

Penarth Heights

Bat Report

ON BEHALF OF CREST NICHOLSON (SW)



FEBRUARY 2007

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SUMMARY

1. This report follows an Extended Phase I Habitat Survey (September 2005) and Ecology Report (February 2007) both undertaken by Nicholas Pearson Associates (NPA).
2. The foraging and commuting surveys positively identified at least four different species of bat, these being Common *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula* and *Myotis Sp.* No bats were recorded emerging from structures on or off site.

1.0 INTRODUCTION

- 1.1 NPA was commissioned by Crest Nicholson Ltd to undertake foraging and commuting surveys for bats, at Penarth Heights on the outskirts of Cardiff, as part of a consideration for future development potential, to determine the use, if any, of the site by bats. The survey aimed to assess the level of use of the Site by bats in the form of commuting corridors and foraging grounds.
- 1.2 Most bat populations have declined dramatically in recent years and as a consequence, all 16 species of bat resident in the UK receive full legal protection under the terms of the Wildlife and Countryside Act 1981 (as amended) (WCA), and the EC Habitats Directive 1992, which in the UK is enforced by the Conservation (Natural Habitats, &c.) Regulations 1994.
- 1.3 Six species of bat – Greater horseshoe *Rhinolophus ferrumequinum*, Lesser horseshoe *Rhinolophus hipposideros*, Barbastelle *Barbastella barbastellus*, Bechstein's *Myotis bechsteinii*, Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, are listed as priority species on the UK Biodiversity Action Plan (BAP).
- 1.4 The Vale of Glamorgan BAP affords a species action plan to Pipistrelle bats *Pipistrelle* sp. as a priority species and all species of bat as a local species.
- 1.5 Further details on the legal protection afforded to bats is included within Appendix I.

2.0 METHODS

2.1 Desk Study

- 2.1.1 An ecological data search was undertaken in October 2005, in which records of all bat species within 1km of the site were requested from the South East Wales Biodiversity Records Centre (SEWBRc).

2.2 Foraging and Commuting Surveys

- 2.2.1 Two evening surveys were undertaken on 16 and 23 August 2005 by a team of three experienced bat ecologists, one of whom holds an English Nature bat Licence. This involved

undertaking evening surveys at preset locations then walking transects across the site following linear features where possible, with particular attention being paid to potential roosting areas.

- 2.2.2 All surveys were conducted using Pettersson time-expansion bat detectors in conjunction with Sony mini disc recorders and observations of the time, location, and activity of all bats seen or heard were noted. (Figures 1 and 2; Appendix II). Bats were identified on the basis of their characteristic echolocation calls, which were recorded where appropriate and analysed using computer sonogram analysis (Batsound 3.3) to confirm species identification. Each evening bat survey was undertaken during optimum conditions (no rain, no heavy wind above Beaufort 4, moderate temperature typically above 10°C).

3.0 RESULTS

3.1 Desk Study

- 3.1.1 The background data search produced by SEWBRReC revealed that no species of bat were recorded within 1km of the site.

3.2 Foraging and Commuting Surveys

- 3.2.1 On each evening visit, surveys were initiated at or before dusk and extended for 2 -3 hours into the night. Weather conditions on each visit were optimum for bat surveys, being warm, generally with little wind, and no rain.
- 3.2.2 At least four different species of bat were positively recorded on site during the evening surveys, these being Common and Soprano Pipistrelle, Noctule and *Myotis Sp.* A Serotine bat could have also been recorded but data analysis was inconclusive.
- 3.2.3 The calls of bats belonging to the genus *Myotis* appear very similar and therefore can be extremely difficult to identify to individual species level. There are five *Myotis* species resident within the UK, and within the surrounding district of Penarth, Natterer's *Myotis nattereri*, Daubenton's *Myotis daubentonii* and Whiskered *Myotis mystacinus* are the most

common of these five species, followed by Brandt's *Myotis brandtii*, and finally Bechstein's *Myotis bechsteinii* (Richardson, 2000).

