

Cardiff Parkway Developments Ltd  
**Cardiff Hendre Lakes**  
2017 Dormouse Survey Report

Environmental Statement Appendix 7.8

Issue | 2 July 2018

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 252199

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**ARUP**

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## Appendix A

Results of Nest Tube Survey 2017

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# 1 Introduction

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Ove Arup & Partners Ltd ('Arup') has been commissioned by Cardiff Parkway Developments Ltd to undertake a range of consultancy services for the proposed new station at St. Mellons on the Bristol to South Wales railway line.

This report provides information to inform the development of the project; it determines the presence and or likely absence of dormouse (*Muscardinus avellanarius*) within the site, to inform any additional survey or mitigation measures that may be required. The report also details other species incidentally recorded during the surveys.

## 1.1 Background to the Project

Cardiff Parkway Developments Ltd are proposing to develop a scheme that is an employment led development including a new railway station and park & ride facility.

The site currently consists of predominantly arable and pastoral farming on the western edge of St. Mellons. The site's field boundaries are formed by hedge and tree lines with reens throughout. There is a lake, recreational grassland and woodland to the west of the site. The wider landscape comprises residential and commercial properties, and broad-leaved woodland to the north and west. To the south the land is bisected by the railway line with further neighbouring agricultural land. To the east there is agricultural land.

The site, centred on National Grid Reference (NGR) ST251808, and surrounding area are shown on Figure 1.

An extended Phase 1 habitat survey was undertaken in January 2017 (Arup, 2017) to establish the habitats present on site and to assess the potential for legally protected species to be present. As a result of that survey and a desk study of available records, it was considered that there was the potential for dormice to be present and therefore detailed species-specific surveys were required.

## 1.2 Survey Objectives

The aims and objectives of the surveys were to:

- Determine the presence and distribution, or likely absence of dormouse within the study area; and
- To provide a sufficient information to inform the assessment of impacts on dormice from the proposed development as part of the Environmental Impact Assessment.

## 1.3 Study Area

For the purposes of this study, the survey area was based within the boundary of the scheme at the time of the survey, shown on Figure 1.

## 1.4 Legislation

### European Protected Species

The dormouse is protected as a European Protected Species (EPS), under the Conservation of Habitats and Species Regulations 2017 (as amended), commonly referred to as the Habitats Regulations. Under this legislation it is an offence to:

- deliberately or recklessly kill, injure or capture a dormouse;
- to deliberately or recklessly disturb a dormouse such as to affect its ability to breed or its local distribution, and;
- Or to damage, destroy or obstruct access to a breeding site or resting place (e.g. shelter) used by a dormouse.

### UK Protected Species

Dormice are also fully protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Legal protection makes it an offence to:

- intentionally kill, injure or take (capture) a dormouse;
- possess or control alive or dead dormouse, or any part of a dormouse, and;
- intentionally or recklessly damage, destroy or obstruct access to any structure or place which dormice use for shelter or protection, or disturb dormouse while they are using such a place.

### Other Legislation Related to Species

The dormouse is identified as a species that are a priority for nature conservation (Priority Species) within the 'UK Post-2010 Biodiversity Framework' Biodiversity Action Plan (UKBAP).

The Environment (Wales) Act 2016 includes a duty on all public authorities to have regard to the conservation of biodiversity in the exercise of their functions. This duty applies to government bodies, local authorities and statutory undertakers. The Act also requires lists to be published of Habitats and Species considered to be of Principal Importance for the Conservation of Biological Diversity. These are referred as Section 7 habitats and species after the sections of the Act which require the publication of lists in each devolved area. Dormice are listed as a Section 7 Species considered of Principal Importance for the Conservation of Biological Diversity.

## 2 Methodology

### 2.1 Desk Study

Biodiversity information was obtained from the South East Wales Biodiversity Records Centre (SEWBRcC)<sup>1</sup> on the 31st January 2017. The search included information on dormice up to 2km from the site centre point, although data was limited to the last 10 years. The full desk study results are provided in the Extended Phase 1 Habitat Survey Report (Arup, 2017).

