Russell Environmental and Sustainability Services Limited

BAT SURVEY RAILPARK LARGE-SCALE RESIDENTIAL DEVELOPMENT

Maynooth, County Kildare

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SUMMARY

Site:	Greenfield site and Hedgerow/treelines along field boundaries
Structure:	Hedgerows/treelines
Co-ordinates:	Longitude: -6.5727425 Latitude: 53.3774918
Bat Species Present:	Common pipistrelle *Pipistrellus pipistrellus* Soprano Pipistrelle *Pipistrellus pygmaeus* Leisler's Bat *Nyctalus leisleri*
Roost Location:	Mature trees in Hedgerow/treeline.
Survey By:	**Dr. Jane Russell-O'Connor/ Derek O'Connor**
Date:	**Dawn/dusk on the 4th/5th of October 2024**

1.0 Introduction

A proposal to undertake planning at a greenfield site for Largescale Residential Development (LRD) at Railpark, Maynooth, has resulted in a request for a bat survey to determine whether any of these animals are currently using the site. Russell Environmental and Sustainability Services Limited (RESS Ltd) were contracted by The Montane Group to complete a bat survey of a greenfield site and surrounding hedgerow/treeline.

1.1 Site Location and Access

The site is located at Railpark, Maynooth, County Kildare. The proposed development is to take place on a greenfield site adjacent to the Railpark residential housing estate, located off the R406 Straffan Road. The northern boundary of the site is adjacent to the Midlands Great Western Railway main line, top the north of which is the Royal Canal (Figure 1).

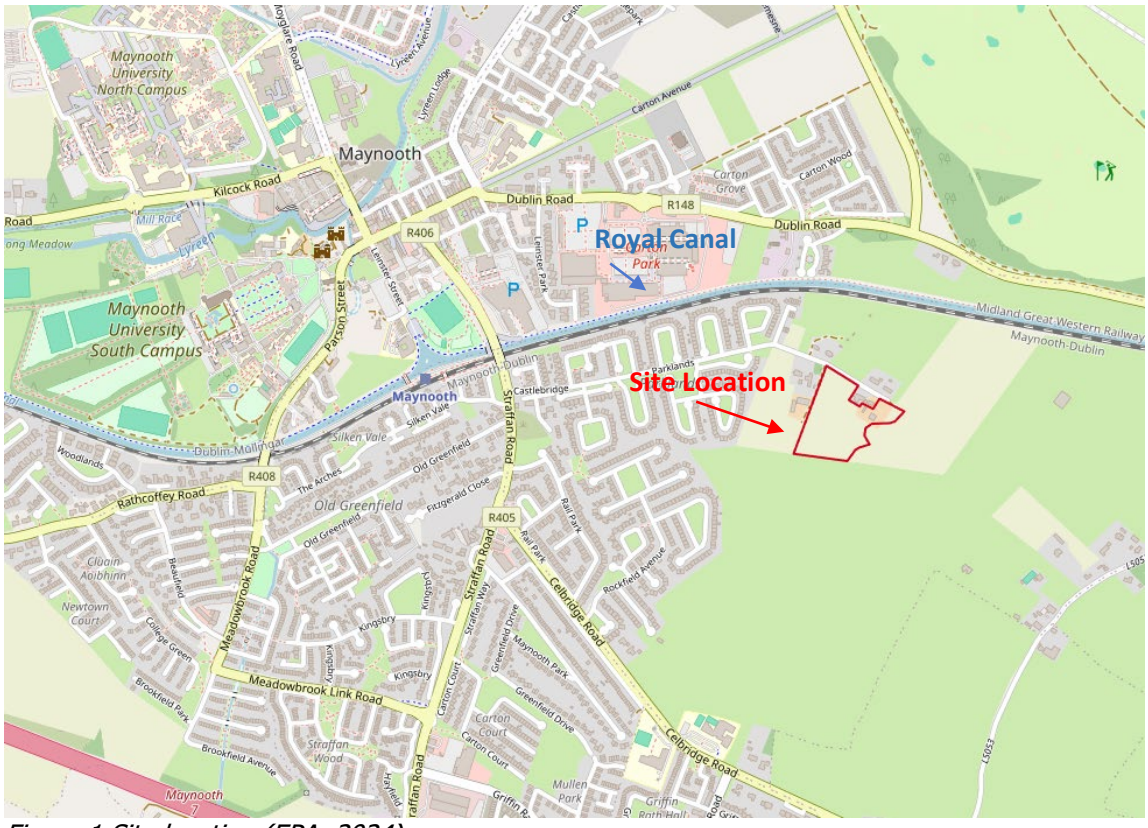

Figure 1 Site location (EPA, 2024)

2.0 Bat Survey

This report presents the results of a site visit by ecologists from RESS Ltd. during dusk of 4th October and dawn of the 5th of October 2024 where the different sections of the Hedgerow/treeline and greenfield site were observed.

