



An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Application for Derogation Licence

Under the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021

Prepared by the Department of Housing, Local Government and Heritage

npws.ie

- This form is to be used by any person applying for a derogation licence under Regulation 54 or by the Minister under Regulation 54(A)
- Please ensure that you answer questions fully in order to avoid delays
- If you experience any problems filling in this form, please contact the Wildlife Licensing Unit;
- Please note – applications/reports received and licences issued under this derogation may be published on the NPWS website and/or the Department's Open Data website

Wildlife Licensing Unit,

Department of Housing, Local Government and Heritage

National Parks and Wildlife Service

Wildlife Licensing Unit, R. 2.03

90 North King Street

Smithfield

Dublin 7 D07 N7CV

Email: wildlifelicence@npws.gov.ie

Part A. The Applicant: Personal Details

These questions relate to the person responsible for any proposed works and who will be the **named licensee**. As the licensee you will be responsible for ensuring compliance with the licence and its conditions, even though you may employ another person to act on your behalf.

If this application is being submitted on behalf of a third party please also complete Part B below.

1. (a) Name of Applicant

Title (Mr/Mrs/Miss/Ms/Dr)	Forename(s)	Surname
Mr	Keith	Wood
(b) Address Line 1	Main Street	
Address Line 2		
Town	Killaloe	
County	Clare	
Eircode		
(c) Contact number	086 7969000	
(d) Email address	keith@w2.ie	
(e) Address where works are to be carried out if different from (b) above.		
Address Line 1	Doonmore House	
Address Line 2		
Town	Doonbeg, Kilrush	
County	Clare	
Eircode		

Part B. Details of Person Submitting Application on Behalf of Applicant/Licensee

Information relating to the person (e.g. ecologist) responsible for submitting the application on behalf of the applicant/licensee should be entered below:

1. (a) Name of Person/Ecologist

Title (Mr/Mrs/Miss/Ms/Dr)	Forename(s)	Surname
	Aisling	Walsh
(b) Company Name	Ash Ecology and Environmental Ltd	
Address Line 1	Monine	
Address Line 2	Kilfinane	
Town	Kilmallock	
County	Limerick	
Eircode		
(c) Contact number	089 4991181	
(d) Email address	info@ashecolology.ie	

(e) Relationship to Applicant	Contracted Ecologist of Applicant
--------------------------------------	-----------------------------------

Part C. The Application

1. **Species of Animal:** Please indicate which species is affected by the proposed works:

- Bat
- Otter
- Kerry Slug
- Natterjack Toad
- Dolphin
- Whale
- Turtle
- Porpoise

Please detail the exact species (scientific name): Pipistrellus pygmaeus , Pipistrellus pipistrellus

- 2. Please provide the maximum number of individuals affected* | ~10 |
- 3. Please provide the maximum number of breeding or resting sites affected* | 1 |
- 4. Please provide the maximum number of eggs to be taken* | 0 |
- 5. Please provide the maximum number of eggs to be destroyed* | 0 |

*If no figures can be provided for the maximum number of individuals, breeding sites, resting places and eggs to be covered by the derogation please provide reasons why.

6. **Species of Plant:** Please indicate which species is affected by the proposed works:

- Killarney Fern
- Slender Naiad
- Marsh Saxifrage

7. If you previously received a derogation for any species of animal or plant please state licence number and confirm that you have made a return to NPWS on the numbers actually affected by that licence

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, DER/BAT 2024 - 25 EUROPEAN and DER/BAT 2024 - 130 EUROPEAN, returns made for all except 2024 licences (ongoing)

8. Proposed Dates for Works: Please indicate the timeframe that you propose to carry out works. Dates set by NPWS may differ from dates proposed here.

Start	1 st January 2025	Date:
End	31 st December 2025	Date:

9. Please tick which reason below explains How this Application Qualifies under Regulation 54(2)(A-E) of the European Communities (Birds and Natural Habitats) Regulations:

a.	In the interests of protecting wild flora and fauna and conserving natural habitats	<input type="checkbox"/>
b.	To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property	<input type="checkbox"/>
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 beneficial consequences of primary importance for the environment	<input checked="" type="checkbox"/>
d.	For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including artificial propagation of plants	<input type="checkbox"/>
e.	To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule	<input type="checkbox"/>

10. Report Checklist: Please append a detailed report to support this application and ensure that it contains the following information:

11.1	Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations.	<input checked="" type="checkbox"/>
11.2	Evidence that actions permitted by a derogation licence will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.	<input checked="" type="checkbox"/>
11.3	Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere.	<input checked="" type="checkbox"/>
11.4	As much information as possible to allow a decision to be made on this application.	<input checked="" type="checkbox"/>

Part D. Declaration

I declare that all of the foregoing particulars are, to the best of my knowledge and belief, true and correct. I understand that the deliberate killing, injuring, capturing or disturbing of protected species, or damage or destruction of their breeding sites or resting places or the deliberate taking or destroying of eggs is an offence without a licence and that it is a legal requirement to comply with the conditions of any licence I may be granted following this application. I understand that NPWS may visit to check compliance with a licence.

Please note that under Regulation 5 of the European Communities (Birds and Natural Habitats) Regulations 2011-2021 an authorised officer may enter and inspect any land or premises for the purposes of performing any of his or her functions under these Regulations or for obtaining any information which he or she may require for such purposes.

Signature of the Applicant

Date



Name in BLOCK LETTERS

KEITH WOODS

PRIVACY STATEMENT

Please note that under Data Protection legislation Wildlife Licencing Unit staff may only discuss licence applications with the applicant, and not with any third party. See Privacy Statement at www.npws.ie/licences

Other notes:

Evaluated alternative solutions to avoid impacts on the bat roosts, including:

- a) Maintaining the structures as-is: This was deemed unfeasible due to the deteriorating condition of the buildings, which poses safety risks and doesn't meet the client's needs for habitable space.
- b) Partial renovation excluding roosting areas: We explored renovating only portions of the buildings not used by bats. However, this approach would not adequately address structural issues or meet space requirements for the intended use.
- c) Constructing a new building elsewhere on the property: This option was considered but rejected due to planning restrictions, the desire to preserve the historic character of the site, and the likelihood of disturbing other potential bat habitats on the grounds.
- d) Delaying works indefinitely: Postponing renovation indefinitely is not viable as it would lead to further deterioration of the structures, potentially resulting in collapse and loss of the bat roosts entirely.

After thorough consideration, we concluded that the proposed renovation with careful mitigation measures is the only feasible option that balances the preservation of bat roosts with the necessary structural improvements and intended use of the property.

