

**LAND OFF BRAYS LANE,  
ROCHFORD**

**BAT ACTIVITY SURVEY**

August 2010

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## LAND OFF BRAYS LANE, ROCHFORD

### BAT ACTIVITY SURVEY

#### 1. EXECUTIVE SUMMARY

- 1.1 A housing development is proposed for land to either side of Brays Lane in Rochford, south Essex. The proposal is also for the future expansion of the existing school. EECOS was commissioned to undertake a survey of bat activity around the site to determine the potential for adverse impacts to local populations.
- 1.2 An evening emergence and activity survey was carried out on 29<sup>th</sup> July 2010 with a sunrise survey on the following morning. A second evening emergence and activity survey was carried out on 4<sup>th</sup> August 2010.
- 1.3 Three species of bat were recorded during the surveys: Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared. Three Soprano Pipistrelles were recorded commuting through the site on the second evening survey and a single Long-eared Bat was seen during the sunrise survey. Common Pipistrelles were the most numerous species with 14 contacts on the first evening survey and 13 on the second.
- 1.4 Activity suggestive of possible small roosts in trees was recorded in two locations: on the eastern boundary of the northern section and in the eastern half of the southern boundary.
- 1.5 A commuting route was identified passing along the western boundary of the southern section and then along Brays Lane.
- 1.6 Overall, the level of bat activity was considered to be low and involved three common, widely distributed species.
- 1.7 The development could have an adverse impact on bats in relation to increases in artificial lighting and by interruption of the commuting route.
- 1.8 It is recommended that the design for artificial lighting includes measures such as low level, low lux and hooded lights to avoid spill into natural vegetation. It is also recommended that the landscaping scheme includes measures to maintain and enhance hedgerows in order to maintain routes of movement through the site.
- 1.9 With these recommendations considered it is believed that there will be no negative impact on the conservation status of local bat populations.

## **2. INTRODUCTION**

### **2.1 General Introduction**

This report has been prepared by Essex Ecology Services Ltd. (EECOS), the ecological consultancy of the Essex Wildlife Trust, for Andrew Martin Associates. It comprises the results of a survey to investigate bat activity at a site proposed for housing development.

### **2.2 Location and Description of Site**

The site is comprised of two blocks of land on either side of Brays Lane, Rochford in south Essex; centred on Ordnance Survey grid reference TQ 8718 9236. To the west of the site is an area of residential development and to the east is a predominantly open, agricultural landscape dominated by arable fields.

To the north of Brays Lane, the site forms part of an arable field extending to the north with houses, gardens and horse-grazed pastures to east and west. To the south of Brays Lane the site is composed of horse-grazed pastures, stables and a large, modern barn, with houses and gardens to the west, a school and its playing fields to the south and further residential and agricultural properties to the east.

### **2.3 Outline of Proposed Works**

Master Plan drawing 010.36/03B has been provided, which illustrates a proposal to build residential properties over about 80% of the land north of the lane and about 50% of the land south of the lane. Associated with this are new sports pitches adjacent to the school, land reserved for future school expansion, and a new school drop off link road passing through the centre of the land south of the lane. An area of open space is included at the northern end of the site.

### **2.4 Objectives of Survey**

The aim of the survey was to determine the level of bat activity around the site to inform consideration of the possible impact of the scheme on local bat populations. The survey also aimed to identify likely roost locations.

## 2.5 Survey and Methodology

Two activity surveys were carried out. On 29<sup>th</sup> July 2010 an evening emergence and activity survey was followed by a sunrise activity survey on the following morning, 30<sup>th</sup> July 2010. A further evening emergence and activity survey was carried out on 4<sup>th</sup> August 2010.

The evening emergence and activity surveys commenced 15 minutes before the published sunset time and were finished no less than two hours after published sunset time. The survey was split into two sections: the first with the surveyor positioned close to potential roost sites from the start of the survey until 30 minutes after published sunset time; and the second involving the surveyor recording while walking a transect around the site and recording five minute samples of activity from a number of locations along it. Different locations were used for the first part of the survey on the two evenings. For the most part the same transect was used on each evening, but in opposite directions, with some variation in the position of the samples in order to provide a more varied assessment of activity patterns. Figures 1 and 3 illustrate the transect routes and sample points for the two surveys.