3.2.4 Foraging and commuting behaviour on site followed linear habitats including woodland edges, scrub and along buildings. Both species of Pipistrelle and Noctule were recorded immediately after dusk suggesting roost sites were in close proximity to the site, or on site. Pipistrelle bats are frequently known to use buildings as roost sites with Noctules favouring tree roosts (Mitchell-Jones, 2004).

3.2.5 No bats were positively recorded emerging from any buildings on site during the evening surveys.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

4.1.1 During the evening surveys at least four different species of bat were positively recorded foraging and commuting on site, these being Common *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*, Noctule *Nyctalus noctula* and *Myotis Sp.* No bats were recorded emerging from structures on or off site.

4.1.2 The Extended Phase I Habitat Survey identified stands of Ash and Sycamore to the north of the site as having low bat potential.

4.1.3 Given the results of the foraging and commuting surveys, it is considered that features of particular value to bats on the Site are:

- **Vegetation** – Semi natural broad-leaved woodland and scrub to the north and north west of the site offer commuting and foraging roosting habitat for bats. Stands of Ash and Sycamore to the north of the site offer low potential for roosting bats
- **Buildings** – Situated across the site were used for both commuting and foraging bats, and may contain potential roosting features.

4.1.4 Development of this Site could potentially affect its current ecological value and use by bats in a number of ways:

- **Night-time lighting:** through use of artificial lighting. The centre and southern section of the site contained the most artificial lighting situated on roads and around buildings. These sections were found to be the least well used by foraging and commuting bats. Research on bats and lighting have found that the foraging and commuting patterns of certain species of bat, in particular Myotis bats, can be adversely affected by night-time lighting (Rydell & Racey, 1995).
- **Loss of foraging areas and reduction in availability of food:** through vegetation removal and changes in land use. However, with appropriate design, the development of this site could partly increase the availability of foraging habitat in the form of associated landscaping.
- **Loss of potential roost sites:** through the demolition of buildings. However, if designed appropriately the development of this site could increase the availability of suitable bat roosts using suitable design features.

4.2 Recommendations

4.2.1 Given the level of survey work undertaken at the site, the early recording of bat species on site, and the potential for the buildings on site to support roosting bats it is recommended that an internal/external survey of the buildings on site prior to development works is undertaken at the earliest opportunity. It is considered that activity surveys alone would not determine if roosts are present within the buildings. It is also recommended that further survey effort is undertaken on the stands of Ash and Sycamore to the north of the site (as highlighted by the Extended Phase I Habitat Survey).

4.2.2 The results of the recommended surveys would aim to evaluate the buildings and trees overall suitability to support roosting bats. Dependant upon survey results the requirement for further survey to fulfil the requirements of a Department for Environment, Food and Rural Affairs (DEFRA) licence would be understood and appropriate mitigation can be designed. An approved DEFRA licence would allow otherwise illegal works to a bat roost. The foraging and commuting survey results confirmed that at least four species of bat are

known to utilise the site, of these four species three regularly use buildings and trees as roost sites.

4.2.3 The following list of actions to avoid or undertake provides guidance for development purposes with regard to bats:

- Design layout of development and associated landscape within woodland areas would aim to enhance the area's value for bats e.g. improve green links adjacent to the Site which could be used by bats as commuting and foraging routes.
- In order to mitigate the potential impact via light pollution on foraging and commuting bats, it is recommended that directional lighting (mercury vapour) is incorporated within appropriate areas of the site design.

REFERENCES

Mitchell-Jones, A.J. 2004: Bat Mitigation Guidelines. English Nature, Peterborough.

Mitchell-Jones, A.J. & McLeish, A.P. 2004: Bat Workers Manual. 3rd Edition. JNCC,

Richardson, P. 2000: Distribution atlas of bats in Britain and Ireland. Bat Conservation Trust.