We selected option c, "imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment," primarily due to economic reasons:

The renovation of Doonmore House is driven by important economic considerations. The client intends to restore the property for use as a private residence, which will involve significant investment in local construction services and materials. This project will provide temporary employment opportunities during the renovation phase and contribute to the local economy.

The improved aesthetic of a renovated historic building may also have indirect economic benefits for the area, such as enhancing the overall appeal of the locality for tourism and potential future development.

These economic factors form the basis for our selection of option c as the most appropriate justification for the derogation licence application as the other options were not applicable in this scenario.

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Department of Housing, Local Government and Heritage



An Roinn Títhíochta,
Rialtais Áitiúil agus Oidhreacht
Department of Housing,
Local Government and Heritage

October
2024

Bat Derogation Licence Application Report



**Doonmore House,
Doonbeg,
Kilrush,
Co Clare**



ASH Ecology & Environmental

Aisling Walsh M.Sc MCIEEM Trading as Ash Ecology & Environmental Ltd.
Tel: 089 4991181 / Company Reg: 630819 /
Office: Monine Kilfinane, Co. Limerick / Full membership of the CIEEM

Bat Derogation Licence Application Report – Doonmore House, Doonbeg, Kilrush, Co. Clare

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1. INTRODUCTION

1.1 Purpose of the Report

This report has been prepared by Ash Ecology and Environmental Ltd (AEE) to accompany a bat derogation licence application for works at Doonmore House, Doonbeg, Kilrush, Co. Clare, V15 FC86. The application is submitted on behalf of Keith Wood in relation to planning application 24/60196.

The proposed works include:

- Renovation of the existing unoccupied dwelling house (Doonmore House)
- Change of use of existing outbuildings to supplementary additional domestic accommodation
- Installation of a wastewater treatment unit and polishing filter
- All associated ancillary site works

A bat survey was conducted July 13th 2024 as part of a Request for Further Information (RFI) from Clare County Council (CCC) dated May 8th 2024. The survey confirmed the presence of bat roosts in both the main house and stone sheds on the property, necessitating this derogation licence application.

The site location is shown in Figure 1, with the aerial view and surrounding landscape illustrated in Figure 2. The proposed site layout is presented in Figure 3.

