An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

Application for Derogation Licence

Under the European Communities (Birds and Natural Habitats) Regulations 2011 – 2021

Prepared by the Department of Housing, Local Government and Heritage

npws.ie

- This form is to be used by any person applying for a derogation licence under Regulation 54 or by the Minister under Regulation 54(A)
- Please ensure that you answer questions fully in order to avoid delays
- If you experience any problems filling in this form, please contact the Wildlife Licensing Unit;
- Please note – applications/reports received and licences issued under this derogation may be published on the NPWS website and/or the Department's Open Data website

Wildlife Licensing Unit,

Department of Housing, Local Government and Heritage

National Parks and Wildlife Service

Wildlife Licensing Unit, R. 2.03

90 North King Street

Smithfield

Dublin 7 D07 N7CV

Email: wildlifelicence@npws.gov.ie

Part A. The Applicant: Personal Details

These questions relate to the person responsible for any proposed works and who will be the **named licensee**. As the licensee you will be responsible for ensuring compliance with the licence and its conditions, even though you may employ another person to act on your behalf.
If this application is being submitted on behalf of a third party please also complete Part B below.

1. (a) Name of Applicant

Title (Mr/Mrs/Miss/Ms/Dr)	Forename(s)	Surname
Mr	Alan	Kelly
(b) Address Line 1	Áras An Chontae	
Address Line 2	Mount Street	
Town	Mullingar	
County	Meath	
Eircode	N91 FH4N	
(c) Contact number	+353 44 93 32255	
(d) Email address	akelly@westmeathcoco.ie	
(e) Address where works are to be carried out if different from (b) above.		
Address Line 1	Lissanode Bridge	
Address Line 2	Lissanode	
Town	Drumraney	
County	Meath	
Eircode	N37 V659	

Part B. Details of Person Submitting Application on Behalf of Applicant/Licensee

Information relating to the person (e.g. ecologist) responsible for submitting the application on behalf of the applicant/licensee should be entered below:

1. (a) Name of Person/Ecologist

Title (Mr/Mrs/Miss/Ms/Dr)	Forename(s)	Surname
Mr	Fergal	Maguire
(b) Company Name	AVRIO Environmental Management	
Address Line 1	Unit 5, Abbey House, Business Centre	
Address Line 2	11 Head St	
Town	Enniskillen	
County	Fermanagh	
Eircode	BT74 7JL	
(c) Contact number	028 6633 5608	
(d) Email address	info@avrio-env.com	
(e) Relationship to Applicant	Ecologist	

Part C. The Application

1. **Species of Animal:** Please indicate which species is affected by the proposed works:

- Bat ☒
- Otter ☐
- Kerry Slug ☐
- Natterjack Toad ☐
- Dolphin ☐
- Whale ☐
- Turtle ☐
- Porpoise ☐

2. Please detail the exact species (scientific name): Common Pipistrelle

3. Please provide the maximum number of individuals affected* 2

4. Please provide the maximum number of breeding or resting sites affected* 1

5. Please provide the maximum number of eggs to be taken* NA

6. Please provide the maximum number of eggs to be destroyed* NA

*If no figures can be provided for the maximum number of individuals, breeding sites, resting places and eggs to be covered by the derogation please provide reasons why.

NA

7. **Species of Plant:** Please indicate which species is affected by the proposed works:

- Killarney Fern ☐
- Slender Naiad ☐
- Marsh Saxifrage ☐

8. If you previously received a derogation for any species of animal or plant please state licence number and confirm that you have made a return to NPWS on the numbers actually affected by that licence

9. **Proposed Dates for Works:** Please indicate the timeframe that you propose to carry out works. Dates set by NPWS may differ from dates proposed here.

Start Date:	September 2024
End Date:	15th October 2024

10. Please tick which reason below explains How this Application Qualifies under Regulation 54(2)(A-E) of the European Communities (Birds and Natural Habitats) Regulations:

a.	In the interests of protecting wild flora and fauna and conserving natural habitats	☐
b.	To prevent serious damage, in particular to crops, livestock, forests, fisheries and water and other types of property	☐
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	☒
d.	For the purpose of research and education, of re-populating and re-introducing these species and for the breeding operations necessary for these purposes, including artificial propagation of plants	☐
e.	To allow, under strictly supervised conditions, on a selective basis and to a limited extent, the taking or keeping of certain specimens of the species to the extent specified therein, which are referred to in the First Schedule	☐

11. Report Checklist: Please append a detailed report to support this application and ensure that it contains the following information:

11.1	Explanation as to why the derogation licence sought is the only available option for works and no suitable alternative exists as per Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations.	☒
11.2	Evidence that actions permitted by a derogation licence will not be detrimental to the maintenance of the populations of the species to which the Habitats Directive relates at a favourable conservation status in their natural range as is required under Section 54(2) of the European Communities (Birds and Natural Habitats) Regulations.	☒
11.3	Details of any mitigation measures planned for the species affected by the derogation at the location, along with evidence that such mitigation has been successful elsewhere.	☒
11.4	As much information as possible to allow a decision to be made on this application.	☒

Part D. Declaration

I declare that all of the foregoing particulars are, to the best of my knowledge and belief, true and correct. I understand that the deliberate killing, injuring, capturing or disturbing of protected species, or damage or destruction of their breeding sites or resting places or the deliberate taking or destroying of eggs is an offence without a licence and that it is a legal requirement to comply with the conditions of any licence I may be granted following this application. I understand that NPWS may visit to check compliance with a licence.

Please note that under Regulation 5 of the European Communities (Birds and Natural Habitats) Regulations 2011-2021 an authorised officer may enter and inspect any land or premises for the purposes of performing any of his or her functions under these Regulations or for obtaining any information which he or she may require for such purposes.

Signature of the Applicant **Date** 29/08/24

Name in BLOCK LETTERS FERGAL MAGUIRE

PRIVACY STATEMENT`

Please note that under Data Protection legislation Wildlife Licencing Unit staff may only discuss licence applications with the applicant, and not with any third party. See Privacy Statement at www.npws.ie/licences

npws.ie

Department of Housing, Local Government and Heritage

An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreachta
Department of Housing,
Local Government and Heritage

AVRIO

Application for Licence Exclusion of Bats for Development Purposes: Method Statement

Lissanode Bridge, Drumraney, Co. Westmeath

Project Details:

Project Reference:	AEMP – 338 (DI--T33)
Date of Issue:	3rd September 2024
Client:	Design ID
Address:	Lissanode Bridge, Drumraney, Co. Westmeath (IGR: N 18659 45469)
Services Provided:	Preparation of a 'Derogation Licence Method Statement'

AVRIO Quality Information:

Prepared by:	Sam McCaul (Ecological Consultant) **AVRIO Environmental Management**	Signed: 
Reviewed by:	Callum Neill (Ecological Consultant) **AVRIO Environmental Management**	Signed: 
Approved by:	Fergal Maguire (Environmental & Ecological Consultant) **AVRIO Environmental Management**	Signed: 

Limitations

AVRIO Environmental Management ("AVRIO") has prepared this report for the sole use of the Client in accordance with the Agreement under which AVRIO's services are performed. No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by AVRIO. This report is confidential and may not be disclosed by the Client nor relied upon by any other party without the prior and express written Agreement of AVRIO.

Conclusions and recommendations contained within this report are based on information provided by others. AVRIO assumes all relevant information provided by those parties from whom it was requested is accurate. Information obtained by AVRIO was not independently verified by AVRIO unless otherwise stated in the report.

The works described in this report was undertaken between March 2024 and September 2024. These works were based on the conditions encountered and the information available during this said period of time. AVRIO accepts no liability for any matters arising if any recommendations contained in this document are not carried out or are partially carried out without further advice being obtained from AVRIO. This report is based on site conditions witnessed by AVRIO or other parties as required in accordance with the Agreement under which AVRIO's services are performed. The scope of this report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and, where appropriate, are subject to further investigations or information which may become available.

AVRIO disclaim any undertaking or obligation to advise any person of any change in any matter affecting the report, which may come or be brought to AVRIO's attention after the date of the report.

Certain statements made in this report that are not historical facts may constitute estimates, projections, or other forward-looking statements. Even though these are based on reasonable assumptions as of the date of the report, such forward-looking statements, by their nature, involve risks and uncertainties that could cause actual results to differ materially from the results predicted. AVRIO explicitly does not guarantee or warrant any estimate or projections contained in this report.

Unless otherwise stated in this report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant changes.

Where field investigations are carried out, these investigations have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time, and further confirmatory analyses should be made after any significant delay in issuing this report.

1. Document 1 – Background and Supporting Information

A. Executive Summary

AVRIO Environmental Management was appointed by Design ID on behalf of the Westmeath County Council to prepare a Bat Derogation Licence application, to allow for bridge repair works to occur at Lissanode Bridge, Drumraney, Co. Westmeath.

The project will consist of the maintenance of existing masonry work on Lissanode bridge, removal of patches of vegetation and piping of drainage stream which are impacting retaining walls. Bat surveys undertaken during the 2024 active season identified 1-no. transitional/occasional Common Pipistrelle roost, occupied by approx. 2-no. bats.

This licence application is submitted to allow the derogation of the roosts identified during the survey in order to permit the proposed works.

Mitigation measures have been proposed, with the erection of 2-no. bat boxes on surrounding mature trees. Any bats encountered during maintenance works will be carefully removed by the appointed bat ecologist and placed into one of the bat boxes on site.

B. Introduction

B.1 Background Activity

AVRIO Environmental Management was appointed by Design ID on behalf of the Westmeath County Council to prepare a Bat Derogation Licence application, to allow for bridge repair works to occur at Lissanode Bridge, Drumraney, Co. Westmeath. The project will consist of the maintenance of existing masonry work on Lissanode bridge, removal of patches of vegetation and piping of drainage stream which are impacting retaining walls; this is detailed further below. Bat surveys undertaken during the 2024 active season identified 1-no. transitional/occasional Common Pipistrelle roost, occupied by approx. 2-no. bats.

B.2 Proposed Works

The development is part of a Bridge Repair Project, namely "Lissanode Bridge" in Lissanode, Drumraney, County Westmeath (IGR: N 18659 45469). Lissanode Bridge is listed on the record of Protected Structures for County Westmeath (Ref No: 023-001) and is registered on the National Inventory of Architectural Hertiage (Reg No: 15402301). In accordance with the 3rd edition of the Preliminary Design Report produced by Design ID, repair works will include:

- Repair and localised rebuilding of masonry parapets on both north and south elevations equal to the height of existing parapets using original masonry where practicable. Where original masonry cannot be re-used, new masonry, to match existing masonry, may be needed;
- Repair and localised rebuilding of masonry retaining walls on both north and south elevations using original masonry where practicable. Again, where original masonry cannot be re-used, new masonry may be needed. Note: more significant rebuilding of the southeastern retaining wall will be required once the large tree stump has been removed;
- Extension of piped stream to outflow closer to the river in order to prevent undermining of retaining wall;
- Flush repointing of entire structure with fine ashlar pointing, where needed depending on each element, and standard flush repointing and bedding works elsewhere. This includes the repointing of the arch barrel, abutments, spandrel walls, parapets and retaining walls;
- Resetting of masonry capping stones along the top of both north and south parapets;
- Install pattress plate and tie rod systems to spandrel and retaining walls, if deemed necessary on-site;
- Cast stepped concrete overslab over bridge arch. Resurface asphalt over carriageway area. Install concrete rubbing strips and ancillary items– road gullies and drainage; and,

- Scour apron repair – breakout of 1.75m length and repair existing concrete slab on upstream/north end. 1m³ of total repair volume using fibre reinforced concrete. River flow will be partially dammed using a temporary cofferdam, consisting of a modular frame around the area of repair and a watertight fabric layer, preventing intrusions from the river and leaving no trace once removed.

Works will involve the destruction of a Common Pipistrelle roost within the structure (occupied by approx. 2 individual Bats) The roost was assessed as a transitional/occasional summer roost occupied by 2-no. Common Pipistrelle Bats. As this roost was identified, works will take place during September/October 2024 before the end of the Bat derogation period, outwith the maternity and hibernation season for Bats.

C. Survey and Site Assessment

C.1 Pre-existing Site Information

The following bat species were recorded on the National Biodiversity Data Centre (NBDC) website within 2km of the site.

- Soprano Pipistrelle (*Pipistrellus pygmaeus*) – Last Recorded 09/10/2009

Table 1-0 below provides the information regarding the relevant landscape importance records for the site obtained from a review of the NBDC bat landscape website.

Table 1-0: Bat Landscape Importance Records

Common Name	Scientific Name	Landscape Importance[1]
All Bats	*Vespertilionidae spp.*	24.56
Brown long-eared bat	*Plecotus auritus*	26
Common pipistrelle	*Pipistrellus pipistrellus*	42
Daubenton's bat	*Myotis daubentonii*	28
Leisler's bat	*Nyctalus leisleri*	40
Lesser horseshoe bat	*Rhinolophus hipposideros*	1
Nathusius' pipistrelle	*Pipistrellus nathusii*	5
Natterer's bat	*Myotis nattereri*	27
Soprano pipistrelle	*Pipistrellus pygmaeus*	43
Whiskered bat	*Myotis mystacinus*	9

[1] The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats. Within the range of favourability presented for each species a 5-point range has been established which is translated here on a corresponding 5-point scale (very low – very high). It must be noted, however, that grid squares highlighted as less favourable may still have local areas of abundance.

C.2 Species Status

According to the distribution maps from NBDC[2], Common Pipistrelles are widely distributed throughout Northern Ireland and Ireland.

C.3 Survey Objectives

Objectives of the current survey was to establish if roosting bats were present on site and determine species and numbers and type of roost(s) present.

C.4 Survey Area

The site is located on a local road in Drumraney, County Westmeath. The site is located approximately 4.3km southwest of Ballymore Village Centre, 15.1km northeast of Athlone Town Centre, and 26km west of Mullingar Town Centre. The site is located at Irish Grid Reference (IGR): N 18659 45469.

C.5 Site Description

The site consists of a bridge, namely the Lissanode Bridge, which provides means for vehicle and pedestrian transport over the Dungolman River; the river flows from the south of the site to the north, under the Lissanode Bridge.

