

**An Evaluation of Lands at Capdoo & Abbeyland,
Clane, Kildare For Potential as Bat Roost Sites and
For Feeding and Commuting**



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Introduction

Bats are a widespread element of the Irish fauna. They are known to occur from much of the rural landscape, but they are also present within the urban environment and here they occupy buildings and occasionally trees for short or long periods. Houses and other 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 often when the presence of bats may be impossible to determine.

Changes to a site such as tree-felling and hedgerow clearance and the introduction of new houses and entire estates may remove roost sites and reduce the lands available to bats as a feeding site or in some way prevent full utilisation of the area by bats by interfering with a bat's ability to commute through a site or roost within the site.

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. This is a service of The Department of Culture, Heritage, and Gaeltacht Affairs if impacts are likely to be severe.

Prior to the significant changes to a site it may be necessary to ensure that there will be no impact upon protected species, such as all of Ireland's bats. Bats of less common species may be present within a site unbeknownst to owners and residents and there is a requirement to undertake a survey by suitably qualified ecologists with the appropriate equipment to determine which species are present.

Should bats be present, knowledge of the species concerned and the potential consequences of the modifications of the site can assist in identifying measures to alleviate the negative effects of these changes.

Surveying for bats in August is a very suitable time to address the usage of a site during the late breeding period and the foraging by the young of the year and gives a level of information that can assist in evaluating the site for summer usage and can highlight areas of good feeding.

The mating season is under way and mating roosts may be shown up during an assessment at this time. There are no buildings within the site but there are several mature trees. The site offers feeding and commuting opportunities and could potentially hold roost sites. These options are considered and any mitigation that may be required to counter impacts from the proposed development.

Methodology

The survey was undertaken on August 15th to 16th, 2018. The assessment commenced with an examination of the trees that would be removed as a consequence of development prior to dusk. This involved an examination of the trees during a slow walk around the trees while keeping an eye for bats approaching from any surrounding buildings.

An examination of available information from Bat Conservation Ireland, personal data and other known survey results was undertaken to compile a list of most likely species in addition to the evaluation of the habitat and known distributions of Irish species.

The trees and lands were assessed for bat activity both through an examination at emergence time (approximately sunset) and return time (prior to sunrise). This involved an examination with the assistance of an Echometer 3 and a Pettersson D240X and by placing a Songmeter2Bat+ at the entrance to the central field on the western side of the proposed development as shown in Figure 1. Following this, a transect passing through the site and assessing all hedgerow and the nearby riverbank was followed (briefly).

A pre-dawn assessment examined the trees within the site and houses around the site to provide information on the potential as roost sites of these houses.

Survey constraints

The survey was undertaken at a highly suitable period to identify feeding and commuting bats and the activity of the young of the 2018 breeding season. Many bats are still within their breeding roost and bat activity is very high overall. The mating season is under way and bats are very detectable given the frequency of social calls by males in addition to feeding and commuting signals of all bats.

Bat fauna of Capdoo & Abbeyland, Clane

Roosting species None

No bats emerged from any tree within the site. Bats were noted on the perimeter of some nearby housing estates, but the roost site was not determined.

Bat species feeding or commuting within the site (see Figures 1, 2 and 3, Tables 1 and 2)

Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>
Nathusius' pipistrelle	<i>Pipistrellus nathusii</i>
Leisler's bat	<i>Nyctalus leisleri</i>
Daubenton's bat	<i>Myotis daubentonii</i> (see Table 3)

Proposed Development at Capdoo & Abbeyland

This project consists of an application for a Strategic Housing Development by Westar Investments Limited (the applicant) for a new residential development on lands measuring approximately 10.32 hectares at Capdoo & Abbeyland, Celbridge Road, Clane, Co. Kildare. The application is for a development that includes 305 dwellings consisting of:

- 01 no. 1 bedroom Apartments (Block C)
- 12 no. 1 bedroom own door Maisonette (Types J, K, L & M)
- 103 no. 2 bedroom Apartments (Block C, D, F & L)
- 8 no. 2 bedroom Maisonette (Types N, ND, O & OD)
- 34 no. 2 bedroom own door Apartments (Type G)
- 01 no. 3 bedroom Apartments (Block C)
- 34 no. 3 bedroom own door Duplex Apartments (Type H)
- 20 no. 2 bedroom mid terrace houses (Types F)
- 34 no. 3 bedroom semi-detached houses (Types B, BD, D & DD)
- 14 no. 3 bedroom end of terrace houses (Types E & ED)
- 44 no. 4 bedroom semi-detached houses (Types A & AD)

The development also includes a single-storey creche facility (Part of the ground floor of Apartment Block D); associated car parking; surface water attenuation, site entrances, landscaping and all associated site development works.

