Dundrum Area Committee Meeting

7th September 2015

A Review of the Marlay Park Concerts 2015

Contents:

Introduction	3
Consultation and engagement – Steps	3
Elements of the plan	4
Security	4
Communications with Residents	5
Anti-social behavioural issues & policing	5
Traffic management issues	6
Litter Management	7
Noise Levels	7
Park access	7
Off Site Toilets	8
Protect our Parks	8

Appendices:

1. Final Letter to Residents 9
2. Letter from Scott Cawley Ecologists re: Bats 13
3. Letter from Scott Cawley Ecologists re: Birds 14
4. Ecological Impact Assessment 15

Introduction

Two single stage concerts were held in Marlay Park on 3rd and 4th July 2015. The Longitude Festival took place on the 17th, 18th and 19th July 2015 (collectively referred to as "the concerts"). The capacity for all concerts was 135,000 people.

Dun Laoghaire Rathdown County Council received an application for a licence from Festival Republic Limited, on behalf of MCD Productions, to hold the concerts on the dates described above. The licence to hold the concerts issued on the 17th June, 2015.

Following Marlay 2014, it was agreed that the Council would engage with residents' associations, residents, the Elected Members and stakeholders to develop a framework for a community led plan to manage the external environment and neighbourhood and improve access to the Park by park users during the concert period. The output from this engagement informed the plan. The aim of the strategy was to reduce the negative impact that the concert programme might have on residents living adjacent to Marlay Park and on park users.

Consultation and engagement - Steps

- Engaged with Elected Members- Dundrum Area Committee – 4 meetings with Dundrum Area Committee in September and December 2014 and February and June 2015;

- Meetings with the following residents associations - Up to 3 meetings – These meetings also attended by MCD/Festival Republic;

    - **Broadford;**
    - **The Cottages, Grange Road;**
    - **Marley Grange;**
    - **Grangewood;**
    - **Taylors Hill Apartments;**
    - **Marlay Wood;**
    - **Grangefield**
    - **Pine Valley**
    - **Lissadel**
    - **The Eden**
    - **Brehon Chair**
    - **Heather Close**

    - Engagement with South Dublin Protect our Parks. Up to four meetings held with Protect our Parks; one of which took place in advance of the June Dundrum Area Committee meeting. Protect our Parks describe themselves as:

"We are a group of like-minded people from the South Dublin area, who want to reduce/oppose the holding of concerts in Marlay Park. Our aim is to limit the impact on the local natural environment as well as the impact on local residents and the disruption to daily lives".

Elements of the plan

The input from residents and other stakeholders informed the plan.

Security

- Security and barrier fencing was agreed with individual residents' associations in advance of the concerts;
- External security and stewarding increased significantly across all of the concert days, and the offsite provision increased by over 50% on 2014;
- External policing and stewarding was provided by a combination of An Garda Siochana, licensed security and stewards from St Johns GAA. The reaction to St John's involvement in the stewarding was very positive and St John's approach to the stewarding was proactive, engaged and very professional;
- Fencing and barriers were put in place in the estates outlined below to deter concert goers accessing these estates during and after the event. Open space areas were secured on Stonemasons Way to avoid concert goers taking short cuts to the concert venue. Additional fencing and barriers were provided, as agreed.

  Fencing and security provided at:-

  - The Priory and Hermitage Estate;
  - Eden Estate;
  - Marlay Grange;
  - Marlay Court,
  - Llewellyn Estate;
  - Grange Wood;
  - Marlay Grove House;
  - Broadford Estate;
  - Grangefield Estate;
  - La Touche Court;
  - Pine Valley;
  - Grange Cottages;
  - Taylors Hill Apartments;
  - Grange Cottages;
  - Brehons Chair;

- Parking permits were issued to prevent non-residents from using housing estates for parking and this was expanded to include Broadford this year;
- Security stood down an hour later in comparison to 2014 for the stand alone concerts held on 3rd and 4th July. This worked well and resulted in the neighbourhood being substantially cleared of concert goers before security stand down.
- A mobile security response team was also put in place to augment security as and when required to respond to issues of anti-social behaviour as they arose.

There were two security related issues recorded on CRM and one representation regarding the suitability of the stewards. There were also two steward requests recorded.

Communications with Residents

- In previous years, individual letters issued to residents from the Gardai and Dun Laoghaire Rathdown County Council. This year, the Gardai, Festival Republic and the Council worked together to develop one comprehensive letter that addressed all residents' concerns associated with the concert programme. This letter is attached to this Report at Appendix 1;
- There was a residents Hotline set up for concert days. This first response allowed Council/Festival Republic to respond to requests in a timely manner;

There was one representation regarding lack of information on Council's CRM system.

Anti-social behavioural issues and policing of events outside the venue

The following measures were introduced to reduce the impact of anti-social behaviour outside the concert venue before, during and after the concerts.

- The Council is worked closely with the National Transport Authority. The NTA is the statutory authority that issues licences to private bus operators. Licences issued by the NTA were conditioned to provide that these buses were allowed to park in College Road Car Park only. This avoided concert goers leaving the park to access private coaches outside the venue and reduced the risk of anti-social behaviour particularly in the residential area around the Three Rock Pub and Brehons Chair. No charge was applied to the bus operators by the promoter. The Car Park was in College Road was increased to provide extra capacity for these buses.
- Marathon continued to provide their shuttle bus service directly to the concerts from the City Centre and also park in the College Road Car Park.
- External security, professional and stewarding, was increased, both professional and Garda security, for the concert period. St John's GAA provided stewarding

and this worked very well because of their knowledge of the community and the geographic area;
- Urination was a frequent complaint – Toilets on Grange Road, St Endas Park and GNS were provided. Shrub beds on Grange Road were herased off;
- A resident's hotline was set up 01 4375750 for concert days. The number was given to residents to report any issues that arose on concert days to ensure a rapid response.

There were three representations regarding alcohol consumption and one reporting an accident.

Traffic management issues

A comprehensive Traffic Management Plan was developed for the concerts. The main focus of the plan we to ensure that concert goers could access and exit the concert venue as quickly and safely as possible while still maintaining traffic flows for regular road users.

The TMP emphasises the use of public transport as the preferred mode of travel to the venue.

