Mobuoy City Waste

784-B031879

Bat Roosting Survey Report

Department of Agriculture, Environment and Rural Affairs (DAERA)

November 2023

Document prepared on behalf of Tetra Tech Consulting (Northern Ireland) Limited: No. NI667243

TETRA TECH

Tetra Tech Belfast, 1 Locksley Business Park, Montgomery Road, Belfast, BT6 9UP

Tetra Tech Consulting (Northern Ireland) Limited: No. NI667243

Registered Office: 1 Locksley Business Park, Montgomery Road, Belfast, United Kingdom, BT6 9UP

DOCUMENT CONTROL

Document:	Bat Roosting Survey Report
Project:	Mobuoy City Waste
Client:	Department of Agriculture, Environment and Rural Affairs (DAERA)
Project Number:	784-B031879
File Origin:	[redacted] Progress\2023 Reports\Bats\784-B031879 Mobuoy City Waste Bat Report_FINAL.docx

Revision:	**V1**	**Prepared by:**	[redacted] Consultant Ecologist BSc (Hons), ACIEEM [redacted]
Date:	05/12/2023	**Checked by:**	[redacted] Senior Ecologist BSc (Hons), MRes, PhD [redacted]
Status:	**Draft**	**Approved By:**	[redacted] Associate Ecologist BSc [redacted]
Description of Revision:	**For Issue**		

TABLE OF CONTENTS

FIGURES AND APPENDICES

ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
ACIEM	Associate Member of the Chartered Institute of Ecology & Environmental Management
BCT	Bat Conservation Trust
CIEEM	Chartered Institute of Ecology & Environmental Management
EPSL	European Protected Species Licence
ILP	Institute of Lighting Professionals
LBAP	Local Biodiversity Action Plan
NIBG	Northern Ireland Bat Group
NIEA	Northern Ireland Environment Agency
PEA	Preliminary Ecological Appraisal
PRF	Potential Roost Feature

EXECUTIVE SUMMARY

Contents	Summary
Site Location	The 'site' is located at 60 Mobuoy Road, approximately 2.6km north-west of Derry City, County Londonderry and is centered at Irish National Grid Reference C 47863 17655 and shown in Figure 1.
Proposals	The proposals involve remediation of the site to improve land and water quality and prevent leachate entering the River Faughan. Site remediation works will potentially involve further ground investigation works, comprising bore-holing and trial-pitting, and earthworks causing ground disturbance.
Scope of this Survey(s)	One bat dusk emergence survey and one dawn re-entry survey were conducted on building B3 and building B4. The objective was to determine whether the buildings continue to support the roosts' confirmed present in the buildings from the 2022 survey season.
Results	Surveys were undertaken between August and September 2023. Six roosts were identified within buildings B3 and B4. B3 contained day roosts for Leisler's bat, common pipistrelle and soprano pipistrelle. B4 contained day roosts for Leisler's bat, common pipistrelle and soprano pipistrelle. On unidentified bat was recorded emerging from B4. This bat was not recorded by the bat loggers but size and flight speed suggest it was a Leisler's bat. Nesting swallows were observed in both buildings B3 and B4.
Recommendations	Demolition works to properties with roosts must be done under a European Protected Species Licence (EPSL) (exclusion of bats for development purposes) from NIEA. Due to the nature of the works it is not possible to retain roosts and all roosts will be destroyed. A mitigation strategy is required to compensate for the roost destruction, which will be submitted to NIEA as part of the EPS licence application. Works will be restricted to the licencing period which runs from March to May inclusive. Three bat boxes (such as Schwegler 2F bat box or Vivara Pro WoodStone Bat Box) will need to be installed, prior to works commencing, on suitably mature retained trees within or close to the site boundary, but away from direct artificial light, as release sites to relocate bats during works. Buildings must undergo a soft demolition under the European Protected Species (EPS) licence (exclusion of bats for development purposes) and under the supervision of a licenced Ecological Clerk of Works (ECoW) who has checked the features prior to works.

	A toolbox talk to site contractors will be provided by the ECoW prior to works detailing the method of working under the EPSL. Should a bat or signs of bats be found in a property not confirmed as a bat roost during the works, all works must cease and the Named Ecologist on the EPSL contacted for advice. All roosting features will need to be removed by hand under the EPSL and under supervision of a licenced bat worker. Any bats found will be relocated to the bat boxes installed on retained trees. If works are likely to disturb, damage or destroy an active bird nest, works should avoid the bird breeding season (March to September, inclusive). If this is not possible the ECoW must conduct a check for nesting birds 48 hours in advance of the works commencing.

1.0 INTRODUCTION

1.1 BACKGROUND

Tetra Tech was commissioned by Department of Agriculture, Environment and Rural Affairs (DAERA) in August 2023 to undertake updated bat activity surveys to inform the proposed development at 60 Mobuoy Road, Londonderry hereafter referred to as "the site".

This report has been prepared by Tetra Tech Consultant Ecologist [redacted], BSc (Hons) ACIEEM who has three years of experience surveying for bats through conducting and leading emergence/re-entry, transect, and static surveys. [redacted] holds a Class Level 1 bat licence from Natural England, has undertaken training with Wildwings Ecology, and has achieved a Grade A Technician from The Certificate of Bat Acoustic Analysis from BatAbility Courses and Tuition.

