Appendix 10.3

Bat Derogation

Licence Application

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

Licence No.: DER/BAT 2021 – 07

EUROPEAN COMMUNITIES (BIRDS AND NATURAL HABITATS) REGULATIONS, 2011 (S.I. No 477 of 2011)

DEROGATION LICENCE

Granted under Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations 2011, hereinafter referred to as "the Habitats Regulations".

The Minister for Housing, Local Government and Heritage, in exercise of the powers conferred on him by Regulation 54 of the Habitats Regulations hereby grants to **Wicklow County Council** supervised by **Brian Keeley B.Sc. (Hons)** a licence. It is stated that:

(A) This licence is to be granted for the purpose of protecting wild fauna and conserving natural habitats, and

(B) There is no satisfactory alternative, and the action authorised by this licence will not be detrimental to the maintenance of the population of **bats** referred to below at a favourable conservation status in their natural range.

The licence is issued in respect of the following **bat species**:

- **Daubenton's bat** ***Myotis daubentonii***

This licence authorises the following:

(a) Roost disturbance;

(b) Damage or destruction of breeding sites or resting places;

(c) Actions authorised within the licence

This licence is subject to the terms and conditions set out overleaf.

Terms and Conditions

1. This licence is granted solely to allow the activities specified in connection with the **Works relating to Arklow Flood Relief Scheme** located at **Arklow Bridge, Arklow, County Wicklow** for **Wicklow County Council.**

2. All activities authorised by this licence, and all equipment used in connection herewith, shall be carried out, constructed and maintained (as the case may be) so as to avoid unnecessary injury or distress to any species of **BAT**.

3. This licence may be modified or revoked, for stated reasons, at any time.

4. The mitigation measures outlined in the application report (**An Assessment of the Proposed Flood Relief Scheme at Ferrybank, Arklow, County Wicklow and Potential Impacts of The Proposal on the Bat Fauna, pgs. 16 & 17 as well as additional mitigations measures laid out on pages 2 -4**), together with any changes or clarification agreed in correspondence between NPWS and the agent or applicant, are to be carried out. Strict adherence must be paid to all the proposed measures in the application.

5. Works are scheduled to be carried out over a four year period beginning in **2021** and ending in **2025**.

6. The works will be supervised by a licensed bat specialist **agent.**

7. This licence shall be produced for inspection on a request being made on that behalf by a member of An Garda Síochána or an authorised NPWS officer appointed under Regulation 4 of the Habitats Regulations.

8. The local National Parks and Wildlife Service field officer **Damian Clarke, Damian.Clarke@chg.gov.ie**, **076 1002675** should be contacted prior to the commencement of any activity, and if bats are detected on site during the course of the work, under the terms of this licence.

9. A report shall be submitted to Wildlife Licensing Unit, National Parks and Wildlife Service Department of Housing, Local Government and Heritage, R. 2.03, 90 North King Street, Smithfield, Dublin 7, D07 N7CV on completion of the actions which this licence authorises, describing the activities carried out in pursuance of this licence.

Niall Feery
(a person authorised by the Minister to sign on his behalf)

19th January 2021

Department of Housing, Local Government and heritage
National Parks and Wildlife Service
Wildlife Licensing Unit
R. 2.03
90 North King Street, Smithfield
Dublin 7
D07 N7CV

National Parks & Wildlife Service
LICENCE

NOTES (1 to 2).

- This licence is granted for the period specified and subject to compliance with the conditions specified. Anything done other than in accordance with the terms of this licence may constitute an offence.

- This licence applies to **bats** and to no other species.

Derogation Sought by Wicklow County Council and Office of Public Works (OPW) for works to a confirmed bat roost in Arklow Bridge supervised by ecologist Brian Keeley B.Sc. (Hons)

Permission is sought by Wicklow County Council for works to be carried out on Arklow Bridge, Arklow, County Wicklow (Irish Grid Reference T2468473497) to forward the aims and implementation of the construction of the Arklow Flood Relief Scheme at Ferrybank for Arklow town. This bridge showed evidence of serving as an occasional bat roost in 2017 and was occupied by a single Daubenton's bat on 17th November 2020 and is therefore a protected structure under the Wildlife Act and Habitats Directive.

The scientific agent for the work is Brian Keeley, Deerpark House, Maio, Tierworker, Kells, County Meath and the means to protect bats is given in the following summary. Brian Keeley Ph: 087 6753201 briantkeeley@gmail.com .

Note: This derogation licence is being applied for on behalf of Wicklow County Council and OPW for the Flood Relief Scheme. The application also includes relevant baseline information collated as part of combined survey work data for the Wastewater Treatment Plant (WWTP) and the Arklow Flood Scheme. The flood relief scheme project has some physical overlap with the approved Arklow WWTP in particular in the vicinity of Arklow Bridge. A licence relating to works to be undertaken by the WWTP and FRS was issued previously by NPWS.

Summary of Findings from survey in 2020 of Arklow Bridge

A Daubenton's bat was noted on the wing wall at the first arch from the town centre direction (southern end of the bridge) on 17th November 2020. This bat was inactive and did not move during the period of observation. However, a Daubenton's bat was noted at the bridge two hours after sunset by two separate monitors and is almost certain to have been this bat departing the site possibly to feed or re-locate roost following disturbance. The water flow was too strong to allow examination of all arches and in all 5 of the 19 arches were examined.

Summary of Findings from survey in 2017 of Arklow Bridge

Bat droppings under the upriver concrete expansion joints of the bridge are considered to be Daubenton's bats. No bats were seen to exit or emerge from the bridge on 21st August 2017. Bat activity around the bridge included Daubenton's bat feeding and commuting, soprano pipistrelle, common pipistrelle, and Leisler's bat while there was also Leisler's bat activity over the river.

The survey data and overall evaluation of the project and its impacts upon the bat roost are included in the attached report that examines the impacts of the Arklow Flood Relief Scheme.

Mitigation Proposed for works involving bridge alterations that would affect roosting bats

Derogation to destroy an existing roost site within Arklow Bridge

As all bat species recorded within the planning boundary of the proposed development are protected under Annex IV of the Habitats Directive, the works to be carried out to all arches of Arklow Bridge and their associated piers require a derogation from the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage to allow works that would create a risk to bats and would remove existing roosting options. This must be secured in advance of planning submission to ensure that the repairs are acceptable to NPWS and will not lead significant delays if the project is otherwise approved but has not secured a derogation for this purpose. The measures proposed should meet the requirements for protecting the bats availing of the Ferrybank Bridge (also referred to in this report as Arklow Bridge).

The measures proposed specifically for the arches of Arklow Bridge derogation include:

- Examination of the bridge prior to works by a bat specialist for evidence of bats.
- Exclusion of bats if necessary, with one-way valves devised by the bat specialist.
- Capture of any bats that are still present prior to works and retention until the risk of injury or re-entry to the bridge has been removed.

