

Bat Survey Report

Gaelscoil Naomh Pádraig Extension

On behalf of
The Board of Management at
Gaelscoil Naomh Pádraig

Unit 4B Elm House, Millennium
Park, Naas, Co. Kildare





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Gaelscoil Naomh Pádraig Extension
The Board of Management at Gaelscoil Naomh Pádraig
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1 INTRODUCTION

1.1 Background

This Bat Survey Report has been prepared by Malone O'Regan Environmental (MOR) on behalf of the board of management of Gaelscoil Naomh Pádraig ('the Applicant'), to present the findings of bat surveys undertaken at the site for the proposed extension of Gaelscoil Naomh Pádraig and all associated works on lands at An Chaisleain Bóthar, Lucan, Co. Dublin (OS Reference O 04222 24514).

This report has been prepared in response to the request for further information issued by South Dublin County Council on the 16th July 2021 regarding the presence of bat roosts to occur within existing structures and trees onsite (Table 1-1). It was therefore deemed necessary for further survey work to be carried out to determine whether or not any bat roosts occur within the mature trees or buildings to be removed as part the proposed development works.

Table 1-1: Request for Further Information Item 5

Item	
5	There are concerns with the lack of information submitted in relation to the to the potential impacts on Bats caused as a result of the proposed development. The applicant is requested to submit a bat survey for bat usage carried out across the entire site and immediately adjoining sites to assess roosting and feeding/foraging activities and assessing potential impact on these species arising from the proposed development. This is to be undertaken by a qualified and experienced bat expert at the appropriate time of the year for the survey of species.

The location of the proposed development ('the Site') is shown in Figure 1-1.

Figure 1-1: Site Location



1.2 Relevant Legislation

All Irish bat species are protected by law under the Wildlife Act 1976 and its subsequent amendments. They are afforded full protection under this act, which makes it a criminal offence for anyone without a licence to:

- Kill, injure or handle a bat;
- Possess a bat (whether alive or dead);
- Disturb a roosting bat; and,
- Damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

In addition to domestic legislation, bats are also protected under the EU Habitats Directive (92/43/EEC). All Irish bats are listed in Annex IV of the Habitats Directive and the lesser horseshoe bat is further listed under Annex II, which make it an offence to:

- Deliberately capture, injure or kill any bat; or,
- Deliberately disturb a bat, in particular any disturbance which is likely;
 - (a) To impair their ability:
 - (i) To survive, to breed or reproduce, or to rear or nurture their young; or,
 - (ii) To hibernate or migrate.
 - (b) To affect significantly the local distribution or abundance of the bat species; or,
- Damage or destroy a breeding site or resting place of a bat.

Therefore, the destruction, alteration or evacuation of a known bat roost is a notifiable action under current legislation and a derogation license must be obtained from the National Parks and Wildlife Service (NPWS) before works can commence.

Furthermore, it should also be noted that any works interfering with bats and especially their roosts, including for instance, the installation of lighting in the vicinity of the latter, may only be carried out under a license to derogate from Regulation 23 of the Habitats Regulations 1997, (which transposed the EU Habitats Directive into Irish law) issued by NPWS.

1.3 Statement of Authority

This report was prepared by Allison Flaherty, Environmental Consultant, has a B.A. Biology, a M.Sc. Biodiversity and Conservation and 3 years' working experience in the ecological consultancy sector. Allison is a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and has a specialist interest in bats. Allison has gained extensive experience in undertaking bat surveys and assessments within her role at MOR. Allison has also taken part in specialist bat trainings including; *Introduction to Bat Ecology and Bat Surveys*; *Bats: Impact Assessment of Development, Mitigation and Enhancements*; *Patterns of Bat Activity at Upland Windfarms: Implications for Sampling and Mitigation*; and *Designing Biodiversity Net Gain for Bats, Bats for Building Professions* and all provided by certified CIEEM instructors or Bat Conservation Trust Instructors. Allison is qualified to analyse the bat recordings using Kaliedoscope Pro Software and attended the *Wildlife Acoustics Kaleidoscope Pro Training Course*.

This report was checked and approved by Dyfrig Hubble, Principle Ecologist, has a B.Sc. (Hons) in Tropical Environmental Science and an M.Sc. Environmental Forestry. Dyfrig is a full member of the Chartered Institute of Ecology and Environmental Management. Dyfrig has over 15 years' experience working in the ecological consultancy sector including habitat

appraisals and specialist species specific surveys. Dyfrig has extensive experience in undertaking surveys for bats and in the preparation of survey reports for various projects within both the UK and Ireland.

1.4 Purpose of Survey Work

The implication of these legislative policies is that the proposed school extension needs to take account of the potential effects on bats.