### 2.2 Presence / Absence Surveys

To confirm the presence or likely absence of dormice within the site, a nest tube survey was undertaken in accordance with best practice guidance (EN, 2006). This comprised placing nest tubes within potential dormouse habitat within the study area. Nest tubes were constructed of stiff double-walled black plastic sheet, 5x5 cm in cross sections and 25cm long. A small plywood tray was placed inside, projecting 5cm beyond the tubes entrance to allow the animals easy access. The opposite end of the tube was sealed with a wooden block mounted on the tray. Each tube was suspended by wire, fixed firmly underneath horizontal limbs.

A total of 127 nest tubes were placed within suitable habitat on the 11<sup>th</sup> May 2017, at locations shown in Figure 2. Nest tubes were spaced between 15m and 20m apart, with entrance holes facing the centre of vegetation. Tubes were numbered, and the location recorded by GPS to allow for repeatability of surveys and the positive location of any survey findings.

Nest tubes were inspected approximately every four weeks (monthly where possible) between the 24th May and 30th November 2017 (dates shown in **Table 1** below). The interior of each tube was visually inspected where possible. Where not possible or where vegetation was observed inside the tube, the open end of the tube was blocked with a cloth, the tube carefully removed from the vegetation and placed within a large plastic bag, and the nest tray carefully withdrawn. The contents of the nest tube were documented and photographed.

**Table 1:** Survey schedule

Month	Visit	Date	Index of Probability (cumulative total)
May	1	24/05/2017	4(4)
Jun	2	30/06/2017	2(6)
Jul	3	31/07/2017	2(8)
Aug	4	31/08/2017	5(12)
Sep	5	27/09/2017	7(19)
Oct	6	25/10/2017	2(21)
Nov	7	30/11/2017	2(23)

<sup>1</sup> <http://www.sewbrec.org.uk/home.page>

Nest tube use by dormice varies through the year with peaks in May and September (Chanin & Woods, 2003). Both these months were covered within the survey period and thus there were no limitations to the survey in terms of covering the period of peak use.

There was a very limited presence of fruiting hazel within the hedgerows on site so a nut search was not undertaken.

Surveys were led by Dr Matt Davies MCIEEM of Wildwood Ecology<sup>2</sup> who is experienced in undertaking dormouse surveys. He holds a personal dormouse licence in Wales and England.

For all surveys – a record was taken of positive and negative results, at each nest tube location. The GPS location of each nest tube was also recorded, along with any other comments such as vandalism to the nest tubes. Field signs or features relevant to the survey were photographed, with a GPS location attached to the digital image.

The results of the survey are shown on Figure 3 with photographs of the results provided in Appendix B.

## 2.3 Limitations and Assumptions

The findings presented in this study represent those at the time of survey and reporting, and data collected from available sources. Ecological surveys are limited by factors which affect the presence of flora and fauna, factors such as the time of year and natural behaviour of the animals. Nevertheless, these surveys were conducted at the optimal survey periods and using standard methodologies.

It was not possible to undertake a nut search in addition to the nest tube survey due to the absence of fruiting hazel, however the survey effort undertaken for the nest tube survey is considered sufficient to determine the likely presence / absence of dormice within the site following established guidance.

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<sup>2</sup> <https://wildwoodecology.com/>

### 3 Survey Results

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A total of 12 tubes were found to contain confirmed or probable nests of dormice during the course of the surveys. These positive results were obtained from tubes in the east of the site within the Marshfield Site of Importance for Nature Conservation (SINC), to the south of Faendre Reen near Hendre Lake, and between Faendre Reen and Cypress Drive. No live dormice were found in any of the nests.

Due to connecting habitats of woodland and hedgerows, which would allow movement of dormouse, it is assumed that this species would be present in all suitable habitat within the site – i.e. woodland, hedgerow and scrub.

