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Member of the SNC-Lavalin Group

A429 Coventry Road Warwick cycle route and Woodloes cycle route

Bat Technical Report

March 2022

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Document history

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Non-technical Summary

Report purpose	This technical report provides a summary of the data search request, desk study results and ground level tree assessment for roosting bats for the Proposed Scheme.
Proposed Scheme	Warwickshire County Council has identified an area of potential ecological constraints for the construction of the A429 Coventry Road Warwick cycle route and development of the connecting Woodloes cycle route.
Desk studies and field surveys	A desk study and associated biological records centre search was completed on 25/01/2022. The ground level tree assessment was undertaken on 20/12/2021.
Ecological features	The desk study results did not identify any statutory or non-statutory designated conservation sites within range and likely to be materially affected by the Proposed Scheme. The ground level tree assessment identified more than 20 trees and two bridge structures which were categorised as having low suitability for roosting bats. No further surveys are recommended, however two trees marked as requiring removal for the construction of the A429 Coventry Road Warwick cycle route contain Potential Roost Features (PRF) with low and negligible suitability for bats: it is recommended that the works are completed following a Precautionary Method of Work (PMW). All other trees noted as containing low suitability PRFs are to be retained under the Proposed Scheme, which is considered unlikely to materially affect these PRFs.
Report Validity	It is understood that the current schedule of works for the Proposed Scheme is planned for late summer 2022: the Woodloes cycle route works are programmed for four weeks in August and the A429 Coventry Road Warwick cycle route works are programmed for two weeks in October. In the event of programme changes then updates to the surveys may be required to ensure the validity of the data, as per CIEEM guidance[1].

[1] CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys

1. Introduction

Terms of Reference

1.1. Atkins, a member of SNC-Lavalin Group, was commissioned by Warwickshire County Council to undertake a ground level tree assessment for roosting bats, in connection with proposals to construct and develop, respectively, the A429 Coventry Road Warwick cycle route and the connecting Woodloes cycle Route (hereafter referred to as the Proposed Scheme). The area surveyed comprised an unsurfaced footway adjacent to the A429 Coventry Road and an existing surfaced footway along the north side of the Grand Union Canal, near the Woodloes estate in Warwick, as shown on the site map shown in Appendix A-1 (hereafter referred to as the Site).

Scope of Assessment

1.2. This technical report presents ecological information relating to bats obtained during the following:

- A desk study undertaken on 11/01/2022;
- A data search request, obtained from Warwickshire Biological Records Centre on 25/01/2022; and
- A ground level tree assessment for roosting bats undertaken on 20/12/2021.

Proposed Scheme

1.3. Warwickshire County Council has proposed the construction and development of a new 3 m wide shared footway/cycleway comprising the A429 Coventry Road Warwick cycle route and adjoining Woodloes cycle route. The scheme involves resurfacing and widening of the existing footway along the Woodloes section and construction of a new footway/cycleway along the A429 Coventry Road Warwick section. The Proposed Scheme additionally involves the removal of two trees along the A429 Coventry Road Warwick section in order to accommodate the route design, with all other trees retained.

2. Methodology

Desk Study and Data Search

2.1. The geographical area for obtaining ecological data through desk studies has been determined using professional judgement. Additional baseline data has been gathered through the data request and using online resources as outlined below. This included data gathering in relation to statutory and non-statutory designated sites and bat species. The study areas used for the data gathering are detailed in Table 2-1. The desk study was undertaken on 11/01/2022. For bat species records collected, only those within 10 years of the data collection date have been considered within the assessment.

2.2. The following online resources were accessed:

- Multi-Agency Geographic Information for the Countryside [MAGIC] Application[2] (Defra)
- Grid Reference Finder[3]
- Woodland Trust veteran tree inventory[4]

2.3. The following organisations were contacted to request relevant desk study data, including details of non-statutory designated sites and records of bats:

- Warwickshire Biological Records Centre (WaBRC)

Table 2-1 - Data search areas

Data type	Search area – distance from Proposed Scheme boundary
Statutory designated sites (SSSI, NNR) [including international sites (SAC, SPA, Ramsar)	1 km
Non-statutory designated sites (LNR, sites of local importance)	500 m
Bat species records	1 km
Veteran trees	500 m

Ground Level Tree Assessment for Roosting Bats

2.4. A ground level tree assessment for roosting bats was undertaken to ascertain whether any Potential Roost Features (PRFs) were present and their likely suitability in supporting roosting bats. Full methods are provided in Appendix B.

