

April
2024

Bat Survey & Report



Youghal Courthouse & Soup Kitchen, Youghal-Lands Youghal, Co. Cork



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1. INTRODUCTION

1.1 Purpose of the Report

Ash Ecology and Environmental Ltd (AEE) was commissioned by Horgan-Lynch Consulting Engineers on behalf of their client, Cork County Council, to carry out a Bat survey during April 2024 for the existing Youghal Courthouse and Soup Kitchen located at Youghal-Lands, Youghal, Co. Cork (see Figures 1 and 2). The purpose of the survey is to confirm the possible presence of bats in the building, which has been unoccupied for several years. The County Architects department is preparing a Part 8 planning submission to develop the building into a museum and exhibition facility.

The site consists of two buildings, the old vacant Courthouse and the Soup Kitchen, situated within the well-illuminated town of Youghal. The existing layout is shown in Figure 3. The proposed development involves refurbishment works, with no demolition planned to the overall structures, with possible internal layout alterations. It is assumed that a new roof, replacing the current corrugated iron sheeting, would be required for the Soup Kitchen building.

Although both buildings present "Low" bat roost potential due to their location in the busy and well-lit town centre, on the coast and with limited access points, there is still some potential for bat presence. This is attributed to a dark area to the rear of the property, possible access to the Soup Kitchen under the roof sheets, and potential cracks in the stonework of the main vacant disused Courthouse.

In order to ensure a comprehensive assessment of the site's ecological value and to comply with best practice guidelines, a bat survey was conducted. The interior of the buildings or outside courtyard was not assessed at this time.

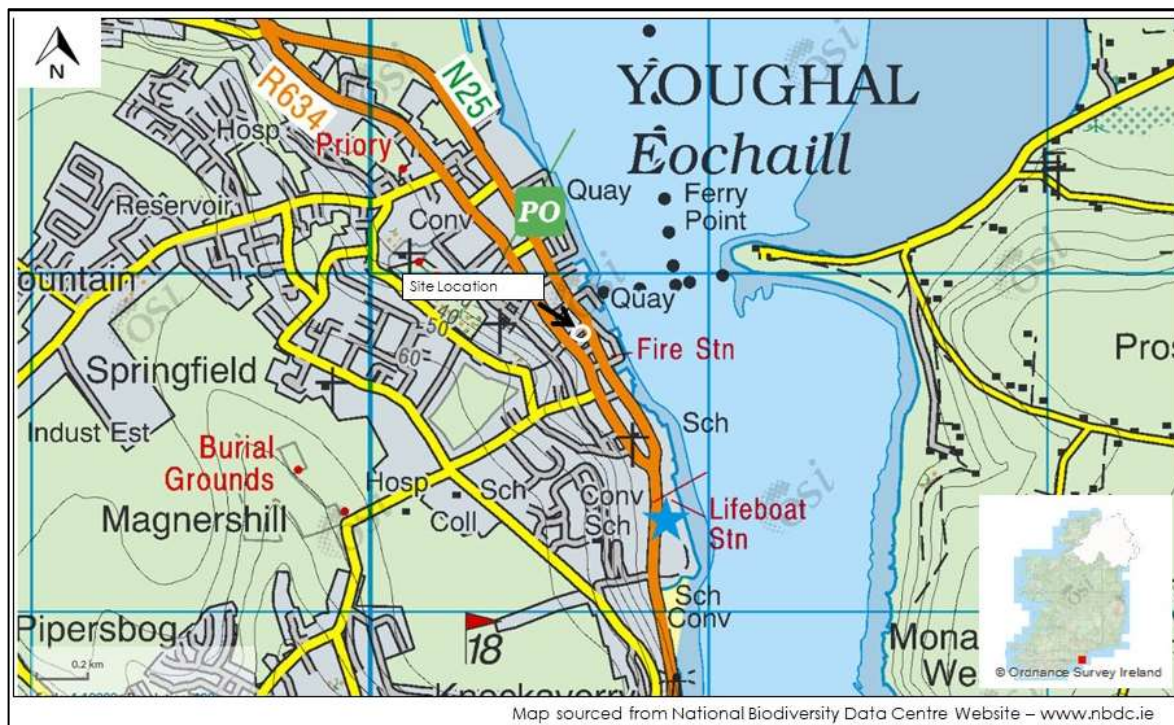


Figure 1 Site Location Map



Figure 2 Aerial Photo of Site showing existing layout and surrounding landscape.

