DixonBrosnan
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Report in support of Derogation Licence Application

Proposed Large Scale Residential Development (LRD),

Janeville,

Shannonpark,

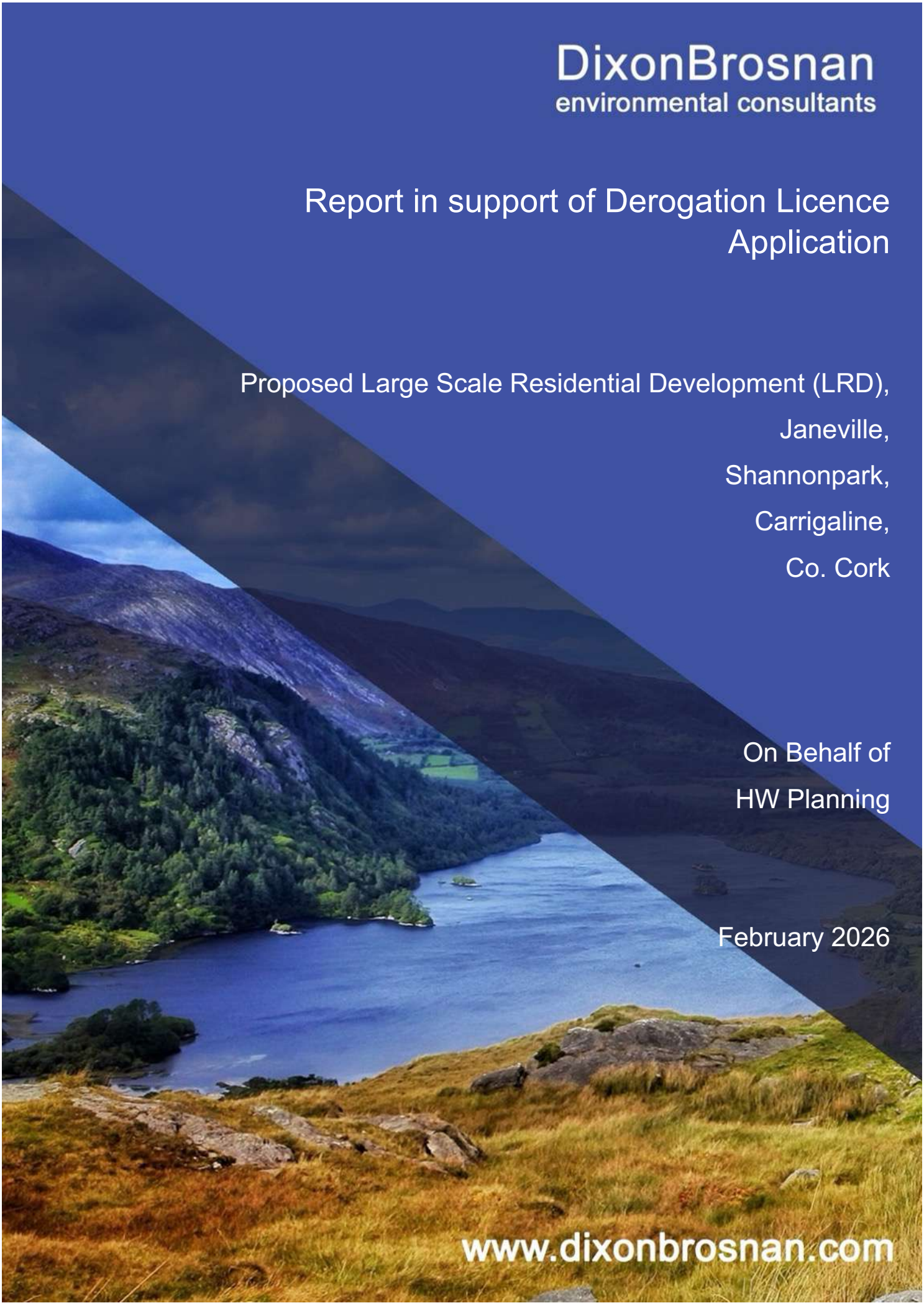
Carrigaline,

Co. Cork

On Behalf of

HW Planning

February 2026



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Project	Report in support of Derogation Licence for Proposed Residential Development, Former Janeville, Shannonpark, Carrigaline, Co. Cork	
Client	Astra Construction	
Project Ref.	26008	
Report No.	26008.03	
Client Ref.	-	
Date	**Revision**	**Prepared By**
27/02/26	Issue to client	Carl Dixon BSc MSc
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1. Introduction

DixonBrosnan were commissioned to undertake bat surveys at the site of a proposed development at Janeville, Shannon Park, Carrigaline. This proposed development is a large scale residential development (LRD) which is being submitted to Cork County Council.

Bat surveys carried out in 2025 found a Soprano pipistrelle maternity roost within one of the site buildings. This building, an old farmhouse, is proposed for restoration which will disturb and/or remove the roost. In line with the relevant guidance detailed below, a derogation licence is sought for the works. This derogation licence application has been compiled by Carl Dixon MSc and Dr. Sorcha Sheehy PhD.