The sunrise survey commenced two hours before published sunrise time and involved the surveyor walking a similar transect as for the evening surveys until published sunrise time. Figure 2 shows the route used and the locations of the sample points.

For each of the surveys a Petersson D240 frequency division bat detector was used together with a Zoom H2 digital recorder. Recordings obtained were later analysed using Batsound software to confirm species identification and to capture evidence of activity not noted during the surveys. Notes were taken in the field using aerial photos of the site to pinpoint the locations of activity, the routes of the transects and the sampling positions.

Air temperature and relative humidity were recorded at the start and finish of each survey using a Skywatch Atmos device.

### **3. RESULTS**

#### **3.1 Habitat Assessment**

Roost potential within the site is limited to the mature Pedunculate Oaks within the boundary hedges. In particular, there is a cluster of large oaks along the eastern boundary of the northern section and some scattered, smaller Oaks along the southern boundary of the southern section. The barn and stable buildings are not apparently suitable for roosting bats, although a thorough search was not carried out.

Both sections of the site are essentially open, with arable cultivation in the northern and horse grazing with just a low, partial hedge within the southern. As a result the majority of bat activity is likely to be focussed around the site's boundaries, where there are hedgerows of varying quality. The southern boundary hedge is probably the most entire and contains a number of oaks. The western boundary of the southern section is mixed with some low, brambly sections and a few larger oaks. On either side of Brays Lane the hedges are tall, but there are significant gaps, particularly toward their eastern ends. The eastern boundary of the northern section contains a line of mature oaks that spread to the east into adjoining properties. Toward the northern end of the development area the hedge becomes a line of individual, young trees. The western boundary of the northern section is very gappy.

Light spill from adjoining property is likely to have some effect on bat activity within the site. Beyond the southern boundary the school buildings are strongly lit at night, illuminating the entire southern side of the hedge. A floodlit sports pitch is likely to illuminate the majority of this hedge when in use. Along the western boundary the streetlights of Hilary Close illuminate a low point in the boundary hedge. Along Brays Lane two streetlights cast pools of light onto both roadside hedges. In addition neighbouring properties have smaller outdoor lighting.

#### **3.2 Survey Results**

##### **3.2.1 Evening Survey 29<sup>th</sup> July 2010**

The survey commenced at 8.35pm with sunset in Southend-on-Sea at 8.50pm according to the BBC Weather website. The temperature was 22°C and the relative humidity was 51.5% with calm conditions making a mild evening. The initial emergence period was spent adjacent to the stable buildings and the barn to the east of the southern section of the site. At 9.20pm the

transect was started, moving clockwise around the boundary of the southern section. After the completion of a circuit of the southern section the transect followed the eastern boundary of the northern section and then its southern boundary. The remainder of the survey was spent around the farm buildings in the southern section. The survey was finished at 10.50pm with the temperature at 16.5°C and the relative humidity at 65.5%.

Figure 1 gives a graphical representation of the survey results. No bat activity was recorded during the emergence part of the survey. The first contact was at 9.31pm, 41 minutes after sunset and consisted of a Common Pipistrelle foraging along the western half of the southern boundary hedge on the site side. This bat continued to be present until at least 9.40pm, by which time it was beyond the range of the bat detector. During sample recording along the western boundary, four Common Pipistrelles were recorded commuting north along the site side of the hedge. Two more commuting Common Pipistrelles were recorded along the northern boundary of the southern section. There were six more contacts in the northern sections, although by this time it was too dark to be sure of their direction.

In total there were 14 Common Pipistrelle contacts during the survey, one of which was a foraging individual and seven of which were apparently following a commuting route north along the western boundary of the southern section, east along Brays Lane and then north along the eastern boundary of the northern section.

### 3.2.2 Sunrise Survey 30<sup>th</sup> July 2010

Figure 2 gives a graphical representation of the survey results. The survey started at 3.15am at which time the temperature was 13.5°C and the relative humidity was 78% with a moderate north westerly breeze. The survey started in the northeast corner of the northern section of the site from which the transect followed the eastern and southern boundaries to the southwest corner. Following this the boundaries of the southern section were circled in an anticlockwise direction, approximately one and a half circuits completed before the finish time of 5.15pm, the time of sunrise according to the BBC Weather website. The temperature then was 12°C and the relative humidity was 85%.

