BRIEFING NOTE

Project Reference	211035-b
Date	21.05.2024
Subject	Updated Bat Survey at Westport House
Authors	Nora Szijarto, Sara Fissolo

Introduction

MKO was commissioned by Taylor McCartney Architects to undertake updated bat surveys at Westport House grounds, Co. Mayo (Grid Ref: R 57051 57119). The project will consist of restoration works within the Westport Estate, and will include refurbishment works on Westport House, the coach house and the structures located within the existing walled garden to create and improve existing exhibition and visitor hub spaces. The project description is provided below.

The updated scope follows surveys carried out in 2022 and 2023 to obtain additional information on potential tree roosting habitat within the estate as well as the reinspection of all structures to confirm any potential changes to the baseline data recorded in 2022. Information on all previous surveys is presented in Appendix 1, which includes the bat report submitted as part of planning application (P23/60534) to Mayo County Council submitted in December 2023. A submission by the Heritage Council in on the 26th January 2024 stated the following in relations to bats:

Of particular concern is the impact on bat species. Old buildings and mature trees do provide roost potential. Therefore, it is essential that the mitigation measures identified in the ecological assessment be implemented by way of planning condition, should permission be granted. We note that 201 trees are identified for removal. While the requirement for pre-construction surveying of both trees and building structures is welcome, there should be the possibility for retaining any tree in the first instance, should a bat roost be found during pre-commencement surveys.

This briefing note is intended to provide the required information requested in a Further Information (FI) request submitted on February 15th 2024 by Mayo County Council. In particular, Item 22 is relevant to bats, and requests the following:

Submit an updated Bat Report and derogation licenses required to comply with the requirements of the details above in response to the submission received the Department of Housing, Local Government and Heritage.

The Department of Housing, Local Government and heritage has recently been highlighting the Court of Justice of the European Union (CJEU) judgement (Hellfire Massey C166/22) that derogation licences should be applied for and granted before planning consent is considered so that the planning consent reflects the need to comply with Article 12 of the Habitats Directive 92/43/EEC. It was therefore also agreed to obtain a derogation licence prior to an FI response being submitted. This Briefing note was also intended to be used as supporting information for the derogation licence application, which was submitted on May 21st, 2024.

Upon consultation with the NPWS, it was agreed to proceed with presence/absence surveys of all trees identified as having high potential, by means of inspection at height, to verify roost potential and inform the application process for the derogation licence, where required.

Surveys were carried out in May 2024, and included a daytime inspection of all the structures subject to the proposed works as well as inspections at height of a number of trees (19no.) identified as having High roosting potential during ground-level assessments carried out in November 2023.

Project Description

The proposed development comprises:

1. The restoration of Westport House (a Protected Structure) including to repair and upgrade the fabric and accessibility of the house alongside providing a new visitor and interpretive experience within;
2. The restoration and repurposing of the Coach House (a Protected Structure) at ground and first floor to repair and upgrade the fabric of original structures, demolition of non-historic additions and adjacent structures, and provision of new build extensions (principally single storey with varying height up to maximum of c. 5.8 metres, with first floor link element to maximum of up to c. 7 metres height) to accommodate a visitor facility including café, retail and administrative / ancillary functions and the 'Grace O'Malley Experience' interpretive space;

3. The 'Wild Realms' to deliver an outdoor landscape and gardens based visitor experience, including:
    a. the partial restoration of formal Italianate gardens to west of Westport House;
    b. the 'Lower Realm' at and adjoining 'Ladies Island' (including construction of single storey 'Eartharium' entrance passageway structure (c. 5.2m high) and elevated walkway (with varying height up to maximum of c. 4 metres above ground) with associated gathering areas and an elevated story telling structure (c. 11.5 metres high or c. 14 metres overall height above ground level)), including demolition / removal of remaining features of Pirate Adventure Park complex;
    c. the 'Middle Realm' at and adjoining the Walled Garden (a Protected Structure), including conservation and partial repurposing of surviving original structures and construction /
    d. installation of new structures / features;
    e. the 'Upper Realm' at and adjoining Garvillaun; and,
    f. provision of pedestrian / visitor routes including repair / consolidation and bridging of existing Causeway to Garvillaun (partially within the maritime area and subject to a Maritime Area Consent) and the creation of a Pontoon across Westporthouse Lough.

4. Supporting amenity, infrastructure and ancillary development throughout the Estate, including:
    a) provision of new cycle, bus and car parking and consolidation / rationalisation of existing parking;
    b) creation of entrance parkland area, hard and soft landscaping / public realm elements, paths and routes throughout;
    c) provision of drainage, services, utilities, substation and switch room building (c. 3m high), plant and equipment including (gas) package plant structure (c. 3m high), lighting, toilet facilities (c. 2.6m m high structures), traffic management provisions / controls, boundary treatments and enclosures, signage, wayfinding and interpretive infrastructure; and,
    d) demolition / removal / dismantling of existing elements / structures, temporary and enabling works, and all associated and ancillary works and development.

Statement of Authority

MKO employs a bat unit within its Ecology team, dedicated to scoping, carrying out, and reporting on bat surveys, as well as producing impact assessments in relation to bats. MKO ecologists have relevant academic qualifications and are qualified in undertaking surveys to the levels required. MKO's Ecology team holds an open bat derogation licence from NPWS (DER-BAT-2024-54). The licence is intended for professionals carrying out surveys with the potential to disturb roosting bats (i.e. roost inspections).

Survey scoping was prepared by Sara Fissolo, Nora Szijarto and Pat Roberts. The tree inspections at height were carried out by Pat Roberts, assisted by Nora Szijarto. Building inspections were carried out by Sara Fissolo and David Culleton. This note was prepared by Sara Fissolo, was reviewed by Aoife Joyce and was approved by Pat Roberts. Staff's roles and relevant training are presented in Table 1 below.

Table 1 Project team qualifications and training

Staff	Role	Qualifications and Training
Pat Roberts (B.Sc., MCIEEM)	Principal Ecologist	B.Sc. Environmental Science, National University of Ireland, Galway. 18 years post graduate experience working as a professional ecologist. Over 10 years previous experience working as a nature conservation warden, tree surgeon/surveyor. Bat Detector Workshop (Bat Conservation Ireland). Bats & Arboriculture Training Course, (BCT & Arboricultural Association).
Aoife Joyce (B.Sc., M.Sc.)	Project Director	B.Sc. (Hons) Environmental Science, University of Galway, Ireland. M.Sc. (Hons) Agribioscience, University of Galway, Ireland. Advanced Bat Survey Techniques – Trapping, biometrics, handling (BCI), Bat Impacts and Mitigation (CIEEM), Bat Tree Roost Identification and Endoscope Training (BCI), Bats in Heritage Structures (BCI), Bats and Lighting (BCI),
Sara Fissolo (B.Sc.)	Project Ecologist	B.Sc. (Hons) Ecology and Environmental Biology, University College Cork, Ireland. Advanced Bat Survey Techniques (BCI), Bat Impacts and Mitigation (CIEEM), Bats in Heritage Structures (BCI), Bat Care (BCT), Bats and Lighting (BCI), Kaleidoscope Pro Analysis (Wildlife Acoustics).
David Culleton (B.Sc., M.Sc.)	Bat Ecologist	B.Sc. (Hons) Zoology, University College Cork, Ireland. M.Sc. (Hons) Conservation Behaviour, Atlantic Technological University, Galway, Ireland. Bat Detector and Survey Training (BCI), Kaleidoscope Pro Analysis (Wildlife Acoustics), Endoscope Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).
Nora Szijarto (B.Sc., M.Sc.)	Bat Ecologist	B.Sc. Biology, University of Lausanne, Switzerland M.Sc. Behaviour, Evolution and Conservation, University of Lausanne, Switzerland Bat Detector and Survey Training (BCI), Kaleidoscope Pro Analysis (Wildlife acoustics), Endoscope Training (Internal), Structure & Tree Inspection (Internal), Manual Transect Survey (Internal), Bat Habitat Appraisal (Internal), Emergence and Re-Entry Surveys (Internal).

Methodology

Westport House estate was revisited on the 7th and 8th of May by four licenced bat ecologists. All notes were collected using ArcGIS Field Maps (Esri).

The bat surveys and assessment were carried out with reference to the following publications:

- *Bat Surveys for Professional Ecologists – Good Practice Guidelines (4th edn.) (Collins, 2023)*
- *Bat Roosts in Trees (Andrews, 2018)*
- *Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell, Kelleher & Mullen 2022)*

Building Inspections

Westport House, the coach house, the walled garden and all associated outbuildings were inspected for any new signs of bat activity since the site was first visited in 2022. The walled garden was inspected from ground-level with the aid of torches, with all accessible suitable crevices investigated. A systematic search of all accessible building interiors, including all attic spaces, was undertaken. Inspections were carried out with the aid of torches, a ladder, an endoscope, a thermal camera and binoculars, and searched for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises, as well as potential access points into each structure. All areas inspected in 2022 were revisited.

Tree Inspections at Height

Tree inspections at height followed an initial ground-level survey carried out in November 2023 which identified a total of 19 trees with likely High roosting potential. The surveys at height were carried out by Pat Roberts and aimed to assess and measure the potential roosting features (PRFs), confirm the assessment in line with Collins 2023 guidance, and inspect the PRFs to identify any evidence of roosting bats. Access to the identified PRFs was gained with the use of a ladder and tree climbing gear, and the PRFs were measured and inspected with an endoscope.

Results

Structure Inspections

No significant new evidence of bat use was identified during the structure inspections. Small numbers of fresh droppings were found in areas already identified in 2022 indicating recent use, however no significant accumulations were found to indicate the use of the buildings by a large colony. Indication of potential use of Westport House cellars, potentially as hibernacula or transitional roosts, was found. On a similar note, evidence of use of a barrel-vaulted outbuilding within the walled garden was also found indicative of a potential hibernacula. A single *Myotis* bat was observed roosting in the walled garden, and evidence of roosting was seen at two other crevices along the stone walls.

Table 2 below summarises the results of the building inspections, with Plates 1 to 9 showing relevant information. Naming and reporting structure follows the 2022 assessment (Appendix 1) for reading ease. No pictures are presented where no new evidence was found.

Tree Inspections

No roosting bats or signs of roosting were identified during the tree inspections at height. A total of 19 trees with High potential were visited, all PRFs were inspected internally with the exception of one, which was not endoscoped due to health and safety reasons, but was downgraded upon closer inspection. A number of trees' suitability for roosting was downgraded following closer inspection. Table 3 below summarises the results of the survey and notes any additional information recorded at each tree. Trees are showed in Figure 1.

No further surveys were deemed necessary to assess the current use of the woodland by bats. Species recorded in 2022 during ground-level static surveys and night walkover surveys included the *Myotis* genus and all other Irish species, of which all but Lesser horseshoe bats have the potential to use the woodland PRFs identified within the Westport Estate.

Plate 1 Brick Store in Walled Garden

Plate 2 Gated arch in Walled garden with identified roost

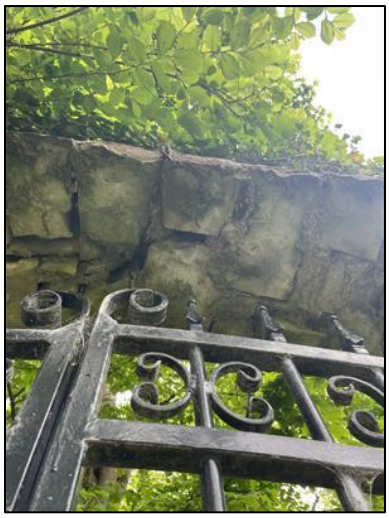

Plate 3 Gap in stonework where bat was found roosting

Plate 4 Vertical crack along eastern Walled garden wall

Plate 5 Barrel-vaulted outbuilding where droppings were found

Plate 6 Coach House loft, droppings found on table pictured

Plate 7 Gap above cellar door toward exterior of Westport house

Plate 8 Cellar area where droppings were found

Plate 9 Accumulation of droppings found in cellar

Table 2 Structure inspections results

Structure	Area	2022 Evidence	2022 Assessment	2024 Evidence	2024 Assessment	IG Ref	Notes	Plate
Walled Garden	Stone/Brick Wall – Brick Store	n/a	No specific assessment to this location. Wall considered likely to host bats.	Single Dropping	Moderate	L 98946 84758	Large crevice into wall likely providing suitable habitat.	1
	Stone/Brick Wall - Gate Arch	n/a	No specific assessment to this location. Wall considered likely to host bats.	Myotis bat	Moderate	L 98911 84673	Single bat found day roosting in vertical crack. Ivy cover cleared from walls.	2 & 3
	Stone/Brick Wall – Eastern Wall	n/a	No specific assessment to this location. Wall considered likely to host bats.	Single dropping	Moderate	L 99145 84635	Vertical crevice with evidence found, space available within wall.	4
	Eastern Structures – Wooden shed & earthed corridor	n/a	Low & Low	n/a	Negligible & Low	L 99018 84670 & L 99011 84661	No evidence. Deterioration of shed reduced assessment.	n/a
	Derelict House & Barrel-Vaulted Outbuilding	n/a	Low & Low	Droppings	Negligible & Low	L 98965 84736 & L 98968 84747	Small accumulation which did not look recent: evidence of opportunistic use at top of vaulted storage. Area no more in use for farming. Potential hibernacula. Droppings collected.	5
Coach House	Living quarters	Old droppings within side attic and loft.	Moderate	Droppings	Moderate	L 98826 84719 (fresh droppings, top floor)	Old droppings within side attic and small amount of recent droppings in loft area, under opening into attic.	6
	Front Storage Outbuilding	n/a	Moderate	n/a	Moderate	L 98842 84696	Curtains draped across ceiling throughout, in use as storage and visitor toilets.	n/a
	Workshop	n/a	Negligible	n/a	Negligible	L 98854 84712	Still in regular use	n/a
Westport House	Attic - South	Old droppings	Moderate	Old droppings	Moderate	L 98889 84528	Not recent but likely indicative of old perch	n/a

	Attic – North	n/a	Moderate	n/a	Moderate	L 98899 84537	No changes since 2022.	n/a
	Cellars	n/a	Moderate	Droppings	Moderate	L 98889 84548	Multiple small dropping accumulations found, none fresh, but some recent. Likely single or small number of bats using the area occasionally. Location, shape and size potentially indicative of lesser horseshoe bats. Likely access pictured in Plate 8.	7, 8 & 9
	Dungeon	n/a	Low	n/a	Low	n/a	All crevices inspected, no evidence of use. Public access available.	n/a
	Boiler Rooms	Droppings	Low	Droppings	Low	n/a	Similar locations as 2022 found having droppings. Likely used opportunistically.	n/a

Table 3 Results of tree inspections at height

Species	Tree Tag	Long	Lat	DBH (cm)	State	PRF On	PRF Type	PRF Orientation	PRF Height (m)	Suitability	Notes
Horse Chestnut	4874	-9.53975	53.80333	80	Alive	Stem	Old Ivy, Lifting Bark	n/a	n/a	Low (PRF-I)	Sick tree, no high value PRF, no evidence of use by bats.
Sycamore	4054	-9.53765	53.80284	100	Alive	Stem	Knotholes, fissure, lifting bark	S	8	High (PRF-M)	A total of four PRFs including two knotholes, one at 3m and one at 8m, a long external fissure about 2m in length at approx. 9m height that is completely hollow inside, and some lifting bark. No signs of bats, but good potential. Light fixture attached.
Lime	4039	-9.537	53.80237	220	Alive	Stem	Knot Hole	W	7	Low (PRF-I)	Woodlice in knothole. Very dense branches at the base of the trunk. No signs of bats
Sycamore	4036	-9.53661	53.80201	120	Alive	Limb	Hazard beam, knotholes, lifting bark	SE	8	High (PRF-M)	Woodlice in one knothole, none in other. Hazard beam is about 4m long and hollow. Coal tit nest inside. Good potential, no signs of bats.
Sycamore	4034	-9.53659	53.80193	80	Alive	Limb	Knotholes, broken branch	W	11	Low (PRF-I)	Three knotholes at 7, 8 and 9m which did not go deep enough to provide shelter. Broken branch/transverse snap all facing W. No signs of bats and little potential.
Ash	921	-9.53524	53.80175	80	Dead	Limb	Transverse Snap/Snag	N/A	9	Moderate (PRF-I)	Two PRFs: - Vertical crack/crevice about 3m high exposed to rain. Little potential. - Trunk hollow at the bottom No signs of bats.

Sycamore	1044/4 068	-9.53535	53.80202	90	Alive		Knotholes	E	6	Low (PRF-I)	Two small knotholes about 6m high. Little potential.
	1044/4 068	-9.53535	53.80202	90	Alive	Stem	Wound	E	7	Moderate (PRF-M)	Wound at about 7m high. Some fur observed inside, potentially nesting material. Bat was found roosting in the stone wall next to the tree.
Sycamore	4072	-9.53537	53.8022		Alive	Stem	Butt Rott	n/a	0	Low (PRF-I)	Butt rot very low to the ground No signs of bats.
Sycamore	4011	-9.53503	53.80239	90	Alive	Stem	Wound, Transverse snap	N	9.8	Low (PRF-I)	2 PRFs: - Wound: Nest of wood lice - Transverse snap with nothing in it
Sycamore	4012	-9.53498	53.80235	120	Alive	Stem	Wound	NW	3	Moderate (PRF-M)	Two major wounds. The PRF at 3m height has potential, it's dry and going deep about 40cm.
Sycamore	4014	-9.53485	53.80224	90	Alive	Stem	Knot Hole	E	1	Moderate (PRF-I)	Knothole about 15cm deep, Knothole at 1m
Ash	4079	-9.53492	53.80208	120	Alive	Stem	Wound	n/a	3	Low (PRF-I)	Features not going deep enough or too low to the ground.
Sycamore	4009	-9.53424	53.80232	100	Alive	Stem	Transverse Snap	n/a	n/a	None	Transverse snap not deep enough for shelter.
Sycamore	4378	-9.53874	53.80261	90	Alive	Stem	Wound, lifting bark	NE	7	Moderate (PRF-M)	Big wound and lifting bark, two cavities ~20cm deep.
Yew	4377	-9.53874	53.80265	138	Alive	Stem	Old Ivy	n/a	11	Low (PRF-I)	No inspection at height, lots of mature ivy and lifted bark, potential reduced to PRF-I.
Beech	3888	-9.54571	53.80232	140	Alive	Stem	Wound	n/a	7	High (PRF-M)	Wound with dry wood and many crevices and cracks going deep in the trunk, some about 30cm deep. Perfect for bats but no sign of any.
Sycamore	3990	-9.54584	53.80241	60	Alive	Limb	Wound	NW	5	Low (PRF-I)	Wet inside the PRF with slugs, Big wound at 3m high and a knothole with wood lice about 5cm deep. Little potential.
Sycamore	4382	-9.53902	53.80255	40	Alive	Stem	Mature Ivy	n/a	n/a	Low (PRF-I)	Reassessed, no PRFs other than ivy.
Sycamore	4221	-9.54255	53.80257	40	Alive	Stem	Wound	S	10	Moderate (PRF-I)	Not climbed, considered downgraded.
Lime	3949	-9.54608	53.80137	50	Alive	Limb	Knotholes and transverse Snap	W, N, E	1	Low (PRF-I)	Endoscoped from ground, not deep enough.