The conditions pertinent to the report are provided in Appendix A.

Bats are protected species, full details of that protection, including types of offences and policy position are provided in Appendix B.

1.2 SITE LOCATION

The site is located at 60 Mobuoy Road, Londonderry in Northern Ireland and is centred at Irish Grid Reference C 47863 17655 – see Figure 1.

The site has been disused for several years and was formerly a sand and gravel quarry and landfill waste sorting plant. The site now consists predominantly of wet woodland (UK BAP Priority Habitat), interspersed with marshy grassland strips, scrub and other smaller patches of various habitat types. Three large freshwater lakes exist on-site, along with an extensive network of smaller ponds and waterbodies, fringed with marginal vegetation. The River Faughan and Tributaries Special area of Conservation / Area of Special Scientific Interest (SAC/ASSI) runs directly adjacent to the west boundary, with extensive stands of invasive Japanese knotweed *Reynoutria japonica* present along the river continuing throughout the site. Other invasives identified along the river included Indian (Himalayan) balsam *Impatiens glandulifera* and giant hogweed *Heracleum mantegazzianum*. The site is deemed to have moderate suitability for commuting and foraging bats.

1.3 DEVELOPMENT PROPOSALS

The proposals involve remediation of the site to improve land and water quality and prevent leachate entering the River Faughan. Site remediation works will potentially involve further ground investigation works, comprising bore holing and trial-pitting, and earthworks causing ground disturbance.

1.4 PURPOSE OF THE REPORT

The purpose of this report is to:

- Determine if roosting bats continue to be present on site after being identified during 2022 surveys.

- Identify if any additional surveys are required to inform this assessment.
- Determine if any potential impacts on bats are likely to arise from the development.
- Outline strategies to avoid/mitigate/compensate for any likely impacts on bats.
- Support a European Protected Species Licence (EPSL) (exclusion of bats for development purposes) licence application.

The details of this report will remain valid until August 2024 after which the validity of this assessment should be reviewed to determine whether further updates are necessary.

The recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

Note that scientific names are provided at the first mention of each species and common names (where appropriate) are then used throughout the rest of the report for ease of reading.

2.0 METHODOLOGY

2.1 HISTORIC SURVEYS

Several surveys have been carried out at the site by Tetra Tech. These comprised of a Preliminary Ecological Appraisal (PEA)(Tetra Tech, 2021) and badger, bat, otter, wintering birds, invasive non-native species (INNS), and smooth newt surveys in 2022.

The PEA and 2022 bat surveys (Tetra Tech, 2023) are of relevance to this report and their key findings are provided in Section 3.1.

2.2 DESK STUDY

The desktop study comprised two elements:

- A data search obtained from the Northern Ireland Bat Group (NIBG) for the PEA was conducted in 2022 to search for records of bats within 2km of the site boundary within the past 30 years. Records from the last 30 years are used and considered relevant due to the long lifespan of bats and their roosting site fidelity.

2.3 FIELD SURVEYS

2.3.1 Biosecurity

All surveys were conducted in accordance with Tetra Tech Biosecurity Policy (July 2023).

2.3.2 Roost Characterisation Surveys – Buildings

Bat surveys were completed on site between 24th August 2023 and 7th September 2023. The scope of these surveys is presented below. Surveys were undertaken by the following personnel:

- Tetra Tech Senior Ecologist [redacted] PhD MRes BSc Hons [redacted] holds a NIEA Bat Roost Disturbance Licence Licensee No: 1095 Licence: BDL/29/23 and has over seven years' experience in conducting bat surveys with Queen's University Belfast, Quercus, WYG and Tetra Tech and independently as a freelance bat surveyor. [redacted] assisted on a large bat research project under Licence to Disturb of Take Bats: for Purposes Other than Development and has written licence applications for Licence to Disturb of Take Bats: for Purposes Other than Development and Licence Exclusion of Bats for Development.
- Tetra Tech Consultant Ecologist [redacted] BSc (Hons) MSc QCIEEM holds a Bat Roost Disturbance Licence and has over three years' (four seasons) experience in undertaking bat surveys for WYG and Tetra Tech (formally WYG), and independently as a freelance bat surveyor for Flanagan Ecology.
- Tetra Tech Field Ecologist [redacted] has one season of bat survey experience with Tetra Tech and relevant bat survey experience through his degree. [redacted] has also received bat survey training through Tetra Tech.
- Tetra Tech Field Ecologist [redacted] has one season of bat survey experience with Tetra Tech and relevant bat survey experience through her degree. [redacted] has also received bat survey training through Tetra Tech.
- Tetra Tech Field Ecologist [redacted] who has two seasons' survey experience and relevant bat survey experience through her role with the National Trust, as well as over seven years' voluntary conservation work, including leading guided bat-walks. [redacted] has also received bat survey training with Tetra Tech.

Surveys were conducted in accordance with 3rd edition of the Bat Conservation Trust Guidelines (BCT, 2016) (which were the relevant guidelines at the time of survey). The level of survey effort was based on the bat roost suitability of each building following the 2021 PEA (classified as low) with considerations from results of the roosting surveys undertaken in 2022 and consultations with NIEA.

Two surveys (one dusk emergence survey and one dawn re-entry survey) were carried out on each of the buildings B3 and B4. Surveyor details, dates and weather conditions are detailed in Table 1 below. The building locations are shown in Figure 2.

