# Appropriate Assessment Screening & Natura Impact Statement

## Residential Redevelopment, Dromeen, Ruan Co. Clare

**September 2023**

Prepared for:

**Ian Keane**

CIEEM REGISTERED PRACTICE 2023-2024

O'DONNELL ENVIRONMENTAL

## Summary

**Project:** Residential redevelopment at Dromeen, Ruan, Co. Clare.

**Coordinates:** R 37351 90044 (IG); 537307 690072 (ITM).

**Report by:** Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM.

**Company Profile:** O'Donnell Environmental is an independent environmental consultancy established by Tom O'Donnell in 2019. O'Donnell Environmental is a Chartered Institute of Ecology and Environmental Management (CIEEM) 'Registered Practice' which demonstrates our commitment to high professional standards, accountability and the delivery of the best outcomes for biodiversity and our Clients.

| **Project Reference: 2022/59** | | | |
|---|---|---|---|
| **Document Rev. No.** | **Status** | **Contributor** | **Date** |
| A | Final Issue | TO'D, CB | 27/09/2023 |

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# Executive Summary

Ian Keane proposes to redevelop an abandoned residential dwelling at Dromeen, Ruan, Co. Clare. The proposed development is located within the Moyree River System SAC (0057), of which Lesser Horseshoe Bat is a qualifying interest. The structure proposed for redevelopment hosts a maternity colony of Lesser Horseshoe Bats.

This report presents the results of an AA screening assessment and Natura Impact Statement, in support of the Appropriate Assessment process. The purpose of the report is to inform the Local Authority's decision as to whether significant effects on the conservation objectives of any Natura 2000 site are likely to occur.

This assessment consisted of two stages, namely AA Screening (Stage 1) and Natura Impact Statement (Stage 2). Mitigation measures applied at NIS stage consisted of measures to avoid any potential impacts as a result of the loss of roosting habitat for Lesser Horseshoe Bat deriving from the redevelopment of their existing roost.

Provided the advised mitigation measures are fully implemented, it is objectively concluded that the proposed project, either individually or in combination with other plans or projects, is not likely to have significant effects on the Moyree River System SAC or any other Natura 2000 site.

# 1 Introduction

O'Donnell Environmental was commissioned by Ian Keane to undertake an Appropriate Assessment (AA) in relation to the development of a residential dwelling in Dromeen, Ruan, Co. Clare. This Appropriate Assessment screening report & Natura Impact Statement represents the product of the Appropriate Assessment process.

The site boundary encloses a privately owned 0.181ha disused residential dwelling and associated stonework outbuildings and agricultural land holding located approximately 5km northeast of Ruan, Co. Clare. The site is comprised of predominantly improved agricultural and wet grassland. The proposed development boundary does not contain any surface water features, with the Moyree River flowing approximately 380m south of the proposed development. A site location map is presented in **Figure 1.1**.

This Appropriate Assessment has been undertaken in accordance with the following guidance documents:

- Assessment of Plans and Projects Significantly Affecting Natura 2000 Sites – European Commission Methodical Guidance on the provisions of Article 6(3) and 6(4) of the 'Habitats' Directive 92/43/EEC (European Commission, 2021).
- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (DoEHLG 2009).
- Environmental Assessments and Planning in Ireland. (Office of Planning Regulator, 2021).

## 1.1 APPROPRIATE ASSESSMENT PROCESS

The 'Appropriate Assessment' process that consists of up to four stages, carried out consecutively. This process is summarised as follows:

- Stage 1: A screening assessment is undertaken to identify whether in view of best scientific knowledge and in light of the conservation objectives of the Natura 2000 site(s) significant impacts on a Natura 2000 site(s) are likely to arise from the project or plan in question (individually or in combination with other plan or projects), in the absence of mitigation. If the likelihood of significant impacts cannot be ruled out, or if uncertainty exists, then the process moves on to Stage 2.
- Stage 2: Carried out when a screening assessment determines impacts on the Natura 2000 sites(s) are likely to arise from the project or plan, or where uncertainty exists, and considers potential mitigation measures to avoid or reduce adverse impacts. The outcome of a Stage 2 and higher assessment is presented in a report known as a Natura Impact Statement (NIS). The NIS is intended to assist the competent authority to conduct the appropriate assessment.
- Stage 3: Carried out to assess alternative solutions when it is considered that mitigation measures will not be able to adequately avoid or minimise potential adverse impacts on a Natura 2000 site(s).
- Stage 4: Carried out to consider compensatory measures when no alternative solutions exist but the proposed activity or development is deemed to be of Imperative Reasons of Overriding Public Interest (IROPI).

## 1.2 LEGISLATIVE CONTEXT

The Habitats Directive (92/43/EEC) seeks to conserve natural habitats and of wild fauna and flora by the designation of Special Areas of Conservation (SACs) and the Birds Directive (79/409/EEC) seeks to protect birds of special importance by the designation of Special Protected Areas (SPAs). These designations form part of Natura 2000, a network of key conservation sites throughout the European Community. Article 6(3) of the Habitats Directive requires member states to carry out an 'appropriate assessment' of the implications of plans and projects on the Natura 2000 network. The Habitats Directive has been transposed into Irish law and the relevant Regulations are the European Communities (Birds and Natural Habitats) Regulations 2011.

The EU Court of Justice has ruled in case C-721/21 that Article 6(3) of Directive 92/43 must be interpreted as meaning that: in order to determine whether it is necessary to carry out an appropriate assessment of the implications of a plan or project for a site, account may be taken of the features of that plan or project which involve the removal of contaminants and which therefore may have the effect of reducing the harmful effects of the plan or project on that site, where those features have been incorporated into that plan or project as standard features, inherent in such a plan or project, irrespective of any effect on the site.

## 1.3 STATEMENT OF AUTHORITY

O'Donnell Environmental is an independent environmental consultancy established by Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM in 2019. O'Donnell Environmental is a Chartered Institute of Ecology and Environmental Management (CIEEM) 'Registered Practice' which demonstrates our commitment to high professional standards, accountability and the delivery of the best outcomes for biodiversity and our Clients.

Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has 15 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments.

Colm Breslin BSc (Hons) MSc is a Qualifying member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Biological, Earth and Environmental Sciences [Ecology and Environmental Biology] in 2023 from UCC. Colm has experience in habitat mapping, bat activity surveys and preliminary roost assessments for a variety of windfarm and residential developments. Colm is licenced by NPWS for roost disturbance (Ref: DER/BAT 2023-59), to capture bats (C182/2023), and to photograph bats (212/2023).

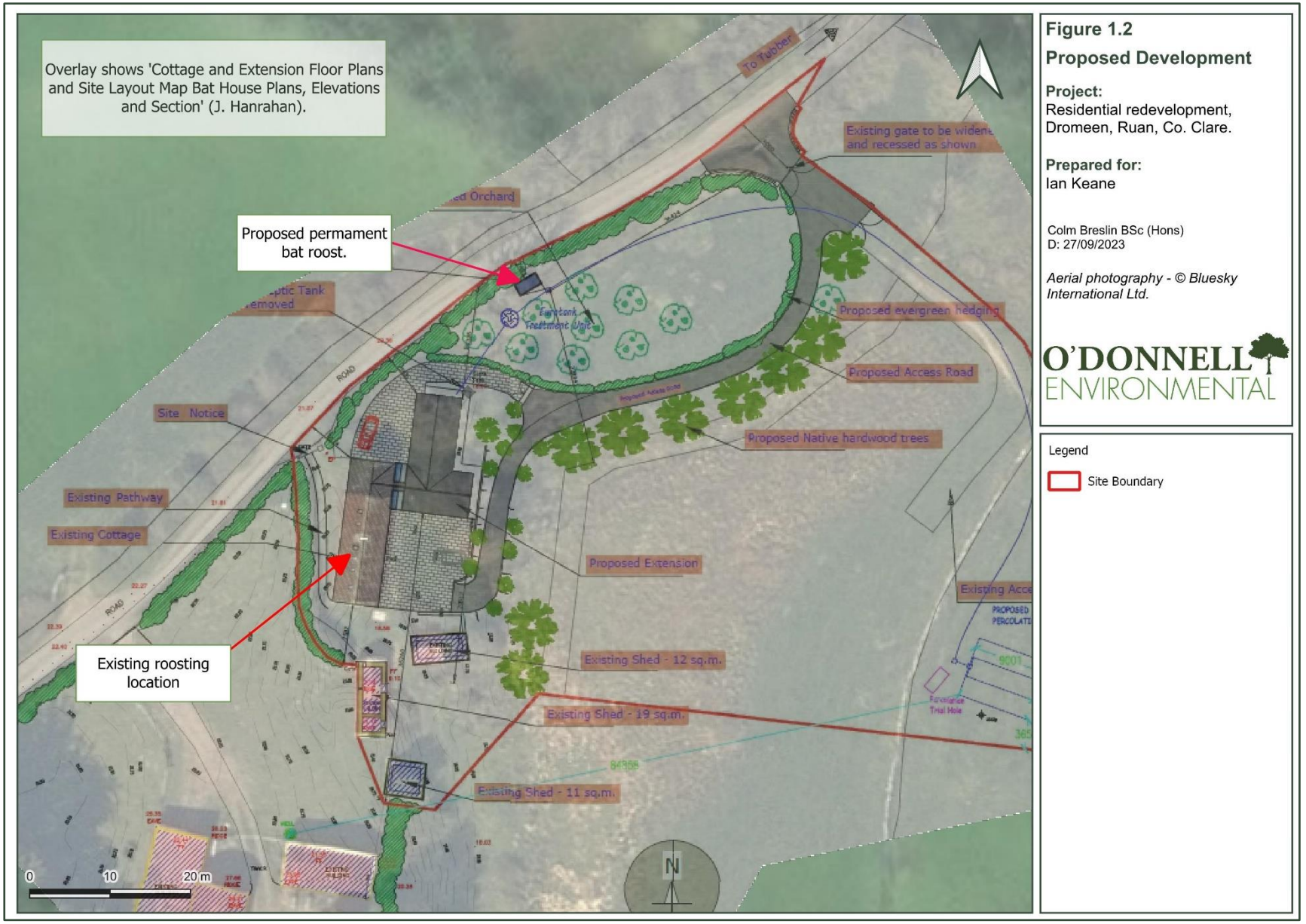
## 1.4 DESCRIPTION OF THE PROPOSAL

The proposed development will involve the refurbishment and extension of an existing cottage, removal of existing septic tank and construct a new septic tank, percolation treatment system, widening of an existing gateway and the construction of a new access road. A new, permanent bat house is also proposed see **Appendix B**.

