



Bat Survey

Gondar Gardens Reservoir Site


London, NW6

On behalf of
Linden Wates (West Hampstead) Limited

August 2010
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The development has been subject to environmental impact assessment (EIA) in accordance with the town and Country Planning (Environmental Impact Assessment) Regulations 2011. This report, whilst intended to be a standalone document, also forms Technical Annex 4.2 of the Environmental Statement (ES) which is being submitted in support of the application.

Revision	Purpose	Originated	Checked	Authorised	Date
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Rev A	Name changes (Linden Homes to Linden Wates)	OR	RH		17/1/11
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Job Number: JBA 10/35		Title: Bat Survey at Gondar Gardens, Camden, London			

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0 Executive Summary

- 0.1 James Blake Associates were commissioned by Linden Wates to undertake further bat surveys of the former covered reservoir at Gondar Gardens, Camden, London.
- 0.2 Surveys consisted of a thorough internal check of the reservoir for signs and evidence of bats, as well as evening emergence/dawn re-entry and activity transects conducted on four occasions between the 26th of July 2010 and 4th of August 2010.
- 0.3 Although the former reservoir (internally) contained potentially suitable roosting features for bats, no signs or evidence of bats were found and no access for bats into the space was found. Very low numbers of common pipistrelle *Pipistrellus pipistrellus* bats were detected and observed foraging and commuting along the boundary of the site, though no bats were found to be roosting or foraging on site. One common pipistrelle was considered likely to be roosting in trees within gardens adjacent to the site.
- 0.4 Due to the likely retention of the majority of trees on site it was considered unlikely that any foraging or commuting bats would be significantly impacted by the proposed development. However, precautionary measures, outlined later in the report should be followed to minimise any residual risk of disturbance to bats.
- 0.5 Overall, it was considered highly unlikely that roosting bats would be significantly impacted by the proposed development and if precautionary measures are followed then any residual risk of impact to foraging or commuting bats or to local bat conservation would be minimised to negligible.

1 Introduction

Background

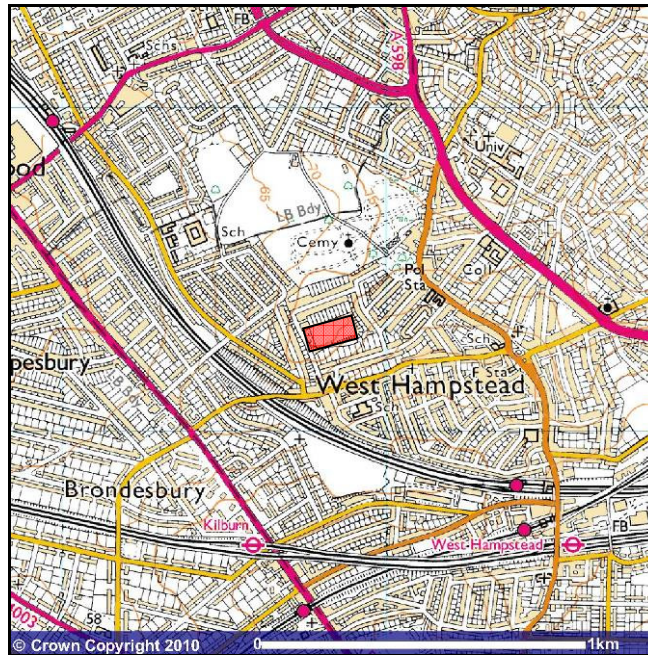
- 1.1 James Blake Associates were commissioned by Linden Wates to undertake further bat surveys of the former covered reservoir at Gondar Gardens, Camden, London. Grid reference: TQ 248 853.
- 1.2 Bats are legally protected species and some bat species are also UK priority BAP (Biodiversity Action Plan) species. All protected species and BAP species are material considerations for individual planning decisions under Planning Policy Statement 9 (PPS9, ODPM, 1994).