The survey work aimed to identify if the area is suitable for roosting bats or if the habitats provide valuable foraging or commuting habitat for bat. Survey work also enables appropriate mitigation measures to be incorporated into the design of the project and ensures that there are no adverse effects on the conservation status of the species.

2 METHODOLOGY

The methodologies used to establish the presence / potential presence of bats are summarised below.

2.1 Desk-Based Studies

A desk-based study was undertaken to identify records of bats within the survey area. The following sources of information were reviewed:

- The National Parks and Wildlife Service (NPWS) website was consulted to obtain the most up to date detail on conservation objectives for the Natura 2000 sites relevant to this assessment (NPWS, 2021); and,
- The National Biodiversity Data Centre (NBDC) website was consulted with regard to bat species distributions and bat habitat suitability index (NBDC, 2021).

2.2 Field Based Studies

All surveys conducted followed methodology outlined in the Bat Mitigation Guidelines for Ireland (DoEHLG, 2006), Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority, 2006) and Bat Surveys for Professional Ecologists Good Practice Guidelines (Collins, 2016).

2.2.1 Tree Inspection

A walkover of the lands within the survey area was undertaken by MOR Ecologists on the 20th August 2021 (See Figure 2-1).

Figure 2-1: Survey Area



The tree inspection aimed to identify potential ecological constraints in relation to the proposed development design. As part of the walkover, the trees within the Site were assessed for the

presence of features that could be utilised by roosting bats, using close-focusing binoculars and a powerful focused-beam light source. The following criteria were used:

- Presence of natural cavities, splits, cracks, loose bark and rot holes in the trunk or boughs of the tree;
- Presence of dense and woody ivy (*Hedera helix*) growth that could be used by bats for roosting;
- Evidence of bat droppings, which may also be seen as a black streak beneath holes, cracks, branches, etc;
- Presence of smooth edges with dark marks and urine stains at potential entrances to roosts;
- Adjoining habitat which are likely to be important to bats, including the river corridor, and hedge / treelines within the survey area that offer a variety of potential foraging, roosting and commuting opportunities for bats; and,
- Adjoining potential roosts / known roosts identified. This raises the likelihood of a tree being of benefit as bats may move roosts if the roost becomes too hot or cold during roosting and a nearby alternative roost is highly desirable.

No trees to be removed for the proposed development contained potential roost features, and therefore the trees did not require emergence and re-entry surveys.

2.2.2 External Building Inspection

The outside of the building was assessed for the presence of potential access points into the buildings and features suitable for roosting bats. The inspection was undertaken using a powerful focused-beam light source and binoculars.

The external inspection of the building also looked for any signs of bat activity at these potential access points using the following criteria:

- Evidence of bat droppings / urine splashes below the potential access points;
- Evidence of feeding remains, (insect wings on the ground below potential access point); and,
- Evidence of fur-oil staining on walls leading into potential access points.

2.2.3 Dusk Emergence Survey

The dusk emergence survey was undertaken on the 24th August 2021 by two (2No.) MOR Ecologists. This survey commenced 15 minutes before sunset and ended 2 hours after sunset, therefore encompassing the typical emergence times of Irish bat species.

The survey was designed to incorporate all potential access points identified on the building that will be potentially affected by the proposed works. None of the trees were surveyed for bat emergence, as the trees did not possess any features suitable for roosting bats.

The potential access points identified on the building were surveyed at pre-determined vantage points by MOR ecologists so that they could be monitored for bat emergence (see Figure 2-2).

A combination of visual observation and listening to ultrasonic bat calls using frequency division bat detector (Batbox Duet) and Echo Meter Touch2 Pro (Apple IOS) were used throughout the emergence survey. Bat calls were recorded digitally using Edirol Roland R-05 recorder and Echo Meter Tough2 Pro and analysed using appropriate software (KaleidoscopePro) to aid the identification of bat species present.

2.2.4 Dawn Re-Entry Survey

The dawn re-entry survey took place on the 7th of September 2021 by two (2No.) MOR Ecologists, with two surveyors at each pre-determined vantage point. The survey commenced 2 hours before sunrise and finished 15 minutes after sunrise. The dawn survey was conducted using a similar methodology as the dusk emergence surveys. (see Table 2-2 and Figure 2-2).

Figure 2-2: Survey Locations



Table 2-1: Bat Survey Metadata

Date	Survey Type	Sunset / Sunrise	Survey Times (Start-End)	Weather	Temperature (°C) Start - End
24/08/2021	Dusk	20:32	20:15 - 22:30	Dry, No wind	16°C-14°C
07/09/2021	Dawn	06:45	4:45 - 7:00	Dry, No wind, Foggy	13°C-14°C

2.3 Survey Limitations

All survey work was conducted in accordance with current best practice guidelines. All of the surveys were undertaken when there was no rain or wind, and the temperature was above 10°C. In these weather conditions, bats will not have been deterred from flying and no survey limitations were encountered.