## 1.5 DO NOTHING SCENARIO

If the proposed development does not proceed, the 'do nothing' scenario is that the existing environment within the site boundary is likely to remain as described herein in the short term at least. The building is in an advanced state of dilapidation, and the original roosting location in the slate roofed extension has deteriorated to the extent that it is no longer available to roosting bats and the colony has relocated to the void below the corrugated roof of the main house. The do-nothing scenario in this instance is that the house would continue to decline in condition and would be lost entirely as a roosting location in the medium term.


Lesser Horseshoe Bat Roost
0
10
20 m
Figure 1.1
Study Site Location
Project:
Residential redevelopment, Dromeen, Ruan, Co. Clare.
Prepared for:
Ian Keane
Colm Breslin BSc (Hons)
D: 24/09/2023
Aerial photography - © Bluesky International Ltd.
Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation
O'DONNELL ENVIRONMENTAL
Legend
Site Boundary


Overlay shows 'Cottage and Extension Floor Plans and Site Layout Map Bat House Plans, Elevations and Section' (J. Hanrahan).
Proposed permament bat roost.
Existing roosting location
To Tubber
Existing gate to be widened and recessed as shown
Proposed evergreen hedging
Proposed Access Road
Proposed Native hardwood trees
Proposed Extension
Site Notice
Existing Pathway
Existing Cottage
Existing Shed - 12 sq.m.
Existing Shed - 19 sq.m.
Existing Shed - 11 sq.m.
Figure 1.2
Proposed Development
Project:
Residential redevelopment, Dromeen, Ruan, Co. Clare.
Prepared for:
Ian Keane
Colm Breslin BSc (Hons)
D: 27/09/2023
Aerial photography - © Bluesky International Ltd.
O'DONNELL ENVIRONMENTAL
Legend
Site Boundary
0
10
20 m
N

# 2 Methodology

This Appropriate Assessment was informed by desk-based and site-based assessments. Site visits were carried out by Tom O'Donnell BSC (Hons) MSc CEnv MCIEEM and Colm Breslin BSc (Hons) on 17th May and 27th July 2023. Full access to the site was provided by the Client.

Site meetings were held between the Applicant, NPWS Representatives and O'Donnell Environmental Representatives in May and September 2023, and the decisions made in these meetings are incorporated in the proposed design and measures.

## 2.1 DESKTOP REVIEW

A desktop review of publicly available relevant data was undertaken on the National Biodiversity Data Centre (NBDC) and National Parks & Wildlife Service (NPWS) websites. The National Biodiversity Data Centre was reviewed for relevant data, specifically i) existing species records for the 10km square in which the study site is located (R39) and ii) an indication of the relative importance of the wider landscape in which the study site is located, based on Model of Bat Landscapes for Ireland (Lundy *et al*. 2011). In the latter, the index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The Environmental Protection Agency (EPA) maping database was interrogated for relevant data regarding waterbodies and their associated quality and risk assessment.

A request to the NPWS for information pertaining to Lesser Horseshoe Bat roost records (including counts) within 10km of the proposed development was made by O'Donnell Environmental on the 21st August 2023. These locations are considered sensitive data due to the identification of private residences and are thus not discussed in specific detail but were considered extensively for the purpose of this report. Consultation was continually sought with Clare North-east NPWS conservation ranger Dr. Sinéad Biggane throughout the AA process.

## 2.2 VISUAL ROOST SURVEY

Daytime visual assessments of the exterior and interior building structures were carried out by Tom O'Donnell and Colm Breslin on 17th May and 27th July 2023 to identify any bat roosting potential within the buildings. Signs of bat use include bat droppings, feeding remains, potential bat access points identified by characteristic staining and scratches, noise made by bats etc.

Daytime visual roost surveys consisted of:

- Exterior inspection of structures at ground level.
- Interior inspection of structures, utilising thermal imaging cameras to non-invasively assess the attic voids for the presence of Lesser Horseshoe Bat.

A detailed visual assessment of the disused dwelling and associated stonework outbuildings was carried out following guidance set out in Collins (2016). Interior structures were assessed to determine how bats used the wider attic space of the disused house, the connectivity between interior structures and any potential access/egress points. This helped inform subsequent bat activity emergence and re-entry survey methodology. The survey was non-destructive, and relevant Potential Roost Features (PRFs) were visually inspected to identify any evidence of bat roosting. Potential Roost Features (PRFs) are described according to the scheme outlined in **Table 2.1**, below.

Photographs of the study area are shown in **Appendix A**.

**Table 2.1. Scheme for describing the potential suitability of features for bats.**

| Suitability | Description |
|---|---|
| Negligible | Negligible features which are likely to be used by roosting bats. |
| Low | A feature with one or more potential roost sites that could be used by individual bats opportunistically.<br>Potential roost sites which do not provide appropriate conditions 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 or hibernation).<br>A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential. |
| Moderate | A structure or tree with one or more potential roost sites that could be used by bats due to characteristics and surrounding habitat but unlikely to support a roost of high conservation status. |
| High | A structure or tree 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 and surrounding habitat. |

*After 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition)', Collins (2016).*

## 2.3 BAT ACTIVITY SURVEYS

Emergence and passive bat activity surveys were carried out to determine the current status of the known Lesser Horseshoe Bat maternity colony within the proposed development, alongside any other bat species that may be roosting within the disused structure.

### 2.3.1 Emergence/ Re-entry Survey

One back-to-back emergence and re-entry survey was carried out on the exterior of the proposed structure on the 27th July 2023. Surveys followed Collins (2016) and aimed to determine access/egress and counts of the identified Lesser Horseshoe Bat maternity roost within the inaccessible attic void space and their associated flight lines and direction of travel upon egress of the structure. The survey also aimed to identify the presence, if any, of any other species or roosting locations associated with the structure.

The survey was carried out by two bat-licensed surveyors: Tom O'Donnell and Colm Breslin. Surveyors were positioned to maximise views of the structures, in combination with night vision aids. Three Guide IR Pro 19 thermal imaging cameras were positioned to optimise views of the structure and predicted commuting corridors, following best practice guidelines[1]. Images showing the field of views from camera placements are shown in **Plates 2.1** to **2.3**. Particular attention was applied to any identified access/egress points noted during previous daytime visual assessments of the exterior and interior structures. Flight lines and commuting directions of Lesser Horseshoe Bat emerging from the structure were noted by both surveyors, including important local landscape features utilised early in the night.

Echolocation recordings were made on handheld Echo Touch Meter Pro 2 full spectrum recorders and heterodyne Batbox III D. Surveys were carried out during suitable weather conditions.

### 2.3.2 Passive Bat Monitoring

Passive bat monitoring was carried out for a total of 35 survey nights using WA Song Meter Mini full-spectrum detector within the interior of the disused house. The purpose of monitoring the interior spaces

[1] https://cdn.bats.org.uk/uploads/pdf/Interim-guidance-note-on-NVAs-May-2022-FINAL.pdf?v=1653399882

of the proposed building was to ascertain the presence of bat species other than Lesser Horseshoe Bat roosting within the interior of the house.

The survey period involved one detector placed in the doorway separating the two halves of the house in the room underneath the attic void space which houses the Lesser Horseshoe Bat maternity roost between 17th May and 20th June 2023. Bioacoustic analysis of bat sonograms was carried out according to the parameters set out in Russ (2012; 2021) and Middleton et al. (2014). Kaleidoscope Pro software was used to aid analysis and all calls were manually verified.

## 2.4 HABITATS AND FLORA

An ecological appraisal of the proposed development for habitats and flora was carried out by Cian Ó Ceallaigh BSC (Hons) MSc on behalf of O'Donnell Environmental on 23rd September 2023. The purpose of this survey was to classify the habitats contained within the development boundary and determine the presence of any qualifying interest Annex I habitats associated with the Moyree River System SAC (0057) such as Alkaline Fen [7230] and assess the potential for these habitats, if present, to be significantly affected by the proposed development.

This assessment was carried out in accordance with the Heritage Council's guidelines (Smith et al., 2011). This involved a walkover of the proposed development site where the habitats present were classified to level three using the classification scheme presented in *A Guide to Habitats of Ireland* (Fossitt, 2000). The extent of habitats was recorded on a field map along with notes of species present and their relative abundance described using the DAFOR scale. Where appropriate, consideration was given to whether habitats qualify, or could qualify, as corresponding Annex I habitats.

## 2.5 SURVEY LIMITATIONS

Full access to the interior and exterior of the building and adjoining land was provided by the Client. Bat and botanical surveys took place within optimal time periods.


**Plate 2.1** Example image of thermal camera covering the main access/egress on the northern side of the disused structure with Lesser Horseshoe Bat emerging (circled in red).


**Plate 2.2** Example image of thermal camera covering the main southern side of the disused structure with Lesser Horseshoe Bat entering (circled in red).


**Plate 2.3** Example image of thermal camera covering the road adjacent to the disused structure and surveyor determining flightlines of Lesser Horseshoe Bat flying overhead.

# 3 Appropriate Assessment Screening

The proposed site is currently not used for residential purposes, with the adjacent fields within the property boundary used for agricultural purposes. Adjoining land uses include improved agricultural grassland, river networks, forestry, recreational and residential land uses.

The proposed development is located within the Moyree River System SAC and hosts a maternity colony of Lesser Horseshoe Bat, a qualifying interest of the Natura 2000 site.

## 3.1 DESCRIPTION OF THE NATURA 2000 SITES

The development site is located within the Moyree River System SAC (0057). 28 Designated Natura 2000 Sites are present within 15km of the proposed site boundary, 22 Special Areas of Conservation (SAC) and 5 Special Protection Areas (SPA). It is important to note that this arbitrary distance of 15km is used for illustrative purposes only and all potential pathways for impact on designated sites have been included for both within and outside the 15km zone.