To the north of the site is downstream of the Dungolman River, treelines, agricultural grassland, and hedgerows. To the east of the site is road towards Rosemount, treelines, and agricultural grassland. To the south of the site is upstream of the Dungolman River, treelines, agricultural grassland, and hedgerows. To the west of the site is road towards Lissanode, agricultural grasslands, and a stable associated with a local farm.

Lissanode Bridge is listed on the record of Protected Structures for County Westmeath (Ref No: 023-001) and is registered on the National Inventory of Architectural Heritage (Reg No: 15402301).

C.6 Field Methodology

Bat (Vespertilionidae spp.) Scoping Survey

The preliminary roost assessment (PRA) was undertaken by an experienced bat ecologist in line with current assessment criteria set out by the Bat Conservation Trust[3] (BCT). The PRA encompassed the trees, structures, and habitats within the site.

[2] https://maps.biodiversityireland.ie/Species/
[3] Collins, J. (ed.) 2016: Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London.

This assessment incorporated a detailed inspection of the building's exterior on-site to look for features that bats could use for entry/exit and roosting and to search for signs of bats. A systematic search was conducted of the exterior of the buildings to identify any potential or actual access points. A search was made of the ground and exterior building fabric.

Roost Assessment for Trees

Roost surveys of trees frequently adopt a staged approach, with the initial survey being a preliminary ground-level roost assessment. This preliminary ground-level roost assessment is a detailed inspection of the exterior of the tree from ground level to identify any features that bats may utilise for roosting, such as:

- Woodpecker holes
- Rot holes
- Hazard beams
- Other vertical or horizontal cracks and splits (such as frost-cracks) in stems or branches
- Partially detached platey bark
- Knot holes arising from naturally shed branches, or branches previously pruned back to the branch collar
- Man-made holes (e.g., cavities that have developed from flush cuts) or cavities created by branches tearing out from parent stems
- Cankers (caused by localised bark death) in which cavities have developed
- Other hollows or cavities, including butt-rots
- Double leaders forming compression forks with included bark and potential cavities
- Gaps between overlapping stems or branches
- Partially detached Ivy with stem diameters in excess of 50mm
- Bat, bird, or dormouse boxes

Signs of use by bats (besides the actual presence of individuals) include:

- Bat droppings in, around, or below a roosting feature
- Odour emanating from a feature
- Audible squeaking at dusk or in warm weather

- Staining below a suitable feature

The PRA (Preliminary Roost Assessment) aims to assess the likelihood of roosts being present within the trees located throughout the site.

In accordance with BCT guidelines, the inspection survey was carried out systematically and consistently around all parts of the tree, from all angles and both close to the trunk and further away.

Emergence/Re-entry Survey

The Emergence/Re-entry Survey was undertaken by experienced bat ecologists in line with current assessment criteria outlined by the Bat Conservation Trust (BCT).

The emergence/re-entry survey aims to establish if a roost is present within or immediately adjacent to the site. The survey also details the main foraging and commuting routes for bats within the site boundary. This information is then used to determine the type and extent of any mitigation/compensation measures that may be required to ensure that any detrimental impact on the local status of the species is not adversely affected in line with current legislation.

According to BCT guidelines, monitoring points were established around the buildings to ensure that suitable potential roosting features (PRF's) initially identified during the preliminary survey were monitored for emergence and/or re-entry.

Accurate numbers of bats can be difficult to determine during the survey; therefore, each bat pass was recorded to species level, including the time it was identified, its location, and behaviour. This information is used to help characterise any roosts that may be present within or immediately adjacent to the site.

The dusk surveys commenced at least 15 minutes prior to sunset and continued until a minimum of 1.5 hours after sunset. Surveys were undertaken during optimal climatic conditions for bat activity (i.e., warm temperatures > 7^{o}C, no more than light rain, and no or only light winds).

Equipment

Each surveyor was equipped with the following:

- Echo Meter Touch 2 Pro – this meter utilises an FG Electret omnidirectional microphone which allows for full-spectrum sampling and was connected to an iPad which allows the surveyor to view live sonograms and record in real time.
- High powered torch.

In addition to the above, surveyors used thermal imaging cameras and infrared cameras as follows:

- Guide IR TrackIR Pro 19 Thermal Imaging (640x480) Monocular - The TrackIR PRO Series can also connect to a smartphone via a dedicated App, this allows the unit to be operated remotely, share captured photos & videos as well as be live viewed.

- NightFox Whisker – Night Vision Infra-red Binoculars which offer Flood-to-Spot Infrared LED light to light up objects over 900 feet from the narrowest beam;

Survey Constraints

Weather conditions were considered optimal during each of the surveys. No other constraints were experienced during any of the site surveys, which adversely impacted the quality of the surveys conducted or the results obtained.

Survey Effort Surveyors

In accordance with BCT guidelines, structures/buildings assessed as having moderate Bat roost potential require 2-no. emergence surveys between May and September, undertaken at least 3 weeks apart, with at least one of these surveys carried out between May and August. Therefore, 2-no emergence surveys were undertaken on the evening of the 16th of May 2024 and 25th of June 2024 for Lissanode Bridge on-site.

Surveyors

Surveys herein were undertaken by Fergal Maguire BSc (Hons) PIEMA. Survey assistance was provided by Callum Neill MSci (Hons) and Katie Teague.

Fergal Maguire: Fergal Maguire BSc (Hons), PIEMA, is General Manager and Principal Ecologist at AVRIO Environmental Management. He holds an NDA and BSc (Hons) in Environmental Science from the Institute of Technology, Sligo. Fergal is a member of the Institute of Environmental Management & Assessment (IEMA), an organisation requiring peer review and a high standard of professional conduct. He has over 12 years of experience within the environmental industry. He has experience contributing to a number of Environmental Impact Assessments, environmental licence and surrender applications, including Industrial Emissions Licences (IEL), Integrated Pollution Control Licences (IPC) and Waste Licences for submission to the Irish Environmental Protection Agency (EPA), Northern Ireland Environment Agency (NIEA), Scottish Environment Protection Agency (SEPA), United Kingdom Environment Agency (E.A.) and a number of Local Authorities throughout the U.K. and Ireland. Fergal has extensive experience in the sustainable development and management of a number of IED licenced facilities throughout Ireland, the U.K. and greater Europe, as well as general consultancy within the waste management, environmental compliance, and ecological sectors. Fergal has extensive experience in Ecological Impact Assessments (EcIA), including priority species such as Bats, Badgers, Otter, Red Squirrel, Pine Marten and breeding birds, and habitats assessments including Phase I and Fossitt Habitat Surveys. Fergal has extensive experience in Habitat Regulation Assessments (HRA/AASR/NIS), Ecological Clerk of Works (ECoW), Invasive Species Surveys and Management and production of site-specific mitigation proposals for a range of developments throughout Northern Ireland and the Republic of Ireland.

Callum Neill: Survey Assistance was provided by Callum Neill. Callum is an ecologist at AVRIO Environmental Management. Callum has a master's degree in marine biology from Queen's University Belfast. Callum has been undertaking environmental surveys in Northern Ireland and the Republic of Ireland since 2020 including Preliminary Ecological Appraisal (PEA), Preliminary Roost Assessments (PRA) and bat emergence/re-entry surveys on a variety of sites. Callum also has vast experience in leading intertidal surveys and

at-sea/marine surveys, working for a variety of non-governmental organisations and academic institutions. Callum has experience contributing to habitat assessments including JNCC Phase I Habitat Surveys and Fossitt Habitat Surveys as well as producing a range of ecological reports including Preliminary Ecological Appraisals, Invasive Species Management Plans, Habitat Regulation Assessments (HRA/AASR/NIS).

Katie Teague: Survey Assistance was provided by Katie Teague. Katie is currently undertaking an undergraduate degree in Environmental Management from Queens University Belfast. Katie has been undertaking environmental surveys in Northern Ireland and the Republic of Ireland since 2022, including Preliminary Ecological Appraisal (PEA), Preliminary Roost Assessments (PRA) and Bat emergence/re-entry surveys on a variety of sites. Katie has experience contributing to habitat assessments including Phase I and Fossitt Habitat Surveys. Additionally, Katie has experience contributing to Habitat Regulation Assessment (HRA/AASR/NIS) and Invasive Species Surveys for a range of developments throughout Northern Ireland and the Republic of Ireland.

Timing of Survey and Weather Conditions

Table 2 details the dates of each of the activity surveys and the climatic conditions encountered. Weather conditions at all times were considered optimal for activity and would not have prevented bat emergence.

Table 2: Survey Date, Time & Climatic Conditions

Survey Date	Details & Conditions							
	Survey Time				Temp. min °C	Wind	Ppt^{n}	Cloud Cover %
	Start	End	Sunrise	Sunset				
16/05/2024	21:15	23:30	N/A	21:24	13	Light breeze (10mph)	Nil	75
25/06/2024	22:27	23:30	N/A	22:09	15	Breeze (11mph)	Nil	100

C.7 Field Survey Results

PRA of Buildings on-site

The preliminary roost assessment (PRA) was undertaken by an experienced bat ecologist in line with current assessment criteria set out by the Bat Conservation Trust[4] (BCT) on the 6th of March 2024. 1-no. structure was assessed for Bat Roosting Potential (BRP) on-site. This structure was identified as the "Lissanode Bridge", hereby "B1".

[4] Collins, J. (ed.) 2016: Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London.

B1 on-site is to be repaired and rebuilt in accordance with current site plans. B1 comprises two stone wall structures situated on either side of the road (Lissanode to Rehan); the foundations of these walls are embedded within the riverbanks. An underbridge spans over the River Dungolman beneath, which flows perpendicular to the direction of the bridge. Certain sections of the stone wall exhibit missing stone, and a portion of the southern wall to the west has become detached.

AVRIO conducted two Bat Emergence/Re-entry surveys between May and September of each potential roosting feature (PRF) with moderate potential.

Activity Survey Results

Emergence and re-entry surveys were undertaken on the 16th of May 2024 and the 25th of June 2024.

Table 3 below detail the bat activity observed and recorded on site during the surveys. It is important to note that as each observation is recorded and as individual bats are difficult to distinguish between passes, the number of registrations made must not be misinterpreted and cannot be construed to provide any indication of the actual number of individual bats of any species at the application site.

Table 3-1: Dusk Survey Results of emergence survey for Lissanode Bridge – 16/05/2024

Time	Species	Activity
21:37	*P. pygmaeus*	Detected Commuting – Not observed visually
21:40	*N. leisleri*	Detected Commuting – Not observed visually
21:53	*P. pipistrellus*	Detected Commuting – Not observed visually
21:57	*P. pipistrellus*	Detected Commuting – Not observed visually
21:58	*P. pipistrellus*	Observed Commuting up hedgerow/tree line
22:01	*N. leisleri*	Observed Commuting east to west over Bridge
22:02	*P. pipistrellus*	Observed Commuting west to east over Bridge
22:03	*P. pipistrellus*	Observed Commuting west to east over Bridge
22:04	*P. pygmaeus*	Observed Commuting east to west over Bridge
22:05	*P. pipistrellus*	Observed Foraging
22:07	*P. pipistrellus*	Observed Emerging from under the bridge
22:08	*P. pygmaeus*	Detected Foraging – Not observed visually
22:09	*P. pipistrellus*	Detected Foraging – Not observed visually
22:10	*P. pipistrellus*	Detected Commuting – Not observed visually

Time	Species	Activity
22:12	*P. pipistrellus*	Observed Commuting east to west over Bridge
22:13	*P. pipistrellus*	Detected Commuting – Not observed visually
22:14	*P. pipistrellus*	Observed Foraging
22:15	*P. pipistrellus*	Detected Commuting – Not observed visually
22:16	*P. pipistrellus*	Observed Foraging
22:17	*P. pipistrellus*	Detected Foraging – Not observed visually
22:18	*N. leisleri*	Detected Foraging – Not observed visually
22:19	*P. nathusii*	Observed Commuting west to east over Bridge
22:20	*P. pipistrellus*	Detected Foraging – Not observed visually
22:22	*P. pipistrellus*	Detected Commuting – Not observed visually
22:23	*P. pipistrellus*	Detected Commuting – Not observed visually
22:24	*P. pipistrellus*	Detected Commuting – Not observed visually
22:25	*P. pipistrellus*	Detected Foraging – Not observed visually
22:26	*P. pipistrelle*	Detected Foraging – Not observed visually
22:27	*P. pipistrellus*	Detected Foraging – Not observed visually
22:28	*P. nathusii*	Detected Foraging – Not observed visually
22:29	*P. pipistrellus*	Observed Emerging from under the bridge
22:31	*P. pipistrellus*	Observed Emerging from under the bridge
22:32	*P. pipistrellus*	Detected Foraging – Not observed visually
22:33	*P. pygmaeus*	Observed Commuting out from under the bridge
22:34	*P. auritus*	Observed Commuting under bridge
22:35	*P. pipistrellus*	Detected Foraging – Not observed visually
22:36	*P. pipistrellus*	Observed Commuting under bridge
22:37	*P. pipistrellus*	Detected Foraging – Not observed visually
22:38	*P. pipistrellus*	Detected Foraging – Not observed visually

Time	Species	Activity
22:39	*P. pipistrellus*	Detected Foraging – Not observed visually
22:40	*P. pipistrellus*	Detected Foraging – Not observed visually
22:41	*P. pipistrellus*	Detected Foraging – Not observed visually
22:43	*P. nathusii*	Detected Foraging – Not observed visually
22:44	*P. pygmaeus*	Detected Foraging – Not observed visually
22:45	*P. pipistrellus*	Detected Foraging – Not observed visually
22:46	*P. nathusii*	Detected Foraging – Not observed visually
22:47	*P. pipistrellus*	Detected Foraging – Not observed visually
22:49	*P. pipistrellus*	Detected Foraging – Not observed visually
22:51	*P. pipistrellus*	Detected Foraging – Not observed visually
22:53	*P. pipistrellus*	Detected Foraging – Not observed visually
22:55	*N. leisleri*	Detected Foraging – Not observed visually

Table 3-2: Dusk Survey results of emergence survey for Lissanode Bridge – 25/06/2024

Time	Species	Activity
22:33	*N. leisleri*	Detected Foraging – Not observed visually
22:35	*P. pygmaeus*	Detected Commuting – Not observed visually
22:48	*P. pygmaeus*	Detected Commuting – Not observed visually
22:55	*N. leisleri*	Detected Commuting – Not observed visually
23:01	*N. leisleri*	Observed commuting under bridge
23:06	*P. pygmaeus*	Detected Foraging – Not observed visually
23:09	*P. pygmaeus*	Observed Commuting under bridge from east to west
23:10	*P. pygmaeus*	Detected Commuting – Not observed visually
23:16	*P. pipistrellus*	Detected Commuting – Not observed visually
23:17	*P. pipistrellus*	Detected Commuting – Not observed visually

23:18	*P. pygmaeus*	Observed commuting under the bridge
23:20	*P. pipistrellus*	Detected Foraging – Not observed visually
23:21	*P. pipistrellus*	Observed Commuting through bridge and travelling west

C.8 Interpretation of Survey Results

The site itself is deemed optimal suitability for commuting and foraging Bats. The Broadleaved Woodland, Broadleaved Scattered Trees, and Dense Scrub habitats on-site and within the locality were assessed as suitable as they may form part of ecological corridors to suitable habitats in the wider environs e.g., River Oaks to the south of the site and various woodlands.

