



Ecological Appraisal

Loddiswell Playing Field, Loddiswell

Client: NPS South West

Date: November 2019

Richard Green Ecology Ltd

The Natural Selection

9C, Mill Park Industrial Estate, White Cross Road, Woodbury Salterton, Exeter, EX5 1EL

01395 239234

office@richardgreenecology.co.uk

www.richardgreenecology.co.uk

Reg no. 07287436



Report version	Report date	Author	Checked and approved by
1.0	05/11/2019	William Dommett MSc ACIEEM	Richard Green BSc (Hons) CEnv MCIEEM

Dates of surveys: September to November 2018, April-October 2019

Richard Green Ecology Ltd has prepared this report in accordance with the instructions of their client, the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing and CIEEM Code of Professional Conduct. It is for the client's sole and specific use. Any other persons who use any information contained herein do so at their own risk.

BS 42020:2013 Biodiversity - Code of practice for planning and development states, '*ecological information should be sufficiently up to date (e.g., not normally more than two/three years old, or as stipulated in good practice guidance)*'. Therefore, this report may not be considered valid more than three years after survey was undertaken, and advice should be taken on validity after one year.

This report has been produced using all reasonable skill and care. Opinions are provided in good faith.

© Copyright Richard Green Ecology Ltd 2019.

Contents

Executive summary

Ecological Receptor Checklist

1	Introduction	1
	1.1 <i>Introduction</i>	1
	1.2 <i>Planning considerations</i>	1
2	Methods	4
	2.1 <i>Field survey</i>	4
3	Survey Results	7
	3.1 <i>Protected species</i>	7
	3.2 <i>Bats</i>	8
4	Assessment, recommendations and mitigation	21
	4.1 <i>South Hams SAC</i>	21
	4.2 <i>Habitats</i>	21
	4.3 <i>Reptiles</i>	22
	4.4 <i>Amphibians</i>	23
	4.5 <i>Dormice</i>	23
	4.6 <i>Bats</i>	24
	4.7 <i>Nesting birds</i>	25
	4.8 <i>Hedgehog</i>	25
5	References	26
6	Figures	27
7	Annexes.	49
	A <i>Photographs</i>	
	B <i>Reptile survey results and hibernaculum design</i>	

Executive summary

It is proposed to build a residential development on an area of land at Loddiswell Playing Fields, Loddiswell, Kingsbridge, TQ7 4RH, NGR SX 7184 4857. There are no definitive plans for the site at the time of writing, as the proposal is for an outline planning application.

A preliminary ecological appraisal of the site was undertaken on 10 August 2018 by Richard Green Ecology Ltd (Richard Green Ecology, September 2018). The previous report should be read in conjunction with this report.

Following recommendations made in the preliminary ecological appraisal, and an interim ecological appraisal report (unpublished), reptile, dormouse, bat activity and cirl bunting surveys were undertaken between September and November 2018 and April and October 2019.

The site is not within a designated site for wildlife interest. The site is within a greater horseshoe bat landscape connectivity zone (LCZ).

Development of the site could potentially result in the loss of 0.6 ha of poor semi-improved grassland and 0.2 ha of mixed-woodland. It could also result in the severance/loss of species-rich hedgerows (unknown amount). This is considered to result in a minor adverse ecological impact on a local scale.

The site supports a 'low' (<5 adults observed) population of slow worms which would be at risk of killing and injury from site clearance. Reptiles would need to be translocated to a suitable retained area of habitat on the site, or a suitable receptor site, prior to developing the site.

Nesting dormice were confirmed on the site in October 2019. An assessment of whether a European protected species licence (EPSL) for dormice is required should be made once a detailed scheme is provided. Should the development require more than a small section (c. 10 m) of hedge to be removed, e.g., for access, or if habitat connectivity around the site is likely to be severed, an EPSL is likely to be required. One can only apply for an EPSL once planning approval has been granted and any conditions pertaining to protected species, which are capable of being discharged, have been discharged.

No cirl buntings were recorded on the site in 2019. Therefore, it is considered unlikely that cirl bunting use the site.

At least nine species of bats have been recorded over the site and the surrounding area during manual and static bat detector survey, including Annex II (Habitats Directive 1992) species greater horseshoe, lesser horseshoe and barbastelle bats.

The development of the site could have a potentially negative impact on foraging and commuting greater horseshoe bats (and other bat species), e.g., from loss of hedges and increased lighting.

Greater horseshoe bat activity was predominantly recorded in May 2019, during both the manual and static activity surveys. Greater horseshoe bats were predominantly recorded on the pathway between residential dwellings and the north site boundary, and Village Cross Road (which is partially lit by street lights) to the south of the site during the manual survey. Greater horseshoe bats were recorded in low numbers during the static activity surveys in all months of the survey period.

The site is within the centre of the village, surrounded by residential dwellings on street lit roads, and there are alternative potential commuting routes for bats and large areas of potential foraging habitat in the wider area. Therefore, the development of the site is not considered to result in loss, damage or disturbance, at a landscape scale, to a network of potential commuting routes.

It is recommended that any lighting associated with the development be designed to avoid light spill onto site boundaries, to avoid impacts on foraging and commuting bats. It should be demonstrated that introduced lighting from the new development will not exceed existing baseline light levels on these habitat features.

Other ecological receptors recorded included nesting birds, hedgehog and common toad.

Recommendations are made, including landscaping the site with a mix of native trees and shrubs, provision of reptile/amphibian habitat, provision of integrated bat roost and bird nest boxes within dwellings and permeable site boundaries around the site.

It is recommended that a detailed Ecological Mitigation and Enhancement Strategy (EMES), including measures to protect protected and notable species, be made a condition of planning approval and to inform a detailed planning application.

Ecological Receptor Checklist

Protected and priority species (Grid reference of site: NGR SX 7184 4857)

Species - terrestrial, intertidal, marine	Walkover shows that suitable habitat present and reasonably likely that the species will be found? <u>Yes or No</u>	Detailed survey needed to clarify impacts and mitigation requirements?	Detailed survey carried out and included?	Species Present or Assumed to be present on site Indicate <u>with P or A</u> and name the <u>species</u>	Impact on species?	Detailed Conservation Action Statement included? Sets out actions needed in relation to avoidance / mitigation / compensation / enhancement	EPS licence required?
Bats (roost)	No	No	No	No	N/A	No	No
Bats (flight line / foraging habitat)	Yes	Yes	Yes	P -including greater horseshoe (refer to 3.2)	Potential impact on foraging and commuting bats	No	No
Dormice	Yes	Yes	Yes	P	Potential killing, injury and/or habitat loss	No	Potentially – if affected by development
Otters	No	No	No	No	N/A	No	No
Great crested newts (<i>*check consultation zone</i>)	No	No	No	No	N/A	No	No
Cirl buntings (<i>*check consultation zone</i>)	Yes	Yes	Yes	No	No	No	No
Barn owls	No	No	No	No	N/A	No	No
Other Schedule 1 birds	No	No	No	No	N/A	No	No
Breeding birds	Yes	No	No	P- including house sparrow	Potential loss of nesting habitat	No	No
Reptiles	Yes	Yes	Yes	P - Slow worm	Potential killing or injury	No	No

Native crayfish	No	No	No	No	N/A	No	No
Water voles	No	No	No	No	N/A	No	No
Badgers	No	No	No	No	N/A	No	No
NERC Act 2006 Section 41 Species of Principal Importance in England	Yes	No	No	P -common toad, hedgehog	Potential killing or injury	Yes	No
Invasive species	Yes	Yes	Yes	P - Variegated yellow archangel and montbretia	Potential spread into the wild	No	No

Designations / important habitats / sites of geological importance

Designation Terrestrial, intertidal, marine	Within site or potential impact. <u>Yes or No</u>	Name of site / habitat	Detailed Conservation Action Statement included in report?	Relevant organisation consulted & response included in the application?
Statutory designations				
European designations - Special Area of Conservation (SAC), Special Protection Area (SPA) and RAMSAR site or within Greater Horseshoe consultation zone	Yes	South Hams SAC	No	N/A
Site of Special Scientific Interest (SSSIs)	No	N/A	N/A	N/A
Marine Conservation Zone (MCZ) (not before 2012)	No	N/A	N/A	N/A
Local Nature Reserve (LNR)	No	N/A	N/A	N/A
Non-statutory designations				
County Wildlife Site (CWS)	No	N/A	N/A	N/A
Ancient woodland	No	N/A	N/A	N/A
Special Verge	No	N/A	N/A	N/A
Habitat of Principal Importance / BAP habitat	Yes	Species-rich hedgerow	Yes	N/A
Local Biodiversity Network (mapped by Devon Wildlife Trust / through Green Infrastructure work)	No	N/A	N/A	N/A

1 Introduction

1.1 Introduction

It is proposed to build a residential development on an area of land at Loddiswell Playing Fields, Loddiswell, Kingsbridge, TQ7 4RH, NGR SX 7184 4857. There are no definitive plans for the site at the time of writing, as the proposal is for an outline planning application. A feasibility assessment suggested the site could accommodate approximately 20 dwellings (South Hams District Council, 2017).

A preliminary ecological appraisal of the site was undertaken on 10 August 2018 by Richard Green Ecology Ltd (Richard Green Ecology, September 2018). The previous report referred to should be read in conjunction with this report.

Following recommendations made in the preliminary ecological appraisal, and an interim ecological appraisal report (unpublished), reptile, dormouse, bat activity and cirl bunting surveys were undertaken between September and November 2018 and April and October 2019.

This report includes the findings of the surveys and makes recommendations for ecological mitigation and enhancement, in accordance with national and local planning policy and BS 42020:2013 Biodiversity – Code of practice for planning and development.

1.2 Planning considerations

1.2.1 National Planning Policy Framework (NPPF), February 2019

The National Planning Policy Framework (February 2019) outlines the Government's commitment to protect and enhance sites of biodiversity value, and minimise impacts on and provide net gains for biodiversity, including the principle of refusing planning permission if significant harm to biodiversity resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for.

1.2.2 Plymouth and South West Devon Joint Local Plan 2014 – 2034

The Plymouth and South West Devon Joint Local Plan (adopted in 2019) contains the following relevant policies (extracts):

Policy DEV2 Air, water, soil, noise, land and light

Development proposals which will cause unacceptable on- or off-site risk or harm to human health, the natural environment or living conditions, either individually or cumulatively, will not be permitted. Development should:

- 1. Avoid harmful environmental impacts and health risks for both new and existing development arising from soil, air, water, land, or noise pollution or land instability.*

4. *Limit the impact of light pollution on local amenity, intrinsically dark landscapes and nature conservation.*

8. *Not cause an adverse effect on the integrity of a European Site (see Policy SPT12).*

Policy DEV26 Protecting and enhancing biodiversity and geological conservation

Development should support the protection, conservation, enhancement and restoration of biodiversity and geodiversity across the Plan Area. Specific provisions are identified below:

1. *The highest level of protection will be given to European Sites. Development will not be permitted unless it will not adversely affect the integrity of a European site, either alone or in combination with other development.*

Proposals having a harmful impact on the integrity of European Sites that cannot be avoided or adequately mitigated will not be permitted other than in exceptional circumstances. These circumstances will only apply where:

i. There are no suitable alternatives.

ii. There are Imperative Reasons of Overriding Public Interest.

iii. Necessary compensatory provision can be secured to ensure that the overall coherence of the Natura 2000 network of European Sites is protected.

2. *A high level of protection will be given to sites of national significance for nature conservation. Development proposed on land within or outside such a site which would be likely to have a harmful impact on the site (either individually or in combination with other developments) will not be permitted unless the benefits of the development, at the site, clearly outweigh both the impacts on the notified special interest features of the site and any broader impacts on the national network of sites of national significance for nature conservation.*

3. *Development likely to have a harmful impact on locally designated sites, their features or their function as part of the ecological network, will only be permitted where the need and benefits of the development clearly outweigh the loss and where the coherence of the local ecological network is maintained.*

4. *Harmful impacts on European and UK protected species and Biodiversity Action Plan habitats and species must be avoided wherever possible, subject to the legal tests afforded to them where applicable, and unless the need for, or benefits of the development clearly outweigh the loss.*

5. *Net gains in biodiversity will be sought from all major development proposals through the promotion, restoration and re-creation of priority habitats, ecological networks and the*

protection and recovery of legally protected and priority species populations. Delivery of net gains in biodiversity should be designed to support the delivery of the identified biodiversity network that crosses the Plan Area and links the city of Plymouth to the countryside and coast, as well as the network within the city itself. The level of biodiversity net gain required will be proportionate to the type, scale and impact of development. Enhancements for wildlife within the built environment will be sought where appropriate from all scales of development.

6. Development will provide for the long term management of biodiversity features retained and enhanced within the site or for those features created off site to compensate for development impacts.

Policy DEV28 Trees, woodlands and hedgerows

Development that would result in the loss or deterioration of the quality of:

Ancient woodland, aged or veteran trees or impact on their immediate surroundings;

Other woodlands or high amenity trees including protected trees;

Important hedgerows including Devon hedgebanks; will not be permitted unless the need for, and benefits of, the development in that location clearly outweigh the loss and this can be demonstrated.

Development should be designed so as to avoid the loss or deterioration of woodlands, trees or hedgerows. If the loss of trees, woodlands or hedgerows, cannot be avoided, new native and locally appropriate trees and hedgerows will be secured as mitigation to ensure they contribute to a 'net gain'. Mitigation should be delivered on site, but if this is not achievable, offsite compensation will be required to provide a net gain in canopy cover in line with local standards.

