# Derogation Licence Application and Bat Survey Report

## Ballinacurra Mills LRD, Co. Cork.

January 2025

Prepared for: Ballinacurra Project Limited Partnership







#### Summary

Project: Proposed Large-scale Residential Development (LRD) at Ballinacurra Mills, Co. Cork.

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**Statement of Competence:** 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.

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### 1 Introduction

O'Donnell Environmental were commissioned by Ballinacurra Project Limited Partnership to undertake an ecological survey of the former Ballinacurra Mills site located within Ballinacurra, Co. Cork in support of an LRD planning application. The site measures approximately 3.63ha and contains a series of derelict buildings and occupied residences namely Eastville House, Rosehill House and structures associated with the former mills. The site is dominated by recolonising artificial surfaces, encroaching scrub and mature broadleaf woodland habitat.

The proposed works involve the renovation or removal of existing structures on the former mills site, and the development of a mixed residential and commercial development. A site location map is presented in **Figure 1.1**. A detailed project description is proposed in **Section** Error! R eference source not found. below.

The aims of the study were to assess and evaluate the likely importance of the existing structures to bats.

This report is informed by the following documents which are submitted as part of the current planning application including:

- Tree Survey & Arboricultural Report (Holly Arboriculture, 2024a).
- Tree Constraints Plan (Holly Arboriculture, 2024.
- Landscape Report (Fourem, 2024).
- oCEMP (MHL & Associates Ltd., 2024a).
- Engineering Design Report (MHL & Associates Ltd., 2024b).
- Public Lighting Layout (MHL & Associates Ltd., 2024c).
- Natura Impact Statement (O'Donnell Environmental, 2024).





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## 2 Methodology

Ecological surveys were informed by desk studies and data was validated through multiple site visits during Summer, Autumn and Winter 2023. Bat surveys involved visual assessment of all accessible structures, passive bat monitoring and bat activity surveys during dusk and dawn. Each of these are described below.

#### 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 (W87) 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) website was reviewed for relevant hydrological or environmental information.

Designated nature conservation sites within the wider hinterland of the proposed redevelopment were considered also under the EU Habitats Directive<sup>1</sup> while SPAs designated under the EU Birds Directive<sup>2</sup>.

#### 2.2 VISUAL BAT ROOST SURVEY

Daytime visual assessments of structures were carried out by Tom O'Donnell BSC (Hons) MSc CEnv MCIEEM, Colm Breslin BSc (Hons) and Claire McCarthy BSc (Hons) MSc on 30<sup>th</sup> May, 24<sup>th</sup> July, 22<sup>nd</sup> September and 15<sup>th</sup> November 2023 to identify any bat roosting potential which may be associated with the study area. Signs of bat use include bat droppings, feeding remains, potential bat access points identified by characteristic staining and scratches, noise made by bats etc. Photographs of the study area are shown in **Appendix A**.

A detailed preliminary roost assessment (PRA) of all interior and exterior spaces of relevant structures were carried out following guidance set out in Collins (2023) and classified according to the scheme outlined in **Table 2.1**. The structures surveyed included Rosehill House, Eastville House, structures associated with the former mills, and a disused residence at the northeast of the proposed site. Locations of these structures are outlined in **Figure 1.1**.

Suitability	Description
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).
Negligible	No obvious habitat features likely to be used by roosting bats, but a degree of uncertainty
	remains as seemingly unsuitable features may be used on occasion.
Low	A feature with one or more potential roost sites that could be used by individual bats
	opportunistically.

Table 2.1. Scheme for	describing the	potential suitability	of structures for bats.

<sup>&</sup>lt;sup>1</sup> Council Directive 92/43/EEC on the conservation of natural habitats and wild flora and fauna, as amended by Council Directive 97/62/EC.

<sup>&</sup>lt;sup>2</sup> Directive 2009/147/EC (Birds Directive) on the conservation of wild birds (the codified version of Council Directive 79/409/EEC as amended).



	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).
Moderate	A structure 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 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 (4<sup>th</sup> Edition)', Collins (2023).



#### 2.3 BAT ACTIVITY SURVEYS

Emergence and passive bat activity surveys were carried out within the proposed development boundary. Surveys followed Collins (2023) and aimed to characterise bat activity in the area, significance of interaction with the site, and to seek to identify any bat roosting within structures.

#### 2.3.1 Emergence Surveys

Three active bat surveys were carried out during the bat active season. Two emergence (dusk) surveys were carried out on the 30<sup>th</sup> May and 29<sup>th</sup> June 2023, and one re-entry (dawn) survey was carried out on 22<sup>nd</sup> September 2023. The surveys were carried out by four surveyors, Tom O'Donnell, Colm Breslin, Claire McCarthy and Keiran Sugrue (BSc Hons). Incidental notes on bat activity, where observed, were made during bird surveys at dusk also.

Surveyors were positioned to maximise views of the structures, in combination with night vision aids (NVAs) following best practice guidelines (Collins, 2023). Particular attention was applied to any identified access/egress points noted during previous daytime visual roost assessments. Three Guide IR Pro 19 thermal imaging cameras were positioned to optimise views of structures, following Collins (2023). Echolocation recordings were made on handheld Echo Touch Meter Pro 2 and Anabat Scout full spectrum recorders. Additionally, WA Song Meter Mini full-spectrum detectors were placed within the viewsheds of night vision aids to correlate any potential emergence with echolocation data. Surveys were carried out during suitable weather conditions. Surveys are detailed in **Table 2.2**, below. Images showing the field of views from camera placements are shown in **Plate 2.1** to **Plate 2.6**.

