cambridge ecology

Cambourne to Cambridge Better Public Transport:

Brown Hare Survey 2018-19

FINAL REPORT

For:
Greater Cambridge Partnership

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Document Information

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0.2 The information gathered from the survey visits was considered to provide a representative indication of the number and distribution of Brown Hare in the survey area.

0.3 The results of the Brown Hare survey found two main populations in the survey area. One population was located between the M11 motorway and Grange Road, to the south of the West Cambridge site at the eastern end of the survey area and comprised a peak count of 11 individuals. The other, larger population, comprising a peak count of 22 individuals was located west of Coton village towards Hardwick in arable fields south of the A1303, especially in the area of arable between the Chrome Lea Business Park and the covered reservoir adjacent to Madingley Rise.

0.4 A single observation of two Brown Hare was made in the field at Scotland Farm; the potential location of one of the travel hubs.

0.5 Most Brown Hare observations were made in arable land, they were present on fields containing winter cereal crops as well as fallow fields bare-earth, stubbles and grassland.

0.6 Observations of various behaviour indicated that the Brown Hare used the survey area for various parts of the life-cycle including feeding, sheltering, courtship and breeding.

0.7 The presence of Brown Hare is of material consideration during the planning decision process.

0.8 Based on the findings of this Brown Hare survey, appropriate mitigation measures would currently be considered necessary, the detail would depend on the actual route of the scheme. The mitigation measures would be necessary to ensure legal compliance (e.g. Wild Mammals (Protection) Act 1996) pertaining to Brown Hare and enable the proposed development to proceed without causing a significant adverse effect on the local Brown Hare population.

0.9 A number of enhancement measures would be possible to benefit Brown Hare. The inclusion of habitat creation, enhancement and management measures would help the proposed development meet the local and national planning policy. The enhancement measures may be incorporated into the landscape/habitat creation design proposals that would aim to result in conservation gain.

1 INTRODUCTION

1.1 On behalf of Greater Cambridge Partnership, Cambridge Ecology Ltd was commissioned to carry out a Brown Hare *Lepus europaeus* survey of the potentially suitable habitat on land associated with the Cambourne to Cambridge Better Public Transport Scheme. The survey area comprised the section between the eastern entrance to Bourn Airfield and Grange Road, Cambridge.

1.2 During an initial protected species scoping survey and desk-based literature search (Cambridge Ecology 2017a), carried out in February 2017 and updated in August 2017, the presence of habitat suitable to support Brown Hare and records (since 2007) of Brown Hare being present within 2km of the survey area were noted. In addition, during ecology surveys carried out in 2017 and 2018 (Cambridge Ecology 2018b), observations of Brown Hare were made. A Brown Hare survey of the area to record the number and distribution of Brown Hare was therefore considered appropriate.

1.3 The survey was required to investigate, the presence of Brown Hare, a local and national UK BAP species, along the proposed route of the scheme and which could therefore potentially be affected by the development and hence potentially cause a constraint to the proposed development. If present, Brown Hare would need to be considered further in relation to maintaining compliance with wildlife legislation and planning policy.

1.4 For clarity in this report the development site (or 'site') refers to land within survey area including the red line boundary of the Cambourne to Cambridge Better Public Transport Scheme (see Figure 1.1).

Aims and objectives

1.5 The aim of the survey and this report was to:

- record the number of Brown Hare observed in the survey area.
- plot the distribution of Brown Hare observed in the survey area.
- evaluate the use of the survey area by Brown Hare.
- provide information to address any constraints caused by presence of Brown Hare in the survey area.

Survey Area

1.6 The site was located between Grange Road, Cambridge at the eastern end and the Bourn Airfield entrance off the A1303 at the western end (Figure 1.1). To the north the site was bordered by the A428 dual carriageway and to the south mainly by arable land. The site also included potential travel hub sites; adjacent to Scotland Farm and near the water tower adjacent to Madingley Mulch. The total area within the red-line boundary of the development site covers an area of approximately 380 hectares (ha).

1.7 The survey area comprised the red line boundary of the Cambourne to Cambridge Better Public Transport Scheme; plus, where possible, a buffer zone up to 250m beyond the red line boundary.

1.8 This survey area was chosen because the scheme would be confined to an area within the red line boundary, therefore already providing a buffer zone around the potential route. It was also recognised that the scheme was not a major road and therefore the effects on biodiversity would not be comparable to a road scheme as traffic flows, noise, light and visual disturbance and habitat loss would likely be less therefore less detrimental to biodiversity.

1.9 The survey excluded areas where access was not possible and areas beyond significant features such as major roads (e.g. A428), commercial, academic and residential developments. These features were considered to likely present barriers to movement by wildlife and beyond which the proposed scheme would be unlikely to exert an adverse effect. These features were already likely to influence the movement and behaviour of wildlife and beyond which the scheme would be unlikely to exert an adverse effect.

1.10 Within the survey area:

- the dominant habitat was arable land,
- other habitats included amenity and improved grassland, tall ruderal, dense and scattered scrub, ephemeral/short perennial,
- habitats of conservation value included, semi-improved grassland, broad-leaved lowland deciduous woodland (including plantation woodland), traditional orchards, hedgerows, wet and dry ditches other waterbodies (such as ponds and a lake) and Bin Brook.

Relevant Legislation and Planning Policy

1.11 Relevant legislation and policies relating to the remit of this survey are listed below:

- Natural Environment and Rural Communities (NERC) Act 2006 (as amended);
- The Wildlife and Countryside Act 1981 (as amended);
- Wild Mammals (Protection) Act 1996;
- National Planning Policy Framework 2012 (as amended);
- The UK and Cambridgeshire Biodiversity Action Plan.
- South Cambridgeshire District Council adopted Local Plans

Brown Hare Legislation

1.12 The Brown Hare has minimal legal protection because they are considered a game species and can be shot throughout the year, including through their breeding season. They are the only game species in the UK without a closed season, when hunting is prohibited.

1.13 Brown Hare is a Species of Principal Importance under the Natural Environment and Rural Communities (NERC) Act 2006, and local authorities

and other public bodies have a legal duty to take their conservation into account. They are also of material consideration in the planning process.

1.14 Brown Hare is a UK BAP Priority Species and is included in the Local BAPs for Cambridgeshire.

2 METHODS

2.1 A Brown Hare survey to record their numbers and distribution within the survey area was undertaken. The survey was based on the Wiltshire Mammal Group's Brown Hare Surveys 2015-16 (Wiltshire Mammal Group 2015) and that described in the. BTO Research Report 223 "Developing a mammal monitoring programme for the UK". (Toms et. al. 1999).

2.2 The survey area comprised all the suitable habitat (primarily arable fields and grassland) within the red-line boundary of the site (Figure 1.1). In addition, where access was possible, a search was made of the surrounding land up to 50m beyond the red-line boundary of the proposed development site.