Very little activity was recorded during the sunrise survey, all of it concentrated along the eastern half of the southern boundary of the site. From 4.18am onwards there was sustained Common Pipistrelle activity on the bat detector recordings, including regular social calls,

although no bats of this species could be seen at the time. This activity, at a time when the sky was already light, is suggestive of the presence of a roost in trees within the hedgerow. In addition, a single Brown Long-eared bat was seen heading west along the southern boundary at 4.18am. No bat activity was recorded after 4.35am.

### 3.2.3 Evening Survey 4<sup>th</sup> August 2010

Figure 3 gives a graphical representation of the survey results. The survey started at 8.25, with sunset in Southend-on-Sea at 8.40pm according to the BBC Weather website. The temperature was 18°C and the relative humidity was 72% with a light north westerly wind. The emergence part of the survey was spent on the eastern boundary of the northern section, close to some mature Pedunculate Oak trees that had been identified as having high roost potential within the original Biodiversity Report prepared for Andrew Martin Associates by AMEC. From that point, at 9.10pm, the transect followed the eastern and southern boundaries to the southwest corner of the northern section. It then crossed to the northeast corner of the southern section, where the boundaries were followed anti-clockwise, finishing adjacent to the stable buildings at 10.25pm. The remainder of the survey was spent around the farm buildings in the southern section. The survey was finished at 10.40pm with the temperature at 15°C and the relative humidity at 88%.

During the emergence part of the survey a Common Pipistrelle was recorded on several occasions foraging along the hedgerow and around the mature oaks within it. Activity was first recorded at 9.06pm, 26 minutes after sunset, a fairly typical time for emergence of pipistrelles. Another Common Pipistrelle commuted north along the eastern boundary at 9.15pm. During samples and the intervening transect along the southern boundary of the northern section totals of seven Common and three Soprano Pipistrelles were recorded heading east. Along the northern boundary of the southern section a further two Common Pipistrelles were recorded up to 9.37pm. There was then a gap until 10.23pm with no bat activity at all along the western half of the northern boundary and the western and southern boundaries. There were two final contacts with Common Pipistrelle adjacent to the stable block between 10.23pm and 10.25pm.

In total there were 13 Common Pipistrelle and three Soprano Pipistrelle contacts during the survey. The relatively early appearance of a Common Pipistrelle along the eastern boundary of the northern section suggests the possibility of a roost in one of the mature oaks. The

majority of bat activity appeared to be connected to a commuting route passing east along Brays Lane.

### **3.3 Limitations**

Bat activity on any site is subject to change over time in relation to seasons, weather and other external influences. This survey aims to provide an accurate assessment of activity at the time of the survey visits, but it should be acknowledged that there may be a different pattern of use under different combinations of conditions.

Some parts of the southern section of the site were not accessed because of the presence of a horse with a young foal. It was felt that the horse could potentially be dangerous and/or could be subjected to excessive stress by the presence of a surveyor within its field. This factor is not felt likely to have influenced the overall result of the survey and assessment. The western boundary of the northern section could not be walked, as the growth of the Hemp crop within the field prevented access.

## **4. CONCLUSIONS**

### **4.1 Summary of Survey Results**

- Three species were identified: Common Pipistrelle, Soprano Pipistrelle and Brown Long-eared. These are three of the most common and widely distributed bat species in Essex and the UK as a whole;
- Overall, the level of bat activity during the surveys was low and fairly consistent, with 14 and 16 contacts during the evening surveys;
- Very little foraging activity was recorded during the surveys;
- There are suggestions of roosts in trees on the eastern boundary of the northern section and in the southeast of the southern section (see Figure 4);
- There appears to be a commuting route along the western boundary and along Brays Lane (see Figure 4).

### **4.2 Legislation**

Under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010, all species of bats receive full protection such that it is an offence to intentionally kill or injure any bat, to intentionally or recklessly damage, destroy or obstruct access to a roost or other place of shelter (whether bats are in it at the time or not), or disturb bats when they are in such places. Any work that would otherwise result in one or more of these offences must be approved by Natural England and may need to be carried out under a Natural England licence.

### **4.3 Potential Impacts**

The possible roosts identified during this survey should not be directly affected by the proposals, as the boundary features in which they are found will be retained. There is a possibility of their use being restricted by the impact of artificial lighting.

The commuting route could be interrupted by the creation of site access points on Brays Lane and by a likely increase in artificial lighting as a result. Other artificial lighting around the boundaries of the site could have a negative impact on bat behaviour.