Carl Dixon holds an Honours Degree (BSc) in Ecology and a Masters (MSc) in Ecological Monitoring from UCC. He is a senior ecologist who has over 25 years' experience in ecological assessment. Prior to setting up DixonBrosnan Environmental Consultants in 2000, Carl set up and ran Core Environmental Services which included REPS planning for landowners and ecological assessments. Carl has particular experience in freshwater ecology, including electrofishing fish stock assessments and water quality assessments. He also has considerable experience in habitat mapping and mammal ecology including survey work and reporting in relation to Badgers and bats. Other competencies include surveys for invasive species and bird surveys. Carl has extensive experience with regards to EIAR and NIS mitigation and impact assessment. He has experience in large-scale industrial developments with extensive experience in complex assessments as part of multi-disciplinary teams. Such projects include gas pipelines, incinerators, electrical cable routes, oil refineries and quarries.

Carl Dixon has considerable experience in bat survey and bat mitigation measures/roost design. Carl was the primary coordinator and surveyor for a heritage council-funded project serving all the river bridges in County Waterford for bats. He has designed bat roosts for Lesser horseshoe in conjunction with the NPWS for sites in West Cork. Carl has completed specialized training courses relating to bats in Ireland and the UK and has considerable experience in using a variety of bat survey equipment and subsequent software analysis of data.

Dr. Sorcha Sheehy PhD (Ecology/ornithology) is an ecologist and ornithologist who has worked for 15 years in environmental consultancy. She has worked on Screening/NISs for a range of small and large-scale projects with expertise in assessing impacts on birds. Sorcha's PhD research focused on bird behaviour at airports, where she studied bird avoidance behaviour and collision risk to aircraft. Her research involved field observations, post-mortem analysis and radar surveys. Sorcha has worked on bird collision risk assessments at airports throughout Ireland including Dublin airport, Cork airport, Shannon airport and Kerry airport. During her consultancy work Sorcha carried out field-based surveys and environmental reports including NIS, AA screening and EIARs. Notable projects include the Arklow Bank Wind Park, Indaver Ireland Waste Management Facility at Ringaskiddy, Irving Oil Whitegate Refinery (IOWR), Shannon LNG and Greenlink Interconnector.

2. Background

The proposed development site is located in the townland of Shannonpark, c.1.1km north of Carrigaline Town Centre (**Figure 1**). The proposed development site forms Phase 4 of the Janeville residential development. The site is accessed along its eastern boundary via the Rock Road, along with two other access points from the existing/permitted Janeville development (Phase 1-Phase 3), located to the south and west. The M28 motorway is currently under construction to the immediate north of the site.

Lands to the north and east of the proposed development site are largely agricultural. To the south and west, lands are residential/urban. Phase 3 of the Janeville development is currently under construction at the southern boundary of the proposed development site. The national route N28 is located c. 130m north of the proposed development site. A small road, known locally as the Rock Road, runs along the eastern boundary.

There is an existing farmhouse located at the east of the site, which is the site of the bat roost under consideration.