The Plan delivered the following:-

- Shuttle bus service to the Luas at the end of the concerts. This was free on concert days and small charge on festival days;
- The Council worked closely with the National Transport Authority. The NTA is the statutory authority that issues licences to private bus operators. Licences issued by the NTA were conditioned to provide that these buses are allowed park in College Road Car Park only. This avoided concert goers leaving the park to access private coaches outside the venue and reduced the risk of anti-social behaviour particularly in the residential area around the Three Rock Pub and Brehons Chair. No charge was applied to the bus operators by the promoter. The Car Park was in College Road was increased to provide extra capacity for these coaches.
- The return shuttle bus service from the City Centre was managed by Marathon Coaches;
- Additonal taxi capacity was provided at the Ballinteer Girls National School;
- The junction at Taylors Three Rock, College Road and Grange Road was completed; traffic lights turned off at concert end and this ensured that the Gardai could ensure free flow of traffic College Road car park
- Improved signage was delivered to ensure concert goers were exiting towards the right entrance depending on their mode of transport;
- The junctions on the M50, northbound and southbound, was split between bus and car based traffic to ensure that all junction capacity is maximised;

- Signage will be improved and the local stewards will be used to guide people effectively to their preferred transport mode;
- Some residents associations asked for a text alert when the Grange Road was due to close and re-open. This worked well and feedback has been positive.

There were seven representations recorded on the Council's CRM system regarding access to housing estates when the Grange Road is closed for up to one hour at concert end

Litter Management

Festival Republic provided a dedicated off site litter picking team. This was augmented by the Council's own resources. Residents, who wanted to collect litter in their own area, were issued with bags and these bags were collected by the Council's cleansing staff. Litter management was monitored by the Council's Litter Wardens Service.

There was one litter complaint recorded on CRM

Noise Levels

The music level did not exceed 72db (a) LAeq over a period of fifteen minutes. This was monitored by Festival Republic's sound engineer and Environmental Health Officer for Noise Pollution.

The prescribed concert finish time was set at 11 pm but in general all concerts finished at 10.45 pm.

There were 23 representations received about noise recorded on CRM

Park access

The stage was moved to the eastern part of the main field to a new location this year to give as much access as possible to park users to the Park, Marlay House, the recreation area in front of the house and Bolands Café. There were some restrictions on walking routes on concert days but in general park walking routes remained open as much as possible. The Park was open during concert days except on concert days when it closed to park users at 6pm. As there was a gap between the concerts and the Longitude Festival, the main field was restored to park users in that interim period.

There were five representations made in regard to parks access

Off Site Toilets

The Council had agreed with the promoter to install public toilets along Grange Road. Unfortunately, the Gardai did not support this proposal so public toilets were installed in St. Endas Park, Our Lady's Girls National School and inside the Hockey Club.

Protect our Parks – Ecological Impact Assessment

A number of submissions were received from the campaign group South Dublin Protect our Parks. These submissions, inter alia, described the group's concerns about the negative impact that the concerts might have on wildlife, bats and their habitats and on nesting water birds. The Council retained Scott Cawley to carry out an Ecological Impact Assessment. The aim of this assessment was to determine if there was any evidence of adverse effects on individual bats and birds before, during and after the concert period. The Report contains a number of recommendations on p.16 that will be implemented by the Council. The Ecological Assessment and letters from Scott Cawley dated the 10th and 12th June are attached in Appendix 2.

There were 21 representations received relating to impact of the concerts on fauna in Marlay Park.

There were 21 miscellaneous representations recorded on the Council's CRM system.

Overall, there was a very positive reaction to the concerts communicated through social media, the print media, from a number of residents associations and via St. John GAA Club. **On top of that, there are eight positive representations on the Council's CRM system**

If agreed, Paul Scott, from Scott Cawley, will present his findings at the next meeting of the Dundrum Area Committee.

Appendix 1: **Final Letter to Residents**

MARLAY PARK

CONCERTS 2015

24th June 2015

Dear Resident,

This letter has been put together by An Garda Síochána, Dún Laoghaire Rathdown County Council and Festival Republic on behalf of MCD Productions. We would like to keep you informed and up to date on the events taking place in Marlay Park this summer.

The current schedule is as follows:

Friday 3rd July (Gates 4pm) – Avicii/Rudimental/Clean Bandit/The Dead Prezidents
Saturday 4th July (Gates 3.30pm) – Paulo Nutini/ Imelda May / Alabama Shakes / Gaz Coombes
Friday 17th – Sunday 19th July (Gates 1.30pm) – Longitude Festival

The events finish at 23.00hrs on each day. Pyrotechnics will be in use during the Avicii performance on 3rd July.

It is intended that the Local Authority, Event Staff and An Garda Síochána keep in close communication with residents to ensure inconvenience and disruption is kept to an absolute minimum.

PARKING PERMITS
To deter non-residential parking on concert days, parking permits have been issued to all residents in the surrounding area. Three permits have been issued per household. Please contact the Council at 01-2054714 if any resident in your area has not received their permits by the end of June.

TRAFFIC MANAGEMENT PLAN
Signage
Directional signage will be erected on local approach to the concerts and selected roads to the concert site. A recommended route for patrons travelling to and from the event will be advertised nationally. Importance will be placed on maximising the relevant junctions on the M50.

Buses/Coaches
Marathon Coaches will run a shuttle bus service from Customs House Quay in the city centre to the event. It shall commence at 2pm on the 3rd and 4th July and at 1pm on the 17th, 18th and 19th July. Marathon Coaches shall be located in the College Road car

park. In an effort to keep disruption to the minimum on public roads adjacent to Marlay Park, all private buses are licenced to park in the College Road car park.

Road Closures
A number of road closures shall be put in place at the end of each event to safeguard the large volume of pedestrians expected to exit onto the Grange Road. The following is the estimated time at which the road closures shall commence depending on the volume of pedestrian traffic.

- Grange Road from the junction with Taylor's Lane to the junction of Ballinteer Avenue and Brehon Field Road shall close to all vehicular traffic at 10.30pm. Traffic will NOT be allowed to exit any estate or the Lidl car park.
- College Road from the junction with the Whitechurch Road to the junction with the Grange Road shall close to traffic at 10.30pm to allow for vehicles to exit the College Road carpark.
- Stonemasons Way from the junction with the Grange Road to the junction with Broadford Road shall close to vehicular traffic at 10.30pm
- Taylor's Lane from the junction with the Whitechurch Road to the junction with the Grange Road shall close at 10pm. Traffic shall be permitted to drive down Taylor's Lane only towards Whitechurch Road in a contra flow system.

Please note that during these road closures access will be allowed for emergency vehicles.

These road closures shall be removed as soon as the Gardai deem it safe to do so.