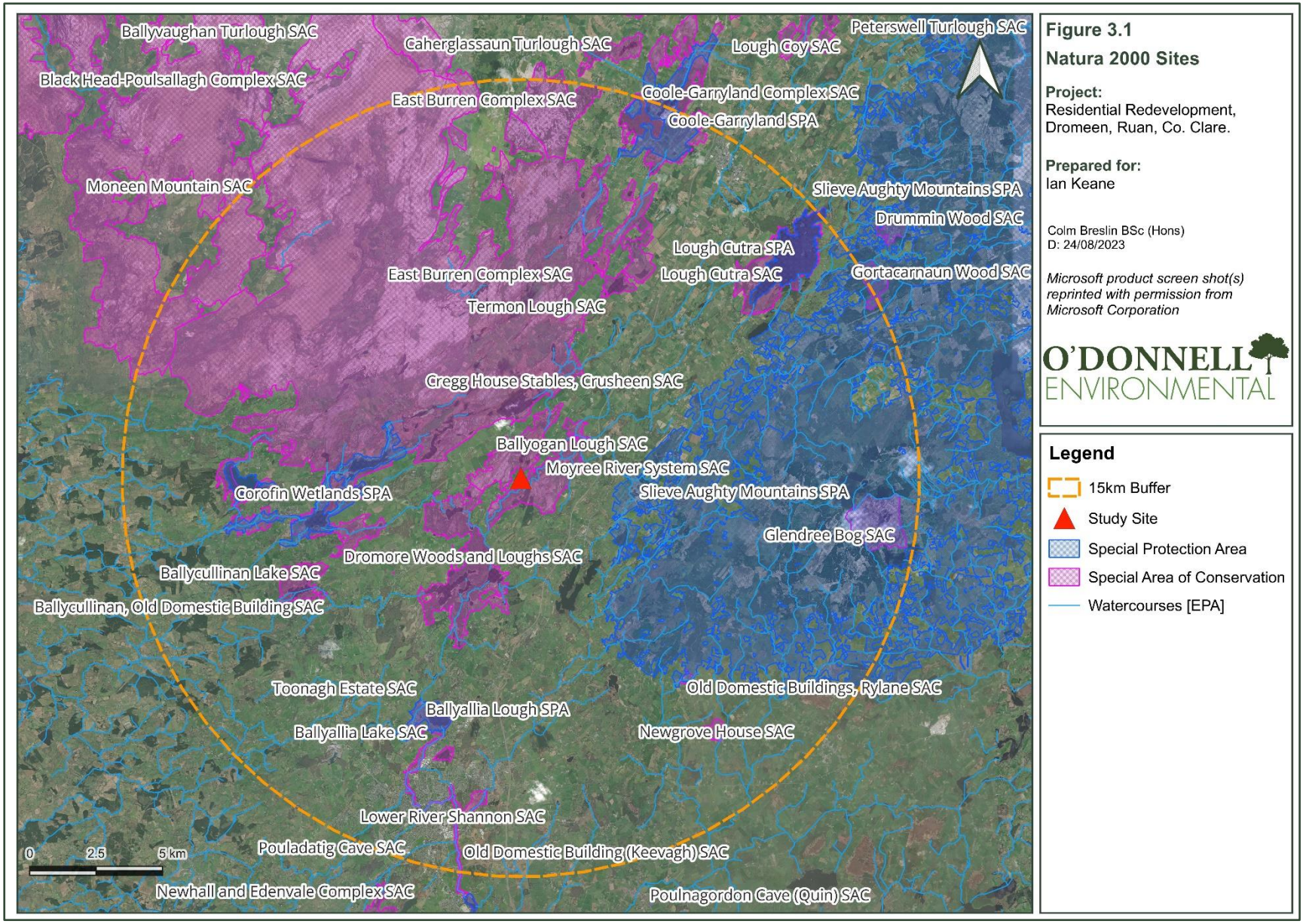
All Natura 2000 sites within 15km of the proposed development are shown in **Figure 3.1** and have been reviewed extensively for this report and the potential for impacts considered. Foraging areas and commuting landscape features within 2.5km of Lesser Horseshoe Bat roosts are considered important for the success of a maternity colony (Schofield, 2008). Considering this 2.5km distance for Lesser Horseshoe Bat, the scale of the proposed development, and relevance to the qualifying interests of the Moyree River System SAC, the relevant proximal Natura 2000 sites at approximately 2.5km distance from the proposed development are summarised below in **Table 3.1**.

No further sites, beyond the standard 15km search area, are considered to be relevant to the current assessment due to the nature and scale of the proposed project and the lack of a viable source-receptor pathway between the proposed site and any other Natura 2000 sites.

**Table 3.1 – Relevant Natura 2000 Site Details.**

| Site Name & Code | Qualifying Interests | Minimum Distance from Site (km) |
|---|---|---|
| Moyree River System SAC (0057) | • Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]<br>• Alkaline fens [7230]<br>• Limestone pavements [8240]<br>• Caves not open to the public [8310]<br>• *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]<br>• *Lutra lutra* (Otter) [1355] | 0km |
| Ballyogan Lough SAC (0019) | • Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]<br>• Limestone pavements [8240] | 0.18km |
| Dromore Woods and Loughs SAC (0032) | • Natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* - type vegetation [3150]<br>• Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] | 1.48km |

| Site Name & Code | Qualifying Interests | Minimum Distance from Site (km) |
|---|---|---|
| | • Limestone pavements [8240]<br>• *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]<br>• *Lutra lutra* (Otter) [1355] | |
| East Burren Complex SAC (1926) | • Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]<br>• Turloughs [3180]<br>• Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]<br>• Alpine and Boreal heaths [4060]<br>• *Juniperus communis* formations on heaths or calcareous grasslands [5130]<br>• Calaminarian grasslands of the *Violetalia calaminariae* [6130]<br>• Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210]<br>• Lowland hay meadows (*Alopecurus pratensis*, *Sanguisorba officinalis*) [6510]<br>• Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]<br>• Petrifying springs with tufa formation (*Cratoneurion*) [7220]<br>• Alkaline fens [7230]<br>• Limestone pavements [8240]<br>• Caves not open to the public [8310]<br>• Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0]<br>• *Euphydryas aurinia* (Marsh Fritillary) [1065]<br>• *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]<br>• *Lutra lutra* (Otter) [1355] | 2.03km |


Ballyvaughan Turlough SAC
Caherglassaun Turlough SAC
Peterswell Turlough SAC
Lough Coy SAC
Black Head-Poulsallagh Complex SAC
East Burren Complex SAC
Coole-Garryland Complex SAC
Coole-Garryland SPA
Moneen Mountain SAC
Slieve Aughty Mountains SPA
Drummin Wood SAC
Lough Cutra SPA
East Burren Complex SAC
Lough Cutra SAC
Gortacarnaun Wood SAC
Termon Lough SAC
Cregg House Stables, Crusheen SAC
Ballyogan Lough SAC
Moyree River System SAC
Corofin Wetlands SPA
Slieve Aughty Mountains SPA
Glendree Bog SAC
Dromore Woods and Loughs SAC
Ballycullinan Lake SAC
Ballycullinan, Old Domestic Building SAC
Toonagh Estate SAC
Old Domestic Buildings, Rylane SAC
Ballyallia Lough SPA
Ballyallia Lake SAC
Newgrove House SAC
Lower River Shannon SAC
Pouladatig Cave SAC
Old Domestic Building (Keevagh) SAC
Newhall and Edenvale Complex SAC
Poulnagordon Cave (Quin) SAC
0
2.5
5 km
Figure 3.1
Natura 2000 Sites
Project:
Residential Redevelopment, Dromeen, Ruan, Co. Clare.
Prepared for:
Ian Keane
Colm Breslin BSc (Hons)
D: 24/08/2023
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O'DONNELL ENVIRONMENTAL
Legend
15km Buffer
Study Site
Special Protection Area
Special Area of Conservation
Watercourses [EPA]

## 3.2 HYDROLOGICAL CONTEXT

The site does not include or immediately adjoin any watercourses. Drainage is achieved mostly by overland flow aided by field drains. The proposed site is located within the Shannon Estuary North Catchment (Catchment ID 27), sub-catchment Fergus_SC_020. The Moyree River_030 (IE_SH_27M020700) runs approximately 335m south of the proposed development within the Moyree River system SAC (0057), discharging into the Fergus River within the Dromore Woods and Loughs SAC (0032), and ultimately discharging into the Lower River Shannon SAC (2165) approximately 10km southwest of the proposed site. The EPA categorise the water quality of the Moyree River system as having "Poor" status (River Waterbody WFD Status 2016-2021) and is listed as 'At risk' (River Waterbodies Risk 2021). The Moyree River additionally achieved a 'Moderate' Q-Value status approximately 2.4km downstream of the proposed development at the most proximal monitoring station.

## 3.3 BATS

The proposed development hosts a maternity colony of Lesser Horseshoe Bat, a qualifying interest of the Moyree River System SAC (0057) and is located in a landscape of high suitability for all Irish bat species (NPWS, 2013a). The proposed development and surrounding environs provide a wide range of suitable foraging and commuting habitat for Lesser Horseshoe Bat.

### 3.3.1 Desktop Review

National Biodiversity Data Centre holds previous records of bat presence from within the 10km square (R39) in which the proposed site is located. These records are for:

- Lesser Horseshoe Bat (*Rhinolophus hipposideros*).
- Common Pipistrelle (*Pipistrellus pipistrellus*).
- Soprano Pipistrelle (*Pipistrellus pygmaeus*).
- Leisler's Bat (*Nyctalus leisleri*).
- Daubenton's Bat (*Myotis daubentonii*).
- Natterer's Bat (*Myotis nattereri*).
- Brown Long-eared Bat (*Plecotus auritus*).

The overall bat suitability index value (*50.89*) according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011) suggests the landscape in which the proposed site is located is of high suitability for Lesser Horseshoe Bat and other bat species in general. Species specific scores are provided in **Table 3.2**.

**Table 3.2 - Suitability of the study area for the bat species according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011).**

| Common name | Scientific name | Suitability index |
|---|---|---|
| *All bats* | | *50.89* |
| Soprano pipistrelle | *Pipistrellus pygmaeus* | 54 |
| Brown long-eared bat | *Plecotus auritus* | 73 |
| Common pipistrelle | *Pipistrellus pipistrellus* | 64 |
| Lesser horseshoe bat | *Rhinolophus hipposideros* | 51 |
| Leisler's bat | *Nyctalus leisleri* | 59 |

| | | |
|---|---|---|
| Whiskered bat | *Myotis mystacinus* | 50 |
| Daubenton's bat | *Myotis daubentonii* | 53 |
| Nathusius pipistrelle | *Pipistrellus nauthusii* | 0 |
| Natterer's bat | *Myotis nattererii* | 54 |

*Source: https://maps.biodiversityireland.ie/Map. Accessed 24/08/2023.*

O'Donnell Environmental formally requested to the NPWS for information pertaining to Lesser Horseshoe Bat roost records (including counts) within 10km of the proposed development. A total of 46 Lesser Horseshoe Bat roosts have been recorded and are currently being monitored by the NPWS within 10km of the proposed development. These roosts are a mixture of maternity, hibernation, satellite, transitional and night roosts. 16 of these roosts are located within Natura 2000 sites. 12 roosts are located within 5km, of which 3 (possibly 4) are Lesser Horseshoe Bat maternity roosts. The nearest maternity roost is located 2.1km southwest of the proposed development.