Surveyor Competencies

2.5. The ground level tree assessment for roosting bats was led by a surveyor assessed[5] to be at least of capable experience following the Chartered Institute of Ecology and Environmental Management (CIEEM) competency framework[6].

[2] Magic Map Application (defra.gov.uk)

[3] Grid Reference Finder

[4] Tree Search - Ancient Tree Inventory (woodlandtrust.org.uk)

[5] Assessment undertaken by Atkins ecological technical leadership team in accordance with CIEEM competency criteria.

[6] https://www.cieem.net/competency-framework

Survey Limitations

2.6. This section identifies any limitations to the surveys or assessment and provides an explanation as to the effect of these on the assessment.

2.7. The desk study reviewed the Woodland Trust's Veteran Trees inventory, this provides records of veteran trees, but is not an exhaustive list and other veteran trees may be present in the area.

2.8. The ground level tree assessment for roosting bats is limited by what the surveyor can see from ground level only and given the conditions presented on the day of the survey. Moderate to significant ivy presence was noted to affect the main stem on approximately one-third of trees surveyed, which can provide a significant constraint to the likelihood of being able to effectively identify PRF present. However, this assessment was undertaken during December, which is within the optimal timeframe and therefore not considered to be a significant limitation.

2.9. The footbridge and road bridge located at the western and eastern extents, respectively, of the Proposed Scheme were only viewed from the northern side of the Grand Union Canal, However, in both cases these bridges were considered suitably distant from the Proposed Scheme to be unaffected by works, in addition to offering negligible suitability for roosting bats. Taken collectively, this is not considered to be a significant limitation.

3. Baseline Conditions

3.1. This section provides details of the ecological baseline relevant to the Proposed Scheme recorded from the desk study and data search request results.

Statutory and Non-Statutory Designated Sites

3.2. Table 3-1 details the statutory and non-statutory designated sites identified though the desk study.

Table 3-1 - Designated sites within 1 km[7] of the Site boundary

Site name	Designation	Location of designated site[8]	Features of interest (including qualifying features of internationally designated sites and reasons for designation for SSSIs)
Coten End Quarry	SSSI	650 m northeast	Geological qualifying features
Guys Cliffe Quarry	SSSI	490 m southeast	Geological qualifying features
Oakwood and Blacklow Spinney	LNR and pLWS	195 m northeast	A semi-natural plantation including mature oak, sweet chestnut and beech. The site contains populations of wood avens, hedge woundwort, hedge mustard and greater stitchwort

Veteran Trees

3.3. There are no veteran trees recorded as being present within 500 m of the Site boundary.

Bat Species Records

3.4. A total of 52 records of bats within 1 km of the Site boundary were returned by the data search request results.

Table 3-2 – Recent[9] bat records within 1 km of the Site boundary

Common name	No. of records	Most recent record date
Common Pipistrelle	6	September 2016
Soprano Pipistrelle	8	September 2020
Unidentified Pipistrelle species	17	September 2020
Noctule	7	September 2020
Brown Long-eared	2	July 2017
Unidentified *Myotis* species	2	July 2012
Unidentified bat	10	April 2020

Of these 52 records, a total of seven were of bats seen emerging from or returning to a roost site: the closest of these (pipistrelle species) were approximately 0.3 km east of the proposed A429 Coventry

[7] This is the zone of influence for designated sites.
[8] Where designated sites are situated outside of the Application Site boundary, the distance and direction are given to the closest point that the designated site is from the Application Site.
[9] Within 10 years

Road Warwick cycle route, from bat surveys undertaken at Ridgeway School, Montague Road, in August/September 2011 and again in July 2012.

The remaining records contain 38 of bats noted as foraging or commuting, either seen or recorded using a bat detector: the closest of these (pipistrelle species) was approximately 0.14 km south of the proposed Woodloes cycle route, in the residential area on the southern side of the Grand Union Canal. The most recent record here is from September 2020.

In addition to pipistrelle species, other species recently recorded within 1 km of the Site boundary include Noctule (0.3 km distant), *Myotis* species (0.3 km distant) and Brown Long-eared (0.66 km distant)

Ground Level Tree Assessment for Roosting Bats

3.5. A total of 21 individual trees, four groups of trees and two bridge structures were present within the survey area and were assessed for the purposes of the Proposed Scheme. The location of structures and trees is shown on Figure A-2 in Appendix A.

