



LITTLEBOROUGH ENWL SUBSTATION

LITTLEBOROUGH,

BAT SURVEY TECHNICAL REPORT

Document Title	Bat Survey Technical Report
Prepared for	Electricity North West Ltd
Prepared by	TEP - Warrington
Document Ref	9901.004

Author	Phil Askew
Date	October 2023
Checked	John Crowder
Approved	John Crowder

[illegible]

CONTENTS	PAGE
1.0 Introduction	1
2.0 Site Description	2
3.0 Background Information	3
4.0 Methods	4
5.0 Results	6
6.0 Conclusions.....	7
References	9

TABLES	PAGE
Table 1. Summary of nocturnal bat survey dates, start and end times and weather conditions completed in 2023.....	6

FIGURES	PAGE
Figure 1: Approximate site boundary in the context of the wider landscape.	2
Figure 2. Vivara Pro Low Profile box (left), Schwegler 2FR tube (middle) and Habibat 001 box (right).....	7

1.0 Introduction

- 1.1 The Environment Partnership (TEP) was commissioned in August 2023 by Electricity North West Ltd (hereafter referred to as 'the Client') to undertake bat surveys for a development at Littleborough ENWL substation (hereafter referred to as 'the site'). This is to inform site proposals for the demolition of the building and the construction of a new substation building.
- 1.2 A Preliminary Roost Assessment (PRA) of the building within and immediately adjacent to the site was undertaken by TEP in March 2023 to determine habitat suitability for roosting bats. Habitats within the site were also reviewed as to their suitability to support foraging and commuting bats during the PRA.
- 1.3 This technical report details the bat surveys undertaken to further inform the Ecological Assessment (TEP Report Ref: 9901.001) for the site, following the findings of the PRA.
- 1.4 The objectives of this report are to:
 - Identify suitable bat roosting habitat (structures) within and immediately adjacent to the site;
 - Identify if bats are roosting within any of the structures identified during the PRA that may be impacted by development proposals;
 - Confirm roosting species, roost locations and roost characteristics, if roosts are present;
 - Advise of mitigation requirements that may be needed prior to works within the site, including further bat surveys and licensing if relevant; and
 - Provide appropriate recommendations for avoidance, compensation and enhancement measures that will be required to maintain the Favourable Conservation Status (FCS) of local bat populations and net biodiversity value for bats within the site.

2.0 Site Description

- 2.1 The site is located off William Street, Littleborough. The location of the site is depicted by the red line boundary is shown in Figure 1 and the approximate central grid reference of the site is SD 93233 16112.
- 2.2 The Littleborough Substation is located within urban settlement of Littleborough and is surrounded immediately by a mixture of both residential and commercial properties with William Street directly north of the site. The site is located within c. 60m of open greenspace, which itself connects to green landscape featuring a mosaic of grasslands, woodland, waterbodies (including Hollingworth Lake) and network of interconnecting hedgerows.