Policy SPT12 Strategic approach to the natural environment

The distinctive characteristics, special qualities and important features of the natural environment of the Plan Area will be protected, conserved and enhanced. This will be through a strategic approach which protects the hierarchy of international, national and locally designated sites, commensurate with their status, and takes account of the natural infrastructure functions of different sites, habitats and features. Key principles include:

1. Avoiding harmful impacts on existing features as a first principle, and where harmful impacts are unavoidable, to ensure that such impacts are adequately and proportionately mitigated or as a last resort fully compensated.

2. Protecting sites of European significance for biodiversity and conservation. These include existing and potential Special Protection Areas, existing possible and candidate Special Areas

of Conservation, existing and proposed Ramsar sites and sites identified, or required, as compensatory measures for harmful impacts on European sites.

3. Protecting sites of national significance for biodiversity and conservation. These include Sites of Special Scientific Interest, National Nature Reserves, Ancient Woodlands and Marine Conservation Zones.

8. Conserving and enhancing a functional network across the Plan Area of greenspace and geodiversity sites that meets the needs of communities and wildlife.

2 Methods

2.1 Field survey

2.1.1 Reptile survey

In accordance with best practice survey guidelines (Froglife, 1999), reptile survey was undertaken in September 2018 by placing 50 reptile refuge mats (500 mm x 500 mm pieces of roofing felt) in suitable reptile habitat on the site, followed at least one week later by seven survey visits under appropriate weather conditions.

Refer to Annex B for details of survey dates, survey results, weather conditions and surveyors.

2.1.2 Hazel dormouse survey

50 dormouse nest tubes were deployed in the hedges and woodland on the site in September 2018 following current best practice guidance (Bright et al., 2006). A check of the nest tubes was undertaken in October and November 2018, and April, May and October 2019 for any signs of nesting dormice.

2.1.3 Manual bat activity survey

The manual bat activity survey comprised of a continuous walked transect around the site and surrounding habitat. Each survey started at sunset and continued for up to 3 hours, following BCT guidelines (Collins, 2016). The survey included one dusk and pre-dawn survey within a 24-hour period. Surveys were undertaken in September 2018 and April to October 2019 (excluding September 2019).

Bat calls were recorded continuously using a Wildlife Acoustics Echo Meter 3 (EM3) with a GPS unit (September 2018) and Elekon Batlogger with internal GPS (April-August and October 2019). Observations of bats and bats heard were noted manually on a plan of the survey area. Recordings were subsequently analysed using Analook or Elekon BatExplorer software to assist with species identification and a plot of the transect routes and species recorded were mapped using QGIS.

2.1.4 Static bat activity survey

Two Anabat Express bat detectors were deployed in different parts of the site for a comparison of bat activity in different areas. The bat detectors were deployed in September 2018, and April-August and October 2019). They were set to record from sunset until sunrise. Bat detectors were deployed for a minimum of five nights during each deployment period.

Recordings were subsequently analysed using Analook software to assist species identification.

Bat species call identification is based on parameters from Russ 2012. Due to the variability of call parameters, those labelled long-eared bat calls could be from either brown (*Plecotus auritus*) or grey long-eared bats (*P. austriacus*) and mouse-eared bat species (*Myotis* sp.) are labelled to genus level only.

2.1.5 Cirl bunting summer survey

Following RSPB guidance (RSPB, 2017), five survey visits of the site were undertaken between mid-April and the end of August 2019. At least two were in the period mid-April to May and two in the period June to August. At least one visit was after mid-August.

2.1.6 Timing and weather conditions

(a) Manual bat activity survey

Date	Method	Timing	Personnel	Weather conditions
24/09/2018	Bat activity survey	19:09h – 21:09h Sunset: 19:09h	Leanne Engdah	4/8 oktas, light wind, dry, 11°C
24/04/2019	Bat activity survey	20:23h – 23:23h Sunset: 20:23h	Sam Chapman	6/8 oktas, light wind, dry, 9°C
22/05/2019	Bat activity survey	21:06h – 00:06h Sunset: 21:06h	Sam Chapman	0/8 oktas, no wind, dry, 9°C
18/06/2019	Bat activity survey	21:29h – 00:29h Sunset: 21:29h	Tom Rickman	3/8 oktas, no wind, dry, 15°C
22/07/2019	Bat activity survey	21:09h – 00:09h Sunset: 21:09h	Sam Chapman	8/8 oktas, no wind, dry, 16°C
15/08/2019	Bat activity survey	20:35h – 23:35h Sunset: 20:35h	Stephanie Rowe	2/8 oktas, light wind, dry, 13°C
27/10/2019	Bat activity survey	18:19h – 21:19h Sunset: 18:19h	Sam Chapman	7/8 oktas, light wind, dry, 11°C
28/10/2019	Bat activity survey	05:20h – 07:30h Sunrise: 07:30h	Tom Rickman	8/8 oktas, light wind, occasional shower, 11°C

(b) Static bat activity survey

Date	Method	Timing	Average weather ¹ (at 00:00)
24/09-02/10/2018	Static activity	Sunset until sunrise	Min temp: 6°C Max temp: 12°C, mostly clear.
24/04-03/05/2019	Static activity	Sunset until sunrise	Min temp: 7°C Max temp: 13°C, occasional showers.
22-28/05/2019	Static activity	Sunset until sunrise	Min temp: 7°C Max temp: 14°C, mostly clear.
19-24/06/2019	Static activity	Sunset until sunrise	Min temp: 7°C Max temp: 16°C, mostly clear.
22-28/07/2019	Static activity	Sunset until sunrise	Min temp: 11°C Max temp: 18°C, mostly clear.
15-19/08/2019	Static activity	Sunset until sunrise	Min temp: 13°C Max temp: 16°C, occasional showers.
17-21/10/2019	Static activity	Sunset until sunrise	Min temp: 6°C Max temp: 12°C, occasional showers.

(c) Cirl bunting survey

Survey visit	Surveyor	Timing	Weather
16/04/2019	Matt Knott	06:35h – 07:25h	8/8 oktas, light drizzle, light breeze, 15°C
11/05/2019	Matt Knott	06:00h - 07:00h	0/8 oktas, dry, no wind, 5°C
22/06/2019	Matt Knott	05:50h – 06:50h	0/8 oktas, dry, light breeze, 5°C
23/07/2019	Matt Knott	06:10h – 07:10h	8/8 oktas, dry, light breeze, 15°C
23/08/2019	Matt Knott	06:40h – 07:40h	2/8 oktas, dry, light breeze, 16°C

2.1.7 Personnel

William Dommert holds Natural England scientific licences to disturb dormice [2016-20777-CLS-CLS], bats [2015-15554-CLS-CLS], great crested newts [2017-29119-CLS-CLS] and barn owls [CL29/00117]. He is an associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Matt Knott undertook the cirl bunting surveys. Matt is an experienced ornithologist and has undertaken several bird surveys, including cirl bunting surveys, for Richard Green Ecology Ltd.

Other surveyors used are experienced in undertaking reptile, bat and dormouse nest tube surveys.

2.1.8 Constraints

In June 2019, it was identified that several tubes from the dormouse nest tube survey had been tampered with, e.g., inserts were missing. Therefore, new inserts were provided, and the survey period extended to October 2019. As evidence of nesting dormice was found on the site, this is not considered to provide an overall constraint to the survey.

¹ Historic weather records from Plymouth – nearest weather station near the site.

The initial survey of the site was undertaken in 2018 and one bat activity survey was undertaken in September 2018. Following the identification of greater horseshoe bats and other light sensitive species in 2018, e.g., long-eared bats, the site was assessed as having moderate suitability for foraging and commuting bats. Bat activity surveys of the site were undertaken monthly between April and October 2019 (excluding September 2019). This is not considered to provide an overall constraint to the assessment of bat use on the site.

3 Survey Results

3.1 Protected species

3.1.1 Reptiles

Common reptiles, such as slow worm (*Anguis fragilis*), common lizard (*Zootoca vivipara*) and grass snake (*Natrix helvetica*) are protected under the Wildlife and Countryside Act 1981 (as amended) against killing and injury and are species of principle importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act, 2006).

One adult female slow worm was found in the south-east part of the site in September 2018. A dead slow worm was also found by the site entrance near the same area. The site was therefore considered to support a 'low'² population of slow worms.

Given that an adult female slow worm was found, the mosaic of suitable reptile habitats on the site, including pockets of scrub, rank grassland and hedges, it is possible that a larger population of slow worms are present.

Individual common toads³ (*Bufo bufo*) were also found during the reptile survey.

Refer to Figure 1 and Annex B for detailed survey results.

3.1.2 Dormice

Dormice are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

Three dormouse nests were found, two in separate but adjacent nest tubes in the east boundary hedgerow, and one on the boundary of the area of woodland in the south-west part of the site in October 2019.

It is confirmed that the site is used by nesting dormice. The hedgerows surrounding the site are relatively isolated from the wider hedgerow network. However, there is potential landscape connectivity via residential gardens, in which dormice can be found.

² 2 < 5 adults observed during any one survey visit (Froglife, 1999)

³ 3 Species of principle importance (NERC Act, 2006)

Given the size of the site and available habitat in the surrounding area, the site is considered to be of local value for dormice.

Refer to photographs in Annex A and Figure 2 for locations of dormouse nest tubes and dormouse nests found.

3.2 Bats

Bats are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended).

3.2.1 Manual bat activity survey

Refer to descriptions below, Table 1 and Figures 3 - 12.

In total, at least eight species of bat and up to 408 bat passes⁴ were recorded during the manual activity surveys. Common pipistrelle bat (*Pipistrellus pipistrellus*) was the most frequently recorded species, followed by serotine bat (*Eptesicus serotinus*) and noctule bat (*Nyctalus noctule*).

July accounted for the largest number of bat calls recorded over the whole survey period (just over 32%), followed by May (29%) and August (11.9%) in descending order.

Greater horseshoe bat (*Rhinolophus ferrumequinum*) and barbastelle bat (combined) accounted for just under 1.5% of all bat passes recorded.

(a) 24th April 2019

Two species of bat were recorded in April. Common pipistrelle bat was the most frequently recorded species with 121 bat passes recorded. Three noctule bat passes were also recorded. Bat activity was predominantly recorded in the woodland in the south-west part of the site.

(b) 22nd May 2019

Six species of bat were recorded in May. Serotine bat was the most frequently recorded species with 134 passes, followed by noctule bat and common pipistrelle bat with 116 and 85 passes respectively. A single barbastelle bat pass was recorded on South Brent Road to the east of the site.

16 greater horseshoe bat passes were recorded, predominantly on the pathway between residential dwelling and the north site boundary, and Village Cross Road to the south of the site. 12 soprano pipistrelle bat (*Pipistrellus pygmaeus*) passes were also recorded predominantly around Village Cross Road.

⁴ Bat passes are the number of bat calls recorded by the bat detector. Each call record does not equate to an individual bat on each call event, i.e., multiple calls could be from an individual bat foraging back and forth.

(c) 18th June 2019

Four species of bat were recorded in June. Serotine bat was the most frequently recorded species with 78 passes, followed by common pipistrelle bat, noctule bat and soprano pipistrelle bat with 43, 10 and 4 passes respectively. Bat activity was predominantly recorded around the west and north part of the site.

(d) 23rd July 2019

Five species of bat were recorded in July. Common pipistrelle bat was the most frequently recorded species with 359 passes, followed by noctule bat with 35 bat passes. Less than 10 bat passes (for each species) of mouse-eared (*Myotis* sp.), soprano pipistrelle and serotine bat passes were also recorded.

(e) 15th August 2019

Five species of bat were recorded in August. Common pipistrelle bat was the most frequently recorded species with 141 passes, followed by soprano pipistrelle bat with 6 bat passes. Individual mouse-eared, long-eared and barbastelle bat passes were recorded. The barbastelle bat pass was recorded by the area of woodland in the south-west part of the site, and the mouse-eared bat by the west boundary.

(f) 24th September 2018

Three species of bat were recorded during the manual activity survey. Common pipistrelle bat was the most frequently recorded species with 48 bat passes recorded. Common pipistrelle bats were predominantly recorded foraging around streetlights on residential roads surrounding the site.

Two noctule bat passes (in total) were recorded, one above the western boundary of the site and one to the south-east of the site. A single pass from a mouse-eared bat was also recorded at 20:22 at the Loddiswell Athletic Football Club sports field to the north of the site.

(g) 17th October 2019 dusk and 18th October dawn (dusk/pre-dawn survey)

Four species of bat were recorded during the dusk and pre-dawn transect with a total of 20 bat passes recorded, 17 at dusk and 3 at dawn. Common pipistrelle bat was the most frequently recorded species with 13 bat passes recorded. Bat passes were predominantly recorded around Village Cross Road to the south of the site.

Key to bat symbols used in Tables 1-2 and Figures 3-12

Symbol	Scientific name	Common name
Bbar	<i>Barbastella barbastellus</i>	Barbastelle bat
Epsc	<i>Eptesicus serotinus</i>	Serotine bat
Mysp	<i>Myotis</i> sp.	Mouse-eared bat
Nnoc	<i>Nyctalus noctula</i>	Noctule bat
Plec	<i>Plecotus</i> sp.	Long-eared bat
Ppip	<i>Pipistrellus pipistrellus</i>	Common pipistrelle bat
Ppyg	<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle bat

Rfer	<i>Rhinolophus ferrumequinum</i>	Greater horseshoe bat
Rhip	<i>Rhinolophus hipposideros</i>	Lesser horseshoe bat

Table 1 – Manual bat activity survey results

Month	Bat								Total	%
	Bbar	Epse	Mysp	Nnoc	Plec	Ppip	Ppyg	Rfer		
April				2		121			123	9.83
May	1	134		116		85	12	16	364	29.10
June		78		10		43	4		135	10.79
July		3	7	35		359	4		408	32.61
August	1		1		1	141	6		150	11.99
September			1	2		48			51	4.08
October		1		2		13	4		20	1.60
Total	2	216	9	167	1	810	30	16	1251	
%	0.16	17.27	0.72	13.35	0.08	64.75	2.40	1.28		

3.2.2 Static bat activity survey

Refer to descriptions below and Table 2.

