Bat Survey Report

Adrigole Housing Project, Co. Cork.

December 2025

Prepared for:

Comhairle Contae Chorcaí
Cork County Council

O'DONNELL ENVIRONMENTAL

CIEEM REGISTERED PRACTICE 2025-2026

QUALITY I.S. EN ISO 9001:2015 NSAI Certified

Summary

Project: Proposed Residential Redevelopment of Adrigole Garda Station, Co. Cork.

Coordinates: 51.691809, -9.728078; V 80572 50193 (IG).

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

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.

Tom O'Donnell 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 over 10 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance (Ref: DER/BAT 2021-128) and to capture bats (C217/2021).

Colm Breslin BSc (Hons) 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 2025-108), to capture bats (C03/2025).

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A	Draft	CB, TOD	11.07.2024
B	Draft	CB, TOD	15.07.2024
1	Final	CB, TOD	17.07.2024
2	Final Updated	CB, TOD	11.12.2025

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Appendices

1 Introduction

O'Donnell Environmental Ltd. were commissioned by Cork County Council to undertake a bat survey report of the site of the previously occupied Adrigole Garda Station, Co. Cork. The aims of the study were to assess and evaluate the likely importance of the existing structures to bats in order to inform the Part 8 planning process and Regulation 54 Derogation, which has since been granted consent. Works are proposed to start in February 2026.

Cork County Council propose to develop two residential units within an existing structure, formerly Adrigole Garda Station, located within the townland of Adrigole, Co. Cork. The building is listed in Cork County Development Plan 2022 as a Protected Structure (RPS No. 00993). The proposal includes for the complete renovation of the internal layout within the existing building, the demolition and reconstruction of onsite services and removal of overgrown vegetation alongside all associated works.

The proposed site is fronted by the R572 to the south and is bordered primarily by private residential areas on the remaining sides. The wider area is represented largely by marginal agricultural land. While currently in structurally sound condition, continued water ingress and associated decay will begin to degrade the structure in the medium-term. Without management, it is likely that the structure will eventually fall into dereliction.

Roosting by small numbers of Brown Long-eared Bat was identified within the structure. As part of the Part 8 planning process, a Regulation 54 Derogation (ref: DER/BAT 2024-165) was obtained, which has now expired with no works undertaken at that time. An updated Regulation 54 Derogation was sought for this structure for the 2025 calendar year (ref: DER/BAT 2025-16), but no work was undertaken in this timeframe and is now due to expire also. The purpose of the current report is to support the application of an updated licence for the 2026 calendar year.

A site location map is presented in **Figure 1.1**.

The following documents inform the current assessment (Crocon Engineers Ltd. 2024)

- Existing Site Layout.
- Proposed Demolitions.
- Proposed Site Layout.
- Proposed Drainage Layout.
- Proposed Watermain Layout.
- Proposed Construction and Environmental Management Plan (pCEMP).

Elements of the proposed works which have potential to impact on bats include the following:

- Renovation of the former Garda Station building resulting in the temporary loss of roosting opportunities.
- Removal of potential foraging habitat.
- Associated works (incl. lighting) which has potential to cause disturbance to bat roosting or foraging in the study area.

1.1 LEGAL STATUS OF BATS

All bat species and their roosting sites are protected under both national and international law. The purpose of this legislation is to maintain and restore bat populations within their natural range. Where human activities have the potential to compromise bat populations, measures are required to be put in place to avoid effects or compensate and mitigate for those effects. A grant of planning permission does not constitute a licence or permit to disturb bats or interfere with their breeding or resting places.

The key legislation which provides protection to bats is as follows:

- Wildlife Act (1976) and subsequent amendments which makes it unlawful to intentionally disturb, injure or kill a bat or disturb its resting place without a licence to derogate from Regulation 23 of the Habitats Regulations 1997, issued by National Parks & Wildlife Service (NPWS).
- The EU Habitats Directive (which has been transposed into Irish law with the European Communities (Birds and Natural Habitats) Regulations 2011) which seeks to protect rare species, including bats, and their habitats and requires that appropriate monitoring of provides additional protection for the Lesser Horseshoe Bat


0 10 20 m
Figure 1.1
Study Site Location
Project:
Adrigole Housing Project
Prepared for:
Cork County Council
Colm Breslin BSc (Hons)
D: 11/07/2024
Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation
O'DONNELL ENVIRONMENTAL
Legend
Proposed Site Boundary

2 Methodology

The bat surveys were carried out through desk study, initial preliminary roost assessment, passive bat monitoring, followed by targeted emergence surveys. 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 (V85) 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 national and international nature conservation sites relevant for bat species were reviewed within the wider hinterland of the proposed redevelopment.

2.2 VISUAL ROOST SURVEY

Daytime visual assessments of structures was carried out by Tom O'Donnell BSC (Hons) MSc CEnv MCIEEM, Colm Breslin BSc (Hons) and Claire McCarthy BSc (Hons) MSc on 21st March, 15th May and 18th June 2024 to identify any bat roosting potential which may be associated with the former Garda Station and associated outhouses. Signs of bat use include bat droppings, feeding remains, potential bat access points identified by characteristic staining and scratches, noise made by bats etc. Fresh bat dropping samples were collected within the attic of the former Garda Station for DNA analysis (see **Plate 3.2.6**; **Appendix B**).

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 former Garda Station, and associated outhouses at the rear were surveyed in their entirety.

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

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. 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 (4th Edition)', Collins (2023).

2.3 EMERGENCE SURVEYS

Two emergence (dusk) surveys were carried out on the 15th May and 18th June 2024. The surveys were carried out by Tom O'Donnell and Colm Breslin.

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 2.4**.

Table 2.2 - Bat activity survey details.

Date	Survey	From - To Times	Sunrise / Sunset Time	Weather
15th May 2024	Emergence	21:15 – 23:00	21:32	13°C; F1; 6 Oktas; no rain.
18th June 2024	Emergence	21:45 – 23:32	22:00	12°C; F2-3; 2 Oktas; no rain.

2.4 PASSIVE BAT MONITORING

Passive bat monitoring was carried out between 21st March and 1st June 2024 for a total of 73 nights using a WA Song Meter Mini full-spectrum detector. The passive monitor was deployed within the attic of the former Garda Station adjacent to an identified accumulation of bat droppings (see **Plate 3.2.6**) and was set to record continuously in order to detect evidence of both day-roosting and night-roosting by bat species.

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.

2.5 SURVEY LIMITATIONS

The entirety of the former Garda Station and its associated outhouses were surveyed in their entirety of both exterior and interior aspects. Full access was provided by the Client. Collins (2023) recommends three emergence surveys on high suitability structures. However, based on the thoroughness of surveys and simple nature of the site, two emergence surveys were considered sufficient in this instance. There are considered to be no limitations associated with this report.

Plate 2.1 Viewshed of thermal camera covering the front/northeastern aspect of the former Garda Station.

Plate 2.2 Viewshed of thermal camera covering the front/southwestern aspect of the former Garda Station.

Plate 2.3 Viewshed of thermal camera covering the rear aspect of the former Garda Station. Identified potential access/egress points are highlighted in white circles.

Plate 2.4 Alternative viewshed of thermal camera covering the rear aspect of the former Garda Station. Identified potential access/egress points are highlighted in white circles.

3 Results

The proposed development occurs within the rural landscape of the Adrigole townland. The surrounding locality receives minimal disturbance in the form of light and noise pollution. The proposed development is adjoined by other residential properties to the west, north and east and is bordered to the south by the existing roadway (R572) and Adrigole Harbour. The site is relatively exposed in nature, with limited vegetation cover in the surrounding environs. The wider landscape is characterised largely by marginal agricultural land that is heavily grazed by sheep.

3.1 DESKTOP REVIEW

3.1.1 Sites of International and National Importance

Special Areas of Conservation (SAC) and Special Protection Areas for birds (SPA) are those sites that are deemed to be of European (i.e. international) importance. They form part of a network of sites to be designated across Europe in order to protect biodiversity within the community, known as Natura 2000 sites.

At a national level, the basic unit of conservation is the Natural Heritage Area or proposed National Heritage Area (NHA/pNHA). NHAs are designated to protect habitats, flora, fauna and geological sites of national importance. No nationally designated sites (NHA/pNHA) listed for bat species were present nearby and are thus not considered further.