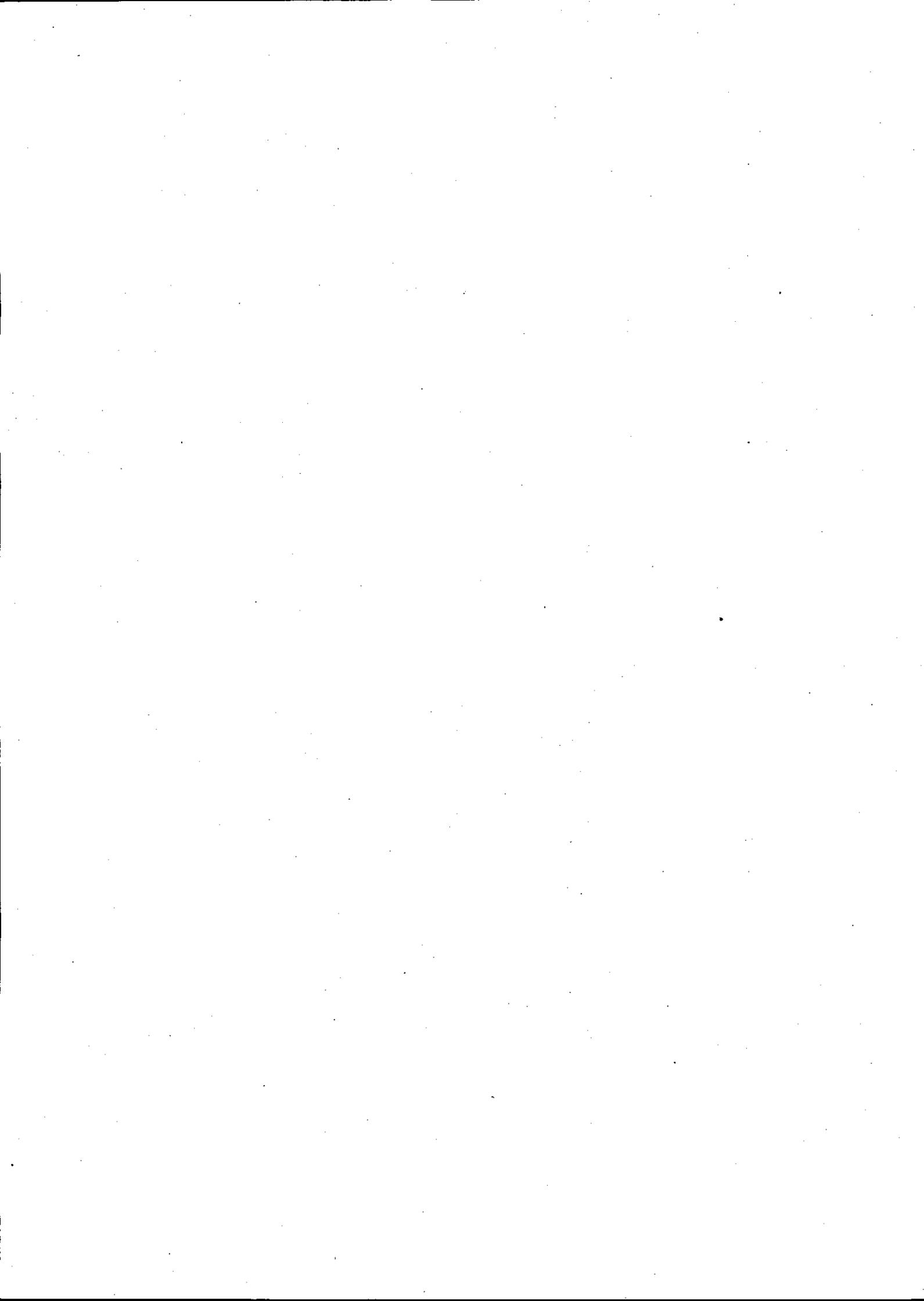
The scale of these possible impacts is low considering the small number of bats involved and the species that were recorded.

#### **4.4 Recommendations**

The lighting associated with this scheme should be designed to minimise the potential impacts on bat activity. In particular the use of low level, low lux lighting, hooded or shaded to avoid unnecessary spill into natural features, would be recommended.