Map Legend

High trees reassessed in May 2024 as

- PRF-M
- PRF-I
- Not Climbed

Drawing Title

Trees inspected by an arborist in May 2024

Project Title

Westport House

Drawn By	Checked By
NS	SF
Project No.	Drawing No.
211035-b	Fig -1
Scale	Date
1:4,300	2024-05-21

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Result Summary

- No large permanent or maternity roosts, or evidence of any, were recorded during the surveys. Access points available to bats suggest occasional use of all structures is possible.
- Most of the buildings surveyed have the potential to support bat roosts. In 2024, droppings were found in Westport House, within the coach house, in crevices around the walled garden and within a barrel-vaulted outhouse located within the walled garden.
- A single roosting bat (*Myotis* sp.) was found roosting within the walled garden in 2024.
- Evidence of potential hibernacula was found within the length of the cellar of Westport House, and within the barrel-vaulted outhouse in the walled garden. Both areas, once undisturbed, present suitable conditions for hibernation. No evidence was found in 2022.
- No active roosts were recorded during the 2022 dusk surveys.
- No roosts were found within the trees inspected at height. Most tree PRFs were downgraded upon close inspection.
- Lesser horseshoe bats were recorded using the site in 2022, outside their known range.

Mitigations

The following mitigations supersede those provided within the bat report and Ecological Impact Assessment submitted with the initial planning application (Appendices 1 & 2). Minor amendments/additions were produced due to recent survey findings, marked in blue:

Structures

- A derogation licence from the NPWS will be required in order to restore/demolish buildings where evidence of bats was identified, as well as to restrict any potential access points to these structures/areas:
    - Westport House - southern attic
    - Westport house - boiler room – dungeon
    - Westport House - cellar
    - Coach house - roof spaces
    - Walled garden - wall crevices
    - Walled garden - gated arch
    - Walled garden - barrel vaulted outhouse
- A pre-commencement survey is recommended for the buildings to assess them prior to any works to ensure no bats are present.
- If during the pre-commencement surveys bats are found to be roosting in any of the structures where no evidence of roosting has been previously found, a bat derogation licence will be obtained from NPWS, and further mitigation prescribed by a licenced ecologist.
- Roof works will not be carried out during the bat maternity season (May-August) within buildings where evidence of roosting bas was found (i.e. Westport House and Coach House).
- As evidence of roosting was found in Westport House cellar and the barrel-vaulted outhouse in the walled garden, works are not recommended to take place in these areas during the wintering and transitional periods (November to April). Access to these buildings for bats, similar to the ones existing, will be maintained following any renovation works.
- No. 2 bottomed bat boxes will be placed on site prior to work commencing to be used in the event that roosting bats are encountered during works (i.e. 3FN Schwegler).
- If the structures within the proposed works site fall into further disrepair, their value as a habitat for roosting bats is likely to diminish. The sympathetic and well-designed renovation of any roof, as well as any other building to be retained, has the potential to enhance its value for roosting bats by preventing their likely decline:

    - Where roof works are required, the roof will be reinstated, and access tiles/slates will be provided to maintain and enhance access to the roof spaces where droppings were found. On a slate roof the Bat slate can be fitted under the ridge tiles or can be adapted to be fitted in the middle of a slate roof.
    - Any water tanks within the roof spaces will be fully covered.
- Renovation works will employ bat-friendly construction materials:
    - New roofing felt has to be made of bat safe membrane. (i.e https://www.roofingsuperstore.co.uk/product/tlx-batsafe-bat-friendlybreathable-membrane-25m-x-950mm.html
    - Where remedial timber treatment is required, it is recommended to use pre-treated timber, which is dried before being used in a close vicinity of bat roosts.
- Alternative new roosting locations can be provided as part of the proposed works. This could be achieved by:
    - Creating bespoke roosting habitat within the roof spaces of the most suitable structures, including Westport House, the Coach House and renovated outbuildings within the walled garden. Purpose-built access points within these roof spaces will also be recommended.
    - Including integrated bat boxes within renovated or newly built walls across the site
    - Positioning bespoke bat boxes on newly built structures (i.e. on flat green roofs of the coach house

Trees

- All tree felling needs to be justifiable: where felling is avoidable, tree retention/justified pruning is considered the best mitigation measure.
- Any tree felling will be undertaken outside the main bat vulnerability periods (including maternity season & hibernating season).
- No roost was identified within trees during the tree inspections at height, however six trees were found to have high suitability (PRF-M) regardless. As recommended by NPWS during consultations, a precautionary derogation licence will be applied for prior to the RFI being submitted, as bats may still be found during felling works.
- All PRF-M trees will be replaced like for like with the provision of two bat boxes per PRF lost (12no.)
- Alternative new roosting locations will be provided as part of the proposed works on a like-for-like basis. Bat boxes in sufficient numbers to replace any roost resource identified will be erected throughout the site, away from artificial lighting and disturbance. A minimum of 20 woodcrete bat boxes of different models are recommended. Figure 2 provides areas where bat boxes can be concentrated to complement the existing roost resource (Forestry Commission, 2005). Existing corridors will be retained.
- Any required felling of trees with suitable roosting features will be carried out with the assumption that bats may be present:
    - Any tree felling will be undertaken outside the main bat vulnerability periods (including maternity season & hibernating season).
    - Trees with suitable potential roost features proposed for felling will be checked by a suitably qualified arborist at the time of felling.
    - Trees will be nudged two or three times prior to limb removal, with a pause of 30 seconds in between, to allow bats to wake and move.
    - Rigged felling shall be used to lower the limbs and trunk carefully to ground level and cavities searched by a qualified ecologist.
    - Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006).

Map Legend

- Dark corridors
- Bat box zones

N

Drawing Title

Bat Boxes Locations

Project Title

Westport House

Drawn By	Checked By
NS	SF
Project No.	Drawing No.
211035-b	Fig -2
Scale	Date
1:3,000	2024-05-21

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Lighting

- The lighting plan for the operational phase of the proposed works, has been designed with consideration to the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the Bat Conservation Trust (Guidance Note 08/23 Bats and Artificial Lighting at night (BCT, 2023), to minimise light spillage, thus reducing any potential disturbance to bats. The proposed light fitting/scheme has been designed to help mitigate the effect of the proposed artificial lighting on the local bat populations by incorporating the following measures:
    - There will be no illumination to the trees & water bodies.
    - Very warm colour temperature (2200K and lower) lighting will be utilised.
    - A central controlled lighting regime will be in place along with PIR sensors to
    - detect movement and switch lights off in zones with no activity.
    - The site will be closed after 6pm with the exception of special events.
    - P6 Class (Average 2 lux/ Min 0.4 lux) will be used for the central access route
    - and stairs which is a low intensity of illumination.
    - All lights will be angled downwards (never above 25 degree tilt angle and they
    - will have full cut-off). Only lights which are shielded under canopies and
    - structures may utilise uplighting so the light spill can be contained.
    - A detailed lighting report accompanied the assessment.

Landscaping

- Landscaping favourable to bats will involve the retention and enhancement of linear features and woodland habitats. Artificial lighting towards these features will be avoided or kept to a minimum, with unavoidable light spill not exceeding 1Lux.
- A detailed landscaping plan has been designed for the proposed development. The plan will include large-scale planting of hedges, wildflowers meadows and native semi-mature trees, which are expected to improve foraging opportunities within open areas where little bat activity was recorded due to lack of suitable resources.

References

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APPENDIX 1

Bat Report 2023

Planning and Environmental Consultants

Bat Report

Restoration and Interpretation of Westport Estate

DOCUMENT DETAILS

Client:	**Inishoo Management Ltd.**
Project Title:	**Restoration and Interpretation of Westport Estate**
Project Number:	**211035**
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Planning and Environmental Consultants

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1. INTRODUCTION

MKO was commissioned to undertake bat surveys at Westport House grounds, Co. Mayo (Grid Ref: R 57051 57119) (Figure 1-1). The project will consist of restoration works within the Westport Estate, and will include refurbishment works on Westport House, the coach house and the structures located within the existing walled garden to create and improve exhibition and visitor hub spaces.

Surveys were carried out in July and September 2022 and November 2023, and included a daytime inspection of all the buildings and structures proposed for renovation and of all trees to be removed and bat activity surveys. Manual dusk and dawn surveys were carried out and passive static detectors were deployed onsite for 30 days. The main objective of the surveys was to gather information on roosting bats and inspect the structures for potential roosts, including maternity roosts. The bat surveys were designed to establish the nature, scale and locations of potential bat activity in each of the buildings on site and involved an extensive interior and exterior inspection of the buildings.

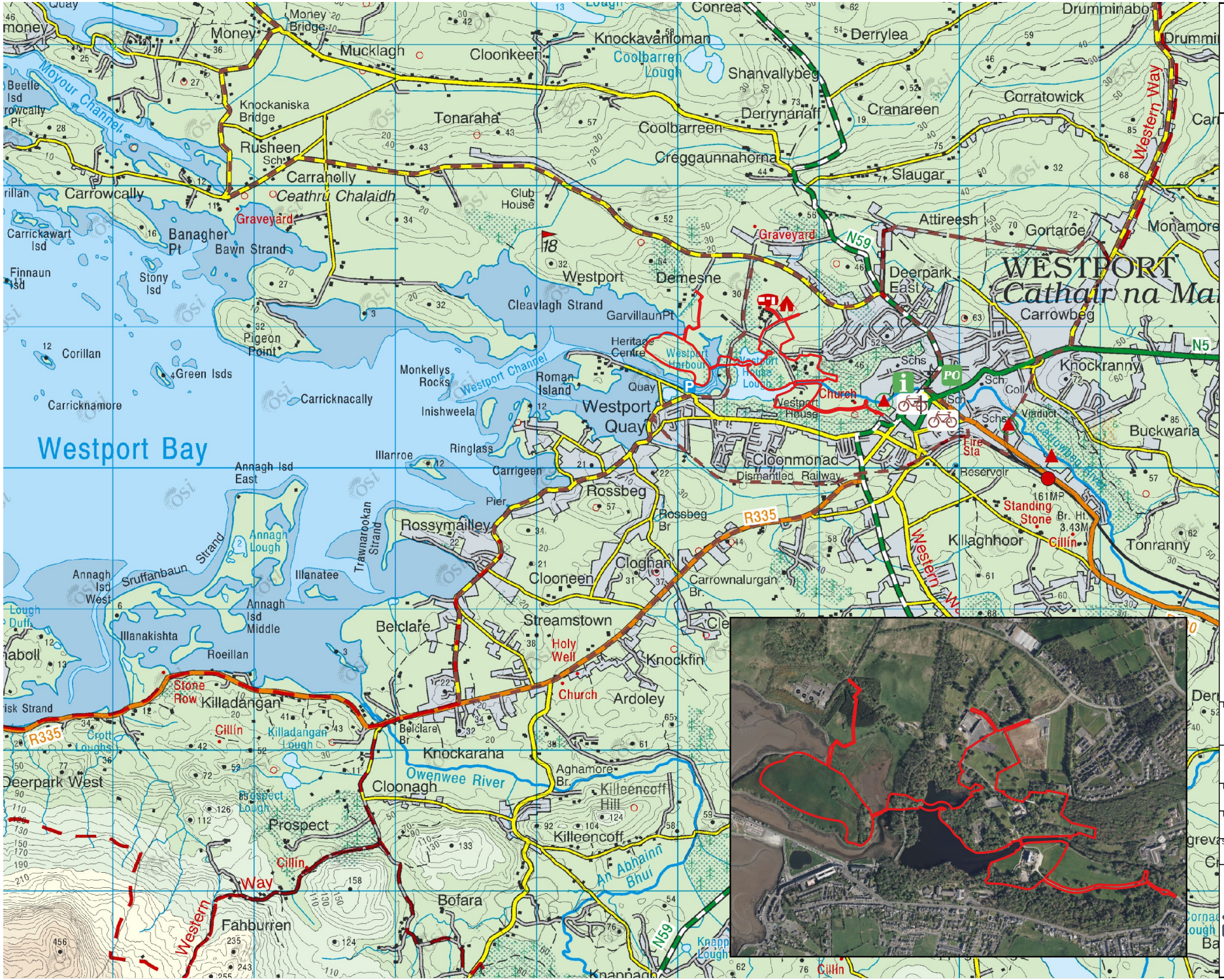
The bat survey and assessment were informed by a desk study and with reference to the following guidelines:

- *Bat Survey Guidelines: Traditional Farm Buildings Scheme. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny (Aughney, T., Kelleher, C. & Mullen, D., 2008)).*
- *'Bat Workers' Manual' (3rd edn). JNCC, Peterborough (Mitchell-Jones, A.J. & McLeish, A.P. (eds) 2004).*
- *The Lesser Horseshoe Bat Conservation Handbook, Vincent Wildlife Trust (Schofield, HW., 2008).*
- *Bat Surveys for Professional Ecologists – Good Practice Guidelines (3rd edn.) (Collins, 2016)*
- *Bat Roosts in Trees (Andrews, 2018)*
- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes (NRA, 2006a)*
- CIEEM (2013) *Competencies for Species Surveys: Bats.* Chartered Institute of Ecology and Environmental Management, Winchester.
- *Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006b)*
- *British Bat Calls: A Guide to Species Identification (Russ, 2012)*
- *Bat Mitigation Guidelines for Ireland – V2. Irish Wildlife Manuals, No. 134. (Marnell, Kelleher & Mullen 2022)*
- *Guidance Note 08/18: Bats and Artificial Lighting in the UK (ILP, 2018)*

1.1 Policy and Legislation

All Irish bats are protected under European legislation, namely the Habitats Directive (92/43/EEC). All Irish species are listed under Annex IV of the Directive, requiring strict protection for individuals, their breeding sites and resting places. The Lesser horseshoe bat (*Rhinolophus hipposideros*) is further listed under Annex II of the Directive, requiring the designation of conservation areas for the species. Under this Directive, Ireland is obliged to maintain the favourable conservation status of Annex-listed species. This Directive has been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477/2011).

In addition, Irish species are further protected by national legislation (Wildlife Acts (as amended). Under this legislation, it is an offence to intentionally disturb, injure or kill a bat or disturb its roost. Any work at a roost site must be carried out with the agreement of the National Parks and Wildlife Service (NPWS) and a derogation licence must be granted before works commence.



Map Legend

— Site Boundary

Drawing Title
Site Location

Project Title
Westport Estate Renovations

Drawn By	Checked By
RC	SF

Project No.	Drawing No.
211035	Fig. 1-1

Scale	Date
1:35,000	2023-12-08

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1.2 Bat Roosting Behaviour

Bats use a variety of natural and manmade structures as roosting or resting places. The type of roost and its level of use is determined by its function in the bat life cycle. Table 1-1 provides a summary of different types of bat roosts.

Table 1-1 Bat Roost Types and Definitions

Roost Type	Definition
Day	Where individuals or small groups of male's rest/shelter in the day but are rarely found by night in summer.
Night	Where bats rest/shelter at night but are rarely found in the day.
Feeding	Where individuals rest/feed during the night but are rarely found during the day.
Transitional	Used by a few individuals for short periods of time prior to or following hibernation.
Swarming	Where large numbers gather in late summer to autumn. Important mating sites.
Mating	Where mating takes place in late summer to winter.
Maternity	Where females give birth and raise their young.
Hibernation	Where bats are found during winter (constant cool temperature and high humidity).
Satellite	An alternative roost found in close proximity to the main nursery colony.

There are currently no clear guidelines to determine the significance of a bat roost. All the largest roosts of LHB in Ireland are of international importance and it is anticipated that all large Leisler's bat roosts (>100) would also have international significance (NRA, 2006). Table 1-2 provides some criteria for determining the significance of different building roosts, as determined by the Bat Expert Panel of the Heritage Council in 2003 (NRA, 2006).

Table 1-2 Level of Importance of Various Building Roosts

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

The likelihood of detecting active roosts is determined by the timing of the roost survey. In general;

- April surveys may detect transitional roosts used by bats following hibernation and prior to summer roosting.
- May-August surveys may detect maternity colonies and male/non-breeding female summer roosts.
- August surveys are best to determine maximum counts of adult and juvenile bats.
- August – October surveys may detect swarming and mating bats.
- September and October surveys may detect transitional roosts used by bats following the dispersal of maternity colonies and prior to hibernation.
- Day, night, feeding and satellite roosts may be found anytime between April and October.
- November – March surveys may detect hibernacula.