To ensure that there is no possibility of direct disruption to a summer roost during repairs, the following is proposed:

- The roost on the southern side of the bridge will be excluded during the autumn / early winter season (2021) before construction commences during summer 2022 under the bridge.
- 3 bat boxes will be temporarily installed on the northern side of the bridge as an interim measure to mitigate for the loss of roost (in the period summer/autumn 2021).
- Once the works on the southern side are complete, bat boxes shall be installed on the southern side. If bats are using the interim bat boxes on the northern side, these will need to be excluded before works are carried out on the northern side.
- Provision of 4 x 2FR Schwegler woodcrete bat tubes for each arch of three arches at the northern end and 3 arches at the southern end where works are undertaken (i.e. 24 x 2FR bat tubes). These bat boxes must be attached to the bridge in an unlit area above high-water mark. Refer to Drawing No 1005 of Appendix 4.1 of the EIAR which shows the location of the bat tubes on the bridge,
- Provision of additional bat boxes in the flood walls. It is proposed that 6 Schwegler 1FR bat tubes will be incorporated into the flood walls on the southern section of the project (Refer to Drawing Nos 1036, 1039, 1040 and 1041 of Appendix 4.1 of the EIAR which shows the location of the bat tubes in the walls,)., 13 x 1FR bat tubes shall be incorporated in the concrete piers of the proposed debris trap which will be located across the river channel upstream of Arklow Bridge. (Refer to Drawing Nos 1021 of Appendix 4.1 of the EIAR which shows the location of the bat tubes in the concrete piers,).
- This shall be achieved in two phases: Works to southern half of the bridge in the first year requires that only the three bat tubes are installed in the first year of works. Works to the northern half of the bridge in the third year requires that the bat boxes for the southern section of the bridge are installed for the third year of repair work. Provision of 4 x 2FR Schwegler woodcrete bat tubes for each arch of three arches at the northern end and 3 arches at the southern end where works are undertaken (i.e. 24 x 2FR bat tubes). These bat tubes must be attached to the bridge in an unlit area above high-water mark. All remaining shall be installed once all works liable to disturb or damage them has been completed.

Examination of all mature trees with roost potential prior to removal

All mature trees shall be examined for bats prior to felling. This may be achieved through a bat detector assessment if undertaken in the active season (prior to November and after March) or alternatively may require supervision at the time of felling. Any mature trees will require survey

prior to felling. This may be achieved through a bat detector assessment if undertaken in the active season (prior to November and after March) or alternatively may require supervision at the time of removal.

Lighting

- Mitigation for bats includes the following additional lighting considerations:
- No lighting shall be directed at the arches with bat boxes following completion of the work on the bridge.
- Floodlights shall be LED, as these have glass lenses which can be used to direct the light to the working area and reduce light spillage.
- Floodlights for working areas will make use of multiple lights to produce a more uniform light output and to lower the individual output from a single source – these will however still be quite high output.
- The source of light should be Light Emitting Diodes (LEDs) as this is a narrow beam highly directional highly energy efficient light source.

  The lighting should allow for a light level of 3 lux at ground level.

  Narrow spectrum lighting should be used with a low UV component.

  Glass also helps reduce the UV component emitted by lights.

Feeding sites

Provision of suitable feeding sites for bats (where possible given the nature of the scheme) would be achieved by planting lines of vegetation including trees or shrubs in particular along the river. An avenue of trees would be beneficial the most beneficial option as it would create a shelter for insects that would in turn benefit bats and birds within the area. Species such as grey willow, alder and silver birch would all be of benefit to bats, birds, and insects. However, any planting will increase the value of the site for bats.

An Assessment of the Proposed Flood Relief Scheme

At Ferrybank, Arklow, County Wicklow

And Potential Impacts of The Proposal on the Bat Fauna

Brian Keeley B.Sc. (Hons) in Zool.

November 2020[1]

Introduction

Bats constitute a total of nine of the most widespread resident protected species in Ireland. Eleven species of bat have been identified to date in Ireland, of which two were considered to be vagrant. In 2020, one of these species; the Greater Horseshoe bat was recorded in Wicklow. The second

[1] Note, since the application was submitted to NPWS for approval in Nov 2020, a number of design changes were made to the scheme, namely bat tubes were included in the design of the concrete piers of the debris trap. These changes were agreed via correspondence with the NPWS early 2021. For completeness and to avoid confusion, this document has been updated to incorporate those changes

species, Brandt's bat was also noted in the same area of Wicklow. There is a rich diversity of bats within the county and bat activity is very often higher close to rivers, lakes, and other wet areas. Bats occur in the rural and the urban environment. They feed upon insect fauna at night and during the day, they occupy buildings and occasionally trees for short or long periods. Buildings are a vital element of the annual cycle of all Irish bat species and at no time more so than the period May to August, but many bats may also avail of buildings as hibernation sites. Changes to a site may reduce the lands available to bats as a feeding site and in some cases may even destroy their dwelling place through or during the partial or total demolition, restoration and renovation of buildings, bridges, clearance activities and the subsequent construction.

Bats are protected by Irish and EU law and to prevent unlawful injury or death, it is essential that a full understanding of the site is available in advance to protect the resident bats from unintentional disturbance and to create a pathway by which a legal derogation and exemption may be designed in consultation with the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage.

This assessment examines sites within the centre of Arklow town and associated areas where the Flood Relief Scheme (FRS) proposal for the alleviation of the risk of flooding of the town which has occurred previously and is anticipated to be a higher frequency event into the future.

This assessment will address the potential for bats roosting within the site that will be altered by the scheme and within the area around it that may have some knock-on impacts including the bunds, embankments or solid barriers, the removal of vegetation to provide for suitable construction areas and the alteration to any structures to facilitate the successful incorporation of these measures.

Previous evaluations in the area including house visits, ad hoc observations and survey data recorded by Bat Conservation Ireland have determined the presence of common pipistrelles, soprano pipistrelles, Daubenton's bats, Natterer's bats, brown-longed eared bats, and Leisler's bats. Other species in surrounding areas include one of the first records of Nathusius' pipistrelles

and a roost of this species in Wexford town 58 km to the south-west. This species was first reported from this area on the Blessington Reservoir 23 years ago, 42 km to the north-west.
Additionally, the only confirmed record of Brandt's bat in Ireland was recorded in Glendalough approximately 27 km to the north-west. While these would appear considerable distances, these are two species that show high migratory habits in other European countries. Nathusius' pipistrelle have been recorded in England, having been ringed in Latvia and Lithuania. A less migratory bat species, the Greater Horseshoe bat, has been recorded twice in Ireland, once in Wexford and as noted earlier, once in Wicklow (27 km from Arklow).

Methodology

There are a number of elements of the survey that were targeted for examination in addition to a general evaluation of bat activity and presence within the footprint of the proposal and adjacent lands to the proposal for the Flood Relief Scheme (FRS). A summary of the objectives is given below.

1. the footprint of the embankment where works are proposed in Arklow Town Marsh
2. the northern side of the river at the proposed debris trap site(s).
3. Arklow Bridge.
4. near the M11 bridge upriver of Arklow town.

A survey in October 2016 examined the bat activity between the river and the buildings along Brigg's Lane and at Ferrybank (R772) including the footprint of the proposed Arklow Town Marsh embankment, the lands behind the petrol station and the green area to the rear of the Presbyterian Church.

A Songmeter BAT+ was placed within the line of the proposed embankment (the edge of a construction site opening on to dense rushes) and remained here from prior to sunset (18.20 hours) up to 21.30 hours.

Surveying in 2017 was undertaken in August, a period of the year when many maternity roosts are still intact prior to the autumn disbandment of these gatherings and the formation of lesser mating assemblages and non-breeding groups or individual roosting behaviour.

The survey examined the sites listed above (sites 1 to 4) involving a two-person survey of Arklow Bridge by means of a visual inspection on Tuesday 22nd August at 17.18 hours and a bat detector evaluation from 21st August to 22nd August (sunset at 20.38 and sunrise at 06.18). Surveying of the land-take of the proposal and the Avoca River were undertaken on 22nd to 23rd August 2017 from 20.35 to 22.00 hours and from 05.20 hours to 06.20 hours and finally on 28th August 20.22 hours for over an hour and from 05.30 hours to 06.30 hours.

Survey conditions and constraints

The survey in June 2016 was carried out on a mild dry night with no wind. There had been rain early in the day but there was no rain at any stage during the night. Some of the survey area is coastal and there is a continuous breeze wherever there are no buildings. The remainder of the buildings was sheltered from the breeze. These were ideal conditions for bat activity. Surveying for bats in late June is a very suitable time to address the summer usage of a site for feeding and commuting and for assessing the use of trees as summer roosts.

