

Breeding Bird Survey Report 2021

Lissinagroagh Wind Farm,
Co. Leitrim





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1. SUMMARY

Ornithological surveys have been conducted at the site of Lissinagroagh Wind Farm, Co. Leitrim, since September 2017. This report outlines the findings from surveys completed during the 2021 breeding season. The following surveys were undertaken:

- > Vantage Point Surveys
- > Breeding Walkover Surveys
- > Breeding Raptor Surveys
- > Breeding Woodcock Surveys

The key observations during surveys were regarding nesting hen harrier. Three breeding territories were identified during the survey period, two of these were on site and one was approximately 1.6km from the site. A total of five chicks were fledged from the study area.

Breeding territories were also identified for snipe, woodcock and sparrowhawk at, or within 500m of, the wind farm site. A possible red grouse breeding territory was identified within 500m of the site.

2. INTRODUCTION

MKO was appointed to carry out bird surveys at Lissinagroagh Wind Farm, Co. Leitrim for the breeding season 2021. This report describes the ornithological survey methods employed and survey data collected at Lissinagroagh Wind Farm, Co. Leitrim for the period from April 2021 to September 2021 inclusive.

2.1 Site Description

The site is located 3km northeast of Manerhamilton (Grid Ref: G 90949 42157). The dominant habitat onsite is conifer plantation and upland blanket bog with accompanying smaller areas of mixed conifer woodland and heath. The wider surroundings are predominantly improved agricultural grassland and wet grassland.

2.2 Details of the Proposed Development

The total area of the development is approximately 152 hectares. Figure 1 shows the wind farm site boundary and preliminary turbine locations.

2.3 Purpose of this Report

This report describes the ornithological survey methods employed and survey data collected at Lissinagroagh Wind Farm for the period April 2021 to September 2021 inclusive. This report aims to provide robust baseline ornithological survey data for the breeding season. This data will be used to inform a separate ecological impact assessment and appropriate assessment for the proposed development.

2.4 Relevant Legislation

The following key legislative provisions are applicable to wild birds in Ireland: Irish Wildlife Act 1976 (revised); the Birds Directive (EU Directive 2009/147/EC on the conservation of wild birds); the European Communities (Birds and Natural Habitats) Regulations 2011, as amended (S.I. no. 477 of 2011) and; the International Convention on Wetlands of International Importance (the Ramsar Convention), 1971.

3. METHODS

3.1 Scope

3.1.1 Description of Study Area

The ornithology study area was defined as a 500m radius of the viable area for turbines (Figure 1). This boundary accounts for both detecting birds that use the wind farm site occasionally and spatial inaccuracies in observational data, as well as ancillary structures. The ornithology study area was used for Vantage Point Surveys, following NatureScot formerly SNH (2017) guidance that flight activity surveys encompass an area extending 500m beyond the potential outermost proposed turbines. A 500m radius of the ornithology study area boundary was used for Breeding Walkover Surveys, the methodology followed the Brown and Shepard (1993) and Calladine *et al.* (2009). A 500m radius of the ornithology study area boundary was also used for Breeding Woodcock Surveys, following Gilbert *et al.* (1998). A 5km radius of the ornithology study area boundary was used for Breeding Raptor Surveys, based on Hardy *et al.* (2013).

3.1.2 Ecological Features Considered

Ecological features considered in the scope of the surveys were the habitats present on-site and, in the hinterland, as reviewed by aerial photography and reconnaissance visits, and the Special Protection Areas (SPA) designated under the Birds and Habitats (92/43/EEC) Directives Natura 2000 network within foraging range for Special Conservation Interest (SCI) species and/or 15km of the site. Bird species' ecological importance and nature conservation interest was also considered. Species of conservation concern included those listed on Annex I of the Birds Directive that occur in Ireland, species that are a Special Conservation Interest (SCI) of SPAs within foraging range for SCI species and/or 15km of the site, species on the Red List of Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021) and all raptor species that occur in Ireland, because these species are particularly sensitive to wind farm developments.

3.1.3 Consultation

MKO undertook a consultation exercise to inform the scope of surveys. Table 3-1 provides a list of the organisations consulted and notes where responses have been received.

Table 3-1 Consultation Response Summary

No.	Consultee	Response to Consultation
1	Birdwatch Ireland	No response
2	National Parks & Wildlife Service	Initial response received 18/06/2018. Confirmation received 30/12/2019 from NPWS that no more recent information was available.

3.2 Desk Study

A comprehensive desk study was undertaken prior to surveys to search for any relevant information on species of conservation concern which potentially use the study area. The assessment included a thorough review of the available ornithological data including:

- Review of online web-mappers from the National Parks and Wildlife Service (NPWS) and National Biodiversity Data Centre (NBDC);
- Review of the Bird Atlas (Balmer *et al.*, 2013);

- › Review of specially requested records from the NPWS Rare and Protected Species Database.

3.3 Field Surveys

The approach to breeding bird surveys for the proposed wind farm is based on recommendations given in Scottish Natural Heritage (SNH; now NatureScot) 2017 guidance (SNH, 2017). This guidance is recognized as standard good practice guidance throughout the UK and Ireland for surveying birds to inform impact assessment for onshore wind farms. Field surveys were undertaken from April 2021 to September 2021 inclusive. Individual survey types are described below.

3.3.1 Vantage Point Surveys

Vantage point surveys were undertaken following the guidance of SNH (2017) from four vantage point locations during the 2021 breeding season.

Vantage Point Locations and Viewshed Analysis

Vantage point locations are presented in Table 3-2. Viewshed analysis was carried out to confirm the sufficiency of the chosen vantage point locations. Viewsheds were calculated using Resoft Wind Farm ZTV (Zone of Theoretical Visibility) software in combination with Mapinfo Professional (Version 10.0) using a notional layer suspended at 25m, which is representative of the minimum height considered for the Potential Collision Height (PCH) based on the turbine model at the time the vantage point locations were selected. Note that while the relevance of being able to view as much of the site to ground level is acknowledged, the SNH guidance emphasises the importance of visibility of the ‘collision risk volume’ when the data is to be used to estimate the risk of collision with turbines by birds. Therefore, the viewshed analysis aims to identify the most suitable locations to site vantage points such that the airspace of the turbine rotor swept area is in view using the fewest possible number of vantage points. The vantage point locations were tested for visibility coverage by creating a viewshed point 1.75m in height (to represent the height of observer) on a map using 10m contours terrain data. The relative height of any surrounding trees and its effects on visibility is also accounted for in the analysis. Using the ZTV software, a viewshed of 360° was produced calculating an area 25 from ground level up to a 2km radius. The resulting viewshed image was then cropped to 180° to give the viewshed.

Survey Effort

A total of 36 hours of watches was undertaken at each of the vantage point locations, equating to a total of six hours per vantage point per month. Survey effort is summarised in Table 3-2 and full details are presented in Appendix 2 of this report, including dates, times, duration and weather conditions. The location of vantage points is shown in Appendix 2.

Table 3-2 Summary of Vantage Point Survey effort

	VP1 ITM ¹ X 592930 Y 842236	VP2 ITM X 592615 Y 842428	VP3 ITM X 593496 Y 843692	VP4 ITM X 590407 Y 840997
Month	Hours			
April	02/04/2021 6 hrs	09/04/2021 6 hrs	22/04/2021 6 hrs	24/04/2021 6 hrs
May	21/05/2021 6 hrs	23/05/2021 6 hrs	24/05/2021 6 hrs	28/05/2021 6 hrs
June	14/06/2021 6 hrs	16/06/2021 6 hrs	13/06/2021 6 hrs	21/06/2021 6 hrs
July	02/07/2021 6 hrs	08/07/2021 3 hrs	16/07/2021 3 hrs	21/07/2021 6 hrs

¹ Irish Transverse Mercator Co-Ordinates

	VP1 ITM ¹ X 592930 Y 842236	VP2 ITM X 592615 Y 842428	VP3 ITM X 593496 Y 843692	VP4 ITM X 590407 Y 840997
Month	Hours			
		09/07/2021 3 hrs	20/07/2021 3 hrs	
August	25/08/2021 6 hrs	26/08/2021 6 hrs	11/08/2021 6 hrs	16/08/2021 6 hrs
September	09/09/2021 6 hrs	01/09/2021 3 hrs 03/09/2021 3 hrs	02/09/2021 5 hrs 13/09/2021 1 hr	03/09/2021 2 hrs 13/09/2021 4 hrs
Total Hours	36:00	36:00	36:00	36:00

Primary Target Species

The target species for vantage point surveys were defined by legal and/or conservation status, following SNH (2017) guidance, which states that “*in most circumstances the target species will be limited to those species which are afforded a higher level of legislative protection.*” A list of primary target species was drawn from the following sources:

- Species that are SCIs of the SPAs within foraging range for SCI species and/or 15km of the site;
- Species listed on Annex I of the Birds Directive that occur in Ireland;
- Species listed on the Red List of Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021) with the exception of Red List passerines, as these are generally not significantly impacted by wind energy developments.

Secondary Target Species

SNH (2017) also states that “*local circumstances may indicate that survey information should also be acquired on other species, especially those of regional conservation concern*”. A list of secondary target species comprised:

- All other waterbirds that occur in Ireland that are not included as primary target species;
- All raptors that occur in Ireland that are not included as primary target species.

Data Collection

Data on bird observations and flight activity was collected by the surveyor by scanning the arc of 180° and a 2km radius from the fixed location. Surveys were scheduled to provide a spread over the full daylight period including at dawn and dusk (starting or ending an hour before dawn or an hour after dusk on alternate months during April, May and September) to coincide with the highest peaks of bird activity and to record any wildfowl migration or crepuscular species. Breaks of at least 30 minutes were taken every 3 hours to minimise observer fatigue. A 10-minute settling in period was allowed for at the start of each vantage point to allow the surveyor to get into place, and to minimise the impact of surveyor disturbance on flight activity. For each primary target species observation, the following details were recorded:

- Date, time, and location of observation;
- Number of species recorded;
- Total duration of flightline observation;
- Duration at each of flightline at each height band;
- Species age and sex (where determinable);

- > Habitat(s);
- > Behaviour.