1.3 Statement of Authority

Bat surveys were undertaken by MKO ecologists with relevant academic qualifications who are qualified in undertaking surveys to this level. MKO staff was supported by an intern on work experience on one occasion. The daytime inspection survey was carried out by licenced ecologists Laura Gránicz (B.SC., M.Sc., DER-BAT-2022-53), Laura McEntegart (B.Sc., DER-BAT-2022-62), Claire Stephens (B.Sc., DER-BAT-2022-21) and Cathal Bergin (B.Sc., DER-BAT-2022-20). They were joined by Neil Campbell (BSc., MSc.), Kate Greaney (BSc., MSc.), Patrick O'Boyle (BSc., MSc.), Kailan Mitchell (B.Sc.), Susan Doran (B.Sc.), Sara Fissolo (B.Sc.), Pádraig Desmond (B.Sc.), Ellen Tuck (B.Sc.), Keith Costello (B.Sc.), Shane Connolly (B.Sc.), Conor Rowlands (B.Sc.) and Kieran Sugrue (work experience) for the bat activity surveys. Tree roost inspections surveys were carried out by Ciara Lynn Sheehan (B.Sc.), Nora Szijarto (B.Sc.) and Ellen Tuck.

This report was prepared by Sara Fissolo and was reviewed by Aoife Joyce (B.Sc., M.Sc.) and Sarah Mullen (B.Sc., Ph.D., ACIEEM). Sara has two years' experience in ecological assessments and has completed CIEEM courses in Bat Impacts and Mitigation and Kaleidoscope Pro Analysis and Bats in Heritage structures course by Bat Conservation Ireland. Aoife has over three years' experience in ecological assessments and has completed CIEEM and BCI courses in Bat Impacts and Mitigation, Bat Tree Roost Identification, Bats in Heritage Structures, Endoscope training and Kaleidoscope Pro Analysis. Sarah Mullen has over 6 years' professional experience in ecological consultancy.

2. METHODS

2.1 Desktop Study

A desktop review of published material was undertaken to inform all subsequent field studies and assessments. The aim of the desktop review was to identify the presence of species of interest within the site and surrounding region.

The following list describes the sources of data consulted:

- *Review of online web-mappers: National Parks and Wildlife Service (NPWS) mapping.*
- *Review of NPWS Article 17 Report.*
- *Review of the publicly available National Biodiversity Data Centre web-mapper.*
- *Review of specially requested records from the NPWS Rare and Protected Species Database for the hectads which overlap with the study area.*
- *Mayo County Development Plan 2022-2028*

2.1.1 National Bat Database of Ireland

The National Bat Database of Ireland holds records of bat observations received and maintained by Bat Conservation Ireland. These records include results of national monitoring schemes, roost records as well as ad-hoc observations. The database was searched for bat presence and roost records within a 10km radius of the proposed site.

In addition, information on species' range and distribution, available in the 2019 Article 17 Reports (NPWS, 2019), was reviewed in relation to the location of the proposed works. The NPWS monitors the conservation status of European protected habitats and species and reports their findings to the European Commission every 6 years in the form of an Article 17 Report. The most recent report for the Republic of Ireland was submitted in 2019.

2.1.2 Designated Sites

The potential for the proposed works to impact on sites that are designated for nature conservation is considered in separate Ecological Impact Assessment (EcIA) and Appropriate Assessment Screening (AASR) reports. Special Areas of Conservation (SACs) are designated under EU Habitats Directive. The European Sites that are within the Zone of Likely Impact, with bats identified as Qualifying Interests, are listed in Section 3.1.3 below.

Natural Heritage Areas (NHAs) are designated under the Wildlife (Amendment) Act 2000 and their management and protection is provided for by this legislation and planning policy. Proposed Natural Heritage Areas (pNHAs) were designated on a non-statutory basis in 1995 but have not since been statutorily proposed or designated. Any identified NHAs and pNHAs designated for the protection bats are presented in Section 3.1.3 and potential for impacts was fully considered.

2.1.3 Habitat and Landscape

Ordnance survey maps (OSI 1:5,000 and 1: 50,000) and aerial imagery (ortho-based maps) were reviewed to identify any habitats and features likely to be used by bats. Maps and images of the site and general landscape were examined for suitable foraging, commuting or roosting habitats including woodlands and forestry, hedgerows, tree lines and watercourses.

2.1.4 Previous Reports

The data obtained during a constraints study carried out by MKO 2018 were consulted as part of this assessment.

2.2 Field Study

2.2.1 Ecological Appraisal (Bats)

A walkover survey of the Study Area was carried out during daylight hours on the 11th August 2022 and the 3rd and 7th of November 2023. The landscape features on the site were visually assessed for potential use as bat roosting habitats and commuting/foraging habitats using a protocol set out in BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn.) (Collins, 2016). Table 4.1 of the 2016 BCT Guidelines identifies a grading protocol for assessing structures, trees and commuting/foraging habitat for bats. The protocol is divided into four Suitability Categories: High, Moderate, Low and Negligible (Table 2-1). Updates 2023 guidelines have introduced a None category (Collins, 2023).

Table 2-1 BCT protocol for bat habitat appraisals (Collins, 2016)

Assessment	Rationale
High	Structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions, and surrounding habitat. Continuous, high-quality, well-connected habitats, connected to known roosts.
Moderate	A structure used by bats due to their size, shelter, protection, conditions and surrounding habitat, but are unlikely to support a roost of high conservation status, and suitable, connected habitats.
Low	Structures with one or more potential roost sites that could be used by an individual bat opportunistically, and suitable, but isolated habitats that could be used by a small number of bats.
Negligible	No obvious features present, but a level of uncertainty remains.
None	No habitat features likely to be used by roosting, commuting or foraging bats.

2.2.2 Roost Assessment

A search for roosts was undertaken within the boundary of the proposed works by five licenced ecologists to identify any potential roost features (PRFs). The licence, issued by NPWS, is intended for professionals carrying out surveys with the potential to disturb roosting bats. The aim of the survey was to determine the presence of roosting bats, potential access points, roosting locations and the need for further survey work or mitigation.

The search comprised a detailed inspection of the exteriors and interiors of the buildings to look for evidence of bat use, including live and dead specimens, droppings, feeding remains, urine splashes, fur oil staining and noises (Collins, 2016).

Buildings and structures inspected included:

- Westport House

- The Walled Gardens
- The Coach House
- The Campsite

A walkover was carried out during daylight hours on the 11th of August 2022 and all accessible buildings were inspected. A systematic search of all accessible interiors, including all attic spaces, was undertaken. The exterior of each building was inspected first from ground level and included all accessible windowsills, walls, eaves, roof ridge and roof slates. Inspections were carried out with the aid of torches and binoculars.

The site includes a large number of mature deciduous trees and areas of woodland with the potential to host roosting bats. No work design had been finalised at the time of first surveying on the 11th of August 2022, however a small number of trees, located south of Westport House within a mature treeline, were considered for felling at this time. When design had been finalised dedicated roost inspections were carried out on trees proposed to be felled on the 3rd and 7th of November 2023. These were visually assessed from ground level, for natural features of high value to roosting bats including knot holes, trunk hollows, splits/cracks in branches and areas of flaking bark and also for signs indicating possible bat use including droppings, staining and scratching of bark and any other potential roost features (i.e., PRFs) identified by Andrews (2018). The survey effort is presented in Figure 2-2.

2.2.3 Manual Activity Surveys

Manual activity surveys included emergence and re-entry surveys of any feature identified as a potential roost, as well as walked transects at dusk. For each of the surveys, surveyors were equipped with active full spectrum bat detectors, Batlogger M (Elekon AG, Lucerne, Switzerland). A Pettersson D200 Ultrasound Detector (Wildcare) was used by one surveyor on the 11th August 2022. Where possible, species identification was made in the field and any other relevant information was also noted, e.g., numbers, behaviour, features used, etc. All bat echolocation was recorded for subsequent analysis to confirm species identifications.

2.2.3.1 Emergence/Re-entry Surveys

A dusk emergence survey was first carried out by nine surveyors on the evening of the 11th August 2022. A dawn survey was then carried out on the morning of the 30th July 2022 by eight surveyors. Finally, another dusk survey was carried out by eight surveyors on the evening of the 13th September 2022.

Surveyors were located across the site with a focus on potential access point and roosting features identified during the daylight walkover surveys. The purpose was to identify any bat species, numbers, access points and roosting locations within the PRF structure. The survey effort is presented Table 2-2 and Figure 2-1.

Surveys were carried out in favourable weather conditions. Emergence surveys commenced at least 15 minutes before sunset and concluded approximately 1.5 hours after sunset. Re-entrance surveys commenced approximately 1.5 hours before sunrise and concluded 15 minutes after sunrise.

Table 2-2 Bat Activity survey effort

Date	Surveyor	Type	Sunrise/ Sunset	Weather
11th August 2022	Cathal Bergin, Conor Rowlands, Claire Stephens, Ellen Tuck, Kailan Mitchell, Kieran Sugrue, Laura McEntegart, Laura Gránicz and Neil Campbell	Dusk	21:20	17-20°C, Dry, Calm-Gentle Breeze
30th August 2022	Sara Fissolo, Pádraig Desmond, Neil Campbell, Kailan Mitchell, Susan Doran,	Dawn	6:43	13°C, Dry, Light Breeze

Date	Surveyor	Type	Sunrise/ Sunset	Weather
	Claire Stephens, Patrick O'Boyle and Keith Costello			
13th September 2022	Neil Campbell, Claire Stephens, Kate Greaney, Laura Gránicz, Ellen Tuck, Kailan Mitchell, Keith Costello and Shane Connolly	Dusk	19:56	11-18°C, Dry, Calm

2.2.3.2 Transect Survey

Manual activity surveys also comprised a walked transect at dusk, which was carried out on the 11th August. The aim of this survey was to identify bat species using the site and gather any information on bat behaviour and important features used by bats.

The transect was walked by two surveyors, recording bats in real time. It followed the manual roost survey and was completed within 3 hours after sunset. Surveyors were equipped with one active full spectrum bat detector, the Batlogger M bat detector (Elekon AG, Lucerne, Switzerland). The transect route was prepared with reference to the proposed layout, desktop and walkover survey results, as well as any health and safety considerations and access limitations. As such, it generally followed existing roads and tracks. The transect route is presented in Figure 2-1.

2.2.4 Static Detectors Surveys

Two full spectrum SM4 bat detectors (Wildlife Acoustics, Maynard, MA, USA), were deployed during static surveys to record bat activity for a 4-week period. The detectors were deployed on 11th August 2022. They were moved on 30th July to two new locations and were finally collected on 13th September 2022. The four locations of static detectors were selected to represent the range of habitats present within the site, including favourable bat habitats.

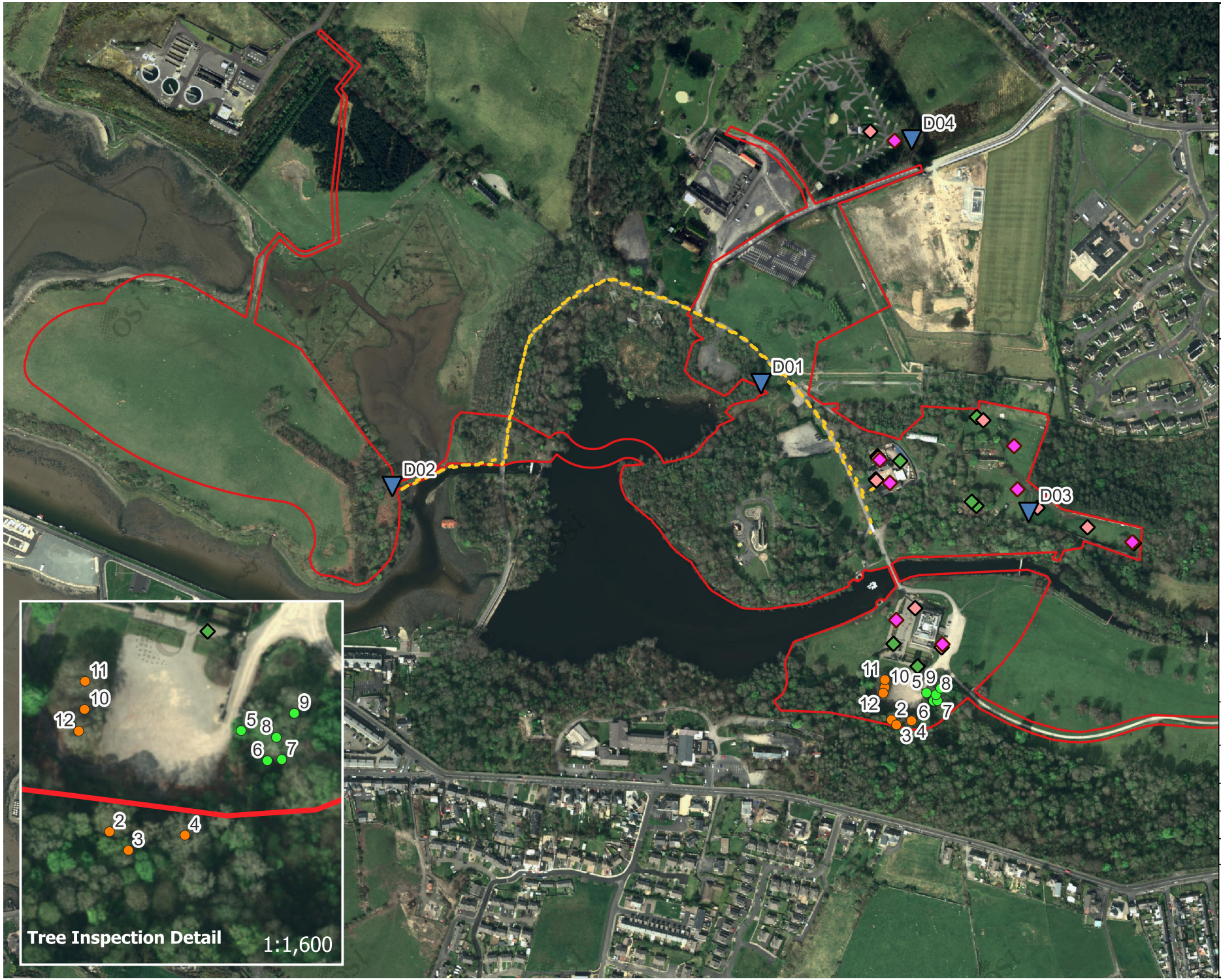
Settings used were those recommended by the manufacturer for bats, with minor adjustments in gain settings and band pass filters to reduce background noise when recording. Detectors were set to record from 30 minutes before sunset until 30 minutes after sunrise. The Song Meter automatically adjusts sunset and sunrise times using the Solar Calculation Method when provided with GPS coordinates. Static detector locations are shown in Figure 2-1.

2.3 Survey Limitations

Survey design and effort was created in accordance with the most current best practice guidelines for surveying bats (Collins, 2016). August and September are within the optimal survey period for summer bat surveys (Collins, 2016). There were no limitations associated with weather conditions. While access to a small number of interior areas was restricted due to structural integrity and health and safety, a thorough assessment was carried out.

The two static detectors stopped recording prematurely during the second deployment due to the SD cards filling up. However, a full week of data was collected, allowing to obtain a clear look of species composition and activity patterns of bats in the areas where they were located.

Overall, there were no limitations in the scope, scale or context of the assessment.



Map Legend

- Site Bondary
- Static Detector locations

Surveyor Locations - Manual Surveys

- 11/08/2022
- 13/09/2022
- 30/08/2022
- Manual Transect Route 11.08.2022

Tree Inspection - 11.08.2022

- Low
- Moderate

Drawing Title

Survey Effort

Project Title

Westport Estate Renovations

Drawn By	Checked By
RC	SF
Project No.	Drawing No.
211035	Fig. 2-1
Scale	Date
1:6,000	08/12/2023

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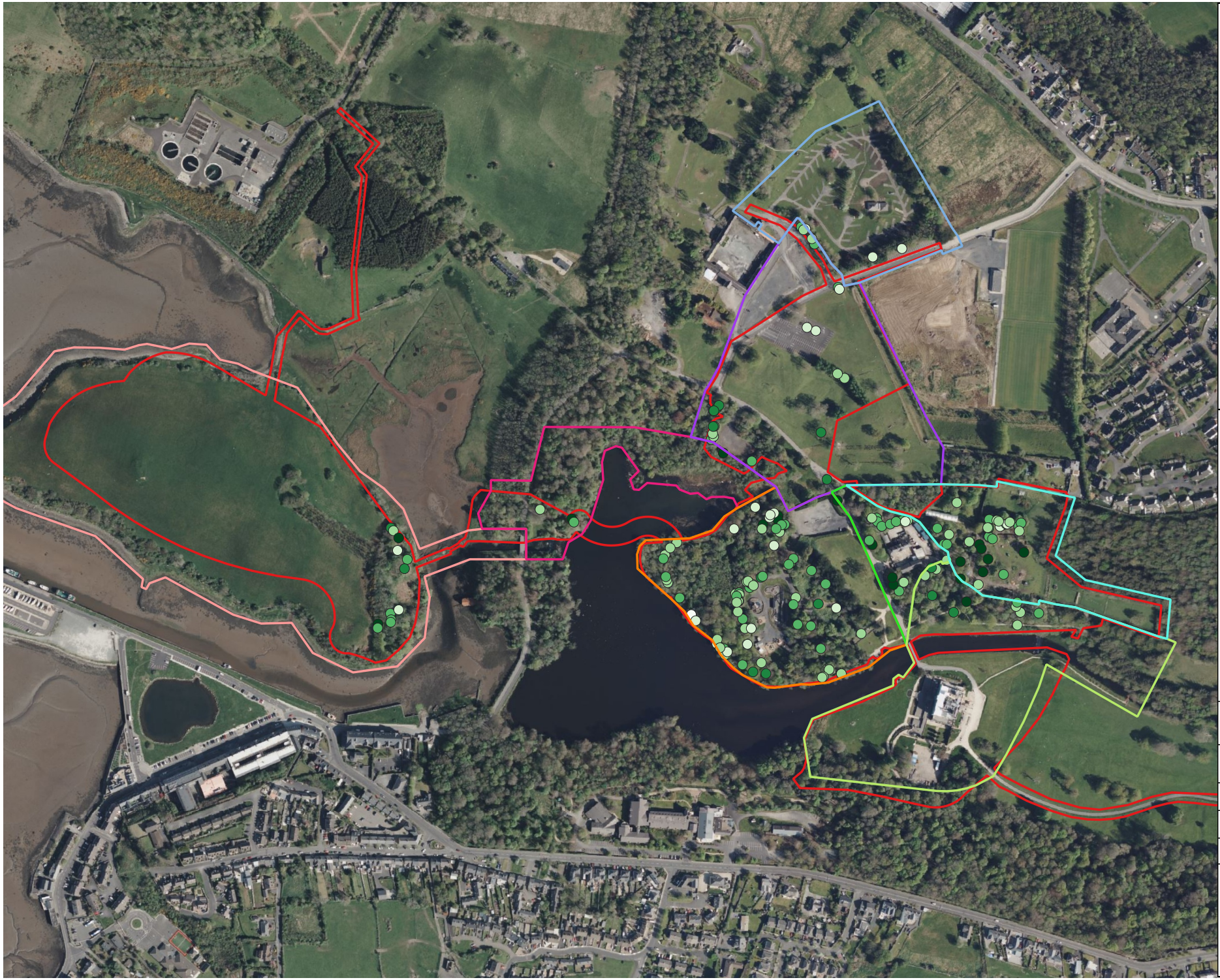
Map Legend
Site Bondary
Tree Removal Zones
1
2
3
4
5
6
7
9
Ground Level Tree Assessment
High
Moderate
Low
Negligible
None
NA
N
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Project Title
Westport Estate Renovations
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Drawing No.
Fig. 2-2
Scale
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3. RESULTS

3.1 Desktop Study

3.1.1 Mayo Co. Development Plan – Draft

The draft Mayo County Development Plan was searched for references specific to the protection of bats. The following objective was found:

NEO 9: *Recognise the importance, in terms of their natural heritage and biodiversity, of woodlands, tree lines, hedgerows, stonewalls, watercourses and associated riparian vegetation and the role they play in supporting bat populations and where possible developments will be encouraged to retain such features.*

3.1.2 National Biodiversity Data Centre

A review of the National Bat Database of Ireland on the 12th December 2022 yielded results of bats within a 10km hectad of the proposed works. The search yielded 5 bat species within 10km. Table 3-1 lists the bat species recorded within the hectad which pertains to the proposed works site (L98).