Potential Impacts

Roost Loss and Injury or Death of bats

As there is no building demolition within the site, tree felling within the site creates the only risk of roost loss and injury to bats if not examined prior to such operations. Bats often require a number of minutes to become active to avoid the risk of injury from chainsaws or falling trees. None of the trees within the site were considered to offer high bat roost potential based on bat activity and the features visible within the trees within the site.

Loss of habitat

There will be a loss of mature trees, hedgerow, pasture and scrub that will reduce insect abundance and feeding and commuting corridors. The following is an indication of the level of vegetation removal and should be used in conjunction with the construction proposal, arborist's report and landscape proposals:

- Removal of Hedge 4 running east west
- Removal of Hedge 5 running north south
- Removal of Hedge 6 running north south
- Thin out poor bushes etc in Hedge 9/10 running north south to expose larger trees and provide permeability to existing Brooklands development adjacent
- Provide for extension of Liffey Walkway from Southern boundary along river edge to Northern boundary.

In the area close to the River Liffey, there will be a loss of some dense cover and scrub. While this may support insect and bird diversity, such clutter is less beneficial to bats which feed in more open habitat, along woodland edge, in clearings and away from bramble or other dense understorey where continuous flight is unimpeded. Birds living in these situations are much more likely to perch regularly and avail of the density of cover.

There will be some loss in feeding due to vegetation loss but there may also be some increase in feeding habitat due to the increased openness of the landscape along the River Liffey

The removal of hedgerow would affect pipistrelle species in particular within the area. Daubenton's bat activity was present within the site but is more commonly associated with water bodies such as the River Liffey.

Disturbance from lighting

Lighting will be increased for two different functions: 1) Access and safety 2) Security and policing. The former is to allow ease of use at night.

The latter is to ensure a perceived higher security level. There is a low level of light pollution from a car dealership on the nearest major road, but overall lighting does not enter the site at present.

Lighting may affect bat species, in particular, light-intolerant bat species during foraging and if directed at emergence points would affect all bat species, even those that will feed in illuminated areas.

Mitigation

Tree felling

Mature trees with bat roost potential should preferably be felled in late autumn. This would include the months of September and October. Should the trees be felled in winter, an evaluation of the trees shall be carried out by a bat specialist prior to felling. Surveying in winter may not be possible by way of a bat detector assessment and a visual examination undertaken by a licensed bat specialist would be required. This would most probably necessitate access to height and the use of a fibrescope if any trees are considered to have good potential for hibernation.

Lighting

Lighting must be designed that will limit overspill from the required area for illumination and prevent light pollution. This should aim to avoid mature trees and the river vegetation in particular but must also avoid illumination of potential roost sites such as the buildings to the north of the site. LED is the most energy efficient source available and wherever a permanent source of night lighting is unessential, it should be motion-activated.

Trees must not be illuminated as this would prevent their use for feeding by bats. Any pedestrian lighting should seek to create no greater than a 3-lux level on the tree canopy or River Liffey. No lighting shall be directed towards any area where bat boxes are present or where feeding and commuting would be affected along the river.

Bat boxes

3 x 2F Schwegler boxes shall be erected within unlit areas away from traffic and likely disturbance. Mature trees would be very suitable. These must be no less than 3 metres above ground in uncluttered areas facing in a southerly direction. Boxes may be attached to buildings, trees or poles.

Planting of vegetation

Species to provide nectar for night-flying insects such as moths should be included in the planting mix. This could include species such as dog rose, night scented stock, honeysuckle and *Clematis* and other species attractive to moths and other nocturnal insects.



