

Appendix 5.6. Bat Surveys Report, 2021b

**BAT SURVEYS CONDUCTED ALONG POTENTIAL
NEW ROUTES OF RISING MAIN PIPE AND IN
GREEN AREA TO NORTH OF PLANT AT
MORTARSTOWN WASTE WATER TREATMENT
PLANT IN CARLOW**



Report Prepared for

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ABSTRACT

Structure:	Mortarstown Waste Water Treatment Plant
Grid Reference:	Mortarstown Waste Water Treatment Plant S715 747
Bat species Present:	Soprano pipistrelle, Common pipistrelle, Leisler's bat, Brown long-eared
Proposed Works:	Two new proposed routes for rising main from Mortarstown WWTP to Pumping Station on R448
Impact on Bats:	There will be no impact on bats.
Bat Surveys by:	Caroline Shiel
Dates:	28 th /29 th September 2021

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1. SUMMARY

I was contracted by Julie Larkin of Atkins Global, to conduct additional bat surveys in the vicinity of Mortarstown Waste Water Treatment Plant and Kilkenny Road Pumping Station. Two new routes have been proposed for the rising main pipe from Mortarstown Waste Treatment Plant to the Pumping Station on R448 Kilkenny road.

The waste water treatment plant is situated in Mortarstown townland on the southern side of Carlow town, whereas the pumping station is situated immediately west of the R448 Kilkenny Road on the eastern bank of the River Barrow.

I was also contracted to conduct bat surveys on an area of land situated to the north of Mortarstown Wastre Treatment Plant.

Bat surveys have been previously conducted at the treatment plant and pumping station in late September/early October 2020 and in May 2021 bat surveys were conducted in the vicinity of the existing outflow pipe from the Mortarstown plant and on the extended site boundary of the pumping station.

The bat surveys of the proposed routes for the rising main pipe and area to north of the treatment plant were conducted on 28th/29th September 2021.

2. AIMS OF BAT SURVEY

- (a) To determine the importance of the sites for bats.
- (b) To assess the impact of the proposed works on bats using the sites.
- (c) To make recommendations in order to reduce the impact of works on bats using the sites.

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. Futher 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

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

Figure 1 shows the two options for the route of the rising main pipe between Mortarstown Waste Water Treatment Plant and Kilkenny Road Pumping Station. Option 1 is shown in red and runs from the treatment plant, north along the western side of the Green Road, past Carlow Institute of Technology, and crosses under the R448 Kilkenny Road into the pumping station. This option is 950m in length.

Option 2 is for the outfall pipe to run north-west from Mortarstown Waste Water Treatment Plant, then north along the eastern side of the R448, then crossing under the R448 road into the pumping station. This option is 1,023m in length.



Figure 1 - aerial view of Mortarstown Waste Water Treatment Plant showing two options for route of Rising Main Pipe
Option 1 in Red (950m), Option 2 in Yellow (1023m)

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.

GREEN AREA TO NORTH OF EXISTING PLANT



Figure 2 – Green area to north of Mortarstown Waste Water Treatment Plant (outlined in red).

The green area to the north of the treatment plant is situated between the R448 regional road to the west and the Green Road to the east. The green area was subdivided into 3 separate areas. Each area was accessed via a different route. Currently there is no access points between the three areas.

5. SURVEY METHODOLOGY

Daylight Inspections

On 28th September 2021 the length of both route options for the rising main pipe was walked during daylight hours to identify any potential roost sites for bats in buildings or trees along the routes.

The green area to the north of the treatment plant was surveyed for potential roosts in trees on site and any other ecological issues/ features.

Trees were surveyed to assess their suitability as bat roosts by searching for roost features such as crevices, hollows and splits in the trunk and branches.

Bat Detector Surveys

A static bat detector (Songmeter 4) was mounted on the branch of an elder tree on the hedgerow at the intersection of Areas 1, Area 2 and Area 3 during daylight hours on 28th September 2021. Irish Grid Reference of Songmeter position = 71524 74865. This detector was set to record bat calls from 20 minutes before sunset on 28th September 2021 until 20 minutes after sunrise on 29th September 2021.

Dusk and dawn bat detector surveys were conducted along both potential routes for the rising main pipe.

The green area to the north of the plant was surveyed at dusk.

6. SURVEY CONSTRAINTS

There were no constraints associated with the survey. Weather was favourable on both the evening and morning of the survey.