2.1 Survey Methodology

Survey of fauna was carried out by means of a thorough search within the Hedgerows/treelines. During the dusk and dawn survey a SSF Bat 2 heterodyne, ultrasonic detector and an Echo Meter Touch 2 (for Android) Bat detector with software app on Samsung Galaxy were used. A SSF Bat 2 Fledermaus Detector was also used at a range of different frequencies.

Vantage points were adjacent to the Hedgerow/treelines within the fields of the site. The nature and type of habitats present are also indicative of the species likely to be present. Direct visual sightings were obtained and bats were observed to be entering and exiting roosting sites on mature trees.

2.1.1 Survey Constraints

The survey was carried out by means of a thorough examination of the site. There were no climatic and seasonal constraints in regard to survey as it was undertaken within the active season. Daytime temperatures reached 13^0 Celsius. There was no rain during the survey.

3.0 Brief Description of the Site

The site is located in a peri-rural location of Maynooth and surrounded by occasional dwellings and farmland, with associated hedgerows and or woodlands. However, the site is very close to Maynooth, which is a large town with residential developments and facilities.

The Hedgerows/treelines provide suitable habitats for foraging for bats and the more mature trees may provide crevices that are suitable for roosting. These habitats can be favourable to several species of bat.

The Railpark site is located down a laneway near to the Railpark housing development and is comprised of open grassland fields with associated hedgerows/treelines. The predominant tree species in the hedgerows/treelines are Ash *Fraxinus excelsior* with Hawthorn *Crataegus monogyna,* Blackthorn *Prunus spinosa,* Elder *Sambucus nigra* and some Cherry *Prunus avium* and English elm *Ulmus procera.* This habitat is classified *as WL1/WL2 Hedgerow/Treeline* (Fossitt, 2000). The fields that form the majority of the site for development are indicative of field used for grazing or silage. Only one of these is currently in use for grazing by horses and is classified as *GA1 Improved Agricultural Grassland* (*ibid*) In the largest field (Figure 1) a number of juvenile trees have colonised the area and thus this field is classified as *GS1 Neutral Grassland/WD5 Scattered Trees Mosaic*, whereas the remaining fields are classified as *GS1 Neutral Grassland* (*ibid*) (Appendix iv, Figures 1 and 2).

4.0 Results of Survey

In the survey conducted during dusk of 4th of October and dawn of the 5th of October, there was evidence of roosting sites in the mature trees of the northern boundary and the southern boundary hedgerows/treelines within the site. In particular, in the fully mature trees (mostly Ash *Fraxinus excelsior*).

The sonar results identified that three species of bat were using the Hedgerows/treelines and fields for foraging at the time of the survey. These were Common Pipistrelle *Pipistrellus pipistrellus* (circa. 19), Soprano Pipistrelle *Pipistrellus pygmaeus* (circa. 4) and Leisler's Bat *Nyctalus leisleri* (circa.3). The activity from the sonar recordings is shown Appendix iii.

Figure 2 Hedgerows/treelines used by bats during the survey

Throughout dusk and dawn, the hedgerows/treelines were observed for emergence and re-re-entry of bats species. All three species as above, were seen to emerge from the hedgerows/treelines on northern and southern boundaries of the site during dusk and re-enter these hedgerows/treelines during the dawn survey, thus indicating that trees within these boundaries are used for daytime roosting.

The remaining hedgerows/treelines are used for foraging.

4.1 Indication of Significance of Site for Bats

During the dusk to dawn survey, there were a number of bats observed flying in the fields, along and in the hedgerows/treelines of the site. This activity was also recorded by both bat detectors and recorded by the Echo Touch meter as detailed in Appendix iii. All three species of bat were detected (both visually and recorded by sonar readings) emerging from the aforementioned hedgerows/treelines at dusk and re-entering at dawn.

4.2 List of Irish Bat Species and Declared Status on Site

Within the greenfield site, a number of species were recorded via the bat detectors; these included:

Bats		**Status on Site**
Chiroptera		
Common Pipistrelle	*Pipistrellus pipistrellus*	Present in hedgerows/treelines
Soprano Pipistrelle	*Pipistrellus pygmaeus*	Present in hedgerows/treelines
Leisler's Bat	*Nyctalus leisleri*	Present in hedgerows/treelines

4.3 Indication of Significance of Site for Birds

There were no owls present at the time of either survey.