The second survey period was a period of mild weather in October and there was a dry, calm spell that commenced with moderate temperatures and dropping two to three hours after sunset. Bat activity was relatively high especially on 17th October and this is a good representation of the bat fauna in autumn in the survey area. Sunset on 17th October was at 18.24 hours and a temperature of 13 degrees Celsius with a moderate breeze and dry conditions. 19th October 2016 was at 18.20 hours and the temperature at that time was 11 degrees Celsius and cloudy.

The survey in August 2017 was during mild dry weather and bat activity was noted at all periods of the survey. Pre-dawn conditions were cool and dry and bat activity was typically lower during this period. This was a representative survey of the site.

A third year of survey was undertaken on November 17th, 2020 to determine the status of Arklow Bridge in relation to bat occupancy. This follows a gap of 3 years between surveys. The survey involved a visual examination of the bridge in daylight at low tide followed by a bat detector evaluation for evidence of emergence and bat activity. This involved the placement of a

Songmeter Mini downriver to the east of the bridge as close as possible to the most southern arch and holding an Echometer 3 upriver of the bridge at the same arch.

Survey conditions and constraints 2020

The survey in 2020 was undertaken in mid-November and is at a time of year when bat activity is very low and is typically entirely absent in the Midlands and East coast of Ireland. The weather conditions were mild at the commencement of the study, but wind speed picked up towards 16.00 hours and was very windy towards the centre of the river. The river was low due to the tide being out but having had a number of heavy rains previously, the current was very strong in the river and safety concerns restricted the assessment to the two southernmost arches and the three northernmost arches. All arches with the exception of the northernmost arch had a dangerous current that was too strong to cross or stand still.

Existing Environment

Bat roosts affected by the Arklow Flood Relief Scheme proposal

Roost site of Daubenton's bat (*Myotis daubentonii*) within Arklow Bridge arches.

One Daubenton's bat was noted resting on the wing wall of the older bridge section at the most southern arch of the bridge (closest to the town centre) close to the bridge expansion (western side of bridge) on November 17th, 2020. This bat was not seen to become active as it was not visible from the riverbank but signals on both detectors indicate that a Daubenton's bat flew past at approximately 10.20 hours. There was evidence gathered in August 2017 that bats were availing of crevices in the upriver side of the bridge (west) to roost at the southern end of the bridge. This was in the form of clusters and individual droppings below the crevices. The northern end offers very suitable roosting conditions, but no bat signs or bats were present within this section either in 2017 or 2020.

Bats are using Arklow bridge as a roost site (western side of the southern end of the bridge). This is likely to be most often individuals roosting rather than a maternity roost and it is a transitional roost. On 17th November 2020, a single Daubenton's bat was noted roosting on the bridge.

Bat fauna feeding and commuting within and through the FRS site

Common pipistrelle *Pipistrellus pipistrellus*
Soprano pipistrelle *Pipistrellus pygmaeus*
Leisler's bat *Nyctalus leisleri*
Daubenton's bat *Myotis daubentonii*

Common pipistrelles were noted at all times throughout the survey period and throughout Arklow town. This is the most widespread species in Europe and is most often the most commonly encountered bat species. Common pipistrelles were widespread in Arklow in summer in 2016 and 2017. In October 2016, males of this species were noted calling along the riverbank south of the river. Common pipistrelles were also noted along the lands that would flank the proposed embankment, north of the river. This species was heard within the fields adjacent to Brigg's Lane behind Ferrybank around a derelict house and along the disused railway line.

Soprano pipistrelles were more numerous along the river and in marshy areas close to the river. This was the first bat to be noted around the mature trees along the river and one individual was present along the disused railway line for several minutes as well as feeding and calling around the derelict house.

Soprano pipistrelles were seen and heard along the southern riverbank west of Arklow Bridge and were the only species noted prior to dawn on 18th October 2016. Similarly, in August 2017, soprano pipistrelles were the most commonly encountered bat species prior to dawn.

The SM2 north of the river on 19th October 2016 revealed the presence of three species of bat; Leisler's bat, common and soprano pipistrelle. Each bat only occurred on one occasion between 18.15 hours and 21.30 hours.

Daubenton's bats were heard over several hours along the river and were also noted flying from the rear of the houses north of the river towards the river. Daubenton's bats were not roosting in any of the trees that will be removed by the proposed FRS embankment. Daubenton's bat activity was noted along the river from the Ferrybank Bridge to Arklow Castle and onwards to the M11 motorway bridge.

Ireland is considered to be a stronghold for Leisler's bats and this species is encountered throughout Leinster and the east coast. This bat fed throughout Arklow while moving to and from a roost site that was not within the FRS land take itself in June 2016.
The final bat observed prior to dawn was last noted flying towards the Avoca River in a south-westerly direction and it is probable that this individual was crossing towards the town over the river.

Leisler's bats were very briefly present on October 19th, 2016 at 19.31 hours and otherwise there was very little activity. This species was present in August 2017 but was less in evidence than all other species. A Leisler's bat was seen and heard flying over the Main Road, Arklow close to the Castle ruins area prior to dawn away from any areas within the FRS scheme.

Common pipistrelle activity was the first noted at the ruins of Arklow Castle (19.08 hours) in the survey undertaken in October and this was followed 12 minutes later by soprano pipistrelle activity. Neither species was seen to return to Arklow Castle prior to dawn. However, on cold mornings, it is possible that bats have returned during the night and have not re-emerged to feed.

In August, no bats emerged or returned to the Castle. A number of bats were noted returning towards the town from the area west of Arklow Bridge prior to dawn but not to the Castle. Pipistrelle activity was noted heading to the southwest of the river. A Leisler's bat was noted flying to the south as discussed earlier in these results in the vicinity of the Castle (but clearly flying beyond the Castle). The roost that was present within the Castle would appear to be absent in August and October and given that the emergence area is more overgrown than when bats were present previously, it is probable that bats are either scarce or absent from the building.

Daubenton's bats were present close to water in almost all encounters with some Daubenton's bat activity in Arklow Marsh behind the houses at Ferrybank being the only exception.

Bat activity was predominantly soprano pipistrelle along the river with Daubenton's bat activity in various sections including at the northern end (west of the bridge) and up as far as the survey followed to the M11 bridge.
Common pipistrelle activity was present both west and east of the southern end of the bridge as well as along the river walk, west of Arklow Bridge towards Arklow Castle and up as far as the M11. Common pipistrelles were second to soprano pipistrelles in frequency of encounter.

Leisler's bats were noted on occasion throughout the site but were much less common than all other species.

Trees at the northern end of the town bridge offered low roost potential. Some of these had been removed by November 2020. Trees within the hedgerows north of this point have higher roost potential.

No roosts were noted in any of the trees examined prior to dawn and it was considered most probable from pre-dawn activity that bats were heading towards the houses at Ferrybank or further afield.

There is historic evidence of use of the Castle including information provided by the resident of the house adjacent to the Castle from childhood and up to recent years.

None of the bat boxes along the riverbank had been occupied by bats. These bat boxes were in clutter and ivy was blocking a number of the box entrances. A bat box at the Arklow Ponds was examined from ground level with a torch (not checked from a ladder) and no droppings or bat was visible. Bat activity over the Arklow Ponds during an evaluation in 2017 was high and included Daubenton's bats, Leisler's bat, soprano and common pipistrelle. Several bat boxes around the Ponds are known to be in use (Enda Mullen, NPWS pers. Comm.). Ms Mullen provided the following additional information: there is a pipistrelle roost in a building near Arklow Bay Hotel (west of Arklow Pond), and another bat roost in the OPW building in Arklow town.

