

**Application by Anglian Water Services Limited for an Order Granting
Development Consent for the Cambridge Waste Water Treatment
Plant Relocation Project**

Written summaries of oral submissions made at any hearings

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Interested Party Reference number: 20041394

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Professional background

My name is Chris Smith.

I am a professional ecological consultant with a Level 2 Class Licence for bats and extensive experience of bat surveys and mitigation. I have been working in the profession since the late 1990s, including on Anglian Water projects.

I am a Chartered Environmentalist and full member of IEMA.

I have lived in Cambridge for 20 years and am familiar with the project area.

I have reviewed the data as present in the Appendix 8.7 Bat Technical Appendix report and made a response using the available details given there.

Part 1: Assessment of present survey effort

Best practice guidance

Current best practice on bat surveys is given by BCT (2023). The survey protocol for this project is stated as being based on BCT (2023)

Agreed minimum effort for transects was for three surveys during spring, summer- and autumn. Each transect was required to be carried out in suitable weather conditions and have a minimum duration of 90 minutes commencing at sunset.

The transects were to be accompanied by static deployments, each of a minimum duration of 5 days.

Transects

Overview of transects

There were six bat activity transects, three carried out in 2021 and a further three in 2022.

Each of these transects had 3 repeats, so there were a total of 18 walks of the transects.

Duration of transects

Based on a minimum time of 1hr 30 mins per walk and timings given in Table 3-6 to 3-11 in Appendix 8.7 , 13 walks were compliant with minimum durations.

4 walks were not compliant and there is one, it is unclear as the figure appears to have been miscalculated as shorter than it was. This means that of the six transects, only 2021 survey #2 (proposed WWTP) has three surveys of at least 90 minutes.

Timing of transects

The 2022 transects were carried out in June, July and August and do not meet present or previous minimum effort of spring-summer-autumn surveys.

Static deployments

Overview of statics

The 2021 transects had associated with them static deployments at 4 locations on three occasions.

The 2022 transects had no static deployments.

Duration of static deployments

For 2021 statics based on the noted constraints, of the 12 deployments, at least 3 did not have a minimum duration of at least 5 nights.

These non-compliant deployments affect the Bridge over the Cam (twice) and the proposed WWTP area (once). The reason given [2.9.6] includes "high instances of bats call or other noises filling the memory cards or running the batteries low, leading to power failure." This indicates that the level of bat activity may far exceed that reported.

The September results (Table 3-17) indicates 21 passes at the A14 bridge by Barbastelles. This is a significant level (based on my personal experience of static deployments) and if replicated in the failed May and July surveys would point towards this being a significant commuting route. However this is speculative and only additional surveys could confirm this point.

Compliance with required effort

The 2022 transects had no static deployments, so none of the 2022 transects are compliant with Best Practice on deployments.

Neither the Bridge over the Cam nor the proposed WWTP area are compliant due to static detectors.

Conclusion on activity surveys

The details of each activity survey is shown in Annex 1: Details of surveys and compliance. Anglian Water did not appear at the Issue Specific Hearings to answer whether they believed their bat surveys were compliant.

However on the basis presented here, none of the transects appear to be compliant with either minimum survey effort and/or static effort.

It is noted that the static data collected for the River Cam and on the proposed WWTP is also not compliant, but data collected points towards significant barbastelle activity.

It can be concluded without expert knowledge that the none of the surveys were not carried out in compliance with the Bat Survey Guidance (Collins 2016).

Building and structure surveys

Survey effort

The report notes that preliminary surveys of buildings and structures were carried out, but no details are provided.

No further surveys of buildings were carried out.

There are several buildings within the WWTW which appear from the plans to have potential for bats, including control buildings, workshops and treatment towers.

The inspectors have visited the location of A14 River Cam Crossing on Friday 12 January 2024 and are familiar with this location.

There do therefore appear to be buildings and structures present which are of significance to bats but have either not been surveyed or the data not presented. I will return to this later.

Recap of limitations

The data supporting the EIA would appear not to be compliant with best practice for

1. activity surveys; and
2. structures.

There may be additional effects on unidentified roosts within buildings or structures and the extent of effects on foraging and commuting bats cannot be reliably assessed.

