

ECOLOGICAL IMPACT ASSESSMENT

LOCATION

19 Red Pit, Dilton Marsh

REPORT REFERENCE

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REVISION

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If the site boundary or proposed works differ to those detailed in section 1 of this report, written confirmation from Avon Ecology Limited is required to confirm the ecological impact assessment remains valid. Further surveys may be required subject to any change in scope of the proposed work.

In accordance with CIEEM's advice note¹ this report is valid for 18 months from the date of issue, further surveys will likely be required after this timeframe.

ISSUE REGISTER

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¹ <https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf> [Last accessed 28/07/2025]



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SUMMARY

Avon Ecology Limited has been commissioned by the owners of the land at 19 Red Pit, Dilton Marsh, BA13 4BJ to produce an Ecological Impact Assessment (EclA) for the proposed development of the land into five residential plots along with the associated access and landscaping.

A desk study and daytime survey was undertaken on 19 May 2025 along with a Great Crested Newt (GCN) eDNA survey (13 June 2025) and two bat emergence surveys (25 June and 21 July 2025). These surveys confirmed the surveyed area to have:

- Habitats; buildings and sealed surfaces, artificial unvegetated & unsealed surface, individual trees, vegetated garden, non-native & ornamental hedgerow and ornamental pond;
- An invasive non-native species (cotoneaster);
- A crevice summer roost for an individual soprano pipistrelle bat;
- Breeding smooth newts and the likely absence of GCN;
- Suitable habitat for nesting birds, reptiles and hedgehog;
- Low potential for badger; and
- The likely absence of other protected / notable species and habitats within the Zone of Influence of the proposed works.

An ecological method statement (see section 6 of this report) is required for the construction phase.

Section 6 of this report details the biodiversity strategy for this outline application. The exact location and specification of the ecological mitigation and enhancement measures will be detailed at Reserved Matters.

The proposed development is not exempt from mandatory Biodiversity Net Gain (BNG) under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021). A separate BNG report and metric have been issued to address the pre-application determination BNG requirements.

If Wiltshire Council approves this application, a suitably worded compliance condition for section 6 of this report along with the drawings in appendix A can secure the implementation of the proposed biodiversity strategy.

A bat mitigation licence from Natural England will be required before the proposed works can proceed. Anyone undertaking this development should be aware that planning permission for development does not provide a defence against prosecution under legislation relating to ecology which is summarised in Appendix B.

1 INTRODUCTION

1.1 Site Description

The site is located at 19 Red Pit, Dilton Marsh, BA13 4BJ, Wiltshire, grid reference ST8415549761. For the purposes of this report, the site is the land within the red line boundary shown in Figure 1 and is hereafter referred to as 'the Site'.

Figure 1: Aerial view and red line boundary of the Site



Image source: Bluesky_Aerial_Photography_12.5cm_1039030_1311474_27-May-2023-to-3-September-2023

The Site is the residential curtilage of house number 19 which includes the main residential building, a green house and a large garden. The Site is surrounded by residential gardens except to the east which is pasture.

1.2 Proposed Works

The proposed development plans are shown in Appendix A and include the creation of five residential plots along with the associated gardens, vehicle access and a shared amenity areas.



2 METHODOLOGY

2.1 Zone of Influence

All ecological features that occur within a 'zone of influence' (Zol) for a proposed development are investigated. The Zol includes:

- Areas directly within the land take for the proposed development and access;
- Areas which will be/have been temporarily affected during construction;
- Areas likely to be impacted by hydrological disruption; and
- Areas where there is a risk of pollution and noise disturbance during construction and/or operation.

The Zol is variable depending on the ecological receptors affected. For this assessment, the field survey was restricted to the area within the red line boundary shown in Figure 1. Table 1 below describes the Zol variation for the desk study and ecological features.

Table 1: Zones of Influence used for this assessment

Ecological Features	Zone of Influence
Internationally Designated Sites and their respective consultation/risk zones	1km buffer around the Site boundary
Nationally and Locally Statutory Designated Sites and their respective consultation/risk zones	1km buffer around Site boundary
Protected species records	1km buffer centred around grid reference ST8415549761.
Priority habitats and ancient woodland	250m from Site boundary
Tree Protection Orders	Within and immediately adjacent to the Site boundary
Protected species evidence	Within the Site boundary
Water bodies	250m buffer around Site boundary

2.2 Desk Study

The following sources were consulted to inform the desk-based assessment:

- Multi Agency Geographical Information for the Countryside (MAGIC) website²;
- Wiltshire Council's Wiltshire Planning Explorer³;
- Natural England's Open Data Geoportal⁴; and
- Wiltshire & Swindon Biological Record Centre (WSBRC), Ref: 20250426_1_AE

² [Magic Map Application](#) [last accessed 13/05/2025]

³ [Planning Experience App](#) [last accessed 13/05/2025]

⁴ [Natural England Open Data Geoportal \(arcgis.com\)](#) [last accessed 13/05/2025]



2.3 Daytime Walkover

All habitats within the Site were identified and categorised in accordance with the UK Habitat Classification System.

A daytime walkover was completed on 19 May 2025 by Max Hemmings.

The equipment used to inform the survey included a binocular, torch, pole mounted inspection camera, tablet and endoscope.

The weather conditions for the survey were optimal and are shown in Table 2 below.

Table 2: Weather conditions for the daytime walkover

Temperature (°C)	Cloud Cover (%)	Wind (Beaufort Scale)	Precipitation
16	90	2	None

2.4 Newt Egg Search and GCN eDNA Survey

An egg search was conducted during the daytime visit and a water sample was taken from the ornamental pond on 13 June 2025 using a RSK ADAS Ltd sample kit by Max Hemmings. The sample was stored below 10 °C until collection by courier on 18 June 2025.

2.1 Bat Emergence Surveys

Two bat emergence surveys were completed by Max Hemmings and Claire Collings (Keyne Ecology) on the dates and times shown Table 3.

Table 3: Time and dates for the bat emergence surveys

Date	Start Time	Sunset	End Time	Total Survey Time
25 June 2025	21:15	21:31	23:00	1 hour 45 minutes
21 July 2025	20:59	21:14	22:44	1 hour 45 minutes

The equipment used included; Elekon Batlogger, Titley Scientific Chorus, Echo Meter Touch Pro 2 (EMTP2), and four infra-red (IR) cameras (three Nightfox Whiskers, a Canon XA20 camcorder and a Pixfra thermal imaging scope. An additional Song Meter Mini Bat 2 (SMMB2) was also used for the July emergence survey.

The location of the cameras along with their field of views are shown below in Figure 2 to Figure 11.