PARK AND CAR PARK OPENING/CLOSING TIMES
Marlay Park will remain open to all visitors as normal except on concert days (see above list).

The concert layout and build schedule this year has changed compared to 2014. The new layout aims to maximise the availability of the park to other park users, minimise disruption and make available the amenity space in front of Marlay House and around Bolands Café. To allow this, the stage has been relocated to a new position.

On concert days a circulation route around the park will be maintained until 12noon. Following this, access will be restricted until the park closes at 6pm or earlier should An Garda Síochána consider that this is necessary.

The Grange Road carpark will remain open except on concert days when it will be completely closed. The car park at College Road will remain open at usual times.

LITTER
There will be designated litter teams allocated to the residential areas surrounding Marlay Park. These teams will be litter picking throughout the duration of the concerts and will be available to respond to any waste generated by event attendees. **Please report any litter issues to the residents hotline at 01 4375750.**

NOISE LEVELS

In accordance with the licence issued under the Planning & Development Act 2000, the noise level limit for the concerts is 72dba. Both the HSE and MCD will monitor noise levels through daytime sound checks and the evening concerts.

SAFETY AND SECURITY
Entry to the event is by ticket only, and the event site will be securely fenced off. Following consultation with residents associations a robust plan has been developed to ensure that the site and surrounding residential areas are kept safe and secure. There will be enhanced policing of residential areas surround Marlay Park as well as comprehensive stewarding and sign posting to direct attendees to and from the event. An Garda Síochána and event stewards will work together to prevent anti-social behaviour and illegal parking within the estates. A mobile event security team, organised by the Promoter, will also be in place. Any issues in relation to security can be reported through the **residents' hotline number 01 4375750.**

ANTI SOCIAL BEHAVIOUR
The Council are aware, that with any large gathering, there will always be an element of anti social behaviour. An Garda Síochána are well versed in this regard and are aware of the expected element. However if you experience anti-social behaviour in your area on concert days, you can contact us on any of the numbers below:

CONTACT INFORMATION
- **On Non Concert Days -** Dún Laoghaire Rathdown Council, Marlay Park Concert hotline at 01-2054714, during office hours (Mon – Friday 9am – 4.30pm).
- **On Concert Days** dedicated **Residents Hotline** number is available as a facility for residents to call in with any concerns or observations. Calls to the hotline number will go directly to the event control facility on site, and will be answered by event staff. The facility will be operational on concert days from 11:00hrs to 00:30hrs and the number is 01 **4375750**
- **On Concert Days** any of the Council staff on duty (Aidan Blighe 087-9922866; Therese Langan 086-6074095; Jeanette White 086-0223341)
- the Gardaí at Rathfarnham Garda Station (01-6666500)
- the community Gardaí at 01-6666520

As outlined at the start of this letter, it is our intention to minimise disruption and inconvenience to the residents surrounding Marlay Park and we would like to take this opportunity to thank you for your continued assistance and support during these concerts over the last ten years.
The income generated from these concerts has contributed towards vast improvements in Marlay Park, namely playgrounds, hospitality facilities, sports facilities and some of the other events held (e.g. Samhain and Movies in the Park).

Should you have any queries regarding any aspect of the concerts please do not hesitate to contact the dedicated Marlay Park Concert hotline numbers listed above.

Thank you for your co-operation.

AN GARDA SÍOCHÁNA

DÚN LAOGHAIRE RATHDOWN COUNTY COUNCIL
FESTIVAL REPUBLIC on behalf of MCD PRODUCTIONS

Appendix 2: Letter from Scott Cawley Ecologists re: Bats

10th June 2015.

Dun Laoghaire-Rathdown Co. Council,
City Hall
Marine Road,
Dun Laoghaire,
Co Dublin

Dear Aidan,

The impact of the concerts on bats has been considered by Scott Cawley Ltd at the request of Dún Laoghaire-Rathdown County Council. It is known that most bats react adversely to strong lighting and high noise levels and respond by being displaced from the area during the period of disturbance.

This displacement of bats could constitute disturbance as suggested in the submission, albeit on a temporary and reversible basis during the proposed concerts.

This is extremely unlikely to have a long-term effect on the local bat population given that a) the timing of the concerts is after the main birthing period and by mid-July many juvenile bats will be on the wing and b) the footprint of the individual disturbed areas is unlikely to occupy all of the available foraging habitat and c) the finishing time for the concerts will be one hour after sunset (2300) which is when Brown Long Eared bats (species known to roost at Marlay Park buildings) tend to emerge, thereby avoiding any significant risk of conflict.

There is no evidence to suggest that the bat population has been adversely affected by 10 years of concerts at the Park, DLRCC organise bat walks there every summer and attendees are always as rewarded by at least three species of bats in healthy numbers.

Notwithstanding the above we would recommend that the impact of the concerts on bat emergence patterns and activity be monitored in 2015 using appropriate techniques to determine if such disturbance is evident."

Yours Sincerely,

p.p. Paul Scott

Appendix 3: Letter from Scott Cawley Ecologists re: Birds

12th June 2015.

Dun Laoghaire-Rathdown Co. Council,
City Hall
Marine Road,
Dun Laoghaire,
Co Dublin

Dear Aidan,

The impact of the concerts on breeding and roosting birds has been considered by Scott Cawley Ltd at the request of Dún Laoghaire-Rathdown County Council. We are aware of the use of the ponds by Little Grebe for breeding and note that this species has been breeding at other parkland ponds including Dublin Zoo, Airfield Trust and Carysfort Park. Other waterbirds such as Coot and Moorhen are also known to breed there.

The potential to cause adverse impacts on birds depends on how sensitive the species is and what it is doing. Recent observations of breeding birds has suggested that many chicks have now fledged and are now mobile around the landscape which make them less vulnerable to direct disturbance compared to when they were nest-bound. However young birds are often not able to fly well or manoeuvre in the dark and this may be an issue if birds are startled.

The fact that birds nest year after year in the same locations and that the concerts have been happening for several years suggested that there would be no evidence for long-term population effects. However there may be the potential for short-term effects and in the worst case scenario for nests or chicks to be directly affected.

In order to minimise risk, Scott Cawley ecologists will survey the lakes as soon as possible to identify where there are nests present. It is not feasible to protect mobile fledglings as these can move around. Checks for nests prior to the emplacement of the pontoons will allow the best location for the pontoons to be chosen and in some case it may be useful to shield the nest from the bridge by placement of brashings in the water by an ecologist. Controlled disturbance of fledglings in the vicinity immediately prior to emplacement of the pontoons may also be of some use in reducing risk of unnecessary disturbance.