The conclusion that no roosts or foraging and commuting routes are affected within the EIA chapter is therefore unreliable and becomes potentially unsound.

Part 2: Implications

Presence of barbastelle

The survey effort to date does show the presence of Barbastelle bats within the area.

Barbastelles are most reliably identified as present from static detectors

The lack of any static data from the northern transects is therefore a significant constraint. Similarly two of the southern transects do not have sufficient nights of deployment to give a sufficient sampling duration.

It is not clear based on existing data where these Barbastelles are roosting and how they are commuting and foraging in the landscape.

Barbastelles appear to occur relatively frequent in Cambridge (*pers obs*). Either these are linked to the Wimpole-Eversden population or there are additional breeding roosts closer to Cambridge.

A potential location would be Anglesey Abbey, based on the extensive woodland; or Quy Fen, based on the presence of veteran oaks. However the roosts of this species are not widely documented in the UK. By illustration the Paston Barns SAC, designated for this species, is a large medieval barn within an open landscape on the edge of the Broads National Park.

[Significant commuting routes for bats](#)

The bat survey data collected to date indicates that Barbastelle is present both inside and outside of the A14. It is a reasonable assumption therefore that this and other bat species are also regularly crossing the A14 road.

Any non-Nyctalus species are likely to have preferred crossing points that minimise distances across open spaces and avoid predation by raptors and owls in areas of bright street lighting.

The two most apparent safe crossing points are under the A14 Cam River crossing or via the overbridge at the A14 J34 Fen Ditton Junction, which has good scrub cover on either side (see Appendix 2: Diagram of J34 junction). These

There are significant works being carried out in close proximity to the A14 bridge over the Cam and upgrades at the J34 Fen Ditton Junction.

There is the potential therefore for the proposed works to have a significant impact, both temporarily during construction (by blocking commuting routes at the A14 River Cam Crossing), but also during operation (for instance from upgrading of lighting at the J34 junction).

[Use of A14 River Cam Crossing bridge by roosting bats](#)

Mitchell-Jones et al (2004) within a standard text for bat workers states at "11.3 Bats in bridges" page 129 para 3 that

"The majority of bat roosts occur in crevices in stonework of bridges spanning watercourses. However, roosting sites have been recorded from a wide variety of bridge types. Bats have been found roosting in gaps between stonework and brickwork; in expansion and construction joints; in drainage holes and pipes; in steelwork and occasionally within large enclosed voids within bridges. A range of crevice sizes are used from 100–1500 mm depth and 13–40 mm width. Daubenton's and Natterer's bats most often use crevices 30–400 mm wide and 300–500 mm deep.

Most bat roosts occur in bridges of at least 1m in height and they have been encountered in sites of up to 460 m altitude. In areas of broad-leaved woodland or slow flowing water there is a greater likelihood of bats using bridges.. Daubenton's bat will use modern bridges for roosting".

Furthermore BCT(2024) offering advice on bats in bridges provides an illustration of a bridge of a similar construction, showing its use by a Daubenton's maternity roost

Whilst not directly analogous a survey in Texas of Use of Highway Infrastructure by Bats found that "Prestressed concrete box girder bridges were the bridge type most used by bats (90.91% occupied), while steel I-beam bridges were the least used (0%)."

The A14 River Cam Bridge is a potential location for roosting Daubenton's bat. The consultant's report notes [Section 3.6.8] that Daubenton's bat are likely to be roosting nearby to the route.

I visited the site on Sunday 20 January and took photographs of the underside of the bridge (see Appendix 1: Photographs of A14 River Cam Crossing) as well as examining the bridge with binoculars from the PROW. These show an extensive system of cracks and crevices. These show "medium" to "high" potential for roosting bats and require two to three summer surveys to establish the presence or absence of bats.

Use of other buildings and structures by roosting bats

Whilst I have not directly seen the buildings affected by the works within the existing Milton STW, some oblique aerials are available (see Appendix 3: Oblique aerials).

These buildings all appear to show at least "low" potential for bats based on their construction either being 1. of cast concrete 2. having pitched roofs with tiles 3. having fascia boards or weather boarding.

Without considering demolition, the decommissioning of the works will alter the temperature of these buildings and if bats were present could lead to abandonment. This would be especially likely for maternity roosts.

