

Appendix 5.9. Bat Surveys Report, 2025b

**BAT SURVEYS OF BUILDINGS AND TREES WITH
POTENTIAL ROOST FEATURES ON SITE OF
PROPOSED EXTENSION AREA AND ALONG
ROUTE OF PIPELINE AT MORTARSTOWN WASTE
WATER TREATMENT PLANT IN CARLOW**



Report Prepared for

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1. SUMMARY

In March 2025, I was contracted by Atkins Global to conduct a walk-over survey to assess potential roost features for bats on the site of the proposed extension area and along the route of the pipeline in the vicinity of Mortarstown Waste Water Treatment Plant in Carlow Town. This survey identified several buildings and trees on site with potential roost features for bats.

In July 2025, these buildings and trees were surveyed for bats by means of bat detector surveys, which were augmented with thermal scopes.

A single Soprano pipistrelle was recorded emerging from the rear roof of the cottage. A single Soprano pipistrelle was also recorded emerging from the shed attached to the southern gable of the cottage. Two Brown long-eared bats most likely emerged from crevices in mature Horse chestnut trees at the front of the cottage.

2. AIMS OF SURVEY

(a) To identify bat roosts in buildings and trees on site

(b) To make recommendations regarding the treatment of bats found on site

3. INTRODUCTION

3.1 Bat Species

Bats belong to the Order Chiroptera and to date nine species are recorded as resident in Ireland. These nine species are divided into two families – Family Vespertilionidae which contain nine of our Irish species (Daubenton's bat *Myotis daubentonii*, Natterer's bat *Myotis nattereri*, Whiskered bat *Myotis mystacinus*, Leisler's bat *Nyctalus leisleri*, Long-eared bat *Plecotus auritus*, Soprano Pipistrelle *Pipistrellus pygmaeus*, Common Pipistrelle *Pipistrellus pipistrellus* and Nathusius Pipistrelle *Pipistrellus nathusii*) and one species in the family Rhinolophidae – the Lesser Horseshoe bat *Rhinolophus hipposideros*.

Brandt's bat *Myotis brandii* has only been recorded once in Ireland from a site in Co. Wicklow and is classified as a vagrant. In 2013 a single male Greater horseshoe bat *Rhinolophus ferrumequinum* was recorded in Co. Wexford. This bat was also considered to be a vagrant. During the field season of 2020 recordings were made of a Greater horseshoe bat in Co. Wicklow. Further investigations are ongoing.

3.2 Legislation

The serious decline in bat populations both in Ireland and across Europe has led to conservation measures and appropriate legislation being drawn up and implemented in an attempt to stabilise population numbers. It is estimated that bat populations across Europe have decreased by up to 60% in the last 30 years. As they are highly specialised animals, bats serve as biological indicators and are often amongst the first animal species to show signs of population change due to the activities of man. Destruction of roosts and foraging areas, coupled with the widespread use of pesticides, are the key reasons for the decline in numbers of bats in Ireland. Efforts should be made to retain known bat colonies and methods to lessen disturbance to these animals should be incorporated into any development.

Bats' dependency on insects has left them vulnerable to habitat destruction, land drainage, agricultural intensification and increased use of pesticides. Their reliance on buildings has also made them vulnerable to building repairs and the use of chemicals for timber treatment. Roosting or hibernation sites in caves, mines, trees and disused buildings are also often lost to development.

Irish Legislation

Wildlife Act 1976 – In the Republic of Ireland, under Schedule 5 of the Wildlife Act 1976 all bats and their roosts are protected by law. It is an offence to disturb either without the appropriate licence. This Act was further strengthened by the Wildlife Amendment Act 2000.

E.U. Legislation

Under the Habitats Directive 1992 (EEC 92/43), each member state of the E.U. was requested to identify habitats of national importance and priority species of flora and fauna. These habitats are now designated as Special Areas of Conservation (SAC). In Ireland, all bat species, except one are classified as Annex IV species under the Habitats Directive. Annex IV species are species in need of strict protection. The exception is the Lesser Horseshoe bat which is an Annex II species (Priority Species). Annex II species are species requiring the designation of Special Areas of Conservation specifically for their protection. All species of bat in Ireland are strictly protected under the Habitats Directive to include deliberate disturbance of these species, particularly during the periods of breeding, rearing and hibernation. It also specifies deterioration or destruction of breeding or resting places.