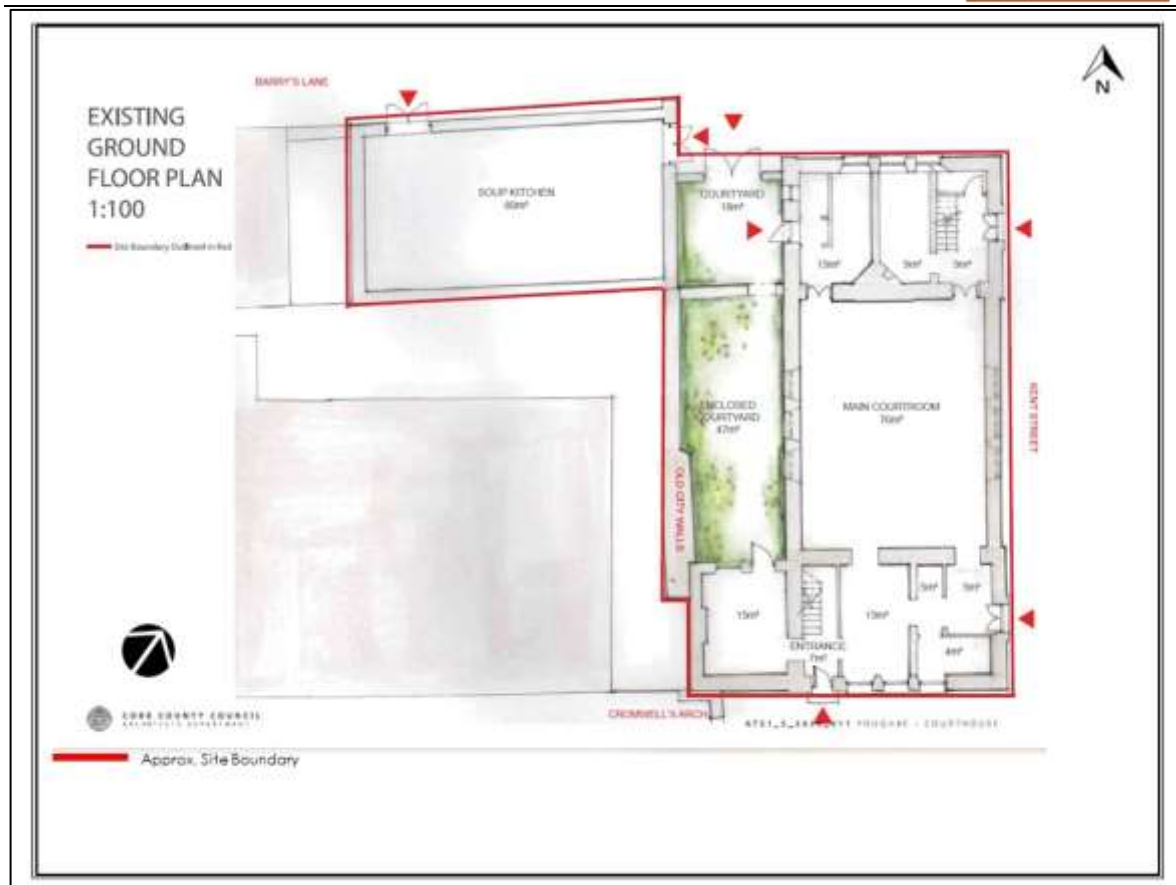


Figure 3 Existing Site Layout

1.2 Competency of Assessor

This report has been prepared by Ash Ecology & Environmental Ltd (AEE) whose managing director and leading ecologist is Aisling Walsh who is a full member of the Chartered Institute of Ecological & Environmental Management (CIEEM) while the company, AEE, is a Registered Practice by the CIEEM.

Aisling's qualifications include M.Sc. (Dist) in Biodiversity and Conservation (TCD) and B.Sc. (Hons) Zoology (NUIG), a Diploma in Applied Aquatic Science (GMIT) and a Certificate in Applied Biology (GMIT).

Aisling is a licenced bat ecologist (example of recent: DER/BAT 2020 – 46 EUROPEAN, DER/BAT 2020 – 48 EUROPEAN, DER/BAT 2021 – 89 EUROPEAN, DER/BAT 2022 – 12 EUROPEAN, DER/BAT 2023 – 23 EUROPEAN, DER/BAT 2023 – 106 EUROPEAN, DER/BAT 2023 – 135 EUROPEAN and DER/BAT 2024 - 25 EUROPEAN) and a member of Bat Conservation Ireland and associate member of the Institute of Lighting Professionals (ILP). In addition she has completed several bat courses to continue her training and CPD e.g. a Lantra-accredited course, developed by the Bat Conservation Trust and supported by the Arboricultural Association to access bat tree roost features and a course in 'Understanding Obtrusive Light' accredited by the Institute of Lighting Professionals. Over the past 17 years Aisling has completed several hundred bat surveys providing her with more than adequate experience in the profession.

1.3 Bat Legislation

All bat species are protected under the Wildlife Act 1976 to 2021 which make it an offence to wilfully interfere with or destroy the breeding or resting place of these species; however, the Acts permit limited exemptions for certain kinds of situations.

Section 23 of the Wildlife Act 1976 to 2021 contains several exemptions to the protection given to the species listed for protection on Schedule 5 (e.g. for agriculture or construction). In 2005 a further amendment through the European Communities (Natural Habitats) (Amendment) Regulations 2005 (S.I. No. 378 of 2005) removed all of the exemptions provided in Section 23(7) of the Wildlife Act 1976 to 2021 insofar as they relate to Annex IV species, including all species of bats. Those 2005 Regulations were revoked in 2011 except for Regulation 2 which brings about this strengthened protection for bats (and other Annex IV species). All species of bats in Ireland are listed on Schedule 5 of the 1976 Act, and are therefore subject to the provisions of Section 23, which make it an offence to:

- Intentionally kill, injure or take a bat;
- Wilfully interfere with the breeding or resting place of a bat

The Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora ("the Habitats Directive") seeks to protect rare and vulnerable species, including all species of bats, and their habitats and requires that appropriate monitoring of populations be undertaken. All species of bat found in Ireland are listed on Annex IV of the Directive. Member States are required to put in place a system of strict protection (as outlined in Article 12) for species listed on Annex IV ('European protected species'). The lesser horseshoe bat is further protected under Annex II. This Annex relates to the designation of Special Areas of Conservation (SACs). The Habitats Directive is transposed into Irish law by the European Communities (Birds & Natural Habitats Regulations) 2011 (S.I. No. 477 of 2011) ("the Habitats Regulations"). Under the Habitats Regulations (2011), all bat species are listed on the First Schedule and Regulation 51 makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat particularly during the period of breeding, hibernating or migrating;
- Damage or destroy a breeding site or resting place of a bat;
- Keep, sell, transport, exchange, offer for sale or offer for exchange any bat taken in the wild.

Across Europe, bats 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 (CMS, Bonn Convention 1979) was instigated to protect migrant species across all European boundaries. EUROBATS (a daughter Agreement under CMS) is of particular relevance in relation to cooperation across international borders for the conservation of bats, many of which are known to migrate long distances. The Irish government has ratified both of these conventions as well as the EUROBATS Agreement.

1.4 Derogation licences

It is an offence, under Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations, 2011 ('the 2011 Regulations') to:

- a) Deliberately capture or kill a bat in the wild;
- b) Deliberately disturb a bat particularly during the period of breeding, rearing, hibernation and migration;
- c) Damage or destroy a bat's breeding site or resting place, or;
- d) Keep, transport, sell, exchange, offer for sale or offer for exchange any bat taken in the wild, other than those taken legally before the Habitats Directive before the Habitats Directive was implemented.

A person may apply to the Minister under Regulation 54 of the 2011 Regulations for a derogation licence to carry out one or more of these prohibited activities. But, the Minister may only grant such a derogation licence if three criteria are met.

Firstly the Minister may only grant a derogation licence if it is for one of the following specified reasons listed in Regulation 54:

- a) In the interests of protecting wild fauna and flora and conserving natural habitats;
- b) To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property;
- c) In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and the beneficial consequences of primary importance for the environment;
- d) For the purpose of research and education, of repopulating and introducing these species and for the breeding operations necessary for these purposes, including the artificial propagation of plants, or;
- e) To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of bats.