Recording height bands were determined based on the likely turbine specifications under consideration at the time of survey (upper tip height 175m and lower tip height 25m). Flight heights were attributed to four distinct height bands as follows:

- > Band 1 = 0 - 10m (below the likely rotor swept area);
- > Band 2 = 10 - 25m (potentially within the likely rotor swept area, at least in part);
- > Band 3 = 25 - 175m (within the likely rotor swept area, PCH);
- > Band 4 = >175m (above the likely rotor swept area).

Although recording of secondary species is subsidiary to recording of primary target species, secondary target species were also recorded to provide an index of flight activity for secondary target species within the site.

3.3.2 Breeding Walkover Surveys

Breeding walkover surveys were undertaken to determine the presence of bird species of conservation concern and identify areas of possible, probable or confirmed breeding territories. The survey methodology followed Brown and Shepherd (1993) and Calladine *et al.* (2009). Transect routes were devised to ensure coverage of different habitat complexes between vantage point locations within the study area and survey all areas of suitable breeding habitat to within 100m, where access allowed. Surveys were carried out during daylight hours during the core breeding season months of April, May, June, and July 2021, with the site being visited four days per month on each occasion. Following all survey visits, the field maps were analysed to determine the number and location of breeding territories. All non-breeding individuals and species encountered were also recorded. Survey effort is provided in Appendix 2 of this report, including dates, times, duration and weather conditions. A map of the breeding walkover transect routes is provided in Appendix 1.

3.3.3 Breeding Raptor Surveys

Breeding raptor surveys (i.e. birds of prey) were undertaken to identify occupied raptor territories and ascertain whether breeding was successful. Methodology followed Hardey *et al.* (2013). Surveys involved a combination of raptor vantage point watches of 3 hours and transects in areas deemed most likely to hold breeding raptors based on habitat and observed movements of raptor species in the study area. Breeding raptor surveys were undertaken out to a 5km survey radius. Once breeding activity was observed, vantage point and transect locations were adjusted with the aim of pinpointing breeding locations. Each breeding raptor survey location was visited four times to complete a full round of breeding season surveys. The purpose of the four visits is (1) to establish occupancy, (2) to establish active nests, (2) to check for chicks and (4) to check for fledglings. Timings of these visits vary by species as set out in Hardey *et al.* (2013). Survey effort is provided in Appendix 2 of this report, including dates, times, duration and weather conditions. A map of the breeding raptor survey area is presented in Appendix 1.

3.3.4 Breeding Woodcock Surveys

Breeding season surveys for woodcock were undertaken to record the presence of roding (displaying) male woodcock and thereby establish the distribution and abundance of the species in the study area. Methodology followed Gilbert *et al.* (1998). Transects were carried out in areas of suitable habitat, i.e. woodland (particularly broadleaf) and dense bracken in upland areas by a surveyor walking slowly (~2km/hr). The same transect routes were followed on successive surveys. When a woodcock was detected, the following details are recorded for each observation: location, time, transect number, number

of birds, breeding activity/behaviour and primary habitat used (and secondary and tertiary habitat if applicable).

Transect surveys were undertaken in May and June 2021. Surveys commenced one hour before sunset and continued for an hour after sunset or until it was too dark to see. Survey effort is provided in Appendix 2 of this report, including dates, times, duration and weather conditions. A map of the survey area is presented in Appendix 1.

3.4 Project Team

This report has been prepared by Zak O'Connor (B.Sc.), Ornithologist of MKO, and reviewed by Thalie Konstantinidis (B.Sc.), Ornithologist, Patrick Manely (B.Sc.), Senior Ornithologist of MKO and Padraig Cregg, Principal Ornithologist of MKO. All are suitably qualified ornithologists with experience in completing avifaunal assessments and competent experts for the purposes of the preparation of this report, following SNH (2017) and CIEEM (2017) ecological reporting guidelines.

3.4.1 Field Team

Field surveys were undertaken by Andrew O'Donoghue, Lee Dark and Robert Vaughan. Surveyors are suitably qualified competent experts in field ornithology.

3.5 Survey Limitations

A comprehensive suite of bird surveys was undertaken at the site between April 2021 and September 2021. Results from breeding season 2021 are derived from a continuous six months of surveying undertaken in accordance with best practice guidance, SNH (2017). The survey duration and scope are considered entirely satisfactory. There were no issues relating to study area access/weather/time of year/Coillte forestry operations.



4. RESULTS

4.1 Desk Review

4.1.1 Sites Designated for Nature Conservation

Using GIS software, sites designated for nature conservation within the potential zone of influence of the proposed wind farm development were identified. Using a precautionary approach, sites within a 15km radius of the proposed wind farm were identified. In addition, and in the absence of any specific European or Irish guidance, SNH (2016) was consulted. This document provides guidance in relation to the identification of connectivity between proposed development proposals and SPAs. It takes into consideration the distances some species may travel beyond the boundary of their SPAs and outlines information on dispersal and foraging ranges of certain bird species. Sites designated for birds are listed below in Table 4-1.

Table 4-1 Special Protection Areas within 15 kilometres of site

Designated site and code	Special Conservation Interest Species ²	Distance from wind farm site (km)
Sligo/Leitrim Uplands (004187)	 Peregrine  Chough	9.2km

4.1.2 Previous Survey Data

4.1.2.1 Breeding/Wintering Bird Atlas Records

Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland' (Balmer *et al.*, 2013) is the most recent comprehensive work on wintering/breeding birds in Ireland. It provides information on species and their wintering/breeding status in 10km hectads. The site lies within hectad G94. Table 4-2 presents a list of nine species of conservation interest recorded within this hectad.

Table 4-2 Bird atlas data for relevant hectads

Species Name	Bird Atlas 2007-2011		Conservation Status
	G94 Breeding	G94 Winter	
Golden Plover	-	Present	BD, RL
Peregrine	Prob	-	BD, SCI
Hen Harrier	Conf	Present	BD
Greenland White-fronted Goose	-	Present	BD
Merlin	Poss	-	BD
Woodcock	-	Present	RL
Red Grouse	Prob	Present	RL
Kestrel	Prob	Present	RL
Meadow Pipit	Conf	Present	RL

BD=Birds Directive; RL = BoCCI Red List; Poss = possible breeding; Prob = probable breeding; Conf= confirmed breeding; Seen = present without evidence of breeding.

² It is noted that a determination will be made on whether there is connectivity between the SPAs and the wind farm site at the appropriate assessment stage

4.1.2.2 Rare and Protected Species Dataset

An information request was sent to the NPWS requesting records from the Rare and Protected Species Database. The sections below provide records obtained from the NPWS of the rare and protected breeding bird species:

Hen Harrier

Table 4-3 below presents the NPWS records for hen harrier nest sites to defined radii (km) of the development site.

Table 4-3 NPWS Hen Harrier Nest Site Records

Year	Within Site Boundary	0-1km from site boundary	1-3km from site boundary	3-5km from site boundary
2015	No Records	1 confirmed breeding site	No Records	1 confirmed breeding site
2010	No Records	3 confirmed breeding sites	1 sighting	1 confirmed breeding site, 1 additional sighting
2005	No Records	3 sightings	No records	No records
1998-2004	No Records	No Records	No Records	No records

Peregrine

The NPWS identified one confirmed peregrine nest site within 3-5km of the site. The observation was recorded during a survey in 2002.

Red Grouse

The NPWS hold records of red grouse in the area. Between 2000 and 2011, this species was recorded on nine occasions. One observation was recorded on site. There were two records located approximately 500m from the site, one just south of Dough Mountain and the other just north of Kilea. The remainder of the observations were recorded over 3km from the proposed development area. Three of these observations were recorded in the vicinity of Thur Mountain, to the south-east of the proposed development area.

4.2 Field Surveys

4.2.1 Flight Activity Survey

Observations during vantage point surveys, breeding walkover surveys, breeding raptor surveys, breeding woodcock surveys and incidental observations are provided below. Summaries include individual species accounts of primary and secondary target species.

4.2.2 Vantage Point Surveys

4.2.2.1 Primary Target Species

Golden Plover

There were four observations of golden plover during vantage point surveys. All observations occurred during the survey at VP1 in April. Throughout this survey, up to 75 individuals were observed flying and circling on Dough Mountain, within 1km of the site. A total of 1,186 seconds (s) was spent at potential collision height (PCH). Observations are shown in Appendix 1 Figure 1.1.

Hen Harrier

There were 79 observations of hen harrier during vantage point surveys. All but four of these observations occurred on, or within 500m of the site. Most observations were recorded in the site's southern section and relate to a confirmed nest identified at [REDACTED]. In April, a male and female bird were displaying in this area, followed by a male carrying sticks and nesting material to this area in May. In August, three juvenile birds were then observed at this nest, regularly receiving food from both adult birds. Juvenile birds remained present here into early September. The remainder of hen harrier observations were of birds commuting and hunting. A total of 1,515s was recorded at PCH. Observations are shown in Appendix 3 Figure 1.2.

Kestrel

There were three observations of kestrel during vantage point surveys. All observations were of individual birds at VP3 commuting, hunting or perching on, or within 500m of the site. One of these observations was of a juvenile bird in the northern section of the site near Killea in July. A total of 50s was recorded at PCH. Observations are shown in Appendix 1 Figure 1.3.

Red Grouse

There were two observations of red grouse during vantage point surveys at VP3 in September. These were recorded within 500m of the site, near Killea. One observation involved a single bird calling and the other observation involved a pair of birds calling. This indicates possible breeding for red grouse in this area. No time was spent at PCH. Observations are shown in Appendix 1 Figure 1.4.

Snipe

There were eight observations of snipe during vantage point surveys. All but one of the observations were of individual birds with two birds observed on one occasion. Birds were observed flying and displaying with most observations recorded within 500m of the site, at Killea and Dough Mountain. This behaviour indicates probable breeding for this species. One observation was recorded at PCH for a total of 9s. Observations are shown in Appendix 1 Figure 1.5

4.2.2.2 Secondary Target Species

Buzzard

There were 23 observations of buzzard during the survey period. Most observations were recorded on or within 500m of the site. Birds were observed commuting, hunting and calling. A total of 2,744s was spent at PCH. Observations are shown in Appendix 1 Figure 1.6.