Surveyors

- 1.3 Surveys were carried out by Odette Robson BSc (Hons) PhD MIEEM, Les Cousins (Suffolk Bat Group) and Roger Spring BSc AIEEM (bat licence no. 20101307).

Geographical Scope

- 1.4 The site consisted of a disused underground water reservoir (now drained) with a neutral rough grassland covering and some shrubs and trees located to the site boundary. The area is designated a site of Borough Grade II Importance for Nature Conservation.
- 1.5 Residential properties with gardens were located directly adjacent to the south, north and east of the site. To the west was Gondar Gardens Road, across which were further residential properties. The surrounding habitats were mostly urban with the parkland habitats of Hampsted Cemetery located approximately 126m north of the site with playing fields beyond. A railway and associated vegetation was located approximately 170m south west of the site. Golders Hill Park lies approximately 1.35km north east of the site and Hampstead Heath is situated approximately 1.9km east of the site (see Figure 1 below).

Figure 1: OS map of site location

Objectives

- 1.6 The purpose of the survey was to determine presence/likely absence of roosting, foraging or commuting bats on site, as well as the species, numbers and their use of the site.
- 1.7 This information was use to determine the likely risk of impact on bats, bat roosts and local bat conservation from the proposed development, and if necessary to recommend precautionary measures, compensation of habitats or mitigation to prevent harm to bats.

2 Methodology

- 2.1 Survey methodology followed standard techniques and designs recommended by English Nature (now Natural England) and the Bat Conservation Trust.
- 2.2 The underground reservoir was inspected internally for signs and evidence of bats and potential to support roosting bats. This involved checking for the following:
- Signs and evidence of bat activity, taken to be the bats themselves, urine and grease stains, droppings and scratch marks.

- Potential for access and suitability for roosting sites, based on large enough cracks, crevices and other areas suitable for roosting.
- 2.3 It should be noted that absence of signs or evidence of bat activity around a potential bat roost does not necessarily mean that bats are not using the site for roosting.
- 2.4 Two dusk emergence and two dawn re-entry surveys were conducted on the site, with time spent during each survey walking transects around the boundary (considered to be the most potentially valuable foraging/commuting habitat) to record bat activity around the site.
- 2.5 All surveys were conducted in optimal weather conditions (mild, dry, little wind) and during the peak survey season (July and August). Emergence surveys started approximately 20 minutes before sunset and continued for approximately 2 hours after sunset. Dawn re-entry surveys started approximately 1.5 - 2 hours prior to sunrise and finished approximately at sunrise.
- 2.6 Equipment used included Pettersson D 240x detectors, Zoom H2 digital recorders, Batbox Duet detector, as well as observation to record all bats on site. The recordings were also analysed following surveys to confirm the surveyors' results.
- 2.7 The emergence and re-entry parts of the surveys focused primarily on trees considered to contain features potentially suitable for roosting bats (cracks and crevices and thick ivy *Hedera helix* growth) along the southern and eastern boundaries, a large ash tree in an adjacent garden to the north of the site was also watched for bat activity. The activity part of each survey involved walking transects around the boundary of the site to record all bats on or near the site.

3 Results

Data Search

Mammals	Protection	Approximate distance from site	Year of Record
Common pipistrelle bat	European protected, LBAP	292m north 348m west	2010 1993
Daubenton's bat	European protected, UK and LBAP	1.5km north east 4.6km north east	1993 2011
Greater horseshoe bat	European protected, UKBAP, LBAP	Within the same 10km square	1736-1900
Leisler's bat	European protected, LBAP	Within a 1km square approximately 5km south east	1973

<i>Myotis sp.</i>	European protected, UK and LBAP	4.6km north east	2011
Natterer's bat	European protected, LBAP	1.3km east 4.6km north east	2002 2011
Noctule bat	European protected, UK and LBAP	1.5km north east Within a 1km square 2.2km north east	1993 2007
Soprano pipistrelle bat	European protected, UK and LBAP	1.2km north east	2010
<i>Pipistrellus sp.</i>	European protected, LBAP	292m north 902m west	1993 2007
Brown long-eared bat	European protected, UK and LBAP	1.3km north east	2005

3.1 Bat surveys conducted in 2008 on site found no roosting bats though low numbers of commuting and foraging common pipistrelles, soprano pipistrelles and nathusius *Pipistrellus nathusii* were detected. It was also suspected that due to the relatively early appearance of a common pipistrelle on site that at least one bat would likely be roosting nearby (Entec UK Limited, 2009).