Due to the scale of the development site and extensive structures contained within the development boundary, specific structures were targeted by surveyors and NVAs on separate survey nights to maximise the probability of observing access/egress.

Date	Survey	From - To Times	Sunrise / Sunset Time	Weather
30/05/2023	Emergence	21:25 – 23:15	21:40	16°C; F2-4; 7 Oktas; Light rain at sunset.
29/06/2023	Emergence	21:45 – 23:33	21:55	16°C; F1; 1 Oktas; No rain.
22/09/2023	Re-entry	05:30 - 07:40	07:18	8°C; F1; 8 Oktas; No rain.

#### Table 2.2 – Bat activity survey details.

#### 2.3.2 Passive Bat Monitoring

Passive bat monitoring was carried out between 30<sup>th</sup> May and 19<sup>th</sup> June 2023 for a total of 20 survey nights using a WA Song Meter Mini full-spectrum detector. The detector was placed within suitable habitat at the southwestern portion of the site to representatively sample all bat species present (see **Figure 1.1**). Passive monitoring surveys were carried out to quantify local bat activity levels, species richness and the significance of interaction within the development footprint.

Bioacoustics 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 SURVEY LIMITATIONS

One residence within the site boundary was not accessible for internal inspection, as the residence was occupied at the time of the survey. No evidence of significant roosting was observed from available vantages during surveys and therefore the lack of internal access to this structure is not considered a significant limitation in this instance. Areas of the buildings contained within the site such as the upper floors of Rosehill House, and the upper areas of the disused Mill Buildings were not accessible due to the dilapidated state of these buildings, and due to fire damage. However, all buildings were visible externally to surveyors and so lack of internal inspection is not considered a significant limitation in this instance.



Plate 2.1 Example image from thermal camera covering the front/eastern aspect of Roseville House.



Plate 2.2 Example image from thermal camera covering the northern aspect of Roseville House with Soprano Pipistrelle emerging (red).





Plate 2.3 Example image from thermal camera covering the rear/western aspect of Roseville House with Soprano Pipistrelle emerging (red).



Plate 2.4 Example image from thermal camera covering the western aspect of Eastville House.





Plate 2.5 Example image from thermal camera covering the western aspect of the former mill buildings complex.



Plate 2.6 Example image from thermal camera covering the eastern aspect of the former mill buildings complex.



## 3 Results

The proposed development occurs within a brownfield, peri-urban landscape that experiences relatively low levels of light pollution. The proposed development is adjoined by residential and agricultural land uses. The site is exposed in nature and is dominated by artificial surfaces and built structures with portions of scrub and woodland along the southern and western borders.

#### 3.1 DESKTOP SURVEY

#### 3.1.1 Sites of International and National Importance

No Natura 2000 site designated for Lesser Horseshoe Bat is located within 15km of the proposed development and thus is not considered further within this report.

Ballynaclashy House pNHA (0099) and Templebready National School pNHA (0107) are designated for Whiskered Bat and Leisler's Bat maternity colonies respectively. These are located approximately 6.15km northwest and 14.1km southwest from the proposed development are separated by Midleton town urban fabric and Cork Harbour respectively. Carrigacrump Caves pNHA (1408), while not designated for bat species, possesses the potential for wintering bat species and is located approximately 6.34km south of the proposed development. Considering the separation distances involved, the likelihood of significant impacts arising on these colonies as a result of the proposed development are considered negligible and are thus not considered further within this report.

#### 3.1.2 Bat Data Search

National Biodiversity Data Centre holds previous records of bat presence from within the 10km square (W87) in which the proposed site is located. These records are for the following seven species:

- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (Pipistrellus pygmaeus)
- Leisler's Bat (Nyctalus leisleri)
- Daubenton's Bat (Myotis daubentonii)
- Natterer's Bat (*Myotis nattereri*)
- Whiskered Bat (Myotis mystacinus)
- Brown Long-eared Bat (*Plecotus auritus*)

The overall bat suitability index value (31.22) according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011) suggests the landscape in which the proposed site is located is of moderate to high suitability for bats in general. Species specific scores are provided in **Table 3.1**. Lesser Horseshoe Bat is assigned a score of '0' as the proposed site is located outside of the known distribution despite the availability of suitable habitat.



## Table 3.1 - 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		31.22
Soprano pipistrelle	Pipistrellus pygmaeus	46
Brown long-eared bat	Plecotus auritus	44
Common pipistrelle	Pipistrellus pipistrellus	39
Lesser horseshoe bat	Rhinolophus hipposideros	0
Leisler's bat	Nyctalus leisleri	44
Whiskered bat	Myotis mystacinus	35
Daubenton's bat	Myotis daubentonii	30
Nathusius pipistrelle	Pipistrellus nauthusii	6
Natterer's bat	Myotis nattererii	37

Source: https://maps.biodiversityireland.ie/Map. Accessed 06/11/2023.

#### 3.2 VISUAL BAT ROOST SURVEY

The suitability of features on site were assessed for their suitability for roosting bats following Collins (2023) (see **Table 2.1**). A daytime visual inspection of structures was carried out with the aim of identifying bat roosts by either the presence of bats or signs of past bat roosting. A detailed visual survey was carried out inspecting all safely accessible internal and external areas of the buildings. The survey was non-destructive. Additional photographs of the structures are provided in **Appendix A**. As noted in 'Survey Limitations' above, the occupied residence immediately west of the former residence was not accessible at the time of surveys. No significant roosting by bats was identified onsite, therefore this is not considered a significant limitation in this instance.