Sparrowhawk

There were four observations of sparrowhawk during vantage point surveys. Observations involved birds commuting and being mobbed with all occurring on, or within 500m of the site. One observation was recorded at PCH for a total of 90s. Observations are shown in Appendix 1 Figure 1.7.

Grey wagtail

One observation of a grey wagtail was made in August at VP4.

Meadow Pipit

There were 20 observations of meadow pipit during vantage point surveys. Observations occurred at all of the four vantage point survey locations.

Swift

There was one observation of a pair of swift at VP4 in July during vantage point surveys.

Lesser Black-backed Gull

There were two observations of lesser black-backed gull in April and in August during vantage point surveys. Observations ranged from 2 to 4 birds commuting through the site.

4.2.3 Breeding Walkover Surveys

Hen Harrier

There were 28 observations of hen harrier during the breeding walkover surveys. All but four of the observations occurred on, or within 500m of the site. In May a male was observed carrying prey into the 2020 nest site in the northern section of the site, between [REDACTED], confirming the second nest of this season. In July, a food pass was observed at the already confirmed nest at [REDACTED], and chicks were also observed moving around in the vegetation at the nest here. A third nest was also confirmed in July with a pair of adult birds showing agitated behaviour in the presence of the surveyor, 1.6km northeast of the site, at [REDACTED]. Other observations were of birds hunting, commuting and perching. Observations are shown in Appendix 3 Figure 2.1.

Merlin

There was one observation of a merlin in April during breeding walkover surveys. This observation was of a male flying west over the northern section of the site towards Saddle Hill. Observations are shown in Appendix 1 Figure 2.2.

Kestrel

There was one observation of a kestrel during breeding walkover surveys. This observation was of an individual bird hunting within 500m of the site near Killea. Observations are shown in Appendix 1 Figure 2.3.

Red Grouse

There were three observations of red grouse during the breeding walkover surveys. All three were recorded within 500m of the site, near Killea. Two observations were of birds calling and the other observation was of a bird flushed by the surveyor. This indicates possible breeding in this area. Observations are shown in Appendix 1 Figure 2.4.

Snipe

There were three observations of snipe during the breeding walkover surveys. All observations were of individual birds and were recorded on, or within 500m of the site. Birds were observed displaying (drumming), flying and calling. This behaviour indicates probable breeding for this species. Observations are shown in Appendix 1 Figure 2.5.

Grey Wagtail

There were two observations of grey wagtail in April and May. On both occasions, two birds were observed.

Meadow Pipit

There were 62 observations of meadow pipits from April to July during breeding walkover surveys. These observations were recorded across the site and flock sizes varied between two to ten birds as well as a few individual birds travelling separately.

Buzzard

There were ten observations of buzzard during breeding walkover surveys. All observations were recorded on, or within 500m of the site. Birds were observed commuting, perching and one observation in April involved a pair of birds displaying near the 2020 nest site, near Boleyboy. Observations are shown in Appendix 1 Figure 2.6.

Sparrowhawk

There were five observations of sparrowhawk during breeding walkover surveys. All observations were recorded on, or within 500m of the site. Observations included birds commuting, hunting and calling. One observation involved an adult male carrying prey to a juvenile bird near one of the 2020 nests in the northern section of the site. Observations are shown in Appendix 1 Figure 2.7.

Great Black-backed Gull

There was one observation of a great black-backed gull during breeding walkover surveys. This observation involved an individual bird commuting over the site in July.

Grey Heron

There was one observation of a grey heron during breeding walkover surveys. This observation was of an individual bird commuting within 500m of the site in July.

Lesser Black-backed Gull

There were seven observations of lesser black-backed gull during breeding walkover surveys. Observations ranged from between one and two individuals with birds recorded commuting over the site.

Mallard

There was one observation of a mallard during breeding walkover surveys. This observation was of a female bird flushed from a nest on the ground in the northern section of the site.

Swift

There was one observation of a swift during breeding walkover surveys. This observation involved three birds foraging and feeding within 500m of the site.

4.2.4 Breeding Raptor Surveys

Hen Harrier

There were 97 observations of hen harrier during breeding raptor surveys. Most of these relate to the nest identified in the site's southern section, at [REDACTED]. Adult birds were regularly observed around the nest site here and at the start of August, three fledglings were observed here. In the northern section of the site, a pair was observed around the 2020 nest, between [REDACTED], with the male observed displaying and carrying nest-building material in April. At the third nest, near [REDACTED] the male was observed bringing in prey to the nest in July and two fledglings were seen flying over the nest site. Observations are shown in Appendix 3 Figure 3.1.

Merlin

There was one observation of a merlin during breeding raptor surveys. This observation was of a male chasing two hooded crows 2.8km from the site. Observations are shown in Appendix 1 Figure 3.2.

Buzzard

There were twelve observations of buzzard during breeding raptor surveys. Six observations were on, or within 500m of the site. Birds were observed commuting, hunting and calling and ranged between one to two birds. Observations are shown in Appendix 1 Figure 3.3.

Sparrowhawk

There were seven observations of sparrowhawk during the breeding raptor surveys. Birds were observed hunting, commuting and perching. There was one observation of a male carrying prey within 500m of the site in June which confirms breeding in the vicinity of the observation. Observations are shown in Appendix 1 Figure 3.4.

4.2.5 Breeding Woodcock Surveys

There were 11 observations of woodcock during the breeding woodcock surveys. All observations were between one to two birds roding (displaying), indicating probable breeding. Observations were recorded in both the northern and southern sections of the site. Observations are shown in Appendix 1 Figure 4.1

4.2.6 Incidental Observations

Hen Harrier

There were four incidental observations of hen harrier during the survey period. These were recorded on, or within 500m of the site. Observations were of individual birds, hunting, perching and there was one observation of a female carrying prey to the nest at [REDACTED] in September. Observations are shown in Appendix 3 Figure 5.1.

Kestrel

There was one incidental observation of a kestrel during the survey period. This observation was of an individual bird hunting within 500m of the site. Observations are shown in Appendix 1 Figure 5.2.

Red Grouse

There were four incidental observations of red grouse during the survey period. Three of these observations were of individual birds and there was one observation of two birds. In May, a male was recorded displaying at Killea, 900m from the site. This behaviour indicates probable breeding in this area. Observations are shown in Appendix 1 Figure 5.3.

Snipe

There were six incidental observations of snipe during the survey period. There were two observations of birds drumming within 500m of the site near Killea and there was another bird observed drumming on Dough Mountain. This behaviour likely indicates probable breeding for this species. Observations are shown in Appendix 1 Figure 5.4.

Grey wagtail

There was one incidental record of grey wagtail in April during breeding raptor surveys. It was of a male singing.

Buzzard

There were two incidental observations of buzzard during the survey period. Both observations were of birds flying over a conifer plantation 1km from the site, near Faughary. Observations are shown in Appendix 1 Figure 5.5.

Sparrowhawk

There was one incidental observation of sparrowhawk during the survey period. This observation was of an individual bird carrying prey near Lisdarush, 650m from the site. Observations are shown in Appendix 1 Figure 5.6.

Lesser Black-backed Gull

There was one incidental observation of lesser black-backed gull during the survey period. This observation was of three birds commuting and circling overhead.

5. DISCUSSION

Ornithological surveys were conducted at the Lissinagroagh wind farm site from April 2021 to September 2021. The key observations during surveys are outlined below.

Three breeding territories were identified for hen harrier within the survey area, two of these territories were located on the site. One nest was identified in the same location as the 2018 nest at [REDACTED], in the southern section of the site. This nest was successful and fledged three chicks. A second nest was identified in the northern section of the site, at the 2020 nest location, southeast of [REDACTED]. Given the lack of observations here beyond May, this nest likely failed. A third nest was identified 1.6km from the site, near [REDACTED], and was successful with at least two fledged chicks.

There were breeding territories identified for snipe, woodcock and sparrowhawk at, or within 500m of the wind farm site. There is a resident population of red grouse within 500m of the wind farm site. Given the level of activity and the suitable breeding habitat in which they were observed, it is possible that breeding took place within 500m of the site, near Kilea.

Golden plover and merlin were recorded infrequently and in low numbers at the wind farm site.