Figure 2: Location of cameras (C), detectors (D) and surveyors (S) for the June survey



Image source: Bluesky_Aerial_Photography_12.5cm_1039030_1311474_27-May-2023-to-3-September-2023

Figure 3: Location of cameras (C), detectors (D) and surveyors (S) for the July survey



Image source: Bluesky_Aerial_Photography_12.5cm_1039030_1311474_27-May-2023-to-3-September-2023



Figure 4: Location 1's field of view for the June survey



Figure 5: Location 2's field of view for the June survey



Figure 6: Location 3's field of view for the June survey



Figure 7: Location 4's field of view for the June survey



Figure 8: Location 1's field of view at the start of the July survey



Figure 9: Location 2's field of view at the end of the July survey



Figure 10: Location 3's field of view at the start of the July survey



Figure 11: Location 4's field of view at the end of the July survey





The weather conditions for the emergence surveys were optimal and are shown in Table 4.

Table 4: Weather conditions for the bat emergence surveys

Date		Cloud Cover (%)	Wind (Beaufort Scale)	Temperature (°C)	Precipitation
25 June 2025	Start	75	1	19.5	Very light brief drizzle at 21:58
	End	75	1	15.4	None
21 July 2025	Start	100	2	20.5	Light rain before survey started
	End	60	1	15.9	None

2.1 Bat Static Survey

A static recorder (Song Meter Mini Bat 2) was deployed in the main loft void between 25 June and 21 July 2025 with static remaining active for the entire duration.

2.2 Bat Acoustic Analysis

All acoustic recordings were converted to Zero Crossing (ZC) files using Kaleidoscope and analysed with AnalookW software.

2.3 Personnel Competency

Max Hemmings MCIEEM has nine years' experience of working as an ecologist with six years in a large multi-disciplinary consultancy and two with the development management team of a local planning authority. Max holds the following Natural England survey licences; great crested newt (GCN) Level 1, hazel dormice Level 1 and bats Level 2.

Claire Collings MCIEEM has over 15 years' experience of working as an ecologist with the majority in consultancy and a year within a local planning authority. Claire holds the following Natural England survey licences; great crested newt (GCN) Level 1 and bats Level 2.



3 LIMITATIONS

Limitation	Assessment	Significance
Ecological information obtained from third parties and presented in the desk study does not represent a full and complete species & habitat list for the area. They are mostly given by individuals on an ad hoc basis, often meaning there are areas of deficiency in the data.	The site surveys alleviate any deficiency in the desk study data. The precautionary principle is applied, and potential presence is assumed where the Site has reasonable habitat to support protected / notable species or habitats.	Negligible
Four site visits can only provide a snapshot of the ecological baseline and can miss, seasonal, mobile and/or nocturnal species.	The visits were completed in optimal conditions and the survey is considered to be appropriate for the proposed development The precautionary principle is applied, and potential presence is assumed where the Site has reasonable habitat to support protected / notable species or habitats.	Negligible
Inevitably, structures cannot be holistically viewed from optimal positions and consequentially potential crevices can be missed. An absence of species evidence does not equate to evidence of species absence.	The total survey effort provides sufficient information to be reasonably certain of the likely presence or absence of protected species. The surveyors' competencies are appropriate for the surveys undertaken.	Low
The accurate identification of species/habitats depends on the skill level of the surveyor. For instance, a large proportion of bats cannot be identified with complete confidence from their echolocation calls alone and require sound analysis of their calls to provide a degree of certainty. Analysing bat echolocation using sound analysis software is not 100% accurate. The quality of recorded information will always depend on the positioning and location of the detector/camera and can be impacted by external influences outside of the surveyors' control such as the weather.	The surveyors' competencies are appropriate for the surveys undertaken. The weather provided optimal surveys conditions, and no other significant external influences were noted.	Low



4 LEGISLATION AND POLICY

The legislation relating to ecology is detailed in Appendix B.

The relevant local policies relating to biodiversity are summarised in Appendix C.



5 RESULTS & IMPACT ASSESSMENT

5.1 Planning Application History

With reference to the Wiltshire Council's *Wiltshire Planning Explorer* there are no historic or other active planning applications on Site.

Planning applications PL/2023/01048 and PL/2024/06523 immediately east of the Site for 85 dwellings were withdrawn and refused respectively. The application was not refused for reasons relating to Ecology. The ecology report by Ethos Environmental Planning identified the following:

- The likely absence of reptiles, GCN and hazel dormice;
- Confirmed; hedgehog, water vole, barn owl, a bird assemblage of local importance, three trees with bat roost suitability, at least sixteen species of bat (common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, noctule, Leisler's bat, serotine, Daubenton's bat, Natterer's bat, whiskered and Brandt's bats, brown long-eared bat, lesser horseshoe, greater horseshoe and barbastelle) using the land for foraging and commuting with the river on the west and hedgerow on the north being the key bat activity corridors; and
- The potential to host; badger (commuting and foraging only), otter, brown hare, polecat and harvest mouse.

The Habitat Regulations Assessments were favorably concluded for both Salisbury Plain Special Protection Area (SPA) and Bath and Bradford on Avon bat Special Area of Conservation (SAC).

The Council's Ecology officer requested the following ecology conditions:

1. Compliance condition for documents relating to ecology;
2. Construction and Environmental Management Plan (CEMP);
3. Landscape and Ecological Management Plan (LEMP);
4. Detailed design of the ecological measures such as bird and bat boxes;
5. External Artificial Lighting; and
6. The requirement to submit a Biodiversity Gain Plan (GBP) and Habitat Management and Monitoring Plan (HMMP) which need to be approved by the local planning authority before works begin.



5.2 Designated Sites

5.2.1 International and National Sites

No international or national designated sites are within 1km of the Site.

The Site is within a Site of Special Scientific Interest (SSSI) Impact Risk Zone.

The SSSI Impact Risk Zone guidance⁵ is below to inform if the local planning authority should consult Natural England:

“the proposed development is outside or extends outside existing settlements/urban areas and will increase lighting levels or affect trees/woodland, waterbodies, rural buildings/structures (manmade or natural) or linear landscape features such as hedgerows, streams and rivers through direct loss, fragmentation or change of use.”

The proposed development is not outside and does extend outside of existing settlements/urban areas. Therefore, it is considered likely that the local planning authority does not need to consult Natural England.

Bath and Bradford on Avon Bats SAC

The Site is within a 4km core area of a greater horseshoe core roost that is located at Westbury Leigh. Developments in this core area have the potential to result in significant adverse impact on the special features of the SAC being Annex II bat species.

Bat activity surveys were not completed since they are considered to be too onerous given the scale, nature of the works and the types of habitats present. Section 5.4.2 of this report details the biological records of Annex II bat species (barbastelle, lesser horseshoe and greater horseshoe) in this area, these records are not specifically associated with the Site. A single commuting greater horseshoe was recorded during the July emergence survey. The bat activity surveys completed for the planning applications PL/2023/01048 and PL/2024/06523 immediately east of the Site confirmed the river on the west and hedgerow on the north are the key bat activity corridors. These key bat activity corridors are respectively 200m west and 160m north from the Site.