Secondly, the Minister may only issue a derogation if there is no alternative to carrying out the prohibited activity. The first aim of the developer, whether from a private company or a public authority, working with professional advice, should be to entirely avoid any potential impact of a proposed development on bats and their breeding and resting places. Alternatives may involve redesigning a development so that bat roosts, and associated commuting routes and feeding areas are kept intact and that bats are not disturbed, for example by inappropriate lighting. It should be noted that the European Commission has a specific understanding of satisfactory alternative solution. "An alternative solution cannot be deemed unsatisfactory merely because it would cause greater inconvenience or compel a change in behaviour" (European Commission, 2021, page 13)¹. Decisions about what solution is satisfactory must be science-based

¹ <https://op.europa.eu/en/publication-detail/-/publication/bbc7ace0-27e2-11ec-bd8e-01aa75ed71a1/language-en>

and should solve the problem of how to strictly protect the bats in light of the development.

Thirdly the Minister may only grant a derogation if it is not detrimental to the maintenance of the populations of bats at a favourable conservation status (FCS) in their natural range. There is case law from the Court of Justice of the European Union (CJEU) to back this up. One example is the Finnish Wolf Case C-674/17. The ruling establishes that the Member State must “clearly and precisely” identify in the derogation what the objectives of the derogation are. It must also establish that the derogation is capable of achieving those objectives and demonstrate that there is no satisfactory alternative. Cumulative effects of derogations must be taken into account when issuing derogations. The maximum number of all derogations must not be detrimental to the maintenance or restoration of the population at FCS. Consideration must be given to other human causes of mortality. Any risk to FCS must be ruled out by detailed conditions based on the level of population, its conservation status and its biological characteristics. The conditions must be precisely defined and they must be monitored to ensure they are implemented.

If any of these three criteria are not satisfied, the Minister cannot issue a derogation licence. It must never be assumed that a derogation licence will automatically be granted.

In summary, it is clear that a developer must first look to avoid all impacts on bats. This may mean looking at alternative solutions and redesigning the project accordingly. If this is not possible, the developer needs to check whether there are grounds to apply for a derogation licence, based on the reasons given in Regulation 54 of the Habitats Regulations. When applying for a derogation licence the developer must clearly state the reason and describe in detail all alternative solutions which were given serious consideration. Any mitigation intended to ensure that there is no impact or minimal impact on the bats must be clearly described in detail, giving examples of how it worked in other places.

If a derogation licence has been refused by the Minister, any aspect of the development for which the derogation licence was sought, must not go ahead, no matter what other permissions are in place.

A derogation licence is required when on the basis of survey information and specialist knowledge, it appears that:

- The site in question is a breeding site or resting place for bats and/or;
- The proposed activity could impact on a breeding site or resting place of a bat.

No licence is required if the proposed activity is unlikely to result in an offence. The advice given in this document (and see also Mullen et al. 2021)² should assist the

² Mullen, E., Marnell, F & Nelson, B. (2021) Strict protection of animal species. Guidance for public authorities on the application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a public authority. Unpublished Report, National Parks and Wildlife Service. Department of Housing, Local Government and Heritage, Dublin. <https://npws.ie/sites/default/files/files/article-12-guidance-final.pdf>

proponent, or those acting on their behalf, in arriving at a decision on this matter, though it must be recognised that determining whether a particular site is used as a breeding or resting place can be problematic for such mobile animals as bats. Determining whether an activity undertaken near to a roost might impact on that roost (e.g. by removing important flight lines or foraging areas) will also require specialist assessment. Note that if the proposed activity can be timed, organised and carried out so as to avoid committing an offence then no licence is required.

Examples of works that are likely to need a licence because they may result in the destruction of a breeding or resting place and/or disturbance of bats include:

- Demolition of buildings known to be used by bats;
- Conversion of barns or other buildings known to be used by bats;
- Restoration of ruined or derelict buildings;
- Maintenance and preservation of heritage buildings;
- Introduction of artificial lighting inside a roost or near a roost entrance;
- Change of use of buildings resulting in increased ongoing disturbance;
- Removal of trees known to be used by bats;
- Significant alterations to roof voids known to be used by bats.

Examples of works that, if carefully planned, may not need a licence include:

- Works near to or at roosts (e.g. re-roofing) if carried out while bats are not present and the access points and roosting area are not affected;
- Remedial timber treatment, carried out with the correct (non-toxic to bats) chemicals while bats are not present.

2. METHODOLOGY

2.1 Information Sources

A desk-based review of information sources was completed. Information contained on the websites of the National Parks and Wildlife Service (NPWS)³ and the National Biodiversity Data Centre (NBDC)⁴ was reviewed. The following publications and websites were also reviewed and consulted:

Bat Guidance

- Bat Conservation Trust (2023) Bat Surveys for Professional Ecologists: Good Practice Guidelines 4th edition
- Bat Conservation Trust and Institution of Lighting Professionals (2023) Guidance Note 8/23 Bats and Artificial Lighting⁵
- Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management (CIEEM), Ampfield.
- Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
- Mullen, E., Marnell, F & Nelson, B. (2021) Strict protection of animal species. Guidance for public authorities on the application of Articles 12 and 16 of the EU Habitats Directive to development/works undertaken by or on behalf of a public authority. Unpublished Report, National Parks and Wildlife Service. Department of Housing, Local Government and Heritage, Dublin. <https://npws.ie/sites/default/files/files/article-12- guidance-final.pdf>
- Bat Conservation Ireland <https://www.batconservationireland.org/>
- Bat Roosts in Trees: A Guide to Identification and Assessment for Tree-Care and Ecology Professionals (2018)
- Bat Conservation Trust (2018) Bats and artificial lighting in the UK Bats and the Built Environment series⁶
- Mitchell-Jones, A.J, & McLeish, A.P. (eds). 2004., 3rd Edition Bat Workers' Manual, JNCC, Peterborough, ISBN 1 86107 558 8
- Bat Conservation Ireland (2012) Bats and Appropriate Assessment Guidelines, Version 1, December 2012. Bat Conservation Ireland, www.batconservationireland.org⁷
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (National Roads Authority, 2005).
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes (National Roads Authority, 2005).
- Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011).

³ The National Parks and Wildlife Services map viewer <http://webgis.npws.ie/npwsviewer/>

⁴ The National Biodiversity Data Centre www.NBDC.ie

⁵ <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>

⁶ <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

⁷ https://www.batconservationireland.org/wp-content/uploads/2013/09/BCIreland-AA-Guidelines_Version1.pdf

- McAney, K & Hanniffy, R (2015) The Vincent Wildlife Trust's Irish bat box schemes
- Bat Conservation Ireland <https://www.batconservationireland.org/>
- Andrews H & Gardener M (2016) Bat Tree Habitat Key – Database Report 2016. AECOL, Bridgwater.
- Aughney, T., Kelleher, C. & Mullen, D. (2008) Bat Survey Guidelines: Traditional Farm Buildings Scheme. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- IPL and BCT (2023) Guidance Note GN08/23 Bats and Artificial Lighting At Night

2.2 Desk Study

2.2.1 Species Background

Ireland had ten known bat species until February 2013, when a single live greater horseshoe bat (*Rhinolophus ferrumequinum*) was found roosting in Co. Wexford⁸. On 8th June 2020, a single audio recording was confirmed in the Glendaough area, Co. Wicklow. It was found on two more occasions in the same area in early July 2020 (Bat Conservation Ireland, July 2020).

