrations)
May	6	33.3% (2 registrations)	66.7% (4 registrations)	0.0% (0 registrations)
June	4	0.0% (0 registrations)	100% (4 registrations)	0.0% (0 registrations)
July	6	0.0% (0 registrations)	100% (6 registrations)	0.0% (0 registrations)
August	158	87.3% (138 registrations)	7.6% (12 registrations)	5.1% (8 registrations)
September	19	47.4% (9 registrations)	52.6% (10 registrations)	0.0% (0 registrations)
October	15	46.7% (7 registrations)	53.3% (8 registrations)	0.0% (0 registrations)
Total	216	75.5% (163 registrations)	20.8% (45 registrations)	3.7% (8 registrations)

Figure A4.1: Bat survey plan



Key

Static detector location

Start point

NBW notes

Walkover route

Survey boundary

NBW Results

Myotis registration

Continuous common pipistrelle foraging activity in April.

Night-time Bat Walkover Notes

No.	Habitat use by bats
1	Several common and soprano pipistrelle bats recorded foraging associated with hedgerows and mature trees.
2	Four Myotis sp. registrations were recorded (three in August and one in April) indicating an occasional commuting route through the site.



Appendix 5: Bat roost survey results

Bat roost survey of trees

1 Methodology

Ground Level Tree Assessment

All trees within the Site were subject to a Ground Level Tree Assessment (GLTA) on 25 July 2024. This assessment involved a detailed inspection of each tree from ground level using binoculars to record potential bat roost features such as rot holes and hazard beams. The inspections followed Bat Conservation Trust (BCT) guidelines (Collins [ed.] 2023; refer to Table A5.1).

Table A5.1 Guidelines for assessing the potential suitability of proposed development sites for bats (adapted from Collins [ed.] 2023)

Suitability	Description of roosting habitats
PRF-I	PRF is only suitable for individual bats or very small numbers either due to size or lack of suitable habitats
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony

Aerial inspection

Trees identified as having ‘PRF-M’ roost suitability, which were determined as being potentially subject to development impacts, were subject to aerial inspections. Assessment of potential impacts was based on the latest available masterplan at the time of survey and proximity to lit development and/or where there was potential fragmentation of key flight lines/foraging habitat. Aerial inspections were undertaken by an ecologist with a Level 2 Class Licence and Tree Climbing and Aerial Rescue Qualification (City and Guilds NPTC Level 2: CS38) using an endoscope on 22 August 2024, 13 September 2024 and 6 May 2025 in order to confirm presence or absence of roosting bats.

2 Limitations

There were no limitations to the GLTA or aerial inspections.

3 Results

Ground Level Tree Assessment and aerial inspection

Within the Site, two trees were assessed as having potential for roosting bats - assessed as PRF-M; refer to Figure A5.1. The results of the GLTA and subsequent aerial inspections completed to date are provided in Table A5.2.

Table A5.2 Roost assessment of trees – results

Tree Reference	Bat roost features and notes	BCT Roost Category (Collins 2023)	Aerial inspection date		
			22.08.24	13.09.24	06.05.25
1	Mature oak with single stem; DBH 100cm; 0% ivy coverage; multiple broken limbs, larks crack and peeling bark.	PRF-M	No evidence of roosting bats	No evidence of roosting bats	No evidence of roosting bats
2	Mature oak with single stem; DBH 80cm; 0% ivy coverage; holes at base, holes/hollows near top of stem, peeling bark and cracks on limb.	PRF-M	No evidence of roosting bats	No evidence of roosting bats	No evidence of roosting bats

The climbing surveys completed in August 2024, September 2024 and May 2025 did not record any evidence of use by roosting bats within either tree.

4 References

Collins J (ed.) (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edn). The Bat Conservation Trust, London.

English Nature (2004) Species Conservation Handbook. English Nature, Peterborough.

Russ J (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing, Exeter.

Figure A5.1: Roost Survey Plan



Key

- Site boundary
- Broadleaved tree

ead
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Gleeson Land
Land North of Whychurch
Farm, Malmesbury
Tree Plan
18/02/2025

Appendix 6: Otter and water vole survey results

Otter and water vole survey

1 Methodology

A water vole and otter survey of the ditch within the Site was undertaken on 04 September 2024 and 8 May 2025. The water vole survey followed standard methodology (The Mammal Society, 2016), which involved recording signs of water voles including burrows, latrines and feeding remains. The otter survey followed standard guidelines (NRA, 1993), which involved recording signs of otter activity including prints, tail slides, feeding signs, spraint and potential places of refuge.

2 Limitations

There were no limitations to survey.