Emerging/Entering Bats

3.2 No bats were observed or detected emerging from or entering trees or structures on the site. However, one common pipistrelle was observed showing swarming behaviour at sunrise on the 4th of August 2010 around trees in gardens adjacent to the northern boundary (Position 2 in Figure 1 in the Appendix).

Foraging & Commuting Bats

3.3 Common pipistrelles were the only bat detected on or near the site during surveys and these were only detected in very low numbers (one at a time, occasionally). For full details see Tables 1 to 8 in the Appendix.

Reservoir Inspection

3.4 Numerous potentially suitable cracks and crevices were found in the arched, brick structure of the reservoir (see Photograph 1 in the Appendix). However, no signs or evidence (droppings, stains, scratch marks etc) of bat activity were found. In fact no signs or evidence of any mammal species (including rats and mice) were found inside the structure. No potential access for bats were found with all ventilation pipes leading to the surface blocked.

Species Status

3.5 Common pipistrelles are considered to be the most abundant and widespread native bat species in the UK (BCT fact sheets, 2010) and are understood to be frequently observed in London, though the distribution

across London is unknown (London Bat Group, 2010).

4 Legislation & Evaluation

4.1 All UK bats and their roosts are protected by law under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2010. The following is a summary of their legal protection:

- deliberately capture, injure or kill a bat;
- intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats;
- damage or destroy a bat roosting place (even if bats are not occupying the roost at the time);
- possess or advertise/sell/exchange a bat (dead or alive) or any part of a bat;
- intentionally or recklessly obstruct access to a bat roost.

Roosting bats

4.2 No emerging or re-entering bats were found on site. Although it was considered that some trees on site contained potentially suitable features for roosting bats, it was unlikely that bats were using the trees for roosting at the time of survey. However, it was considered that at least one common pipistrelle was highly likely to be roosting in a tree within the adjacent gardens to the north of the site.

4.3 Although the reservoir was considered to contain potentially suitable cracks and crevices for roosting bats, no access into the space was found for bats and no signs or evidence of bat activity were observed. Therefore, it was considered highly unlikely that bats were using the reservoir for roosting or would be significantly impacted by works proposed for the reservoir. As a former drinking water holding facility, the internal space was designed to be vermin-proof, and still retained features such as grills on all ventilation openings. No signs or evidence of rat or other mammal activity were found within the space, suggesting that access was not possible.

Foraging or Commuting Bats

4.4 Only very low numbers of the most abundant and widespread bat species were observed and detected foraging and commuting only the boundary of the site. Survey conducted by Entec UK Limited in September 2009 found low numbers of common pipistrelles, soprano pipistrelles and nathusius pipistrelle. It was considered that even if these later two species (not

detected in 2010) do occasionally use the site, it is understood that the vast majority of highest quality bat foraging and commuting habitat (the trees & southern/eastern bank vegetation) is proposed for retention within the development. Therefore, it was considered highly unlikely that foraging or commuting bats would be significantly impacted by the proposed development.

- 4.5 However, to minimise any residual risk of disturbance to foraging or commuting bats, precautionary measures, outlined later in the report, should be followed.