There is therefore a significant risk of impacts on roosting bats from the project, which should be fully quantified.

Part 3: Resolution of issue

It is suggested that

- the additional surveys are carried out to allow a robust dataset and resolve the shortcomings in original survey effort as indicated above;

- the details of surveys of buildings and structures are presented for review;
- where required additional surveys are carried out of any buildings or structures with significant potential for roosting bats
- a specific survey is made of the A14 River Cam Crossing for its use by roosting bats;
- an additional assessment is made of the impacts on roosting, foraging and commuting bats is made once this information is made available.

Bibliography

Bat Conservation Trust (2024) Bats, Waterways and Planning Consulted online 22/02/23 <https://www.bats.org.uk/our-work/buildings-planning-and-development/bats-waterways-and-planning>

Collins (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines 3rd Edition

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Holly G. Wilson, Stirling J. Robertson, and Richard D. Stevens "Use of Highway Infrastructure by Bats: A Literature Review and Survey of the Trans-Pecos Region of Texas," Western North American Naturalist 83(1), 89-103, (13 June 2023). <https://doi.org/10.3398/064.083.0106>

Mitchell-Jones, A.J, & McLeish, A.P. (eds). 2004., 3rd Edition Bat Workers' Manual, JNCC, Peterborough. Available online <https://hub.jncc.gov.uk/assets/e5888ae1-3306-4f17-9441-51a5f4dc416a>

Appendix 1: Photographs of A14 River Cam Crossing



Figure 1: View from east of A14 crossing.
Note expansion joint in bridge deck



Figure 2: View of underside of eastern deck showing
joints



Figure 3: View of central reservation from below showing pipework



Figure 4: View of western reservation showing expansion joint and additional longitudinal joints



Figure 5: Expansion joint on Western face showing willow growth into cracks



Figure 6: Detail of expansion joint on western face showing separate drainage from deck



Figure 7: Detail of underside of central reservation showing pipe and additional crevices