To provide a proportionate comparison of data, taking into account differences in survey duration, Bat Activity Indices (BAI) have been derived. The Bat Activity Index (BAI) is calculated by: number of bats passes (bp) divided by the average length of time in hours of the survey (hs), expressed as follows:

$$\text{BAI} = (\text{bp} / \text{hs})$$

Numbers of bat passes recorded by each static detector are included in Table 2 and summarised below.

At least eight species of bat were recorded during the static bat activity survey. Common pipistrelle bat was the most frequently recorded species, accounting for just over 51% of all bat calls recorded, followed by serotine bat, accounting for just over 28% of all bat calls recorded over all months, by all detectors.

Greater horseshoe bat was the next most frequently recorded species, accounting for just over 7% of all bat calls recorded. The highest number of greater horseshoes bat calls was recorded in May with 600 bat passes recorded (10.49 BAI). They were recorded on all other months in much lower numbers (≤ 21 bat passes on other months recorded).

The monthly (combined) BAI varied between 2.05 (minimum) and 80.05 (maximum) between the surveys. The individual BAI between detectors varied between 0.32 (minimum) and 45.01 (maximum).

Bat Detector A was located in the north-west corner of the site on each month. Detector B was located in the south-west boundary hedge.

(a) April 2019

202 bat passes (in total) from six species of bat were recorded. Common pipistrelle bat accounted for just over 82% of all passes recorded; soprano pipistrelle and lesser horseshoe bats accounted for just under 5% (each) of all passes. Greater horseshoe bats accounted for just under 3% of all calls recorded in April.

(i) North hedge

30 bat passes from three species were recorded. Common pipistrelle bat was the most frequently recorded species with 23 bat passes, followed by three noctule bat passes and an individual soprano pipistrelle bat pass.

(ii) South hedge

172 bat passes (just over 85% of calls) from six species were recorded at the south hedge. Common pipistrelle bat was the most frequently recorded species with 140 bat passes. 10 lesser horseshoe and 6 greater horseshoe bat passes were recorded and low numbers (≤ 10) of soprano pipistrelle, noctule and serotine bat passes were also recorded.

(b) May 2019

4,604 bat passes (in total) from at least seven species of bat were recorded. Serotine bat accounted for just over 47% of all passes recorded, followed by common pipistrelle bat with just under 30% of all bat passes recorded. Greater horseshoe bats accounted for just over 13% of all calls recorded in May (600 bat passes). Mouse-eared, noctule, soprano pipistrelle and lesser horseshoe bats were also recorded. All bat species recorded were recorded at both detector locations.

(i) North hedge

The north hedge accounted for just over 55% of calls recorded, and included 1,632 serotine bat passes, 286 greater horseshoe and 10 lesser horseshoe bat passes.

(ii) South hedge

Common pipistrelle bat was the most frequently recorded species with 876 bat passes recorded, followed by serotine and greater horseshoe with 554 and 314 bat passes recorded respectively.

(c) June 2019

713 bat passes (in total) from at least seven species of bat were recorded. Common pipistrelle bat accounted for just over 51% of all passes recorded; with serotine accounting for just over 24% of calls. 11 greater horseshoe bat passes were also recorded.

(i) North hedge

Common pipistrelle bat was the most frequently recorded species with 314 bat passes recorded, followed by serotine bat (40 bat passes) and noctule and soprano pipistrelle bat with 20 bat passes recorded each.

(ii) South hedge

Soprano pipistrelle bat was the most frequently recorded species with 81 bat passes recorded, followed by serotine bat (132 bat passes) and common pipistrelle bat with 54 bat passes recorded.

(d) July 2019

1,522 bat passes (in total) from at least seven species of bat were recorded. Common pipistrelle bat accounted for just over 82% of all passes recorded; with soprano pipistrelle bat accounting for just over 14% of calls. 21 greater horseshoe bat passes were also recorded.

(i) North hedge

Common pipistrelle bat was the most frequently recorded species with 303 bat passes recorded, followed by soprano bat with 24 bat passes.

(ii) South hedge

The south hedge accounted for 77% of all calls recorded in July, predominantly related to common pipistrelle and soprano pipistrelle bats. 15 greater horseshoe bat passes, and 14 lesser horseshoe bat passes were also recorded.

(e) August 2019

96 bat passes (in total) from at least six species of bat were recorded. Common pipistrelle bat accounted for just over 70% of all passes recorded; with soprano pipistrelle bat accounting for just over 12% of calls.

(i) North hedge

The south hedge accounted for 83% of all calls recorded in August, predominantly related to common pipistrelle and soprano pipistrelle bats.

(ii) South hedge

15 common pipistrelle bat passes and an individual noctule bat pass was recorded by the south detector.

(f) September/October 2018

At least seven species of bat were recorded during the static bat activity survey. Both detectors recorded at least five species. Common pipistrelle bat was the most frequently recorded species by both detectors, accounting for over 90% of all bat calls recorded by each detector.

(i) North hedge

Common pipistrelle bat was the most frequently recorded species with 497 passes, followed by greater horseshoe bat with six passes, serotine bat with four passes, long-eared bat with three passes and mouse-eared bat with a single pass.

(ii) South hedge

Common pipistrelle was the most frequently recorded species with 294 bat passes, followed by mouse-eared bats with 14 passes, soprano pipistrelle bat with 13 passes and greater and lesser horseshoe bats with a single pass each.

(g) October 2019

431 bat passes (in total) from at least seven species of bat were recorded. Common pipistrelle bat accounted for just over 70% of all passes recorded; with soprano pipistrelle bat accounting for just over 12% of calls.

(i) North hedge

Common pipistrelle bat was the most frequently recorded species with 63 bat passes recorded, followed by mouse-eared bat with 201 bat passes.

(ii) South hedge

The south hedge accounted for just over 76% of all calls recorded in October 2019, predominantly related to common pipistrelle and mouse-eared bats.

Table 2 – Static bat activity survey results

	Epse	Mysp	Nnoc	Plec	Ppip	Ppyg	Rfer	Rhip	Total	%	BAI
April											
North hedge			3		26	1			30	14.85	0.32
South hedge	2		5		140	9	6	10	172	85.15	3.01
Total	2		8		166	10	6	10	202		
% Total	0.99	0.00	3.96	0.00	82.18	4.95	2.97	4.95			
May											
North hedge	1632	1	149		458	38	286	10	2574	55.91	45.01
South hedge	554	1	176		876	103	314	6	2030	44.09	35.50
Total	2186	2	325		1334	141	600	16	4604		
% Total	47.48	0.04	7.06	0.00	28.97	3.06	13.03	0.35			
June											
North hedge	40	10	20		314	20	8	2	414	58.06	9.10
South hedge	132	16	13		54	81	3		299	41.94	6.57
Total	172	26	33		368	101	11	2	713		
% Total	24.12	3.65	4.63	0.00	51.61	14.17	1.54	0.28			
July											
North hedge	2	3	9		303	27	6		350	23.00	5.94
South hedge	1		6		957	179	15	14	1172	77.00	19.88
Total	3	3	15		1260	206	21	14	1522		
% Total	0.20	0.20	0.99	0.00	82.79	13.53	1.38	0.92			

	Epse	Mysp	Nnoc	Plec	Ppip	Ppyg	Rfer	Rhip	Total	%	BAI
August											
North hedge	2	4	8		53	12	1		80	83.33	1.67
South hedge			1		15				16	16.67	0.33
Total	2	4	9		68	12	1		96		
% Total	2.08	4.17	9.38	0.00	70.83	12.50	1.04	0.00			

September											
North hedge	4	1		3	497		6		511	61.27	4.67
South hedge		14			294	13	1	1	323	38.73	2.95
Total	4	15		3	791	13	7	1	834		
% Total	0.48	1.80	0.00	0.36	94.84	1.56	0.84	0.12			

October											
North hedge	4	21	1		63	1		13	103	23.90	1.53
South hedge		38	1		280	7	2		328	76.10	4.86
Total	4	59	2		343	8	2	13	431		
% Total	0.93	13.69	0.46	0.00	79.58	1.86	0.46	3.02			

Grand Total	2373	109	392	3	4330	491	648	56	8402		
% Total	28.24	1.30	4.67	0.04	51.54	5.84	7.71	0.67			
BAI	4.95	0.23	0.82	0.01	9.02	1.02	1.35	0.12			

Note: Colours within the table are used to provide a visual assessment aid. Red = highest value, yellow = 50 percentile, green = lowest value, orange = between 50 percentile and highest value.

3.2.3 Evaluation

At least nine species of bats have been recorded over the site and the surrounding area during manual and static bat detector survey, including Annex II (Habitats Directive 1992) species greater horseshoe, lesser horseshoe and barbastelle bats.

Given the diversity of bat species and the presence of rarer species, the site is considered to range between Local and Regional value to bats (Wray et al., 2010), depending on the species of bat considered, e.g., pipistrelle sp. bat (Local), greater horseshoe bat (Regional). Refer to Table 3.

The Regional value of the site is attributed to the presence of greater horseshoe and/or barbastelle bat, which are known to be present within the South Hams. Grey long-eared bats are also known to be locally present (George Bemment Associates, 2015), which could also support the site's value as of Regional importance (assuming some of the long-eared bat calls recorded were from grey, as opposed to all from brown long-eared bats).

The site is located over 4.4 km from High Marks Barn Site of Special Scientific Interest (SSSI), designated for the presence of breeding greater horseshoe bats. The site is also within a greater horseshoe bat landscape connectivity zone⁵ within the South Hams SAC: Greater Horseshoe Bats HRA guidance (Devon County Council, 2019) and within 450 m of a greater horseshoe bat sustenance zone⁶.

Greater horseshoe bat activity was predominantly recorded in May 2019, both during the manual and static activity surveys. There was little difference in number of bat passes recorded by static locations in May. Greater horseshoe bats were predominantly recorded on the pathway between residential dwelling and the north site boundary, and Village Cross Road (which is partially street lit – refer to Figure 13) to the south of the site during the manual survey. Greater horseshoe bats were recorded by the static activity survey on all months, although in low numbers (excluding May), with between 1 and 21 bat passes per month recorded over the whole survey period.

Given the site's location and proximity (4.4 km) to High Marks barn SSSI, the presence of greater horseshoe bats and other bat species over the site is not unexpected. The peak in greater horseshoe bat activity in May could possibly be associated with a nearby pre-maternity roost. However, there could be several other reasons, such as prey availability, weather conditions etc.

Greater horseshoe bats predominantly feed on beetles, moths and crane-flies over cattle-grazed permanent pastures and in ancient semi-natural woodlands. They commute to their main foraging areas along well-developed hedgerows or lines of trees. They are regarded as

⁵ An area that includes a complex network of commuting routes used by the SAC population of greater horseshoe bats. Evidence from surveys indicates that greater horseshoe bats commuting through the Landscape Connectivity Zone are dispersed and found in low numbers (Devon County Council, 2019).

⁶ Within 4 km of the Designated Roosts which includes critical Foraging Habitat and Commuting Routes.

a light averse species, however, were recoded commuting through street lit areas. Given the site consisted of approximately 0.8 ha of poor semi-improved grassland (a former playing field), mixed woodland, and is surrounded by street lighting, its value for foraging greater horseshoe bats is likely to be limited, in comparison to the network of pastoral fields in the wider landscape.

The north and south boundaries of the site (species-rich hedges/lines of trees) provide a partially vegetated corridor through Loddiswell and are likely to be important for commuting greater horseshoe bats through the village.

Common pipistrelle bat accounted for just under 52% (on average) of all calls recorded during the static activity survey. This value would have been higher but for May, where a peak of serotine bat calls was recorded, which account for over 28% of all bat call recorded.

Table 3 - Value of site (foraging areas) based on Wray et al., 2010

Bat species	Rarity	Number of bats	Roosts/potential roosts nearby	Foraging habitat characteristics	Total	Value
Greater horseshoe bat	Rarest (20)	Individuals (5)	Close to (within 4.4 km) a SSSI for the species (5)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	33	Regional
Barbastelle bat	Rarest (20)	Individuals (5)	Small number (3)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	31	Regional
Lesser horseshoe bat	Rarer (5)	Individuals (5)	Small number (3)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	16	Local
Common pipistrelle bat	Common (2)	Small number of bats (10)	Moderate number/Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	19	Local
Serotine bat	Rarer (5)	Small number of bats (10)	Small number (3)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	21	County
Bechstein's bat Myotis bat ⁷	Rarest (20) Rarer (5)	Individuals (5)	Small number (3)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	31 16	Regional Local
Noctule bat	Rarer (5)	Small number of bats (10)	Not known (4)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	22	County
Soprano pipistrelle bat	Common (2)	Individuals (5)	Small number (3)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	13	Local
Brown long-eared bat Grey long-eared bat	Common (2) Rarest (20)	Individuals (5) Individuals (5)	Small number (3) Small number (3)	Isolated woodland patches, less intensive arable and/or small towns and villages (3)	13 31	Local Regional

⁷ Not including *Myotis alcathoe*

3.2.4 Cirl buntings

Cirl buntings (*Emberiza cirlus*) are protected under the Wildlife and Countryside Act 1981 (as amended) against killing and injury and are listed under Schedule 1 of the Act which makes it an offence to intentionally or recklessly disturb birds at, on, or near an 'active' nest. Cirl buntings are also a species of principle importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act, 2006).