As per BCT Guidelines the dusk surveys began at least 15 minutes prior to sunset and continued for between 1.5 and 2 hours after sunset. The dawn surveys began between 1.5 and 2 hours prior to sunrise and continued until at least 15 minutes after sunrise or until there were no more bats recorded in flight.

During the surveys, surveyors were positioned to enable all PRFs to be visible. Surveyor positions are shown in Figure 2. During the surveys, bat emergences and re-entries were recorded on the ArcGIS Survey123 App and their calls recorded using Elekon Batlogger Ms / M2s. These detectors use a broad-spectrum microphone and a heterodyne mode to make bat calls audible while recording full spectrum data for subsequent analysis. Bat Explorer software was subsequently used to analyse calls to confirm the species of any bats recorded emerging form or re-entering the buildings. Analysis was competed by Tetra Tech Senior Ecologist [redacted] (Hons), MRes, PhD.

All bat surveys were completed during the period when bats are active, within the optimum survey season and within suitable weather conditions (above 10°C, dry and with calm winds). Temperature was recorded in degrees Celsius (°C); cloud cover was rated in Oktas (out of 8) and wind was recorded on the Beaufort scale.

Table 1 below shows the weather conditions, timings and surveyor names during the surveys.

Table 1: Surveyors, date and weather conditions for bat emergence/re-entry surveys.

Date of survey	Sunrise / sunset	Start (S)	Finish (F)	Temperature (in °C) S/F	Rain S/F	Wind speed[1] S/F	Cloud cover [2]S/F
24/08/2023 Dusk for B4	20:42	20:12	22:12	13/12	0/ 1-4mm/hr	0/3	8/7
Surveyor names and survey licence number where applicable	Tetra Tech Senior Ecologist [redacted] Tetra Tech Consultant Ecologist [redacted] Tetra Tech Field Ecologist [redacted] Tetra Tech Field Ecologist [redacted]						
25/08/2023 Dawn for B3	06:20	04:50	06:35	16/13	<1mm/hr / <0.25mm/hr	0/0	8/5
Surveyor names and survey licence number where applicable	Tetra Tech Senior Ecologist [redacted] Tetra Tech Field Ecologist [redacted] Tetra Tech Consultant Ecologist [redacted] Tetra Tech Field Ecologist [redacted]						
06/09/2023 Dusk for B3	20:09	19:56	21:56	23/22	0/0	0/0	0/3
Surveyor names and survey licence number where applicable	Tetra Tech Senior Ecologist [redacted] Tetra Tech Field Ecologist [redacted] Tetra Tech Field Ecologist [redacted] Tetra Tech Field Ecologist [redacted]						
07/09/2023 Dawn for B4	06:45	05:15	07:00	19/19	0/0	2/2	0/0
Surveyor names and survey licence number where applicable	Tetra Tech Senior Ecologist [redacted] Tetra Tech Field Ecologist [redacted] Tetra Tech Field Ecologist [redacted] Tetra Tech Field Ecologist [redacted]						

[1] Wind speed uses Beaufort Scale
[2] Cloud cover uses Oktas Scale

2.4 LIMITATIONS

It should be noted that all surveys were conducted in accordance with the 2016 BCT Guidelines. BCT Guidelines (2018) states that two surveys are required in peak season. The reduced scope of the surveys was agreed with the client, at the request of the client, prior to the surveys commencing. Since the completion of the surveys, the guidance has been updated to the 4th edition (BCT, 2023), yet the results detailed in this report remain valid.

The optimal period to undertake bat presence/likely absence surveys is between May and August, although surveys in April and September may aid in identifying pre-maternity gathering roosts or transitional roosts. The second surveys for both building B3 and building B4 were completed in September 2023 which is outside the optimal survey window. These surveys, however, took place in suitable weather conditions and all other surveys for the buildings were carried out during the optimal survey period. It was therefore not considered likely that this would be a limitation on the bat activity on site being represented accurately.

Each survey was separated by a period of at least two weeks and weather conditions were suitable for the entirety of each survey apart from some moderate rain (1-4mm per hour) during the first survey on building B4 on 24th August 2023, and some light rain (<1mm per hour) during the first survey on building B3 on 24th August 2023. However, bat activity was recorded visually and by echolocation throughout these surveys therefore this is not considered a significant constraint associated as bats were still active throughout. Therefore, there were not any constraints associated with survey timing or weather conditions.

The view of building B4 was partially obstructed by vegetation on the southern and eastern aspects and a willow *Salix sp.* tree slightly obstructed the view to the south of building B3.

The surveys were completed with the assistance of bat detectors. All survey techniques are subject to bias, and bat detector surveys may under-record species with weak echolocation calls, such as brown long-eared bats. However, these biases were considered when interpreting the results. (It is also of note that Batloggers are very effective at picking up quiet calls from brown long-eared bats). Some bat calls are variable dependent on the habitats they fly in and on their activity (commuting, foraging, social interaction, etc) and extremely similar between species. In these cases, it is accepted that species are identified to genus level or group level (e.g. *Myotis*, *Myotis / Plecotus* and *Nyctalus / Eptesicus*) (Collins, 2016). Where call parameters are inconclusive the species has been labelled as 'unknown'. This allows the dataset to be interpreted accurately and transparently.