2.3 The survey method involved steadily walking around the boundaries of suitable fields. At suitable vantage points along the field boundaries a search was carried out using 10x magnification binoculars and 25-60x magnification zoom telescope. The search involved looking for active Brown Hare and/or Brown Hare sitting in their forms.

2.4 The number and location of Brown Hare observations made in the field was recorded directly on to handheld computers. These devises displayed Ordnance Survey (OS) base maps and the location of the surveyor - using Global Positioning Systems (GPS) technology. This aided in the accurate recording of the Brown Hare's location. Upon completion of the survey visits the data were then downloaded and used to create master maps.

2.5 The Brown Hare survey was carried out between December 2018 and March 2019 inclusive, involving four site visits. The surveys were started at 0945 and were completed by 15:00.

2.6 In addition, incidental observations were made of Brown Hare activity during other ecology surveys, such as the winter bird survey 2018-19. Darren Frost, an experienced ecologist, conducted the surveys.

2.7 Table 2.1 shows details the actual survey dates and weather conditions.

Table 2.1 Weather conditions recorded during the times of the Brown Hare survey in 2018-19.

Survey	Time	General Weather Conditions	Date	Cloud Cover %	Wind		Temperature (Ave. ^{o}C)	Rain (y/n)
					Wind Direction	Wind Speed (Ave. mph)		
1	0945-1500	Dry/Overcast	18/12/18	100	S	20	10	0.0
2	0945-1500	Dry/Sunny periods	24/01/19	75	NW	5	4	0.0
3	0945-1500	Dry/Sunny	07/02/19	10	WSW	21	8	0.0
4	0945-1500	Dry/Sunny	11/03/19	20	WNW	11	10	0.0

2.8 In summary the weather conditions and visibility were good throughout the survey period; characterised by mild temperatures and dry conditions, and avoided periods of heavy rain, high winds, storms and snow.

Arable Land Usage

2.9 A record of the arable field crop usage was made, as it was recognised that this could influence the distribution and number of Brown Hare in the survey area. Figures 2.1-2.3 shows the cropping regime of the arable field across the survey area during the winter 2018-19. Most fields appeared to be sown with cereals while a few were left fallow (bare-earth with some stubble).

3 RESULTS

3.1 Brown Hare were found during two of the survey visits, observations of Brown Hare were also made during three of the winter bird surveys.

3.2 The numbers of Brown Hare recorded during the various surveys are shown in Table 3.1.

3.3 A population of Brown Hare, with a peak count across all fields on a single day (19th February 2019) of 11 individuals , was located in arable fields between the M11 and Grange Road. The maximum number of Brown Hare recorded on a single arable field between the M11 and Grange Road was four on the 19th February 2019.

3.4 A separate population of Brown Hare (separated by the M11 motorway), with a peak count across all fields on a single day (19th February 2019) of 22 individuals, was located in arable fields south of the A1303 between Coton village and Hardwick. The maximum number of Brown Hare recorded on a single arable field south of the A1303 between the covered reservoir and Madingley Mulch was 14 individuals on the 19th February 2019.

3.5 A single observation of two Brown Hare was made in the field at Scotland Farm on the 11th March.

3.6 Most Brown Hare observations were made in arable land comprising winter cereal crops, fallow fields of bare-earth, grassland such as that adjacent to the cover reservoir at Madingley Rise and grassy field margins with hedgerow boundaries.

3.7 Figures 3.1-3.6 show the distribution of Brown Hare during the 2018-19 survey period (plus incidental observations made during other ecology surveys in 2017-18) across whole of the survey area.

Table 3.1: Counts of Brown Hare during winter 2018-19

Date	Number of Brown Hare Recorded
Incidental observations during winter 2017-18*	19
18/12/2018	0
24/01/2019	0
07/02/2019	12
19/02/2019	33
04/03/2019	2
11/03/2019	23
20/03/2019	4

N.B. * Observations made of Brown Hare during other Ecology Surveys in winter of 2017-18

Shaded cells were counts of Brown Hare recorded during 2018-19 winter bird surveys.

3.8 Observations of Brown Hare activity comprised the following in order of most frequently observed:

- individuals resting in their forms,
- feeding,

- interacting with each other – chasing and boxing.

3.9 The absence of observations of Brown Hare in December 2018 and January 2019 may have been influenced by the presence of people, who appeared to be engaging in hare-coursing activities on arable to the east of the M11 and south of the Chrome Lea Business Park along the A1303.

Other Mammal Observations

3.10 During the Brown Hare survey, a new previously undetected Badger sett was located in a private garden in the survey area. The location of this sett was added to the Badger layer on the GIS database.

Survey Constraints

3.11 It was considered that the Brown Hare survey of the land within and adjacent to the site provided a representative set of data regarding the number and distribution of Brown Hare in the winter of 2018-19 within the areas searched at the site. The survey was considered to have been carried out methodically, a thorough search was made of all accessible and suitable fields/habitats within the survey area.

3.12 The timing of the Brown Hare survey fell within the optimal survey period, between November and February. Surveys can be undertaken at other times of year, but Brown Hare activity may be less obvious as the growing vegetation could obscure their presence.

3.13 The presence of people, who appeared to be engaging in hare-coursing activities on arable to the east of the M11 and south of the Chrome Lea Business Park along the A1303 during December may have influenced the number of Brown Hare recorded and their distribution later in the winter.

3.14 It is recognised that there would always be a risk that Brown Hare could be over-looked, either owing to the timing (both time of day and time of year) of the survey, the accessibility to some areas, the scarcity of the species at the site or the ability of Brown Hare to move to new sites periodically and therefore move into an area after the survey had been carried out.

4 KEY POINTS AND RECOMMENDATIONS

4.1 A Brown Hare survey was successfully carried out between December 2018 and March 2019 inclusive, comprising four separate visits to land between Grange Road, Cambridge and the Bourn Airfield entrance off the A1303.

4.2 The information gathered from the surveys was considered to provide a representative indication of the number and distribution of Brown Hare in the survey area during the winter of 2018-19.

4.3 The survey indicated that Brown Hare were currently present in the survey area (primarily on arable land) and therefore along parts of the potential transport route between Bourn Airfield and Grange Road, Cambridge.

4.4 The results show that there were two main populations of Brown Hare in the survey area. One population was located east of the M11 and south the Cambridge West site, comprised a peak count of 11 individuals on the 19th February 2019. A second larger population, comprising a peak count of 22 individuals on the 19th February 2019, was located west of Coton village, south of the A1303 towards Hardwick, especially in the area of arable between the Chrome Lea Business Park and the covered reservoir adjacent to Madingley Rise.

4.5 A single observation of two Brown Hare was made in the field at Scotland Farm on the 11th March; which is the potential location of one of the travel hubs.

4.6 Observations of various behaviour indicated that the Brown Hare used the survey area for various parts of the life-cycle including feeding, sheltering, courtship and breeding.

4.7 Most Brown Hare observations were made in arable land, they were present on fields containing winter cereal crops as well as fallow fields bare-earth, stubbles and grassland (as noted during other ecology surveys in 2017-18, Cambridge Ecology 2018b).