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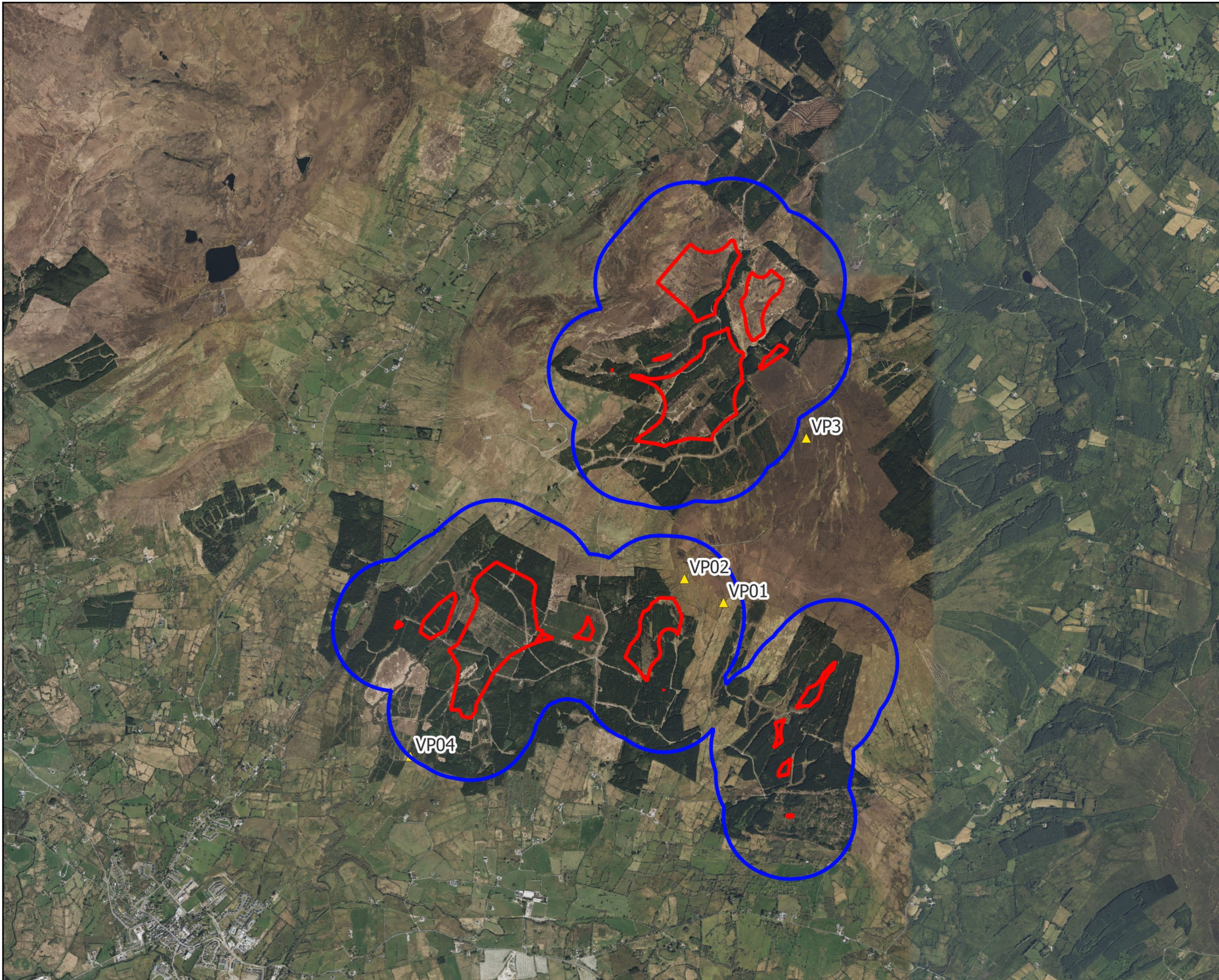
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APPENDIX 1

FIGURES



Map Legend

- Wind Farm Site
- 500m Survey Radius
- ▲ Vantage Point Location



Drawing Title

Vantage Point Survey Locations

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 1

Scale

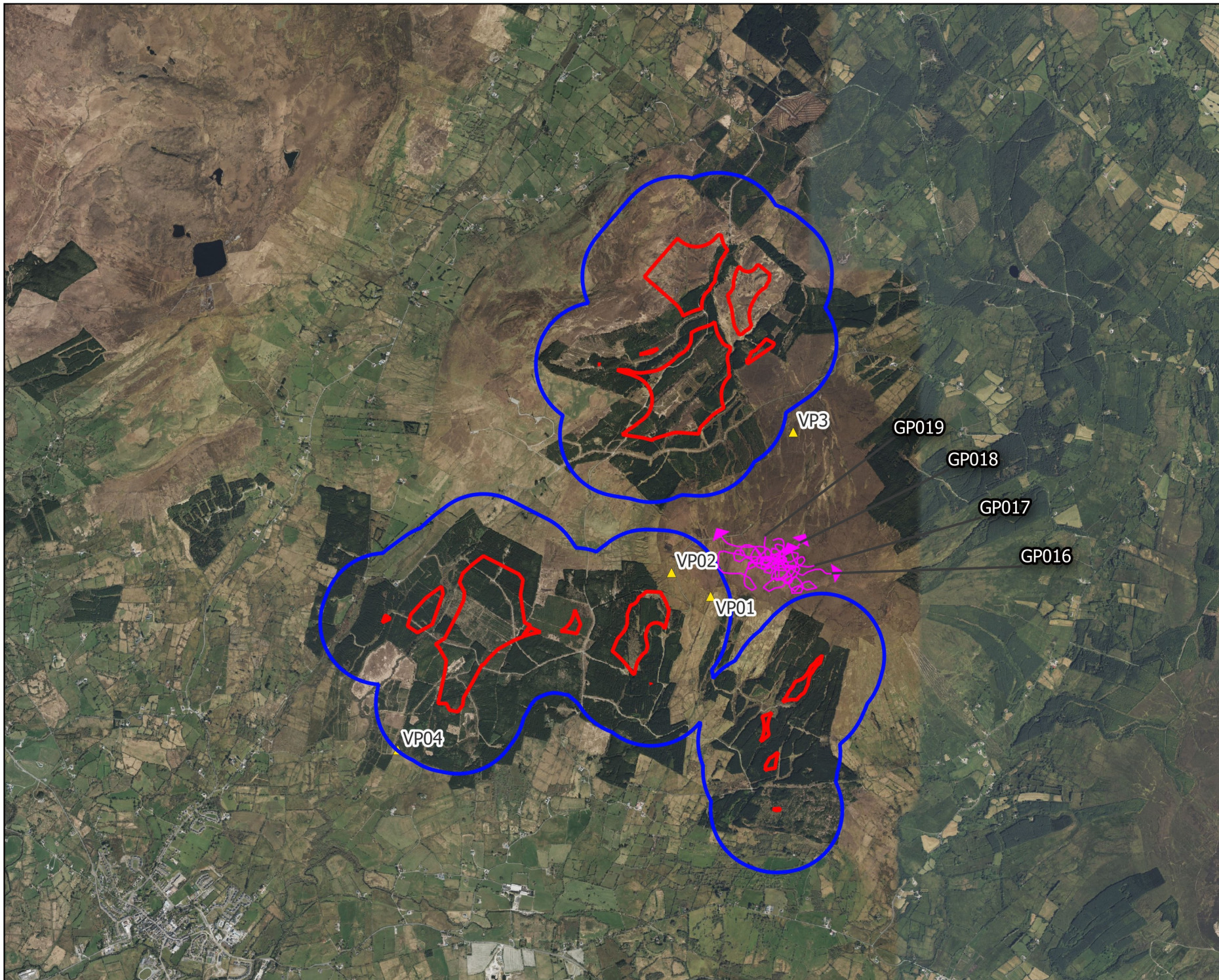
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- ▲ Vantage Point Location
- Flightline

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Drawing Title
**Vantage Point Survey
 Golden Plover Observations**

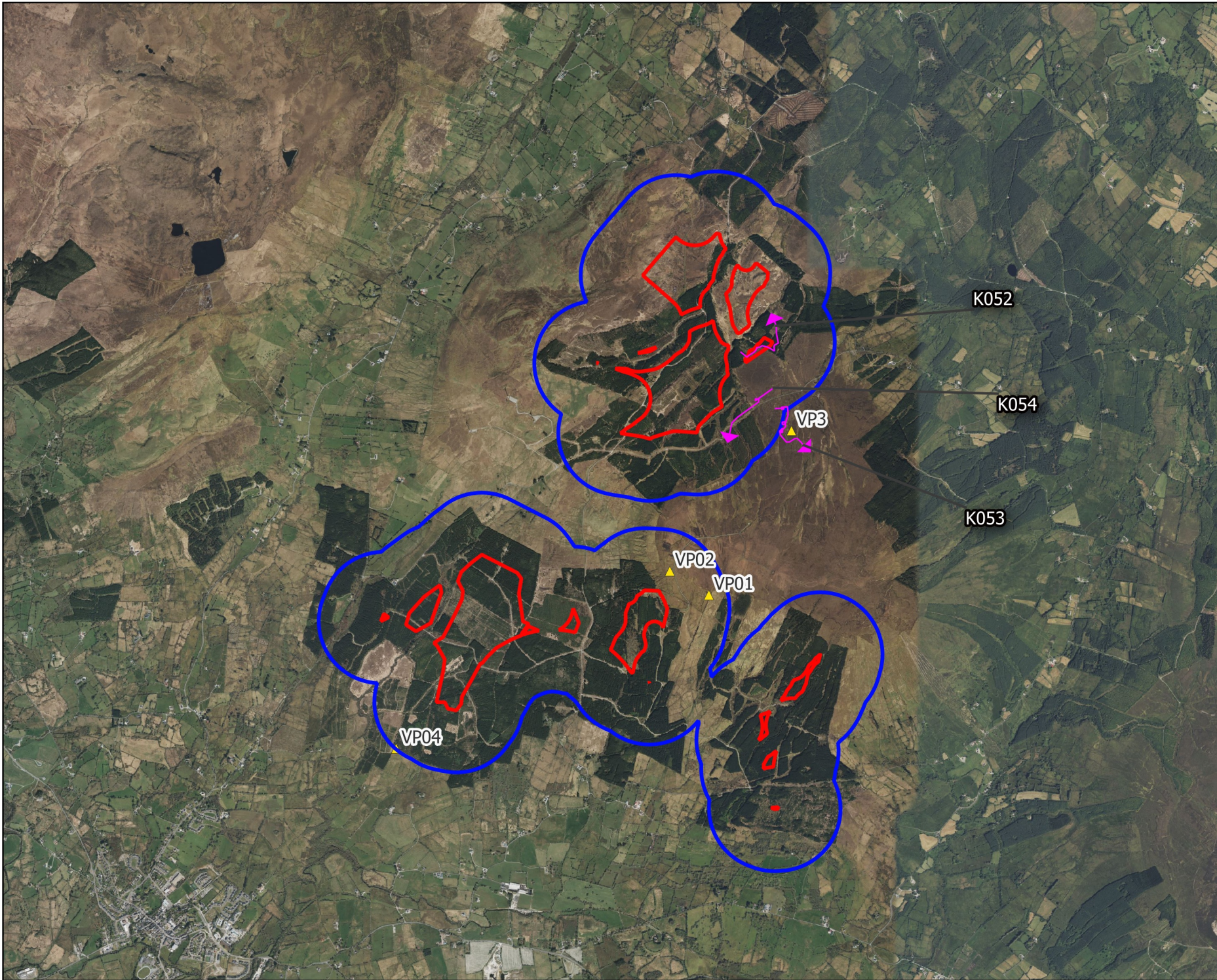
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Lissinagroagh Wind Farm