Figure 1: Bat activity at Capdoo & Abbeyland proposed housing site 15th to 16th August 2018

Legend

Blue paddle=soprano pipistrelle

Green paddle=common pipistrelle

2=common and soprano pipistrelles *Yellow paddle=Leisler's bat (starred=soprano pipistrelle present)* The static monitor (white box in figure) recorded common, soprano and Nathusius' pipistrelle, Leisler's and Daubenton's bats

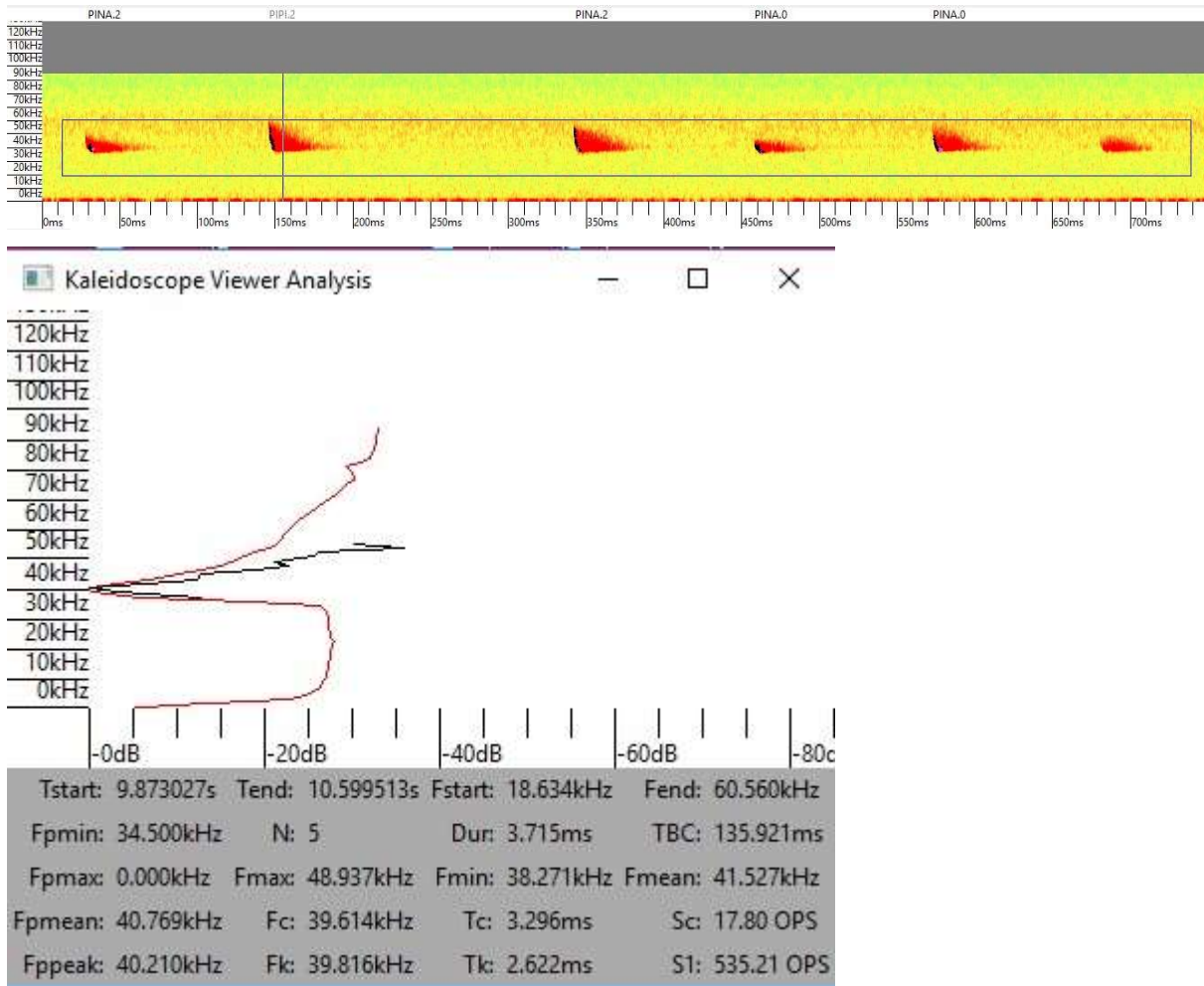


Figure 2: Possible Nathusius' pipistrelle at approximately 03.26 hours

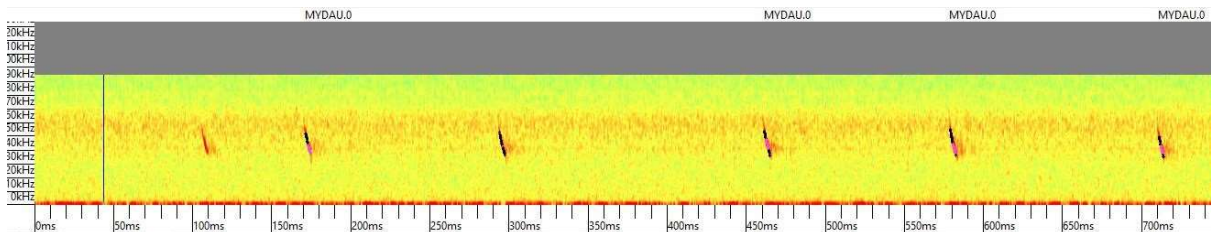


Figure 3: Daubenton's bat at 03.30 hours approx. Also present at 23.11 hours, 23.29 hours and 01.30 hours.