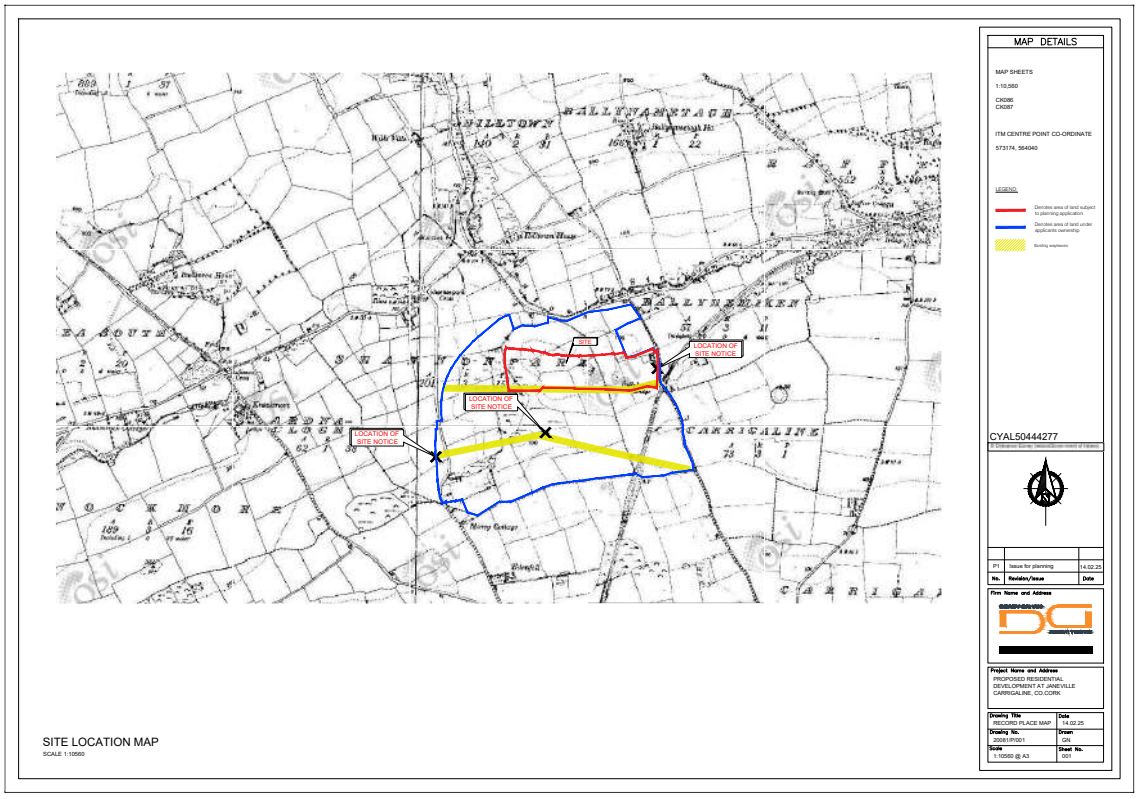

Figure 1. Site location | Source DG architects

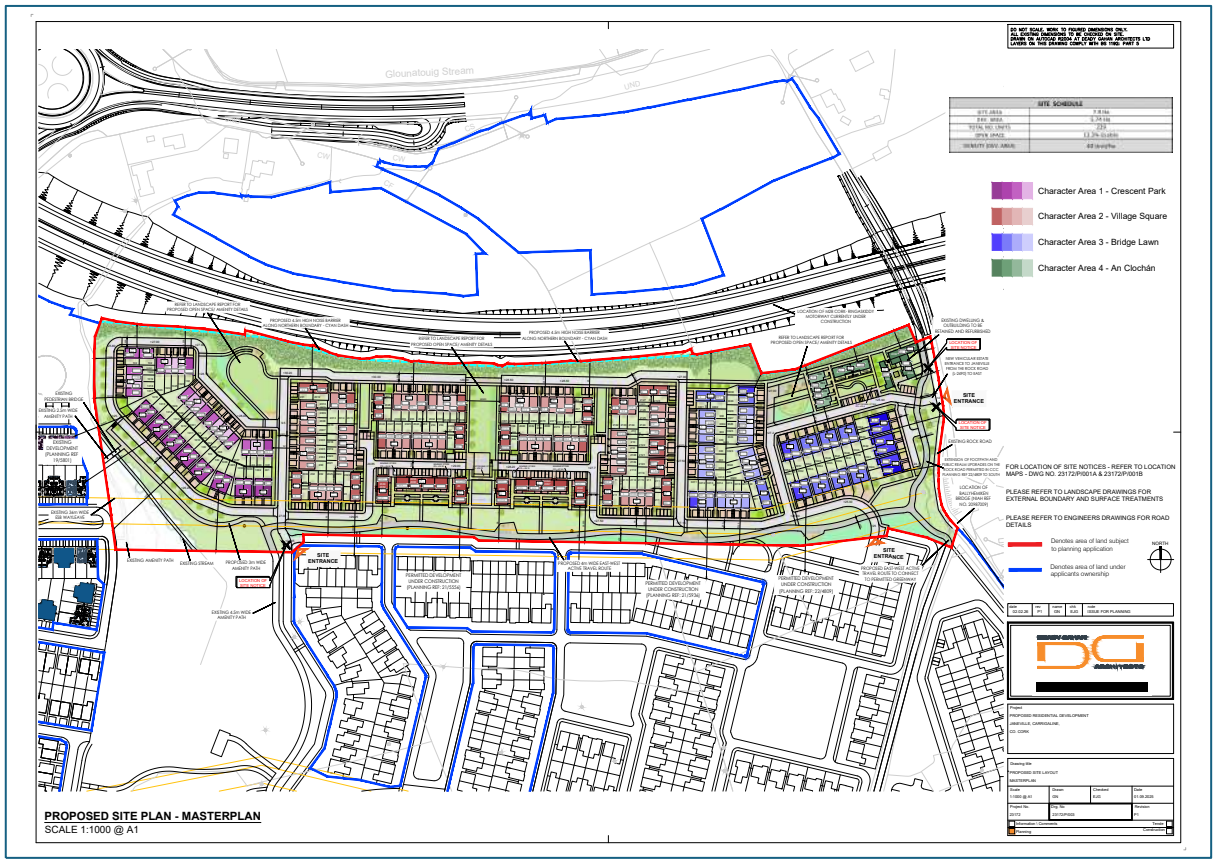

Figure 2. Proposed development site layout | Source DG Architects

The proposed development will consist of the demolition of existing farmyard with associated agricultural buildings and the construction of a residential development of 229 no. residential units consisting of 194 no. dwelling houses and 35 no. own door access apartments and all ancillary site development works. The proposed development includes the restoration of an existing two storey farmhouse to the northeast of the site which will accommodate the 2 no. apartment units with a replacement single storey building to the rear of the existing dwelling house accommodating the remaining 1 no. apartment unit. **The bat roost is located within the 2 storey farmhouse which is proposed for restoration.**

The site layout is shown **in Figure 2**.

3. Ecological survey and site assessment

A preliminary roost assessment was carried at ground level on all trees earmarked for removal within the proposed development site as per Collins (2023). These assessments followed the guidelines set out in 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th ed)' (Collins, 2023). It is noted that no signs of roosting bats were recorded in any of the trees onsite and/or trees earmarked for removal.