3.6. The footbridge (Structure A) located at the western extent of the Proposed Scheme (SP 28337 66035), to the south of the Woodloes cycle route, was assessed as having negligible suitability for roosting bats. This is a metal-framed single span footbridge with wooden slats over the Grand Union Canal. The structure is largely open and exposed, with no sheltered areas. Any features potentially present on its southern side were considered sufficiently distant from the Proposed Scheme as to be unaffected by works. No further surveys are recommended for this structure.

3.7. The road bridge (Structure B) which carries the A429 Coventry Road over the Grand Union Canal (SP 28884 65978), was assessed as having negligible suitability for roosting bats. The bridge is a single span brick arch. The bridge barrel is of brick construction and in good condition, with no loose or missing bricks, or obvious missing mortar present. The bridge upper deck is in similarly good condition. This structure was considered sufficiently distant from the Proposed Scheme as to be unaffected by works. No further surveys are recommended for this structure.

3.8. One semi mature ash tree (Tree A), scheduled for removal as part of the Proposed Scheme, (SP 28895 66081) was assessed as having overall low suitability for roosting bats. The tree contained two PRFs with low suitability: a branch cavity located at 3 m height on the southwestern aspect and feature arising from a pruning cut at 2.5 m height on the southeastern aspect.

3.9. One semi mature sycamore tree (Tree B) scheduled for removal as part of the Proposed Scheme (SP 28913 66134) was assessed as having overall negligible suitability for roosting bats. The tree did not contain any PRFs present at the time of survey, however given the extended period between the December 2021 survey and scheduled removal in October 2022, it is possible that new features may be created within this time.

3.10. A further 19 trees of mixed species, but mainly semi mature ash, were individually evaluated and all found to have single or low numbers of PRFs, all assessed as having low suitability for roosting bats. None of these trees are scheduled for removal. In about half of these cases, the trees were covered in sufficiently dense ivy to make it unsuitable to completely rule out the potential for moderate or high suitability PRFs. However, given the relatively young age of the trees and low impact of the Proposed Scheme, it is considered reasonably unlikely both that moderate or high suitability PRFs exist or would be formed ahead of the expected commencement of the works and that any would be materially affected by works.

3.11. A further four groups of trees of mixed species were categorised collectively as having low suitability for roosting bats. None of these trees are scheduled for removal. In most cases these were semi mature trees, typically ash or sycamore, containing small numbers of PRFs, typically narrow entrance knot holes formed from the pruning or failure of slender primary limbs and at heights above that to be definitively categorised from a ground level inspection. However, given the relatively young age of the trees and low impact level of the Proposed Scheme, it is considered reasonably unlikely both that moderate or high suitability PRFs exist or would be formed ahead of the expected commencement of the works and that any would be materially affected by works.

4. Design Features and Mitigation Measures

This section details the mitigation measures which will be implemented during the works to reduce ecological impacts. In developing the mitigation, the mitigation hierarchy has been following, looking to avoid, minimise or restore in the first instance.

Lighting

4.1. The Proposed Scheme will involve the removal of four existing lighting columns from the current footpath scheduled for development into the Woodloes cycle route. These will be replaced by nine 5m 16W lighting columns.

4.2. Pipistrelle species have been recently recorded as close as 0.14 km to the Site (see Section 3.4). A number of UK bat species are known to use canals and artificial waterways for navigation purposes and nearby artificial lighting is known to affect both their foraging and commuting behaviour[10].

4.3. In particular, slower-flying broad-winged species including brown Long-eared bats and *Myotis* species – both recently recorded as close as 0.66km and 0.30 km to the Site, respectively) – have been shown to generally avoid all streetlights[11].

4.4. The absence of any moderate or high suitability PRFs along the Woodloes cycle route section of the Proposed Scheme, combined with the limited number of recent bat records from this area, suggest that the replacement of and increased number of artificial lighting columns installed along this section will not have a potentially significant negative impact on bats' roosting, foraging or commuting behaviours.

Mitigation Measures

4.5. The following general measures will be implemented for the works undertaken during the Proposed Scheme:

- A suitably qualified Ecological Clerk of Works (ECoW) will be employed for the duration of the Proposed Scheme and for pre-construction clearance works;
- Further inspection using an endoscope would be required to refine the categorisation of Tree A, although given the narrow entrance size of both PRFs and relatively undeveloped condition of the tree, it is considered unlikely that either would be upgraded to moderate or high suitability for roosting bats. However, given the extended period between the December 2021 survey and scheduled removal in October 2022, it is possible that new PRFs may be created within this time, or the existing PRFs noted may improve in character in terms of suitability for roosting bats. Therefore, a suitably qualified bat ecologist should be present to check for any recently created PRFs, prior to any removal of tree A and that a staged section fell technique be employed in order to further check for bat presence within the existing PRFs;
- A suitably qualified bat ecologist be present to check for any recently created PRFs, prior to any removal of tree B;
- Pollution prevention guidelines[12] will be followed and Construction Industry Research and Information Association (CIRIA) guidance on the control of water pollution from construction sites[13];
- During construction trees to be retained will be protected in line with guidelines provided in BS 5837 Trees in relation to Construction[14];
- Where possible, tree felling and vegetation clearance will be minimised and undertaken outside the core bird nesting season (1 March to 31 August, though it should be noted that variation in