Yours Sincerely,

Paul Scott
Director

Appendix 4: Ecological Impact Assessment

ECOLOGICAL IMPACT ASSESSMENT

EFFECTS OF OUTDOOR CONCERTS IN 2015 ON BATS AND WATERFOWL, MARLAY PARK, CO. DUBLIN.

DUN LAOGHAIRE-RATHDOWN COUNTY COUNCIL

CONTENTS **PAGE**

1. INTRODUCTION AND SURVEY AREA 17
a. Aims of the Assessment 17
b. Study Area 17
c. Legislative Background 17
i. Bats 17
ii. Birds 18
2. SURVEY METHODOLOGY 18
a. Overview of Surveys 18
b. Pre-Concert Set up baseline surveys (24th-25th June 2015) 19
c. Impact Monitoring Surveys (3rd-4th July 2015) 19
d. Static Bat Detector Surveys (24th June-10th July 2015) 19
e. Post Event Impact Monitoring Surveys (2nd September 2015) 20
3. Bat Survey Results 20
a. Pre-Concert Set up baseline surveys (24th-25th June 2015) 20
b. Impact Monitoring Surveys (3rd-5th July 2015) 22
c. Static Bat Detector Surveys (24th June-10th July 2015) 25
d. Post Event Impact Monitoring Surveys (2nd September 2015) 28
4. Conclusions 29
a. Bats 29
b. Birds 29

References

1. INTRODUCTION AND SURVEY AREA

a. Aims of the Assessment

Scott Cawley, Ecological Consultants were contracted by Dun Laoghaire-Rathdown County Council to provide advice to Council Parks Staff regarding the protection of fauna in Marlay Park during the set-up and operation of outdoor concerts on 3rd and 4th July 2015 and to monitor the response of fauna to the set-up and operational phases of these concerts and the longer terms effects on bat distribution over the summer of 2015. The focus of the impact assessment was on the behavioural response and short-medium term response of waterfowl and bats. The aim of the impact assessment was to determine if there was any evidence of adverse effects on individual birds and bats and to extrapolate these observations to potential impacts on the local avian and bat population diversity and distribution.

This Report focuses on the results of the impact assessment.

b. Study Area

The Study Area covered the main field that would be occupied by the stage on both the 3/4th July concerts and the Longtitude festival, the perimeter treelines and paths, the Central Pond and Woodland Pond. This area was deemed to be the zone of influence of any significant light and noise disturbance generated from the setup and the concerts themselves.

It was acknowledged that other areas such as the car parking area and approach routes could also potentially be affected by changes in lighting but it decided that the best use of survey effort was assigned to the areas of greatest magnitude of change.

Figure 1: Study Area

c. Legislative Background

i. Bats

Currently there are nine species of bat known to breed in Ireland. All nine species and their roost sites are strictly protected under both European and Irish legislation, as described below.

- ***Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000)***
  All bat species occurring in Ireland are listed in Schedule V of the Wildlife Act 1976 (amended by the Wildlife (Amendment) Act 2000) as protected species. This legislation makes it illegal to kill or injure bats in the wild and makes it an offence to wilfully interfere with, or to destroy, their breeding and resting places.

- ***Council Directive on the Conservation of Natural Habitats and of Wild Flora and Fauna 1992 (Council Directive 92/43/EEC)***
  The Habitats Directive offers legal protection to all ten bat species which occur in Ireland and lists them under Annex IV of the Directive, as species of community interest, in need of strict protection. The lesser horseshoe bat is additionally listed in Annex II of the Directive, requiring the designation of Special Areas of Conservation to secure its conservation and protection.

- ***European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 497 of 2011)***
  These regulations give effect to the above two strands of European and national legislation and supersede previous regulations in 1997. This legislation makes it an offence to deliberately capture or kill bats in the wild, to deliberately disturb them particularly during the breeding, rearing, hibernation and migration seasons, or to cause the deterioration or destruction of their breeding and resting sites. Disturbance under the EC Habitats Directive has been tested under case law in the UK (but not in Ireland) to be defined as impact negatively on the demography (survival or breeding) of the species at the local population level. The rarity of the species and vulnerability of individuals of the species would have to be taken into account. Derogation licences can be issued to permit roost loss or disturbance and other potential offences to be committed providing the conservation status is unaffected and other tests within the legislation are met.

- Furthermore as a signatory to the European Bats Agreement (Agreement on the Conservation of Bats in Europe) 1993, Ireland is required to protect their habitats, requiring the identification and protection from damage or disturbance, of important feeding areas. All Irish bat species are listed in Appendix II of the Bern Convention (1979), as species requiring strict protection. Finally, all but two bat species in Ireland are listed as internationally important in the Irish Red Data Book (1993). Natterer's and the whiskered bat are both listed as indeterminate. Brandt's bat status and Greater Horseshoe bat status is not yet determined in Ireland and no breeding sites have been located in the Republic.

ii. Birds

- ***Wildlife Act 1976 and Wildlife (Amendment) Act, 2000 (S.I. No. 38 of 2000)***
  All bird species occurring in Ireland are listed in the Wildlife Act 1976 (amended by the Wildlife (Amendment) Act 2000) as protected species. This legislation makes it illegal to kill or injure nearly all birds, nests and eggs in the wild and also places restrictions on clearance of breeding bird habitats.

2. SURVEY METHODOLOGY

a. Overview of Surveys

Three sets of surveys were carried out:

i) Pre-Concert set up surveys – to provide a baseline from which the impact assessment would be based.

ii) Manual bat and bird monitoring on the nights of the two concerts on 3rd and 4th July 2014 to provide qualitative data on bat and bird distribution and behaviour.

iii) Static bat detector monitoring from 24th June- 10th July to record any changes in bat activity at three locations before, during and after the concerts.

iv) Manual bat surveys on 2nd September to provide qualitative data on bat and bird distribution post-event at the end of the summer.

These are described in more detail below. The design of the surveys and the protocols for identification of bat calls and making impact assessment judgements are based on the following documents:

- Bat Mitigation Guidelines for Ireland (Kelleher & Marnell, 2006. NPWS).
- Bat Surveys: Good Practice Guidelines (Hundt, 2012. Bat Conservation Trust).

b. Pre-Concert Set up baseline surveys (24th-25th June 2015)

Two manual bat detector surveys were undertaken on the 24th and 25th June 2015. Each survey consisted of a post-dusk and pre-dawn survey using two surveyors. The weather conditions on both surveys were clear and cool (14 degrees Celsius) on 24th but heavy showers on the 25th June. Bat surveyors were Mr Paul Scott CEnv, MCIEEM and Dr Daniel Buckley, both experienced bat surveyors each with over 10 years' experience. Surveyors used Pettersson D240x time expansion detectors and Wildlife Acoustic EM3 detector. Dusk surveys and pre-dawn surveys focused on any evidence of bats using Marlay House or outbuildings as well as trees in the perimeter. 45 minutes after dusk, the Study area was walked and observations of bat activity were recorded using the ultrasonic detectors and infrared scope (Night Owl optics).