A search for designated sites was conducted within 15km of the proposed development, of which three contained Lesser Horseshoe Bat as a conservation interest. These sites include Kenmare River SAC (2158) at 7.45km north distance, Cloonee and Inchiquin Loughs, Uragh Wood SAC (1342) at 10.86km northwest distance, and Glengarriff Harbour and Woodland SAC (0090) at 8.64km east distance. All of the above designated sites are separated from the proposed development by expanses of upland habitat generally considered unfavourable for Lesser Horseshoe Bat. No Nationally designated sites (NHA/pNHA) listed for bat species were present.

Considering the scale of the proposed development, separation distances involved, and lack of evidence of Lesser Horseshoe Bat within the site (see below), these internationally designated sites are not considered relevant to the current assessment.

3.1.2 Bat Data Search

National Biodiversity Data Centre holds previous records of bat presence from within the 10km square (V85) in which the proposed site is located. These records are for the following four species:

- Lesser Horseshoe Bat (*Rhinolophus hipposideros*)
- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Soprano Pipistrelle (*Pipistrellus pygmaeus*)
- Brown Long-eared Bat (*Plecotus auritus*)

All bat species in an Irish context are of 'Least Concern' within Marnell et al. (2019). The most recent Article 17 report (NPWS, 2019) states the conservation status of all bat species are 'favourable', with the exception of Lesser Horseshoe Bat which is 'inadequate and declining' due to declines in Limerick and North Kerry populations specifically.

The overall bat suitability index value (16.78) according to 'Model of Bat Landscapes for Ireland' (Lundy *et al.* 2011) suggests the landscape in which the proposed site is located is of low suitability for bats in general. Species specific scores are provided in **Table 3.1**. Lesser Horseshoe Bat is assigned a score of '32', the highest suitability of all bat species, likely as a result of its restricted distribution to the west coast. Additionally, Brown Long-eared Bat is assigned a moderate-high score of '26'.

Lesser Horseshoe Bat records held by National Parks and Wildlife Service (NPWS) show three records within 5km of the proposed development. The most proximal record is located 1.88km northeast last dated in 2014, followed by 4.44km east last dated in 2012, and 4.54km northwest last dated from 2010.

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		*16.78*
Soprano pipistrelle	*Pipistrellus pygmaeus*	21
Brown long-eared bat	*Plecotus auritus*	26
Common pipistrelle	*Pipistrellus pipistrellus*	17
Lesser horseshoe bat	*Rhinolophus hipposideros*	32
Leisler's bat	*Nyctalus leisleri*	19
Whiskered bat	*Myotis mystacinus*	3
Daubenton's bat	*Myotis daubentonii*	18
Nathusius pipistrelle	*Pipistrellus nauthusii*	0
Natterer's bat	*Myotis nattererii*	15

Source: https://maps.biodiversityireland.ie/Map. Accessed 11/07/2024.

3.2 VISUAL ROOST SURVEY

The suitability of structures on site was assessed for their suitability for roosting bats following Collins (2023) (see **Table 2.1**). The site contains the former Garda Station, residence and two associated outhouses at the rear.

The former Garda Station is a two-storey blockwork structure with natural slate roof underlain by bitumen undertile felt. The site is located directly adjacent to the R572 and surrounded on the remaining sides by private residential gardens containing exotic species. This structure is largely intact and has not been occupied in recent years. However, multiple slipped and loose slates were observed, with water ingress noted at these locations. This is considered likely to contribute to the degradation of the structure into the future.

Plate 3.2.1 View overlooking the front aspect of the former Garda Station.

Plate 3.2.2 View overlooking the associated outhouse at the rear of the former Garda Station.

All windows and their seals remain intact with the exception of an open sash window on the upper floor at the rear of the structure (see **Plate 3.2.3**). The entirety of the blockwork presented no gaps or crevices, with a single void present at the ground floor at the rear of the structure in the form of kitchen extraction fan out-pipe (see **Plate 3.2.4**). The roof appeared largely intact alongside the associated fascia-soffit. Portions of the roof appeared recently repaired with modern artificial slate. Loose slates on the rear/northern aspect of the roof provides gaps at multiple points directly into the interior attic space of the former garda station. No evidence of roosting bats in the form of droppings, staining etc. were evident from the exterior of the structure.

Plate 3.2.3 View of the upper floor room with open sash window (red box).

Plate 3.2.4 View of extraction fan out-pipe associated with the ground floor kitchen.

Interior assessment revealed the structure to be divided into two separate discrete spaces by a party wall and were accessed by two separate doorways. All interior spaces were connected via a gap above the attic party wall and are easily accessible by bats. Feeding remains and minor accumulations of droppings were present throughout the entirety of the ground and upper floor of the structure (see **Plate 3.2.5**) and likely represent night-roosting and feeding perches utilised by roosting bats within the structure.

Plate 3.2.5 Example of feeding remains identified throughout the entirety of the former Garda Station.

Plate 3.2.6 Large accumulation of droppings located underneath the main roosting location, of which some were fresh and DNA analysed.

Open hatches in the upper floor provided clear access to the attic space which was divided into two discrete sections by a party wall. Large accumulation of droppings, some relatively fresh, were present within the western attic section and appeared to be the main roosting location of bats present within the structure (see **Plate 3.2.6**). DNA analysis carried out by Surescreen Scientific on these bat droppings on behalf of O'Donnell Environmental were identified as Brown Long-eared Bat (see **Appendix B**).

The aforementioned loose slate along the rear of the roof was evident within the western attic section and provided a clear access/egress point for roosting bats within this section of the structure. Additionally, the loose sash window was located in the room below via the attic hatch and provided another clear access/egress point. The eastern section of the attic, accessed via a separate hatch revealed lesser accumulation of bat droppings but nonetheless appeared to be regularly utilised by roosting bats. A minor gap was also present within the eastern section of the attic roof, providing access for bats.

No roosting bats were evident on the initial visit on 21st March 2024. Repeat interior inspections carried out concurrently with the emergence survey on 18th June 2024 revealed two Brown Long-eared Bats present within the western attic section, located above the aforementioned accumulation of droppings within the apex timber-frame joinery (see **Plate 3.2.7**). A single individual was handled (under licence) and confirmed to be male (see **Plate 3.2.8**).

Plate 3.2.7 Two Brown Long-eared Bats (red circles) located within the joinery apex of the western attic section of the former Garda Station

(Photo by C. Breslin, NPWS Licence Ref. DER/BAT 2024-09; 008/2024).

Two blockwork outhouses with no associated attic spaces are associated with the former Garda Station and are located at the rear of the structure along the northern boundary.

Interior access was possible for both of these structures. One of the outhouses was accessible for bats. No evidence of bat roosting was identified within either of these structures, aside from a single historic instance of feeding remains in the outhouse with a missing section of door panel.

Overall, the former Adrigole Garda Station is considered of 'high' suitability for roosting bats following Collins (2023).

3.3 EMERGENCE SURVEYS

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

During the course of both emergence surveys, the site was characterised by low levels of bat activity. A single Soprano Pipistrelle was recorded on both occasions approximately 15 minutes after sunset and is likely roosting within the residential dwellings to the west of the site. This individual was recorded foraging locally in the adjacent gardens before commuting offsite in a northeasterly direction. Activity levels proximal to sunset and took the form of small numbers of Common Pipistrelle, Soprano Pipistrelle and Leisler's Bat. Activity was not sustained throughout both surveys and ceased almost entirely approximately 45 minutes after sunset on both nights.

Interior inspections of the former Garda Station and associated outhouses were carried out concurrently with emergence surveys in order to detect evidence of pre-emergence activity of bat species. No evidence of activity was identified within the structures, or evidence of

emergence recorded on 15th May 2024. Two Brown Long-eared Bats were identified roosting within the apex timber-frame joinery in two discrete locations on 18th June 2024 (see **Plate 3.2.7**). A single individual was handled under licence by Colm Breslin and confirmed to be male (see **Plate 3.2.8**).

Plate 3.2.8 Brown Long-eared Bat handled and visually confirmed to be male within the former Adrigole Garda Station attic

(Handling and photo by C. Breslin, NPWS Licence Ref: DER/BAT 2024-09; C03/2024).

Both emergence surveys and review of thermal imagery did not reveal any evidence of roosting by additional bat species within the former Garda Station. No evidence of re-entry by bats were noted. The main access/egress points are considered to be the loose slate within the western attic roof, the open sash window on the rear upper floor, and the extractor out-pipe associated with the ground floor kitchen (see **Plate 2.3-2.4**).

A moderate degree of light pollution was present at the front of the structure in the form of a single public streetlight. The rear of the structure adjoined a private residential garden and experienced no light pollution or other general disturbance. As such, the majority of activity was recorded the rear of the former Garda Station.