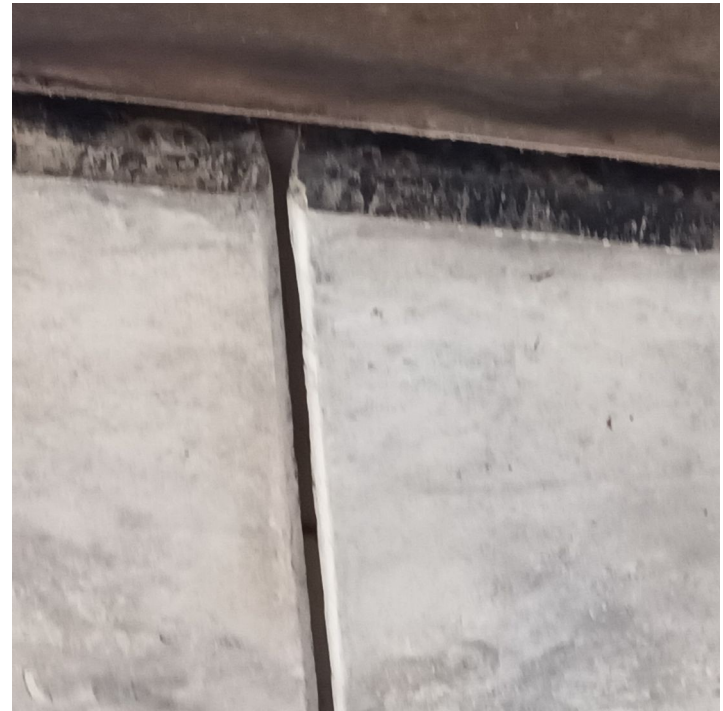


Figure 8: Detail of longitudinal crack

Appendix 2: Diagram of J34 junction

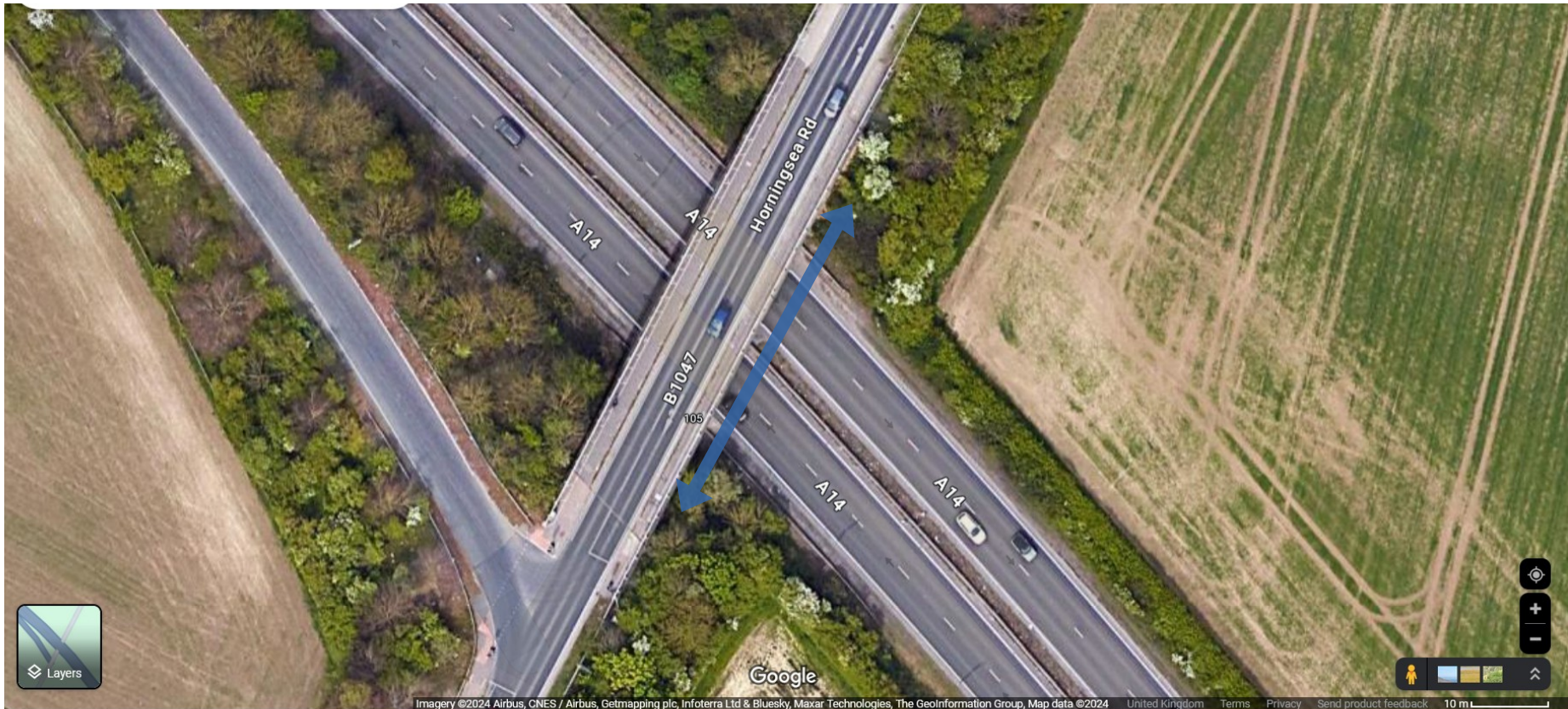


Figure 9: Aerial of J34 noting heavily planted nature and short gap between vegetation

