September 2026

Derogation Licence Application – Supporting Information

Proposed Anaerobic Digester Development

Woodville, Ballymackey, Nenagh, Co. Tipperary



Client
Tipperary Milling Co.

Report Number
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Report prepared by:

Wingspan Ecology
Killincarrig, Greystones, Co. Wicklow
[redacted]
w: www.wingspan.ie

Client:

Tipperary Milling Co.

Project:

Proposed Anaerobic Digester Development at
Woodville, Ballymackey, Nenagh, Co. Tipperary

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1 Introduction

1.1 Overview

1-i Wingspan Ecology were commissioned by Tipperary Milling Co., the applicant, to carry out bat survey works in regards to a Proposed Anaerobic Digester Development at Woodville, Ballymackey, Nenagh, Co. Tipperary.

1-ii The proposed development site comprises the existing Woodville House, associated ancillary buildings and agricultural land. The site is bound to the west by the existing Woodville Pig Farm, to the north and south by agricultural land, and to the east by the Ballmackey Landfill facility.

1-iii The proposed development broadly comprises the construction of an anaerobic digester facility including the renovation of Woodville House into office accommodation and the demolition of a number of derelict outbuildings and modern extensions to Woodville House.

1-iv This report describes the baseline condition in relation to bats and details the methodologies and results of survey work undertaken. The results are then evaluated, and recommendations are made, where relevant, in order to mitigate any potential impact to bats from the proposed development. The survey scope and design have been informed by desk study and site characteristics as recorded during a preliminary site appraisal visit carried out in September 2024.

1.2 Bats in Ireland

1.2.1 Legislative Context

1-v All bat species in Ireland, and their roost sites, are protected under the following national and international legislation:

- Wildlife Act (1976) & Wildlife (Amendment) Act 2000;
- European Commission Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (Directive 92/43/EEC), i.e. the 'Habitats Directive';
- The Convention on the Conservation of European Wildlife and Natural Habitats, i.e. the 'Berne Convention'; and
- The Convention on the Conservation of Migratory Species of Wild Animals, i.e. the 'Bonn Convention'.

1-vi Under Section 23 of the above listed Wildlife Acts (1976-2000) it is offence to wilfully interfere with or destroy the breeding or resting place of any bat species. Furthermore, in view of their sensitive status across Europe, all species of bat have been listed on Annex IV of the Habitats Directive with some, such as the lesser horseshoe bat, given further protection and listed on Annex II of this Directive. This Directive was transposed into Irish law as the European Communities (Natural Habitats) Regulations, 1997 ('Habitat Regulations'), and combined with the Wildlife Acts (1976-2016), ensures that individual bats and their breeding sites and resting places are fully protected.

1-vii Under the Habitats Regulations (2011), all bat species are listed on the First Schedule and Regulation 51 makes it an offence to:

- Deliberately capture or kill a bat;
- Deliberately disturb a bat particularly during the period of breeding, hibernating or migrating;
- Damage or destroy a breeding site or resting place of a bat;
- Keep, sell, transport, exchange, offer for sale or offer for exchange any bat taken in the wild.

1-viii There is provision in Regulation 54 of the Habitats Regulations for the Minister to grant, in strictly specified circumstances, a derogation licence permitting the above listed activities "*where there is no satisfactory alternative and the derogation is not detrimental to the maintenance of the populations of the species … at a favourable conservation status*".

1.2.2 Current Status and Trends

1-ix A list of bat species known to occur in Ireland is given in Table 1-1 along with estimated population numbers and reported trends. This includes nine resident species and two vagrant species, which have only been recorded on a single or handful of occasions in Ireland.

Table 1-1. Status and distribution of bat species in Ireland.

Species	Conservation Status and Trend[a]	Estimated Population[ab]	Population Trend[ab]	Distribution[b]
Common Pipistrelle	Favourable / Improving	1,872,500 – 4,229,800	2003-2023: +139.83% 2011-2023: +117.9%	Widespread
Soprano Pipistrelle	Favourable / Improving	1,204,800 – 2,709,600	2003-2023: +278.50% 2011-2023: +221.60%	Widespread
Nathusius' Pipistrelle	Unknown	4,100 – 6,900	2006-2023: +23.50% 2011-2023: +0.41%	Recorded across most counties although at low concentrations.
Leisler's Bat	Favourable / Improving	112,800 – 202,300	2003-2023: +210.01% 2011-2023: +117.50%	Widespread
Brown Long-eared Bat	Favourable / Improving	65,200 – 102,000	2006-2023: +26.86% 2011-2023: -9.92%	Widespread
Daubenton's Bat	Favourable / Improving	55,200 – 76,500	2006-2023: -3.84% 2011-2023: -8.34%	Widespread
Whiskered Bat	Favourable / Stable	Data deficient (10,000 – 50,000)	2013-2024: Stable	Widespread although concentrated more in east and south.
Natterer's Bat	Favourable / Stable	Data deficient (10,000 – 50,000)	2013-2024: Stable	Widespread
Lesser Horseshoe Bat	Inadequate / Deteriorating	12,791	2007-2018: Decreasing	West of Ireland (Counties Mayo, Galway, Clare, Limerick, Cork & Kerry).
Greater Horseshoe Bat	n/a	n/a	n/a	Vagrant
Brandt's bat	Data deficient	n/a	n/a	Vagrant

1.3 Relevant Guidance

1-x The following guidance documents were consulted and followed in the completion of this report:

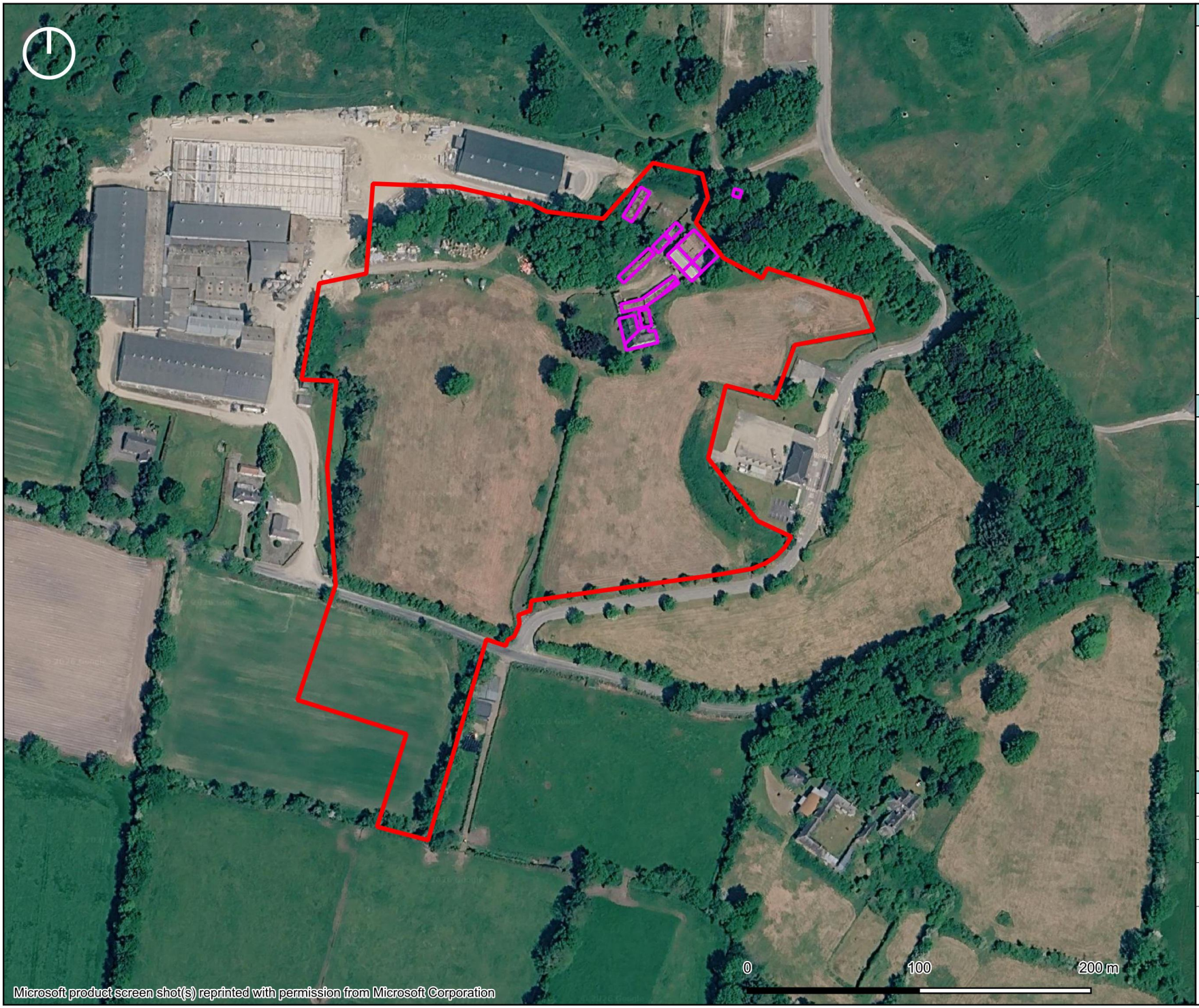
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). Bat Conservation Trust (Collins, 2023).
- Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service (Marnell *et al*., 2022)
- The status of EU protected habitats and species in Ireland. National Parks and Wildlife Service (NPWS, 2025).
- Bats and artificial lighting at night. Guidance Note GN08/23. (ILP, 2023).
- Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2005a).
- Guidelines for the Treatment of Bats During the Construction of National Road Schemes (NRA, 2005b).

1.4 Statement of Competency

1-xi This report has been prepared by Donnacha Woods (M.Sc., B.Sc.). The survey scope was designed and carried out by Donnacha Woods. Donnacha has over 10 years' experience working as an ecologist in both private consultancy and NGO sectors. Donnacha holds a B.Sc. in Zoology from University College Dublin and a M.Sc. in Biodiversity and Conservation from Trinity College. He has worked as an ecologist across a wide range of projects both in Ireland and abroad and has significant experience in designed and carrying out bat surveys, evaluating results and prescribing mitigation in relation to bats.

[a] Source: NPWS (2025).
[b] Source: Roche & Langton (2024).

Donnacha has received specialist training in bat trapping, handling and identification from Bat Conservation Ireland, and is involved in bat monitoring with local bat groups.



Legend

- Site Boundary
- Existing Buidlings

Title

Figure 1-1.
Existing layout of proposed development site.

Project

Proposed Anaerobic Digester Development, Woodville, Ballymackey, Co. Tipperary.

Client

Woodville Pig Farms Ltd.



Additional Information

Drawn by: D. Woods	**Date:** 09/07/2026
Project no.: 2619	**Projection:** IRENET95
Scale: 1:3,000 @ A4	**Imagery:** OpenStreetMaps

Notes:
Site boundaries shown are for demonstrative purposes only and do not represent exact planning or legal boundaries.

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Legend

- Site Boundary
- Existing Buidlings
- Stone Walls

Title

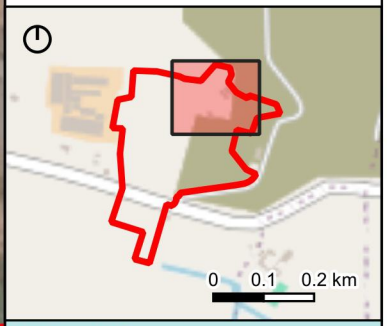
Figure 1-2.
Existing buildings within proposed development site.

Project

Proposed Anaerobic Digester Development, Woodville, Ballymackey, Co. Tipperary.

Client

Woodville Pig Farms Ltd.



Additional Information

Drawn by: D. Woods	**Date:** 09/07/2026
Project no.: 2619	**Projection:** IRENET95
Scale: 1:750 @ A4	**Imagery:** OpenStreetMaps

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2 Characteristics of the Proposed Works

2.1 Overview

2-i **Note**: This section provides a description of the proposed development. It is noted that there may be some minor alterations to the below description in the intervening period between this application for derogation licence and the lodgement of a planning application. However, the evaluation and recommendations in relation to bats contained in this report are predominantly informed by the broader site layout and proposals for existing buildings, and there is therefore very limited potential for any future minor alterations to affect conclusions of this report.

2-ii The proposed development will involve the construction and operation of an anaerobic digestion plant. The anaerobic digestion process (AD Process) will involve the acceptance of a range of process input materials including:

- 40,000 tonnes per annum of pig slurry from the adjacent farm (30% Dry Matter Content);
- 40,000 tonnes per annum of pig slurry from other pig farms local to the proposed development (30% Dry Matter Content);
- 40,000 tonnes per annum of animal by-product
- 35,000 tonnes per annum of cow slurry (25% Dry Matter Content);
- 20,000 tonnes per annum of grass by-product
- 25,000 tonnes per annum of dairy by-product (12% Dry Matter Content);
- 10,000 tonnes per annum of food waste

2-iii AD is the natural process that uses microorganisms to break down biodegradable organic material in the absence of oxygen (anaerobic). AD occurs naturally in soils and in lake and oceanic sediments, where there are anoxic (without oxygen) conditions. The AD process produces three main products liquid and fibrous digestate and biogas. Biogas is mostly composed of the gases methane (50-80%) and carbon dioxide (20-50%) (plus other contaminants like ammonia, hydrogen, hydrogen sulphides and nitrogen). Digestate is the material remaining after the AD process has taken place. The liquid digestate is separated from the fibrous digestate using a centrifuge system. The remaining liquid digestate is used as a nutrient rich fertiliser by landowners in the region, in accordance with a fertiliser plan.

2-iv In relation to the existing structures on-site described in this report, the following is proposed as part of the development:

- Woodville House – renovation for use as office space.
- Flat-roofed Extension to Woodville House – to be removed.
- Barn A – to be retained and essential structural works completed.
- Barn B – to be removed.
- Shed A – to be removed.
- Shed B – to be retained and renovated for use as storage.
- Shed C – to be removed.
- Stables A – to be removed.
- Stables B – to be removed.

2.2 Description of Development

2-v The proposed development will comprise the following primary components:

- Office;
- 2 No. Weighbridges;
- Staff / Visitor Car Parks;
- Dry Feedstock Intake Building;
- Food Waste Depackaging Plant;
- OLP Process Unit;
- Odour Control Plant;
- Pump Rooms;

- Control Room;
- Welfare Facilities;
- Gas Boiler;
- 6 No. Pre-storage Tanks;
- 6 No. Digester Tanks;
- 1 No. Slurry Tanks;
- 6 No. Multi-mix Feeders;
- 2 No. CHP Engines;
- Pellet Fertiliser Bagging Plant & Store;
- Fertiliser Process Plant;
- 2 No. Liquid Fertiliser Tanks;
- Pasteurisation Plant;
- 1 No. Digestate Pre-treat Buffer Tank;
- 1 No. Digestate Post-treat Buffer Tank;
- Gas Treatment System;
- 1 No. Gas Flare;
- 1 No. CO2 Unit;
- Gas Main Outtake;
- Wastewater Treatment System;
- Stormwater / Discharge Water Attenuation Reservoir; and
- Landscape Works.

2-vi The main office / admin building will be located in Woodville house and will be serviced by staff and visitor car parking spaces. Foul water will be sent to a wastewater treatment system in the south-west of the site.

2-vii The odour control plant will also service the waste process area, where the food waste depackaging and the OLP process take place in a building with the dimensions 30.00m × 80.00m.

2-viii Immediately to the north of these two buildings is the digester mix area, serviced by a pump room, a control room, welfare facilities and a gas boiler. A MULTIMix pre-feed system will be installed between the solids input system and the fermenter, where the substrates are mixed with recirculate. This system enables an efficient processing of fibrous, sticky and soft substrates. Thus, the bacteria in the down-stream fermentation stage are provided a homogeneous mashed bio-suspension, which will help to achieve a more complete processing of carbohydrates and proteins to biogas.