Table 1: All bat data from hand-held EM3 15th August to 16th August 2018 at Capdoo & Abbeyland

Time	Auto Id	Pulses	Matching	Margin	Manual Id
21:18:16	Soprano Pipistrelle	7	7	0.37432	Soprano Pipistrelle
21:23:18	Soprano Pipistrelle	14	10	0.205871	Soprano Pipistrelle
21:23:51	Leisler's	29	29	0.356713	Leisler's
21:24:24	Soprano Pipistrelle	24	12	0.076992	Soprano Pipistrelle
21:24:58	Leisler's	20	19	0.289356	Leisler's
21:25:31	Leisler's	5	5	0.466541	Leisler's
21:27:10	Leisler's	8	8	0.299351	Leisler's
21:27:40	Leisler's	7	7	0.254155	Leisler's
21:34:22	Soprano Pipistrelle	56	41	0.232945	Soprano Pipistrelle
21:34:52	Soprano Pipistrelle	30	28	0.312619	Soprano Pipistrelle

21:34:55	Soprano Pipistrelle	97	86	0.293487	Soprano Pipistrelle
21:35:29	Soprano Pipistrelle	64	41	0.094076	Soprano Pipistrelle
21:35:59	Leisler's	2	2	0.533221	Leisler's
21:36:02	Leisler's	5	5	0.543929	Leisler's
21:40:09	Common Pipistrelle	61	28	0.159365	Common Pipistrelle Soprano Pipistrelle
21:40:39	Common Pipistrelle	11	5	0.142663	Common Pipistrelle
21:40:43	Common Pipistrelle	30	19	0.29297	Common Pipistrelle
21:44:02	Soprano Pipistrelle	100	100	0.483259	Soprano Pipistrelle
21:44:32	Soprano Pipistrelle	4	4	0.546642	Soprano Pipistrelle
21:44:35	Soprano Pipistrelle	4	4	0.749093	Soprano Pipistrelle
21:45:08	Soprano Pipistrelle	6	6	0.679648	Soprano Pipistrelle
21:45:38	Soprano Pipistrelle	9	9	0.48398	Soprano Pipistrelle
21:47:18	Common Pipistrelle	3	3	0.514194	Common Pipistrelle
21:47:21	Common Pipistrelle	10	10	0.326168	Common Pipistrelle
21:50:40	Soprano Pipistrelle	3	3	0.379011	Soprano Pipistrelle
21:51:10	Soprano Pipistrelle	2	2	0.742369	Soprano Pipistrelle
21:55:06	Common Pipistrelle	35	33	0.496599	Common Pipistrelle
21:55:39	Soprano Pipistrelle	32	29	0.207062	Soprano Pipistrelle
21:57:19	Leisler's	8	8	0.460107	Leisler's
21:57:52	Leisler's	2	2	0.540099	Leisler's
22:00:05	Soprano Pipistrelle	18	11	0.079329	Leisler's Soprano Pipistrelle
22:00:38	Leisler's	4	4	0.41682	Leisler's
22:03:57	Common Pipistrelle	3	3	0.54616	Common Pipistrelle
22:04:31	Common Pipistrelle	7	7	0.531953	Common Pipistrelle
22:06:42	Common Pipistrelle	32	32	0.582574	Common Pipistrelle
22:07:12	Common Pipistrelle	10	10	0.657766	Common Pipistrelle
22:16:41	Common Pipistrelle	43	37	0.45019	Common Pipistrelle
22:21:07	Common Pipistrelle	121	115	0.517316	Common Pipistrelle
22:23:53	Soprano Pipistrelle	8	8	0.357718	Soprano Pipistrelle
22:27:12	Common Pipistrelle	22	22	0.376125	Common Pipistrelle