Modifications or Features introduced by the Flood Relief Scheme

Lighting - Vegetation Clearance - Vegetation screening - Bridge repairs

There will be an increased level of lighting through illumination during the 4 year construction period required for night-time work at the river. There may be an increased level of lighting brought about through tree removal and exposure of the area to the town lighting. Lighting upon the bridge at present is most probably intrusive for roosting bats but is primarily focussed to the east of the bridge while roost sites are to the western side of the bridge. This may create disturbance of light intolerant or shy species at present while the more urban-adapted species will be affected only over a short-term period. Of the species noted on and around the site, no bats would be considered light intolerant as they will generally avoid direct illumination but are not usually fully excluded by the presence of light.

Lighting for the night work may be more disruptive as it will need to create suitable illumination for work as well as access.

Pipistrelles, the main species within the area, are negatively affected by lighting but to a lesser extent than most Irish species. Leisler's bats are the most tolerant of light of the three species noted. This species will feed around lighting in car parks as the night progresses. There are no roosts directly illuminated by changes to the site as there were no roosts noted within the site in June 2016 or in August 2017.

There will be tree felling and some scrub removal within the river. The mature conifers along the river have already been removed but there may be some further tree removal here, of which there is low to no roost potential considered for the remaining trees.

The provision of any screening with vegetation provides feeding and commuting potential for bats. There will be alterations (removal) to the vegetation including mature trees within the river. Dredging will affect insect availability and would affect feeding success within this area for bat species such as Daubenton's bat and soprano pipistrelle in particular.

Repairs to Arklow Bridge will remove crevice roost sites for bats such as the Daubenton's bat. Vegetation on the bridge is required to be removed for engineering integrity reasons

1) There is the potential for leakages of grout getting into the river (this is addressed in further reports on the proposed scheme.
2) There will be permanent loss of riverbed habitat where the scour protection is constructed.
3) Underpinning of the bridge piers and abutments;
4) Lowering of the floor of the Arklow Bridge by approximately metre;
5) Provision of scour protection to the bridge piers; and
6) Repairs to the masonry work of the older section of the bridge.

The approach for carrying out the works on the bridge will be as follows. All bridge works (phases 1-4) will be fully completed for approx. a third of the bridge each year. Note that the working area will extend beyond a third to allow for bunds, working space, etc**. In-stream works are restricted to the summer season due to fisheries constraints,** therefore it is not possible to carry out the in-stream underpinning works between 1st September and-31st March.

Year 1 (2022) - Works to southern half of the bridge (phases 1-4). There will be considerable disturbance in the southern half during that summer but there will be little/no disturbance to northern half of the bridge for first year.

Year 2 – Works to central part of the bridge (phases 1-4). There will be little/no disturbance to southern quarter of bridge and little disturbance to northern quarter of bridge (passing construction traffic) for second year;

Year 3 - Works to northern half of the bridge (phases 1-4).. There will be considerable disturbance in the northern half during that summer but there will be little/no disturbance to southern half of the bridge for third year.

Potential Impacts of The Proposed Arklow FRS

Loss of Actual and Potential Roosts and Risk of Injury to Bats

As discussed above, the Arklow Bridge bat roost will be subjected to considerable disturbance and disruption and may be temporarily lost during the work carried out here or permanently lost through any work carried out on the bridge structure.

There will be the removal of the bat boxes along the river. These offer roosting opportunities specifically geared towards bats.

In all, this creates a long-term moderately negative impact upon bats.

Disturbance from lighting

Lighting will be increased by the presence of lighting for night-time work and as regards long-term changes by vegetation clearance and no additional lighting is foreseen for the Flood Relief Scheme. Species such as common pipistrelle and Leisler's bat are less affected than all other Irish bat species (but are less common in lit sites than in dark sites of similar habitat) and this would not be a significant impact overall in the current situation. Lighting along the river is higher in 2020 than in it was in 2016 or 2017.

At worst, it would be a permanent slightly negative impact as well as a short-term moderately negative impact.

Reduced Feeding

There will be reduced feeding at Arklow Bridge from the removal of trees and small islets within the river. Dredging will affect insect availability

Feeding loss around the existing trees may constitute a long-term slightly negative impact. Dredging may create a short-term moderate negative impact.

Cumulative Loss of Feeding and Commuting

The changes within Arklow, if following current trends would see a loss in green space, increase in lighting and increase in modern buildings with an associated removal of old buildings for some developments. These would all create a permanent moderate negative impact if not appropriately mitigated in each project.

Proposed Mitigation

Derogation to destroy an existing roost site within Arklow Bridge

As all bat species recorded within the planning boundary of the proposed development are protected under Annex IV of the Habitats Directive, the works to be carried out to all arches of Arklow Bridge and their associated piers require a derogation from the National Parks and Wildlife Service of the Department of Housing, Local Government and Heritage to allow works that would create a risk to bats and would remove existing roosting options. This must be secured in advance of planning submission to ensure that the repairs are acceptable to NPWS and will not lead significant delays if the project is otherwise approved but has not secured a derogation for this purpose. The measures proposed should meet the requirements for protecting the bats availing of the Ferrybank Bridge (also referred to in this report as Arklow Bridge).

The measures proposed specifically for the arches of Arklow Bridge derogation include:

- Examination of the bridge prior to works by a bat specialist for evidence of bats.
- Exclusion of bats if necessary, with one-way valves devised by the bat specialist.
- Capture of any bats that are still present prior to works and retention until the risk of injury or re-entry to the bridge has been removed.

To ensure that there is no possibility of direct disruption to a summer roost during repairs, the following is proposed:

- The roost on the southern side of the bridge will be excluded during the autumn / early winter season (2021) before construction commences during summer 2022 under the bridge.

- 3 bat boxes will be temporarily installed on the northern side of the bridge as an interim measure to mitigate for the loss of roost (in the period summer/autumn 2021).

- Once the works on the southern side are complete, bat boxes shall be installed on the southern side. If bats are using the interim bat boxes on the northern side, these will need to be excluded before works are carried out on the northern side.
- Provision of 4 x 2FR Schwegler woodcrete bat tubes for each arch of three arches at the northern end and 3 arches at the southern end where works are undertaken (i.e. 24 x 2FR bat tubes). These bat boxes must be attached to the bridge in an unlit area above high-water mark. Refer to Drawing No 1005 of Appendix 4.1 of the EIAR which shows the location of the bat tubes on the bridge.

- Provision of additional bat boxes in the flood walls. It is proposed that 6 Schwegler 1FR bat tubes will be incorporated into the flood walls on the southern section of the project (Refer to Drawing Nos 1036, 1039, 1040 and 1041 of Appendix 4.1 of the EIAR which shows the location of the bat tubes in the walls) and 13 x 1FR bat tubes shall be incorporated in the concrete piers of the proposed debris trap which will be located across the river channel upstream of Arklow Bridge. ((Refer to Drawing Nos 1021 of Appendix 4.1 of the EIAR which shows the location of the bat tubes in the concrete piers,)..
- This shall be achieved in two phases: Works to southern half of the bridge in the first year requires that only the three bat tubes are installed in the first year of works. Works to the northern half of the bridge in the third year requires that the bat boxes for the southern section of the bridge are installed for the third year of repair work. Provision of 4 x 2FR Schwegler woodcrete bat tubes for each arch of three arches at the northern end and 3 arches at the southern end where works are undertaken (i.e. 24 x 2FR bat tubes). These bat tubes must be attached to the bridge in an unlit area above high-water mark. All remaining shall be installed once all works liable to disturb or damage them has been completed.

Examination of all mature trees with roost potential prior to removal

All mature trees shall be examined for bats prior to felling. This may be achieved through a bat detector assessment if undertaken in the active season (prior to November and after March) or alternatively may require supervision at the time of felling. Any mature trees will require survey

prior to felling. This may be achieved through a bat detector assessment if undertaken in the active season (prior to November and after March) or alternatively may require supervision at the time of removal.

