



Environmental Consultants

Bat Survey Report
Wolfe Tone Bridge

*Confidential – provides information on
the location of a bat roost site*



DOCUMENT DETAILS

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Prepared By: John Curtin; Eire Ecology

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Abstract: The following report details the results of a daylight search of the Wolfe Tone Bridge undertaken as part of the proposal to erect a pedestrian walkway attached to the bridge. Evidence of bats were noted underneath the bridge including droppings and a live Pipistrelle bat. The report concludes that the overall impacts on bats will be low and recommendations are outlined in order to protect and enhance the bridges bat use.

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APPENDIX A –Site Layout

1 INTRODUCTION

This report details the findings of a bat survey completed as part of a proposal to erect a pedestrian walkway attached to the Wolfe Tone Bridge in Galway.

This report aims to;

- Identify species of bats using the site.
- Examine the bridge for roosting potential.
- Potential impacts of bats by the proposed development.

In order to assess the presence and activity of bats within the proposed development grounds a daylight inspection was undertaken.

1.1 RELEVANT GUIDANCE DOCUMENTS

This report will draw on the following guidelines documents:

- National Roads Authority (2006) Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes
- Collins, J. (Editor) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). Bat Conservation Trust, London
- McAney, K. (2006) A conservation plan for Irish vesper bats, Irish Wildlife Manual No. 20 National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- Kelleher, C. & Marnell, F. (2006) Bat Mitigation Guidelines for Ireland. Irish Wildlife Manuals, No. 25. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- The status of EU protected habitats and species in Ireland: Conservation status in Ireland of habitats and species listed in the European Council Directive on the Conservation of Habitats, Flora and Fauna 92/43/EEC. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government.
- NRA (2006b). Guidelines for the Treatment of Bats during the Construction of National Road Schemes. National Roads Authority (now named Transport Infrastructure Ireland), Ireland.
- Aughney, T., Kelleher, C. & Mullen, D. (2008). Bat Survey Guidelines: Traditional Farm Buildings Scheme. The Heritage Council, Áras na hOidhreachta, Church Lane, Kilkenny.
- BTHK (2018). Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals. Pelagic Publishing, Exeter UK.
- European Commission (2021). Commission notice. Guidance document on the strict protection of animal species of Community interest under the Habitats Directive
- CIEEM (2021). Bat Mitigation Guidelines. A guide to impact assessment, mitigation and compensation for developments affecting bats. Beta version 1.0.

1.2 STATEMENT OF AUTHORITY

Bat surveys were undertaken by John Curtin BSc. John qualified in Environmental Science at NUI Galway in 2010 and has been working as an ecologist ever since. John has been conducting bat surveys at windfarm sites since 2012. He has also completed the Bat Conservation Ireland, Bat Detector Workshop and Bat Handling Workshop which are the standard training for the carrying out of bat surveys in Ireland. In addition, John is an active member of Bat Conservation Ireland, which monitor bat populations in Ireland, and facilitate the education of bat communities to the public.

John holds the following licences.

Description	Licence No
Licence to capture protected wild animals for educational, scientific or other purposes (bats)	C231/2020
Roost disturbance (bats)	Der/Bat 2022-17
Licence to photograph / film wild animals (bats)	06/2021

2 DESKTOP STUDY

2.1 BATS IN IRELAND – LEGISLATIVE PROTECTION

There are two main pieces of legislation which cover wildlife protection in Ireland – the Wildlife Act and the Habitats Regulations. These are outlined below, with particular reference to the protection afforded to bat species in Ireland.

2.1.1.1 *The Wildlife Acts 1976 and 2000*

The primary domestic legislation providing for the protection of wildlife in general, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976, as amended. The aims of the wildlife act according to the National Parks and Wildlife Service are “... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims.” All bat species are protected under the act. The Wildlife (Amendment) Act of 2000 amended the original Act to improve the effectiveness of the Act to achieve its aims.

