

MERTHYR RAIL STATION

BAT SURVEY REPORT (2023)

JULY 2023



Project No: GC/003964

Doc Ref: GC3964-RED-74-XX-RP-L-0004

Rev: P01

CLIENT: Merthyr Tydfil County Borough Council

ISSUE DATE: July 2023

**Merthyr Rail Station
Bat Survey Report (2023)**

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**ISSUE
RECORD**

REV	DATE	DESCRIPTION/COMMENTS	AUTHOR/ PREPARED	APPROVED FOR ISSUE BY:
P01	31/07/2025	Report Issued	M.Watts	G. Pitman

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GC3964-RED-74-XX-M2-L-3002-Emergence/Re-entry Bat Survey Location

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Appendix A – Biological Record Centre Data

Appendix B – Emergence/Return to Roost Survey Forms

Non-Technical Summary

Site Location	Merthyr Tydfil Town Centre, Merthyr Tydfil Central Grid Reference: SO 04960 05970
Proposed Development	Improving access between the rail and bus station, creation of a new public space, and demolition of existing buildings and retaining walls within the site.
Purpose of survey/s	Assess presence/absence of bats roosting in buildings.
Building / structure location number /dates of survey and names/roles of surveyors	Dusk emergence/Dawn return to roost surveys Dusk – 3rd May 2023 Location 1 – Emma Carney (Senior Ecologist) & Charlotte Gurney-Read (Ecologist) Location 2 – Richard Poole (Principal Ecologist) & Tara Okon (Ecologist) Location 3 – Megan Watts (Ecologist) Location 4 – Natalie Pyatt (Technician) Dawn – 6th July 2023 Location 1 – Emma Carney (Senior Ecologist) & Charlotte Gurney-Read (Ecologist) Location 2 – Richard Poole (Principal Ecologist) & Tara Okon (Ecologist) Location 3 – Megan Watts (Ecologist) Location 4 – Natalie Pyatt (Technician)
Overview of Results	No bat emergence/return to roost was observed at any of the survey locations during the surveys. Species recorded were common pipistrelle and noctule bat. Common pipistrelle bats were the most commonly recorded species. Bat numbers were low during all surveys.
Recommendations	Soft strip demolition of all roofs of buildings that are demolished to facilitate the development under supervision of an NRW licenced ecologist. General bat mitigation must be followed for the duration of the works. Consultation with a suitably experienced bat worker regarding design of the development to minimise potential impacts on bats. A Toolbox Talk (bats and breeding birds) must be delivered by an ecologist to all site personnel prior to commencement of works.
Opportunities for Enhancement	Bat friendly planting to be incorporated into the planting design.

1. Introduction

Redstart was commissioned by Merthyr Tydfil County Borough Council (MTCBC) to carry out bat emergence/return to roost surveys of buildings and structures within the site of the proposed redevelopment of Merthyr Rail Station and surrounding area.

A previous bat survey report was produced by Redstart in September 2022 on the same location (Redstart, 2022). This report covers a smaller site area and updated surveys undertaken in 2023.

The surveys were carried out to identify ecological constraints specifically related to bats associated with the proposed development and this report includes details of the survey methodologies, results, discussion and contains recommendations for mitigation where appropriate.

1.1 Site Description

The site, located within the town centre of Merthyr Tydfil, predominantly comprised of retail shops and associated grounds.

The approximate central location of the site lies between the station and High Street at grid reference SO 04960 05970.

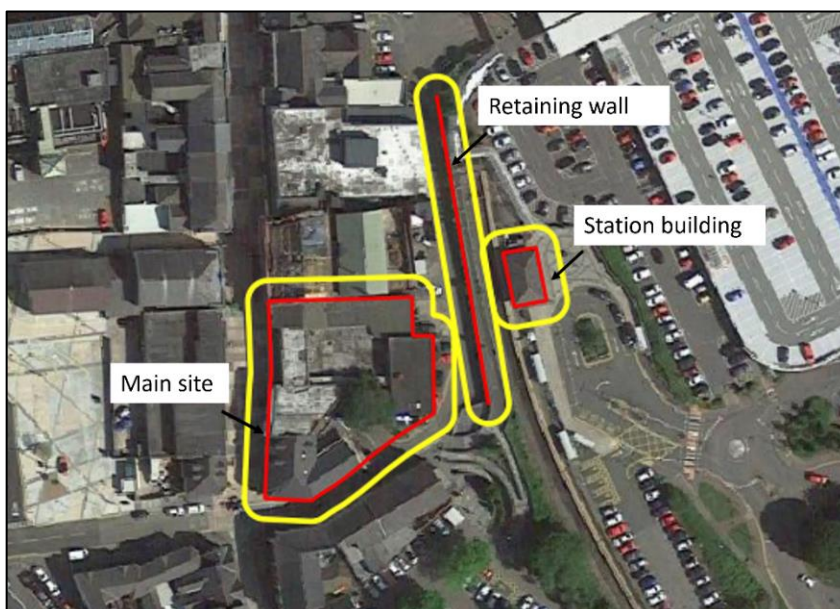
Merthyr Rail Station and associated carpark lie to the east of the site with the railway line running south – north on a former viaduct before terminating at the northern end of the site.