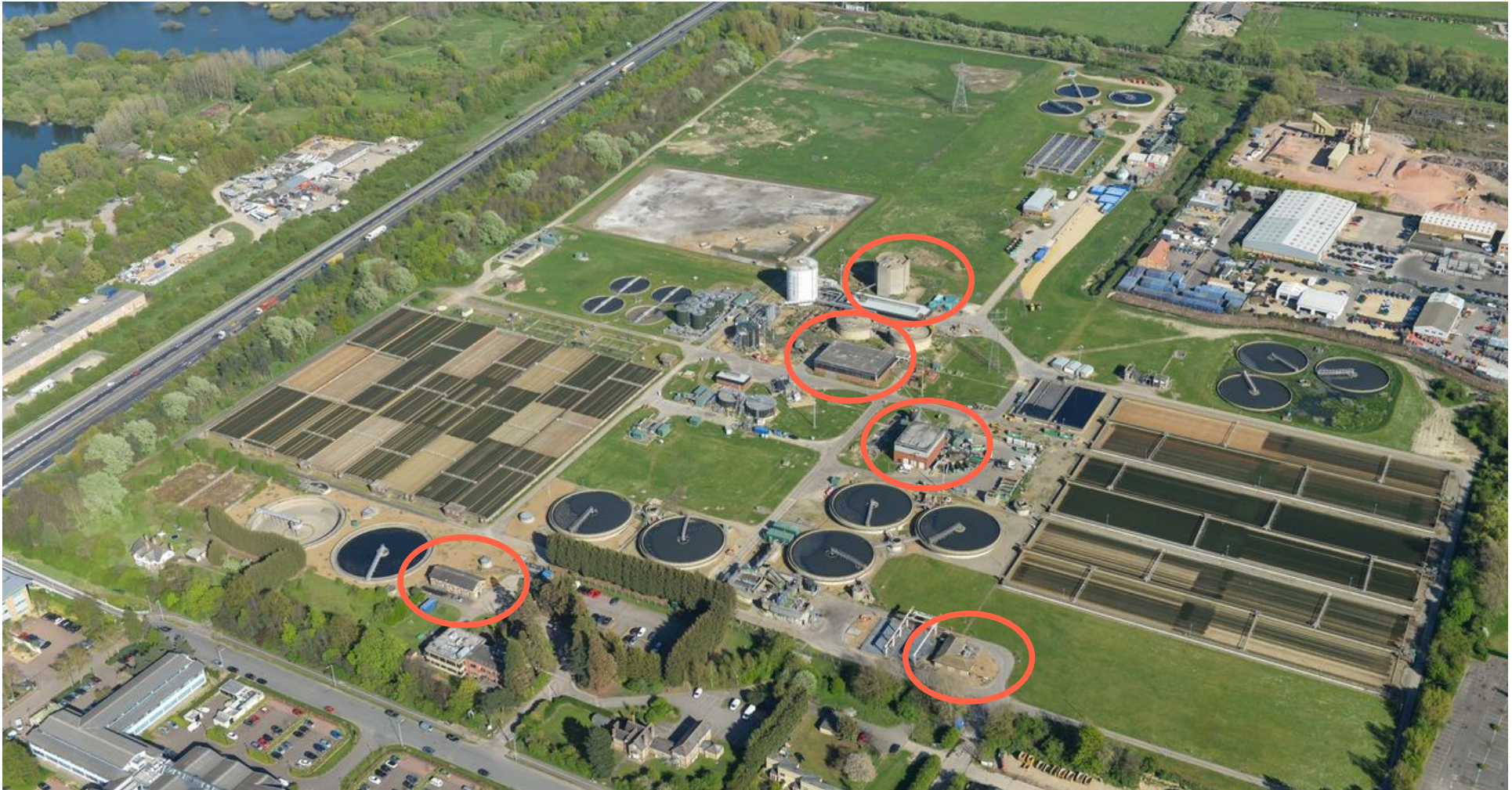
Blue line indicates potential route



Figure 10: View of J34 looking north showing lack of street lights on bridge

Blue line indicates potential route

Appendix 3: Oblique aerals



Source : <https://www.cambridge-news.co.uk/news/cambridge-news/went-find-milton-pong-what-12296411>