3 RESULTS

3.1 Desk-Based Results

Prior to conducting the field surveys, a desk-based review of information sources was completed.

Five (5No.) of the nine bats species present in Ireland have been recorded within a 2km radius of the proposed development area within the past 10 years (NBDC, 2021). This included records of Brown Long Eared, Daubenton's, Soprano Pipistrelle, Common Pipistrelle and Lesser Noctules bats.

Table 3-1 provides details of the habitat suitability index for the study area (NBDC, 2021). The habitat suitability index identifies the geographical areas that are suitable for individual species. The index ranges from 0 to 100, with 100 being the most favourable to bats. The index presented is for all species combined, in addition to the individual species indices within the study area.

From the indices, it can be established that the study area has an overall low - moderate habitat suitability index range of 21.33 – 28.11. All of the Irish bat species have moderate or moderate to high habitat suitability index for the area, with the exception of the lesser horseshoe, Daubenton's, Whiskered and Natterer's bats, and therefore all of the other listed species are likely to occur within the area.

Table 3-1: Habitat Suitability Index

Bat Species	Suitability Index Range	Suitability Index Level
All Bat Species	21.33 - 28.11	Low - Moderate
Soprano Pipistrelle (<i>Pipistrellus pygmaeus</i>)	31 – 38	Moderate
Brown Long-eared Bat (<i>Plecotus auritus</i>)	39 - 49	Moderate to High
Common Pipistrelle (<i>Pipistrellus pipistrellus</i>)	39 - 47	Moderate to High
Lesser Horseshoe Bat (<i>Rhinolophus hipposideros</i>)	0 – 4	Very Low
Whiskered Bat (<i>Myotis mystacinus</i>)	10 -20	Low
Daubenton's Bat (<i>Myotis daubentonii</i>)	13 – 19	Low
Lesser Noctule (<i>Nyctalus leisleri</i>)	38 - 46	Moderate to High
Nathusius' Pipistrelle (<i>Pipistrellus nathusii</i>)	16 - 29	Moderate
Natterer's Bat (<i>Myotis nattereri</i>)	14- 26	Low

3.2 Field Based Results

3.2.1 Tree Inspection

None of the trees to be removed due to the proposed development had features suitable for roosting bats. The tree species include silver birch, sycamore, willow and maple. The majority of the trees were young and slender, and none possessed thick ivy growth.

It was also noted during the surveys that lighting from the school building spills onto these trees, making them more unsuitable for roosting bats.

3.2.2 External Building Inspection

The building is a two-storey structure with a hipped and valleyed roof that is currently operating as a children's primary school.

During the external inspection of the building, it was noted there were five potential access point for bats to enter into the building by gaps under the roller shutter's (see Plate 3-1). These features have the potential to be used as access points into the building by bats.

The Site is heavily illuminated at night (refer to Plate 3-1) due to lighting along side of the school, which spills light onto the adjacent trees.

No evidence of bat activity was found during the external inspection of the building and the building itself was deemed sub-optimal for roosting bats due to the high levels of light surrounding the building at night. In addition, the building is relatively new and well maintained, which further reduces the likely hood of bats using the building.

Plate 3-1: Light Spillage onto Potential Access Points and Lighting Patterns within the Survey Area at Night



3.2.3 Dusk Emergence and Dawn Re-entry Survey Results

No bats were observed emerging from or re-entering the building surveyed. The surveys did identify bats commuting and foraging within the survey area (see Figure 3-1). Low bat activity was recorded within the survey area during the dusk survey while Moderate bat activity was recorded during the dawn survey.

The following bats were recorded as a result of the dusk emergence and dawn re-entry surveys:

- Common Pipistrelle;
- Soprano Pipistrelle;

- Nathusius' Pipistrelle;
- Lesser Noctule; and,
- Brown Long Eared.

No bats were identified to be roosting within the trees or buildings in the survey area. Bats were recorded within the first hour after sunset and close to sunrise, indicating that bat roosts are likely to be present within the local area. The survey recorded bats commuting / foraging along trees within the survey area and to the north where there is a stand of mature broadleaved trees (Figure 3-1).

The five bat species were recorded foraging within trees on-site and to the north of the survey area. The most frequently encountered species of these were soprano pipistrelle, common pipistrelle and lesser noctule. These species are relatively wide-spread and the most commonly encountered species within Ireland. There was only one confirmed brown long eared bat recording during the dusk survey. Nathusius' pipistrelles were also recorded at much lower numbers than common and soprano pipistrelles. It should be noted that some of the auto-id Nathusius' pipistrelle recordings were indistinguishable from common pipistrelle. These were assumed as Nathusius' pipistrelle recordings if a confirmed Nathusius' pipistrelle call was identified within a 5 minute window of the indistinguishable recording.

