METROLINK

INTEGRATED TRANSPORT.
INTEGRATED LIFE.



Attachment 4.4.1 - Updated Risk Assessment for Annex IV Species Report 15/10/2026

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

NTA
Údarás Náisiúnta Iompair
National Transport Authority

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040

Contents

1.1 Statement of competence 2

1.2 Risk Assessment for Annex IV Species 2

1.2.1 Species identified 2

1.2.2 Potential Risks 3

1.2.3 Operational controls 5

1.2.4 Conclusion 5

Appendix A – OCSC Bat Survey Report 7

Attachment 4.4.1 - Updated Risk Assessment for Annex IV Species Report

1.1 Statement of competence

This attachment has been prepared by Luis Gustavo Iemma. Luis is an Associate Director at WSP Ireland Consulting Ltd ('WSP') with over 15 years' experience in ecology and environmental planning. He holds a BSc, MSc, and PhD in Ecology and is a Chartered Ecologist (CEcol) and Full Member of CIEEM. Luis has extensive expertise in Appropriate Assessment (AA) Screening, Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), and environmental risk assessments. His experience includes protected species surveys (bats, otters, badgers, birds, amphibians), invasive species assessments, aquatic macroinvertebrate monitoring, and compliance with EU Habitats and Birds Directives and NPWS guidance. He is also skilled in environmental remediation, biodiversity risk management, and ecological input for planning applications and sustainability frameworks such as BREEAM.

This report has been prepared with consideration of MARA guidelines, including the Species Foraging Ranges rules set out in the Applicant Technical Guidance Note.

1.2 Risk Assessment for Annex IV Species

1.2.1 Species identified

The following Annex IV Species have been identified as occurring within the Zone of Influence of the proposed Maritime Usage:

- Harbour Porpoise (*Phocoena phocoena*)

This species is listed under Annex IV of the Habitats Directive and occurs within the broader zone of influence of the proposed works (Rockabill to Dalkey Island SAC). Historical records indicate occasional presence in the outer estuary but not within the River Liffey itself.

Harbour porpoise typically forages in coastal and pelagic waters associated with strong tidal currents, headlands, and islands. The River Liffey is not considered functionally important habitat for this species. The nearest record is approximately 5.3 km east of the proposed works (Poolbeg), outside the 500 m disturbance zone recommended by NPWS guidance.

- Otter (*Lutra lutra*)

This species is listed under Annex IV of the Habitats Directive and is occasionally recorded in the main channel of the River Liffey in the vicinity of the proposed works according to National Biodiversity Data Centre records.

Otters are principally piscivorous relying predominantly on salmonids (*Salmo trutta* and *Salmo salar*) but also eel (*Anguilla anguilla*) and do prey opportunistically on a range of prey sources where available, e.g., frogs, birds, and small mammals. The likely presence of these prey items both upstream and downstream of the proposed works, in combination with the short duration of the works means that otter foraging is unlikely to be significantly affected by the proposed works.

- Bats *(Chiroptera spp.*)

All bat species occurring in Ireland are protected under Annex IV of the Habitats Directive and the Wildlife Acts 1976-2023 (as amended) .

Targeted bat surveys were undertaken by O'Connor Sutton Cronin & Associates Ltd. (OCSC) in September 2026,at the request of WSP, in response to a request for further information from MARA (letter dated 13 August 2026). The associated report prepared by OCSC is provided in Appendix A.

Surveys comprised a Preliminary Roost Assessment (PRA) of Butt Bridge, Rosie Hackett Bridge and surrounding structures, a dusk emergence survey of Rosie Hackett Bridge and Nocturnal bat activity surveyswithin the wider survey area.

No evidence of current or historic bat roosting was identified within Butt Bridge. No evidence of current or historic bat roosting was identified within Rosie Hackett Bridge; however, a feature with potential to support bat roosting was identified and subsequently surveyed through a dusk emergence survey. No bats were recorded emerging from the structure.

Nocturnal bat activity surveys recorded a low level of bat activity within the wider survey area. Activity was concentrated along the River Liffey and was considered consistent with commuting and foraging behaviour within the urban river corridor. No active bat roosts were identified within the surveyed bridges, buildings or nearby trees.

1.2.2 Potential Risks

Underwater Noise Disturbance:

Sonic and rotary drilling produce underwater sound pressure levels (SPLs) typically in the range of 160–180 dB re 1 µPa @ 1 m, with peaks rarely exceeding 185 dB. These levels are

below injury thresholds for marine mammals but may cause temporary behavioural disturbance if individuals are present within close proximity.

Visual Disturbance:

Harbour porpoise is not visually sensitive to surface operations at the distances involved.

Water Quality:

No risk of contamination due to embedded pollution prevention measures (bunded fuel storage, spill kits, refuelling using jerry cans and plant nappies).

Otter (Lutra lutra):

Otters are occasionally recorded within the River Liffey corridor and may use the area for commuting and foraging. The Proposed Project does not involve habitat loss, vegetation clearance, riverbank works, disturbance to breeding or resting sites, or activities that could result in direct mortality. Potential risks are therefore limited to temporary disturbance associated with noise, lighting and general construction activity. Given the short duration and limited scale of the works, significant effects on otter are not anticipated.

Bats (Chiroptera spp.):

The Proposed Project does not involve demolition, modification or direct interaction with bridges, buildings, trees or other structures that could support bat roosts. No habitat loss, vegetation clearance or works to identified roosting features are proposed.

Potential effects are therefore limited to temporary disturbance associated with mobilisation, drilling, lighting and demobilisation activities. Given the absence of identified roosts, the urban nature of the receiving environment and the temporary duration of the works, the likelihood of disturbance effects on bats is considered negligible.

Whilst low levels of bat activity were recorded during surveys, these records are indicative of commuting and foraging activity within the River Liffey corridor and do not indicate the presence of a roost that could be affected by the Proposed Project. Assessment has therefore focused on identifying bat roosts and determining whether a credible pathway exists between any roost and the proposed works. No such pathway has been identified.

Notwithstanding the above, the good practice recommendations set out within the OCSC Bat Survey Report will be implemented during the works. These include minimising unnecessary artificial lighting, directing any required lighting away from potential bat roosting features, avoiding direct impacts to the identified feature with low bat roost potential on Rosie Hackett Bridge, and ceasing works in the unlikely event that evidence of bat roosting is identified until advice is obtained from a suitably qualified bat specialist.

1.2.3 Operational controls

To ensure negligible risk and compliance with NPWS guidance:

- Establish a marine mammal monitoring zone covering a minimum 200 m radius upstream and downstream of the proposed works prior to and during drilling operations.
- Implement soft-start procedures to gradually increase acoustic output, allowing fauna to vacate the area.
- Marine Mammal Observer (MMO) presence is required during start-up and soft-start phases, with spot checks during operations where feasible.
- Schedule works to avoid peak marine mammal activity periods where known.
- Implement the good practice measures set out within the OCSC Bat Survey Report, including minimising unnecessary artificial lighting, directing any required lighting away from potential bat roosting features where practicable, and implementing stop-work procedures should evidence of bat roosting be identified during the works.
- Use real-time observation by qualified marine mammal observers during start-up phases.

Protected Species Awareness (Otter)

- Site personnel shall be briefed on the potential presence of otter within the River Liffey corridor. The MMO remit shall include recording observations of otter where sightlines allow. If an otter is observed in close proximity to active works and considered at risk of disturbance or harm, works in the immediate area shall be temporarily paused and the situation assessed before recommencing. Standard pollution prevention and water quality protection measures will be implemented throughout the works to avoid indirect effects on otter habitat or prey resources.
- No other Annex IV species have been identified as having a credible pathway for interaction with the Proposed Project. Targeted bat surveys undertaken in September 2026 did not identify any active bat roosts within surveyed structures and no credible pathway for effects on bats has been identified. The works are confined to a small section of the River Liffey and do not involve vegetation clearance, demolition, modification of buildings, disturbance of known roosting habitat, or loss of terrestrial habitat. Consequently, significant effects on other Annex IV species can be excluded.

1.2.4 Conclusion

In light of the nature, scale and duration of the Proposed Project, and having regard to the operational controls described above, significant effects on harbour porpoise, otter, bats or any other Annex IV species are not anticipated. Targeted bat surveys undertaken by OCSC

identified low levels of bat activity within the wider survey area but did not identify any active bat roosts within Butt Bridge, Rosie Hackett Bridge, surrounding buildings or nearby trees. The Proposed Project does not involve modification of potential roost structures, and no credible pathway has been identified by which breeding sites or resting places could be damaged, destroyed, obstructed or subject to significant disturbance.

The Proposed Project will not result in disturbance, injury, mortality, deterioration of habitat, or impacts to breeding sites or resting places sufficient to affect the favourable conservation status of Annex IV species. The Proposed Project therefore conforms with the strict protection requirements of Article 12 of the Habitats Directive and a derogation licence under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended) is not required.

METROLINK

info@metrolink.ie

www.metrolink.ie

Freephone: 1800 333 777
Mon–Fri, 8.30am–5.30pm

MetroLink
Parkgate Business Centre
Parkgate Street
Dublin 8
D08 DK10

MetroLink Ireland

@metrolink_ie

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

NTA
Údarás Náisiúnta Iompair
National Transport Authority

Rialtas na hÉireann
Government of Ireland

Tionscadal Éireann
Project Ireland
2040

Sequence: 1
CDE file ID: [FileName] Folder DMS Code: dms68686
Template Version C04
GUID: 1f747b3c-cef3-4a6d-ba3d-dfe0a20f6b33
Security Classification: Security Classification

Appendix A – OCSC Bat Survey Report



OCSC

O'CONNOR · SUTTON · CRONIN

MULTIDISCIPLINARY CONSULTING ENGINEERS

W439: METROLINK

BAT SURVEY REPORT FOR ROSIE HACKET BRIDGE & BUTT BRIDGE

For
WSP

9 October 2026

NOTICE

This document has been produced by O'Connor Sutton Cronin & Associates for its client, WSP It may not be used for any purpose other than that specified by any other person without the written permission of the authors.

DOCUMENT CONTROL & HISTORY

OCSC Job No: W439	Project Code	Originator	Zone Volume	Level	File Type	Role Type	Number	Status / Suitability Code	Revision
	W439	OCSC	ZZ	ZZ	RP	YE	809	S2	P01

Rev.	Status	Authors	Checked	Authorised	Issue Date
P01	**S2**	Éadaoin Butler MCIEEM Eoin Toomey Aine Cogan	Rebecca Duane MCIEEM	Eleanor Burke CSci MIEnvSc	09/10/2026

TABLE OF CONTENTS

1 INTRODUCTION 1
1.1 BACKGROUND 1
1.2 RELEVANT LEGISLATION & BAT SPECIES STATUS IN IRELAND 3
1.3 BAT SURVEY AIMS 4
1.4 RELEVANT GUIDANCE DOCUMENTS 4
1.5 LIMITATIONS 5
1.6 SURVEYOR & AUTHOR QUALIFICATIONS 6
2 METHODOLOGY 8
2.1 DESKTOP REVIEW 8
2.2 VISUAL ROOST SURVEY 8
2.3 BAT ACTIVITY SURVEY 9
2.3.1 DATA ANALYSIS 10
2.4 EVALUATION AND IMPACT ASSESSMENT 10
2.5 SURVEY LIMITATIONS 11
3 RESULTS 13
3.1 DESKTOP SURVEY 13
3.2 PRELIMINARY ROOST ASSESSMENT 19
3.3 BAT ACTIVITY SURVEY 23
4 IMPACT ASSESSMENT AND MITIGATION 28
4.1 MITIGATION MEASURES 28
4.1.1 PROTECTION OF POTENTIAL ROOST FEATURES 29
4.1.2 NOISE AND VIBRATION 29
4.1.3 LIGHTING 30
4.1.4 SITE AWARENESS 30
5 SURVEY CONCLUSIONS 31
6 REFERENCES 32
7 VERIFICATION 33
APPENDIX A: SURVEY PHOTOGRAPHS 34

LIST OF FIGURES

Figure 1.1: MetroLink Site boundary and borehole locations. 2
Figure 1.2:Regional Site Location (Source: OCSC, 2026.) 2
Figure 1.3: MUL Application area showing borehole locations. 3
Figure 2.1: The bat year. Although there are species-specific differences, the bat year can be divided into the two major phases of breeding and hibernation, with other activities interspersed (Marnell, F., Kelleher, C. & Mullen, E. (2022)). 12
Figure 3.1: :Suitability index for all bats in the site and surrounding areas, site boundary shown in red (NBDC, 2026). 14
Figure 3.2: Suitability index for Brown long-eared bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 14
Figure 3.3: Suitability index for Common pipistrelle in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 15
Figure 3.4: Suitability index for Soprano pipistrelle in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 15
Figure 3.5: Suitability index for Leisler's Bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 16
Figure 3.6: Suitability index for Natterer's bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 16
Figure 3.7: Suitability index for Daubenton's bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 17
Figure 3.8: Suitability index for Nathusius' pipistrelle in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 17
Figure 3.9: Suitability index for Lesser Horseshoe bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 18
Figure 3.10: Suitability index for Whiskered bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026). 18
Figure 3.11: All bat encounters on site (Google Earth Pro 2026) 25
Figure 3.12: Common Pipistrelle encounters on site (Google Earth Pro 2026) 25
Figure 3.13: Soprano Pipistrelle encounters on site (Google Earth Pro 2026) 26
Figure 3.14: Leisler's bat encounters on site (Google Earth Pro 2026) 26
Figure 3.15: Common pipistrelle sonogram (Echo Meter Touch PRO 2) 27
Figure 3.16: Soprano Pipistrelle (Echo Meter Touch PRO 2) 27
Figure 3.17: Leisler's bat sonogram (Echo Meter Touch PRO 2). 27

LIST OF TABLES

Table 1.1: Conservation status and legal protection of bat species occurring in Ireland. 4
Table 2.1: Scheme for describing the potential suitability of features for bats. 9
Table 3.1:Suitability of the study area for the bat species according to 'Model of Bat Landscapes for Ireland' (Lundy et al. 2011). 13
Table 3.2: Preliminary Roost Features (PRFs) of interest identified on site. 20
Table 3.3: Results of the analysis of data from the survey effort. 23
Table 3.4: Legend for bat species encountered on site. 24

1 INTRODUCTION

1.1 BACKGROUND

This Bat Survey Report has been prepared by O'Connor Sutton Cronin & Associates Ltd. (OCSC) at the request of WSP, in relation to site investigation works associated with the MetroLink project within the River Liffey in Dublin city centre. As part of a Maritime Usage Licence (MUL) application for the works, MARA requested information on whether bats are present within bridges or other suitable roost locations in the vicinity of the MUL application area and whether bats may be impacted by the proposed activities.

MetroLink is a proposed high-capacity, high-frequency metro railway extending approximately 19 km between Swords in north Dublin and Charlemont in Dublin city centre. The project is being developed by Transport Infrastructure Ireland (TII) and will provide a fully segregated public transport connection linking Swords, Dublin Airport and Dublin city centre, while providing interchange with existing Irish Rail, DART, Luas and Dublin Bus services. The MetroLink route will include 16 stations serving key locations including Dublin Airport, Ballymun, Dublin City University, the Mater Hospital, O'Connell Street, Trinity College and St Stephen's Green.

The assessment area is located along the River Liffey between Rosie Hackett Bridge and Butt Bridge and includes sections of the north and south quays, including Eden Quay and Burgh Quay (Figure 1.1). The area comprises the River Liffey, existing bridge structures, quay walls, the Eden Quay boardwalk and associated river-facing structures, together with buildings and other terrestrial features in the vicinity of the proposed works.

The survey scope therefore included a Preliminary Roost Assessment (PRA) of critical structures, including Rosie Hackett Bridge and Butt Bridge, together with an assessment of relevant quay-side structures and other potential roost features within the study area. The bridge structures were assessed from a vessel on the River Liffey, with accessible quay-side structures assessed from land.

Following the identification of a Potential Roost Feature (PRF) on Rosie Hackett Bridge, an emergence survey was undertaken to assess the potential use of the feature by bats. Two nights of nocturnal bat activity survey were also undertaken to assess general bat activity within the study area.

The findings of the surveys are presented in this report and are used to assess the potential for bats to be affected by the proposed site works and to inform any recommendations for further survey, mitigation or licensing requirements, where applicable. The site location is shown in Figure 1.1

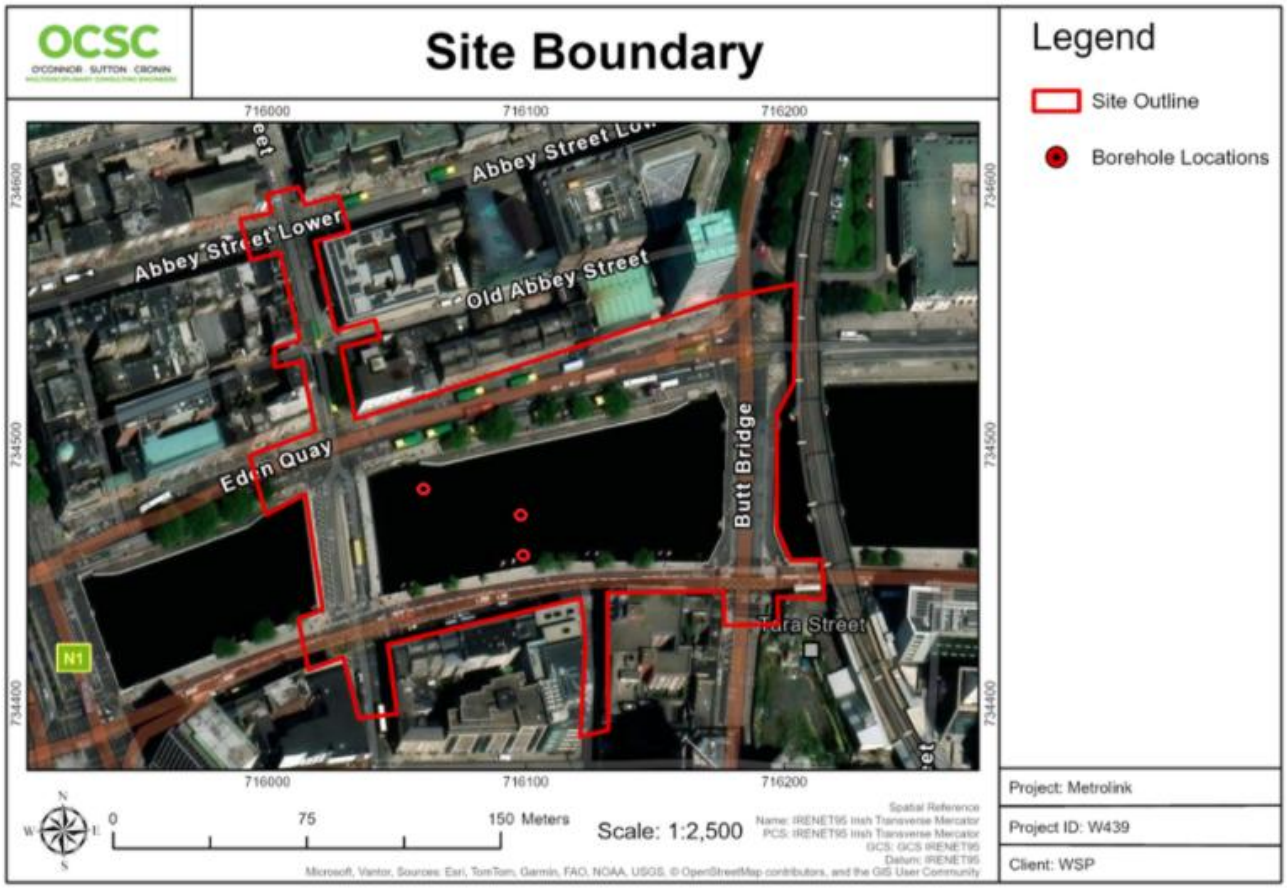


Figure 1.1: MetroLink Site boundary and borehole locations.



Figure 1.2:Regional Site Location (Source: OCSC, 2026.)