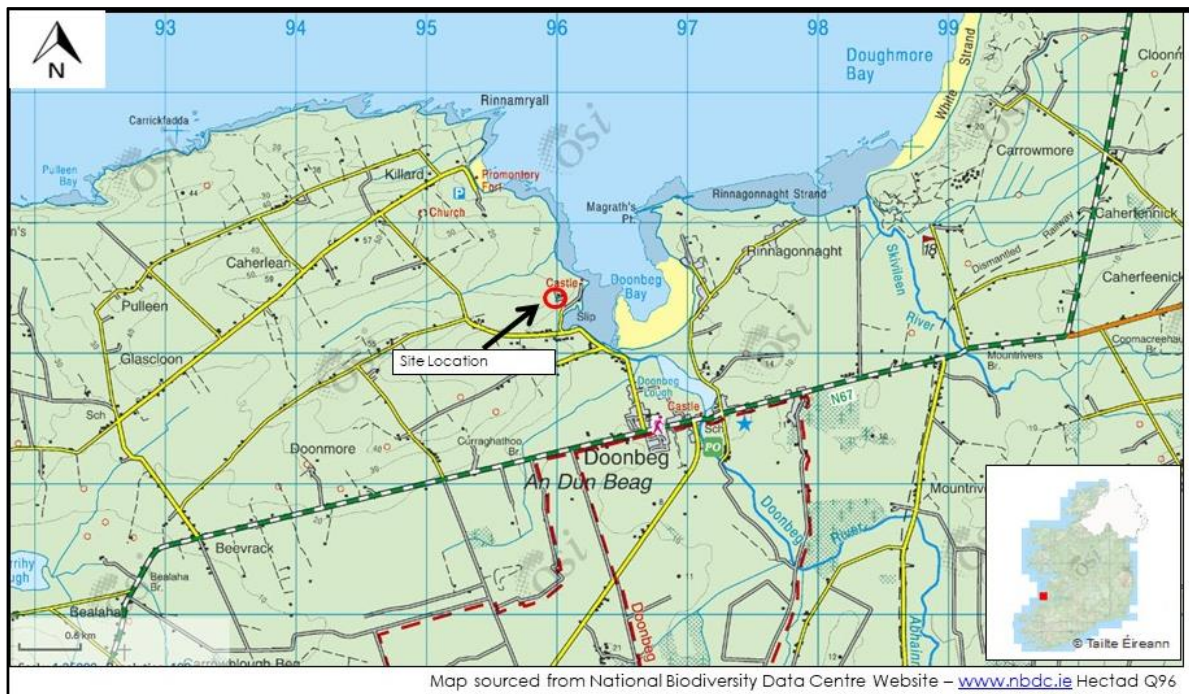


Figure 1 Site Location Map



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

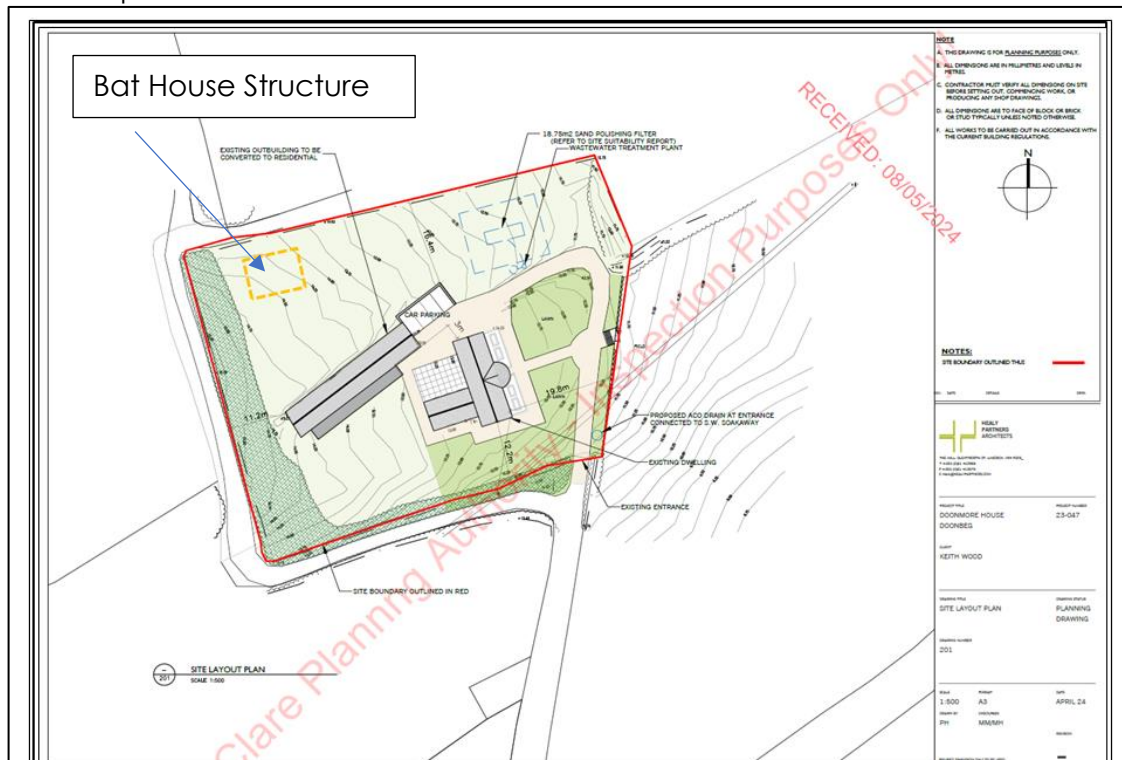


Figure 3 Proposed Site Layout

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, DER/BAT 2024 - 25 EUROPEAN and DER/BAT 2024 - 130 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 plats, 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 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

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

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 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 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>

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

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- 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.

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

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*

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

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.

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 oversized 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, 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

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.

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.

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

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.

habitats for the current study area is given as '28.33', deemed 'Moderate' by the author.

Five bat species have previously been recorded in the 10km² grid square Q96 according to data on the NBDC:

- Brown Long-eared Bat (*Plecotus auritus*)
- Daubenton's Bat (*Myotis daubentonii*)
- Leisler's Bat (*Nyctalus leisleri*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- 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 Lesser horseshoe bat, while recorded in Clare, normally has a foraging radius range of 2.5km and is not recorded within this zone of influence or recorded during survey.

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

Common name	Scientific name	Suitability index	Irish red list status
All bats	-	28.33	Least Concern
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	45	Least Concern
Brown long-eared bat	<i>Plecotus auritus</i>	44	Least Concern
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	35	Least Concern
Lesser-horseshoe bat	<i>Rhinolophus hipposideros</i>	8	Least Concern
Leisler's bat	<i>Nyctalus leisleri</i>	40	Least Concern
Whiskered bat	<i>Myotis mystacinus</i>	21	Least Concern
Daubenton's bat	<i>Myotis daubentonii</i>	28	Least Concern
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>	7	Least Concern
Natterer's bat	<i>Myotis nattereri</i>	27	Least Concern

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.

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.

2.2.3.1 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 July 13th when bat activity is at its peak. The survey was done within acceptable guidelines for general activity surveys as per BCT Guidelines 2023 which would inform on emergence, see Table 2. In that regard a bat activity and emergence survey of the structures onsite from between 21.27 and 23.57 (sunset Doonbeg 21.57) as per 2023 Bat Conservation Trust guidelines. These structures onsite were also subject to a daytime inspection prior to the evening survey.

There is the main house (Doonmore House, with extension labelled 1) and a row of continuous stone sheds divided into 4 sections, labelled 2, see Figure 4 and Plates in Appendix A.

The Survey in followed the BCT Guidelines (2023) and involved 2 people monitoring the buildings onsite by continuously walking the perimeter and interiors of same for bat activity within and/or emergence. Weather conditions were optimal with temperatures were 13-15°C with a gentle breeze. General bat activity in and around the buildings onsite was also recorded.

The equipment used for the bat survey included 2 x Elekon Bat Logger M detectors. Visual observations were taken with the aid of a powerful L.E.D. torch (AP Pro-Series 220 Lumens High Performance Spotlight).

All accessible spaces to the surveyors that could potentially allow bats access the building 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. The floor, window sills, and other elevated surfaces inside the house (ground storey only as the second storey was deemed too dangerous to walk on) and stone sheds were examined closely for droppings and insect feeding remains.

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 ^d												
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.

Potential suitability	Description	
High	Roosting habitats in structures	Potential flight-paths and foraging habitats
<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>	<p>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^b and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.</p>	<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>

2.4 Bat Roost Potential Tree Assessment

No trees are to be removed due to the development. A bat tree roost assessment was therefore not required.

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 minimise 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 Bat Activity Survey

The bat activity survey recorded a total of 55 bat passes, representing two species: Common Pipistrelle (*Pipistrellus pipistrellus*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*). The results are summarised in the Table 4 with the data set as Appendix B.

Table 4 Bat Results Summary Data – July 13th 2024 between 21.27 and 23.27

Species Name – Common	Species Name – Latin	Number of Passes	Peak Frequency (kHz)
Common Pipistrelle	<i>Pipistrellus pipistrellus</i>	47	46.0
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	8	56.0

Activity Patterns:

Common Pipistrelle activity was particularly notable, with several bursts of activity observed throughout the survey period:

- A significant cluster of activity occurred between 22:44 and 22:48, with 13 passes recorded in this 4-minute window.
- Another burst of activity was noted between 22:56 and 22:58, with 8 passes in just over 2 minutes.
- The highest concentration of activity was between 22:39 and 23:00, suggesting this may be a key foraging period for the bats using the site.

Soprano Pipistrelle activity was less frequent but still notable, with passes recorded intermittently throughout the survey period.

Visual Observations:

One surveyor noted a group of approximately 5 bats flying in circles around the buildings at one point during the survey. This behaviour suggests that the bats are using the structures and immediate surroundings for both roosting and foraging.

Estimating Individual Bat Numbers:

To provide a more accurate representation of bat usage at the site, we employed a time-clustering analysis method based on Froidevaux et al. (2014).¹⁸ This method assumes that bat passes of the same species occurring within a short time frame (in this case, a 1-minute interval) are likely to be the same individual. We then used the

¹⁸ Froidevaux, J.S.P., Zellweger, F., Bollmann, K. and Obrist, M.K., 2014. Optimizing passive acoustic sampling of bats in forests. *Ecology and Evolution*, 4(24), pp.4690-4700. <https://doi.org/10.1002/ece3.1296>

maximum number of passes within any 5-minute period as a conservative estimate of the minimum number of individuals present simultaneously.

Table 5 Estimated Number of Individual Bats

Species	Total Passes	Max Passes in 5 min	No. of 1-min intervals with activity	Estimated Individuals
Common Pipistrelle	47	5	33	5-6
Soprano Pipistrelle	8	2	7	2-3

This analysis suggests that while 55 passes were recorded in total, they likely represent a smaller number of individual bats repeatedly using the area around the buildings. The site appears to be a significant foraging or commuting route for a local population of Common Pipistrelles, with occasional use by Soprano Pipistrelles.