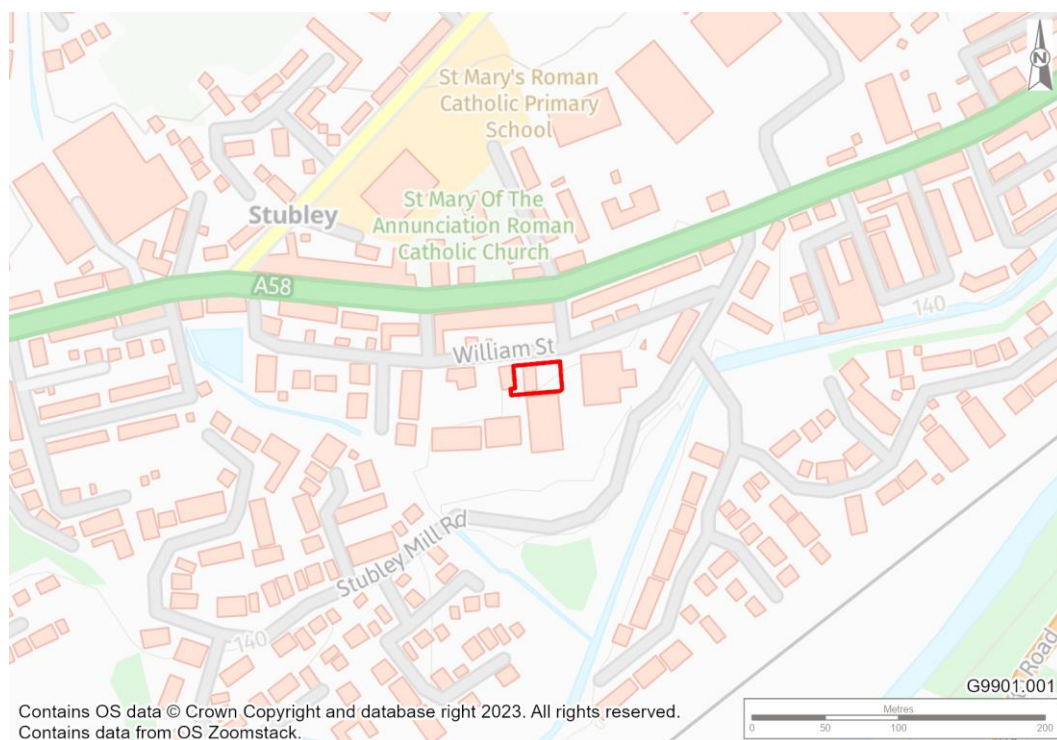


Figure 1: Approximate site boundary in the context of the wider landscape.

- 2.3 No notable habitats are present within the site, which only supports buildings, hardstanding, and amenity grassland. The building on site offers suitability for roosting bats. The site itself offers low foraging potential for bats, with limited connectivity to the wider landscape.

3.0 Background Information

Legislation

- 3.1 All bats in the UK are protected under UK and European legislation including The Conservation of Habitats and Species Regulations 2010 (as amended) and Schedule 5 of The Wildlife and Countryside Act 1981 (as amended). It is an offence across the UK to:

- deliberately capture, injure or kill a bat;
- deliberately disturb in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- damage or destroy a bat roost (this is an 'absolute' offence); or
- possess, control, transport, sell, exchange or offer for sale/exchange any live or dead bat or any part of a bat.

Preliminary Roost Assessment of Structures

- 3.2 An external assessment of the building was carried out on 27th March 2023. The weather conditions during the survey were overcast, with sunny spells, a light breeze and temperature of 8oC. The assessment was undertaken by Tom West of TEP. Tom is a senior ecologist, with over six years' experience and is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Tom holds a level four bat licence in England (licence number: 2022-10876-CL20-BAT).
- 3.3 A single building was present on site (Figure 2). Buildings was assessed both externally, as it was considered unsafe to assess internally. Full details of the PRA are included in the Preliminary Ecological Assessment Report (TEP Report Ref: 9901.001).
- 3.4 No bats or evidence of bat use was found associated with any buildings on site.
- 3.5 The building was assessed as offering moderate bat roost suitability due to external features such as missing mortar between concrete and brickwork, weep holes, lifted lead flashing. As such, further assessment of this building was required to support a planning application and permit future demolition of the building.
- 3.6 None of the buildings on site had bat hibernation roost suitability.

4.0 Methods

- 4.1 The following bat surveys were undertaken in accordance with the Bat Conservation Trust (BCT) Good Practice Guidelines (Collins, 2016).

Nocturnal Bat Surveys

- 4.2 The building on site was categorised as having 'moderate' bat roost suitability during the March 2023 PRA.
- 4.3 Two nocturnal surveys were undertaken on the building on 17th August 2023 and 12th September 2023.
- 4.4 The survey was undertaken during optimum weather conditions comprising dusk temperatures of $\geq 10^{\circ}\text{C}$, and no rain or strong winds (>4 on the Beaufort Scale).
- 4.5 During the survey, an appropriate number of surveyors were positioned at vantage points around each building to cover all potential roosting features (PRF's) noted during the PRA.
- 4.6 Night Vision Aid (NVA) camera recording equipment paired with infra-red lights were also used to support the survey effort, one on the western elevation and one on the northern elevation. Videos were later watched back for possible emerging bats using VLC media player. Surveyor and NVA positions are illustrated in Appendix A.
- 4.7 The nocturnal survey was led by a Licenced TEP ecologist.
- 4.8 The lead surveyor was assisted by experienced TEP Staff.
- 4.9 Surveyors used a combination of Batlogger M (full spectrum) and Anabat Scout (full spectrum) bat detectors, with Anabat Express (frequency division) bat detectors used to support the NVA's.
- 4.10 The dusk emergence survey commenced 15 minutes prior to sunset and finished 1.5 hours after sunset. The details of the nocturnal survey including start and finish times, weather conditions and sunset times are provided in Table 1.

Table 1. Summary of nocturnal bat survey date, start and end times and weather conditions completed in 2023.