The ten species (excluding the greater horseshoe) are briefly described overleaf. For a more comprehensive overview see McAney, 2006.⁹

The dependence of Irish bat species on insect prey has left them vulnerable to habitat destruction, land drainage, agricultural intensification and increase use of pesticides. Also, their reliance on buildings as roosting sites has made them particularly vulnerable to renovation works and the use of timber chemical treatment. Buildings are highly important as roosting sites for bats and all Irish bat species use buildings for all roost types. Most significant in terms of roosts in houses are maternity roosts, but cellars and even attics may serve as hibernation sites for bats. Roosts within buildings can far exceed the numbers encountered in trees, bridges, caves or cliffs and roosts of over 1,000 bats have been recorded in buildings.¹⁰

⁸ National Biodiversity Data Centre <http://www.biodiversityireland.ie/new-bat-species-found-in-ireland/>

⁹ McAney, K. (2006) *A Conservation Plan for Irish Vesper Bats*. Irish Wildlife Manual No.20. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government.

¹⁰ NRA (2005) *Guidelines for the Treatment of Bats Prior to the Construction of National Road Schemes*. National Roads Authority, Dublin

2.2.1.1 Family Vespertilionidae:

Common pipistrelle *Pipistrellus pipistrellus*

This species was only recently separated from its sibling, the soprano or brown pipistrelle *P. pygmaeus*¹¹, which is detailed below. 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 Down¹² and also in Fermanagh, Longford and Cavan. It has also recently been recorded in Counties Cork and Kerry.¹³ 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, caddisflies 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.

¹¹ Barratt, E. M., Deauville, R., Burland, T. M., Bruford, M. W., Jones, G., Racey, P. A., & Wayne, R. K. (1997) *DNA Answers the Call of Pipistrelle Bat Species*. *Nature* 387: 138 - 139.

¹² Richardson, P. (2000) *Distribution Atlas of Bats in Britain and Ireland 1980 - 1999*. The Bat Conservation Trust, London, England.

¹³ Kelleher, C. (2005) *International Bat Fieldcraft Workshop, Killarney, Co. Kerry*. National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government.

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, caddisflies 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.

Daubenton's bat *Myotis daubentonii*

This bat species feeds close to the surface of water, either over rivers, canals, ponds, lakes or reservoirs but it can also be found foraging in woodlands. Flying at 15 kilometres per hour, it gaffs insects with its over-sized feet as they emerge from the surface of the water - feeding on caddis flies, moths, mosquitoes, midges etc. It is often found roosting beneath bridges or in tunnels and also makes use of hollows in trees.

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 2005¹⁴ and another in Tipperary in 2006.¹⁵ 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.

2.2.1.2 Family *Rhinolophidae*:

Lesser horseshoe bat *Rhinolophus hipposideros*

This species is the only representative of the *Rhinolophidae* or horseshoe bat family in Ireland. It differs from our other species in both habits and looks, having a unique nose leaf with which it projects its echolocation calls. It is also quite small and, at rest, wraps its wings around its body. Lesser horseshoe bats feed close to the ground, gleaning their prey from branches and stones. It often carries its prey to a perch to consume, leaving the remains beneath as an indication of its presence.

¹⁴ Kelleher, C. 2006a *Nathusius pipistrelle* *Pipistrellus nathusii* and Brandt's Bat *Myotis brandtii* - New Bat Species to Co. Kerry – Irish Naturalists' Journal 28: 258.

¹⁵ Kelleher, C. 2006b Brandt's Bat *Myotis brandtii*, New Bat Species to Co. Tipperary. Irish Naturalists' Journal 28: 345.

The echolocation call of this species is of constant frequency and, on a heterodyne bat detector, sounds like a melodious warble. The species is confined to six counties along the Atlantic seaboard: Mayo, Galway, Clare, Limerick, Kerry and Cork. The current Irish national population is estimated at 12,500 animals. This species is listed on Annex II of the EC Habitats Directive and 41 Special Areas of Conservation have been designated in Ireland for its protection. Where it occurs, it is often found roosting within farm buildings.

2.2.2 Previous Records & Landscape Suitability

The National Biodiversity Data Centre (NBDC) maps landscape suitability bats based on Lundy *et al.* (2011). The maps are a visualisation of the results of the analyses based on a 'habitat suitability' index. The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. On average for all bat species the highest range is between 36.44 - 58.56. The overall assessment of bat habitats for the current study area is given as '29', deemed 'Moderate-High' by the author.

Three species of bat have previously been recorded in the 10km² grid square X17 (accessed 12/04/2024):

- Brown Long-eared Bat (*Plecotus auritus*)
- Daubenton's Bat (*Myotis daubentonii*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)

Table 1 gives the suitability of the study area for the bat species found in the study area (based on NBDC) along with their Irish Red List Status (from Marnell *et al.*, 2019).¹⁶

Table 1 Suitability of the study area for the bat species found in the Youghal area (based on the NBDC data) with Irish Red list status indicated.

Common name	Scientific name	Suitability index	Irish red list status
All bats	-	29	Least Concern
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	44	Least Concern
Brown long-eared bat	<i>Plecotus auritus</i>	45	Least Concern
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	41	Least Concern
Lesser-horseshoe bat	<i>Rhinolophus hipposideros</i>	1	Least Concern
Leisler's bat	<i>Nyctalus leisleri</i>	38	Least Concern
Whiskered bat	<i>Myotis mystacinus</i>	25	Least Concern
Daubenton's bat	<i>Myotis daubentonii</i>	23	Least Concern
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	12	Least Concern
Natterer's bat	<i>Myotis nattereri</i>	32	Least Concern

¹⁶ Marnell, F., Looney, D. & Lawton, C. (2019) Ireland Red List No. 12: Terrestrial Mammals. National Parks and Wildlife Service, Department of the Culture, Heritage and the Gaeltacht, Dublin, Ireland.