Table 3-1 NBDC Bat Records

Hectad	Species	Date	Database	Status
L98	*Brown Long-eared Bat (Plecotus auritus)*	30/08/2011	National Bat Database of Ireland	Annex IV
L98	Pipistrelle *(Pipistrellus pipistrellus sensu lato)*	30/08/2011	National Bat Database of Ireland	Annex IV
L98	Soprano pipistrelle *(Pipistrellus pygmaeus)*	31/08/2011	National Bat Database of Ireland	Annex IV
L98	*Leisler's bat (Nyctalus leisleri)*	30/08/2011	National Bat Database of Ireland	Annex IV
L98	*Daubenton's Bat (Myotis daubentonii)*	25/08/2014	National Bat Database of Ireland	Annex IV

3.1.3 Designated Sites

Within Ireland, the Lesser horseshoe bat is the only bat species requiring the designation of Special Areas of Conservation (SACs). The site is situated outside the current known range for this species and there are no SACs designated for its protection within 10km of the proposed works site.

No Natural Heritage Areas (NHAs), or proposed NHAs, designated for the protection of bats were identified within 10km of the proposed works.

3.1.4 Habitat and Landscape

A review of OSI maps and aerial photography showed the site connectivity to the wider landscape through large areas of woodland, as well as treelines and hedgerows. The Carrowbeg river also flows through the proposed works site.

3.1.5 Previous Reports

In 2018, MKO carried out a constraints study within the Westport House estate. The coach house, which will be part of the proposed works, was surveyed as part of the assessment. An interior inspection identified a small number of droppings however no roosting bats were recorded during the emergence and re-entry surveys carried out on the coach house.

3.2 Bat Habitat Appraisal

General walkover surveys have been conducted at the site to identify the habitats present within Westport House grounds. A detailed description of the habitats located onsite are presented in the accompanying Ecological Impact Assessment (EcIA). Bat walkover and inspection surveys were conducted on the 11th August 2022 and 3rd and 7th of November 2023. During this survey, habitats within the study area were assessed for their suitability for bats to roost, forage and commute. Connectivity with the wider landscape was also considered to determine habitat suitability.

With regard to foraging and commuting bats, the proposed works site is considered of *High* suitability due to the high habitat diversity and presence of semi-natural woodland, watercourses and treelines throughout its 300 acres. Built and open areas, such as building yards and open grassland are considered of *Low* suitability; however, they are usually surrounded by linear habitats and do not limit connectivity within the site.

With regard to roosting bats, the existing treelines and woodland areas include mature deciduous trees which present suitable roosting spaces for bats, in varying capacity. A thorough inspection of every tree in the estate was not deemed necessary due to no works being planned in these areas. Where trees are proposed for felling, they were subject to a roost inspection which is described below. In general, Westport Estate has a *Moderate* to *High* suitability to host roosting bats within its grounds.

Details of the assessment of existing man-made structures for their suitability to host roosting bats are presented below.

3.2.1 Roost Assessment

The daytime inspection surveys were carried out on 11th August 2022 and the 3rd and 7th of November 2023. The grading protocol described by Collins (2016) was used: structures with *High* roosting potential present one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat; structures with *Moderate* roosting potential could be used by bats due to their size, shelter, protection, conditions and surrounding habitat, but are unlikely to support a roost of high conservation status; structures with *Low* potential present one or more potential roost sites that could be used by an individual bat opportunistically.

3.2.1.1 Westport House

Westport house was inspected by licensed ecologists Laura Gránicz and Laura McEntegart. The building is a large four-story structure of primarily stone construction, which includes a large attic space and a basement area including a cellar and a dungeon, two outdoor boiler rooms, an interior boiler room, and side extensions to the west and south (Plates 3-1 and 3-4). The house presents no outdoor lighting. Potential bat access points were identified along the roof, at slate edges, and under lifted slates.

All floors of the house were thoroughly inspected. Most of the house interior is part of an exhibition which is open to the public and does not present suitable roosting spaces for bats due to regular disturbance and light penetration. A number of storage rooms located within the house are less

frequently visited, however they did not present access points suitable for bats. All other areas inspected are presented below.

Plate 3-1 Westport House – Main entrance at eastern aspect

Plate 3-2 Westport House – North-western aspect

Plate 3-3 Westport House – South-western aspect

Plate 3-4 Westport House - Northern aspect

Attic

The attic space of Westport House was accessed from three separate areas: a southern section, a northern section and a central glass section. The latter comprises skylights illuminating the central attic space of the house (Plate 3-5). No evidence of bats was recorded in this area, which presented little suitability for roosting bats due to light exposure. It was assigned *Negligible* roosting potential.

Potential access points into the northern and southern attic were identified under lead flashing, along dormer valleys and through lifted roof slates.

The southern attic comprised stone perimeter walls and interior brick walls with wooden beams and wooden roof lining (Plate 3-6). Small accumulations of old droppings were found in this area, as well as feeding remains. No evidence of use by a large bat roost was identified. The southern attic space was assigned a *Moderate* roosting potential.

The northern attic space was accessed from the roof (Plates 3-7 and 3-8). The interior comprised stone walls and wooden beams and roof lining. Gaps to the exterior could be seen from the interior under end slates, providing potential access for bats. No evidence of roosting bats was found, however the attic space showed suitability to host roosting bats. The northern section of the attic was assigned *Moderate* roosting potential.

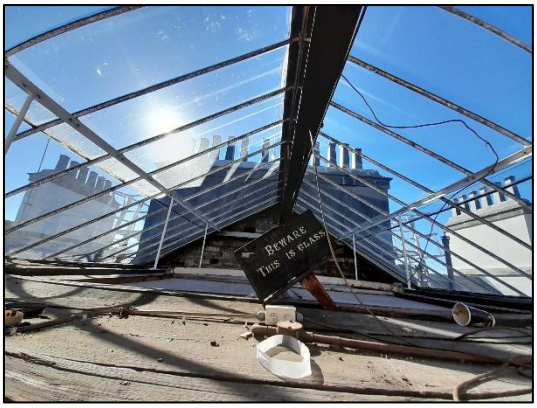


Plate 3-5 Attic - Central glass attic


Plate 3-6 Attic - Southern attic space


Plate 3-7 Attic - Northern attic


Plate 3-8 Attic - Rooftop area

Cellars

The entrances to the cellars were located at the north-western section of the house. The cellar consisted of a long corridor closed with doors at both ends (Plate 3-9), as well as a number of garage/storage spaces separate from the main corridor (Plate 3-10). All areas were open for inspection. Light penetration was more evident within the storage areas, whereas small amounts of light penetration were recorded close to the corridor doors, with the rest of the cellar corridor being dark. No evidence of roosting bats was found; however, the main cellars provided suitable conditions for hibernation roosts. They were assigned *Moderate* suitability.

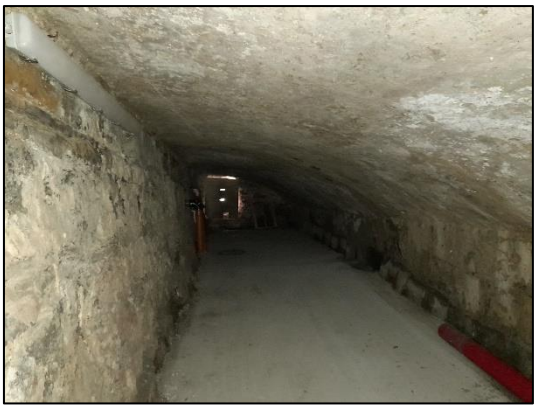


Plate 3-9 Cellar - Southern end.


Plate 3-10 Cellar - Garage section

Dungeon

The dungeon was accessed from the south-eastern section of the house (Plate 3-11). It comprises long corridors running below the eastern and northern sections of the house, with vaulted stone ceilings, as

well as a number of enclosed rooms. The dungeon is open to the public and is illuminated during visiting hours. No evidence of roosting bats was found, although bats could potentially access the area from the interior boiler room described below. A small number of locked rooms was not accessed during the inspection, however lack of access points to the exterior made them unsuitable for roosting. As for the cellar, the dungeon presented suitable hibernating habitat for bats. Due to the potential for disturbance as a results of regular public access, it was assigned *Low* roosting potential.

Plate 3-11 Dungeon

Boiler Rooms

Three boiler rooms were recorded. Two of these were located outdoors and constructed with concrete bricks. No evidence of bats was recorded within them, and they were assigned a *Negligible* roosting potential.

A third boiler room was located within the building, between the southern extension and the dungeon. It is constructed similarly to the dungeon, with higher vaulted stone ceilings. Old bat droppings were recorded within this room, underneath a large metal chain hanging from the western wall and scattered across the floor (Plates 3-12 to 3-14). Bat access was provided via a ceiling vent. The room is equipped with large LED lighting fixtures, which if used would provide disturbance to bats. The room is in regular use by staff and therefore considered unsuitable for regular roosting by bats. It was assigned a *Low* roosting potential.

Plate 3-12 Interior boiler room

Plate 3-14 Boiler room - Potential bat access

Plate 3-13 Boiler room - Droppings

Stone Wall

A stone wall, proposed for demolition, is located at the south-eastern section of the house, above the boiler room area (Plate 3-15). The length of the wall was covered in dense ivy; therefore, a detailed inspection of the stone structure was not possible, however it was considered to have some potential for roosting bats as the presence of gaps and crevices under the ivy is likely. It was assigned a *Low* roosting potential.

Plate 3-15 Stone wall to be removed

3.2.1.2 Coach House

The coach house and its associated outbuildings were inspected by licensed ecologists Neil Campbell and Cathal Bergin. The house is a stone-built, two-storey structure with a slated roof and timber fascias (Plates 3-16 and 3-17). The interior of the house includes unused living quarters at the back and large storage rooms with open ceilings at the front. Side attic spaces are present along the northern section of

the roof (Plate 3-18), together with a loft space running below the roof ridge. There is insulation on the loft floors, but none in the side attics, while no roof lining is present in either. The inspection covered all floors and most attic spaces, whereas the western section of loft space was not accessed due to health and safety.

The building was overall intact but presented signs of water damage within the living quarters, with interior ceiling damage found on the top floor. Small accumulations of old droppings were found in the side section of the attic, as well as in the accessible area of loft space. The roof slates were in good condition, but access opportunities for bats were identified along slate edges, lead flashing and ridge tiles.

Two large storage rooms, accessible from the front yard, were also inspected (Plate 3-19). The rooms are in regular use for storage and present signs of water damage. No evidence of roosting bats was identified in the storage rooms. Due to the presence of small accumulations of old bat droppings and some suitable access and roosting points, the coach house was assigned a *Moderate* roosting potential.

Plate 3-16 Coach House - Northern aspect - Back

Plate 3-17 Coach House – Southern aspect - Front

Plate 3-18 Coach house – Side attic

Plate 3-19 Coach house – Front storage rooms

Outbuildings

The coach house outbuildings include a workshop, located east of the main yard (Plate 3-20), and a large stone building which faces the house to the south (Plate 3-21 and 3-22). The workshop is in regular use: no evidence of bats was identified, and it was assigned *Negligible* roosting potential.

The main outbuilding is in regular use and is proposed for demolition. It comprises a single large room with open ceilings, the slated roof is lined with timber slats and chicken wire. The building's roof was intact and in good condition overall, the brick/stone walls were plastered in the interior. No evidence of bats was found: the structure was deemed unsuitable for roosting bats due to the levels of lighting and noise disturbance and the lack of features which could host regular roosting. It was assigned a *Low*

roosting potential. However, due to the extent of the works proposed for this structure, it was the focus of multiple activity surveys to ensure no roosts were present. These surveys are described in Section 3.3.

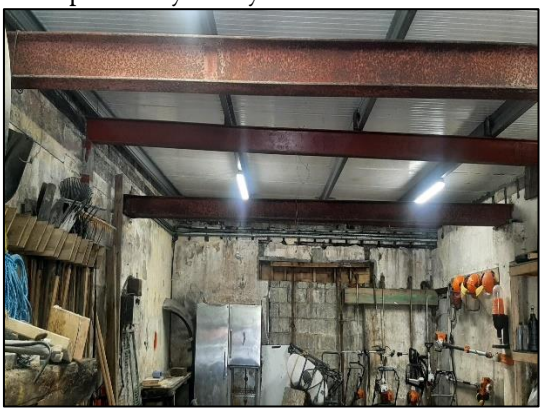


Plate 3-20 Workshop with negligible roosting potential

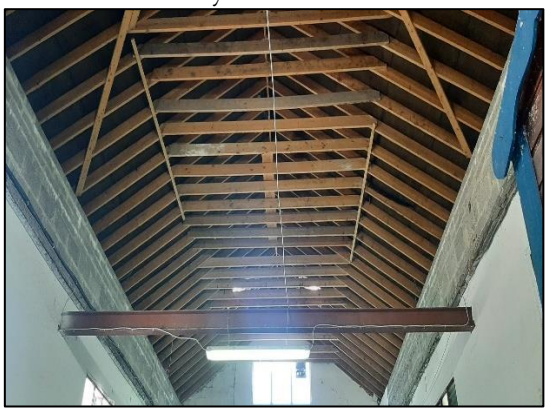


Plate 3-21 Outbuilding's open ceilings

Plate 3-22 Main coach house outbuilding proposed for demolition

3.2.1.3 Walled Garden

The walled garden was inspected by licensed ecologist Claire Stephens. The area comprises a large stone/brick wall enclosing the north-eastern section of the proposed works site, which was used for sheep farming and general storage at the time of surveying. Four derelict man-made structures are present, with a number of mature deciduous trees surrounding them. A lone sycamore tree is located at the eastern end of the garden. The walled garden is surrounded by mixed woodland on all sides.

Stone/Brick Wall

The length of the wall was checked for signs of bat use as well as gaps and crevices suitable for roosting. The wall was in overall good condition. No evidence of roosting bats was found, however suitable crevices were identified along the eastern section and northern section of the wall, as well as in the vicinity of the derelict house described below. Areas of ivy cover which could potentially host roosting bats were identified throughout.

Eastern Structures

One of the structures is a wooden shed (Plate 3-23) located in the eastern section of the garden (IG Ref: L 99018 84670). The stone shed had multiple access points and presented some roosting opportunities for bats within the ceiling, which was lined with timber slats with a corrugated roof. No evidence of bats was recorded within the shed. It was assigned *Low* roosting potential.

The entrance into an earthed bridge/corridor (Plate 3-24) was in the vicinity of the wooden shed (IG Ref: L 99011 84661). It opens into a small room which was used for sheep at the time of surveying. No evidence of roosting bats was recorded in this space. It was not possible to observe the rest of the earthed structure, and it was unclear whether other interior spaces existed. However, gaps into the

stone wall presented suitability for roosting by crevice-dwelling bats and the structure was assigned a *Low* potential.

Derelict House and Outbuilding

Two derelict structures - a derelict dwelling and its associated stone outbuilding - are located in the central section of the garden (IG Ref: L 98965 84736). The structures were in use for storage as well as sheep shelters at the time of surveying.

The shed consists of a half-vaulted stone structure leaning onto the dwelling (Plate 3-25). The walls and half-vaulted interior presented suitable crevices for bats. However, no evidence of bat use was found. It was assigned a *Low* potential for roosting bats.