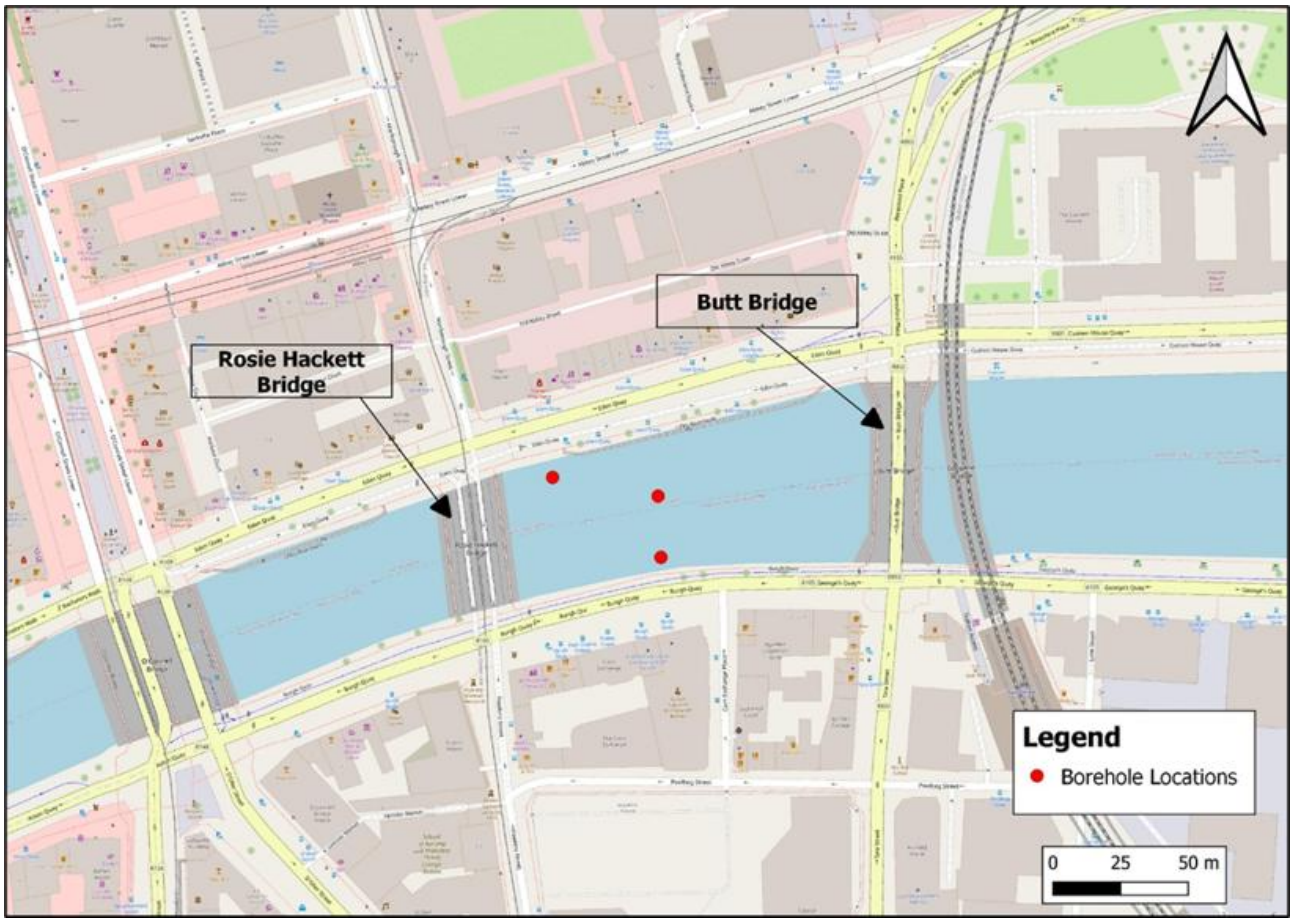


Figure 1.3: MUL Application area showing borehole locations.

1.2 RELEVANT LEGISLATION & BAT SPECIES STATUS IN IRELAND

All bat species occurring in Ireland are protected under the Wildlife Act 1976, as amended, and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Bats are also protected under the EU Habitats Directive (Council Directive 92/43/EEC), under which all bat species occurring in Ireland are listed in Annex IV. The lesser horseshoe bat (Rhinolophus hipposideros) is additionally listed in Annex II of the Habitats Directive.

Under Regulation 51 of the European Communities (Birds and Natural Habitats) Regulations 2011, it is an offence to deliberately disturb, capture or kill bats, or to damage or destroy their breeding sites or resting places. The protection afforded to bats therefore extends to known or potential roosting locations, including buildings, structures, trees and other features that may be used by bats.

Where works have the potential to affect a protected bat species or its breeding or resting places, a derogation licence may be required from the National Parks and Wildlife Service (NPWS) under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011. Such licences are subject to specific conditions and are only granted where the relevant legislative requirements are satisfied.

Bats are also protected through international agreements to which Ireland is a contracting party, including the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and the Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

Nine bat species are considered resident in Ireland, with the greater horseshoe bat (*Rhinolophus ferrumequinum*) considered a vagrant species. The resident species include common and soprano pipistrelles, Leisler's bat, brown long-eared bat, Daubenton's bat, Natterer's bat, whiskered bat, Nathusius' pipistrelle and lesser horseshoe bat. The current conservation status of the Irish bat fauna is presented in Table 1.1.

Table 1.1: Conservation status and legal protection of bat species occurring in Ireland.

Species Common Name (Latin Name)	Irish Status	Habitats Directive	Wildlife Act / Regulations
Resident Bat Species			
Daubenton's bat (*Myotis daubentonii)*	Least concern	Annex IV	Protected
Whiskered bat (*Myotis mystacinus)*	Least concern	Annex IV	Protected
Natterer's bat (*Myotis nattereri)*	Least concern	Annex IV	Protected
Leisler's bat (*Nyctalus leisleri)*	Least concern	Annex IV	Protected
Nathusius' pipistrelle (*Pipistrellus nathusii)*	Least concern	Annex IV	Protected
Common pipistrelle (*Pipistrellus pipistrellus)*	Least concern	Annex IV	Protected
Soprano pipistrelle (*Pipistrellus pygmaeus)*	Least concern	Annex IV	Protected
Brown long-eared bat (*Plecotus auritus)*	Least concern	Annex IV	Protected
Lesser horseshoe bat (*Rhinolophus hipposideros)*	Least concern	Annex II & IV	Protected
Vagrant Bat Species			
Greater horseshoe bat (*Rhinolophus ferrumequinum*)	Vagrant	Annex II & IV	Protected

1.3 BAT SURVEY AIMS

The aims of the study were to determine the following:

- Determine whether bats are present within bridges, structures or other suitable roost locations within the vicinity of the MUL application area.
- Identify any Potential Roost Features (PRFs) associated with the structures assessed within the study area.
- Determine whether any identified PRFs are being used by roosting bats.
- Assess the level and nature of bat activity within the study area, including the use of the River Liffey and associated structures as potential commuting and foraging habitat.
- Assess the potential for bats to be affected by the proposed works and, where appropriate, identify requirements for further survey, mitigation or licensing.

1.4 RELEVANT GUIDANCE DOCUMENTS

This report will draw on guidelines already available in Europe and will use the following documents:

- Collins, J. (Ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). Bat Conservation Trust, London.
- Marnell, F., Kelleher, C. & Mullen, E. (2022). Bat Mitigation Guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
- Bat Conservation Ireland – Bats and Waterways: Guidance Notes for Planners, Engineers and Developers.
- National Roads Authority (2006). Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes.
- National Roads Authority (2009). Guidelines for Assessment of Ecological Impacts of National Road Schemes. Revision 2. National Roads Authority, Dublin.
- CIEEM (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.

The surveys were undertaken with consideration of the above guidance and the requirements of the proposed works.

1.5 LIMITATIONS

This Bat Survey Report has been prepared for the sole use of WSP ("the Client"). No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by OCSC.

This assessment is based on the results of the Preliminary Roost Assessment, emergence survey and nocturnal bat activity surveys undertaken by OCSC, together with a review of available historical information, environmental records and relevant guidance. The Preliminary Roost Assessment was undertaken from accessible locations and from a vessel on the River Liffey. The assessment was non-destructive and was limited to features that could be safely accessed or visually inspected from the available vantage points. No intrusive investigation of structures was undertaken.

This report has been prepared in line with best industry standards. The methodology adopted and the sources of information used by OCSC in providing its services are outlined in this Report. The assessment was undertaken and described by OCSC in September-October 2026 and is based on the information available during that period. The scope of this Report and the services are accordingly factually limited by these circumstances.

The conclusions presented in this report represent OCSC's professional judgement based on the information available and the survey effort undertaken at the time of assessment. The opinions and conclusions presented are valid only to the extent that the information provided was accurate and complete. OCSC accepts no responsibility for any changes in the conditions of the site or proposed works occurring after the date of the surveys which may affect the findings or conclusions of this report.

1.6 SURVEYOR & AUTHOR QUALIFICATIONS

The surveying and reporting effort was undertaken by Eadaoin Butler, BSc, MCIEEM, Ecologist, Eoin Toomey, BA Ecologist and Torchia McQuaid BSc, MSc and Áine Cogan BSc.

Éadaoin Butler, BSc (Hons) Wildlife Biology with Field Tourism (MTU Tralee), is a Full Member of CIEEM and a member of Bat Conservation Ireland. With five seasons of bat survey experience, she has led over 40 surveys, namely Preliminary Roost Assessments (PRAs), dusk emergence surveys, dawn re-entry surveys, activity surveys and bat transects across a wide range of projects from repair works to masonry bridges to large scale residential and transport projects. Her training includes a university bat surveying module with an identification and handling workshop ran by Killarney National Park Education Centre, Bat Conservation Ireland and CIEEM CPD courses, Specialist Bat Handling course with Dr. Tina Aughney and Bat conservation Ireland. She is currently undertaking a Certificate in Bat Acoustic Analysis through Bat Ability and is proficient in the Anabat and Kaleidoscope analysis software.

Eoin Toomey, BA (Hons) Zoology (TCD), is a member of Bat Conservation Ireland and is currently working towards Associate Membership of CIEEM. With four seasons of bat survey experience, he has participated in over 20 bat surveys, namely Preliminary Roost Assessments (PRAs), dusk emergence surveys, dawn re-entry surveys, activity surveys and bat transects across a wide range of projects from repair works to masonry bridges to large scale residential and transport projects. His training includes a university bat surveying module, Bat Conservation Ireland and CIEEM CPD courses, he is currently undertaking a Certificate in Bat Acoustic Analysis through Bat Ability and is proficient in the Anabat and Kaleidoscope analysis software.

Torchia McQuaid, BSc (Hons) Zoology (UCD), MSc Applied Environmental Science (UCD), is a member of Bat Conservation Ireland and the Irish Wildlife Trust and is currently working towards Associate Membership of CIEEM. Torchia has been involved in bat surveys since 2021, initially undertaking bat emergence surveys, roost counts and guano collection as part of research on the diet of Irish bats within the BATLAB at University College Dublin under the supervision of Professor Emma Teeling and PhD researcher Gwenaëlle Hurpy. Since then, she has participated in over 30 bat surveys across a range of projects including residential, transport, bridge and infrastructure developments, completing Preliminary Roost Assessments (PRAs), dusk emergence surveys, dawn re-entry surveys, activity surveys and bat transect. Torchia is currently undertaking a Certificate in Bat Acoustic Analysis through Bat Ability and is proficient in the use of Anabat, Kaleidoscope and BatExplorer acoustic analysis software, as well as GIS and QGIS. These skills have been further developed through ongoing field experience and mentorship from senior bat ecologists throughout her professional career.

Áine Cogan BSc (Hons) Environmental Science (University of Galway) is a Qualifying Member of CIEEM. She has two seasons of bat survey experience across residential and transport projects, having participated in Preliminary Roost Assessments (PRAs), dusk emergence surveys, bat activity surveys and bat transects. Her undergraduate thesis examined bat behaviour during the pre-hibernation period in the west of Ireland, as part of pre-commencement ecological surveys undertaken in advance of large-scale renovation works to an estate. The research was supervised by Dr Caitríona Carlin and PhD researcher and site ecologist Tom Gorman. The

project involved designing and undertaking bat transect surveys in accordance with relevant good-practice guidance, while considering the requirements of the proposed development. The study also involved the analysis of acoustic data using Kaleidoscope software. Áine has completed Kaleidoscope training courses with Wildlife Acoustics and the Bat Conservation Ireland Introduction to Bats and Using Detectors course. She also has experience in QGIS and the statistical and spatial analysis of bat survey data.

2 METHODOLOGY

2.1 DESKTOP REVIEW

A desktop review of relevant publicly available data was undertaken on the National Biodiversity Data Centre (NBDC), National Parks and Wildlife Service (NPWS) and National Biodiversity Network (NBN) Atlas websites. The NBDC database was reviewed for relevant data, specifically i) species records in the 2km grid square within which the study site is located (O13S) and (O13M). The NBDC data were also reviewed to provide an indication of the relative importance of the wider landscape in which the study site is located based on Model of Bat Landscapes for Ireland (Lundy et al. 2011). The suitability index ranges from 0 to 100, with 0 representing the least favourable and 100 representing the most favourable landscape for bats.

The desktop review was undertaken to establish the known occurrence of bat species within the surrounding area and to inform the assessment of the potential for bats to occur within the study area. The NBDC data is not solely relied upon; merely used to assist in undertaking the desktop study.

2.2 VISUAL ROOST SURVEY

A Preliminary Roost Assessment (PRA) was undertaken within the study area on 21 and 23 September 2026 by OCSC Ecologists to identify Potential Roost Features (PRFs) associated with structures within the study area. The assessment was undertaken in accordance with Collins (2023) and relevant guidance for the assessment of bats and bridges.

The terrestrial assessment was undertaken on 21st September 2026, with Rosie Hackett Bridge and Butt Bridge subsequently assessed from a vessel on the River Liffey on 23rd September 2026. The boat-based assessment allowed the river-facing elevations and accessible structural features of the bridges to be inspected for potential roosting opportunities and evidence of bat use. A further visual assessment was undertaken from the quayside to assess relevant features associated with the quay walls, retaining structures, the Eden Quay boardwalk and other river-facing structures within the study area.

The assessments were non-destructive and focused on identifying features with potential to support roosting bats, including cracks, crevices, cavities, gaps, joints, voids and other sheltered features. Visible areas were inspected for evidence of bat use, including bat droppings, staining, feeding remains, characteristic scratches and other signs of occupation.

A detailed visual survey was carried out inspecting the buildings as well as the trees within the site boundary. All visible areas were viewed from ground level with a view to identifying any access/egress points. The Pulsar Thelos XL50 thermal camera and V5555 Qyteco endoscope were used to investigate any openings, where accessible. The survey was non-destructive. Survey from height was not carried out. The suitability of identified features for roosting bats was assessed in accordance with the categories outlined in Table 2.1.

Table 2.1: Scheme for describing the potential suitability of features for bats.

Suitability	Roosting Habitats
Negligible	Negligible habitat features on site likely to be used by roosting bats. Examples: New buildings with solid, intact roofs and walls; young trees lacking cavities or peeling bark. Survey Recommendations: No further bat surveys are typically required.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions, and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats, i.e. unlikely to be suitable for maternity or hibernation. A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential. Examples: Buildings with a few small gaps or cracks; trees with minor features like sparse ivy cover or shallow bark fissures. Survey Recommendations: A single emergence survey during the active season (May to September) is advised to confirm the presence or absence of bats. Individual trees with a low suitability do not require a survey.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions, and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type, only the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed). Examples: Buildings with multiple access points and internal cavities; trees with significant features like dense ivy, substantial branch splits, or small cavities. Survey Recommendations: Two dusk emergence surveys between May and September, with at least one survey conducted during the optimal period (May to August).
High	A structure or tree with one or 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. Examples: Buildings with extensive roof voids, large accessible cavities, and diverse entry points; veteran trees with multiple substantial cavities, thick peeling bark, or deep splits. Survey Recommendations: At least three dusk emergence surveys between May and September, with two surveys conducted during the optimal period (May to August).

2.3 BAT ACTIVITY SURVEY

A nocturnal bat walkover (NBW) survey was undertaken within the study area on 21st September 2026 by OCSC Ecologists Eoin Toomey BA and Torchia McQuaid BSc. A data recording issue affected a portion of the acoustic data collected during this survey, resulting in a reduction in the available dataset. A further NBW survey was undertaken on 25th September 2026 by Eoin Toomey BA and Eadaoin Butler BSc MCIEEM to supplement the available acoustic dataset and provide additional survey effort.

The NBW surveys commenced at sunset and continued for two hours after sunset, in accordance with the recommended survey period outlined in Collins (2023). Surveys were undertaken on foot within accessible areas of the study area, with particular attention given to the River Liffey, the river-facing elevations of the bridges and quay walls, and areas considered suitable for bat commuting and foraging activity.

An emergence survey was undertaken on 23rd September 2026 by Eoin Toomey BA and Torchia McQuaid BSc to assess a Potential Roost Feature (PRF) identified on Rosie Hackett Bridge during the Preliminary Roost Assessment (PRA). The survey commenced 15 minutes before sunset and continues for two hours after sunset, in accordance with the recommended survey period outlined in Collins (2023), with the PRF monitored for any evidence of bats emerging from the feature.

Bat activity was recorded using a handheld Echo Meter Touch 2 PRO full-spectrum bat detector. Where bats were observed or detected, the location, time and species identification were recorded where possible. Particular attention was given to notable bat behaviour, including commuting, foraging and repeated activity in the vicinity of structures and potential roost features.

The additional NBW survey undertaken on 25th September was completed to supplement the available dataset following the data recording issue encountered during the initial survey. The results presented in this report therefore consider the available acoustic data collected during the two NBW surveys, together with the findings of the emergence survey.

Details of the survey dates, survey type, timing and weather conditions recorded during each survey are provided in Table 2.2.

2.3.1 DATA ANALYSIS

Acoustic recordings obtained during the survey effort were analysed using Anabat Insight software. Automated species identification was initially undertaken using a species confidence threshold of 70%. Recordings identified by the automated analysis were subsequently manually reviewed to verify species identifications. Recordings considered to represent anthropogenic noise or other non-bat sounds, as well as recordings where species identification could not be reliably confirmed, were excluded from the final dataset. The final dataset therefore comprises recordings that were considered suitable for inclusion following manual review.

The resulting bat records were assessed in conjunction with field observations and survey effort to determine the level and nature of bat activity within the study area. Particular consideration was given to the species recorded, frequency and distribution of activity, and any activity associated with the bridges, quay walls and other structures within the study area.

2.4 EVALUATION AND IMPACT ASSESSMENT

The evaluation of bat activity and potential impacts was undertaken with reference to relevant guidance, including the Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009), the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018, updated 2024) and Collins (2023).

The assessment considered the results of the Preliminary Roost Assessment, emergence survey and nocturnal bat activity surveys, together with the findings of the desktop review. Consideration was given to the

suitability of structures and other features within the study area for roosting bats, the species and level of bat activity recorded, and the potential for bats to be affected by the proposed works.

Potential impacts considered included disturbance to roosting bats, where present, and disturbance or disruption of commuting and foraging activity associated with temporary works, including noise, vibration, lighting and the mobilisation and demobilisation of plant and equipment. Where potential impacts were identified, appropriate mitigation and/or recommendations for further survey and assessment have been provided.

2.5 SURVEY LIMITATIONS

The Preliminary Roost Assessment was undertaken from accessible areas of the study area, including from the quayside and by vessel where required. The assessment was non-destructive and was therefore limited to features that could be safely accessed and visually inspected. Concealed or inaccessible cavities, crevices and voids within structures could not be fully assessed. No access to the interiors of the buildings within the study area was available during the survey. Consequently, the assessment of these buildings was limited to an external inspection of accessible façades from ground level, supplemented by the use of a thermal imaging camera and endoscope where appropriate. The assessment was therefore limited to features that could be safely viewed or inspected from the available vantage points and concealed or inaccessible features could not be fully assessed for their potential to support roosting bats.

The emergence survey of the Potential Roost Feature identified on Rosie Hackett Bridge was undertaken under suitable weather conditions and during the appropriate survey period. Two nocturnal bat walkover surveys and one emergence survey were undertaken during September 2026. A data recording issue affected a portion of the acoustic data collected during the initial NBW on 21st September 2026, resulting in a reduction in the available dataset for that survey. An additional NBW survey was subsequently undertaken on 25th September 2026 to supplement the available dataset and provide additional survey effort.

The surveys were undertaken within a highly urbanised environment with substantial anthropogenic background noise associated with road traffic and public transport infrastructure, including the Luas and DART. High levels of background noise have the potential to interfere with the detection and identification of bat echolocation calls and may affect the performance of automated species identification. This was addressed through manual review of recordings identified by the automated analysis, with recordings considered to represent anthropogenic noise, or where bat species identification could not be reliably confirmed, excluded from the final dataset. Nevertheless, the high level of background noise remains a limitation when interpreting the acoustic data, particularly where it may obscure or alter characteristics of bat calls.

The survey results represent bat activity during the dates and conditions under which the surveys were undertaken and should therefore be considered in the context of the natural temporal and seasonal variation in bat activity. The surveys were undertaken in late September within the window for bat surveys although towards the end of the main bat activity season (Figure 2.2).