3.4 PASSIVE BAT MONITORING

Passive monitoring carried out in the attic using a Wildlife Acoustics Song Meter Mini full-spectrum detector between 21st March and 1st June 2024 recorded Brown Long-eared Bat on two nights (3rd April and 1st June). Recordings were present of this species during the daytime, confirming day-roosting by Brown Long-eared Bat. Social calls were also present in some of the recordings. Brown Long-eared Bat echolocation calls are of low-intensity and often not recorded by ultrasonic microphones (Russ, 2012; 2021). Leisler's Bat and Common Pipistrelle were also recorded occasionally during this survey period. However, due to the lack of intensity and loudness of their calls, and the position of the detector close to a gap in the roofing slates it was determined that these registrations occurred from bats outside of the building.

3.5 SUMMARY OF RESULTS

The former Adrigole Garda Station has been confirmed as a bat roost utilised by Brown Long-eared Bat. Considering the small number of individuals recorded, the relatively small number of fresh droppings present within the main roosting location and limited number of recordings within the attic space, this roost would be considered to be non-significant and likely has been present for a number of years. There is no evidence of significant roosting such as maternity roosting or species, other than Brown Long-eared Bat regularly using the roost. Although intermittent roosting by small number of other bat species cannot be entirely discounted.

The surrounding site is coastal and exposed in nature and generally presents moderate value foraging habitat for bat species due to pockets of scrub and riparian habitat bordering low-order streams nearby. The site was noted during emergence surveys to be used almost exclusively by small numbers of foraging Soprano Pipistrelle and Leisler's Bat early in the night, with activity levels ceasing almost entirely approximately 45 minutes after sunset.

Overall, the site is considered **Local Value (Higher Importance)** following NRA (2009), primarily due to the presence of roosting bats.

4 Potential Impacts and Mitigation Measures

Potential impacts and mitigation measures are discussed separately below.

4.1 POTENTIAL IMPACTS

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. In the medium and long terms, in the absence of intervention, the former Garda Station is likely to fall into dereliction with structures ultimately becoming unsuitable for roosting bats.

The construction phase of the proposed development will see the temporary loss of the identified roosting spaces and access/egress points used currently by Brown Long-eared Bat, and construction activity is likely to cause localised disturbance to roosting bat species present in or close to the development footprint. Following Marnell et al. (2022) the significance of these identified roosts is considered to be low.

The proposed works will not result in any significant changes to the layout of the structure. The attic space where Brown Long-eared Bat were identified will retained and access/egress locations maintained through the provision of dedicated tiles. There will be no predicted loss of permanent roosting opportunities as a result of the development, with the exception of night-roosting locations in the lower floors.

4.2 MITIGATION

A mitigate-by-design approach was adopted in the design of the proposed development and O'Donnell Environmental Ecologists collaborated with CroCon and Cork County Council Engineers to incorporate measures for bats in the emerging design.

Bats and their roosts are protected by legalisation, and the proposed works may only proceed following the grant of a derogation license issued under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations (2011). Notwithstanding any conditions of that license, should it be granted, the following measures will be implemented to minimise risks to bats

4.2.1 Demolition Supervision/Timing of Works

A bat licensed Ecologist will be engaged to carry out pre-construction surveys and to advise in relation to the exclusion of bats in advance of works.

In advance of any proposed demolition works, repeat daytime inspections will be carried out by a bat licensed Ecologist (as roosting has been identified) in order to confirm that the understanding of the importance of the site to bats as outlined in the current report remains valid. 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).

The former Adrigole Garda Station provides a wide range of roosting opportunities for bat species, primarily within the attic spaces with night-roosting in the lower floors also. Reason and Wray (2023) outline the optimal timing of works of known bat roosting structures. The roosting ecology of bats in winter is currently poorly understood. In order to avoid detrimental

impacts on individual bats in winter when bats may be in torpor, the optimal time for building or reroofing works is during the autumn or spring when bats are active and least vulnerable to disturbance. As the structure is used by small numbers of non-breeding bats, no restrictions on work during the summer are considered warranted (e.g. to avoid the maternity season) based on current information.

A bat licensed Ecologist will be engaged to provide a toolbox talk on site at commencement of roof stripping works and to supervise roof removal works (e.g. removal of roof tiles) at a minimum. 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 within the attic of the former Garda Station 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.

4.2.2 Vegetation Retention

Under the current proposal, an existing shrub on the front aspect of the former Garda Station, alongside an area of overgrown vegetation in the northeastern corner of the site will be removed (Crocon Engineers Ltd., 2024). The existing riparian vegetation bordering the eastern stream, including the lone-standing tree (see **Plate 5.1**) but excluding the bramble scrub, will be retained in its entirety in order to maintain the landscape connectivity and provide bats roosting within the former Garda Station and the locality with waypoints and corridors through which they commute to and from roosts/foraging areas. Additionally, this vegetation provides a screening effect for disturbance from artificial street-lighting along the adjacent R572.

In relation to tree felling, it should be noted that an exempted under the Forestry Act 2014 may not be available in relation to trees which occur "within the curtilage or attendant grounds of a protected structure under Chapter 1 of Part IV of the [Planning and Development Act, 2000]"

Plate 5.1. View of riparian vegetation bordering the western stream and lone-standing tree (red arrow) which will be retained in its entirety.

4.2.3 Lighting

As outlined in the pCEMP (Crocon Engineers, 2024), during construction, works will generally take place during daylight hours only (between 7am and 7pm), and the site will not be lit during the hours of darkness. If some lighting is required for health, safety or security reasons, lighting shall be directed away from sensitive ecological features and only illuminate the necessary works area. These measures are considered sufficient to prevent any adverse impacts on roosting, commuting and foraging bats.

Additional lighting is not currently proposed for the operational phase of the development. Where lighting is deemed necessary for health, safety or security reasons, the following specification are recommended as outlined by Bat Conservation Trust (2018):

- Lighting in general will seek to avoid, in the first instance, light pollution on nearby ecological features including surrounding vegetation and nearby watercourses.
- LEDs will be used, as these omit ultra-violet light.
- White and blue wavelengths will be avoided; wavelength will be <2,700 kelvin.
- Lights will peak higher than 550nm.

Subsequent replacements will comply with the above specifications also.

Lighting will be avoided on the northern aspect of the former Garda Station as this will directly impact roosting bat utilising the proposed bat-access tiles.

4.2.4 Alternative (Non-Maternity) Roosting Locations

Prior to commencement of roof works, two artificial bat boxes will be erected on the retained tree (see **Plate 5.1**) bordering the eastern stream or another suitable location in consultation with a bat-licensed Ecologist. The following models (or similar specifications) are considered suitable:

- Schwegler 1FD
- Schwegler ANS-4
- Schwegler BT3

Bat boxes provide an appropriate short- and medium-term mitigation measure for small numbers of crevice dwellings bats and will provide replacement roosting opportunities for Brown Long-eared Bat during construction. The selection of bat box locations will be decided with cognisance of the following:

- Bat boxes will be installed at a minimum height of 3.5 meters above ground level, and in locations which are inaccessible to unaided climbing (to minimise risk of vandalism).
- Locations will be chosen which are not vulnerable to artificial light or noise pollution.
- Boxes will be installed so that they have southern or westerly aspects and preferably in locations where they will receive some direct sunlight.

These bat boxes will be left in-situ post-works and are intended to be a slight enhancement post-works as a result of the proposed project.

4.2.5 Provision of Permanent Access Post-Works

Brown Long-eared Bats are faithful to their roosts (Entwistle et al., 2000) and as such, restoring permanent access to the existing roost space within the attic post-construction is the most appropriate and effective mitigation measure. Previous studies have shown for Brown Long-eared Bat, roost sites which are retained are more successful when compared to the provision of alternative roosting locations (Shepherd and Stroud, 2010). Brown Long-eared Bat favours large attic spaces (Swift, 1998) and are rarely found in bat boxes in Ireland (Roche et al., 2014). As such, bat boxes are not considered a suitable replacement.

The current roosting location of Brown Long-eared Bat is in the attic of the former Garda Station (i.e. the western end of the overall structure). A portion of the attic of the two-bed residence will be sectioned off and will form a dedicated bat roost which will not normally be accessed by the Resident. Subject to final agreement between the bat-licensed Ecologist and project designers, approximately 50% of this attic space will be sectioned off. A provisional layout is shown in **Plate 5.2** below.