Lighting

- Mitigation for bats includes the following additional lighting considerations:
- No lighting shall be directed at the arches with bat tubes following completion of the work on the bridge.
- Floodlights shall be LED, as these have glass lenses which can be used to direct the light to the working area and reduce light spillage.
- Floodlights for working areas will make use of multiple lights to produce a more uniform light output and to lower the individual output from a single source – these will however still be quite high output.
- The source of light should be Light Emitting Diodes (LEDs) as this is a narrow beam highly directional highly energy efficient light source.

  The lighting should allow for a light level of 3 lux at ground level.

  Narrow spectrum lighting should be used with a low UV component.

  Glass also helps reduce the UV component emitted by lights.

Feeding sites

Provision of suitable feeding sites for bats (where possible given the nature of the scheme) would be achieved by planting lines of vegetation including trees or shrubs in particular along the river. An avenue of trees would be the most beneficial option as it would create a shelter for insects that would in turn benefit bats and birds within the area. Species such as grey willow, alder and silver birch would all be of benefit to bats, birds, and insects. However, any planting will increase the value of the site for bats.

APPENDICES

Bat activity along the River on October 17th, 2016

Green circles = common pipistrelles Blue paddle = soprano pipistrelle
Purple paddle = pipistrelles and Daubenton's
"D" = Daubenton's P = 2 pipistrelle species * indicates pre-dawn bat signals

Bat activity around the proposed FRS site October 19th, 2016

The majority of signals are shown as blue circles and represent soprano pipistrelles

Green paddle = Common pipistrelle "D" = Daubenton's P = 2 pipistrelle species at the same time

Bat activity along the River on October 17th, 2016

Each flag denotes a recording for an individual bat at the time indicated by the last four-digit number

Close-up along the Avoca River to the west of Arklow Bridge

Bat activity in August 2017 at Ferrybank

Legend

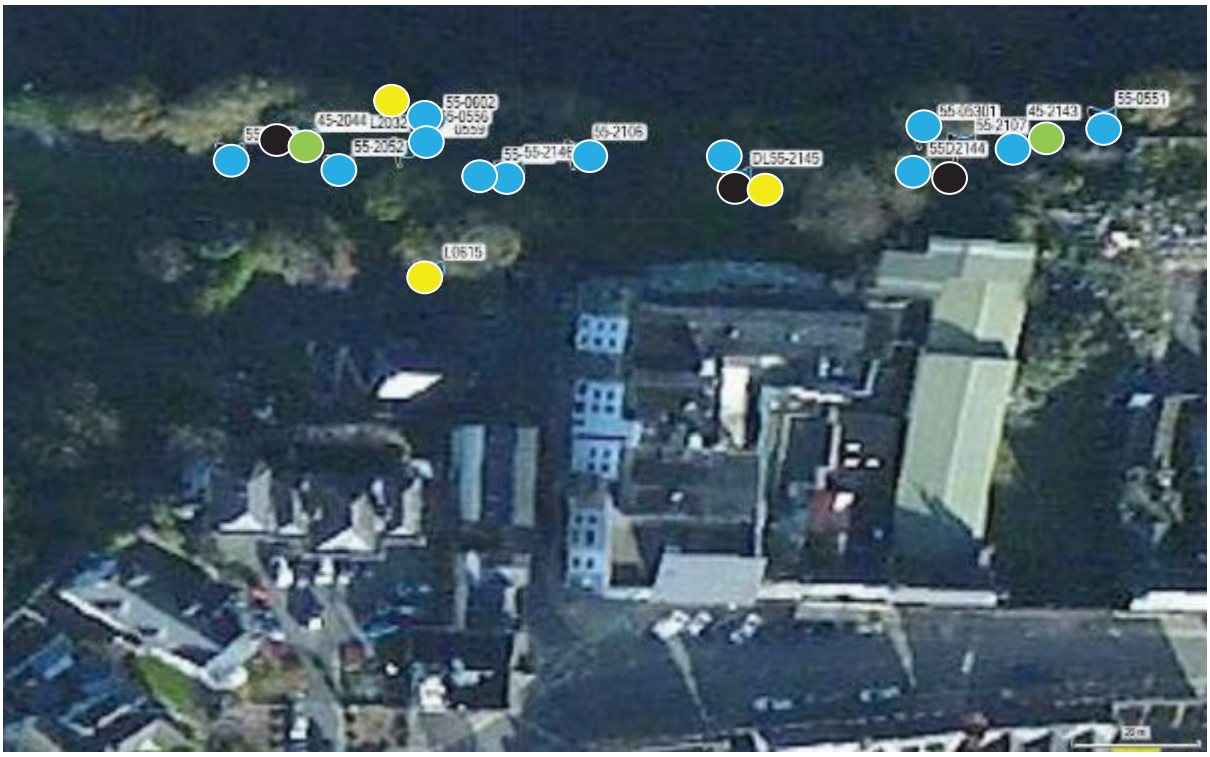
Blue circle = Soprano pipistrelle *Green circle=Common pipistrelle*