Visit No.	Date	Start Time	End Time	Sunset	Moon Phase ¹	Weather Conditions				
							Temp °C	Rain	Cloud ²	Wind ³
1	17/08 /23	20:19	22:04	20:34	Waxing crescent	Survey Start	16.0	None	1	3
						Survey End	15.0	None	2	3
2	12/09 /23	19:20	21:05	19:35	Waning Crescent	Survey Start	13	None	6	2
						Survey End	12	None	7	2

Data Analysis and Species Identification

- 4.11 Recorded sonograms during nocturnal surveys were analysed using Kaleidoscope Pro software at TEP by Ecologists. Bat calls were manually verified following use of automated filters and identification.

Limitations

- 4.12 Bats vary their calls dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc.). It is not always possible to identify bat calls to species level owing to the overlap of call parameters between some species and/or poor-quality recordings (e.g., brief, and distant passes). In these cases, it is accepted that species are identified to genus level or group level (e.g., *Myotis* species, *Myotis/Plecotus* and *Nyctalus/Eptesicus*) (Russ, 20124).
- 4.13 The detectability of some bat species, such as *Plecotus* sp. is lower than that of, for example, *Nyctalus* sp. and *Pipistrellus* sp.. The echolocation calls of *Plecotus* sp. are comparatively more difficult to detect with bat detectors, and their particular hunting strategies take them into less open habitats, where survey transect routes may not venture. Careful interpretation has been applied when comparing survey results across species. Where call parameters are inconclusive the species has been labelled as 'unidentified'. This ensures the dataset is interpreted accurately and transparently.

¹ Moon Phase: New Moon, Waxing Crescent, First Quarter, Waxing Gibbous, Full Moon, Waning Gibbous, Third Quarter, Waning Crescent.

² Cloud cover is reported in oktas or eighths (i.e., 0 oktas represent the complete absence of cloud, 1 okta cloud cover of 1 eighth or less, and so on to 8 oktas which represents full cloud cover), with the additional convention that 9 oktas represent sky obscured by fog or mist.

³ Wind strength is reported using the Beaufort Scale of Wind Force, this scale runs from 0 to 12, information on the conditions denoted by scores are as follows: 0 – Calm (vertical smoke); 1 - Light Air (slight smoke drift); 2 - Light Breeze (leaves gently rustle); 3 - Gentle Breeze (small twigs constantly move); 4 - Moderate Breeze (small branches begin to move) and 5 - Fresh breeze (small trees in leaf begin to sway).

⁴ Russ, J. (ed.), (2012). British Bat Calls: A Guide to Species Identification. Pelargic Publishing, Exeter.

5.0 Results

Nocturnal Bat Survey

- 5.1 During the survey, only common pipistrelle *Pipistrellus pipistrellus* bats were recorded.
- 5.2 On the first survey (17/08/23) the first bat was a common pipistrelle recorded at 21:27 (sunset + 53 minutes), which was not seen. No other bat species were recorded.
- 5.3 On the second survey (12/09/23) the first bat was a common pipistrelle recorded at 20:00 (sunset + 25 minutes), which was seen flying south and then east. No other bat species were recorded.
- 5.4 Overall, the site supported low numbers of foraging bats, a single bat across the entire survey. No bats were observed close to the building and commuting or foraging hotspots were not identified due to the low activity.
- 5.5 No bats were seen to emerge or enter the building from the surveyors on site. Infra-red video footage was watched back at single time and no bats were seen to emerge. Overall, no bats emerged from or entered the building during the nocturnal bat survey.

6.0 Conclusions

Bat Roosts

- 6.1 No bats emerged from the substation building and as such, can be demolished without any further consideration for the species.
- 6.2 Although no bats were identified roosting within the building, there will be a loss of potential roosting features that the buildings provide. Furthermore, common pipistrelle and noctule bats were recorded using the site for foraging purposes.
- 6.3 As such, measures should be undertaken to mitigate the loss of suitable roost features and roosting habitat for bats should be enhanced within the wider site with the provision of bat boxes incorporated into the new buildings.
- 6.4 Suggested bat boxes include Vivara low profile bat boxes (or similar, see figure 3), which can be attached to the building. Alternatively, tube style bat boxes can be used, such as Schwegler 2FR Bat Tubes and Habibat 001 unfaced bat boxes (Figure 3), these can be installed into the new buildings. These can be rendered over, leaving only the entrance hole visible externally on the building. Both tubes require no maintenance as droppings fall out of the entrance ramp. The added benefit of the Schwegler 2FR tubes is that connecting holes allow several tubes to be placed next to each other to create a large roost space.
- 6.5 Bat boxes are best located, and have the best rate of occupancy, when they are situated within or adjacent to bat-friendly features, such as hedgerows, tree-lines or woodland, providing connectivity to the wider landscape. Bat boxes should be situated where they are sheltered from strong winds, and should be exposed to the sun for most of the day, as temperature is an important factor in the success of artificial bat roosts, therefore southern and western aspects are favourable. Bat boxes should be hung as high as possible, ideally 2.5m or above.