2.2.3 Bat Roosts

Bats were originally cave and tree dwelling animals but many now find buildings just as suitable for their needs. Bats are social animals and most species congregate in large colonies during summer. These colonies consist mostly of females of every reproductive class, with some juvenile males from the previous year. Male bats normally roost individually or in small groups meeting up with the females in the late autumn-early winter, when it is time to mate. In summer, bats seek warm dry buildings in which they can give birth and suckle their young. In winter, they seek out places with a constant low temperature and high humidity where they can become torpid and hibernate during adverse weather conditions. However, bats do not hibernate continuously during winter and will awake and hunt during mild nights when there are insects available, and it is energetically advantageous to forage.

2.2.3.1 Maternity Roosts

Maternity roosts are the most significant roosts and they are predominantly all-female aggregations that are formed from late May onwards and remain as a relatively cohesive unit until mid to late August. Not all female bats give birth annually. These females that do bear young in a given year avail of a suitable building, tree and sometimes cave (or equivalent). The young are flightless for several weeks and hence are vulnerable to dangers such as tree felling and restoration, reinforcement or demolition of structures such as buildings and bridges.

2.2.3.2 Mating Roosts

Most bat species mate in autumn but pregnancy does not occur until the following spring. During this time males will take possession of a cavity in a building, tree, bridge, cave or mine and attract females to these sites to establish a harem. Male bats call both from a perch and in flight in much the same manner that male birds sing.

2.2.3.3 Hibernation Roosts

Bats have a high metabolic rate and in temperate countries, such as Ireland, flying insects are not available in sufficient numbers during winter to sustain bats. Therefore, bats hibernate during winter. In hibernation sites, bats are often completely inactive for several days and are extremely vulnerable to disturbance by human activities due to the time taken for them to become sufficiently active to allow escape. Hibernation may extend from November to the end of March, during which time bat activity will take place sporadically.

2.2.3.4 Night Roosts

These are roosts which are used as resting places for bats between foraging bouts. They also provide retreats for bats from predators or during inclement weather conditions. They also function as feeding perches and may be important for socialising.

2.3 Bat Activity and Emergence Survey Methodology

Bat emergence surveys are typically recommended between May-September (Marnell et al. 2022) to observe bats emerging from roosts at dusk. This survey was conducted April 10th when bat activity is still expected given the favourable weather conditions (as per the BCT 2023 Guidelines - which the author applies to Ireland - *"The UK bat active period is generally considered to be between April and October inclusive, although April and October surveys are both weather dependent."*)

In that regard a two person bat activity and emergence survey of the front and sides of the Courthouse and Soup Kitchen buildings were undertaken on 10th April 2024 from 20.05 and 22.20 (sunset 20:21). Surveys followed the BCT Guidelines 2023 and involved monitoring the buildings by continuously walking the perimeter where accessible. Weather conditions were optimal at the start of survey but deteriorated to rain from 21.30 onwards. Temperatures were a mild 15°C with a gentle breeze.

The rear courtyard area and interior of the two buildings were not accessible at the time of the survey due to unforeseen circumstances. This limitation restricts the comprehensive assessment of potential bat presence within the buildings. While the external survey provides valuable information about bat activity in the vicinity and potential access points, it is crucial to inspect the interior and rear of the buildings to identify any signs of bat habitation or roosting. The presence of bats inside the buildings cannot be ruled out based solely on the external survey.

To address this limitation and ensure a thorough assessment, it is recommended that a pre-roof removal survey be conducted at a later date, prior to any refurbishment works. The pre-roof removal survey will allow for a detailed inspection of the interior spaces, including the roof structure and any bat roost potential crevices or cracks.

General Site photos from April 2024 are contained in Appendix A.

The external survey was done within acceptable guidelines for general activity surveys as per BCT Guidelines 2023, see Table 2. The favourable weather conditions during majority of survey were deemed suitable for observing potential bat emergence from the affected areas of both buildings and activity in vicinity.

The equipment used for the bat emergence and activity surveys included 2 x Elekon Bat Logger M detectors. Visual observations were taken with the aid of a powerful L.E.D. torch (AP Pros-Series 220 Lumens High Performance Spotlight) and Celestron 12x56 Prism Binoculars. Any activity was plotted on a map with GPS coordinates shown as Figure 4 and Appendix B.

A Seek Thermal Reveal Pro High-Resolution Thermal Imaging Camera, along with a RIDGID 36848 Micro CA-150 Hand-Held Borescope was available for any inspection of any crevices/roof spaces on the area where the new equipment will be fitted. The borescope is fitted with a camera and allows visibility of confined spaces and narrow passages potentially used by hibernating/roosting bats. It allows spaces up to 3m from ground level to be inspected. All spaces that could

potentially allow bats access the buildings were visually examined in detail for bats, signs of bats, or evidence of bat activity, using a torch where necessary. Cracks, crevices etc. were investigated for ingress / egress points and evidence of bat habitation, such as prey items, smearing lines, droppings, and staining. As mentioned the inside of the buildings was not accessible. The 2023 BCT guidelines were followed for the assessment rating¹⁷ and classification which is shown as Table 3.

¹⁷ Bat Surveys for Professional Ecologists, Good Practice Guidelines (2016)

Table 2 Recommended Survey Times for Survey Types described in Table 2.2. of the BCT 2023 Guidelines.

Survey type	Month											
	J	F	M	A	M	J	J	A	S	O	N	D
Daytime Bat Walkover (DBW)												
PRA – structures												
Emergence survey for maternity or summer roosts ^b												
Emergence survey for transitional/occasional roosts ^b												
Re-entry surveys ^c												
Emergence survey for mating roosts ^b												
Hibernation survey – structures ^a												
GLTA ^a												
PRF inspection survey – trees												
Ground-level bat activity survey – night-time walkover surveys and automated/static												
Pre-, during and post-hibernation – automated/static bat activity survey												
Swarming survey ^e												
Back-tracking survey												
Trapping and radio-tagging survey ^f												

= optimal period
 = sub-optimal period
 = weather or location dependent (i.e. may not be suitable due to spring and autumn conditions in any one year or in more northerly latitudes). Note that October emergence surveys are not acceptable in Scotland.
 = it is not acceptable to trap bats when they are heavily pregnant and have dependent pups. Mothers need to optimise foraging due to the physiological demands of pregnancy and lactation, and pups need to be regularly fed. Interrupting these activities could potentially have an impact on breeding success in the year in question. The timing of birth can vary between years – it may be as early as the end of May or as late as the start of August, therefore caution should be exercised and local information gained on birth dates before trapping activities are carried out during the summer months. Any information gained and decisions made should be kept as a record.