The main structure (Plate 3-26), a stone/brick building partially plastered, had overgrown vegetation on the slated roof and brick chimney. A section of corrugated roof in the front of it was partially collapsed. The house was only partially inspected due to health and safety reasons, as extensive water damage rendered it unsafe in places. Access opportunities were identified throughout with open/broken windows and doors, as well as throughout the roof via collapsed sections, lifted slates and at slate edges. No signs of roosting bats were found. The structure was assigned a *Low* roosting potential due to structural damage and exposure to the elements, which would limit opportunities for regular roosting.

Plate 3-23 Walled garden - Wooden shed

Plate 3-24 Walled garden - Entrance to wall corridor

Plate 3-25 Walled garden - Half-vaulted shed

Plate 3-26 Walled garden - Derelict dwelling

3.2.1.4 Campsite

The campsite area located north of the site was also inspected. The only structures present consist of a toilet and shower block which are in use during the holiday season. Potential access points were identified along the roof; however, no evidence of roosting bats was identified. The structure was assigned a *Low* potential to host roosting bats due to potential disturbance and lack of suitable roosting features.

3.2.1.5 Tree Inspection

2022

A small number of trees located south of Westport House was inspected as part of the assessment carried out in 2022, as they had the potential be felled as a result of preliminary designs. No evidence of roosting bats was found; however, some of the trees inspected presented features suitable for roosting bats. Details of the assessment are presented in Table 3-4, with pictures in Plates 3-27 to 3-29. The location of the trees inspected is presented in Figure 2-1.

Table 3-2 Tree inspection results

#	Species	Potential	Notes	Plate
1	*Salix* sp.	Negligible	Young willow treeline, no features suitable for roosting.	Plate 3-27
2	*Acer* sp.	Moderate	Mature tree with suitable holes, some ivy cover.	n/a
3	*Quercus* sp.	Moderate	Mature tree with suitable holes, some ivy cover.	Plate 3-28
4	*Acer* sp.	Moderate	Mature tree with suitable holes, some ivy cover.	n/a
5	*Aesculus* sp.	Low	Some ivy cover but otherwise little potential features.	n/a
6	*Aesculus* sp.	Low	Some ivy cover but otherwise little potential features.	n/a
7	*Acer* sp.	Low	Five trees in close proximity, some ivy cover	n/a
8	*Acer* sp.	Low	Three trees in close proximity, some ivy cover	n/a
9	*Acer* sp.	Low	No suitable features, but some ivy cover.	n/a
10	*Fagus* sp.	Moderate	Mature tree with potential features. No felling proposed.	Plate 3-29
11	*Fagus* sp.	Moderate	Mature tree with potential features. No felling proposed.	Plate 3-29
12	*Fagus* sp.	Moderate	Mature tree with potential features. No felling proposed.	Plate 3-29

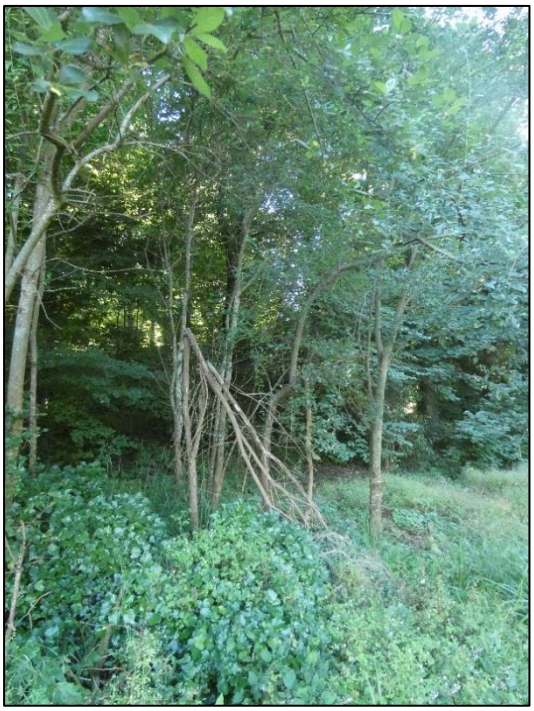


Plate 3-27 Salix sp. treeline with negligible potential.

Plate 3-28 Quercus sp. tree with moderate potential.

Plate 3-29 Stand of Fagus sp. trees with moderate potential.

2023

A total of 201 trees across the proposed development site are proposed for felling due to health and safety concerns, ash dieback disease and to accommodate landscape design changes. The trees have been subdivided into 9 zones and each tree was assessed from ground level. In total, 19 trees of various species have been identified as having High suitability, as they present PRFs which could provide

regular shelter for a large number of bats, such as a maternity roost. A summary of results is presented in Table 3-3 below. The location and assessment of all trees identified was presented in Figure 2-1.

Table 3-3 Results of 2023 tree assessment

Zone	Trees surveyed	Species	PRF suitability	High suitability trees
Zone 1	24	Alder, Ash, Horse Chestnut, Larch, Oak, Sycamore, Willow, Willow Goat	None to High	1
Zone 2	75	Alder, Ash, Beech, Cheery Laurel, Elm, Holly, Lime, Sequoia, Silver Fir, Horse Chestnut, Sycamore, Willow Goat	None to High	4
Zone 3	31	Ash, Lime, Sycamore	None to High	7
Zone 4	12	Ash, Beech, Elm, Lime, Sycamore	None to High	2
Zone 5	11	Ash, Elm, Lime, Sycamore	Negligible to High	1
Zone 6	17	Ash, Beech, Elm, Lime, Sycamore	None to High	3
Zone 7	3	Sycamore	Negligible to High	1
Zone 9	2	Ash	None	0

Trees with potential to host a significant roost, thus requiring further assessment, are presented in Table 3-4.

Table 3-4 Trees within the site boundary with the potential to host significant roosts

High Suitability Trees				Moderate Suitability Trees			
Tree Tag	Zone	Longitude	Latitude	Tree Tag	Zone	Longitude	Latitude
No tag	4	-9.54574	53.80232	No tag	1	-9.53998	53.80362
4068/1044	3	-9.53535	53.80201	No tag	2	-9.53797	53.80170
4874	1	-9.53978	53.80333	No tag	1	-9.53997	53.80379
4382	2	-9.53902	53.80256	4021	6	-9.53642	53.80196
4378	2	-9.53875	53.80261	3900	4	-9.54562	53.80199
4377	2	-9.53874	53.80265	3891	4	-9.54589	53.80243
4221	7	-9.54255	53.80257	3687	1	-9.53988	53.80385
4079	3	-9.53494	53.80209	3686	1	-9.53992	53.80382
4072	3	-9.53536	53.80220	3632	1	-9.53786	53.80306
4054	2	-9.53766	53.80284	3626	1	-9.53798	53.80358
4039	6	-9.53699	53.80236	3546	2	-9.53914	53.80094
4036	6	-9.53661	53.80201	3545	2	-9.53890	53.80093
4034	6	-9.53659	53.80193	3473	2	-9.53903	53.80198
4014	3	-9.53485	53.80223	969	5	-9.53546	53.80164
4012	3	-9.53498	53.80234	952	5	-9.53587	53.80182
4011	3	-9.53502	53.80239	936	5	-9.53589	53.80213
4009	3	-9.53419	53.80231				
3949	4	-9.54608	53.80138				
921	5	-9.53523	53.80176				

3.3 Manual Activity Surveys

Manual activity surveys were carried out within the Westport House grounds on the 11th and 30th August and on the 13th September 2022 in the form of emergence/re-entry surveys and walked transects at dusk. Plate 3-30 presents total species composition across all surveys. Soprano pipistrelles were by far the most commonly reported species onsite (n=1,635). No lesser horseshoe bats were recorded during the manual surveys. Results for each survey are detailed below and shown in Figures 3-1 to 3-3.

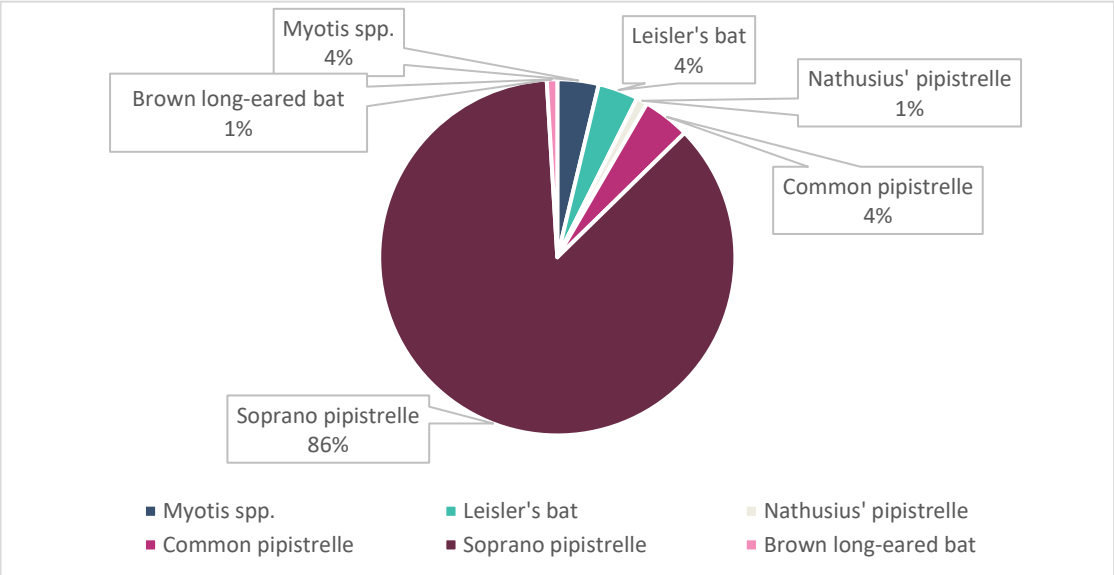


Plate 3-30 Species Composition across all manual surveys

3.3.1 Emergence/Re-entry Surveys

During emergence and re-entry surveys, surveyors were positioned across the proposed works site to provide coverage of all buildings identified during the daylight surveys as potential roosts. Particular focus was given to potential access areas to buildings where signs of bats were identified.

Dusk Emergence Survey – 11th August

During the emergence survey, three surveyors focused on Westport House, three surveyors were located within the walled garden, and three were at the coach house. The location of each surveyor is shown in Figure 3-1.

No bats were observed emerging from the structures surveyed. Bats were observed foraging and commuting along existing linear features and in and out of the woodland surrounding the surveyed areas. No bats were observed emerging from the wall to be demolished, however bats were seen foraging along it. Soprano pipistrelles were recorded within their emergence times (20 minutes after sunset) at the coach house and walled garden, however they were not observed emerging from the structure.

Table 3-5 presents the survey results per surveyor. Each surveyor was allocated a Batlogger with specific ID. Figure 3-1 presents the results of the manual dusk survey carried out on 11th August 2022.

Table 3-5 11th August dusk emergence survey - Results by surveyor.

ID	Location (IG)	PRF Focus	Results	Species Recorded & Number of Passes
A	L98824 84707	Coach House Interior yard	No emergence. Bats mainly observed commuting from the north.	PIPPYG (15), NYCLEI (3), PIPPIP (2), MYOSP (3), PLEAUR (1).
D	L 98826 84735	Coach House Northern aspect	No emergence. Bats observed entering yard from surrounding trees. Foraging recorded.	PIPPYG (52), MYOSP (5), PIPPIP (1).
E	L 98854 84729	Coach House Eastern aspect	No emergence. Bats commuting into yard from northern trees. Little activity.	PIPPYG (39), MYOSP (3), PIPPIP (2), NYCLEI (1).
B	L 98913 84523	Westport House Southern aspect	No emergence. A small number of bats circling the yard foraging.	PIPPYG (19), PIPPIP (2), MYOSP (2), NYCLEI (1), PLEAUR (1).
J	L 98845 84507	Westport House South-western aspect	No emergence. First PIPPYG foraging along southern wall. Activity then concentrated near river.	PIPPYG (84), MYOSP (4), PIPPIP (4), NYCLEI (2).
C	L 98954 84788	Walled Garden North-west area	No emergence. Bats foraging around trees.	PIPPYG (99), MYOSP (12), NYCLEI (3), PLEAUR (1).
F	L 98938 84673	Walled Garden South-west area	No emergence. Bats mainly commuting along wall and above garden.	PIPPYG (71), MYOSP (6), NYCLEI (4), PIPPIP (2)
I	L 99138 84629	Walled Garden South-east area	No emergence. Bats observed flying into garden from southern and eastern treelines.	PIPPYG (155), PIPPIP (8), MYOSP (3), PLEAUR (4).
P*	L 98954 84676	Walled Garden South-west area	No emergence. Foraging and commuting by a small number of bats.	PIPPYG (26), PIPPIP (5), PLEAUR (1).

MYOSP=*Myotis sp.;* NYCLEI=Leisler's bat; PIPPIP=common pipistrelle; PIPPYG=soprano pipistrelle; PLEAUR=brown long-eared bat.
*Pettersson Detector

Dawn Re-entry Survey – 30th August

During the re-entry survey, two surveyors focused on Westport House, two surveyors were located within the walled garden, two surveyors were at the campsite and two were at the coach house. The location of each surveyor is shown in Figure 3-2.

No evidence of roosting bats was recorded. Activity was concentrated along wooded areas and stopped approximately 20 minutes before sunrise at all locations, with the last passes being recorded in the walled garden. No bat was observed re-entering the wall to be demolished near Westport House. Two soprano pipistrelles were observed foraging in the yard just west of it before commuting into the nearby woods. Soprano pipistrelles and Leisler's bats were recorded within their re-entry times (20 minutes before dawn) at the coach house, walled garden and Westport House, but the bats were observed flying away from the surveyed structures.

Table 3-6 presents the survey results per surveyor. Each surveyor was allocated a Batlogger with specific ID. Figure 3-2 presents the results of the manual dawn survey carried out on 30th August 2022.

Table 3-6 30th August dawn re-entry survey – Results by surveyor

ID	Location (IG)	PRF Focus	Results	Species Recorded & Number of Passes
A	L 99021 84672	Walled Garden Central area	No re-entry. Bats observed flying in and out of surrounding woodland.	PIPPYG (23), PIPNAT (2), NYCLEI (1).
D	L 98955 84779	Walled Garden North-west area	No re-entry. Little activity, concentrated around trees.	PIPPYG (17), PIPPIP (1), NYCLEI (1).
E	L 99081 84649	Walled Garden East area	No re-entry. Bats observed commuting into western woodland.	PIPPYG (43), MYOSP (2), PIPPIP (1), PIPNAT (1).
B	L 98825 84706	Coach House Interior yard	No re-entry. Bats seen flying above roof towards the rear of the yard. Foraging and social calls recorded.	PIPPYG (77), NYCLEI (14), PIPNAT (5), PLEAUR (3), MYOSP (2), PIPPIP (1).

F	L 98827 84733	Coach House Northern aspect	No re-entry. Foraging bats in front of coach house.	PIPPYG (73), NYCLEI (5), MYOSP (4), PIPPIP (2), PIPNAT (2).
C	L 98904 84503	Westport House Eastern aspect	No re-entry. Little activity recorded, mainly directed to and from southern woodland and eastern grassland.	PIPPYG (28), PIPPIP (4), PIPNAT (4), NYCLEI (9), PLEAUR (1).
G	L 98872 84550	Westport House North-western aspect	No re-entry. Foraging activity recorded, bats observed flying north across watercourse.	PIPPYG (54), NYCLEI (5), MYOSP (4), PIPPIP (2), PIPNAT (2).
H	L 98817 85130	Campsite	No re-entry. Limited activity by small number of individuals.	PIPPYG (14), MYOSP (2).

MYOSP=*Myotis sp.;* NYCLEI=Leisler's bat; PIPNAT=Nathusius' pipistrelle; PIPPIP=common pipistrelle; PIPPYG=soprano pipistrelle; PLEAUR=brown long-eared bat.

Dusk Emergence Survey – 13th September

During the second emergence survey, two surveyors focused on Westport House, three surveyors were located within the walled garden, one surveyor was at the campsite and two were at the coach house. The location of each surveyor is shown in Figure 3-3, together with the bat species identified.

No evidence of roosting bats was recorded. Activity recorded was higher than other surveys, however surveyors reported small numbers of foraging bats being recorded multiple times, especially within the walled garden and at the campsite. The wall to be demolished near Westport House was again used for foraging and commuting, however no emergence was recorded. No bat was recorded within known emergence times.

Table 3-7 presents the survey results per surveyor. Each surveyor was allocated a Batlogger with specific ID. Figure 3-3 presents the results of the manual dusk survey carried out on 13th September 2022.