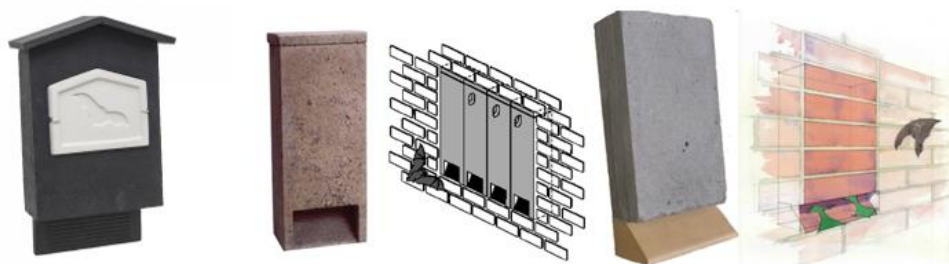


Figure 2. Vivara Pro Low Profile box (left), Schwegler 2FR tube (middle) and Habibat 001 box (right)

- 6.6 If bat boxes are installed on buildings, they should also be placed as close to the eaves or gable apex as possible and not above windows to reduce the risk of cat predation.

- 6.7 Proposed lighting should be designed in line with the Institution of Lighting Professionals Guidance Note 08/18 Bats and Artificial Lighting in the UK. A Sensitive Lighting Strategy should also be incorporated within proposals to avoid impacts on commuting bats by creating dark corridors.
- 6.8 The sensitive lighting design should be implemented to avoid indirect impacts of lighting on nocturnal and crepuscular species during construction. This applies specifically to retained habitats surrounding and adjacent to the buildings. There are four key lighting design principles:
- Use of unnecessary lighting will be avoided;
 - Spatial spread of lighting – the horizontal and vertical spread of artificial light will be minimised, and take into account both primary and reflected light sources. Directional lighting can be achieved by angle and orientation of beam, use of a cowl, louvre or other light shield, or a combination of these;
 - Timing and duration of lighting – timers and bespoke dimming regimes may be used to ensure that luminaires are reduced at times of predicted low use. These can be set to change with the seasons and therefore reflect the shifting time of dusk and dawn throughout the year. Motion sensors provide further control to ensure that areas are illuminated only when required;
 - Intensity and colour of lighting – light intensity will be as low as possible whilst meeting the objectives of the intended function. The colour of lighting will need to take into account the sensitivity of the ecological receptors on site. Light sources selected should emit zero ultra-violet light wherever possible. Guidance from the Bat Conservation Trust (2014) recommends that white and blue spectrum light should be avoided or, where white lights are required, these should be of warm/neutral colour and have a peak wavelength above 550 nanometres. Narrow spectrum light sources should be used (to lower the range of species affected by lighting).
- 6.9 The sensitive lighting design will be even more important around the area of site enhancement planting as described below.
- 6.10 It is considered that the development would not impact upon the favourable conservation status of bats in the local area.

Survey Validity

- 6.11 If no works are undertaken within two survey seasons (i.e., by September 2024) updated nocturnal surveys and structural roost assessment surveys will be required to inform planning and licencing.

References

Legislation and Policy

Wildlife and Countryside Act 1981 (c.69). London: HMSO.

Natural Environment and Rural Communities Act 2006 (c.16). London: HMSO.

The Conservation of Habitats and Species Regulations 2017. S.I. 2010/490. London: HMSO.

Best Practice and Guidance

Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines. (3rd edn). The Bat Conservation Trust, London.

Literature

Altringham, J. D. (2003). British Bats. Collins New Naturalist Library, Volume 93. Harper Collins, London.

Andrews, H. (2018). BTHK 2018. Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-care and Ecology Professionals. Pelagic Publishing, Exeter.

Dietz, C. and Keifer, A. (2016). Bats of Britain and Europe. Bloomsbury Publishing.