4.8 Depending on the route of the transport scheme. the presence of Brown Hare within the survey area indicated that Brown Hare could constitute a constraint to the scheme.

4.9 As Brown Hare is a Species of Principal Importance under the Natural Environment and Rural Communities (NERC) Act 2006 and UK BAP Priority Species and is included in the Local BAPs for Cambridgeshire, it's presence is of material consideration during the planning decision process. Appropriate mitigation measures would be required with respect to the scheme.

4.10 The mitigation measures would also be necessary to ensure legal compliance (e.g. Wild Mammals (Protection) Act 1996) pertaining to Brown Hare and enable the proposed development to proceed without causing a significant adverse effect on the local Brown Hare population.

4.11 Section 40 of the Natural Environment & Rural Communities Act (NERC) 2006 places a “Biodiversity Duty” on local authorities to have regard to conserving biodiversity when setting policy or making decisions, including in the planning system. The Act states that conserving biodiversity includes restoring or enhancing a species population or habitat. The National Planning Practice Guidance (Natural Environment, paragraph 7) states that this includes seeking to make a significant contribution to meeting the commitments made by Government in its Biodiversity 2020 strategy by seeking to minimise impacts on biodiversity and providing net gains where this is possible.

4.12 Enhancement measures should be incorporated into the landscape/habitat creation design for the proposed scheme and designed to result in conservation gain for Brown Hare, which would help the scheme meet the local and national planning policy objectives.

5 BIBLIOGRAPHY

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6 FIGURES

Figure 1.1 Map showing the red line boundary of the site and Brown Hare survey area.