Notwithstanding the limitations highlighted above, the survey effort applied is considered sufficient to meet the aims of the survey and this report, in accordance with the aforementioned guidelines.

The details of this report will remain valid for a period of one year from the date of the survey (until August 2024), after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.

3.0 BASELINE CONDITIONS

3.1 HISTORIC SURVEYS

The PEA conducted by Tetra Tech in October 2021 classified both buildings (B3 and B4) as having low suitability to support roosting bats. Building 3 contained roof slates and rafters which may provide limited roosting opportunities. Building 4 appeared to provide internal roosting opportunities; however, this could not be fully assessed externally at the time of survey.

A single dusk emergence survey was scheduled for 30th May 2022 which resulted in finding a single day roost of common pipistrelle *Pipistrellus pipistrellus* and a single day roost of soprano pipistrelle *Pipistrellus pygmaeus* in building B3 and a single day roost of soprano pipistrelle in building B4. Therefore, further roost characterisation surveys were conducted, the results of which found a total of seven roosts and are summarised below:

- Building 3 – Day Roost (1 common pipistrelle);
- Building 3 – Day Roost (1 soprano pipistrelle);
- Building 3 – Day Roost (1 soprano pipistrelle);
- Building 3 – Day Roost (1 soprano pipistrelle);
- Building 3 – Day Roost (1 common pipistrelle);
- Building 4 – Day Roost (1 soprano pipistrelle); and
- Building 4 – Day Roost (1 soprano pipistrelle.

3.2 DESK STUDY

The desk study from the PEA returned 14 bat records from NIBG within 2km of the site within the last 30 years, detailed in Table 2 below. The most recent records were of an unidentified bat species in 2017, as well as two unidentified *Pipistrellus sp*. and three soprano pipistrelle in 2016. Specification of the type of record is not provided by NIBG, therefore it is unknown whether these records pertain to field observations or roosts.

Table 2: Bat records within 2km of the site boundary.

Common name	Scientific name	Date	Abundance
Unidentified bat	Chiroptera	02/08/2017	Unknown
Unidentified pipistrelle	*Pipistrellus* sp.	16/06/2016	Unknown
Unidentified pipistrelle	*Pipistrellus* sp.	2016	Unknown
Soprano pipistrelle	*Pipistrellus pygmaeus*	2016	3
Common pipistrelle	*Pipistrellus pipistrellus*	01/10/2011	Unknown
Leisler's bat	*Nyctalus leisleri*	01/10/2011	Unknown
Common pipistrelle	*Pipistrellus pipistrellus*	01/10/2011	Unknown

Common name	Scientific name	Date	Abundance
Soprano pipistrelle	*Pipistrellus pygmaeus*	01/10/2011	Unknown
Daubenton's bat	*Myotis daubentonii*	01/10/2011	Unknown
Leisler's bat	*Nyctalus leisleri*	01/10/2011	Unknown
Common pipistrelle	*Pipistrellus pipistrellus*	01/06/2010	49
Soprano pipistrelle	*Pipistrellus pygmaeus*	01/06/2009	Unknown
Leisler's bat	*Nyctalus leisleri*	01/06/2009	Unknown
Unidentified bat	Chiroptera	23/07/2001	Unknown

3.3 FIELD SURVEYS

3.3.1 Roost Characterisation Survey

Building 3

Dawn re-entry – 25th August 2023

The first bat recorded was a common pipistrelle at 04:31 (109 minutes before sunrise), this bat was not observed. Bat activity including foraging and commuting was observed and heard throughout the survey from the following species; common pipistrelle, soprano pipistrelle, and Leisler's bat *Nycatlus leisleri*.

One Leisler's bat was seen returning through the first floor window on the left of the northern aspect of the property at 05:38 (42 minutes before sunrise).

Dusk emergence – 6th September 2023

The first bat recorded was a Leisler's bat at 20:13 (4 minutes after sunset), this bat was not observed. Bat activity including foraging and commuting was observed and heard throughout the survey from the following species; common pipistrelle, soprano pipistrelle, and Leisler's bat.

One common pipistrelle was seen emerging through the first floor window on the eastern aspect of building B3 at 20:39 (30 minutes after sunset).

One soprano pipistrelle was seen emerging through the first floor window on the eastern aspect of building B3 at 20:41 (32 minutes after sunset).

One soprano pipistrelle was seen emerging through the first floor window on the left of the northern aspect of building B3 at 20:44 (35 minutes after sunset).

N.B. One soprano pipistrelle was then seen emerging and re-entering through the first floor window on the left of the northern aspect of B3 during the emergence survey at B4 on 24th August 2023 at 21:05 (23 minutes after sunset).

Building 4

Dusk emergence survey 24th August 2023

The first bat recorded was a Leisler's bat at 20:52 (10 minutes after sunset), this bat was not observed. Bat activity including foraging and commuting was observed and heard throughout the survey from the following species; soprano pipistrelle and Leisler's bat.

One unidentified bat was seen emerging from a ground floor window on the northern aspect of B4 at 21:03 (21 minutes after sunset). This bat did not echolocate and was not picked up by the detectors. Given its size and speed of flight it is likely this was a Leisler's bat.

N.B. One common pipistrelle was seen emerging through the first floor window on the left of the western aspect of B4 during the emergence survey of B3 on 6th September at 20:19 (10 minutes after sunset).