The site is within 1 km of a cirl bunting breeding territory and the habitats on the site, including grassland, species-rich hedges and scrub offer potential breeding habitat for cirl buntings.

No cirl buntings were recorded on the site in 2019. Therefore, it is considered unlikely that cirl buntings use the site.

3.2.5 Nesting birds

Nesting birds are protected under the Wildlife and Countryside Act 1981 (as amended).

Twenty-six different birds were recorded on or flying over the site during the cirl bunting survey in 2019. Of those recorded, six were red-listed bird species (Eaton et al., 2015) and four amber-listed bird species. The remaining species were green listed.

In April 2019, a flock of 14 starlings were seen feeding on the site. Several house sparrows were also noted in an area of scrub in the north-east part of the site.

In May 2019, a blue tit was nesting in a nest box in the area of woodland in the south-west part of the site. Seven house martins were noted foraging over the site during the survey. A pair of dunnocks and house sparrows were noted in the area of scrub in the north-east part of the site.

In June 2019, most bird activity was related to birds flying over the site. A house sparrow with young in the nest was recorded in the east boundary hedge.

In July 2019, most bird activity was related to birds flying over the site. A flock of 16 blue tits was recorded feeding in the south part of the site.

In August 2019, most bird activity was related to birds flying over the site. At least four house sparrows (including juveniles) were recorded in the north-east part of the site.

Refer to Table 4 and Figures 14 – 18.

Table 4 – Bird species recorded during cirl bunting survey

Common name	Scientific name	Status (Eaton et al., 2015)
Blackbird	<i>Turdus merula</i>	Green
Blackcap	<i>Sylvia atricapilla</i>	Green
Blue tit	<i>Cyanistes caeruleus</i>	Green
Bullfinch	<i>Pyrrhula pyrrhula</i>	Amber
Carrion crow	<i>Corvus corone</i>	Green
Chaffinch	<i>Fringilla coelebs</i>	Green
Chiffchaff	<i>Phylloscopus collybita</i>	Green
Collard dove	<i>Streptopelia decaocto</i>	Green
Dunnock	<i>Prunella modularis</i>	Amber
Goldfinch	<i>Carduelis carduelis</i>	Green
Great tit	<i>Parus major</i>	Green
Greenfinch	<i>Carduelis chloris</i>	Green
Herring gull	<i>Larus argentatus</i>	Red
House martin	<i>Delichon urbicum</i>	Amber
House sparrow	<i>Passer domesticus</i>	Red
Jackdaw	<i>Corvus monedula</i>	Green
Linnets	<i>Linaria cannabina</i>	Red
Robin	<i>Erithacus rubecula</i>	Green
Rook	<i>Corvus frugilegus</i>	Green
Song Thrush	<i>Turdus philomelos</i>	Red
Starlings	<i>Sturnus vulgaris</i>	Red
Swallow	<i>Hirundo rustica</i>	Green
Swift	<i>Apus apus</i>	Amber
Whitethroat	<i>Sylvia communis</i>	Green
Woodpigeon	<i>Columba palumbus</i>	Green
Wren	<i>Troglodytes troglodytes</i>	Green

3.2.6 Hedgehog

Hedgehog (*Erinaceus europaeus*) is a species of principle importance under Section 41 of the Natural Environment and Rural Communities Act 2006 (NERC Act, 2006).

Two hedgehogs were recorded on the site in April 2019 during the bat activity survey. The hedgerows, scrub and rank grassland provide favourable foraging and shelter habitat for hedgehogs.

4 Assessment, recommendations and mitigation

4.1 *South Hams SAC*

4.1.1 *Direct impacts*

The proposed development is unlikely to have any direct impacts on the designated site, as any impacts, e.g., from building works, would be limited to the immediate site area.

4.1.2 *Indirect impacts*

The site is within a greater horseshoe bat Landscape Connectivity Zone (LCZ) and greater horseshoe bats were recorded in each survey month during the static activity surveys.

The north and south boundaries of the site (species-rich hedges/lines of trees) provide a partially vegetated corridor through Loddiswell and are likely to be important for commuting greater horseshoe bats through the village. There are several other potential commuting routes for greater horseshoe bats in and around Loddiswell that avoid street lit areas, e.g., around the boundaries of the village.

The development of the site could have a potentially negative impact on foraging and commuting greater horseshoe bats (and other bat species), e.g., from loss of hedges and increasing in lighting.

The site is within the centre of the village, surrounded by street lit residential dwellings, and there are alternative potential commuting routes and large areas of potential foraging habitat in the wider area. Therefore, the development of the site is not considered to result in loss, damage or disturbance, at a landscape scale, to a network of potential commuting routes.

4.1.3 *Mitigation*

It is recommended that any lighting associated with the development be designed to avoid any light spill onto site boundaries and a buffer of two metres, i.e., light levels to remain below 0.1 lux or no greater than existing levels, and no more than 0.5 lux within 5 metres of site boundaries, to avoid impacts on foraging and commuting bats.

It should be demonstrated that any lighting from the new development, including light from building windows, will not exceed the recommended lux levels on these habitat features.

4.2 *Habitats*

4.2.1 *Impacts*

Refer to PEA report (Richard Green Ecology, 2018) for detailed habitat descriptions and evaluations. The habitats on the site remained the same in 2019, with no changes.

The proposal is for an outline application and the full details of the development are unknown, e.g., number of dwellings/site access etc.

The development of the site could potentially result in the loss of 0.6 ha of poor semi-improved grassland and 0.2 ha of mixed-woodland. It could also result in the severance/loss of species-rich hedgerows (unknown amount). This is considered to result in a minor adverse ecological impact on a local scale.

4.2.2 Mitigation

It is recommended that the site be landscaped with a mix of native trees and shrubs, and areas of public open space planted with a mix of native and non-native flowering nectar-rich species to encourage invertebrates. Areas of structural planting should also be provided within the site.

Any species-rich hedgerow loss, i.e., to create access, should be compensated for elsewhere on the site. Suitable compensation measures would include planting a new species-rich Devon bank hedgerow connecting to retained hedges.

The drainage of the site should be designed to meet statutory requirements and avoid pollution of nearby habitats, e.g., from potential run-off of soil, sediment or pollution such as fuel, chemicals etc. Specialist advice should be sought on the design and implementation. Sustainable drainage measures, such as the use of permeable parking areas, should be considered.

Spill kits should be made available during the construction phase, and site operatives trained in their use, to deal with any spillages of materials.

The positioning of fuel storage tanks and other potentially polluting materials and should be located on areas of hardstanding with dedicated drainage/storage systems.

The requirement for a detailed Ecological Mitigation and Enhancement Strategy (EMES), including a detailed planting scheme and an ecological management plan should be made a condition of planning permission.

4.3 Reptiles

4.3.1 Impacts

The site is considered to support a 'low' population of slow worms (Froglife, 1999). The development of the site could potentially result in the killing or injury of slow worms.

4.3.2 Mitigation

Reptiles would need to be translocated to a suitable retained area of habitat on the site, or a suitable receptor site, prior to developing the site. The area proposed for development should be isolated using temporary reptile fencing and artificial refugia placed around the site. Capture and translocation should continue until five consecutive inspections of artificial refugia under suitable weather conditions find no reptiles present. Translocation would need to be carried out between April and October when reptiles are active.

Some form of reptile enhancements should be provided within the retained habitat on site or in the offsite receptor area, including reptile hibernacula and/or log/brush piles (refer to Annex B).

The requirement for a detailed Ecological Mitigation and Enhancement Strategy (EMES), including measures to protect reptiles should be made a condition of planning permission.

4.4 Amphibians

4.4.1 Impacts

The site is used by common toad, which would be at risk of killing or injury through the development of the site.

4.4.2 Mitigation

A walkover of the site prior to site clearance, including a hand search of potential refugia, e.g., log piles, should be undertaken by an Ecological Clerk of Works (ECoW). Any amphibians found should be captured and moved to suitable habitats outside of the development boundary.

Measures to provide reptile habitat (i.e., reptile hibernacula and log/brush piles - refer to 4.3) would provide suitable terrestrial habitat for common toad.

4.5 Dormice

4.5.1 Impacts

The site is used by nesting dormice. Dormice could potentially be disturbed by site operations or impacted on through an increase in cat predation as a result of the new development. However, the site is surrounded by residential housing on all elevations and the existing hedgerows and area of woodland are already likely to be under pressure from the existing local cat population.

It is understood (NPS South West pers. comm.) that the area of woodland in the south-west part of the site would be retained. As there are no detailed site plans, it is not possible to make a detailed ecological impact assessment.

The removal of a small section of hedgerow, e.g., to create an access point, and the removal of the small area of scrub/in the north-east of the site (approximately 0.01 ha) is unlikely to have any significant impact on potentially available dormouse habitat within the local area. However, the removal of a larger section of hedge, e.g., greater than 10 m length, could have a negative impact on dormice.

4.5.2 Licensing

An assessment of whether a European protected species licence (EPSL) for dormice is required should be made once a detailed scheme is provided. Should the development require more than a small section (c. 10 m) of hedge to be removed, e.g., for access or habitat connectivity around the site is likely to be severed, an EPSL is likely to be required.

One can only apply for an EPSL once planning approval has been granted and any conditions pertaining to protected species, which are capable of being discharged, have been discharged .

4.5.3 *Outline mitigation*

Any woody habitat proposed for removal should be cut down to 150 mm above ground during the winter (November to February), when dormice are not active or nesting above ground, followed by stump extraction and earth removal in the following summer (May to October) once dormice have emerged from hibernation. Vegetation should be cut carefully, with minimal disturbance to the ground, to avoid crushing any hibernating dormice at ground level.

The provision of dormouse nest boxes can help increase carrying capacity of a site for dormice.

The requirement for a detailed Ecological Mitigation and Enhancement Strategy (EMES), including measures to protect dormice should be made a condition of planning permission.

4.6 **Bats**

4.6.1 *Impacts*

In the absence of a detailed site plan (including a lighting plan with lux contours), it is not possible to make a detailed ecological impact assessment, as the full impact of the scheme is not fully understood.

Therefore, the development of the site has the potential to adversely affect foraging and commuting bats by loss of habitats and lighting, depending on the layout and any lighting associated with the development, both during and following construction.

4.6.2 *Mitigation*

The north and south boundaries of the site appear to be important features for bats, including commuting greater horseshoe bats (refer to 4.1). These features, along with suitable buffer zones (refer to 4.1.3) should be retained and not subject to any increase in lighting from the development over that recommended.

If any external lighting is required within the development, e.g., for access, it is recommended that low-level bollard lighting using passive infrared (PIR) sensors on a short timer (<1 minute) be used to reduce the duration of external lighting and avoid unnecessary illumination of surrounding habitats. The bulbs used in these lights should be within the warm white spectrum (<2700 kelvin) and feature wavelengths higher than 550nm in order to avoid the components of light most disturbing to bats (BCT and ILP 2018).

4.6.3 *Ecological enhancement*

It is recommended that some form of integrated bat roosting provision be provided in each new dwelling, e.g., a Schwegler 1FR bat tube or equivalent.

The provision of waney edge cladding on new dwellings or a bat loft above a detached garage could also provide additional roosting opportunities for bats.

4.7 Nesting birds

4.7.1 Impacts

The development of the site would result in a minor loss of bird foraging habitat and the removal of trees, scrub and hedges would result in the loss of bird nesting habitat.

4.7.2 Mitigation

A check for nesting birds should be made of prior to removal of potential bird nesting habitats (if undertaken between March and September). If birds are nesting, habitat removal would need to be avoided until the birds had fledged.

4.7.3 Ecological enhancement

It is recommended that integrated bird nesting provision, e.g., swift bricks, sparrow terraces etc. (or similar) be provided on each new dwelling.

4.8 Hedgehog

4.8.1 Impacts

The clearance of the site could potentially result in the killing or injury of hedgehog and result in the minor loss of foraging habitat.

4.8.2 Mitigation

A walkover of the site prior to clearance should be undertaken by an ECoW. The ECoW should thoroughly check the ground for any hedgehogs. Any hedgehogs found would be captured and moved outside of the clearance/development boundary.

Garden fences used to divide garden plots should have 125 mm square holes at ground level, at 5 m intervals, to allow movement of wildlife, such as hedgehog, around the site.

5 References

- Bat Conservation Trust (BCT) and Institute of Lighting Professionals (ILP) (2018). Guidance Note 08/18 - Bats and artificial lighting in the UK – Bats and the built Environment Series.
- Bright, P., Morris, P. and Mitchell-Jones, T. (2006). The dormouse conservation handbook; Second edition.
- British Trust for Ornithology. (2019). BTO species codes.
https://www.bto.org/sites/default/files/u16/downloads/forms_instructions/bto_bird_speci es_codes.pdf
- Burrows, L. (2017). North Somerset and Mendip Bats Special Area of Conservation (SAC) Guidance on Development. Version 1. Somerset County Council.
- Chartered Institute of Ecology and Environmental Management (2018). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
- Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edt.). The Bat Conservation Trust, London.
- Devon County Council. (2019). South Hams Special Area of Conservation Greater Horseshoe Bats - Habitats Regulations Assessment Guidance June 2019.
- Devon County Council. (2017). Wildlife and development guidance note: Cirl Bunting.
- Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. *British Birds* 108, 708–746.
- English Nature. (1996). The management of feeding areas for greater horseshoe bats. No. 174. English Nature research reports.
- Froglife (1999). Froglife Advice Sheet 10 – Reptile Survey
- George Bemment Associates (2015). Preliminary Ecological Assessment - Pendarves and adjacent land, Loddiswell
- Institute of Environmental Assessment (1995). Guidelines for Baseline Ecological Assessment. E. & F.N. Spon.
- RSPB (2017). Survey Methodology to establish presence of cirl bunting on a site.
- Russ., J. (2012). British Bat Calls, A Guide for Identification. Pelagic Publishing. Exeter.
- Richard Green Ecology Ltd (2018). Preliminary Ecological Appraisal - Loddiswell Playing Field.
- South Hams District Council. (2017). Considering Sites for Development in Loddiswell Parish
- Wray, S., Wells, D., Long, E. and Mitchell-Jones, T. (2010). Valuing Bats in Ecological Impact Assessment; IEEM InPractice; Vol 70.