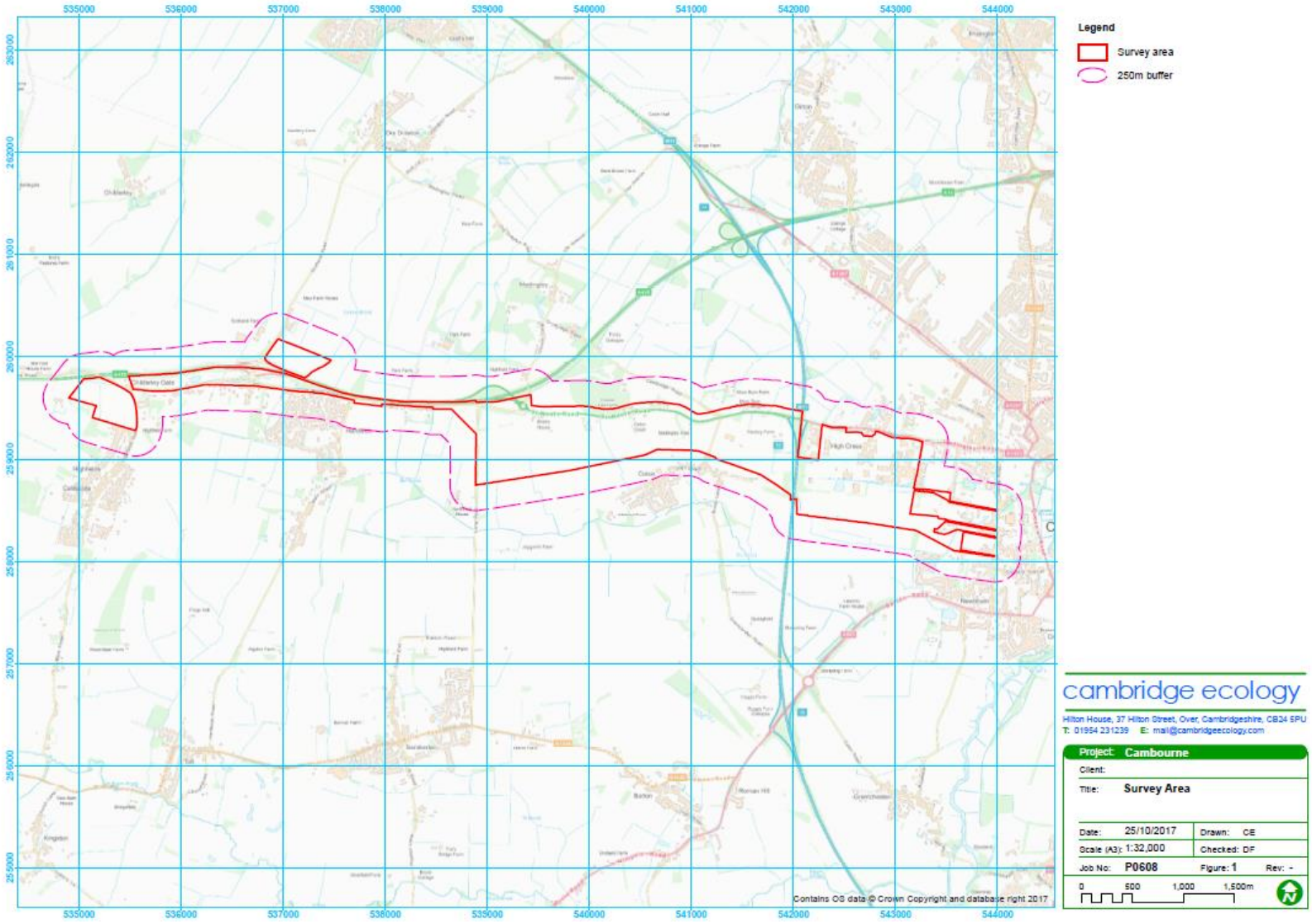


Figure 2.1: Arable field usage in the eastern section of the survey area

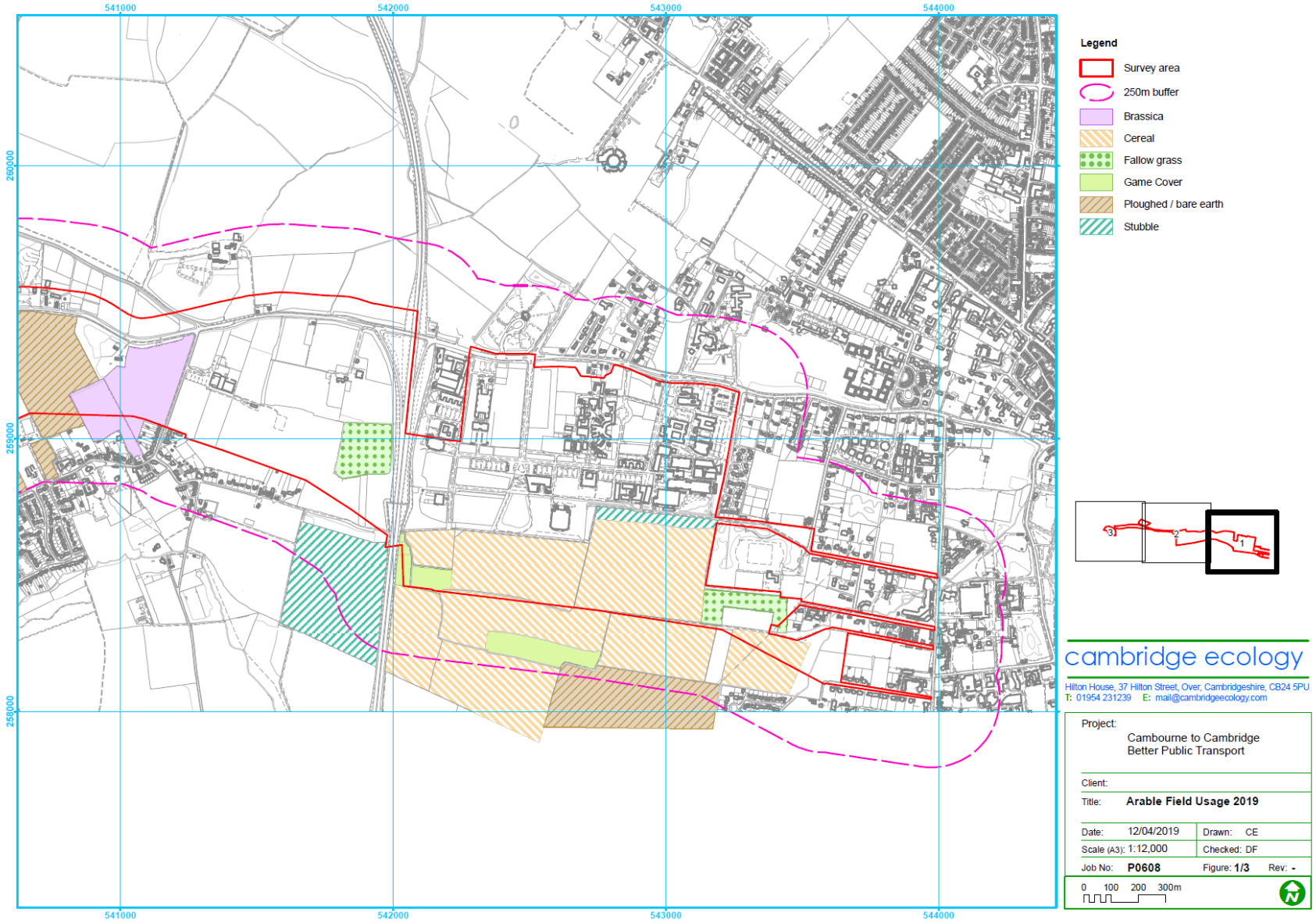


Figure 2.2: Arable field usage in the central section of the survey area

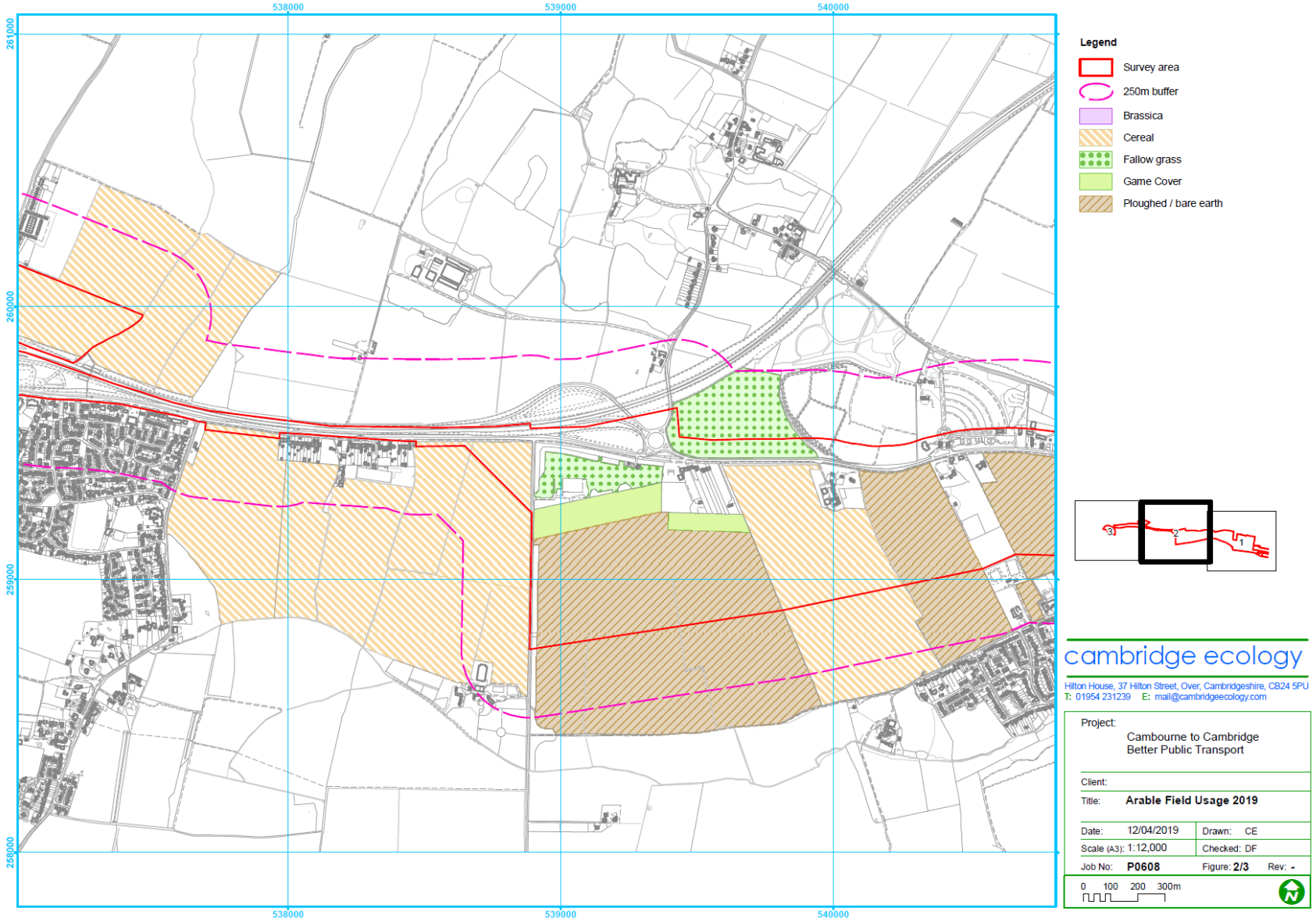