It is an offence to:

- Intentionally kill, injure or take a bat
- Possess or control any live or dead specimen or anything derived from a bat
- Wilfully interfere with any structure or place used for breeding or resting by a bat
- Wilfully interfere with a bat while it is occupying a structure or place which it uses for that purpose

2.1.1.2 *European Communities (Birds and Natural Habitats) Regulations 2011 to 2021*

The EC (Birds and Natural Habitats) Regulations 2011-2021 provide strict protection for all of the Irish species listed on Annex IV of the EU’s Habitats Directive. It does this by prohibiting certain activities which could impact on the conservation status of those species. Those activities may only be permitted by way of a derogation licence. All bat species found in Ireland are listed under Annex IV of the Directive, while the lesser horseshoe bat is afforded further protection under Annex II.

2.2 SITE LOCATION

The proposed site lies within Galway city situated by the Claddagh spanning the Corrib River (see Figure 2-1 below).

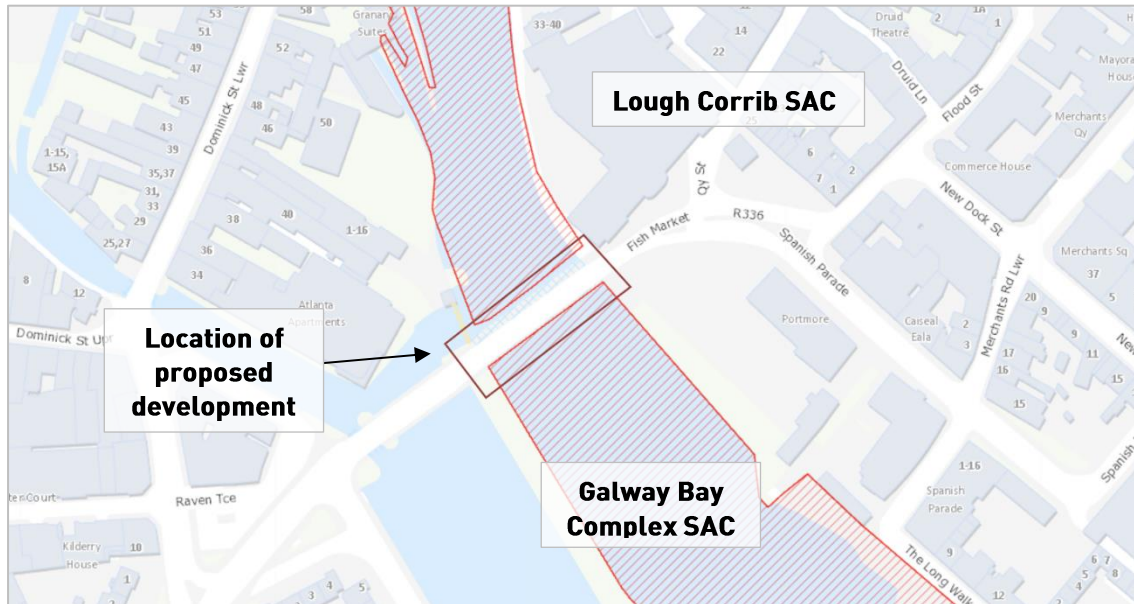


Figure 2-1: Location of proposed development

2.3 BAT SPECIES RECORDED IN THE SURROUNDING AREA

A data search was conducted in March 2022 to revise existing information from the footprint of the proposed planning boundary. The following information sources were examined:

- Known bat records within a 10 km radius of the proposed sites from the Bat Conservation Ireland database
- Adhoc and observational bat records from the National Bat Database held by the National Biodiversity Data Centre (www.biodiversityireland.ie)
- Review of Ordnance Survey mapping and aerial photography of the proposed wind farm boundaries and their environs (i.e. 200 m plus rotor radius of the boundary of the proposed development)

The NBDC and Bat Conservation Ireland database was consulted for details on bat records held for the site and the surroundings. The databases were consulted on the 25/03/2022 for details on historical records from the site, the surrounding 10km. Results are outlined in Table 2-2. A record from 2003 has been recorded from the site itself by Brian Keeley; although this does not state bat roost this record notes the presence of Soprano Pipistrelle and Daubenton's bats. The closest historical roost is located 3.1km from the proposed site.

In addition to roost records, numerous recordings of bat species have been recorded along the Corrib.

Table 2-1: Irish bat species roosting in the surroundings.