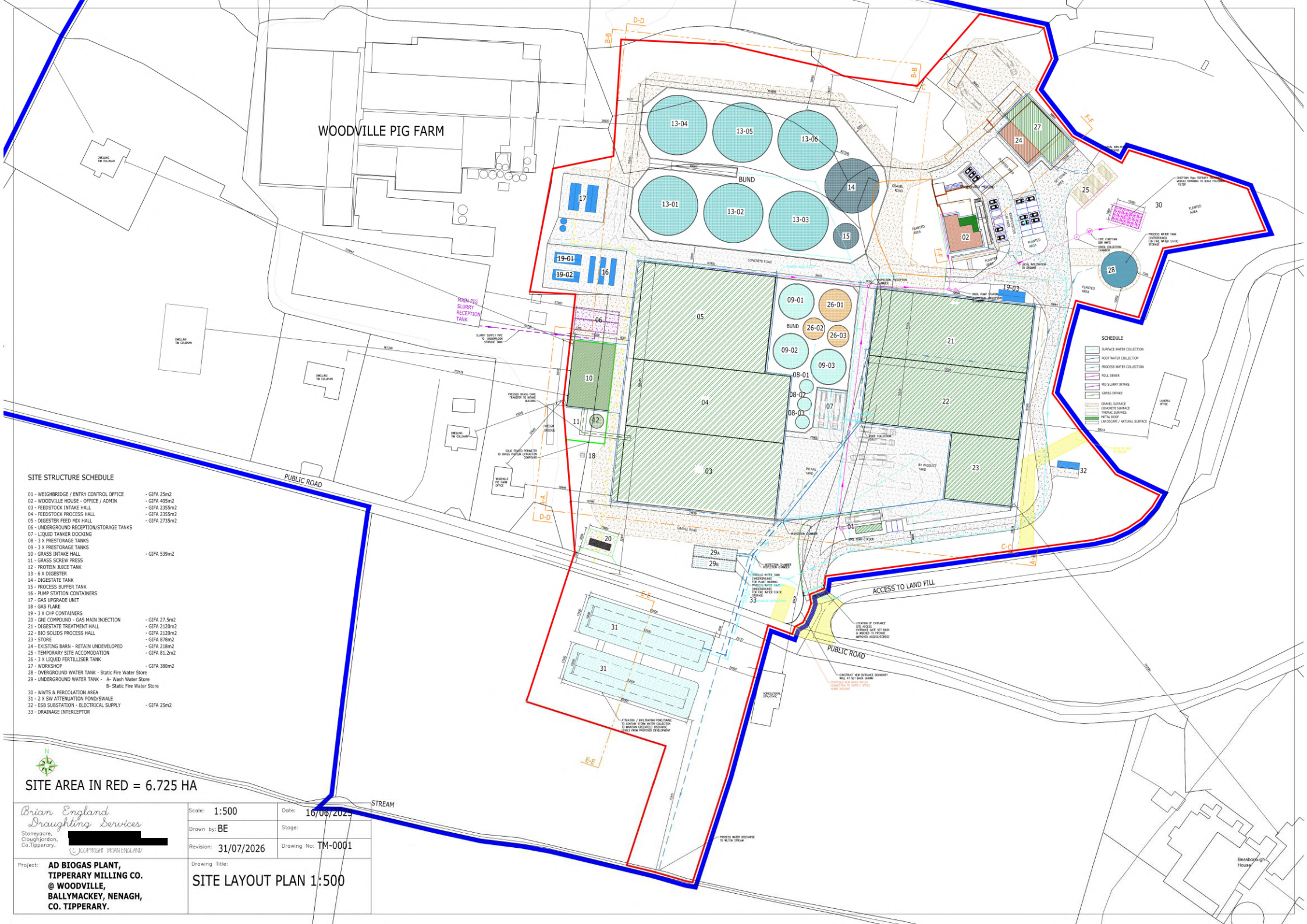
2-ix 6 no. stainless steel digester tanks will be located in the digester compound, where the production of biogas via anaerobic digestion will occur. The process will generate methane and carbon dioxide. Each digester will be 8.80m in height with a diameter of 31.48m (volume capacity of 6,188 m3) and have two long arm agitators (BioBull Mixing System). The biogas is then partially converted in the CHP to electricity and heat and the other part will be sent to be upgraded.

2-x A pasteurisation unit will be located adjacent to the digestate treatment plant. This process will ensure the neutralisation of bacteria and/or viruses that may be present in the digestate. It is estimated that approximately 200,000 tonnes of digestate will be generated every year.

2-xi The digestate will then be sent for treatment using the Blue Water Treatment System, a state-of-the-art multi-stage process that separates solid matter from water. The process is based on a first flocculation reaction via mixing of additives with the digestate. This is followed by the reduction of water content of solid substances in a process using a belt filter. The next step involves the treatment of the liquid phase in a flotation tank using fine air bubbles and the separation of solid components by a filter. The final process comprises a reverse osmosis reaction to separate dissolved salts and nutrients. This results in, approximately, 50% clear water, 25% liquid nutrient concentrate and 25% solid matter. The solids will be removed on a regular basis via trailers.

2-xii Following the digestate separation, the liquid fraction will be stored in the digestate storage tank. The storage tank will be 6.30m in height with a diameter of 37.80m. The nutrient rich concentrate will be stored in two 15,00m diameter tanks and can be used as liquid fertiliser that is easy to transport. The solid fraction can also be used as fertiliser, compost, litter or biogas substrate.

2-xiii Biogas from digester tanks will be sent to the gas compound to the north-east of the site for upgrade. In this stage, there will be removal of impurities and the biogas will be pressurised and transformed in a form suitable to be injected into the GNI gas grid. First, the biogas is pre-dried, scrubbed and desulphurised with active carbon, followed by compression to 8-15 bar. Then, CO_2 and water vapour are separated from methane by forcing the raw gas through a micro-porous membrane three consecutive times, effectively reducing methane slip. The upstream compression avoids the need to recompress upgraded methane to be sent to the grid.



SITE STRUCTURE SCHEDULE

01 - WEIGHBRIDGE / ENTRY CONTROL OFFICE	- GIFA 25m2
02 - WOODVILLE HOUSE - OFFICE / ADMIN	- GIFA 405m2
03 - FEEDSTOCK INTAKE HALL	- GIFA 2355m2
04 - FEEDSTOCK PROCESS HALL	- GIFA 2355m2
05 - DIGESTER FEED MIX HALL	- GIFA 2735m2
06 - UNDERGROUND RECEPTION/STORAGE TANKS	
07 - LIQUID TANKER DOCKING	
08 - 3 X PRESTORAGE TANKS	
09 - 3 X PRESTORAGE TANKS	
10 - GRASS INTAKE HALL	- GIFA 539m2
11 - GRASS SCREW PRESS	
12 - PROTEIN JUICE TANK	
13 - 6 X DIGESTER	
14 - DIGESTATE TANK	
15 - PROCESS BUFFER TANK	
16 - PUMP STATION CONTAINERS	
17 - GAS UPGRADE UNIT	
18 - GAS FLARE	
19 - 3 X CHP CONTAINERS	
20 - GNI COMPOUND - GAS MAIN INJECTION	- GIFA 27.5m2
21 - DIGESTATE TREATMENT HALL	- GIFA 2120m2
22 - BIO SOLIDS PROCESS HALL	- GIFA 2120m2
23 - STORE	- GIFA 878m2
24 - EXISTING BARN - RETAIN UNDEVELOPED	- GIFA 218m2
25 - TEMPORARY SITE ACCOMODATION	- GIFA 81.2m2
26 - 3 X LIQUID FERTILLISER TANK	
27 - WORKSHOP	- GIFA 380m2
28 - OVERGROUND WATER TANK - Static Fire Water Store	
29 - UNDERGROUND WATER TANK - A- Wash Water Store	
B- Static Fire Water Store	
30 - WWTS & PERCOLATION AREA	
31 - 2 X SW ATTENUATION POND/SWALE	
32 - ESB SUBSTATION - ELECTRICAL SUPPLY	- GIFA 25m2
33 - DRAINAGE INTERCEPTOR	

SITE AREA IN RED = 6.725 HA

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Drawing Title: SITE LAYOUT PLAN 1:500

3 Methodology

3.1 Desk Study

3-i A desk study was carried out in order to collate any available information on the presence of bats in the locality of the proposed development. This included reference to the following resources and publications:

- National Biodiversity Data Centre online mapping resource for records of bat observations in wider vicinity from national monitoring schemes and ad-hoc observations (NBDC, 2026);
- Information on bat species' range and distribution as provided in the most recent Article 17 reporting by the National Parks and Wildlife Service (NPWS, 2025);
- Landscape suitability index scores for bat species as formulated by Lundy *et al.* (2011) – The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats;
- Satellite imagery from various sources (e.g. Google, ESRI, Digital Globe, Bing) for landscape characterisation and identification of any potentially suitable foraging, commuting or roosting habitats for bats within proposed development site and vicinity;
- Environmental Protection Agency (EPA) mapping and datasets for location of waterbodies which may not be evident in satellite imagery; and
- Results of any previous ecological surveys for bats carried out at the proposed development site or vicinity as part of previous planning applications where available.

3-ii A full list of all the publications and information sources used in the completion of this report are present in Section 0 References.

3.2 Field Surveys

3.2.1 Roost Inspection Surveys

3-iii Detailed roost inspection surveys were carried out of the existing buildings on-site on 2nd July 2025 and 31st May 2026. The surveys were carried out in-line with the best practice methods provided in Collins (2023) and with reference to Marnell *et al.* (2022) in relation to Irish context.

3-iv A thorough inspection of both the exterior and interior[c] of the buildings was conducted during daylight hours for identification of any suitable roosting features. Any potential roost features identified were directly investigated via endoscope where possible with use of 4m ladder where required. The survey involved a search for evidence of bat presence within the buildings, including, but not limited to:

- Bat droppings;
- Fur-oil stains and scratch marks,
- Dead specimens;
- Urine splashes;
- Prey items (moth/butterfly wings etc.); and
- Audible squeaking.

3-v A dedicated inspection survey of trees within the proposed development site was carried out on 11th May 2026. Trees were searched from ground-level, using binoculars for magnification where necessary, for the presence of potential roost features (PRF). This was carried out with accordance to the methodology given in *Bat Roosts in Trees* (Bat Tree Habitat Key, 2018) and Collins (2023). Potential roost features (PRFs) were classified as either PRF-I (suitable for individual or very small numbers of bats) or PRF-M (suitable for multiple bats and may therefore be used by a maternity colony), as per Collins (2023). Where accessible, identified features were directly investigated via endoscope with use of ladder.

[c] Woodville House is in an advanced state of dereliction with evidence of interior fire damage. Several of the ceilings and stairs have collapsed, and the interior floors were deemed structurally unsound. As such, direct internal inspection was not possible. Similarly, the loft floor of Barn A has considerable water damage and was not deem structurally sound to walk on, as such inspection was carried out visually from windows into the loft spaces.

3-vi The features within the proposed development site were assessed for their suitability for bats based on Collins (2023), as provided in Appendix A.

3.2.2 Emergence Surveys

3-vii Dusk emergence surveys were carried out on the existing buildings within the proposed development site across September 2024, July 2025 and May-June 2026. The survey effort applied was determined based on the suitability of the structures for roosting bats and respective recommendations outlined in Collins (2023).

3-viii The purpose of the emergence surveys was to determine the presence of roosting bats in the structures via the direct detection of emerging bats post-sunset. The surveys focussed on potential entry/exit points identified during the roost inspection surveys. The surveys followed the best practice methods provided in Collins (2023) and with reference to Marnell *et al.* (2022) in relation to Irish context. The surveys commenced *c*.15 minutes prior to sunset and concluded *c*.1.5 – 2 hours post-sunset. Details on survey effort are provided in Table 3-2 below.

Table 3-1. Dusk emergence survey effort.

Date	Structure(s)	Sunset	Weather	Thermal Camera Locations	Static Detector Locations
10/09/2024	• Woodville House, • Stables A	19:57	Temp: 15-13°C Wind: F2 Precip: Light shower from 20:38-20:49	TC1	EMS1
02/07/2025	• Barn A, • Shed A, • Barn B	21:59	Temp: 15-12°C Wind: F1 Precip: None	TC2	EMS2
10/07/2025	• Woodville House	21:56	Temp: 19-16°C Wind: F1 Precip: None	TC3	EMS3
31/05/2026	• Barn B, • Stables B, • Shed A, • Barn A (via interior thermal cameras)	21:45	Temp: 15-13°C Wind: F3 Precip: None Cloud: 4/8	TC4 (*within Barn A northern ground-floor room*), TC5 (*within Barn A southern room*)	EMS4, EMS5
10/06/2026	• Woodville House	21:55	Temp: 14-11°C Wind: F3 W Precip: None Cloud: 8/8	TC6, TC7	EMS6, EMS7
23/06/2026	• Barn A	22:01	Temp: 21-17°C Wind: F1-0 NW Precip: None Cloud: 1/8	TC8, TC9	EMS8, EMS9

3-ix Surveys were carried out using a combination of direct observation by experienced surveyors and deployment of night vision aids (NVAs) and static bat detectors to ensure full coverage of all aspects of the subject buildings. Surveyors were equipped with handheld bat detectors and powerful torches for identification of any potential bats emerging from roost. Any bats detected emerging from the structures were recorded on field sheets and maps, as was any general bat activity in the immediate area.

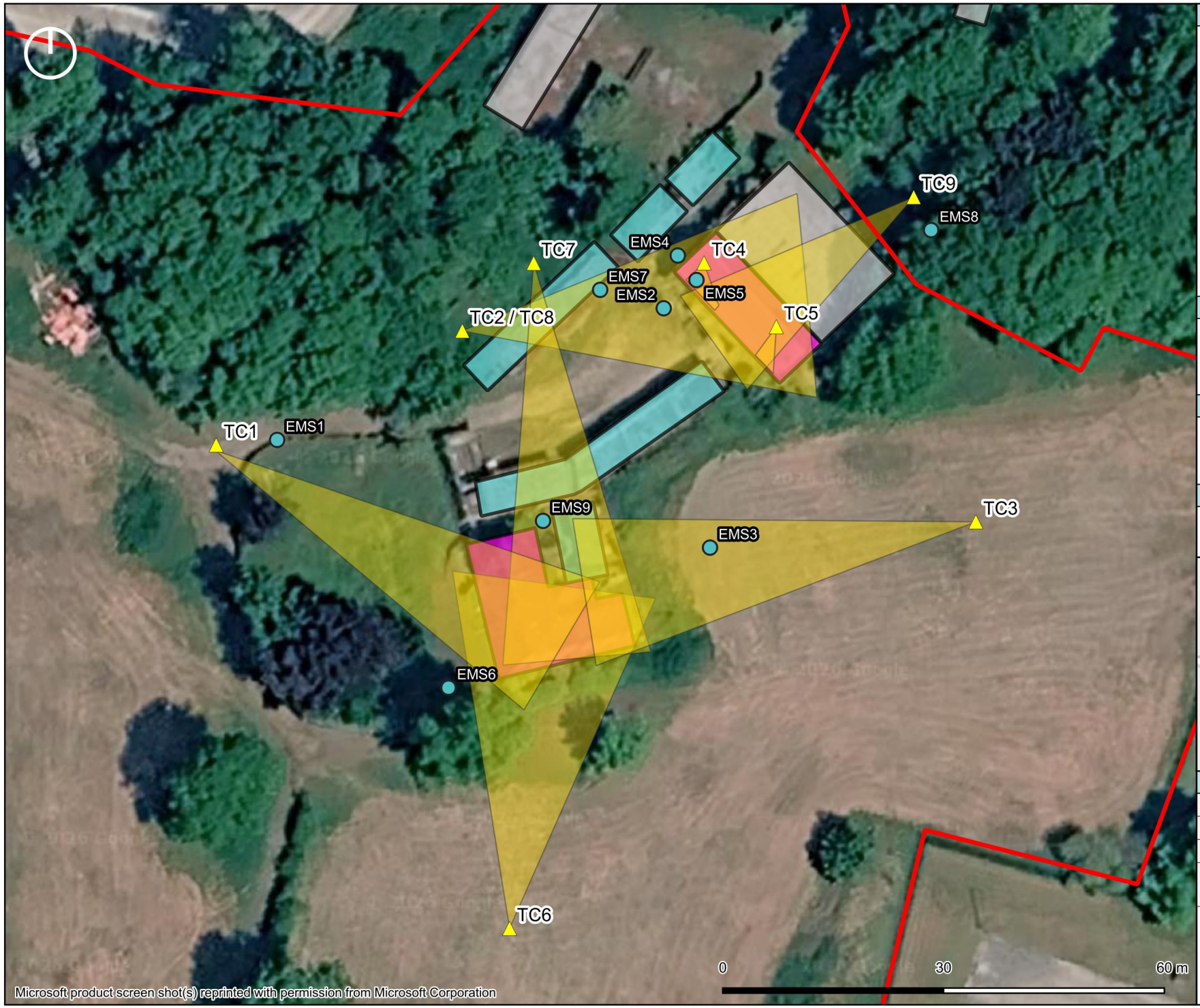
3-x High-sensitivity thermal imaging cameras[d] were utilised as part of survey work, in accordance with Fawcett Williams (2021) and as recommended by Collins (2023). Thermal imaging significantly improves the detectability of bats emerging/re-entering roost sites, as the camera is not restricted by the available visible light. Footage from cameras was reviewed in full following the survey to ensure no potential emergence was missed during the survey. Cameras were paired and time-synced with static bat detectors[e] to enable species identification of any bat activity observed from camera footage. The locations of thermal cameras and static detectors deployed during surveys are shown in Figure 3-1 overleaf, and the viewpoints of cameras deployed are presented in Plate 3-1 below.