Wood mice (*Apodemus sylvaticus*) were frequently recorded within the nest tubes, and in November wood mice had destroyed a lot of the dormouse nests which had been made prior to that.

## 4 Conclusions and Recommendations

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The surveys have confirmed the presence of dormice within suitable habitats within the site. It will therefore be necessary to include provisions within any masterplan for the station and business park for the compensation of existing dormouse habitat which will be lost. These compensatory habitats should comprise a mixture of hedgerows, woodland and scrub habitats. Habitat enhancement should also be considered.

A dormouse European Protected Species Licence will need to be obtained from NRW for any clearance of hedgerows, trees, woodland or scrub within the site, including any that may be required for ground investigation works.

This report is the result of survey work undertaken between May and November 2017. This report refers, within the limitations stated, to the condition or proposed works of the site at the time of the surveys. Changes in legislation, guidance, best practice, etc. may necessitate a re-assessment/survey. No warranty is given as to the possibility of future changes in the condition of the site.



# References

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## References

- Arup. (2017). *Cardiff Hendre Lakes | 2017 Extended Phase 1 Habitat Survey Report*. Bristol: Ove Arup & Partners Ltd.
- Chanin, & Woods. (2003). *Surveying Dormice using nest tubes: results and experiences from the South West Dormouse Project (English Nature Research Report No. 524)*. Peterborough: English Nature.
- EN. (2006). *Dormouse Conservation Handbook* (2nd ed.). Peterborough: English Nature.

# Figures

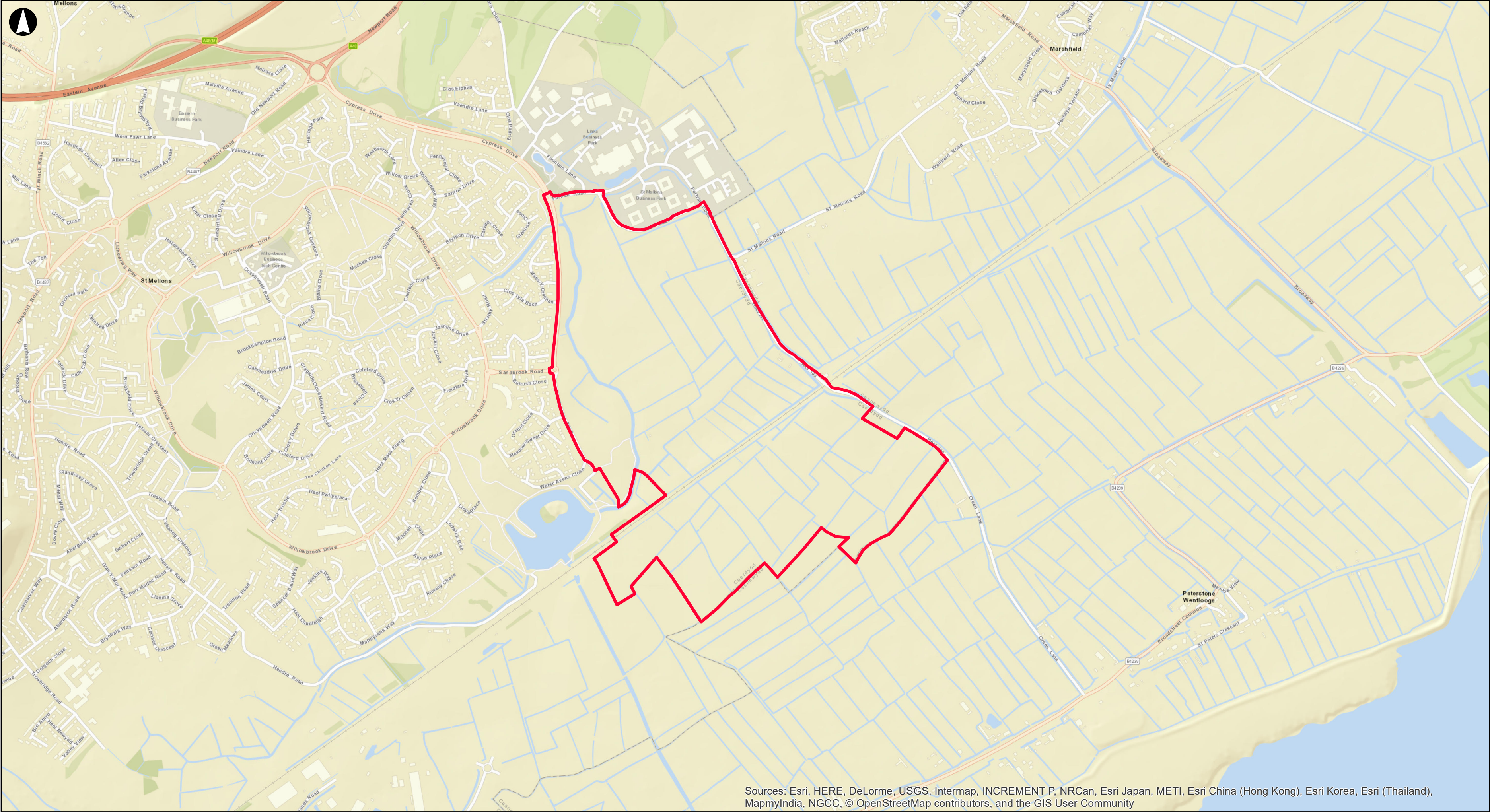
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Figure 1: Site Location and Study Area