Type of Record	Species	Distance from site	Date of last record	Details	Potential connectivity with subject site (for roost records)
Roost	<i>Rhinolophus hipposideros</i>	3.1km to the NW	2010	Long establish roost. 38 bats observed in 2009	(NPWS, 2018) Lesser Horseshoe bat supporting document states the Core sustenance zone for this species is 2.5km. The subject site lies outside this zone. Although the roost is situated close to the Corrib River this habitat feature is not typically used by this bat species as a landscape feature., preferring treelines and hedgerows for navigation and woodlands for feeding.
Roost	<i>Rhinolophus hipposideros</i>	9km NW	2002	A single bat observed	Subject site sits outside the CSZ for this species (see above). No connectivity expected.
Roost	<i>Nyctalus leisleri</i>	4.6km to W	2009	5 bats observed in bat box scheme within woodland	The BCT states the CSZ is 3km for this species thus the proposed development lies outside this zone (BCT, 2020). The roost lies outside the city boundary within woods thus impacts are not expected.
EIA	<i>Myotis Daubentonii</i> <i>Pipistrellus pygmaeus</i>	At site	2003	EIS Survey conducted by Brian Keeley from the subject site.	

2.3.1 Other records in the locality

As part of a proposal for the construction of a pedestrian bridge in Nun’s Island the author of this report conducted night time and static monitoring. Trees were also examined for roosting bats. No roosts were found. The static monitoring consisted of erecting a bat detector for 5 nights during August / September 2020. Results showed high Soprano Pipistrelle activity alongside Leisler’s Bat, Common Pipistrelle, 40kHz Pipistrelle, Brown Long-eared, Myotis Bat and Possible Daubenton’s Bat. No Lesser Horseshoe bats were recorded.

A bat survey conducted by the author for the Ceannt Station development confirmed a satellite roost for common and soprano pipistrelle in 2020. Static monitoring of three locations for 15 nights between August and September 2020 confirmed the presence of Common Pipistrelle, Soprano Pipistrelle, Leisler’s bat, Brown Long-eared Bat and Nathusius’s Pipistrelle. No Lesser Horseshoe bats were recorded.

The surveyor conducted night time and static monitoring of both South park (500m to the south of the Wolfe Tone Bridge) and Blackrock, Salthill as part of a proposal to erect lighting. At both sites static detectors were erected from the 23rd of September to the 03rd of October 2020 in order to better understand bat usage. Again, no Lesser Horseshoe bats were recorded with Soprano Pipistrelle most frequently recorded.

2.3.2 Lesser Horseshoe Bat *Rhinolophus hipposideros*

The Lesser Horseshoe Bat: Wildlife Manuals No. 85 (2015) shows the subject site sits in the North Galway / Mayo range. The closest designated roost for the species noted in the Conservation Objectives document for the Lough Corrib SAC is Eborhall House on the northern shore of Lough Corrib located some 33km to the north-west. The subject site lies outside the core foraging zone for this population. The roost located by Menlo Castle is not noted as a designated roost for the species in the conservation objective document. In addition, radio-tracking surveys undertaken in 2014 and 2015 for the N6 Galway City Transport Project did not indicate any movement between the Eborhall House and Menlo Castle populations.

As mentioned above the author has conducted several static surveys in Galway city, both upstream by Nun's Island, at Ceannt Station, South Park and Salthill. Static detectors are the most effective way of recording passing Lesser Horseshoe bats as they record for long periods and this species has a quiet echolocation. No records of Lesser Horseshoe were recorded from these sites and it is the surveyors opinion that the Claddagh is not an optimal habitat for this species.

3 SURVEY FINDINGS

3.1 SURVEY METHODOLOGY

3.1.1 Habitats on site

The subject site is situated in a variety of habitats consisting of built lands, freshwater and estuary. The built lands have high illumination and limited green areas thus of low potential for feeding bats. The Corrib however is an excellent ecological corridor for bats particularly upstream of the bridge where it remains dark at night.

3.1.2 Daylight search

To examine the underneath of the bridge a boat was organised enabling the surveyor to access the underneath towards high tide. The bridge was surveyed on the 31st of March during good weather conditions. Searches were completed using high powered torch and endoscope.

The bridge was first examined from the road with top and sides examined. The existing bridge consists of three concrete arches sitting on old stone footings (see plate 3-1). The footings or abutments are constructed of stone. Two are located within the river with others by either bank. These abutments protrude slightly beyond the bridge. The proposed pedestrian walkway will sit on these abutments while also anchored into the side of the bridge. The sides and top of the bridge showed no potential to host bat roosts. The cast concrete lacked sufficient crevices suitable for bats to utilise.