Figure 2.3: Arable field usage in the western section of the survey area

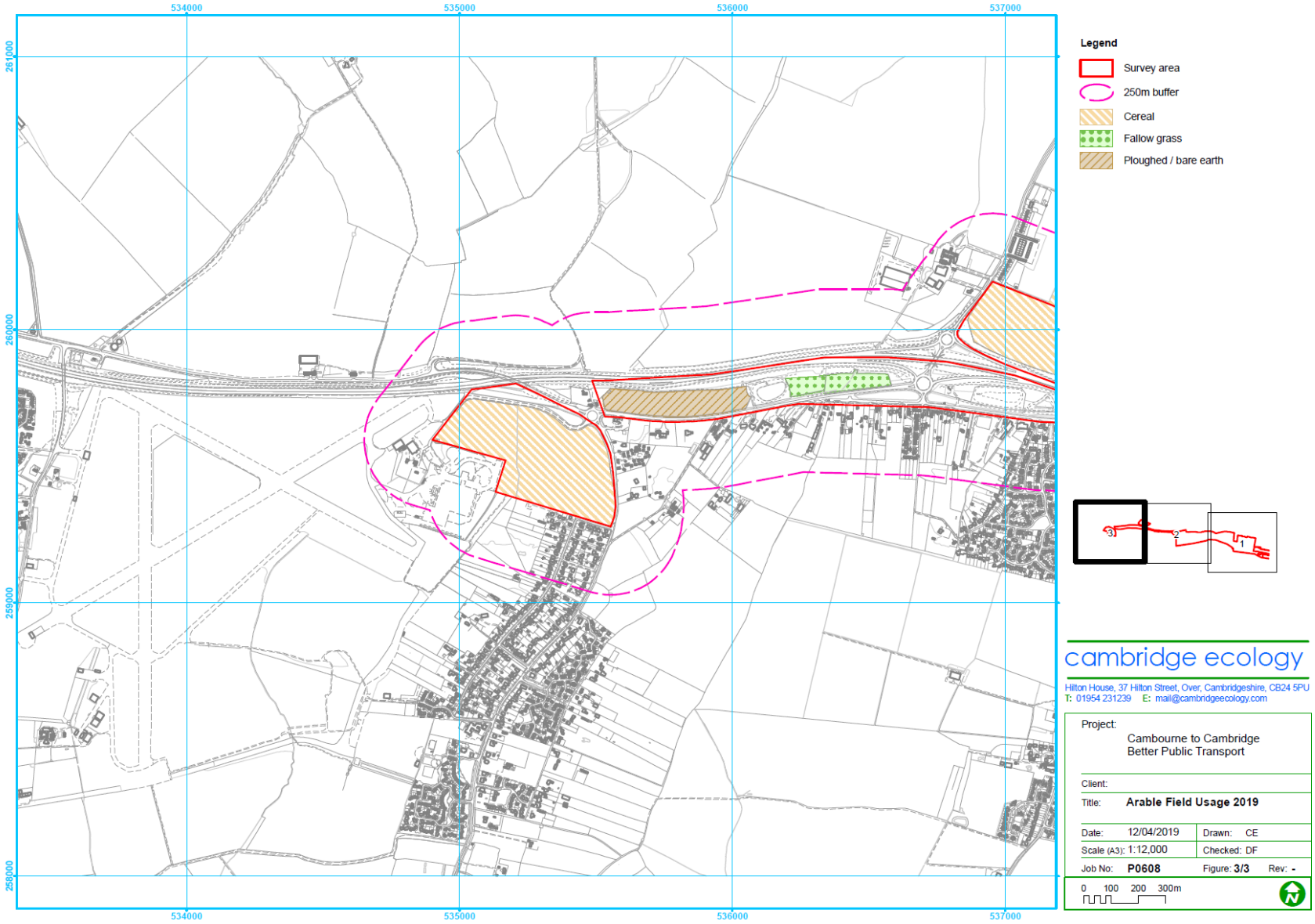


Figure 3.1: Plan showing the indicative location of Brown Hare (sheet 1 of 6)

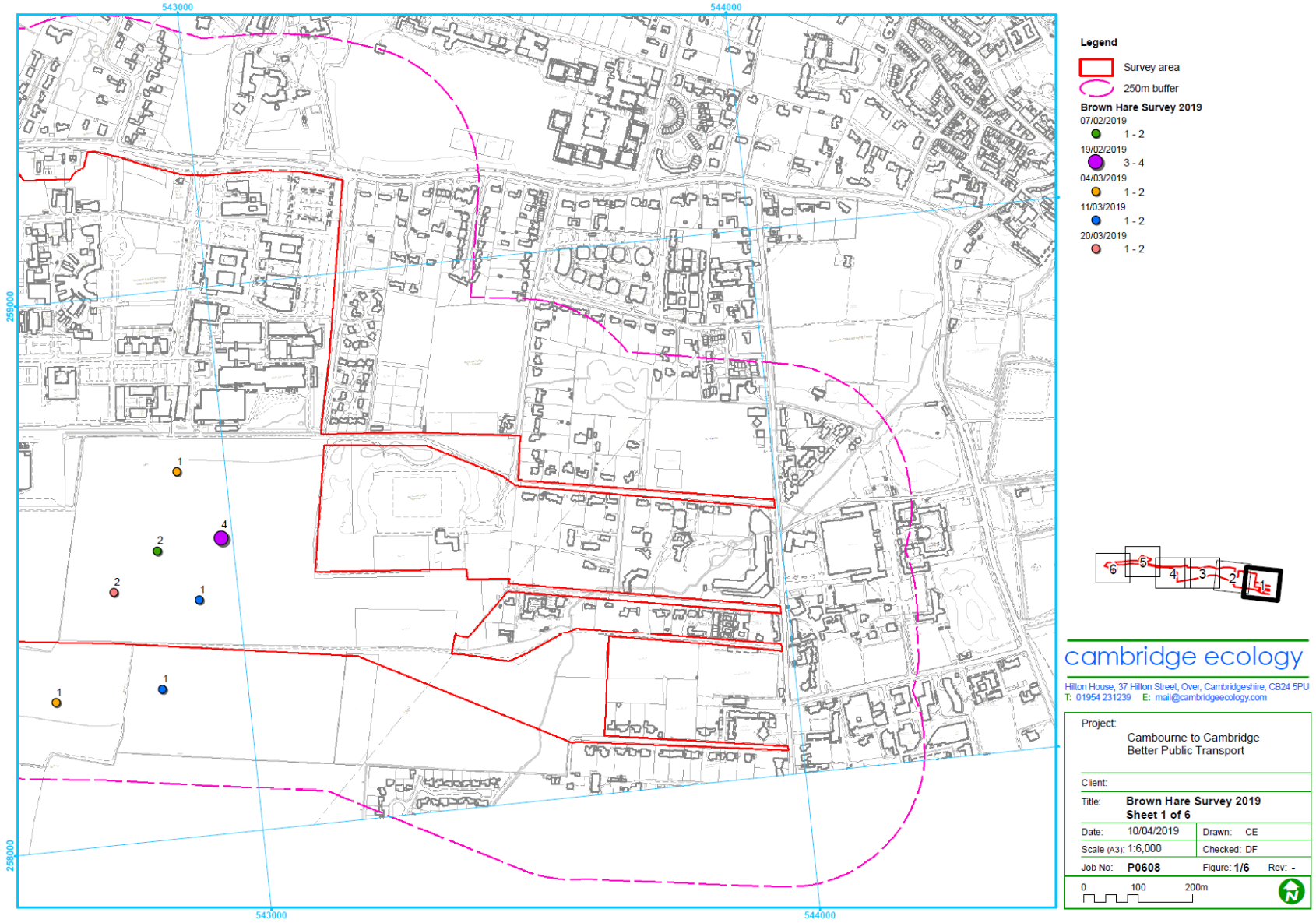


Figure 3.2: Plan showing the indicative location of Brown Hare (sheet 2 of 6)