By sectioning off this portion of the attic, it enables the placement of water tanks in the attic for residents, and provides a robust buffer for any future maintenance such that minimal disturbance effects are predicted. This additionally avoids the risk of bats drowning in water tanks, which has previously been observed by O'Donnell Environmental Ecologists on previous projects involving Brown Long-eared Bat roosts.

Appropriate measures will be implemented when transferring ownership of the property to ensure that the Resident is aware of the roosts and its legal protection.

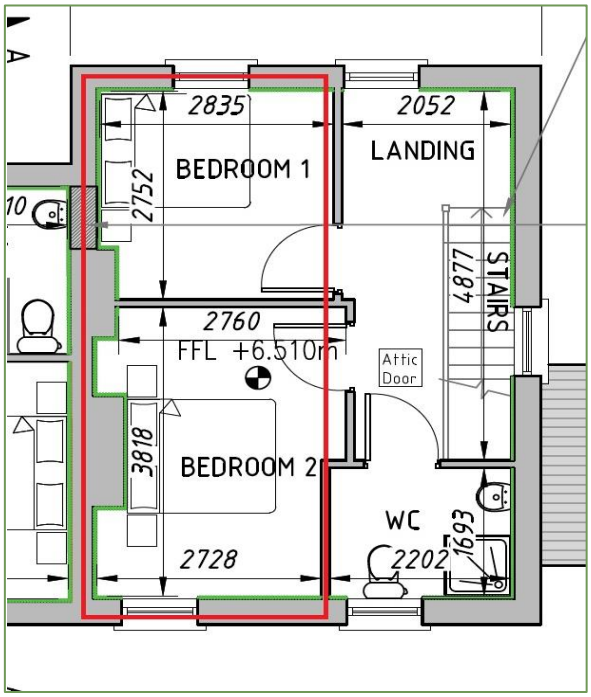

Plate 5.2 - Provisional extent of attic which will be dedicated to roosting bats (outlined in red).

Permanent access to the current roosting location (western attic section) will be provided via the provision of two dedicated bat-access tiles (see **Plate 5.3**) on the northern aspect of the roof with final locations to be determined in consultation with the bat-licensed Ecologist. At least one of these tiles will be on the northern aspect which currently contains the most viable access/egress points and also is shielded from the artificial street-lighting on the southern aspect.

Plate 5.2 - Example of a lead bat access tile.

The use of bat-safe construction materials may only be used within the retained roosting location. Underlay within any areas of attic to which bats may have access (i.e. the areas above the proposed roost at least must use only traditional bitumen felt (1F). Natural slates will be retained and re-used where feasible in the roosting location.

Any timbers must be pressure treated offsite. Onsite application of wood preservative should be avoided, and if necessary, only products certified to be 'bat safe[1]' will be used (see **Appendix C**). The bat-licensed Ecologist will be consulted in relation to any onsite treatment of timber, and details of treatments used will be recorded and included in a post-construction compliance report which will be issued to Cork County Council.

Through the use of similar bat-safe materials as are already present within the current roosting location, the existing roost characteristics (temperature, humidity, ventilation etc.) are more likely to be maintained and the likelihood of Brown Long-eared Bat returning to the roosting location are maximised (Reason and Wray, 2023).

The bat-licensed Ecologist will carry out a final inspection to confirm that the attic roost has been provide as outlined herein. The report will confirm that the dedicated attic roost is

[1] https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts

appropriately constructed, that bats should not encounter modern roofing membranes in any part of the structures and that bat access tiles have been appropriately located and installed.

4.2.6 Post-Construction Monitoring

Repeat emergence surveys 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 of the proposed mitigation measures and to monitor the status of the existing population.

5 Derogation Licence Application

Bespoke and appropriate mitigation measures have been outlined in **Section 4.2** above following robust surveys and adoption of a mitigation-by-design approach with Crocon Engineers. No additional measures are considered feasible in terms of further reducing the impact of the scheme on bat species locally.

A derogation license is requested for the proposed works. Please see information below in regard to responses to the three tests which will be considered during the Regulation 54 Derogation decision making process.

5.1 TEST 1 – REASON FOR DEROGATION

The reason for the current derogation is contained within Option 2(c) "*In the interests of public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment*"

Cork County Council intend to carry out maintenance and refurbishment works on the former Adrigole Garda Station, a registered historic structure (RPS No. 00993) which has been approved within the Part 8 planning system. The proposed works have been previously permitted (refs: DER/BAT 2024-165; DER/BAT 2025-16) but no works have been carried out in these timeframes. It is intended to extend the duration of the current licence. The purpose of the works is to provide two residential units in the lower floors of the structure.

Water ingress was noted at multiple points within the attic due to slipped roof slates. While currently in structurally sound condition, continued water ingress and associated decay will begin to degrade the structure in the medium-term (7-15 years) (EPA, 2022). Without management, it is likely that the structure will eventually fall into dereliction. Roof maintenance works require the removal of existing slates, modification of eaves and replacement of structural timber where necessary and as such no suitable alternative is available for works to proceed.

5.2 TEST 2 – ABSENCE OF ALTERNATIVE SOLUTIONS

Alternative solutions are considered below and detailed as to their suitability.

5.2.1 Alternative 1 – Do Nothing

Leaving the structure alone was considered suitable for the short term. At the time of surveys in 2024, degradation to the roof and water ingress were noted in the attic. Under a 'do-nothing scenario' it was considered that Adrigole Garda Station would be become unsuitable for bat species and eventually lost as a roosting space in the medium (7-15 years) or long term (>15 years) (EPA, 2022).

This solution was not considered suitable, and alternative options are required.

5.2.2 Alternative 2 – Exclude Bats Entirely from Adrigole Garda Station

Exclusion of bats entirely from the attic space of Adrigole Garda Station would result in the complete loss of roosting opportunities for Brown Long-eared Bat. While roosting at the time was observed by a small number of individuals, under this scenario an unnecessary net loss in high-suitability roosting space will occur the local bat population.

This solution was not considered suitable, and alternative options are required.

5.2.3 Alternative 3 – Replacement Bat Box Roosting

The attic space of Adrigole Garda Station is currently accessible to bats, and provides suitable and complex roosting spaces throughout. One alternative considered was the provision of bat boxes on nearby trees as a replacement roosting location for the attic. However, the spatial complexity provided by the joinery of attic spaces cannot be replicated through bat boxes and is thus considered sub-optimal when intended as a 1:1 replacement. Retaining roosting spaces in their original location is considered preferable over the provision of alternative locations (Marnell et al., 2022; Reason and Wray, 2023). There is an additional risk that these replacement will not be used.

This solution was not considered suitable, and alternative options are required.

5.2.4 Alternative 4 – Repair Structure and Maintain Access to Original Roosting Location

The mitigation for the proposed works involves leaving the attic for bat species as it currently exists. There will be temporary disturbance effects and loss of roosting spaces as a result of works which will be mitigated through the provision of bat boxes. As discussed in **Section 4.2.5** above, maintaining the attic as a roosting space is optimal under the current scenario. There is a high degree of confidence in mitigation being successful when retaining existing roosting spaces.

The roosting location will be compartmentalised from the rest of the attic space (see **Plate 5.2**). By compartmentalising the attic, it enables the placement of water tanks in the attic for residents, and provides a robust buffer for any future maintenance such that minimal disturbance effects are predicted. This additionally avoids the risk of bats drowning in water tanks, which has previously been observed by O'Donnell Environmental Ecologists on previous projects involving Brown Long-eared Bat roosts.

Through application of mitigation measures outlined in within this document for this derogation application (namely seasonal avoidance, supervision of works and provision of permanent bat access/egress), no loss in day-roosting will occur following the completion of works.

Alternative 4 was considered the most suitable option in this instance.

5.3 TEST 3 – IMPACT OF A DEROGATION ON CONSERVATION STATUS

No loss of roosts will occur as a result of the proposed works. The existing roosting space will be compartmentalised and access/egress points will be maintained following the works.

Temporary disturbance cannot be avoided as the proposed works involve repair of the roof and roosting location. This disturbance has been appropriately mitigated through seasonal avoidance, provision of alternative roosting locations during works, exclusion, supervision of works and retention of primary access/egress points.

Brown Long-eared Bat within an Irish context are considered of 'Least Concern' and are a widespread and common species (Marnell et al., 2019). The most recent Article 17 report (NPWS, 2019) states the conservation status of Brown Long-eared Bat as 'favourable'. The roosting observed within the Adrigole Garda Station appears to be used by small numbers of non-breeding males, with a maximum number of two individuals recorded.