Plate 3-1: Wolfe Tone Bridge



Plate 3-2: Side of bridge lacks crevices suitable for roosting bats.

Underneath each arch of the bridge the concrete forms horizontal arches with intermittent concrete struts providing rigidity. These arches form five valleys (Plate 3-3).



Plate 3-3 Underneath of arch.

Where the bridge met the abutment, a small ledge could be found, also formed from concrete. Each section was examined with a torch. Crevices underneath were limited to storm water runoff drains and occasional small holes through the concrete ridge.

As part of the proposal the rounded top on the exposed section of abutment will be removed and used as an anchor for the new walkway. These were examined and although two contained small crevices, these were found to be damp and showed no evidence of past bat occupancy (Plate 3-4).



Plate 3-4: small crevice in abutment.

An examination of the arches revealed a single Pipistrelle bat roosting where the third valley met the abutment on the western arch. It was not possible to disembark the boat here to verify exact species. The surveyor managed to reach one ledge where bat droppings were scattered along the wall. Droppings were old; likely from the last active season. It is most likely the site is primarily used as summer roost. Eight sections revealed bat droppings on several of several valleys where they met the abutment. This occurred on the second and third valleys on the left and right arches. Lesser horseshoe bats were not present during the survey.

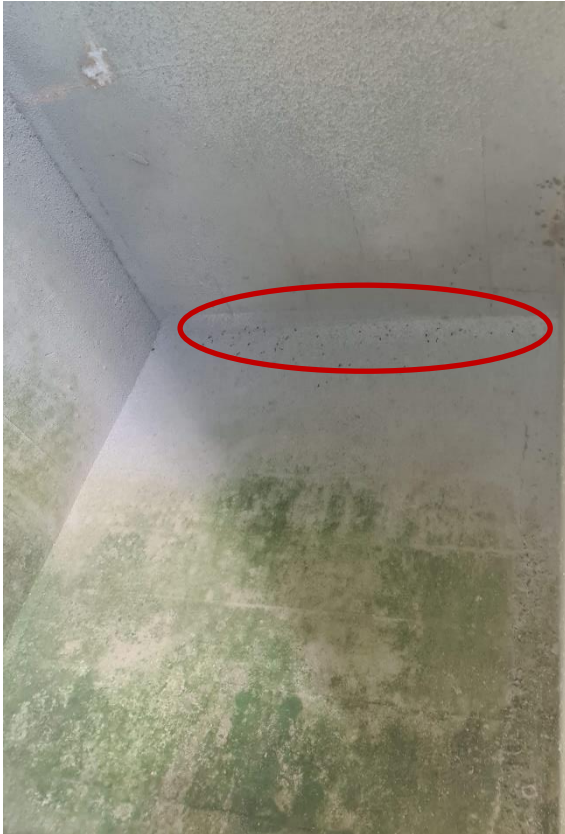


Plate 3-5: Bat droppings on wall



Plate 3-6 Pipistrelle in corner



Plate 3-7: More bat droppings

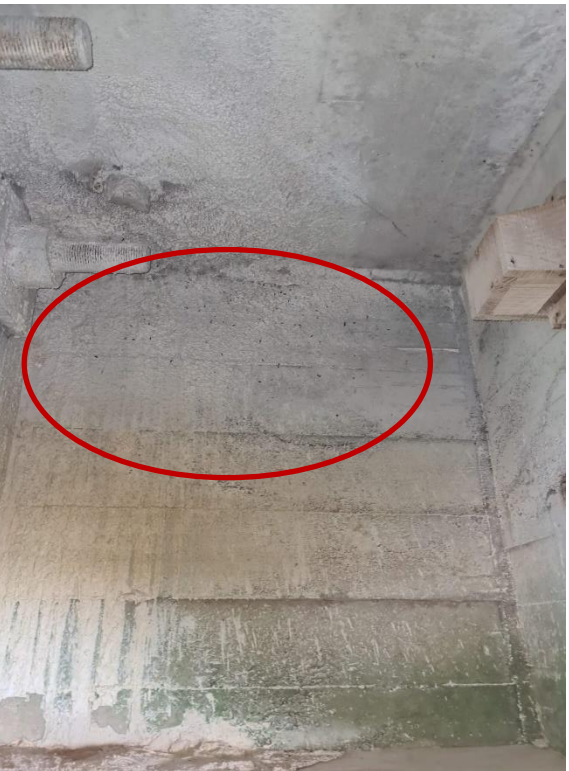


Plate 3-8: Bat box placed adjacent to location with bat droppings

Two bat boxes have previously been erected by areas with bat droppings. These are intact and were empty at time of examination.