Birds observations were made for two hours prior to dusk and for an hour after dawn to determine nesting and roosting behaviour. Observations were made using Bushnell H20 10x42mm binoculars.

c. Impact Monitoring Surveys (3rd-4th July 2015)

On the evening of both surveys the Study Area was walked by a single surveyor continuously from 20 minutes prior to dusk to 2330, 30 minutes after the cessation of the concerts. Observations of bat activity were made using ultrasound detector and infrared scope. All effort was made to make qualitative observations from the same viewpoints as made in the pre-concert surveys.

Bird activity and distribution was recorded at frequent intervals (usually every 20 minutes) on both lakes and each side of the pontoon. Responses to specific stimuli were also made including the main flux of public across the pontoon during entry and exit and during the pyrotechnic display on the night of 3th July.

d. Static Bat Detector Surveys (24th June-10th July 2015)

Whilst manual surveys were necessary to identify bat behaviour, flight paths, height and direction, such data were only snapshots of activity at any single point in time. In order to provide an indication of the changes in bat activity in specific locations over a longer period of time, three static ultrasound detectors were installed on trees around the perimeter:

Location 1: Anabat SD1 detector on path to the east of the concert, placed within treeline facing main stage. This detector would record any changes in bat activity attributed to the concert and was in full view of the stage lighting and sound.

Location 2: Anabat SD1 detector placed on tree on south side of Central lake facing toward concert field to the north. This detector would record any changes in bat activity attributed to the concert and was in full view of the stage lighting and sound.

Location 3: Wildlife Acoustics SMZC detector mounted on a tree located at the eastern end of the Central lake, shielded from both sound and lighting from the concerts and proposed to be a "Control" location.

Figure 2: Static Detector locations

e. Post Event Impact Monitoring Surveys (2nd September 2015)

The Study Area was walked by a single surveyor continuously from 20 minutes prior to dusk to 2330 as per the concert monitoring surveys. Observations of bat activity were made using ultrasound detector and infrared scope. All effort was made to make qualitative observations from the same viewpoints as made in the previous surveys.

3. Bat Survey Results

a. Pre-Concert Set up baseline surveys (24th-25th June 2015)

The following observations were made on the dusk and dawn surveys carried out on the 24th and 25th June, prior to any works taking place on the site.

Bats:

- Dusk emergence and dawn entry surveys carried out around Marlay House did not detect any bat roosts. Lighting in this area was likely to be a deterrent to any bats wanting to roost there. Small numbers of Common and Soprano pipistrelle bats *Pipistrellus pipistrellus* and *P.pygmaeus* and Leisler's bats Nyctalus *leisleri* were recorded approximately 30 minutes after dusk in the Tea Room area to the west. This corroborates surveys undertaken in 2010 By tina Aughney which also confirmed that there were no active roosts in the House.
- A single Leisler's bat was recorded roosting in a tree cavity to the south of the Central lake but no other roosting bats were confirmed. At least one Pipistrelle species of bat was recorded feeding in the lakeside woodland to the south of the Central Lake, prior to dusk.

- On both nights, Common pipistrelle bats were recorded in small numbers (2-3) feeding around the wooded paths to the east and west of the Concert field. Light levels here were 0.1 lux and below the sensitivity limit of the light meter.
- The western and eastern ends of the Central Lake supported greatest levels of diversity and activity including Soprano and Common Pipistrelle bats, Leisler's bats and Daubenton's bats *Myotis daubentonii*. Approximately 3-4 Daubenton's bats were seen at any one time and they appeared to feed in localised areas before flying up the lake and back again.
- A single Brown Long-eared bat call was recorded in woodland north of the Woodland pond.
- Lower numbers of all bats were recorded than would have been expected by the habitat and weather conditions but this could be due to many environmental variables.

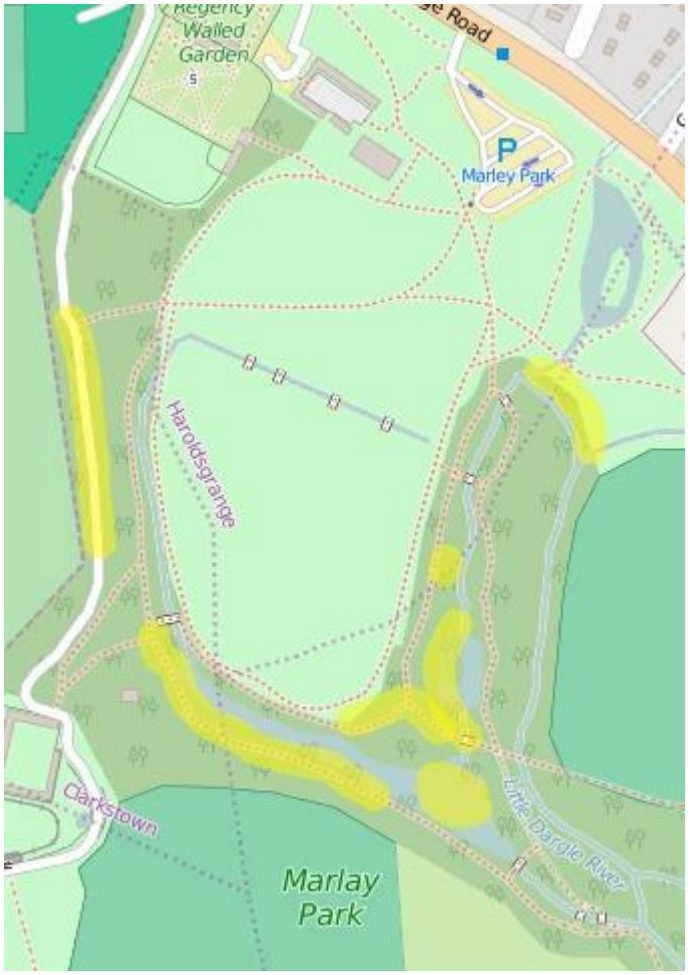

Figure 3: Bat activity hotspots Pre-Concert Set up.