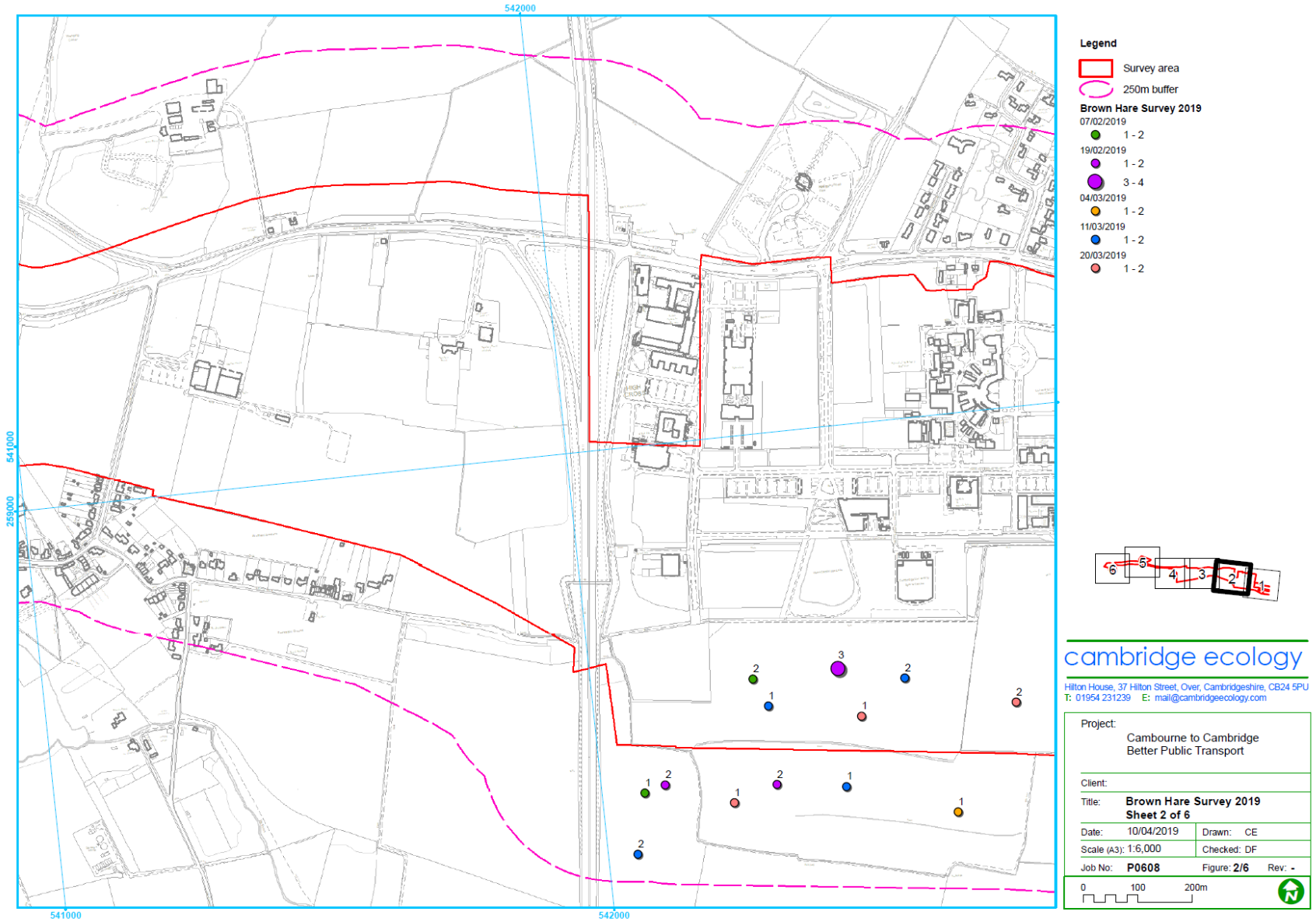


Figure 3.3: Plan showing the indicative location of Brown Hare (sheet 3 of 6)