6 Figures

Figure 1 – Locations of reptile mats, slow worms and toads found



Figure 2 – Locations of dormouse nest tubes and dormouse nests found



Table 6.1 – Key to bat codes used in bat transect maps Figures 3 -12

Bat code	Scientific name	Common name
Bbar	<i>Barbastella barbastellus</i>	Barbastelle bat
Epse	<i>Eptesicus serotinus</i>	Serotine bat
MYsp	<i>Myotis</i> sp.	Mouse-eared bat
Ppip	<i>Pipistrellus pipistrellus</i>	Common pipistrelle bat
Ppyg	<i>Pipistrellus pygmaeus</i>	Soprano pipistrelle bat
Plec	<i>Plecotus</i> sp.	Long-eared bat
Rfer	<i>Rhinolophus ferrumequinum</i>	Greater horseshoe bat
Rhip	<i>Rhinolophus hipposideros</i>	Lesser horseshoe bat

Figure 3 – April 2019 bat transect and locations of static bat detectors



Figure 4 – May 2019 bat transect and locations of static bat detectors

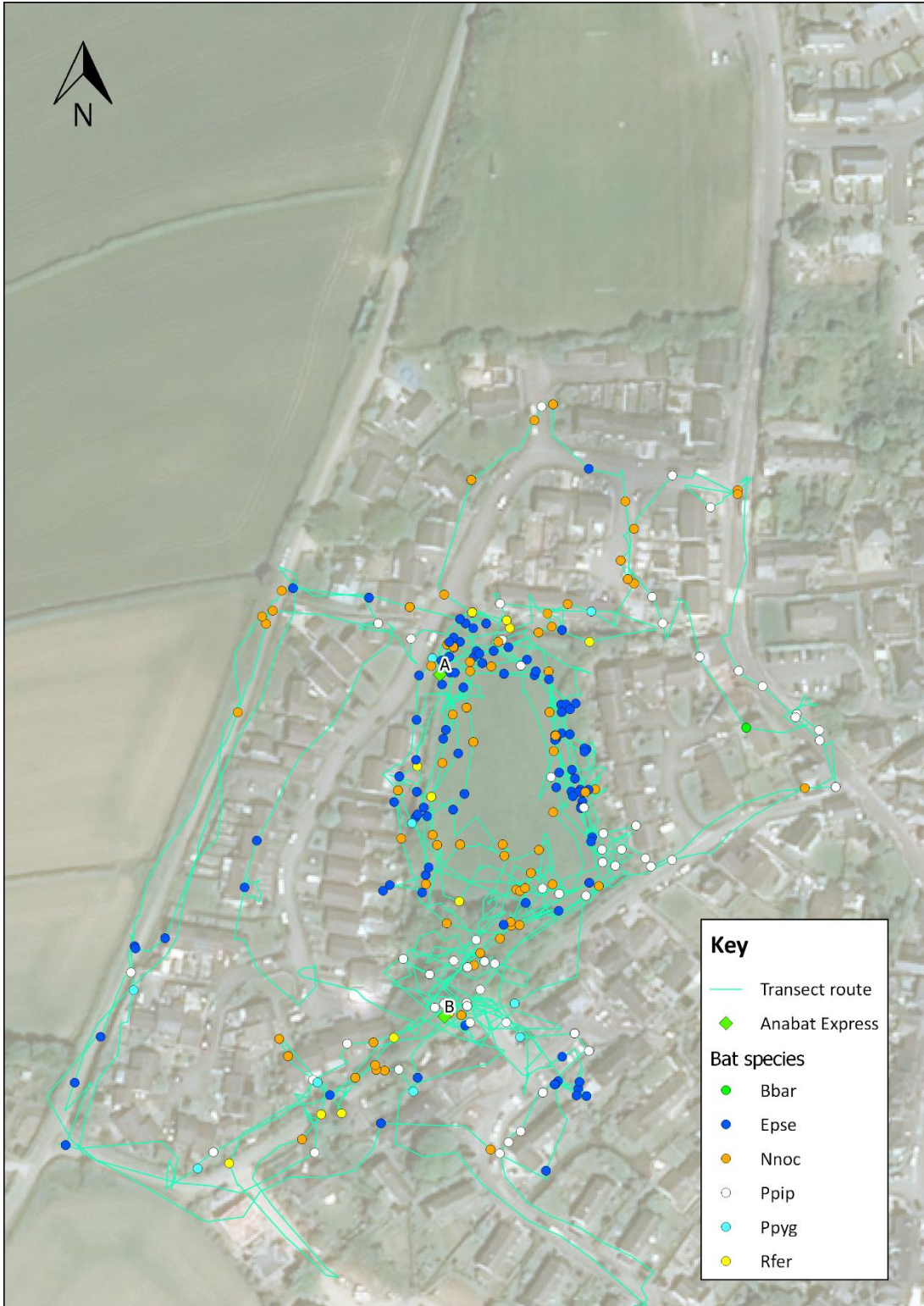


Figure 5 – June 2019 bat transect and locations of static bat detectors

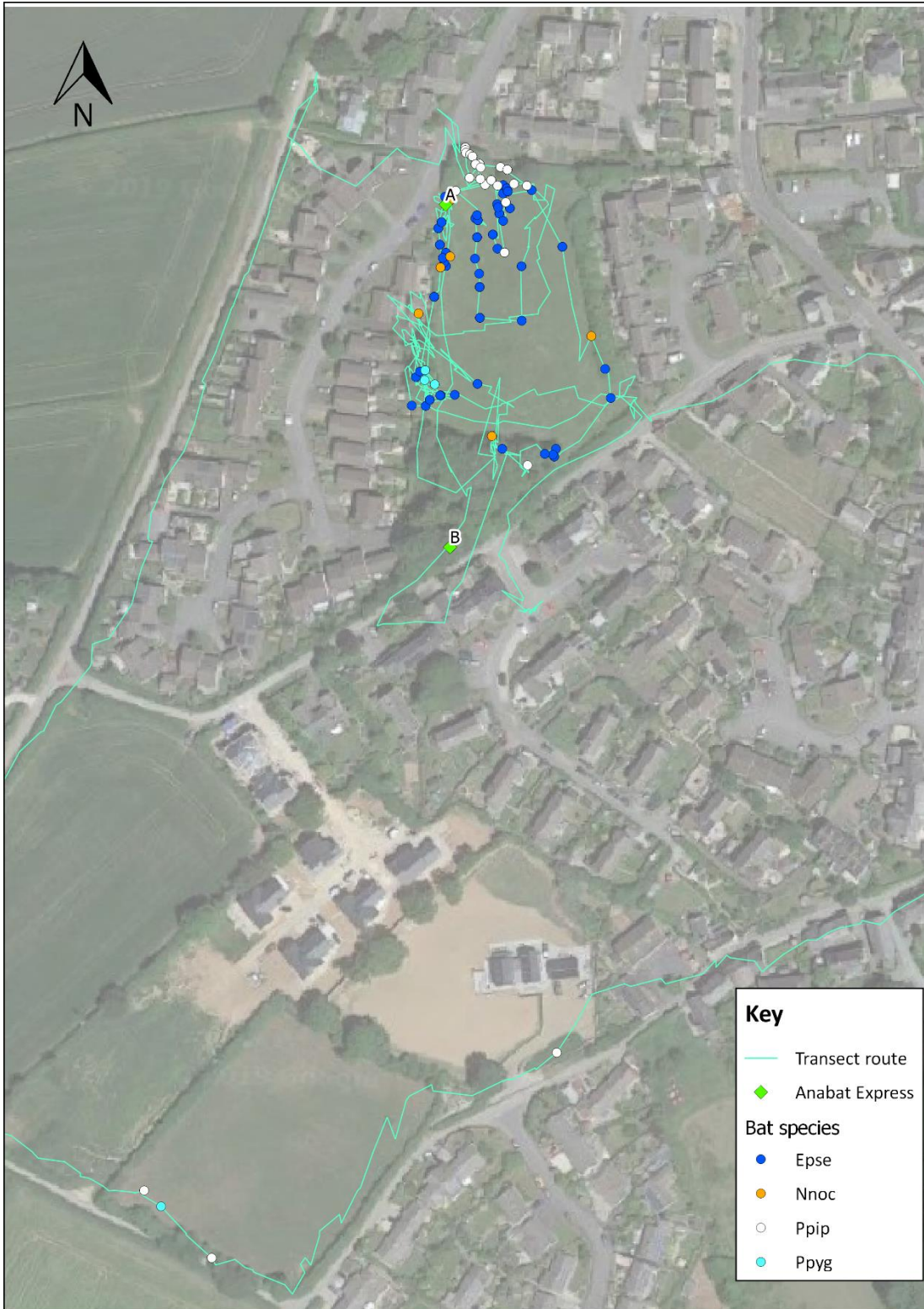


Figure 6 – July 2019 bat transect and locations of static bat detectors

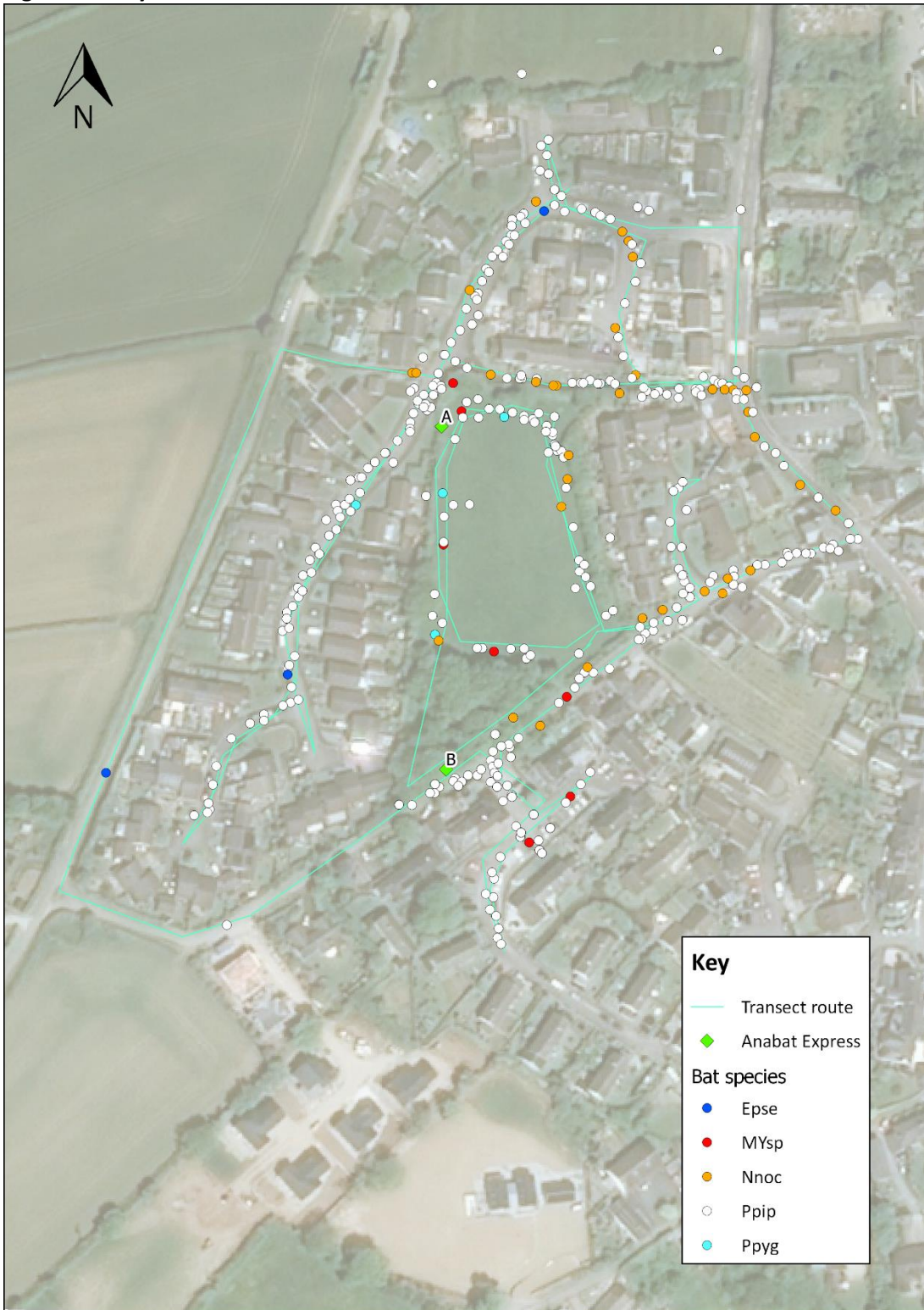


Figure 7 – August 2019 bat transect and locations of static bat detectors



Figure 8 – September 2018 bat transect and locations of static bat detectors

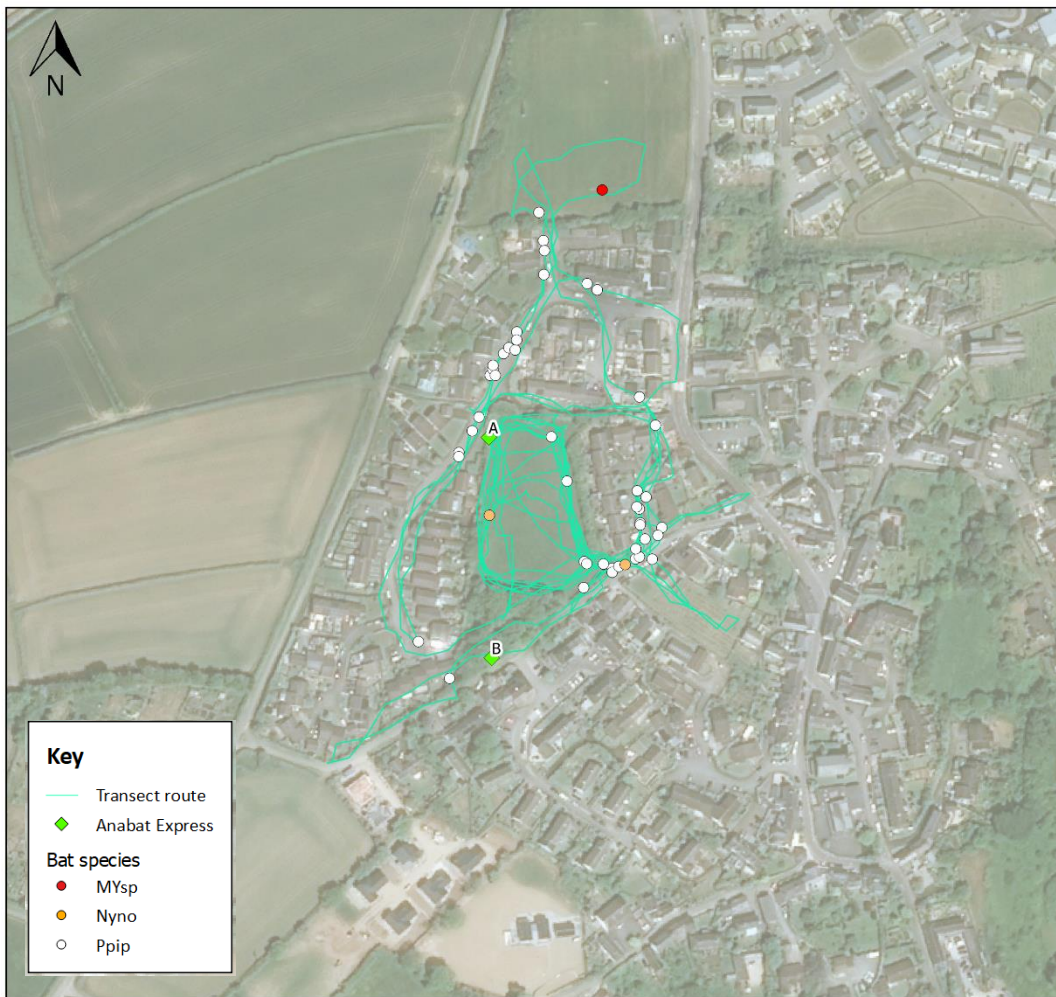


Figure 9 – October dusk 2019 bat transect and locations of static bat detectors



Figure 10 — October dawn 2019 bat transect and locations of static bat detectors



Figure 12 – All bats recorded over all months

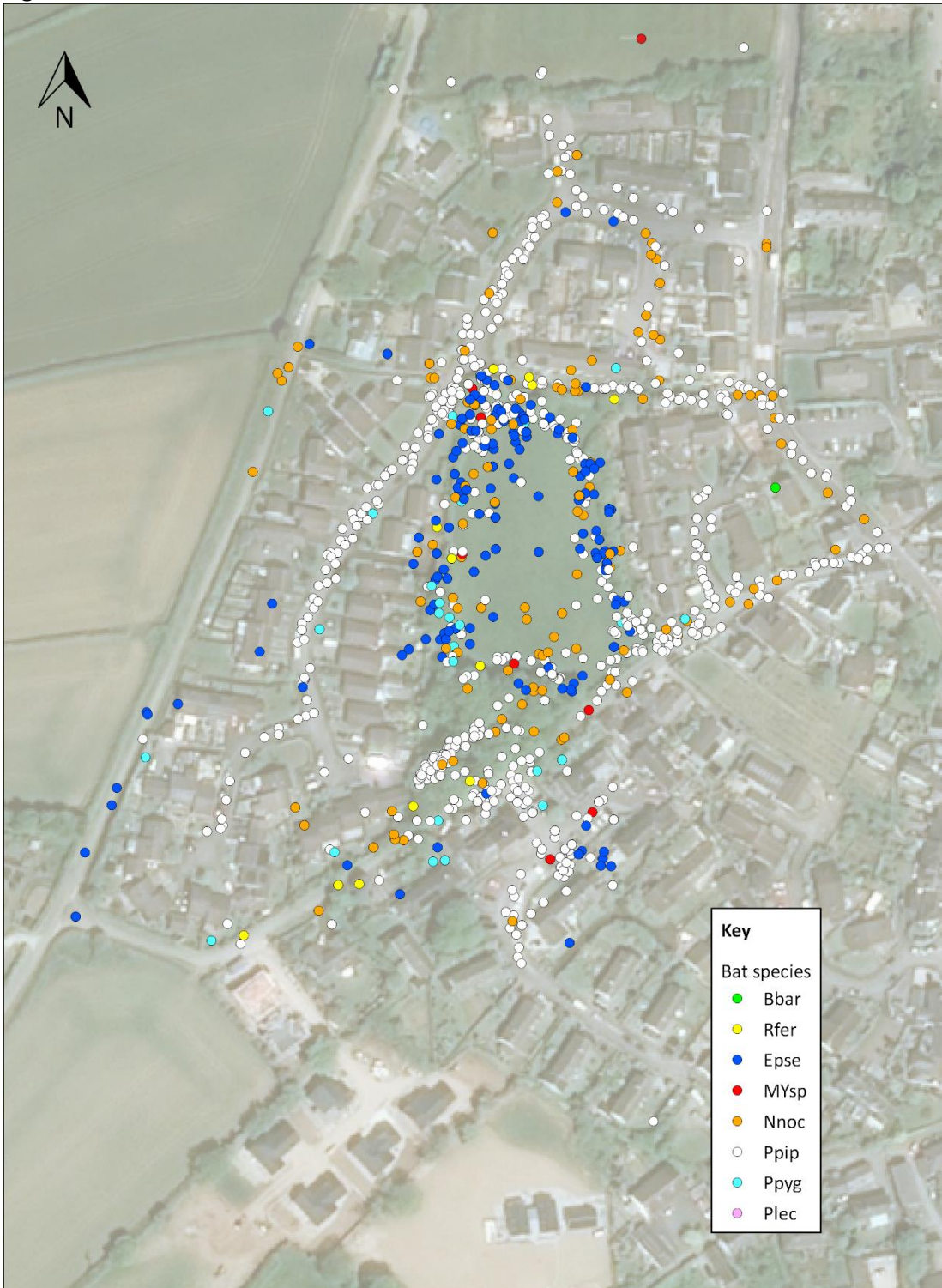
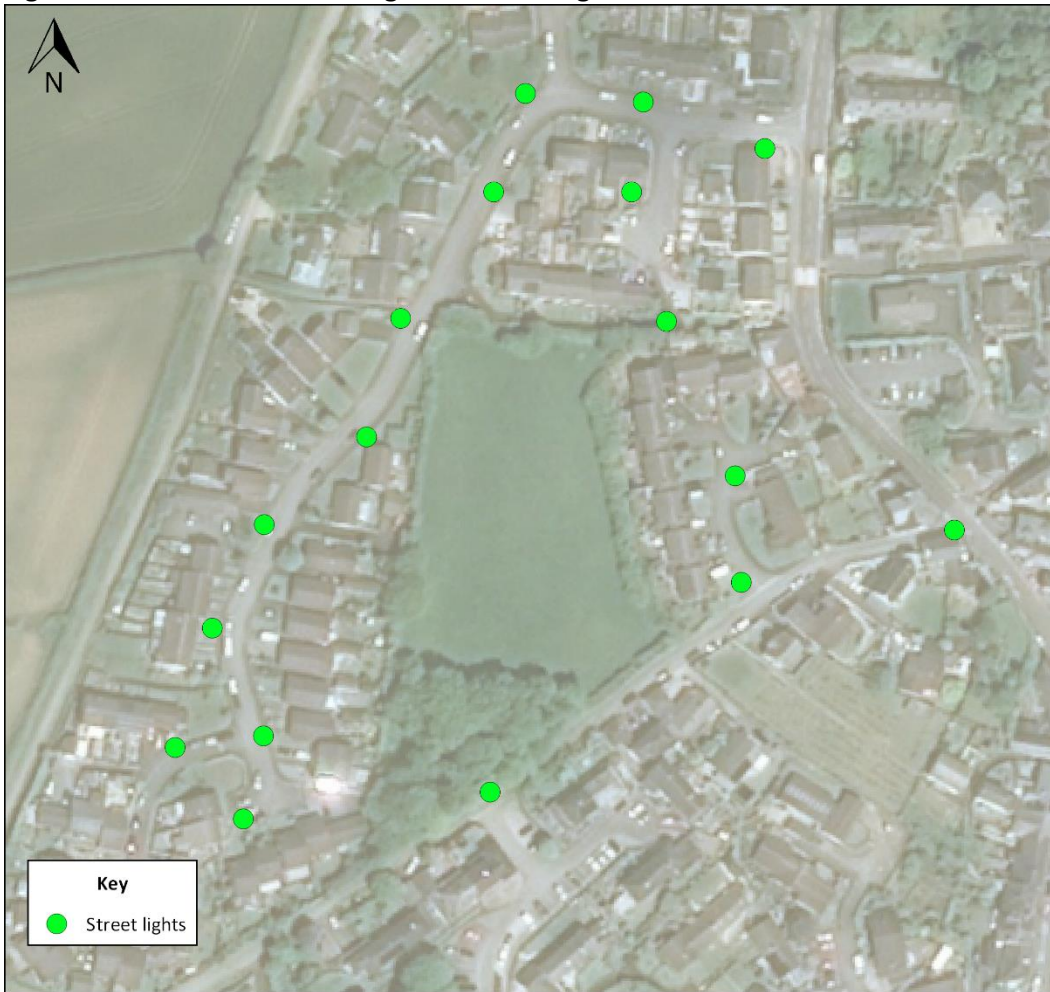


Figure 13 – Locations of streetlights surrounding the site



Key to codes and symbols used in cirl bunting maps Figures 14-18.

BTO SPECIES CODES

AC	Arctic Skua	GA	Gadwall	LE	Long-eared Owl	SM	Sand Martin
AE	Arctic Tern	GX	Gannet	LT	Long-tailed Tit	SS	Sanderling
AV	Avocet	GW	Garden Warbler	MG	Magpie	TE	Sandwich Tern
BO	Barn Owl	GY	Garganey	MA	Mallard	VI	Savi's Warbler
BY	Barnacle Goose	GC	Goldcrest	MN	Mandarin Duck	SQ	Scarlet Rosefinch
BA	Bar-tailed Godwit	EA	Golden Eagle	MX	Manx Shearwater	SP	Scaup
BR	Bearded Tit	OL	Golden Oriole	MR	Marsh Harrier	CY	Scottish Crossbill
BS	Berwick's Swan	GF	Golden Pheasant	MT	Marsh Tit	SW	Sedge Warbler
BI	Bittern	GP	Golden Plover	MW	Marsh Warbler	NS	Serin
BK	Black Grouse	GN	Goldeneye	MP	Meadow Pipit	SA	Shag
TY	Black Guillemot	GO	Goldfinch	MU	Mediterranean Gull	SU	Shelduck
BX	Black Redstart	GD	Goosander	ML	Merlin	SX	Shorelark
BJ	Black Tern	GI	Goshawk	M.	Mistle Thrush	SE	Short-eared Owl
B.	Blackbird	GH	Grasshopper Warbler	MO	Montagu's Harrier	SV	Shoveler
BC	Blackcap	GB	Great Black-backed Gull	MH	Moorhen	SK	Siskin
BH	Black-headed Gull	GG	Great Crested Grebe	MS	Mute Swan	S.	Skylark