The western section of the site lies adjacent to the bus depot.

The wider area is dominated by retail outlets and residential properties. The River Taff lies approximately 190 m to the west of the site boundary, providing an important wildlife corridor through the area.

The location of the proposed works is illustrated in Figure 1 and hereafter referred to as 'the site'. The site has been further divided into the 'main site' and the 'station building', as illustrated in Figure 1. The wider area surveyed during the surveys includes the site area and up to 10 m radius (survey boundary) around the site referred to as the 'survey area'.

Figure 1: Merthyr Rail Station site highlighted with red boundary plus 10 m radius (yellow). Adapted from Google Earth (Google Earth, 2023).



1.2 Proposed Works

Re-development is proposed with the aim of improving access between the rail and bus station and improving public space and buildings within the site.

Works planned include:

- Demolition of Merthyr Rail Station ticket office building and construction of a new structure
- Demolition and re-construction of the existing retaining wall between Masonic Street and Merthyr Rail Station
- Demolition of several buildings on High Street and Masonic Street, west of Merthyr Rail Station, to facilitate the re-development scheme.

2. Legislation and Planning Policy

All species of bats and their roosts are strictly protected by a range of legislation, including the following:

2.1 Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019

All bats found in the UK are European Protected Species (EPS) being protected under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019, known as the 'Habitats Regulations'. Under the Habitats Regulations, it is an offence to:

- Deliberately capture, injure or kill any wild animal of an EPS,
- Deliberately disturb wild animals of any such species,
- Damage or destroy a breeding site or resting place of such an animal.

Disturbance is defined as that which is likely:

1. To impair the animals' ability:
 - to survive, to breed or reproduce, or to rear or nurture their young, or
 - in the case of animals of a hibernating or migratory species (e.g., bats), to hibernate or migrate; or
2. To affect significantly the local distribution or abundance of the species to which they belong.

Other offences also exist relating to possession, transport and sale.

2.2 Wildlife and Countryside Act 1981

Bats are also partially protected under the Wildlife and Countryside Act 1981 (as amended) which makes it an offence to intentionally or recklessly:

- damage or destroy any structure or place which bats use for shelter or protection;
- disturb bats while occupying a structure or place which is used for shelter or protection; and
- obstruct access to any structure or place which bats use for shelter or protection.

2.3 Environment (Wales) Act 2016

In addition to the above eight species of bat are listed on Section 7 of the Environment (Wales) Act 2016 as species of principal importance for maintaining and enhancing biodiversity in Wales. Under Section 6 of this legislation, public authorities (including Welsh Government) must "seek to maintain and enhance biodiversity" and to "promote the resilience of ecosystems".

Local Authorities may require enhancement work to be included for bats within planning conditions.

3. Methodology

3.1 Review of Previous Reports

A previous Bat Survey Report was produced by Redstart in 2022 (Redstart, 2022).

Additional information, taken from the bat survey report, regarding previous bat roosts and mitigation measures within the site area was also reviewed.

3.2 Desktop Data

South East Wales Biodiversity Records Centre (SEWBrEC) were consulted in March 2023 for bat records located within 2 km of the site within the last 10 years.

Full desktop data results can be found in Appendix A.

3.3 Bat Emergence/Return to Roost Survey

Dusk emergence and dawn return to roost surveys were undertaken in line with best practice guidelines (Collins *et.al.*, 2016) Surveyors were positioned with a clear view of the potential roost features (PRF) at each survey location. Surveys were carried out in May and July 2023.

Bat roost surveys were undertaken in weather conditions conducive to bat activity i.e., little or no rain and temperatures in excess of 10° C. The dusk surveys commenced 15 minutes prior to sunset and continued for 1 ½ hours after sunset, when it was considered that all bat species would have emerged (Mitchell-Jones and McLeish ,2004). The dawn surveys commenced 1 ½ hours before sunrise, ending 15 minutes after sunrise.

Standard recording forms were used during the surveys to document the location, environmental conditions, equipment used, and activity observed.