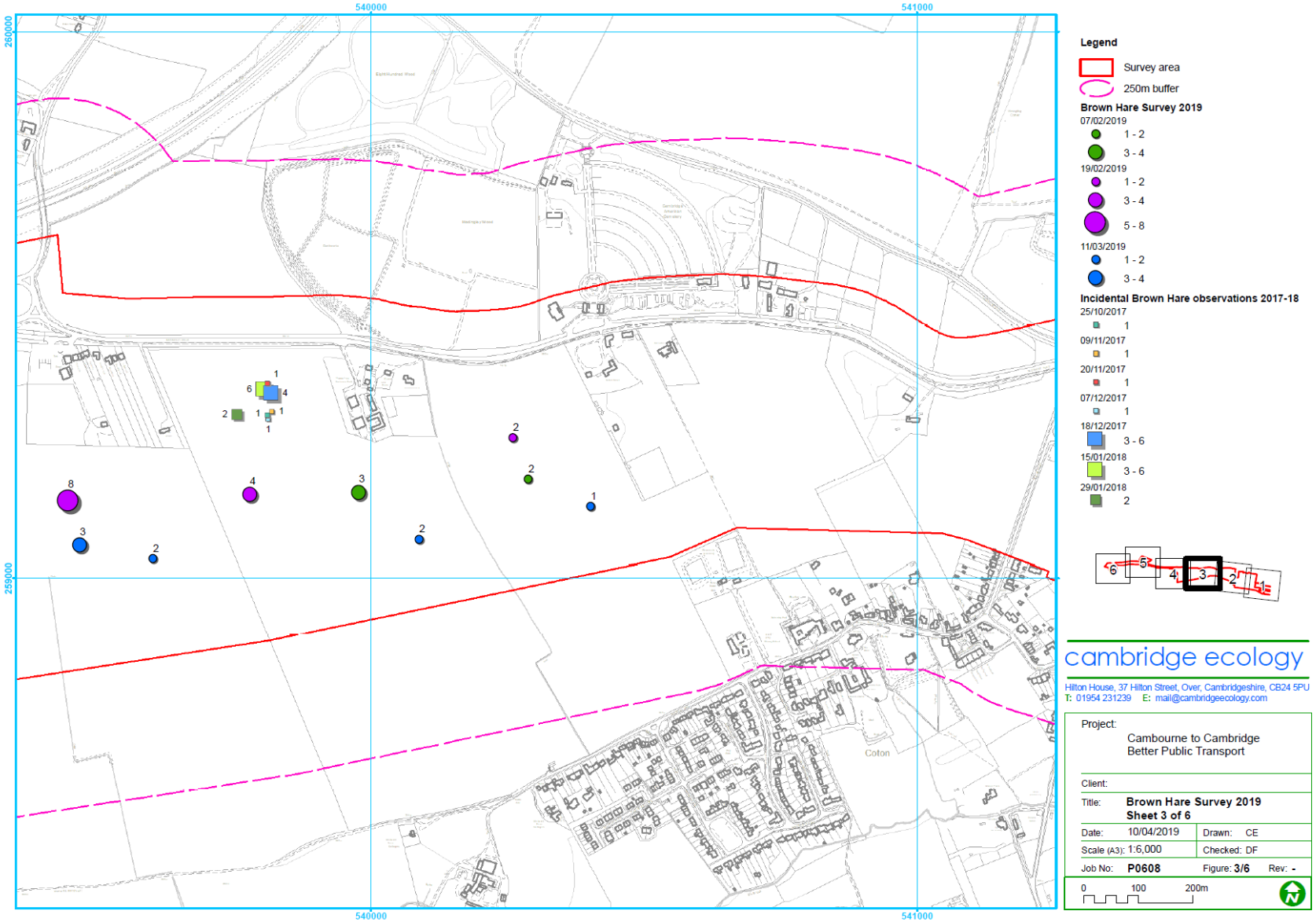


Figure 3.4: Plan showing the indicative location of Brown Hare (sheet 4 of 6)

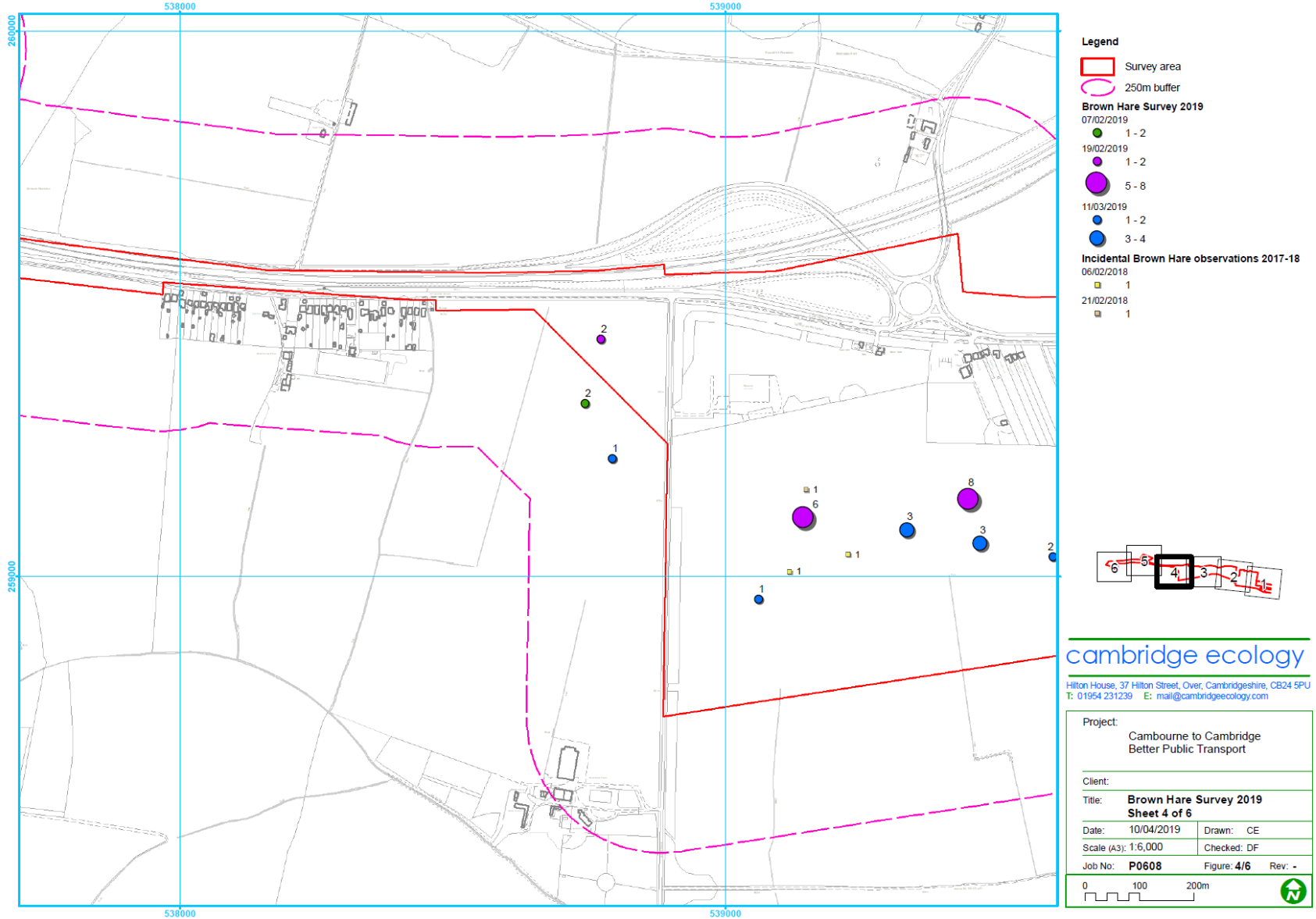


Figure 3.5: Plan showing the indicative location of Brown Hare (sheet 5 of 6)