[10] Bat Conservation Trust / Institution of Lighting Professionals (2018) Bats and artificial lighting in the UK

[11] As above

[12] All of the pollution prevention guidelines (PPGs) are available from http://webarchive.nationalarchives.gov.uk/20140328084622/http://www.environment-agency.gov.uk/business/topics/pollution/39083.aspx. Note: the PPGs also make reference to environmental legal obligations, but that information is currently out of date and requires updating.

[13] The CIRIA documents are a series of publications developed by the Construction Industry Research and Information Association. Each document is targeted at a particular type of business or activity and covers environmental good practice to minimise pollution.

[14] British Standards Institute (2012) BS 5837:2012 Trees in relation to design, demolition, construction.

dates is possible, for example from geographical variations in climate, or due to a particularly mild winter) to avoid damage or destruction of occupied nests or harm to breeding birds;

- The works affecting the Woodloes cycle route are currently scheduled for four weeks within August 2022, which falls within the bird breeding season. No trees are scheduled for removal within this section: however, this will require an inspection of vegetation to be cleared for breeding birds and their occupied nests by a suitably qualified ecologist no more than 24 hours prior to any works being undertaken. If any nesting birds are identified during the survey, they will be left in situ for their entire nesting period and alternative approaches to the work proposed. This may include leaving an exclusion zone around the nest(s) to avoid disturbance;
- Where possible, vegetation clearance of the hedgerow providing a natural barrier between the Woodloes cycle route section of the Site and the adjacent Grand Union Canal towpath will be minimised, in order to retain this structure as a natural barrier against light spill from the Proposed Scheme onto the canal, which may also be used as a commuting and/or foraging feature by bats (see Appendix C); and
- Where possible, select LEDs with warmer colour temperatures with peak wavelengths greater than 550 nm (~3000 Kelvin), which have been shown to reduce impact on bats[15].

[15] Bat Conservation Trust / Institution of Lighting Professionals (2018) Bats and artificial lighting in the UK

5. Conclusion

5.1. A total of 21 individual trees, four groups of trees and two bridge structures were assessed for the purposes of the Proposed Scheme.

5.2. Both bridge structures were assessed as having negligible suitability for roosting bats and are considered to be sufficiently distant from the Proposed Scheme as to be unaffected by works. No further surveys are recommended for these structures.

5.3. Two trees scheduled for removal as part of the Proposed Scheme – an ash (SP 28895 66081) and sycamore (SP 28913 66134) – were assessed, respectively, as having overall low and negligible suitability for roosting bats. It is recommended that a suitably qualified bat ecologist be present to check for any recently created PRFs, prior to any removal of these trees and that a staged section fell technique be employed in order to further check for bat presence within the existing PRFs contained within the ash tree.

5.4. All other trees assessed within the Site were assessed as having low or negligible suitability for roosting bats. Given the relatively young age of the trees and low impact of the Proposed Scheme, it is considered reasonably unlikely both that moderate or high suitability PRFs exist or would be formed ahead of the expected commencement of the works, or would be materially affected by works.

5.5. A suitably qualified Ecological Clerk of Works (ECoW) will be employed for the duration of the Proposed Scheme and for pre-construction clearance works

Report Validity

5.6. It is understood that the current schedule of works for the Proposed Scheme is planned for August and October 2022. In the event of programme changes then updates to the surveys may be required to ensure the validity of the data, as per CIEEM guidance[16].