[d] TC4, TC6 & TC8 = Pixfra Arc A613; TC1,TC2,TC3,TC5,TC7 & TC9 = Hikmicro Lynx LH15.

[e] EMS5, EMS7 & EMS8 = Wildlife Acoustics Song Meter Mini Bat 2; EMS1-4, EMS6 & EMS9 = Wildlife Acoustics Echo Meter Touch 2.



Plate 3-1. Viewpoints of thermal imaging cameras deployed during emergence surveys.



Legend

- Site Boundary
- Thermal Camera Locations
- Thermal Camera Viewsheds
- Emergence Survey Statics

Buidling Suitability

- High
- Low
- Negligible

Title

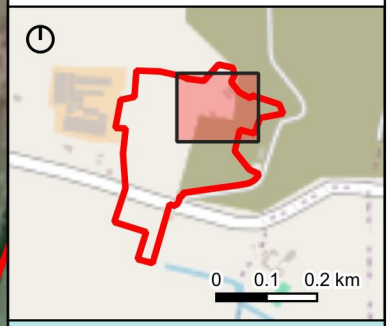
Figure 3-1.
Equipment locations during emergence surveys.

Project

Proposed Anaerobic Digester Development, Woodville, Ballymackey, Co. Tipperary.

Client

Woodville Pig Farms Ltd.



Additional Information

Drawn by: D. Woods	**Date:** 09/07/2026
Project no.: 2619	**Projection:** IRENET95
Scale: 1:700 @ A4	**Imagery:** OpenStreetMaps

Notes:
Site boundaries shown are for demonstrative purposes only and do not represent exact planning or legal boundaries.

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3.2.3 Activity Surveys

3.2.3.1 Manual Night-time Bat Walkover (NBW) Surveys

3-xi 'Night-time bat walkover' surveys are the current recommended best-practice methodology for manual activity surveys as per Collins (2023). Night-time bat walkover surveys were carried out following emergence surveys on 10th September 2024, 2nd July 2025 and 10th June 2026. The surveys were carried out following pre-determined walkover routes and continued until approximately 3-hours post-sunset. The surveys aimed to record a representative sample of bat activity at the site, including species composition, activity levels and behaviours across the various landscape features.

3-xii Surveyors were equipped with handheld bat detectors for species identification in addition to high-powered torches and thermal cameras to observe bat behaviour and flight directions. All observations were recorded including the following information where discernible: date, time, GPS coordinates, species, no. bats, no. passes, behaviour and general observation notes.

3.2.3.2 Automated Static Detector Surveys

3-xiii Automated static bat detectors (Wildlife Acoustics Song Meter Mini Bat 2) were installed at a total of 7no. locations within the proposed development site during May, June and July 2026. The details of each static detector deployment are shown in Table 3-2 below and locations are shown in Figure 3-2 overleaf.

3-xiv Detectors were programmed to be operational from 30 minutes before sunset until 30 minutes after sunrise each day. Bat Conservation Ireland (2026) provides recommended standard acoustic parameters for full-spectrum static detectors in Ireland. Static detectors installed were programmed to comply with these recommended recording settings (as provided in Appendix A).

Table 3-2. Static detector deployment details.

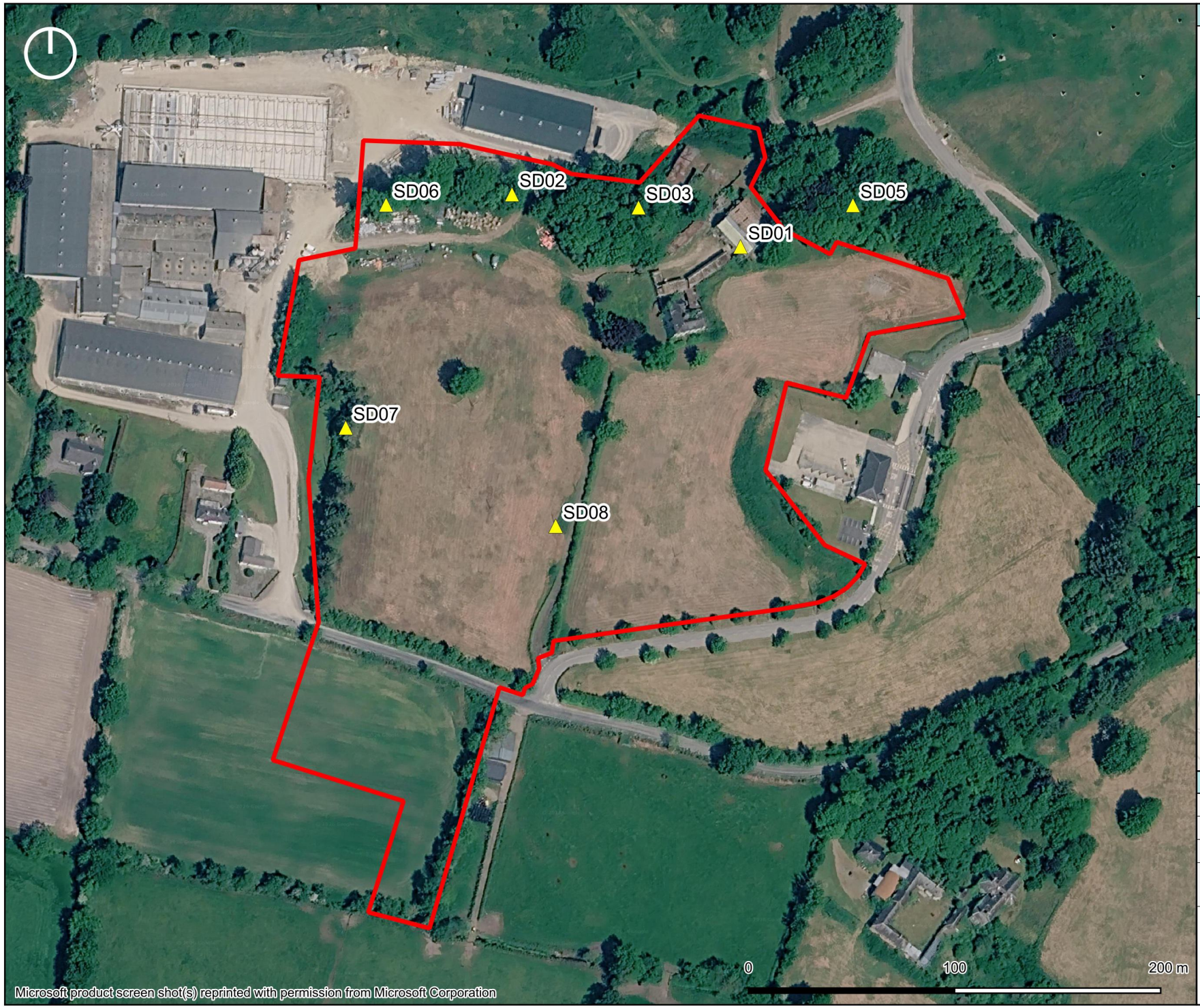
Detector ID	Deployment Date	Collection Date	No. Nights	Height	Microphone Orientation	Location
SD01	11/05/2026	15/05/2026	4	4m	NW	Within loft space of Barn A.
SD02	15/05/2026	31/05/2026	16	4m	W	Eastern end of esker ridge.
SD03	15/05/2026	31/05/2026	16	4m	WSW	Within wooded area on-site.
SD04	10/06/2026	23/06/2026	13	4m	NW	Within wooded area off-site.
SD05	10/06/2026	23/06/2026	13	4m	E	Western end of ester ridge.
SD06	05/07/2026	15/07/2026	10	2m	S	Western hedgerow.
SD07	05/07/2026	15/07/2026	10	2m	SSE	Central hedgerow.

3.3 Bat Call Analysis

3-xv All recordings from static detectors were analysed using bat call analysis software Kaleidoscope Pro v.5.9.2 (Wildlife Acoustics, MA, USA) with the aim of identifying all relevant recordings to species or genus level. All recordings were initially processed using the Auto ID function. Following this, manual validation was carried out of all recordings (including No-ID and Noise files) and at least 20% of common pipistrelle and soprano pipistrelle recordings.

3.4 Evaluation Criteria

3-xvi There are currently no standard guidelines for determining the significance of a bat roost in Ireland. It is considered that the large roosts of both lesser horseshoe bat and Leisler's bat (>100) in Ireland are of international significance (NRA, 2006). Some criteria for determining the significance of different building roosts, as determined by the Bat Expert Panel of the Heritage Council in 2003 (NRA, 2006), is provided in Appendix A and has been used to inform the evaluation of results contained in this report.



Legend

- Site Boundary
- Static Detector Locations

Title

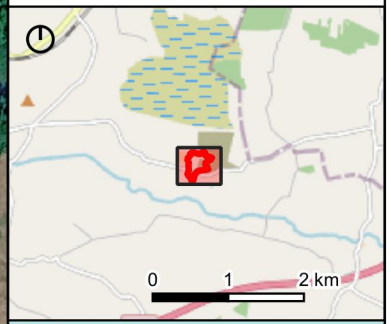
Figure 3-2.
Static detector locations.

Project

Proposed Anaerobic Digester Development, Woodville, Ballymackey, Co. Tipperary.

Client

Woodville Pig Farms Ltd.



Additional Information

Drawn by: D. Woods	**Date:** 09/07/2026
Project no.: 2619	**Projection:** IRENET95
Scale: 1:2,500 @ A4	**Imagery:** OpenStreetMaps

Notes:
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3.5 Limitations

3-xvii While the survey works detailed in this report have been undertaken in full accordance with best practice guidelines (e.g. Collins (2023) and Marnell *et al*., (2022)), informed by best available information and utilising advanced technological aids (e.g. high sensitivity thermal cameras and full-spectrum detectors), the following general limitations apply to the results outlined in this report:

- It should be noted that bats will often not emit echolocation calls when emerging from roost and will therefore not be picked up on bat detectors during the initial emergence flight. In addition, some species can emerge after last light in full darkness. As such, there is potential for some bat emergence to go unrecorded during surveys. However, specific measures have been taken to reduce this potential for emergence flights to be missed:
  - Surveyors were equipped with high-powered torches and focused on specific locations of the subject building, remaining strictly attentive throughout the survey duration.
  - Thermal imaging cameras, which can successfully detect bats emerging from roost at night, were also used during surveys. This footage was reviewed following the surveys in order to maximise detection of any potential bat emergence.

  However, while all measures have been taken to achieve full detection, the number of bats observed as outlined in the results of this report should be taken as a minimum number.
- Calls identified as belonging to species of the genus *Myotis* were recorded on static detectors. Species of the genus *Myotis* which have been recorded in Ireland comprise: Daubenton's bat (*Myotis daubentonii*), whiskered bat (*Myotis mystacinus*), Natterer's bat (*Myotis nattereri*) and Brandt's bat (*Myotis brandtii*) (vagrant). These species tend to exhibit similar call sonograms, which are often very difficult to differentiate with any accuracy. For this reason, these species are typically assigned to genus level only.
- The echolocation calls of brown long-eared bats (*Plecotus auritus*) are significantly quieter than other species and can therefore fail to register with detectors or be drowned-out by louder calls from species also present in the vicinity. As such, the number of observations of brown long-eared bat recorded by detectors as outlined in this report is very likely an underestimation of the activity level of this species. In so far as possible this inherent underrepresentation has been accounted for in the results evaluation.
- Static detectors deployed at the proposed development site were operational at varying times between May – July 2026. Results cannot therefore be directly compared, as weather conditions and other factors can vary between operational periods. However, it is noted that all operation periods were generally characterised by fine weather conditions and occurred during period prior to active flight of juvenile bats (typically from late July). The per night activity levels were also corrected to take account of varying night lengths. Based on the above, comparisons on activity levels and associated importance of landscape features are considered accurate as a broad-level assessment and taking into account results of manual surveys and ecology of relevant bat species.

4 Results

4.1 Desk Study

4.1.1 Synopsis

4-i As per Article 17 reporting on bat distributions and ranges in Ireland, the proposed development site lies within the known current range of the following 6no. species listed below. Species for which there are records from the National Biodiversity Data Centre for the 2km grid squares encompassing the proposed development site (R98R & R98Q) are underlined and the habitat suitability index scores per species (score of 0-100), as per Lundy *et al*. (2011), are shown in brackets:

- Common pipistrelle (39);
- Soprano pipistrelle (33);
- Natterer's bat (36);
- Daubenton's bat (24);
- Brown long-eared bat (33); and
- Leisler's bat (32).

4.1.2 Previous Assessments to Inform Planning Applications

4-ii A desktop search was completed for any recent previous assessments undertaken at the proposed development site or adjacent sites available in the public domain. No such relevant assessments were identified.

4.2 Field Survey Results

4.2.1 Roost Inspection Survey Results

4.2.1.1 Buildings

4-iii The proposed development site encompasses a complex of buildings, comprising Woodville House and various associated outbuildings. These are labelled as follows:

- Woodville House;
- Flat-roofed Extension to Woodville House;
- Barn A;
- Barn B;
- Shed A;
- Shed B;
- Shed C;
- Stables A; and
- Stables B.

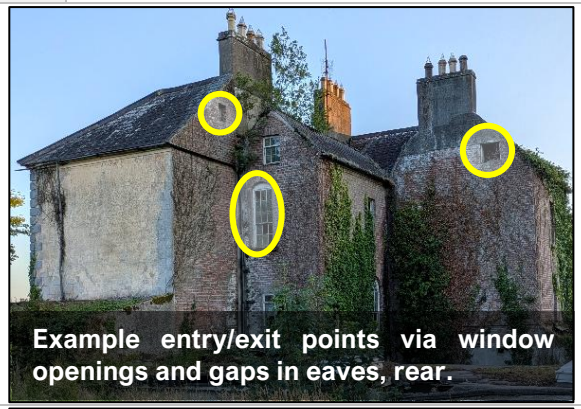
4-iv The results of the roost inspection surveys of these structures are provided in Tables 4-1 to 4-8 below.

Table 4-1. Roost Inspection Survey Results – Woodville House.

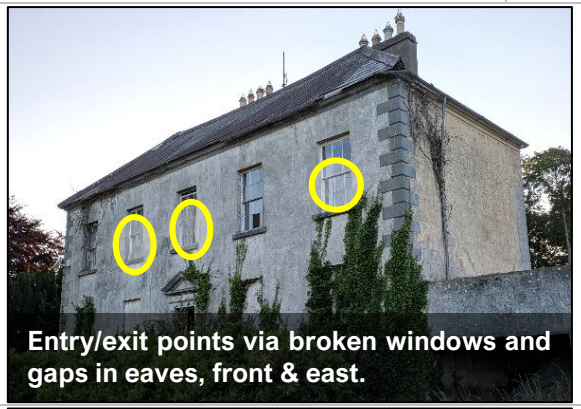
Structure Name	**Woodville House**
Suitability	*High* (Collins, 2023)
Evidence of Bats	**Yes**
Summary of Findings	Woodville House is a two-storey over basement five-bay house built *c.*1780. The building is in an advanced state of dereliction. Small numbers of bat droppings were noted immediately inside the main door of the building, on the floors and walls of the entry hall. These likely relate to foraging bats within the sheltered area of the entrance hall. The droppings were considered to be consistent with **pipistrelle**-type droppings in terms of shape and size. The front and side elevations are smooth-rendered, with the rear elevations comprising exposed brick. The roof is natural slate, and windows are original timber framed sash. There are numerous potential entry/exit points for bats, including broken windows, open doorways, gaps in eaves and missing slates, and there are numerous suitable roosting features within the building, including the attic space and abundance of other cavities created as a result of ongoing dereliction, e.g. exposed laths in damaged walls and ceilings and gaps in timber-framed windows and shutter boxes.