No bat droppings were recorded from any of the valleys on the central arch. Similarly, no evidence of bats was noted from the outer valleys.



Plate 3-9: Areas of bridge where bat droppings were found.



Plate 3-10: Location of bat roosts

4 IMPACT ASSESSMENT

The survey above provides an assessment of the Wolfe Tone bridge located by the Claddagh and spanning the Corrib River. Bat droppings were noted underneath several portions of the bridge and a Pipistrelle species was also observed roosting.

No evidence was found of Lesser Horseshoe bats using the bridge and no Lesser Horseshoe bat droppings were observed (dumbbell shaped).

- Disturbance

Works associated with development or building work are likely to lead to an increase in human presence at the site, extra noise and changes in the site layout and local environment. The use of boring machines may cause localized vibrational effects.

- Loss of Roosts

The development of the site involves filling in the outer valley in 6 places. Once set an anchor bolt will be fitted through this and the second concrete arch of the bridge. No bat droppings or evidence of bats was recorded on these sections. It is likely they are too brightly lit during daylight.

In addition, the bridge will sit on existing abutments. None of these features showed evidence of roosting bats – all bat droppings were noted from the central arches (2nd, 3rd and 4th valley) underneath the bridge. As such the roost will remain unaffected by the erection of the footpath.



Plate 4-1: One of the 6 locations (yellow section) where concrete will be set in the outer valley. No evidence of bats was found in this outer valley of the bridge.

- Lighting

The proposed development may result in an increase in artificial lighting of the site.

Guidance on lighting has been based on Bats and artificial lighting in the UK, Guidance Note 08/18 (BCT, 2018), EUROBATS; *Guidelines for consideration of bats in lighting projects*. (Voigt, 2018) and BCI; Bats & Lighting document; (BCI, 2010). Lighting can alter the behaviour of bats and the insects they prey on. Night flying insects can be attracted to lights particularly sources that emit an ultraviolet component or have a high blue spectral content. Whilst some species of bat such as Leisler's and Pipistrelle species can take advantage of this occurrence, other species such as Daubenton's bat and brown long-eared avoid such areas. Lighting can create barriers for bat species both entering roosts and using commuting routes such as rivers, treelined roads and woodland edges.

4.1.1.1 *Effects of lighting on bats*

BCI's Bats & Lighting document (BCI, 2010) states 'Brown Long-eared bats (*Plecotus auritus*) and Myotis species, commute and forage along dark wildlife corridors such as treelines and consequently shies away from highly illuminated sections. Therefore, illumination can impede their flight to suitable feeding areas. Consideration should be given to ensure that dark wildlife corridors remain in the landscape to allow bats and other wildlife to travel safely to and from feeding habitats.' The report also states 'each species of bat has an optimum level of light for emergence. For example, Daubenton's bats prefer a light level of less than 1 lux.' While the BCT guidelines do not give a recommended level of acceptable lux levels on commuting habitats it notes 'significant effects (on bat activity) have been recorded from as low as 3.6 lux'. Eurobats guidelines state *Myotis daubentonii* and *M. mystacinus*/*M. brandtii* consistently avoided their preferred habitats, i.e. lakes and forest gaps, in response to the brightness of the Nordic midsummer nights.

The main section of bridge contains streetlights while the existing pedestrian bridge located on the upstream side contains vertical light bars built into the guard rail.

5 GUIDANCE AND COMPENSATION

Guidance measures have been devised under guidance from the Irish Wildlife Manuals, No. 25, (Kelleher & Marnell 2006).

5.1 DEROGATION LICENCE

Following the precautionary approach, a derogation license will be requested from the National Parks and Wildlife Service before the proposed works commence. Although the bat roosts will not be altered the possibility exists for bats to be disturbed during the construction phase. Any additional measures requested will be implemented in full.