Birds:

- Two pairs of Little grebe *Tachybaptus ruficollis* were noted on the Central Pond and a single pair on the Woodland pond. Two juvenile birds were noted at the western end of the Central lake. No nests were visible and all juvenile birds were mobile and fledged but still dependent on parents.
- A single pair of Moorhen *Gallinula chloropus* and a young juvenile was recorded at the western end of the Central pond.
- Approximately 35-40 Mallard and hybrid duck were recorded in the Central lake. Two Mute Swan and cygnets were recorded on the Woodland Pond.

- Two Grey Heron were seen flying into a Pine tree next to the Central Pond and could be the location of a known heronry. No juvenile birds were seen.

b. Impact Monitoring Surveys (3rd-5th July 2015)

The following observations were made on the dusk and dawn surveys carried out on the 3rd and 4th July, prior to any works taking place on the site.

Bats:

- Soprano pipistrelle bats were first recorded to the south of the Central Lake at 2145 (sunset at 2154) suggesting a nearby roost. They fed unperturbed above and around the bulb string lights.
- 30 minutes after sunset, light levels under the bulb string lights was 3 lux, compared to 16 lux outside the tree canopy.
- Daubenton's bats were recorded feeding in the eastern half of the bisected Central lake and came within 5m of the pontoon once the area was in general darkness. At 2230 two Daubenton's bats appeared in the western half of the Central Pond and fed there for 20 minutes before leaving the area. These bats must have crossed through the woodland or over the pontoon as they were recorded feeding in the eastern half shortly after.
- Common and Soprano pipistrelle bats were recorded feeding over the lake and around the rear of the stage itself.
- During times of potential disturbance such as the main exit period (2300-2330) there was no evidence of bat activity declining with some Daubenton's bats flying within 2m of the edge of the pontoon. There was no notable response during the pyrotechnic display on the 3rd July.
- On the 4th July there was notable increase in Leisler's bat activity after the concert had finished. This was not in the direct glare of the white stage lights projected toward the east but more to the north east over Marlay House.
- No interference with bat echolocation was recorded. The sound engineers for the concerts reported that output over 17kHz was cut off so in theory this would not interfere with bat echolocation when flying and feeding which, for most species covers the range of 20-80kHz.
- Bat activity was low overall but widespread and showed no apparent preference or avoidance of certain areas.

Photo 1: Bulb string lights

Photo 2: High levels of pedestrian movements over pontoon

Photo 3: Lighting post-performance.

Figure 4: Bat activity hotspots during concerts

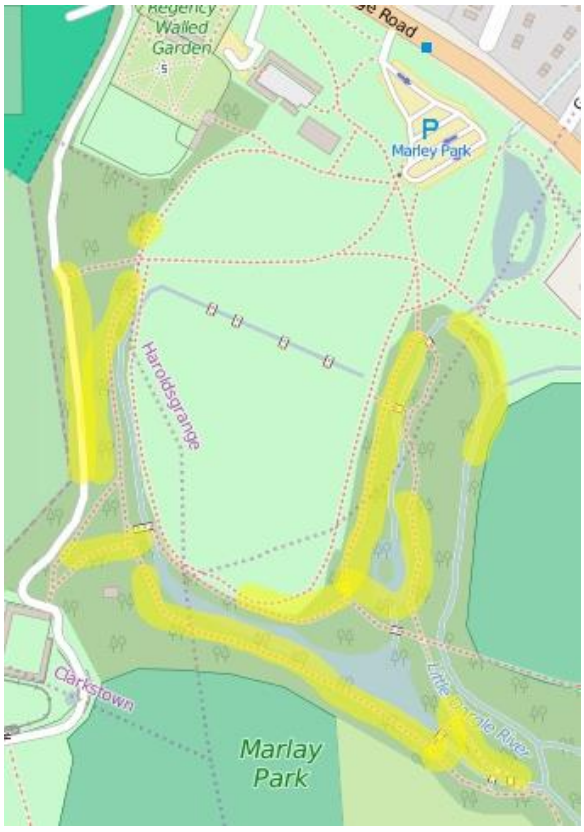

Figure 5: Bat activity hotspots at end of the Summer

Birds:

- At 1730-1830, there were 2 juvenile Little grebe and a single adult and a single juvenile and two adults to the east of the Central lake and 4 adult Little Grebes and 1 juvenile to the West of the pontoons.
- Approximately 35 mallard hybrid ducks were settled in the far eastern end of the Central lake.
- On the night of the 3rd July, the only birds seen to respond to the pyrotechnics at 2245 were two feral pigeons and a single Grey Heron.
- Two pairs of Little Grebe could be seen roosting amongst roosting Mallard at the eastern end of the lake and were largely unaffected by pedestrian traffic across the pontoon.
- One Moorhen and the juvenile were seen feeding at the edge of the Central lake on the northern bank on the 3rd and 4th July.
- Follow up surveys on 6th and 7th July recorded two pairs of Little Grebe and two juveniles on the Central Lake, feeding normally and showing territorial behaviour.

Photo 4: Waterfowl at the eastern end of the lake.

c. Static Bat Detector Surveys (24th June-10th July 2015)

The results of the static detectors are set out below in Table 1. The highlighted cells indicate the nights of the two concerts.

Table1: Results of Static bat detector surveys

Location 1: Path on eastern side of concert field facing concert.					
Date	Unidentified Pipistrelle	Leisler's bat	Common Pipistrelle bat	Soprano Pipistrelle Bat	**Grand Total**
24/06/2015			23	12	**35**
25/06/2015			14		**14**

26/06/2015	1		5	12	**18**
27/06/2015		1	23	4	**28**
28/06/2015		3			**3**
29/06/2015			3	3	**6**
30/06/2015	0	4		2	**6**
01/07/2015		12	4		**16**
02/07/2015	1			23	**24**
03/07/2015	2	17		9	**28**
04/07/2015	6	31		18	**55**
05/07/2015	1	8	2	7	**18**
06/07/2015	0	2		2	**4**
07/07/2015	2	4			**6**
08/07/2015				2	**2**
10/07/2015		2			**2**
Grand Total	**13**	**84**	**74**	**94**	**265**