The proposed development will result in a small loss of potential foraging resource being the vegetated garden. The Site is an existing residential garden, and its continued favourable maintenance for biodiversity cannot be legally enforced. A pond, being a useful foraging habitat for bats, will be created in the public amenity area and consequentially its retention can be legally secured. Although it is not considered to be a significant feature for Annex II bats, the western hedgerow will be retained which will ensure a commuting and foraging corridor for bats around the Site will be retained. Any additional artificial lighting will ensure no significant light spill to the pond or surrounding area and will follow the specifications Section 5.4.2 of this report to ensure bats are not significantly impacted.

In summary, it is considered likely that the Site does not hold significance for Annex II bat and proposed development is not considered likely to significantly change the functionality of the local area for bats.

⁵ [Impact Risk Zones - Threshold check](#) [Last accessed 13/05/2025]



Consequently, it is considered that any Habitat Regulations Assessment's Test of Likely Significance to conclude that the application is not likely to have significant impacts on the SAC.

The site is within the *Salisbury Plain* Special Protection Area (SPA) 6.4km mitigation zone.

Given the scale and nature of the of the works and the distance of the Site to the designated sites, it is considered any temporary construction impacts and operational impacts would be de-minimis. Therefore, it is anticipated that the local planning authority's Appropriate Assessment for the SPA will conclude no adverse effects on the integrity of the SPA or its qualifying features provided that the council's existing mitigation strategy continues to be implemented. Annual stone curlew monitoring and protection measures continue to be secured by the Council.

5.2.2 Local Sites

Black Dog Woods North is the closest Local Wildlife Site (LWS), which is 300m south-west of the Site.

Given the scale, nature of the proposed works and the distance of the Site to the LWS it is considered any temporary construction impacts and operational impacts would be negligible.

5.3 Designated Habitat

5.3.1 Priority Habitats and Ancient Woodland

The closest Priority Habitat is a Traditional Orchard 300m east of the Site. The closest ancient woodland is *Black Dog Woods North* LWS.

Given the scale, nature of the proposed works and the distance of the Site to the Priority Habitat and ancient woodland it is considered any temporary construction impacts and operational impacts would be negligible.

5.3.2 Waterbodies

In accordance with MAGIC's OS colour mapping there are no designated waterbodies/priority ponds within 250m of the Site.

5.3.3 Tree Protection Orders

There are no Tree Protection Orders (TPOs) within the Zol of the proposed development.

5.3.4 Protected and Notable Flora & Fungi

WSBRC returned no records of notable/protected flora and fungi that would likely be associated with the Site.

The daytime walkover did not confirm the presence of protected and notable flora & fungi, and they are not considered further in this assessment.

5.3.5 Site Habitats

The importance of the Site's habitat in the context of mandatory Biodiversity Net Gain (BNG) is discussed in a separate report. The importance of these habitats in the context of protected species is discussed in section 5.4 of this report.

Figure 12 to Figure 27 below show the habitats on Site which include; buildings and sealed surfaces, artificial unvegetated & unsealed surface, individual trees, vegetated garden, hedgerow and an ornamental pond.

Figure 12: View facing south-west of the artificial unvegetated & unsealed surface and garage at the property's entrance



Figure 13: A view facing north-west of the path from the parking area to the house



Figure 14: An allotment area within the vegetated garden



Figure 15: A view facing north-east from the garden path



Figure 16: A view facing north from the garden path



Figure 17: A view looking north-west showing the conservatory from the garden path



Figure 18: The residential building's eastern elevation and ornamental pond



Figure 19: The ornamental pond



Figure 20: The residential building's southern elevation from the eastern side



Figure 21: The residential building's southern elevation from the western side



Figure 22: The residential building's western elevation and hedgerow forming the Site's boundary



Figure 23: The residential building's northern elevation



Figure 24: The residential building's western and southern elevation



Figure 25: The residential building's western and northern elevation



Figure 26: The residential building's eastern and northern elevation



Figure 27: A view facing east of the Site's northern boundary



The Site's habitats are common and widespread and are considered to be of Site importance.

The proposed development includes public amenity areas which have been designed to maximise their potential for biodiversity within the constraints of also being used as an amenity



area by the residents. The biodiversity features in these amenity areas include the retention of the more established individual trees and the creation of a replacement pond. The favourable management of the public amenity area can be legally enforced and secured for the duration of the proposed development.

Consequently, in combination of the off-site BNG units being purchased as part of mandatory BNG, the impacts to habitats are considered to be suitably avoided and mitigated.

5.4 Protected and Notable Species

The daytime walkover confirmed the absence of suitable habitat to support the following protected and notable species within the Zol which will not be considered further in this report:

- Hazel dormouse;
- Brown hare;
- Otter;
- Water vole;
- Fish; and
- Invertebrates.

5.4.1 Amphibians & Reptiles

WSBRC returned six records for three species of amphibian and seven records for three species of reptile within 1km of the Site which are summarised in Table 5.

Table 5: WSBRC amphibian and reptile species records

Species	Number of Records and Date Range	Additional Notes
Common Toad	2 (1977-78)	Residential property pond and a pond at Westbury Station
Common Frog	1 (1980)	Found in a wood pile in Dilton Marsh
Great Crested Newt	2 (1978 – 2006)	In Dilton Marsh High Street.
Slow-worm	1 (1978)	Westbury railway bank
Grass Snake	3 (1978 – 1998)	Dilton Marsh and Westbury railway bank
Common Lizard	2 (1978)	Westbury railway bank

Natural England have designated the Site as a “fringe” Great Crested Newt (GCN) Strategic Opportunity Area. MAGIC maps did not return any GCN newt pond survey results or licence returns within 1km of the Site.

A Habitat Suitability Index (HSI) was completed for the ornamental pond with the results shown in Table 6.

**Table 6: HSI survey results**

Suitability Index Description	Category	Suitability Index Value
Geographic location	Zone A	1
Pond area	<50 m ² (5m ²)	0.05
Pond permanence	Never dries	0.9
Water quality	Moderate	0.67
Shade	0%	1
Waterfowl effect	Absent	1
Fish presence	Absent	1
Pond Density	2.87	0.9
Terrestrial habitat	Moderate	0.67
Macrophyte cover	50%	0.8
HSI Score	0.62	
Pond Suitability	0.60 – 0.69 = Average	

A common newt egg and three male smooth newts were observed in the pond on the 13 June 2025.

The GCN eDNA result confirmed the likely absence of GCN from the pond, a copy of the results from RSK ADAS Ltd is shown in Appendix D of this report.

In addition to the ornamental pond, the vegetated garden and hedgerow are considered likely to support common amphibians and reptiles for refuge, commuting and foraging.

The hedgerow will be retained as part of the development to ensure a commuting corridor is retained around the Site.

The proposed works will reduce the amount of vegetated garden and remove the ornamental pond. The proposed mitigation includes the creation of a larger pond and the creation of three brash/log piles. Siting the mitigation features within the shared amenity space will ensure their retention for the duration of the proposed development.

Potential impacts to amphibians and reptiles during the remaining construction phase can be reduced to negligible if the avoidance / mitigation measures detailed in section 6 of this report are implemented.