Lissanode Bridge (B1) on-site was assessed as being of moderate Bat roosting potential.

Roosts

A transitional/occasional summer roost for approx. 2-no. Common Pipistrelle Bats (*Pipistrellus pipistrellus*) was identified within Lissanode Bridge (B1). A transitional/occasional roost is a roost used by a few individuals or occasionally small groups of Bats for generally short periods of time, often within the summer months, while Bats move between more permanent roosts.

Bat Mitigation Plan

The removal of said roosts will have a negative impact on the conservation status of the species in its natural range in the absence of appropriate mitigation.

Works will involve the removal of 1-no. Common Pipistrelle roost within the structure (occupied by 2 Common Pipistrelle Bats). Destruction of this roost will have negative effects on the conservation status of these species within their natural range, in the absence of mitigation. In order for the works to proceed, sufficient mitigation accompanied by a wildlife licence application will need to be submitted to NPWS for the exclusion of Bats from their roost and subsequent destruction of the roost thereafter.

To satisfy the provisions of the Habitats Regulations, it must be shown that the proposed development will not have a detrimental impact on the conservation status of the species in its natural range.

Buildings

Under licence, Bats will be excluded from their roost (within Lissanode Bridge) via one-way exclusion measures carried out by an experience Bat ecologist; these exclusion works will only occur after appropriate mitigation has been installed on-site e.g., the erection of 2-no. Bat boxes. A Bat emergence survey will be undertaken hereafter to confirm the

absence of Bats from the identified roost. If no Bats are detected emerging/re-entering the identified roost, the proposed maintenance works to Lissanode Bridge will commence. If Bats are observed during the emergence survey, Bats will continue to be excluded from the roost with a subsequent Bat emergence survey; this measure will continue until all Bats have been excluded from the identified roost. Proposed maintenance works will commence a maximum of 24-no. hours after the completion of the Bat emergence survey where no Bats are observed emerging/re-entering the roost.

Trees

Bat activity surveys identified the treelines and hedgerows bounding the site as being of high conservation value for commuting and foraging bats as a number of bats incorporating several species utilise this site regularly for commuting and foraging. If plans include the removal of these treelines and hedgerows, it will have negative effects on commuting and foraging bats, with the potential to affect the conservation status of this species in its natural range in the absence of mitigation. The loss of this commuting and foraging habitat should be avoided where possible. Where this is not possible, the design should provide supplementary planting to mitigate the loss that this habitat will have on commuting and foraging bats. Further recommendations are provided below.

D. Impact Assessment in Absence of Mitigation

D.1 Short Term Impacts

The proposed development works involve the repair/maintenance of Lissanode bridge containing bat roosts; these works will involve the destruction of 1-no. Common Pipistrelle transitional/occasional roost. Short-term impacts include disturbance from noise and dust during demolition activities. Boundary vegetation is to be retained and protected during the works. However, activities will not take place during periods of darkness when bats may be active in the local area.

D.2 Long Term Impacts

Roost Modification

When the proposed works are complete, they will involve the exclusion of bats from their roost and subsequent destruction of the roost due to maintenance works to Lissanode Bridge, containing 1-no. transitional/occasional roost occupied by approx. 2-no. Common Pipistrelle bats.

Roost Loss

The proposed works will entail the exclusion and subsequent destruction of the identified roosts within Lissanode Bridge on site. During the Bat emergence survey undertaken on the 16th of May 2024, 2-no. individual Common Pipistrelle bats were observed emerging from the bridge at 22:07pm and 22:29pm respectively. This was classified as a Transitional/Occasional roost with approx. 2-no. Common Pipistrelle bats present.

The roost was classified as a transitional/occasional roost. Emergence activity was only noted on the dusk survey on the 16th of May 2024. The survey on the 25th of June 2024 only recorded foraging and commuting behaviour. The lack of emergence/re-entry activity suggests the identified roosts for both Common Pipistrelle and Soprano Pipistrelle were transitional or occasional roosts. The roost is defined as being "used by few individuals or occasionally small groups for generally short periods of time on waking from hibernation or in the period prior to hibernation." [5] The removal of said roosts will have a negative impact on the conservation status of the species in its natural range in the absence of appropriate mitigation. Mitigation proposals include the provision of suitable roosting provision with 2-no. bat boxes erected on site. The loss of the roost within Lissanode Bridge has been assessed as having of moderate adverse impact on the populations in its local range.

[5] Collins, J. (ed.) 2016: Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London.

Fragmentation and Isolation

Given the scope of works, the lack of vegetation around Lissanode Bridge, and that boundary treelines and vegetation are to be retained and protected during construction works, there will be no changes to the baseline suitability of the site for commuting and forging. It is not envisaged that habitat fragmentation will occur due to the proposed works.

Post Development Interference Impacts

It is not thought that there will be any post-development impacts on Bats, as no additional night-time lighting is proposed for the site, with the exception of any necessary security lighting, fitted with movement sensors, at the front entrance of the building only.

Predicted Scale of Impact

The species noted on site during the activity survey are given protection under the Conservation Regulations. The plan of works has mitigation measures in place in order to ensure the protection of bats during demolition activities. Artificial roosting provision will be incorporated within the site and will remain *in situ.* It is not predicted that there will be any major adverse impact on the local bat populations as the boxes chosen have positively shown uptake by these species in Ireland and the UK.

Impacts will occur with initial works at the site level and have no major long-term effects or impacts on the populations in the local, county, and regional context.

E. Land Ownership

The land is owned by the developer and will be utilised to carry a public road across the Lissanode River.

2. Document 2: Delivery Information

A. Mitigation & Compensation

Mitigation works will include the supervision of the maintenance works of Lissanode Bridge identified as containing evidence of roosting bats.

Under licence, Bats will be excluded from their roost (within Lissanode Bridge) via one-way exclusion measures carried out by an experience Bat ecologist; these exclusion works will only occur after appropriate mitigation has been installed on-site e.g., the erection of 2-no. Bat boxes. A Bat emergence survey will be undertaken hereafter to confirm the absence of Bats from the identified roost. If no Bats are detected emerging/re-entering the identified roost, the proposed maintenance works to Lissanode Bridge will commence. If Bats are observed during the emergence survey, Bats will continue to be excluded from the roost with a subsequent Bat emergence survey; this measure will continue until all Bats have been excluded from the identified roost. Proposed maintenance works will commence a maximum of 24-no. hours after the completion of the Bat emergence survey where no Bats are observed emerging/re-entering the roost.

It is proposed to have the maintenance works commence at the earliest opportunity in September/October 2024, with works only taking place over a few days. Works will proceed once suitable temperatures are encountered (i.e., periods of cold weather and frost will be avoided in order to ensure that any hibernating/torpid bats are not disturbed).

Mitigation measures will be required on-site in order to provide additional roosting provision for bats (requirement of the licence application). It is recommended that 2-no. Bat boxes are implemented into design plans. The Bat box will be situated south/southwest facing, at a height of between 3-6 metres on suitable mature trees to the north and south of the bridge, away from any potential disturbance. The Bat box will provide roosting provisions for local Bat populations.

The following bat boxes are recommended for the site:

- 1 x Schwegler 2FN;
- 1 x Schwegler 2F;

These boxes will provide a variety of different shapes and sizes, all of which have recorded uptake of Pipistrelle bats. The ecologist will identify siting of the boxes prior to site operations.

If these bat boxes are unavailable at the time of derogation works, the Ecologist will recommend other suitable bat boxes that would provide sufficient roost space for bats. Examples of bat boxes that could be utilised as an alternative include the following:

- Beaumaris bat box;

- Low profile woodstone bat boxes (also known as Chillon woodstone bat box); and
- Vivara pro woodstone bat box.

B. Works to be undertaken by the Ecologist

B.1 Capture & Exclusion

Any bats encountered during the maintenance works process will be carefully removed by hand and transported to a bat box which will be in place on a nearby tree. The ecologist will undertake an endoscope survey of any suitable cavities as works progress along the stonework of the bridge. Should bats be identified, these will be safely removed (by hand) to the nearby bat box by an experienced bat handler. An emergence and/or re-entry survey will be undertaken prior to maintenance to ensure that there are no roosts remaining within the bridge.

B.2 Timing of Works

Works are proposed for i.e., at the end of September/October 2025, outwith the hibernation season and prior to the maternity season.

B.3 Additional Surveys

An activity survey (emergence or re-entry) survey will be undertaken once the maintenance masonry works have been carried out. Endoscope surveys will also be carried out of any suitable cavities within the stonework prior to maintenance works.

Appropriate health & safety precautions will be adhered to at all times. Bats will only be handled by an experienced bat ecologist, wearing gloves and who has been inoculated against rabies. If an injured bat is discovered, it will be cared for by an experienced bat carer and released back to the site when deemed suitable. Any uncovered bats (if uninjured) will be placed within a nearby bat box. Contractors are explicitly forbidden from handling bats.

C. Works to be undertaken by the Developer/Landowner

C.1 In-situ retention of roost(s)

No roosts will remain *in-situ* due to the maintenance of the proposed masonry works on site. However, artificial roosting provision will be provided.

C.2 Modification of existing roost(s)

The existing roosts will be excluded during maintenance works.

C.3 New Roost Creation

As detailed above, 2-no. bat boxes will be erected on nearby trees prior to demolition works.

C.4 Scaled Maps/Plans

Current Site Plans are included in the Bat Emergence Survey report, attached as an Appendix below.

D. Post Development Site Safeguard

All land management post-construction will be undertaken by the site owner.

E. Timetable of Works

Table 7: Timetable of works

Activity	Timing	Notes
Erection of bat boxes	September 2024	Bat boxes are to be located on nearby trees with siting to be chosen by the project ecologist, it is recommended that two bat boxes are placed on mature trees bounding the site to mitigate the loss of the 1-no. bat roosts.
Maintenance of bridge on site	September/October 2024	Maintenance activities such as masonry work are to be overseen by an ecologist. Any uncovered bats will be removed by hand and placed in a nearby bat box. Emergence/re-entry survey to be undertaken prior to demolition.

Appendix – “Bat Emergence Survey – Lissanode Bridge, Drumraney, Co. Westmeath”

AVRIO

Bat Emergence Survey

Lissanode Bridge, Drumraney, Co, Westmeath

Project Details:

Project Reference:	AEMP – 338 (DI-T25)
Date of Issue:	4th July 2024
Client:	Design ID
Address:	Lissanode Bridge, Drumraney, Co, Westmeath (IGR: N 18659 45469)
Services Provided:	Bat Emergence Survey

AVRIO Quality Information:

Prepared by:	Méabh McMahon (Ecology Student) AVRIO Environmental Management	Signed: 
Reviewed by:	Jack Hamill (Ecological Consultant) AVRIO Environmental Management	Signed: 
Approved by:	Fergal Maguire (Principal Environmental & Ecological Consultant) AVRIO Environmental Management	Signed: 

Contents

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Conclusions and recommendations contained within this report are based on information provided by others. AVRIO assumes all relevant information provided by those parties from whom it was requested is accurate. Information obtained by AVRIO was not independently verified by AVRIO unless otherwise stated in the report.

The works described in this report were undertaken between May 2024 and July 2024. These works were based on the conditions encountered and the information available during this said period of time. AVRIO accepts no liability for any matters arising if any recommendations contained in this document are not carried out or are partially carried out without further advice being obtained from AVRIO. This report is based on site conditions witnessed by AVRIO, or other parties as required in accordance with the Agreement under which AVRIO's services are performed. The scope of this report and the services are accordingly factually limited by these circumstances.

Where assessments of works or costs identified in this report are made, such assessments are based upon the information available at the time and, where appropriate, are subject to further investigations or information which may become available.

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Certain statements made in this report that are not historical facts may constitute estimates, projections, or other forward-looking statements. Even though these are based on reasonable assumptions as of the date of the report, such forward-looking statements, by their nature, involve risks and uncertainties that could cause actual results to differ materially from the results predicted. AVRIO explicitly does not guarantee or warrant any estimate or projections contained in this report.

Unless otherwise stated in this report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant changes.

Where field investigations are carried out, these investigations have been restricted to a level of detail required to meet the stated objectives of the services. The results of any measurements taken may vary spatially or with time, and further confirmatory analyses should be made after any significant delay in issuing this report.

Executive Summary

AVRIO Environmental Management, hereafter 'AVRIO', was engaged to a Bat Emergence survey of Bridge located at Drumraney, Co. Westmeath. The site is located approximately 4.3km southwest of Ballymore Village Centre. The site is located at Irish Grid Reference (IGR): N 18659 45469.