Dawn re-entry survey 7th September 2023

The first bat recorded was a soprano pipistrelle at 04:56 (109 minutes before sunrise), this bat was not observed. Bat activity including foraging and commuting was observed and heard throughout the survey from the following species; common pipistrelle, soprano pipistrelle, and Leisler's bat.

One soprano pipistrelle was seen returning through an open window on the northern aspect of B4 at 05:25 (80 minutes before sunrise).

One Leisler's bat was seen returning through an open window on the northern aspect of B4 at 05:36 (69 minutes before sunrise). It was too dark to identify exactly where the bat re-entered B4.

One common pipistrelle was seen returning through a feature on the corner of the western aspect of the property at 06:09 (36 minutes before sunrise). It was too dark to identify exactly where the bat re-entered B4.

Tables 3 summarises the results of the emergence / re-entry surveys; the results are shown on Figure 3 with emergence flight lines. No commuting and foraging flight lines have been added to these maps given it is impossible to confirm direction beyond a few metres as would be expected with nocturnal surveys.

3.3.2 Summary of Roosts Present

The roosts identified are detailed in Table 3 below.

Table 3: Summary results of the emergence / re-entry surveys B3 and B4 and roosts present.

Building	Species	Maximum number of bats present	Roost location	Roost type	Emergence/re-entry point and direction of flight
B3	Common pipistrelle	1	Eastern elevation first floor window	Day roost	

Building	Species	Maximum number of bats present	Roost location	Roost type	Emergence/re-entry point and direction of flight
B3	Soprano pipistrelle	2	Eastern elevation first floor window	Day roost	
B3	Leisler's bat	1	Northern elevation top left window	Day roost	
B3	Leisler's bat	1	Northern elevation first floor left window	Day roost	
B4	Common pipistrelle	1	Unknown feature on the corner of the western aspect	Day roost	

Building	Species	Maximum number of bats present	Roost location	Roost type	Emergence/re-entry point and direction of flight
B4	Common pipistrelle	1	Emerged through window first floor western aspect	Day roost	
B4	Soprano pipistrelle	1	Window on the northern aspect	Day roost	
B4	Leisler's bat	1	First floor window on the northern aspect	Day roost	
B4	Unidentified bat (size and speed of flight suggests Leisler's bat	1	Ground floor window	Day roost	

3.3.3 Nesting Birds

Evidence of nesting bird species was identified in both building B3 and B4 as containing roosting swallows *Hirundo rustica*. The surrounding habitat was also found to provide suitable potential for nesting and foraging birds.

4.0 DISCUSSION

4.1 IMPACTS

Following the surveys, roosting bats have been confirmed as being present. Three day roosts, belonging to Leisler's bat, common pipistrelle and soprano pipistrelle, were identified in B3. Building B4 also contained three day roosts belonging to Leisler's bat, common pipistrelle and soprano pipistrelle.

There are likely to be adverse effects on bats through loss of roosts, and disturbance during the construction and operational phase.

4.1.1 Loss of Habitats

The demolition of the buildings will result in the destruction and permanent loss of the bat roosts identified and will directly impact on the six day roosts, identified in the 2023 survey, belonging to Leisler's bat, common pipistrelle, and soprano pipistrelle. Potential roosting features (PRFs) not identified as roosts will also be lost and will decrease the suitability of the site for roosting bats.

4.1.2 Killing & Injury

Without the correct mitigation in place and method statements for working, there will be a high risk of killing or injuring bats during the construction phase of the project. See section 4.2.

4.1.3 Disturbance

During the construction phase and operational phase of the development there is the potential for disturbance to bats.

Works associated with the proposed remediation will increase human presence (during both construction and operational phases) at the site and increase noise, light and vibration levels, potentially resulting in disturbance of roosting bats. This could result in reduced bat presence, and an avoidance of areas (or the site generally).

The site is not currently artificially lit at night. The proposed remediation has the potential to result in an increase in light levels around the site, particularly along the potential A6 road scheme. Artificial lighting can cause disturbance to bats, affecting their feeding behaviour, and delaying or preventing roost emergence for some species (Stone *et al*., 2015). An increase in light levels can have a negative impact on bats in the local area, particularly for bats roosting nearby, potentially causing avoidance of the site.

4.2 MITIGATION

As adverse effects on bats are anticipated, mitigation will be required to avoid an offence under The Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended) (known as the Habitats Regulations).

The mitigation hierarchy principles are:

- Avoidance – to avoid adverse effects as far as possible by designing out or using preventative measures during the construction process thus resulting in an environmental effect of neutral significance.

- Reduction – to minimise adverse effects as far as possible.
- Compensation – involves measures of the same value to off-set the impact.

The proposed development would contravene relevant wildlife legislation and a EPSL (exclusion of bats for development purposes) from NIEA is required for the proposed works to proceed.

It is recommended all the roosts located within the site are covered by one project scale licence. In addition, based on their location, similar construction type and potential roosting features etc. it is likely bats may roost at some point in different PRFs which have not been confirmed in both buildings.

Details on roost compensation are to be confirmed as part of the EPSL in line with the Bat Mitigation Guidelines (Reason and Wray, 2023). A like-for-like replacement should be made where possible.

If works do not begin by September 2024 an update bat building inspection and / or nocturnal surveys may be needed to update site conditions, under the guidance of a licensed bat ecologist.