The proposed development is categorised as a maternity roost for Lesser Horseshoe Bat by the NPWS. Annual roost counts are presented below in **Table 3.4.** There has been an observable decline in numbers of Lesser Horseshoe Bat within this roost since 2008, likely from structural degradation resulting in water and light ingress (Dr. Sinéad Biggane *pers. comm.*). The most recent count data for the disused structure from 2020 is 2 individuals. This follows a peak count of 70 individuals in 2008.

**Table 3.4 – Annual NPWS roost count data of Lesser Horseshoe Bat within the proposed development.**

| Survey Date | Emergence Count |
|---|---|
| 25/05/1995 | 10 |
| 18/06/1997 | 26 |
| 06/08/1997 | 6 |
| 18/06/2007 | 60 |
| 14/07/2008 | 70 |
| 18/06/2009 | 40 |
| 06/07/2020 | 2 |

### 3.3.2 Visual Roost Survey

The features on site were assessed for their suitability for roosting bats following Collins (2016) (see **Table 2.1)**. The visual roost survey comprised the following and results are discussed below:

- Exterior inspection of disused house and associated stonework outbuildings.
- Interior inspection of disused house and accessible attic spaces.

It is understood from NPWS Conservation Ranger Dr. Sinéad Biggane that the original roosting location of Lesser Horseshoe Bat was located in the northern end of the disused structure but was abandoned in recent years in favour of the current roosting location discussed below following deterioration of the slate roofing which allowed light and water ingress.

The entirety of the exterior structures of the disused house and outbuildings were accessible when viewed from ground-level. The exterior of the disused house presented multiple access/egress points (see **Plate 3.1**). The points took the form of open/broken windows and missing roofing slates. The primary access/egress point was identified by Dr. Biggane as the north-facing window (see **Plate 3.2**).

A daytime visual inspection of the interior spaces of all structures was carried out with the aim of identifying bat roosts by either the presence of bats or signs of past bat roosting. The Lesser Horseshoe Bat maternity roosting location was identified within the inaccessible attic void space above the main room of the disused house, between the corrugated roofing and historic thatching. While this area was not able to be accessed, Guide IR Pro 19 thermal imaging cameras were used to non-invasively confirm the roosting location of Lesser Horseshoe Bat (see **Plate 3.3**).

**Plate 3.1** Overview of the exterior structure of the disused residence which houses a maternity colony of Lesser Horseshoe Bat.

**Plate 3.2** View of the main access/egress point used by Lesser Horseshoe Bat (circled in red).


**Plate 3.3** Thermal image of roosting Lesser Horseshoe Bat within the inaccessible attic void following roost re-entry at dawn.

### 3.3.3 Passive Bat Monitoring

Passive monitoring was carried out using Wildlife Acoustics Song Meter Mini full-spectrum detectors within the ground floor of disused house, directly underneath the known Lesser Horseshoe Bat roosting location. Bioacoustics analysis of bat sonograms was carried out using Kaleidoscope and all calls were manually verified.

The majority registrations comprised Lesser Horseshoe Bat and social calls were present in many of the recordings. Natterer's Bat was recorded consistently early in the night, indicating possibly day-roosting of this species within the disused structure, albeit in small numbers. Additionally, Soprano Pipistrelle and Brown Long-eared Bat were recorded within structure throughout a given survey night and can be presumed to be night-roosting within the building. Leisler's Bat was recorded on multiple occasions. However, due to the intensity and loudness of their calls, and the position of the detector close to a gap in a window it was considered that these registrations likely occurred from bats outside of the building.

### 3.3.4 Emergence/Re-entry Surveys

Multiple emergence points were identified on the eastern and northern sides of the disused structure. Review of thermal imaging footage provided a maximum count of 28 Lesser Horseshoe Bats emerging from the structure. Two Soprano Pipistrelles were observed emerging at the same location but were not observed re-entering at dawn. It should be noted that this survey took place in the latter part of the maternity season and the count likely includes juveniles in flight and it thus does represent a baseline count of adult breeding Lesser Horseshoe females.

The presence of two surveyors enabled the identification of flight lines and commuting direction of the Lesser Horseshoe Bat maternity colony following egress of the disused structure. Commuting patterns were clearly discerned as travelling along the adjacent hedgerow in a north-easterly direction before cresting the hedgerow, crossing the roadway and following a treeline north towards Ballyogan Lough SAC. There appeared to be limited commuting in a southerly direction and no confirmed egress was identified from any identified features on the southern portion of the disused structure.

Lesser Horseshoe Bat were noted for utilising the surrounding stonework outbuildings throughout the survey night (see **Plate 3.4**). Additionally, a single mature Crab Apple tree (*Malus sylvestris*) adjacent to the roost was used extensively during the emergence period by Lesser Horseshoe Bat for early night flight and foraging (see **Plate 3.5**).

**Plate 3.4** Evidently pregnant Lesser Horseshoe Bat night-roosting within the stonework outbuildings adjacent to the disused structure on 27th July 2023 (T. O'Donnell, NPWS License Ref. 211/2023).

**Plate 3.5** Mature Crab Apple tree which was used extensively by Lesser Horseshoe Bat for early-night flight and foraging.

### 3.3.5 Conclusion

The derelict residence is a known Lesser Horseshoe Bat maternity roost, although the roosting location has changed within the building in response to dilapidation. Access and egress points, and normal direction of travel upon egress are identified in this report.

Although not a consideration in an Appropriate Assessment, there was no evidence of significant roosting by any other bat species in any of the structures within the proposed site. It is possible that roosting by other species, including Soprano Pipistrelle and Natterer's Bat occurs occasionally although no clear evidence of this could be found. The derelict dwelling and associated outbuildings provide numerous roosting opportunities for crevice dwelling species.

## 3.4 HABITATS AND FLORA

No Annex I habitats listed under the EU Habitats Directive are present within the study site. No botanical species protected under the Flora (Protection) Order 2015, listed in Annex II or IV of the EU Habitats Directive (92/43/EEC), or Red listed in Ireland (Wyse Jackson et al., 2016) were recorded. The proposed site does not contain any flora protected under the Flora Protection Order (1999). For the full report, refer to **Appendix D**.

The majority of the site is composed of semi-natural habitat including Wet Grassland (GS4) and Improved Agricultural Grassland (GA1), other habitats including Marsh (GM1), Hedgerow (WL1), Scrub (WS1) and Transitional Mire and Quaking Bog (PF3). The species-rich wet grassland is considered of high conservation value due to the presence of orchid species. However, this habitat and other habitats present within the proposed development boundary were not considered Annex I habitats or qualifying interests of the Moyree River System SAC (0057).

Snowberry (*Symphoricarpos albus*), classified as 'Low' impact invasive species was recorded along the Hedgerow bounding the roadside.

## 3.5 IDENTIFICATION OF POTENTIAL IMPACTS ON NATURA 2000 SITES

Consideration is given here to identifying any aspects of the proposal which are likely to impact on the relevant Natura 2000 sites (identified above), and to identifying if uncertainty exists as to likelihood of occurrence.

The likelihood of effects is assessed considering a number of indicators including:

- Loss of roosting for Lesser Horseshoe Bat.
- Habitat loss.
- Habitat alteration.
- Habitat or species fragmentation.
- Disturbance and/or displacement of species.
- Water quality and resource.

### 3.5.1 Potential Construction Phase Impacts

The potential for direct and indirect impacts on any Natura 2000 site during the construction phase is discussed below.

#### 3.5.1.1 Direct Impacts

The proposed works are located within the Moyree River System SAC (0057) and will result in the loss of a current Lesser Horseshoe Bat maternity roost as well as limited, localised loss of foraging habitat.

As outlined above, the do-nothing scenario in this instance is that the roost would continue to decline in suitability and would be lost entirely in the medium term. A bespoke, permanent roost is proposed as part of the development.

No habitats listed as qualifying interests of the Moyree River System SAC (0057) are present on the proposed site, and no evidence of any relevant species other than Lesser Horseshoe Bat was noted.

#### 3.5.1.2 Indirect Impacts

Deterioration of the ecological status of designated sites can occur from the indirect effects of contaminated run-off or discharge into the aquatic environment, through siltation, nutrient release and/or contamination. Should habitat loss or deterioration of the ecological status of the relevant Natura 2000 sites occur, a negative impact on the qualifying interests of the relevant designated sites may result.

The proposed development is located within the Moyree River System SAC (0057) and approximately 335m northwest of the Moyree River. The relevant qualifying interests of the Moyree River System SAC include Lesser Horseshoe Bat, Otter, watercourses of plain to montane levels and alkaline fens[2]. Given the location of the proposed development within the Moyree River System SAC, adverse indirect effects on the qualifying species (Lesser Horseshoe Bat) of this designated site are likely to occur during the construction phase of the proposed development in the absence of site-specific mitigation measures.

No habitat corresponding to the qualifying interests of the Moyree River System SAC are present surrounding the proposed development. Due to the scale of the proposed development and lack of direct fluvial pathway to the Moyree River which flows through the Moyree River System SAC and eventually the Dromore Woods and Loughs SAC, adverse effects are unlikely to occur as potential pollutants are likely to have settled or been diluted before reaching the Moyree River, and no further investigation is required.

Temporary welfare facilities will be provided for the construction phase. No impacts will arise as a result of foul water during the construction phase. All works will be carried out applying standard environmental controls (e.g. housekeeping).

Measures intended to manage and protect surface water during the construction phase will follow standard practice outlined in 'Control of water pollution from construction sites – *Guidance for consultants and contractors*' (CIRIA, 2001).

Localised increases in noise levels are likely to occur during the construction phase. No heavy construction techniques such as blasting or pile driving are proposed but noise will occur through the operation of machinery such as excavators, hand tools etc.

Given the nature and scale of the proposed works, and proximity to the qualifying interest Lesser Horseshoe Bat maternity roost, it is considered that there is likelihood of effects from noise and air emissions occurring on the Moyree River System SAC in the absence of appropriate mitigation measures.

#### 3.5.1.3 Ex-situ Impacts on Relevant Species

Disturbance and/or displacement may occur where populations of a mobile species listed as a qualifying interest of a Natura 2000 site suffer negative effects outside of the Natura 2000 site (ex-situ impacts).

[2] https://www.npws.ie/protected-sites/sac/000057

Such effects also include fatalities and loss of foraging opportunities caused by habitat loss, degradation or disturbance.