Rydell, J. & Racey, P.A.: Street lamps and the feeding ecology of insectivorous bats. In, Racey, P.A. & Swift, S.M. (ed.s) 1995: Ecology, Evolution and Behaviour of Bats. The Zoological Society of London. 291-307.

APPENDIX I: LEGAL PROTECTION OF BATS IN THE UK

This is a general summary only. The original legislation should be consulted and utilised for any formal purposes.

EC Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)

Directives are legally binding European Union (EU) laws but they must be transposed into the national law of EU Member States to become 'effective'. Directives allow the national authorities to decide on the method and form with which they transpose the Directives. Member States have also to ensure that the objectives of the Directive are met in practice (practical implementation), in other words they are obliged to enforce as well as implement Directives. The Habitats Directive is the principle EU legal instrument for biodiversity conservation. Any EC citizen has the right to lay a written complaint before the Commission concerning the adoption by any Member State of measures or practices contrary to the environmental legislation of the Community.

The Directive states that:

Member States shall take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV (which includes all species of bats and Otters) in their natural range, prohibiting:

- *all forms of deliberate capture or killing of specimens of these species in the wild;*
- *deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration;*
- *deliberate destruction or taking of eggs from the wild;*
- *deterioration or destruction of breeding sites or resting places.*

The Directive also states that each Member State is to designate Special Areas of Conservation (SAC) sites which host natural habitat types listed in Annex I of the Directive and which host species listed in Annex II (which includes four species of British bats – see below) of the Directive.

The Conservation (Natural Habitats, &c.) Regulations 1994 (Habitats Regulations)

The Habitats Regulations implement the provisions of the EC Habitats Directive for the purposes of British law.

All species of list on Schedule 2 of the Conservation Regulations (Annex IV of the Habitats Directive) (which includes all species of bats and Otters) and makes it an offence :

- Deliberately to capture or kill a wild animal of a European protected species;
- Deliberately to disturb any such animal;
- Deliberately to take or destroy the eggs of such an animal; or
- to damage or destroy a breeding site or resting place of such an animal.

Any activity that would result in a contravention of the above legislation would require a licence to avoid committing an offence. DEFRA (Department for the Environment, Food and Rural Affairs) has powers to grant a licence for the following purposes;

- Regulation 44(2)(e) - preserving public health or public safety or other imperative reasons of overriding public interest including those of a social or economic nature and beneficial consequences of primary importance for the environment; or
- Regulation 44(2)(f) - preventing the spread of disease; or
- Regulation 44(2)(g) - preventing serious damage to livestock, foodstuffs for livestock, crops, vegetables, fruit, growing timber or any other form of property or to fisheries.

In addition, DEFRA can only issue a licence if it is satisfied that the activity meets one of the above purposes and is also satisfied of the following;

- Regulation 44(3)(a) - that there is no satisfactory alternative, and
- Regulation 44(3)(b) - that the action authorised will not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

Four of the sixteen species of bat (Greater Horseshoe *Rhinolophus ferrumequinum* Lesser Horseshoe *Rhinolophus hipposideros*, Barbastelle *Barbastella barbastellus* and Bechstein's *Myotis bechsteinii*) are given further protection through the designation of cSACs (Special Areas of Conservation) due to

their inclusion on Annex II of the Habitats Directive. All four of these species in addition to the 'Pipistrelle' (incorporating both the Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus*) are listed as priority species on the UK Biodiversity Action Plan (BAP).

Wildlife and Countryside Act 1981 (as amended) - All species of British bat are fully protected under Schedule 5 of the W&CA 1981 with protection recently extended by the Countryside and Rights of Way Act 2000, which makes it an offence to:

- Intentionally kill injure or take a Schedule 5 animal
- Intentionally or recklessly damage or destroy, or obstruct access to any structure or place which any wild animal included in Schedule 5 uses for shelter or protection
- Intentionally or recklessly disturb any animal included in Schedule 5 while it is occupying a structure or place which it uses for the purposes of shelter or protection.