Prior to the commencement of any works and following the granting of the EPSL, a toolbox talk will be given to contractors by a suitable qualified and licenced ECoW (Ecological Clerk of Works). This will include information on the bats roosting on site, bat signs and what to do if bats are found during works. This will also be clearly shown on the contractors site compound notice board with contact information for the ecologist. For buildings covered by an EPSL the method statement from the EPSL will be detailed to the contractor and discussed as required.

Timing restrictions will apply to both buildings B3 and B4 so that works avoid the active season (which is May to August inclusive). However, to avoid the maternity season it is recommended that licensable demolition works take place either between 15th March – 15th May and 15th August – 15th October.

A soft-strip demolition approach is required, to limit potential disturbance and to remove the likelihood of injury and/or killing of individual bats. The removal of potential roosting features should take place by hand or with hand tools under the supervision of a suitably experienced and licenced ecologist who will have checked the features prior to works. Temporary and/or permanent exclusion measures may be deployed by the named ecologist, where deemed appropriate, to remove bats from the building. Once all features with the potential to support roosting bats have been removed, the demolition of what remains of the building will be authorised by the ecologist.

Bat boxes must be installed on suitable retained trees, under the guidance of the ECoW prior to works commencing to act as a release site should bats be found during works. Three bat boxes (such as Schwegler 2F bat box or Vivara Pro WoodStone Bat Box) are recommended for the number of species roosts recorded. Any bats found, if active (i.e. not torpid) must be relocated to the bat box release sites, or released at dusk, by the ecologist. The bat boxes will be retained in perpetuity once the construction phase of the proposal is completed.

If the bats are injured, they will be taken to the nearest available bat carer. Should torpid bats be encountered they will be taken to an appropriate bat carer until a period of suitable weather conditions to be released on site.

4.2.1 Lighting Scheme

A bat friendly lighting strategy must be designed for the operation phase of the development. The lighting design must be based on the Institute of Lighting Professionals (ILP) Guidance Note 08/23 Bats and

artificial lighting in the UK. The strategy must include the use of available lighting technology to minimise impacts on bats, and the invertebrates they feed on. Lighting should be as close the ground as possible and directional lighting should be used, with light spillage kept to a minimum. As with the construction phase, lights should be switched off at night (particularly during the months of April to October inclusive when bats are active), or motion activated, where possible and should be directed away from roosts, foraging habitat, and commuting habitat.

Further technical details are given in the BCT and the Institute of Lighting Professionals Engineers' *Bats and artificial lighting in the UK: Bats and the Built Environment Series. Guidance Note 08/23* (ILP, 2023) and in EUROBATS' *Guidelines for consideration of bats in lighting projects (Voight et al., 2018)*.

4.3 LICENSING

Six day roosts for Leisler's bat, common pipistrelle, and soprano pipistrelle were identified during the 2023 surveys, across B3 and B4, and therefore no works can take place which may result in a breach in the legislation until a European Protected Species License (EPSL) (exclusion of bats for development purposes) has been obtained from DAERA's Northern Ireland Environment Agency (NIEA).

The species protection provisions of The Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended) (known as the Habitats Regulations) contain three "derogation tests" which should be applied by the LPA prior to granting planning permission and by NIEA when deciding whether to grant a licence to a person carrying out an activity that would harm an EPS, such as bats. For development activities this licence is normally obtained after planning permission has been obtained. The three tests are that:

- The activity to be licensed must be for imperative reasons of overriding public interest (or for public health and safety);
- There must be no satisfactory alternative; and
- The favourable conservation status of the species must be maintained.

Imperative Reasons of Overriding Public Interest

To meet the purpose of preserving public interest it would be expected that a clear benefit to the general public is demonstrated.

This criterion will be argued based on the requirement to improve the land and water quality to meet required standards.

No Satisfactory Alternative

In order to qualify under this criteria it will be necessary to provide a strong and robust argument that any other solution to the identified need is not satisfactory. It will be necessary to demonstrate the lack of alternative design / solution. This argument should be proportionate to the impact (the potential loss or modification of medium to low conservation status roosts for common pipistrelle) (Mitchell-Jones, 2004).

This criterion will be argued as without the work the land and water quality will further degrade and the River Faughan may become concentrated with leachate.

Favourable Conservation Status

Action permitted under an EPSL that would otherwise be unlawful must not be detrimental to the maintenance of the populations of the species concerned at a favourable conservation status in their natural range.

Without mitigation, the development will result in temporary disturbance impacts during works and the permanent loss of day roosts for common pipistrelle, soprano pipistrelle, and Leisler's bat. The loss of six day roosts is unlikely to be significant to the favourable conservation status of this species. However, small roosts are still important (which is why they are protected as much as larger roosts) to bat conservation and population dynamics. At this site, the number of small roosts present within B3 and B4 would need to be considered as their loss would be more significant at the site scale than individual roosts.

Therefore, mitigating features have been recommended to reduce the risk of contributing to wider scale cumulative impacts to conservation status. See section 4.2.

A standard EPSL is required from NIEA to allow works to continue lawfully. It is solely at the discretion of NIEA if a licence can be granted for a site. Once an application for a licence has been submitted to NIEA it can take a minimum of 30 working days for NIEA to provide a decision. NIEA can request additional information in support of an application which will then alter the decision deadline.