Existing boundary hedgerows should be enhanced where possible and new ones created to maintain east-west routes of movement through the site. Where boundary features are to be breached, consideration should be given to minimising the width of the breach in order to maintain their suitability for bat movement.

With consideration given to these aspects of the developments it is likely that there will be no negative impact to the conservation status of bats in the local area.



**Figure 1**  
**Brays Lane, Rochford**  
**Bat Activity Survey Results**  
 29/07/2010



- Key**
- Emergence sample
  - Transect sample point
  - Transect end point
  - Common Pipistrelle contact

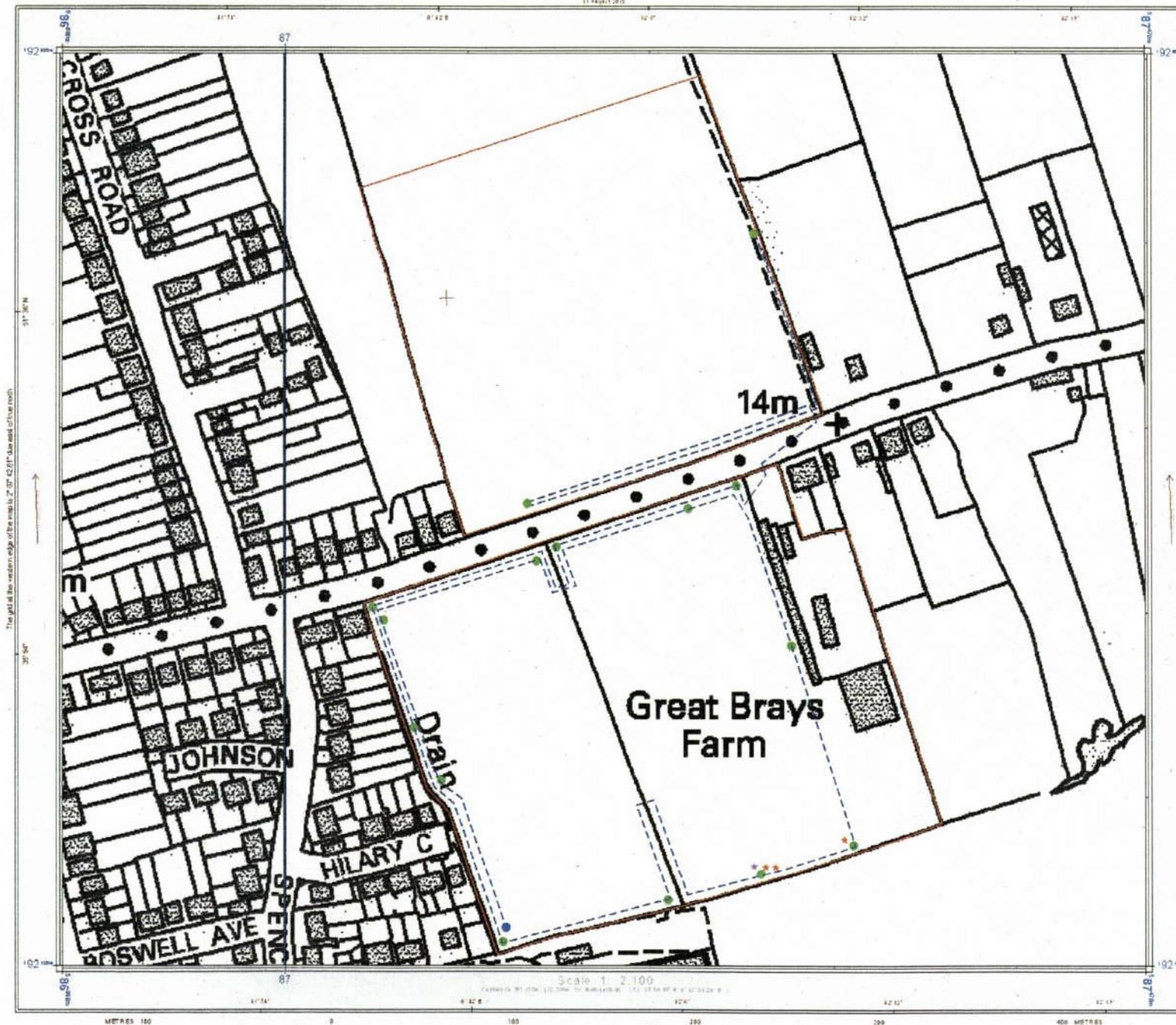
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## Figure 2 Brays Lane, Rochford Bat Sunrise Survey Results