The location, number and type of survey required was based upon the desk study and review of the PRA carried out in September 2021. And followed best practice guidelines (Collins *et. al.*, 2016)

Drawing GC3964-RED-74-XX-M2-L-3002 shows the location of buildings and structures selected for survey and the position of surveyors relative to the buildings and structures surveyed.

Full survey details are included in Appendix B.

3.4 Bat Data Analysis

Surveyors monitored bat activity using a range of bat detectors. Surveyors used SSF Bat2 or Echo Meter Touch Pro heterodyne/frequency division detectors which displayed the peak frequency of bat calls allowing identification of species to be made and documented.

Surveyors also used an Anabat Express/Swift passive detectors to record bat calls; data from the recordings were downloaded and sonograms examined to confirm species encountered where required.

3.5 Survey Constraints

3.5.1 *General*

An area of low slate roof at the back of the Peacocks retail outlet was not visible or accessible to surveyors during the emergence/return to roost surveys. This area was also not surveyed in the initial Potential Roost Assessment and therefore features suitable for roosting bats could not be identified.

Any ecological survey can only identify what was present on site at the time it was conducted, and habitat use by species can change over time. The length of time that the survey data remains valid will depend on a case-by-case basis, but it is generally considered that if the development or proposed works do not commence within 2 years of the date of this report an update may be required.

3.5.2 *Recording of Acoustic Data*

Each bat species differs in its likelihood of detectability, repetition rate and call intensity. Additionally, there is also variation in the sensitivity of different models of bat detectors to different bat calls and this variation should ideally be taken into account when using particular bat detectors.

Detectors may also be positioned in a way that limits the amount of data it collects e.g., placed on a wall with microphone facing upwards which may result in partial calls being recorded when bats are flying below the level of the detector.

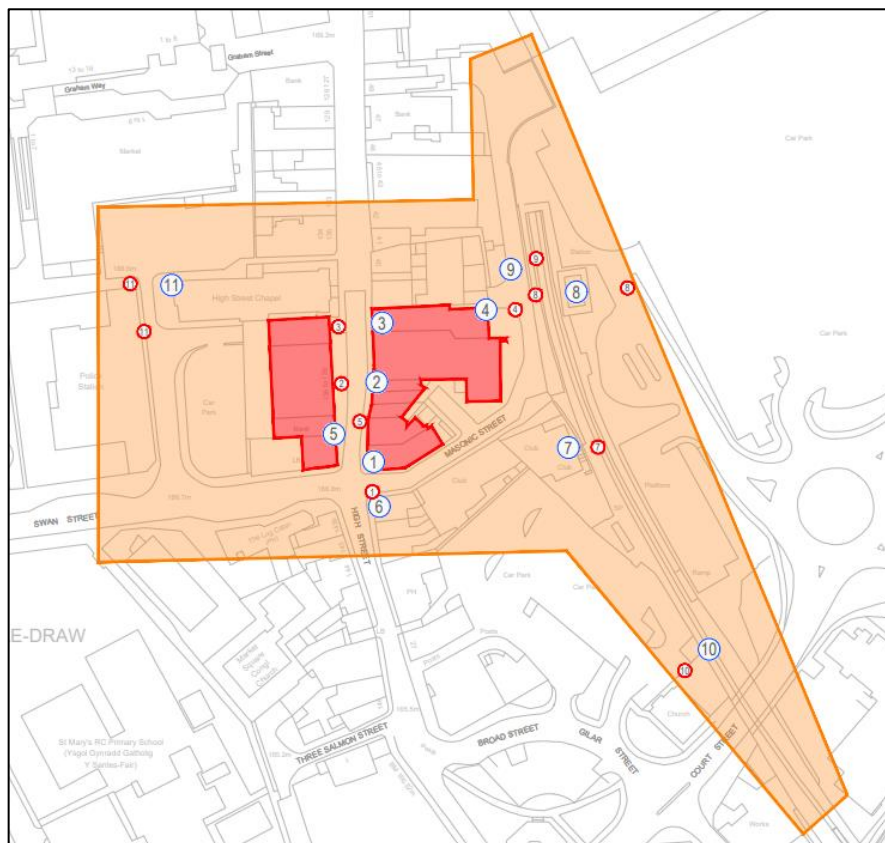
4. Bat Survey Results

4.1 Review of Previous Reports

The previous bat survey report was produced in September 2022 (Redstart, 2022). The previous report surveyed 11 locations from May to July 2022 covering a wider area than this report (see Figure 1). The locations were initially chosen from the Potential Roost Assessment (PRA) undertaken in the Preliminary Ecological Appraisal (PEA; Redstart, 2021).

No trees were found suitable for roosting bats in the previous survey report.