#### 3.2.1 Rosehill House

Rosehill House comprises a two-storey block-built structure with basement and natural slate roof situated within the southwestern portion of the proposed development (see **Figure 3.3**; **Plate 3.2.1**). The structure is surrounded by mature semi-natural broadleaf woodland which provides suitable cover for emerging roosting bats. The structure is in relatively sound structural condition, with no obvious signs of severe structural damage.





Plate 3.2.1 View overlooking the eastern/front aspect of Roseville House.

Portions of the roof have been repaired with modern slate equivalent, and slates are missing in portions which provides clear access/egress points for roosting bats. Additionally, some windows are currently uncovered or have been left open, notably the skylight on the western aspect of the roof and uncovered second storey window to the north. The western aspect of the house is covered in dense ivy growth.

Access was limited to the ground floor only due to the lack of safe access to the upper floors. The interior spaces were noted as being in an advanced state of dereliction. No evidence of roosting bats was identified during interior inspection although it was noted to possess a wide variety of PRFs stemming from the dilapidated interior. A single storey outbuilding is associated with the structure and is currently in a state of advanced disrepair with missing slates and damage caused from vigorous growth of adjacent tree saplings.

Roseville House displays 'high' suitability for roosting bats and has been confirmed as a bat roost for Soprano Pipistrelle (see **Plate 2.1** and **2.2**). It should be noted that Rosehill House display a wide variety of PRFs and that while only Soprano Pipistrelle was observed roosting individually the possibility of other species roosting within the structure in larger numbers in the future cannot be discounted.

#### 3.2.2 Eastville House

Eastville House is a two-storey block-built structure located along the northern perimeter of the development site adjacent to the L3625 (Rose Lane) (see **Figure 3.3**; **Plate 3.2.2**). This derelict residence is in an advanced state of disrepair, with the southern wing roof missing a considerable area of roof tiles allowing light, water and wind egress into the upper floors. Exterior inspection revealed obvious access/egress points for roosting bats through open windows on both floors, gaps surrounding the boarded-up windows and gutters, loose ridge tiles, alongside the aforementioned missing slates. The house is bordered to the east by a grouping of semi-mature to mature trees which provide suitable cover for exiting roosting bats. Streetlighting exists on the adjacent roadway which reduces the roosting suitability on the northern aspect of the structure.





Plate 3.2.2 View overlooking the northern/front aspect of Eastville House from the adjacent roadway (L3625).

The interior of Eastville House is considerably degraded as a result of water ingress, with portions of the upper flooring rotten and not safely accessible. No discrete attic space exists, with the upper floors showing exposed roofing slate atop timber framing with no underlying bitumen felt. A single Brown Long-eared Bat was identified day-roosting within the upper floor directly within the eaves of the timber framing on 30<sup>th</sup> May 2023 (see **Plate 3.2.3**). Subsequent interior inspections did not reveal Brown Long-eared Bat day-roosting. Additionally, Swallow nests were identified within the ground floor.

Eastville House displays 'high' suitability for roosting bats and has been confirmed as a bat roost for Brown Long-eared Bat. It should be noted that Eastville House display a wide variety of PRFs and that while only Brown Long-eared Bat was observed roosting individually the possibility of other species roosting within the structure in larger numbers in the future cannot be discounted.





Plate 3.2.3 Brown Long-eared Bat (red) present within upper floor of Eastville House during survey on 30<sup>th</sup> May 2023. (Photo by T. O'Donnell, NPWS License Ref. 39 / 2022).

#### 3.2.3 Mills Building Complex

The mill buildings complex comprises an extensive series of interconnected structures composed of block built, stonework and metal structures (see **Plate 3.2.4**). The building complex has experienced extensive fire damage both historically and recently which has left large portions without a roof and thus drastically reduces its suitability for roosting bats (see **Figure 1.1** for extent; **Appendix A1**). The intact portions of the complex comprise the stonework storage barn at the west adjacent to the L3625 (see **Appendix A3**) and the concrete tower located centrally (see **Plate 2.7**; **Appendix A4**).



Plate 3.2.4 View overlooking the western aspect of the mill buildings complex.

Due to the extent of the mill complex, a wide array of roosting opportunities are present for individual crevice dwelling bats such as in the form of gaps in the stonework and loose



plasterwork, but by the nature of their construction, the buildings likely do not represent optimal roosting conditions.

There exists a former service tunnel associated with the former mills building complex at the southern portion of the site which extends a considerable distance underground (see **Figure 1.1; Appendix A13**). Daytime inspection of this space for bat species during summer 2023 revealed no individuals at the time but was noted to possess cool, stable temperatures alongside minimal wind and light ingress. The service tunnel possesses suitable winter hibernating spaces for bat species.

The mill buildings complex in its entirety presents 'low' suitability for roosting bats, based on available evidence. The service tunnel was noted to possess suitable winter hibernating roosting spaces for bat species. No bats were identified roosting within the structures during the course of surveys.

#### 3.2.4 Former Residence

The former residence located at the northwest boundary of the proposed development is a twostorey stonework structure with modern external render, attic section and modern slate roof (see **Plate 3.2.5**). The derelict building is in structurally sound condition with no evidence of dilapidation. No access/egress points were identifiable upon external inspection, roof tiles were intact and flush, and all windows were secure. This structure is located adjacent to a roadway which experiences considerable light disturbance which limits bat roosting suitability on the northern aspect.