Figure 2: Dormouse Tube Locations

Figure 3: Dormouse Survey Results





Sources: Esri, HERE, DeLorme, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), MapmyIndia, NGCC, © OpenStreetMap contributors, and the GIS User Community

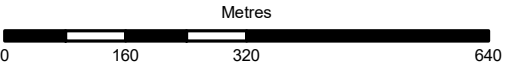
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— Study Area Boundary

F1	2018-07-02	PW	PC	PC
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Issue	Date	By	Chkd	Appd
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Client  
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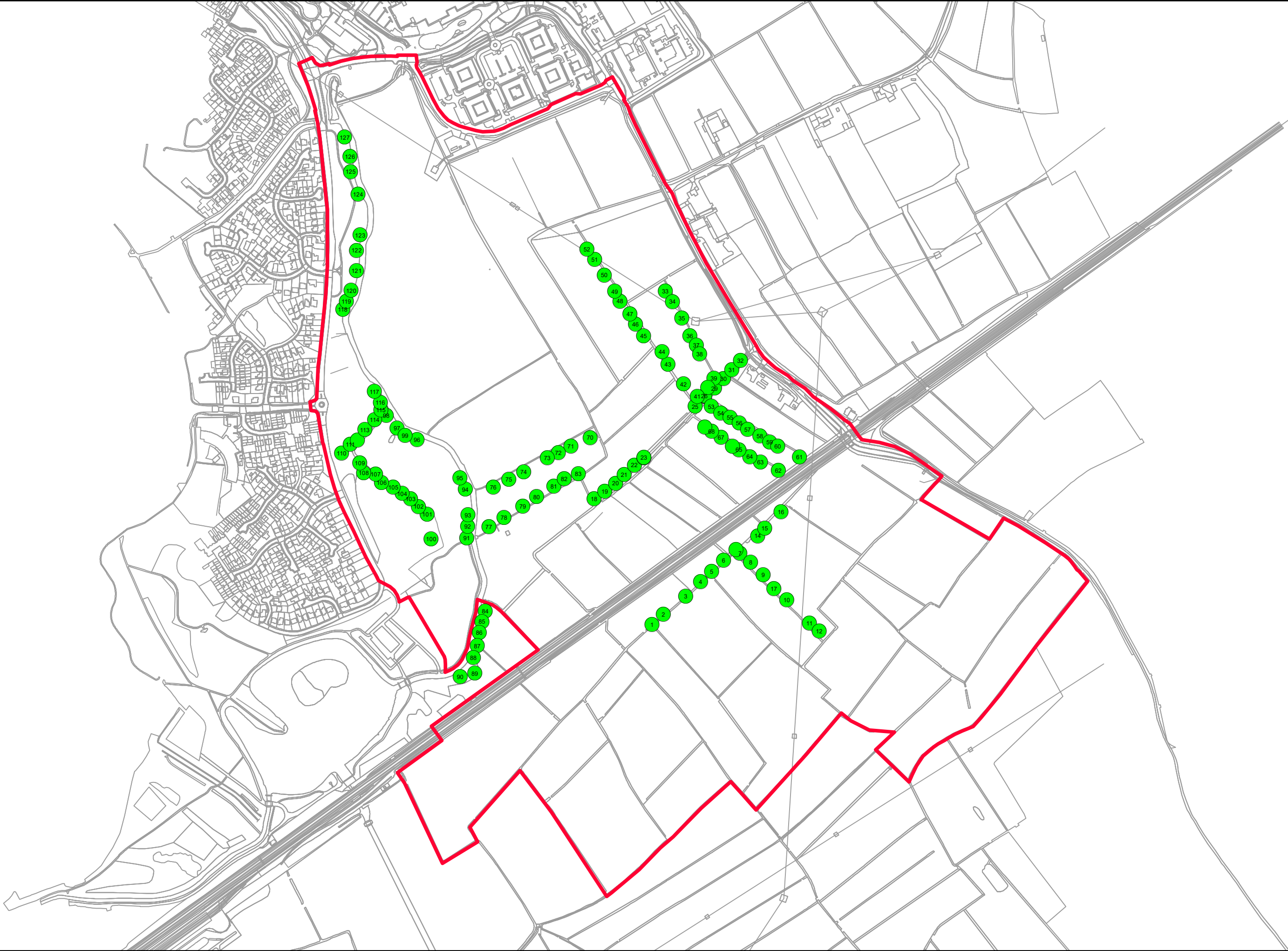
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Site Location and Study Area

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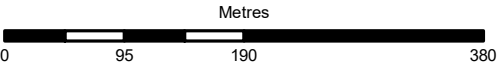
Dormouse tube locations