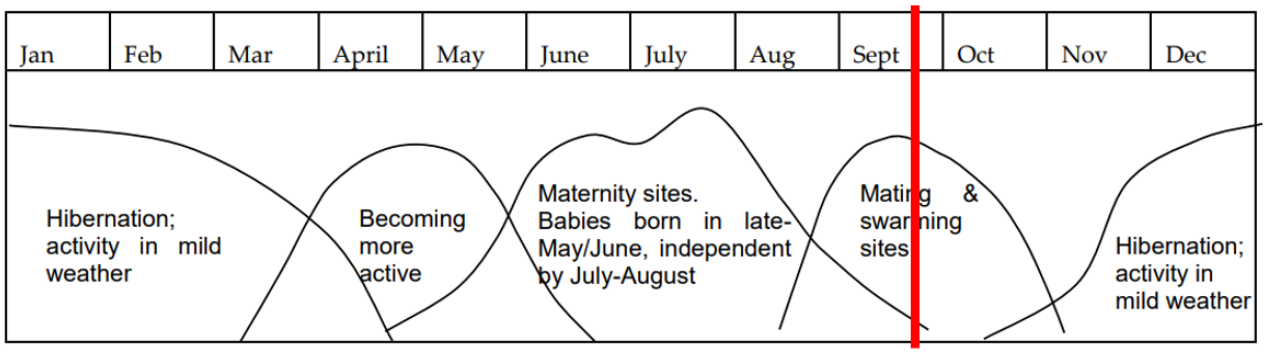


Figure 2.1: The bat year. Although there are species-specific differences, the bat year can be divided into the two major phases of breeding and hibernation, with other activities interspersed (Marnell, F., Kelleher, C. & Mullen, E. (2022)).

3 RESULTS

3.1 DESKTOP SURVEY

A desktop review of available ecological information was undertaken to identify records of bat species within the wider study area and to inform the assessment of the suitability of the study area for bats. Bat records were reviewed using data available from the National Biodiversity Data Centre (NBDC) and other relevant publicly available sources. The NBDC Species Maps and Model of Bat Landscapes were consulted to identify recorded bat species and the relative suitability of the surrounding landscape for bats.

The study area is located within NBDC 2 km grid squares O13S and O13M. Records available for the wider area indicate the presence of several bat species, including:

- Common Pipistrelle (*Pipistrellus pipistrellus*)
- Leisler's Bat (*Nyctalus leisleri*)
- Nathusius Pipistrelle (*Pipistrellus nathusii*)
- Soprano Pipistrelle (Pipistrellus pygmaeus)

The NBDC Model of Bat Landscapes assigns an overall suitability index of 18.33 to the relevant area. Species-specific suitability values are presented in Table 3.1.

The desktop review indicates that bats are present within the wider landscape and that the study area has the potential to support bat activity. The River Liffey, bridges, quay walls and associated structures provide potential commuting, foraging and roosting opportunities for bats. Species-specific scores are provided in Table 3.1 and Figures 3.2 to 3.10.

Table 3.1:Suitability of the study area for the bat species according to 'Model of Bat Landscapes for Ireland' (Lundy et al. 2011).

Species	Suitability Index
All Bats	18.33
Soprano pipistrelle (*Pipistrellus pygmaeus)*	33
Brown Long-eared bat *(Plecotus auritus)*	23
Common pipistrelle (*Pipistrellus pipistrellus)*	31
Lesser horseshoe bat (*Rhinolophus hipposideros)*	0
Leisler's *(Nyctalus leisleri)*	37
Whiskered bat (*Myotis mystacinus)*	13
Daubenton's bat (*Myotis daubentonii)*	11
Nathusius pipistrelle *(Pipistrellus nathusii)*	10
Natterer's bat (*Myotis nattereri)*	7

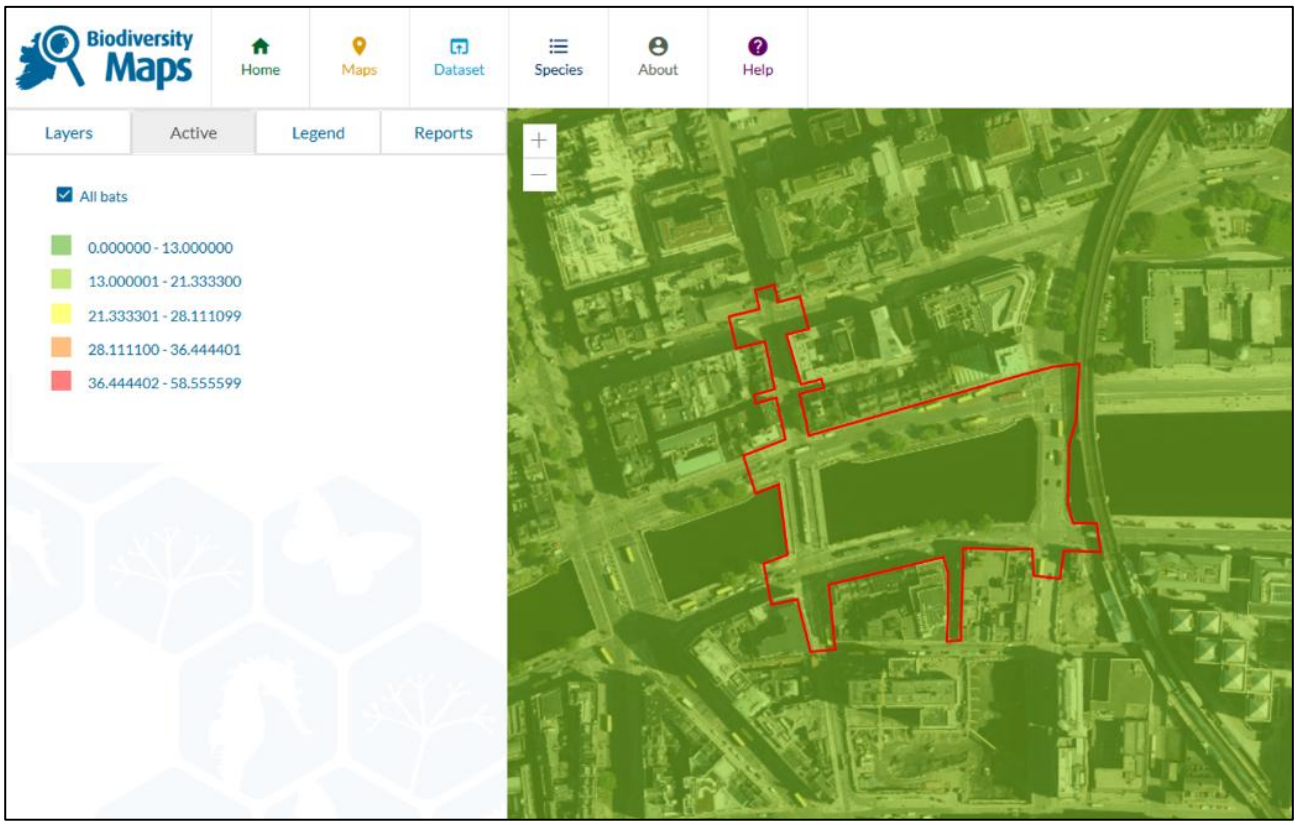


Figure 3.1: :Suitability index for all bats in the site and surrounding areas, site boundary shown in red (NBDC, 2026).

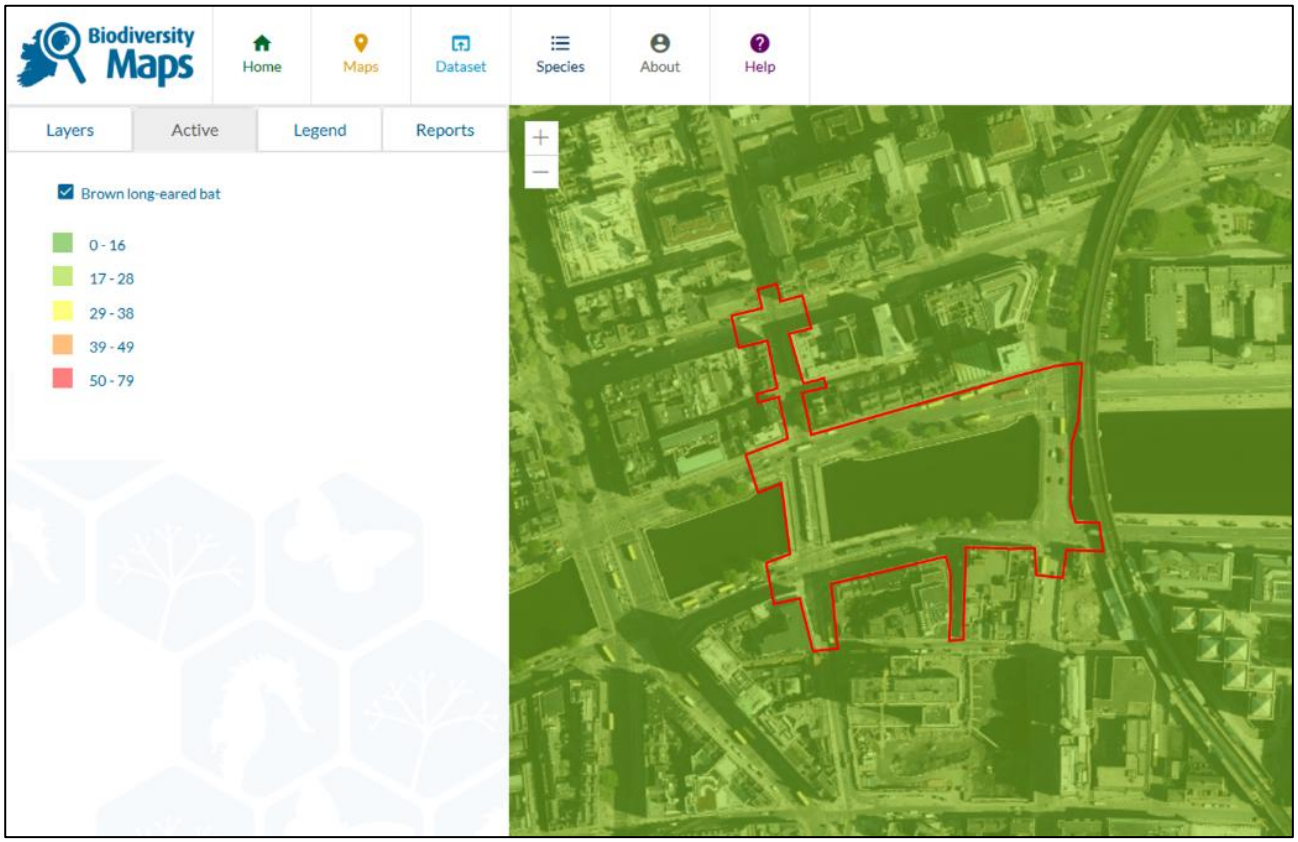


Figure 3.2: Suitability index for Brown long-eared bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

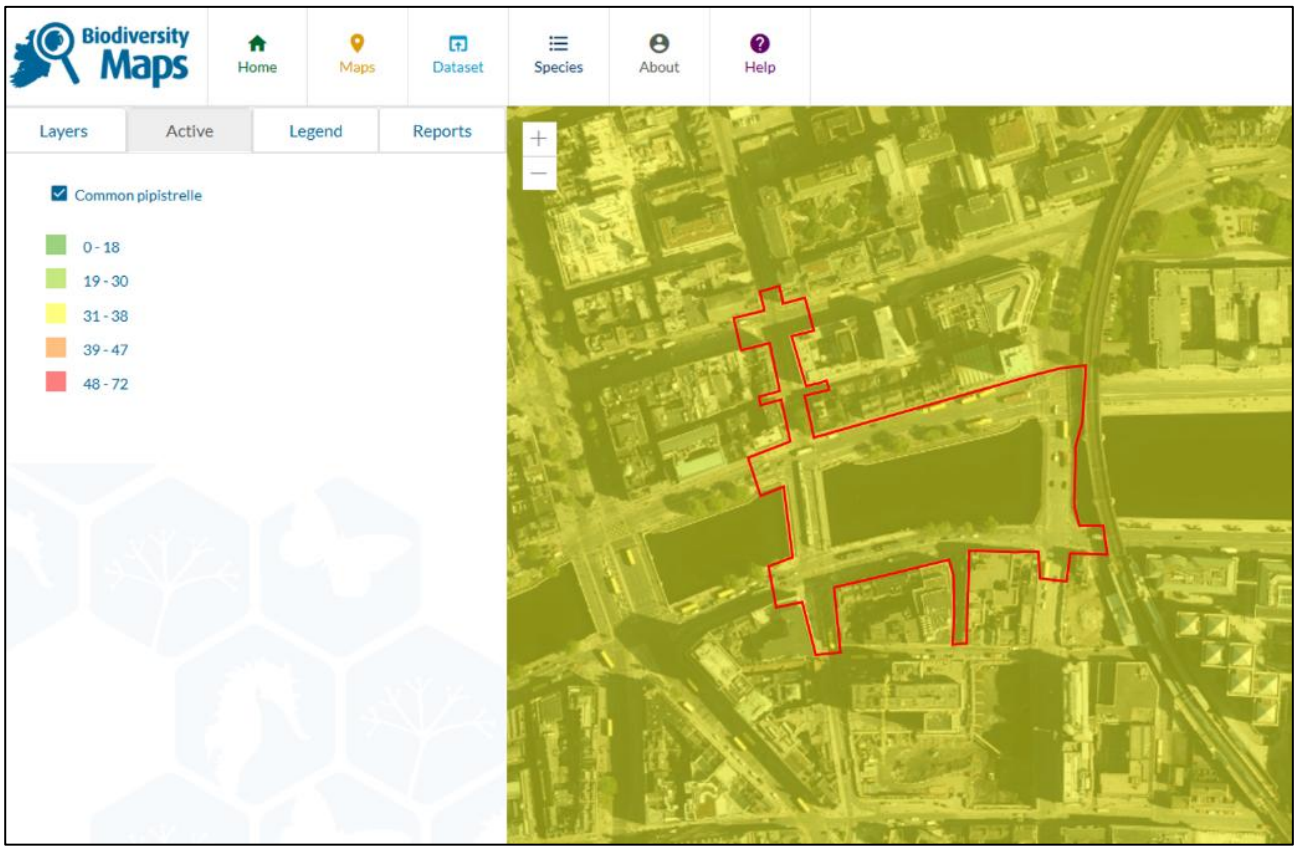


Figure 3.3: Suitability index for Common pipistrelle in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

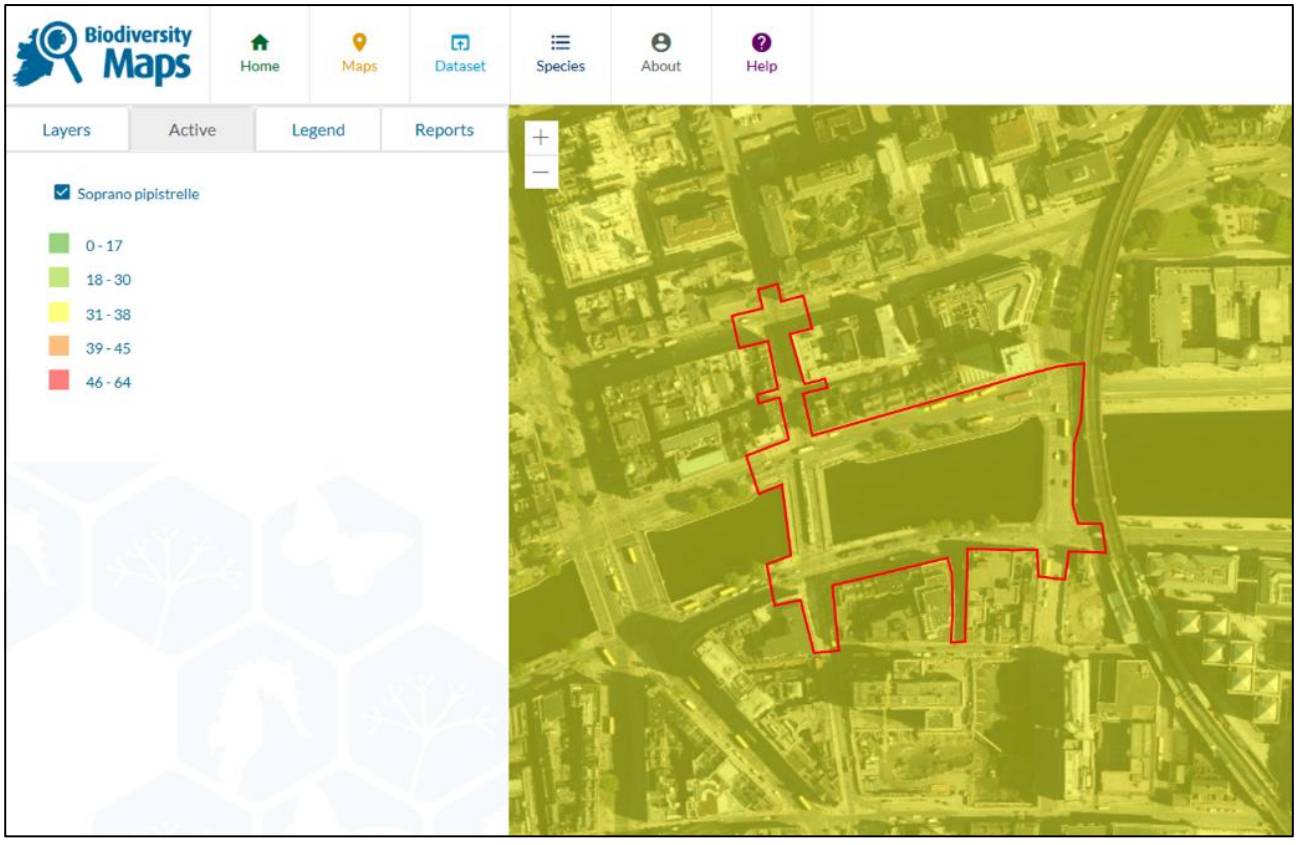


Figure 3.4: Suitability index for Soprano pipistrelle in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

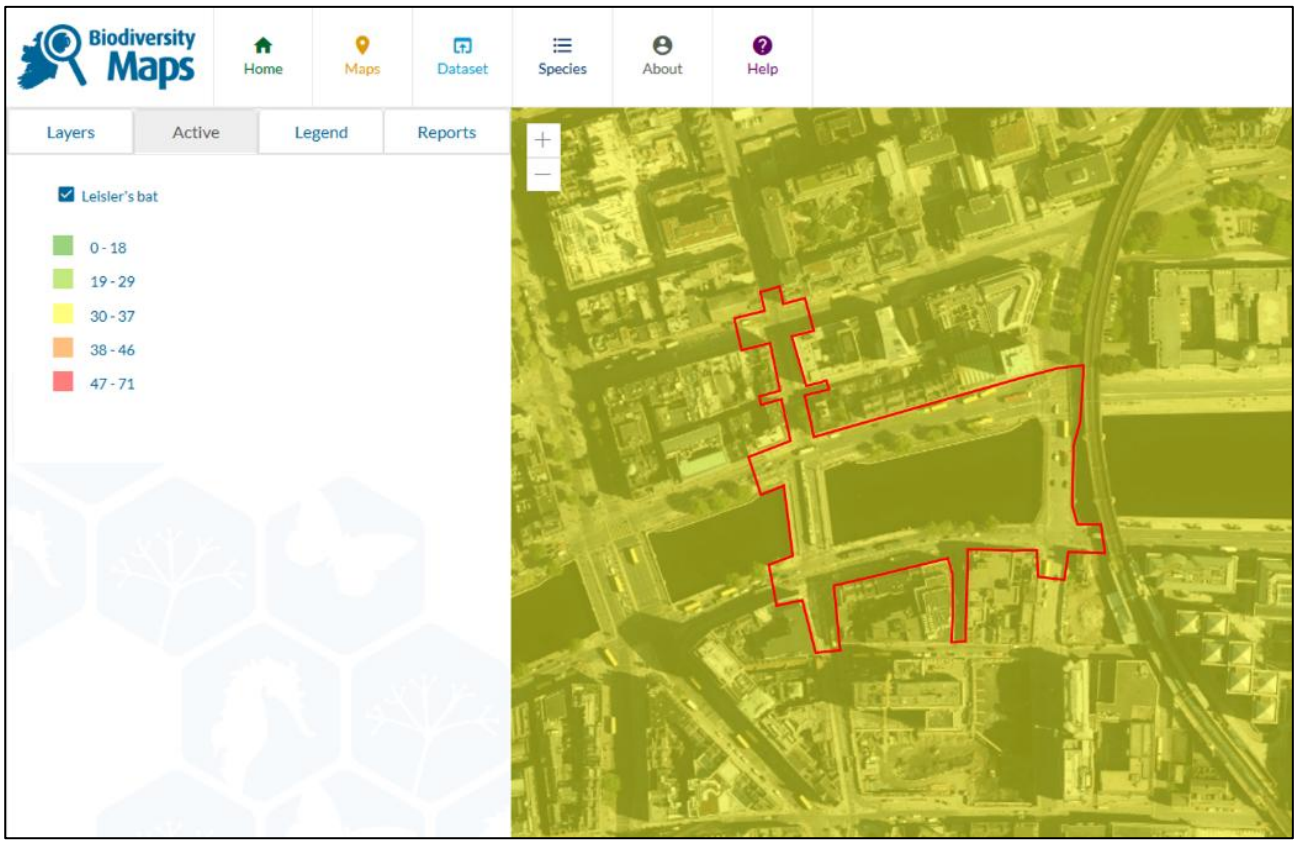


Figure 3.5: Suitability index for Leisler's Bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