Lesser Horseshoe Bat was not recorded within the structure, or during the course of passive and active surveys. It is concluded that no roosting by Lesser Horseshoe Bat within the structure, or significant landscape usage within the immediate environs and as such there will be no direct impacts on surrounding SACs.

Considering the above, the proposed derogation is not considered to be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates (Brown Long-eared Bat in this instance) at a favourable conservation status in their natural range.

5.4 MONITORING

Repeat internal inspection surveys of the attic and bat boxes 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 of the proposed mitigation measures and to monitor the status of the existing population. Emergence surveys will be required if interior access is not provided.

6 References

Conservation Ireland (2010). Guidance Notes for: Planners, engineers, architects and developers.

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Lundy, M.G., Aughney, T., Montgomery, W.I. & Roche, N. (2011). Landscape Conservation for Irish Bats & Species-Specific Roosting Characteristics. Bat Conservation Ireland.

Marnell, F., Kelleher, C., Mullen, E. (2022). Bat mitigation guidelines for Ireland. National Parks and Wildlife Service. Department of Housing, Local Government and Heritage. Irish Wildlife Manuals, No.134, 2022.

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Roche, N., Aughney, T., Marnell, F. and Lundy, M., 2014. *Irish bats in the 21st century*. Bat Conservation Ireland.

Russ, J., 2012. *British Bat Calls: a guide to species identification*. Pelagic publishing.

Russ, J., 2021. *Bat Calls of Britain and Europe: a guide to species identification*. Pelagic publishing.

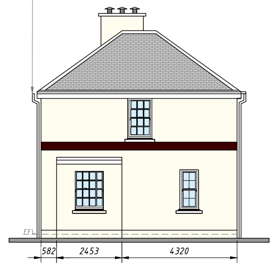
Shepherd, P. & Stroud, J. (2010) *Mitigation for roosts in buildings*. https://www.bsg-ecology.com/wp-content/uploads/2017/05/Mitigation-for-roosts-in-buildings-ps-final.pdf.

Svensson, A.M. and Rydell, J., 1998. Mercury vapour lamps interfere with the bat defence of tympanate moths (Operophteraspp.; Geometridae). *Animal behaviour*, *55*(1), pp.223-226.

Swift, S.M., 2010. *Long-eared bats*. A&C Black.

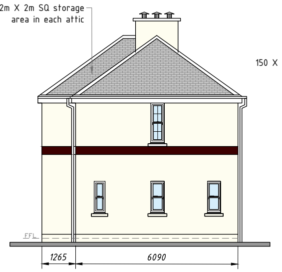
Appendix A
Design Information

North Elevation
SCALE 1:100



East Elevation
SCALE 1:100

South Elevation
SCALE 1:100



West Elevation
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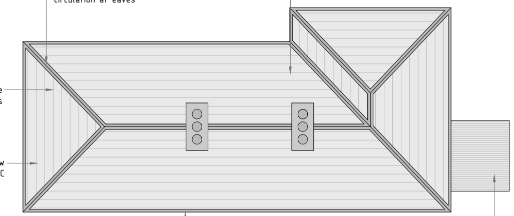
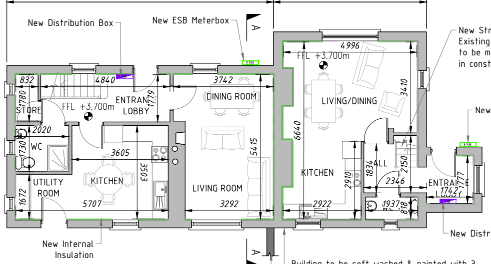
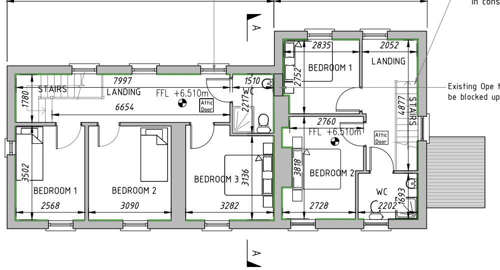


Proposed Roof Plan
SCALE 1:100



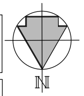
Proposed Ground Floor Plan
SCALE 1:100



Proposed First Floor Plan
SCALE 1:100

LEGEND

DB	DISTRIBUTION BOX
ESB	ESB METERBOX



NOTES

1. This drawing shall be read in conjunction with all other relevant drawings, specifications and schedules.
2. All dimensions are in millimeters and levels in meters. use figured dimensions only.

ROOF NOTES

- Existing roof covering to be completely removed and removed from site.
- All roof timbers to be pressure treated incl. fascia, soffit, barge and gable ladder timbers.
- Include for all necessary repairs to purlins, hips bearers, tilting fillets, ridge boards etc.
- New slates to match existing fixed on new 44mm x 35mm treated battens on tyvek breather membrane or equal approved ·
- Eave ventilators to be fitted. roof vent tile to be fitted at ridge level as per manufactures spec & details
- Batt roof/wall straps at 2m centres with 4 no. fixings to walls, 3 no. fixings to truss and 2 no. fixings to wall plate.
- 400mm fibreglass insulation.
- Patination oil finish to all code 5 lead, to manufactures specification and detail

FASCIA, SOFFIT AND DOWNPIPES

- New pvc soffit & fascia, guttering and downpipes to match existing

1. Fibre cement roof slating on counter battens with vapour permeable underlay, all affixed to manufacturers specifications.
2. New black ash upvc fascia board fixed to tilting fillets and ends of trusses at 600mm centres using sheradised nails.
3. Eaves and barge soffits to be sheeted with black ash u-pvc. ventilation slot to be provided in eaves soffit. Provide 13mm thick plywood restrainers on battens between joists to ensure adequate air circulation at eaves.
4. New 125mmø halfround upvc gutters fixed to fascia board with suitable fixings as per manufacturers instructions and new 75x75mm upvc downpipes
5. Insulate horizontal ceiling area with 400mm thick glass fibre quilt insulation with a thermal conductivity (λ) no greater than 0.044 w/mk to give a specified u-value 0.12 w/ m² / k° (2011-doc l-u-value 0.16) laid in layers in opposite directions, between and across joists. insulation to abut wall insulation at eaves.

FIBRE CEMENT ROOF SLATING WITH COUNTERBATTENS

- Substrate: Trussed rafters at 400 mm centres.
- Pitch: 40°.
- Underlay: breathable underlay to bs en 13859 -irish agrement board certified. Submit proposals to meet requirement of exposed location
- Direction: parallel to eaves.
- Head-lap (minimum): min.150mm. Refer to manufacturer's recommendations.
- Counterbattens: - standard: graded timber- size: 50 x 25 mm. 245mm gauge.
- Fixing: 65 x 3.35 mm galvanized annular ring shank nails in accordance with icp2 and bs5534. .
- Battens:- Standard: Graded timber
- Size: 50 x 25 mm. 245mm guage.
- Fixing: 65 x 3.35 mm galvanized annular ring shank nails in accordance with icp2 and bs5534.
- Slates: To bs en 492,type nt (nonasbestos).
- Manufacturer: Submit proposals. Product reference: Submit proposals. 30 year structural guarantee. Smooth surface.
- Shape: Rectangular.
- Colour: blue/ black with 20 year manufacturer's colour guarantee .
- Size: 600mm x 300mm.
- Head-lap (minimum): 110 mm.
- Fixing: Two copper nails and one copper disc rivet to every slate. cut and fixed to manufacturer's recommendations.
- Accessories:- Aluminium verge trim- all accessories recommended by manufacturer's to complete roof installation.

CONCRETE TILE RIDGE FITTINGS

1. Standard: to bs en 490.
2. Form: ventilator tiles continuous weatherproof ventilation along the ridge length mechanically fixed.
3. Colour: colour to architect's approval.
4. Accessories: stainless steel ring shank nails and seals. Ridge to ridge collar. Metal roll weathertight membrane. Ridge battens - min. 50mm x 75mm fitting with fixing straps.
5. Ventilation: 10,000m2 per metre
6. Execution: Fitting ventilated dry tile ridges.