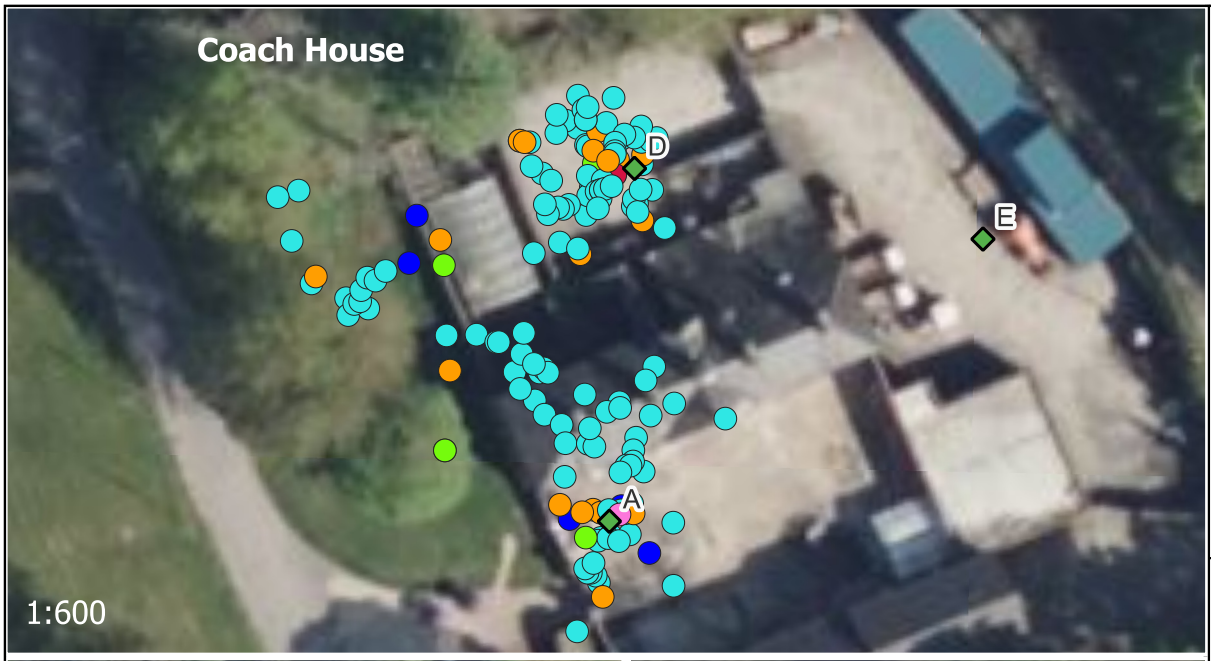
Table 3-7 13th September dusk emergence survey - Results by surveyor

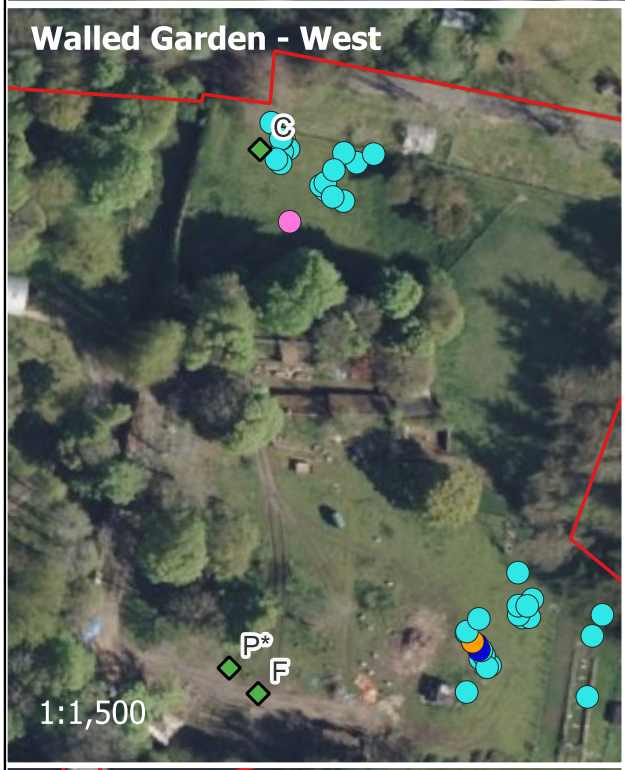
ID	Location (IG)	PRF Focus	Results	Species Recorded & Number of Passes
A	L 98847 85119	Campsite	No emergence. Bats foraging and commuting along nearby treelines.	PIPPYG (108), PLEAUR (1).
B	L 98996 84695	Walled Garden Central area	No emergence. Late activity, with bats foraging and commuting along wall and around nearby trees	PIPPYG (84), MYOSP (4), PIPNAT (3), PIPPIP (2), NYCLEI (1), PLEAUR (1).
C	L 98992 84748	Walled Garden Northern area	No emergence. First bats recorded incoming from woodland.	PIPPYG (28), MYOSP (2), PIPNAT (2), PIPPIP (1).
E	L 99131 84629	Walled Garden Eastern area	No emergence. Bats commuting and foraging along eastern wall and nearby woodland.	PIPPYG (209), MYOSP (1), PIPPIP (42), PLEAUR (1).
D	L 98841 84703	Coach House Interior yard	No emergence. Little activity recorded throughout survey, first bat passes starting late.	PIPPYG (30).
F	L 98829 84731	Coach House Northern aspect	No emergence. First bats observed foraging along nearby treelines. Social calling recorded.	PIPPYG (70), MYOSP (3).
I	L 98816 84707	Westport House Western aspect	No emergence. Foraging activity recorded by watercourse.	PIPPYG (68), MYOSP (6), NYCLEI (2), PIPPIP (1), PLEAUR (1).
J	L 98854 84564	Westport House South-eastern aspect	No emergence. Little activity recorded late in the survey.	PIPPYG (74), MYOSP (3), NYCLEI (2), PIPPIP (1), PLEAUR (1).

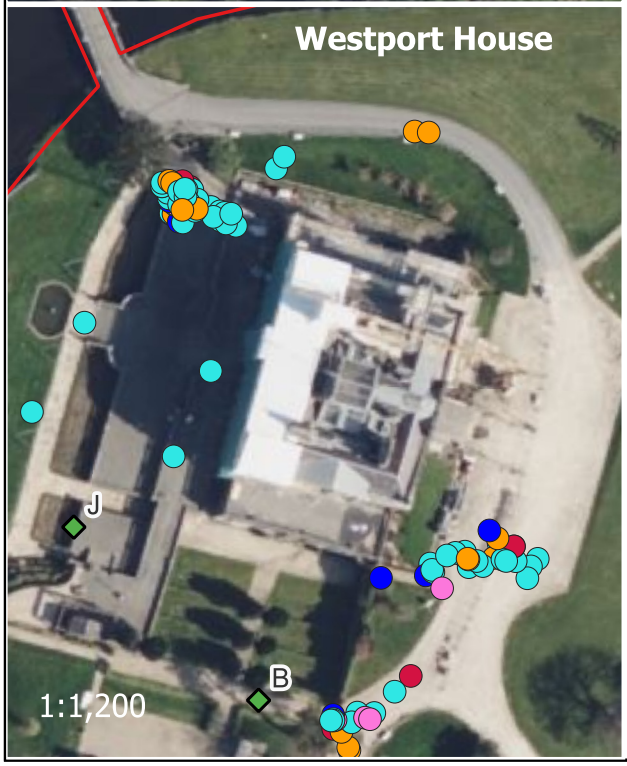
MYOSP=*Myotis sp.*; NYCLEI=Leisler's bat; PIPNAT=Nathusius' pipistrelle; PIPPIP=common pipistrelle; PIPPYG=soprano pipistrelle; PLEAUR=brown long-eared bat.

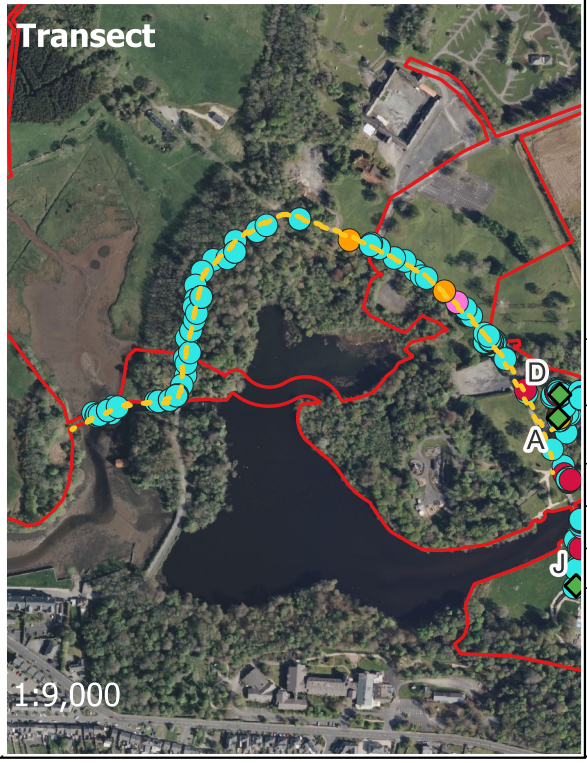
3.3.2 Transect Survey

A transect survey followed the emergence survey carried out on the 11th August 2022. The transect followed the existing track up to the causeway located west of the site. Species recorded were soprano pipistrelles (n=101), common pipistrelles (n=4) and Leisler's bat (n=4). The location of the records is shown in Figure 3-1.









Map Legend

Site Boundary

Surveyors Locations -ID

11/08/2022

Manual Transect Route 11.08.2022

Bat Species

- Myotis spp.
- Leisler's bat
- Common pipistrelle
- Soprano pipistrelle
- Brown long-eared bat

N

Drawing Title: 11.08.2022 Dusk Survey Results

Project Title: Westport Estate Renovations

Drawn By	Checked By
SF	AJ
Project No.	Drawing No.
211035	Fig. 3-1
Scale	Date
In Maps	12.12.2023

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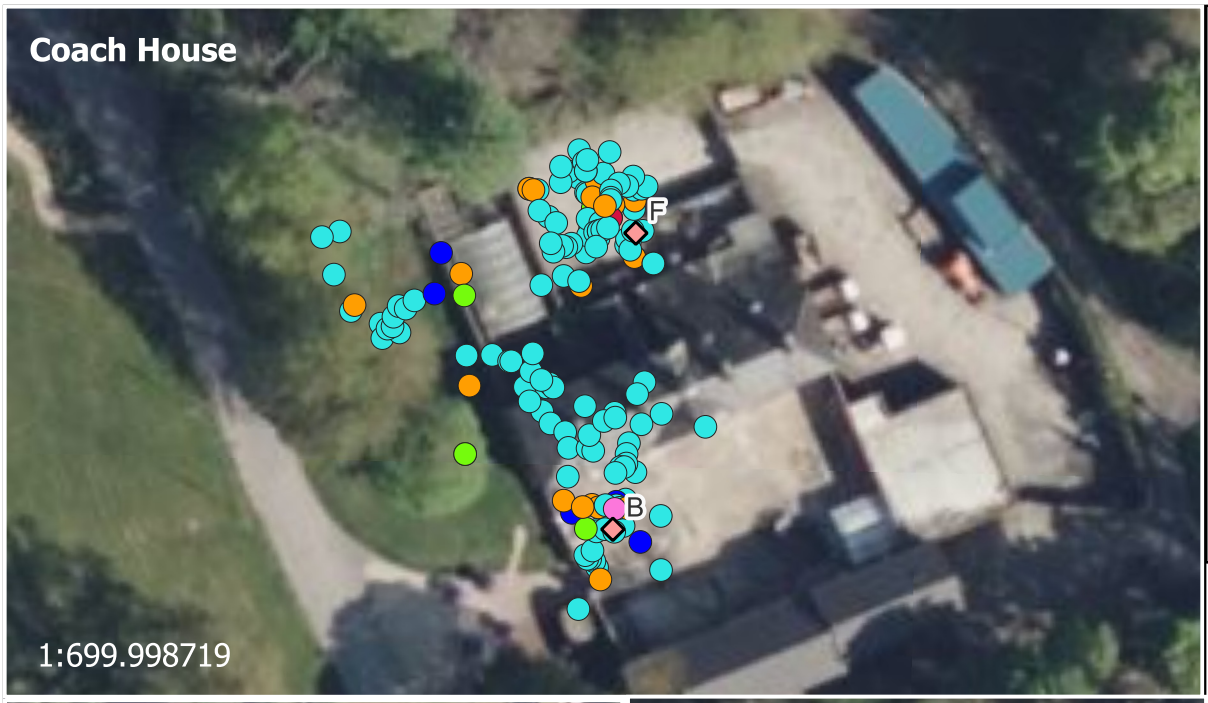

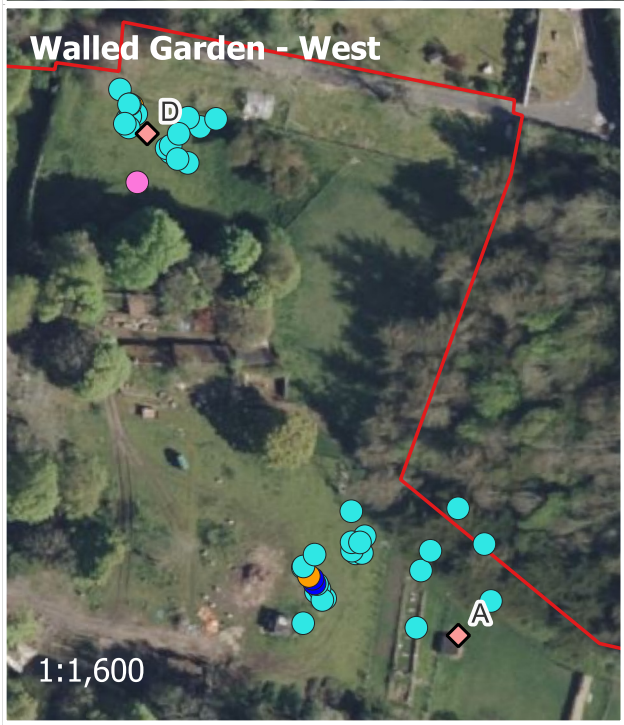

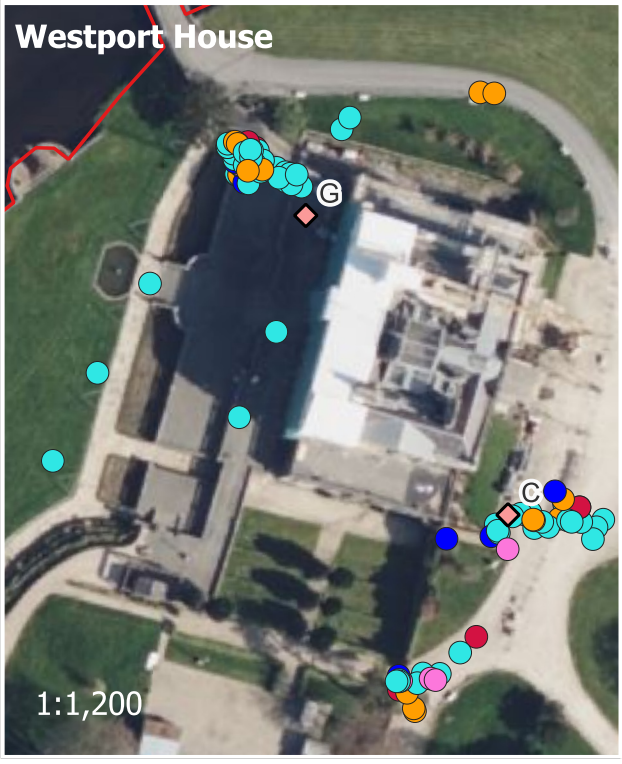

Map Legend

Site Boundary

Surveyor Locations - ID

30/08/2022

Bat Species

- Myotis spp.
- Leisler's bat
- Nathusius pipistrelle
- Common pipistrelle
- Soprano pipistrelle
- Brown long-eared bat

N

Drawing Title	30.08.2022 Dawn Survey Results
Project Title	Westport Estate Renovations
Drawn By: SF	Checked By: AJ
Project No.: 211035	Drawing No.: Fig. 3-2
Scale: In Maps	Date: 12.12.2023

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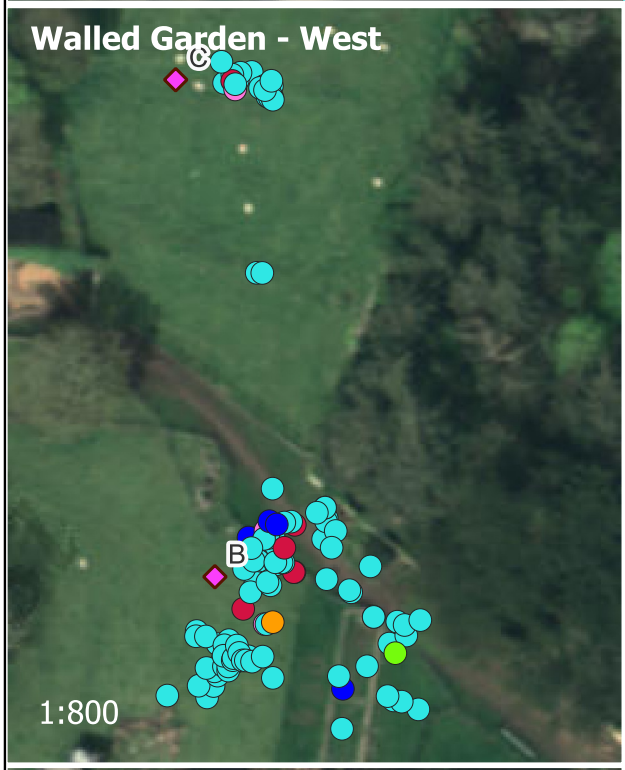

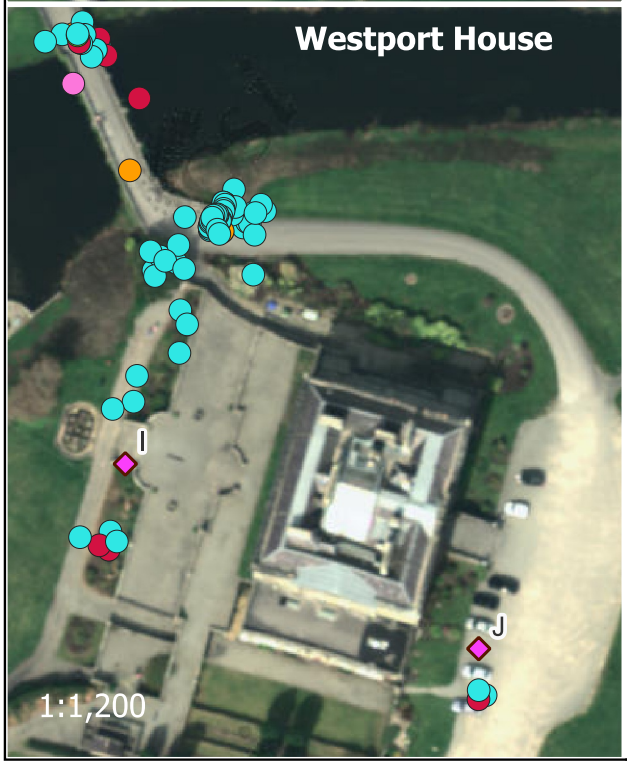

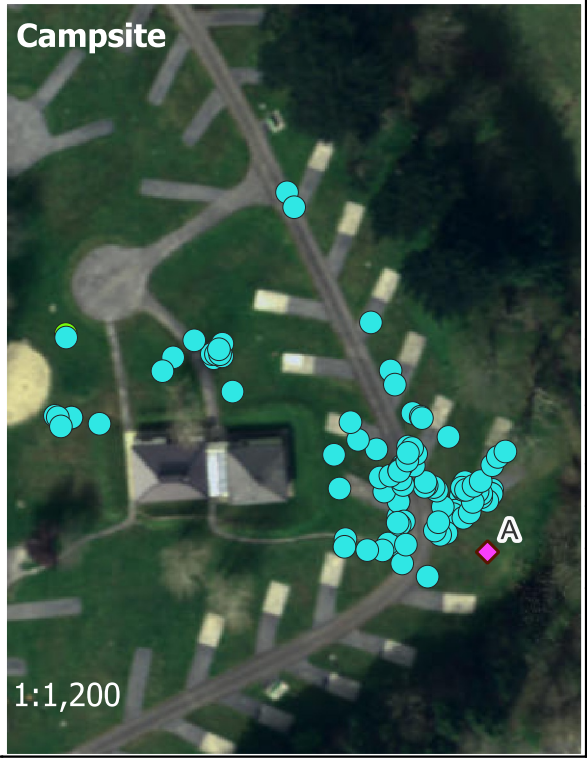

Map Legend

Site Boundary

Surveyor Locations - ID

13/09/2022

Bat Species

- Myotis spp.
- Leisler's bat
- Nathusius pipistrelle
- Common pipistrelle
- Soprano pipistrelle
- Brown long-eared bat

N

Drawing Title	13.09.2022 Dusk Survey Results
Project Title	Westport Estate Renovations
Drawn By: SF	Checked By: AJ
Project No.: 211035	Drawing No.: Fig. 3-3
Scale: In Maps	Date: 12.12.2023

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3.3.3 Static Detectors

Two SM4 static detectors were deployed on the site for a period of one month at four different locations (D01 to D04). The two detectors were deployed at D01 and D02 on the 11th August 2022 for a total of 17 nights; they were moved to locations D03 and D04 on the 30th August for a total of 14 nights; and were finally collected on the 13th of September. These detectors allowed a specified look into species composition, commuting and foraging activities within the site. Locations were chosen to represent areas of likely bat activity. D01 was an area of woodland north-west of the coach house; D02 was placed in an open wet grassland area to the west of the causeway connecting the site to Lady's Island; D03 was located on top of the earthed structure present within the walled garden; and D04 was within the mature treeline surrounding the campsite. The location of the static detectors is shown in Figure 2-1.