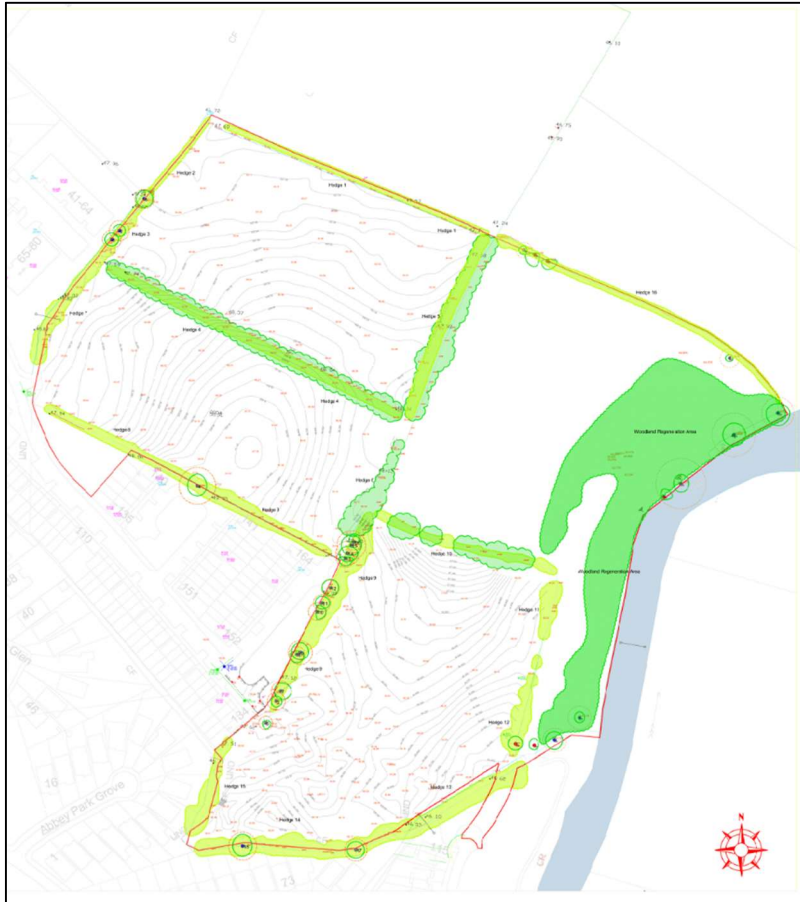
Table 2: All signals recorded by static monitor in hedge gap between two hedges commencing 20.56 hours 15th August and with the final signal at 05.22 hours approximately 16th August 2018

Auto Id	Pulses	Matching	Margin	Manual Id
Leisler's	3	3	0.219759	Leisler's
Leisler's	6	6	0.213497	Leisler's
Leisler's	21	21	0.218365	Leisler's
Leisler's	36	35	0.190213	Leisler's
Leisler's	3	3	0.215392	Leisler's
Leisler's	58	57	0.215236	Leisler's
Leisler's	59	58	0.208034	Leisler's

Leisler's	2	2	0.219146	Leisler's
Leisler's	3	3	0.215122	Leisler's
Leisler's	11	11	0.231481	Leisler's
Leisler's	8	8	0.259763	Leisler's
Leisler's	6	6	0.205904	Leisler's
Leisler's	21	21	0.249842	Leisler's
Leisler's	6	6	0.220074	Leisler's
Leisler's	2	2	0.202052	Leisler's
Leisler's	27	26	0.224525	Leisler's
Leisler's	33	32	0.250214	Leisler's
Leisler's	20	20	0.222445	Leisler's
Soprano Pipistrelle	3	3	0.654737	Soprano Pipistrelle
Soprano Pipistrelle	51	51	0.428119	Soprano Pipistrelle
Soprano Pipistrelle	53	52	0.487175	Soprano Pipistrelle
Soprano Pipistrelle	71	71	0.480291	Soprano Pipistrelle
Soprano Pipistrelle	2	2	0.393283	Soprano Pipistrelle
Soprano Pipistrelle	4	4	0.453692	Soprano Pipistrelle
Soprano Pipistrelle	149	145	0.456533	Soprano Pipistrelle
Soprano Pipistrelle	5	5	0.620046	Soprano Pipistrelle
Soprano Pipistrelle	8	8	0.668748	Soprano Pipistrelle
Soprano Pipistrelle	2	2	0.502541	Soprano Pipistrelle
Soprano Pipistrelle	186	180	0.404792	Soprano Pipistrelle
Soprano Pipistrelle	7	6	0.271976	Soprano Pipistrelle
Soprano Pipistrelle	20	20	0.48397	Soprano Pipistrelle
Soprano Pipistrelle	11	11	0.342965	Soprano Pipistrelle
Soprano Pipistrelle	144	137	0.314695	Soprano Pipistrelle
Soprano Pipistrelle	5	5	0.511834	Soprano Pipistrelle
Soprano Pipistrelle	3	3	0.450944	Soprano Pipistrelle
Soprano Pipistrelle	163	157	0.376151	Soprano Pipistrelle
Soprano Pipistrelle	3	2	0.097355	Soprano Pipistrelle
Soprano Pipistrelle	6	6	0.268424	Soprano Pipistrelle
Soprano Pipistrelle	7	7	0.383967	Soprano Pipistrelle
Soprano Pipistrelle	146	146	0.412947	Soprano Pipistrelle
Soprano Pipistrelle	6	6	0.415154	Soprano Pipistrelle
Soprano Pipistrelle	9	8	0.516409	Soprano Pipistrelle
Soprano Pipistrelle	7	7	0.603206	Soprano Pipistrelle
Soprano Pipistrelle	5	5	0.689277	Soprano Pipistrelle
Soprano Pipistrelle	5	5	0.60426	Soprano Pipistrelle
Soprano Pipistrelle	151	141	0.347881	Soprano Pipistrelle
Soprano Pipistrelle	57	49	0.36596	Soprano Pipistrelle