7. SURVEY RESULTS

7.1 Daylight survey

7.1.1 Routes of Rising Main

No obvious potential roosts were noted along the routes of the rising main. Winter heliotrope was recorded at the entrance to a house opposite the playing pitches at Carlow IT.

7.1.2 Green Area

Area 1 is used by Carlow County Council to dump rubble and waste tarmac. Access to this area is via a laneway opening from the Green Road to the north of the entrance to the treatment plant. This area is very overgrown. The only invasive species present is Buddleia. There are 4 small Buddleia plants present in this area. No Japanese knotweed was recorded.

Area 3 was accessed via a gate on the slip road off the R448. There is a large area of winter heliotrope on the western side of the slip road on the bank sloping down from the R448. This area measures c. 20 x 15m. There is also numerous plants of Old man's beard growing on the hedgerow on the eastern side of the slip lane. There are no invasive species within Area 3. This section is currently being grazed by travellers' horses.

A lot of badger activity in the form of trails and latrines was recorded crossing the mature hedgerow between Area 3 and Area 2. Area 2 was accessed through the mature hedgerow between Area 2 and Area 3. There is a high wooden gateway on the northern side of Area 2 but this was locked. Numerous badger trails were recorded throughout Area 2, with several trails leading into an area on dense brambles on the southern side of Area 2.

7.2 Bat Detector Surveys

Routes of Rising Main Pipe

Date = 28/09/21, Sunset = 19.11, Weather = 30% Overcast, light breeze & dry,
Temperature at sunset = 12C

The dusk bat detector survey commenced on the slip lane off the R448 to the west of the treatment plant. This survey followed the route of Option 2 north along the eastern side of the R448 as far north as the Pumping Station. The second part of the survey followed the route of Option 1 from the Pumping Station south to the entrance to Mortarstown Waste

Water Treatment Plant on the Green Road. No bats were recorded emerging from any structure along either route. A small number of bats were recorded foraging at various points along the two routes.

Option 2 - Individual Soprano pipistrelles were recorded foraging around two streetlights on the eastern side of the R448 between the slip lane and the Pumping station. A single Common pipistrelle was recorded foraging around trees at the entrance to the pumping station.

Option 1 – two Soprano pipistrelles were recorded foraging below floodlights at playing pitches at Carlow Institute of Technology. A single Common pipistrelle was recorded foraging at the roundabout to the east of the college. A single Common pipistrelle was recorded at the entrance to a new housing estate on the Green Road.

Green Area to North of Treatment Plant

Two Soprano pipistrelles and two Brown long-eared bats were recorded foraging on the entrance lane to Area 1 which opens off the Green Road just north of the entrance to the treatment plant. Several Soprano pipistrelles were recorded foraging along the length of the northern treeline in Area 2.

Both Common and Soprano pipistrelles were recorded foraging along the slip lane off the R448. The entrance to Area 3 is situated on this slip lane. A single Brown long-eared bat was recorded foraging at the entrance gate. Two Common pipistrelles were recorded foraging along the northern treeline in Area 1.

Date 29/09/21 Sunrise = 19.09. Temperature = 10C. Clear, calm & dry

The dawn survey was conducted at the entrance to Area 1 in attempt to detect the Brown long-eared bats that were recorded the previous evening. No Brown long-eared bats were recorded. A single Soprano pipistrelle was recorded foraging at the entrance to the treatment plant.



Figure 3 – showing areas where bats were detected during bat detector surveys
 Red Star = Soprano pipistrelle, Yellow star = Common pipistrelle, Blue = Brown Long-eared

7.3 Remote Bat Detector Survey

Calls recorded on the Songmeter 4 remote bat detector were analysed. The total number of calls was 36 (9 Soprano pipistrelle, 23 Common pipistrelle, 1 Leisler's, 3 Brown long-eared). The majority of the bat activity was recorded in the first 2.5 hours after sunset.

Time	Green Area to north of treatment plant
19.30 – 20.00	14 Common pipistrelle, 1 Soprano pipistrelle, 1 Brown long-eared (19.33 – first bat = Common pipistrelle)
20.00 – 20.30	3 Common pipistrelle, 1 Soprano pipistrelle
20.30 - 21.00	2 Common pipistrelle, 3 Soprano pipistrelle
21.00 – 21.30	1 Soprano pipistrelle
21.30 – 22.00	1 Soprano pipistrelle
22.00 – 22.30	1 Brown long-eared
22.30 – 23.00	0 calls
23.00 – 23.30	0 calls
23.30 – 00.00	0 calls
00.00 – 00.30	0 calls
00.30 – 01.00	1 Brown long-eared
01.00 – 01.30	0 calls
01.30 – 02.00	1 Leisler's
02.00 – 02.30	0 calls
02.30 – 03.00	2 Common pipistrelle
03.00 – 03.30	0 calls
03.30 – 04.00	1 Common pipistrelle
04.00 – 04.30	1 Soprano pipistrelle
04.30 – 05.00	0 calls
05.00 – 05.30	0 calls
05.30 - 06.00	0 calls
06.00 – 06.30	1 Common pipistrelle, 1 Soprano pipistrelle (last call 06.19 = Common pipistrelle)
06.30 – 07.00	Birds