APPENDIX II: BAT SURVEY SHEETS

Survey Location: Penarth Heights				Temp: Mild	Cloud cover (%): 70-80
Date: 16/08/05		Surveyor: MW		Rain (%): 0	Wind: Light
Location ref (Figure 1)	Mini Disc No.	Time	Species	No.	Comments (behaviour, foraging, feeding buzzes heard, commuting, etc.)
1	1	21.02	Noctule	2	Feeding overhead and commuting to the north
1	2	21.07	Common Pipistrelle	2	Feeding along vegetation edge
2	-	21.10	Common Pipistrelle	1	Feeding at end of woodland/scrub
3	3,4	21.14	Common Pipistrelle	1	Feeding
4	5	21.34	Common Pipistrelle and Soprano Pipistrelle	1	Not seen, picked up at corner of allotments
1	-	21.36	Common Pipistrelle	1	Not seen
1	6	21.37 - 21.45	Soprano Pipistrelle and Common Pipistrelle	2+	Not seen, but both species present until emergence end at 21.45
5	-	21.48	Common Pipistrelle	1	Picked up along road
6	-	22.00	Common Pipistrelle	2+	Feeding around tower blocks
7	-	22.06	Soprano Pipistrelle	1	Feeding at end of woodland/scrub
8	7	22.10	Soprano Pipistrelle and Noctule	2	Not seen
9	-	22.17	Common Pipistrelle	1	Foraging along line of path
10	-	22.21	Common Pipistrelle, Soprano Pipistrelle and Noctule	3+	Irregular foraging
11	-	22.29	Common Pipistrelle	1	Feeding at edge of scrub
12	-	22.33	Common Pipistrelle	1	Flying along edge of woodland/scrub, area lit
13	-	22.45	Common Pipistrelle	1	Feeding along scrub at rear of flats, well lit area
1	-	22.51	Common Pipistrelle	1	Feeding as previous
14	-	22.55	Common Pipistrelle	1	Flying along woodland edge
5	-	23.02	Common Pipistrelle	1	Feeding along road

Survey Location: Penarth Heights				Temp: Mild	Cloud cover (%): 70-80
Date 16/08/05		Surveyor: LM		Rain (%): 0	Wind: Light
Location ref (Figure 1)	Mini Disc No.	Time	Species	No.	Comments (behaviour, foraging, feeding buzzes heard, commuting, etc.)
1	1	21.03	Common Pipistrelle	1	Not seen
2	2	21.04	Noctule	1	Commuting, not seen
3	3	21.11	Common Pipistrelle	1	Commuting, not seen
4	4	21.18	Noctule	1	Not seen
5	5	21.21	Common Pipistrelle	1	Not seen
6	6	21.28	Common Pipistrelle	1	Not seen
7	7	21.35	Common Pipistrelle	1	Foraging/feeding along hedge
8	8	21.36 -21.46	Common Pipistrelle	2	Foraging/feeding along hedge
9	9	22.20	Common Pipistrelle	1	Commuting
10	10	22.25	Common Pipistrelle	1	Commuting and feeding along scrub
11	11	22.59	Common Pipistrelle	1	Foraging/feeding

Survey Location: Penarth Heights				Temp: Mild	Cloud cover (%): 70-80
Date: 16/08/05		Surveyor: JO		Rain (%) 0	Wind: Light
Location ref (Figure 1)	Mini Disc No.	Time	Species	No.	Comments (behaviour, foraging, feeding buzzes heard, commuting, etc.)
1		20.57	Noctule	1	Feeding, not seen
1		20.59	Noctule	1	Commuting, not seen
1		21.01	Noctule	1	Feeding, not seen
1		21.02	Noctule	1	Feeding, not seen
1		21.05	Noctule	1	Feeding, not seen
2		21.07	Pipistrelle Sp.	1-2	Feeding, not heard
1		21.08	Noctule	2	Feeding, not seen
2		21.10	Pipistrelle Sp.	1	Feeding
1	1	21.11	Soprano Pipistrelle	1	Feeding
1		21.12	Noctule	1	Not seen
1		21.16	Pipistrelle Sp.	1	Not seen, possibly commuting
3		21.17	Pipistrelle Sp.	1	Commuting past building heading east
1		21.19	Noctule/Serotine	1	Feeding, unseen
1	2	21.20	Common Pipistrelle	1	Feeding, unseen
2	3	21.22	Common Pipistrelle	1-2	Constant feeding