The detector at D03 stopped recording during the 9th night and the detector at D04 during the 8th night of the deployment, as their memory cards reached full capacity.

All recordings were later analysed using bat call analysis software Kaleidoscope Pro v.5.4.8 (Wildlife Acoustics, MA, USA). Bat species were identified using established call parameters, to create site-specific custom classifiers. All identified calls were also manually verified.

In total 24,175 bat passes were recorded. Analysis of the detector recordings positively identified six bats to species level with *Myotis* genus also present. Soprano pipistrelle (*Pipistrellus pygmaeus*) made up the vast majority of the activity recorded within the site (n=20,526), followed by Leisler's bats *(Nyctalus leisleri*) (n=1,621). *Myotis* spp. (n=944) and common pipistrelles (n=822) were less frequently recorded, followed by brown long-eared bats (n=139) and Nathusius' pipistrelles (n=109). Fourteen instances of lesser horseshoe bat were recorded at the site. Westport House is located outside the current known range for this species. Plate 3-31 shows total bat species composition recorded at the site.

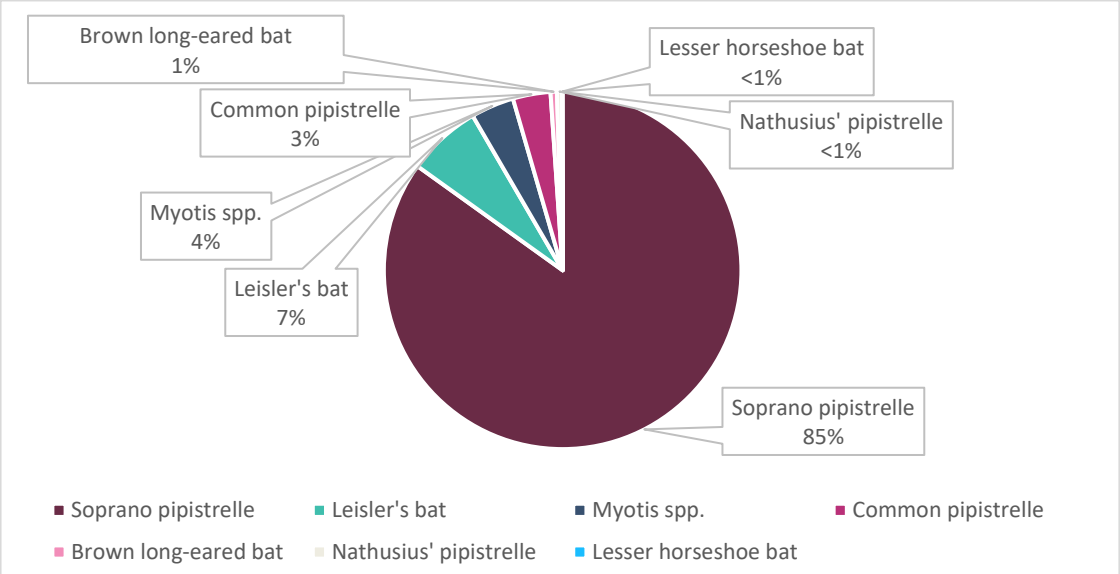

Plate 3-31 Total bat species composition.

Plate 3-32 shows total bat passes per detector. Detectors at locations D03 and D04 were collected on the 13th September, however they had both stopped recording by the 8th September, recording data for 10 nights less than the detectors at D01 and D02.

Species composition was similar at all detectors. Common pipistrelles were recorded more frequently at locations D01 (n=271) and D02 (n=448) than D03 and D04. *Myotis* spp. were more frequent at D01 (n=356) and D03 (n=255). Location D04 recorded the least amount of activity (n=4,462), with only Leisler's bats being more frequent than at another location (n=176). Instances of brown long-eared bats

(n=8) and Nathusius' pipistrelle (n=3) were rare at D04. No lesser horseshoe bat was recorded at D02. The majority (n=12) of lesser horseshoe passes were recorded at location D03, within the walled garden. All passes for this species were recorded infrequently at the start of the deployment period, however most of the calls were recorded during the same night (7-8th September) and well after sunset, as presented in Table 3-8. The detector was full that night and stopped recording soon after the last recorded lesser horseshoe bat call.

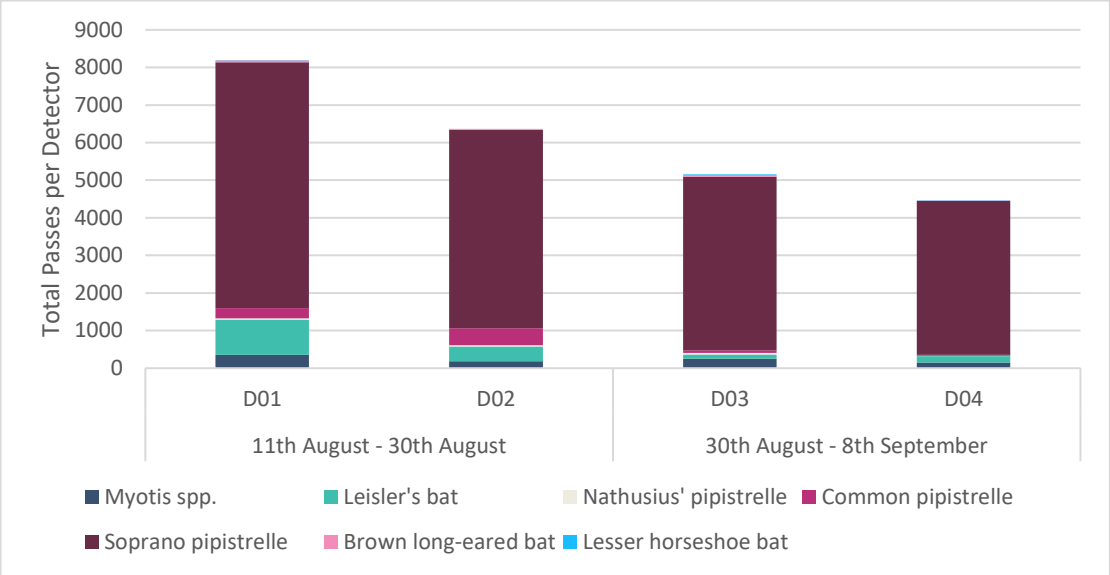

Plate 3-32 Total bat passes per detector across 17 nights.

Table 3-8 Lesser horseshoe bat (Rhinolophus hipposideros) passes recorded by static detectors

Detector Location	Recording Date	Recording Time
D01	21/08/2022	00:53:36
D03	31/08/2022	23:21:51
D03	02/09/2022	04:28:10
D03	04/09/2022	01:32:31
D03	04/09/2022	01:32:37
D04	07/09/2022	00:17:24
D03	07/09/2022	03:11:29
D03	07/09/2022	22:49:58
D03	07/09/2022	23:00:18
D03	07/09/2022	23:11:58
D03	08/09/2022	00:12:28
D03	08/09/2022	00:13:04
D03	08/09/2022	01:10:28
D03	08/09/2022	01:16:09

Analysis of the detector recordings also highlighted the total bat passes per night, per detector. Species composition per night is shown in Plate 3-33. Activity varied between locations and between nights during the two deployments, but species composition was always dominated by soprano pipistrelles. Occasional increases in activity were recorded for all other species. Soprano pipistrelle activity was recorded at its highest on one night at D04, where 2000+ passes were recorded. Leisler's bat activity was generally highest at D01, *Myotis* spp. were similarly spread throughout the site, common pipistrelles were less common at D04 relative to other locations, and soprano pipistrelles were most frequent at D01.

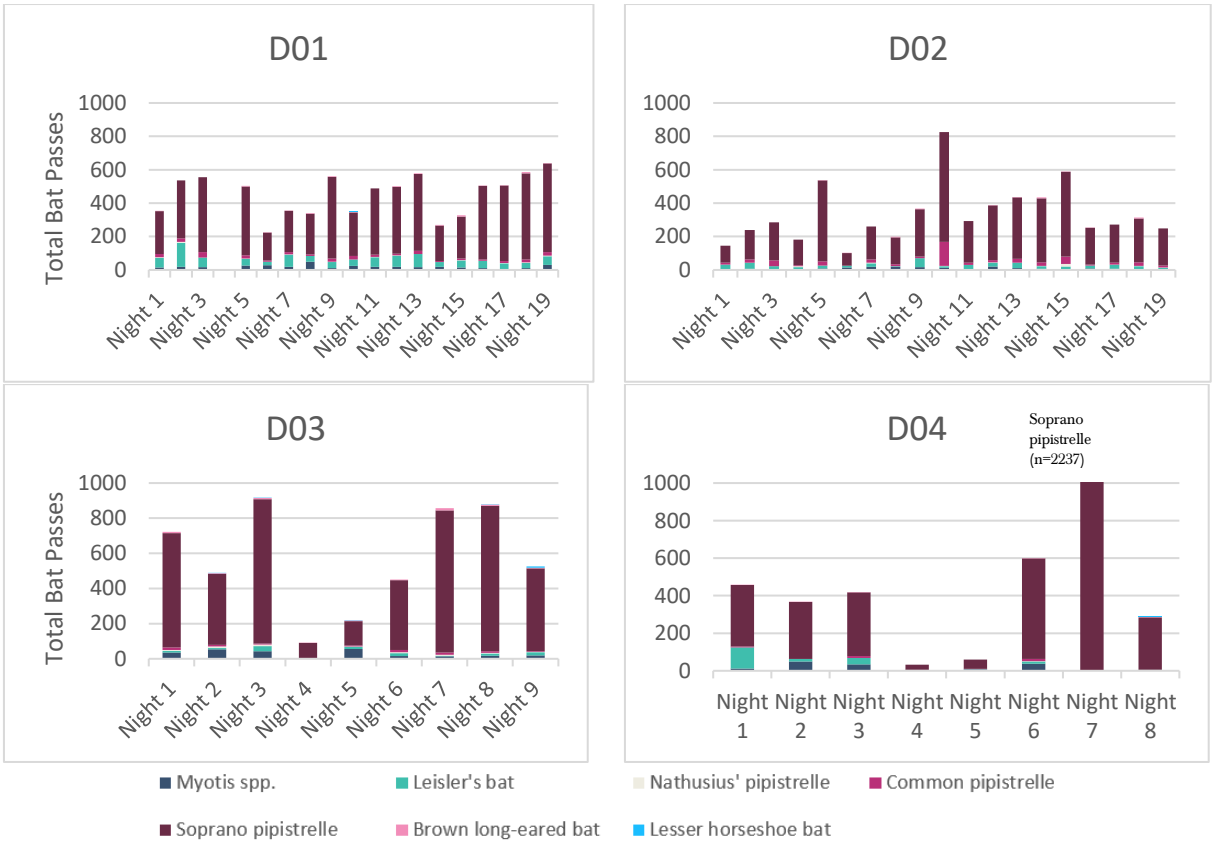

Plate 3-33 Total Bat Passes per Night, per Detector Location

3.4 Summary of Surveys Results

All buildings surveyed within the proposed works site are accessible to bats in some capacity, with Westport House and the coach house providing suitable spaces for regular roosting, especially within the attic areas. Westport House also presents suitable spaces for hibernation; however, disturbance due to these areas being open to the public, makes them unlikely to be used regularly. The stone wall proposed for demolition in Westport House presents suitability for opportunistic use, as does the coach house outbuilding. Other buildings inspected within the site, located within the walled garden, are in a state of dereliction which makes them unsuitable for regular roosting, however they do present suitable spaces for opportunistic use. The campsite is in regular use and did no present signs of roosting.

No roosting bats were identified during the daytime inspection of the structures within the site; however, old accumulations of droppings and some feeding remains were noted in the attic spaces and dungeon in Westport House and in the coach house. No evidence of roosting bats was found in the derelict structures located within the walled garden. No evidence of roosting bats was found at the campsite.

In 2023, 201 trees within the site were assessed from ground level for their potential to host roosting bats, as they are proposed for felling. Of these, 35 trees were assessed as having potential to host significant roosting, providing a considerable roost resource for bats within the grounds.

Emergence and re-entry surveys focused on areas with potential access/exit opportunities for bats. No bats were observed emerging or re-entering any of the structures, including the walls within the walled garden and the south-eastern wall in Westport House proposed for demolition. However, bats were observed commuting and foraging throughout the site, particularly in and out of woodland areas and along linear features such as treelines, woodland edges and walls.

The static detectors recorded high levels of bat activity throughout the site. Lesser horseshoe bats passes were recorded within the walled garden in September, with passes usually being recorded late into the night, suggesting nearby roosting is unlikely. Westport House is located outside the current known range for this species (NPWS, 2019), therefore these records are significant.

Emergence times recorded by static detectors and manual surveys suggest that there could be roosts present within or in proximity to the proposed works site. Evidence collected during the manual surveys suggests roosting within the woodland areas of the site is likely.

3.4.1 Importance of Bat Population Recorded at the Site

Ecological evaluation within this section follows a methodology that is set out in Chapter three of the '*Guidelines for Assessment of Ecological Impacts of National Roads Schemes'* (NRA, 2009).

All bat species in Ireland are protected under the Bonn Convention (1992), Bern Convention (1982) and the EU Habitats Directive (92/43/EEC). Additionally, in Ireland bat species are afforded further protection under the Birds and Natural Habitats Regulations (2011) and the Wildlife Acts 1976-2022. Bats as an Ecological Receptor have been assigned ***Local Importance (Higher value)*** on the basis that the habitats within the study area are utilized by a regularly occurring bat population of Local Importance. The lesser horseshoe bat population recorded within the site was assigned **National Importance** due to being recorded beyond the known range reported by NPWS in 2019.

The Proposed works site has the potential to support a roosting site of ecological significance, however no evidence of large roosts was found within the inspected structures and no roosting bat was observed emerging the most suitable structures during the surveys carried out in 2022. No roosting site of National Importance (i.e. site greater than 100 individuals) was recorded within the site. It is likely that the structures are used opportunistically by individual bats with possible day/night/feeding/satellite roosts present. The wider estate also presents roosting suitability within mature trees.

4. CONCLUSION & RECOMMENDATIONS

The following points set out the main conclusions and recommendations following the completion of the surveys described above:

- Six bat species, as well as *Myotis* sp. were recorded commuting and foraging across the proposed works site during the bat surveys carried out in August and September 2022, including soprano pipistrelle, common pipistrelle, Leisler's bat, brown long-eared bat, Nathusius' pipistrelle and lesser horseshoe bat.
- The existing landscape occurring within the grounds of Westport House provides high quality habitats for commuting and foraging bats.
- Most of the buildings surveyed have the potential to support bat roosts. Droppings were found in Westport House and within the coach house. However, no dropping accumulations indicative of large active roosts were found. The old accumulations of bat droppings and feeding remains recorded suggest that the structures on site could still support use by bats. Access points available to bats suggest opportunistic use is likely.
- No active roosts were recorded during the 2022 surveys.
- No large permanent or maternity roosts were recorded.
- Although no roosting bats were identified in any of the buildings surveyed, as the buildings show some potential for roosting bats and old accumulations of droppings were identified, a pre-commencement survey is recommended to assess the buildings prior to any works. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the survey in August and September 2022.
- If bats are found to be roosting in any of the structures during the pre-commencement surveys, a bat derogation licence will be obtained from NPWS, and further mitigation prescribed by a licenced ecologist.
- A derogation licence from the NPWS will be required in order to restore/demolish buildings where evidence of bats was identified, as well as to block any potential access points to these buildings.
- Works will not be carried out during the bat maternity season (May-August) within buildings where evidence of roosting bas was found (i.e. Westport House and coach house).
- Avoidance of tree felling, and/or pruning only, should be considered where there are no public health and safety risks to leave the roost resource within the grounds as intact as possible.
- Any required felling of trees with suitable roosting features will be carried out with the assumption that bats may be present:
    - Trees with suitable potential roost features proposed for felling will be checked by a suitably qualified arborist at the time of felling.
    - Trees will be nudged two or three times prior to limb removal, with a pause of 30 seconds in between, to allow bats to wake and move.
    - Rigged felling shall be used to lower the limbs and trunk carefully to ground level and cavities searched by a qualified ecologist.
    - Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006).
    - Any tree felling will be undertaken outside the main bat vulnerability periods (including maternity season & hibernating season).
- Where trees with Moderate or High suitability for roosting have been identified, further assessments will be required to identify existing roosts and pre-commencement surveys will be carried out prior to felling:
    - If a bat roost is identified within a tree to be felled, a bat derogation licence will be required from NPWS to carry out the works.