Buildings inspections were carried out in 2025 to identify potential access points, 'potential roosting features (PRFs)' and any evidence indicating the presence of bats using the buildings within the proposed development site. An inspection of the buildings was conducted to look for suitable roosting habitat, possible emergence points and bat presence.

A search of the accessible areas of the interior and exterior of the buildings on site was carried out to assess the potential value of the site for roosting bats and to survey for signs such as droppings, staining and prey remains.

The results of the buildings assessment is included in **Table 1**.

Table 1. Building inspection survey

Building	Building description	Building photograph
Main dwelling house	The old farmhouse building in relatively good condition. Old sash windows largely intact. Roof and facias on the front of the house are in good condition. At the rear of the dwelling the wooden facias are in poor condition although the slate roof is intact. PVC and sash windows at rear. Some in poor condition. Within the interior of the property some ceilings are collapsed. Interior is damp with peeling wallpaper in several rooms. Interior cluttered with furniture and stored material. Lot of cobwebs within interior. Old fireplace partially collapsed. No signs of bats in fireplace. Bat droppings and mouse pellets recorded in upstairs room. These appear to be old. No indication of recent usage Moderate potential for roosting bats.	   

Building	Building description	Building photograph
Shed/extension are rear of dwelling	Shed extension to rear of dwelling used for general building supplies and farming materials. Draughty loft space partially open. Gaps for entry on door where this is starting to decay. Wooden fascia is poor condition. No signs of bats. Low potential for roosting bats.	
Old outhouse adjoining dwelling	Large lean-to structure adjoining farm house. Stored farming and building machinery Generally cold. Open window at the rear and one Swallow nest recorded. Wooden loft space large opening on the gable end of building. Building very draughty and cold. No signs of bats. Low potential for roosting bats.	  

Building	Building description	Building photograph
Outbuildings	Complex of sheds to south of house. Buildings in generally poor condition. Open windows and doors. Draughty. Slate roof largely intact. Some wooden facia remaining on exterior. Modern precast concrete walls Used for stored material Lots of fouling by pigeons. Old swallow nest recorded. No signs of bats. Low potential for roosting bats.	  
Farm shed and slatted unit	Generally empty sheds partially used as work sheds. Corrugated iron roofs. Open, draughty Slatted unit open and draughty. But could provide foraging habitat for bats. No signs of bats. Negligible potential for roosting bats.	

Building	Building description	Building photograph
		 
Farm shed	Corrugated iron sheds with partial concrete walls used for parking vehicles etc. Very open and draughty. I would say No signs of bats. Negligible potential for roosting bats.	 

Nighttime bat emergence/activity survey were carried out on the 22nd September, 26th September, 8th of October 2025, using Elekon batloggers (x 2), Echotouch Touch 2 PRO bat detector and a Pulsar Helion 2 XP50 Pro Thermal Imaging Camera in line the survey guidelines outlined in Collins (2023). Emergence surveys focused on buildings and mature trees within the proposed development site. Surveyors also walked along linear features and other habitat features within the proposed development site concentrating on areas which might support foraging/commuting bats. The surveys were carried out 15 minutes before sunset (dusk survey) until 2 hours after sunset. All surveys were carried out during favourable weather conditions.

It is noted that the site is dominated by grassland and disturbed ground with no significant hedgerows and treelines. While much of the site lacks vegetation cover and is relatively exposed, the farmyard area is more sheltered with a variety of buildings and some remaining trees. A short section of mature treeline runs along the eastern boundary of the site near the farmyard. Therefore surveys focused on this area which was assessed as potentially of value for foraging and roosting bats. No trees with significant value as bat roosts are present within the proposed development site.

During the 22nd September activity surveys relatively high levels of Soprano and to a lesser degree Common Pipistrelle activity were recorded during the emergence period. Foraging was also recorded in proximity to the farmyard with approximately ten bats. No emergence was recorded from the front of the farmhouse and associated buildings,

The survey on the 26th of September recorded similar levels of Pipistrelle activity and bats were recorded emerging from the rear of the dwelling (See **Figure 3** and **Figure 4**). Approximately eight bats were recorded emerging from damaged fascia on a flat roof, two storey extension at the rear of the farmhouse. Subsequently bats were recorded foraging around the farmyard and along the treeline. No bat activity was recorded within the remainder of the proposed development site boundary. Sporadic signals for Leisler's bat were also recorded which was indicative of a small number of bats (1-2) foraging at height in the wider landscape.

A repeat survey was carried out on the 8th of October during suitable weather conditions to confirm the roost location and to more accurately assess numbers. Six Soprano Pipistrelle were recorded emerging from the roost location.

The results indicate that a small maternity roost of Soprano Pipistrelle is located within the rear of the farmhouse (damaged fascia). The farmyard area also provides a sheltered foraging area for Soprano and Common Pipistrelle bats post emergence. However, no signs of roosting bats were recorded in any of the other site buildings.

Sporadic signals for Leisler's indicate sporadic foraging within the wider landscape. No signs of other bat species, including Lesser Horseshoe Bat were recorded. Overall the wider proposed development site is considered negligible value for foraging/commuting bats. The area around the farmyard is considered low to moderate value for foraging bats.