Location 2: Southern Edge of Central Lake facing toward Concert						
Date	Unidentified Pipistrelle	Leisler's Bat	Common Pipistrelle bat	Soprano Pipistrelle bat	Myotis bat	**Grand Total**
24/06/2015	23		45	34	34	**136**
25/06/2015	12		76	21	21	**130**
26/06/2015	15	3	91	21	2	**132**
27/06/2015	153		854	62	124	**1193**
28/06/2015	54		227	98	14	**393**
29/06/2015	129		380	107	90	**706**
30/06/2015	5		28	7		**40**
01/07/2015	1		6	2	32	**41**
02/07/2015	20		34			**54**
03/07/2015	43		21			**64**
04/07/2015	22		52	2	12	**88**
05/07/2015	45		65	6		**116**
06/07/2015	65		45		12	**122**
07/07/2015	34		78	12	46	**170**
08/07/2015	34	4	99	34		**171**
09/07/2015	76		105		76	**257**
10/07/2015	98		110	32	34	**274**
Grand Total	**829**	**7**	**2316**	**438**	**497**	**4087**

Location 3: Control, eastern end of Central Lake.							
Date	Myotis Species	Unidentified pipistrelle	Leisler's bat	Common Pipistrelle bat	Soprano pipistrelle bat	Brown Long-eared	**Total**

						bat	
24/06/2015	2	34	12	3	6	2	**59**
25/06/2015			17	4	12		**33**
26/06/2015		2	18		3	7	**30**
27/06/2015		9	2	2	11		**24**
28/06/2015		3	9	2	12	2	**28**
29/06/2015	7	8	23	2			**40**
30/06/2015		8	49		4		**61**
01/07/2015		6	18		9	3	**36**
02/07/2015	8	4	35			2	**49**
03/07/2015	5	14	26	5	19		**69**
04/07/2015	5	28	10	2	214		**259**
05/07/2015		10	25	4	72		**111**
06/07/2015		29	68		4		**101**
07/07/2015		13	26	3	18		**60**
08/07/2015		2			8		**10**
09/07/2015		4	10		89		**103**
10/07/2015		8	13		59		**80**
Grand Total	**27**	**182**	**361**	**27**	**540**	**16**	**1153**

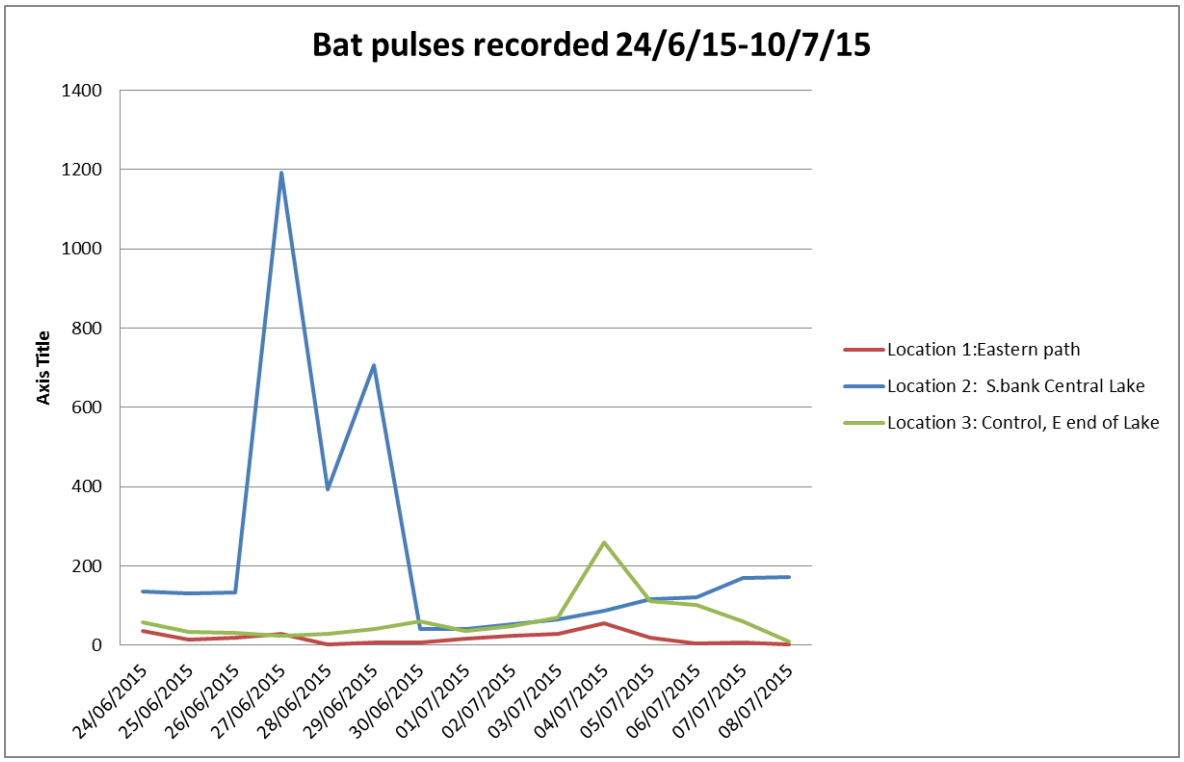

Figure 6: Total bat pulses (calls) recorded over the Study period.

The results can be summarised as follows:

- Bat activity was highest overall at Location 2 (south side of lake) but only markedly so in the days preceding the 30th June 2015. This was likely to be due to warm and damp weather conditions

whereas the weekend of the concert was drier and may have had less insect life around the pond. Bat activity was lowest overall along the eastern path.

- Bat species using all three locations include (in decreasing order of representation):
    - Common pipistrelle bat (most common along the edge of the Lake at Location 2),
    - Soprano pipistrelle bat (found at all locations),
    - Unidentified[1] pipistrelle bats,
    - Myotis bat species (which appeared to be almost entirely Daubenton's bats recorded on the lake, none along the path),
    - Leisler's bats (mostly recorded over the Lake in Location 3 on the eastern path- likely to be bats foraging over the grassland in the Concert field).
    - Brown Long-eared bats (only occasional bats recorded at Location 3).