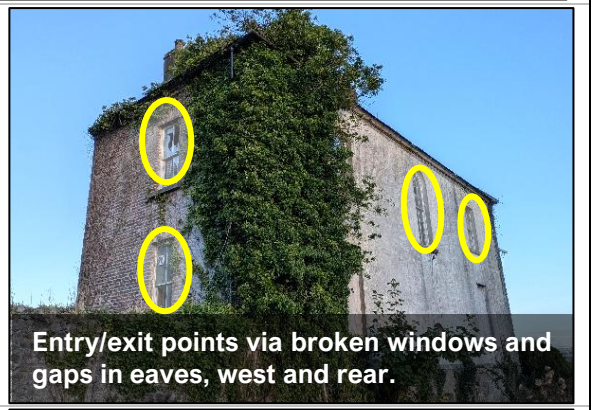
Features



Example entry/exit points via window openings and gaps in eaves, rear.



Entry/exit points via broken windows and gaps in eaves, front & east.



Entry/exit points via broken windows and gaps in eaves, west and rear.

Additional Photos



Interior at entrance hallway. Bat droppings found on floor and walls.



Interior at rear entrance. Floors collapsed.



Modern flat-roofed extension to rear, ceiling now collapsed.

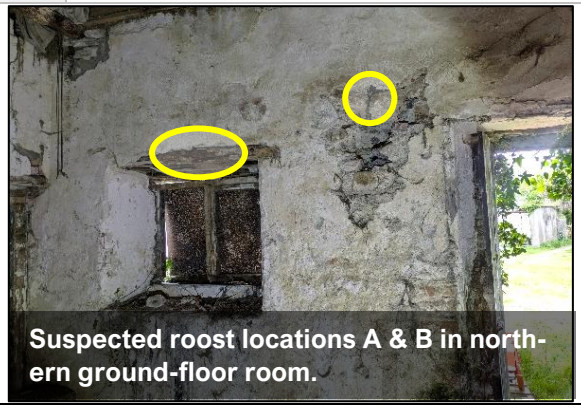
Table 4-2. Roost Inspection Survey Results – Barn A.

Structure Name	**Barn A**
Suitability	*High* (Collins, 2023)
Evidence of Bats	**Yes**
Summary of Findings	Barn A is stone-built outbuilding situated north-east of Woodville House. The roof comprises corrugated metal sheeting with roofing felt. The building is divided into three, with the northern section comprising approximately half of the structure. There is a loft level across the northern and central sections of the building, with the southern section going to full roof height. **Bat droppings were recorded throughout the building**. There are numerous large openings for potential bat entry/exit, including open doorways, loft windows and an opening in the roof on rear side where sheeting has failed. There are also a large number of suitable roosting crevices for bats. The central ground-floor, and southern section to roof height are smooth rendered, however crevices are present in alcoves for missing floor joists and in stonework above lintels. The walls of the northern-most section ground-floor, in addition to the two loft areas, are exposed stonework and contain a large number of suitable crevices, in addition to cavities above and within window lintel timbers. The roofing felt has peeled back in numerous places and also offers roosting opportunities for bats. Bat droppings found were scattered on walls and floors throughout the building, much of which likely relate to foraging bats the open sections harbouring insect on-the-wing above discarded hay and other detritus. However large concentrations of bat droppings were recorded in three locations: • A – on window sill under window lintel in northern ground-floor room. • B – on floor under crevice in wall in northern ground-floor room. Stone at crevice entrance also noted to have staining marks and droppings at crevice entrance. • C – on floor under crevice in door lintel of southern room. Droppings also at crevice entrance. Droppings from these three suspected roost locations were collected and sent for DNA testing. The results positively identified one species – **Natterer's bat** (results provided in Appendix B). Droppings were also noted stuck high on end walls in the southern room, in addition to a total of 3no. old bat carcasses found among debris on the floor of this section. Examination of these carcasses indicated **brown long-eared bat**.





Features



Suspected roost locations A & B in northern ground-floor room.



Suspected roost location C in southern room in crevice above door lintel.



Droppings recorded on windowsill under roost location A.

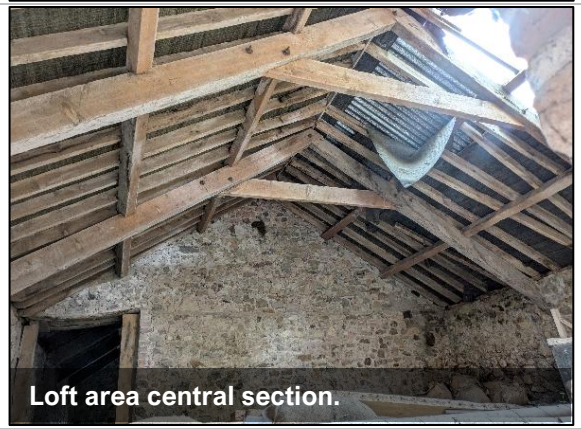
Additional Photos


Droppings recorded on floor under roost location B.

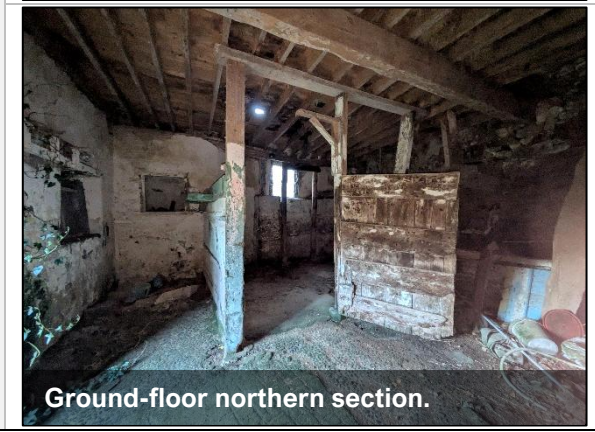

Droppings recorded on old door under roost location C.


Brown long-eared bat carcass in southern section.


Loft area northern section.


Loft area central section.


Roof space southern section (no loft).


Ground-floor northern section.


Ground-floor central section (used for machinery storage).

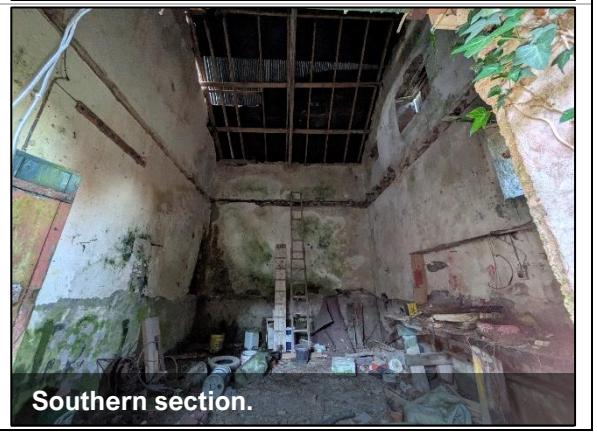

Southern section.

Table 4-3. Roost Inspection Survey Results – Stable A.

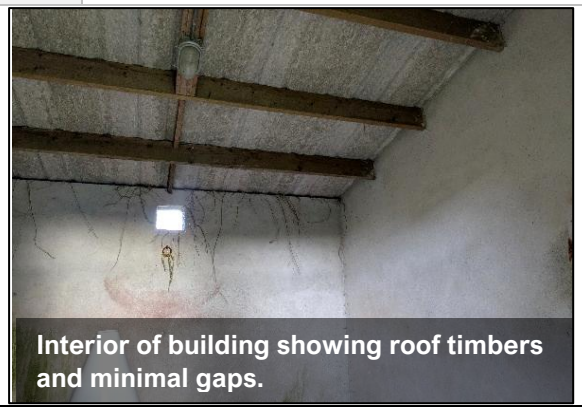
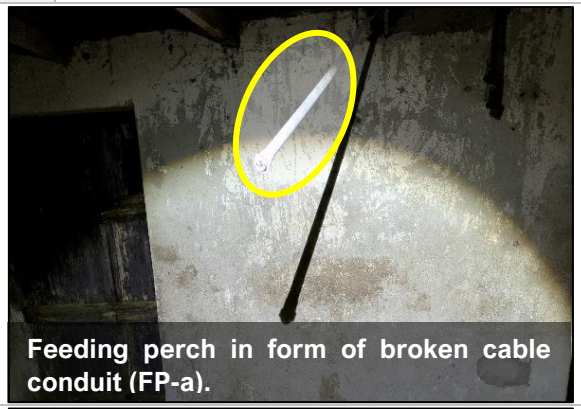
Structure Name	**Stables A**	
Suitability	*Low* (Collins, 2023)	
Evidence of Bats	No	
Summary of Findings	This building is situated directly to the rear of Woodville House and comprises a row of stables. This building is of modern construction comprising smooth rendered concrete block walls and corrugated metal roof with no attic space. The render is in good condition throughout the building and, as such, there are no suitable crevices for bats associated with the walls of the structure. The building is formed by a series of individual stable rooms. The only potential roosting habitat within the building comprises gaps between roof timbers and grooves in the roof material. No bats were recorded within the building and no evidence of use by bats. This building is assigned *Low* suitability for roosting bats.	
Features	 Interior of building showing roof timbers and minimal gaps.	 

Table 4-4. Roost Inspection Survey Results – Stables B.

Structure Name	**Stables B**
Suitability	*Low* (Collins, 2023)
Evidence of Bats	**Yes**
Summary of Findings	Similar to Stables A, this building is of modern construction comprising smooth rendered concrete block walls and corrugated metal roof. There is no attic space and minimal crevices present within the structure. However, in contrast to Stables A, this buildings has roofing membrane between rafters and metal sheeting. This has peeled away in places and offers some potential roosting habitat for bats. There is some roof collapse in places. The building is mostly one connected space with low interior separating walls. A small collection of bat droppings were recorded at two locations within the building. These were situated under two assumed feeding perches in the form of cable conduits which have come loose from wall/rafters. No evidence of the building being used as a roost itself were recorded and these perches are deemed to likely be from bat roosts present in Barn A. The building is assigned *Low* suitability for roosting bats.



Features



Feeding perch in form of broken cable conduit (FP-a).



Feeding perch in form of sagging cable conduit (FP-b).



Droppings under perch.

Additional Photos







Table 4-5. Roost Inspection Survey Results – Barn B.

Structure Name	**Barn B**
Suitability	*Low* (Collins, 2023)
Evidence of Bats	No
Summary of Findings	Barn B comprises a small stone-built outbuilding. The building in entirely smooth-rendered on the exterior and interior. The render is in overall good condition and there are no suitable crevices for bats associated with the walls of the structure. The roof is formed by corrugated metal sheeting with no roofing membrane. There is a loft space reached via a door at ground level at the rear. There are several large openings in the roof formed by where skylights would have originally been present which reduces the shelter and temperature stability of this space. The loft space has also become somewhat overgrown with bramble/ivy including along ridge beam, reducing suitability of roof timbers as roosting habitat. The loft floor was not deemed structurally sound No dropping of evidence of bat presence was recorded in this structure. This building is assigned *Low* suitability for roosting bats.

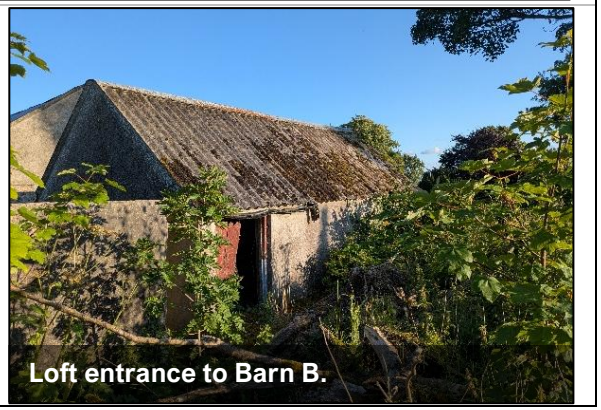


Features



Interior of loft space showing large openings and lack of roof felt.





Loft entrance to Barn B.

Table 4-6. Roost Inspection Survey Results – Shed A.

Structure Name	**Shed A**
Suitability	*Low* (Collins, 2023)
Evidence of Bats	No
Summary of Findings	Shed A adjoins Barn B and comprises a small flat-roofed outbuilding. The interior and exterior walls are smooth-rendered with no suitable crevices identified. The roof is formed by corrugated metal sheeting with no roofing membrane. The only features within the structure with potential for roosting bats are the roof timbers. However, the roof and eastern end wall have partially collapsed, and the interior therefore offers limited shelter and temperature stability. No dropping of evidence of bat presence was recorded in this structure. This building is assigned *Low* suitability for roosting bats.



Additional Photos







Table 4-7. Roost Inspection Survey Results – Shed B.

Structure Name	**Shed B**
Suitability	*Negligible* (Collins, 2023)
Evidence of Bats	No
Summary of Findings	Shed B is situated directly to the rear of Barn A and comprises an open hay shed with corrugated metal roof and metal supporting structure. There are limited to no potential features for roosting bats within this structure. No dropping of evidence of bat presence was recorded in this structure. This building is assigned *Negligible* suitability for roosting bats.



Table 4-8. Roost Inspection Survey Results – Shed C.

Structure Name	**Shed C**
Suitability	*Negligible* (Collins, 2023)
Evidence of Bats	No
Summary of Findings	Shed C is situated north of the other outbuildings and comprises an open hay shed with corrugated metal roof and metal supporting structure. There are limited to no potential features for roosting bats within this structure. No dropping of evidence of bat presence was recorded in this structure. This building is assigned *Negligible* suitability for roosting bats.



4-v Shed D lies outside of the proposed development site and comprises a small flat-roofed shed with large front opening, corrugated metal roof and is significantly overgrown with bramble and ivy. No dropping of evidence of bat presence was recorded in this structure. This building is as-signed *Low* suitability for roosting bats.

4.2.1.2 Stone Walls

4-vi There are numerous stone walls throughout the proposed development site. Suitable crevices were examined via endoscope in these walls during roost inspection survey on 15th May 2026. No bats or evidence of presence was recorded in any crevice. The locations of these walls are shown in Figure 1-2 further above.



Plate 4-1. Stone walls present within proposed development site.

4.2.1.3 Trees

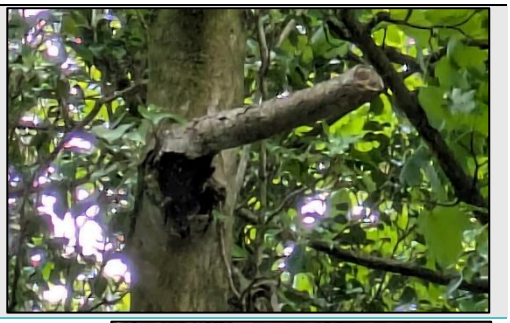
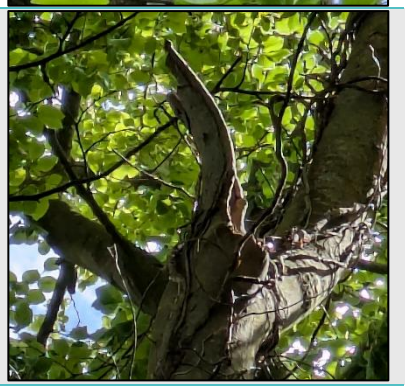
4-vii The proposed development site contains a range of mature trees. These are largely associated with an area of woodland and adjoining esker ridge which forms the northern boundary of the proposed development site, in addition to linear field boundaries along the western edge and through the centre of the site. There are additional mature trees scattered within the agricultural fields and in the vicinity of Woodville House.

4-viii It is noted that the majority of mature trees within the proposed development site (particularly in wooded area and along esker ridge) have thick ivy growth, which limits the potential for identification of potential roost features (PRFs). However, thick overlapping ivy stems can themselves form roosting features for individual or small numbers of bats. There are two lime trees situated in the western half of the agricultural land within the proposed development site. Both these trees have dense lower truck growth preventing ground-level inspection.

4-ix A number of PRFs were observed on trees within the woodland strip in the north of the proposed development site and within trees along the esker ridge. These identified PRFs are detailed in Table 4-9 and locations shown in Figure 4-1 further below.

Table 4-9. Potential roost features recorded on trees during roost inspection survey.