FLAT ROOF

1. Roof to receive a cap sheet of paralon (or equal) ard/s polyester reinforced modified bitumen on a base layer of top series 3mm polyester reinforced app modified bitumen.
2. Membrane or an approved equivalent on a 100mm composite p.i.r. foam insulation with hunton board or an approved equivalent (min. u-value of 0.25 w/m2k) on a parabase vapour barrier layer with 150mm side and end laps or an approved equivalent. Existing roof deck to be replaced with 20mm wbp plywood. Proposed cap sheet of paralon ard/s polyester.
3. Reinforced modified bitumen membrane fully torch bonded with 80mm side and 150mm end laps or an approved equivalent. Proposed base layer of top series 3mm polyester reinforced app modified bitumen base sheet membrane fully bonded with 100mm side and 10mm end laps or an.
4. Approved equivalent foam insulation with hunton board or an approved equivalent proposed parabase vapour barrier with 150mm side and end laps or an approved equivalent.

ATTIC ACCESS

- Form attic access hatch in ceiling
- The access hatch shall be accommodated within the truss spacing.
- Install airtight insulated attic access hatch with folding ladder.
- 1/2 hour fire rating is required as per part b of the building regulations
- Finish with 75 x 19mm architrave and painted.

PERMANENT BOARD WALKWAY

Construct a permanent boarded walkway from the roof access point to the tank ball valve position and / or the appliance location. The boarded access walkway shall be constructed of minimum dimensions of 50x50mm soft wood battens laid across rafters, notched over pipes and cable crossings said battens to be securely screw fixed in place to rafters. 19mm thickness by 450mm wide flooring grade chipboard to be fixed to battens base with screws. This walkway should be supported above the first layer of insulation to prevent any compaction of insulation below the walkway.

NOTE:

The integrity of the roof must be investigated. Allowance to be made for rafters that need replacing. The contractor must allow for access in locations shown in drawing for access to the underside of the roof. Ceiling finishes must be removed locally to expose the roof rafters i.e. a window sample.

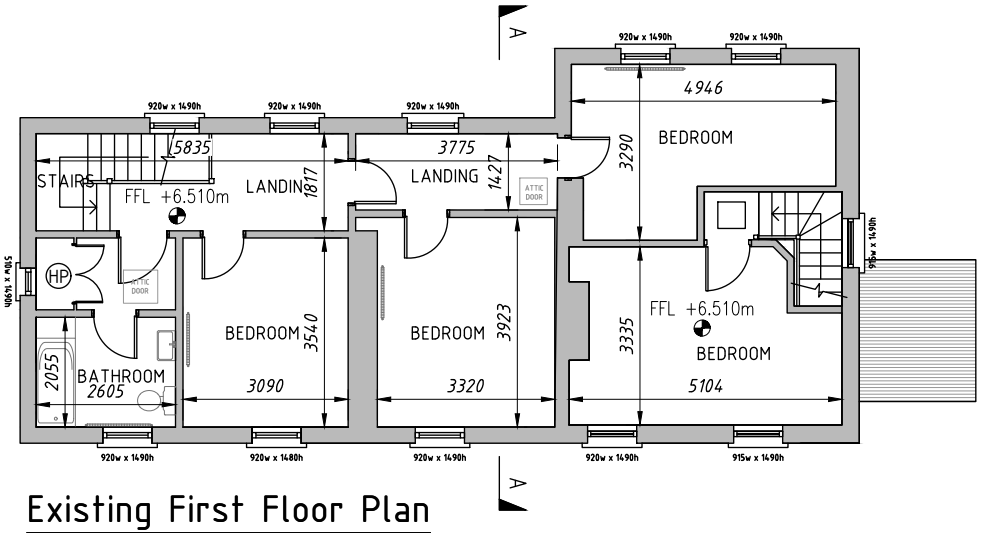
REVISION	DATE	BY	DETAILS
1	03/24	DOS	Kitchen Changed
0	12/23	DOS	Issue 0

Drawn By	Chkd By	Approved By	DWG Date	Scale	Purpose Code	Acceptance Code	Rev.	Stage
DOS	CC	CC	01/03/23	1/100 @A1	P08	S	1	Tender

CroCon Engineers Ltd.
Consulting Engineers
4 Main St.. Bantry, Co. Cork
[redacted]

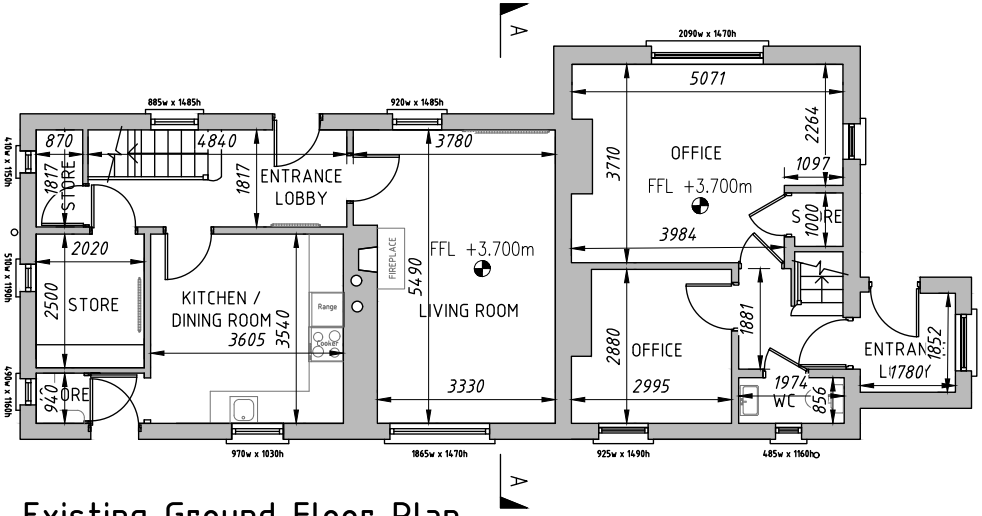
Project	Originator	Spatial Zone	Level	Info Type	Role	Number
23004	CRO	X	XXX	DR	SE	02003

Client: Cork County Council
Project: Proposed 2 No. Houses, Adrigole Garda Station, Co. Cork
Title: Proposed Plans & Elevations - Roof & Wall Specificaiton



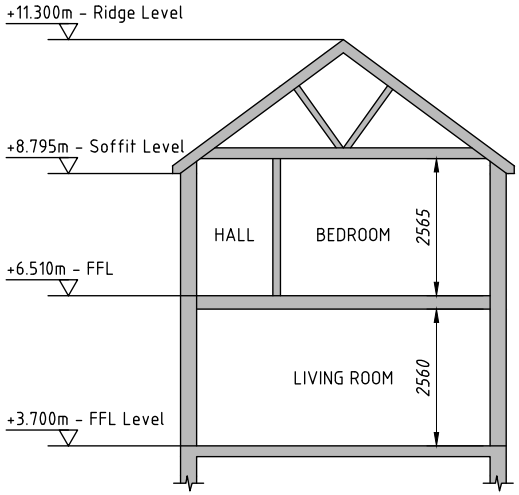
Existing First Floor Plan

SCALE 1:100



Existing Ground Floor Plan

SCALE 1:100



Section A-A

SCALE 1:100

FLOOR AREA:
Ground Floor - 91m2
First Floor - 86m2
Total Floor Area - 177m2

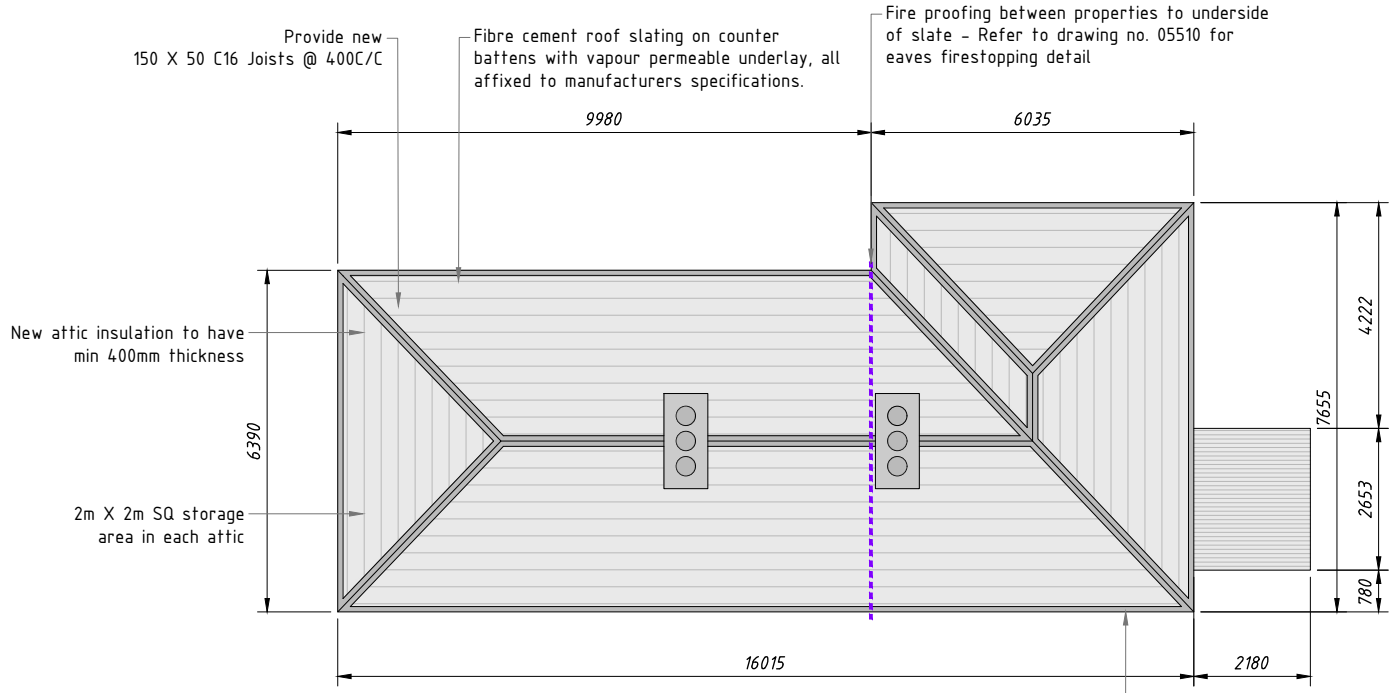
REVISION	DATE	BY	DETAILS
0	12/23	DOS	Issue 0