Table 1 – Results from the Songmeter placed at centre of green area to north of Mortarstown WWTP (Sunset = 21.04, Sunrise = 05.43)

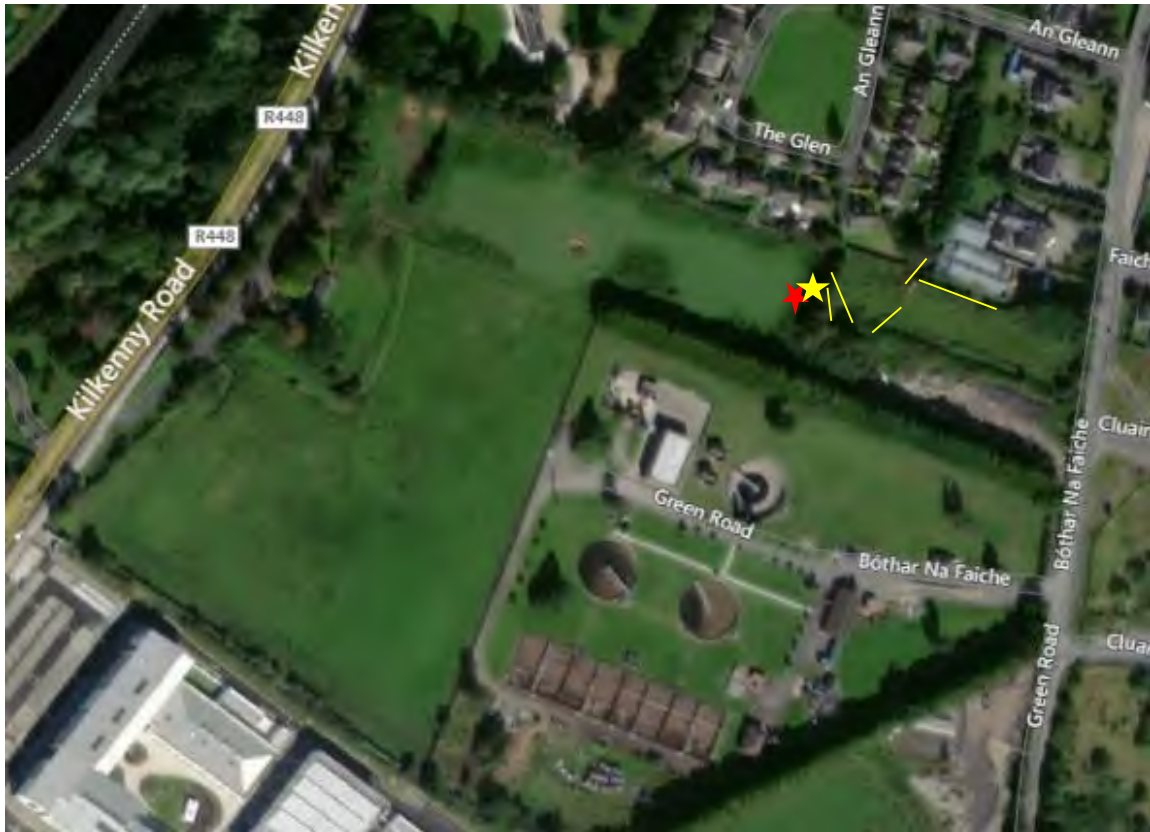


Figure 4 – showing position of static bat detector (red star) and location of badger latrine (yellow star) and trails (yellow lines)

8. RECOMMENDATIONS AND MITIGATION MEASURES

8.1 Derogation Licence

Construction work for the proposed routes of the rising mains pipe does not require a derogation licence from the National Parks and Wildlife Service. No bat roosts were recorded on site or adjacent to the site.

8.2 Badgers

Further surveys should be conducted during the winter months of 2021/2022 in Area 2 to establish if there is a badger sett in the area under brambles.