Lesser Horseshoe Bat is a qualifying interest of the nearby Dromore Woods and Lough SAC (0032) and East Burren Complex SAC (1926) located approximately 1.4km southwest and 2.2km northwest of the proposed development respectively (NPWS, 2013b; 2016). This mobile species is likely to use the landscape features within and surrounding the proposed development for commuting and foraging in the wider landscape, alongside utilising the disused structures for night roosting or as a satellite/transitional roost. Surrounding Lesser Horseshoe Bat maternity colonies (of which 3, possibly 4 are located within 5km) could be indirectly impacted the proposed development through the loss of roosting locations and habitat fragmentation.

No qualifying interest bird species of the surrounding SPAs were recorded during both site visits. Considering the extent of the works and surrounding habitat, it is unlikely that any significant impacts will arise on the bird species associated with Corofin Wetlands SPA (4220) and Slieve Aughty Mountains SPA (4168) located approximately 4.3km and 3.5km from the proposed development respectively as the area is regularly disturbed by grazing and anthropogenic disturbance.

No hazardous activities are proposed which have potential to give rise to bird fatalities. No suitable habitat for any bird species associated with any relevant Natura 2000 site exists within the proposed site boundary. The proposed site consists of wet grassland, artificial surfaces and hedgerows. Given the scale and location of the proposed works and lack of any viable impact sources (e.g. significant noise), and considering the intensively used nature of the proposed site, the temporary disturbance/displacement of birds is unlikely to arise.

### 3.5.2 Potential Operational Phase Impacts

The operational phase of the proposed development, in the absence of mitigation has potential to impact the qualifying interests of the Moyree River System SAC. The proposed redevelopment will be reinhabited following completion of works and could result in localised disturbance in the form of noise and lighting, relative to the current situation.

Foulwater will be treated with using a Eurotank septic tank treatment unit and discharged into a percolation area to the east within Improved agricultural grassland (GA1) habitat approximately 335m north of the Moyree River. Considering the scale of the proposed development, volume of operational phase foulwater and distance to surface water receptors, no significant negative effects on relevant Naura 2000 sites are expected to occur as a result of the operational phase foulwater of the proposed development.

## 3.6 LIKELY IMPACTS OF THE PROJECT ON THE NATURA 2000 SITES

All potential impacts of the proposed project have been identified and assessed. With the exception of the impacts discussed below, all other impacts are considered not likely have a significant negative effect on any Natura 2000 site, either alone or in combination with other plans or projects.

As outlined above, it is deemed that the proposed development has the potential to impact the Moyree River System SAC (0057) through disturbance to a Lesser Horseshoe Bat maternity colony. The likely impact impacts are discussed below.

### 3.6.1 Size, Scale & Land-take

The proposed development will result in the disturbance of a Lesser Horseshoe Bat maternity colony. The proposed development will otherwise have no effects on any Natura 2000 site as a result of size, scale or land-take.

### 3.6.2 Resource Requirements (water abstraction *etc.*)

There will be no resource requirements from Natura 2000 sites as a result of the proposed works.

### 3.6.3 Excavation Requirements

Excavation will be limited to the foundational structure of the proposed structural redevelopment and associated ancillary infrastructure including driveway and pathways and replacement Lesser Horseshoe Bat roost (see **Appendix C**).

### 3.6.4 Emission (disposal to land, water or air)

There will likely be a localised increase in emissions as a result of the proposed works within the Moyree River System SAC (0057). However, considering the scale of the proposed works, no significant impacts on any Natura 2000 site are likely to occur as a result of emissions from the proposed development in the construction or operational phases.

### 3.6.5 Transportation Requirements

Transport requirements during construction and operation will use existing road network and the footprint of the proposed works.

### 3.6.6 Duration of Operations

For the purposes of environmental assessment, the duration of operations at the proposed site is assumed to be permanent.

## 3.7 CUMULATIVE EFFECTS

A review of the National Planning Database (NPD) was undertaken to identify relevant planning applications proximal to the study area. An appropriate site search area in this instance is considered to be 1km from the site boundary. A search of planning applications within this area within the last 7 years was undertaken by O'Donnell Environmental on 29th August 2023. **Table 4.1** below provides the results of this search. The locations of applications are shown in **Figure 3.1**.

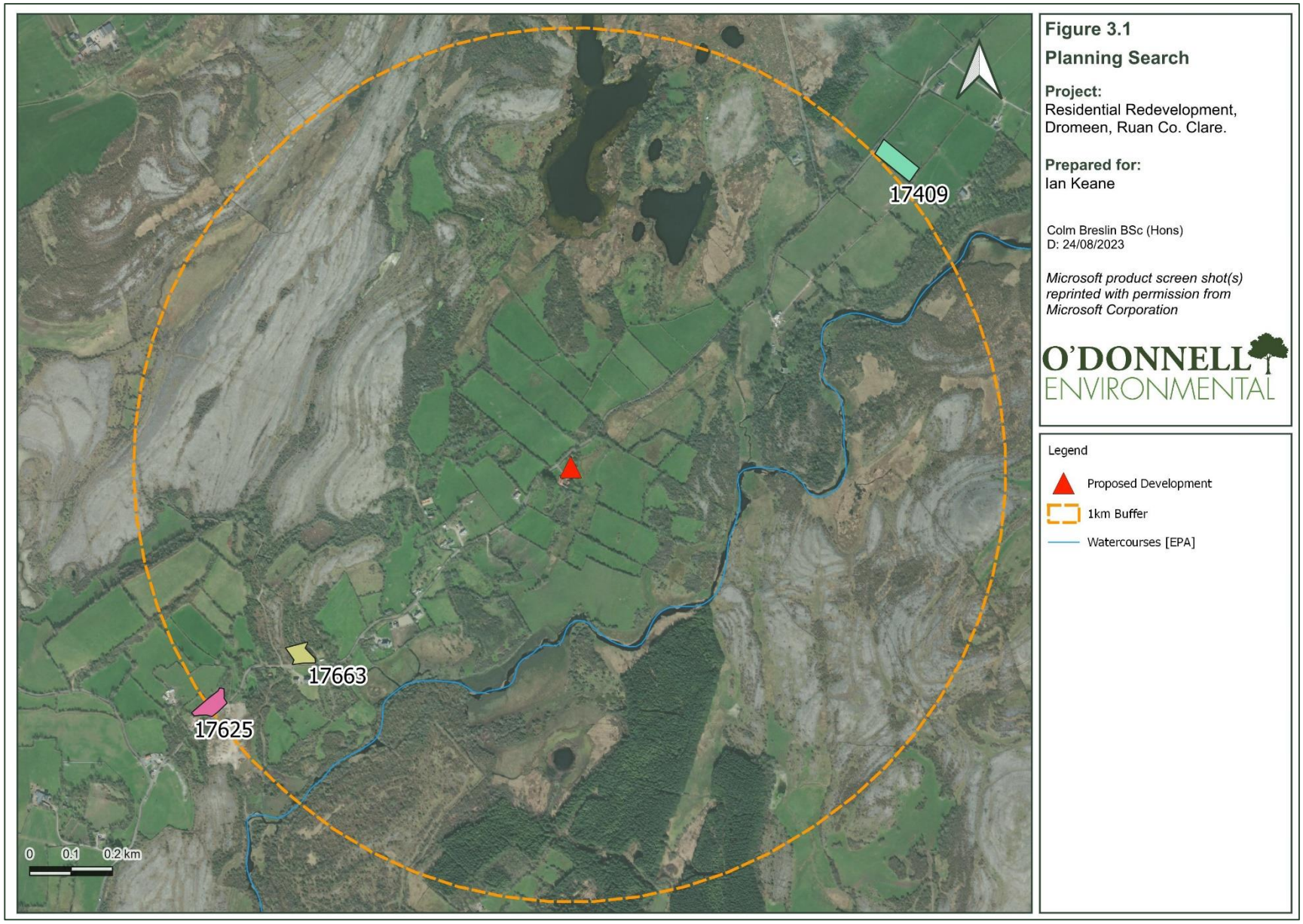
**Table 4.1 - Planning applications within the relevant search area.**

| Application Ref. | Development Description | Status | Decision Date |
|---|---|---|---|
| 17409 | to carry out the following works: the alteration of existing entrance porch to form new bay window, the construction of new side extension and other minor works to existing dwelling, the construction of a new garage and all associated ancillary site works | Finalised | 07/07/2017 |
| 17625 | to construct an extension to an existing dwelling house, install an advanced wastewater treatment system, a new entrance, and ancillary site works | Finalised | 04/10/2017 |

| | | | |
|---|---|---|---|
| 17663 | to construct a dwelling house, with effluent treatment system, new entrance from public road, and all associated site works | Finalised | 24/10/2017 |

*Note: 'Development Description' field was truncated by the Planning Authority when providing data to the NPD.*

Adjacent developments within 1km of the proposed development consist entirely of small-scale residential developments (17663) and extensions of existing structures (17409; 17625). No ongoing developments are currently planned within 1km of the proposed development, with the most recent development dating back to 24th October 2017. Development 17663 is located within the Ballyogan Lough SAC (0019) of which Lesser Horseshoe Bat is not a qualifying interest. No other developments are located within Natura 2000 sites. No other plans or projects are considered relevant in this instance, and the potential for cumulative effects does not arise.


17409
17663
17625
0
0.1
0.2 km
Figure 3.1
Planning Search
Project:
Residential Redevelopment, Dromeen, Ruan Co. Clare.
Prepared for:
Ian Keane
Colm Breslin BSc (Hons)
D: 24/08/2023
Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation
O'DONNELL ENVIRONMENTAL
Legend
Proposed Development
1km Buffer
Watercourses [EPA]

## 3.8 AA SCREENING CONCLUSION

This Appropriate Assessment screening exercise has been carried out based on the best available scientific information and data, ecological survey and project details provided.

In the absence of targeted mitigation measures, specifically in relation to the allocation of a permanent roosting location for Lesser Horseshoe Bat, the potential for significant negative effects on the Moyree River System SAC (0057) cannot be discounted. A Stage 2 'Appropriate Assessment' (NIS) is therefore required to consider the effects of proposed mitigation measures, and this is presented in **Section 4** of this report.

All potential impacts of the proposed project have been identified and assessed. With the exception of the impact discussed above, all other potential impacts are considered not likely have a significant negative effect on any Natura 2000 site either alone or in combination with other plans or projects, and are therefore not considered further.

# 4 Stage 2: Natura Impact Statement

Consideration is given here to the residual impacts of the likely significant effects identified in the preceding section, on the qualifying interests of the Moyree River System SAC (0057) following application of avoidance and mitigation measures.