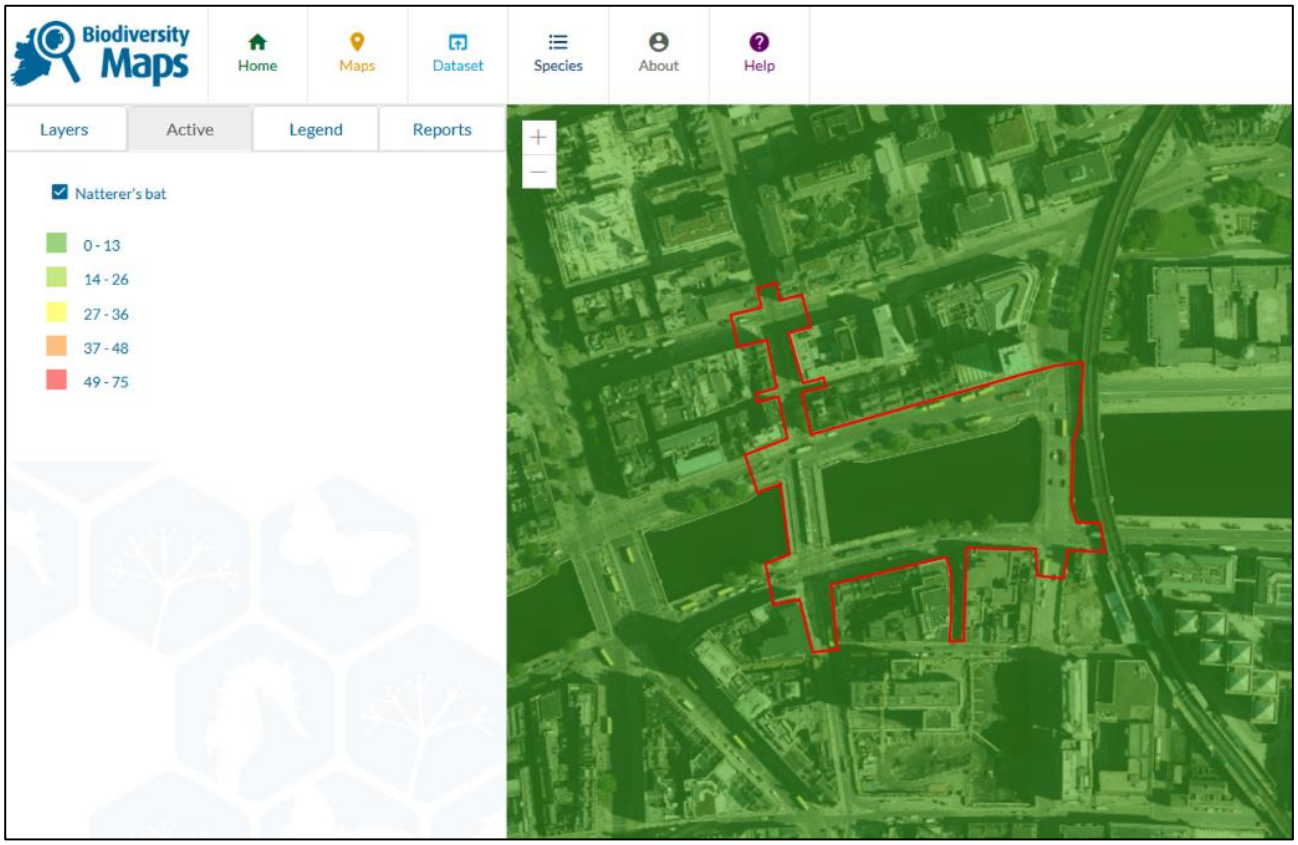


Figure 3.6: Suitability index for Natterer's bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

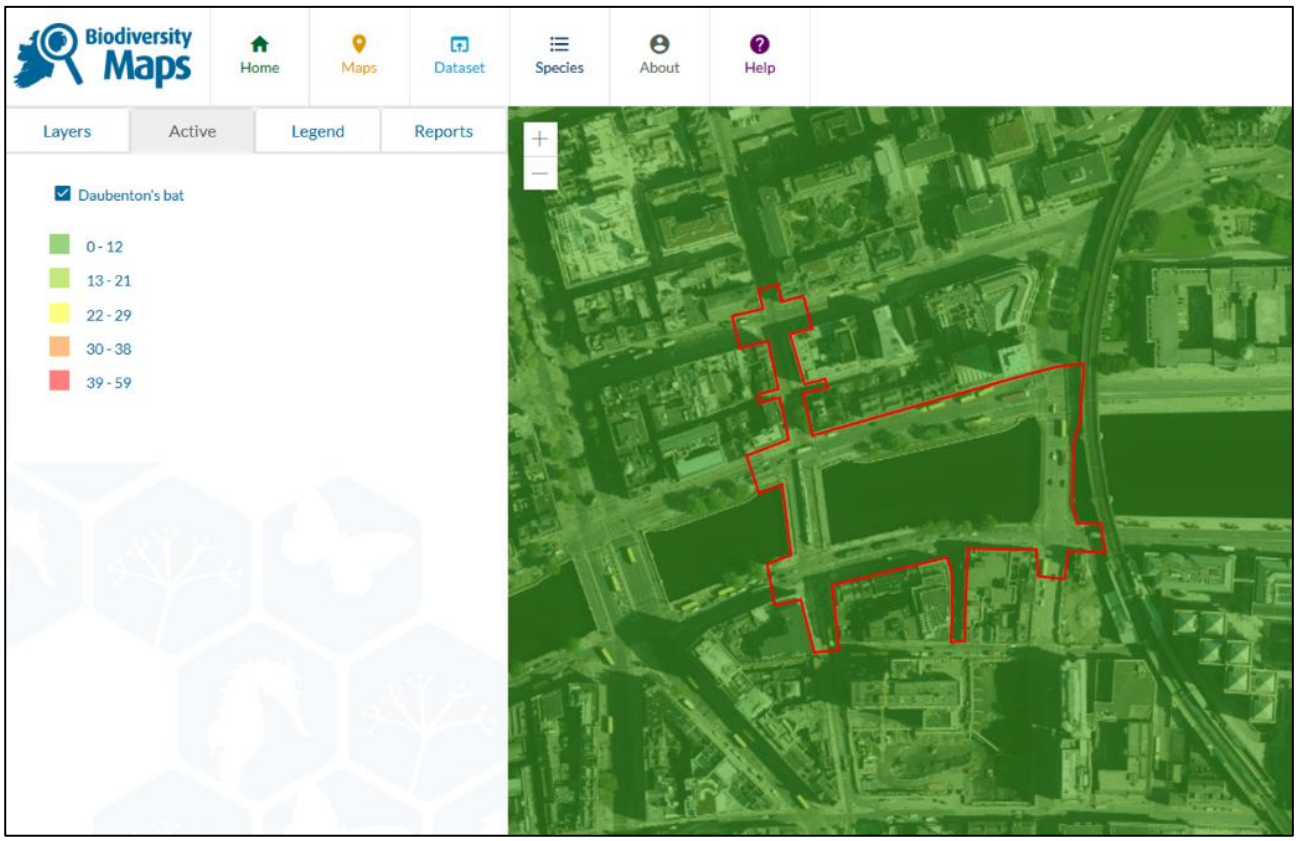


Figure 3.7: Suitability index for Daubenton's bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

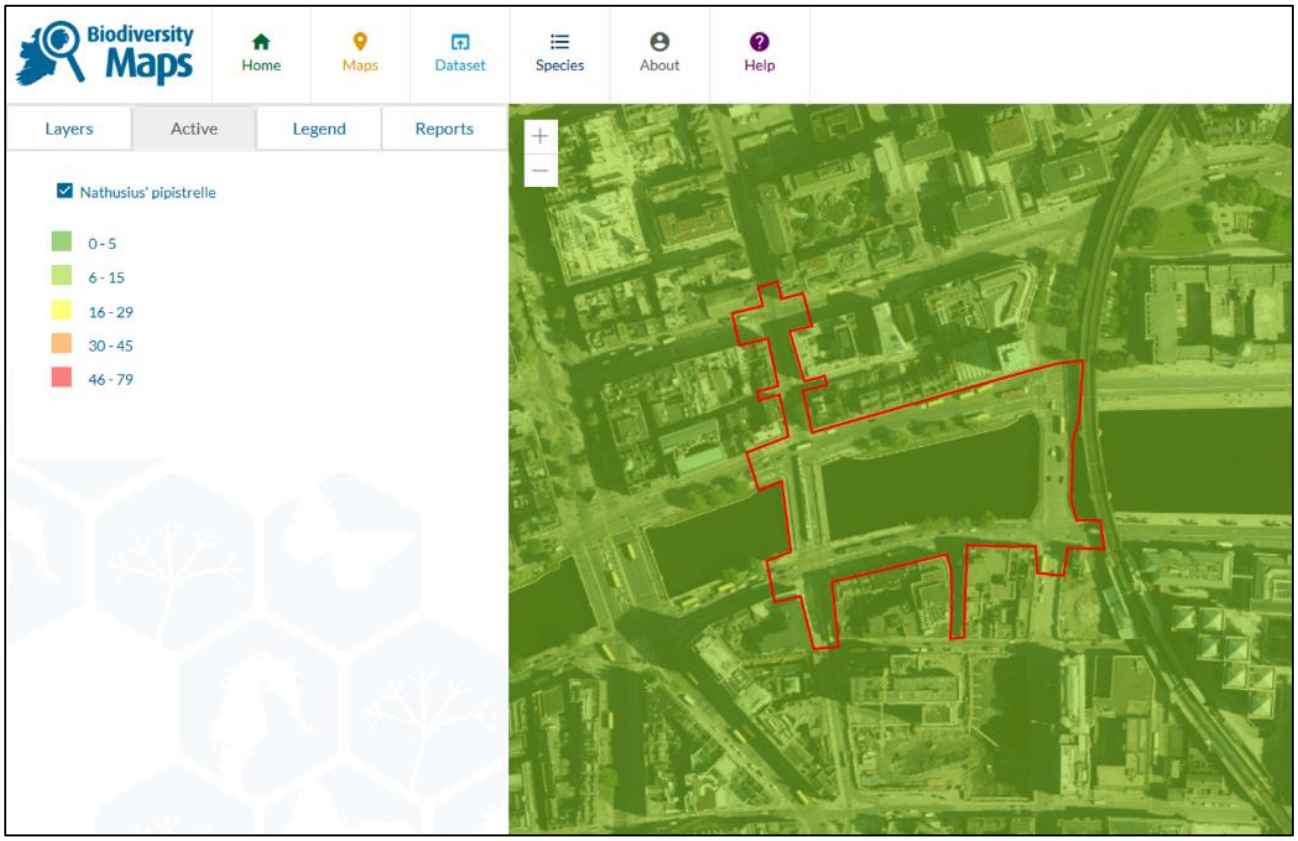


Figure 3.8: Suitability index for Nathusius' pipistrelle in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

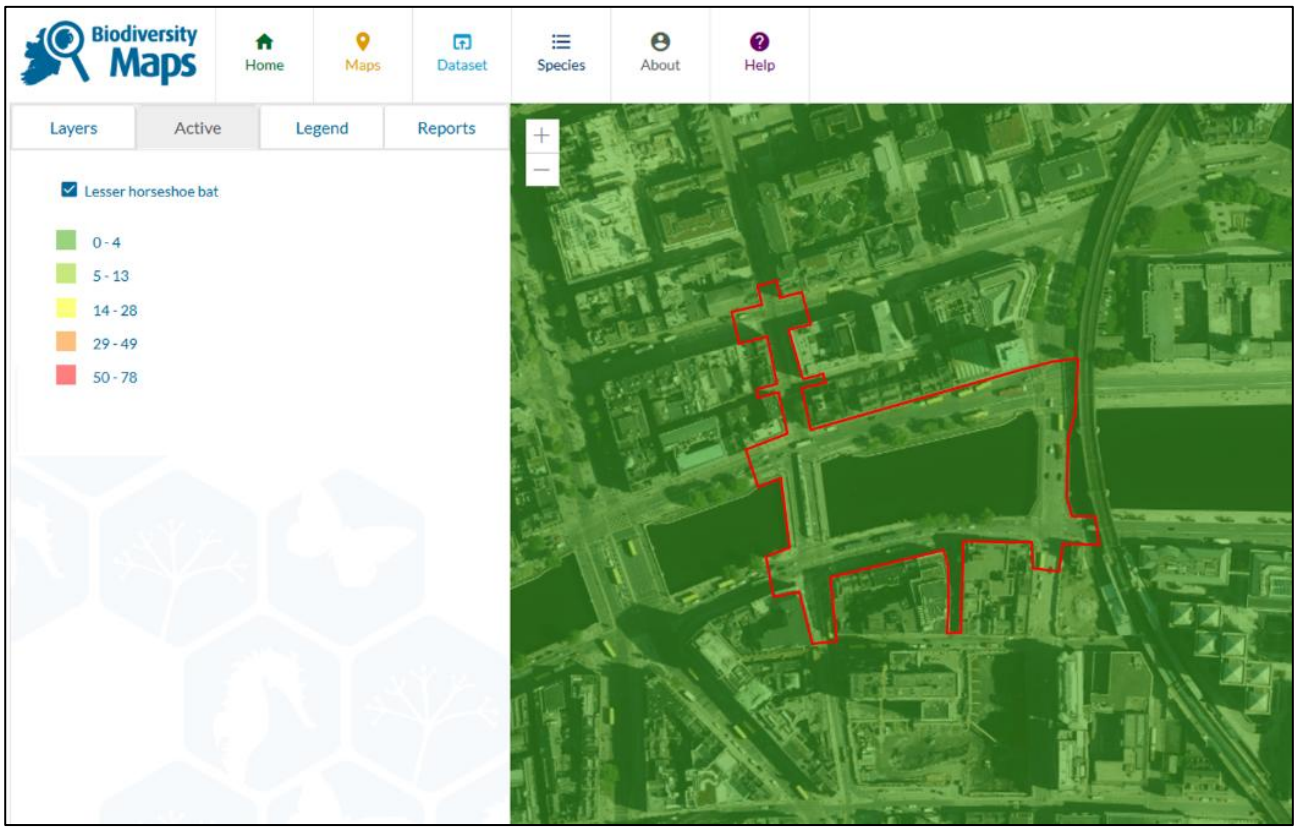


Figure 3.9: Suitability index for Lesser Horseshoe bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

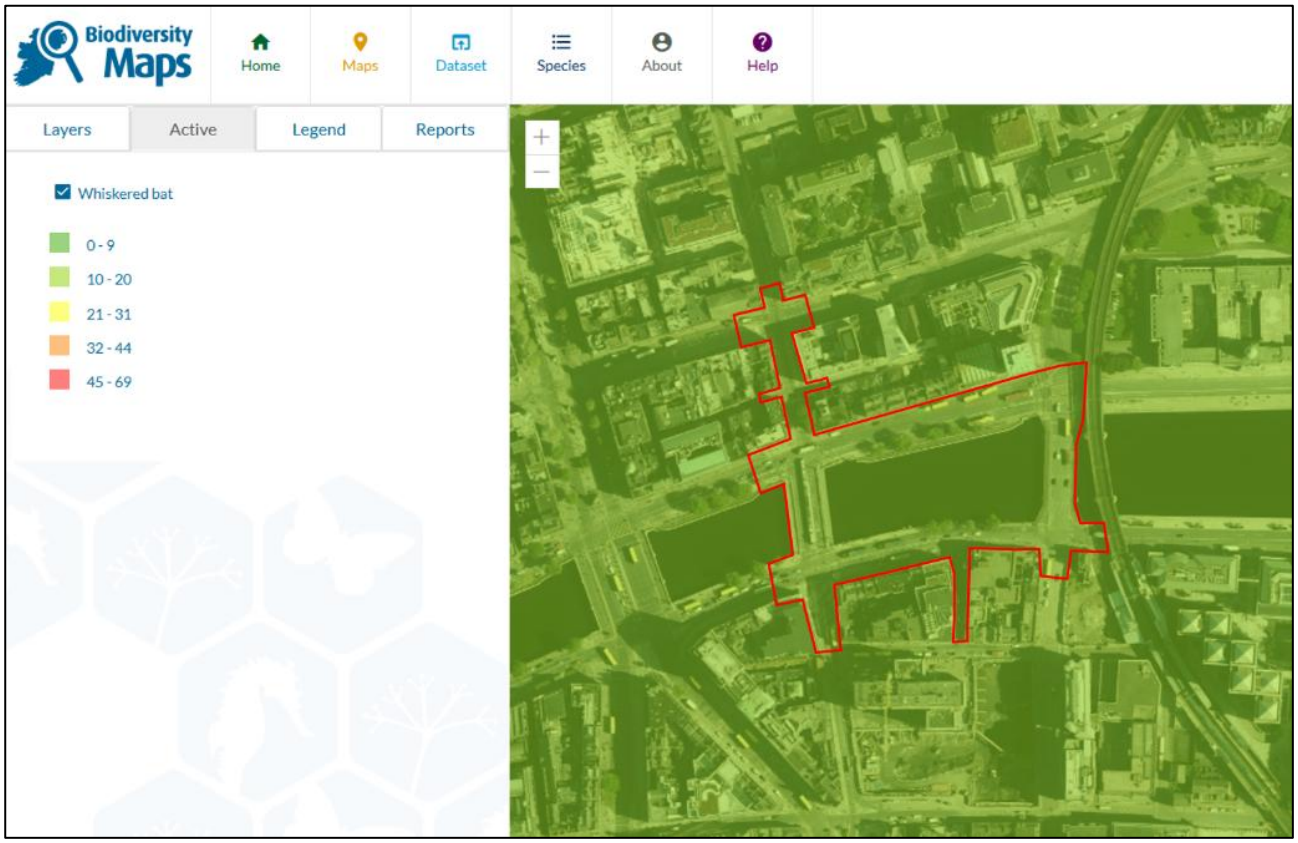


Figure 3.10: Suitability index for Whiskered bat in the site and surrounding areas site location. Site boundary shown in red (NBDC, 2026).

3.2 PRELIMINARY ROOST ASSESSMENT

A Preliminary Roost Assessment (PRA) of terrestrial structures within the study area was undertaken on 21st September 2026 by OCSC Ecologists Eoin Toomey BA and Torchia McQuaid BSc. The assessment focused on identifying Potential Roost Features (PRFs) that could provide suitable roosting opportunities for bats and identifying any evidence of current or historic bat use.

A boat-based PRA of Butt Bridge and Rosie Hackett Bridge was subsequently undertaken on 23rd September 2026 by Eoin Toomey BA and Eadaoin Butler BSc. The boat-based assessment allowed the river-facing elevations and structural features of the bridges to be inspected for potential roosting opportunities and evidence of bat use.

Butt Bridge was assessed as having negligible suitability for roosting bats. No suitable PRFs or evidence of current or historic bat use, including droppings, staining or other signs of roosting, were identified during the assessment. Although a number of gaps and crevices were present within the bridge structure, several features contained intact spider webs, indicating that these features were not regularly accessed by bats. A channel was also present perpendicular to the roadway beneath the main arch barrel of Butt Bridge. While the channel provided sufficient depth and structural shelter to potentially accommodate a bat roost, the feature was persistently damp, with continuous water seepage/dripping evident from the structure above. Small stalactite-like deposits were also present within the channel. The persistent moisture and wet conditions within the feature are considered unsuitable for roosting bats. Consequently, this feature was not considered to represent a suitable PRF.

No evidence of current or historic bat use was identified on Rosie Hackett Bridge. A number of gaps and crevices were present within the bridge structure, these features contained intact spider webs, indicating that they were not regularly accessed by bats. However, a moderate-sized gap was identified at the southwest corner of the bridge, where the bridge structure meets the adjoining wall. This feature was considered to provide some potential for use by roosting bats and Rosie Hackett Bridge was therefore assessed as having low suitability for roosting bats.