Figure 3. Emergence point for Soprano Pipistrelle

Figure 4. Bat emerging from fascia on flat roof extension at rear of dwelling

4. Proposed development and details of works requiring derogation

4.1 Planning history

The subject lands are situated within the Shannonpark Urban Expansion Area (SUEA) to the north of Carrigaline. The Shannonpark lands represent a strategic land bank identified in recent County Development and Local Area Plans of circa 44 hectares, where approximately 1,000 no. residential units and associated infrastructural upgrades are being delivered on a phased basis. The SUEA lands were first zoned for residential development in October 2007 when the Members of Cork County Council adopted ‘ Amendment 3: Additional Residential Land Supply Carrigaline, Ballincollig and Cork City – South Environs’ to the Carrigaline Electoral Area Local Area Plan 2005 (2005 LAP).

The ‘Shannonpark Framework Masterplan Study 2015’ (2015 SUEA Masterplan) was subsequently adopted which provided a blueprint for the phased delivery of the SUEA lands .

Since 2016 Astra Construction have been delivering the ‘Janeville’ residential development at the SUEA , and currently have permission for circa 701 no. residential units, a neighbourhood centre providing a nursing home, a 158 no. child capacity creche and neighbourhood centre in western areas of the SUEA. An additional 100 no. child capacity creche is also permitted in eastern areas of Janeville. Phase 1 of the Janeville Masterplan was permitted by planning reference 16/4289 and included upgrades to the loc al road network to facilitate a new signalised junction from Cork Road to the west which will serve as the primary access to the SUEA lands. Phases 2A/2B permitted by references 20/4650 and 20/5451 and Phases 3A /3B /3C by references 21/5556 , 21/5936 and 22/4809 respectively provided for the construction of additional housing and the realignment and extension of the east/west spine road serving Janeville in accordance with the requirements of ESB Networks to accommodate the maintenance of the existing 110 kV overhead lines traversing the lands. Janeville also deliver s a central amenity parkland serving the wider area and a section of greenway represented by development objective CL -U-02 of the Cork County Development Plan 2022 (CDP). The most recent phase at Janeville permitted by reference 22/4809 provides for a new eastern gateway access junction from the Rock Road to the east.

In accordance with CDP and previous 2014 County Development Plan and 2017 Local Area Plan the SUEA Masterplan is being delivered on a phased basis in conjunction with infrastructural upgrades in the wider area. This strategy allows the applicants to respond to the evolving context of the SUEA and continue the delivery of much needed family housing in Carrigaline. Astra Construction have made considerable progress in the delivery of the SUEA with Phase s 1, 2A , 2B and 3A completed and Phases 3B and 3C under construction.

The proposed development site represents the final sequential phase of Janeville (Phase 4) and will result in the successful realisation of the Shannonpark lands as envisaged in the 2015 SUEA masterplan.

4.2 Proposed works requiring derogation

Work which require derogation are the restoration works to farmhouse building.

The proposed development includes the restoration of an existing two storey farmhouse to the northeast of the site which will accommodate the 2 no. apartment units with a replacement single storey building to the rear of the existing dwelling house accommodating the remaining 1 no. apartment unit. As outlined in **Section 3**, a maternity roost holding six Soprano pipistrelle bats was recorded beneath a damaged fascia on two storey rear extension. The farmhouse renovation works will include the removal and replacement of the external facias and soffits, which will result in the removal of the roosting site. As detailed in **Section 6**, a replacement roost (in the form of a bat box) will be installed at the same location following the completion of restoration works.

Other buildings earmarked for restoration and demolition in the project (See **Figure 5**) do not have roosting bats and do not require derogation.