- Dormouse tube locations
- Study Area Boundary

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Issue	Date	By	Chkd	Appd
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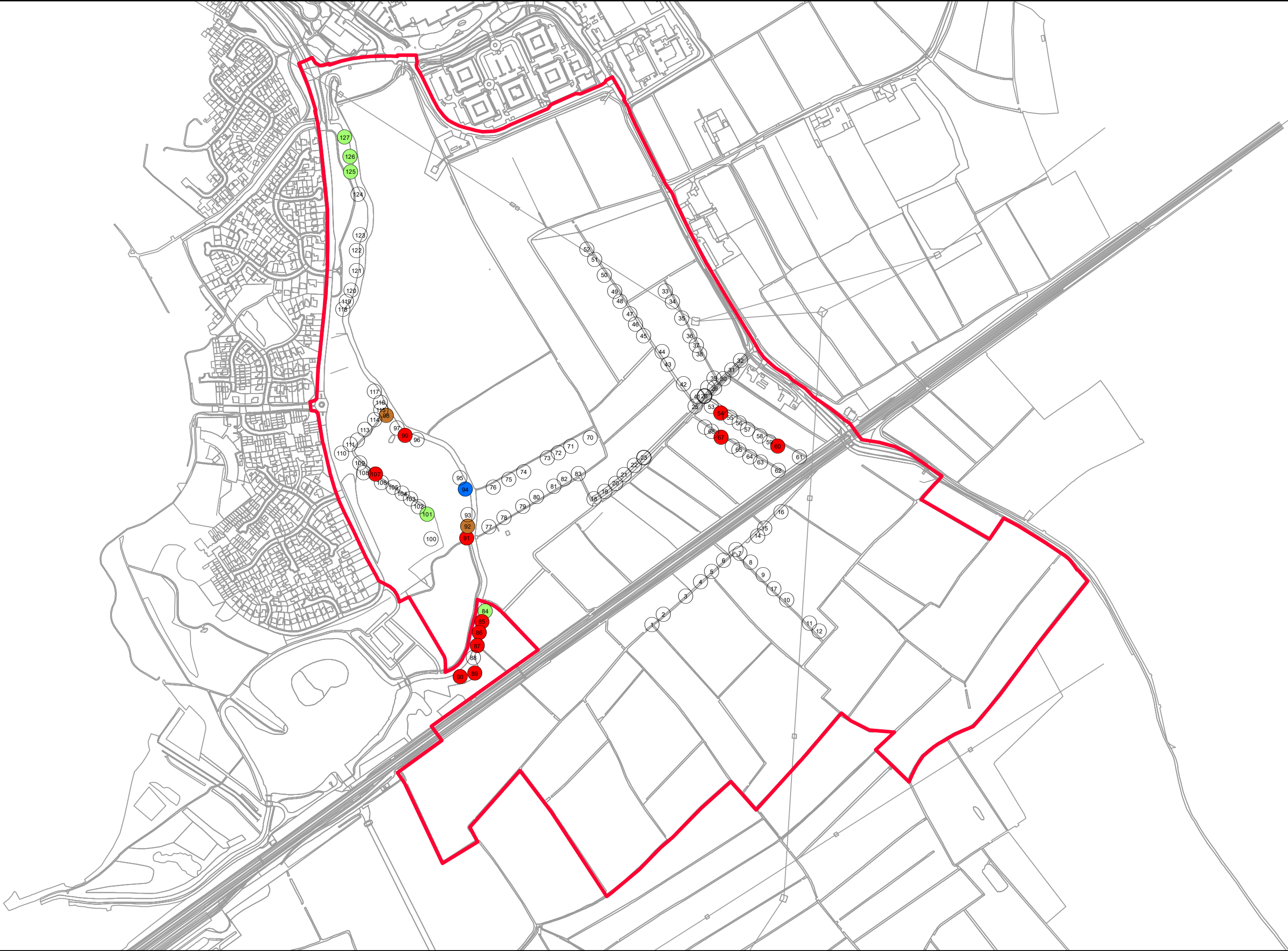
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**Cardiff Parkway**

Dormouse Tube Locations

Scale at A3  
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Job No <b>252199-00</b>	Drawing Status <b>For Issue</b>
Drawing No <b>002</b>	Issue <b>F1</b>





Legend

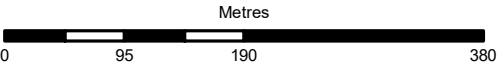
Details

- dormouse nest
- possible dormouse
- woodmouse nest
- common toad
- none
- Study Area Boundary

F1	2018-07-02	PW	PC	PC
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Issue	Date	By	Chkd	Appd
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Client  
**Cardiff Parkway Developments Ltd**

Job Title  
**Cardiff Parkway**

Dormouse Survey Results

Scale at A3  
**1:7,500**

Job No <b>252199-00</b>	Drawing Status <b>For Issue</b>
Drawing No <b>003</b>	Issue <b>F1</b>

## Appendix A

### Results of Nest Tube Survey 2017



Table 2 Results from surveys undertaken in 2017. Tubes not listed were found to be empty.