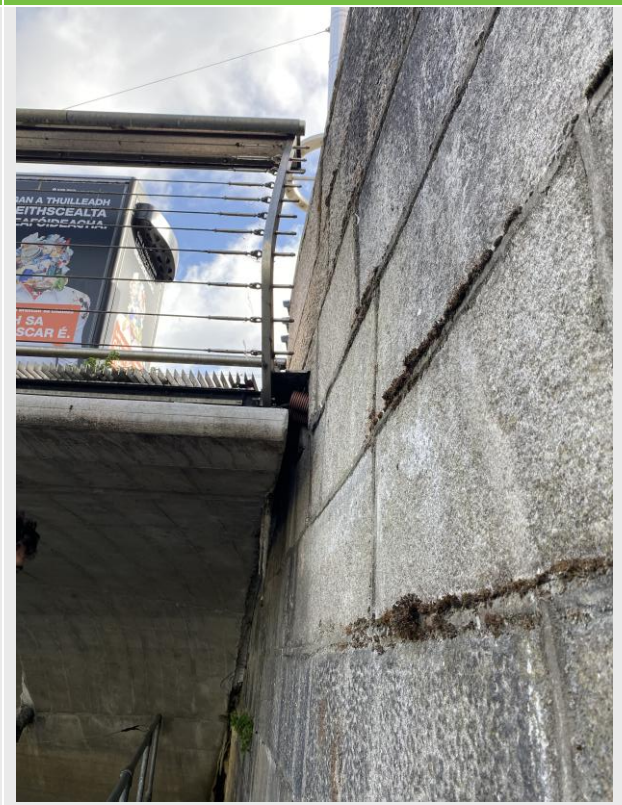
An emergence survey of the identified PRF on Rosie Hackett Bridge was undertaken on the evening of 23rd September 2026 by Eoin Toomey BA and Torchia McQuaid BSc. No bats were observed emerging from the feature during the survey. A low level of bat activity was recorded in the vicinity of the bridge.

The results of the PRA are presented in Table 3.2, with the results of the emergence and nocturnal bat activity surveys presented in Section 3.3.

Table 3.2: Preliminary Roost Features (PRFs) of interest identified on site.

Structure	Description & Location	Suitability	Photo
Bridge	Moderate sized gap with potential to support bat roosting on the southwest corner of Rosie Hackett bridge where it meets the wall 53.34740743, -6.257494289	Low	 

Structure	Description & Location	Suitability	Photo
			 

3.3 BAT ACTIVITY SURVEY

The results of the nocturnal bat walkover (NBW) surveys and emergence survey are presented below. During the NBW surveys undertaken on 21st and 25th of September 2026, low levels of bat activity were recorded within the study area.

During the emergence survey undertaken on 23rd of September 2026 at the identified PRF on Rosie Hackett Bridge, no bats were observed emerging from the feature. A low level of bat activity was recorded in the vicinity of the bridge during the survey.

The results of the two NBW surveys and the emergence survey are presented below. A total of 1,493 acoustic recordings were obtained during the survey effort, of which 51 were confirmed bat passes/encounters. These comprised three species: Leisler's bat (*Nyctalus leisleri*), Common pipistrelle (*Pipistrellus pipistrellus*) and Soprano pipistrelle (*Pipistrellus pygmaeus*). These species are common and widespread in Ireland.

The results of the acoustic analysis are presented in Table 3.3. The locations of recorded bat encounters are presented in Figure 3.11-14, with representative sonograms provided in Figures 3.15-17. Results of the data collected during the surveys is included in Table 3.3.

The maps used below are from Google Earth, and mapping is facilitated by the Echo Meter Touch 2 PRO App. supplied by Wildlife Acoustics.

Table 3.3: Results of the analysis of data from the survey effort.

Date	Time	Latitude	Longitude	Species ID (Auto ID/manual verification)
21/09/2026	19:33:05	53.34753	-6.25441	*Leisler's bat (Nyctalus leisleri)*
21/09/2026	19:38:25	53.34839	-6.25255	*Leisler's bat (Nyctalus leisleri)*
21/09/2026	19:42:22	53.34838	-6.25491	*Common pipistrelle (Pipistrellus pipistrellus)*
21/09/2026	19:51:15	53.34816	-6.25482	*Common pipistrelle (Pipistrellus pipistrellus)*
21/09/2026	19:52:09	53.34763	-6.25491	*Common pipistrelle (Pipistrellus pipistrellus)*
21/09/2026	20:18:07	53.3474	-6.2519	*Soprano pipistrelle (Pipistrellus pygmaeus)*
21/09/2026	20:19:29	53.3482	-6.25208	*Leisler's bat (Nyctalus leisleri)*
21/09/2026	20:29:35	53.34835	-6.25488	*Soprano pipistrelle (Pipistrellus pygmaeus)*
21/09/2026	20:36:12	53.34798	-6.25486	*Leisler's bat (Nyctalus leisleri)*
21/09/2026	20:38:01	53.34806	-6.25477	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	19:30:13	53.34813	-6.25467	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	19:34:37	53.34789	-6.25732	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	19:45:06	53.34736	-6.25759	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:00:07	53.3474	-6.25749	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:03:09	53.34742	-6.25753	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:05:25	53.34736	-6.25748	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:05:30	53.34736	-6.25748	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:09:53	53.34732	-6.25749	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:10:17	53.34732	-6.25749	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:10:36	53.34732	-6.25749	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:10:41	53.34732	-6.25749	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:12:03	53.34732	-6.25749	*Common pipistrelle (Pipistrellus pipistrellus)*

23/09/2026	20:20:36	53.34738	-6.25479	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:21:06	53.34736	-6.25753	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:21:18	53.34747	-6.25474	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	20:23:24	53.34812	-6.25506	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:25:33	53.34734	-6.25755	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:27:05	53.34849	-6.2551	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:32:43	53.34798	-6.25753	*Soprano pipistrelle (Pipistrellus pygmaeus)*
23/09/2026	20:40:48	53.34743	-6.25527	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:52:51	53.34735	-6.25748	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	20:53:57	53.34798	-6.25714	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	21:02:32	53.34755	-6.25518	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	21:05:51	53.3471	-6.2551	*Common pipistrelle (Pipistrellus pipistrellus)*
23/09/2026	21:06:22	53.34737	-6.25499	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	21:06:49	53.34752	-6.25748	*Leisler's bat (Nyctalus leisleri)*
23/09/2026	21:06:55	53.34744	-6.25489	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	19:39:08	53.34781	-6.25512	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	19:45:14	53.34781	-6.25512	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	19:48:08	53.34781	-6.25512	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	19:49:53	53.34822	-6.25519	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	19:54:19	53.34874	-6.25769	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	20:08:01	53.34731	-6.25503	*Common pipistrelle (Pipistrellus pipistrellus)*
25/09/2026	20:09:13	53.34793	-6.25485	*Common pipistrelle (Pipistrellus pipistrellus)*
25/09/2026	20:19:01	53.34687	-6.25727	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	20:29:06	53.34681	-6.25525	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	20:29:28	53.34708	-6.25516	*Common pipistrelle (Pipistrellus pipistrellus)*
25/09/2026	20:29:59	53.34735	-6.25506	*Common pipistrelle (Pipistrellus pipistrellus)*
25/09/2026	20:40:46	53.34859	-6.25772	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	20:44:20	53.34734	-6.25743	*Leisler's bat (Nyctalus leisleri)*
25/09/2026	20:48:28	53.34753	-6.25622	*Leisler's bat (Nyctalus leisleri)*

Table 3.4: Legend for bat species encountered on site.

Bat Species	Pin Colour
Leisler's bat (*Nyctalus leisleri*)	Green
Common pipistrelle (*Pipistrellus pipistrellus*)	Red
Soprano pipistrelle (*Pipistrellus pygmaeus*)	Cyan

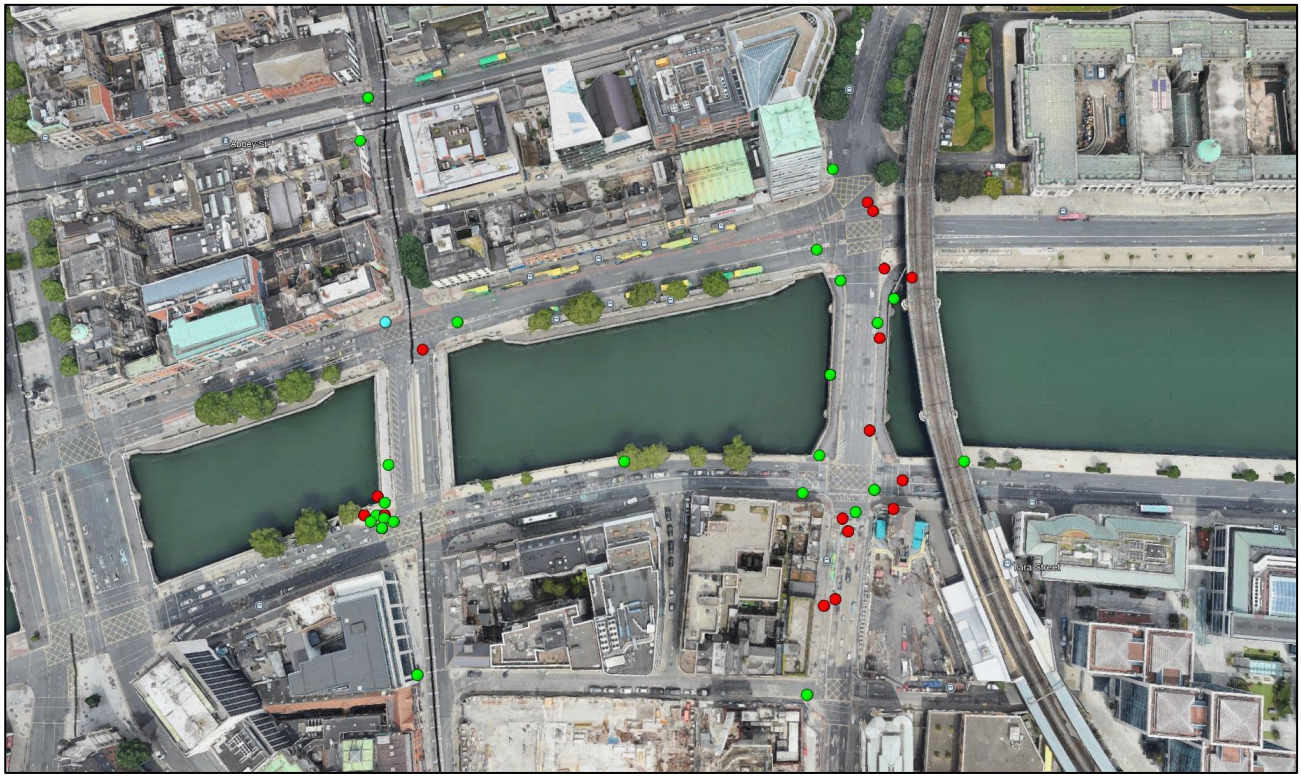


Figure 3.11: All bat encounters on site (Google Earth Pro 2026)

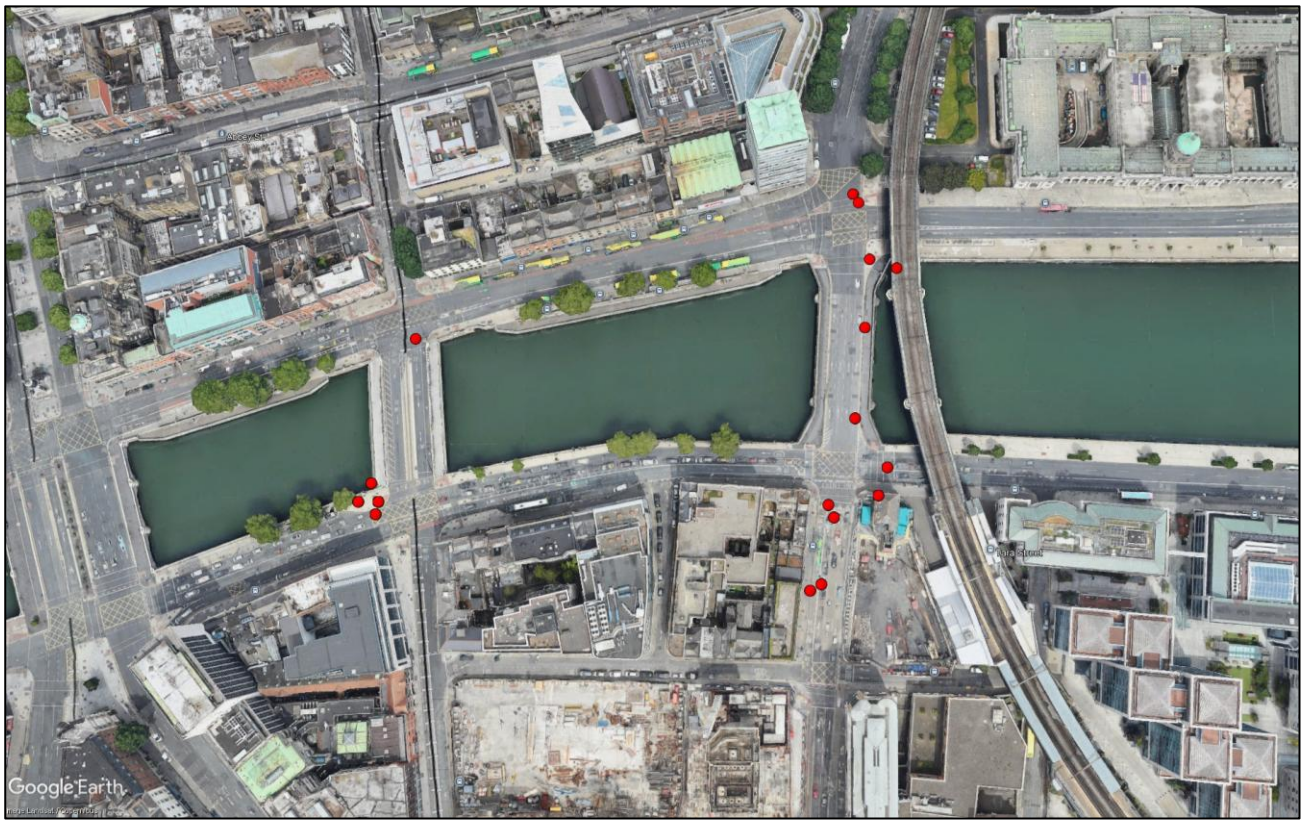


Figure 3.12: Common Pipistrelle encounters on site (Google Earth Pro 2026)

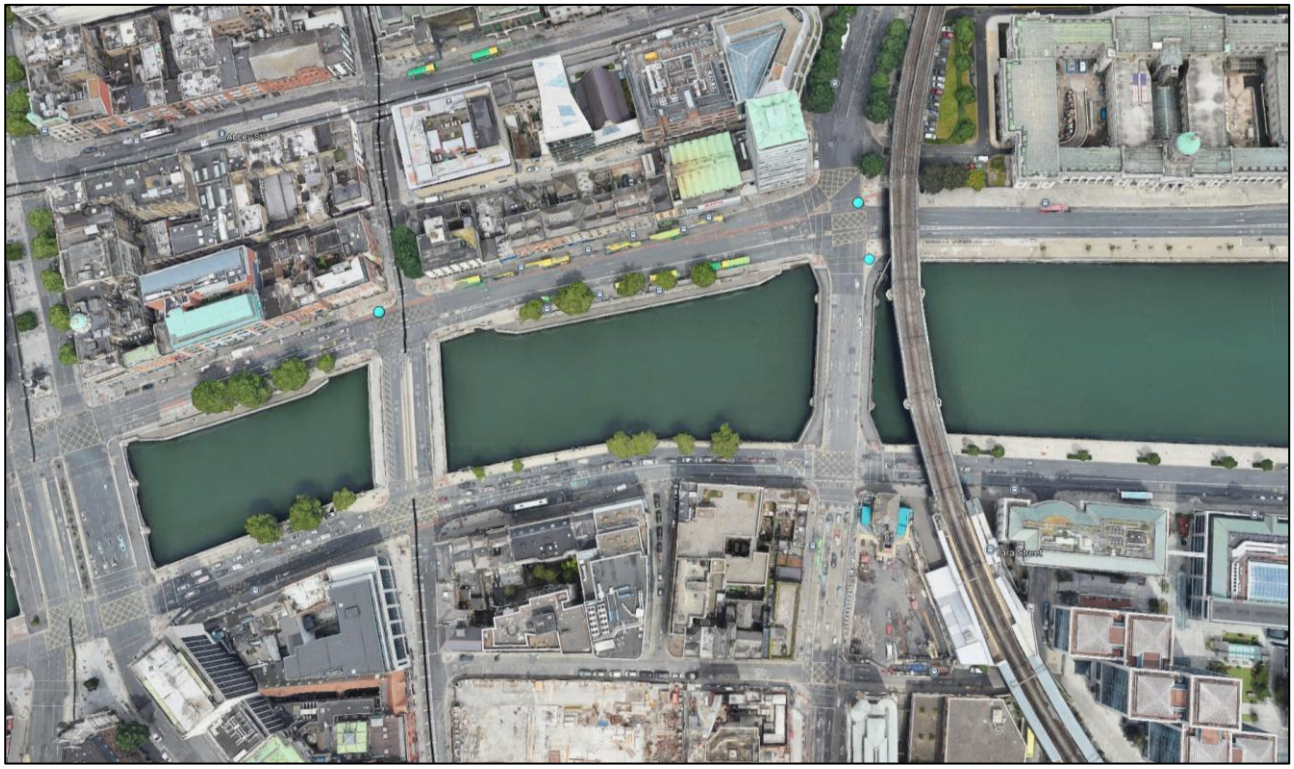


Figure 3.13: Soprano Pipistrelle encounters on site (Google Earth Pro 2026)

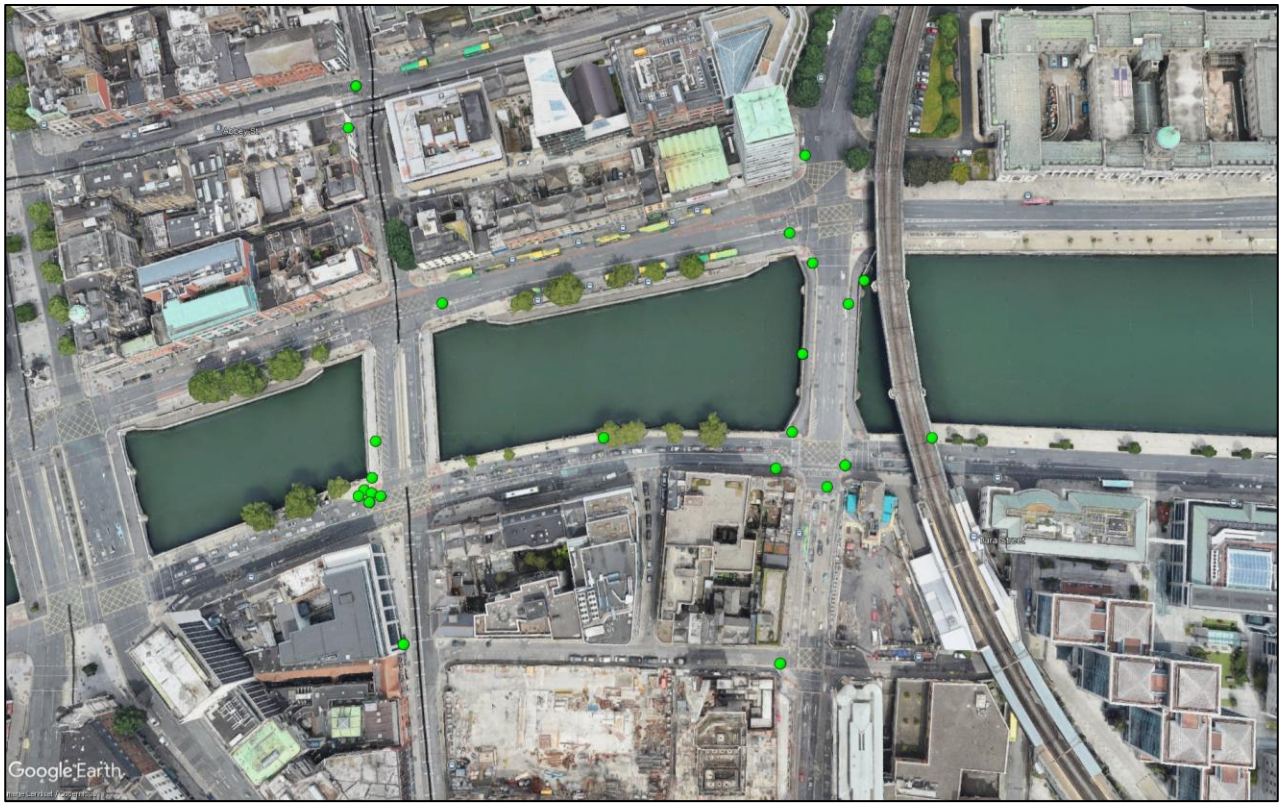


Figure 3.14: Leisler's bat encounters on site (Google Earth Pro 2026)