Drawn By ZOC	Checked By AOD
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Project No. 200217-e	Drawing No. Fig. 1.1
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Scale 1:40,000	Date 30.09.2024
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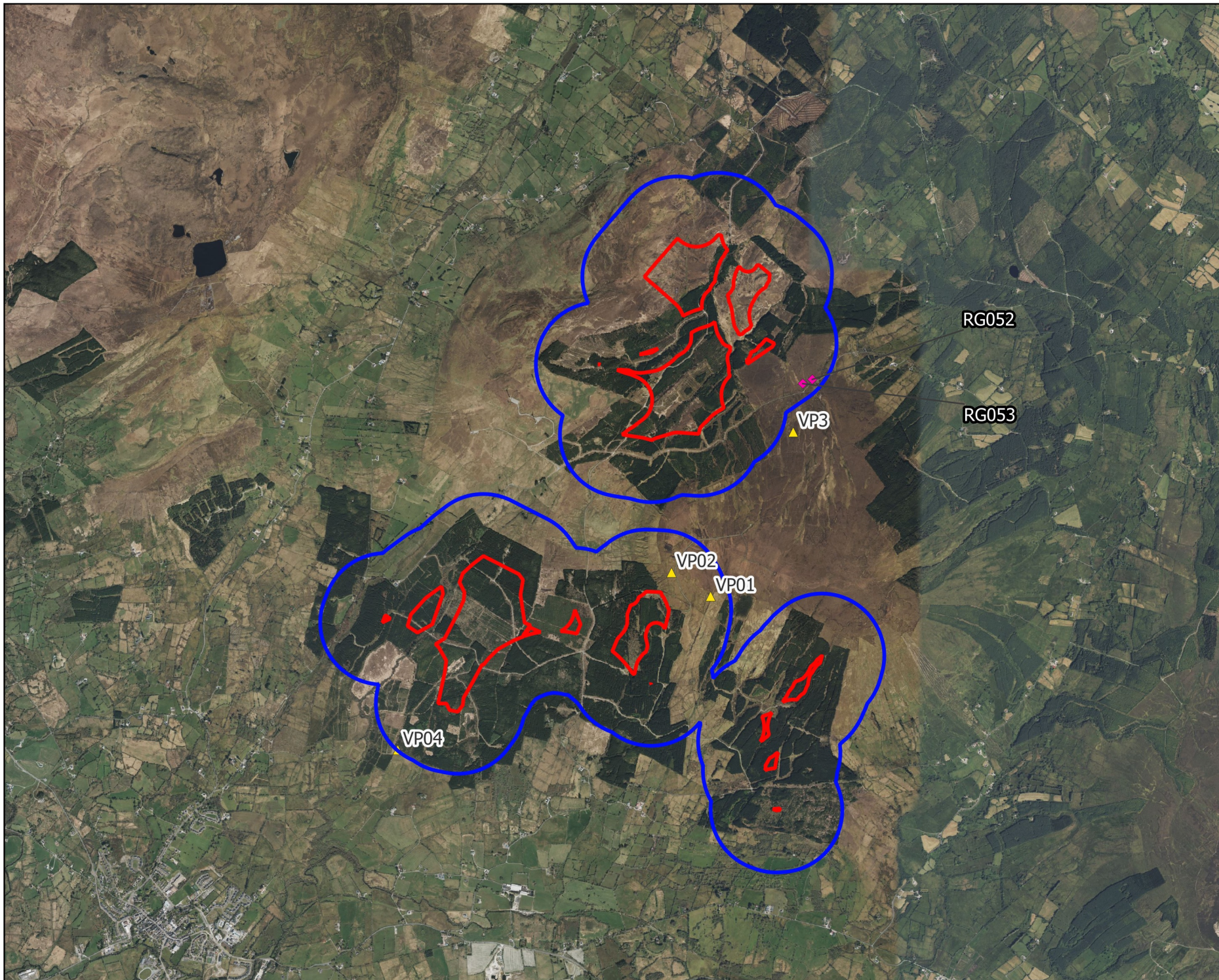
Map Legend

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- 500m Survey Radius
- ▲ Vantage Point Location
- Flightline



Drawing Title Vantage Point Survey Kestrel Observations	
Project Title Lissinagroagh Wind Farm	
Drawn By ZOC	Checked By AOD
Project No. 200217-e	Drawing No. Fig. 1.3
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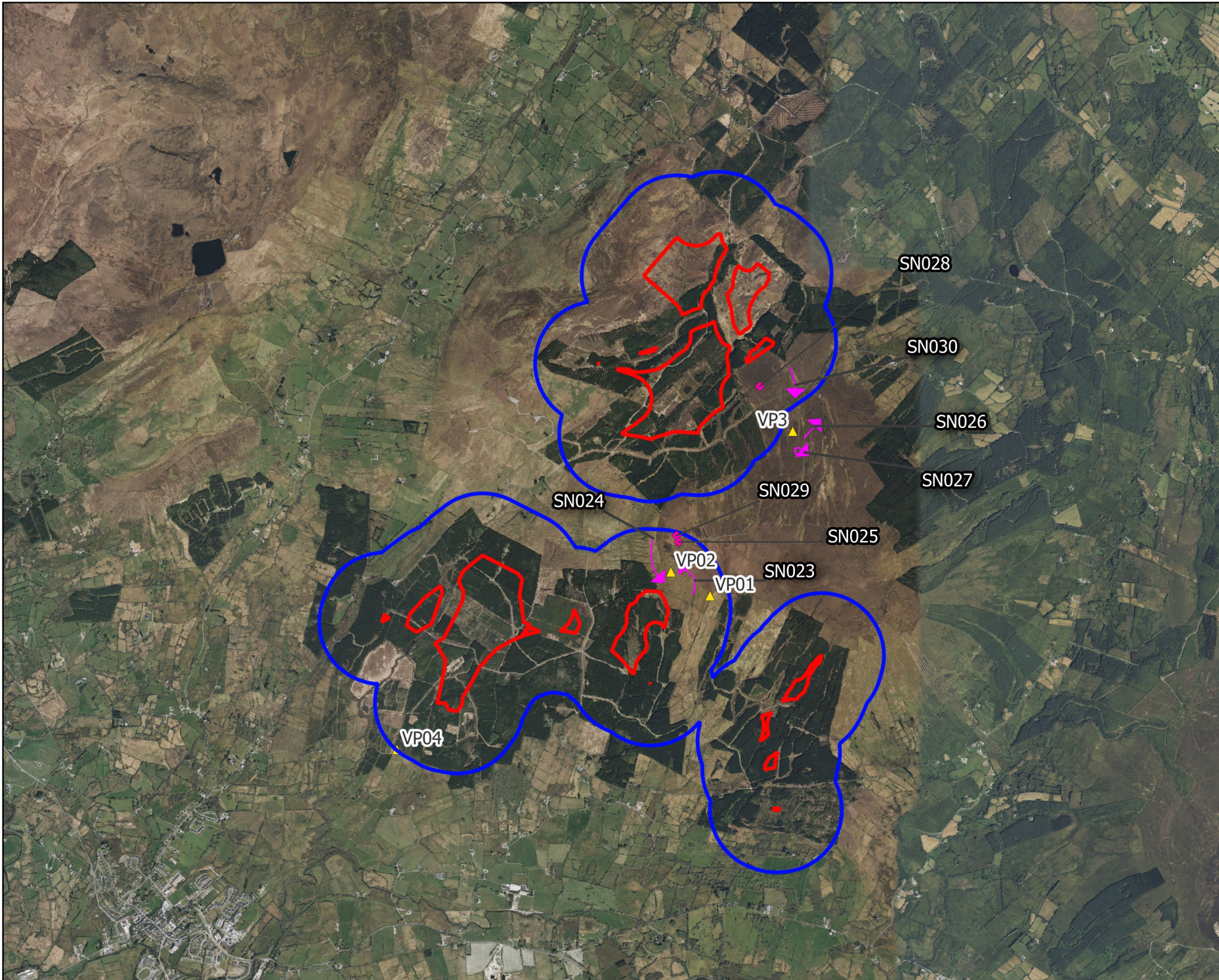
Map Legend

- Wind Farm Site
- 500m Survey Radius
- ▲ Vantage Point Location
- ◆ Observation

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Drawing Title	
Vantage Point Survey Red Grouse Observations	
Project Title	
Lissinagroagh Wind Farm	
Drawn By	Checked By
ZOC	AOD
Project No.	Drawing No.
200217-e	Fig. 1.4
Scale	Date
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- ▲ Vantage Point Location
- Flightline
- ◆ Observation