5 Recommendations

- 5.1 It is recommended that to minimise any residual risk of disturbance to foraging or commuting bats on site and to any potentially roosting bats nearby, the client should follow lighting minimisation precautions, as follows:

- During development no works on site should be conducted after sunset and if security lighting is required then this should be kept to the minimal level (as necessary for safety);
- lighting should be appropriately directed to avoid illuminating retained trees and adjacent gardens;
- any necessary security lighting installed on new properties should ideally be set on short timers and be sensitive to large moving objects only;
- other lighting around the site should be kept to the minimal feasible level and be directed downward and shielded to minimise light spillage;
- ideally, external lights should be low pressure sodium lamps with covers made from glass rather than plastic as this minimises the amount of UV light, reducing the attraction effects on insects (BCT, 2009).

- 5.2 It is also recommended that trees on site and adjacent to the site should be suitably protected from harm following BS5837: 2005 (trees in relation to construction).

6 Additional Recommendations

- 6.1 The following are suggestions that the client may wish to consider to enhance the value of the development for bats, but are not legally required for mitigation or compensation of habitats.

- 6.2 To increase the potential bat roosting opportunities on site, four bat boxes

could be installed either on retained trees or on new buildings on site. It is recommended that bat boxes be Schwegler boxes as these have a long lifespan and are known to be suitable for roosting bats. For the species of bats recorded on site it is recommended that bat boxes installed on buildings should be Schwegler 1FF and those installed on trees should be Schwegler 2F. Bat box installation should be conducted following the advice of an ecologist to ensure maximum effectiveness.

- 6.3 It is recommended that soft landscaping uses native or wildlife attracting plants and trees, and incorporates flower-rich areas. This type of landscaping would be more likely to produce and attract high quantities of flying insects for foraging bats.

7 Conclusion

- 7.1 No roosting bats were found on site, though a single pipistrelle may be roosting in adjacent gardens. Only relatively low numbers of the most common and widespread species of bat were found using the site boundary for foraging and commuting. Most of the higher quality foraging habitat on site is proposed for retention, therefore it was considered unlikely that bats would be significantly impacted by the proposed development. However, if recommendations in this report are followed, then any residual risk of harm to bats would likely be reduced further so that the proposed development could proceed with minimal risk of impact to bats or local bat conservation.
- 7.2 If additional recommendations are also followed, then the site is likely to be enhanced for foraging and commuting bats post-development.

8 References

Bat Surveys-Good Practice Guide Lines (2007), Bat Conservation Trust, London.

BCT (2007) Bats and lighting in the U.K.- bats and the environment series.www.bats.org.uk. Bat Conservation Trust, London.

English Nature (2004). Bat Mitigation Guidelines. English Nature, Peterborough.

London Bat Group (2010). Website accessed on 9th of August 2010. London Bat Group, London.

Office of the Deputy Prime Minister (ODPM), (1994). *Planning Policy Statement 9*. The Stationary Office (TSO), London.

Bat Survey Report for Gondar Gardens (2009) Entec UK Ltd.

9 Appendix

Figures, Tables & Photographs

Figure 1: Positions of Bat Surveyors Corresponding to Tables 1-8 below at Gondar Gardens, Camden, London.



Table 1: Emergence and activity survey at Gondar Gardens, Camden, London. 25th of July 2010.

Weather: 22°C, 100% cloud, 1-2 on Beaufort scale.

Survey started: 8.40pm

Survey ended: 11pm

Sunset: 9.02pm

Time	Species	Activity/Location
10.01pm	1 common pipistrelle	Commuting from 3 to 4
10.03	1 common pipistrelle	Commuting from 3 to 4
10.29	1 common pipistrelle	Position (1) Distant foraging, possibly in adjacent gardens, bat not seen
10.48	1 common pipistrelle	Position (1) Distant foraging, possibly in adjacent gardens, bat not seen
10.52	1 common pipistrelle	Position (1) Foraging around ash in adjacent garden
10.55	1 common pipistrelle	Position (2) distant pass, not seen

Table 2: Emergence and activity survey at Gondar Gardens, Camden, London. 25th of July 2010.

Weather: 22°C, 100% cloud, 1-2 on Beaufort scale.