- Subtle differences in species numbers recorded at each location may be attributed to changes in the light environment but not necessarily connected to a drop in bat activity:
    - At Location 1, along the path to the east, there did not appear to be any significant changes in usage by bats. There was a notable rise in Leisler's bats activity on the 4th July 2015 which coincided with a concert and also with observations of Leisler's bats feeding near the house. However the number of calls was still very low overall for the entire period of monitoring. Leisler's bat calls were consistently higher in the Control location for all dates and did not show any marked change during the concerts.
    - At Location 2 on the south bank of the lake the highest levels of bat activity were recorded and were dominated by Pipistrelle bat species. After the 30th June 2015 the level of activity dropped significantly but this was not coincident with any increase in illumination or disturbance in the Park. The concert nights of the 3rd and 4th showed a small increase in level of activity but not significantly so. There was a steady rise in bat activity from the 1st July, through the concert period to the 10th July.
    - At Location 3 (Control) there was a steady number of bat calls recorded prior to the concerts until the second concert night of the 4th July when there was a near threefold increase in bat activity (mostly Soprano pipistrelle bats) although the level of activity was still rather low. There were no other marked changes in activity levels for other bat species in this location.

d. Post Event Impact Monitoring Surveys (2nd September 2015)

Conditions for this survey were calm, overcast and mild (14 degrees Celsius). The first bat recorded by the manual observations was a Common pipistrelle bat flying along a dark section of the eastern path at 14 minutes after sunset. At 30 minutes after sunset at the eastern end of the Central lake there were regular recordings of Soprano Pipistrelle bats, Daubenton's bat and an unidentified Myotis bat in the woodland.

Common and Soprano pipistrelle bats were then regularly recorded along the south bank of the Main Lake and also around the Woodland lake and the western path in the darker areas. A small number of Daubenton's bats (3-4) were seen feeding along the entire area of the Central lake with no obvious preference for any one area.

Only one Leisler's bat was recorded in the Study Area, on the Western side of the concert field feeding high over the tree canopy. Overall, the bat distribution and density of bats recorded was comparable to that recorded pre-Concert set up.

[1] Common pipistrelle bats echolocate at or around 45kHz and Soprano Pipistrelle bats at 55kHz. However the peak frequency often varies somewhat depending on behaviour and environment and so frequencies that are clearly Pipistrelle in origin but peak between 48 and 52kHz were labelled as unidentified Pipistrelle bats.

Four Little Grebes were sighted at the eastern end of the Central Lake and all appeared to be adults. The pair of Mute Swan and cygnets were on the Central lake and the Woodland Lake. Approximately 25 Mallard were on the Central Lake. Two Grey Heron were recorded feeding on earthworms at night in the Concert Field. Overall, the bird diversity and distribution recorded was comparable to that recorded pre-Concert set up.

4. Conclusions

a. Bats

The rise in Leisler's bat activity in Location 1 on the night of the 4th July 2015 could possibly be attributed to more activity near the floodlights. Leisler's bat are one of the few bat species that feed around strong lighting, due to large moth and other insect food items being attracted to the light. Most bat species will show a negative correlation between illumination and activity. However the levels of bat activity are so low as to be inconclusive as this area.

- There is no evidence to suggest adverse impacts on bats on the Lake near the pontoon. Bat activity near this location declined *before* the concerts for unknown reasons and then steadily increased from 1st to the 10th July 2015. There was no significant drop in activity at any location during the concerts
- The increase in Soprano Pipistrelle activity at the Control location on the night of 4th July could possibly be attributed to displacement of a small number of bats from disturbed locations. But again the numbers of bat calls was still relatively low and the increase from 69 calls to 259 calls could be caused by a shift in a small (2-3) number of bats.
- The manual survey was extremely valuable in observing bat behaviour. There was no indication that bats were affected by the lighting in the area near the lake, which was very unobtrusive and within the normal foraging illumination level for Leisler's and Pipistrelle bats. Myotis bats are often regarded to be more sensitive to light and prefer dark corridor of less than 3 lux. It is possible that bats made discrete feeding preferences for darker corridors but that this was not observable using the static detectors.
- The continued use of the three areas after the concerts by similar numbers of bats suggests that the local bat population was unaffected in the short and medium-term by the changes in the light and noise environment.

b. Birds

- The results suggested that Little Grebe, the primary conservation concern due to its relatively sparser distribution, was unaffected by the concert. Birds are likely to have been settled on each side of the pontoon before dusk and did not show signs of distress during the installation or post-installation stages of the concert.
- All birds including Mallard, Heron, Moorhen and Little Grebe were able to feed and move around during the concert in daylight hours. Duck showed sensitivity to disturbance later in the evening and tended to roost at the far eastern end of the main pond. However they were never disturbed to the extent that they took flight.
- The continued use of the three areas after the concerts by similar numbers and of birds and the same species suggests that the local bat population was unaffected by the changes in the light and noise environment.

Overall, the response of fauna to the setting up and operation of outdoor concerts on 3rd and 4th July 2015 did not suggest significant disturbance to the local population. Bats may have responded by minor adjustments to feeding preferences and flight paths but there was no evidence for desertion of foraging resources. Therefore it was our opinion that a derogation licence would not be required as the local population of bats using Marlay park appeared to be unaffected.

Similarly, waterfowl did not appear to be stressed or affected during or after the installation of the pontoon or the operation of the concert and the fact that there are breeding populations of Little Grebe,

Moorhen and Mute Swan in a restively busy park suggest that the Concerts are not affecting these species.

Despite its calm and tranquil setting, Marlay Park is a busy park used by hundreds of visitors every day. Large events involving visual and noise stimuli such as the Saturday morning runs have created habituation for waterfowl. Good screening by vegetation exists around the edge of the lake and serves to create more protected zones.

This study produced the following recommendations to be adopted for future events and for general park management:

- Lighting along footpaths in woodland to be restricted to the bulb string lights;
- Some woodland paths to remain unlit along their length;
- Vegetation removal around the ponds to be on a phased basis to prevent excessive opening up of significant areas.
- Bat boxes to be erected on mature trees at eastern end of Central pond and near Woodland Pond.

REFERENCES

Bat Conservation Trust (2012). *Bat Surveys: Good Practice Guidelines*

Briggs, B. & King, D. (1998) *The Bat Detective: A Field Guide for Bat Detection.*

Highways Agency (2001). *Design Manual for Roads and Bridges: Nature Conservation Advice in Relation to Bats.*

Hundt, L. (2012). *Bat Surveys: Good Practice Guidelines.***,** 2nd Edition, Bat Conservation Trust.

Joint Nature Conservation Committee (2000) *Habitat Management for Bats: A guide for land managers, land owners and their advisors.*

Jones, J. (2000) *Impact of Lighting on Bats.* London Biodiversity Partnership

Mitchell-Jones A. J. & Mcleish A. P. (1999). *The Bat Workers' Manual 2nd Edition.* Joint Nature Conservation Committee.

Mitchell-Jones A. J. (2004) *Bat Mitigation Guidelines.* English Nature

National Parks and Wildlife Service (2006) *Bat Mitigation Guidelines for Ireland*

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