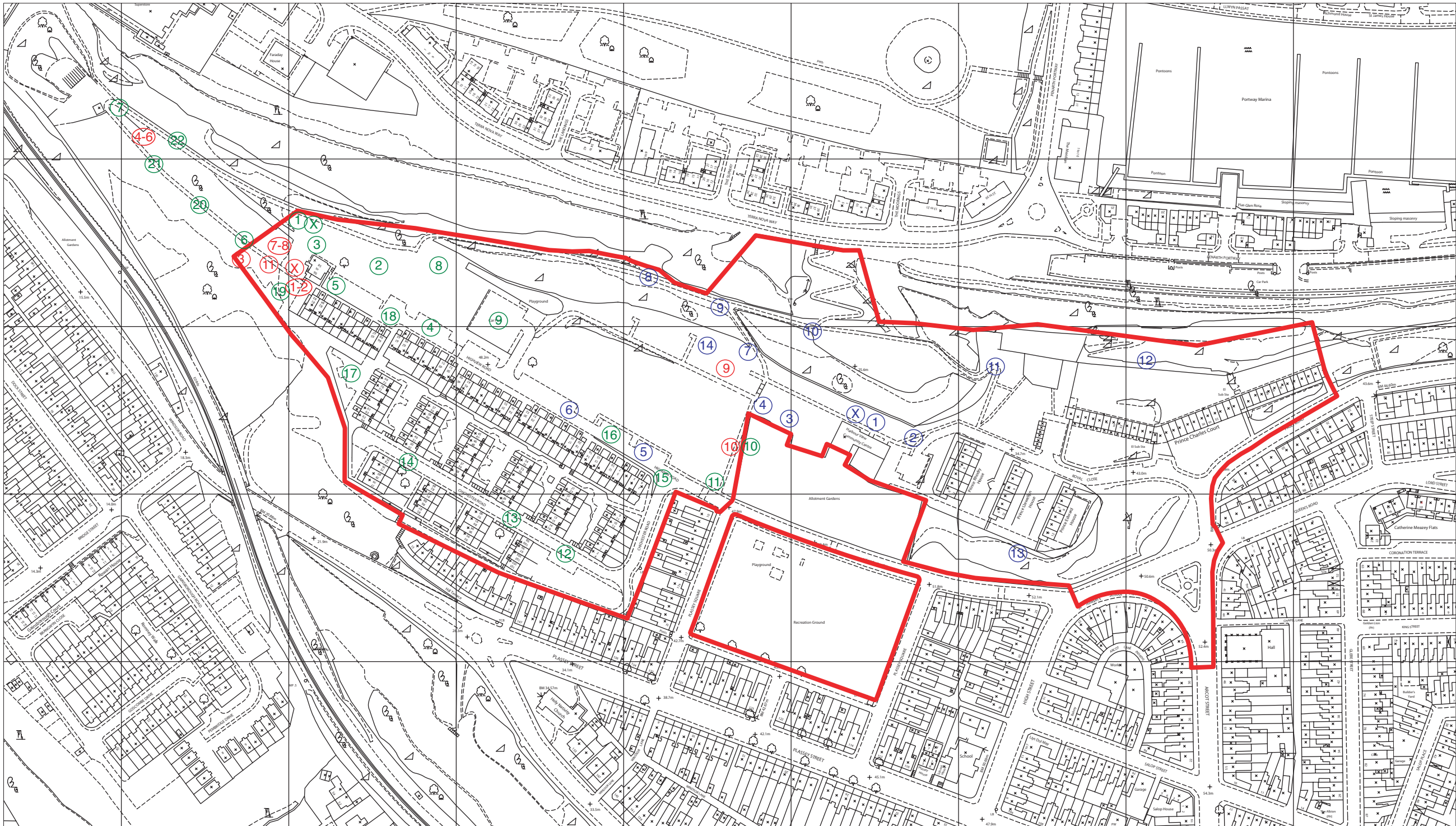
1		21.26	Noctule	1	Commuting
1	4, 5	21.32	Common Pipistrelle	2+	Feeding, constant activity, social calls
1		21.42	Common Pipistrelle	2+	Feeding, constant activity, social calls
4		21.46	Common Pipistrelle	1	Not seen
5		22.00	Common Pipistrelle	1-2	Constant Feeding
6		22.04	Common Pipistrelle	1	Commuting
7		22.07	Common Pipistrelle	1	Commuting briefly
2		22.10	Common Pipistrelle	1-2	Feeding
8		22.12	Common Pipistrelle	1-2	Constant feeding
9	6	22.18	Common Pipistrelle	1	Not seen
9	7	22.19	Noctule	1	Commuting
10		22.25	Pipistrelle Sp.	1	Commuting
11	8	22.28	Common Pipistrelle	1	Feeding
12		22.32	Common Pipistrelle	1	Feeding, not seen
13		22.34	Common Pipistrelle	1	Feeding
14	11	22.38	Common Pipistrelle	1	Commuting
12		22.40	Common Pipistrelle	2	Feeding
15		22.43	Pipistrelle Sp.	2	Commuting, faint call
16		22.46	Common Pipistrelle	2	Feeding, high activity
17		22.51	Common Pipistrelle	1	Feeding
18		22.52	Common Pipistrelle	2	Feeding
19		22.54	Common Pipistrelle	2	Feeding
20	9	22.56	Common Pipistrelle	2	Commuting
21	10	22.59	Myotis Sp.	1	Commuting
21		22.59	Common Pipistrelle	1	Commuting
22		23.00	Pipistrelle Sp.	1	Commuting
4		23.06	Common Pipistrelle	1	Feeding