5.0 Legal Status and Conservation Issues – Bats

All Irish bat species are protected under the Wildlife Act (1976) and Wildlife Amendment Act (2000). Also, the EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive 1992), seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of populations be undertaken. Across Europe, they are further protected under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention 1982), which, in relation to bats, exists to conserve all species and their habitats. The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention 1979, enacted 1983) was instigated to protect migrant species across all European boundaries. The Irish government has ratified both these conventions.

All bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II.

6.0 Potential Impacts of Proposed Works on Bat Fauna

As three species of bat were roosting in the trees (Common Pippistrelle *Pipistrellus pipistrellus*, Soprano Pipistrelle *Pipistrellus pygmaeus* and Leisler's Bat *Nyctalus*

leisleri, should work be required to remove the hedgerows/treelines or any of the mature trees within it then **a derogation licence will be required**.

As some of the trees on site in the boundaries where the bats are currently roosting are of a significant age, then it is possible that they may also be used as a hibernaculum.

The removal of the internal hedgerows where bats are not roosting (Figure 2) may take place during the hibernation period (10th November to 28th February).

7.0 Mitigation Measures

As there are currently bats present in the hedgerows/treelines of the northern and southern boundaries there is a requirement for compulsory mitigation measures should any trees in these boundaries require removal. Works shall follow the measures indicated below.

Application for a derogation licence

NB: Works on a known bat roost is a notifiable action under current legislation and a derogation licence has to be obtained from the National Parks and Wildlife Service before works can commence.

There is a licence required in this instance should the treeline or any trees within it require removal.

Measure 1: timing of maintenance/removal works
Work can be undertaken during the hibernation period (November 10th to 28th February), provided there are no suitable trees for use as a hibernaculum

Measure 2: maintenance
Any maintenance shall be done carefully with the possibility that individual bats may be found. If discovered, the animals shall be retained in a box until dusk and released on site. A qualified ecologist shall be contacted and the NPWS wildlife ranger shall be notified.

Measure 3: rodenticides
No rodenticide usage in or near the Hedgerow/treeline.

Measure 4: bat boxes
Bat boxes are suitable for all three species of bats found in the environs and may be erected on trees.

Measure 5: lighting
Lighting should not be facing the hedgerow/treeline or woodland on the adjacent woodland

8.0 Predicted and Residual impact of the Proposal

Bat roosts may be lost as a result of the removal of the hedgerows/treelines on the northern and southern boundaries (Figure 2), therefore only minimal removal of vegetation is recommended such as the cutting back of lower branches, ground flora and bramble during the hibernation period. The mature trees in the hedgerows/treelines should remain undisturbed.

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Appendices

Appendix i Bat Ecology – General

The bat is the only mammal that is capable of true flight. There are over 1,100 species worldwide, representing almost a quarter of all mammal species. There are 47 species in Europe - in Ireland, ten species of bat are currently known to exist, which are classified into two families, the *Rhinolophidae* (Horseshoe bats) and the *Vespertilionidae* (Common bats).

Prey

All the European bat species feed exclusively on insects. A Pipistrelle, weighing only 4 to 8 grams, will eat up to 3000 insects every night, ensuring a build-up of fat in the bat's body to allow it to survive the winter deep in hibernation.

Breeding and longevity

Irish bats can produce one young per year but, more usually, only one young is born every two years (Boyd & Stebbings, 1989). This slow rate of reproduction inhibits repopulation in areas of rapid decline. Although bats have been known to live for twenty or more years, this is rare as most die in their first and the average lifespan, in the wild, is four years.

Threats

All bat species are in decline as they face many threats to their highly developed and specialised lifestyles. Many bats succumb to poisons used as woodworm treatments within their roosting sites (Racey & Swift, 1986). Agricultural intensification, with the loss of hedgerows, treelines, woodlands and species-rich grasslands have impacted bat species also. Habitual roosting or hibernation sites in caves, mines, trees and disused buildings are also often lost to development. Summer roosts are prone to disturbance from vandals. Agricultural pesticides accumulate in their prey, reaching lethal doses (Jefferies, 1972). Chemical treatments in cattle production sterilise dung thus ensuring that no insects can breed within it to be fed upon by bats. Likewise, river pollution, from agricultural runoff, reduces the abundance of aquatic insects. Road building, with the resultant loss of foraging and roosting sites is a significant cause in the reduction of bat populations across Europe.