3.2 Bat Emergence Survey

The bat emergence survey conducted on July 13th 2024, confirmed the presence of bat roosts in both the main house (Doonmore House) and the stone sheds on the property.

The old house onsite was inspected as per the methodology set out in Section 2.3. All accessible spaces to the surveyor that could potentially allow bats access the structures 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. The interior of the house and sheds were also examined for fresh bat droppings and live sightings.

Plates of house and stone sheds are contained in Appendix A.

Main House (Doonmore House):

- At least one bat was observed emerging from the slit windows at the front of the main house (labelled '1' in Figure 4).
- Additional bats may have emerged from other locations that were not directly observed during the survey.
- The house is assessed as having 'High' bat roost potential due to the numerous access points via the sides of the tower and missing slates on the rear extension (see Plates 1, 2, and 5).

Stone Sheds:

- Bats were observed emerging from the northeast gable end of the stone shed (labelled as '2' in Figure 4).
- The row of stone sheds is considered to have 'High' bat roost potential, with access available via open doors, rear windows, and slits in the stonework (see Plate 13).

These observations confirm that both structures are being used as roosts by small numbers of bats, likely Common Pipistrelle and Soprano Pipistrelle based on the activity survey results.

3.3 Roost Assessment

Based on the emergence observations and the patterns of activity recorded, both the main house (Doonmore House) and the stone sheds are confirmed roosts for small numbers of bats. The level and pattern of activity suggest that these roosts are likely being used by a small colony of Common Pipistrelle, with Soprano Pipistrelle also present in smaller numbers. The circular flight patterns observed around the buildings further support their importance as roosting and foraging habitat for the local bat population. The presence of numerous potential access points and suitable roosting features within the structures (as evidenced in Plates 7-9) reinforces their significance as bat roosts. These findings highlight the importance of implementing appropriate mitigation measures to mitigate for these bat roosts during any proposed renovation or construction work.

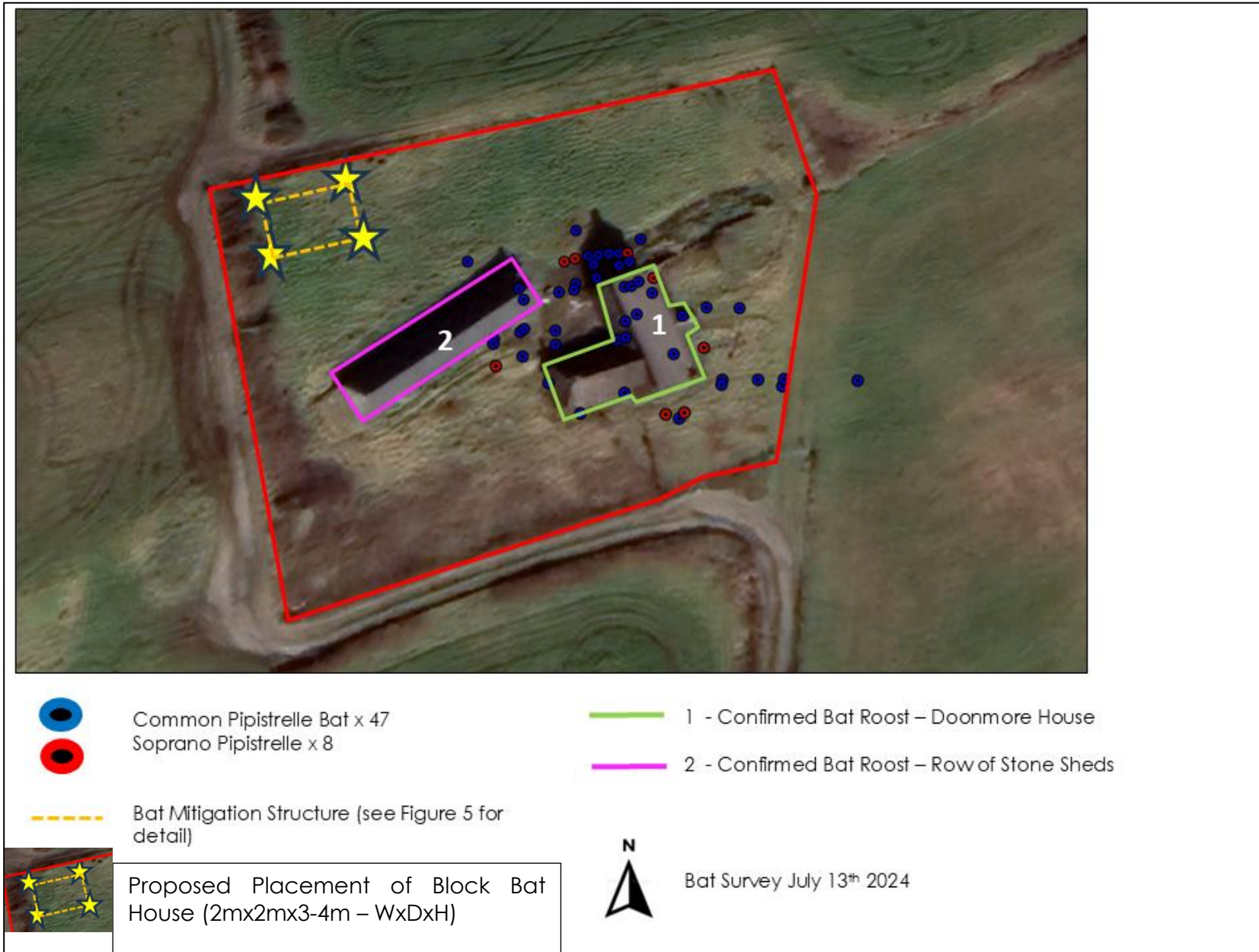


Figure 4 Bat Activity Results – July 13th 2024

3.4 Landscape Evaluation

The landscape surrounding Doonmore House is characterized by its coastal location on the Doonbeg Estuary, consisting primarily of open grasslands, coastal habitats, and some agricultural lands. As seen in Figure 2 and Plates 16-18, the area is relatively exposed, with sparse woodland and limited mature trees or hedgerows.

The National Biodiversity Data Centre (NBDC) rates the area's bat habitat suitability as '28.33', which is deemed 'Moderate' by the author. This rating reflects the somewhat challenging conditions for bats in this exposed coastal environment.