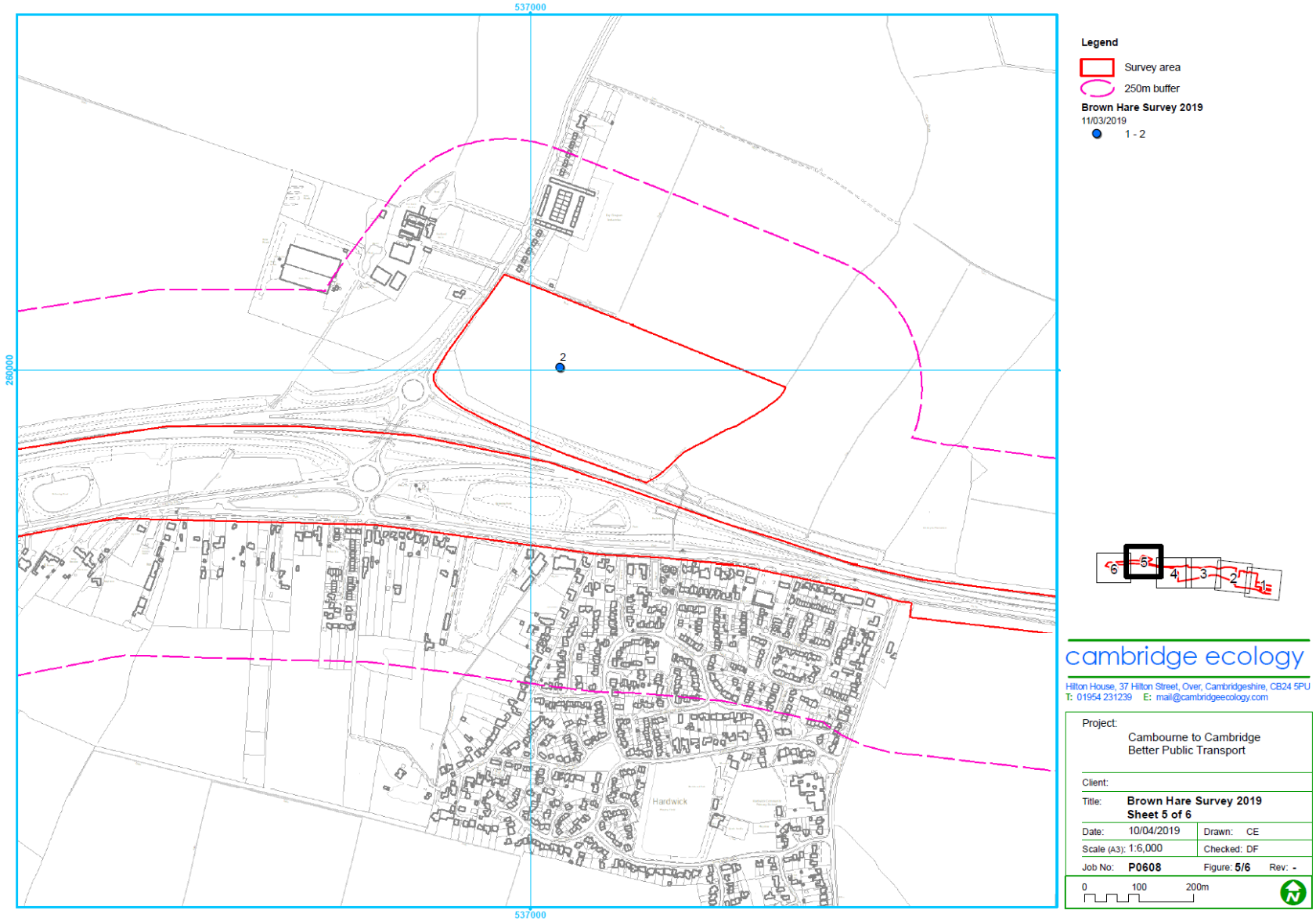
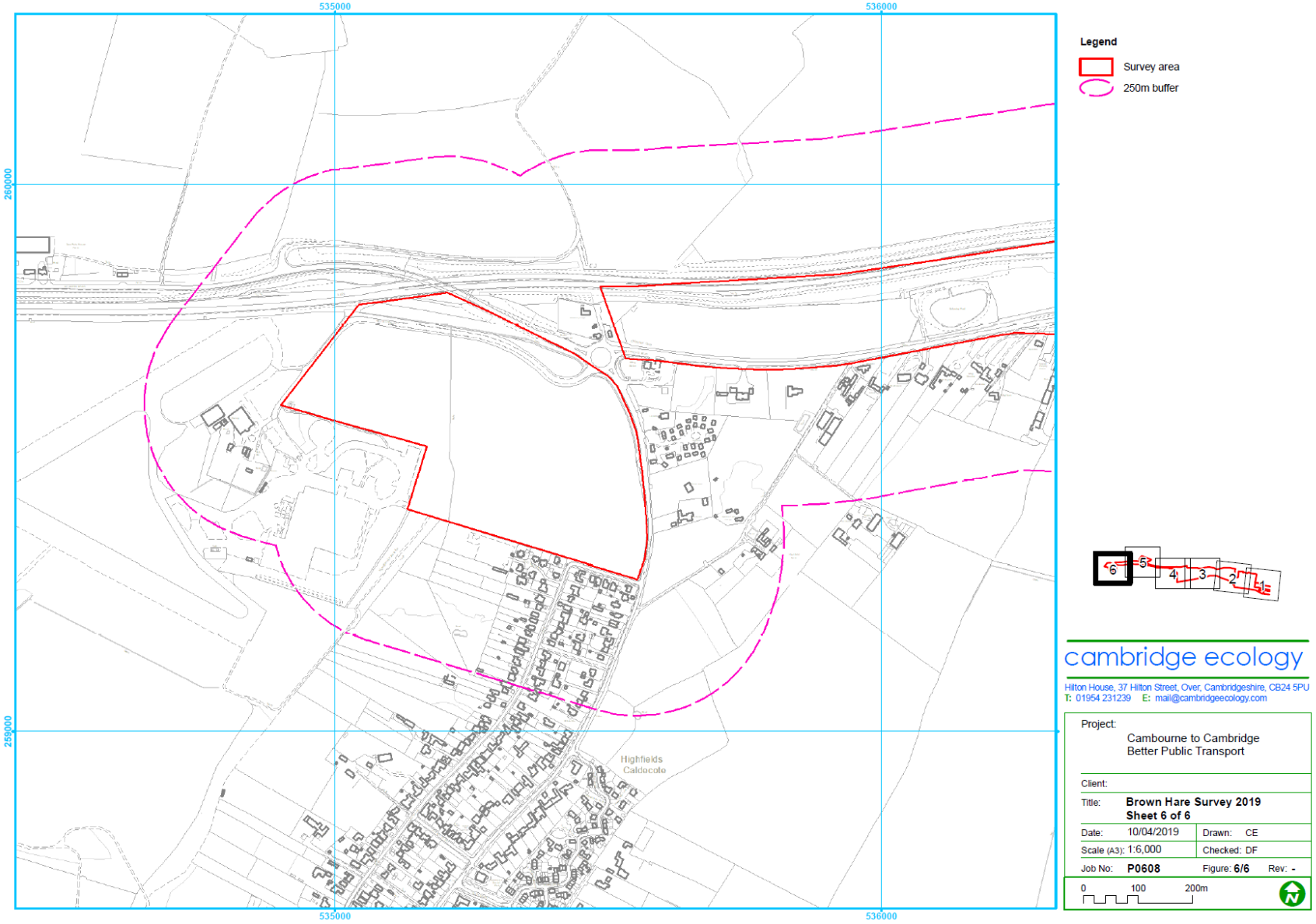


Figure 3.6: Plan showing the indicative location of Brown Hare (sheet 6 of 6)



7 PHOTOGRAPHS

Photo No.	Photograph	Description
1		Example of arable field east of the M11 motorway containing cereal crop where Brown Hare was observed, south of the West Cambridge Site
2		Example of arable field east of the M11 motorway containing cereal crop where Brown Hare was observed, south of the West Cambridge Site
3		Example of fallow arable field south of the covered reservoir south of A1303 where Brown Hare was observed

4		Example of arable field west of Coton Village, containing cereal crop, where Brown Hare was observed
5		Example of fallow arable field west of the M11 motorway, containing cereal crops.