Details of the relevant designated sites including conservation objectives and qualifying interests are outlined in **Section 3**.

## 4.1 MITIGATION MEASURES

A mitigate-by-design approach was taken in the design of the current project, which included consultation with NPWS Representatives including Dr. Sinead Biggane who is the relevant Conservation Ranger.

### 4.1.1 Permanent Bespoke Bat Roost

A permanent, bespoke replacement roost is proposed to mitigate the loss of the current Lesser Horseshoe Bat roosting location.

The design of the replacement roost was informed by the following:

- Learnings from previous Lesser Horseshoe Bat mitigation measures undertaken by O'Donnell Environmental as part of NPWS Farm Plan Schemes targeting Lesser Horseshoe Bat.
- The 'Mulkear EIP Lesser Horseshoe Bat Conservation Project' undertaken by Vincent Wildlife Trust .
- Visits to NPWS constructed Lesser Horseshoe Bat roosts at Newhall House, Co. Clare and Glengarriff, Co. Kerry.
- UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats (Reason and Wray, 2023).

The proposed roost will have a footprint of 4.75 x 1.75m laid upon a strip foundation with bare earthen floor to provide humidity within the roost. The walls will be constructed of solid block laid block-on-flat and plastered internally as well as externally to increase the thermal mass of the structure. The design of the roost will utilise suitable materials including bitumen felt and natural full-length slate (see **Appendix C** for full design information). Access / egress measuring at least 300mm x 200mm will be provided. A timber 'hot-box' and baffles will be placed internally to offer a variety of microclimates to bats. A bat licensed Ecologist will be engaged to supervise the construction of the structure.

The location of the proposed roost was selected with regards to the primary flightline of Lesser Horseshoe Bat upon egress of the current roost. As the replacement roost will be located within the primary flightlines and commuting corridor, the likelihood of Lesser Horseshoe Bat finding the replacement roost is considered extremely high.

Native hedgerows will be established between the roost and the driveway and house to provide additional screening from light and noise. O'Donnell Environmental have also engaged with the project designers to ensure no external lighting fixtures will be provided which would spill light onto the proposed roost or surrounding habitat. Lighting on the proposed driveway has been omitted, and no windows will be facing towards the roost.

Traditional fruit Orchard is likely to be a preferred foraging habitat of Lesser Horseshoe Bat (D. Finch, pers. comm) and as an additional enhancement measure traditional fruit orchard has been specified proximal to the proposed are to provide some optimal foraging habitat.

The proposed septic tank Eurotank Treatment Unit location was moved away from the proposed roost so as to remove the potential for impacts arising from noise and interaction with the root zone of the proposed orchard.

#### 4.1.1.1 Sequence of Works

The careful sequencing of works if crucial in avoiding significant negative impacts on the Lesser Horseshoe Bat colony. The following timeline of works is proposed:

- The proposed Lesser Horseshoe Bat roost will be constructed prior to any other works on the site, including works associated with the residential redevelopment such as site clearance or access.
- The proposed roost will be constructed outside of the months of May to September inclusive to avoid disturbance to the current roosting location.
- The associated hedgerow and tree planting will be carried out simultaneously, as will the planting of fruit trees and suitable fencing erected to protect the native hedgerow from ingress of future construction works.
- Upon completion of the proposed roost to the satisfaction of the supervising Ecologist and NPWS Conservation Ranger, timber panels will be erected as screening around the constructed roost (but no closer than 5m) to help mitigate future noise impacts.
- In the next winter subsequent to the satisfactory completion of the new, permanent roost (and associated planting), and subject to an NPWS issued bat roost derogation license being issued, the removal of the roof of the existing structure will be carried out using hand tools in order to facilitate the proposed renovation.
- The proposed renovation and construction works would then commence. No heavy excavation or construction works will be carried out would be carried out during the core bat maternity months of May to August inclusive, to minimise disturbance at the new permanent roosting location.

For the lifetime of the development, annual monitoring of the proposed roost will be facilitated by the NPWS.

## 4.2 RESIDUAL IMPACTS

As outlined in Section 1.5, the 'do-nothing scenario' in this instance is the continued decline in suitability of the current roost until is it lost as a permanent location entirely in the medium term.

The current proposal will inevitably be associated with some short-term disturbance impacts, but provides for a bespoke, permanent roost which following best available evidence will be suitable to accommodate the Lesser Horseshoe Bat maternity colony and potentially provide for its expansion.

With the implementation of the mitigation measures outlined above, it can be objectively concluded that the proposed development will not adversely impact the integrity of the Moyree River System SAC (0057) or any other Natura 2000 site. No reasonable scientific doubt remains as to the absence of such adverse effects. In reaching this conclusion, consideration has been given to the conservation objectives of the relevant designated sites.

## 4.3 NIS CONCLUSION

It is concluded following the application of avoidance and mitigation measures that the proposed project is not likely to cause significant negative effects on Moyree River System SAC (00057) or any other Natura 2000 site, individually or in combination with other plans or projects. It is considered that there is no reasonable scientific doubt in relation to this conclusion.

# 5 References

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NPWS (2013b) Site Synopsis: Dromore Woods and Loughs SAC 000032. Rev 13. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2016) Site Synopsis: East Burren Complex SAC 001926. Rev 16. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht. Edited by: Rebecca Jeffrey.

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Schofield, H.W., 2008. *The Lesser Horseshoe Bat Conservation Handbook*. Herefordshire, England: Vincent Wildlife Trust.

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, Ampfield.

# Appendix A – Photographic Record

**A1.** Overview of the proposed site showing the disused house hosting Lesser Horseshoe Bat, stonework outbuildings and surrounding agriculture landscape.

**A2.** View of the northern side of Lesser Horseshoe Bat roosting location and hedgerow utilised for commuting.

**A3.** View looking north from the adjacent public road showing the primary flightline of Lesser Horseshoe Bat along the treeline.

**A4.** View looking south back at the proposed development showing the primary flightlines of Lesser Horseshoe Bat along the hedgerow adjacent to the public road.

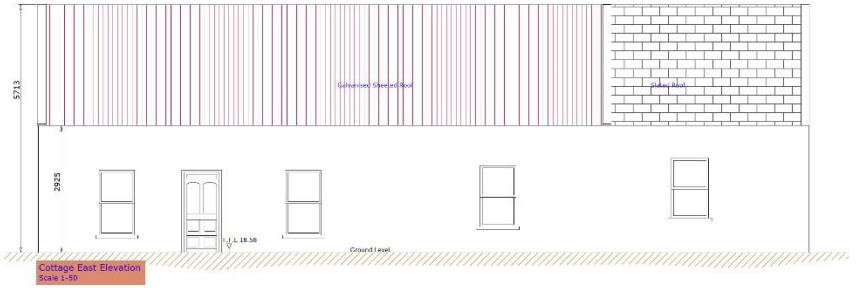
**A5.** View of the historic roosting location of Lesser Horseshoe Bat within the disused house, showing light and water ingress from missing slates.

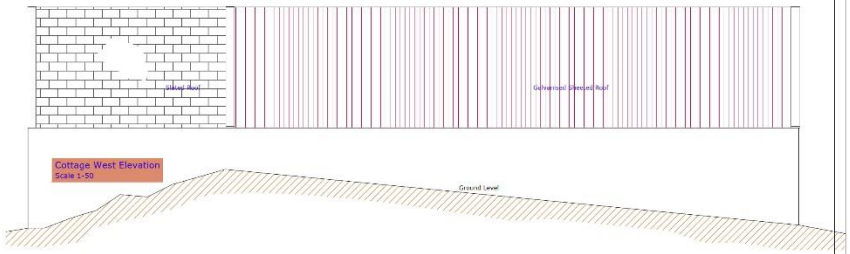
**A6.** Interior view of the disused structure showing the inaccessible attic void above the wooden paneling which houses the Lesser Horseshoe Bat maternity colony.

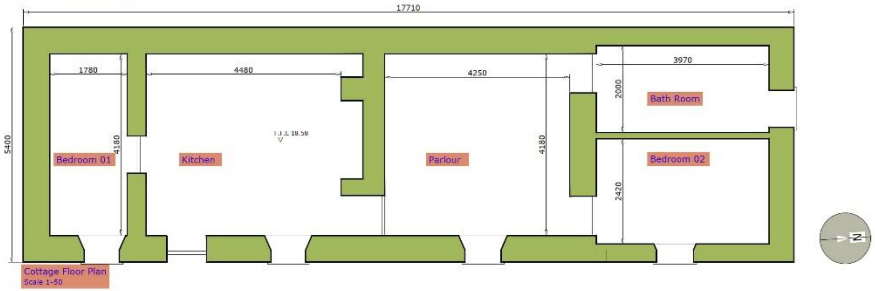
**A7.** View of stonework outbuildings adjacent to the Lesser Horseshoe Bat maternity colony (background) used as a night-roosting location.

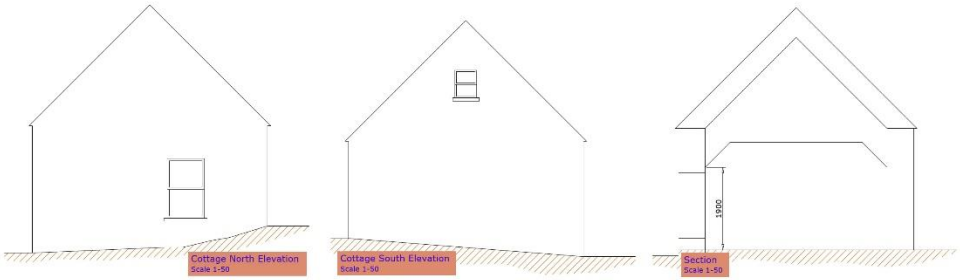
**A8.** View of the associated outbuildings to the south of the Lesser Horseshoe Bat maternity colony.