When the avoidance and mitigation measures are considered, the proposed development is considered unlikely to significantly change the existing functionality of the area for these species.

5.4.2 Bats

Two granted European Protected Species Licence were returned 921m south-west of the Site. The licences permitted the destruction of a breeding roost for brown long-eared bat in 2016.



WSBRC returned 43 records of bat species within 1km of the Site which are summarised in Table 7.

Table 7: WSBRC bat species records

Species	Number of Records and Date Range	Additional Notes
Barbastelle	1 (2019)	Not a roost
“Bat”	6 (2006-2006)	At least two “withheld” locations, one is a roost.
Brown long-eared	5 (1985-2019)	At least three locations, one being a maternity roost
Common pipistrelle	1 (2019)	Not a roost
Greater horseshoe	12 (2015-2019)	Not a roost
Lesser horseshoe	7 (2002-2019)	Two records are roosts
Long-eared species	2 (1986-2019)	One record is a roost
<i>Myotis</i> species	1 (2019)	Not a roost
Nathusius's pipistrelle	3 (2016)	Not a roost
Noctule	1 (2019)	Not a roost
Pipistrelle	1 (1992)	Roost
Serotine	2 (1985-2019)	Roost
Soprano pipistrelle	1 (2019)	Not a roost

Daytime Walkover and Potential Roost Features (PRFs)

No bats or evidence of roosting bats were confirmed during the daytime visit.

The survey confirmed the likely absence of tree PRFs and the main building to have the following PRFs:

- Loose mortar between the bricks and roof slaps;
- Potential gaps in the ridge tile mortar; and
- Loose tiles and missing tiles.

Examples of the PRFs are shown in Figure 28 to Figure 30.

Figure 28: Loose mortar between the bricks and roof slaps



Figure 29: Potential gaps in the ridge tile mortar



Figure 30: Loose and missing tiles



An internal inspection of the loft was undertaken but 3m of the loft void's southern end was not fully surveyed due to access constraints. The surveyed section of the loft did not contain bats or evidence of bats. Small potential access points were observed along the southern eave of the roof, otherwise the loft was dry and contained a large amount of cobwebs which indicates infrequent, if any, use by bats as a flight space.

Figure 31: View facing south from within the loft



Figure 32: The remaining 3m of the loft was not safe to access





The daytime survey confirmed the garage and residential building to have negligible and moderate bat roost suitability respectively.

Static Survey

The static did not return any bat recordings in the loft.

Emergence Surveys

On both emergence surveys one soprano pipistrelle emerged from the same location in the missing mortar on the southern elevation as shown in Figure 28 and Figure 33.

No other bats emerged or re-entered the building.

Figure 33: Aerial view to show the soprano pipistrelle roost's location and direction of travel after emerging



Image

source: Bluesky_Aerial_Photography_12.5cm_1039030_1311474_27-May-2023-to-3-September-2023



Commuting and Foraging

Table 8 summarises the bat activity recorded by the detectors during the emergence surveys.

Table 8: Summary of bat passes at both camera locations for the May and July surveys

Date	Detector	Number of Passes Recorded								
		All species	P.pip	P.pyg	Nyctalus spp	Noctule	Serotine	Myotis spp	GHS	BLE
25 June 2025	EMTP2	29	13	2	7	6	1	N/A	N/A	N/A
	Chorus	35	16	3	4	5	6	1	N/A	N/A
	Batlogger	89	66	10	4	1	6	2	N/A	N/A
	Total	153	95	15	15	12	13	3	N/A	N/A
	Earliest recorded time	21:38	22:15 21:58 P.pyg	22:16 22:12 21:38	22:17 22:17 22:17	22:20 22:20 22:20	22:14 22:04 22:05	N/A 22:50 22:50	N/A	N/A
21 July 2025	EMTP2	41	30	1	1	2	3	N/A	2	2
	Chorus	58	49	1	N/A	4	N/A	4	N/A	N/A
	Batlogger	30	22	1	N/A	N/A	5	1	1	N/A
	SMMB2	18	11	N/A	3	2	N/A	1	N/A	1
	Total	147	112	3	4	8	8	6	3	3
	Earliest recorded time	21:20	21:36 21:39 P.pyg	22:03 22:02 21:36 21:48	22:32 N/A N/A 22:24	21:34 21:28 N/A 21:30	21:53 N/A 21:52 N/A	N/A 22:12 22:43 22:11	22:07 N/A 22:07 N/A	22:10 N/A N/A 22:49

A small number (<5) of pipistrelle social calls were recorded on both emergence surveys.

The majority of bat activity was noted on the eastern side of the building with low numbers of foraging pipistrelles (max count two). The eastern side of the building was largely used for commuting purposes by low numbers of bats.

Summary and Mitigation

The confirmed soprano pipistrelle roost and potential roost features are not classic hibernation roosts and are considered to have negligible hibernation roost suitability although precautionary measures will be undertaken during the construction phase if they are completed over winter.

The confirmed roost and potential roost features are considered likely to be suitable for crevice dwelling bats only.

The Site has some commuting and foraging potential for bats, however, given the number and species recorded it is not considered to be a significant for the local bat population. The proposed development will enable an increase in potential disturbances such as noise and light pollution by the new residents.



Without mitigation the proposed development will reduce the potential roosting resource and has the potential to reduce the commuting and foraging value of the area for bats. The following mitigation and enhancement measures will be implemented to mitigate these impacts:

- Five integrated bat roosts will be installed in the new dwellings
- Two tree-mounted boxes will be installed in a retained tree;
- Any additional external artificial light will adhere to the following specifications:
 - ◆ Located in areas for safe access only;
 - ◆ Avoid light spill onto the amenity areas and wider landscape;
 - ◆ Only include downlighting;
 - ◆ Have the lowest viable low lux value; and
 - ◆ Have a K value of less than 2700K.
- Potential impacts to bats during the construction phase can be reduced to low if the measures detailed in Section 6 of this report are implemented.

If the above measures are implemented the proposed development is considered unlikely to significantly impact the bat foraging and commuting value and will enhance the potential roosting resource for bats.

5.4.3 Badger

WSBRC returned nine records of badger from 1976 to 2015 within 1km of the Site with the grid reference reduced to 6 digits or lower due to sensitivity.

No badger setts or evidence of badger was identified during the Site visits.

The habitats on and immediately around the Site could be used by foraging/commuting badgers and have some sett creation potential. The Site is subjected to relatively high levels of disturbance such as the occupants' pets. Therefore, the Site is sub-optimal for these species and the operational phase of the proposed works is considered unlikely to change the functionality of the area for badgers.

The potential for badgers on Site cannot be entirely scoped since they are a mobile species and can frequently move territories.

Potential impacts to badgers from the proposed development's construction phase can be reduced to negligible if the avoidance / mitigation measures detailed in section 6 of this report are implemented.