Heavy cobwebs were present throughout the interior spaces of the structure, particularly along the stairway between floors, indicating the lack of recent bat roosting. Two instances of possible feeding remains of bats were identified, although these are likely as a result of a single instance of occupation and not as a result of regular roosting by bats. Inspection of the attic space revealed a heavily cobwebbed space with a single window facing east allowing considerable light ingress (see **Appendix A14**). No evidence of bat roosting was identified within the attic space.



Plate 3.2.5 View overlooking the northern aspect of the former residence.



The former residence in its entirety presents 'high' suitability for roosting bats. No bats were identified roosting within the structures during the course of surveys. However, the possibility roosting occurring within the structure in large numbers in the future cannot be discounted due to the suitability of structure.

#### 3.3 BAT ACTIVITY SURVEYS

The proposed site was assessed for its value to foraging and commuting bats through emergence surveys and passive monitoring. The results are discussed separately below.

#### 3.3.1 Emergence Surveys

Up to three surveyors simultaneously surveyed the site on three occasions during suitable weather conditions, aided by the use of ultrasonic detectors and thermal imaging and infrared cameras (night vision aids).

The first emergence survey on 30<sup>th</sup> May 2023 was focused on Rosehill House with transects completed by other surveyors around the whole site throughout the survey period. A single Soprano Pipistrelle was observed exiting Rosehill House from the western gable approximately 22 minutes after sunset and confirmed through review of thermal imaging footage and bioacoustics analysis (see **Plate 2.2**). A single Brown Long-eared Bat was identified roosting within Eastville House prior to the emergence survey as discussed in **Section 3.2.1.2** above.

Bat activity surrounding Rosehill House was characterised by moderate levels of Common Pipistrelle and Soprano Pipistrelle activity within the mature broadleaved woodland surrounding the house. Some individuals were observed to arrive from the direction of Rosehill House although it cannot be confirmed if they were roosting within the development boundary. Transects were carried out to characterise activity within the wider development site. Low levels of activity were recorded surrounding the mill buildings complex alongside the roadway immediately outside the development site, likely as a result of the exposed habitat of artificial surfaces and streetlighting.

The second emergence survey on 29<sup>th</sup> June 2023 focused on Rosehill House, Eastville House and the central portion of the mill buildings complex. A single Soprano Pipistrelle was observed again leaving Rosehill House approximately 10 minutes after sunset and heading west. A single bat, presumed to be Brown Long-eared Bat from previous daytime roost surveys, was observed exiting the western aspect of Eastville House under the cover of surrounding semi-mature trees. The survey night was characterised by low levels of activity within the wider site, with activity concentrated around the mature broadleaf woodland surrounding Roseville House in the form of foraging Pipistrelles.

The final survey consisted of a dawn re-entry survey on 22<sup>nd</sup> September 2023 which focused on back-tracking any activity noted to possible roosting locations. Bat activity proximal to sunrise was characterised by individuals dissipating in a westwards direction, likely to a nearby roost. A total of two Soprano Pipistrelles were recorded re-entering Rosehill House approximately 70 minutes and 43 minutes before sunrise through the open skylight and loose slate on the western gable roof respectively.

A single Common Pipistrelle was noted within the stonework grainstore approximately 1 hour before sunset but left through a gap in the window on the northern aspect. A maximum of three Soprano Pipistrelles were recorded at any one time performing what appeared to be tandem



flight around the eastern aspect of the complex proximal to the burned buildings. These individuals were noted flying into the buildings although were observed leaving again and dissipating westwards thereafter.

#### 3.3.2 Passive Bat Monitoring

Passive monitoring was carried out using a Wildlife Acoustics Song Meter Mini full-spectrum detectors between 30<sup>th</sup> May and 19<sup>th</sup> June 2023 for a total of 20 survey nights. A total of 6203 registrations were recorded during this period. Bioacoustics analysis of bat sonograms was carried out using Kaleidoscope and all calls were manually verified.

The results of passive bat monitoring are presented in **Table 3.2.** The majority of registrations comprised common and widespread species such as Common Pipistrelle and Soprano Pipistrelle, comprising 51% and 41% of registrations respectively. Leisler's Bat and Daubenton's Bat comprises the remaining majority of registrations at approximately 6% and 2% respectively. The remaining rarer and more sensitive species of Whiskered Bat, Natterer's Bat, Nathusius' Pipistrelle and unidentified *Myotis* sp. all comprise less than 1% of the remaining registrations respectively.

Survey Night	Common Pipistrelle	Soprano Pipistrelle	Leisler's Bat	Daubentons Bat	Whiskered Bat	Myotis sp.	Natterers Bat	Nathusius Pipistrelle	Total
30 May	361	126	6	0	0	0	0	0	493
31 May	345	223	22	3	0	1	0	0	594
01 June	194	179	12	3	1	1	0	0	390
02 June	184	167	8	3	1	1	0	1	365
03 June	114	172	12	2	0	0	0	0	300
04 June	188	117	12	5	0	0	0	0	322
05 June	144	132	3	2	0	0	0	0	281
06 June	67	111	10	2	0	1	0	0	191
07 June	400	207	18	0	0	0	0	0	625
08 June	274	141	17	29	1	0	0	0	462
09 June	250	116	25	28	0	1	0	0	420
10 June	74	122	32	2	0	0	1	0	231
11 June	117	121	24	6	0	0	0	0	268
12 June	98	101	23	4	1	0	0	0	227
13 June	33	89	25	16	4	0	0	0	167
14 June	70	77	27	5	0	0	1	0	180
15 June	71	115	30	15	0	0	0	0	231
16 June	49	110	8	3	1	0	1	0	172
17 June	82	68	67	1	0	0	0	0	218
18 June	28	22	16	0	0	0	0	0	66
Total	3143	2516	397	129	9	5	3	1	6203

Table 3.3 – Bat 'registrations' recorded during passive bat monitoring 2023.