a Not including trees.
b Please see Chapter 7 for recommended timings for surveys to give confidence in a negative result. For sites assessed as having low suitability, a survey should be carried out between May and August. For sites with moderate and high suitability, a proportion of the surveys should be carried out between May and August (to detect maternity roosts if present) but some of the surveys may be carried out later in the year in order to detect transitional and mating roosts. The survey season for presence/likely absence surveys is defined as May to September. Roost characterisation surveys may be appropriate in April and/or October depending on the need to characterise transitional/occasional roosts at these times.
c The time that bats return to their roosts is very variable and therefore re-entry surveys are no longer recommended as a standard approach. If they are carried out the constraints should be recognised.
d GLTAs can be sub-optimal in the spring, summer and autumn due to foliage obscuring parts of the tree. If all parts of the tree are visible then the survey can be carried out at any time. If parts of the tree are obscured by foliage then it is not possible to carry out a thorough survey and this limitation should be recognised and the impact on the results acknowledged. Please refer to Chapter 6 for more information.
e Different species show a peak in swarming activity at different times, e.g. Daubenton's bat activity tends to peak in August whilst Natterer's bat activity tends to peak in September (Tomlinson, 2020) and therefore surveying across the swarming season is likely to be important.
f Trapping and tagging in cooler conditions can make release of bats difficult, which should be a consideration if trapping is carried out in spring and autumn. Tagging of bats in April and sometimes early May should be avoided following a poor spring, if bats are in poor condition. Tagging of newly volant pups should be avoided. Tagging of bats should be avoided in October due to the risk that bats will enter hibernation with the tag still attached (bats will groom less often as they enter torpor more frequently). If a tag falls off during hibernation this could leave a bald patch if the fur has been clipped, which could have negative impacts for the hibernating bat. Please refer to Chapter 9 for more information.

Table 3 Guidelines for assessing the potential suitability of proposed development sites for bats, based on the presence of roost features within the landscape, to be applied using professional judgement (BCT Guidelines, 2023)

Potential suitability	Description	
	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels).	No habitat features on site likely to be used by any commuting or foraging bats at any time of the year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible ^a	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behavior.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions ^b and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity and not a classic cool/stable hibernation site, but could be used by individual hibernating bats ^c).	Habitat that could be used by small numbers of bats as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions ^b and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.

High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions ^p and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	<p>Continuous, high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge.</p> <p>High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland.</p> <p>Site is close to and connected to known roosts.</p>
<p>a Negligible is defined as 'so small or unimportant as to be not worth considering, insignificant'. This category may be used where there are places that a bat could roost or forage (due to one attribute) but it is unlikely that they actually would (due to another attribute).</p> <p>b For example, in terms of temperature, humidity, height above ground level, light levels or levels of disturbance.</p> <p>c Evidence from the Netherlands shows mass swarming events of common pipistrelle bats in the autumn followed by mass hibernation in a diverse range of building types in urban environments (Korsten <i>et al.</i>, 2016 and Jansen <i>et al.</i>, 2022). Common pipistrelle swarming has been observed in the UK (Bell, 2022 and Tomlinson, 2020) and winter hibernation of numbers of this species has been detected at Seaton Delaval Hall in Northumberland (National Trust, 2018). This phenomenon requires some research in the UK, but ecologists should be aware of the potential for larger numbers of this species to be present during the autumn and winter in prominent buildings in the landscape, urban or otherwise.</p>		

2.4 Bat Roost Potential Tree Assessment

During the site visit, the trees within the property were visually assessed from the street. No mature trees, which could potentially provide suitable bat roosting habitats, were observed on the site. The trees present appeared to be smaller and younger specimens, unlikely to contain features typically used by roosting bats, such as cavities, cracks, or loose bark.

However, it is important to note that the presence of smaller trees and vegetation on the site may still be relevant for other wildlife, particularly nesting birds. Any landscaping or vegetation removal works should take into account the bird nesting season, which generally occurs between March 1st and August 31st in Ireland. To minimize the risk of disturbing or damaging active bird nests, it is recommended that any removal of vegetation be carried out outside of this period.

If the proposed plan involves the removal or pruning of any trees or vegetation, it is advisable to conduct a more detailed assessment of the affected areas. This assessment should be carried out by a qualified ecologist who can identify any potential bird nesting sites and provide guidance on the appropriate course of action to ensure compliance with the Wildlife Act 1976 (as amended).

2.5 Landscape Evaluation

The ecological survey results were evaluated to determine the significance of identified features within the study area for bat habitats. The evaluation was based on an adapted importance scale that considers factors such as roosting potential, foraging areas, commuting routes, and the conservation status of bat species.

The criteria used to assess the ecological value and assign importance to the identified features for bats are as follows:

International Importance: Sites or features that support significant populations of bat species listed in Annex II of the EU Habitats Directive or are designated as Special Areas of Conservation (SACs) for bat species.

- **National Importance:** Sites or features that support nationally significant populations of bat species, are designated as Natural Heritage Areas (NHAs) or proposed NHAs for bat conservation, or contain maternity roosts or hibernacula of rare or threatened bat species.
- **County Importance:** Sites or features that support resident or regularly occurring populations of bat species listed in Annex IV of the EU Habitats Directive, provide important foraging areas or commuting routes for bats, or contain roosts of county-level significance.
- **Local Importance (Higher Value):** Sites or features containing suitable roosting habitats (e.g., mature trees, buildings with high potential), diverse foraging areas, or well-connected commuting routes that are likely to support a variety of bat species, including those of conservation concern.
- **Local Importance (Lower Value):** Sites or features with limited roosting potential, fragmented foraging areas, or commuting routes that may support common bat species but are less likely to be used by rare or threatened species.
- When evaluating the landscape for bats, it is essential to consider the specific habitat requirements of different bat species, as well as their roosting preferences and foraging behaviour. Factors such as the presence of suitable roosting sites (e.g., trees with cavities, buildings with crevices), the quality and diversity of foraging habitats (e.g., woodland edges, wetlands, species-rich grasslands), and the connectivity of commuting routes (e.g., hedgerows, treelines, rivers) should be taken into account.

By assessing the landscape features against these criteria, the overall value of the site for bats can be determined. This evaluation helps identify areas of higher ecological importance for bats and guides the development of appropriate mitigation measures to minimize potential impacts on bat populations and their habitats.

It is important to note that while this evaluation framework is specific to bats, it should be used in conjunction with other ecological considerations and legal requirements to ensure a comprehensive assessment of the site's ecological value.

3. RESULTS

3.1 Activity Survey

The bat survey carried out on April 10th, 2024, revealed very low levels of bat activity across the site, with only two species recorded: Common Pipistrelle (*Pipistrellus pipistrellus*) and Leisler's Bat (*Nyctalus leisleri*). These two species are common in Ireland but have not been previously recorded for the 10km grid square X17. The results are summarised in Table 4, and site photos are available in Appendix A.