Figure 1 – Surveyor locations from previous bat survey report (orange polygon is Site Boundary; red polygons are Proposed Demolition Zone; blue circles are Survey Locations; red circles are Surveyor Positions; taken from Drawing GC3964-RED-XX-DR-L-0004 in Redstart, 2022).



No emergence/return to roost was observed from any of the survey locations in 2022.

Previous recommendations included:

- Soft strip demolition of all roofs of buildings.
- General bat mitigation.
- Consultation with a suitably experienced bat worker regarding the design of the development.
- A Toolbox Talk to be delivered to all site operatives prior to the commencement of work.

The demolition site has been reduced since the September 2022 survey report and therefore the number of survey locations has been reduced.

Three survey locations for the updated emergence/return to roost surveys were identified from the previous report. These were Location 2, Location 4 and Location 8 (see Figure 1). An additional location was added for the updated surveys which is located in the sub-station north of Masonic Street.

Updated survey locations and surveyor positions can be found in Drawing GC3964-RED-XX-M2-L-3002.

4.2 Desktop Data

A SEWBRcC desk study (SEWBRcC, 2023) was carried out for the site and returned 147 records for bats within 2 km of the site. A total of seven different species were recorded with a further four categories for bats not identified to species level.

The closest record to the proposed site was for a soprano pipistrelle (*Pipistrellus pygmaeus*), located approximately 210 m north-east of the site. The record was for a day roost located in Lower Thomas Street recorded in 2018.

The results of the SEWBRcC data are included in Appendix A.

4.3 Dusk Emergence / Dawn Return to Roost Surveys

A total of four locations were identified from previous reports and updated demolition site as requiring emergence/return to roost surveys.

Table 1 provides a summary of the locations surveyed, bat roost potential (following best practice guidelines (Collins *et.al.*, 2016)) and number/type of survey carried out.

Appendix B provides full details of each survey location, including position of PRF's within each building/structure. Drawing GC3964-RED-74-XX-M2-L-3002 shows the spatial distribution of survey locations in relation to the proposed works.

Table 1: Survey summary: Location number, roost potential and number/type of survey carried out

Location	Roost potential identified from PRF survey	Number of surveys and type carried out	Comment - reassessment of bat roost potential
1	High	1 dusk/1 dawn	Reduced to moderate potential due to low bat activity
2	High	1 dusk/1 dawn	
3	High	1 dusk/1 dawn	
4	Moderate	1 dusk/1 dawn	

The results of the dusk emergence/dawn return to roost surveys are summarised by survey location in this section. The survey recording forms for each survey are provided in Appendix B, including environmental parameters.

4.3.1 Location 1 Peacocks Retail Outlet, High Street

A dusk survey was carried out on 3rd May 2023 followed by a dawn survey on 6th July 2023. A single bat of unknown species was recorded on the surveyor form at 22:04, the bat was recorded as Heard Not Seen (HNS) and was not recorded on the static detector.

There were three separate records for common pipistrelle (*Pipistrellus pipistrellus*) during the dawn survey, the first a commuting bat was recorded as HNS at 04:02. Common pipistrelle was also recorded commuting from south to north up High Street and circling over the Peacocks retail outlet then commuting east at 04:39 and 04:51 respectively. Two separate records of noctule bat (*Nyctalus noctula*) were recorded, the first was

HNS at 03:52 and was not recorded on the static detector, the second was recorded at 04:24 on the static detector.

No bats were recorded emerging or returning to roost features at Location 1 during the surveys.

4.3.2 *Location 2 Sub-station, North of Masonic Street*

A dusk survey was carried out on 3rd May 2023 followed by a dawn survey on 6th July 2023. During the dusk survey the first bat recorded was as HNS at 20:54 which was a pipistrelle species (*Pipistrellus*). For the duration of the survey there was regular foraging from common pipistrelle bats over Swan Street/Masonic Street until the end of the survey.

During the dawn survey the first bat encountered was a common pipistrelle recorded as HNS at 03:30. There was no activity recorded again until 03:47 when a common pipistrelle was recorded as HNS. For the duration of the survey regular foraging was recorded by common pipistrelle bats until 04:51.

No bats were recorded emerging or returning to roost features at Location 2 during the surveys.

4.3.3 *Location 3 Single Storey Extension to Commercial Property, Masonic Street*

A dusk survey was carried out on 3rd May 2023 followed by a dawn survey on 6th July 2023. During the dusk survey the only species recorded was common pipistrelle. The first bat recorded was at 20:57 and was recorded as HNS. For the duration of the survey regular passes of common pipistrelle were recorded foraging to the rear of the Peacocks retail outlet not visible to surveyors and along Masonic Street. A maximum of two common pipistrelle bats were recorded at one time. From 22:04 bats were recorded commuting up Masonic Street from south to north, the last bat was recorded at 22:07.