Note: data shows number of bat registrations which is defined as the presence of a species within a recording of up to 15 seconds.



Overall, a high level of bat activity was recorded. Of the nine (possibly ten) Irish species known to occur nationally, seven (possibly eight) were recorded within the proposed development; this represents a high diversity of species. The Annex II listed Lesser Horseshoe Bat was not recorded despite the presence of suitable landscape. This would be expected considering the proposed development is located outside of their known range, with the nearest available record approximately 28km west of the proposed development within Blarney Castle and Gardens and is separated by the inhospitable urban fabric of Cork City (Tom O'Donnell pers. comm.). Brown Long-eared Bat was not recorded proximal to the detector despite being confirmed as roosting within Eastville House within the development boundary. This is likely as a result of their low-intensity echolocation which is often not picked up by detectors (Russ, 2012; 2021).

The distribution of registrations recorded are shown in **Figure 3.1** and **Figure 3.2**. Median sunset and sunrise time was 21:49 and 05:14 respectively throughout the survey period. Activity patterns can be seen as relatively consistent throughout the survey period, indicating the survey area is of high value for its bat assemblage due to the presence of mature broadleaf woodland within the site boundary.



Figure 3.1 - Distribution of all bat registrations recorded by survey night and species.

Additionally, activity levels remain are consistent throughout the night, with the majority of activity present around sunset and sunrise (see **Figure 3.2**). The number of registrations then decline but become stable throughout the night, indicating the survey area is of moderate value for foraging bats. The earliest registrations of bats appear approximately 20 minutes before sunset and consist entirely of Common and Soprano Pipistrelle, suggesting the presence of bats roosting within the locality of the proposed site. This aligns with the results of bat activity surveys, whereby Soprano Pipistrelle was observed roosting within Rosehill House (see **Plate 2.2** and **2.3**).





**Figure 3.2** - Distribution of all bat registrations recorded by 10-minute time intervals and species (median sunset and sunrise times were 21:49 and 05:14 respectively – indicated by black dashed lines).

Considering the nature and scale of the proposed site, the habitats contained within, the distribution of activity, and the presence of roosting bats, the proposed site is considered of **Local importance (Higher Value)** for foraging, commuting and roosting bats (following NRA, 2009).

#### 3.4 SUMMARY OF RESULTS

Roosting by bats was confirmed within two structures within the site (Rosehill House and Eastville House) and no evidence of maternity roosting was identified. A minimum of two Soprano Pipistrelles were identified roosting within Rosehill House, with a single individual recorded emerging on two nights and two individuals re-entering at dawn. Brown Long-eared Bat was confirmed to be roosting within Eastville House and was recorded once during daytime walkovers and was observed emerging from the structure in a single instance.

While no roosting by bats was confirmed within the mill buildings complex, the abundance of crevices suggests that bats may sporadically roost individually or in small numbers. The surrounding habitat of exposed artificial surfaces and streetlight reduces the suitability of the mill buildings complex as a roosting structure. While no roosting was confirmed within the former residence, the intact nature of the structure presents a high suitability roosting location for bats. Both structures have been appropriately considered nonetheless within this report.

The site in general is exposed in nature and presents low value foraging habitat for bats. However, portions of mature mixed broadleaf woodland and scrub habitat provide locally important high value foraging habitat for bats and was identified to be used extensively in early night and early morning activity immediately following emergence and immediately prior to reentry of structures respectively.



Overall, the proposed development site is of **Local importance (Higher value)** following NRA (2009).



## 4 Potential Impacts

Potential ecological impacts which could arise as a result of the proposed development are discussed below. Avoidance and mitigation measures in respect of identified potential impacts are discussed in Chapter 5 - Avoidance and Mitigation Measures. The predicted residual impact of identified potential impacts following application of avoidance and mitigation measures are discussed in Chapter 6 - Residual Impacts.

#### 4.1 DO NOTHING IMPACT

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 brownfield site is currently unmanaged and not maintained. Under a 'do-nothing' scenario it is likely that the structures identified onsite would eventually fall into an advanced state of dereliction and be lost entirely as roosting structures for bat species.

#### 4.2 LOSS OF ROOSTING SITES

The construction phase of the proposed development will see the permanent loss of the roosting spaces within Eastville House and Rosehill House, alongside the majority of suitable foraging habitat in the form of mature trees and scrub habitat. Additionally, there exists a service tunnel associated with the former mills building complex (see **Figure 1.1**) which presents suitable hibernacula roosting spaces for bat species although no roosting was identified at the time. This space will be lost entirely for bat species also.

#### 4.3 LOSS OF VEGETATION

Any proposed vegetation removal will impact foraging and commuting bats that use hedgerows and other similar features. Hedgerows and treelines maintain landscape connectivity and provide commuting bats with waypoints and corridors through which they commute to and from roosts/foraging areas. The loss of these features will cause a reduction in landscape connectivity in the immediate vicinity of the proposed site. Additionally, vegetation provides a screening effect for artificial lighting disturbance in a local context.

The use of heavy machinery in the root zone of trees can cause damage of the mature trees within the vicinity of the former residence, resulting in increased tree morbidity and mortality. Equally, the use of machinery in proximity to trees can result in accidental damage to the trunk and branches of trees. In the medium and long terms this could result in the death of trees which provide bat roosting opportunities, alongside screening disturbance effects of artificial lighting.