- Alternative new roosting locations will be provided as part of the proposed works. This could be achieved by creating bespoke roosting habitat within the roof spaces of the most suitable structures, including Westport house and the coach house. Purpose-built access points within these roof spaces may also be required.
- If the structures within the proposed works site fall into further disrepair, their value as a habitat for roosting bats is likely to diminish. The sympathetic and well-designed renovation of any roof, as well as any other building to be retained, has the potential to enhance its value for roosting bats by preventing their likely decline.
- The lighting plan for the operational phase of the proposed works, will be designed with consideration of the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the Bat Conservation Trust (Guidance Note 08/23 Bats and Artificial Lighting at night (BCT, 2023), to minimise light spillage, thus reducing any potential disturbance to bats.
- Landscaping favourable to bats will involve the retention and enhancement of linear features and woodland habitats. Artificial lighting towards these features will be avoided or kept to a minimum, with unavoidable light spill topping at 1Lux.

The surveys undertaken provide a good understanding of the use of the buildings and surrounding habitats by bats and the report provides an overview with regard to the likely challenges faced and constraints associated with the proposed works. An impact assessment based on 2023 designs is presented in the Ecological Impact Assessment (EcIA).

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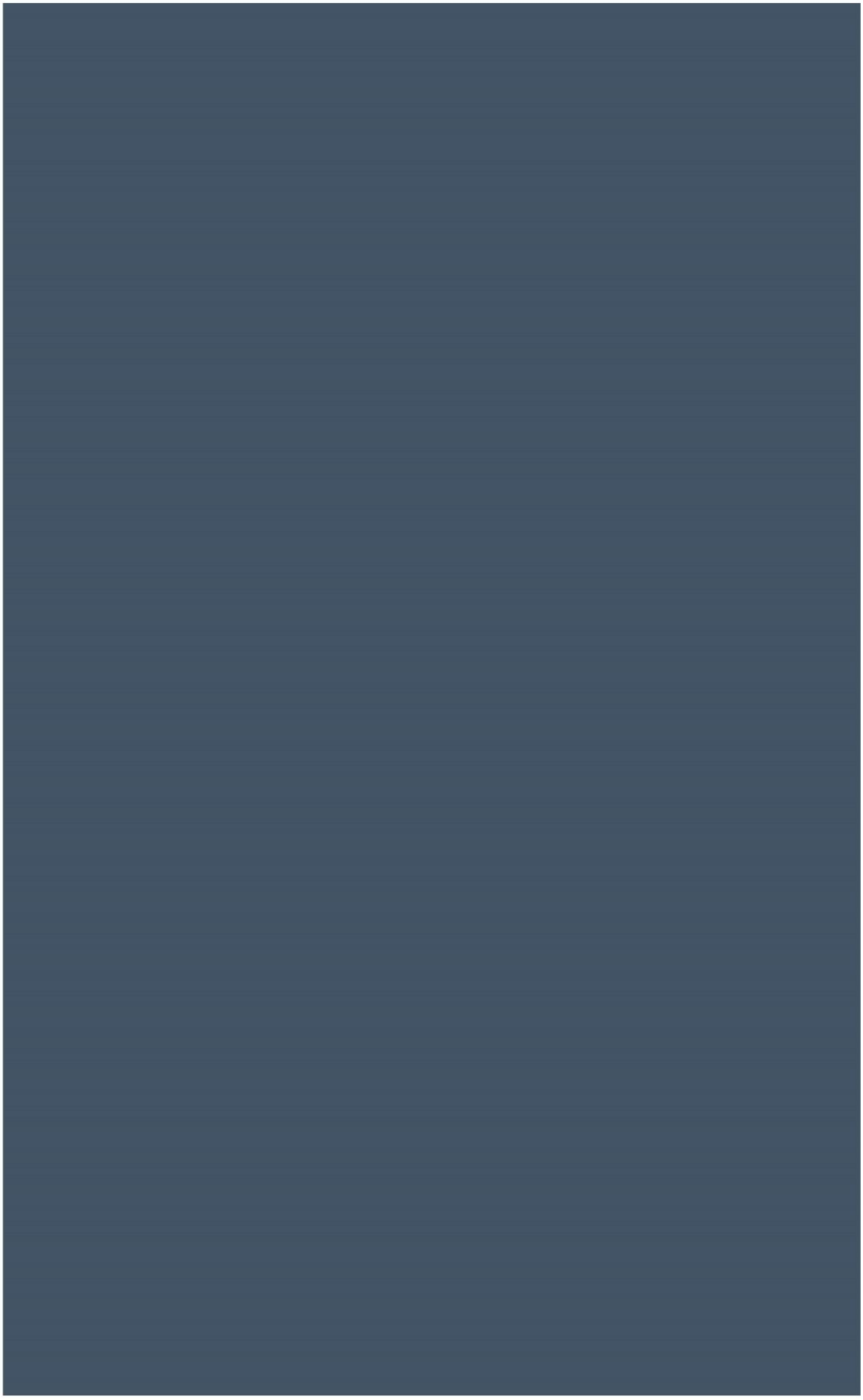

APPENDIX 2

ECIA Extracts - Mitigations

	Disturbance Taking a precautionary approach, the potential for disturbance of bats as a result of the construction activities is assessed as a short-term negative effect. The effects are reversible and likely to be of a slight magnitude.
Assessment of Significance prior to mitigation	**Loss of Roosting Habitats** In the absence of mitigation, the proposed development has the potential to result in a Significant negative effect on a population of local importance (higher value).
	Loss of Foraging and Commuting Habitats In the absence of mitigation, the proposed development has the potential to result in a Slight effect on a population of local importance (higher value) and National Importance. The effect is not considered Significant as foraging and commuting habitats will remain available throughout the site.
	Disturbance In the absence of mitigation, the proposed development has the potential to result in a moderate effect on a population of local importance (higher value). The effect is not considered Significant.
Mitigation	**Loss of Roosting Habitat** *Structures* Although no roosting bats were identified in any of the buildings surveyed, as the buildings show some potential for roosting bats and old accumulations of droppings were identified, a pre-commencement survey is recommended to assess the buildings prior to any works. The requirement for a pre-commencement survey does not represent a lacuna in the survey assessment but is fully in line with industry best practice. The function of this survey will be to assess any changes in baseline environment since the time of undertaking the survey in August and September 2022. › If bats are found to be roosting in any of the structures during the pre-commencement surveys, a bat derogation licence will be obtained from NPWS, and further mitigation prescribed by a licenced ecologist. › A derogation licence from the NPWS will be required in order to restore/demolish buildings where evidence of bats was identified, as well as to block any potential access points to these buildings. › Works will not be carried out during the bat maternity season (May-August) within buildings where evidence of roosting bas was found (i.e. Westport House and Coach House). › No. 2 bottomed bat boxes will be placed on site prior to work commencing to be used in the event that roosting bats are encountered during works (i.e. 3FN Schwegler). › Renovations have the potential to provide improved roosting opportunity for bats by preventing their likely decline: • Where roof works are required, the roof will be reinstated, and access tiles/slates will be provided to maintain and enhance access to the roof spaces where droppings were found. On a slate roof the Bat slate can be fitted under the ridge tiles or can be adapted to be fitted in the middle of a slate roof. • Any water tanks within the roof spaces will be fully covered. › Renovation works will employ bat-friendly construction materials: • New roofing felt has to be made of bat safe membrane. (i.e https://www.roofingsuperstore.co.uk/product/tlx-batsafe-bat-friendly-breathable-membrane-25m-x-950mm.html

- Where remedial timber treatment is required, it is recommended to use pre-treated timber, which is dried before being used in a close vicinity of bat roosts.

Trees

- Where trees with Moderate or High suitability for roosting have been identified, further assessments will be required to identify existing roosts and pre-commencement surveys will be carried out prior to felling:
  - If a bat roost is identified within a tree to be felled, a bat derogation licence will be required from NPWS to carry out the works, and further mitigation prescribed by a licenced ecologist.
- Avoidance of tree felling, and/or pruning only, will be considered where there are no public health and safety risks to leave the roost resource within the grounds as intact as possible.
- Any tree felling will be undertaken outside the main bat vulnerability periods (including maternity season & hibernating season).
- Any required felling of trees with other suitable roosting features will be carried out with the assumption that bats may be present:
  - Trees with suitable potential roost features proposed for felling will be checked by a suitably qualified arborist at the time of felling.
  - Trees will be nudged two or three times prior to limb removal, with a pause of 30 seconds in between, to allow bats to wake and move.
  - Rigged felling shall be used to lower the limbs and trunk carefully to ground level and cavities searched by a qualified ecologist.

  Felled trees will be left in-situ for a minimum of 24 hours prior to sawing or mulching, to allow any bats present to escape (National Roads Authority, 2006).
- Alternative new roosting locations will be provided as part of the proposed works on a like-for-like basis. Bat boxes in sufficient numbers to replace any roost resource identified will be erected throughout the site, away from artificial lighting and disturbance. A minimum of 20 woodcrete bat boxes of different models are recommended.

Loss of Foraging and Commuting Habitat

A detailed landscaping plan has been designed for the proposed development and has been presented in Figure 2-3. The plan will include large-scale planting of hedges, wildflowers meadows and native semi-mature trees, which are expected to improve foraging opportunities within open areas where little bat activity was recorded due to lack of suitable resources.

Disturbance

Disturbance limitation measures, will be adhered to during construction, including the following measures:

- All construction plant and equipment to be used on-site will be modern equipment and will comply with the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1998, and any subsequent amendments.
- Plant machinery will be turned off when not in use. Machines, which are used intermittently, will be shut down during those periods when they are not in use.
- Operating machinery will be restricted to the proposed development site boundary.
- It is expected that works will occur during normal working hours which will be agreed with the local authority in consultation with the appointed contractor prior to works commencing.
- Reduced illumination of the site will be used where possible to prevent disturbance to bats that may potentially occur in the wider area. Where lighting is unavoidable during construction, low-intensity lighting and motion sensors will be used to limit illumination. Exterior lighting, during construction shall be designed

	to minimize light spillage, thus reducing the effect on areas outside the proposed development, and consequently on bats i.e. Lighting will be directed away from mature trees/scrub/immature woodland within the site boundary to minimize disturbance to bats. Directional accessories can be used to direct light away from these features, e.g. through the use of light shields (Stone, 2013).
Residual Effect following Mitigation	With the implementation of the prescribed best practice measures, no significant effects are anticipated on roosting, foraging and commuting bats.

6.2.2.2 Assessment of Potential Effects on Birds

Table 6-5: Assessment of potential effects on birds

Description of Effect	**Habitat Loss/Degradation** The footprint of the Proposed Development will result in the loss of some individual trees amongst the woodland habitats. These habitats provide potential suitable supporting habitat for a variety of bird species. The potential for loss/deterioration of supporting bird habitat as a result of impacts on water quality is assessed in **Table 6-1** above.
	Disturbance/ Displacement The majority of woodland habitat on site will be retained to ensure shelter for bird species is kept. Noise associated with the construction phase of the Proposed Development has the potential to result in disturbance to birds within and surrounding the Proposed Development site. Disturbance to a variety of birds and waterfowl species utilising habitats surrounding the Proposed Development site could occur resulting from increase noise and anthropogenic activities during the construction phase of the Proposed Development.
Characterisation of unmitigated effect	**Habitat Loss/ Degradation** In the absence of mitigatio, the loss of some individual trees amongst the woodland habitats. has the potential to result in a slight permanent negative effect in respect of bird nesting and foraging habitat. This is considered to be a slight effect on this receptor of local importance (higher value) due to the presence of large areas of suitable habitat in the wider area. There are large areas of suitable habitat within the proposed development site that is not be lost by the proposed development exists. Suitable supporting habitat also exists outside the Proposed Development site. There is potential for deterioration to water quality resulting from pollution to surface water run-off associated with the construction phase of the Proposed Development. This is assessed in **Table 6-1** above.
	Disturbance/ Displacement In the absence of mitigation, there is also potential for a temporary slight negative effect on local nesting bird species of local, national and international importance as a result of disturbance associated with the construction phase of the Proposed Development. The magnitude of this impact has the potential to be moderate if the works result in mortality of young birds in the nest.
Assessment of Significance prior to mitigation	**Habitat Loss/ Degradation** There is no potential for significant effects on bird species as a result of habitat loss at any scale. The small loss of individual trees amongst the woodland habitats. will not result in a significant effect to local and nationally important bird species, given the nature and scale of

	existing car parking for the Coach House is to be upgraded. Storm water collected in the parking area will infiltrate to ground via proposed new drainage kerbing. The surface water drainage on Ladies Island is proposed to incorporate SUDS including swales and filter drains which will allow surface water to discharge to ground or via a perforated pipe in the filter beds and discharge via gravity to the Carrowbeg river. The surface water drainage at the Walled Garden is proposed to incorporate SUDS including swales and French drains. Water will drain and infiltrate to ground with an overflow provided at the southwest corner of the site into the Carrowbeg River. A filter drain is proposed for surface water drainage along the southeast of Garvillaun island. Surface water will infiltrate to ground. A perforated pipe for overflow will be located in stone fill and water will flow by gravity to a Headwall outfall just north of the causeway crossing. Given the above best practice and design measures, there is no potential for deterioration of water quality as a result of the operational phase of the proposed development.
Residual Effect following Mitigation	Following the implementation of the mitigation measures as described above, there will be no significant residual effect on aquatic habitats or species as a result of the operation of the Proposed Development. The Proposed Development will not cause any waterbodies to deteriorate, irrespective of their current condition, and will not in any way prevent any waterbodies from meeting the biological and chemical characteristics for good ecological status.

6.3.2 Impacts on Fauna

6.3.2.1 Assessment of Potential Effects on Bats

Table 6-10: Assessment of potential effects on bats

Description of Effect	The operational phase of the proposed development will result in increased human activity, noise and lighting within the proposed site. Therefore, the potential for disturbance to bats requires consideration. In the absence of appropriate design, the development has the potential to disturb bats by illumination of roosting, commuting and foraging areas, severing of commuting corridors and roost abandonment.
Characterisation of unmitigated effect	In the absence of mitigation, the operational phase of the proposed development has the potential to result in Long-Term Moderate Negative effect on the local bat populations in the form of disturbance as a result of lighting.
Assessment of Significance prior to mitigation	Unmitigated disturbance effects from lighting during the operational phase of the development have the potential to incur in Significant impacts on local bat populations identified within the site.

Mitigation	The lighting plan for the operational phase of the proposed development, has been designed with consideration of the following guidelines: Bat Conservation Ireland guidelines; Bat Conservation Ireland (Bats and Lighting: Guidance Notes for Planners, Engineers, Architects and Developers, BCI, 2010) and the Bat Conservation Trust (Guidance Note 08/23 Bats and Artificial Lighting at Night, BCT, 2023), to minimise light spillage, thus reducing any potential disturbance to bats. The proposed light fitting/scheme has been designed to help mitigate the effect of the proposed artificial lighting on the local bat populations by incorporating the following measures: › There will be no illumination to the trees & water bodies. › Very warm colour temperature (2200K and lower) lighting will be utilised. › A central controlled lighting regime will be in place along with PIR sensors to detect movement and switch lights off in zones with no activity. › The site will be closed after 6pm with the exception of special events. › P6 Class (Average 2 lux/ Min 0.4 lux) will be used for the central access route and stairs which is a low intensity of illumination. › All lights will be angled downwards (never above 25 degree tilt angle and they will have full cut-off). Only lights which are shielded under canopies and structures may utilise uplighting so the light spill can be contained. › A detailed lighting report accompanies this assessment.
Residual Effect following Mitigation	With the implementation of the prescribed mitigation measures, no significant residual effects are predicted.
Potential for Cumulative Effect	The proposed development will not result in any significant effect on bats. It therefore cannot contribute to any cumulative effect in this regard.

6.3.2.2 Assessment of Potential Effects on Birds

The operational phase of the Proposed Development will result in increased anthropogenic activity within the area.

The results of the bird surveys from 2022-2023 (**Appendix 5**) indicate that the site of the Proposed Development does not provide significant supporting habitat for Annex I, Red List or SCI species. As such, the operational phase of the Proposed Development has no potential for disturbance for SCI species.

The survey results indicate that there will be no potential for disturbance/ displacement of any SCI species. Waterfowl species were recorded utilising the aquatic habitats surrounding the Proposed Development site.

The habitats within the Proposed Development site do not provide significant supporting habitat for SCI species. The area is subject to human recreational activity and as such, faunal species are likely habituated to anthropogenic activity in the area.

The operational phase of the Proposed Development will be confined to the footprint of the development boundary. Given the absence of significant faunal species occurring within the development footprint, no significant direct or indirect impacts on faunal species are considered likely as a result of the operational phase of the Proposed Development. The proposal therefore will not have a significant impact at any geographic scale.