The Daytime Bat Walkover survey, conducted on the 6th of March 2024 by AVRIO Environmental Management, classified Lissanode Bridge on-site as being of Moderate Bat Roosting Potential. Therefore, in accordance with NPWS and BCT guidelines, the Lissanode Bridge structure required 2-no. emergence surveys between May and September. These survey's were undertaken on the evening of 16th of May 2024 and the evening of the 25th of June.

During the first dusk survey, a large amount of Bat activity was recorded. The first Bat was observed at 21:58 pm; this was a Common Pipistrelle, commuting above a hedgerow at Lissanode Bridge. Leiser's Bats and Soprano Pipistrelle Bats were observed at 22:01 and 22:02 commuting through the site. Additionally, at 22.03 pm, until 22:05, individual Common Pipistrelle Bats were observed commuting from east to west and from west to east respectively, over Lissanode Bridge. Individual Common Pipistrelle Bats were observed emerging out of the bridge structure at 22:07 and 22:29. Further Common Pipistrelle Bats were observed commuting and foraging at 22:12 to 22:14. From 22:29 to 22:33, Common Pipistrelle Bats were observed commuting under Lissanode Bridge. The last detected Bat was a Leisler's Bat, which was detected foraging via the Echo meter at 22:55 pm. No further Bat activity was observed or detected during the survey. The survey ceased at 23:00pm.

During the second survey (25/6/24), the first Bat (Leisler's Bat) was detected commuting via the Echo meter at 22:33 pm. The first Bat was observed at 23:01 pm; this was a Leisler's Bat, commuting under Lissanode Bridge. A Soprano Pipistrelle Bat was observed at 23:09 foraging and exiting the view of the camera through the south entry of the bridge. The last observed Bat activity was at 23:18 pm when a Soprano Pipistrelle was observed commuting under Lissanode Bridge. The last detected Bat was a Common Pipistrelle Bat, which was detected foraging via the Echo meter at 23:21 pm. No further Bat activity was observed or detected during the survey. The survey ceased at 23:30pm. Notably, 2-no. Common Pipistrelle Bats were observed emerging from the Lissanode Bridge structure, from potential roosts during both surveys. (Common Pipistrelle Bats). Following the emergence Bat survey, as 1-no Bat roosts were identified during the survey, it has been concluded that works on-site will potentially have adverse effects on roosting Bats. Proposed works include repair works to the bridge structure on-site. Works will involve the destruction of a Common Pipistrelle roost within the structure (occupied by approx. 2 individual Bats) The roost was assessed as a transitional/occasional summer roost occupied by 2-no. Common Pipistrelle Bats. Figure 7 below identifies the Common Pipistrelle roost location.

In order for the works to proceed, sufficient mitigation (as outlined in section 6.3) accompanied with a wildlife licence application will need to be submitted to NPWS for the exclusion of Bats from their roost and subsequent destruction of the roosts thereafter. The submission of this wildlife licence application should be undertaken post planning consent, prior to any construction activities. To satisfy the provisions of the Habitats Regulations, it must be shown that the proposed development will not have a detrimental

impact on the conservation status of the species in its natural range. Recommendations and mitigation measures have been provided below to offset any impacts as a result of the proposed works.

The development site is considered optimal for commuting and foraging Bats. The proposal does not currently include a lighting plan, should lighting be required as part of the development works, further recommendations are provided below for a Bat friendly lighting design. Site works will require the removal of 1-no. large tree stump, no further removal of boundary vegetation has been proposed as part of site works. Site enhancement measures to include planting of hedgerows, and trees are additionally recommended, should removal of boundary vegetation (beyond the 1-no. tree stump) be required as part of site works. Considering such, assessments conclude there will be no adverse impacts on commuting and foraging Bats. The proposal will ensure that habitat connectivity remains, and fragmentation will not occur. It is not envisaged there will be any negative impacts on commuting and foraging Bats.

1. Introduction

1.1 Remit

AVRIO Environmental Management, hereafter 'AVRIO', was engaged to a Bat Emergence survey of Bridge located at Drumraney, Co. Westmeath. The site is located approximately 4.3km southwest of Ballymore Village Centre, 15.1km northeast of Athlone Town Centre, and 25.4km northwest of Tullamore Town Centre. The site is located at Irish Grid Reference (IGR): N 18659 45469.

The assessment was made following the DBW survey undertaken by AVRIO on the 6th of March 2024 which comprised a Preliminary Roost Assessment of buildings/structures on-site and a Ground-Level Tree Assessment (GLTA) of trees within the site boundary. This DBW survey identified one structure on-site, Lissanode Bridge as having Moderate Bat roosting potential. Lissanode Bridge on-site classified as having Moderate Bat roosting potential and required two emergence survey between May and September, undertaken at least 3 weeks apart, with at least one survey being undertaken between May and August in accordance with BCT guidance.

This report details the results of the Bat Emergence survey.

1.2 Surveyors

Surveys herein were undertaken by Fergal Maguire NDA, BSc (Hons), survey assistance was provided by Katie Teague.

Fergal Maguire: The Bat Emergence Survey was undertaken by and this report has been approved by Fergal Maguire. Fergal Maguire NDA, BSc (Hons), PIEMA, is General Manager and Principal Ecological and Environmental Consultant at AVRIO Environmental Management. He holds an NDA and BSc (Hons) in Environmental Science from the Institute of Technology, Sligo. Fergal is a member of the Institute of Environmental Management & Assessment (IEMA), an organisation requiring peer review and a high standard of professional conduct. He has over 12 years of experience within the environmental industry. He has experience contributing to a number of Environmental Impact Assessments, environmental licence and surrender applications, including Industrial Emissions Licences (IEL), Integrated Pollution Control Licences (IPC) and Waste Licences for submission to the Irish Environmental Protection Agency (EPA), Northern Ireland Environment Agency (NIEA), Scottish Environment Protection Agency (SEPA), United Kingdom Environment Agency (E.A.) and a number of Local Authorities throughout the U.K. and Ireland. Fergal has extensive experience in the sustainable development and management of a number of IED licenced facilities throughout Ireland, the U.K. and greater Europe, as well as general consultancy within the waste management, environmental compliance, and ecological sectors. Fergal has extensive experience in Ecological Impact Assessments (EcIA), including priority species such as Bats, Badgers, Otter, Red Squirrel, Pine Marten and breeding birds, and habitats assessments including Phase I and Fossitt Habitat Surveys. Fergal has extensive experience in Habitat Regulation Assessments (HRA/AASR/NIS), Ecological Clerk of Works (ECoW), Invasive Species Surveys and Management and production of site-specific mitigation proposals for a range of developments throughout Northern Ireland and the Republic of Ireland.

Katie Teague: The Bat Emergence Survey was undertaken by Katie Teague. Katie is currently undertaking an undergraduate degree in Environmental Management from Queens University Belfast. Katie has been undertaking environmental surveys in Northern Ireland and the Republic of Ireland since 2022, including Preliminary Ecological Appraisal (PEA), Preliminary Roost Assessments (PRA) and Bat emergence/re-entry surveys on a variety of sites. Katie has experience contributing to habitat assessments including Phase I and Fossitt Habitat Surveys. Additionally, Katie has experience contributing to Habitat Regulation Assessment (HRA/AASR/NIS) and Invasive Species Surveys for a range of developments throughout Northern Ireland and the Republic of Ireland.

Méabh McMahon: This report was prepared by Méabh McMahon. Méabh is currently undertaking an undergraduate degree in BSc (Hons) Environmental Science and Ecology from Atlantic Technological University, Sligo. Méabh has been reporting on environmental surveys in the Republic of Ireland since 2021, including Preliminary Ecological Appraisal (PEA), Preliminary Roost Assessments (PRA) on a variety of sites. Méabh has experience contributing to habitat assessments including Phase I and Fossitt Habitat Surveys. Méabh also has experience Invasive Species Surveys for a range of developments throughout the Republic of Ireland.

Jack Hamill: This report was reviewed by Jack Hamill. Jack is an Ecologist at AVRIO Environmental Management. Jack graduated with a bachelor's degree of Science in Marine Science from the University of Ireland, Galway. Jack has experience overseeing environmental monitoring surveys in his previous roles both in Australia and Canada, he has been undertaking environmental surveys in Northern Ireland and the Republic of Ireland since 2023 including Invasive Species Surveys (ISS), Preliminary Roost Assessments (PRA), baseline ecological surveys and Bat emergence/re-entry surveys on a variety of sites throughout Ireland. Jack has experience contributing to habitat assessments including JNCC Phase I Habitat Surveys and Fossitt Habitat Surveys as well as producing a range of ecological reports including Preliminary Ecological Appraisals, Invasive Species Management Plans, Habitat Regulation Assessments (HRA/AASR/NIS).

1.3 Site Location & Description

The site is located on a local road in Drumraney, County Westmeath. The site is located approximately 4.3km southwest of Ballymore Village Centre, 15.1km northeast of Athlone Town Centre, and 26km west of Mullingar Town Centre. The site is located at Irish Grid Reference (IGR): N 18659 45469.

The site consists of a bridge, namely the Lissanode Bridge, which provides means for vehicle and pedestrian transport over the Dungolman River; the river flows from the south of the site to the north, under the Lissanode Bridge. To the north of the site is downstream of the Dungolman River, treelines, agricultural grassland, and hedgerows. To the east of the site is road towards Rosemount, treelines, and agricultural grassland. To the south of the site is upstream of the Dungolman River, treelines, agricultural grassland, and hedgerows. To the west of the site is road towards Lissanode, agricultural grasslands, and a stable associated with a local farm.

Lissanode Bridge is listed on the record of Protected Structures for County Westmeath (Ref No: 023-001) and is registered on the National Inventory of Architectural Heritage (Reg No: 15402301).

There are no SACs within 2km of the site; the closest is Ballymore Fen SAC which is situated 6.4km northeast of the site. There are no SPAs within 2km of the site; the closest is Lough Ree SPA which is situated 10.3km northwest of the site. There are no NHAs or pNHAs within 2km of the site; the closest is Ballinagrenia and Ballinderry Bog NHA which is situated 3.27km southeast of the site. There are no Nature Reserves within 1km of the site; the closest is Clare Bog Nature Reserve. There are no ancient woodlands within proximity of the site.

The site and the ecological survey area consists of Improved Agricultural Grassland (GA1), Stone Walls and Other Stonework (BL1), Dry Meadows and Grassy Verges (GS3), Drainage Ditch (FW4), Depositing/Lowland Rivers (FW2), Treeline (WL2), Hedgerow (WL1), Scrub (WS1), Spoil and Bare Ground (ED2), Buildings and Artificial Surfaces (BL3), Fence, and Dry Ditches.

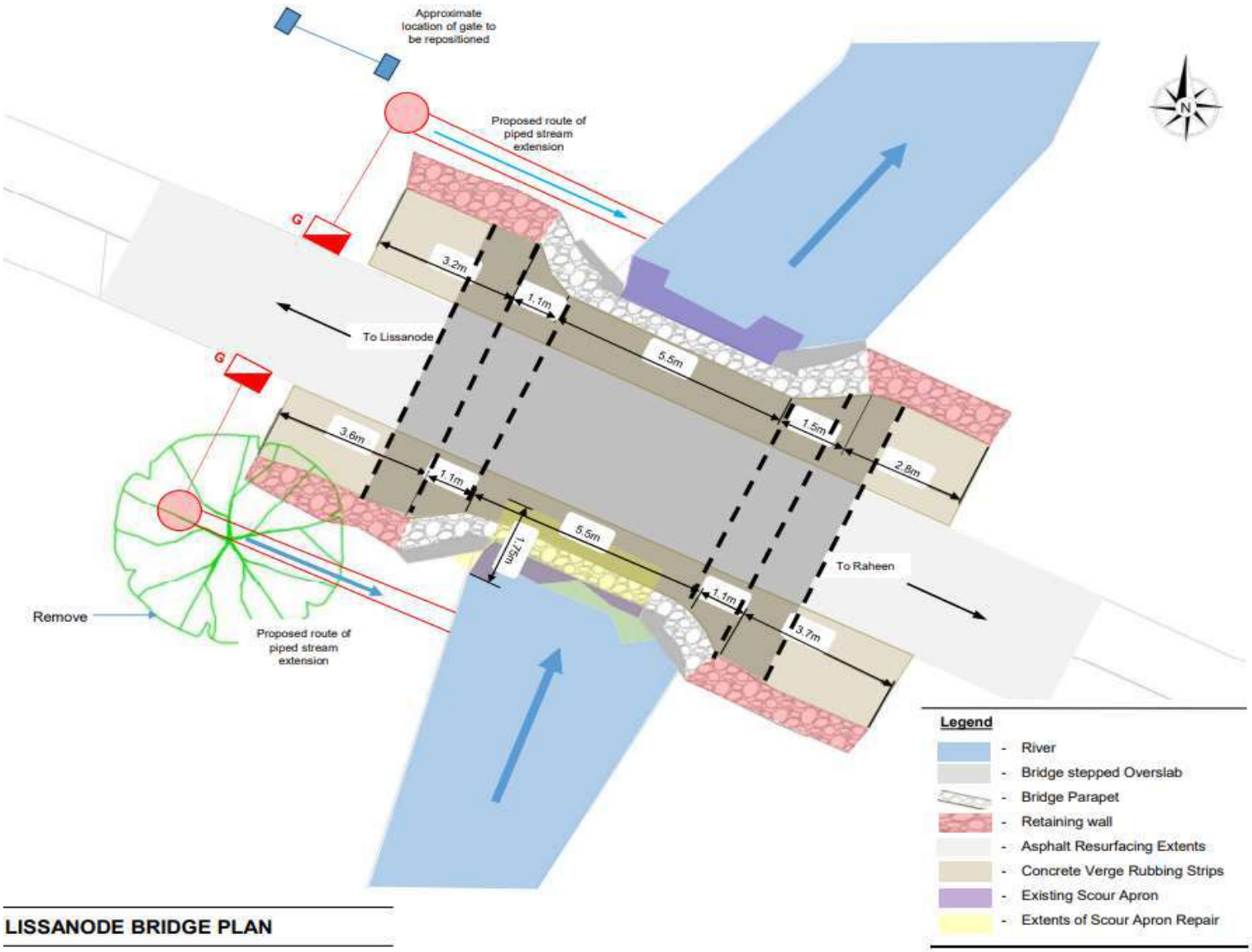
Figure 1 illustrates the boundary of the application site.