5.4.4 Birds

WSBRC returned 65 records for 25 bird species within 1km. The Site is not considered to have significance to most of the species recorded since the area is subjected to operational use disturbances. These disturbances would likely deter the recorded predators and ground nesting species of bird from the Site. The records include birds such as woodpigeon, wren, swift, house sparrow and stock dove along with other urbanised breeding birds.

A barn owl was observed in the field commuting north, starting from being perched on a tree located north of the Site during the first bat emergence survey.



No evidence of breeding birds was confirmed but it is considered likely that the vegetated garden, individual trees and hedgerow have the potential to support breeding birds.

The proposed development will retain the hedgerow and some individual trees within the amenity areas. However, some of the trees and garden will be removed which could result in the loss of potential nesting resource.

The loss of potential nesting resource is considered to be suitably mitigated by the installation of six swift bricks in the proposed dwellings.

Potential impacts to breeding birds during the remaining construction phase can be reduced to negligible if the avoidance / mitigation measures detailed in section 6 of this report are implemented.

When the mitigation is considered, the proposed development's operational phase is considered unlikely to significantly change the functionality of the area for breeding birds.

5.4.5 Other Mammals

WSBRC returned 19 records of hedgehog and five records for rabbit within 1km of the Site.

No evidence of breeding birds was confirmed but it is considered likely that the vegetated garden, individual trees and hedgerow have the potential to support mammals such as hedgehogs and rabbits.

The proposed development will retain the hedgerow and some individual trees within the amenity areas. However, some of the trees and garden will be removed which could result in the loss of potential habitat resource.

The loss of habitat resource is considered to be suitably mitigated by the installation of three brush piles in the amenity areas along with Hedgehog Highways which will be installed in the boundary features across the Site were appropriate.

Potential impacts to Other Mammals during the remaining construction phase can be reduced to negligible if the avoidance / mitigation measures detailed in section 6 of this report are implemented.

When the mitigation is considered, the proposed development's operational phase is considered unlikely to significantly change the functionality of the area for Other Mammals.

5.5 Invasive Non-Native Species (INNS)

The daytime walkover confirmed cotoneaster in the ornamental hedgerow. It is an offence to allow the spread of these species onto adjacent land and into the wild. Soils containing INNS are classified as controlled waste and if they are to leave the Site they must be disposed of at licensed landfill.

The proposed works do on the include the removal of this hedgerow and therefore it is not anticipated that the works will enable the spread of this species into the wild.

Potential impacts during the construction and operational phase can be scoped out if the further avoidance / mitigation measures detailed in Section 6 of this report are implemented.



5.6 Impact Assessment Summary

Table 9: Summary the Ecological Features within the Zol and Impact Assessment

Ecological Feature	Area on Site which could likely host the ecological feature	Phase of the proposed development where the potential significant impacts could occur	Impact of the proposed works if the avoidance, mitigation and enhancement measures in section 6 of this report are implemented
Amphibians	Vegetated Garden, Hedgerow and Ornamental Pond	Construction and Operational	Positive
Reptiles	Vegetated Garden, Hedgerow and Ornamental Pond	Construction and Operational	Positive
Bats (roosts only)	Residential Building	Construction and Operational	Positive
Bats (foraging/commuting only)	Entire Site	Construction and Operational	Negligible
Badger	Vegetated Garden and Hedgerow	Construction	Negligible
Birds	Vegetated Garden and Hedgerow	Construction and Operational	Negligible
Hedgehogs	Vegetated Garden and Hedgerow	Construction and Operational	Negligible



6 BIODIVERSITY STRATEGY

If the strategy is approved by the Local Planning Authority it can either be subjected to a compliance condition or can be used as a template to discharge any forthcoming ecological conditions. Since this is an outline application the exact locations and specifications will be shown in the detailed design at Reserved Matters.

A bat licence must be approved by Natural England before any demolition works can begin. The working methodology detailed in the approved bat licence will supersede section 6.1.1 of this report.

6.1 Construction Phase

6.1.1 Bats

The working methodology to be detailed in the bat licence submitted to Natural England will include the following:

- There will be no night-time working or disturbance associated with the construction works at night such as but not limited to artificial light spill;
- Two tree-mounted bat boxes will be installed by a suitably qualified ecologist in a retained tree prior to the residential building's demolition. The choice of tree-mounted bat boxes will be subject to product availability but will see to mimic crevice and cavity features. The tree-mounted boxes must use aluminium nails or other support which will not significantly negatively impact the tree's condition.;
- Immediately prior to the demolition, a suitably qualified ecologist will inspect the accessible PRFs;
- The PRFs will be soft stripped and by hand (where possible) under ecological supervision;
- Any tiles will be removed in a vertical motion as opposed to a horizontal sliding motion; and
- All works must stop if a bat is found and an ecologist must be notified with the bat transported by the ecologist to the tree mounted bat box before works re-commence.

6.1.2 Other Ecological Features

An ecologist should complete a site walkover to ensure the recommendations in this report remain valid at least 48 hours before any works (including vegetation clearance) commences. The results of this walkover might alter the mitigation strategy if additional ecological constraints are identified.

All works will stop immediately if a protected species or evidence of a protected species is discovered. An appropriate avoidance or mitigation strategy will be agreed with a suitably qualified ecologist before works continue.



If significant impacts to the protected species are unavoidable, additional mitigation measures will be implemented that are proportionate to ensure no net loss of biodiversity and ideally a net gain.

If a protected species such as a reptile, amphibian and/or hedgehog are identified they will be transported by an ecologist to a suitable refugia in the near vicinity such as the retained amenity area on Site. If the weather conditions are unfavourable, they will be kept in temporary care until they can be released without risk of injury.

Before any works (including vegetation clearance) begin, the mitigation pond will be created in the amenity area with the water and plants taken from the existing pond. The proposed amenity areas will subsequently be fenced off to separate them from the construction working area.

The vegetation clearance and demolition works should seek to avoid the breeding bird season which is considered to be from March to August inclusive. If this is not possible, immediately prior to the building's demolition and vegetation clearance a suitably qualified ecologist will inspect the Site for breeding birds and other protected species. If an active nest is confirmed, works will likely need to be delayed until the chicks have successfully fledged.

The stone around the pond and any brash piles or log piles on Site will be removed by hand to avoid mechanical injury of protected species.

The Site vegetation that is proposed to be removed will be initially cleared without breaking ground or pulling up roots. The arising will be cleared, and the area checked for protected species before ground works can continue. A suitable proportion of the vegetation arisings will be used to create the brash / log piles in the amenity areas.

Any arisings (aside from the mitigation brash log/ piles) from the development that are to remain on Site for longer than a week will be stored in containers such as skips to reduce the potential of them becoming refugia features for wildlife.

The works must avoid impacting the hedgerow on the western boundary and ensure that the cotoneaster found within this hedgerow is not spread into the wild. If the cotoneaster is removed, any arisings containing the cotoneaster will either need to be buried on Site or disposed of at a licensed landfill.