30/07/2010



Key

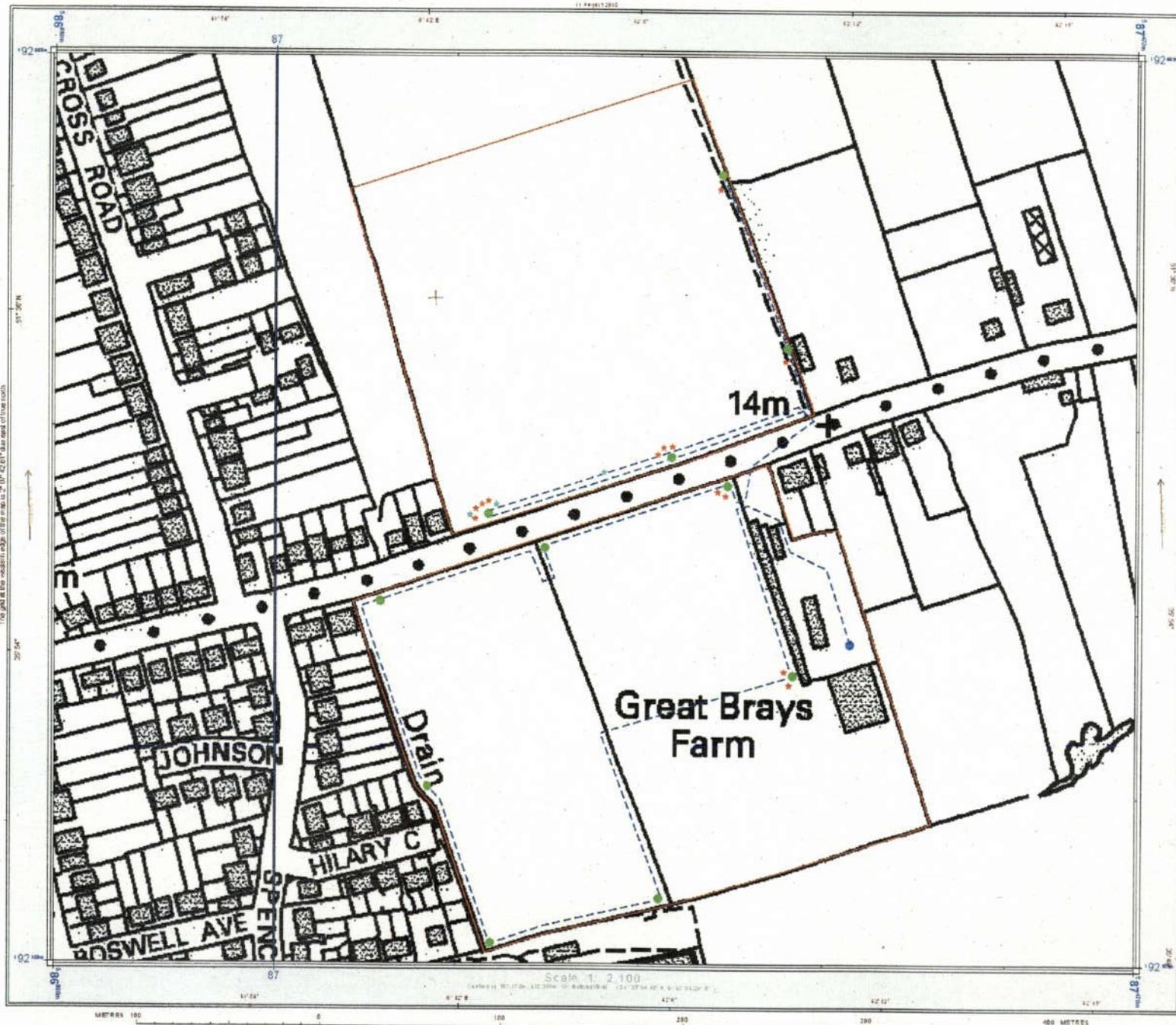
- Transect start point
- Transect sample point
- Transect end point
- Common Pipistrelle contact
- Brown Long-eared contact