Survey Location: Penarth Heights				Temp: 15°C	Cloud cover (%): 40
Date 23/08/05		Surveyor: MW		Rain (%): 0	Wind: light
Location ref (Figure 2)	Mini Disc No.	Time	Species	No.	Comments (behaviour, foraging, feeding buzzes heard, commuting, etc.)
1	-	20.40	Common Pipistrelle	1	Not seen, foraging
1	7	20.56	Common Pipistrelle	1	Commuting north-south over lower fields
1	-	21.03	Common Pipistrelle	1	Not seen
1	8	21.06	Soprano Pipistrelle	1	Commuting along woodland edge
1	-	21.08	Common Pipistrelle	1	Feeding, not seen
1	-	21.10	Common Pipistrelle	2	Commuting north-south, flying at 4-5 metres high
1	9	21.11	Noctule and Soprano Pipistrelle	2	Commuting
1	-	21.15	Soprano and Common Pipistrelle	1	Feeding along woodland edge
2	-	21.50	Common Pipistrelle	1	Regular activity
3	10	22.03	Common Pipistrelle	1	Feeding along edge of allotment
4	-	22.08	Common Pipistrelle	1	Feeding along edge of scrub
5	-	22.15	Common Pipistrelle	1	Feeding at corner of housing block
6	11	22.25	Soprano Pipistrelle	1	Not seen, constant feeding
7	12	22.28	Common Pipistrelle and Myotis	1	Not seen
8	-	22.35	Common Pipistrelle	1	Not seen
9	13	22.40	Common Pipistrelle	1	Not seen
10	-	22.50	Common Pipistrelle	1	Commuting along path