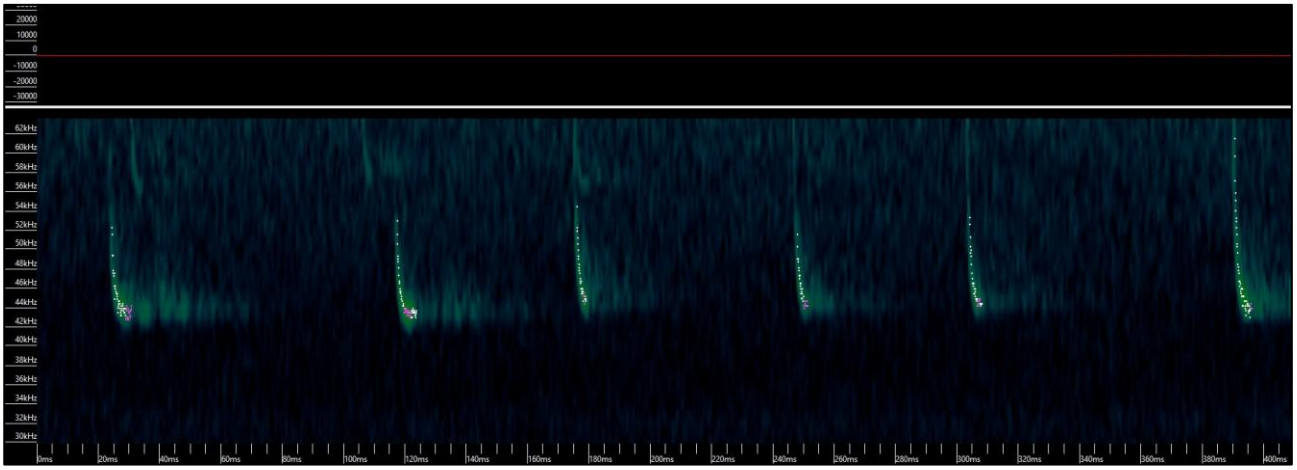


Figure 3.15: Common pipistrelle sonogram (Echo Meter Touch PRO 2)

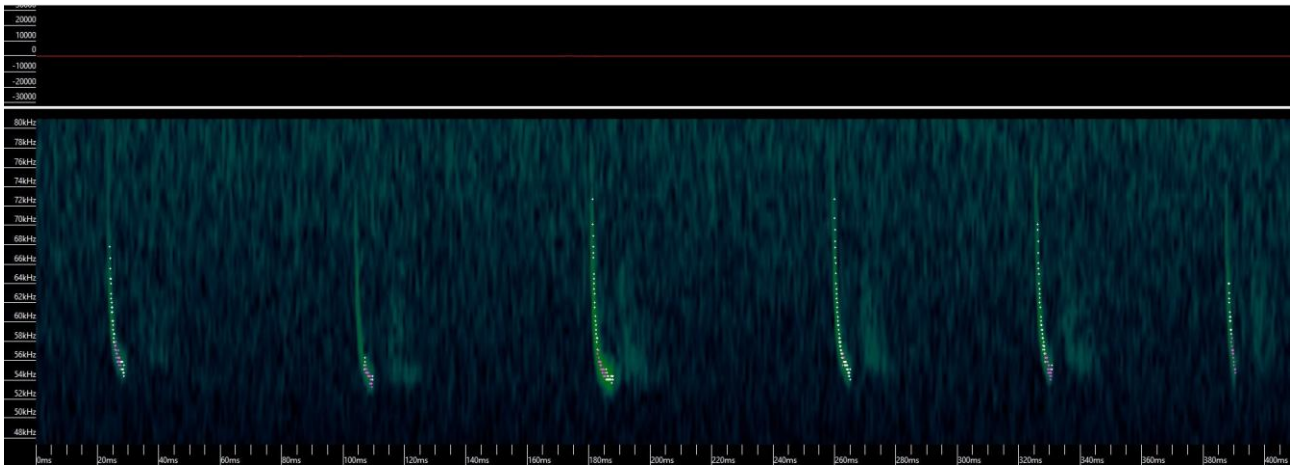


Figure 3.16: Soprano Pipistrelle (Echo Meter Touch PRO 2)

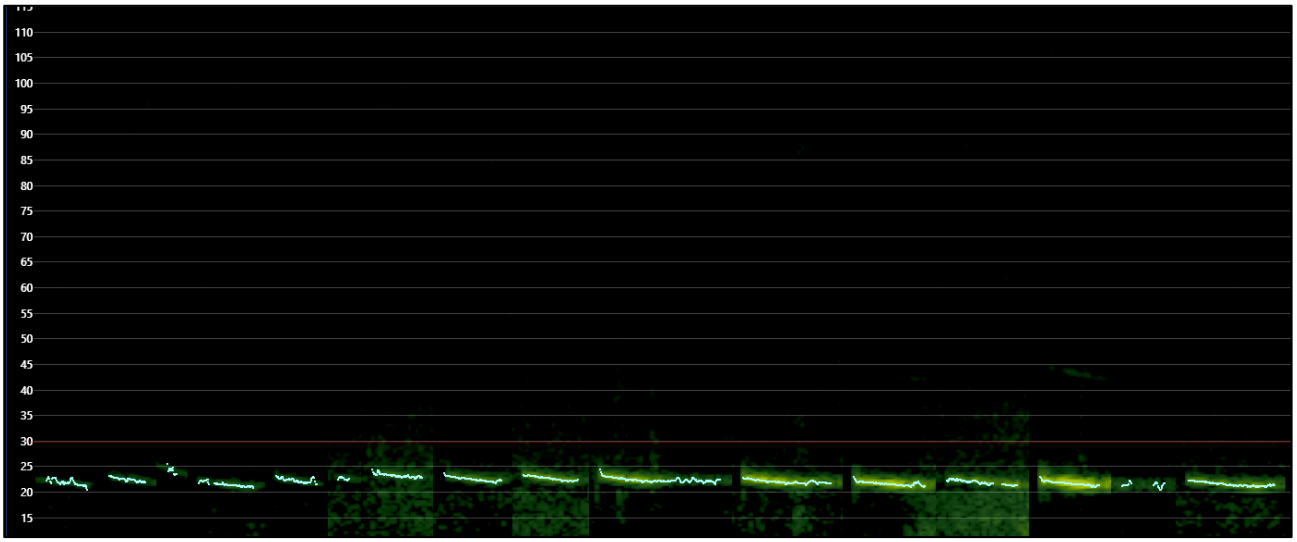


Figure 3.17: Leisler's bat sonogram (Echo Meter Touch PRO 2).

4 IMPACT ASSESSMENT AND MITIGATION

The potential impacts of the proposed works on bats have been assessed based on the findings of the desktop review, Preliminary Roost Assessment, emergence survey and nocturnal bat activity surveys.

All bat species occurring in Ireland are afforded legal protection under the Wildlife Act 1976, as amended, and the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Bats are also listed under Annex IV of the EU Habitats Directive and are subject to strict protection.

The PRA identified a single PRF with potential to support roosting bats, located at the southwest corner of Rosie Hackett Bridge. The feature was assessed as having low suitability for roosting bats. No bats were observed emerging from the feature during the emergence survey undertaken on 23rd of September 2026.

Bat activity recorded during the surveys was low and limited to three species Leisler's bat, Common pipistrelle and Soprano pipistrelle. The River Liffey and associated structures provide potential commuting and foraging habitat for bats. The principal potential pathways for effects on bats associated with the proposed works, although limited, may include disturbance arising from noise and vibration, temporary lighting, and the mobilisation and demobilisation of plant and equipment. The potential for direct impacts on roosting bats or community and foraging bats is considered low based on the findings of the PRA and emergence survey.

No bats were observed emerging from the identified PRF on Rosie Hackett Bridge during the emergence survey. Overall, 51No. confirmed bat passes/encounters were recorded during the survey effort, with the majority of recorded activity associated with the River Liffey and the vicinity of Butt Bridge.

Overall, there was a low level of bat activity on site, with the few bats recorded likely commuting through the site along the river. No evidence of an active bat roost was identified during the PRA or emergence survey, and no bats were observed emerging from the identified PRF on Rosie Hackett Bridge.

The following mitigation measures are recommended to minimise the potential for disturbance to bats during the proposed works.

4.1 MITIGATION MEASURES

The following mitigation measures are recommended to minimise the potential for disturbance to bats during the proposed site investigation works within the River Liffey. Although no evidence of an active bat roost was identified during the surveys, a Potential Roost Feature (PRF) was identified on Rosie Hackett Bridge. The measures below are intended to prevent physical disturbance to this feature and minimise potential disturbance to bats using the River Liffey and associated structures for roosting, commuting and foraging.

4.1.1 PROTECTION OF POTENTIAL ROOST FEATURES

A PRF was identified at the southwest corner of Rosie Hackett Bridge, where the bridge structure meets the adjoining wall. The feature was assessed as having low suitability for roosting bats. No bats were observed emerging from the feature during the emergence survey undertaken on 23 September 2026.

The following measures shall be implemented during the site investigation works:

- The identified PRF shall be retained undisturbed throughout the works. No drilling equipment, plant, vessels, temporary fixtures or other materials shall make contact with the feature or obstruct access to it.
- The contractor shall ensure that the location of the identified PRF is communicated to relevant site personnel before works commence. The feature should be clearly identified on the relevant environmental constraints drawings or site plans where practicable.
- Site investigation activities shall be planned and undertaken to avoid direct physical damage to the bridge structures and associated features that may provide opportunities for roosting bats.
- No works involving the drilling, breaking, removal, sealing or modification of bridge fabric shall be undertaken as part of the site investigation works unless separately assessed and appropriately authorised.
- Materials, equipment and temporary infrastructure shall not be stored or positioned against bridge structures in a manner that could obstruct potential bat access points.

4.1.2 NOISE AND VIBRATION

The site investigation works may generate temporary noise and vibration associated with drilling equipment, plant, vessels and associated activities. While the surveys recorded low levels of bat activity, measures shall be implemented to minimise unnecessary disturbance to bats that may use the river corridor or nearby structures. The following measures shall be implemented:

- Plant and equipment shall be maintained in good working order to minimise avoidable noise and vibration.
- Site investigation equipment shall be operated in accordance with the approved method statement and manufacturer's recommendations. Unnecessary idling of engines and the avoidable operation of noisy equipment shall be prohibited.
- Where practicable, the noisiest activities shall be scheduled during daylight hours to reduce the potential for disturbance to bats during their principal nocturnal activity period.
- Where works are required during dusk, darkness or dawn, the contractor shall minimise unnecessary noise and disturbance in the vicinity of the identified PRF and nearby bridge structures.
- Any changes to the proposed working methods that could result in substantially increased noise, vibration or direct interaction with bridge structures shall be reviewed by the project ecologist where there is potential for additional effects on bats.

4.1.3 LIGHTING

Artificial lighting can affect bat activity by illuminating potential roost features and commuting or foraging routes. The River Liffey and its associated structures may provide suitable commuting and foraging habitat for bats, and unnecessary illumination of the river corridor should therefore be avoided. Where artificial lighting is required during the site investigation works, the following measures shall be implemented:

- Works shall be undertaken during daylight hours where practicable, thereby reducing the requirement for temporary artificial lighting.
- Lighting shall be restricted to the minimum necessary to facilitate safe working and shall be directed towards the immediate work area.
- Lighting shall be positioned and angled to avoid direct illumination of the identified PRF on Rosie Hackett Bridge, the bridge structures, the river surface and the adjoining river corridor, where practicable.
- Light spill beyond the immediate work area shall be minimised through the use of directional lighting, appropriate positioning and shielding where required.
- Lighting shall be switched off when not required, subject to operational and health and safety requirements.
- Temporary lighting shall not be installed or directed in a manner that unnecessarily illuminates potential roost access points or creates a continuous illuminated barrier along the river corridor.

4.1.4 SITE AWARENESS

Relevant site personnel shall be made aware of the potential for bats to occur within bridge structures and other features in the vicinity of the site investigation works. The location of the identified PRF and the procedures to be followed if bats or evidence of roosting are encountered shall be communicated before works commence.

If a bat is observed emerging from, entering or occupying a structure, or if evidence suggestive of an active bat roost is discovered during the works, activities with the potential to disturb the bat or affect the feature shall cease in the immediate vicinity. The affected area shall be left undisturbed and a suitably qualified ecologist shall be contacted to assess the situation and advise on the appropriate course of action. Works affecting the relevant feature shall not resume until the ecologist has advised that it is appropriate to do so and any necessary permissions or licences have been confirmed. Bats shall not be handled, captured or deliberately disturbed by site personnel. Any unexpected discovery of bats or evidence of roosting shall be recorded and communicated to the project team and the relevant environmental representative.

5 SURVEY CONCLUSIONS

A Preliminary Roost Assessment (PRA), emergence survey and nocturnal bat activity surveys were undertaken in September 2026 to assess the potential for bats to roost within bridge structures, quay walls, and to determine the level and nature of bat activity within the study area in relation to the MetroLink project.

The PRA identified a single Potential Roost Feature (PRF) at the southwest corner of Rosie Hackett Bridge, where a gap is present between the bridge structure and adjoining wall. This feature was assessed as having low suitability for roosting bats. Butt Bridge was assessed as having negligible suitability for roosting bats, with no suitable PRFs or evidence of bat use identified.

An emergence survey of the identified PRF on Rosie Hackett Bridge was undertaken on 23rd of September 2026. No bats were observed emerging from the feature during the survey.

A total of 51 confirmed bat passes/encounters were recorded during the survey effort, comprising Leisler's bat (*Nyctalus leisleri*), common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*). Overall, bat activity within the study area was low, with most recorded activity associated with the River Liffey and surrounding structures.

The proposed site investigation works have the potential to cause temporary disturbance to bats through noise, vibration and artificial lighting, particularly where activities occur in the vicinity of bridge structures or the identified PRF. The potential for direct effects on roosting bats is considered low, provided that the identified PRF and surrounding bridge structures remain undisturbed.

Mitigation measures have therefore been recommended to protect the identified PRF, minimise unnecessary noise and vibration, control artificial lighting and establish appropriate procedures should bats or evidence of an active roost be encountered during the works. Relevant mitigation shall be incorporated into the site-specific method statement and environmental management procedures and communicated to site personnel before works commence.

Provided that the recommended mitigation measures are implemented, the site investigation works are considered unlikely to result in significant adverse effects on bats. Should bats or evidence of an active roost be identified during the works, activities with the potential to cause disturbance shall cease in the immediate vicinity and a suitably qualified ecologist shall be consulted before the affected activities resume.

6 REFERENCES

CIEEM (2018, updated 2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester, UK.

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

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, as amended.

Marnell, F., Kelleher, C. & Mullen, E. (2022) Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

Lundy, M.G., Aughney, T., Montgomery, W.I. & Roche, N. (2011). Landscape Conservation for Irish Bats & Species-Specific Roosting Characteristics. Bat Conservation Ireland.

Marnell, F., Kelleher, C. & Mullen, E. (2022). *Bat Mitigation Guidelines for Ireland v2*. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.

National Biodiversity Data Centre (2026). *Biodiversity Maps: Model of Bat Landscapes for Ireland*. National Biodiversity Data Centre, Waterford, Ireland. Available at: Biodiversity Maps.

National Roads Authority (2006). *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes*. National Roads Authority, Dublin, Ireland.

NRA (National Roads Authority, now TII). (2009). Guidelines for Assessment of Ecological Impacts of National Roads Schemes. Revision 2, 1st June 2009. NRA, Dublin.

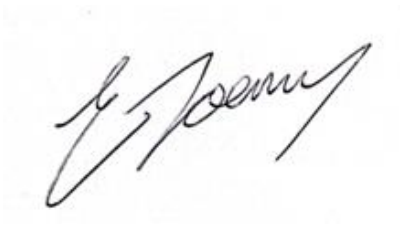
Wildlife Act 1976 (No. 39 of 1976), as amended.

Wildlife (Amendment) Act 2000 (No. 38 of 2000), as amended.

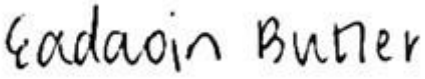
European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), as amended.

7 VERIFICATION

This report was compiled by OCSC Ecologists Éadaoin Butler BSc, MCIEEM, Eoin Toomey BA and assisted by Áine Cogan; reviewed by Rebecca Duane BSc, MCIEEM, Ecologist; and approved by Eleanor Burke, BSc, MSc, DAS, MIEnvSc, CSci, OCSC Director (Environmental).



Eoin Toomey BA
Ecologist
O'Connor Sutton Cronin & Associates



Éadaoin Butler BSc
Ecologist
O'Connor Sutton Cronin & Associates

OCSC
O'CONNOR · SUTTON · CRONIN
MULTIDISCIPLINARY CONSULTING ENGINEERS

APPENDIX A:

SURVEY PHOTOGRAPHS

Photos of the buildings and structures along Marlborough Street, Eden Quay, Burgh Quay, Hawkins Street, Tara Street and George's Quay.