Despite the relatively exposed nature of the site, the survey results indicate that the area still holds significant value for bats:

- The site itself is considered to be of County Importance for bats. This assessment is based on the confirmed bat roosts in both the main house (Doonmore House) and the stone sheds, the presence of multiple bat species (Common Pipistrelle and Soprano Pipistrelle), and the high levels of bat activity recorded during surveys.
- The structures on site, including Doonmore House and the stone sheds, provide crucial roosting habitats in an area where such opportunities may be limited due to the lack of extensive woodlands or mature trees. These buildings likely serve as important refuges for local bat populations.
- While the broader landscape may not provide extensive commuting routes through woodlands or hedgerows, the linear features of the coastline and any existing vegetated areas likely serve as important navigational aids for bats in this open landscape.

4. MITIGATION

This section outlines the proposed mitigation measures for Common Pipistrelle and Soprano Pipistrelle bats, which were found roosting in Doonmore House and the associated stone sheds. These measures form part of the application for a derogation licence from the Wildlife Licensing Unit, National Parks and Wildlife Service, Department of Housing, Local Government and Heritage.

The following mitigation strategies are designed to minimise impacts on the resident bat populations and ensure their continued presence in the area following the proposed works. Implementation of these measures is contingent upon the granting of the derogation licence.

4.1 Alternative Bat Roost Provision

Prior to any works commencing, a Dedicated Block Bat House Structure (see Figure 5 for example) to provide alternative roosting opportunities for bats. Key features include:

- Dimensions: 2m x 2m, height 3-4m from ground to roof peak.

-
- Block Built with sloping roof (no apex pitch as limited width of 2mx2m). Height 4m at the highest point facing South, and 3m at the lowest facing North.
 - Roofing felt - Type 1F bitumen felt to BS747 under a natural slate roof.
 - Rafters to be supported by rough-sawn untreated timber rafters. No wood treatments to be used.
 - Bat Box Blocks x 2 (Placement - 1 on the South Side and 1 on the East or West Side), see Figure 6 (Left).¹⁹
 - Position bat block boxes at least 3.5m above ground (may need to go off-centre on side elevation to clear height required).
 - Generic Bat box to be mounted inside structure that has a hinged panel (see Figure 6 (Right))²⁰ along with a human access door to place this inside bat house structure. Access door to be on North 3m side. If Bats are found during works then any affected animals can be placed inside the generic box (Bat blocks can be more inaccessible depending on the type).

The structure should be placed near existing foraging areas and commuting routes used by bats, in a dark corner, e.g. northwest corner.

¹⁹

[https://www.nhbs.com/4?slug=bat-boxes&q=&fR\[hide\]\[0\]=false&fR\[live\]\[0\]=true&fR\[shops.id\]\[0\]=4&fR\[subidiaries\]\[0\]=3&hFR\[subjects_equipment.lv1\]\[0\]=Bat%20Boxes&qtview=229385](https://www.nhbs.com/4?slug=bat-boxes&q=&fR[hide][0]=false&fR[live][0]=true&fR[shops.id][0]=4&fR[subidiaries][0]=3&hFR[subjects_equipment.lv1][0]=Bat%20Boxes&qtview=229385)

²⁰

https://www.vivara.ie/harlech-woodstone-bat-box-black?gad_source=1&gclid=CjwKCAjwg-24BhB_EiwA1ZOx8r3Q8jniY1Mv7ZbgdK2XyZJXRJloXE0RHp8Fz_QISdELsp6G11MonhoCZVAQAvD_BwE

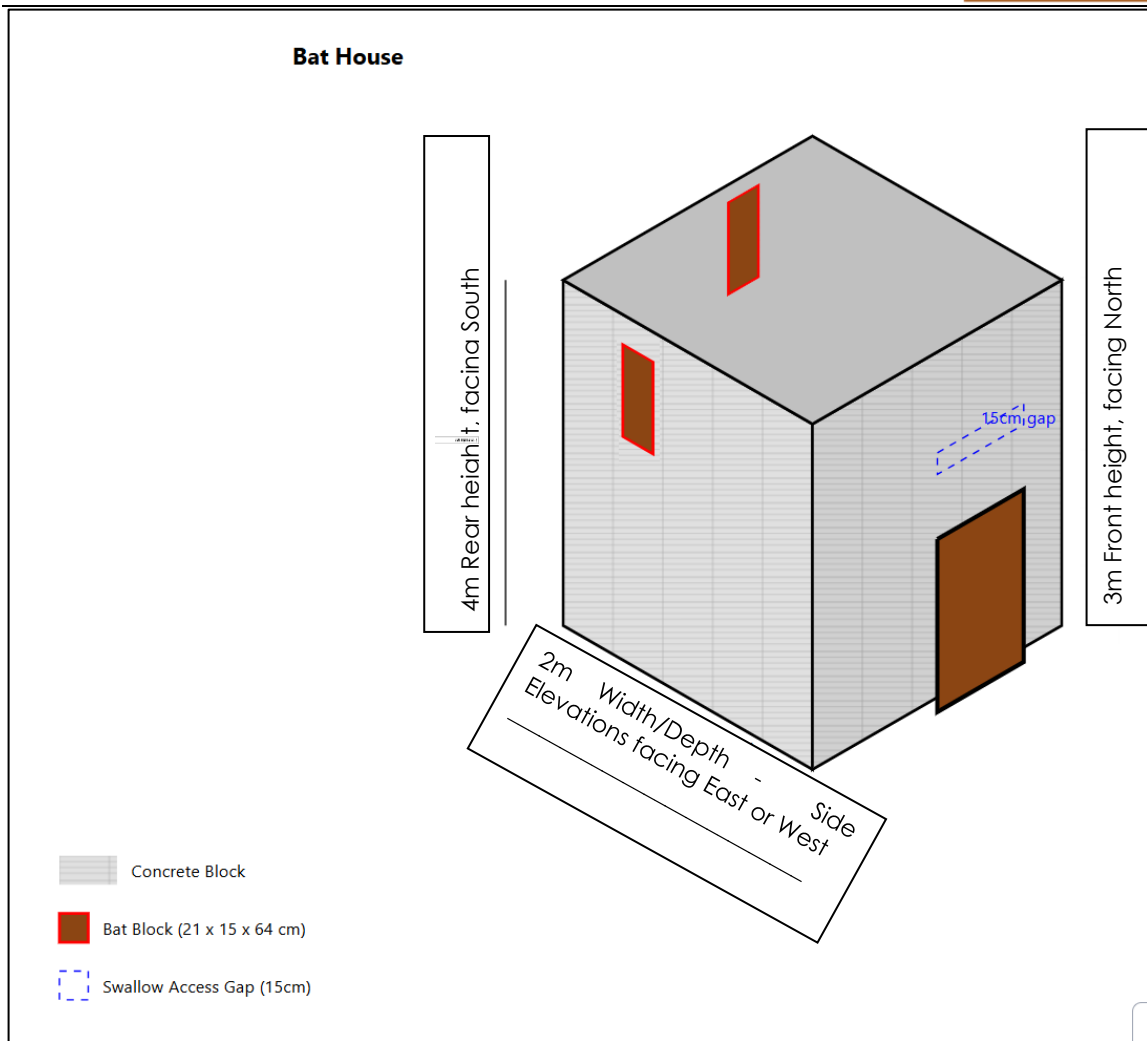


Figure 5 Dedicated Block Bat House Structure will be constructed to provide alternative roosting opportunities for bats