Survey Location: Penarth Heights				Temp:	Cloud cover (%): 65-70
Date: 23/08/06		Surveyor: LM		Rain (%) 0	Wind: Breezy
Location ref (Figure 2)	Mini Disc No.	Time (pm)	Species	No.	Comments (behaviour, foraging, feeding buzzes heard, commuting, etc.)
1	11	8.50	Common Pipistrelle	1	Commuting
2	12	9.00	Noctule	1	Not seen
3	13	9.03	Pipistrelle Sp.	2	Feeding/ foraging
4	14	9.05	Pipistrelle SP.	2	Feeding/ foraging on Ash trees
5	15	9.08 – 9.15	Common Pipistrelle	4	Constant feeding/ foraging on Ash trees
6	16	9.20	Common Pipistrelle	3	Constant feeding/ foraging on Ash trees
7	17	9.38	Noctule	1	Not seen, Pipistrelle in the background

Survey Location: Penarth Heights				Temp:	Cloud cover (%): 65-70
Date: 23/08/06		Surveyor: JO		Rain (%): 0	Wind: Breezy
Location ref (Figure 2)	Mini Disc No.	Time (pm)	Species	No.	Comments (behaviour, foraging, feeding buzzes heard, commuting, etc.)
1	-	20.44	Noctule	1	Very far away
2	11	20.48	Common Pipistrelle	1	Feeding alongside allotments
1		20.53	Noctule	1	Very close, unseen
2	12	20.53	Pipistrelle Sp.	1	Unseen, feeding
3	-	20.59	Common Pipistrelle	1	Same bat as above but seen
4	13	21.03	Soprano Pipistrelle	1	Commuting
5	-	21.04	Soprano Pipistrelle	1	Bat recorded above now feeding over path and tree line.
6	14	21.07	Common Pipistrelle	2	Feeding near allotments and over lawn.
7		21.20	Pipistrelle Sp.	1	Commuting, faint unseen.
7	15	21.25	Common Pipistrelle	1	Commuting, very close
7	16	21.28	Soprano Pipistrelle	1	Commuting, very close
6		21.31	Common Pipistrelle	2	Same bat as recorded here previously, lots of social calls.
8		21.35	Noctule	1	Feeding very close but unseen
2		21.44	Noctule	1	Feeding unseen
2		21.44	Common Pipistrelle	2	Probably the same bat previously recorded in location 10, Feeding,

					unseen
9		21.46	Common Pipistrelle	1	Probably same bat as previously recorded in location 10.
7		21.48	Common Pipistrelle	2	Feeding, very close unseen.
10		21.52	Pipistrelle Sp.	1	Feeding
11	17	22.01	Common Pipistrelle	2 +	Feeding, constant activity.
12	18	22.07	Common Pipistrelle	2 +	Feeding, constant activity.
13		22.12	Common Pipistrelle	1	Feeding over long grass by block of flats.
14		22.15	Soprano and Common Pipistrelle	2 +	Feeding at canopy height above path, constant activity.
15		22.19	Common Pipistrelle	1	Feeding unseen
16		22.23	Common Pipistrelle	1	Feeding briefly
17		22.27	Pipistrelle 45	1	Feeding
18		22.29	Pipistrelle 55	2	Feeding
19		22.33	Pipistrelle 45	2+	Feeding
20		22.36	Pipistrelle 45	1	Feeding over grass and around light
21		22.41	Pipistrelle 45	1	Feeding
20		22.45	Pipistrelle 45	2	Feeding
19		22.47	Pipistrelle 45	1+	Bats still here feeding over grass
22		22.52	Pipistrelle 45	1	Feeding, not seen, not very close