During the dawn survey the only species recorded was common pipistrelle. The first bat was recorded as HNS at 03:39. Regular passes of common pipistrelle were recorded as HNS until 03:45. At 03:51 the first bat was observed foraging from north to south in Masonic Street. From 04:00 until 04:21 common pipistrelle passes were recorded as HNS. At 04:26 two bats were observed foraging behind Peacocks retail outlet. One bat continued to forage around the courtyard until 04:50 when it commuted west.

No bats were recorded emerging or returning to roost features at location 3 during the surveys.

4.3.4 *Location 4 Rail Station Building*

A dusk survey was carried out on 3rd May 2023 followed by a dawn survey on 6th July 2023. The surveyor was located west of the station building with full view of the identified roost feature.

During both the dusk and the dawn survey no bats were recorded around the station building. All bats recorded on the static detector were recorded by the surveyor in Location 3 position.

No bats were recorded emerging from or returning to the roost feature at Location 4 during the surveys.

5. Summary

Two species of bat were recorded during the emergence/return to roost surveys (common pipistrelle and noctule).

No emergence or return to roost was observed at any of the four survey locations.

Common pipistrelle was the most regularly recorded bat during all the surveys.

The area with the highest bat activity was around Masonic Street, particularly the willow tree located at the electrical sub-station with regular foraging recorded in this location.

6. Discussion

The presence of a small number of common pipistrelle bats foraging around the demolition site until the closing stages of the dawn survey (latest bat recorded at Location 3 at 04:51) indicates that there is likely to be a roost present somewhere near to the site. The last bat was recorded commuting west 12 minutes before sunrise (sunrise at 05:03). This would suggest a roost is located nearby, beyond the area covered by the survey.

Although the presence of street lighting attracts midges (*Diptera* sp.) which can provide feeding opportunities for common pipistrelle, by far the most frequently recorded species on site, foraging on site was limited to the areas of the town centre where street lighting was absent (Masonic Street). Locations with a higher light levels recorded low numbers of bats commuting for short durations. Additional street lighting as part of the scheme would be likely to attract insects emerging from the nearby River Taff, increasing the likelihood of pipistrelle species being present within the site area but possibly reducing the potential for a wider diversity of species to use the site.

In absence of mitigation the proposed demolition and re-development of the site is unlikely to have a significant negative impact on bats in terms of loss of foraging opportunities. Use of the site for feeding was limited to low numbers of common pipistrelle bats observed during the surveys. There would likely be some short-term impact on commuting routes, particularly for bats currently using High Street, presumably to reach foraging areas. This disruption would likely cause bats emerging from roost to the west of the site to establish alternative routes to access feeding areas.

There is a low possibility that demolition of buildings could cause direct harm to roosting bats. Despite no bats emerging or returning to roost during the surveys, features are present within buildings and structures in the demolition zone and wider site that are still suitable for use as bat roosts. There is also potential that features are present within the low slate roof behind Peacocks retail outlet not visible that are suitable for roosting bats. There is therefore low potential for any of these features to be used by bats in the future. Bats are highly mobile animals and generally highly faithful to their roosts, however, during periods of unpredictable weather bats will utilise features close to their foraging areas to shelter from sudden inclement weather; such structures can also be used on an ad hoc basis as transitional roosts between winter and summer roost sites.

There is a possibility that low numbers of bats roosting outside the site area could be indirectly impacted by noise, vibration and dust during demolition and re-building works.

If the following recommendations for mitigation, compensation and enhancement are adopted the works should remain compliant with wildlife legislation and will ensure that in the long-term biodiversity of the site is enhanced in line with the Environment (Wales) Act 2016 and Planning Policy Wales 11 (2021).

7. Recommendations

7.1 Demolition Works

Any demolition of roofs identified as having PRFs in this report must be carried out using soft strip methods under ecological supervision by an NRW licenced ecologist and only after the contractor has received a toolbox talk as outlined in Section 7.4. The roof and felt or timber sarking and any insulation will be stripped slowly with tiles and timber joints being prised rather than hammered, reducing the potential for harm to roosting bats.

If a bat is discovered during the soft strip operation all work in that area must cease immediately and a bat licensed ecologist or Natural Resources Wales (NRW) Species Protection Team contacted for advice. Work will not continue until appropriate advice and action has been taken.