During the survey, a single Leisler's bat was observed flying over the site early in the evening. This species is known to be the most light-tolerant of Ireland's bat species, so its presence in an urban environment is not unusual. As the survey progressed, there were two additional recordings of Common Pipistrelle activity. However, these individuals were not observed emerging from any of the monitored areas of the two buildings. It is possible that they emerged from the inaccessible rear of the buildings (see Figure 4). The low activity levels can be attributed to the site's location within an urbanised area with high levels of artificial lighting, which may deter certain bat species.

The limited bat activity observed during the survey highlights the site's reduced suitability for bats, likely due to its urban setting and the presence of artificial lighting that may discourage certain bat species from utilising the area.

Table 4 Bat Activity Results – April 10th 2024 between 20.05 and 22.20

Species Name	Species Name – Latin	Number of Passes	Peak Frequency (kHz)
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	2	46.0
Leisler's Bat	<i>Nyctalus leisleri</i>	1	26.0

3.2 Building Suitability

The potential suitability of the buildings on-site, specifically in the location of the proposed refurbishment works, was assessed using the guidelines outlined in Table 3, resulting in a 'Low' bat roost potential rating. The inspection, conducted as per the methodology set out in Section 2.3, revealed potential access points for bats underneath the corrugated iron roof of the Soup Kitchen building. However, the galvanised roof material is likely to experience extreme temperature fluctuations, becoming too hot in the summer and too cold in the winter, making it less suitable for roosting bats. Additionally, no bat droppings were observed on the ground beneath the walls and roof, although it should be noted that any droppings present may have been washed away by rainfall, and the other side of the Soup Kitchen building was not visible from the survey point.

The assessment took into account the structures' features, potential roost spaces, and the absence of direct evidence suggesting current bat usage. However, due to the inaccessibility of the interior spaces and the rear of the buildings during the survey, a comprehensive assessment of potential bat presence could not be

conducted. As a result, the 'Low' suitability rating for roosting bats is based on the available information and the external inspection of the buildings.

To ensure a thorough evaluation of the buildings' suitability for roosting bats, it is recommended that an additional pre-refurbishment survey be carried out once access to all areas of the buildings can be arranged. This will allow for a more detailed inspection of the interior spaces and any potential roost features that may have been overlooked during the initial assessment.

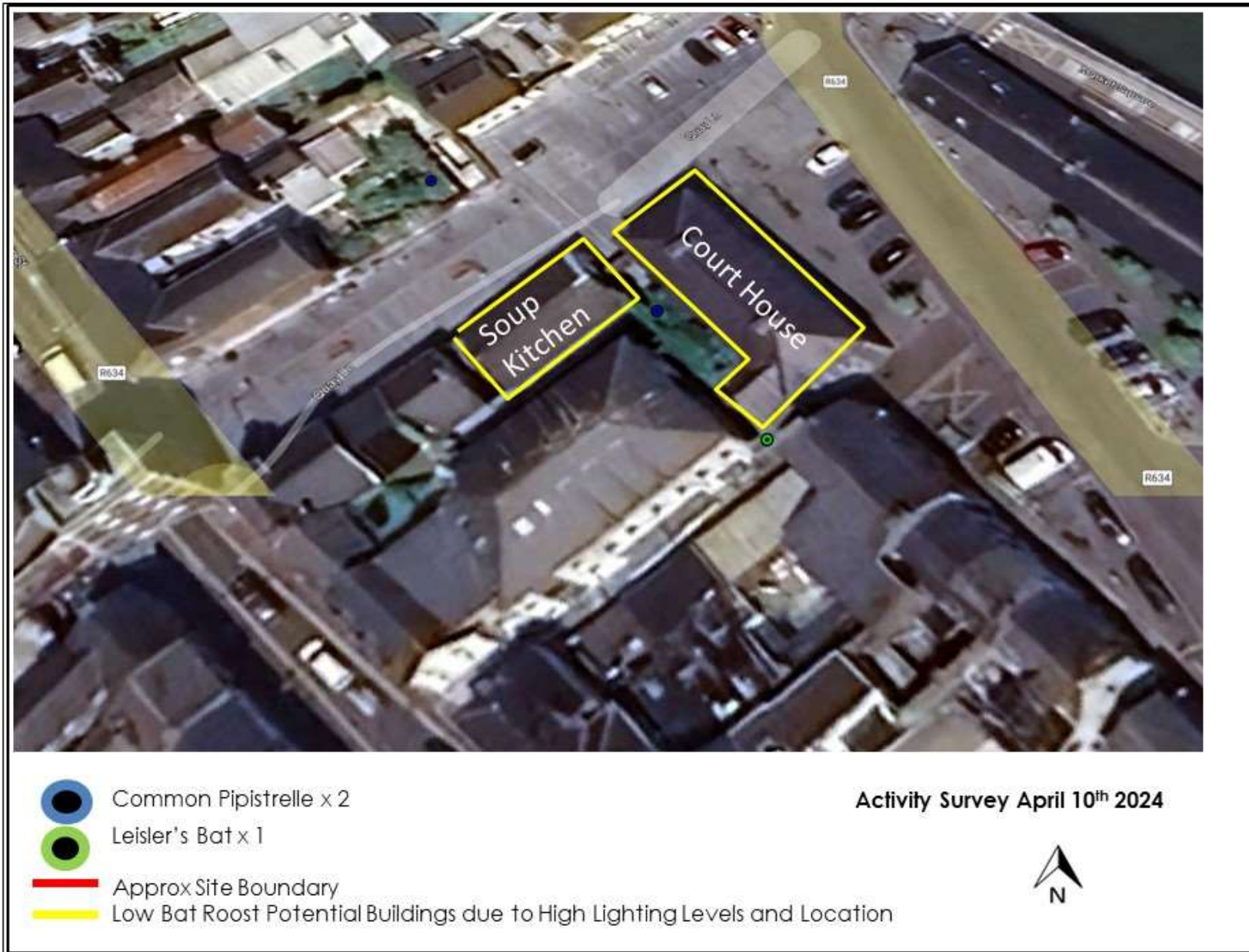


Figure 4 Bat Activity Results – April 10th 2024

3.2 Landscape Evaluation

According to the NBDC's landscape suitability maps for bats, which are based on a 'habitat suitability' index ranging from 0 (least favourable) to 100 (most favourable), the study area has an overall assessment of '29'. This value is considered 'Moderate-High' by the author, suggesting that the broader landscape around Youghal has a relatively good potential to support bat populations.