Drawing Title

Vantage Point Survey
Snipe Observations

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 1.5

Scale

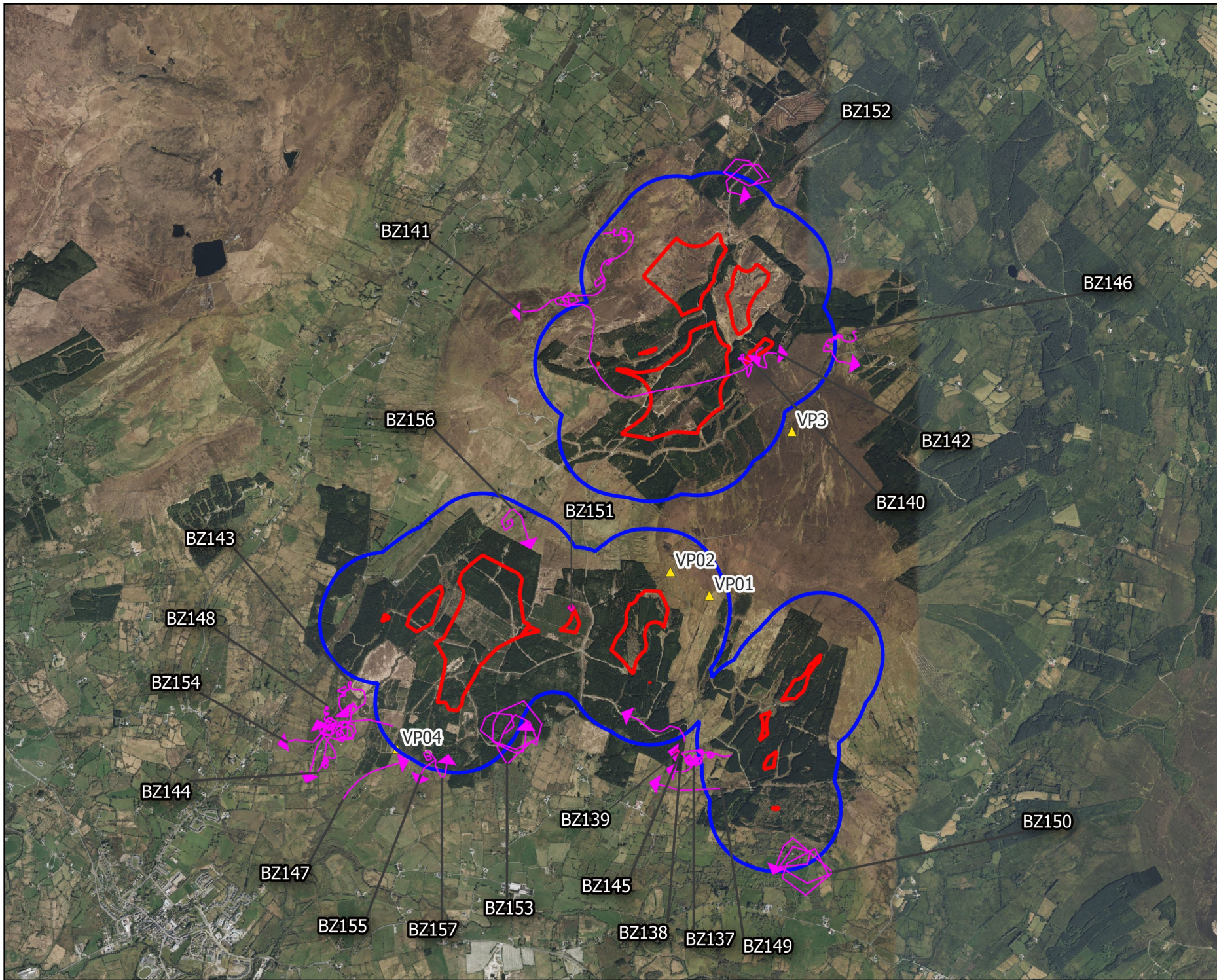
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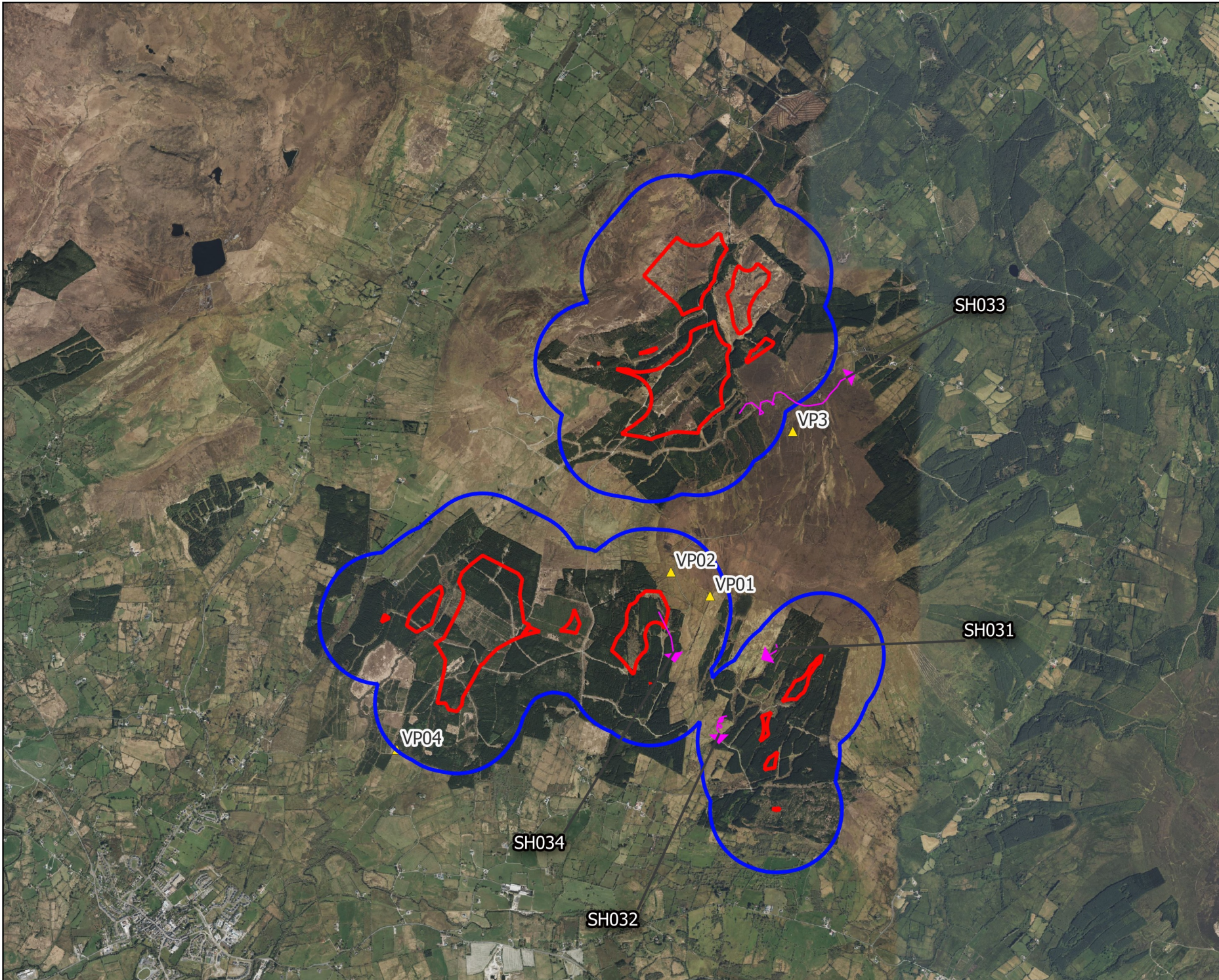
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- Wind Farm Site
- 500m Survey Radius
- ▲ Vantage Point Location
- Flightline
- ◆ Observation



Drawing Title Vantage Point Survey Buzzard Observations	
Project Title Lissinagroagh Wind Farm	
Drawn By ZOC	Checked By AOD
Project No. 200217-e	Drawing No. Fig. 1.6
Scale 1:40,000	Date 30.09.2024
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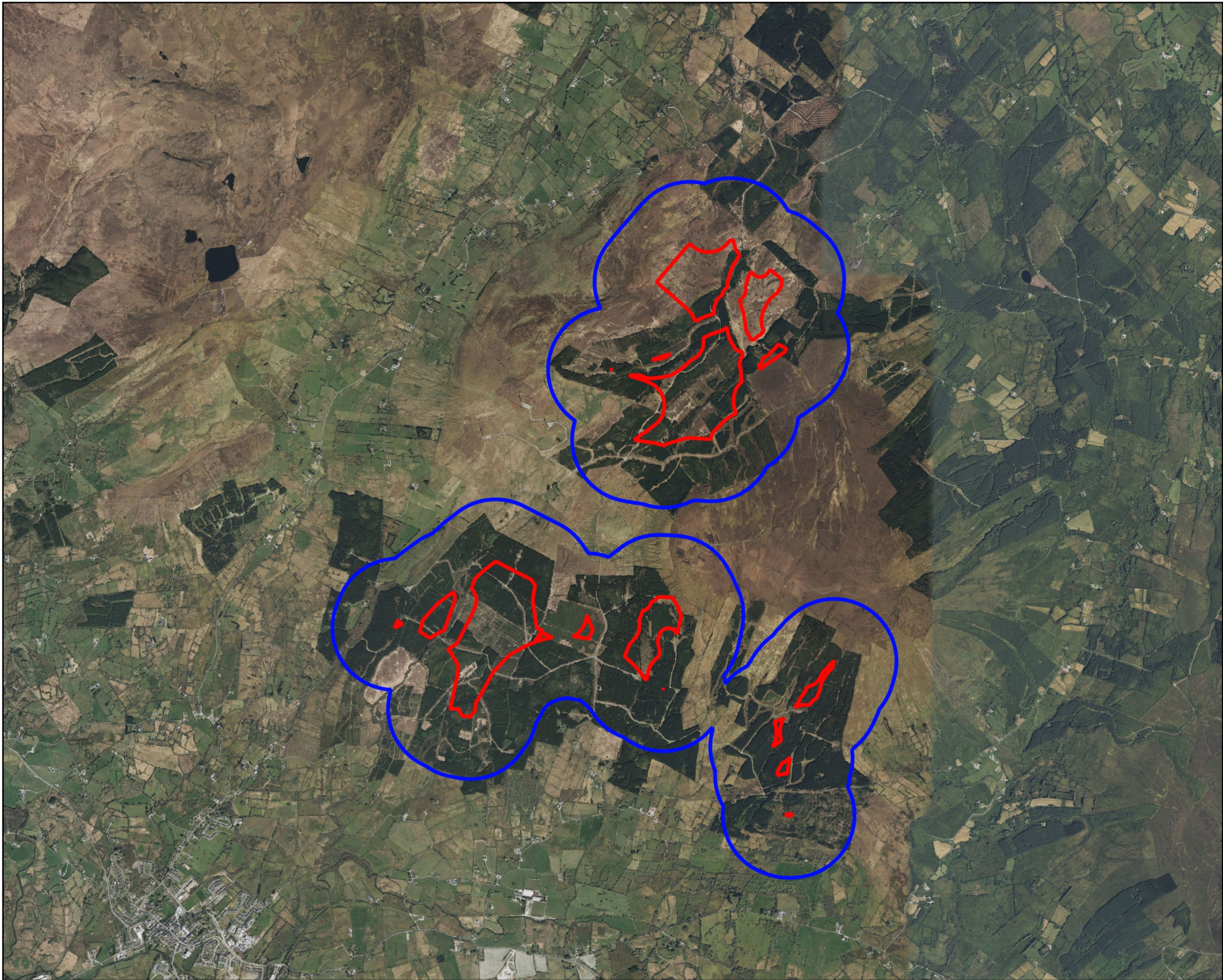
Map Legend