7.2 General Bat Mitigation

The following measures must be employed to reduce disturbance to bats utilising the habitats within and near the site boundary:

- If the proposed works are carried out during the time of year when bats are active (March to October inclusive), works must be carried out during daylight hours; commencing at least 1 hour following sunrise and finishing at least 1 hour before sunset, to avoid unnecessary disturbance to bats.
- There will be no night-time working. If night-time working is unavoidable, then advice on how to reduce potential disturbance to bats will be sought from a suitably qualified ecologist.
- If additional lighting during demolition and subsequent construction is required for safety, any light sources used must be directional and positioned to prevent excessive light spill from the immediate works area. This is particularly important where a roost may be present such as to the west of the development site.
- If a bat is discovered during any works (demolition or construction), then work in that area must cease immediately, until advice is obtained from either a suitably qualified ecologist or a member of NRW's Species Protection Team.

7.3 Development Design

A suitably experienced bat worker must be consulted at the design phase of the development to ensure a detailed assessment of all the potential impacts on bats is carried out. This impact assessment will include, but not be limited to, lighting and planting design.

Lighting elements that contain ultraviolet components have a dual impact upon bats; they act as a deterrent to using flight lines illuminated by artificial lighting and also create a 'vacuum effect' by attracting invertebrates away from darker areas towards the lighting. This reduces the food availability in the darker areas, thus impacting upon more light-averse bat species. Impact on bats can be mitigated by using lighting units that contain LED luminaires of a colour temperature around 2700°K, in line a recent Institute of Lighting Professionals and the Bat Conservation trust conference. An update to best practice guidelines is expected to be published in the latter half of 2023.

Planting design for the development shall include tree and shrub species (ideally locally sourced and native) that are known to support a range of invertebrate species which can provide a food resource for bats.

7.4 Toolbox Talk

All site personnel must receive a Toolbox Talk prior to commencement of demolition or other works likely to cause disturbance to bats. The talk will be given by an appropriately qualified and experienced ecologist, highlighting ecological constraints in relation to bats and will include actions to be taken if a bat should be found during demolition and/or during the construction period.

8. Enhancement Opportunities

Planning Policy Wales 11 (Welsh Government, 2021) advocates the enhancement of biodiversity in relation to sites. The following measures are recommended to comply with this policy:

Bat friendly planting – Planting design should incorporate pollinator friendly planting to attract a wide invertebrates and enhance foraging opportunities for bats in the area.

9. References

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Drawings

- GC3964-RED-74-XX-M2-L-3002-Emergence/Re-entry Bat Survey Location



Key:

Surveyor Position

Survey Location (Building/Structure)

Demolition Sites

P01 NP MW GP First Issue. 26/07/2023

Purpose of issue			
S2 - Issued for Information			
Classification			
Confidential			
Client			
Merthyr County Borough Council			
Project			
Merthyr Rail Station			
Drawing Title			
Emergence / Re-entry 2023 Bat Survey Locations			
Drawn NP Checked MW Approved GP			
Project No	Date	Scale	Size
GC/003964	July 2023	1:400	A3
Drawing identifier		Revision: P01	
GC3964-RED-74-XX-M2-L-3002			



REDSTART.

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Appendix A – Bat Records within 2 km (SEWBReC)

Common name	Scientific name	Legislation	Most recent record	Abundance
Bat	<i>Chiroptera</i>	EPS, WCA5	March 2022	3
Brown long-eared bat	<i>Plecotus auritus</i>	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)	2021	15
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)	May 2022	31
Greater horseshoe bat	<i>Rhinolophus ferremiquinum</i>	EPS, ANII, HDir, WCA5, S7, Bern, RDB2 (UK)	2021	4
Lesser horseshoe bat	<i>Rhinolophus hipposideros</i>	EPS, ANII, HDir, WCA5, S7, Bern, RDB2 (UK)	2021	13
Myotis bat species	<i>Myotis</i>	EPS, HDir, WCA5, Bern	2021	13
Noctule bat	<i>Nyctalus noctula</i>	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)	2021	13
Nyctalus bat species	<i>Nyctalus</i>	EPS, HDir, WCA5, Bern	2021	11
Pipistrelle bat species	<i>Pipistrellus</i>	EPS, WCA5	2021	19
Serotine	<i>Eptesicus serotinus</i>	EPS, HDir, WCA5, Bern, RDB2 (UK)	July 2021	5
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	EPS, HDir, WCA5, S7, Bern, RDB2 (UK)	May 2022	12

Appendix B – Dusk Emergence/Dawn Return to Roost Survey Forms

Abbreviations

Abbreviation	Species
Pp	Common pipistrelle (<i>Pipistrellus pipistrellus</i>)
Nn	Noctule bat (<i>Nyctalus noctula</i>)