Figure 6 Bat Block x 2 required as above (Left) and Generic Box with hinged Panel x 1 required (Right)

4.2 Timing and Methodology of Works

The works will be carried out during two periods in 2025: January-March and October-December. This timing avoids the bat maternity season.

Bat mitigation work will involve:

1. Roof removal of the extension:
 - Onsite attendance from morning.
 - Conduct a final inspection immediately before work begins.
 - Contractor to remove roof tiles/slates by hand, starting from the bottom and working upwards.
 - As each section is removed, the ecologist will inspect the exposed area for bats.
 - If bats are found, work must stop immediately and the ecologist will safely remove and relocate them.
 - Continue this process until the entire roof is removed.
2. Sealing of access points:
 - Identify all potential access points in the main house and stone sheds.
 - For each access point:
 - Cover larger gaps with fine wire mesh (6mm mesh size or smaller).

- Use timber panels for larger openings, ensuring they are fitted securely but with small gaps at the top for potential bat exit.
 - Ensure all materials used are securely fastened to prevent creating new access points.
3. Pre-work inspection: A thorough inspection for bats will be conducted using an endoscope, high-powered torches, thermal imaging equipment, and ultrasonic detectors.
 4. Roof removal of the extension: If no bats are found, the roof of the extension will be carefully removed under ecological supervision.
 5. Sealing of access points: Following roof removal, any potential bat access points in the main house and stone sheds will be sealed using fine wire mesh or timber panels. These will be installed in a way that allows any uncovered bats to exit but not re-enter.
 6. Post-exclusion monitoring: The structures will be monitored to ensure no bats remain trapped inside.
 7. The NPWS ranger will be consulted and given the option to attend these works.

4.3 Lighting for Bats

The nine Irish resident bat species are all nocturnal. Bats hibernate during the winter, swarm during the autumn, and give birth during the summer each year. Artificial Light at Night (ALAN) may dramatically alter the natural behaviour of bats in respect to roosting, traveling, and feeding in many facets of their lifetime. Moonlight, starlight, and low-intensity twilight represent low lighting levels that bats are naturally exposed to. Any exposure to light that is higher than natural dusk and night light levels can have a negative impact on a bat behaviour.

Artificial light at night at or near roosts may impact bats in a number of ways, for example, delaying emergence time after dusk, causing abandonment of roosts when exits are lit at night and/or reducing reproductive success (e.g. Stone, 2013). Foraging areas that become lit at night may be abandoned, thus potentially increasing energetic costs for bats and reducing reproductive success at a population level (Schofield, 2008; Stone, 2013). Potential light sensitivity of the Irish bat fauna using categories described by Rydell (2006) is shown in Table 6 below. The species using Doonmore House and stone sheds as a roost are semi-tolerant to light.

Table 6 Potential light sensitivity of the Irish Bat Species

Species: Common Name	Rydell Category	Sensitivity
Daubenton's bat <i>Myotis daubentonii</i>	Category 4	Light sensitive
Whiskered bat <i>Myotis mystacinus</i>	Category 4	Light sensitive
Natterer's bat <i>Myotis nattereri</i>	Category 4	Light sensitive
Leisler's bat <i>Nyctalus leisleri</i>	Category 2	Light tolerant
Nathusius' pipistrelle <i>Pipistrellus nathusii</i>	Category 3	Semi-tolerant
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Category 3	Semi-tolerant
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	Category 3	Semi-tolerant
Brown long-eared bat <i>Plecotus auritus</i>	Category 4	Light sensitive
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	Category 4	Light sensitive

With smarter lighting, rather than less lighting, it is possible to reduce the effects of light pollution. Lighting should only be erected where it is needed, illuminated during the time period it will be used, and only to levels that enhance visibility. Artificial light shining on bat roosts, their access points and the flight paths leading to and from new roost features must always be avoided.

In order to preserve the commuting potential of the trees retained onsite and to minimise disturbance to bats utilising the site in general, the lighting and layout of the proposed development should be designed to minimise light-spill onto habitats used by the local bat population foraging or commuting. This can be achieved by ensuring that the design of lighting accords with best practice guidelines.

The IPL and BCT (2023) guidelines provides a list of recommendations in relation to luminaire design, which is based on the extensive research completed to-date on the potential impact of lighting on bats, and therefore provides best practice mitigation measures. These recommendations are the basis of mitigation measures pertaining to bats listed in this report and are summarised as follows:

- Light spill modelling shows illuminance of <1 lux in areas of new tree planting and where trees are retained, which meets current best practice guidelines.
- Warm white (2700K or lower) LEDs should be used to minimize blue light disturbance. Light sources should lack UV and peak above 550nm.
- Luminaires should minimise upward light ratio, glare and light spill through optical control, recessing, and horizontal mounting i.e. no upward tilt.
- Motion sensors and short timer settings should be used where possible to minimise lighting duration.
- Central management systems allow flexible remote control of lighting times.
- Accessories like baffles or louvres can further reduce spill but may be less effective than modern LED optics.

In addition:

- Low height Bollard lighting along the drive and downlighters on walls, see Appendix C for examples.
- Any external security lighting will be set on motion-sensors and short (1min) timers.
- Outdoor Lighting for the new house, and repurposed stone sheds will only be directed where it is needed and modest in output.
- No lights should shine on the new structure put up for bats.

5. CONCLUSION

This bat derogation licence application report, prepared for the proposed refurbishment works at Doonmore House, Doonbeg, Co. Clare, presents compelling evidence for the need for a derogation licence and outlines comprehensive mitigation measures to protect the local bat population.