The NBDC records indicate that three species of bat have been previously recorded in the 10km² grid square X17, which encompasses the study area. These species include:

- Brown Long-eared Bat (*Plecotus auritus*)
- Daubenton's Bat (*Myotis daubentonii*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)

Two more bat species, previously unrecorded for X17 were recorded during the survey:

- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Leisler's Bat (*Nyctalus leisleri*)

All of these species are classified as 'Least Concern' on the Irish Red List, indicating that they are not currently threatened or at risk of extinction in Ireland.

The suitability index for individual bat species in the study area varies, with the highest values recorded for Brown Long-eared Bat (45) and Soprano Pipistrelle (44), followed by Common Pipistrelle (41) and Leisler's Bat (38). These values suggest that the landscape is particularly suitable for these species.

However, despite the overall 'Moderate-High' suitability of the broader landscape, the specific site location within the urban core of Youghal is considered to have a lower suitability for bats. The dense urban development, artificial lighting, and limited connectivity to green spaces or natural habitats in the immediate vicinity of the site reduce its potential as optimal bat habitat.

The buildings on-site, particularly the old courthouse and the soup kitchen, present some potential roost features that could be used by bats. Nevertheless, the urban setting and the lack of extensive suitable foraging areas or commuting routes in close proximity to the site limit its overall suitability for bats.

In conclusion, while the broader landscape around Youghal is assessed as having a 'Moderate-High' suitability for bats based on the NBDC's landscape suitability index, the specific site location within the urban environment is considered to have a lower suitability. The site is evaluated as Local Importance (Lower Value) for bats, due to the constraints posed by the urban setting and the limited connectivity to optimal bat habitats, despite the presence of some potential roost features in the buildings.

4. RECOMMENDATIONS

Based on the findings of the bat survey, the desktop study, and the landscape evaluation, the following recommendations are made to ensure that the proposed refurbishment works at Youghal Courthouse and Soup Kitchen minimises potential impacts to bats (if present) and complies with relevant legislation and best practice guidelines:

- Follow up pre-works bat survey: Due to the limited access to the interior and rear of the buildings during the initial survey, it is recommended that a pre re-roofing bat survey of the soup kitchen be conducted. This survey should include a detailed inspection of all internal, and rear of site roost features, such as crevices, cracks, and accessible roof spaces, to ensure the absence of roosting bats.
- Timing of Works: If the pre-works bat survey confirms the presence of roosting bats, any works that may disturb or destroy bat roosts should be carried out under a derogation license from the National Parks and Wildlife Service (NPWS). The timing of such works should be planned to avoid the most sensitive periods for bats, such as the maternity season (June-August) and the hibernation period (November-March).
- Mitigation Measures: If bat roosts are identified during the pre-works bat survey, appropriate mitigation measures should be implemented to minimise impacts on bats. These may include the installation of bat boxes or the creation of alternative roost spaces within the refurbished buildings. The specific mitigation measures should be determined in consultation with a qualified bat ecologist and the NPWS.
- Lighting Design: To minimise potential disturbance to bats, any external lighting associated with the refurbished buildings should be designed to be bat-friendly. This can be achieved by using low-level, directional lighting with warm colour temperatures (2700-3000K) and avoiding excessive illumination of the rear of site that is currently dark. The lighting design should be developed in accordance with the guidelines outlined in the latest guidelines "Guidance Note 8 Bats and Artificial Lighting" (IPL and BCT, 2023).
- Landscaping: Although the site is located within an urban environment with limited green spaces, any landscaping associated with the refurbished buildings should aim to enhance the site's value for bats and other wildlife. This can include the planting of native tree and shrub species, and the installation of bat boxes/bat bricks.

By implementing these recommendations, the proposed development at Youghal Courthouse and Soup Kitchen can proceed in a manner that minimises potential impacts on bats, complies with legal requirements, and contributes to the conservation of these protected species in the local area.

5. CONCLUSION

The bat survey and desktop study conducted for the proposed refurbishment works at Youghal Courthouse and Soup Kitchen have revealed that the site has a 'Low' potential to support roosting bats. The site's urban location, limited connectivity to suitable foraging habitats, and presence of artificial lighting contribute to the 'Low' overall suitability for bats. It is anticipated that the proposed works will have a negligible long-term impact on the local bat population.

However, due to access limitations during the initial survey, a follow-up pre-works bat survey is recommended to conclusively assess the presence or absence of roosting bats, particularly in the internal spaces and rear of the site. This should be done prior to any roof removal works of the Soup Kitchen building.

By adhering to the recommendations outlined in this report, including bat-friendly lighting design and landscaping measures for the small courtyard area, the proposed refurbishment works can be carried out in a manner that minimises potential impacts on bats and complies with legal requirements. The project can contribute to the conservation of local bat populations while proceeding with the planned refurbishment to develop the buildings into a museum / exhibition facility.

Based on the current findings, the proposed refurbishment works can proceed without the need for a bat derogation license at this time. However, if roosting bats are identified during the pre-works survey, appropriate mitigation measures should be implemented in consultation with a qualified bat ecologist and the National Parks and Wildlife Service (NPWS).

APPENDICES

APPENDIX A



Plate 1 Existing main courthouse (side) which is illuminated - a likely deterrent for bats.



Plate 2 Existing main courthouse (side) which is illuminated - a likely deterrent for bats.



Plate 3 Existing main courthouse (front) which is illuminated - a likely deterrent for bats.



Plate 4 Existing main courthouse (rear) which is not illuminated – cracks in stonework a potential roost feature.



Plate 5 Existing main courthouse (side), torch showing a potential roost feature/entry point.



Plate 6 Existing main courthouse (side), with side alley and archway shown.



Plate 7 View of the old soup kitchen (outlined in red), side view, illuminated by street lights.



Plate 8 View of the old soup kitchen (outlined in red), side view, illuminated by street lights.



Plate 9 View of potential access point under the corrugated roof.

APPENDIX B

10/04/2024	Species	Calls [#]	Mean Peak Frequency [kHz]	Mean Max Frequency [kHz]	Mean Min Frequency [kHz]	Mean Call Length [ms]	Mean Call Distance [ms]	Temperature [°C]	Latitude [WGS84]	Longitude [WGS84]
20:35:28	Leisler's Bat	5	24.1	24.8	22.2	11.4	828	15	51.952770	-7.846087
20:47:59	Common Pipistrelle	8	45.2	48.6	42.6	6.8	77	15	51.953021	-7.846508
21:30:10	Common Pipistrelle	7	46.5	49.8	41.5	24.2	0	15	51.952886	-7.846210