[16] CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys

Appendices

Appendix A. Site Location Plan and Scheme Figures

Figure A-1

Figure A-1 - Approximate site extent for the A429 Coventry Road Warwick cycle route and Woodloes cycle route

Figure A-2

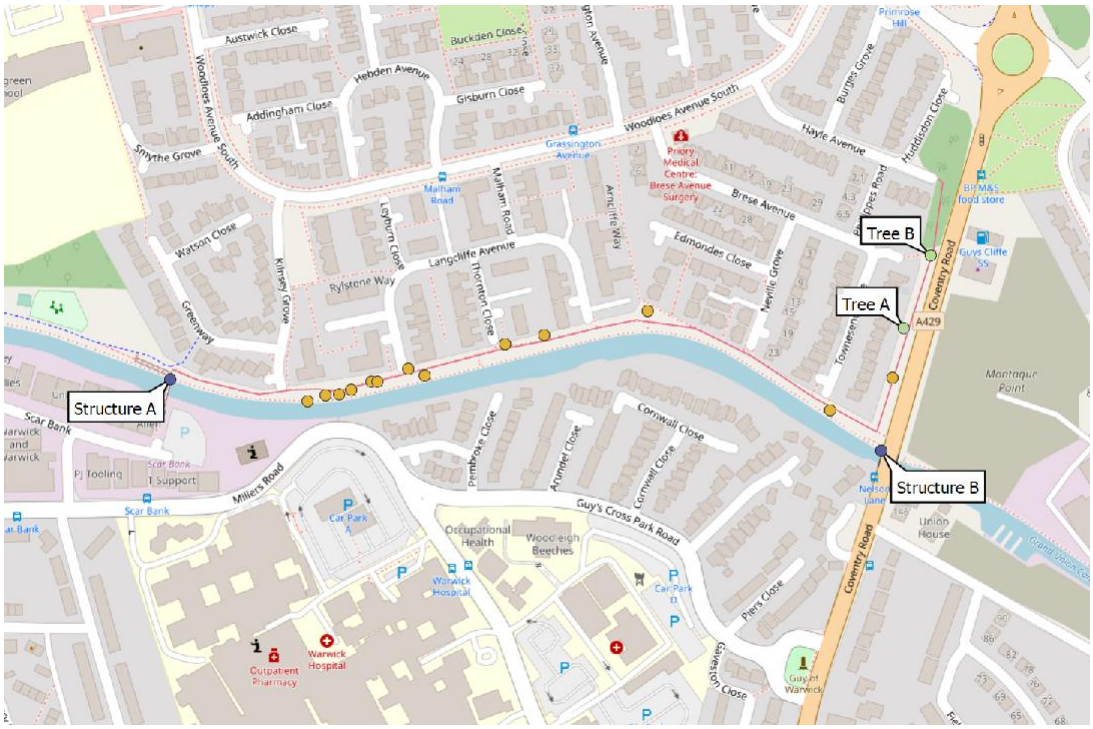

Figure A-2 - Recorded tree and structure locations mentioned within this report, situated along the A429 Coventry Road Warwick cycle route and Woodloes cycle route

Appendix B. Survey Methods

Ground level assessment of trees and structures

B.1. The ground level assessment of trees and structures was undertaken on 20/12/2021 by competent surveyors in accordance with good practice guidance[17] and CIEEM competencies for undertaking bat surveys[18].

B.2. The extent of the assessment was based on the zone of influence for this species group and included all trees and structures within the area of the Proposed Scheme.

B.3. The assessment involved a detailed visual examination of structures and trees, which was initially undertaken from ground level, during daylight hours and aided with the use of binoculars and a bright torch.

B.4. For structures, the ground level visual examination involved the identification of potential entry/exit points for bats or other PRFs such as holes in brickwork, cracks, and gaps in masonry, etc.

B.5. For trees, the ground level visual examination involved the identification of PRFs such as woodpecker holes, rot holes, cracked limbs, dense ivy and flaking bark.

B.6. Based on the location, aspect, orientation and characteristics of the features identified, each structure/tree was assigned a potential suitability value for bats. The assessment of potential suitability was carried out according to good practice guidance[19], which assigns each structure/tree either negligible, low, moderate or high suitability for roosting bats.

[17] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London
[18] CIEEM (2013) Competencies for Species Survey: Bats. Chartered Institute of Ecology and Environmental Management, Winchester.
[19] Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London

Appendix C. Photographs

Ground Level Tree Assessment for Roosting Bats

Structure A – footbridge crossing the Grand Union Canal	
Structure A	

Structure B – A429 road bridge crossing the Grand Union Canal, as seen from the east	
Structure B – as seen from the west	

Structure B – as seen from the east	
Structure B – as seen from the west	

Tree A – an ash tree with existing PRFs assessed as having low suitability for roosting bats	
Tree A	

Tree A	
Tree B – a sycamore tree assessed as presently having negligible suitability for roosting bats	

Section of tree-lined hedgerow (looking south) separating the Site from the adjacent Grand Union Canal towpath

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