#### 4.4 CONSTRUCTION ACTIVITY

Illumination surrounding a bat roost during the construction phase can cause disturbance (Downs et al., 2003). Light falling on a roost access point will at least delay bats from emerging and this shortens the amount of time available to them for foraging (Boldogh et al., 2007). As the main peak of nocturnal insect abundance often occurs around dusk, a delay in emergence can mean this vital time for feeding is missed. Additionally, there is evidence that Brown Long-eared Bat roosts can be abandoned completely when entrances are illuminated (Roche et al., 2014).



Inappropriate or excessive illumination of treelines or woodland areas at night can cause disturbance to roosting, commuting and foraging bats. Artificial lighting is thought to increase the chances of bats being predated upon by avian predators (e.g. owls), and therefore bats may modify their behaviour to avoid illuminated areas.

Localised increases in noise and dust levels are likely to occur during the construction phase. In the absence of mitigation, these impacts could give rise to indirect negative effects on bat species roosting onsite. Noise will occur through the operation of machinery (excavation, pile driving, etc.). Dust may arise during construction works if dry soil or other material is allowed to become windborne.

The overall effect on bats as a result of the proposed development is considered to be a **short term, slight, reversible negative** effect following EPA (2022).



## 5 Avoidance and Mitigation Measures

Avoidance and mitigation measures in relation to potential impacts identified above are discussed below. A mitigate-by-design approach was followed in the design of the current project, and O'Donnell Environmental collaborated with Fourem Architects, Holly Arboriculture and MHL & Associates Consulting Engineers in order to mitigate by design where possible.

#### 5.1 REPLACEMENT ROOSTING LOCATIONS

O'Donnell Environmental have engaged with Fourem Architects throughout the planning process in order to design out as much as possible any potential negative effects that may arise on bat species as a result of the proposed development.

Prior to the commencement of demoltion, **four Schwegler Bat Box 1FD** will be installed in two pairs on suitably undisturbed mature trees within the western portion of the site in order to provide replacement, non-maternity, roosting opportunities for bats during the construction phase. These boxes will be a temporary measure and removed on completion of construction works to avoid potential disturbance/vandalism during the operational phase.

In order to mitigate the loss of non-maternity roosting locations in structures, 11 artificial bat boxes will be incorporated into structures throughout the site. A mixture of **Schwegler Bat Winter Roost 1WI** and **Schwegler Bat Winter Roost 2WI** bat boxes will be mounted externally on structures (see 'Bat and Bird Box Location' drawing in **Appendix B** for locations; Fourem, 2024). A bat-licensed Ecologist will supervise the installation of bat boxes, in order to verify correct placement and installation. No ongoing maintenance is necessary for this design of artificial bat box. These bat boxes will be placed a minimum of 3m from ground level, roost entrance not illuminated from proximal lighting and is placed in an area with connectivity to the surrounding landscape in the form of vegetation. A mixture of northern and southern aspects will be utilised to provide a range of roosting environments for bat species. See **Plate 5.1** for example location of bat boxes on structures.



Plate 5.1 - Example of location of externally mounted bat box on structures (blue). Adapted from Drawing No. 02.04 (Fourem Architects).



#### 5.2 DEMOLITION SUPERVISION/TIMING OF WORKS

Two confirmed bat roosts were identified during the course of surveys within Rosehill House and Eastville House (see **Section 3.2-3.3**), and while no roosting was confirmed within the mills building complex or associated service tunnels, some roosting may occur in small numbers and cannot be entirely discounted. No maternity or significant roosting was identified within the development site, and confidence in this result is high given the robust survey effort employed which complies with best practice standards. The identified roosting locations in Rosehill House and Eastville house will be lost to roosting bats as a result of the proposed development.

A bat licensed Ecologist will be engaged to carry out pre-construction surveys of the known bat roosts within Rosehill House and Eastville House, and to advise in relation to the exclusion of bats in advance of works. In addition, the mills building complex, associated service tunnels, and both former and occupied residences will also be surveyed in advance of works to ascertain the presence of roosting bats. Dependant on the results of that future survey, additional measures may be required (e.g. no works during the maternity season in the event a maternity roost has formed on site in the interim).

Structures onsite provide a wide range of roosting opportunities for bat species. Reason and Wray (2023) outline the optimal timing of works of known bat roosting structures. The roosting ecology of bats in winter are poorly understood and a general restriction on structural/demolition works in winter are recommended in order to avoid detrimental impacts on individual bats that may be in torpor. Similarly, a seasonal restriction on structural/demolition works is generally recommended during the summer within the core maternity season to avoid impacts on breeding bats.

While no evidence of significant (i.e. maternity) roosting was identified within Rosehill House, the structure in its current form provides a wide range of roosting features for bat species. As noted previously, the upper floors of Rosehill House were not safely accessible due to significant dilapidation and winter roosting cannot therefore be entirely discounted from this structure. As such, no structural/demolition works will take place on Rosehill House during the core winter months of December to March inclusive.

Due to the comprehensive nature of the surveys undertaken on Eastville House, and the accessibility to the entire structure, no winter restrictions (December-March inclusive) are considered warranted for Eastville House in addition to the remaining structures onsite (mills complex, former residence). This measure is appropriate in order to enable avoidance of breeding birds within these structures (Kestrel, Swallow) during the bird breeding season.