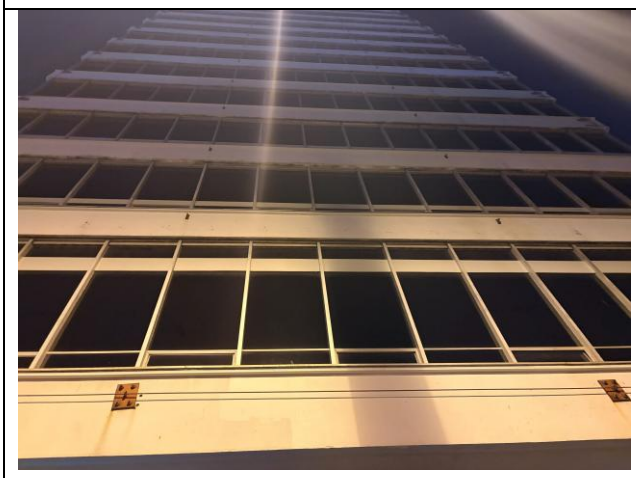






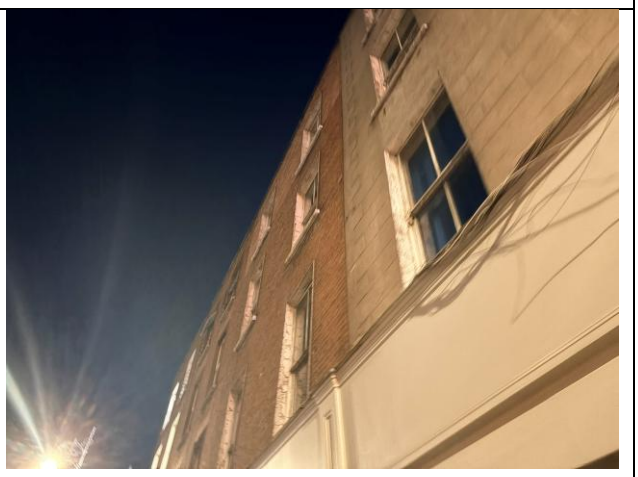









ONAN'S
COFFEE
SANDWICHES




NATIONAL THEATRE OF IRELAND





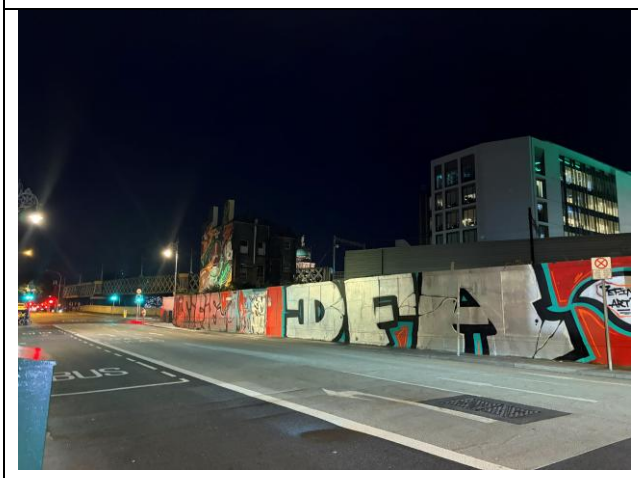

Norths
FOR SALE





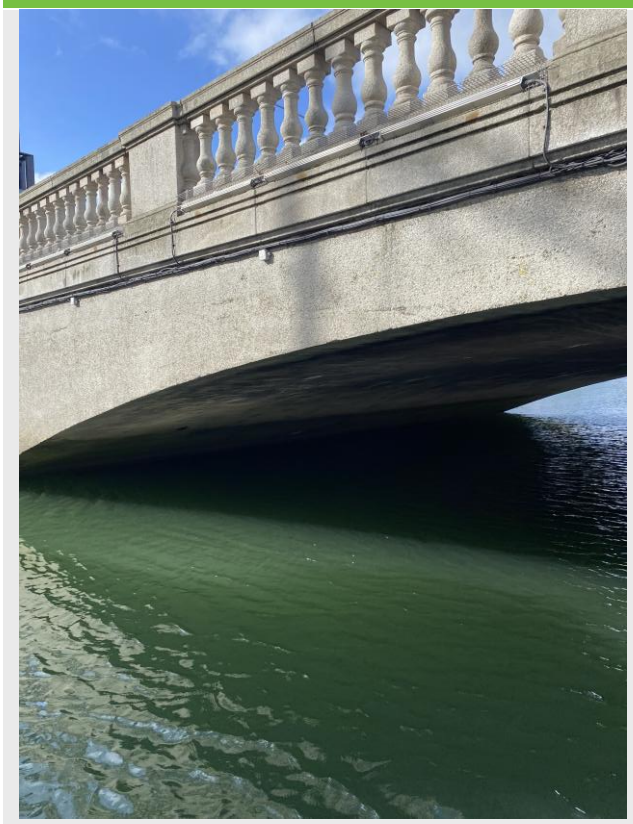


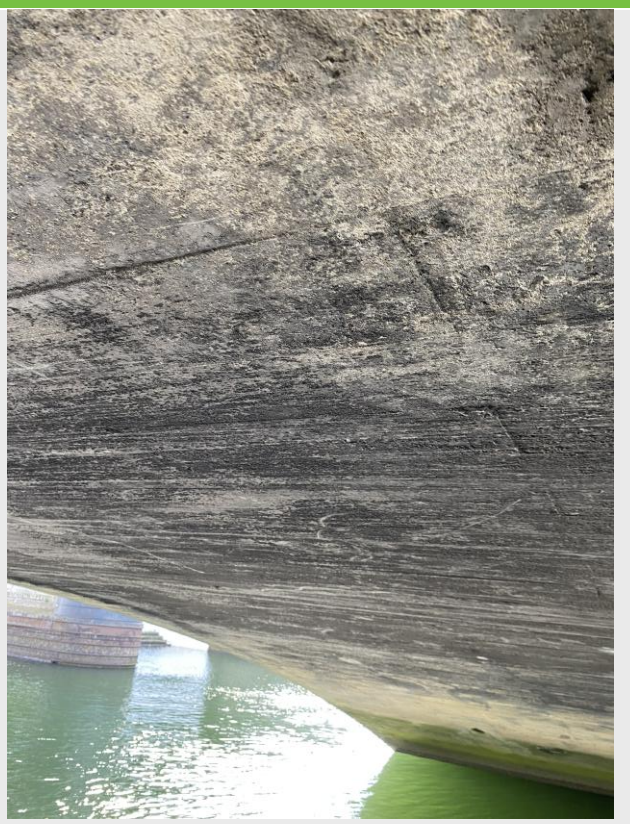


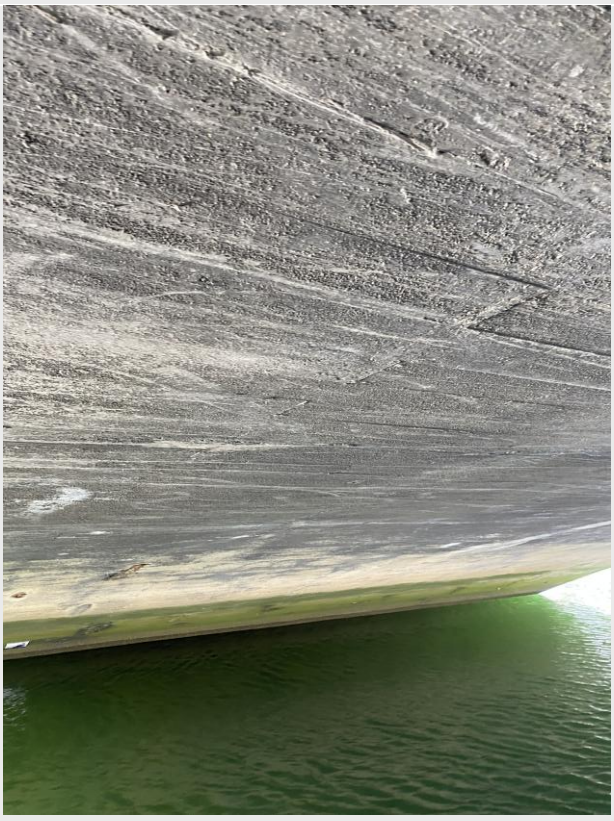


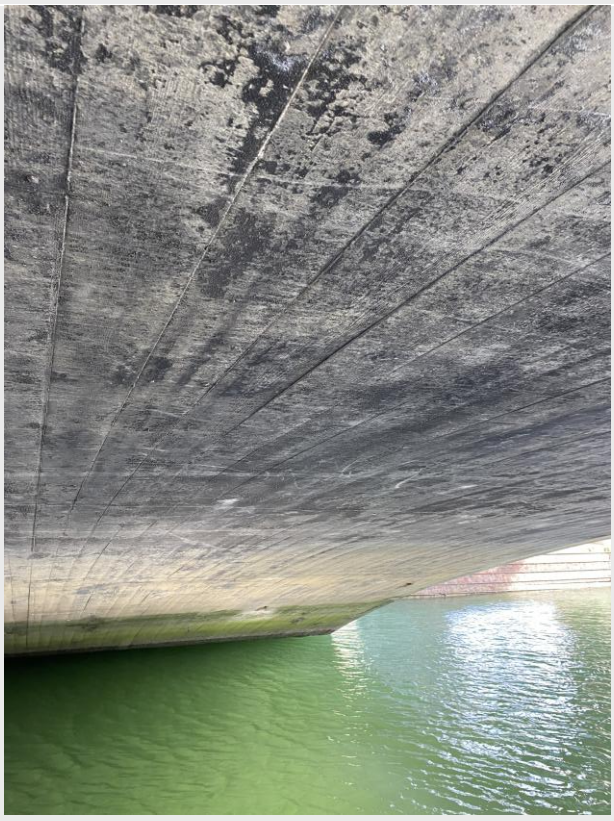

es Don't Have To Feel Like Offices

Photos of Butt Bridge including abutment, arch barrels and spandrels.