3 Results

No evidence of water vole or otter was recorded during any of the survey visits. The ditch onsite was considered to provide sub-optimal habitat for water vole or otter due to its dry nature for most of the year. Culverts and grates at either end of the stretch of ditch within the Site also limited its accessibility for these species.

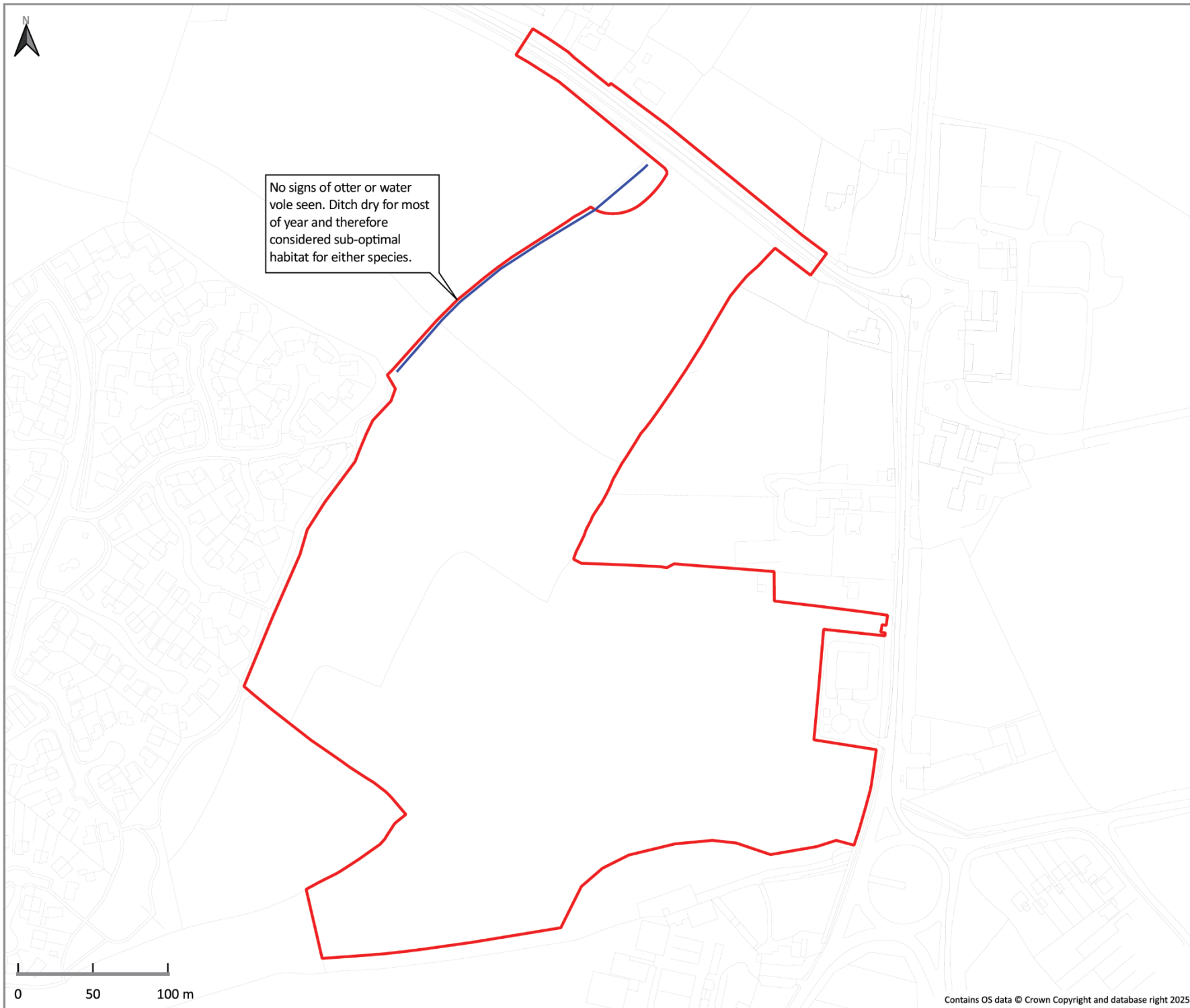
4 References

Dean, M., Strachan, R., Gow, D. and Andrews, R. (2016). The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London.

National Rivers Authority (1993) Otters and River Habitat Management. Conservation Technical Handbook Number 3.

Strachan & Moorhouse (2011) Water Vole Conservation Handbook. 3rd Edition. WildCRU, Oxford.

Figure A6.1: Otter and water vole survey plan



Key

-  Ditch
-  Site boundary



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