Location 1

Project:	Merthyr Rail		
Surveyor:	Charlotte Gurney-Read (Surveyor 1) & Emma Carney (Surveyor 2)		
Date:	03/05/2023 - Dusk		
Feature/s being surveyed:	Location 1 - Peacocks Retail Outlet, High Street		
Time Start:	20:30	Time Finish:	22:10
Sunrise/sunset time:	20:40	Detectors used:	SSF Bat2 & Anabat Express
Temperature Start (°C):	12°C	Temperature Finish (°C):	9°C
Cloud Cover Start (%):	37%	Cloud Cover Finish (%):	63%
Humidity Start (%)	81%	Humidity Finish (%)	80%
Wind Start:	12 west	Wind Finish:	15 west
Precipitation:	None		
Land Use:	Commercial and residential		
Surrounding Land Use:	Commercial buildings and residential flats		

Location 1



Time	Species	Activity and Direction
20:30		Start
22:10		End of survey – no bats

Project:	Merthyr Rail		
Surveyor:	Emma Carney (Surveyor 1) & Charlotte Gurney-Read (Surveyor 2)		
Date:	06/07/2023 - Dawn		
Feature/s being surveyed:	Location 1 - Peacocks Retail Outlet, High Street		
Time Start:	03:30	Time Finish:	05:05
Sunrise/sunset time:	05:03	Detectors used:	SSF Bat 2 & Anabat Express
Temperature Start (°C):	12	Temperature Finish (°C):	11
Cloud Cover Start (%):	100	Cloud Cover Finish (%):	80
Humidity Start (%)	86	Humidity Finish (%)	92
Wind Start:	0 (locally)	Wind Finish:	0 (locally)
Precipitation:	Light drizzle for first 5 minutes of survey		
Land Use:	Commercial and residential		
Surrounding Land Use:	Commercial buildings and residential flats.		

Location 1



Time	Species	Activity and Direction
03:30		Start
03:52	Nn	Heard not seen – brief
04:02	Pp	Heard not seen – brief pass
04:24	Nn	Heard not seen – brief
04:39	Pp	Commuting south to north up High Street
04:51	Pp	Circled briefly over Peacocks and headed east
05:15		End of survey – no return to roost

Location 2

Project:	Merthyr Rail		
Surveyor:	Richard Poole (Surveyor 3) & Tara Okon (Surveyor 4)		
Date:	03/05/2023 - Dusk		
Feature/s being surveyed:	Location 2 – Substation area		
Time Start:	20:30	Time Finish:	22:10
Sunrise/sunset time:	20:40	Detectors used:	SSF Bat2 & Anabat Swift
Temperature Start (°C):	12°C	Temperature Finish (°C):	9°C
Cloud Cover Start (%):	37%	Cloud Cover Finish (%):	63%
Humidity Start (%)	81%	Humidity Finish (%)	80%
Wind Start:	12 west	Wind Finish:	15 west
Precipitation:	None		
Land Use:	Commercial		
Surrounding Land Use:	Commercial buildings, railway – Merthyr Town Centre		

Location 2



Time	Species	Activity and Direction
20:54	Pp	Heard not seen – brief
20:58	Pp x 2 passes	Foraging approx. 15 m high, flew north to south
21:05	Pp	Heard not seen - foraging, feeding buzzes
21:07 – 21:10	Pp	Foraging over Swan Street/ Masonic Street – often low to the ground, feeding buzzes heard
21:11	Pp	Foraging over Swan Street/ Masonic Street – often low to the ground, feeding buzzes heard
21:13 – 21:14	Pp	Foraging over Swan Street/ Masonic Street
21:21 – 21:27	Pp	Foraging
21:29 – 21:33	Pp	Foraging
21:44	Pp	Heard not seen
21:57	Pp	Heard not seen
22:01	Pp	Heard not seen – foraging, feeding buzzes
22:04 – 22:06	Pp	Heard not seen - brief
22:10		End of survey – no emergence

Project:	Merthyr Rail		
Surveyor:	Richard Pool (Surveyor 3) & Tara Okon (Surveyor 4)		
Date:	06/07/2023 - Dawn		
Feature/s being surveyed:	Location 2 – Substation area		
Time Start:	03:30	Time Finish:	05:05
Sunrise/sunset time:	05:03	Detectors used:	SSF Bat 2, Bat Box Duet & Anabat Swift
Temperature Start (°C):	12	Temperature Finish (°C):	11
Cloud Cover Start (%):	100	Cloud Cover Finish (%):	80
Humidity Start (%):	86	Humidity Finish (%):	92
Wind Start:	0 (locally)	Wind Finish:	0 (locally)
Precipitation:	Drizzle for first 5 minutes of survey		
Land Use:	Commercial		
Surrounding Land Use:	Commercial buildings, railway and Merthyr Town Centre		