BN	Black-necked Grebe	ND	Great Northern Diver	N.	Nightingale	SZ	Slavonian Grebe
BW	Black-tailed Godwit	NX	Great Skua	NJ	Nightjar	SN	Snipe
BV	Black-throated Diver	GS	Great Spotted Woodpecker	NH	Nuthatch	SB	Snow Bunting
BT	Blue Tit	GT	Great Tit	OP	Osprey	ST	Song Thrush
BU	Bluethroat	GE	Green Sandpiper	OC	Oystercatcher	SH	Sparrowhawk
BL	Brambling	G.	Green Woodpecker	PX	Peafowl/Peacock	AK	Spotted Crane
BG	Brent Goose	GR	Greenfinch	PE	Peregrine	SF	Spotted Flycatcher
BF	Bullfinch	GK	Greenshank	PH	Pheasant	DR	Spotted Redshank
BZ	Buzzard	H.	Grey Heron	PF	Pied Flycatcher	SG	Starling
CG	Canada Goose	P.	Grey Partridge	PW	Pied Wagtail	SD	Stock Dove
CP	Capercaillie	GV	Grey Plover	PG	Pink-footed Goose	SC	Stonechat
C.	Carrion Crow	GL	Grey Wagtail	PT	Pintail	TN	Stone-curlew
CW	Cetti's Warbler	GJ	Greylag Goose	PO	Pochard	TM	Storm Petrel
CH	Chaffinch	GU	Guillemot	PM	Ptarmigan	SL	Swallow
CC	Chiffchaff	FW	Guineafowl (Helmeted)	PU	Puffin	SI	Swift
CF	Chough	HF	Hawfinch	PS	Purple Sandpiper	TO	Tawny Owl
CL	Cirl Bunting	HH	Hen Harrier	Q.	Quail	T.	Teal
CT	Coal Tit	HG	Herring Gull	RN	Raven	TK	Temminck's Stint
CD	Collared Dove	HY	Hobby	RA	Razorbill	TP	Tree Pipit
CM	Common Gull	HZ	Honey Buzzard	RG	Red Grouse	TS	Tree Sparrow
CS	Common Sandpiper	HC	Hooded Crow	KT	Red Kite	TC	Treecreeper
CX	Common Scoter	HP	Hoopoe	ED	Red-backed Shrike	TU	Tufted Duck
CN	Common Teftn	HM	House Martin	RM	Red-breasted Merganser	TT	Turnstone
CO	Coot	HS	House Sparrow	RQ	Red-crested Pochard	TD	Turtle Dove
CA	Cormorant	JD	Jackdaw	FV	Red-footed Falcon	TW	Twite
CB	Corn Bunting	J.	Jay	RL	Red-legged Partridge	WA	Water Rail
CE	Corncrake	K.	Kestrel	NK	Red-necked Phalarope	W.	Wheatear
CI	Crested Tit	KF	Kingfisher	LR	Redpoll (Lesser)	WM	Whimbrel
CR	Crossbill (Common)	KI	Kittiwake	RK	Redshank	WC	Whinchat
CK	Cuckoo	KN	Knot	RT	Redstart	WG	White-fronted Goose
CU	Curlew	LM	Lady Amherst's Pheasant	RH	Red-throated Diver	WH	Whitethroat
DW	Dartford Warbler	LA	Lapland Bunting	RE	Redwing	WS	Whooper Swan
DI	Dipper	L.	Lapwing	RB	Reed Bunting	WN	Wigeon
DO	Dotterel	TL	Leach's Petrel	RW	Reed Warbler	WT	Willow Tit
DN	Dunlin	LB	Lesser Black-backed Gull	RZ	Ring Ouzel	WW	Willow Warbler
D.	Dunnock	LS	Lesser Spotted Woodpecker	RP	Ringed Plover	OD	Wood Sandpiper
EG	Egyptian Goose	LW	Lesser Whitethroat	RI	Ring-necked Parakeet	WO	Wood Warbler
E.	Eider	LI	Linnet	R.	Robin	WK	Woodcock
FP	Feral Pigeon	ET	Little Egret	DV	Rock Dove (not feral)	WL	Woodlark
ZL	Feral/hybrid goose	LG	Little Grebe	RC	Rock Pipit	WP	Woodpigeon
ZF	Feral/hybrid mallard type	LU	Little Gull	RO	Rook	WR	Wren
FF	Fieldfare	LO	Little Owl	RS	Roseate Tern	WY	Wryneck
FC	Firecrest	LP	Little Ringed Plover	RY	Ruddy Duck	YW	Yellow Wagtail
F.	Fulmar	AF	Little Tern	RU	Ruff	Y.	Yellowhammer