Bat activity close to the M11 bridge in August 2017

Legend

Blue circle = Soprano pipistrelle *Green circle=Common pipistrelle*

Black circle = Daubenton's bat

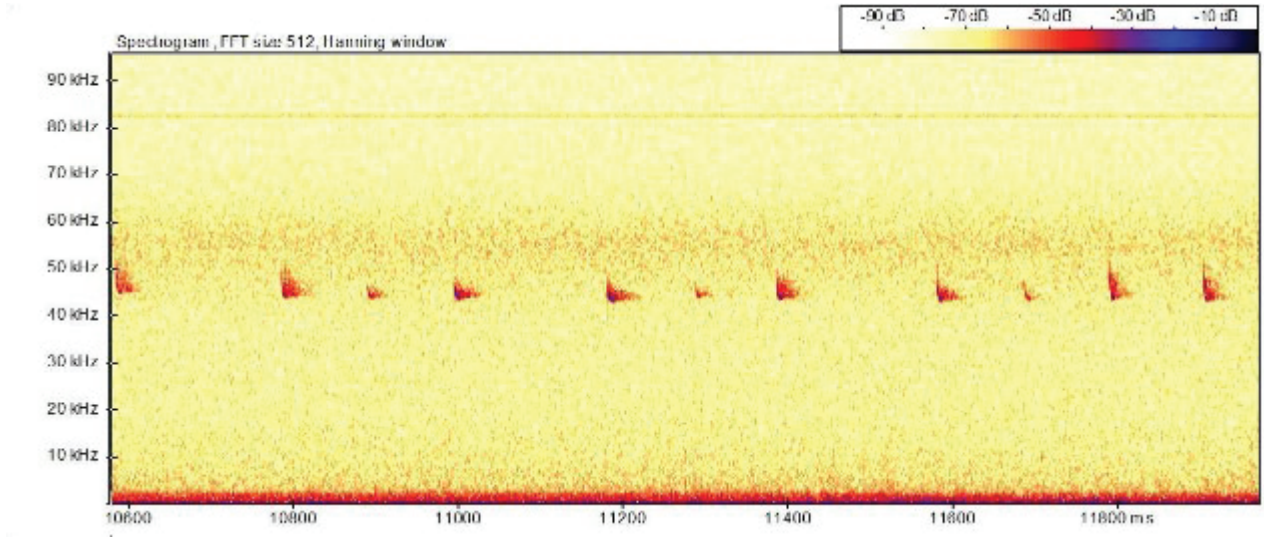


Bat activity near Arklow Castle west of Arklow Bridge in August 2017

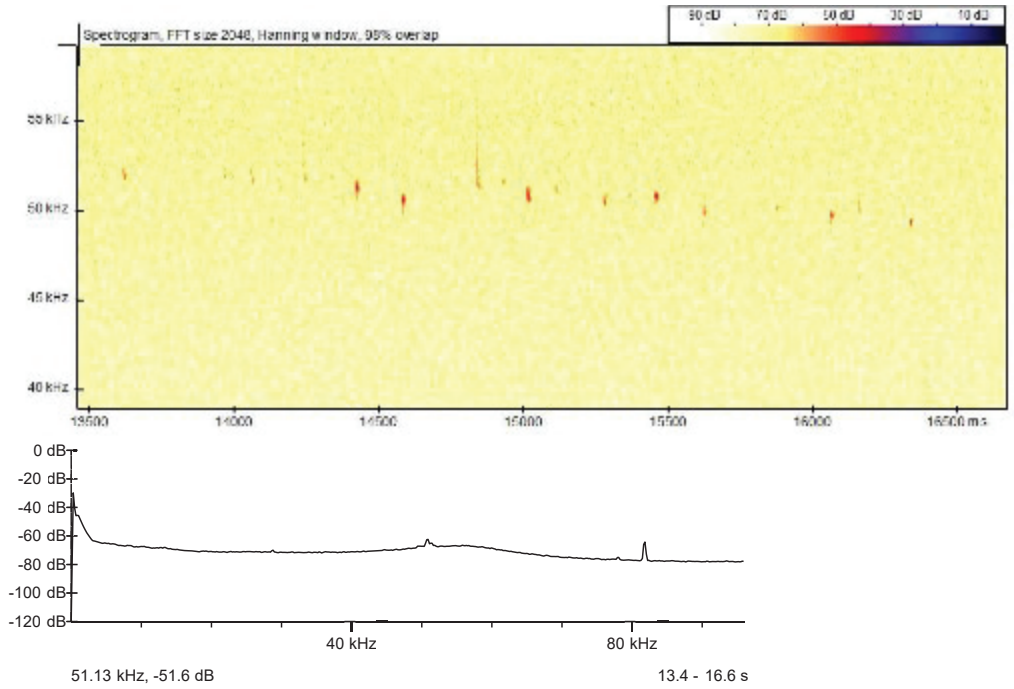
Legend

Blue circle = Soprano pipistrelle *Green circle = Common pipistrelle* Black circle = Daubenton's bat

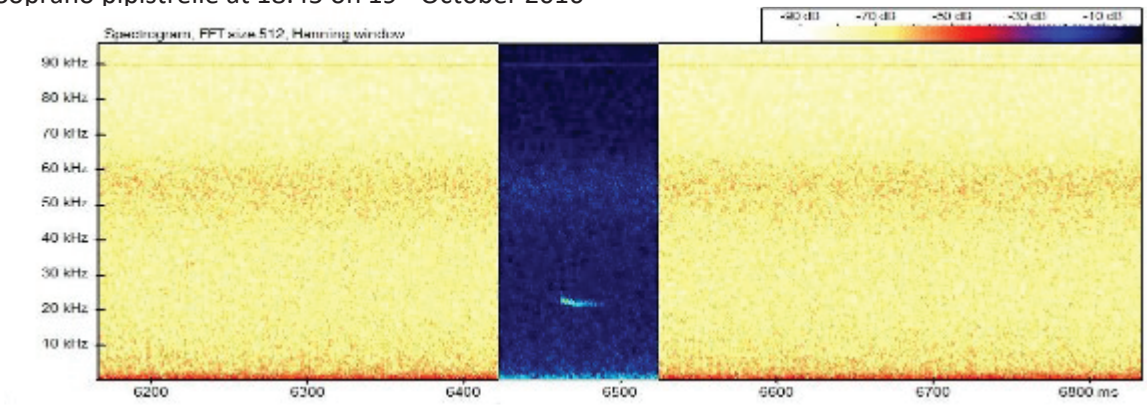
Yellow circle = Leisler's bat



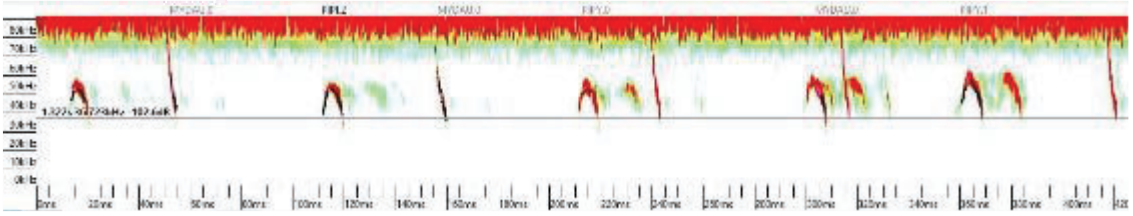
Common pipistrelle signal depicted in a spectrogram plotting the range of frequencies against time and strength



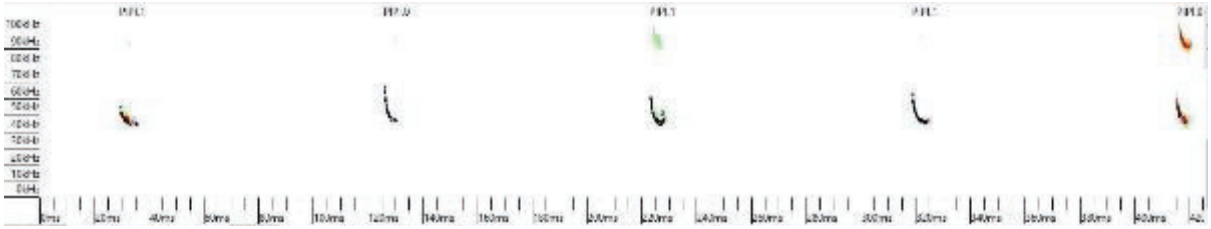
Soprano pipistrelle at 18.45 on 19th October 2016



Leisler's bat signal



Daubenton's bat echolocation and social calls at 00.55 hours at the southern end of the bridge (west side)



Common pipistrelle at 23.57 hours at the southern end of the river (west side)

Bridge crevices under which bat droppings indicate use of the bridge by roosting bats T2530673188