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**Figure 3**  
**Brays Lane, Rochford**  
**Bat Activity Survey Results**  
 04/08/2010



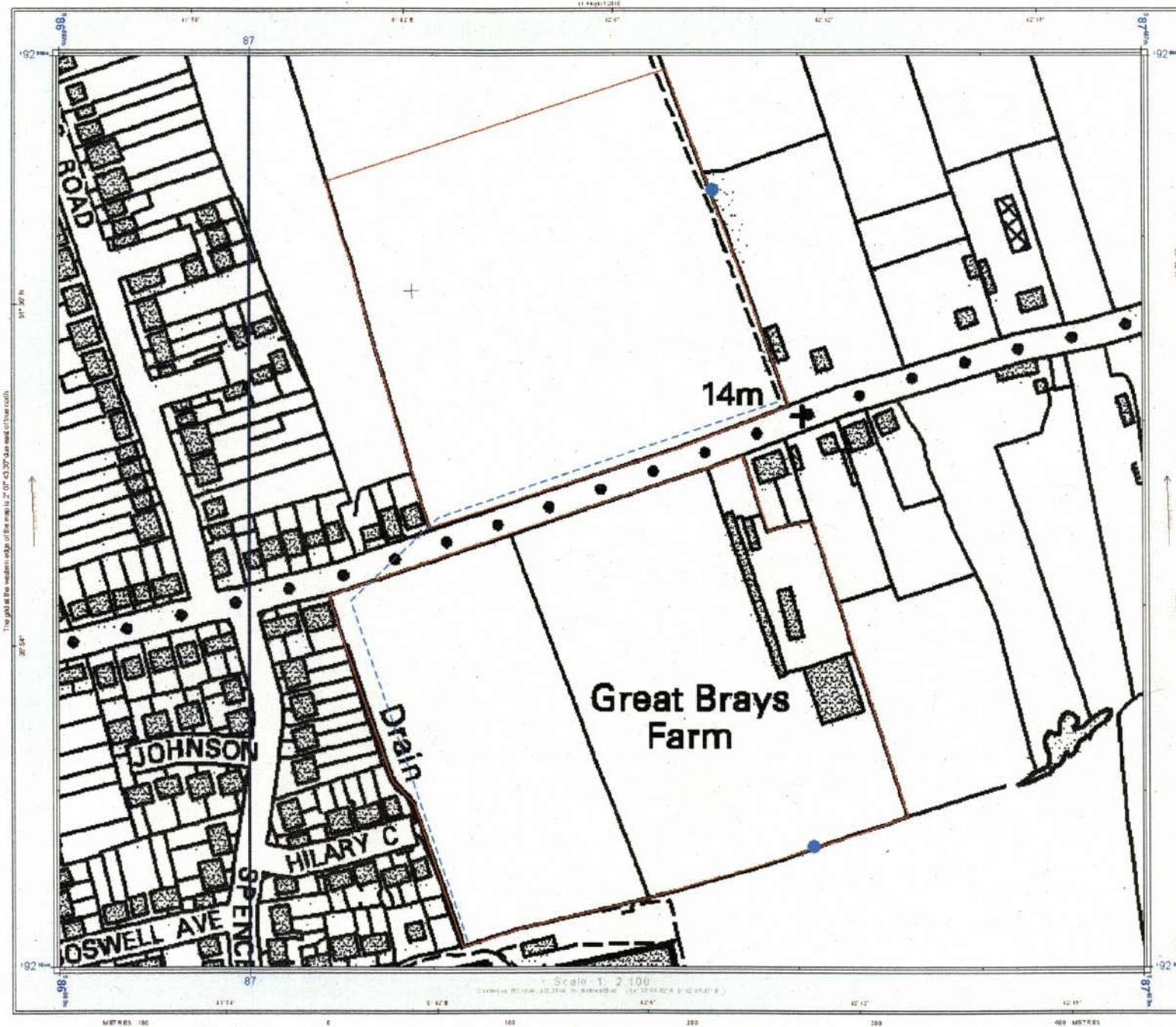
- Key**
- Emergence sample
  - Transect sample point
  - Transect route
  - Transect end point
  - Common Pipistrelle contact
  - Soprano Pipistrelle

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**Figure 4**  
**Brays Lane, Rochford**  
**Summary of Bat Activity**



- Key**
- Suspected roost locations
  - Commuting route

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