International Legislation

Ireland has ratified two international wildlife laws pertaining to bats

- (a) The Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, 1982) – part of this convention stipulates that all bat species and their habitats are to be conserved.
- (b) The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, Enacted 1983). This was instigated to protect migrant species across all European boundaries.

4. PROPERTY:

Mortarstown Waste Water Treatment Plant

Grid Reference: S715 747 (centre of plant)

Mortarstown WWTP is situated on the southern side of Carlow town between the R448 regional road and the L4038 local road. The site entrance is on the L4038. The Pumping Station is situated on the R448 Kilkenny Road approximately 900m north of the treatment plant.

The existing outfall pipe runs from the Mortarstown plant in a north westerly direction under the R448 regional road and under a wooded area to reach the eastern bank of the River Barrow Figure 2 – Area 6.

Figure 1 shows the approximate red line boundary of the extension to the waste water treatment plant and the route of the proposed pipe line along the R448 regional road.

Figure 2 is an aerial photo of the site illustrating areas where bat detector surveys were recommended.



Figure 1 – showing red line boundary of proposed extension area and pipe line



Figure 2 – indicating areas requiring bat detector surveys

5. SURVEYS

5.1 March 2025 Survey

In March 2025, five areas were identified as having high potential for roosting bats-

Area 1 is the uninhabited cottage, outbuildings and horse chestnut trees on the slip lane off the R448 (Grid reference 52.820349, -6.9428417). This cottage was surveyed previously for bats in May 2021. No bats were recorded emerging in 2021 but the condition of the cottage has deteriorated since 2021. The cottage and outbuildings have high potential as bat roosting sites. The buildings should be surveyed at dusk and dawn with bat detectors and thermal imaging scopes.

There is a row of mature horse chestnut trees with obvious cavities in the garden to the front of the cottage. These trees should be included during the surveys of the cottage.

Area 2 is a mature treeline forming the southern site boundary of the large detached house “Carrig Rua” (Grid reference 52.821438, -6.9415703). This tree line consists of mature ash, scots pine, with a row of mature cypress trees on the northern side of the tree line. Several of the deciduous species contain obvious cavities suitable for roosting bats.

The trees should be surveyed at dusk with bat detectors and thermal imaging scopes.

Area 3 is a single very mature beech tree with numerous cavities suitable for roosting bats (Grid reference 52.828524, -6.9370696) . This tree is situated just north of the red line boundary and will not be affected by the proposed scheme.

Area 4 is the pumping station on the R448. These two small buildings were previously surveyed in May 2021. No bats were recorded. However, it is recommended that a repeat bat survey is conducted using bat detectors and thermal scopes.

Area 5 is an area between the R448 and the River Barrow containing numerous deciduous trees with obvious roosting potential for bats. There is a very mature ash on the western side of the R448 with many cavities and a willow tree with a vertical split in the trunk. These trees are outside the red line boundary and will not be affected by the proposed scheme.

Area 6 is the area to the west of the R448 which contains the original outflow pipe from Mortarstown Waste Water Treatment Plant. When this area was surveyed in May 2021 a dead standing beech tree was identified as having high potential for roosting bats. This tree is no longer standing. Other trees have moderate potential for roosting bats. There are two large mature willow trees on the river bank. No obvious bat roost features were visible on these trees. If either of these trees are to be felled, a bat detector survey aided with thermal scopes should be conducted. If bats are recorded roosting in the trees a derogation licence will be required from NPWS to allow felling. Felling should be supervised by an ecologist.

5.2 July 2025 Survey

In July 2025 bat detector surveys were conducted at Area 1 (cottage and Horse chestnut trees), Area 2 (treeline south of Carrig Rua), Area 4 (pumping station) and Area 6 (area of original outflow).

6. CONSTRAINTS

There were no constraints associated with these bat detector surveys. The weather was favourable for both dusk and dawn surveys.

7. METHODOLOGY

Bat detector surveys were conducted using the following equipment - Pettersson D240X time expansion bat detector, Pettersson D200 bat detector, Echometer Touch Pros plugged into mini i-pads. Two thermal scopes were used to enhance the surveys – Guide 19 and Guide TK614. Surveys were conducted by two surveyors.

8. RESULTS

Area 1 – Cottage and Horsechestnut trees (Grid Reference 52.820349, -6.9428417)

The exterior of the cottage was examined for signs of bats in the form of droppings or staining on walls, window cills and window panes. No signs of bats were recorded. There are two sheds to the south of the cottage – one attached to the southern gable of the house and the second is a free standing garage. The sheds were also surveyed internally for signs of bats. No signs of bats were recorded in either shed.