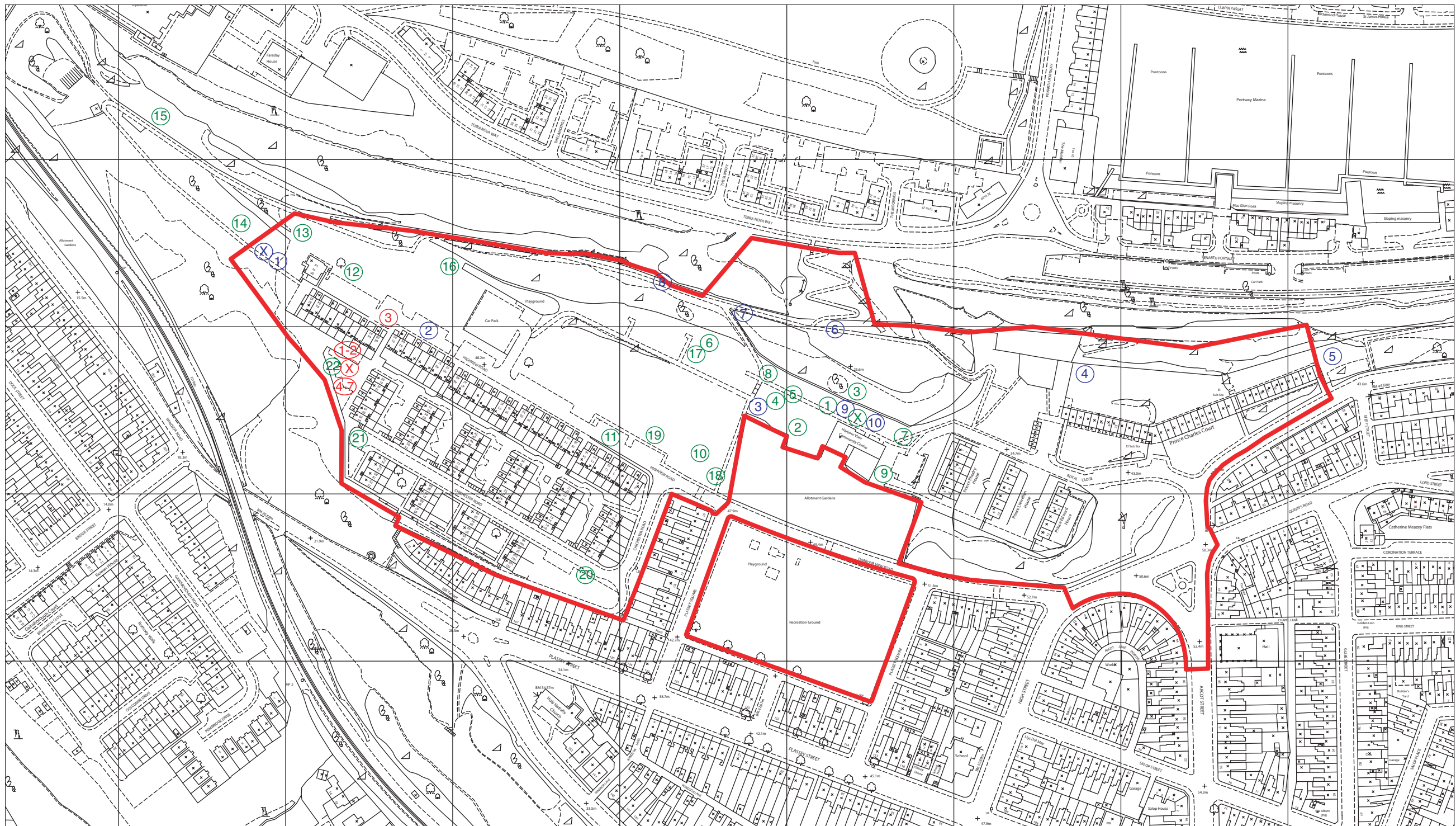
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- X M. W. Emergence point
- 1 M. W. Location Reference
- X L.M. Emergence point
- 1 L.M. Location Reference
- X J.O. Emergence point
- 1 J.O. Location Reference

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Crest Nicholson (S.W) Ltd.
PENARTH HEIGHTS
LANDSCAPE APPRAISAL

Bat Survey
 Figure 1 -
 Survey Results 16/08/06



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- X M. W. Emergence point
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Crest Nicholson (S.W) Ltd.
PENARTH HEIGHTS
LANDSCAPE APPRAISAL

Bat Survey
 Figure 2 -
 Survey Results 23/08/06

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