Daubenton's bat on the southernmost arch of Arklow Bridge November 17th, 2020

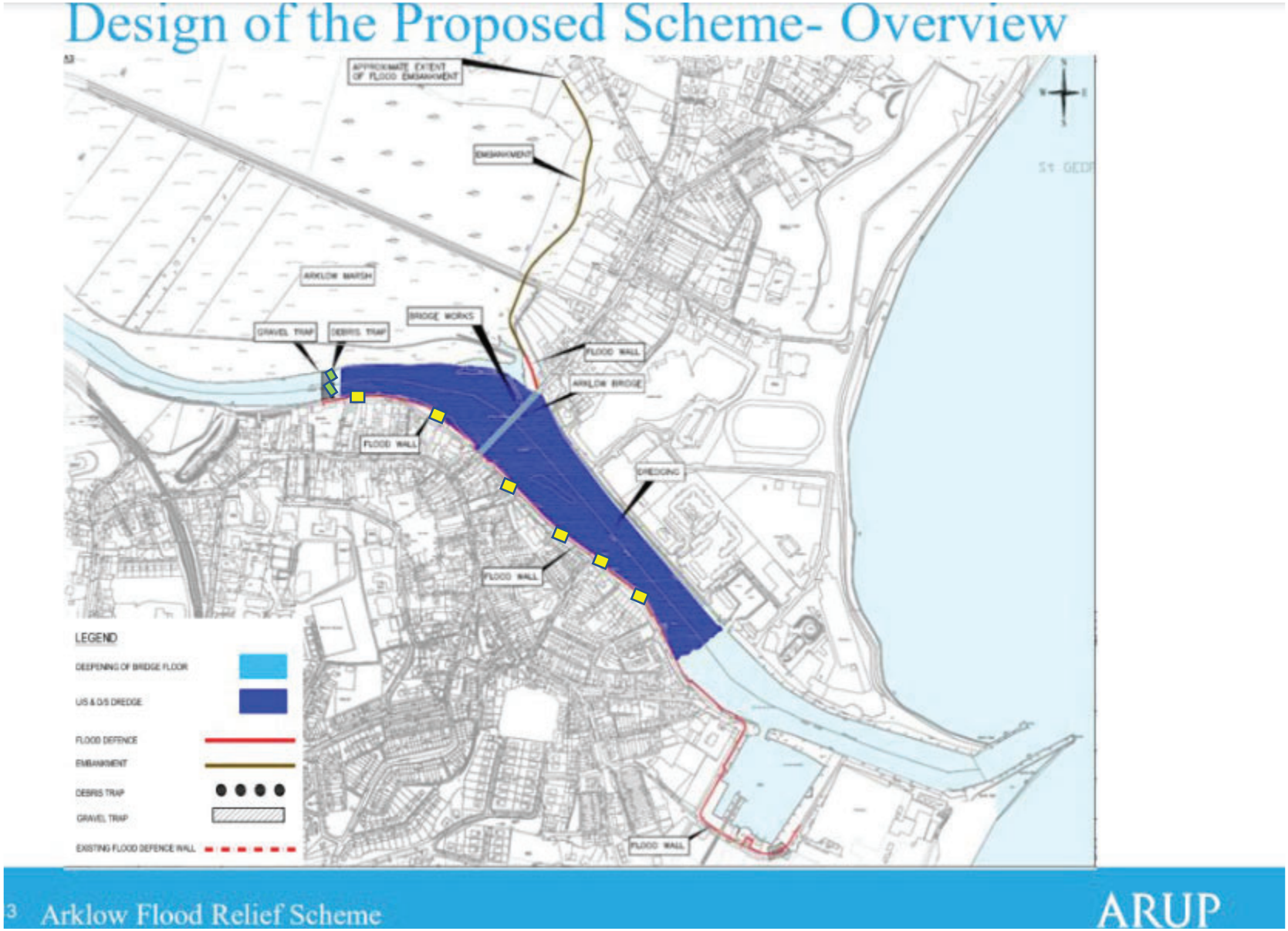
Existing lighting of the bridge. Most illumination is to the east while bats roost to the west. Nonetheless, lighting has increased considerably since 2017

Trees and islets that will be removed by the scheme

Bat boxes examined along the Avoca River in 2017

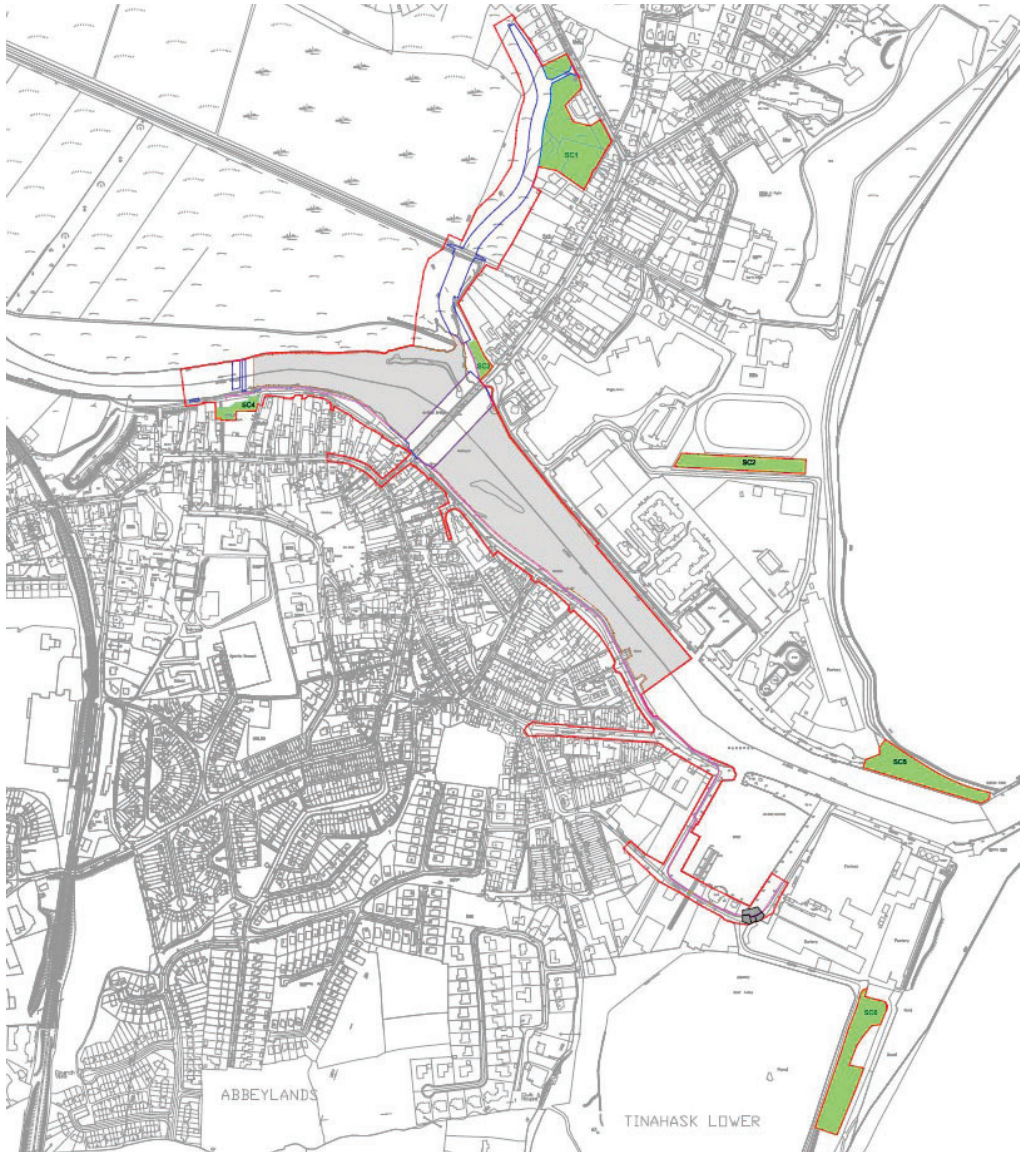
None of these bat boxes were used by bats. The tree on the right was photographed in 2020 with a greater level of lighting evident.

Habitat towards the M11 Bridge.



The yellow boxes indicate the proposed locations for additional Schwegler 1FR bat tubes in the walls. The green boxes indicate the proposed locations of the 13 x 1FR Schwegler bat tubes

Construction of the Proposed Scheme – Overview



LEGEND

- WP 1 - Working Area
- River Access (RA)
- Site Compounds (SC)

WICKLOW ENDLESS OPPORTUNITIES

OPW BYRNELOOBY

ARUP

BYRNELOOBY

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CIVIL·STRUCTURAL·WATER & GEOTECHNICAL SPECIALISTS

CLIENT:
WICKLOW COUNTY COUNCIL

PROJECT:
ARKLOW FLOOD RELIEF SCHEME

ENIVRONMENTAL IMPACT ASSESSMENT REPORT
FIGURE 5.8 WORKING AREA (WA1) AND SITE ACCESS LOCATIONS

DRAWN BY: LIAM TOBIN
CHECKED BY: KAGISO SELALEDI
APPROVED BY: KIERAN THORNTON

FILE NAME: PH0886/01-WP1/WA/SA

SCALE: 1:1 000

STATUS: FOR PLANNING

Table 1: BCIreland data: search results 23rd November 2020

Search parameters: Roosts Transects Ad-hoc observation sites with observations of all bat species within 1000m of T2468473497					
Ad-hoc observations					
Survey	Grid	Grid ref	Grid ref	Date	Species
Bat Walk	T255740	325500	174000	26/08/2014	Myotis daubentonii; Myotis mystacinus; Nyctalus leisleri; Pipistrellus pipistrellus (45kHz); Pipistrellus pygmaeus