Key findings and proposals include:

1. **Confirmed Bat Roosts:** The survey conducted on July 13th 2024, verified the presence of bat roosts in both the main house (Doonmore House) and the associated stone sheds. Common Pipistrelle (*Pipistrellus pipistrellus*) and Soprano Pipistrelle (*Pipistrellus pygmaeus*) were recorded using these structures.
2. **Site Importance:** The site is evaluated as being of County Importance for bats, serving as a crucial refuge in a landscape where alternative roosting sites may be limited.
3. **Mitigation Measures:** A detailed mitigation strategy has been developed, including:
 - Construction of a Block Bat House Structure (Figure 5) to be in place before works.
 - Carefully timed and supervised roof removal and access point sealing.
 - Thorough pre-work inspections and exclusion methods.
 - Implementation of bat-friendly lighting design.
4. **Timing of Works:** Proposed works are scheduled for January-March and October-December 2025, avoiding the sensitive bat maternity season.
5. **Ecological Supervision:** All critical stages of work will be overseen by a licensed bat ecologist (with invitation sent to NPWS ranger for attendance).

The implementation of these mitigation measures, subject to the granting of this derogation licence, will significantly reduce potential impacts on the resident bat populations. With the outlined mitigation in place, it is deemed there will not be detrimental to the maintenance of the bat populations at a favourable conservation status in their natural range.

APPENDICES

APPENDIX A



Plate 1 Front of Doonmore House onsite. Access available to bats via sides of tower giving it 'High' bat roost potential.



Plate 2 Side of front tower with access via both side window slits for bats and birds.



Plate 3 Side façade well sealed.



Plate 4 Other side façade also well sealed.



Plate 5 Rear of Dunmore house with old extension also shown. Access available via missing slates with emergence noted.



Plate 6 Other side of old extension, no missing slates/access on this side.



Plate 7 Some signs of bats within the house on ground level (insect remains and old droppings). Second floor not walked as not deemed safe to access.



Plate 8 View from top of ladder into second storey of house with gaps evident between beams, potential roosting features.

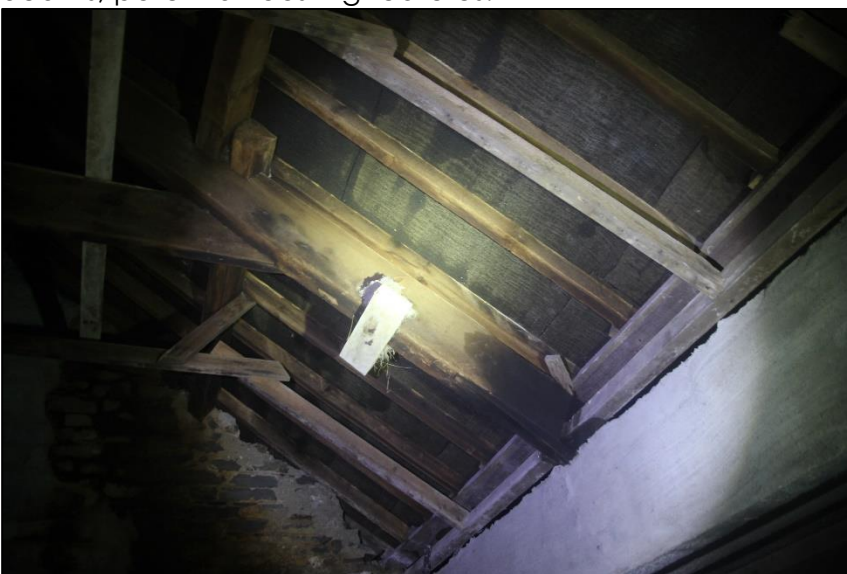


Plate 9 Inside old extension of house with gaps between beams and roof, potential roosting features.



Plate 10 Example of the numerous Barn Swallow Nests within the House. Bird nesting season timing constraints to apply to any works that involve sealing access.

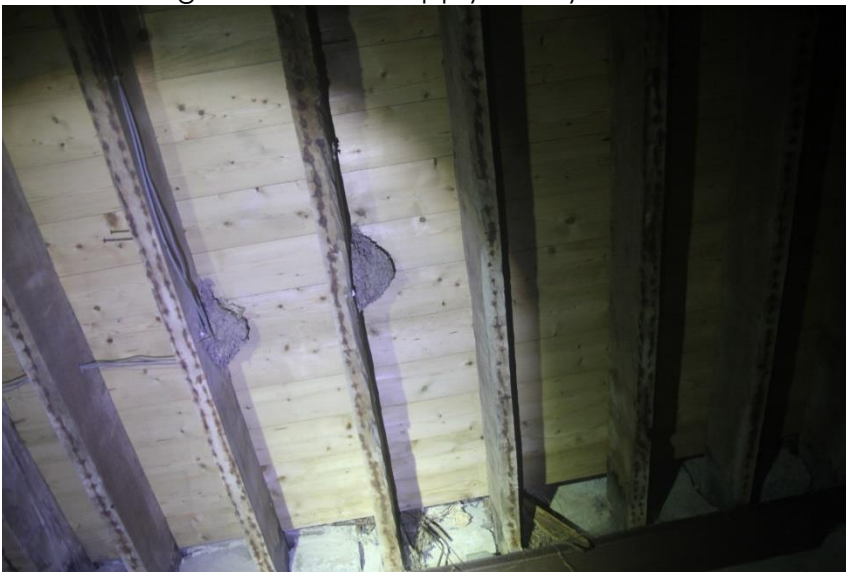


Plate 11 Example of the numerous Barn Swallow Nests within the House. Bird nesting season timing constraints to apply to any works that involve sealing access.



Plate 12 Example of the numerous Barn Swallow Nests within the House. Bird nesting season timing constraints to apply to any works that involve sealing access.



Plate 13 Row of Barns for conversion. Access to all via open doors, rear windows or slits in the stonework. Bat emergence noted.



Plate 14 Gable of Barns for conversion. Cracks and crevices with bat roost potential.



Plate 15 First barn with numerous barn swallow nests and fledging's. Also contained bat droppings on walls.



Plate 16



Plate 17



Plate 18

Plate 16 – 18 The landscape surrounding Doonmore House is characterised by its coastal location on the Doonbeg Estuary, consisting primarily of open grasslands, coastal habitats, and some agricultural lands. The area is relatively exposed, with sparse woodland and limited mature trees or hedgerows.