Drawn By	Chkd By	Approved By	DWG Date	Scale	Purpose Code	Acceptance Code	Rev.	Stage
DOS	CC	CC	22/12/23	1/100 @A3	P08	S	0	Tender

CroCon Engineers Ltd.
Consulting Engineers
4 Main St., Bantry, Co. Cork

Project	Originator	Spatial Zone	Level	Info Type	Role	Number
23004	CRO	X	XXX	DR	SE	02001

Client: Cork County Council
Project: Proposed 2 No. Houses, Adrigole Garda Station, Co. Cork
Title: Existing Plans & Section A-A



Proposed Roof Plan

SCALE 1:100

LEGEND

Proposed fire blocking

NOTES

1. This drawing shall be read in conjunction with all other relevant drawings, specifications and schedules.
2. All dimensions are in millimeters and levels in meters. use figured dimensions only.

ROOF NOTES

- Existing roof covering to be completely removed and removed from site.
- All roof timbers to be pressure treated incl. fascia, soffit, barge and gable ladder timbers.
- Include for all necessary repairs to purlins, hips, bearers, tilting fillets, ridge boards etc.
- New slates to match existing fixed on new 44mm x 35mm treated battens on tyvek breather membrane or equal approved
- Eave ventilators to be fitted. roof vent tile to be fitted at ridge level as per manufactures spec & details
- Batt roof/wall straps at 2m centres with 4 no. fixings to walls, 3 no. fixings to truss and 2 no. fixings to wall plate.
- 400mm fibreglass insulation.
- Patination oil finish to all code 5 lead, to manufactures specification and detail

FASCIA, SOFFIT AND DOWNPIPES

- New pvc soffit & fascia, guttering and downpipes to match existing

ATTIC ACCESS

- Form attic access hatch in ceiling
- The access hatch shall be accommodated within the truss spacing.
- Install airtight insulated attic access hatch with folding ladder.
- 1/2 hour fire rating is required as per part b of the building regulations
- Finish with 75 x 19mm architrave and painted.

PERMANENT BOARD WALKWAY

Construct a permanent boarded walkway from the roof access point to the tank ball valve position and / or the appliance location. The boarded access walkway shall be constructed of minimum dimensions of 50x50mm soft wood battens laid across rafters, notched over pipes and cable crossings, said battens to be securely screw fixed in place to rafters. 19mm thickness by 450mm wide flooring grade chipboard to be fixed to battens base with screws. This walkway should be supported above the first layer of insulation to prevent any compaction of insulation below the walkway.

FLAT ROOF

1. Roof to receive a cap sheet of paralon (or equal) ard/s polyester reinforced modified bitumen membrane or an approved equivalent on a base layer of top series 3mm polyester reinforced app modified bitumen.
2. Membrane or an approved equivalent on a 100mm composite p.i.r. foam insulation with hunton board or an approved equivalent (min. u-value of 0.25 w/m2k) on a parabase vapour barrier layer with 150mm side and end laps or an approved equivalent. Existing roof deck to be replaced with 20mm wbp plywood.

Proposed cap sheet of paralon ard/s polyester.

3. Reinforced modified bitumen membrane fully torch bonded with 80mm side and 150mm end laps or an approved equivalent. Proposed base layer of top series 3mm polyester reinforced app modified bitumen base sheet membrane fully bonded with 100mm side and 10mm end laps or an.
4. Approved equivalent foam insulation with hunton board or an approved equivalent proposed parabase vapour barrier with 150mm side and end laps or an approved equivalent.

REVISION	DATE	BY	DETAILS
0	02/24	DOS	Issue 0

Drawn By	Chkd By	Approved By	DWG Date	Scale	Purpose Code	Acceptance Code	Rev.	Stage
DOS	CC	CC	08/02/2024	1/100 @A3	P08	S	0	Tender

CroCon Engineers Ltd.
Consulting Engineers
4 Main St., Bantry, Co. Cork

Project	Originator	Spatial Zone	Level	Info Type	Role	Number
23004	CRO	X	XXX	DR	SE	02005

Client: Cork County Council
Project: Proposed 2 No. Houses, Adrigole Garda Station, Co. Cork
Title: Proposed Roof Plan

Appendix B
DNA Analysis

Folio No: 149-2024
Purchase Order: 202405
Contact: O'DONNELL ENVIRONMENTAL LTD
Issue Date: 11.04.2024

Biological Report

Technical Report

SureScreen Scientifics

Folio No: 149-2024
Purchase Order: 202405
Contact: O'DONNELL ENVIRONMENTAL LTD
Issue Date: 11.04.2024

SureScreen Scientifics

Biological Sample Analysis

Summary

Most biological materials (tissue, feces, hair, blood, etc.) contain small amounts of DNA from the organism of which it originated. Using molecular methods such as PCR (polymerase chain reaction) and DNA sequencing, SureScreen Scientifics are able to analyze an unknown sample to determine which species the sample originates from our methods are optimized for the detection of species including bats (over 92% of bat species worldwide can be identified including all 18 UK bat species), mammals; bees, wasps & hornets; birds; fish; plants (from roots, leaves, stem and even dried wood) and many more species.

Results

Lab ID	Site Name	OS Reference	Sample Type	Species Name	Match(%)
B3145	Adrigole G.S AG1	480530, 550238 (ITM)	Bat Dropping	Brown long-eared bat (Plecotus auritus)	98.94
	Genetic Sequence CGGAGGCTTCGGGACTGATTGGTGCCACTAATAATTGGAGCCCCTGATATAGCTTTTCCCCGAATAAATAACATAAGCTTCTGACTGCTTCCCCCATCTTTTCTACTACTTTTAGCTTCGTCTGCAGTAGAGGCTGGAGCAGGTACCGGTTGAACAGTCTATCCTCCTTTAGCGGGAAACCTTGCATCATGCTGGAGAG				
B3146	Adrigole G.S AG2	480530, 550238 (ITM)	Bat Dropping	Brown long-eared bat (Plecotus auritus)	100
	Genetic Sequence TGATTGGTGCCACTAATAATTGGAGCCCCTGATATAGCTTTTCCCCGAATAAATAACATAAGCTTCTGACTGCTTCCCCCATCTTTTCTACTACTTTTAGCTTCGTCTGCAGTAGAGGCTGGAGCAGGTACCGGTTGAACAGTCTATCCTCCTTTAGCGGGAAATCT				

Matters affecting result: none
Reported by: Chelsea Warner

Approved by: Lauryn Jewkes

Folio No: 149-2024
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SureScreen Scientifics

Methodology

Once samples have arrived in the laboratory, the DNA is isolated using a commercial DNA extraction kit. Using PCR, DNA (if present within the sample) is amplified using universal molecular markers designed to amplify a short fragment of the DNA of the target species group (i.e. mammal, fish, arthropod, reptile, plant etc.). If amplification is successful, the resulting DNA sequence is revealed using a process known as Sanger Sequencing in order to obtain the genetic sequence of the mitochondrial gene within the sample. The sequence results are aligned against a library of known reference sequences using bioinformatics software, which enables us to determine which species the DNA sequence from the sample matches with, informing the species identity and sequence similarity (match %).