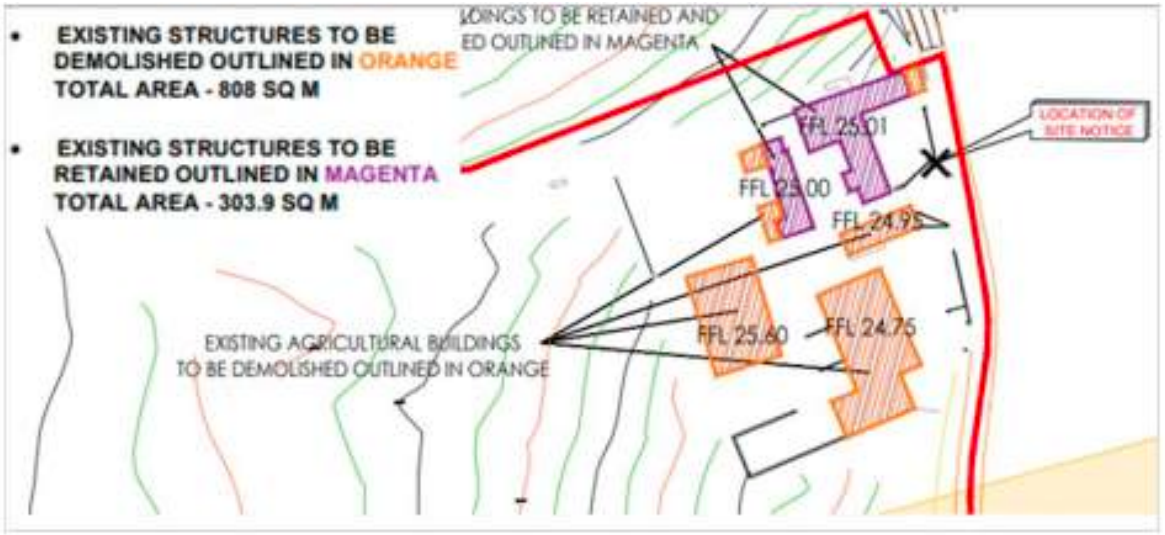

Figure 5. Proposed demolition and restoration works

5. Evidence of derogation tests

Article 16 of the Habitats Directive sets out three pre-conditions, all of which must be met before a derogation from the requirements of Article 12 or Article 13 of the Directive can be granted. These preconditions are also set out in Regulation 54 of the Regulations. The preconditions are as follows:

1. A reason (s) listed in Regulation 54 (a)-(e) applies

2. No satisfactory alternatives exist

3. Derogation would not be detrimental to the maintenance of population(s) at a favourable conservation status. It is believed that the pre-conditions for granting a derogation licence have been met, as follows.

5.1 Test 1 - Reasons for Seeking Derogation

As outlined above, an external fascia housing a small maternity roost for Soprano pipistrelle will be removed during the restoration of the farmhouse.

These works require a derogation licence.

Regulation 54(2) (a)–(e) states that a derogation licence may be granted for any of the reasons listed (a) to (e).

We are of the opinion that the following reason applies:

(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.

The proposed development will provide 229 residential units. The restoration of the farmhouse itself will accommodate three apartment units.

The Architectural Heritage Impact Assessment (AHIA) prepared by Donal Anderson Conservation Architect concluded that the dwelling house is in good structural condition and could be restored to form part of the proposed development which would positively contribute to the built heritage environment of the area. The proposed development also provides for the partial restoration of adjoining Building B (A former barn) while other structures on site are not of cultural heritage value or appropriate for restoration.

Plate 1. Farmhouse (on left) and Building B adjoining outhouse (on right) to be refurbished for housing

This type of sensitive restoration is encouraged under the Cork County Development Plan 2022 in objectives RP 5-30 and RP 5-31.

CDP objective RP 5-30: Redevelopment or replacement of an Uninhabitable or Ruinous dwelling. Encourage proposals for the sensitive renovation, redevelopment, or replacement of existing uninhabitable or ruinous dwellings subject to normal proper planning and sustainable development considerations

CDP Objective RP 5- 31: New uses for disused or derelict farm buildings.

Encourage the sensitive refurbishment and conversion of suitable disused or derelict traditional farm buildings, built using traditional methods and materials, and other suitable historic buildings such as mills and churches, for residential purposes, community, or commercial uses (including social enterprise) where appropriate, subject to normal planning considerations, while ensuring that the re-use is compatible with environmental and heritage protection.

Based on the Carrigaline Municipal District Local Area Plan 2017 (Cork City/County Council), and the earlier 2020 projections, Carrigaline has been designated for significant residential expansion to meet population growth within the Cork Metropolitan Area. Key targets include an requirement for 2,068 new residential units (based on earlier projections, with current 2022-2028 plans emphasizing continued high-density growth in designated main towns).

The subject lands are situated within the Shannonpark Urban Expansion Area (SUEA) to the north of Carrigaline. The Shannonpark lands represent a strategic land bank identified in recent County Development and Local Area Plans of circa 44 hectares, where approximately

1,000 no. residential units and associated infrastructural upgrades are being delivered on a phased basis. The SUEA lands were first zoned for residential development in October 2007 when the Members of Cork County Council adopted ' Amendment 3: Additional Residential Land Supply Carrigaline, Ballincollig and Cork City – South Environs' to the Carrigaline Electoral Area Local Area Plan 2005 (2005 LAP).

The 'Shannonpark Framework Masterplan Study 2015' (2015 SUEA Masterplan) was subsequently adopted which provided a blueprint for the phased delivery of the SUEA lands.

In short, the proposed restoration of the farmhouse fulfills a housing need in this area in line with the objectives of the county development plan i.e. *overriding public interest of a social nature.*

Figure 6 Character renders of proposed farmhouse and outbuildings retained and refurbished within proposed development.

5.2 Test 2 - There is no satisfactory alternative

Alternative solutions considered included not refurbishing the farmhouse (i.e. 'do-nothing). However, that option is not a long-term solution as the fascia (and farmhouse) will continue to fall into disrepair from ingress of rain and wind in the absence of works. In the long-term the fascia is likely to deteriorate and will not support a bat roost in the long-term.

Alternative, demolish the building. As outlined above, the site has been identified as suitable for sensitive restoration to provide housing. The demolition of the building would also remove the roost site.

The restoration of the building to provide housing and replacement bat habitat is the only satisfactory alternative.