If you are not submitting your data electronically using BBS-Online, please return your Field Recording Sheets to your Regional Organiser with your other BBS forms. If you would like to submit your results on BBS-Online, please inform your RO, then visit www.bto.org/bbs.



ECN Protocols for Standard Measurements at Terrestrial Sites

BI (BB/BC/BM) Protocols

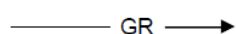



Note 3 BTO bird activity map symbols

(Sheet reproduced from BTO instructions for CBC recorders)

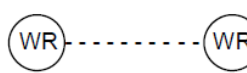
This standard list of conventions is designed for clear and unambiguous recording. Symbols can be combined where necessary. Additional activities of territorial significance, such as display or mating, should be noted using an appropriate clear abbreviation.

CH, CH ♂ [↗] CH ♀ [↘]	Chaffinch sight records, with age, sex or number of birds if appropriate.
3Chjuve, CH2♀ [↗] 1 ♀	Use CH ♀ [↗] to indicate one pair of Chaffinches, so that: 2CH♀ [↗] means two pairs together.
R fam	Juvenile Robins with parent(s) in attendance
R	A calling Robin
<u>R</u>	A Robin repeatedly giving alarm calls or other vocalisations (not song) thought to have strong territorial significance
(R)	A Robin in song
	An aggressive encounter between two Robins
*R	An occupied nest of Robins. Do not mark unoccupied nests, which are not of territorial significance by themselves
 BT	Blue tits nesting in a specially provided site. Please remember to use this special symbol for a nest in a nestbox.
*PW on	Pied Wagtail nest with adult sitting
PW mat	Pied Wagtail carrying nest material
PW food	Pied Wagtail carrying food

Movements of birds can be indicated by an arrow using the following conventions:

 GR	A calling Greenfinch flying over (seen only in flight)
 D	A singing Dunnock, perched then flying away (not seen to land)
 B.♂ [↗]	A male blackbird flying in and landing (first seen in flight)
WR  WR	A Wren moving between two perches. The solid line indicates that it was definitely the same bird.

The following conventions indicate which registrations relate to different, and which to the same individual birds. Their proper use will be essential for the accurate assessment of clusters.

	Two Wrens in song at the same time, i.e. definitely different birds. The dotted line indicates a simultaneous registration (or contemporary contact) and is of very great value in separating territories.
---	--

* *
 LI LI Two Linnet nests occupied simultaneously, and thus belonging to different pairs. This is another example of the value of dotted lines. Only adjacent nests need to be marked in this way.

○ CK ——— ○ CK The solid line indicates that the registrations definitely refer to the same bird.

○ SD — ? — ○ SD This question-marked solid line indicates that the registrations relate to probably the same bird. This convention is of particular use when your census route brings you back past an area already covered - it is possible to mark new positions of (probably the same) birds recorded before, without risk of double-recording. If you record birds without using the question-marked solid line, over-estimation of territories will result.

○ WR
 WR mat No line joining the registrations - it will be assumed that the birds are probably different, but depending on the pattern of other registrations they may be treated as if only one bird was involved. (You may if you wish use a question-marked dotted line, indicating that the registrations were almost certainly of different birds.)

C* C* Where adjacent nests are marked without a line, it will often be assumed that they were in first and second broods, or a replacement nest following an earlier failure.