Survey started: 8.40pm

Survey ended: 11pm

Sunset: 9.02pm

Time	Species	Activity/Location
21.46pm	1 common pipistrelle	Commuting from 6 to 4 along treeline
22.23	1 common pipistrelle	Position (1) foraging around ash in adjacent garden
22.59	1 common pipistrelle	Position (1) foraging around ash in adjacent garden and adjacent buildings west of position 1
23.05	1 common pipistrelle	Position (1) very brief pass, not seen

Table 3: Activity and re-entry survey at Gondar Gardens, Camden, London. 26th of July 2010.

Weather: 18°C, 100% cloud, 0-1 on Beaufort scale.

Survey started: 3.25am

Survey ended: 5.15am

Sunrise: 5.15am

Time	Species	Activity/Location
4.07am	1 common pipistrelle	Commuting 2 to 1
4.30	1 common pipistrelle	Positioned at (1) Foraging around ash in adjacent gardens

Table 4: Activity and re-entry survey at Gondar Gardens, Camden, London. 26th of July 2010.

Weather: 18°C, 100% cloud, 0-1 on Beaufort scale.

Survey started: 3.25am

Survey ended: 5.15am

Sunrise: 5.15am

Time	Species	Activity/Location
No bats detected or observed		

Table 5: Emergence and activity survey at Gondar Gardens, Camden, London. 3rd of August 2010.

Weather: 21°C, 60% cloud, 2-3 on Beaufort scale.

Survey started: 8.20pm

Survey ended: 10.50pm

Sunset: 8.39pm

Time	Species	Activity/Location
9.01pm	1 common pipistrelle	Position (1) Brief, distant pass
9.36	1 common pipistrelle	Position (1) Brief, distant pass
9.42	1 common pipistrelle	Position (1) one pass
10.02	1 common pipistrelle	Position (1) one pass

Table 6: Emergence and activity survey at Gondar Gardens, Camden, London. 3rd of August 2010.

Weather: 21°C, 60% cloud, 2-3 on Beaufort scale.

Survey started: 8.20pm

Survey ended: 10.50pm

Sunset: 8.39pm

Time	Species	Activity/Location
10.42pm	1 common pipistrelle	Position (1) 1 faint pass east of position
10.55	1 common pipistrelle	Position between (1 & 6) several passes no feeding buzzes

Table 7: Activity and re-entry survey at Gondar Gardens, Camden, London. 4th of August 2010.

Weather: 15°C, 100% cloud, 1-2 on Beaufort scale.

Survey started: 3.45am

Survey ended: 5.30am

Sunrise: 5.33am

Time	Species	Activity/Location
4.07	1 common pipistrelle	Positioned at (1) one pass
4.12	1 common pipistrelle	Positioned at (1) one pass
4.25	1 common pipistrelle	Positioned at (1) foraging, some feeding buzzes
4.34	1 common pipistrelle	Positioned at (1) one pass
4.44	1 common pipistrelle	Positioned at (1) one pass
4.45	1 common pipistrelle	Positioned at (1) one pass
4.46	1 common pipistrelle	Positioned at (1) one pass
4.57	1 common pipistrelle	Positioned at (1) three passes
5.01	1 common pipistrelle	Positioned at (1) two passes
5.04	1 common pipistrelle	Positioned at (1) feeding buzzes

Table 8: Activity and re-entry survey at Gondar Gardens, Camden, London. 4th of August 2010.

Weather: 15°C, 100% cloud, 1-2 on Beaufort scale.

Survey started: 3.45am

Survey ended: 5.30am

Sunrise: 5.33am

Time	Species	Activity/Location
4.56- 5.02	1 common pipistrelle	Positioned at (1) foraging continuously around ash then moved west
5.07	1 common pipistrelle	Positioned at (2) foraging within adjacent gardens
5.16	1 common pipistrelle	Swarming behavior ended with likely roost in trees in adjacent garden near position (2)

Photograph 1: Inside underground reservoir at Gondar Gardens, Camden, London. July 2010.



Photograph by Odette Robson