PRF ID	Description	Tree Species	Suitability	Photo
PRF01	Knot-hole	Sycamore	PRF-I	
PRF02	Peeling bark	Ash	PRF-I	
PRF03	Peeling bark	Sycamore	PRF-I	
PRF04	Knot-hole	Beech	PRF-I	

PRF ID	Description	Tree Species	Suitability	Photo
PRF05	Peeling bark at branch break	Ash	PRF-I	
PRF06	Woodpecker hole on dead limb	Holly	PRF-M	
PRF07	Large tree with dense ivy growth. Peeling-bark	Sycamore	PRF-I	
PRF08	Knot-hole	Sycamore (as above)	PRF-I	
PRF09	Broken limb, exposed bark	Beech	PRF-I	

PRF ID	Description	Tree Species	Suitability	Photo
PRF10	Peeling bark	Sycamore	PRF-I	
PRF11 & PRF 12	Knot hole and peeling bark	Lime	PRF-I	
PRF13	Damaged limb	Lime	PRF-I	



Legend

- Site Boundary
- PRFs

Title

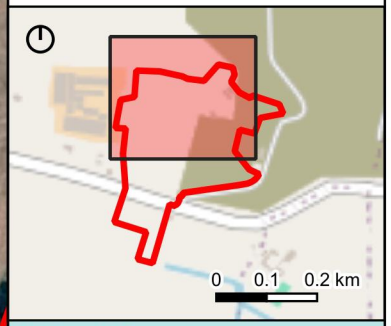
Figure 4-1.
Location of PRFs identified on trees within proposed development site.

Project

Proposed Anaerobic Digester Development, Woodville, Ballymackey, Co. Tipperary.

Client

Woodville Pig Farms Ltd.



Additional Information

Drawn by: D. Woods	**Date:** 09/07/2026
Project no.: 2619	**Projection:** IRENET95
Scale: 1:1,250 @ A4	**Imagery:** OpenStreetMaps

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4.2.1 Emergence Survey Results

4-x Results from emergence surveys are provided in Table 4-10 below.

Table 4-10. Emergence survey results.

Date	Focus Structure(s)	Description of Observations	Minimum no. of bats recorded emerging
10/09/2024	Woodville House, Stables A	There were no direct emergences confirmed during the survey. At approximately 19-minutes post-sunset a common pipistrelle was recorded likely emerging from the eastern aspect of the house. A review of thermal camera footage revealed the bat emerging from the 1st floor northern-most window frame (ref: CP01). Additional bat flights were recorded from coming up over Woodville House from the west, however these could not be confirmed as bats emerging from the structure. Other activity recorded during the emergence survey comprised common pipistrelle, soprano pipistrelle, Leisler's bat and occasional *Myotis* spp. foraging and travelling in the wider vicinity of Woodville House.	**Woodville House** **1no.** common pipistrelle **Stables A** None
02/07/2025	Barn A, Shed A, Barn B	The first notable observation comprised a soprano pipistrelle emerging from the northern gable end loft window of Barn A at approximately 31-minustes post-sunset (ref: SP01). A minimum of three soprano pipistrelle were subsequently observed flying in/out of openings in the building and foraging within the ground-floor spaces. A brief internal check for warm-up flights recorded brown-long eared bats in flight within the loft space and ground floor spaces. These were visually confirmed to be brown long-eared bats, as no echolocation calls were detected. The number of bats could not be accurately determined, although a minimum of 5no. individual bats were observed, including a bat flying between perches along the ridge beam within roof space of southern end of building (ref. BLE01). Activity of approximately 3-4 soprano pipistrelle bats was also recorded flying within the northern end loft space. It is considered likely soprano pipistrelle roost within the loft of Barn A. During this internal check, audible squeaks were heard from within the northern ground-floor room of Barn A. A brief inspection revealed bats roosting within a crevice above the lintel of interior window on western elevation (location 'A' as identified during roost inspection survey). To avoid disturbance this feature was not further examined once live bats were detected. As such, exact species or number could not be confirmed, although it is considered from brief views that these numbered minimum 5 – 10 individuals. In order to allow identification to species level and to avoid any disturbance, droppings were collected from roost entrance on a subsequent date and sent for DNA analysis. As detailed in the roost inspection survey results, this analysis positively identified one species – Natterer's bat. Owing to audible squeaks coming from this location >1-hour post-sunset, when adult bats were active, it is considered likely that these were well-developed Natterer's bat pups from maternity roost.	**Barn A** **3-4no.** soprano pipistrelle **5no.** brown long-eared bat **5-10no.** Natterer's bat[f] (5 – 10no. pups in nursery roost) **Shed A** None **Barn B** None
10/07/2025	Woodville House	This first notable observation comprised a common pipistrelle potentially emerging from the eaves at eastern end of front elevation of Woodville House at approximately 30-minustes post-sunset (ref: CP02). At approximately 38-minutes post-sunset two common pipistrelle bats were observed to have potentially from the eaves of eastern elevation of Woodville House, however a review of thermal camera footage revealed these bats did not emerge from the structure. The remaining observations comprised common and soprano pipistrelle bats foraging in the vicinity and Leisler's bat recorded foraging over adjacent agricultural land and woodland. Brown long-eared bat activity was also recorded in the vicinity of Barn A from >50 -minutes post-sunset.	**Woodville House** **1no.** common pipistrelle
31/05/2026	Barn B, Stables B,	The first observation comprised a Leisler's bat recorded travelling over Barn B / Shed A from the north at 4-minutes post-sunset. At 16-minutes post-sunset a soprano pipistrelle was recorded travelling north along front of Stables B. At 20-	**Barn B, Stables B, Shed A** None

[f] *Myotis* spp. assumed to be Natterer's bat based on results of DNA analysis from droppings taken from 3no. roost entrances in Barn A.

Date	Focus Structure(s)	Description of Observations	Minimum no. of bats recorded emerging
	Shed A Barn A (*via internal thermal cameras*)	minutes post-sunset a minimum of two soprano pipistrelle were recorded foraging in courtyard area. From this point ongoing soprano pipistrelle activity was recorded in vicinity of courtyard, including bats observed entering Barn A through northern loft window. At 23-minutes post-sunset a common pipistrelle was observed likely emerging from northern loft window of Barn A and travelling over Barn B (ref: CP03). Further records comprised general activity of common pipistrelle, soprano pipistrelle and Leisler's bat in the general vicinity. *Myotis* spp. activity was recorded in courtyard at 70-minutes post-sunset. An internal check for brown long-eared bat warm-up flights was carried out within Barn A, Barn B, Stables B and Shed A at approximately 40-minutes post-sunset. A minimum of 5no. brown long-eared bats were recorded in Barn A in warm-up flights across the three sections of the building. Thermal cameras positioned within Barn A facing identified roost locations A, B & C (see Roost Inspection Survey Results), and paired with time-synced static detector, confirmed 7no. *Myotis* spp. bats emerging from crevice above interior window lintel timber, between 64-minutes and 77-minutes post-sunset. The cameras also recorded additional bat flights within the camera viewpoints, corresponding with *Myotis* spp. recordings on detectors, at 27-minutes, 34-minutes, 38-minutes, 41-minutes, 42-minutes, 44-minutes, 46-minutes and 50-minutes post-sunset. Based on these observations it is likely that there is an additional roosting location within the building, considered likely to be within the loft space which was not accessible for direct inspection. There were no flights within the camera viewpoints corresponding to common pipistrelle or soprano pipistrelle. However, the detector within the building recorded a number of pipistrelle (predominantly soprano) calls from 19-minutes post-sunset. The majority of these likely relate to foraging bats which were seen to routinely fly into the building and forage above detritus during previous surveys. No bat emergence flights were recorded from Barn B, Stables B or Shed A during the survey.	***Barn A*** **>7no.** Natterer's bat **1no.** common pipistrelle **5no.** brown long-eared bat
10/06/2026	Woodville House	The first observation comprised a common pipistrelle emerging from the rear of Woodville House at 8-minutes post-sunset (ref: CP03), from hip-join of roof between two sections. At 13-minutes post-sunset 1no. common pipistrelle was recorded emerging from 2nd-storey window at front of Woodville House (ref: CP04). A second common pipistrelle was recorded likely emerging from this location at 24-minutes post sunset (ref: CP05). At 35-minutes post-sunset as single common pipistrelle was recorded emerging from under eaves at front of Woodville House (CP06). Other activity recorded during emergence survey comprised common pipistrelle, soprano pipistrelle and Leisler's bat foraging activity in the general vicinity. There were also two records of *Myotis* spp. at 70-minutes and 76-minutes post-sunset, assuming to relate to Natterer's bats post-emergence from Barn A.	**Woodville House** **4-5no.** common pipistrelle
23/06/2026	Barn A	The first observation comprised a soprano pipistrelle emerging from Barn A through gap in boarded-up ground floor gable-end window at 34-minutes post-sunset. At 37-minutes post-sunset a soprano pipistrelle was recorded emerging from gable-end loft window. A further soprano pipistrelle was recorded emerging through the ground-floor open door of northern room at 41-minutes post-sunset. At 44-minutes post-sunset two bats were recorded entering Barn A through the gable-end open loft window in quick succession. These flights corresponded to *Myotis* spp. on the time-synced detector. These are considered likely to have emerged and re-entered roost. At 48-minutes post-sunset a *Myotis* spp. was recorded emerging via large central door opening. As in previous surveys, an internal check for warm-up flights recorded an estimated 4-5no. brown long-eared bats within the various spaces of Barn A. Other activity recorded during emergence survey comprised common pipistrelle, soprano pipistrelle and Leisler's bat foraging activity in the general vicinity.	**Barn A** **3no.** soprano pipistrelle **4-5no.** brown long-eared bat **3no.** Natterer's bat

4.2.2 Activity Survey Results

4.2.2.1 Manual Night-time Bat Walkover (NBW) Surveys

4-xi During the manual activity surveys high levels of bat activity was recorded in the woodland north of Woodville House. A minimum of 6no. individual bats were observed foraging within the woodland via thermal camera during survey on 10th September 2024, with similar levels of activity recorded during surveys in July 2025. This is likely a considerable underestimate of the total number of bats active in the vicinity. Species recorded in this area comprised common pipistrelle, soprano pipistrelle, Leisler's bat, *Myotis* spp. and brown long-eared bat. The vast majority of observations comprised pipistrelle bats, with Leisler's and *Myotis* spp. recorded in lower levels and a small handful of brown long-eared bat recordings. However, it is possible that brown long-eared bat activity could have been considerably under-recorded, as the quiet echolocation calls of this species would have been drowned out by the persistent louder pipistrelle echolocation calls.

4-xii Across the remainder of the proposed development site activity was largely correlated with linear features, with moderate levels of activity recorded comprising common pipistrelle, soprano pipistrelle, Leisler's bat and to a lesser degree *Myotis* species.

4.2.2.2 Automated Static Detector Surveys

4-xiii A total of 28,567no. observations were recorded from the 7no. static bat detectors installed during May-July 2026, with positive identification of 6no. species: common pipistrelle, soprano pipistrelle, Nathusius' pipistrelle, Leisler's bat, *Myotis* spp. and brown long-eared bat. The number of observations recorded per detector per species is provided in Table 4-11 and illustrated in Figures 4-2 and 4-3 below.

Table 4-11. Total number of bat passes recorded per species from each static detector.

Detector ID	Common Pipistrelle	Soprano Pipistrelle	Nathusius' Pipistrelle	Leisler's Bat	*Myotis* spp.	Brown Long-eared Bat	No. of Nights Recording
SD01	44	72	0	12	293	44	**4**
SD02	10,181	857	30	607	15	4	**16**
SD03	1,220	1,158	22	137	220	16	**16**
SD04	1,043	998	1	89	118	58	**13**
SD05	3,686	364	11	353	1	0	**13**
SD06	3,377	1,412	65	322	23	10	**10**
SD07	622	517	1	515	33	16	**10**

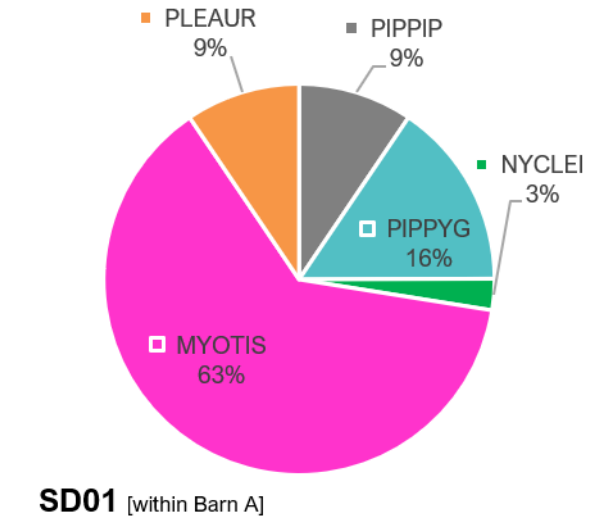


Figure 4-2. Species composition recorded from static detector deployed within loft of Barn A (SD01).
= Common Pipistrelle (PIPPIP), = Soprano Pipistrelle (PIPPYG), = Leisler's Bat (NYCLEI), = *Myotis* spp. (MYOTIS), = Brown Long-eared Bat (PLEAUR).

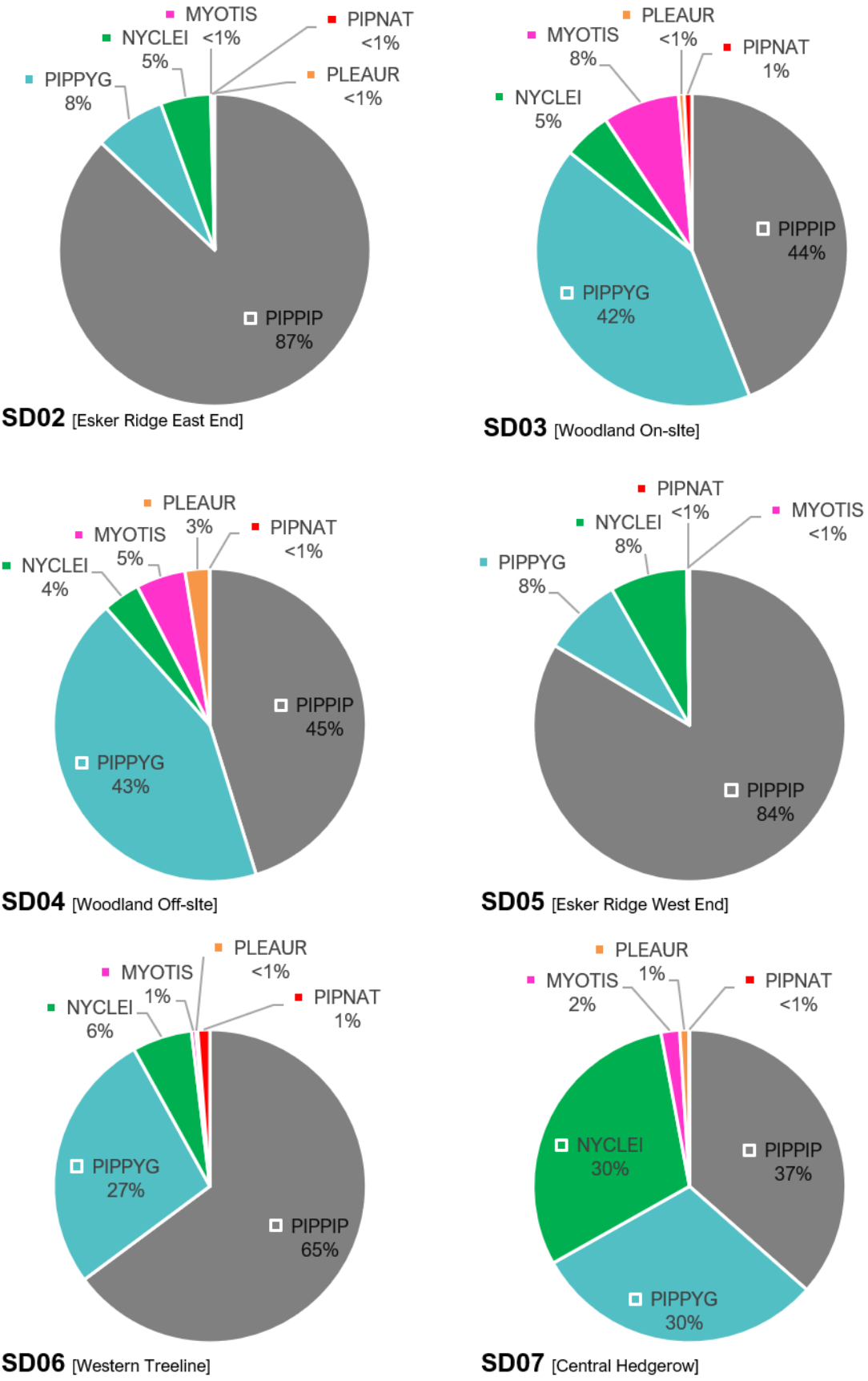


Figure 4-3. Species composition per static detector deployment, SD02 – SD07.
= Common Pipistrelle (PIPPIP), = Soprano Pipistrelle (PIPPYG), = Nathusius' Pipistrelle (PIPNAT), = Leisler's Bat (NYCLEI), = *Myotis* spp. (MYOTIS), = Brown Long-eared Bat (PLEAUR).