A bat detector survey was conducted on the 9th July 2025 outside the cottage and sheds. One thermal scope was trained on the rear of the cottage and adjoining shed, the second scope was trained on the front elevation of the cottage and sheds. In addition, one surveyor was positioned to the front of the cottage to allow the row of Horse chestnut trees to be included in the survey.

Results

Date 09/07/25

Sunset = 21.50

Temperature = 16C

Weather = Clear, calm & dry

The dusk survey commenced at 20 minutes before sunset and ran for 2 hours after sunset.

At 21.41 a single Soprano pipistrelle emerged from the rear of the shed adjoining the cottage.

At 21.49 a single Soprano pipistrelle was recorded emerging from the rear roof of the cottage.

At 22.41 2 Brown long-eared bats emerged from one of the Horsechestnut trees at the front of the cottage and remained foraging in the vicinity of the trees and along the tree-lined lane to the front of the cottage.

Soprano pipistrelles were recorded intermittently in the garden of the cottage for the duration of the survey. Brown long-eared bats were also recorded intermittently in the vicinity of the Horse chestnut trees.

The sheds were checked intermittently for bat activity inside the sheds. No bats were recorded foraging in either of the sheds.

Prior to demolition a pre-construction bat survey will be required. A derogation licence will be required from NPWS to allow the demolition of this cottage.

Area 2 – treeline south of house - *Carrig Rua* (Grid Reference 52.821438, -6.9415703)

The mature treeline south of the large detached house *Carrig Rua* was surveyed at dusk on 9th July 2025 and at dawn on the 10th July 2025. The dusk survey was conducted by one surveyor using a bat detector. The dawn survey was also conducted by bat detector but was enhanced by the use of a thermal scope.

Results

Date: 09/07/25 & 10/07/25

Sunset = 21.50; Sunrise = 05.15

Temperature: 16C at sunset, 10C at sunrise

Weather = Clear, calm & dry

Results

No bats were recorded emerging from any of the trees in the treeline. However, 6-8 soprano pipistrelles were recorded foraging over the paddock to the front of *Carrig Rua* shortly after sunset. A smaller number of Soprano pipistrelles were also recorded foraging in this position at dawn. These bats may have emerged from Carrig Rua house.

Area 4 – Pumping Station on R448 Grid Reference (Grid Reference 52.827013, -6.9379440)

The pumping station consists of two small buildings. The buildings were surveyed at dawn on 10th July 2025 with a bat detector and thermal scope.

Results

No bats were recorded returning to either of the buildings at dawn.

Area 6 – original discharge point to west of R448 (Grid Reference 52.820553, -6.9441936)

A Songmeter 4 bat detector was deployed overnight on 9th/10th July on a large willow tree in this area.

Results

A total of 126 bat calls were recorded overnight -

6 Daubenton's bat calls

4 Whiskered bat calls

6 Leisler's bat calls

45 Common pipistrelle calls

65 Soprano pipistrelle calls

This floodplain area is an important foraging area for bats.

9. RECOMMENDATIONS

The cottage has been confirmed as a roost site for at least one Soprano pipistrelle bat. The slates should be removed carefully by hand. The adjoining shed is also a roost site for at least one Soprano pipistrelle bat. The roof should be removed carefully by hand. Demolition of these structures should be supervised by an ecologist

At least one of the mature Horse chesnut trees at the front of the cottage is highly likely to be a roost site for Brown long-eared bats. It was difficult to pin point the exact location of the roost feature due to heavy foliage.

Felling of these trees should be sectional and supervised by an ecologist.

The mature ash tree in the treeline immediately south of Carrig Rua which contains obvious roost features for bats should be felled under supervision by an ecologist.