5.2 ADDITIONAL SURVEYS

Apart from a maternity, summer roost, bats are known to avail of;

1. Transition roosts - mainly used in spring and autumn;
2. Night roosts - used as resting places between feeding periods.
3. Satellite roosts - those close to a major maternity roost, but containing smaller numbers of females and young.

Additional daylight surveys in July and August 2022 will be conducted in order to count bats and determine if the site is used as a maternity roost. This information will be usefully in determining when the construction phase can start. Works from the proposed development will include boring holes through parts of the existing bridge in order to anchor the footpath. New reinforced concrete plugs will be formed over existing piers and abutments. This work will be noisy and to prevent disturbance to young bats the works will take place after the maternity colony breaks up (after the 1st of October). If the colony is not a maternity colony works can commence from the 1st of September.

5.3 LIGHTING

Table 5-1 provides a site-specific response to the 2018 BCT flowchart which provides best practice guidance when considering effects of lighting schemes on bats.

Table 5-1: Application of BCT, 2018 Flowchart

Step	Query	Response
1	Could bats be present on site?	Yes.
2	Determine the presence of roosting / commuting / feeding habitats	The site is used by roosting Pipistrelle. Historical records show the site was used by Daubenton's bats and Soprano Pipistrelle. The Corrib River provides good commuting and feeding habitat for these species.
3	Avoid lighting on key habitats and features all together.	The subject development will result in changes to the site involving the erection of a pedestrian walkway attached to the downstream side of the Wolfe Tone bridge. Lighting is necessary to allow pedestrians safely utilise the space. Lighting will

Step	Query	Response
		consist of an inset lightbar built into the handrail shining solely towards the existing bridge thus keeping additional lighting impacts to a minimum.
4	In other locations of value to bats apply measures to reduce lighting to a minimum.	No lighting is planned for the waterside or underneath the bridge. The lighting design proposed will ensure no light spill will occur on bat sensitive features such as the underside of the bridge or the water.
5	Demonstrate compliance with lux levels and buffers	Lighting lux levels will be set to provide low level impacts to fauna. Lights will be fitted with LED luminaires using warm white colours at a lux level greater than than 2700 Kelvins. Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.

5.3.1 Timing of works

Should the surveys conducted in July and August 2022 reveal the presence of a maternity roost under the bridge the construction phase will not commence until after the 01st of October. This leaves time for maternity roosts to disperse. In other cases where young are not present construction can start from the 01st of September. The construction phase will last for approx. 6 weeks and will be completed prior to the active season in April.

5.3.2 Ecological Clerk of Works

Works will not take place in the parts of the bridge where bats are roosting but drilling may cause disturbance. As such an ecological clerk of works will be on hand for the drilling section when bats are present. The ecological clerk of works will ensure bats are not disturbed by the drilling. The ecological clerk of works should be a qualified bat specialist with a bat handling licence.

6 RESIDUAL IMPACTS

It is the surveyor’s opinion that the erected pedestrian bridge will increase the darkness underneath the main bridge thus increasing the suitability for the structure to host bat roosts.

7 CONCLUSION

This report details the findings of a bat survey completed as part of a proposal for the erection of a pedestrian walkway attached to the side of the existing Wolfe Tone bridge by the Claddagh, Galway.

The results of the surveys presented above show that the inner sections of the bridge is utilised by bats. A Pipistrelle bat was noted attached to the roof of the bridge with several sections showing older bat droppings. No evidence of Lesser Horseshoe bat was recorded and historical records including numerous static surveys conducted by the author suggest this species rarely hunts or commutes through the city.

Although the bat roosts will remain unmodified a derogation licence will be requested from the NPWS in relation to bat disturbance. Further daylight bat surveys will be conducted in July and August 2022 to gain an understanding on bat numbers roosting in the bridge and to determine if the roost is a maternity colony. The construction phase will be completed outside the bat active season after the 1st of September and an ecological clerk of works will be on hand to ensure no bats are impacted. Should the summer surveys find the roost is a maternity type, works will not commence until the 1st of October.

Impacts on bats have been assessed with reference to the Irish Wildlife Manual Vol 25. The overall impact on bats following the implementation of the outlined recommendations is negligible as the proposed development will not impact on the roosting bats and will likely increase the suitability of the bridge as a roost site.

APPENDIX A – SITE LAYOUT