9. BIBLIOGRAPHY

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10. PHOTOGRAPHS

GREEN AREA TO NORTH OF EXISTING PLANT AREA 1



Photo 1 – Entrance lane to Area 1 on Green Road



Photo 2 – showing location on entrance to Area 1 where Brown long-eared bats and Soprano pipistrelles were recorded foraging



Photo 3 - Area 1 used by Carlow County Council to dump rubble and fill



Photo 4 – bank of fill in Area 1 on northern side of boundary with Mortarstown waste water Treatment Plant



Photo 5 - rubble and items for recycling in Area 1



Photo 6 – rubble heaps in Area A



Photo 7 – overgrown boundary between Area 1 and Area 2



Photo 8 – buddleia plants growing in Area 1

SLIP LANE OFF R448



Photo 9 – large area of Winter heliotrope on western side of sliplane opposite entrance to Area 3



Photo 10 – Old Mans' beard growing in hedgerow on eastern side of slip lane



Photo 11– Old Mans’ beard growing in hedgerow on eastern side of slip lane

**GREEN AREA TO NORTH OF EXISTING PLANT
AREA 3**



Photo 12 – Entrance to Area 3 from sliplane on R448



Photo 13 – Area 3 – looking west towards entrance gate



Photo 14 – Area 3 currently being grazed by travellers' horses



Photo 15 – mature trees on northern boundary of Area 3 and adjacent property



Photo 16 – Area 3 is mostly open grass field grazed by horses



Photo 17 – Area 3 looking east towards mature hedgerow between Area 1 and 2



Photo 18 – mature hedgerow between Area 3 and Areas 1 and 2



Photo 19 – Dead Greater white-toothed shrew in Area 3



Photo 20 – mature hawthorn on hedgerow between Area 3 and Areas 1 and 2



Photo 21 – mature hawthorns on hedgerow bank between Area 3 and Areas 1 and 2



Photo 22 – badger latrine on hedgerow bank



Photo 23 – badger track over earthen bank of hedgerow



Photo 24 – badger trail through brambles leading into Area 2



Photo 25 – old entrance used by badgers



Photo 26 – showing maturity of hedge between Area 3 and Area 2



Photo 27 – Microphone of Songmeter detector on branch of elder tree



Photo 28 – showing position of Songmeter on mature hedgerow between Area 3 and Area 2

**GREEN AREA TO NORTH OF EXISTING PLANT
AREA 2**



Photo 29 – Area 2 is largely overgrown with rank grassland and brambles encroaching from all boundaries. Badger trail in grass indicated



Photo 30 – Old man's beard growing over brambles on boundaries



Photo 31 – northern boundary of Area 2



Photo 32 – showing extent of bramble area on southern boundary of Area 2



Photo 33 – Himalyan honeysuckle growing on northern boundary



Photo 34 – wooden access gate to Area 2 locked



Photo 35 – track beside wooden access gate with badger prints



Photo 36 – badger trails into brambles on southern boundary

**ROUTE OF PIPELINE
OPTION 2**



Photo 37 – point where rising main will enter on eastern side of R448 Kilkenny Road. Old man's beard growing on wooden fence



Photo 38 – route of rising main along eastern side of R448



Photo 39 – Streetlight on eastern side of R448 where Soprano pipistrlle bats were recorded foraging



Photo 40 – looking north towards roundabout just south of Pumping Station



Photo 41 – potential bat roost on eastern side of R448 at roundabout. No bats were recorded emerging from shed



Photo 42 – roundabout on R448 just south of pumping station. Soprano pipistrelle foraging around streetlights outside Pumping Station

**ROUTE OF PIPELINE
OPTION 1**



Photo 43 – Green road running south from roundabout with Carlow IT on left hand side



Photo 44 – floodlights at Carlow IT playing fields . Soprano pipistrelle recorded foraging under floodlights



Photo 45 – section of Green Road running south towards roundabout



Photo 46 – Dark entrance on western side of green road. Common pipistrelle recorded foraging here. There is a stand of winter heliotrope on both sides of entrance gates



Photo 47 – winter heliotrope at entrance gates



Photo 48 – Roundabout on Green road – Common pipistrelle recorded foraging here



Photo 49 – looking south along Green Road towards entrance to treatment plant. Rising main pipe to run on western side of road



Photo 50 – entrance to new housing estate on eastern side of Green Road. Soprano pipistrelle recorded foraging here



Photo 51 – Rising main will run along entrance lane to treatment plant to join Green Road