- Wind Farm Site
- 500m Survey Radius
- ▲ Vantage Point Location
- Flightline





Drawing Title Vantage Point Survey Sparrowhawk Observations	
Project Title Lissinagroagh Wind Farm	
Drawn By ZOC	Checked By AOD
Project No. 200217-e	Drawing No. Fig. 1.7
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Map Legend

-  Wind Farm Site
-  500m Survey Radius



Drawing Title

Breeding Walkover
Survey Area

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 2

Scale

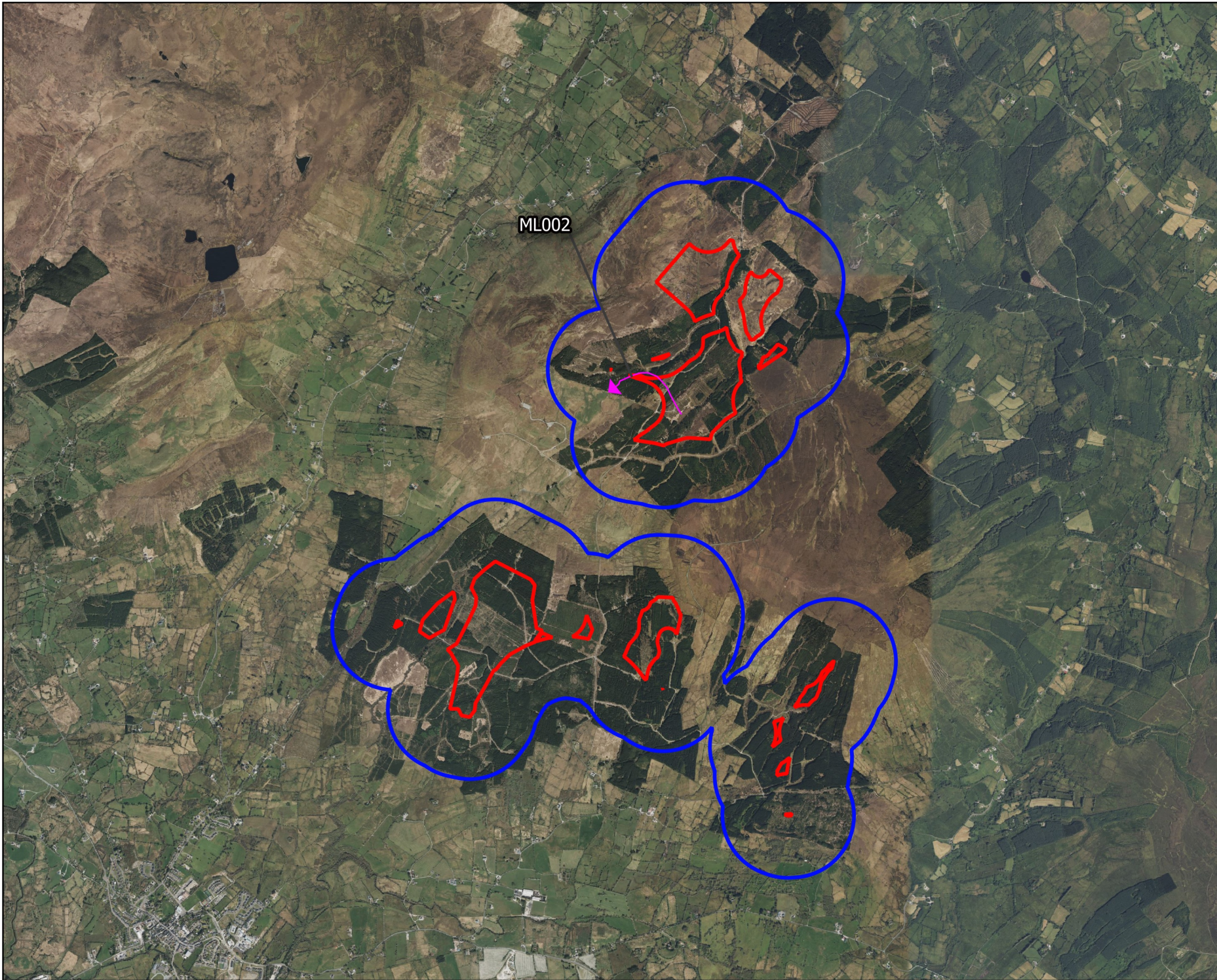
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- ➔ Flightline

ML002



Drawing Title

Breeding Walkover Survey
Merlin Observations

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 2.2

Scale

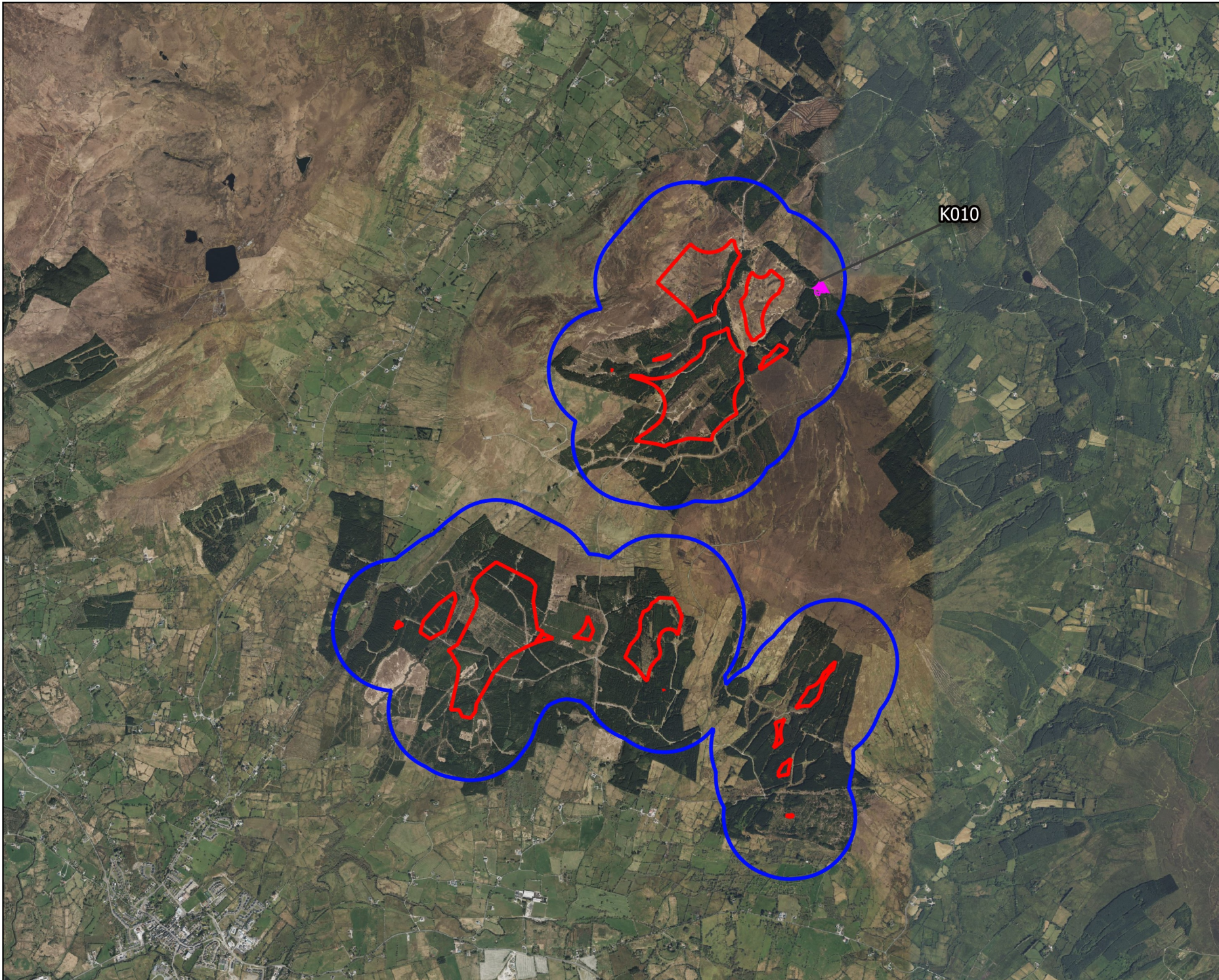
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- ➔ Flightline