5.3 Test 3. - Impact of a derogation on Conservation Status

a) Soprano pipistrelle

Soprano pipistrelle is an Annex IV bat species under the EU Habitats Directive. The Soprano pipistrelle is one of Ireland's smallest, most common, and widespread bat species. Weighing only 5-6g, these insectivores are frequently seen at dusk in both urban and rural areas, often roosting in buildings, trees, or near water. During the summer, female soprano pipistrelles form maternity colonies – like this one – where they give birth to a single offspring in June/early July. For up to a month the juveniles are fed solely on their mother's milk. When they are about a month old the young bats are able to fly and by six weeks they are able to forage for themselves.

The status of this bat species is listed as Least Concern (Favourable). According to Roche *et al.* 2024, there is Soprano pipistrelle population of approximately 1,204,800-2,709,600 individuals in the Republic of Ireland. Population estimates for the present reporting period are extrapolated from the probability of encountering a Soprano pipistrelle bat in any given area (based on the rate it was encountered during the Car-based Bat Monitoring Scheme 2007-2012) and adjusted for mean changes to its trend between 2007-2012 and 2018-2023. Such population estimates are based on a range of assumptions which are only approximately correct.

This analysis suggests that there is a Soprano pipistrelle population of approximately 1.2-2.7 million in Republic of Ireland. Trends for Soprano pipistrelle have shown a significant increase since the inception of the Car-based Bat Monitoring Scheme in 2003. An additional figure of 1,443,100 is derived from the average number of bats detected per km of roadside surveys and estimates of the total length of hedgerows in Ireland.

According to the criteria outlined in Marnell *et. al.* (2022) the conservation significance of the roost within the farmhouse is "*Maternity site of common species".* The Conservation Significance according to Marnell *et. al.* (2022) results determines the bat mitigation measures required. In relation to this species of bat, the mitigation recommended is *" Timing constraints. More or less like-for-like replacement. Bats not to be left without a roost and must be given time to find the replacement. Monitoring for 2 years preferred.".*

The proposed development will result of the removal of a small Soprano pipistrelle roost. The timing for works (i.e. replacement roosts will be available throughout construction works until a new roost is placed at the original site) and mitigation will ensure that alternative roost sites are provided during construction works. It is noted that Marnell *et al* (2022) expresses concern about the use of bat boxes for like-for-like replacement. However, given the small size of the roost and the location of the roost within an external facia, the use of the bat box at this location is considered appropriate.

Therefore it is considered that the (temporary) loss of a roost will not impact on the favourable conservation status in their natural range and will not have a detrimental effect on the local bat population of Soprano pipistrelle. The provision of the new roosting facilities follows the guidelines (Marnell *et. al.* (2022).

6. Mitigation measures

The proposed development will involve refurbishment of the farmhouse. It is noted that two adjoining outbuildings will also be refurbished and will retain a sheltered area at the rear of the farmhouse which can be potentially used by roosting bats (See **Figure 6**). Three bat boxes will be placed around this courtyard area to maximise the chances of this area being used

following development. As noted above, given the small size of the roost and the location of the roost within an external facia, the use of the bat box at this location is considered appropriate.

6.1 Bats

During the site works, general mitigation measures for bats will follow the National Road Authority's '*Guidelines for the Treatment of Bats during the Construction of National Road Schemes*' TII (2005c) and '*Bat mitigation guidelines for Ireland v2'*. Marnell *et al.* 2022). These documents outline the requirements that will be met in the pre-construction (site clearance) stage to minimise negative effects on roosting bats, or prevent avoidable effects resulting from significant alterations to the immediate landscape.

The proposed lighting plan has taken into account measures outlined in the *Bats & Lighting Guidance Notes for: Planners, engineers, architects and developers* (Bat Conservation Ireland, 2010). There will be no direct lighting on the replacement roosting habitat at the rear of the farmhouse.

6.1.1 Building mitigation

The following mitigation is proposed:

• Prior to the commencement of restoration of the farmhouse and outbuildings (and demolition of the adjoining sheds) works a repeat survey will be carried out to obtain up to date information on the bat roosting within the site. No demolition/restoration works to the site buildings will proceed until the derogation has been issued.

• All demolition works of the farm sheds will take place outside the bat activity season (i.e. 1st October-31st March). However, works would ideally not commence before October 15th and not after the 1st of March (to avoid breeding birds).

• Care must be taken when dismantling or working on the all site buildings to ensure that bats are no longer present. If bats are discovered during the restoration process then they will be safely removed by the qualified bat expert and the NPWS will be informed.

• All other structures onsite will be examined immediately prior to the commencement of demolition/refurbishment works by a supervising ecologist to ensure there are no signs of bat activity. If bats are discovered during the demolition process then they will be safely removed by the qualified bat expert and the NPWS will be informed.

• The location and type of bat boxes has considered both the short-term requirements of bats during construction the longer-term requirement to maintain a viable bat population within the overall site.

- Prior to the commencement of restoration/demolition works, bat boxes will be erected under ecological supervision to provide alternative roosting habitat prior.
- Bat boxes will be placed on mature trees along the eastern treeline to provide potential roosting sites for bats (See **Figure 7**). It is noted that a

supervising ecologist will specify the exact locations/heights etc will be based on up to date survey data and in consultation with the building contractor.