There will be no night-time working or disturbance associated with the construction works at night such as but not limited to artificial light spill.

A suitably sized plank will be installed in any excavations overnight to ensure any trapped mammals can readily escape.

During the construction phase, six swift bricks will be installed in addition to the five integrated bat boxes.

6.2 Operational Phase

No additional external artificial light will be installed unless they adhere to the following specifications:



- Located in areas for safe access only;
- Avoid light spill onto the amenity areas and wider landscape;
- Only include downlighting;
- Have the lowest viable low lux value; and
- Have a K value of less than 2700K.

The biodiversity mitigation measures that will be detailed at Reserved Matters and within the bat mitigation licence will be retained and favorably managed for biodiversity for the duration of the proposed development.



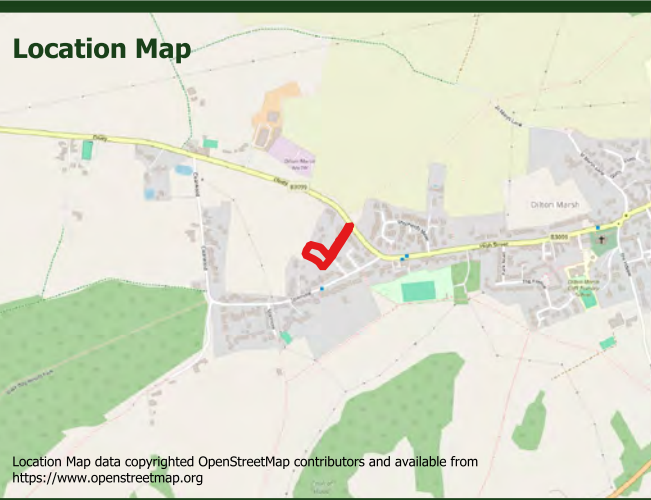
APPENDIX A EXISTING AND PROPOSED PLANS

Drawings:

BNG Baseline Habitats, 250422-H22-1-4, Rev: A, Date: 05/08/2025 by Avon Ecology Limited

BNG Proposed Habitats, 250422-H22-1-4, Rev: A, Date: 05/08/2025 by Avon Ecology Limited

Indicative Proposed Site Plan, No: 120, Rev: A, Date: 01/08/2025 by Funlab



Legend

- Red Line Boundary
- Artificial unvegetated, unsealed surface
- Developed land; sealed surface
- Ornamental lake or pond
- Vegetated garden

Habitat Condition

- Moderate
- N/A - Other
- Condition Assessment N/A
- Non-native and ornamental hedgerow, poor condition
- Very Large Rural Tree
- Large Rural Tree
- Medium Rural Tree

Baseline Individual tree Condition

- Moderate
- Good

Project Title:

19 Red Pit, Dilton Marsh

Drawing Title:

BNG Baseline Habitats

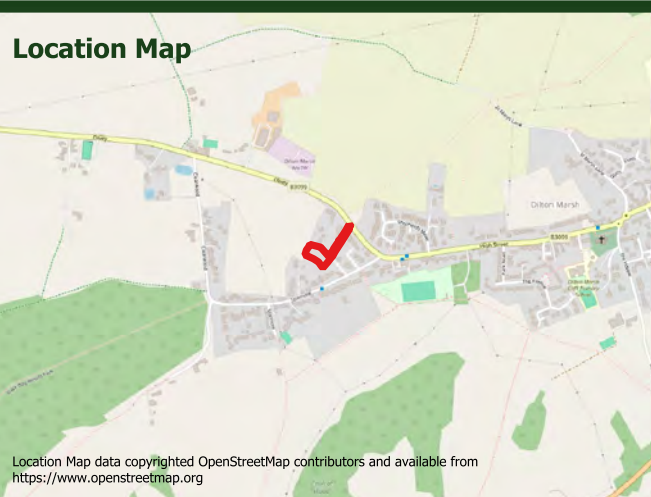
Drawing No:

250422-H22-1-4

Revision & Date

A | 05/08/2025

avon ECOLOGY



Legend	
	Artificial unvegetated, unsealed surface
	Developed land; sealed surface
	Modified grassland
	Ornamental lake or pond
	Vegetated garden
Habitat Condition	
	Moderate
	Poor
	N/A - Other
	Condition Assessment N/A
	Non-native and ornamental hedgerow, poor condition
	Native hedgerow, good condition
	Large Rural Tree
	Medium Rural Tree
Individual tree Condition	
	Moderate
	Good
Project Title: 19 Red Pit, Dilton Marsh	
Drawing Title: BNG Proposed Habitats	
Drawing No: 250422-H22-1-5	
Revision & Date A 05/08/2025	

NOTE: This plan is indicative only to demonstrate the principle of development and is therefore not for material consideration. The final site layout is to be resolved under Reserved Matters

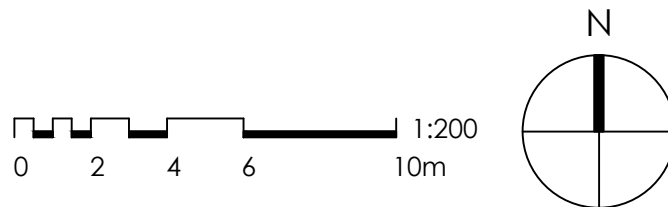
NOTES:

All dimensions to be verified on site by Main Contractor before the start of any shop drawings or work whatsoever either on their own behalf or that of sub-contractors.

Report any discrepancies to the Contract Administrator at once.

This drawing is to be read with all relevant Architect's and Engineer's drawings and other relevant information.

© Funlab Ltd



Ecology Note:
Five integrated bat boxes and six swift bricks will be included in the proposed buildings. Two tree mounted bat boxes will be installed in a retained tree and three brush piles will be created from the vegetations clearance arisings. The exact locations and specifications of these features will be confirmed by a suitably qualified ecologist and detailed at Reserved Matters.

- Any additional external artificial light will adhere to the following specifications:
- Located in areas for safe access only;
 - Avoid light spill onto the amenity areas and wider landscape;
 - Only include downlighting;
 - Have the lowest viable low lux value; and
 - Have a K value of less than 2700K

Hedgehog Highways will be installed in the boundary features across the site were appropriate

DRAWING LEGEND

Dwelling

Garage

Private Amenity

Shared Access

Main Access

Replacement Water Feature +10% larger than existing

Private Parking

Shared Amenity

Indicative Boundary Line

Vista From Dwelling

Site Area = 2515m2 | 0.25Ha

Indicative Accommodation Schedule

- PLOT 1:** 3 Bed-5 Person
PLOT 2: 3 Bed-5 Person
PLOT 3: 5 Bed-7 Person
PLOT 4: 5 Bed-7 Person
PLOT 5: 4 Bed-6 Person

Indicative Proposed Site Plan
Scale 1:200



A	Site plan revised and updated following Design Team coordination	LH	01/08/25
Rev	Description	By	Date

STAGE:

PLANNING



a: 17 Foundry Barton, Frome, Somerset, BA11 3HX
e: hi@funlabdesign.co.uk
i: www.funlabdesign.co.uk

CLIENT:

Mr R Norwood

SITE:

19 Red Pit Lane, Dilton Marsh
Wiltshire

DRAWING:

Indicative Proposed Site Plan

SCALE:	DATE:	BY:	CHECKED:
1:200 at A1	Jun '25	LH	xx
PROJECT REF:	DRAWING No.:	REVISION:	
25-1067	120	A	



APPENDIX B LEGISLATION AND POLICY

The key legislation relating to ecology and the environment is the Wildlife and Countryside Act 1981 as amended (WCA) and The Conservation of Habitats and Species Regulations 2017 as amended (Habitat Regulations).