# Appendix B - Site Layout Map





**Site Location Map**
**1-2500 Scale**
Site Area = 0.578 h.

**Address:**
Dromeen, Ruan, Co.Clare

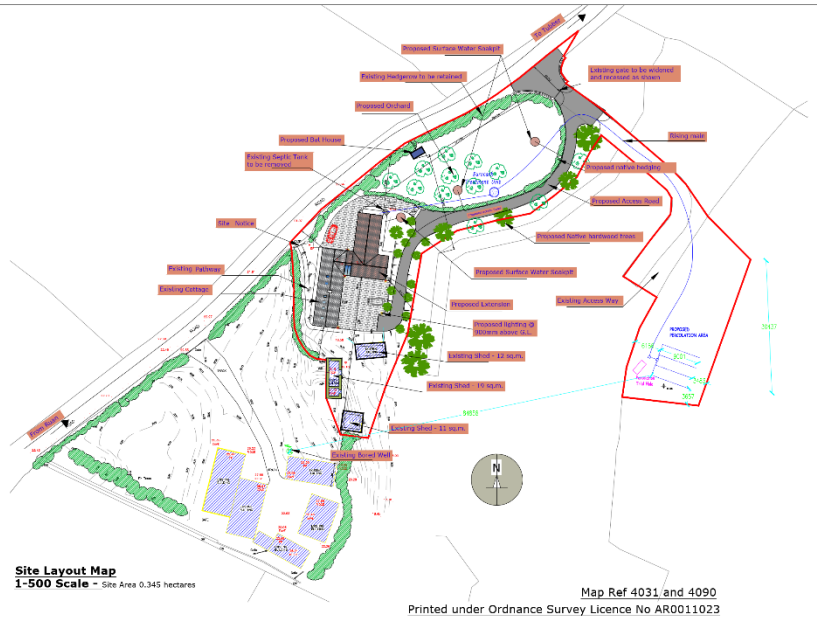
**Title:**
Cottage Survey and Site Location Map

Drn. J. Hanrahan
Scales: As Shown on Dwg

**Project:**
Proposed Alterations and Extension to Existing Cottage and Construction of New Bat House

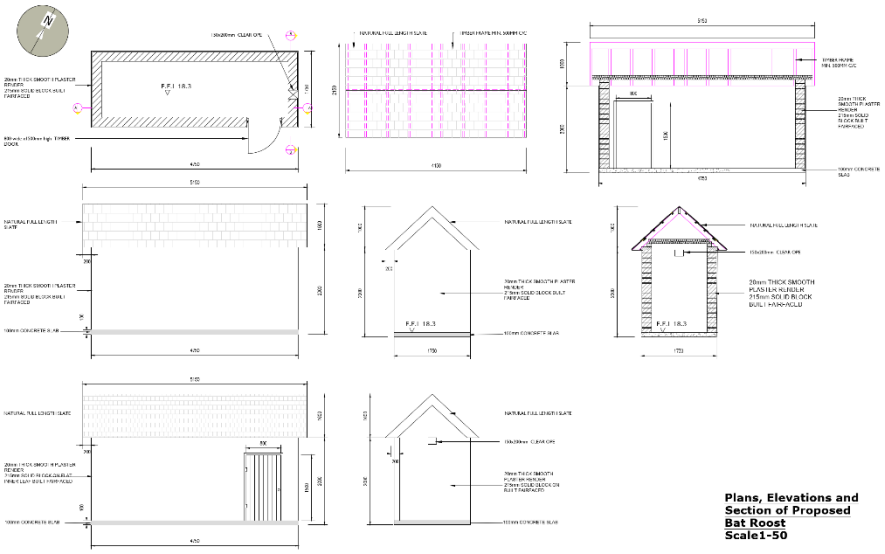
**Owner:**
Ian Keane

**Drg No. 01**




**Site Layout Map**
**1-500 Scale** - Site Area 0.345 hectares

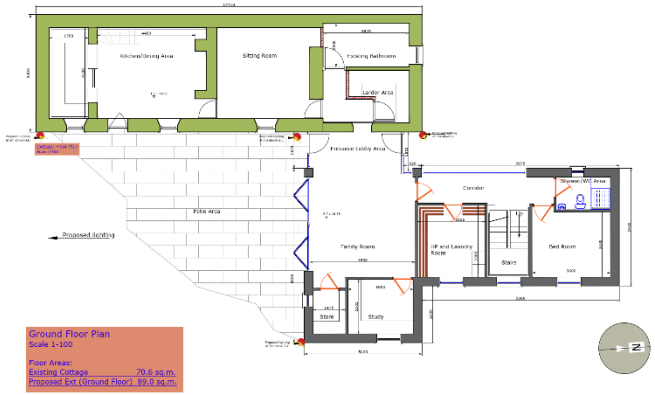
Map Ref 4031 and 4090
Printed under Ordnance Survey Licence No AR0011023




**Plans, Elevations and Section of Proposed Bat Roost**
**Scale1-50**


First Floor Plan
Scale 1-100

Floor Area
Proposed Ext. (First Floor) 77 sq.m.




Ground Floor Plan
Scale 1-100

Floor Areas:
Existing Cottage 70.6 sq.m.
Proposed Ext (Ground Floor) 89.0 sq.m.

External Lighting:
All external lighting shall be warm LED lighting, low wattage bulbs, which contains zero UV light.
No proposed light fittings shall have a downward light output.
There shall not be any upward light spill from the fittings.
Passive Infra Red PIR's shall be used on all external lights to ensure lights are off unless needed for access/egress.
All external lights shall have shields set at 45Degrees with light bulbs recessed deep into the fitting thus allowing downward directional lighting only.

External Lighting to building shall be set at 2m high with lighting as described above.

External Lighting to avenue shall be 900mm high columns with lighting as described above.

**Address:**
Dromeen, Ruan, Co.Clare

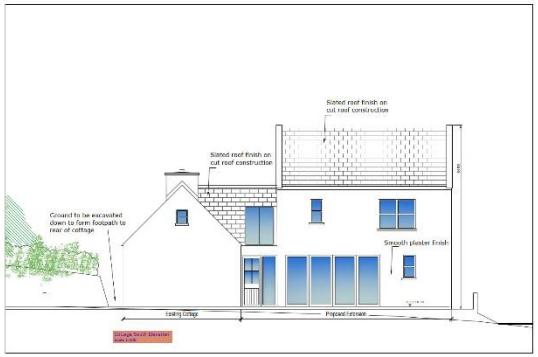
**Title:**
Cottage and Extension
Floor Plans and Site Layout Map
Bat House Plans, Elevations and Section

Drn. J. Hanrahan
Scales: As Shown on Dwg

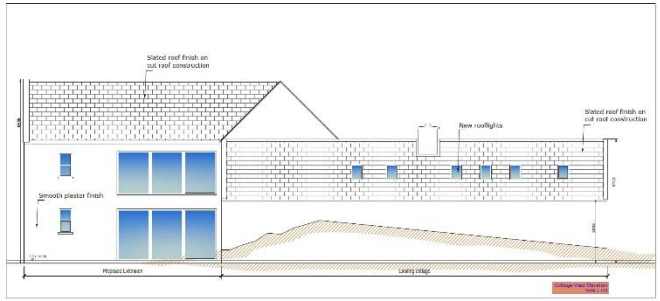
**Project:**
Proposed Alterations and Extension to Existing Cottage and Construction of New Bat House

**Owner:**
Ian Keane

**Drg No. 02**







**Address:**
Dromeen, Ruan, Co.Clare

**Title:**
Cottage and Extension
Elevations and Section

Drn. J. Hanrahan
Scales: As Shown on Dwg

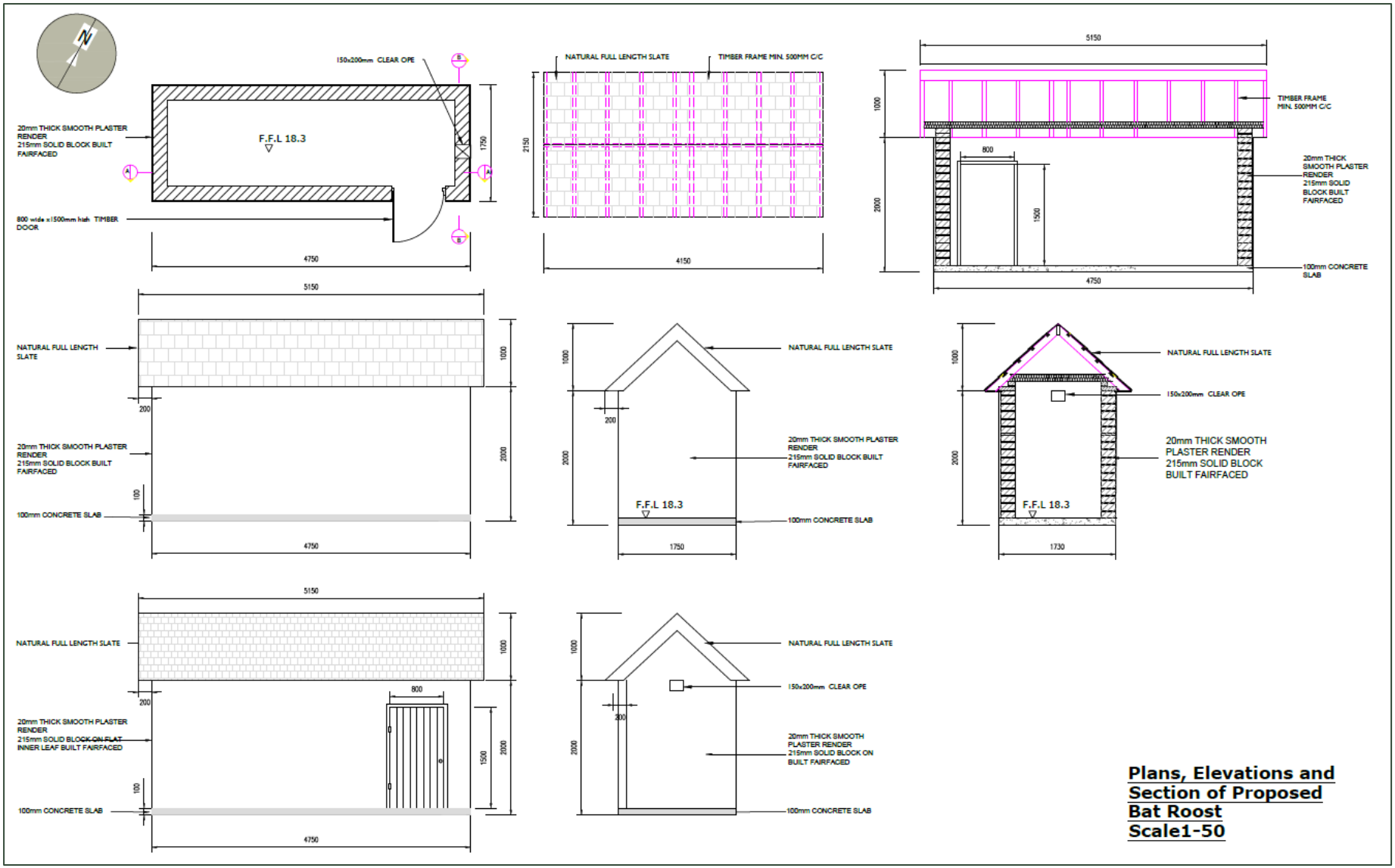
**Project:**
Proposed Alterations and Extension to Existing Cottage and Construction of New Bat House