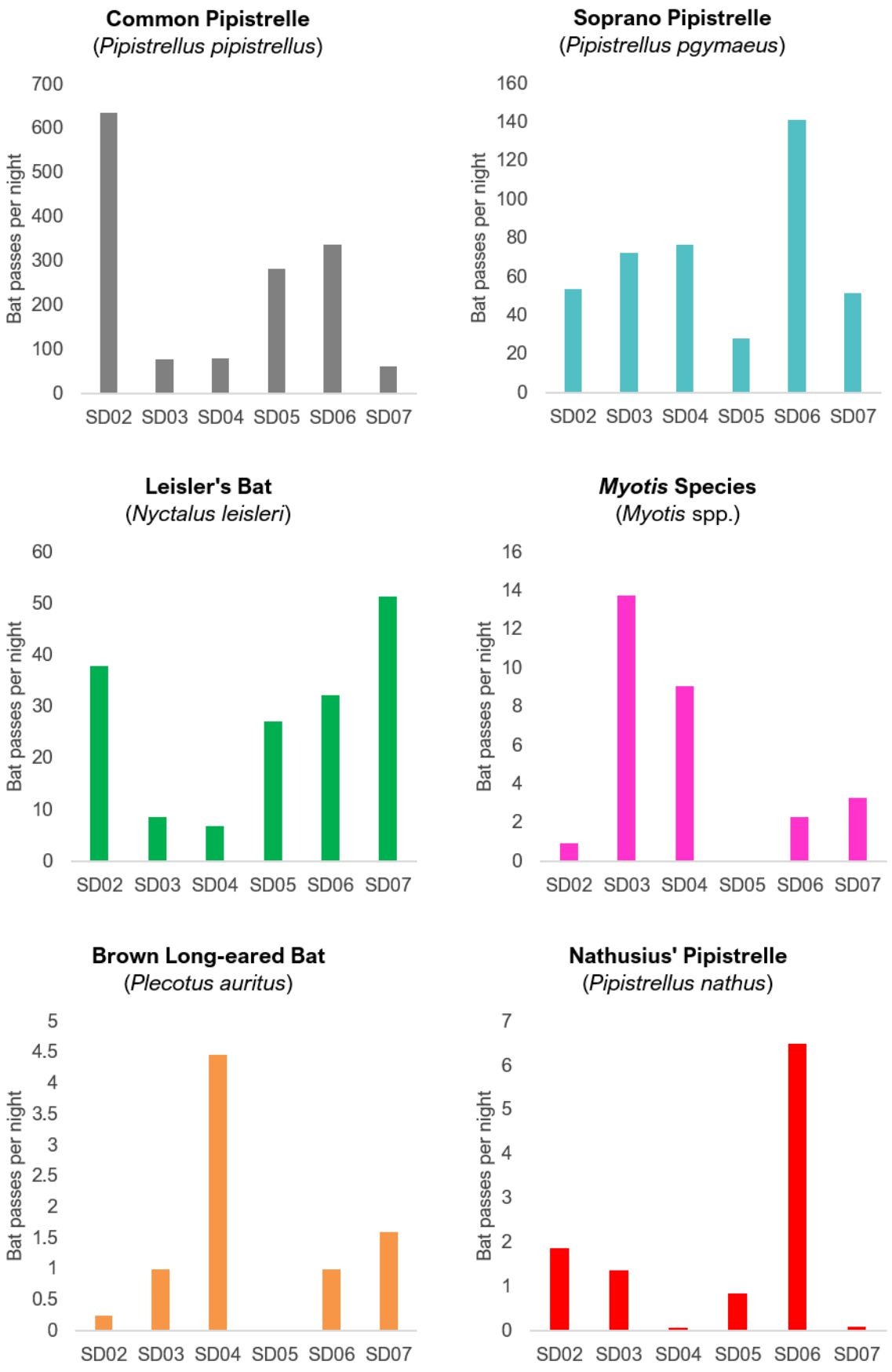


Figure 4-4. Average bat passes per night per species from each static detector deployment.

5 Evaluation

5.1 Bat Roosts

5-i Roosting bats were recorded in two buildings within the proposed development site during surveys – Woodville House and Barn A. The results of roost inspection surveys and emergence surveys, including review of all thermal camera footage and static detector recordings, have been reviewed and evaluated. The recorded roosts are described in Table 5-1 and locations shown in Figure 5-1 further below.

Table 5-1. Evaluation of bat roosts recorded within the proposed development site.

Roost Ref.	Species	No. Bats	Type	Notes
Barn A				
NB-a **NB-b** **NB-c**	Natterer's Bat	10 – 15	Maternity	Natterer's bat roosts were confirmed via DNA analysis of droppings at roost entrances from three locations within Barn A. Live bats were confirmed within the crevice above the lintel of interior side of window on western elevation of Barn A during July 2025 survey (NB-a). This was suspected to be a nursery of young bats, indicating maternity roost within the structure. Although exact numbers could not be determined, an estimate of 5-10 bats was made. Thermal camera footage within Barn A in May 2026 confirmed emergence of 7no. bats from the above roost location (NB-a). Additional *Myotis* spp. flights were also observed within the building prior to these emergences, and an additional roost location in the loft area is considered likely. As such, a roost size of 10-15 adult (female) bats and associated young is considered a representative conservative estimate for this building. The presence of 3+ roost locations for Natterer's bat within the building, two of which did not appear to be in use during surveys, indicate that the colony moves between roost locations, likely depending on a range of conditions (e.g. temperature, space in roost as pups develop, seasonal timings etc.). This conforms to typical Natterer's bat roosting habits, with studies showing maternity colonies can make use of multiple roosting locations across multiple sites (McAney, 2006).
BLE-a	Brown Long-eared Bat	5 – 10	Maternity	Brown long-eared bats were recorded active within the loft and ground-floor spaces of Barn A. A maximum of 5no. individual bats were observed during internal checks in July 2025, May 2026 and June 2026. Owing to the number of general droppings recorded within the building, the activity of individual bats and the suitability of the habitat, and adopting a precautionary approach, a maternity roost for brown long-eared bats is considered likely within the loft space of this building, i.e. along ridge beam and/or at gable end joins. Based on observations, a minimum count of 5 – 10 adult bats is considered a representative conservative estimate.
SP-a	Soprano Pipistrelle	*c.*3	Day roost	Surveys recorded small numbers of soprano pipistrelle emerging from Barn A. Owing to the small numbers of bats recorded roosting within the building, and the disparate emergence locations and timings, a maternity roost is considered unlikely. Soprano pipistrelle activity was recorded within the loft space, and it is likely that the bats are roosting within this space – e.g. in suitable crevices in walls or behind roofing felt.
CP-a	Common Pipistrelle	1	Day roost	Surveys recorded a single common pipistrelle potentially emerging from loft window of Barn A during survey in May 2026, indicating small roost within the building.
Woodville House				
CP-b	Common Pipistrelle	1	Transitionary	A single common pipistrelle was recorded emerging from 1st floor northern-most window frame of Woodville House during survey in September 2024. This likely comprises a transitionary roost of an individual bat in suitable crevice within window frame.

Roost Ref.	Species	No. Bats	Type	Notes
CP-c	Common Pipistrelle	1	Day roost	A single common pipistrelle was recorded emerging from the eaves at south-eastern corner of Woodville House during survey in July 2025.
CP-d	Common Pipistrelle	1	Day roost	A single common pipistrelle was recorded emerging from the roof to rear of Woodville House at hip join during survey in June 2026.
CP-e	Common Pipistrelle	2	Day roost	Two common pipistrelle bats were recorded emerging from window through broken pane at front of Woodville House during survey in June 2026.
CP-f	Common Pipistrelle	1	Day roost	A single common pipistrelle was recorded emerging from eaves at centre-front of Woodville House during survey in June 2026.
n/a	n/a	n/a	Hibernacula	The basement level of Woodville House potentially comprises suitable hibernation conditions for bats. This area was not accessible during survey work. The potential for hibernacula to exist within this feature has therefore been considered in recommended mitigation measures.
Stables B				
FP-a **FP-b**	Brown Long-eared Bat / Natterer's Bat	-	2no. feeding perches	Lines of droppings were identified under cable conduits at two locations within Sables B during inspection surveys, indicating likely feeding perches. Both brown long-eared bat and Natterers' bat utilise perches for consumption of larger prey items. The relatively small volume of droppings and lack of prey remains (e.g. *lepidoptera* wings) indicate these perches are not heavily used.

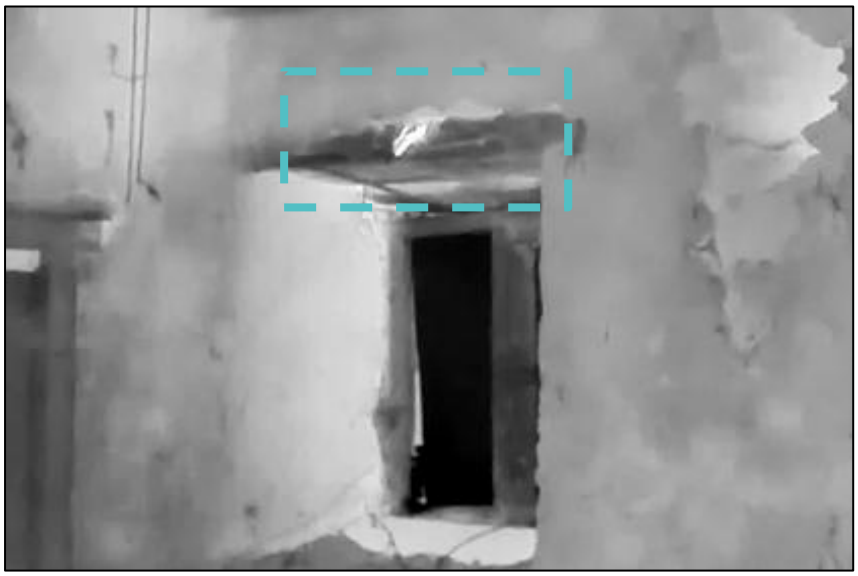


Plate 5-1. Natterer's bat emerging from roost location (NB-a) above timber window lintel in Barn A, confirmed as active during emergence surveys in both 2025 and 2026.

5-ii Barn A contains roosts of four species, including presumed maternity roosts for brown long-eared bat and Natterer's bat and smaller day roosts for common and soprano pipistrelle. The results of the static detector deployed within the loft space of Barn A (SD01) correlate with the recorded roost composition, with the recorded activity dominated by *Myotis* spp. and brown long-eared bat (when accounting for inherent under-recording of this species), with comparatively lower levels of common and soprano pipistrelle activity. Any works to this building could result in significant disturbance and potential loss or abandonment of these roosts. As such, following results of bat surveys undertaken by Wingspan Ecology in July 2025, this building was omitted from the proposed development plan by design. The only works proposed to this structure are to comprise essential structural repairs to avoid further deterioration (e.g. repair of hole in roof) which in the long term would render the building unsuitable as roosting habitat. However, in the absence of adequately designed mitigation measures these works also have the potential to impact on the roosts present in the building. Recommendations on the methodology of these works to avoid impacts to the recorded roosts are therefore provided in Section 6 further below.

5-iii Small common pipistrelle roosts were recorded in Woodville House. Woodville House is proposed for renovation into office accommodation. In the absence of adequately designed mitigation measures, these works could result in the direct mortality of bats and/or the loss of future roosting opportunities. Recommended measures are therefore provided in Section 6 below to avoid these potential impacts.

5-iv The proposed development includes the provision of a lighting scheme throughout the facility. Both Natterer's bat and brown long-eared bat emerge from roost late in almost full darkness and are therefore particularly sensitive to light sources which can artificially increase light levels in the vicinity of roost sites. Any new lighting in the vicinity of Barn A during the summer months could negatively impact on the roosts present within this building and could result in abandonment of roosts. In addition, small pipistrelle roosts are present within both Woodville House and Barn A. While not as sensitive to artificial lighting as the above species, increased lighting could also negatively impact on any future usage of these building as a roost site by common and soprano pipistrelle.

5.2 Bat Activity

5-v The results of manual activity surveys and static detector surveys have been reviewed and evaluated. Determinations on the activity patterns within the proposed development site have been made based on this available information and known roost locations as recorded during roost inspection and emergence surveys.

Esker Ridge

5-vi Activity recorded at the esker ridge situated in the north of the proposed development site was dominated by common pipistrelle and Leisler's bat, and to a lesser extent soprano pipistrelle. The static detector at the eastern end of this ridge (SD02) recorded notably high levels of common pipistrelle activity. The ridge likely forms a sheltering feature, harbouring good insect numbers and forming a suitable habitat-edge for common pipistrelle foraging. The Leisler's bat activity recorded is considered to also likely include activity of bats foraging over open lands in vicinity of the ridge. There were very low levels of *Myotis* spp. and brown long-eared bat activity recorded at this feature, with <1 registration of either species from the static detector deployed at the western end of the ridge (SD05). These results indicate that the esker ridge is not an important feature for *Myotis* spp. or brown long-eared bat.

5-vii The loss of this esker ridge will reduce foraging resources for bats, in particular common pipistrelle, and could negatively impact on the health of the immediate local population in the absence of high-quality mature replacement habitat.

Linear Features

5-viii There are currently two features providing north-south connectivity within the proposed development site: the western boundary treeline and the low hedgerow within the centre of the site. The static detector deployed at the western boundary treeline (SD06) recorded notably high levels of soprano pipistrelle activity in addition to Leisler's bat. As noted above, this Leisler's bat activity is considered to likely also include bats foraging over open lands in the wider vicinity.

5-ix Activity levels of brown long-eared bat were comparatively higher than would be expected from static detectors deployed at these linear features, in particular along the central hedgerow (SD07). A review of the timings of recordings of brown long-eared bat from SD07 show a relatively even spread across days and recordings predominantly from 2-hours to 4-hours post-sunset. This indicates the use of this feature as a foraging and/or commuting resource for brown long-eared bat.

5-x Any loss or significant fragmentation of these features has the potential to reduce connectivity for bats in the absence of alternative or replacement linear features.

Woodland

5-xi Results from static detectors, and observations during manual surveys, indicate that the woodland on-site north of Woodville House is an important foraging area for *Myotis* species (likely including Natterer's bats from roost in Barn A). The loss of part of this wooded area to facilitate the development has the potential to negatively impact on the foraging resources of Myotis species, in the absence of high-quality mature replacement habitat.

5-xii Results from static detectors indicate that the most important habitat feature for brown long-eared bats is the wooded area directly off-site, with comparatively low levels of activity recorded within the wooded area north of Woodville House. Any light-spill onto this wooded area off-site could reduce the suitability of this habitat for foraging brown long-eared bat.

5-xiii It is noted that there is existing good connectivity along a wooded corridor extending south-west from the building complex on-site and continuing south to a complex of buildings at Bessborough House. This complex of buildings was partially visible from the public road, and historic images of the main house were available online[g]. This preliminary assessment indicates a number of *High* suitability buildings for roosting bats at this location, and it is considered likely that colonies recorded at the proposed development site, in particular Natterer's bat, could be linked with structures at this location. As such, the retention of this wooded link and avoidance of lighting which may impact on this feature is considered important to the conservation of the bat roosts recorded within the proposed development site.

5-xiv There is additional high quality woodland habitat north of the proposed development site adjoining an area of raised bog. A review of aerial imagery shows there is currently a lack of strong landscape links to this habitat from the proposed development site and wooded areas further south. The provision of a linear feature providing landscape connectivity to this wider area of woodland to the north would likely benefit bat populations roosting at the proposed development site and connected sites.

[g] https://www.buildingsofireland.ie/buildings-search/building/22402102/bessborough-house-bessborough-tipperary-north



Legend

- Site Boundary
- Existing Buildings
- Natterer's Bat Roost Locations
- Brown Long-eared Bat Roost Locations
- Common Pipistrelle Roost Locations
- Soprano Pipistrelle Roost Locations
- Feeding Perches

Title

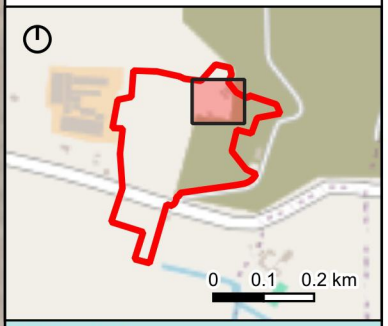
Figure 5-1.
Locations of roost sites identified.