APPENDIX B

13/07/2024	Species Text	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]
22:39:35	Common Pipistrelle	118	52.7	69.8	51.8	5	80	15	52.73946	-9.5402
22:40:22	Soprano Pipistrelle	12	54	72.1	53	3	75	15	52.73954	-9.5399
22:40:34	Common Pipistrelle	49	52.8	65.9	51.7	3	75	15	52.73949	-9.53985
22:41:52	Soprano Pipistrelle	13	53	71.7	50.7	5	130	15	52.73945	-9.53981
22:43:03	Common Pipistrelle	225	51.2	71.8	50.5	5	75	14	52.73941	-9.53971
22:44:06	Common Pipistrelle	11	52.3	67.2	51.6	5	120	14	52.73947	-9.54015
22:44:15	Soprano Pipistrelle	24	53.7	68.8	52.7	4	80	14	52.73937	-9.53988
22:44:22	Soprano Pipistrelle	50	53.3	71.7	52.5	4	60	14	52.73937	-9.53985
22:44:38	Common Pipistrelle	110	52.2	71	51.3	5	80	14	52.73953	-9.54016
22:44:46	Common Pipistrelle	56	52.6	69.4	51.5	3	74	14	52.7394	-9.53967
22:45:14	Common Pipistrelle	15	47.5	52.1	46.9	4	70	14	52.73956	-9.54002
22:45:51	Common Pipistrelle	44	47.7	68.5	47.1	4	80	14	52.73939	-9.53996
22:45:59	Common Pipistrelle	17	47.9	61.8	47.3	5	76	14	52.73946	-9.53995
22:46:06	Soprano Pipistrelle	22	54.5	64.6	53.3	3	70	14	52.73957	-9.53995
22:46:23	Common Pipistrelle	148	50.6	70.6	49.9	5	80	14	52.73945	-9.54009
22:46:44	Common Pipistrelle	57	51.6	64.8	50.7	5	80	14	52.73959	-9.53992
22:47:00	Common Pipistrelle	84	50	70.5	48.9	5	100	14	52.73957	-9.54003
22:47:12	Common Pipistrelle	62	50.5	70.4	49.4	5	73	14	52.73952	-9.54008
22:47:22	Common Pipistrelle	11	46.5	60.2	45.8	5	160	14	52.73951	-9.54015
22:47:35	Common Pipistrelle	92	47.8	66.5	47	4	80	14	52.73956	-9.54026
22:47:47	Common Pipistrelle	116	47.8	67.3	47	4	80	14	52.73952	-9.5399
22:48:13	Common Pipistrelle	44	52.4	67.8	51.6	4	80	14	52.73945	-9.5402
22:48:49	Common Pipistrelle	35	48.7	70.1	47.9	3	74	13	52.73944	-9.53987
22:50:21	Common Pipistrelle	25	48.2	67.5	47.5	3	77	13	52.73941	-9.53978
22:50:41	Common Pipistrelle	24	48.2	68	47.4	4	80	13	52.73936	-9.53986
22:51:00	Common Pipistrelle	19	47.8	60.5	47.1	5	74	13	52.73937	-9.54004
22:51:05	Common Pipistrelle	30	47.5	63.7	47	3	80	13	52.73941	-9.5401
22:51:37	Common Pipistrelle	22	47.2	57	46.5	4	80	13	52.73934	-9.5404
22:51:43	Common Pipistrelle	28	52.2	71.9	50.6	5	86	13	52.73948	-9.53996

13/07/2024	Species Text	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]
22:52:17	Common Pipistrelle	39	47.1	64.3	46.3	5	80	13	52.73953	-9.54005
22:52:34	Soprano Pipistrelle	25	56.4	72.8	55.9	3	65	13	52.73943	-9.5402
22:52:57	Common Pipistrelle	59	47.5	63.2	46.7	5	80	13	52.73952	-9.54005
22:53:24	Common Pipistrelle	72	47.8	66.7	47	4	90	13	52.73944	-9.54015
22:53:36	Soprano Pipistrelle	63	53.4	70.7	52.3	5	80	13	52.73956	-9.54007
22:53:50	Soprano Pipistrelle	39	53.1	71.1	52.3	5	84	13	52.73957	-9.54005
22:54:12	Common Pipistrelle	116	50.6	68.6	49.7	5	80	13	52.73954	-9.53993
22:54:36	Common Pipistrelle	48	47.8	63.9	47	3	70	13	52.7395	-9.53974
22:55:00	Common Pipistrelle	22	47	57.9	46.2	3	73	13	52.7395	-9.5398
22:55:17	Common Pipistrelle	10	48	58	47.5	4	90	13	52.73956	-9.53997
22:55:30	Common Pipistrelle	29	47.7	58.7	47.1	5	95	13	52.73954	-9.54001
22:56:16	Common Pipistrelle	43	47.2	66.1	46.6	5	80	13	52.73941	-9.53953
22:56:22	Common Pipistrelle	27	47.9	58.9	46.8	3	80	13	52.73941	-9.53966
22:57:01	Common Pipistrelle	10	48.4	58.3	47.6	4	80	13	52.73956	-9.53995
22:57:07	Common Pipistrelle	27	47.5	60.3	46.8	4	74	13	52.73953	-9.53994
22:57:07	Common Pipistrelle	12	48	58.9	47.4	5	90	13	52.73957	-9.53997
22:57:13	Common Pipistrelle	10	49	59.4	47.8	4.5	190	13	52.73949	-9.53993
22:57:19	Common Pipistrelle	30	47.7	57.2	47.1	5	100	13	52.73956	-9.54002
22:57:20	Common Pipistrelle	14	48.7	72.6	47.3	3	80	13	52.73961	-9.54005
22:57:46	Common Pipistrelle	12	46.6	60.3	45.7	4	80	13	52.73957	-9.54001
22:58:04	Common Pipistrelle	55	47.3	65.7	46.5	5	75	13	52.73946	-9.53997
22:59:14	Common Pipistrelle	67	47	64.4	46.4	5	80	13	52.73947	-9.54015
22:59:38	Common Pipistrelle	52	47.2	63.9	46.6	5	84	13	52.73947	-9.54009
23:18:56	Common Pipistrelle	29	48.1	67.5	47.4	4	85	13	52.73957	-9.53999
23:19:57	Common Pipistrelle	187	48	71	47	3	80	13	52.7394	-9.53978
23:20:13	Common Pipistrelle	21	47.7	57.5	47	3	80	13	52.73953	-9.53996

APPENDIX C



1. Use warm white LED lights (2700K or lower) to reduce impact on bats.
2. Install downward-facing, shielded fixtures on walls and low-level bollards (max 1m height) for pathways.
3. Set timers to switch off lights between 11pm and 5am when bats are most active.
4. Maintain a 5m wide dark corridor along property boundaries and near vegetation.
5. Implement motion sensors with short duration settings (1-2 minutes) for essential lighting.

For more detailed guidance, refer to: Bat Conservation Trust and Institution of Lighting Professionals. (2023). Guidance Note 8/23 Bats and Artificial Lighting.