Based on the levels of activity and movement of the bats recorded during the surveys, it is considered that overall survey area is of Low value to bats. Bats are utilising the vegetated areas above the trees, of the survey area to forage / commute. Lesser noctules were also recorded commuting along the rear of the school and over into the tree covered area to the north of the survey area. During the surveys it was noted that the Site is heavily illuminated by lights on the existing school building. As bats are typically averse to lighting, lower commuting and foraging activity was noted within the illuminated areas.

Figure 3-1: Bat Activity Map within the Survey Area



4 IMPACT ASSESSMENT AND MITIGATION

The following bat species have been recorded during the bat surveys: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long eared and lesser noctule. This represents five of the nine residence bat species known to Ireland, all of which are relatively common Irish bat species. All bat species recorded during the bat surveys are Annex IV species under the EU Habitats Directive and all have a favourable status in Ireland.

The impact assessment and mitigation will be undertaken in relation to the five bat species recorded within the survey area and the surrounding area: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, brown long eared and lesser noctule.

4.1 Potential Impacts on Bats

Some of the trees and part of the building will be removed to accommodate the proposed extension.

Principal impacts of the proposed development, in general, on bat fauna may be summarised as follows:

4.1.1 Loss of Habitat

The surveys did not identify any bat roosts within the survey area, namely the building and trees to be impacted by the works.

4.1.2 Lighting of the General Area (street lighting, security lighting etc.)

Lighting for the proposed development could potentially impact on bat species in relation to commuting and foraging potential within the wider area which based on the survey results is used mainly by lesser noctules and pipistrelles. Common pipistrelles and soprano pipistrelles will tolerate low levels of lighting, however excess lighting is likely to have an impact on bats.

In the absence of an appropriate lighting scheme, it is considered that the proposed development could have a Negative Impact on foraging and commuting bats.

4.2 Mitigation Measures

The following mitigation measures are recommended to reduce the potential impact of the proposed development on local bat populations:

4.2.1 Lighting Plan

Bats are averse to excessive lighting, subsequently, impacts could occur as a result of an inappropriate lighting strategy. Therefore, it is important that lighting installed for the proposed development will be completed with sensitivity for local wildlife while still providing the necessary lighting for human usage.

The lighting to be installed as part of the proposed development will be for safety and security. Nevertheless, the lighting strategy should be designed to mitigate against any potential impacts on nocturnal species in line with the Bat Conservation Trust (BCT) Guidelines on '*Bats and Artificial Lighting in the UK*' (BCT, 2018). The lighting strategy should involve avoiding excessive lighting. The following measures should be taken into consideration during the lighting layout design:

- Construction should be limited to daylight hours in order to minimise adverse effects on nocturnal fauna;
- Avoidance of excessive lighting;
- Light Emitting Diodes (LED's) should be used and the brightness will be set as low as possible;

- Lighting should be aimed only where it is needed, with no upward lighting;
- Lighting should be directed away from landscaped areas;
- Lighting should be turned down / off when not required; and,
- The height of lighting columns should be reduced as much as possible, as lighting at a low level further reduces ecological impact.

4.2.2 Landscaping Recommendations for Bats

The following landscape recommendations are also advised:

- Avoid the use of chemicals (weed killers, etc.) within the development zone; and,
- Any landscape plantings should comprise a mix of native woody shrubs and trees, including fruit-bearing or flowering species, which will provide cover and potential foraging opportunities for wildlife.

5 CONCLUSIONS

The bat surveys undertaken for the proposed development included a walkover of the lands within the survey area, tree inspection, external building inspection, dusk emergence survey and a dawn re-entry survey. The walkover, building inspection and tree inspection identified that none of trees to be removed had features suitable for roosting bats but five (5No.) potential access points were identified on the building. These access points were then subject to dusk emergence and dawn re-entry surveys; however, no bats were observed roosting within the building.

Based on the bat activity within the survey area shortly after sunset and right before sunrise, it is considered likely that there are bats roosting within the locality of the proposed development. The surveys identified bats foraging and commuting along trees within the survey area and in a tree covered area to the north of the Site.

Overall, the survey area is considered to be of Low Importance for roosting, commuting and foraging bats within the local area as the majority of the Site is heavily illuminated at night and the Site is located within an urbanised environment. However, it is considered that if the mitigation measures presented within this report are followed, the potential impacts on bats will be reduced and the overall impact from the proposed development on bats will be Negligible.

6 REFERENCES

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