Project

Proposed Anaerobic Digester Development, Woodville, Ballymackey, Co. Tipperary.

Client

Woodville Pig Farms Ltd.



Additional Information

Drawn by: D. Woods	**Date:** 09/07/2026
Project no.: 2619	**Projection:** IRENET95
Scale: 1:450 @ A4	**Imagery:** OpenStreetMaps

Notes:
Site boundaries shown are for demonstrative purposes only and do not represent exact planning or legal boundaries.

[redacted]
w: www.wingspan.ie
a: Killincarrig, Greystones, Co. Wicklow

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6 Mitigation Measures

6.1 Overview

6-i A total of 4no. bat species were recorded roosting during surveys across Barn A and Woodville House. A derogation licence is therefore required from the National Parks and Wildlife Service (NPWS) for any works to these buildings as per Regulation 54 of the Habitats Regulations.

6-ii Measures are recommended below to mitigate potential impacts as a result of the proposed development and to facilitate the continued use of these buildings by roosting bats post-construction.

6.2 Structural Works to Barn A

6-iii Barn A contains presumed maternity roosts of Natterer's bat and brown long-eared bat, in addition to small common and soprano pipistrelle roosts. It is therefore recommended that only essential works to avoid structural deterioration are undertaken to this building where absolutely necessary. The following measures are recommended in relation to any proposed essential structural works:

- Works to this building should be undertaken outside of the main period for roost usage (i.e. works to be carried out during period of 1st October to 31st March) as bats would be at risk of direct disturbance / mortality should works be undertaken during usage period.
- The existing features and materials of the building should be retained *in-situ* to the maximum extent possible. This includes the retention of existing roof timbers, as these are utilised by roosting brown long-eared bats.
- Where any re-roofing works are proposed, these should ideally be carried out during autumn (September-October) or spring (March-April). During these times bats will typically be capable of feeding on most evenings and may be torpid during the day, but will not have begun giving birth. Any remedial timber treatment required should be carried out during period 1st October to 31st March, as the chemicals involved in these treatments can be harmful to bats. Where replacement of roofing felt is proposed the roofing felt to be installed should be 1F Bitumen felt or similar 'bat friendly' membrane, as this material does not contain polypropylene filaments that can trap bats.
- Where the existing opening in the rear side of the roof is repaired, bat access vent / tiles[h] should be incorporated into the new section, numbering a minimum of 3no. openings, at the same location as existing opening.
- Brown long-eared bats require sufficiently large roof voids for internal flights. Therefore, no obstructions (e.g. new partition walls or trussed rafters) should be constructed within the loft space which may inhibit these flights.
- Natterer's bat, in addition to common and soprano pipistrelle bats, require suitable crevices in stonework for roosting. Therefore, any re-pointing to stonework within the building should be designed to ensure sufficient crevices remain suitable for roosting bats. A suitably qualified ecologist should be present to review the existing crevices and determine which should be retained, in consultation with contractor prior to any re-pointing works.
- Any remedial works to the two lintels where bat roosting was recorded (NB-a & NB-c) should only be carried out following consultation with a suitably qualified ecologist and in correspondence with the NPWS. Such works should be immediately preceded by an inspection by a suitably qualified ecologist to determine whether any hibernating bats remain, via endoscope. Works can only take place to these features outside of active bat season and once alternative locations have been provided and/or will be incorporated into repaired features. The ecologist will be present for works to these features.
- Bats were noted to repeatedly exit and enter the loft space via the gable end window on the northern end of building. This opening should be retained as part of any renovation works. Sufficient openings should also be retained in other parts of the building. There are currently large openings at entrances to the ground-floor space. Any installation of new doors should incorporate opening to facilitate continued bat entry/exit.
- Bats were observed to fly between the ground-floor spaces and loft level internally within the building via gaps in the loft floor at joins with side and gable walls. Any works or replacement of

[h] E.g. The available 'Habibat', 'Just Lead', 'Beddoes', 'Leadworx' bat access tiles or product of similar design and function.

the internal loft floor should incorporate gaps to facilitate continued movement of bats internally between levels. These should be located based on guidance from ecologist and reflect current number and positioning of openings where possible.

- Prior to any works, the building will be inspected by a suitably qualified ecologist for the potential presence of any hibernating bats. Where hibernating bats are identified, they may require physical removal by hand by a suitably qualified bat specialist, to be done in consultation with the NPWS.
- A qualified ecologist and/or the local NPWS conservation officer will be present to oversee the proposed works.

6.3 Renovation Works to Woodville House

6-iv Woodville House contains a number of small common pipistrelle roosts. The following measures are recommended in relation to this structure:

- Works to this building should be undertaken outside of the main period for roost usage (i.e. works to be carried out during period of 1st October to 31st March) where possible.
- Should works need be undertaken during the active bat season (March/April – September/October) commencement should be immediately preceded by a roost inspection survey and emergence surveys. Small common pipistrelle roosts were recorded in disparate locations across the structure, and likely change on a season-by-season basis. Surveys will need to determine the locations within the building being used by bats prior to commencement of any works.
- Should small numbers of bats be recorded emerging, they will require exclusion from the building (i.e. blocking of entry/exit points once bats have emerged). Physical removal by hand by a suitably qualified bat specialist may be required should exclusion not be possible. In this instance bats will be placed in a bat box for release on the evening after capture. Should a more significant roost be recorded (e.g. maternity roost) then works may need to be amended to be carried out exclusively during period of 1st October to 31st March, depending on roost type, location and in consultation with NPWS as part of derogation licence.
- The window frame where a single bat was recorded emerging (CP-b) should be thoroughly checked by suitably qualified ecologist prior to removal or any remedial works, and ecologist should be present for removal of this window frame.
- Where re-roofing works are proposed, these should ideally be carried out during autumn or spring. During these times bats will typically be capable of feeding on most evenings and may be torpid during the day, but will not have begun giving birth. Any remedial timber treatment required will be carried out during period 1st October to 31st March, as these chemicals can be harmful to bats. Where replacement of roofing felt is proposed the roofing felt to be installed should be 1F Bitumen felt or similar 'bat friendly' membrane, as this material does not contain polypropylene filaments that can trap bats.
- Bat access slates / tiles should be incorporated into the new roof where proposed to facilitate continued usage of the building by roosting bats (see 6.4 below).
- The basement level of Woodville House contains potential suitable habitat for hibernating bats. This area was not accessible during surveys. Prior to any works, the building will be inspected by a suitably qualified ecologist, once made safe for entry, for the potential presence of any hibernating bats. Where hibernating bats are identified, they may require physical removal by hand by a suitably qualified bat specialist.
- A qualified ecologist and/or the local NPWS conservation officer will be present to oversee any proposed works to roof and attic space.

6.4 Provision of Roosting Features

6-v The attic space of the Woodville house has the potential to continue to support roosting bats post-development with appropriate design considerations. As such, in order to facilitate future entry and exit pathways for bats from this attic space post-works, it is proposed to install 8no. bat access tiles / vents[i], on the interior facing aspects of the hipped roof. As outlined above, roofing felt in this attic space should

[i] E.g. '*Habibat*', '*Just Lead*', '*Beddoes*', '*Leadworx*' bat access tiles or product of similar design and function.

be 1F Bitumen felt or similar 'bat friendly' membrane, as this material does not contain polypropylene filaments that can trap bats.

6-vi In addition to the above, a total of 15no. bat boxes will be erected on suitable mature trees within the proposed development site and vicinity to provide additional roosting habitat for bats. Studies of existing bat box schemes in Ireland observed preference by pipistrelle bats for 1FF designs and preference by brown long-eared bats for 2F designs (McAney & Hanniffy, 2015). As such, the bat boxes proposed comprise 5no. Schwegler 2F and 10no. Schwegler 1FF (or similar comparable designs).

6-vii The boxes should be erected at a minimum height of 4m, and in varying orientations (i.e. some south-facing, some east/west facing and some north-facing). This allows for potential bat movement between boxes under changing environmental conditions (e.g. south-facing boxes can overheat during summer heat waves). The boxes should be positioned on existing mature trees to be retained, and away from new proposed lighting.

6-viii The bat boxes should be installed prior to the commencement of works and under guidance from a suitably qualified ecologist.



Plate 6-1. Example bat access tiles / vents proposed to Woodville House ('*Just Lead*', '*Beddoes*').

6.5 Tree Felling

6-ix Where possible the felling of any mature trees on-site should be undertaken during the period of April – September, as bats are capable of flight during this time. All PRFs should be directly investigated via endoscope immediately prior to felling where accessible. This may require the removal of thick ivy growth where possible. Under the guidance of the bat ecologist, some limbs of the subject trees may need to be rigged prior to cutting and lowered to ground to avoid sudden movements (i.e., limbs containing potential roost features not accessible for direct investigation, or limbs obscured by ivy growth). The subject limbs and truck sections will then be investigated by the bat ecologist prior to removal off-site / mulching. Should bats be present in any feature, they will be removed by a bat ecologist licenced to handle bats and released in the area on the following evening.

6-x Where features cannot safely be investigated prior to felling, a bat emergence survey(s) should be carried out on these trees on the night preceding felling by a suitably qualified ecologist, aided by the use of bat detectors and thermal/infra-red imaging camera where possible.

6-xi Should bats be identified roosting in any trees, a derogation licence will need to be obtained from the National Parks and Wildlife Service (NPWS) for the disturbance of these bats prior to the tree removal.

6.6 Provision of Foraging/Commuting Habitat

6-xii The proposed development will result in the loss of existing foraging and commuting habitat features for bats. It is recommended to create a new wooded area of native species to replace the wooded area to be partially lost north of Woodville House. This is proposed in the area adjoining the existing off-site woodland habitat east of Woodville House. Trees planted here should be mature specimens of where possible to reduce habitat loss effects during establishment.

6-xiii The central hedgerow is to be removed to facilitate the proposed development. It is recommended to create a new north-south linear feature to replace connectivity for bats lost through removal of this existing hedgerow. There is currently a lack of linear features along the eastern boundary of the proposed development site (i.e. adjacent to landfill site). A new high-quality hedgerow feature of native species along the eastern boundary should be created to provide landscape connectivity for bats in place of the existing hedgerow. It is understood that the western boundary treeline to be largely retained as part of the proposed development. This feature does currently not provide direct north-south connectivity. In so far as possible this feature should be replanted in areas to be felled and reinforced in areas to be retained.

6-xiv New planting areas are proposed in the vicinity of Barn A. This includes screening vegetation to reduce any light-spill from the car parking area, in addition to an area of native shrub and wildflower meadow. No planting of overly 'tall' tree species is proposed in the direct vicinity of Barn A in order to avoid the potential for shading of the building, reducing solar gain and altering baseline temperatures within the existing roost spaces.

6.7 Lighting Plan

6-xv As detailed in Section 5.1 above, new lighting in the vicinity of Barn A during summer months could negatively impact on the roosts present within this building. The lighting levels onto Barn A should be at a minimum **<1lux** and ideally <0.5lux post-construction. Through discussions between Wingspan Ecology and the project lighting engineer, conservation architect and design engineer, the layout of the development has been designed to reduce the requirement for lighting elements in this area of the site. In addition to the site layout and luminaire placement, target lux levels have been achieved through the following methods:

- Pre-programmed timing controls for all non-essential lighting elements in vicinity to be deactivated by default during dusk-dawn period from April to September.
- Provision of screening from lighting elements to prevent light-spill.
- Dimming of lighting elements (to 25% or as low as appropriate) during dusk-dawn period from April to September in wider vicinity which may contribute to light-spill onto building, and use of lower-height luminaires are appropriate.
- Use of bollard lighting where feasible to achieve health and safety standards.
- Use of dark surface materials (e.g. tarmac) in areas in vicinity of Barn A in place of concrete or paving which may reflect light onto building.

6-xvi The modelled illuminance (lux levels) onto the southern aspect of Barn A following the above lighting design measures is shown in Figure 5-1 below (Molloy Consulting Engineers). The highest lux level modelled is 0.9lux, with majority of building face reading <0.5lux. It is noted that this model does not account for any screening provided by the proposed planting area and lux levels will therefore likely be lower than those presented in the model.

6-xvii Lighting levels along the eastern section of northern boundary, adjacent to area of existing woodland, should similarly be managed to achieve at a minimum <1lux during active bat period (i.e. April to September).

6-xviii During the construction phase it is likely that artificial lighting will be required to facilitate works during parts of the year. However, the need for construction lighting is expected to be minimal during the April-September period due to expected operational times and sunrise/sunset times during this period. Nevertheless, there should be no use of high-powered artificial lighting in the vicinity of Barn A or adjacent woodland areas during dusk to dawn throughout the April-September period during construction.

6-xix The Institute of Lighting Professionals (ILP) and the Bat Conservation Trust UK (BCT) have compiled guidelines on artificial lighting and bats (BCT, 2018). These guidelines should be taken into consideration in the general lighting plan in order to best facilitate continued bat usage within the proposed development site in so far as feasible. Measures outlined in this guidance document include advice on appropriate luminaire specifications, as outlined below:

- All luminaires should lack UV elements when manufactured. Metal halide, fluorescent sources should not be used.
- LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (ideally <2700Kelvin) should be adopted to reduce blue light component.
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill.
- The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered. However, this often comes at a cost of unacceptable glare, poor illumination efficiency, a high upward light component and poor facial recognition, and their use should only be as directed by the lighting professional.
- Column heights should be carefully considered to minimise light spill.
- Only luminaires with an upward light ratio of 0% and with good optical control should be used – See ILP Guidance for the Reduction of Obtrusive Light.
- Luminaires should always be mounted on the horizontal, i.e. no upward tilt.
- Any external security lighting should be set on motion-sensors and short (1min) timers.
- As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed.

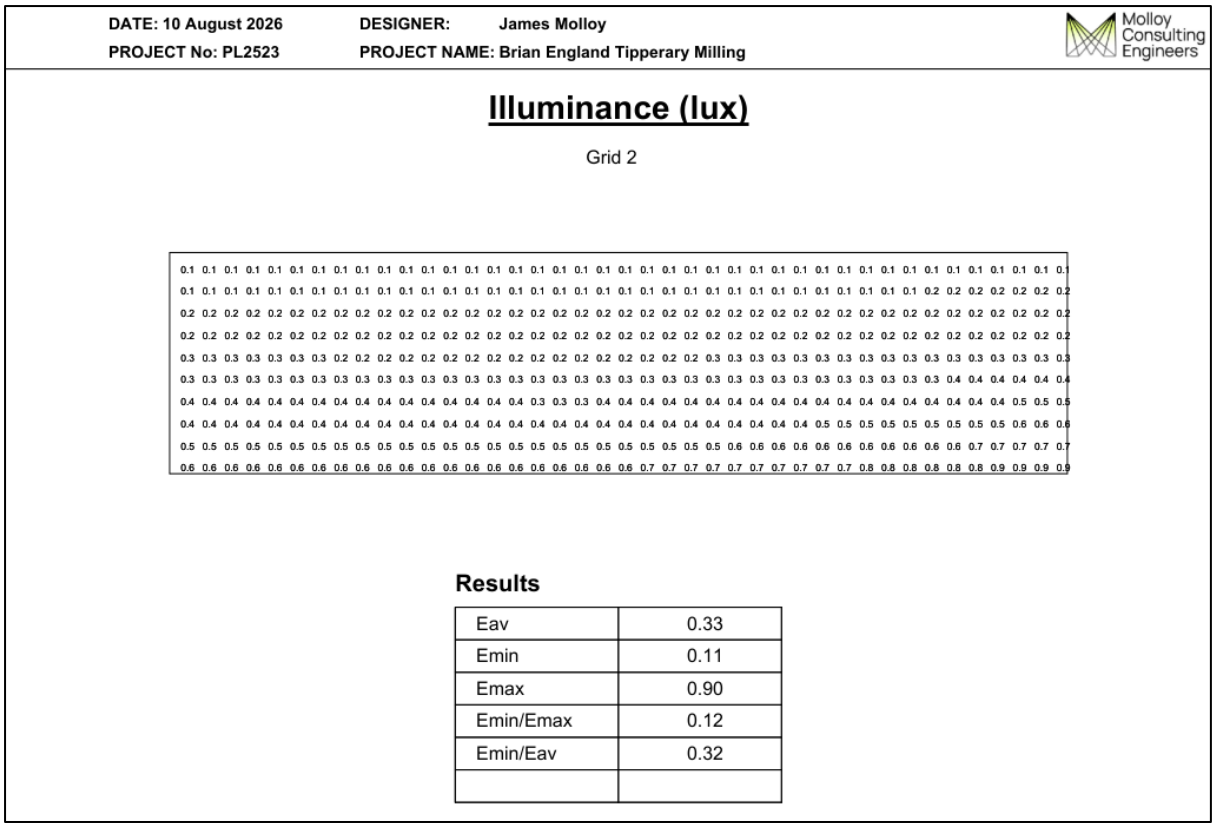


Figure 6-1. Modelled illuminance (lux levels) onto southern aspect wall of Barn A following lighting design measures.