Soprano Pipistrelle	62	55	0.344547	Soprano Pipistrelle
Soprano Pipistrelle	20	20	0.497106	Soprano Pipistrelle
Leisler's	15	14	0.201991	Leisler's
Leisler's	4	4	0.26299	Leisler's
Soprano Pipistrelle	26	20	0.29178	Soprano Pipistrelle
Soprano Pipistrelle	9	9	0.616124	Soprano Pipistrelle
Soprano Pipistrelle	20	20	0.54728	Soprano Pipistrelle
Soprano Pipistrelle	19	19	0.57894	Soprano Pipistrelle
Soprano Pipistrelle	5	5	0.520919	Soprano Pipistrelle
Soprano Pipistrelle	6	6	0.732332	Soprano Pipistrelle
Soprano Pipistrelle	15	15	0.631278	Soprano Pipistrelle
Soprano Pipistrelle	13	13	0.382219	Soprano Pipistrelle
Daubenton's	7	6	0.342117	Daubenton's
Soprano Pipistrelle	3	2	0.133461	Leisler's Soprano Pipistrelle
Leisler's	2	2	0.292236	Leisler's Soprano Pipistrelle
Leisler's	8	8	0.279193	Leisler's
Daubenton's	6	5	0.401943	Daubenton's
Common Pipistrelle	5	5	0.356261	Common Pipistrelle
Leisler's	2	2	0.309347	Leisler's
Common Pipistrelle	9	9	0.532544	Common Pipistrelle
Common Pipistrelle	2	2	0.714239	Common Pipistrelle
Common Pipistrelle	19	19	0.489805	Common Pipistrelle
Soprano Pipistrelle	2	2	0.576788	Soprano Pipistrelle
Soprano Pipistrelle	20	20	0.460822	Soprano Pipistrelle
Soprano Pipistrelle	8	8	0.706058	Soprano Pipistrelle
Common Pipistrelle	21	20	0.325346	Common Pipistrelle
Daubenton's	5	3	0.145779	Daubenton's
Common Pipistrelle	2	2	0.742273	Common Pipistrelle
Soprano Pipistrelle	4	4	0.75428	Soprano Pipistrelle
Leisler's	3	3	0.196569	Leisler's
Leisler's	6	5	0.211086	Leisler's
Soprano Pipistrelle	5	5	0.640113	Soprano Pipistrelle
Nathusius' Pipistrelle	15	12	0.192771	Nathusius' Pipistrelle
Daubenton's	8	8	0.531651	Daubenton's
Common Pipistrelle	16	14	0.265688	Common Pipistrelle
Soprano Pipistrelle	25	25	0.525598	Soprano Pipistrelle
Soprano Pipistrelle	2	2	0.477799	Soprano Pipistrelle

Table 3: Bat Conservation Ireland data: search results 2 nd April 2019					
Search parameters: Roosts Transects Ad-hoc observation sites with observations of all bats within 1000m of N8843127871.					
Roosts					
Name	Grid reference	Address	Species observed		
12KECL1WC	N8796827079	Clane Tidy Towns Park; Co. Kildare			
Transects					
Name	Grid reference start	Species			
Liffey Park Clane Transect	N8790027050	Myotis daubentonii; Unidentified bat			



Tree constraints plan for Capdoo & Abbeyland



Tree Impact Plan