10. BIBLIOGRAPHY

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11. PHOTOGRAPHS

Area 1 – dusk emergence survey with one surveyor and 2 thermal scopes



Photo 1 – front elevation of cottage



Photo 2 – rear elevation of cottage showing approximate location of exit point from rear roof. A single Soprano pipistrelle also emerged from the rear of the adjoining shed



Photo 3 – shed attached to southern gable of cottage and garage to right hand side



Photo 4 – showing potential roost feature at roof level on garage



Photo 5 – Guide 19 thermal scope trained on rear elevation of cottage



Photo 6 – front garden of cottage where Brown long-eared bats were recorded foraging



Photo 7 – Guide TK614 thermal scope trained on front elevation of cottage



Photo 8 – interior of shed attached to cottage



Photo 9 – interior of shed attached to cottage



Photo 10 – thermal photo of front elevation of cottage



Photo 11 – thermal photo of rear of cottage. The point where single Soprano pipistrelle emerged from rear roof is indicated



Photo 12 – crevice in Horsechestnut tree adjacent to front gate from which 2 Brown long eared bats likely emerged



Photo 13 – crevice in Horsechestnut tree adjacent to front gate from which 2 Brown long eared bats likely emerged



Photo 14 – thermal photo of Horsechestnut trees at gateway to cottage. Brown long-eared bats recorded foraging in the vicinity of these trees



Photo 15 – thermal image of sheds to south of cottage

Area 2 – Treeline south of Carrig Rua



Photo 16 – looking north at mature treeline south of *Carrig Rua*



Photo 17 – eastern section of treeline south of Carrig Rua



Photo 18– western section of treeline south of Carrig Rua



Photo 19 – treeline at dusk



Photo 20 – western end of treeline



Photo 21 – western end of tree line



Photo 22 – western end of treeline from lane



Photo 23 – western end of treeline from lane



Photo 24 – western end of treeline from lane



Photo 25 – paddock to front of *Carrig Rua* where 6-8 Soprano pipistrelles were recorded foraging



Photo 26 – lane to west of cottage where Brown long-eared were recorded foraging



Photo 27 – thermal photo of southern side of treeline at dawn



Photo 28 – *Carrig Rua* house through treeline. Several Soprano pipistrelles were recorded foraging on northern side of treeline at dawn

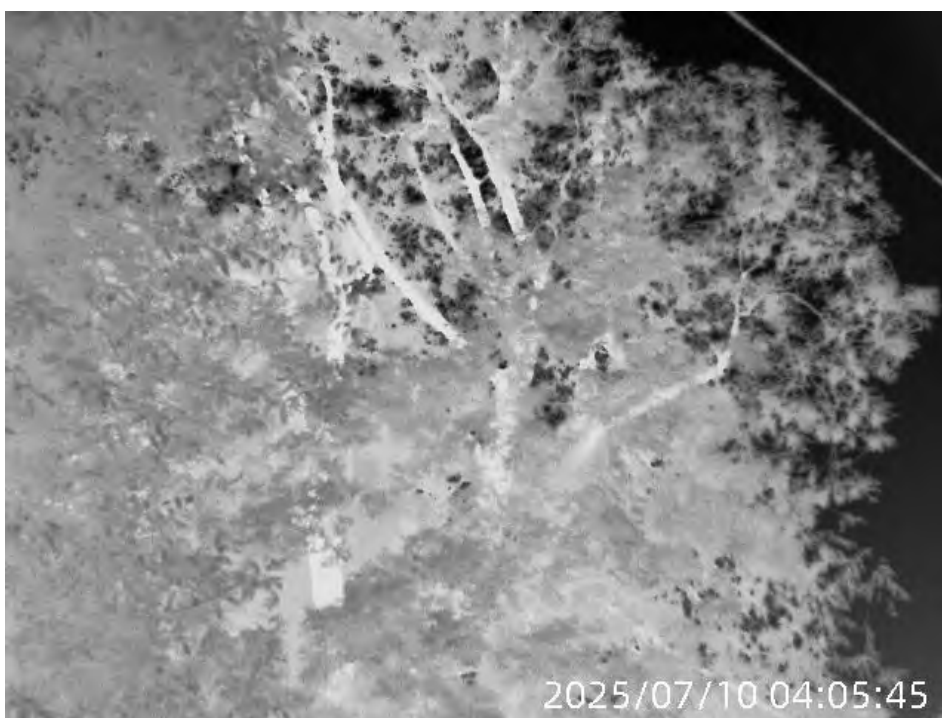


Photo 29 – thermal photo of mature ash tree with PBR features taken during dawn survey



Photo 30 – thermal photo of western end of treeline taken at dawn

AREA 4 – Pumping Station at dawn



Photo 31 – thermal image of southernmost building at pumping station



Photo 32 – thermal image of southernmost building at pumping station



Photo 32 – northern most building at pumping station



Photo 33 – southernmost building at pumping station

Area 6



Photo 34 – Songmeter 4 placed overnight on willow tree in floodplain area



Photo 35 – Songmeter 4 placed overnight on willow tree in floodplain area