6.8 Monitoring

6-xx Monitoring of Barn A should be carried out to evaluate the success of the proposed mitigation measures, in particular the effects of the new lighting plan. Baseline lux levels on the building should be documented prior to commencement of any works. This should be carried out during astronomical twilight

(typically during period >2-hours post-sunset and >2-hours pre-sunrise) in overcast conditions to remove any impact from moonlight., Lux levels should be again recorded post lighting installation to ensure light levels are not elevated to such a level as to interfere with continued usage of the building.

6-xxi Monitoring visits should be carried out during period May – July[j] on first, second and third year of operation, and in subsequent years as required. These should comprise emergence surveys undertaken by suitably qualified bat ecologist equipped with thermal cameras. The purpose of the visits is to confirm presence/absence of Natterer's bat and brown-long eared bat within the building (acknowledging that Natterer's bat colonies can regularly move roost sites in an area).

6-xxii Monitoring to the installed bat boxes should also be undertaken by a suitably qualified ecologist during the above visits. Boxes will be investigated via ladder, records taken on the usage of any boxes by bats and boxes cleaned where required (2F design) where no bats are present. Note: Any handling of bats must only be undertaken by a bat ecologist licenced to handle bats and under appropriate licence from the NPWS. The ecologist will assess the suitability of the bat boxes post-construction and may make recommendations on the relocation or replacement of bat boxes. Any boxes recorded to be utilised by bats will be strictly protected. Any bat boxes noted to be damaged or removed will be replaced by the same or similar comparative available model.

[j] There is potential for brown long-eared bats to have moved from maternity roost by mid-August and so surveys during May-July are recommended for increased certainty of results.

7 Derogation Licence Application

7-i Surveys undertaken at the proposed development site recorded a total of 4no. bat species roosting within structure within the site: Barn A and Woodville House (see description of roosts in Section 5.1). Wingspan Ecology, on behalf of Tipperary Milling Co., are therefore applying for a bat derogation licence in relation to works to these structures.

7-ii The NPWS document, Guidance on the Strict Protection of Certain Animal and Plant Species under the Habitats Directive in Ireland - National Parks and Wildlife Service Guidance Series 1 (2021), was reviewed before undertaking this derogation application. 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.

7-iii The preconditions are:

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 a population(s) at a favourable conservation status.

7-iv It is believed that the pre-conditions for granting a derogation licence have been met, as follows:

Test 1 – Reasons for Seeking Derogation

7-v Regulation 54(2) (a)–(e) states that a derogation licence may be granted for five reasons listed (a) to (e). We are of the opinion that the following reasons apply:

> *(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.*

7-vi This application for derogation qualifies under Regulation 54(2)(c) of the European Communities (Birds and Natural Habitats) Regulations for the following reasons:

- The proposed development is required to remove an existing risk to public safety.
- The proposed development is of overriding public interest in meeting climate targets and tackling the climate crisis.

<u>In the interests of public health and safety</u>

7-vii The proposed development site encompasses a derelict house (Woodville House built *c.*1780) and associated ancillary outbuildings including a stone barn (Barn A). Woodville House is in an advanced state of dereliction with collapse of various internal features (floors, ceilings, stairs etc.). As per an Architectural & Historical Impact Assessment completed by Arthur Gibney & Partners:

> *"The house is currently in a poor state of repair with significant dilapidation internally due to prolonged water ingress at roof level. This has led to the collapse of a portion of the roof in the central stairs area and subsequent collapse of the floors and ceilings below due to rotting of timbers over time. Many of the rooms have been affected by the failure of the roof".*

7-viii The house is situated within a working farm and adjacent to Ballaghveny Landfill. The house is visible from the public road and there is potential for access from members of the public (e.g. anti-social behaviour for which there is evidence of past activity and/or public accessing due to historic nature of the building). The house in its current state comprises a significant health and safety risk to the public due to potential for continued structural collapse within the building.

7-ix The stone outbuilding, Barn A, is also in a poor state of repair. There is a large gap in the sheeting at the rear of the roof and the loft flooring timbers are rotting due to water ingress. There are also smaller gaps in the roof material allowing for further water ingress. The building does not have any remaining

windows or doors and many of the interior timber lintels are in poor condition with evidence of on-going collapse. The building is currently being used as storage for machinery. In its current state the building comprises a significant health and safety risk due to potential for floor collapse.



Plate 7-1. Example of collapsing ceilings and stairs within Woodville House.



Plate 7-2. Large opening in roof of Barn A.





Plate 7-3. Existing structural collapse of supporting timber in Barn A and rotting of loft floor timbers.

Reasons of overriding public interest

7-x The proposed development would directly contribute to Ireland's source of renewable energy and reduce reliance on fossil fuels. The proposed development anaerobic digestion process would capture methane gases. Methane is a potent greenhouse gas that contributes to climate change if allowed to escape to the atmosphere. The proposed development would also reduce waste going to landfill by utilising this as a resource for energy production. This below highlights the main legislative and policy drivers with regard to Anaerobic Digestion (AD).

7-xi Drivers such as climate change, energy security, carbon foot-printing and waste recycling are to the forefront of the European Union's (EU) legislative agenda. The long-term goal for the EU is to become a zero-waste society that seeks to use waste as a resource. Other EU legislations such as the Waste Framework Directive (2008/98/EC) and the Landfill Directive (1999/31/EC) are also driving Europe towards a resource efficient, low carbon economy that encourages the use of the AD process of organic materials. These were transposed into Irish legislation by the European Union (Landfill) Regulations 2020 (S.I No. 321 of 2020).

7-xii In Ireland, the current national waste management guidance document takes the form of the "Waste Action Plan for a Circular Economy (2020)" work. This document underpins the previous "A Resource Opportunity – Waste management policy in Ireland (2012)".

7-xiii The proposed development AD process will contribute towards Irelands waste management policy by utilising waste as a resource. There is a new growing demand for AD infrastructure in Ireland that will facilitate the country's successful implementation of a low carbon economy. The EU Commission have highlighted Ireland as one of the best States for Biogas potential.

7-xiv The EU Directive Promotion of the Use of Energy From Renewable Sources (2018/2001) set a target to achieve a share of at least 32% of energy from renewable sources in the Union's gross final consumption of energy by 2030. Ireland was required under the previous Directive (2009/28/EC) to ensure that 16% of total final energy consumption came from renewable sources by 2020 as set out in the National Renewable Energy Action Plan. A report from the Sustainable Energy Authority of Ireland (SEAI) determined that Ireland did not meet the defined target, reaching a share of 13.5% that year.

7-xv Having failed its 2020 renewable energy targets, the Irish state may need to purchase extra credits or face substantial fines.

7-xvi The proliferation of AD technology throughout the country would greatly assist with this challenge. Biogas is a sustainable indigenous energy source that can reduce our emissions and will create jobs in rural Ireland. An AD Biogas industry could provide a diverse and long-term revenue stream for the Irish farming community.

7-xvii Ireland's Transition to a low Carbon Energy Future 2015 – 2030 (Ireland's Energy White Paper 2015) document sets out Irelands ambition to transition to a low carbon economy by 2050 and acknowledges AD as a possible technology to assist in the delivery of this objective. Ireland's National Biomethane Strategy goes so far as to state that "without biomethane, Ireland is unlikely to meet its legally binding climate targets".

7-xviii Ireland's agricultural sector is by far the largest contributor of the country's Green House Gas (GHG) emissions, accounting for c. 38% of the total. If AD technology at the On-Farm scale size was supported in Ireland the GHGs emitted from Irelands agricultural sector would be significantly reduced.

7-xix In the European Union, pig farming is a major agricultural industry and large pig farms are now the norm. The pig production sector in Ireland contributes 7.9% to the gross agricultural output and is the third most important agricultural sector. It is estimated that 3.2 million m3 of pig manure is produced in Ireland annually, containing 13 kilotonnes of nitrogen and 2.5 kilotonnes of phosphorus. Pig manure is therefore an excellent fertiliser for grass and other crops and has traditionally been landspread for this purpose (Xie et al., 2011).

7-xx Environmental legislation, such as the EU Nitrates Directive, has placed constraints on the land application of pig manure. The AD of pig slurry sufficiently stabilises the nutrient content of the slurry meaning that it may be landspread and abide by the criteria set out in the EU Nitrates Directive.

Test 2 – There is no Satisfactory Alternative

7-xxi There are no satisfactory viable alternatives to the renovation works to allow for new development.

7-xxii Do nothing scenario: As detailed above, the buildings in their current state comprise a risk to public health and safety. In addition, under this scenario the subject buildings wound continue to structurally deteriorate leading to eventual collapse and loss of existing bat roosts and roosting resource. As such, the do-nothing scenario is unsatisfactory.

7-xxiii Renovation of subject buildings on-site and no new development: The potential for the renovation of the existing subject buildings on-site (Woodville House and Barn A) with no further development was considered. This alternative is not financially viable and is therefore not a viable alternative. The renovation of Woodville House from its advanced derelict state would be financially onerous without the accompanying development. As noted in an Architectural & Historical Impact Assessment completed by Arthur Gibney & Partners:

> *"Currently the house is unlikely to return to residential use and so the proposal to renovate and restore the house and provide it with a meaningful day to day use is an appropriate way of ensuring its survival".*

7-xxiv Furthermore, under this scenario an application for derogation licence would also be required for works to the buildings containing recorded bat roosts. This scenario is therefore unsatisfactory.

7-xxv Construction of proposed anaerobic digester facility and no works to subject buildings: The potential for the construction of the proposed anaerobic digester facility and no works to the subject buildings was considered. The buildings in their current state comprise a risk to public health and safety. In addition, under this scenario the subject buildings wound continue to structurally deteriorate leading to eventual collapse and loss of existing bat roosts and roosting resource. As such, this scenario is unsatisfactory.

7-xxvi Chosen option: Construction of anaerobic digester facility and retention and restoration of Woodville house and Barn A following strict mitigation measures to facilitate continued future use by roosting bats. This will ensure the provision of suitable, stable roosting habitat at the site into the long-term to the benefit of local bat populations.

Test 3 – Favourable Conservation Status

7-xxvii As stated in the above NPWS document, 'Annex IV species must be maintained at Favourable Conservation Status or restored to favourable status if this is not the case at present. The net result of granting a derogation licence must be neutral or positive for the species in question'.

7-xxviii Roosting bats were recorded in two buildings within the proposed development site during surveys – Woodville House and Barn A, comprising 4no. species: common pipistrelle, soprano pipistrelle, Natterer's bat and brown long-eared bat.

7-xxix The overall trend for the national population of common and soprano pipistrelle in Article 17 reporting (NPWS, 2025) is as follows:

- Range = Favourable
- Population = Favourable
- Habitat for species = Favourable
- Overall Assessment of Conservation Status = Favourable
- Overall trend in Conservation Status = Improving

7-xxx The overall trend for the national population of brown long-eared bat in Article 17 reporting (NPWS, 2025) is as follows:

- Range = Favourable
- Population = Favourable
- Habitat for species = Favourable
- Overall Assessment of Conservation Status = Favourable
- Overall trend in Conservation Status = Stable

7-xxxi The overall trend for the national population of Natterer's bat in Article 17 reporting (NPWS, 2025) is as follows:

- Range = Favourable
- Population = Unknown
- Habitat for species = Favourable
- Overall Assessment of Conservation Status = Favourable
- Overall trend in Conservation Status = Stable

7-xxxii Mitigation measures have been designed in respect to the proposed renovation works to ensure that there will be no negative impacts to potential roosting bats as a result of the proposed development (as detailed in Section 6 above). Roosting habitat will be provided in the attic space of the existing Woodville House and Barn A is to be retained as-is with only essential structural works to avoid further deterioration. No significant impacts are anticipated on the local populations of common pipistrelle, soprano pipistrelle, Natterer's bat and brown long-eared bat.

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Appendix A – Supplementary Information

Table A1. Suitability levels of habitat features for bats, taken from Collins (2023).

Potential suitability	Roosting habitats in structures	Potential flight-paths and foraging habitats
None	No habitat features on site likely to be used by any roosting bats at any time of year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels.	No habitat features on site likely to be used by any commuting or foraging bats at any time of year (i.e. no habitats that provide continuous lines of shade/protection for flight-lines, or generate/shelter insect populations available to foraging bats).
Negligible	No obvious habitat features on site likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.	No obvious habitat features on site likely to be used as flight-paths or by foraging bats; however, a small element of uncertainty remains in order to account for non-standard bat behaviour.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of year. However, these potential roost sites do not provide enough space, shelter, protection, 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 and not a classic cool/stable hibernation site, but could be used by individual hibernating bats).	Habitats that could be used by small numbers of bats such as flight-paths such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a park-land situation) or a patch of scrub.
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed).	Continuous habitat connected to the wider landscape that could be used by bats for flight-paths such as lines of trees and scrub or linked back gardens.
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. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by bats for flight-paths such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses, and grazed park-land. Site is close to and connected to known roosts.

Table A2. Level of importance of roosts in Ireland, taken from NRA (2006).

Species	Indicator	Significance
Common pipistrelle	Maternity roost	Significant
Soprano pipistrelle	Maternity roost	Significant
Leisler's bat	Maternity roost	Significant
Brown long-eared bat	Maternity roost	Significant
Whiskered bat	>10	Very Significant
	If present	Significant
Natterer's bat	>10	Very Significant
	If present	Significant
Lesser horseshoe bat	Special Area of Conservation	Very Significant
	If present	Significant

Table A3. Recommended recording settings for static detectors, taken from BCI (2026).

Parameter	Recommended Setting	Rationale for ROI Context
Sample Rate	384 kHz (Minimum 256 kHz)	High-frequency sampling is required to accurately capture Pipistrellus and Myotis harmonics.
Gain / Sensitivity	12 dB to 18 dB (Auto-adjust)	Balanced to detect quiet *Myotis* without distorting high-intensity Leisler's calls.

Parameter	Recommended Setting	Rationale for ROI Context
Min. Trigger Freq.	16 kHz	Set to exclude common Irish insect noise (crickets) while capturing low-frequency Leisler's "social" calls.
Max Trigger Freq.	160 kHz	Covers the full range of all 9 Irish resident species.
Trigger Window	3.0 Seconds	Standardizes the "Bat Pass" duration for consistent Eco-bat/Statistical analysis.
Max. File Length	15 Seconds	Prevents "infinite files" during high-activity periods (e.g., swarming).
Bit Depth	16-bit (WAV)	Standard high-resolution format for manual verification and AI classifiers.

Appendix B – Bat Dropping DNA Testing Results (Eco-type Genetics Ltd)

LABORATORY REPORT

Species Identification from Biological Samples

CUSTOMER

Donnacha Woods
Wingspan Ecology
Killincarrig, Greystones Co. Wicklow, Ireland

ORDER DETAILS

Order Number: EG3517
Order Date:01/07/2026

Sample Information

Sample ID	**EG3517-1**
Sample Type	Faecal
Suspected Species	Soprano pipistrelle, Brown long-eared bat
Site Location	Woodville, Ballymackey, Nenagh, Co. Tipperary
Comments	Droppings collected from three roost entry points within Barn A.
Date Collected	10/06/2026
Date Arrived at Lab	06/07/2026
Results Date	07/07/2026

Laboratory Information

DNA Extraction Code	EG-2026-1626
Identification Method	qPCR
Analysis Procedure Notes	All UK bat species tested for - only a single species detected in this sample.
Laboratory Comments	Note: Soprano pipistrelle and Brown long-eared bat species suspected - tested for but not detected in this sample

Species Identified

Species	Ct Value
Myotis nattereri (Natterer's bat)	21

Ecotype Genetics Limited.
Laboratory Address: Sussex Innovation Centre, Science Park Square, Falmer, Brighton, BN1 9SB
[redacted] w: ecotypegenetics.co.uk

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