Annex 1: Details of surveys and compliance

See separate pdf

Overview of compliance by transect

Summary of compliance by transect

Transect	Location	Transect walks	Static deployments (mion 5 nights)	Noted activity (extract from Appendix 8.7 text)	Notable within text
Transect 2021 #1	Cambridge WWTP Route	2 compliant, 1 not compliant	3 compliant		
Transect 2021 #2	Proposed WWTP	3 compliant	2 compliant, 1 not compliant	The majority of the barbastelle calls along this transect are located on the disused railway (north-east – south-west). Two of the barbastelle calls are positioned along the gravel track (north-west – south-east). This suggests that the majority of the activity is associated with the disused railway line and that barbastelle bats are using it to commute.	Barbastelle noted
Transect 2021#3	ProW (85/6),GO40 and RO37	2 compliant, 1 not compliant.	A14 Bridge over River Cam – 1 compliant, 2 not compliant Low Fen Drove Way – 3 compliant	3.6.6 The PRoW (85/6) and land parcel G040 transect (transect 3) showed some level of activity along the majority of the route. A cluster of activity was located at the A14 bridge over the River Cam (Figure 8.47, Book of Figures – Biodiversity (App Doc Ref 5.3.8)). Transect 3 is the transect located centrally with respect to the Scheme Order Limits. This transect covers the habitat surrounding the River Cam. The species using this area are barbastelle, Daubenton's, noctule, common and soprano pipistrelles. Transect 3 also captures the confirmed roost in tree 3.6.7 When viewing Figure 8.60, Book of Figures – Biodiversity (App Doc Ref 5.3.8), it is clear that the bridge over the River Cam has a lot of activity compared to other sections of the transect route. The River Cam is likely to be used as a foraging and commuting route by the species present on this transect, with perhaps the exception of noctule, which typically fly at above 10m. The species present on this transect are barbastelle, Daubenton's, noctule, common and soprano pipistrelle. Barbastelles are likely to be commuting given that only one recording was made along this transect route, although this does not rule out foraging. 3.6.8 Daubenton's are often associated with water and often roost near water. They are likely to be roosting nearby. They will also be foraging and commuting using the River Cam as surrounding adjacent habitat. Pipistrellus species are foraging and roosting along this transect route; their calls make up the majority of the recordings.	Barbastelle noted. Daubentons likely to be roosting nearby. Appears to be high value habitat
Transect 2 2022	Transect 2(North transect)	2 compliant, 1 not compliant. Effort (June-July-August only) – not compliant with present or previous BCT guidelines.	No statics used. Not compliant.		
Transect 2 2022	Transect 2(middle transect)	2 compliant, 1 unclear if compliant. Effort (June-July-August only) – not compliant with present or previous BCT guidelines.	No statics used. Not compliant.		
Transect 2 2022	Transect 2(south transect)	2 compliant, 1 not compliant. Effort (June-July-August only) – not compliant with present or previous BCT guidelines.	No statics used. Not compliant.	3.6.13 Finally, the south transect on the Waterbeach pipeline aspect of the Proposed Development has activity from the following species: barbastelle, common pipistrelle, noctule, serotine and soprano pipistrelle. The barbastelle activity is only a single recording and as such wis likely due to commuting through the landscape. The activity presented in the combined map for the south transect (Figure 8.70, Book of Figures – Biodiversity (App Doc Ref 5.3.8)) is not fully representative of the activity as not all of the data could be mapped spatially.	Barbastelle noted

Static deployments

Static deployments on each transect

Extracted from Appendix 8.7 text

Transect	Location	Grid reference	Month	Year	Constraints	Reason given	Compliant
Transect 2021 #1	Existing WWTP	TL4794161508	May	2021			Yes
Transect 2021 #1	Existing WWTP	TL4794161508	July	2021			Yes
Transect 2021 #1	Existing WWTP	TL4794161508	September	2021			Yes
Transect 2021 #2	Proposed WWTP	TL4984761223	May	2021			Yes
Transect 2021 #2	Proposed WWTP	TL4984761223	July	2021			Yes
Transect 2021 #2	Proposed WWTP	TL4984761223	September	2021	2021 4 nights only in Augu	High instance of bat calls or other	No
Transect 2021 #3	Low Fen Drove Way	TL5001360625	May	2021			Yes
Transect 2021 #3	Low Fen Drove Way	TL5001360625	July	2021			Yes
Transect 2021 #3	Low Fen Drove Way	TL5001360625	September	2021			Yes
Transect 2021 #3	A14 Bridge over River Cam	TL4841061613	May	2021	2021 3 nights only in May	High instance of bat calls or other	No
Transect 2021 #3	A14 Bridge over River Cam	TL4841061613	July	2021			Yes
Transect 2021 #3	A14 Bridge over River Cam	TL4841061613	September	2021	2021 3 nights only in Augu:	High instance of bat calls or other	No