Extinction

As recently as 1992, the greater mouse-eared bat *Myotis myotis* became the first mammal to become extinct in Britain since the wolf in the 18th century.

Appendix ii Description of Bat Species in Ireland

Common pipistrelle *Pipistrellus pipistrellus*

This species was only recently separated from its sibling, the soprano or brown pipistrelle *P. pygmaeus*, which is detailed below (Barratt *et al*, 1997). The common pipistrelle's echolocation calls peak at 45 kHz. The species forages along linear landscape features such as hedgerows and treelines as well as within woodland.

Soprano pipistrelle *Pipistrellus pygmaeus*

The soprano pipistrelle's echolocation calls peak at 55 kHz, which distinguishes it readily from the common pipistrelle on detector. The pipistrelles are the smallest and most often seen of our bats, flying at head height and taking small prey such as midges and small moths. Summer roost sites are usually in buildings but tree holes and heavy ivy are also used. Roost numbers can exceed 1,500 animals in mid-summer.

Nathusius' pipistrelle *Pipistrellus nathusii*

Nathusius' pipistrelle is a recent addition to the Irish fauna and has mainly been recorded from the north-east of the island in Counties Antrim and Down (Richardson, 2000) and also in Fermanagh, Longford and Cavan. It has also recently been recorded in Counties Cork and Kerry (Kelleher, 2005). However, the known resident population is enhanced in the autumn months by an influx of animals from Scandinavian countries. The status of the species has not yet been determined.

Leisler's bat *Nyctalus leisleri*

This species is Ireland's largest bat, with a wingspan of up to 320mm; it is also the third most common bat, preferring to roost in buildings, although it is sometimes found in trees and bat boxes. It is the earliest bat to emerge in the evening, flying fast and high with occasional steep dives to ground level, feeding on moths, caddis-flies and beetles. The echolocation calls are sometimes audible to the human ear being around 15 kHz at their lowest. The audible chatter from their roost on hot summer days is sometimes an aid to location. This species is uncommon in Europe and as Ireland holds the largest national population the species is considered as Near Threatened here.

Brown long-eared bat *Plecotus auritus*

This species of bat is a 'gleaner', hunting amongst the foliage of trees and shrubs, and hovering briefly to pick a moth or spider off a leaf, which it then takes to a sheltered perch to consume. They often land on the ground to capture their prey. Using its nose to emit its echolocation, the long-eared bat 'whispers' its calls so that the insects, upon which it preys, cannot hear its approach (and hence, it needs oversize ears to hear the returning echoes). As this is a whispering species, it is extremely difficult to monitor in the field as it is seldom heard on a bat detector. Furthermore, keeping within the foliage, as it does, it is easily overlooked. It prefers to roost in old buildings.

Natterer's bat *Myotis nattereri*

This species has a slow to medium flight, usually over trees but sometimes over water. It usually follows hedges and treelines to its feeding sites, consuming flies, moths, caddis-flies

and spiders. Known roosts are usually in old stone buildings but they have been found in trees and bat boxes. The Natterer's bat is one of our least studied species and further work is required to establish its status in Ireland.

Whiskered bat *Myotis mystacinus*

This species, although widely distributed, has been rarely recorded in Ireland. It is often found in woodland, frequently near water. Flying high, near the canopy, it maintains a steady beat and sometimes glides as it hunts. It also gleans spiders from the foliage of trees. Whiskered bats prefer to roost in buildings, under slates, lead flashing or exposed beneath the ridge beam within attics. However, they also use cracks and holes in trees and sometimes bat boxes. The whiskered bat is one of our least studied species and further work is required to establish its status in Ireland.

Brandt's bat *Myotis brandtii*

This species is known from five specimens found in Counties Wicklow (Mullen, 2007), Cavan, and Clare in 2003, a specimen in Kerry in 2005 (Kelleher, 2006b) and another in Tipperary in 2006 (Kelleher, 2006a). No maternity roosts have yet been found. It is very similar to the whiskered bat and cannot be separated by the use of detectors. Its habits are similar to its sibling.

Appendix iii – Sonar Readings

NB: Path only shows those recordings from the Echo Touch 2 pro Meter, not the Fledermaus Detector

Appendix iv – Photographic Record

Figure 1 Hedgerow/treeline in the largest field where bats are roosting adjacent to the trainline

Figure 2 The Hedgerow/treeline where ats are roosting in the large Ash trees