A bat licensed Ecologist will be engaged to provide a toolbox talk on site at commencement of demolition works and to supervise roof removal works (e.g. removal of roof tiles) at a minimum for Rosehill House and Eastville House. The removal of roofing materials and the stripping of the fascia and soffit will be carried out with hand tools to minimise the potential impact to any bats roosting within. As an additional deterrent measure, illumination may be installed by a bat-licensed Ecologist in advance of proposed demolition to deter bats from roosting here. The lighting will be first illuminated at night when bats are active and have left the roost.

Any bats encountered in known structures will be relocated by a bat-licensed Ecologist to the nearby bat boxes installed in advance of demolition as outlined in **Section 5.1** above. Should any bats be encountered or identified in previously unknown structures, works will be immediately stopped and amended derogation licence sought from the NPWS.



#### 5.3 GENERAL CONSTRUCTION MEASURES

General construction environmental measures are summarised below and are considered sufficient to avoid potential indirect effects on bats within the locality.

During construction works will generally take place during daylight hours only (7am-7pm) as outlined in the oCEMP (MHL & Associates Ltd., 2024). Where lighting during darkness is required for health, safety or security reasons, it shall be suitably cowled and directed away from sensitive ecological features including retained treelines and vegetation to avoid light spill during the active bat season (April-October inclusive). No site lighting will be left on overnight. These measures are considered sufficient to minimise any adverse impacts on roosting, commuting and foraging bats in the construction phase.

The use of heavy machinery in the root zone of trees can cause damage of woodland habitat and trees, resulting in increased tree morbidity and mortality. Equally, the use of machinery in proximity to trees can result in accidental damage to the trunk and branches of trees. Where the proposed development encroaches upon portions of woodland habitat and tree groups, nodig construction areas have been designated and arboricultural monitoring required during works in these areas to ensure no impact to trees and therefore foraging habitat for bat species within and proximal to the proposed development (Holly Arboriculture, 2024a).

The following measures will be applied and are outlined within the oCEMP (MHL & Associates Ltd., 2024a) to avoid Localised increases in noise and dust levels;

- Wetting of haul roads and storage areas using bowsers during periods of dry weather.
- Covering imported and excavated material.
- Reducing the duration of stockpiled material.
- Wheel wash facilities for construction traffic leaving site.
- Hoarding around works areas to prevent larger dust particles from mobilising offsite.
- Speed restriction of 20km/h for construction traffic.
- Vehicles transporting materials with potential to generate dust will be covered with tarpaulin.

#### 5.4 LIGHTING

External lighting, largely in the form of street lighting is proposed for the operational phase of the development. O'Donnell Environmental Ecologists have collaborated with MHL & Associates Consulting Engineers to minimise the effect of external lighting on bat species. Predicted light-spill associated with related lighting is shown as 'lux contours'. The light sources used for external lighting (including subsequent replacements) will be designed with cognisance of ILP downward facing and specified as follows (including subsequent replacements):

- LEDs will be used, as these emit minimal ultra-violet light.
- White and blue wavelengths will be avoided; wavelength will be <2,700 kelvin.
- Lights will peak higher than 550nm.
- Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, have been specified. Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.

#### 5.5 POST-CONSTRUCTION MONITORING

Post-construction monitoring will be carried out on one occasion during the maternity season in each year for two years following the completion of works to confirm the successful



implementation all proposed artificial bat roosting locations and to monitor their respective status/ Access will be provided to all bat boxes and dedicated bat roof spaces for daytime inspection. All surveys will be undertaken by a bat-licensed ecologist. Integrated bat boxes are self-cleaning and thus do not require maintenance.



## 6 Residual Impacts and Conclusion

A comprehensive survey effort has been carried out and the proposed site is considered to be of **Local Importance (Higher Value)** from an ecological perspective based on the availability of roosting spaces for a variety of bat species (following NRA, 2009).

There will be a short-term, slight negative effect on roosting bats at a local level during the construction phase as a result of disturbance and the permanent loss of roosting locations. With the implementation of the mitigation measures outlined in **Section 5** above, the overall ecological effect of the proposed development (relative to the 'do-nothing' scenario) is considered to be a **neutral** effect (following EPA, 2022).



## 7 Derogation Licence Application

Bat roosts are protected whether they are occupied or not, and it is an offence to disturb a bat roost. A derogation license issued under Regulation 54 (2) (c) of the Birds and Natural Habitats Regulations (2011) is required to facilitate the proposed works.

A derogation license is requested for the proposed works, with the following details:

- Applicant: Conor McCarthy, Ballinacurra Project Limited Partnership, Great Island Enterprise Park, Ballincollig, Co. Cork.
- Supervised by: Tom O'Donnell / Colm Breslin of O'Donnell Environmental Ltd, Lawley House, Monahan Road, Cork City, Co. Cork. T12 N6PY.
- Species: **Brown Long-eared Bat** *Plecotus auritus*, **Common Pipistrelle** *Pipistrellus pipistrellus*, **Soprano Pipistrelle** *Pipistrellus pygmaeus*.
- Activity: Ballinacurra Mills LRD, Co. Cork.
- Timeline: 2025/2026

**Table 7.1** provides responses to four key issues which will be considered during the derogation license decision making process.

#### Table 7.1 - Derogation License Checklist

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.

Ballinacurra Project Limited Partnership intends to redevelop the former Ballinacurra Mills Complex into a large-scale residential development (LRD) including commercial and educational facilities.

The derogation license is sought to facilitate these works (subject to planning permission) which are required for economic and social reasons to i) facilitate development of the existing structures into a mixed commercial and residential development and ii) will provide housing and help address the national housing crisis.

The proposal accords with national and regional planning policy in respect of promoting development of underutilised brownfield sites close to public transport to deliver compact urban settlements.