No static surveys carried out for any of 2022 transects

Pivot Table_Statics Compliance

Summary of statics compliance				
Count - Compliant		Compliant		
Transect	Location	Yes	No	Total Result
Transect 2021 #1	Existing WWTP	3		3
Transect 2021 #2	Proposed WWTP	2	1	3
Transect 2021 #3	A14 Bridge over Rive	1	2	3
	Low Fen Drove Way	3		3
Total Result		9	3	12

Transect details

Details of transects with timings

Extracted from Appendix 8.7 Tables 3-6 to 3-11

See for sunset times <https://www.timeanddate.com/sun/uk/cambridge?month=8&year=2022>

Transect	Location	Rpt	Date	Temp	Sunset/sunrise	Start	Finish	Stated duration	Duration based on >1hr 30m min'	Starts at dusk/finishes dawn?
Transect 2021 #1	Cambridge WWTP Route	1	18/05/21	14	20:52:00	20:53:00	22:10:00	1hr 43	01:17:00	Yes
Transect 2021 #1	Cambridge WWTP Route	2	22/07/21	23	21:05:00	21:05:00	23:52:00	2hr 47	02:47:00	Yes
Transect 2021 #1	Cambridge WWTP Route	3	29/09/21	12	18:41:00	20:00:00	21:10:00	1hr 10	01:10:00	No
Transect 2021 #2	Proposed WWTP	1	17/05/21	13	20:51:00	20:51:00	22:56:00	2hr 5	02:05:00	Yes
Transect 2021 #2	Proposed WWTP	2	29/07/21	20	20:54:00	20:54:00	22:58:00	2hr 47	02:04:00	Yes
Transect 2021 #2	Proposed WWTP	3	04/10/21	14	18:29:00	18:30:00	22:13:00	2hr 43	03:43:00	Yes
Transect 2021#3	ProW (85/6),GO40 and R	1	18/05/21	12	20:52:00	20:53:00	22:10:00	2hr 29	01:17:00	Yes
Transect 2021#3	ProW (85/6),GO40 and R	2	22/07/21	21	21:05:00	21:05:00	23:52:00	2hr 47	02:47:00	Yes
Transect 2021#3	ProW (85/6),GO40 and R	3	29/09/21	12	18:41:00	18:41:00	19:45:00	1hr 04	01:04:00	No
Transect 2 2022	Transect 2(North transect)	1	28/06/22	20	21:24:00	21:26:00	22:59:00	1hr 33	01:33:00	Yes
Transect 2 2022	Transect 2(North transect)	2	29/07/22	10	05:14:00	03:39:00	05:24:00	1hr 45	01:45:00	Yes
Transect 2 2022	Transect 2(North transect)	3	03/08/22	20	05:23:00	03:57:00	04:46:00	0hr 49	00:49:00	No
Transect 2 2022	Transect 2(south transect)	1	27/06/22	15	21:24:00	21:25:00	23:30:00	2hr 05	02:05:00	Yes
Transect 2 2022	Transect 2(south transect)	2	28/07/22	18	20:56:00	20:40:00	22:25:00	1hr 45	01:45:00	Yes
Transect 2 2022	Transect 2(south transect)	3	02/08/22	22	05:21:00	03:35:00	04:45:00	1hr 10	01:10:00	No
Transect 2 2022	Transect 2(middle transec	1	15/06/22	20	21:22:00	21:00:00	23:03:00	2hr 03	01:41:00	Yes
Transect 2 2022	Transect 2(middle transec	2	28/07/22	13	05:14:00	03:36:00	05:21:00	1hr 45	01:45:00	Yes
Transect 2 2022	Transect 2(middle transec	3	02/08/22	29	20:48:00	20:34:00	22:19:00	1hr 17	01:31:00	???

Pivot Table_Transect Compliance

Summary of compliance with minimum 1hr 30 min duration						
Count - >1hr 30m min?		>1hr 30m min?				
Transect	Location	Yes	No	???	Total Result	
Transect 2 2022	Transect 2(middle transect)		2		1	3
	Transect 2(North transect)		2	1		3
	Transect 2(south transect)		2	1		3
Transect 2021 #1	Cambridge WWTP Route		2	1		3
Transect 2021 #2	Proposed WWTP		3			3
Transect 2021#3	ProW (85/6),GO40 and RO37		2	1		3
Total Result			13	4	1	18