If the initial analysis is unsuccessful, the entire process is repeated up to two additional times with a fresh reserve sample (if available) in order to obtain a species identification. If no DNA is detected after three attempts, then we can be confident that any further analysis of the sample will likely also fail to result in species identification.

Interpretation of Results

Sample Type:

The sample you send to us can come from a variety of sources. Fecal, dropping, urine, hair, blood, carcass (skin, flesh, bone), gamete, plant matter or unknown biological material all contain DNA that we can test for in order to identify the species of origin.

Genetic Sequence:

The unique DNA sequence obtained from the sample.

Match (%):

How closely matched the DNA sequence from your sample is to the sequences within our reference database. This can be interpreted as a score of result accuracy, with the maximum score of 100% indicating an exact match of the sample to the indicated species' reference sequence. Lower scores (80-99%) indicate some variation between the sample and reference sequence, likely due to natural variation between individual genetic sequences and/or systematic variations generated through the sequencing process. Scores below 80% similarity should be interpreted with care and can indicate part degraded or part contaminated samples.

Inconclusive Result:

Degraded sample:

DNA is degraded and we are unable to determine species identification due to degradation of sample DNA. This can happen either before sample collection (old samples, exposure to UV etc.) or after sample collection if stored for long periods before analysis or not handled correctly.

Inhibited/contaminated sample:

We are unable to determine species identity due to contamination or the suspected presence of large quantities of PCR inhibitors. Contamination sources can originate from other species which could have come into contact with the samples, or human contamination during sample collection.

Alternative Result:

Sometimes, for targets such as bat dropping analysis, other mammalian species such as rodents are detected. We find this to be a common occurrence as some bat droppings can be similar in appearance to rodent droppings. Although sometimes unexpected, repeat analyses in these cases would likely return the same results.

Appendix C
Bat Safe Timber Treatment Products

Marketing company	Product name	Type	User	Active ingredients
Akzo Nobel Coatings Ltd	Cuprinol Trade Decorative Preserver (BP)	S	A	IPBC, Tebuconazole
Akzo Nobel Coatings Ltd	Cuprinol Trade Quick Drying Wood Preserver Clear (BP)	W	A	Propiconazole, IPBC
Akzo Nobel Coatings Ltd	Dulux Trade Weathershield Naked Wood Basecoat (BP)	W	A	Propiconazole, IPBC
Akzo Nobel Coatings Ltd	Dulux Trade Weathershield Preservative Primer + (BP)	W	A	Propiconazole, IPBC
Assured Products Ltd	Spear & Jackson Triple Action Wood Treatment	M	A	Propiconazole, IPBC, Permethrin
Assured Products Ltd	Spear & Jackson Woodworm Killer	M	A	Permethrin
Crown Paints	Sadolin Quick Dry Wood Preserver	W	A	Propiconazole, IPBC
Enviroquest GPT Ltd	Lignum Pro I62.5 (BPR)	Wc	P	Permethrin
Enviroquest GPT Ltd	Lignum Pro D156 (BPR)	Wc	P	Propiconazole, IPBC, Permethrin
Enviroquest GPT Ltd	Lignum Universal Wood Preserver (BPR)	W	A	Propiconazole, IPBC, Permethrin
Enviroquest GPT Ltd	Lignum Woodworm Killer (BPR)	W	A	Permethrin
Enviroquest GPT Ltd	Lignum Wood Preserver (BPR)	W	A	Propiconazole, IPBC, Permethrin
Enviroquest GPT Ltd	Lignum Pro Gel(BPR)	Pa	P	Propiconazole, IPBC, Permethrin
Larsen Building Products	Larsen Construction Timber Preserver	M	A	Propiconazole, IPBC, Permethrin
Larsen Building Products	Larsen Low Odour Woodworm Killer	M	A	Permethrin
Larsen Building Products	Larsen Low Odour Universal Wood Preservative	M	A	Propiconazole, IPBC, Permethrin
Morrells Woodfinishes Ltd	Omnia Preserve	W	A	Propiconazole, IPBC

Permagard Products Ltd	Permagard Woodworm Killer (BPR)	W	A	Permethrin
Permagard Products Ltd	Permagard Universal Wood Treatment (BPR)	W	A	Propiconazole, IPBC, Permethrin
PPG Agritectural Coatings UK Ltd	Johnstone's Trade Woodworks All Purpose Preserver	S	A	Propiconazole, IPBC, Permethrin
PPG Agritectural Coatings UK Ltd	Johnstone's Woodcare Wood Preserver	M	A	Propiconazole, IPBC, Permethrin
PPG Coatings Danmark A/S	Bondex Preserve II	W	A	Propiconazole, IPBC, Permethrin
Premier Q Coatings Ltd	Premier Q Woodworm Killer (BPR)	S	A	Permethrin
Premier Q Coatings Ltd	Premier Q Triple Action Wood Treatment (BPR)	S	A	Propiconazole, IPBC, Permethrin
Protim Solignum Ltd trading as Koppers	Endcoat Wood Preservative	S	A	Propiconazole
Rentokil Initial	Deadline Woodworm Treatment	W	P	Permethrin, IBPC, Tebucanazole, Propiconazole
Rentokil Initial	Woodworm Treatment Solution	W	P	Permethrin, IBPC, Tebucanazole, Propiconazole
Rentokil Initial	Woodworm Treatment Fluid	W	A	Permethrin, IBPC, Tebucanazole, Propiconazole
Rustins Ltd	Rustins Advanced Wood Preserver (BPR)	M	A	Propiconazole, IPBC, Permethrin
Safeguard Europe Ltd	Soluguard Woodworm Treatment (BPR)	M	A	Propiconazole, IPBC, Permethrin
Safeguard Europe Ltd	Soluguard Woodworm and Rot Treatment (BPR)	M	A	Propiconazole, IPBC, Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Total Clear Wood Preserver (MP)	S	A	Propiconazole, IPBC, Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Woodworm Killer (MP)	S	A	Permethrin
Sherwin-Williams Diversified Brands Ltd	Ronseal Multi-Purpose Woodworm Treatment (MP)	S	A	Propiconazole, IPBC, Permethrin

Sherwin-Williams Diversified Brands Ltd	Ronseal Multi-Purpose Woodworm Treatment (LC)	S	A	Propiconazole, IPBC, Permethrin
Sovereign Chemicals Ltd	Sovaq Woodworm Killer (BPR)	Mc	P	Permethrin
Sovereign Chemicals Ltd	Sovereign Boron Timber Rod	R	P	Disodium octaborate
Sovereign Chemicals Ltd	Deepkill Timber Preservative Cream	Pa	A	Propiconazole, IPBC, Permethrin
Sovereign Chemicals Ltd	Sovaq Dual Purpose Timber Treatment	Mc	P	Propiconazole, IPBC, Permethrin
Sovereign Chemicals Ltd	Sovereign Timber Preservative	S	A	Propiconazole, IPBC
STV International Ltd	Defenders Triple-Action Timber Protector	M	A	Propiconazole, IPBC, Permethrin
STV International Ltd	Zero In Woodworm Destroyer	M	A	Permethrin
Troy UK	TWP 085	W	A	Propiconazole, IPBC
Troy UK	TWP 077	S	A	Propiconazole, IPBC
Wykamol Group Ltd	Microtech Dual C RTU (BPR)	M	A	Propiconazole, IPBC, Permethrin
Wykamol Group Ltd	Microtech Woodworm RTU (BPR)	M	A	Permethrin
Wykamol Group Ltd	Microtech Dual P RTU (BPR)	M	A	Propiconazole, IPBC, Permethrin

Type of product:
A - aerosol
Mc - micro emulsion concentrate, to be diluted with water to form a micro emulsion
Pa - bodied paste
R - solid rod, for insertion into pre-drilled hole
S - solvent-based
W - aqueous solution, ready for use
Wc - aqueous solution concentrate, to be diluted with water
Type of user:
P - professional - only people required to use pesticides as part of their work and who have received appropriate information, instruction and training can use the product
A - amateur - the general public can use the product
IPBC is an abbreviation for 3-iodo-2-propynyl n-butylcarbamate.
Use the HSE number to check product details in the COPR database.

Source: https://www.gov.uk/government/publications/bat-roosts-insecticides-and-timber-treatments/timber-treatment-products-suitable-for-use-in-or-near-bat-roosts

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