1.4 Development Details

The development involves repairs to the existing Lissanode Bridge at (IGR: N 18659 45469). The site works as provided by the client will include the following. Works on-site will include:

1. Repair and localised rebuilding of masonry parapets on both north and south elevations equal to the height of existing parapets using original masonry where practicable. Where original masonry cannot be re-used, new masonry may be needed.
2. Repair and localised rebuilding of masonry retaining walls on both north and south elevations using original masonry where practicable. Again, where original masonry cannot be re-used, new masonry may be needed. Note that more significant rebuilding of the southeastern retaining wall will be required once the large tree stump has been removed.
3. Extension of piped stream to outflow closer to the river in order to prevent undermining of retaining wall.
4. Flush repointing of entire structure with fine ashlar pointing. This includes the repointing of the arch barrel, abutments, spandrel walls, parapets and retaining walls
5. Resetting of masonry capping stones along the top of both north and south parapets.
6. Cast stepped concrete overslab over bridge arch. Resurface asphalt over carriageway area. Install concrete rubbing strips and ancillary items – road gullies and drainage

Diagram 1-1: Detailed site plans for proposed Lissanode Bridgeworks at Lissanode Bridge – British Road application site, provided by the client.



2. Methodology

2.1 Pre-survey Data Search

An online search of the application site and surrounding area was undertaken to research existing ecological knowledge of the site.

The data search involved a search for up to evidence of this species within 5km of the application site. A search for known records of notable/protected Bat species was undertaken within relevant reporting grid squares incorporating the site using the following sources:

- Mammals, Amphibians and Reptiles website were reviewed for previous records of protected or notable species (part of CEDaR and Ulster Museum records website)[1];
- National Biodiversity Data Centre (NBDC) website[2];
- EPAGIS: Environmental Protection Agency Geographic Information System[3];
- National Biodiversity Network (NBN) Atlas[4]; and
- NIEA Natural Environment Map Viewer[5].

The results of the desktop survey were utilised to direct and inform the surveys detailed below. No assessments or conclusions are based upon the results of the desk study alone.

2.2 Daytime Bat Walkover (DBW) Survey

A comprehensive Daytime Bat Walkover (DBW) survey was conducted of the application site to observe, assess, and record any habitats suitable both for commuting and foraging, and roosting Bats, on-site and in the surrounding area. This Daytime Bat Walkover survey included;

- A Preliminary Roost Assessment (PRA) of any buildings or structures and
- A Ground Level Tree Assessment (GLTA) of any trees on-site
- Both of which were undertaken by an experienced Bat ecologist in line with current guidelines set out by the Bat Conservation Trust[6] (BCT) and NPWS Bat Survey Specifications[7].

[1] Mammals, Amphibians and Reptiles: http://www.habitas.org.uk/nimars/
[2] National Biodiversity Data Centre: www.biodiversityireland.ie
[3] EPAGIS: https://gis.epa.ie/EPAMaps/
[4] National Biodiversity Network (NBN) Atlas: Explore Your Area | NBN Atlas
[5] NIEA Map Viewer: https://gis.daera-ni.gov.uk/arcgis/apps/webappviewer/index.html?id=bb721449cb8949e7a4f90c722bd2d80b
[6] Collins, J. (ed.) 2023: Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition.). The Bat Conservation Trust, London.
[7] Bat Surveys - NIEA Specific Requirements: NED Bat Survey Specifications review Dec 2023 v2.0.pdf (daera-ni.gov.uk)

2.3 Bat Emergence Survey

The Emergence Surveys were undertaken by experienced Bat ecologists in line with current NPWS, Bat Mitigation Guideline requirements[8], and the assessment criteria set out by the Bat Conservation Trust[9] (BCT).

The emergence/re-entry survey aims to establish if a roost is present within or immediately adjacent to the site. The survey also details the main foraging and commuting routes for Bats within the site boundary. This information is then used to determine the type and extent of any mitigation/compensation measures that may be required to ensure that any detrimental impact on the local status of the species is not adversely affected in line with current legislation.

According to BCT guidelines, monitoring points were established around the buildings to ensure that suitable potential roosting features (PRF's) initially identified during the preliminary survey were monitored for emergence and/or re-entry.

Accurate numbers of Bats can be difficult to determine during the survey; therefore, each Bat pass was recorded to species level, including the time it was identified, its location, and behaviour. This information is used to help characterise any roosts that may be present within or immediately adjacent to the site.

The dusk survey commenced a minimum of 15 minutes prior to sunset and continued until a minimum of 1.5 hours after sunset (2 hours maximum). Surveys were undertaken during optimal climatic conditions for Bat activity (i.e., warm temperatures > 7°C, no more than light rain, and no or only light winds).

Figure 3 attached identified the surveyor locations.

2.4 Equipment

Each surveyor was equipped with the following:

- Echo Meter Touch 2 Pro – this meter utilises an FG Electret omnidirectional microphone which allows for full-spectrum sampling and was connected to an iPad which allows the surveyor to view live sonograms and record in real time.
- High powered torch.

In addition to the above, surveyors used thermal imaging cameras and infrared cameras as follows:

- Guide IR TrackIR Pro 19 Thermal Imaging (640x480) Monocular - The TrackIR PRO Series can also connect to a smartphone via a dedicated App, this allows the unit to be operated remotely, share captured photos & videos as well as be live viewed.

[8] Bat Mitigation guidelines for Ireland: Microsoft Word - IWM 25 - BMG.doc (npws.ie)
[9] Collins, J. (ed.) 2023: Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition.). The Bat Conservation Trust, London.

- NightFox Whisker – Night Vision Infra-red Binoculars which offer Flood-to-Spot Infrared LED light to light up objects over 900 feet from the narrowest beam;

2.5 Survey Constraints

Weather conditions were overcast and dry during the survey. No constraints were experienced during the survey which adversely impacted the quality of survey conducted or results obtained.

2.6 Survey Effort

In accordance with BCT guidelines[10], structures/buildings assessed as having moderate Bat roost potential require 2-no. emergence surveys between May and September, undertaken at least 3 weeks apart, with at least one of these surveys carried out between May and August. Therefore, 2-no emergence surveys were undertaken on the evening of the 16th of May and 25th of June 2024 for Lissanode Bridge on-site.

[10] Collins, J. (ed.) 2023: Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition.). The Bat Conservation Trust, London.

3. Legislation

3.1 The Habitats Directive & Regulations

Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora, the Habitats Directive, is transposed into law in Northern Ireland by the Conservation (Natural Habitats) Regulations 1995 (as amended), the Habitats Regulations.

The Habitats Directive covers habitats and non-avian species of fauna of nature conservation importance and in danger of disappearance, for which the European Commission (EC) has a responsibility in view of the proportion of their global range. Habitats are listed and detailed in Annex I of the Directive.

Where the Habitats Directive encapsulates a presumption in favour of conserving Annex I habitats wherever they occur, prior assessment is required to determine whether any areas of habitat within the site meet the criteria for recognition as Annex I habitat types.

Bats (all species) in Ireland are listed on Annex IV of the Directive and are therefore classified as European Protected Species (EPS). These European Protected Species are considered to be of international conservation status. They are subject to a regime of strict legal protection in Ireland under the provisions of the Habitats Regulations.

Articles 12 to 16 of the Habitats Directive establish and implement a strict protection regime for plant and animal species listed in Annex IV (European Protected Species, EPS).

Part III of the Habitats Regulations establishes the protective regime which applies to EPS, wherever they occur, giving particular effect to the provisions of Article 12 of the Habitats Directive, making it an offence to:

- Deliberately to capture, injure or kill a wild animal of a European protected species;
- Deliberately to disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- Deliberately to disturb such an animal in such a way as to be likely to-
  - Affect the local distribution or abundance of the species to which it belongs;
  - Impair its ability to survive, breed or reproduce, or rear or care for its young; or
  - Impair its ability to hibernate or migrate;
  - Deliberately to take or destroy the eggs of such an animal;
- Deliberately to obstruct access to a breeding site or resting place of such an animal; or
- To damage or destroy a breeding site or resting place of such an animal.

Therefore, it is necessary to establish if Bats are utilising the site and immediate environs prior to any works commencing. Surveys must detail and describe the activity and behaviour of the species on-site and determine the nature and significance of any impacts, which may be likely to arise as a result of the proposed development.

3.2 Wildlife Act 1976 (as amended)

The Wildlife Act, 1976, is the principal national legislation providing for the protection of wildlife and the control of some activities that may adversely affect wildlife. The Wildlife Act, 1976, came into operation on 1st June 1977. It was the only major legislation concerned with wildlife that was passed in the previous 45 years. It replaced the Game Preservation Act, 1930, and the Wild Birds (Protection) Act, 1930.

The aims of the Wildlife Act, 1976, are to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims.

Under the Act, the Minister responsible for nature conservation may afford protection to all wild species of fauna and flora. However, the 1976 Act did not provide for the conservation of fish species nor of aquatic invertebrates in general, except insofar as species may be added in Agreement with the Minister for Communications, Marine and Natural Resources. Currently, all bird species, 22 other animal species or groups of species and 86 species of flora are afforded protected status.

The Act also enables the possession, trade and movement of wildlife to be regulated and controlled. Hunting and also falconry is controlled under the Act. Specific areas of importance for wildlife may be protected under the Act either as Nature Reserves, Refuges for Fauna or by way of management agreements.

Under the Act, the Minister may provide assistance and advice on wildlife matters, undertake the necessary research and promote public knowledge and understanding of wildlife.

The Wildlife Act is not concerned with animal welfare per se, as its primary purpose is the conservation of wildlife. Animal welfare is the responsibility of the Department of Agriculture and Food.

More than 6,000 licences mainly concerned with hunting and import or export species are issued by NPWS under the Act every year. Almost all licences and certificates are issued free of charge under the Act. The Minister has the power to attach conditions to any licence granted under the Act and to vary them.

The main objectives of the Wildlife (Amendment) Act, 2000 are to:

- Provide a mechanism to give statutory protection to NHAs;
- Provide for statutory protection for important geological and geomorphological sites, including fossil sites by designation as NHAs;
- Improve some existing measures, and introduce new ones, to enhance the conservation of wildlife species and their habitats;

- Enhance a number of existing controls in respect of hunting, which are designed to serve the interests of wildlife conservation;
- Broaden the scope of the Wildlife Acts to include most species, including the majority of fish and aquatic invertebrate species which were excluded from the 1976 Act;
- Introduce new provisions to enable regulation of the business of commercial shoot operators;
- Ensure or strengthen compliance with international agreements and, in particular, enable Ireland to ratify the Convention on International Trade in Endangered Species (CITES) and the African-Eurasian Migratory Waterbirds Agreement (AEWA).
- Increase substantially the level of fines for contravention of the Wildlife Acts and to allow for the imposition of prison sentences;
- Provide mechanisms to allow the Minister to act independently of forestry legislation, for example, in relation to the acquisition of land by Agreement;
- Strengthen the provisions relating to the cutting of hedgerows during the critical bird-nesting period and include a requirement that hedgerows may only be cut during that period by public bodies, including local authorities, for reasons of public health or safety;
- Strengthen the protective regime for Special Areas of Conservation (SACs) by removing any doubt that protection will in all cases apply from the time of notification of proposed sites; and,
- Give specific statutory recognition to the Minister's responsibilities in regard to promoting the conservation of biological diversity, in light of Ireland's commitment to the U.N. Convention on Biological Diversity.

4. Results

4.1 Pre-survey Data Search

The following Bat species were recorded on the National Biodiversity Data Centre (NBDC) [11] website within 2km of the site.

- Brown Long-eared Bat *(Plecotus auratus)* – Last Recorded 03/01/2022
- Soprano Pipistrelle *(Pipistrellus pygmaeus)* – Last Recorded 09/10/2009

Table 4-0 below provides the information regarding the relevant landscape importance records for the site obtained from a review of the NBDC Bat landscape website.

Table 4-0: Bat Landscape Importance Records

Common Name	Scientific Name	Landscape Importance[12]
All Bats	*Vespertilionidae spp.*	24.56
Brown Long-eared Bat	*Plecotus auritus*	26
Common Pipistrelle	*Pipistrellus pipistrellus*	42
Daubenton's Bat	*Myotis daubentonii*	28
Leisler's Bat	*Nyctalus leisleri*	40
Lesser Horseshoe Bat	*Rhinolophus hipposideros*	1
Nathusius' Pipistrelle	*Pipistrellus nathusii*	5
Natterer's Bat	*Myotis nattereri*	27
Soprano Pipistrelle	*Pipistrellus pygmaeus*	43
Whiskered Bat	*Myotis mystacinus*	9

4.2 Emergence Survey

An emergence survey was undertaken at dusk on the 16th of May and the 25th of June 2024. Table 4-1 below details the climatic conditions encountered during the survey. Weather conditions at all times were considered optimal for activity and would not have prevented Bat emergence.

[11] NBDC: Home - NBDC Ireland
[12] The index ranges from 0 to 100 with 0 being least favourable and 100 most favourable for Bats. Within the range of favourability presented for each species a 5-point range has been established which is translated here on a corresponding 5-point scale (very low – very high). It must be noted, however, that grid squares highlighted as less favourable may still have local areas of abundance.

Table 4-1: Survey Date, Time & Climatic Conditions

Survey Date	Details & Conditions							
	Survey Time				Temp. min °C	Wind	Ppt^{n}	Cloud Cover %
	Start	End	Sunrise	Sunset				
16/05/2024	21.15	23:30	N/A	21:24	13	Light breeze (10mph)	Nil	75
25/06/2024	22:27	23:30	N/A	22:09	15	Breeze (11mph)	Nil	100

Several species of Bats were detected during the emergence surveys including Brown Long-eared Bats, Common Pipistrelle Bats, Leisler's Bats and Soprano Pipistrelle Bats.

Activity noted during the dusk surveys is illustrated in Figure 4, 5 and 6 in the Appendix. Sonogram extracts from survey undertaken of the Lissanode Bridge are provided in Figures 8, 9, 10, 11 and 12.