Month	Visit	Tube No.	Tube position	Results
May	1	All tubes empty		
Jun	1	67	Unmanaged hedgerow	Unoccupied common dormouse nest
		85	Unmanaged hedgerow	Unoccupied common dormouse nest
		90	Scrub	Unoccupied common dormouse nest
		91	Scrub	Small mammal escaped. Not possible to identify. No nest.
July	2	67	Unmanaged hedgerow	Unoccupied common dormouse nest.
		85	Unmanaged hedgerow	Unoccupied common dormouse nest
		90	Unmanaged hedgerow	Unoccupied common dormouse nest – partially dismantled.
Aug	3	67	Unmanaged hedgerow	Unoccupied common dormouse nest
		85	Unmanaged hedgerow	Unoccupied common dormouse nest
		86	Unmanaged hedgerow	Probable wood mouse
		87	Unmanaged hedgerow	Unknown nest – green leaves but no structure
		90	Bramble scrub	Occupied common dormouse nest – dismantled, possible taken over by wood mouse.
		94	Small tree	Common toad
Sep	4	67	Unmanaged hedgerow	Unoccupied common dormouse nest
		85	Unmanaged hedgerow	Unoccupied common dormouse nest – overtaken by wood mouse
		86	Unmanaged hedgerow	Probable wood mouse nest
		87	Unmanaged hedgerow	Unoccupied wood mouse nest
		90	Bramble scrub	Unoccupied common dormouse nest – taken over by dormouse
Oct	5	67	Unmanaged hedgerow	Unoccupied common dormouse nest
		84		Occupied wood mouse nest. 4x wood mice present
		85	Unmanaged hedgerow	Unoccupied dormouse nest – destroyed by wood mice
		86	Unmanaged hedgerow	Probable wood mouse nest – unoccupied

		87	Unmanaged hedgerow	Unoccupied wood mouse nest
		89	Scrub	Possible dormouse nest – unoccupied
		90	Bramble scrub	Unoccupied dormouse nest – taken over by wood mouse
		98	Unmanaged hedge	Unknown. Beginnings of nest – some green leaves.
		107	Scrub (line of small trees)	Unoccupied dormouse nest
		125	Scrub	Occupied wood mouse nest (1 individual)
		126	Scrub	Occupied wood mouse nest (4 individuals)
		127	Scrub	Occupied wood mouse nest (1 individual)
Nov	6	54	Unmanaged hedgerow	Unoccupied dormouse nest
		60	Unmanaged hedgerow	Unoccupied dormouse nest
		91	scrub	Unoccupied dormouse nest
		92	Scrub	Possible dormouse nest
		99	Unmanaged hedgerow	Occupied dormouse nest
		101	scrub	Occupied wood mouse nest (4 individuals)

## Appendix B

### Photographs of Nests Found

Survey images



Figure 3 – June 2017. Tube 67. Unoccupied common dormouse nest.



Figure 4 – June 2017. Tube 85. Unoccupied common dormouse nest.



Figure 5 – June 2017. Tube 90. Unoccupied common dormouse nest.



Figure 6 – July 2017. Tube 85. Unoccupied common dormouse nest.



Figure 7 – August 2017. Tube 85. Unoccupied common dormouse nest (dismantled – overtaken by woodmice?).



Figure 8 – August 2017. Tube 86. Probable common dormouse nest.





Figure 9 – August 2017. Tube 87. Unknown nest – green leaves, but no structure.



Figure 10 – October 2017. Tube 84. Occupied woodmouse nest. X4 woodmice in tube.



Figure 11 – October 2017. Tube 84. Occupied woodmouse nest. X4 woodmice in tube: individual seen at tube entrance.



Figure 12 – October 2017. Tube 89. Unoccupied common dormouse nest.



Figure 13 – October 2017. Tube 98. Beginnings of a nest?



Figure 14 – October 2017. Tube 107. Unoccupied common dormouse nest.



Figure 15 – October 2017. Tube 126. Occupied woodmouse nest; x4 individuals.



Figure 16 – October 2017 scruffed woodmouse from Tube 126.



Figure 17 – November 2017. Unoccupied common dormouse nest.



Figure 18 – November 2017. Definite occupied woodmouse nest (Tube 101).