Figure 14 –April 2019 cirl bunting survey

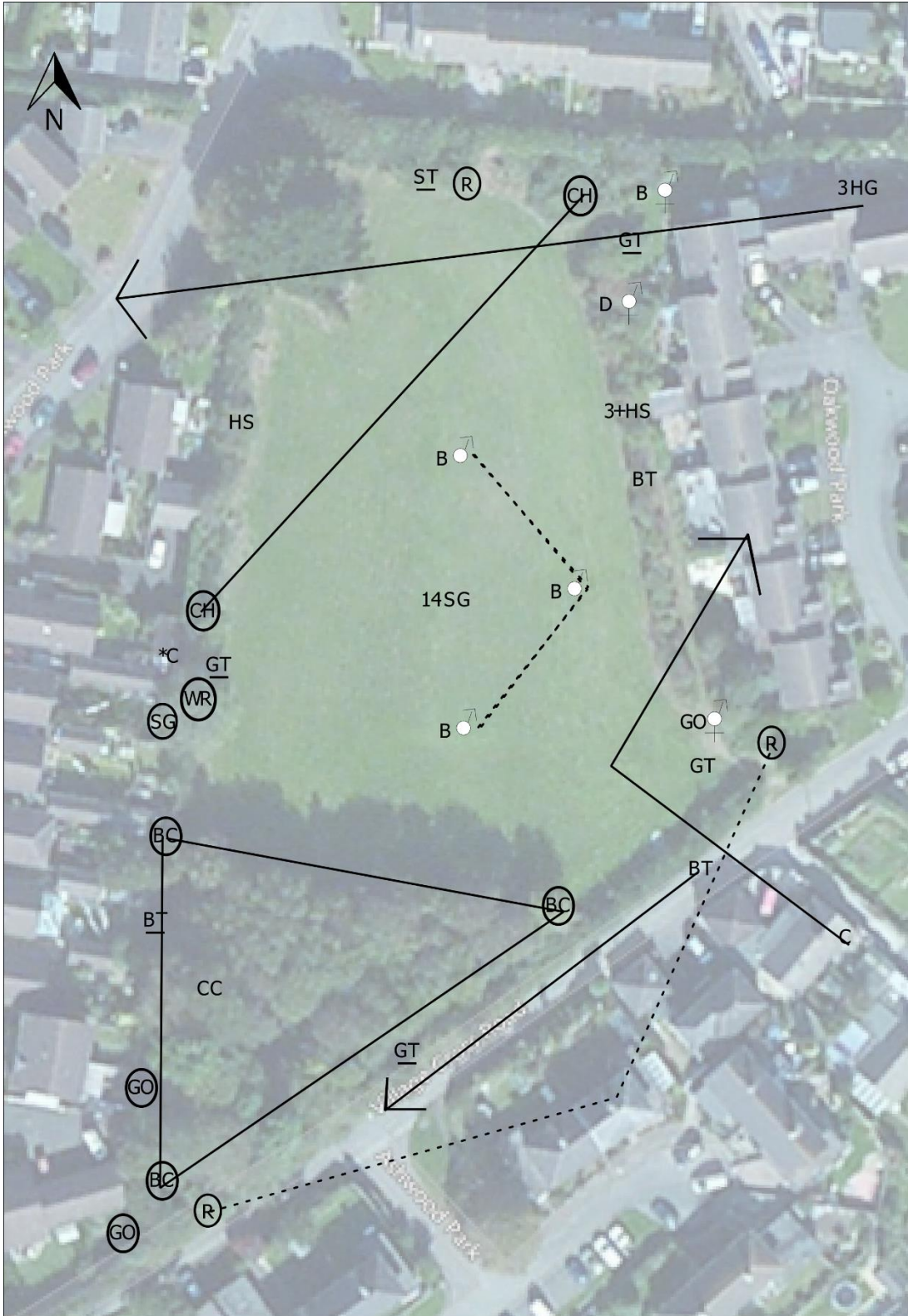


Figure 15 – May 2019 cirl bunting survey

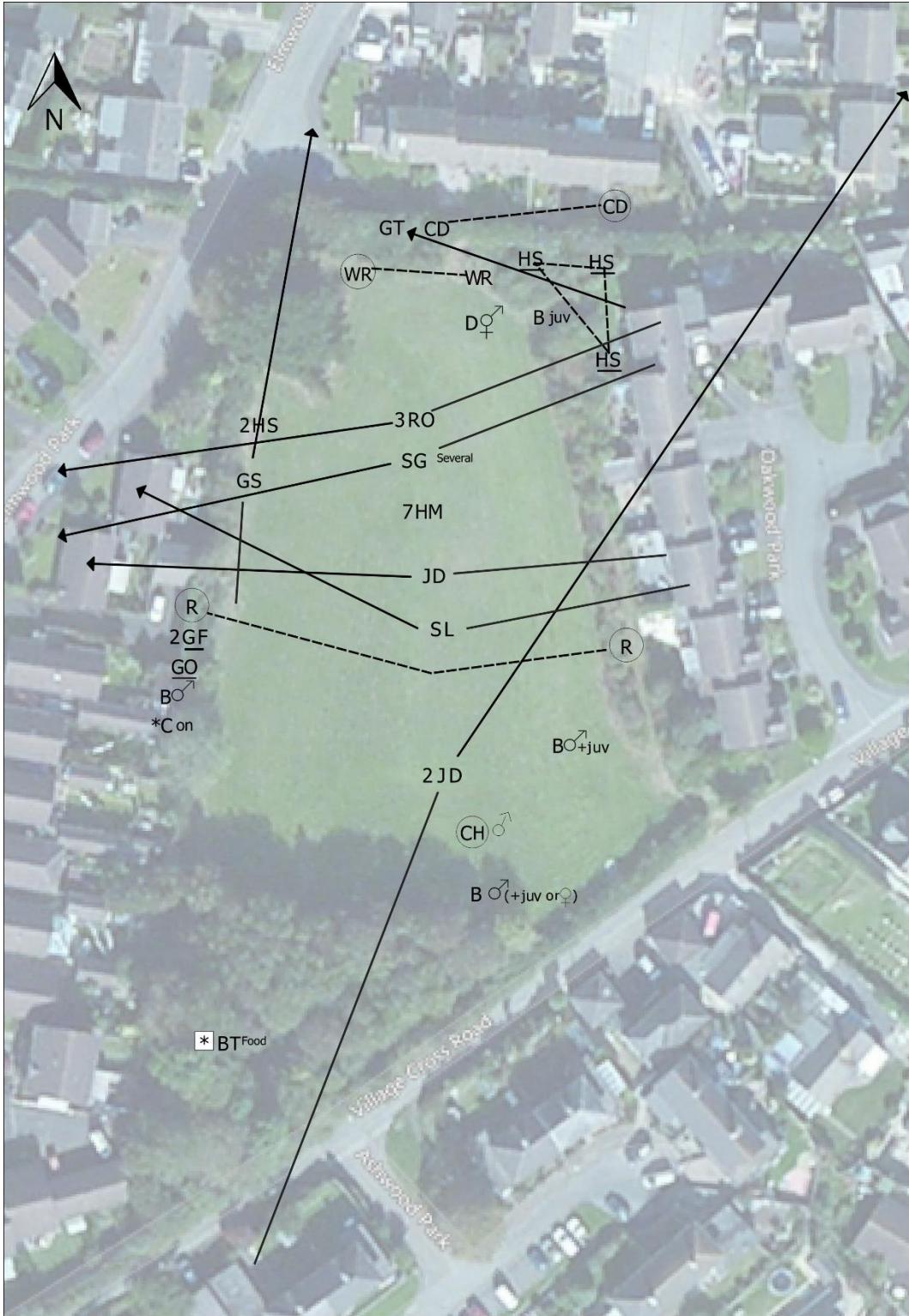


Figure 16 – June 2019 cirl bunting survey

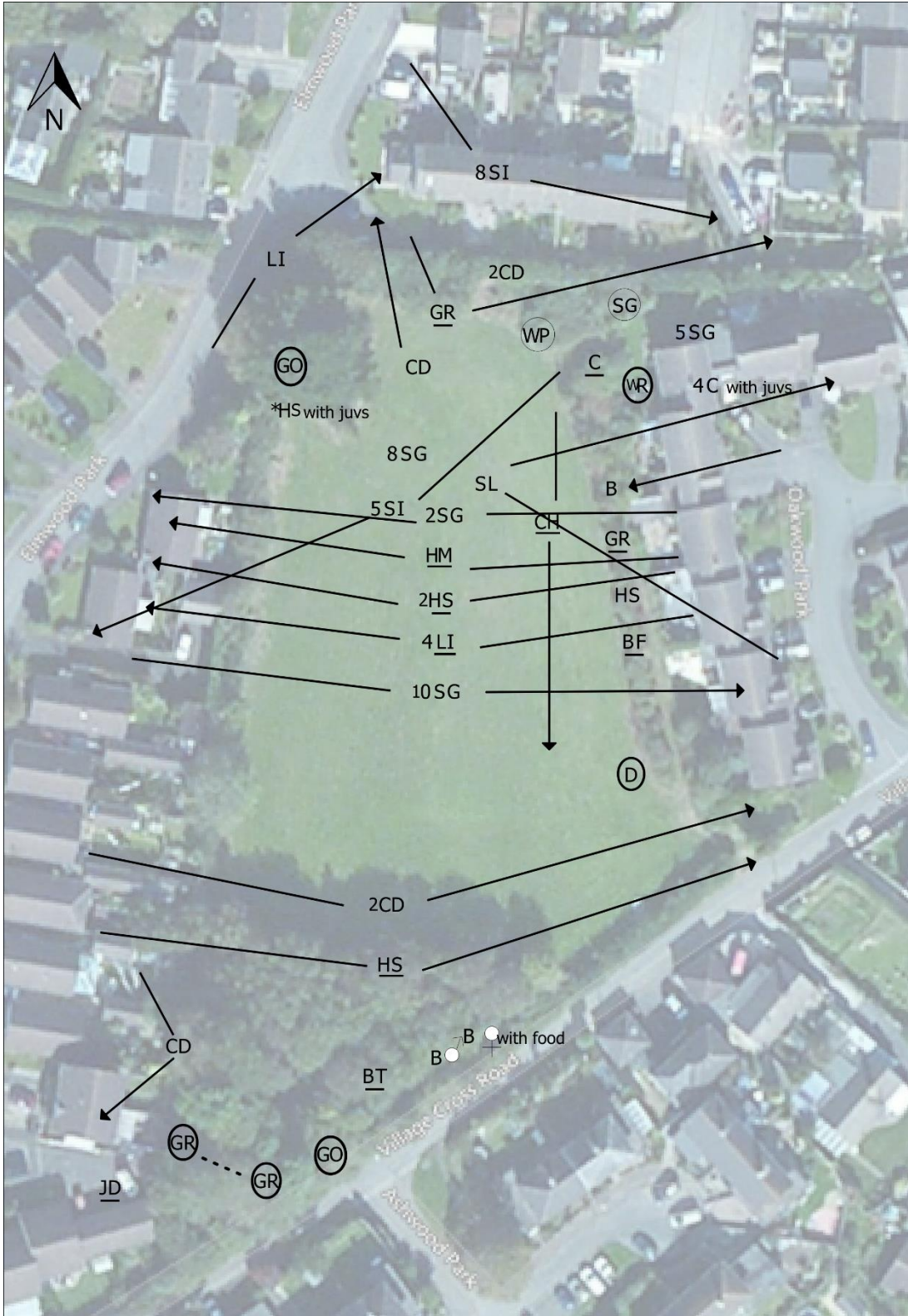


Figure 17 – July 2019 cirl bunting survey

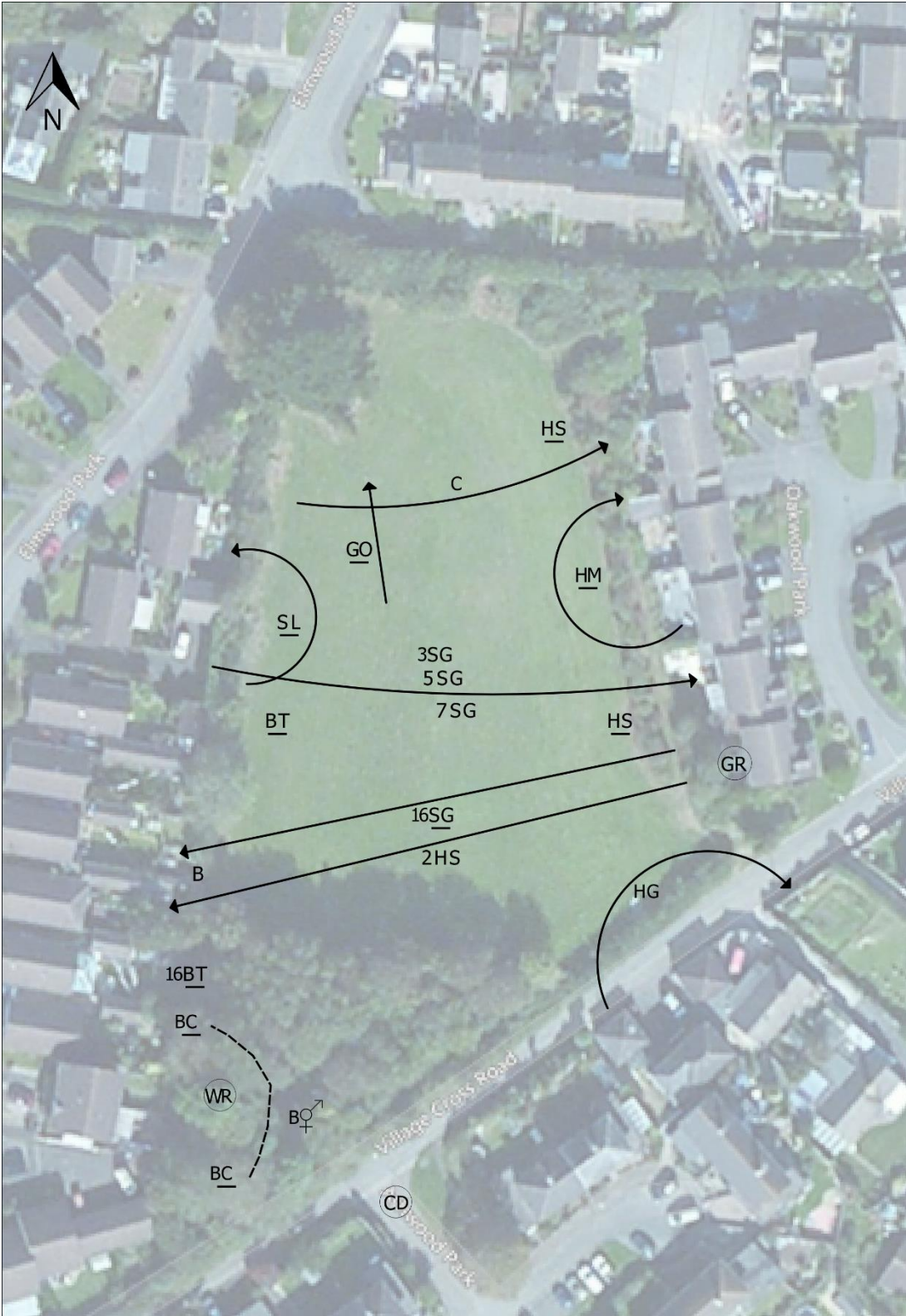
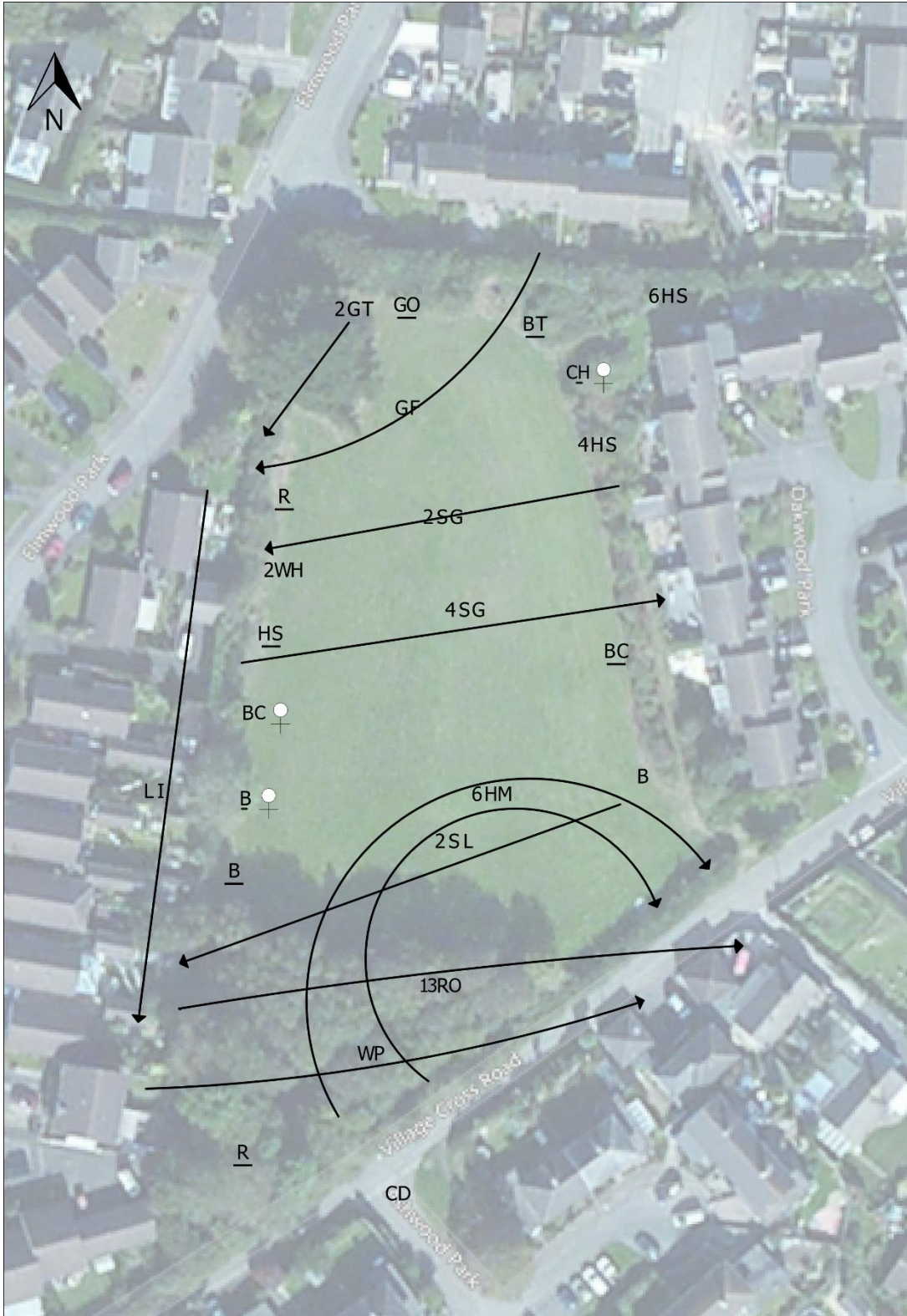


Figure 18 – August 2019 cirl bunting survey



7 Annexes.

A Photographs

Location where dormouse nest found in south-west woodland in October 2019



Dormouse nest found in south-west woodland in October 2019



East boundary hedge where dormouse nests found



Dormouse nest found in the east boundary hedgerow



Dormouse nest found in the east boundary hedgerow



Hedgehogs found on the site in April 2019



B Reptile survey results and hibernaculum design

REPTILE RECORD FORM

SITE Loddiswell

Visit	Date	Start Time	End Time	Weather	Recorder	Slow worm					Other notes, e.g., amphibians	
						Male	Female	Juvenile	Unidentified	Escaped		Total
1	20/09/2018	10:10:00	10:25:00	Cloudy, 8/8, 15C, dry, Moderate wind	L Engdahl		1				1	Another slow worm seen: Dead on road just outside gate
2	21/09/2018	10:13:00	10:30:00	Sunny, 0/8, 14C, dry, Strong wind	L Engdahl						0	No reptiles observed.
3	24/09/2018	10:00:00	10:15:00	Sunny, 14C, dry, Calm	L Engdahl						0	No reptiles observed.
4	25/09/2018	09:58:00	10:14:00	Sunny, 0/8, 15C, dry, Calm	L Engdahl						0	1 toad. No reptiles observed.
5	26/09/2018	11:45:00	12:00:00	Sunny, 0/8, 17C, dry, Light wind	L Engdahl						0	1 toad. No reptiles observed.
6	27/09/2018	10:48:00	11:03:00	Sunny, 0/8, 18C, dry, Light wind	L Engdahl						0	1 toad. No reptiles observed.
7	28/09/2018	13:15:00	13:27:00	Cloudy, 6/8, 15C, dry, Light wind	L Engdahl						0	No reptiles observed.

Hibernaculum on free-draining ground

Where ground conditions allow, the hibernaculum should be incorporated into a shallow pit. This design is more likely to remain frost-free, and will be less obtrusive and thus unlikely to be subject to interference.