Alternative solutions were considered, and none are available in this instance. The buildings are in an advance state of dilapidation and renovation is required in order to utilise this brownfield site. Renovation in a way that does not disturb the bat roosting locations is not possible.

The brownfield site contains a wide variety of structures in states of disrepair. All structures show evidence of light, water, and wind ingress. The mills complex was additionally damaged extensively by fire on multiple occasions. The site is currently unmanaged and not maintained. Under a 'do-nothing' scenario it is likely that the structures identified onsite would eventually fall into an advanced state of dereliction and be lost entirely as roosting structures for bat species. The proposed development



will see the renovation of structures onsite in order to make them structurally secure and	
habitable and as such no suitable alternative is available for works to proceed.	
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.	
An appropriate level of survey was carried out which complies with current best practice standards, including recent recommendations regarding the use of 'night vision aids'. Based on best available information, Rosehill House and Eastville House contain non-significant roosting by Soprano Pipistrelle and Brown Long-eared Bat respectively.	
While not confirmed at the time of surveys, non-significant roosting by other <i>Pipistrellus</i> spp. such as Common Pipistrelle cannot entirely be discounted and thus is included within this licence application also and provision has been made for these species.	
Seasonal avoidance is the primary measure being employed to avoid/reduce disturbance to roosting bats. While no evidence of significant (i.e. maternity) roosting was identified within Rosehill House, the structure in its current form provides a wide range of roosting features for bat species. As noted previously, the upper floors of Rosehill House were not safely accessible due to significant dilapidation and winter roosting cannot therefore be entirely discounted from this structure. As such, no structural/demolition works will take place on Rosehill House during the winter months.	
Due to the comprehensive nature of the surveys undertaken on Eastville House, and the accessibility to the entire structure, no winter restrictions (December-March inclusive) are considered warranted for Eastville House in addition to the remaining structures onsite (mills complex, former residence). This measure is appropriate in order to enable avoidance of breeding birds within these structures (Kestrel, Swallow) during the bird breeding season.	
Detailed daytime pre-construction surveys will be carried out in advance of works to identify any potential roosting bats. Demolition works will be carried out under supervision of a bat-licensed ecologist, utilising hand tools in areas with suitability for hosting roosting bats.	
Alternative non-maternity roosting locations will be provided during the construction in the form of bat boxes on structures (see <b>Appendix B</b> ). This will consist of a mixture of 11 Schwegler 1WI/2WI roost boxes placed on a variety of aspects to provide a wide range of environmental variables for bat species (i.e. summer and winter roosting options). Should bats be encountered during demolition works, the supervising bat-licenced Ecologist will immediately move these individuals to nearby bat boxes installed in advance of works.	
It is considered that the proposal will not be detrimental to the maintenance of the bat populations at a favourable conservation status in their natural range and that the proposal will not have a detrimental effect on the local bat populations.	

proposal will not have a detrimental effect on the local bat populations.



Details of any mitigation measures planned for the species affected by the  $\boxtimes$ derogation at the location, along with evidence that such mitigation has been successful elsewhere.

Full detail on proposed mitigation measures are outlined above in Section 5. Below is a summary of these measures:

- Alternative non-maternity roosting locations will be provided during the construction phase in the form of artificial bat boxes.
- Demolition works will be timed according to the nature of the structures onsite. • Where detailed interior assessment was not achievable due to structural degradation (i.e. Rosehill House), no winter works will be undertaken. Where structures were comprehensively assessed and a high degree of confidence is available on the usage of structures by bats (i.e. Eastville House, mills buildings complex), no seasonal constraints are deemed necessary in this instance. Winter work would be recommended for the former two structures due to the presence of breeding Kestrel in the structure.
- A bat-licenced ecologist will be onsite conducting survey prior to works, and will oversee demolition works, ensuring compliance with the proposed mitigation measures.
- Temporary tree-mounted bat boxes will be installed prior to demolition works. Should bats be encountered in structures during demolition works, they will be moved to these locations. These boxes will be removed following the construction phase to avoid the potential for disturbance during the operational phase.
- Repeat surveys and environmental monitoring will take place during the maternity season for two years post-construction to ensure that the proposed mitigation measures were successfully implemented.

As much information as possible to allow a decision to be made on this application.

 $\boxtimes$ 

Full information is outlined in the current report.



### 8 References

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## Appendix A Photographic Record





A1. View of southeastern portion of the mills complex showing extensive fire damage of the building.



A2. View of the eastern aspect of Eastville House.





**A3.** View of the stonework grain store within the mills complex.



A4. View of the northern aspect of the concrete tower and associated concrete structures.





A5. View of the western aspect of Rosehill House.



A6. Survey at height using ladder and endoscope of identified vertical fissure displaying PRF-M suitability for bat roosting (Tag no. 2652).





A7. Bee Orchid (Ophrys apifera) within the Ballinacurra Mills development site.



A8. Barn swallow nest (red) within the ground floor ceiling of Eastville House.





A9. Hedgehog (Erinaceus europaeus) identified adjacent to Rosehill House.



**A10.** Juvenile Kestrel (*Falco tinnunculus*) perched waiting for food within the mill building complex after having recently fledged from nearby nest within the development site.





A11. Overview of the proposed development site showcasing the dominant habitat of artificial surfaces and recolonising ground.



A12. View of the western aspect of the mills building complex, with location of Kestrel nesting site within old fireplace (red circle).





A13. View of the underground tunnel network within the development site.



A14. View of the attic of the former residence showing heavily cobwebbed interior and light ingress.





# Appendix B Bat Box Locations (Fourem Architects)



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