- It is noted that the tree boxes will be installed prior to removal of the flashing on the rear extension of the farmhouse to ensure there are alternative roost locations throughout construction works. This will ensure that bats not to be left without a roost and must be given time to find the replacement.
- Once works are complete on the farmhouse and outbuildings; bat boxes will be installed on the buildings (See **Figure 7**). An external bat box will be positioned at the location of the existing roost (rear two storey extension) as well as on the existing outbuildings, to attempt to recreate existing roosting opportunities.

• The lighting plan has been designed with Bat conservation guidelines and there is no direct lighting proposed in vicinity of the bat box locations.

6.2 Bat boxes

The old farmhouse currently provide a maternity roost for a small number of Soprano Pipistrelle. The building with the confirmed bat roost is marked for refurbishment as part of the proposed development. Replacement habitat will be provided in the form of bat roost boxes. The location of the bat boxes has taken into account both the short-term requirements of bats during construction the longer-term requirement to maintain a viable bat population within the overall site. Bat boxes will be installed prior to any demolition/refurbishment works. As outlined above a staged approach will be used to ensure there are alternative roost locations throughout the renovation works.

Given the diversity of bats which use the site, a range of bat boxes have been specified. The boxes have been selected to provide a range of roosting opportunities for different species and colony sizes. The boxes will be installed under supervision of the project ecologist.

Vincent Pro Bat Box

Three Vincent Pro bat boxes will be provided. This box features three vertical chambers of different sizes, providing ideal roosting space for a variety of species. Beneath the crevice entrances is a ladder which provides a rough surface for bats to land. Limited cleaning is required for these boxes as the droppings will fall out of the bottom of the chambers. The front and top of the box are black which helps the box to absorb heat. This bat box can be used by Leisler's, Common Pipistrelle, Soprano Pipistrelle, Brown long-eared, Natterer's and Whiskered Bat.

Improved Roost-Maternity Bat Box

Two improved Roost-Maternity Bat Box will be provided. This box is suitable for larger roosts or maternity groups of the small crevice-dwelling bats such as pipistrelles. This has three separate crevices, each with different temperature characteristics and a wide entrance with accurately sized opening. Ideal for Pipistrelles and deters unwelcome birds etc. Internal ceramic heat sinks ensure improved temperature stability in crevices.

Bat Box 1FD

Two Bat Box 1FD will be provided. Suitable for Pipistrelle and Nathusius' Pipistrelle Bats as well as Daubenton's Bats and Long-Eared Bats. This is especially in mixed bat zones and for initial settlement attempts. The front panel can be removed for inspection and cleaning.

Bat Colony Box 1FS universal

One Bat Colony Box (1FS Universal) will be provided. This type of box is readily used for forming large colonies, by Daubenton's Bats and Brown Long-Eared Bats. Nursery roosts with between 70 and 100 animals are common. Thanks to the large interior and the integrated clinging options, for large numbers of individuals, this type of box is very attractive for forming nursery roosts and for rearing young. The box is suitable as a summer and temporary roost.

6.3 Lighting

It is noted that bat boxes will not be installed in any area where there is lighting proposed. However, the following mitigation measures will reduced lighting onsite during construction and operation.

The primary mitigation which will be implemented for this project relates to bats, as these are considered the most sensitive species in relation to night time lighting. Lighting mitigation measures will follow *Bats & Lighting Guidance Notes for: Planners, engineers, architects and developers* (Bat Conservation Ireland, 2010). The following measures will be applied in relation to construction and operational lighting:

6.3.1 Lighting during construction

Site lighting will typically be provided by tower mounted temporary portable construction floodlights. The floodlights will be cowled and angled downwards to minimise spillage to surrounding properties. The following measures will be applied in relation to site lighting:

- Lighting will be provided with the minimum luminosity sufficient for safety and security purposes.
- Lights will be switched off when not in use; and
- Lighting will be positioned and directed so that it does not to unnecessarily intrude on adjacent ecological receptors and structures used by protected species...
- Works will primarily take place during hours of daylight to minimise disturbance to any nocturnal mammal species.

6.3.2 Lighting During Operation

The lighting scheme has taken into account best practice, as published by the UK Bat Conservation Trust, in respect of mitigation strategies, to minimise the impact of outdoor lighting upon bat populations.

- LED type lanterns, of the Warm White type will be utilised where possible. Colour Temperature of 3,000 kelvin, as is considered least disruptive to the emergence of

bats from roosts at dusk, and subsequent movement from habitats to foraging locations.

- Lanterns are of the fully cut off type with no light output above the horizontal plane.
- Height of columns kept as low as possible taking cognisance of need to make lanterns vandal resistant
- Lighting will be faced away from the retained boundary habitats to minimise the impact on bats foraging along these areas. The positioning of lighting l along eastern treeline will be carried out in consultation with a supervising ecologist.
- Timers and/sensors should be used where possible.

Figure 7. Proposed bat box locations

7. Monitoring

Monitoring will be carried out post-construction works for 2 years after the demolition works. Monitoring will involve a summer survey to determine the level of bat usage of newly installed bat boxes.

Note bat boxes will be installed prior to any demolition works to ensure that bats are not to be left without a roost and must be given time to find the replacement.

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