Appendix Table 1 & 2 below detail the Bat activity observed and recorded during the Bat emergence survey.

It is important to note that as each observation is recorded and as individual Bats are difficult to distinguish between passes, the number of registrations made must not be misinterpreted and cannot be construed to provide any indication of the actual number of individual Bat of any species at the site.

5. Discussion & Assessment

5.1 Bats

The site itself is deemed optimal suitability for commuting and foraging Bats. The Broadleaved Woodland, Broadleaved Scattered Trees, and Dense Scrub habitats on-site and within the locality were assessed as suitable as they may form part of ecological corridors to suitable habitats in the wider environs e.g., River Oaks to the south of the site and various woodlands. Lissanode Bridge structure on-site was assessed as being of moderate Bat roost potential and required 2-no. emergence surveys, undertaken between May and September, undertaken at least 3 weeks apart, with at least 1 survey carried out between May and August, in accordance with BCT and NPWS guidelines.

5.1.1 Dusk Survey – 16/05/2024

During the survey, a large amount of Bat activity was recorded. The first Bat (Soprano Pipistrelle Bat) was detected commuting via the Echo meter at 21:37 pm. The first Bat was observed at 21:58 pm; this was a Common Pipistrelle, commuting up a hedgerow at Lissanode Bridge. Leiser's Bats and Soprano Pipistrelle Bats were observed at 22:01 and 22:02 commuting. Additionally, at 22.03 pm, until 22:05, single Common Pipistrelle Bats were observed commuting east to west and west to east over Lissanode Bridge. Individual Common Pipistrelle Bats were observed emerging out of the bridge at 22:07 and 22:29. Single Common Pipistrelle Bats were observed commuting and foraging at 22:12 to 22:14. There was a single Brown Long-Eared Bat recorded during this survey, at 22:34, observed commuting under the bridge. The last observed Bat activity was at 22.36 pm when a Common Pipistrelle was observed Communting under Lissanode Bridge. The last detected Bat was a Leisler's Bat, which was detected foraging via the Echo meter at 22:55 pm. No further Bat activity was observed or detected during the survey. Notably, Bats were observed emerging from the Lissanode Bridge structure from roosts within the structure during the survey. The survey ceased at 23:00pm.

5.1.2 Dusk Survey – 25/06/2024

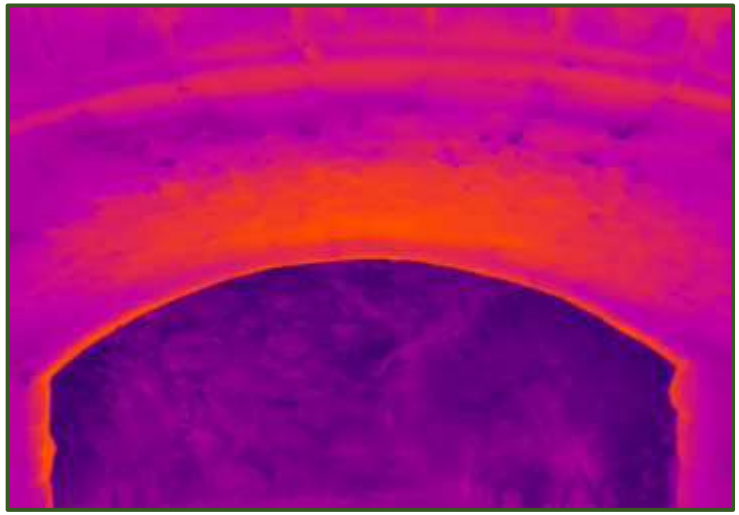
Common Pipistrelle Bats and Soprano Pipistrelle Bats were the most commonly detected Bat species during this survey. The first Bat (Leisler's Bat) was detected commuting via the Echo meter at 22:33 pm. The first Bat was observed at 23:01 pm; this was a Leisler's Bat, commuting under Lissanode Bridge. A Soprano Pipistrelle Bat was observed at 23:09 foraging and exiting the view of the camera through the south entry of the bridge. The last observed Bat activity was at 23:18 pm when a Soprano Pipistrelle was observed commuting under Lissanode Bridge. The last detected Bat was a Common Pipistrelle Bat, which was detected foraging via the Echo meter at 23:21 pm. No further Bat activity was observed or detected during the survey. Notably, Bats were observed emerging from Lissanode Bridge from potential roosts during the survey. The survey ceased at 23:30pm.

Picture 1: Image showing location of Lissanode Bridge prior to Bat Emergence Survey on 16/05/2024 the surveyor was positioned at this aspect

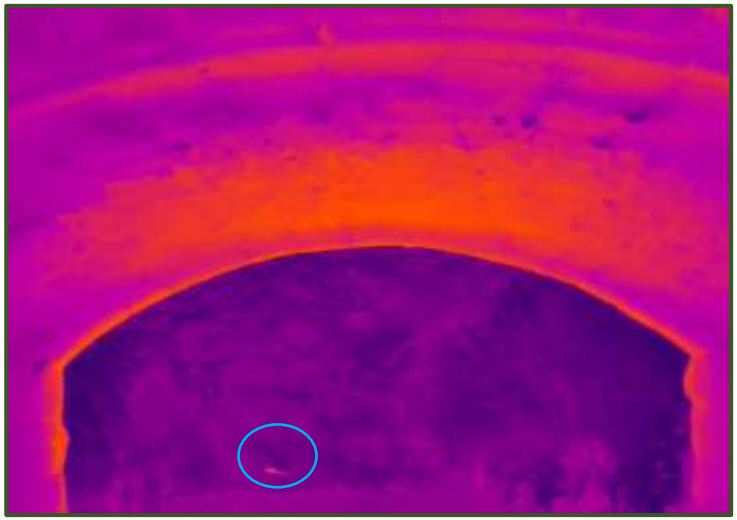
Picture 2: Image showing underpass of Lissanode Bridge; the image was taken from the north side of Lissanode Bridge

Picture 3: Image showing location of Lissanode Bridge prior to Bat Emergence Survey on 16/05/2024 – the infrared camera was positioned at this aspect

Picture 4: Still shot taken at darkest point of survey on the 16/05/24 showing field of view as required under BCT guidelines



Picture 5: Still shot taken at darkest point of survey on the 25/06/24 showing field of view as required under BCT guidelines



Picture 6: Still shot taken showing observed Bat at 23:18 from survey on the 25/05/24– *see Appendix 2*

5.1.3 Potential Impacts on Bats

The roost identified within the structure is likely occupied by 2-no. Common Pipistrelle Bats. This roost was assessed as a transitional/occasional summer roost. A transitional/occasional summer is a place used by a few individuals or occasionally small groups for generally short periods of time often used in the summer months, while moving between more permanent roosts.

Following the emergence Bat surveys, it is concluded the development of the bridge may have adverse effects on roosting Bats.

Works will involve the destruction of 1-no. Common Pipistrelle roost within the structure (occupied by 2 Common Pipistrelle Bats). Destruction of this roost will have negative effects on the conservation status of these species within their natural range, in the absence of mitigation. In order for the works to proceed, sufficient mitigation accompanied by a wildlife licence application will need to be submitted to NPWS for the exclusion of Bats from their roost and subsequent destruction of the roost thereafter. The submission of this wildlife licence application should be undertaken post planning consent, prior to any construction activities. To satisfy the provisions of the Habitats Regulations, it must be shown that the proposed development will not have a detrimental impact on the conservation status of the species in its natural range. Further recommendations are provided below.

5.1.4 Potential Impact on Commuting & Foraging Bats

Treelines and hedgerows within the bounds of the site may be removed as part of development activities. Bat activity surveys identified this area as being of moderate conservation value for commuting and foraging Bats of a number of species which utilise site regularly for commuting and foraging. Removal of these treelines and hedgerows will have negative effects on commuting and foraging Bats with the potential to affect the conservation status of this species in its natural range in the absence of mitigation. The loss of this commuting and foraging habitat should be avoided where possible. Where this is not possible, the design should provide for supplementary planting to mitigate the loss the removal of this habitat will have on commuting and foraging Bats. Further recommendations are provided below.

Proposed works include repair works to the masonry and repointing of the bridge on-site. The proposal does not currently include a lighting design. Further recommendations are provided below regarding lighting for the safeguarding of commuting and foraging Bats on-site.

6. Recommendations & Mitigation Measures

6.1 Prior to Development Works

As detailed above, a licence application will need to be submitted to NPWS for the exclusion and destruction of the identified Bat roosts. This licence application should be accompanied by a method statement that will detail all works on-site and mitigation measures to be incorporated into the development. No works to the bridge structure assessed as being of Moderate Bat roost potential are permitted until this licence is received from NPWS. The Bat derogation licence will be accompanied by an appropriate method. The submission of this wildlife licence application should be undertaken post planning consent, prior to any construction activities. For timeframe purposes, it should be noted that it can take a minimum of 3 weeks for a licence application to be processed, however it is recommended applications should allow for 6-8 weeks of processing time. For construction timeframes, it should be noted that derogation works are only permitted outwith the sensitive times in the lifecycle of a Bat, i.e. no works to roosting sites are permitted during the maternity season (mid-May to mid-August) and during the hibernation season (mid-October to mid-March).

The method statement will need to detail the steps to be undertaken for exclusion and destruction of the identified roosts, such as:

- Mitigation Bat boxes to be erected on-site prior to any works to the bridge structure;
- An emergence survey undertaken of the bridge structure prior to any exclusion methods being undertaken to the structure.
- Under license, exclusion devices/cones will be fit into the potential entry/exit points of the bridge structure where Bats were observed emerging during the surveys. These devices will remain in place for a period of 72 hours to allow Bats to exit but prevent re-entry.
- A post-exclusion emergence survey to be undertaken post installation of the exclusion devices to ensure no further Bats are roosting within the bridge structure. Should further Bats be recorded emerging from this structure, the exclusion processes outlined above must be repeated.
- Once it has been determined that all Bats have been excluded from roosts within the bridge structure, proceed with repair works, including filling the entry/exit holes.

Considering Bats are a highly mobile species, if construction works have not started within a period of 18 months of the initial survey (16/05/2024), a pre-construction emergence Bat survey should be undertaken a minimum of 8 weeks prior to works commencing to check for any additional roosting Bats which may have occupied the buildings after the original Bat survey date.

6.2 During Development Works

6.2.1 Noise

Noise and vibration caused through the use of machinery or due to movement of site traffic should be kept to a minimum at times when Bats are active within close proximity to the site i.e., around sunrise and sunset times during the active season (April to September).

6.2.2 Lighting

Any temporary night-time lighting proposed for the site should be focused along internal access roads and the works area. It is recommended that the number of lights required on-site is kept to the minimum level required for site safety. The lighting of the site should ensure that the lights are designed in such a way that there is no rearward spill or artificial illumination of important commuting/foraging features such as boundary vegetation or hedgerows/treelines. These areas should remain in darkness and should not be subjected to light levels greater than 1 lux. Dark corridors should be maintained in areas to ensure movement remains viable through the site for nocturnal species. The lighting design for the site should follow the general recommendations provided by BCT[13] for Bats and lighting (outlined below).

- All luminaries should lack U.V. 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 the blue light component;
- Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to Bats;
- Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill;
- Only luminaires with an upward light ratio of 0% and with good optical control should be used;
- Luminaires should always be mounted on the horizontal, i.e., no upward tilt; and
- 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.

6.3 Mitigation Measures

Mitigation measures will be required on-site in order to provide additional roosting provision for Bats (requirement of the licence application). AVRIO recommend the implementation of a Bat box that is suitable for a Soprano Pipistrelle Bat or Leisler's Bat to roost. The Bat box will be sited south/southwest facing, at a height of between 3 and 6 metres in suitable mature trees to the north and south of the bridge, away from any potential disturbance. The Bat box will provide roosting provisions for local Bat populations.

The following Bat boxes are recommended for the site:

o 1 x Schwegler 2FN;

o 1 x Schwegler 2F; and

These boxes will provide a suitable roost for Bats, this brand of Bat box has recorded uptake of Pipistrelle. The ecologist will identify siting of the box prior to site operations.

[13] BCT (2023): Guidance Note 8 – Bats and artificial lighting in the UK.

If these Bat boxes are unavailable at the time of derogation works, the Ecologist will recommend other suitable Bat boxes that would provide sufficient roost space for Bats. Examples of Bat boxes that could be utilised as an alternative include the following:

o Beaumaris Bat box;

o Low profile woodstone Bat boxes (also known as Chillon woodstone Bat box); and

o Vivara pro woodstone Bat box.

6.4 Site Enhancement

In addition to the compensation measures proposed in section 6.3, further tree or building mounted Bat boxes will be fitted in suitable locations surrounding the site. The boxes will be placed in areas which are least likely to be disturbed during the development or operation phases of the scheme. The target species likely to use these measures are Soprano Pipistrelle Bats, Common Pipistrelle Bats and Leisler's Bats, which have been recorded on site. The boxes fitted will also benefit other species of Bats which may be present locally. The type and number of additional Bat boxes to be fitted are specified below:

o 1 x Large Multi Chamber WoodStone Bat Box.

If these Bat boxes are unavailable at the time of derogation works, the Ecologist will recommend other suitable Bat boxes that would provide sufficient roost space for Bats. Examples of Bat boxes that could be utilised as an alternative include the following:

o Schwegler 2F; o Beaumaris Bat box;

o Low profile WoodStone Bat boxes (also known as Chillon WoodStone Bat box); and

o Vivara pro WoodStone Bat box.

6.5 Supplementary Flora Planting

Where possible boundary vegetation/trees on-site should be retained. Scattered trees and scrub habitat within the bounds of the site may be removed as part of development activities. Bat activity surveys identified this area as being of moderate conservation value for commuting and foraging Bats as many numbers of Bats incorporating several species use this site regularly for commuting and foraging.

Compensatory tree and hedgerow planting should be incorporated into the development proposal to negate the loss of this habitat as a result of the proposed development. In order to ensure habitat connectivity is maintained and no impact to commuting and foraging Bats occurs; it is recommended that native trees and hedgerows are planted

throughout the development site. The aim of planting proposals should be to create and maintain linear habitat features which will connect into existing mature boundary vegetation.