Together, the WCA and Habitat Regulations form the precedent for species and habitat protection in England and Wales. In addition to terrestrial legislation, the Marine and Coastal Access Act (2009) protect nationally important marine wildlife, habitats, geology and geomorphology by created designated protection areas called Marine Conservation Zones (MCZs).

The Natural Environment and Rural Communities (NERC) Act 2006 requires public bodies, including local authorities, 'to have regard to the conservation of biodiversity in England' when carrying out their normal functions. Section 40 of the Act also refers to a list of habitats and species of 'principal importance to biodiversity in England. Hereafter Section 41 (S41) habitats and species are referred to as 'priority habitats and species'.

The Environment Act 2021 details targets, plans and policies for improving the natural environment including the introduction of mandatory Biodiversity Net Gain (BNG).

The National Planning Policy Framework (NPPF) sets out the government's planning policies for England and how these are expected to be applied. The NPPF paragraphs relating to biodiversity and planning applications are 180, 183, 186-188.

The following section details species specific legislation and is a summary version of the full legislative text only. The relevant acts referred to for each species should be referred to for the full legislative text.

Breeding Birds

All breeding birds are protected under the WCA which prohibits the intentional killing, injuring or taking of any wild bird (and) the taking, damaging or destroying eggs or of the nest (whilst being built or in use). Schedule 1 bird species are afforded greater protection under the WCA. It is an offence to disturb Schedule 1 birds or the dependants in the vicinity of their nest site.

Reptiles

Reptiles have varying degrees of protection under the WCA. The four widespread species of reptiles that are protected under Schedule 5 are common lizard (*Zootoca vivipara*), slow-worm (*Anguis fragilis*), grass snake (*Natrix natrix*) and adder (*Vipera berus*). This means it is prohibited to intentionally kill, injure or trade these species.

Invasive Species

Invasive Alien Species (Enforcement and Permitting) Order 2019 and Schedule 9 and Section 14 of the WCA prohibits the introduction into the wild of any species that is not ordinarily resident in and is not a regular visitor to Great Britain in a wild state, or any species listed on Schedule 9.

Plant or soil material contaminated by invasive non-native species such as Japanese knotweed that is to be discarded is considered to be a 'controlled waste' under the Environmental



Protection Act 1990 (EPA 1990). It is an offence to deposit, treat, keep, or dispose of controlled waste without a licence. Furthermore, knotweed that has been cut down and removed must be received by an authorised person to be disposed of correctly. A licence can be obtained from the Environment Agency (EA). The release or planting of a listed species in the wild can be permitted under a licence granted by the relevant statutory body.

Badgers

Badgers (*Meles meles*) and their setts are protected under the Protection of Badgers Act 1992. This makes it an offence to:

- Directly or indirectly kill, injure or take badgers;
- Cruelly ill-treat a badger;
- Dig for a badger;
- Intentionally or recklessly damage or destroy a badger sett, or obstruct access to it;
- Cause a dog to enter a badger sett; and
- Disturb a badger when it is occupying a sett.

Otter

Otter (*Lutra lutra*) is a European Protected species and are fully protected under Schedule 5 of the WCA and Habitat Regulations. It is an offence to:

- Intentionally or deliberately kill, injure or take an otter;
- Intentionally or deliberately damage, destroy or obstruct access to any structure or place used for shelter or protection by an otter; and
- Intentionally or deliberately disturb an otter while it is occupying a structure or place which it uses for that purpose.

Water Vole

Water vole (*Arvicola amphibius*) is a European Protected species and are fully protected under Schedule 5 of the WCA, and Habitat Regulations. It is an offence to:

- Intentionally capture, kill or injure water voles;
- Damage, destroy or block access to their places of shelter or protection (on purpose or by not taking enough care);
- Disturb them in a place of shelter or protection (on purpose or by not taking enough care); and,
- Possess, sell, control or transport live or dead water voles or parts of them (not water voles bred in captivity).

Bats

All bat species are protected under the WCA and Habitat Regulations. This means it is illegal to:

- Intentionally or deliberately kill, injure, disturb or capture these species or damage, destroy or obstruct access to any structure, breeding or resting place used by them.

A person commits a disturbance offence when they significantly to affect:



- The ability of any significant group of animals of that species to survive, breed, or rear or nurture their young; or
- The local distribution or abundance of that species.

Hedgehog

The hedgehog (*Erinaceus europaeus*) is partially protected under Schedule 6 of the WCA.

Great Crested Newt

Great crested newts (*Triturus cristatus*) (GCN) are fully protected under the WCA and Habitat Regulations. This means that is an offence to:

- Intentionally or recklessly kill, injure or take GCN;
- Possess or control any live or dead specimen or anything derived from a GCN;
- Intentionally or recklessly damage, destroy or obstruct access to any structure or place used as shelter or protection by a GCN; and
- Intentionally or recklessly disturb a GCN while it is occupying a structure or place, which it uses for that purpose.

The legislation applies to all life stages of great crested newts.



APPENDIX C LOCAL POLICIES

The key Wiltshire Council policies that relate to biodiversity are outlined below.

Core Policy 50: Biodiversity and geodiversity

Protection

Development proposals must demonstrate how they protect features of nature conservation and geological value as part of the design rationale. There is an expectation that such features shall be retained, buffered, and managed favourably in order to maintain their ecological value, connectivity, and functionality in the long-term. Where it has been demonstrated that such features cannot be retained, removal or damage shall only be acceptable in circumstances where the anticipated ecological impacts have been mitigated as far as possible and appropriate compensatory measures can be secured to ensure no net loss of the local biodiversity resource, and secure the integrity of local ecological networks and provision of ecosystem services.

All development proposals shall incorporate appropriate measures to avoid and reduce disturbance of sensitive wildlife species and habitats throughout the lifetime of the development.

Any development potentially affecting a Natura 2000 site must provide avoidance measures in accordance with the strategic plans or guidance set out in paragraphs 6.75-6.77 above where possible, otherwise bespoke measures must be provided to demonstrate that the proposals would have no adverse effect upon the Natura 2000 network. Any development that would have an adverse effect on the integrity of a European nature conservation site will not be in accordance with the Core Strategy.