Location 3



Time	Species	Activity and Direction
03:30		Start of survey
03:30	Pp	Heard not seen – brief call
03:40		No activity
03:47	Pp	Heard not seen
03:53	Pp	Heard not seen – Foraging around trees
04:00	Pp	Heard not seen
04:02	Pp	Foraging around tree near sub-station
04:25	Pp	Heard not seen – very quiet call
04:26	Pp	Foraging around tree
04:30	Pp	Heard not seen – brief quiet call
04:31	Pp	Heard not seen
04:32 to 04:33	Pp	Foraging around tree
04:34	Pp	Following the railway line and then back foraging around tree and off towards town centre
04:37		Heard not seen – brief call
04:39		Heard not seen
04:39		Foraging along railway line towards conservative club and back
04:41 to 04:43		Circling back and forth over railway line to towards conservative club and back to Masonic Street
04:44	Pp	Heard not seen
04:51	Pp	Foraging around tree with 11 passes
05:05		End of Survey – no return to roost

Location 3 and 4

Combined as Surveys 5 and 6 were sat together.

Project:	Merthyr Rail		
Surveyor:	Megan Watts (Surveyor 5) & Natalie Pyatt (Surveyor 6)		
Date:	03/05/2023 - Dusk		
Feature/s being surveyed:	Location 3 and Location 4 – Rear of demolition site (Surveyor 5) and railway station building (Surveyor 6)		
Time Start:	20:30	Time Finish:	22:10
Sunrise/sunset time:	20:40	Detectors used:	SSF Bat2 & Anabat Express
Temperature Start (°C):	12°C	Temperature Finish (°C):	9°C
Cloud Cover Start (%):	37%	Cloud Cover Finish (%):	63%
Humidity Start (%)	81%	Humidity Finish (%)	80%
Wind Start:	12 west	Wind Finish:	15 west
Precipitation:	None		
Land Use:	Transport and commercial		
Surrounding Land Use:	Commercial, residential and transport		

Location 3



Location 4



Species	Activity and Direction	Activity and Direction
20.30		Start of survey
20.57	Pp	Heard not seen
20.59	Pp	Foraging behind Peacocks retail outlet of demolition building went west
21.07	Pp	Heard not seen
21.09	Pp	Foraging behind Peacocks retail outlet
21.11	Pp	Foraging behind Peacocks retail outlet and Masonic Street went north
21.12	Pp	Foraging behind Peacocks retail outlet
21.13	Pp x2	Foraging behind Peacocks retail outlet
21.23	Pp	Above and up and down Masonic Street
21.27	Pp	Foraging up and down Masonic Street went south
21.44	Pp	Heard not seen
22.00	Pp	Heard not seen
22.04	Pp	Commuting up Masonic Street south to north
22.05	Pp	Commuting up Masonic Street south to north
22.07	Pp x2	Commuting up Masonic Street south to north
22.10		End of Survey – no emergence

Project:	Merthyr Rail		
Surveyor:	Megan Watts (Surveyor 5) & Natalie Pyatt (Surveyor 6)		
Date:	06/07/2023		
Feature/s being surveyed:	Location 3 - Rear of demolition site (Surveyor 5) and railway station building (Surveyor 6)		
Time Start:	03:30	Time Finish:	05:05
Sunrise/sunset time:	05:03	Detectors used:	SSF Bat 2 & Anabat Swift
Temperature Start (°C):	12	Temperature Finish (°C):	11
Cloud Cover Start (%):	100	Cloud Cover Finish (%):	80
Humidity Start (%)	86	Humidity Finish (%)	92
Wind Start:	0 (locally)	Wind Finish:	0 (locally)
Precipitation:	Drizzle for 5 minutes at the start of survey		
Land Use:	Transport and commercial		
Surrounding Land Use:	Commercial, residential and transport		

Location 3



Location 4



Time	Species	Activity and Direction
03:30		Start of Survey
03:39	Pp	Heard not seen
03:41	Pp	Heard not seen – loud call, possibly along Masonic Street
03:45	Pp	Heard not seen – 4 passes, possibly foraging in Masonic Street
03:51	Pp	Foraging in Masonic Street – north to south
04:00	Pp	Heard not seen
04:03	Pp	Heard not seen
04:20	Pp	Heard not seen
04:21	Pp	Heard not seen
04:26	Pp x 2	Foraging in courtyard opposite (west). Flew towards station (north-east) and turned down Masonic Street
04:36	Pp	Still foraging behind Peacocks retail outlet, showing interest in the derelict building next to demolition site until 04:44 before commuting west.
04:50	Pp	Foraging behind Peacocks retail outlet, flew west around derelict building.
05:15		End of Survey – no return to roost

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