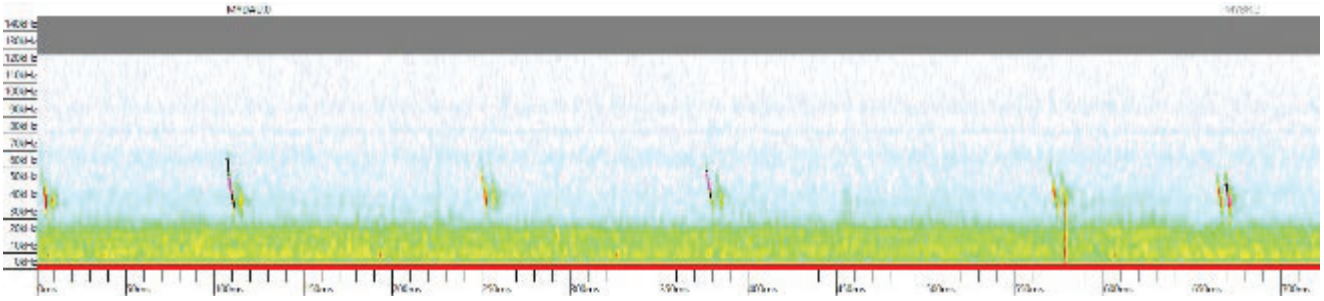
Table 2: BCIreland data for 10000 m from Arklow Bridge area: search results 23rd November 2020

Roosts			
Name	Grid reference	Address	Species observed
Ballymoyle Sheds;	T272791	Ballymoyle Sheds	Nyctalus
Ballynamona Bridge;	T278828	Ballynamona Bridge;	Myotis daubentonii; Myotis mystacinus/brandtii;
Residence; Kilahurler	T1809873482	Kilahurler; Arklow;	Pipistrellus pipistrellus (45kHz)
House	T189830	Meeting of the waters;	Nyctalus leisleri; Pipistrellus pipistrellus (45kHz)
Clonpadden; Redcross;		Clonpadden;	Myotis spp.; Pipistrellus pygmaeus
Inch Church; Inch; Co.		Inch Church; Inch; Co.	Myotis nattereri; Myotis spp.; Nyctalus leisleri;
Kilpatrick Bridge;	T266810	Kilpatrick Bridge;	Nyctalus leisleri
Kilpatrick	T266810	Ballyrogan; Red Cross;	Myotis daubentonii; Nyctalus leisleri;
Lodge	T2273	Arklow; County	Unidentified bat
Residence Lynduff		Lynduff;	Pipistrellus pygmaeus
Residence		Plattinstown; Arklow;	Nyctalus leisleri
Residence		Ballygahon; Avoca;	Pipistrellus pygmaeus
Tinnock Upper	T16976418	Tinnock Upper, Gorey;	Pipistrellus pipistrellus (45kHz)
Transects			
Name	Grid reference	Species	
T05 (6) 2003-	T153661	Myotis spp.; Nyctalus leisleri; Pipistrellus pipistrellus	
Ad-hoc observations			
Survey	Grid reference	Date	Species
Bat Walk	T255740	26/08/2014	Myotis daubentonii; Myotis mystacinus, Nyctalus leisleri; Pipistrellus pipistrellus, Pipistrellus pygmaeus
BATLAS 2010	T1672966957	01/09/2008	Pipistrellus pygmaeus
BATLAS 2010	T2251964363	06/08/2008	Myotis daubentonii; Pipistrellus pipistrellus
BATLAS 2010	T1757977980	12/07/2008	Pipistrellus pipistrellus, Pipistrellus pygmaeus
BATLAS 2010	T3029382095	07/08/2008	Pipistrellus pipistrellus, Pipistrellus pygmaeus
BATLAS 2010	T2651976160	09/08/2008	Pipistrellus pygmaeus
BATLAS 2010	T2791778487	31/08/2008	Pipistrellus pipistrellus, Pipistrellus pygmaeus

BATLAS 2010	T1639466730	01/09/2008	Pipistrellus pipistrellus; Plecotus auritus
BATLAS 2010	T2412466459	06/08/2008	Pipistrellus pygmaeus
BATLAS 2010	T3027281799	07/08/2008	Pipistrellus pygmaeus; Plecotus auritus
BATLAS 2010	T2572075090	10/08/2008	Pipistrellus pipistrellus
Faith Wilson	T277798	2005-07-00	Myotis daubentonii; Myotis spp.; Nyctalus leisleri, Pipistrellus pipistrellus, Pipistrellus pygmaeus
Faith Wilson	T275822	2005-07-00	Myotis mystacinus/brandtii; Nyctalus leisleri; Pipistrellus
Faith Wilson	T263817	2009-06-00	Nyctalus leisleri; Pipistrellus pipistrellus, Pipistrellus pygmaeus; Plecotus auritus
Faith Wilson	T202664	12/07/2005	Myotis daubentonii; Pipistrellus pipistrellus, Pipistrellus pygmaeus
Faith Wilson	T221700	12/07/2005	Nyctalus leisleri; Pipistrellus pipistrellus
Faith Wilson	T277801	2005-07-00	Pipistrellus pygmaeus
Faith Wilson	T2681	24/07/2009	Nyctalus leisleri; Pipistrellus pipistrellus, Pipistrellus pygmaeus;
Faith Wilson	T275829	2005-07-00	Myotis mystacinus/brandtii; Myotis spp, Nyctalus leisleri;
Faith Wilson	T216680	02/03/2006	Pipistrellus pipistrellus, Pipistrellus pygmaeus
Faith Wilson	T201676	13/07/2005	Nyctalus leisleri; Pipistrellus pipistrellus, Pipistrellus pygmaeus
NPWS Calls	T2256470324	16/10/2008	Plecotus auritus
NPWS Calls	T2293273830	03/04/2008	Pipistrellus pipistrellus

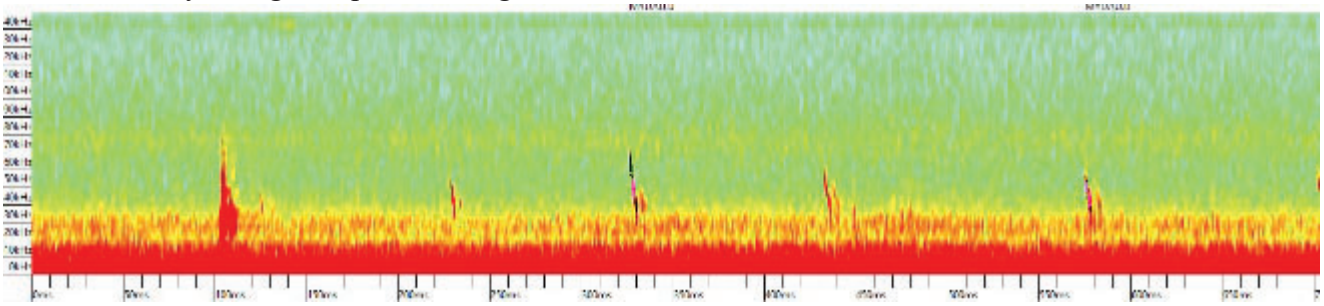
A search of Bat Conservation Ireland revealed no further roost sites. Discussions with Enda Mullen of NPWS confirmed the presence of pipistrelles several years previously at Arklow Castle (OSI Grid Reference T24252 73524). This was not noted to be a particular focal point for bat activity in 2016 and it may not serve as a major roost at present.

However, both post-dusk and pre-dawn surveying was concentrated on a different section of the town and roosting bats cannot be ruled out for this ruin.



Daubenton's bat at 18.20 hours at the bridge recording on Songmeter Mini (downriver of roost site) 17th November 2020

There was only a single sequence of signals from 16.25 to 18.30 hours



Daubenton's bat at 18.20 hours at the bridge recording on Echometer 3 (upriver of roost site) 17th November 2020