Compensatory planting should include native species such as the following:

Tree Species	Hedgerow Species
Alder - *Alnus glutinosa*	Hazel - *Corylus avellana*
Downy birch - *Betula pubescens*	Blackthorn - *Prunus spinosa*
Hazel - *Corylus avellana*	Holly - *Ilex aquifolium*
Sessile oak - *Quercus petraea*	Gorse - *Ulex europaeus*
Pedunculate oak - *Quercus robur*	Yew - *Taxus baccata*
Rowan - *Sorbus aucuparia*	Hazel - *Corylus avellana*

The contractor should ensure that all retained vegetation is protected prior to works on-site. This will involve erecting a visible barrier at the outer limit of the crown spread or at a distance of half the height of the tree, whichever is greater. Trees must be protected from direct impact and severance or asphyxiation of the roots. British Standard BS5837 'Trees in relation to construction' must be adhered to. Once the above planting proposals are implemented, the proposal will ensure that habitat connectivity remains, and fragmentation will not occur.

7. Figures

Legend:

Ecological Survey Area

Bridge Outline

Project Title: AEMP-2000338 Lissanode Bridge, Drumraney, Co, Westmeath	
Drawing Title: Survey Site Boundary	
Drawn By: MM	Checked By: FM
Project No: 2000338	Drawing No: Figure 1
Scale: 1/400	Date: 4th July 2024

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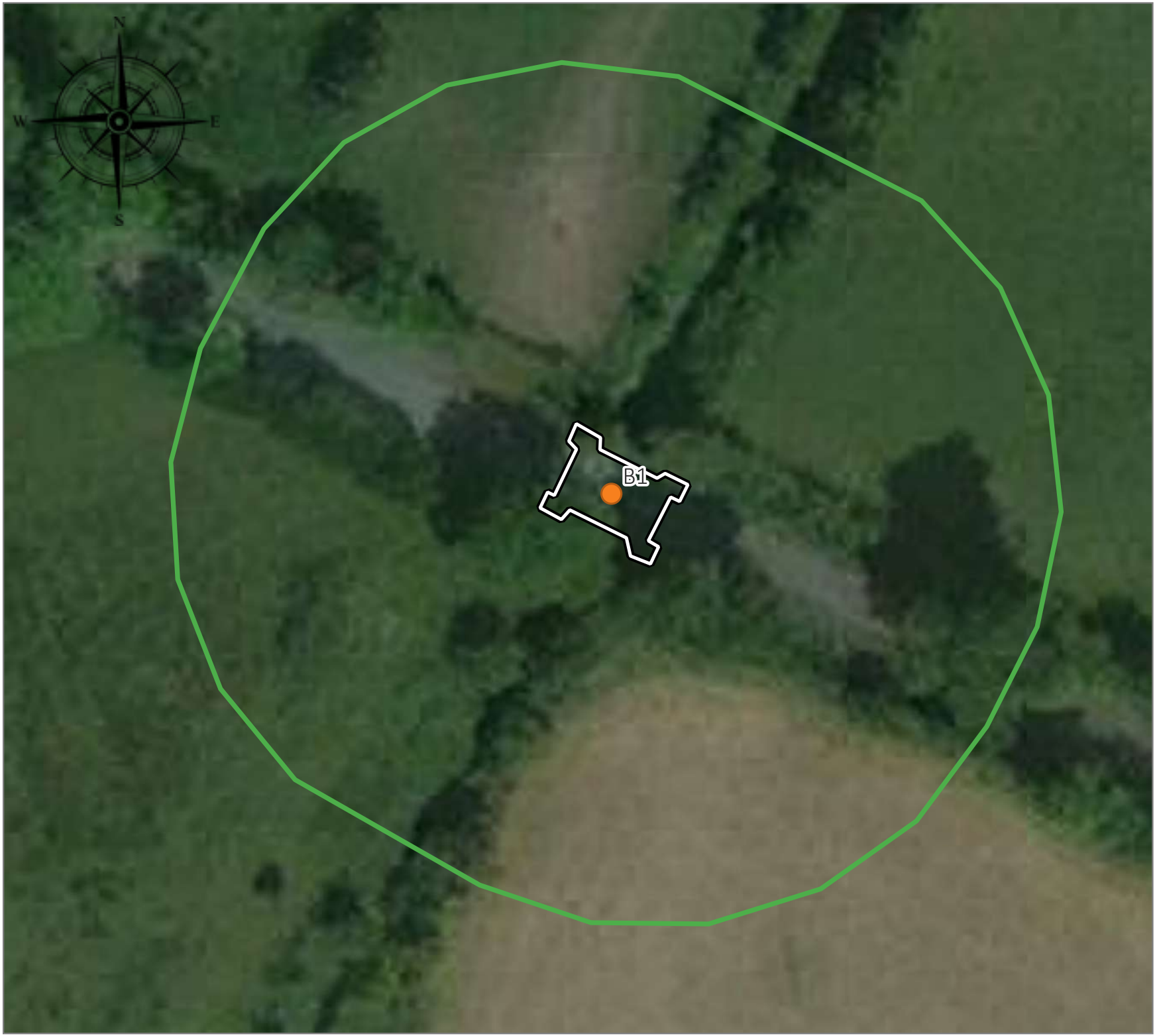

Legend:

- Ecological Survey Area
- Bridge Outline
- Moderate Bat Roost Potential

Project Title:
AEMP-2000338

Lissanode Bridge, Drumraney, Co, Westmeath

Drawing Title:
Structures with Bat Roost Potential

Drawn By:	Checked By:
MM	FM
Project No: 2000338	Drawing No: Figure 2
Scale: 1/400	Date: 4th July 2024

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Legend:

- Ecological Survey Area
- Bridge Outline
- Camera Location
- Camera View
- Surveyor Location
- Surveyor View

Project Title:
AEMP-2000338

Lissanode Bridge, Drumraney, Co, Westmeath

Drawing Title:
Location of Surveyors and Infrared Cameras

Drawn By:	Checked By:
MM	FM
Project No: 2000338	Drawing No: Figure 3
Scale: 1/400	Date: 4th July 2024

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Legend:

- Ecological Survey Area
- Bridge Outline
- Common Pipistrelle Routes

Project Title: AEMP-2000338 Lissanode Bridge, Drumraney, Co, Westmeath	
Drawing Title: Common Pipistrelle Bat Route During Surveying	
Drawn By: MM	Checked By: FM
Project No: 2000338	Drawing No: Figure 4
Scale: 1/400	Date: 4th July 2024

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Legend:

- Ecological Survey Area
- Bridge Outline
- Soprano Pipistrelle Route

Project Title: AEMP-2000338 Lissanode Bridge, Drumraney, Co, Westmeath	
Drawing Title: Soprano Pipistrelle Bat Route During Surveying	
Drawn By: MM	Checked By: FM
Project No: 2000338	Drawing No: Figure 5
Scale: 1/400	Date: 4th July 2024

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Legend:

- Ecological Survey Area
- Bridge Outline
- Leisler's Bat Route

Project Title:
AEMP-2000338

Lissanode Bridge, Drumraney, Co, Westmeath

Drawing Title:
Leisler's Bat Route During Surveying

Drawn By:	Checked By:
MM	FM
Project No:	Drawing No:
2000338	Figure 6
Scale:	Date:
1/400	4th July 2024

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Legend:

- Ecological Survey Area
- Bridge Outline
- Common Pipistrelle Bat Roost

Project Title: AEMP-2000338 Lissanode Bridge, Drumraney, Co, Westmeath	
Drawing Title: Bat Roost Locations	
Drawn By: MM	Checked By: FM
Project No: 2000338	Drawing No: Figure 7
Scale: 1/400	Date: 4th July 2024

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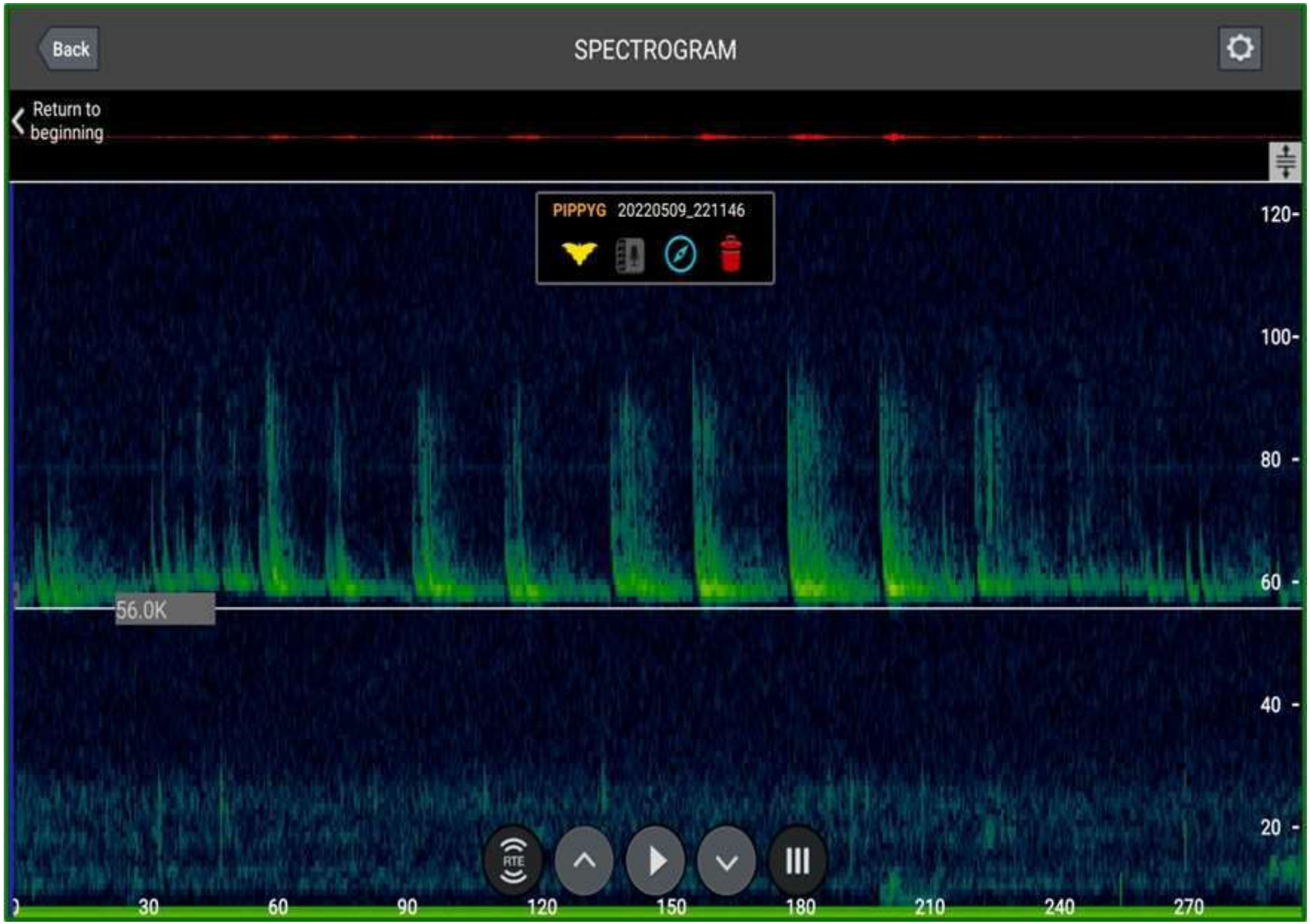