**Owner:**
Ian Keane

**Drg No. 03**

# Appendix C –

# Lesser Horseshoe Bat Replacement Roost Design




**Plans, Elevations and Section of Proposed Bat Roost**
**Scale1-50**

# Appendix D - Botanical Assessment

# MEMO

| | | | |
|---|---|---|---|
| **TO** | *O'Donnell Evironmental* | **FROM** | *Ó Ceallaigh Ecology* |
| **DATE** | 25 September 2023 | **CONFIDENTIALITY** | Public |
| **SUBJECT** | Habitat survey of Clare site within Moyree River System SAC | | |

## STATEMENT OF AUTHORITY

**Cian Ó Ceallaigh (BSc (Hons), MSc)** is an Associate member of the Chartered Institute of Ecology and Environmental Management (ACIEEM) who has extensive botanical and habitat knowledge (FISC Level 4, 2018) and has worked as a professional ecologist in Ireland and Britain since 2017. Cian primarily works in monitoring and surveying habitats (Article 17 Habitats Directive monitoring & the Countryside Survey) but is experienced in undertaking Appropriate Assessment (AA) screening reports and Natura Impact Statements (NIS's) Preliminary Ecological Appraisals (PEAs), Ecological Site Management Plans (ESMP's) and other species-specific surveys such as birds and bats as well as experience in Ecological Clerk of Work (ECoW) supervision. Cian has operated a freelance ecologist under the name *Ó Ceallaigh Ecology* in Britain and Ireland since 2020.

## INTRODUCTION

*Ó Ceallaigh Ecology* was instructed by O'Donnell Environmental in September 2023 to undertake a habitat survey at a Site in county Clare within the Moyree river system SAC. The focus of this survey was to classify the habitats on site and determine whether any of them could be considered as annex habitats, specifically the ones listed as qualifying interests for the SAC (e.g. alkaline fen and calcareous grassland types).

The Site is located at Ordnance Survey Grid Reference: R 37392 90051 in a rural setting of county Clare . The Site currently comprises some old buildings, agricultural grassland, wetland habitats and scrub and is currently grazed by donkeys. The wider landscape is a mixture of intensive agriculture, scrub, limestone pavement and small one-off dwellings as well as farm buildings.

## METHODOLOGY

An ecological survey of the Site (area within red line boundary in Figure 1) was carried out on the 23rd September in mild conditions (9 degrees Celsius), cloudy (8/8 oktas), with a light breeze and no rain.

Habitats were described and mapped following the standard scheme for classifying habitats in Ireland (Fossitt, 2000) (see Figure 1). The dominant plant species were recorded, and habitats were classified according to their vegetation types. Where appropriate consideration was given to whether habitats qualify, or could qualify, as corresponding Annex 1 habitats. Relative plant species

abundance was estimated using the DAFOR scale[1] . The scientific names for plant species use nomenclature given in An Irish Flora (Parnell, J. & Curtis, T., 2012)

During the walkover observations of taxonomic groups such as birds, mammals, amphibians, reptiles and other taxonomic groups (where identifiable) whether heard and/or seen, evidence of, etc. were recorded.

## RESULTS

### Habitats identified (See figure 1 for locations)

**GA1 - Improved grassland**

Approximately half of the site comprises improved grassland with a Yorkshire fog *Holcus lanatus* dominated sward with some other grass species present such as red fescue *Festuca rubra* and creeping bent *Agrostis stolonifera*. The forb component is species poor and primarily consists of creeping buttercup *Ranunculus repens* and broadleaved dock *Rumex obtusifolius.*

*Plate 1 Improved grassland (green vegetation either side of stone wall)*

[1] The DAFOR scale has been used to estimate the frequency and cover of the different plant species as follows: Dominant (D) - >75% cover, Abundant (A) – 51-75% cover, Frequent (F) – 26-50% cover, Occasional (O) – 11-25% cover, Rare (R) – 1-10% cover., The term 'Locally' (L) is also used where the frequency and distribution of a species are patchy and 'Edge' (E) is also used where a species only occurs on the edge of a habitat type.

**GS4 - Wet grassland**

Wet grassland on site is variable and has a two main types. One type is dominated by soft rush *Juncus effuses* with a decent forb layer primarily represented by tall herbs meadowsweet *Filipendula ulmaria*, wild angelica *Angelica sylvestris* and purple loosestrife *Lythrum salicaria* with others. The other area (located at TN02, see Figure 1) is more grassy in nature with abundant Yorkshire fog, red fescue, frequent sweet vernal *Anthoxanthum odoratum* and occasional sedges *Carex* spp. making up the graminoid component of the habitat. The forb layer is species rich and has abundant devil's bit scabious *Succisa pratensis*, frequent birds foot trefoil *Lotus corniculatus*, and occasional tormentil *Potentilla erecta* and other common herbs. Orchids are also present but due to the time of year cannot be identified with confidence but are suspected to include marsh orchid *Dactylhorhiza* sp. and fragrant orchid *Gymnadenia conopsea.* The bryophyte layer included abundant *Calliergonella cuspidatum* and occasional *Pseudoscleropodium purum* and *Rhytidiadelphus squarrosus*.

*Plate 2 soft rush dominated vegetation*

*Plate 3 species rich wet grassland type*

*Plate 4/5 suspected fragrant orchid gone to seed*

**GM1 – Marsh**

An area of very wet marsh/swampy area is present on site. It has a mixture of abundant creeping bent and frequent common spike-rush *Eleocharis palustris* making up the majority of vegetation. Herbs such as marsh bedstraw *Galium palustre*, silverweed *Potentilla anserina*, lesser spearwort *Ranunculus flammula*, purple loosestrife, marsh willowherb *Epilobium palustre* and bullreed *Typha latifolia* are scattered amongst the vegetation

*Plate 6 marsh vegetation dominated by creeping bent and common spike-rush*

**PF3 - Transitional mire and quaking bog**

A small area of habitat was target noted (see TN01 location on Figure 1). The habitat has affinities with PF3 habitat but is not typical due to the abundance of grass species (potentially due to eutrophication) and is likely to sit somewhere between PF3 and GM1 marsh, but is described here nonetheless.

The graminoid component included abundant floating sweet grass *Glyceria fluitans* with occasional common sedge *Carex nigra*, jointed rush *Jucnus articulatus* and creeping bent. Forbs included frequent marsh cinquefoil *Comarum palustris* and bogbean *Menyanthes trifoliata*, with occasional marsh bedstraw, lesser spearwort *Ranunculus flammula* and marsh pennywort *Hydrocotyle vulgaris* and rare cuckoo flower *Cardamine pratensis* and marsh willowherb. The area was about 20m2 in size and was therefore target noted.

*Plate 7 small area of transition mire/marsh type vegetation*

**Other habitats**

A number of other habitats were identified on Site and are discussed briefly here due to their size and not being the primary focus of the survey.

A hedgerow (with trees) is present at the Sites northern boundary along the road. It is dominated by non-native snowberry *Symphiocarpos alba* with occasional ash *Fraxinus excelsior* and rare beech *Fagus sylvatica*. The latter two are present as mature trees in the habitat. Scrub is present throughout the Site, including as scattered immature ash trees amongst the wet grassland, but is mainly present with the area mapped as 'mosaic' in Figure 1. Here there is a mixture of abundant crack willow *Salix fragilis* as well as occasional hawthorn *Crataegus monogyna*. Bramble Rubus fructicosus agg. and nettle *Urtica dioica* are abundant here also. Swamp vegetation dominated by bullreed is present along the eastern end of the mosaic where it becomes very wet.

A number of old farm buildings are present at the western end of the Site and a limestone wall at the eastern end where it divides the improved grassland.

*Plate 8 snowberry hedge with ash trees*


**Figure 1:**
**Site Walkover Results**

**Notable and/or protected (fauna) species**

There were no notable and/or protected species identified during the survey.

The wet grassland has the potential to support marsh fritillary butterfly but is considered unlikely to be used at present as a search was undertaken for pupae and webs during the survey with no signs of presence identified.

**Invasive species**

Snowberry is not listed under *the Invasive Alien Species of Union concern listed under the EU IAS Regulation [1143/2014]* or *Line 49. Part 6 of the S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011* and is only listed as a low impact species on Invasives.ie. However, it is widely considered as a negative non-native species by ecologists and botanists.

## CONCLUSION & EVALUATION

### Habitats

A large part of the Site comprises semi-natural habitat including the habitats GS4, GM1, WL1 and WS1 with the rest being improved (GA1).

The species-rich wet grassland (TN02 area) on site is considered of high conservation value due to the presence of orchids, particularly the suspected fragrant orchid, as orchids are a good indicator for high quality habitat. However, this habitat and other habitats on site are not considered Annex I habitats listed on the Habitats directive or Qualifying interests for the Moyree river system SAC.

Areas of hedgerow and grassland within the Site have the potential to support a range of protected species including badgers, bats, birds, reptiles and amphibians. Due to the presence of good quality wet grassland on site and the presence of uncommon species the Site is considered to be of regional biodiversity value.

## RECOMMENDATIONS

The wet grassland (TN02) should be retained and continue to be managed through grazing to maintain a species rich sward.

Measures should be taken to not spread snowberry on site e.g. soil from areas where present should not be excavated and moved throughout the site or off site.

Cian Ó Ceallaigh
Ecological consultant

26/09/23

## REFERENCES

CIEEM (2016) Institute of Ecology and Environmental Management Guidelines for Ecological Impact Assessment. (9) EC (2001) Methodological guidance on the provisions of Article 6 (3) and (4) of the Habitats Directive 92/43/EEC

CIRIA (2015) Environmental good practice on site (fourth edition) (C741) Charles, P., Edwards, P (eds). CIRIA, London.

Fossitt, J.A. (2000), A Guide To Habitats In Ireland, *The Heritage Council*

Parnell, T. & Curtis, T. (2012), Webb's An Irish Flora, *Cork University Press*, Ed. 8

Wildlife Act 1976 and Wildlife (Amendment) Act 2000.

**Websites accessed:**

Irish grid reference finder: https://irish.gridreferencefinder.com/ (accessed 25/09/2023)

**Relevant legislation:**

S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011.

Invasive Alien Species of Union concern listed under the EU IAS Regulation [1143/2014] lists 88 species

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