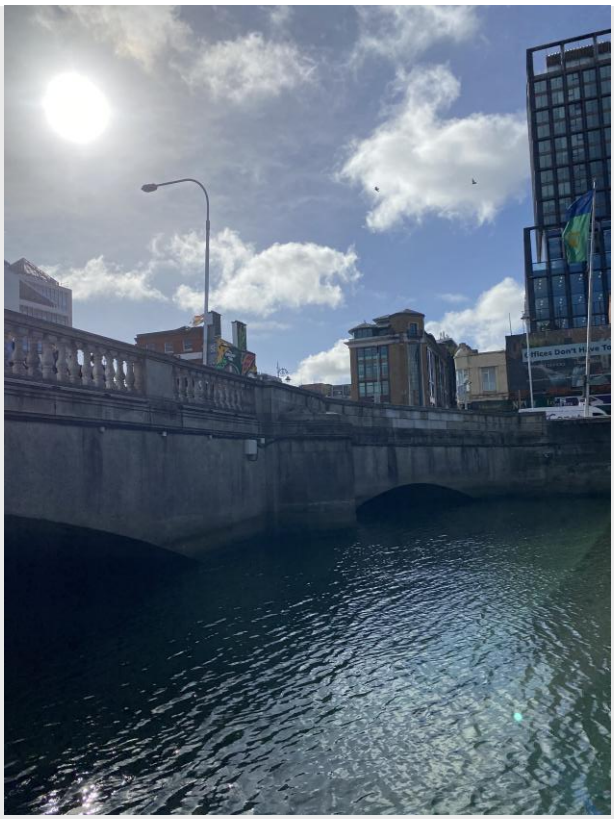




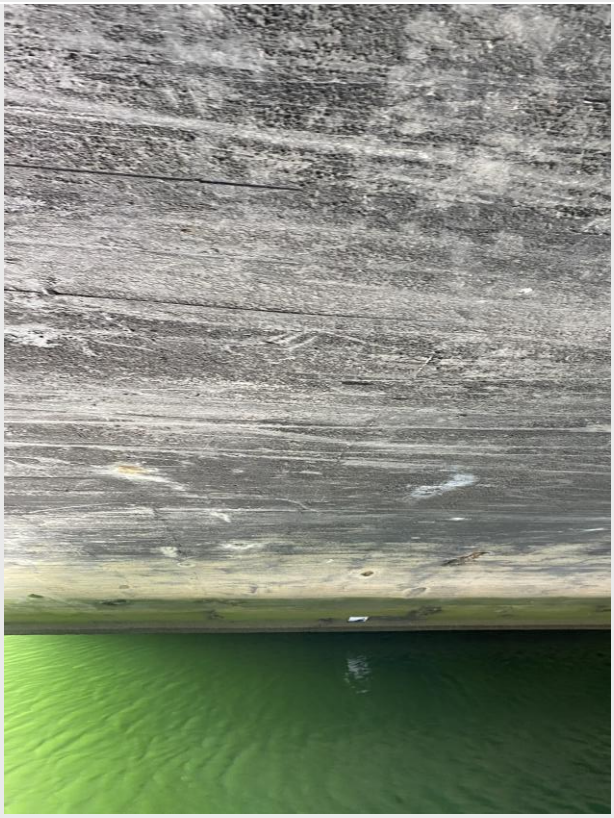


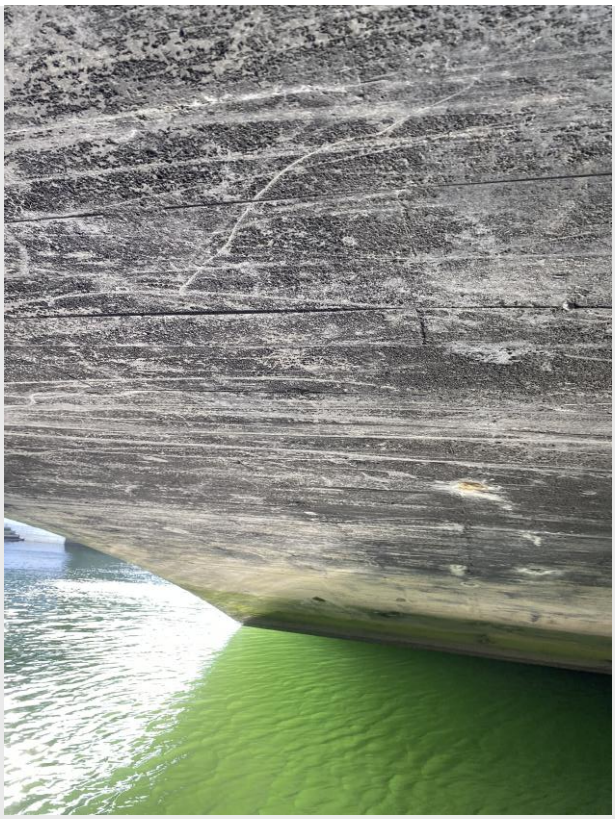


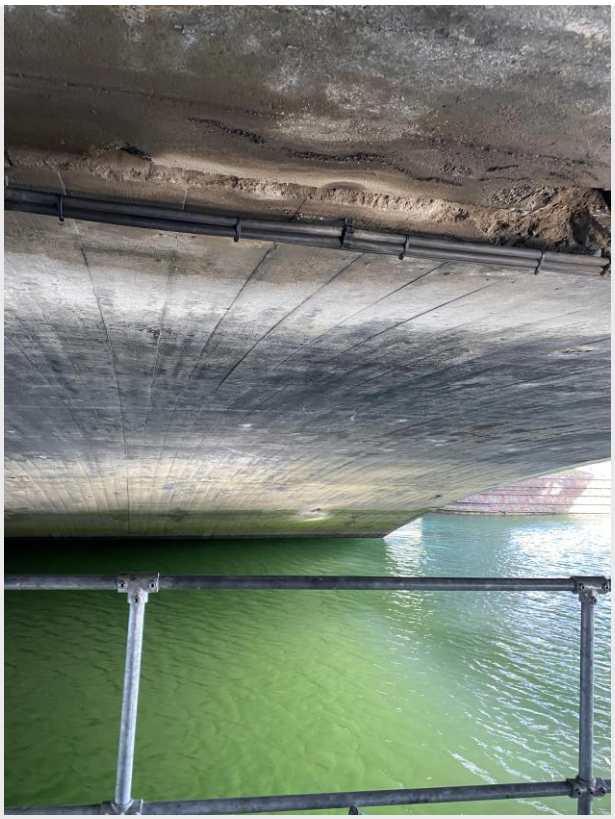






























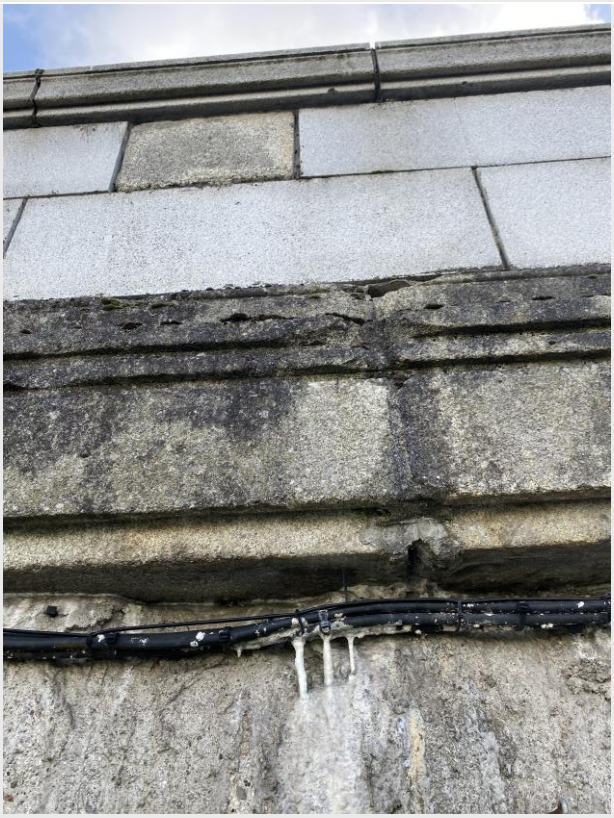




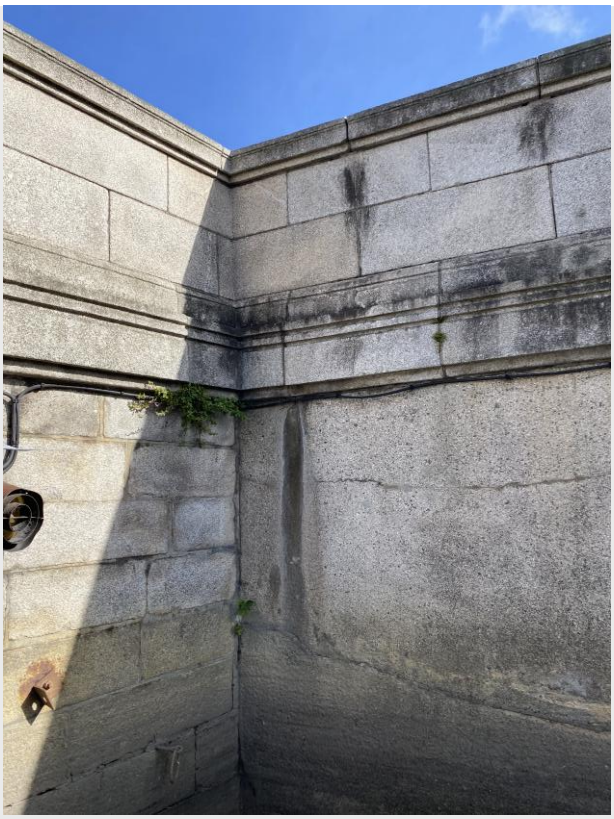




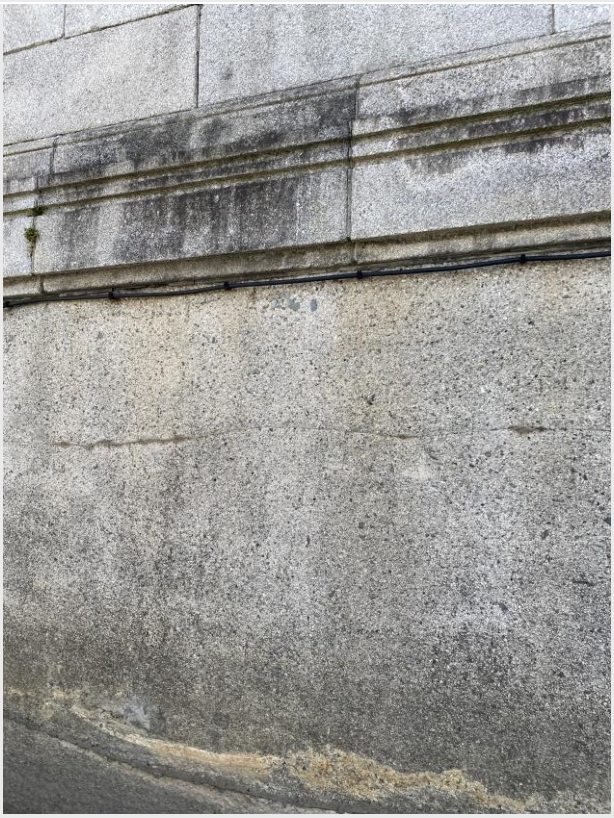


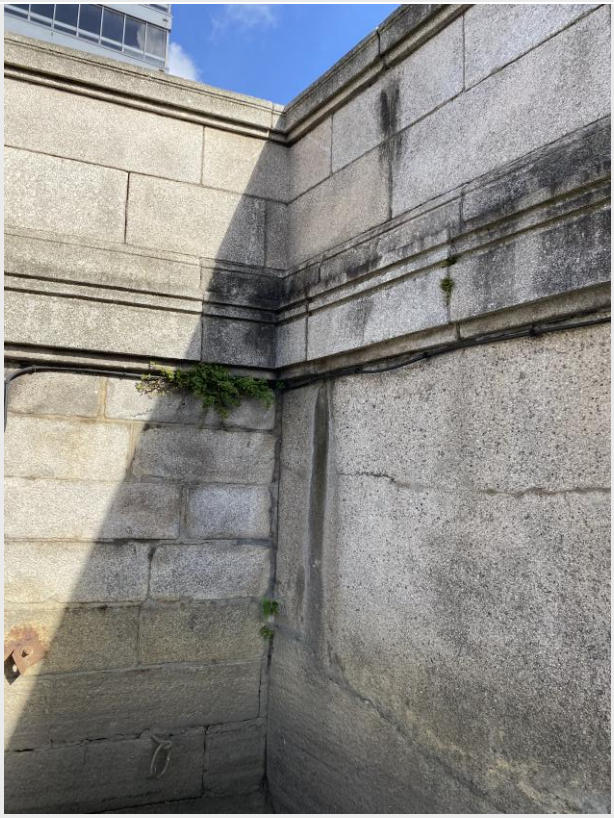


















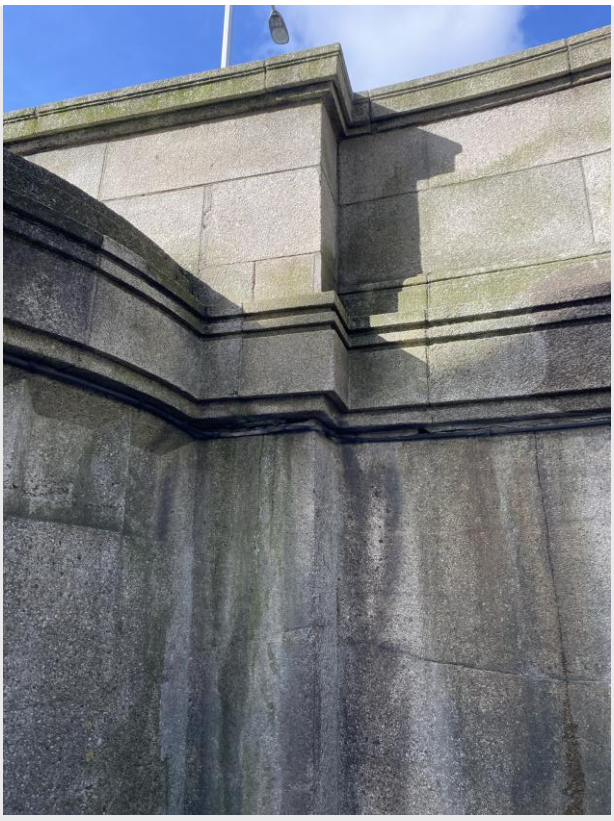










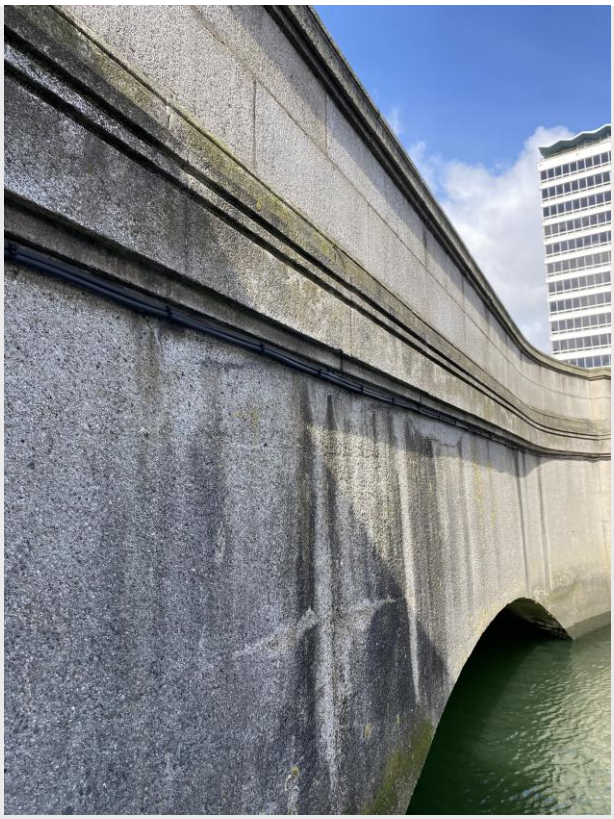




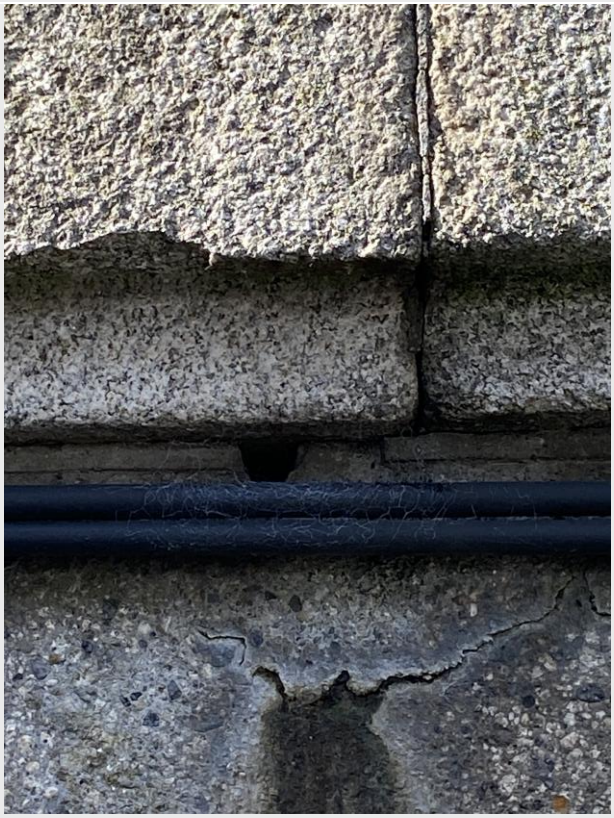




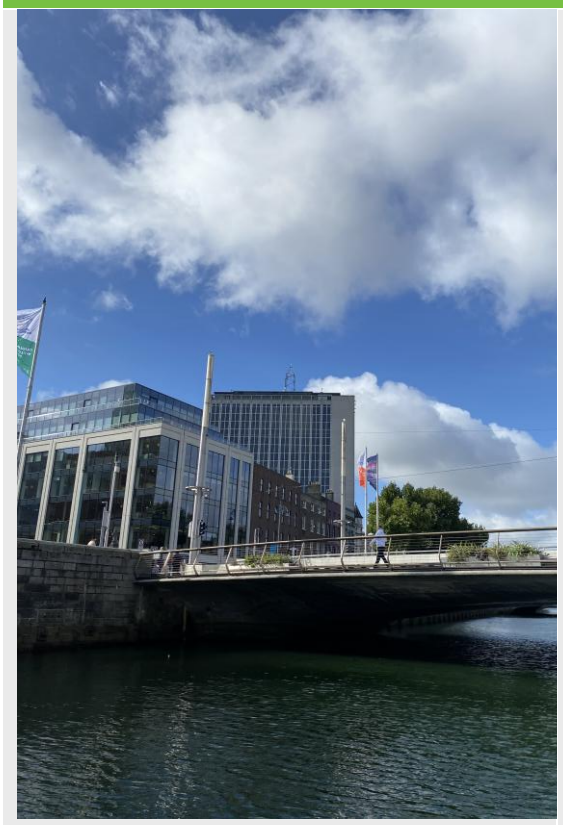


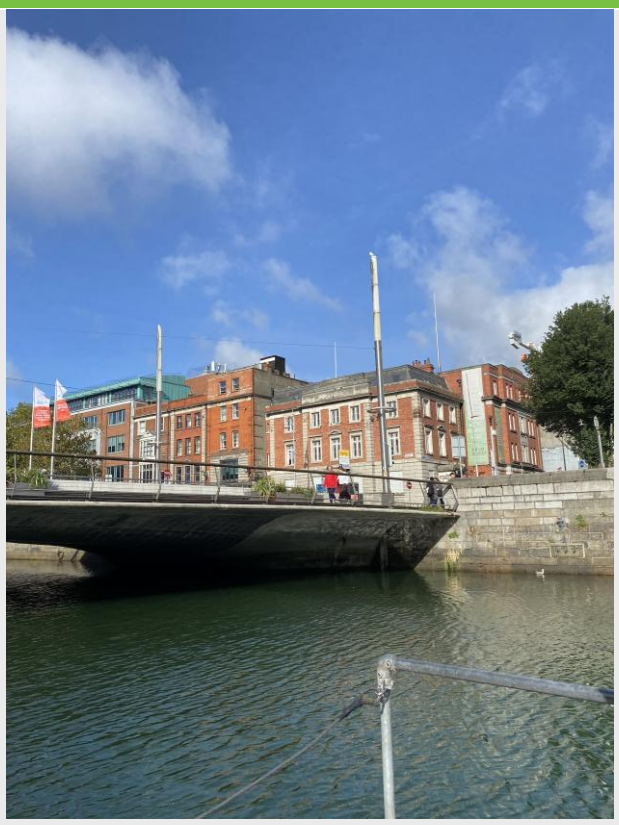


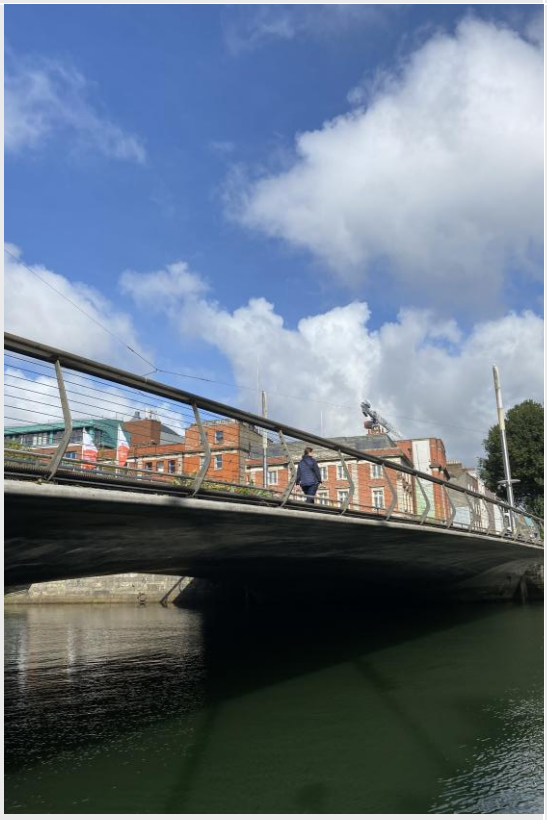




Rosie Hackett Bridge







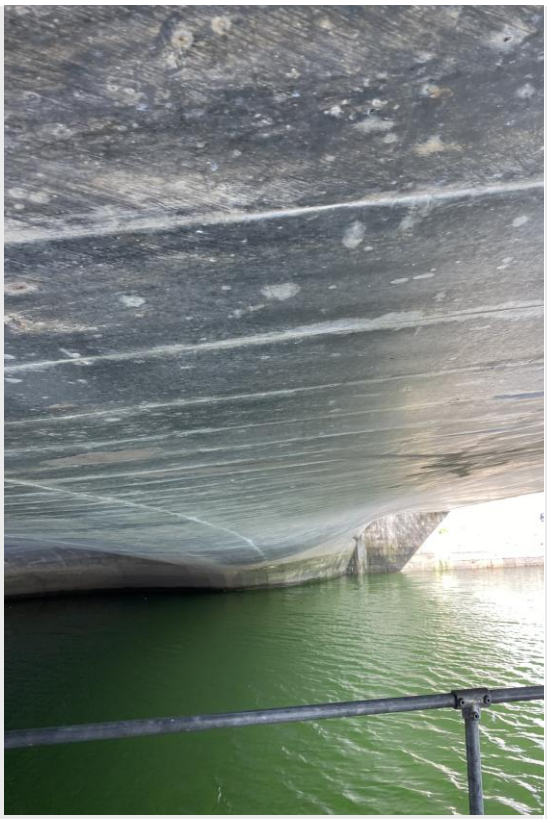










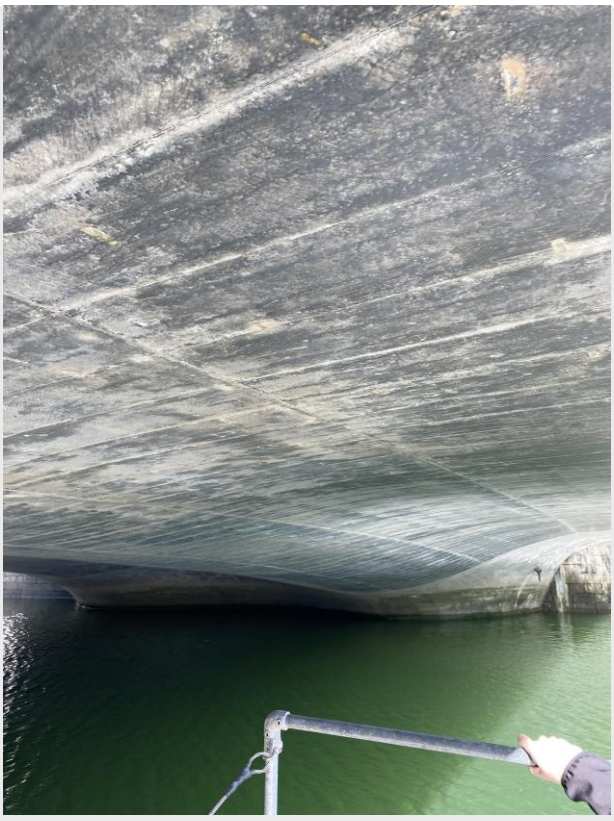






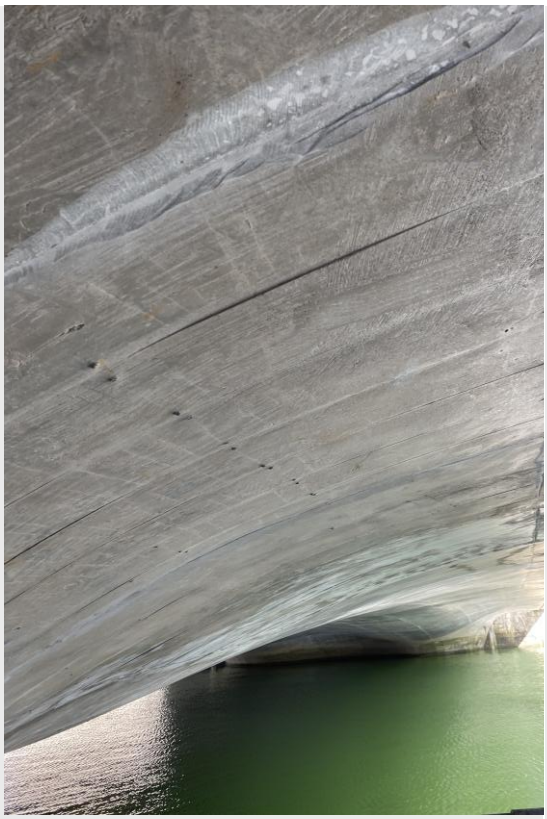


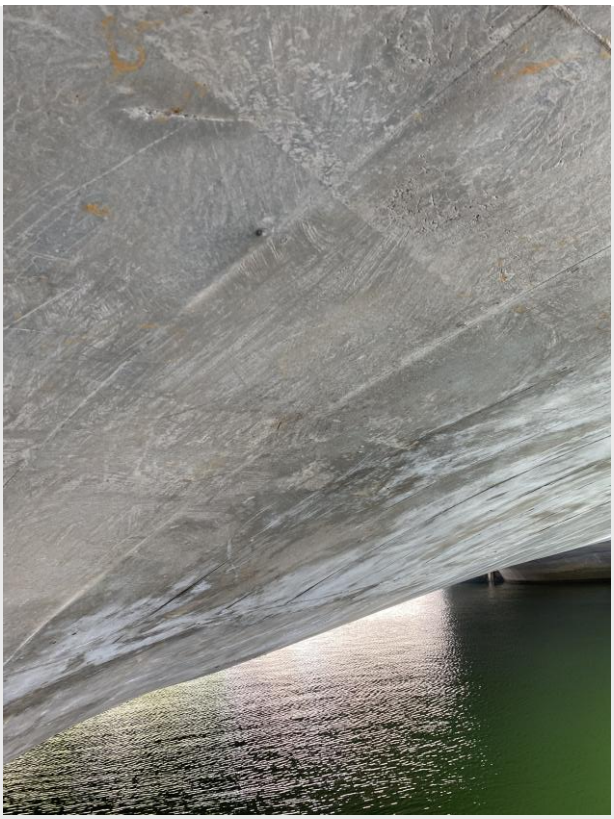






















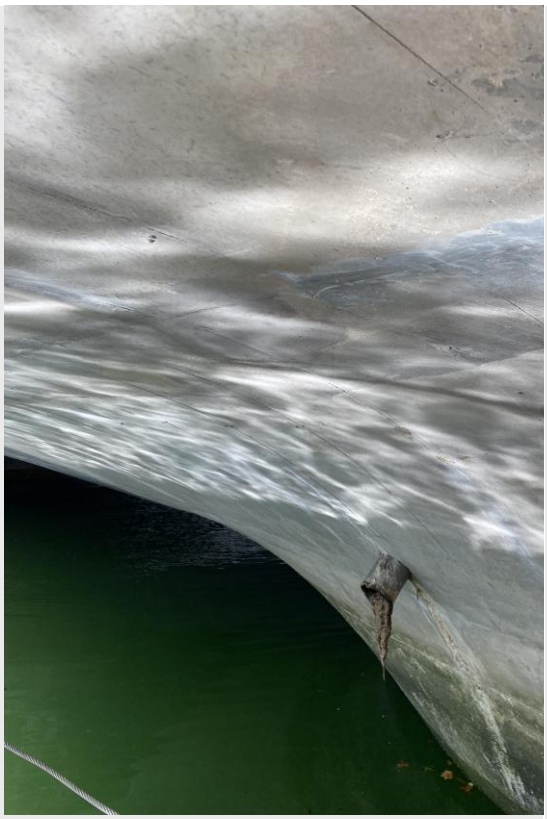


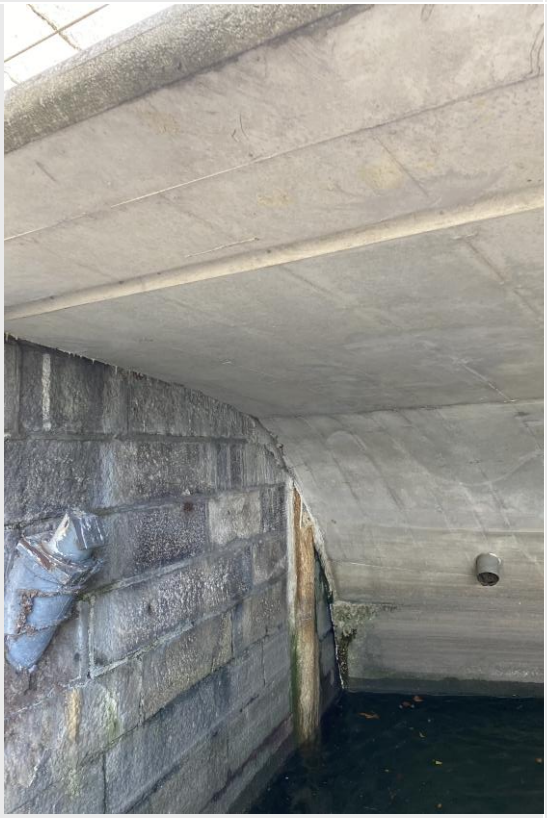


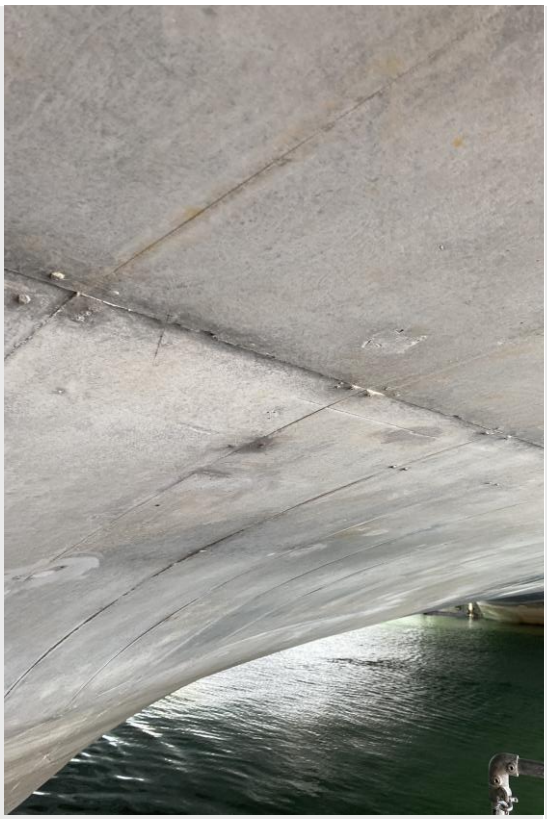






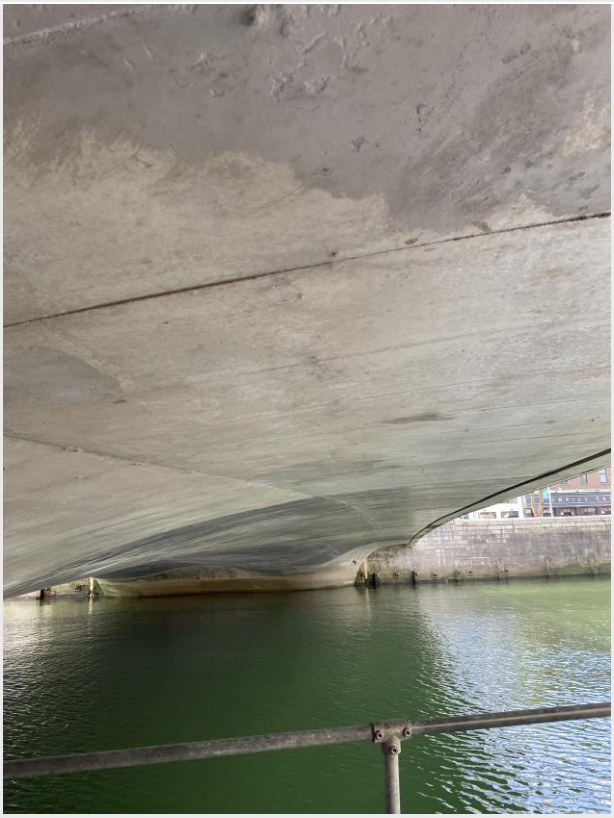


















OCSC

O'CONNOR · SUTTON · CRONIN

MULTIDISCIPLINARY CONSULTING ENGINEERS

Head Office

9 Prussia Street
Dublin 7
Ireland
D07KT57
T: +353 (0)1 8682000
E: ocsc@ocsc.ie | W: www.ocsc.ie

Civil | Structural | Mechanical | Electrical | Sustainability | Environmental