Figure 8: Soprano Pipistrelle Bat Echolocation Sonogram – 16th May 2024

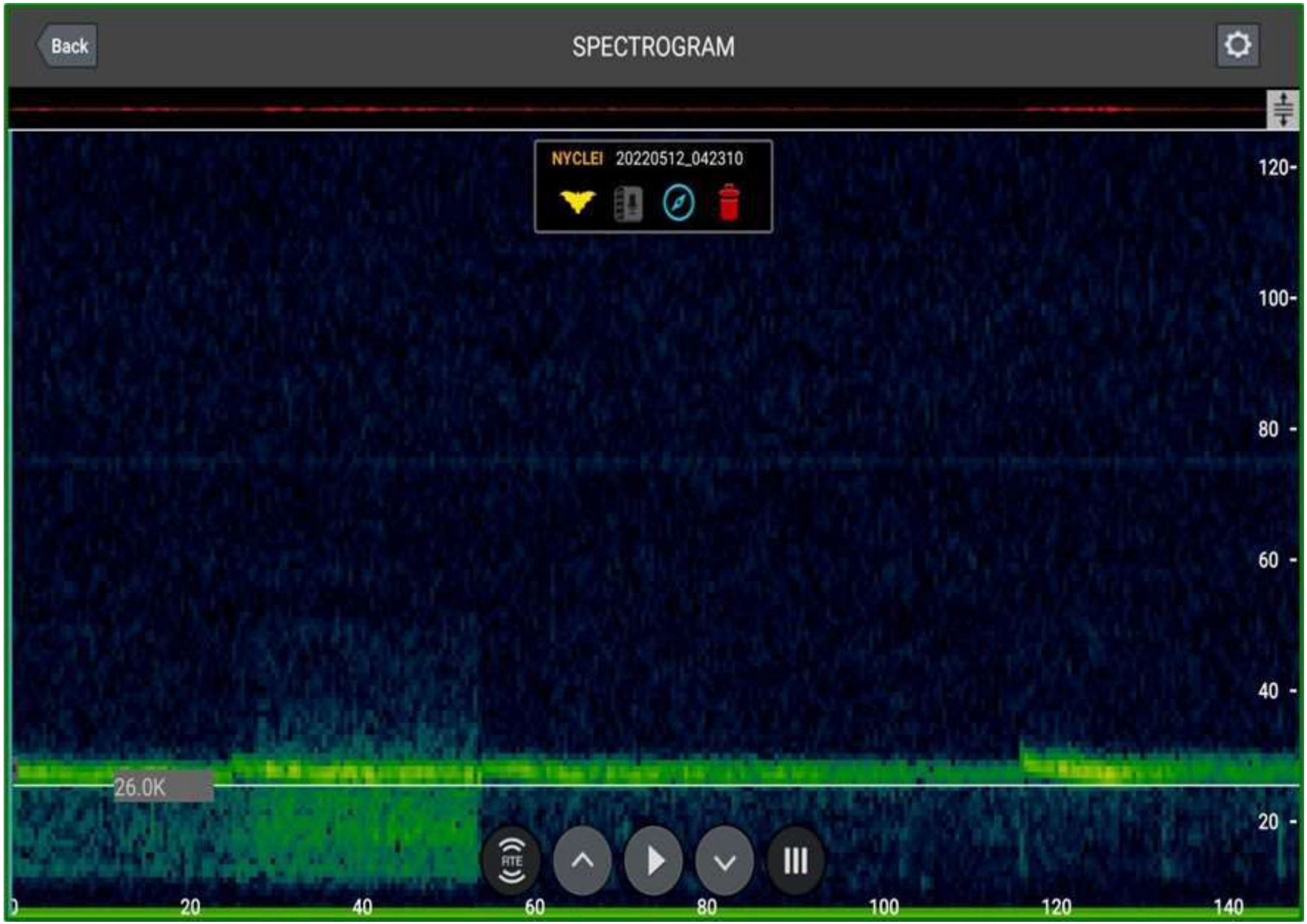

Figure 9: Leisler's Bat Echolocation Sonogram – 16th May 2024

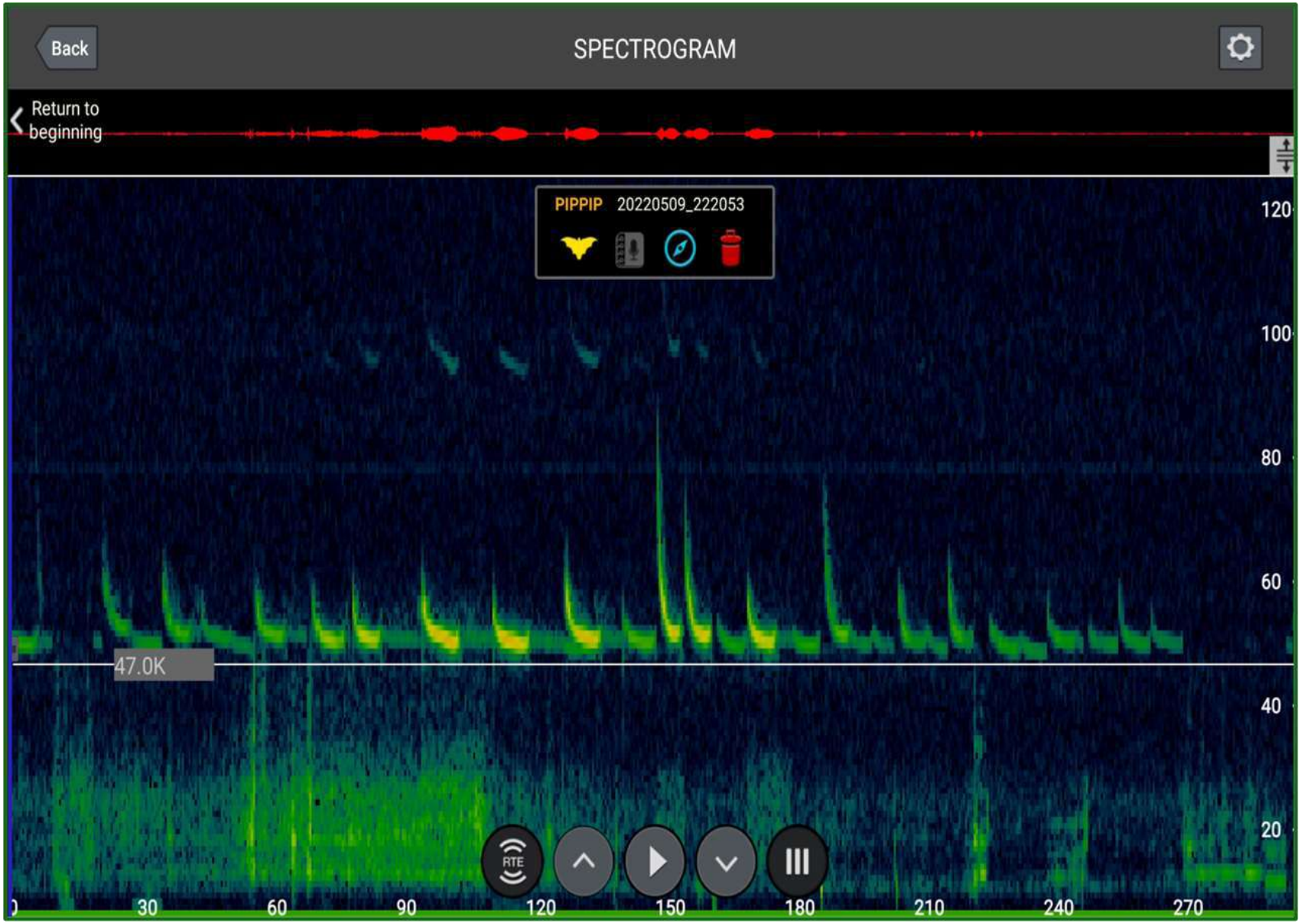

Figure 10: Common Pipistrelle Bat Echolocation Sonogram – 16th May 2024

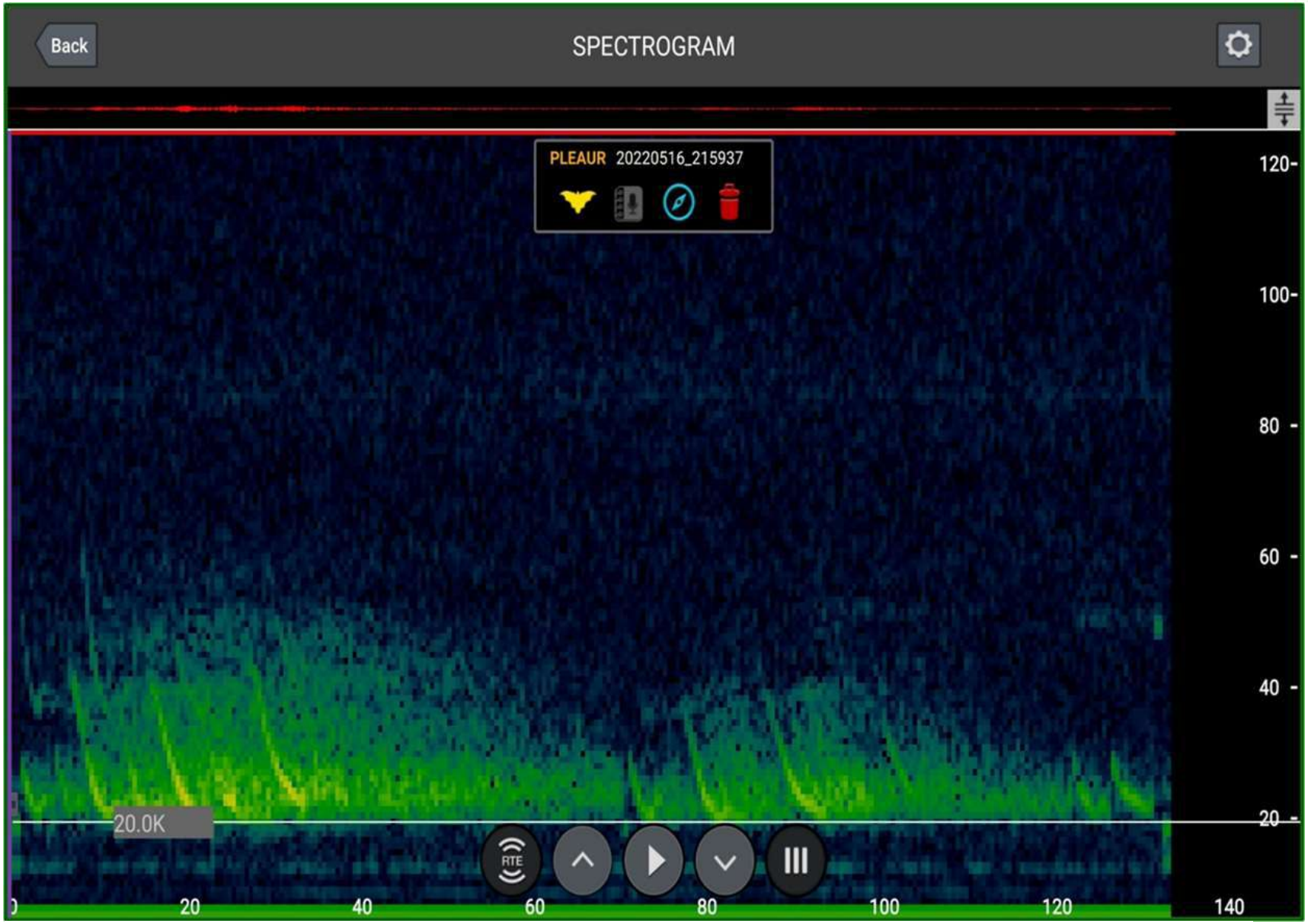

Figure 11: Brown-Long Eared Bat Echolocation Sonogram – 16th May 2024

Appendix Table 1: Survey results from Dusk emergence survey on 16/05/2024

Time	Species	Activity
21:37	*P. pygmaeus*	Detected Commuting – Not observed visually
21:40	*N. leisleri*	Detected Commuting – Not observed visually
21:53	*P. pipistrellus*	Detected Commuting – Not observed visually
21:57	*P. pipistrellus*	Detected Commuting – Not observed visually
21:58	*P. pipistrellus*	Observed Commuting up hedgerow/tree line
22:01	*N. leisleri*	Observed Commuting east to west over Bridge
22:02	*P. pipistrellus*	Observed Commuting west to east over Bridge
22:03	*P. pipistrellus*	Observed Commuting west to east over Bridge
22:04	*P. pygmaeus*	Observed Commuting east to west over Bridge
22:05	*P. pipistrellus*	Observed Foraging
22:07	*P. pipistrellus*	Observed Emerging from under the bridge
22:08	*P. pygmaeus*	Detected Foraging – Not observed visually
22:09	*P. pipistrellus*	Detected Foraging – Not observed visually
22:10	*P. pipistrellus*	Detected Commuting – Not observed visually
22:12	*P. pipistrellus*	Observed Commuting east to west over Bridge
22:13	*P. pipistrellus*	Detected Commuting – Not observed visually
22:14	*P. pipistrellus*	Observed Foraging
22:15	*P. pipistrellus*	Detected Commuting – Not observed visually
22:16	*P. pipistrellus*	Observed Foraging
22:17	*P. pipistrellus*	Detected Foraging – Not observed visually
22:18	*N. leisleri*	Detected Foraging – Not observed visually
22:19	*P. nathusii*	Observed Commuting west to east over Bridge
22:20	*P. pipistrellus*	Detected Foraging – Not observed visually

Time	Species	Activity
22:22	*P. pipistrellus*	Detected Commuting – Not observed visually
22:23	*P. pipistrellus*	Detected Commuting – Not observed visually
22:24	*P. pipistrellus*	Detected Commuting – Not observed visually
22:25	*P. pipistrellus*	Detected Foraging – Not observed visually
22:26	*P. pipistrelle*	Detected Foraging – Not observed visually
22:27	*P. pipistrellus*	Detected Foraging – Not observed visually
22:28	*P. nathusii*	Detected Foraging – Not observed visually
22:29	*P. pipistrellus*	Observed Emerging from under the bridge
22:31	*P. pipistrellus*	Detected Foraging - Not observed visually
22:32	*P. pipistrellus*	Detected Foraging – Not observed visually
22:33	*P. pygmaeus*	Observed Commuting out from under the bridge
22:34	*P. auritus*	Observed Commuting under bridge
22:35	*P. pipistrellus*	Detected Foraging – Not observed visually
22:36	*P. pipistrellus*	Observed Commuting under bridge
22:37	*P. pipistrellus*	Detected Foraging – Not observed visually
22:38	*P. pipistrellus*	Detected Foraging – Not observed visually
22:39	*P. pipistrellus*	Detected Foraging – Not observed visually
22:40	*P. pipistrellus*	Detected Foraging – Not observed visually
22:41	*P. pipistrellus*	Detected Foraging – Not observed visually
22:43	*P. nathusii*	Detected Foraging – Not observed visually
22:44	*P. pygmaeus*	Detected Foraging – Not observed visually
22:45	*P. pipistrellus*	Detected Foraging – Not observed visually
22:46	*P. nathusii*	Detected Foraging – Not observed visually
22:47	*P. pipistrellus*	Detected Foraging – Not observed visually
22:49	*P. pipistrellus*	Detected Foraging – Not observed visually

Time	Species	Activity
22:51	*P. pipistrellus*	Detected Foraging – Not observed visually
22:53	*P. pipistrellus*	Detected Foraging – Not observed visually
22:55	*N. leisleri*	Detected Foraging – Not observed visually

Appendix Table 2: Survey results from Dusk emergence survey on 25/06/2024

Time	Species	Activity
22:33	*N. leisleri*	Detected Foraging – Not observed visually
22:35	*P. pygmaeus*	Detected Commuting – Not observed visually
22:48	*P. pygmaeus*	Detected Commuting – Not observed visually
22:55	*N. leisleri*	Detected Commuting – Not observed visually
23:01	*N. leisleri*	Observed commuting under bridge
23:06	*P. pygmaeus*	Detected Foraging – Not observed visually
23:09	*P. pygmaeus*	Observed Commuting under bridge from east to west
23:10	*P. pygmaeus*	Detected Commuting – Not observed visually
23:16	*P. pipistrellus*	Detected Commuting – Not observed visually
23:17	*P. pipistrellus*	Detected Commuting – Not observed visually
23:18	*P. pygmaeus*	Observed commuting under the bridge
23:20	*P. pipistrellus*	Detected Foraging – Not observed visually
23:21	*P. pipistrellus*	Observed Commuting through bridge and travelling west