Biodiversity enhancement

All development should seek opportunities to enhance biodiversity. Major development in particular must include measures to deliver biodiversity gains through opportunities to restore, enhance, and create valuable habitats, ecological networks, and ecosystem services. Such enhancement measures will contribute to the objectives and targets of the Biodiversity Action Plan (BAP) or River Basin/Catchment Management Plan, particularly through landscape scale projects, and be relevant to the local landscape character.

Local sites

Sustainable development will avoid direct and indirect impacts upon local sites through sensitive site location and layout, and by maintaining sufficient buffers and ecological connectivity with the wider environment. Damage or disturbance to local sites will generally be unacceptable, other than in exceptional circumstances where it has been demonstrated that such impacts:

1. cannot reasonably be avoided
2. are reduced as far as possible
3. are outweighed by other planning considerations in the public interest



4. where appropriate compensation measures can be secured through planning obligations or agreements.

Development proposals affecting local sites must make a reasonable contribution to their favourable management in the long-term.

Core Policy 52: Green Infrastructure

Development shall make provision for the retention and enhancement of Wiltshire's green infrastructure network, and shall ensure that suitable links to the network are provided and maintained. Where development is permitted, developers will be required to:

1. retain and enhance existing on-site green infrastructure
2. make provision for accessible open spaces in accordance with the requirements of the adopted Wiltshire Open Space Standards
3. put measures in place to ensure appropriate long-term management of any green infrastructure directly related to the development
4. provide appropriate contributions towards the delivery of the Wiltshire Green Infrastructure Strategy
5. identify and provide opportunities to enhance and improve linkages between the natural and historic landscapes of Wiltshire.

If damage or loss of existing green infrastructure is unavoidable, the creation of new or replacement green infrastructure equal to or above its current value and quality, that maintains the integrity and functionality of the green infrastructure network, will be required.

Proposals for major development should be accompanied by an audit of the existing green infrastructure within and around the site and a statement demonstrating how this will be retained and enhanced through the development process.

Development will not adversely affect the integrity and value of the green infrastructure network, prejudice the delivery of the Wiltshire Green Infrastructure Strategy, or provide inadequate green infrastructure mitigation. Green infrastructure projects and initiatives that contribute to the delivery of a high quality and highly valued multi-functional green infrastructure network in accordance with the Wiltshire Green Infrastructure Strategy will be supported. Contributions (financial or other) to support such projects and initiatives will be required where appropriate from developers.

Core Policy 54: Cotswold Water Park

In the Cotswold Water Park, proposals for outdoor or water-based sports, leisure, and recreation-based development will be supported where they help transform the area into an informal recreation and leisure resource for Wiltshire residents and visitors in line with the key objectives of the Cotswold Water Park Vision and Implementation Plan. Proposals for any such development must meet the following criteria:

1. Increase or enhance public accessibility and enjoyment of the lakes and countryside.



2. Contribute towards the local economy in the Cotswold Water Park.
3. Strengthen the local landscape character and engender a sense of place.
4. Contribute towards enhancement of biodiversity within the Cotswold Water Park.
5. Retain the character of individual settlements including the tranquillity of their settings.
6. Protect the Cotswold Water Park's built heritage, and enhance accessibility and interpretation of such features where possible.
7. Demonstrate high levels of sustainability, particularly including sustainable building design, accessibility by sustainable transport modes, and sustainable drainage systems.

Core Policy 69: Protection of the River Avon SAC

In order to avoid and reduce potential environmental effects on the River Avon SAC, development will need to incorporate measures during construction and operation to avoid and prevent pollution and mitigate potential disturbance effects; appropriate measures may include consideration of suitable buffer zones along watercourses, habitat enhancements, and river access management measures. All development within 20m of the river banks should submit a construction management plan to the local planning authority to ensure measures proposed during construction are satisfactory.

Where additional sewage discharges to a STW cannot be accommodated without measures to offset phosphate loading, development will be required to undertake proportionate measures (which may include contributions towards those measures identified in the Nutrient Management Plan) to demonstrate that the proposals would have no adverse effects upon the SAC.



APPENDIX D GCN EDNA SURVEY RESULTS

Client:
Max Hemmings, Avon Ecology
1040079-1332, version 1



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-10012

Client Identifier: A

Grid references/coordinates: ST8413949766

Description: pond water samples in preservative

Condition on Receipt: Good

Date of Receipt : 19/06/2025

Volume: Passed

Determinant	Result	Method	Date of Analysis
Inhibition Control [†]	2 of 2	Real Time PCR	23/06/2025
Degradation Control [§]	Within limits	Real Time PCR	23/06/2025
Great Crested Newt*	0 of 12 (negative)	Real Time PCR	23/06/2025
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:

24/06/2025

Date of issue:

24/06/2025

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.

Appendix 1: Interpretation of results

Sample Condition

Upon sample receipt we score your samples according to quality: good, low sediment, medium sediment, high sediment, white precipitate, and presence of algae.

There are three reasons as to why sediment should be avoided:

1. It is possible for DNA to persist within the sediment for longer than it would if it was floating in the water which could lead to a false positive result i.e. in this case GCN not recently present but present a long time ago
2. In some cases sediment can cause inhibition of the PCR analysis used to detect GCN eDNA within samples which could lead to an indeterminate result.
3. In some cases sediment can interfere with the DNA extraction procedure resulting in poor recovery of the eDNA which in turn can lead to an indeterminate result.

Algae can make the DNA extraction more difficult to perform so if it can be avoided then this is helpful.

Sometimes samples contain a white precipitate which we have found makes the recovery of eDNA very difficult. This precipitate can be present in such high amounts that it interferes with the eDNA extraction process meaning that we cannot recover the degradation control (nor most likely the eDNA itself) at sufficient levels for the control to be within the acceptable limits for the assay, therefore we have to classify these type of samples as indeterminate.

What do my results mean?

A positive result means that great crested newts are present in the water or have been present in the water in the recent past (eDNA degrades over around 7-21 days).

A negative result means that DNA from the great crested newt has not been detected in your sample.

On occasion an inconclusive result will be issued. This occurs where the DNA from the great crested newt has not been detected but the controls have indicated that either: the sample has been degraded and/or the eDNA was not fully extracted (poor recovery); or the PCR inhibited in some way. This may be due to the water chemistry or may be due to the presence of high levels of sediment in samples which can interfere with the DNA extraction process. A re-test could be performed but a fresh sample would need to be obtained. We have successfully performed re-tests on samples which have had high sediment content on the first collection and low sediment content (through improved sample collection) on the re-test. If water chemistry was the cause of the indeterminate then a re-test would most likely also return an inconclusive result.

The results will be recorded as indeterminate if the GCN result is negative and the degradation result is recorded as:

1. evidence of decay - meaning that the degradation control was outside of accepted limits
2. evidence of degradation or residual inhibition - meaning that the degradation control was outside of accepted limits but that this could have been due to inhibitors not being removed sufficiently by the dilution of inhibited samples (according to the technical advice note)