4.4 ENHANCEMENT

It is a requirement of the National Planning and Policy Framework NPPF (Ministry of Housing, Communities & Local Government, 2021) to provide enhancements for biodiversity as part of development. The following measures are proposed to enhance the site for bats:

Due to the considerable deterioration of the buildings and number of potential roosting features, it is recommended a minimum of seven general purpose bat boxes box (such as Schwegler 2F bat box or Vivara Pro WoodStone Bat Box) are installed. These can be placed along a tree line adjacent to the River Faughan. Lighting should be directed away from these new roost features. Bat boxes should also be located away from footpaths at a height of at least 4 m and away from walls / fences to remove accessibility to cats.

Additionally, the three bat boxes installed prior to works as a release site for the existing roosts will be retained following works.

It is recommended that any gaps in hedgerows or areas of sparse vegetation are re-planted to maintain connectivity of the site. This is to ensure linear features are maintained, which are utilised by commuting bats. This will also improve access to the site from adjacent habitats off-site, which may also provide suitable commuting areas for bats.

Scrub, hedgerows or treelines removed must be replaced with wildlife-friendly plants and native species of local provenance as part of landscaping works. Nectar bearing or fruiting shrubs are recommended as this will be of value to pollinating insects that provide prey for bats. Wildflower mixes are also beneficial to generalist invertebrate species as well as pollinators.

Dark corridors could be enhanced with wildlife-friendly plants and native species of local provenance. Nectar bearing or fruiting shrubs are recommended as this will be of value to pollinating insects that provide prey for bats. Wildflower mixes are also beneficial to generalist invertebrate species as well as pollinators.

Additionally, trees that bat boxes are installed upon must not be worked on without advice from a bat worker. No pruning, crown lifting or reduction etc. is permitted without consent from the bat worker. Bat boxes should be checked annually for bat presence and must remain in a suitable condition for use. Any damaged or missing boxes should be reported to a bat worker and replaced as appropriate under guidance from a bat worker.

4.5 NESTING BIRDS

The properties provide nesting habitat for birds and swallow roosts have been identified in both buildings. All breeding wild birds, their nests and eggs are protected, by the Wildlife and Natural Environment Act (Northern Ireland) 2011, from intentional disturbance, damage and destruction during the nesting season (generally considered as March to September inclusive, although some species are known to breed throughout the year).

To prevent a breach in UK legislation works likely to disturb, damage or destroy an active nest must be avoided during the bird breeding season (March to September, inclusive). Please note that birds can nest outside the main bird breeding season therefore should any active nests be identified or suspected to be present on site at any time, works should cease and an ecologist contacted to attend site and provide advice on appropriate working methods. If works are carried out during the bird breeding season, an ECoW must conduct a check for nesting birds 48 hours in advance of the works commencing. If a nesting bird is identified, the ECoW will advise on an appropriate buffer zone and how long this will need to remain in place, this may result in delay(s) to undertaking works on the relevant building.

5.0 CONCLUSION

Surveys were undertaken between August and September 2023. A total of six day roosts were identified for Leisler's bat, common pipistrelle, and soprano pipistrelle across buildings B3 and B4.

Nesting swallows were also observed in both buildings B3 and B4.

An EPSL is required to permit demolition of B3 and B4. Due to the nature of the works it is not possible to retain roosts and all roosts will be destroyed. A mitigation strategy is required to compensate for roost destruction, which will be submitted to NIEA as part of the EPSL application. The mitigation strategy will include the timing restriction that works to B3 and B4 will be restricted to the licencing period 15TH March to 15th May and 15th August to 15th October inclusive.

Three bat boxes (such as Schwegler 2F bat box or Vivara Pro WoodStone Bat Box) must be installed on suitably mature retained trees within or close to the site boundary but away from direct artificial light as release sites to relocate bats during works. An additional seven bat boxes are recommended for enhancement purposes.

A toolbox talk will be provided to site contractors by a licenced bat worker, prior to works, and will detail the method of working under the EPSL.

Soft-strip demolition works are required and must be supervised by the ECoW who has checked the features prior to works.

Should a bat or signs of bats be found in a property not confirmed as a bat roost during the works, all works must cease and the Named Ecologist on the EPSL contacted for advice.

All roosting features will need to be removed by hand by the licenced bat worker. Any bats found will be relocated to the bat box installed on retained tree.

If works are likely to disturb, damage or destroy an active bird nest, works must avoid the bird breeding season (March to September, inclusive). If works are required during the bird breeding season, an ECoW must conduct a check for nesting birds 48 hours in advance of the works commencing.

On completion of all the actions within this report, the proposed development will meet legal requirements set out under legislation.

6.0 REFERENCES

Bat Conservation Trust (2009) Bats and Lighting in the UK – Bats and the Built Environment Series.

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

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

Conservation (Natural Habitats, etc.) Regulations (Northern Ireland) 1995. Available: https://www.legislation.gov.uk/nisr/1995/380/contents/made. Accessed December 2023

Emery, M. (2008) Effects of street lighting on bats. Urbis lighting Ltd.

Institute of Lighting Professionals (ILP) (2023). Bat and artificial lighting in the UK: Bats and the Built Environment series. Guidance Note 08/23.

Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats. Chartered Institute of Ecology and Environmental Management, Ampfield.

Stone, E.L., Harris, S. and Jones, G., 2015. Impacts of artificial lighting on bats: a review of challenges and solutions. *Mammalian Biology*, *80*(3), pp.213-219.

Tetra Tech, (2021). *Mobuoy Road City Waste, Ecological Appraisal*, Project number 784-B031879, Report on behalf of Department of Agriculture, Environment and Rural Affairs (DAERA).

Tetra Tech, (2022). *Mobuoy Road City Waste*, *Bat Report*, Project number 784-B031879, Report on behalf of Department of Agriculture, Environment and Rural Affairs (DAERA).

Waring, S. D., Essah, E. A., Gunnell, K., Bonser, R. H. C., (2013), Double jeopardy: The potential for problems when bats interact with breathable roofing membranes in the United Kingdom, Architecture and environment, 1(1):1-13

Wildlife and Natural Environment Act (Northern Ireland) 2011 (the 'WANE Act'). Available: https://www.legislation.gov.uk/nia/2011/15/section/3. Accessed December 2023

Please note that the legislation which is relevant to this report is not included in the list above, but details are included in Appendix B below.

FIGURES

Site Location Plan

Mobuoy Road City Waste

DAERA

Legend

Site boundary

Notes:

Drawn by: [redacted]
Checked by: [redacted]
Office: Southampton

Figure No. 1
Revision No. A

0 50 100 150 200 250 Meters
Scale 1 6,000 @A3

03 November 2022
NGR: 64188E 580623N

TETRA TECH

The Pavilion, 1st Floor
Botleigh Grange
Office Campus
Hedge End
Southampton
Hampshire, SO30 2AF

Building and Surveyor Location Plan

Mobuoy Road City Waste

DAERA

Legend

- Site boundary
- Building
- Surveyor B3
- Surveyor B4

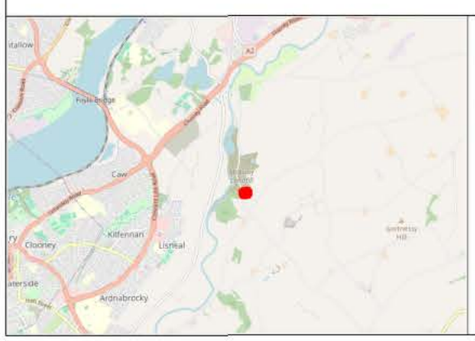
Notes:

Drawn by: [redacted]
Checked by: [redacted]
Office: Southampton

Figure No. 2
Revision No. A

0 5 10 Meters
Scale 1:250 @A3

08 December 2023
NGR: 64317E 580323N



TETRA TECH

The Pavilion, 1st Floor
Botleigh Grange
Office Campus
Hedge End
Southampton
Hampshire, SO30 2AF

Bat Emergence/Return Roost Location Plan

Mobuoy Road City Waste

DAERA

Legend

- Building
- Common pipistrelle, *Pipistrellus pipistrellus*
- Soprano pipistrelle, *Pipistrellus pygmaeus*
- Leisler's bat, *Nyctalus leisleri*
- Unidentified

Notes:

Drawn by: [redacted]
Checked by: [redacted]
Office: Southampton

Figure No. 3
Revision No. A

0 5 10 Meters
Scale 1:250 @A3

08 December 2023
NGR: 64318E 580322N

TETRA TECH

The Pavilion, 1st Floor
Botleigh Grange
Office Campus
Hedge End
Southampton
Hampshire, SO30 2AF

APPENDICES

APPENDIX A: REPORT CONDITIONS
APPENDIX B: LEGISLATION AND RELEVANT PLANNING POLICY

APPENDIX A: REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Department of Agriculture, Environment and Rural Affairs (DAERA) ("the Client") for the proposed uses stated in the report by Tetra Tech Consulting (Northern Ireland) Limited ("Tetra Tech"). Tetra Tech exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

No liability is accepted or warranty given for; unconfirmed data, third party documents and information supplied to Tetra Tech or for the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report. Tetra Tech does not purport to provide specialist legal, tax or accounting advice.

The report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections'. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times. No investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather-related conditions. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions. The "shelf life" of the Report will be determined by a number of factors including; its original purpose, the Client's instructions, passage of time, advances in technology and techniques, changes in legislation etc. and therefore may require future re-assessment.

The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.

APPENDIX B: LEGISLATION AND RELEVANT PLANNING POLICY

Wildlife (Northern Ireland) Order 1985 (as amended)

Bats

All species of bats (*Vespertilionidae*) are strictly protected under The Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 (as amended) (known as the Habitats Regulations). They are known as a European protected species. Under the Habitats Regulations it is an offence to:

Deliberately capture, injure or kill a wild animal of a European protected species;

Deliberately disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;

Deliberately 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 obstruct access to a breeding site or resting place of such an animal; or

Damage or destroy a breeding site or resting place of such an animal.

Bats are also protected under the Natural Environment Act (Northern Ireland) 2011 (the 'WANE Act') and are a European Protected Species (EPS).

National Planning Policy Framework

A revised NPPF was issued on 20th July 2021 (Ministry of Housing Communities and Local Government, 2021) and currently supplements government Circular 06/2005, Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System (Office of the Deputy Prime Minister, 2005).

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. Paragraph 180 then goes on to confirm that: When determining planning applications, local planning authorities should apply the following principles:

a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;

- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level) and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision-making process.