Drawing Title

**Breeding Walkover Survey
Kestrel Observations**

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 2.3

Scale

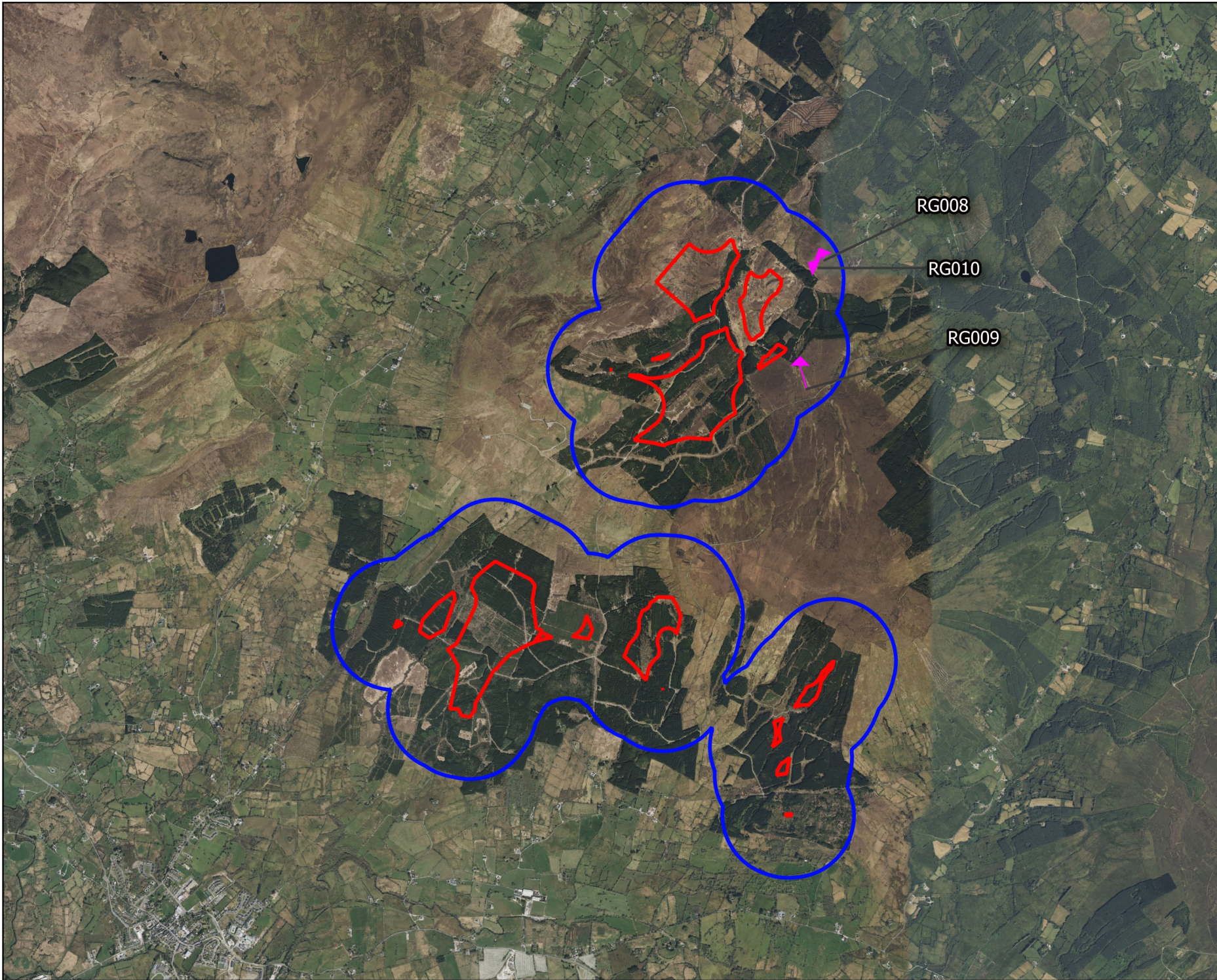
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline

RG008

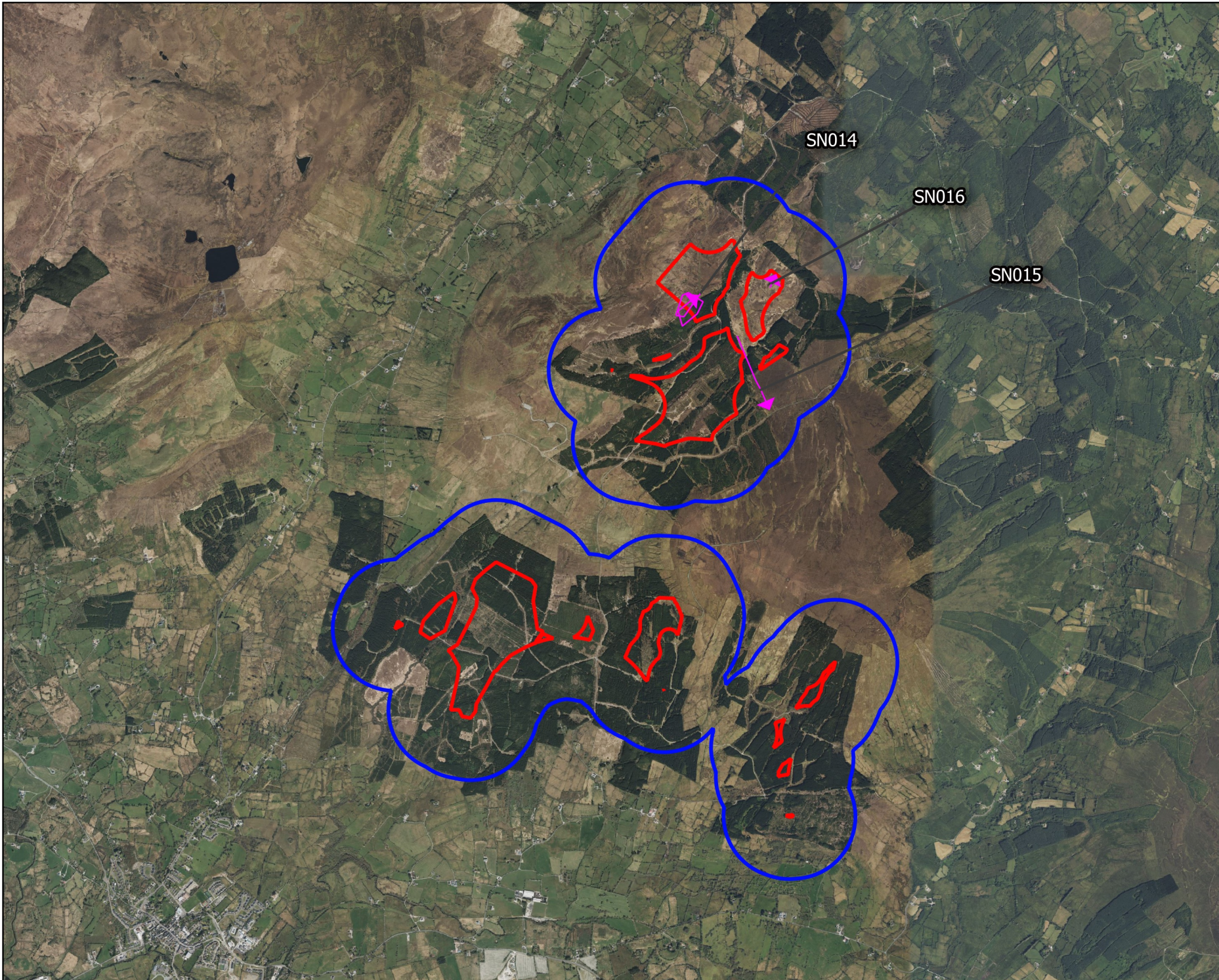
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RG009



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<p><small>Project Title</small></p> <p>Lissinagroagh Wind Farm</p>	
<small>Drawn By</small>	<small>Checked By</small>
ZOC	AOD
<small>Project No.</small>	<small>Drawing No.</small>
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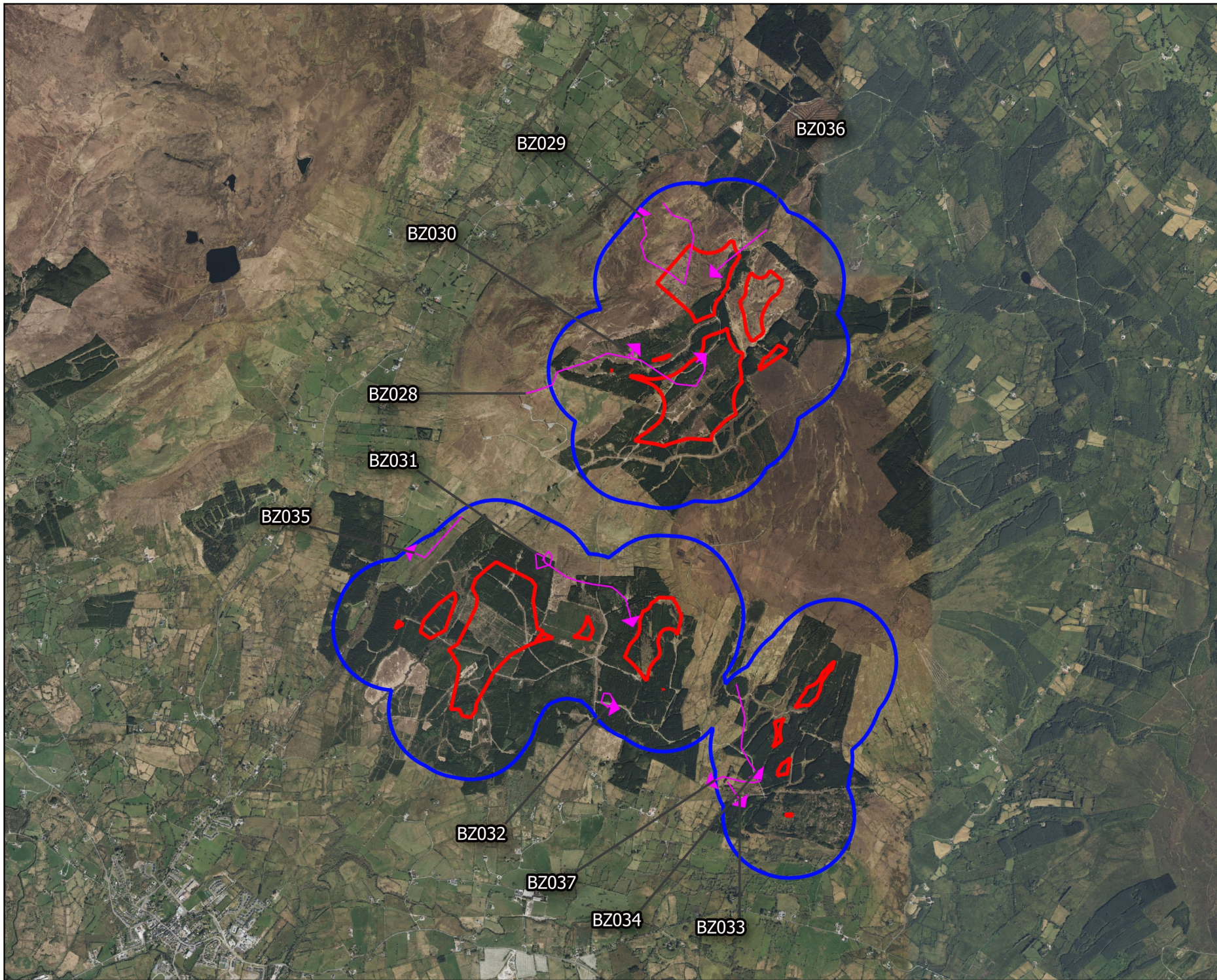
Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline



Drawing Title Breeding Walkover Survey Snipe Observations	
Project Title Lissinagroagh Wind Farm	
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Project No. 200217-e	Drawing No. Fig. 2.5
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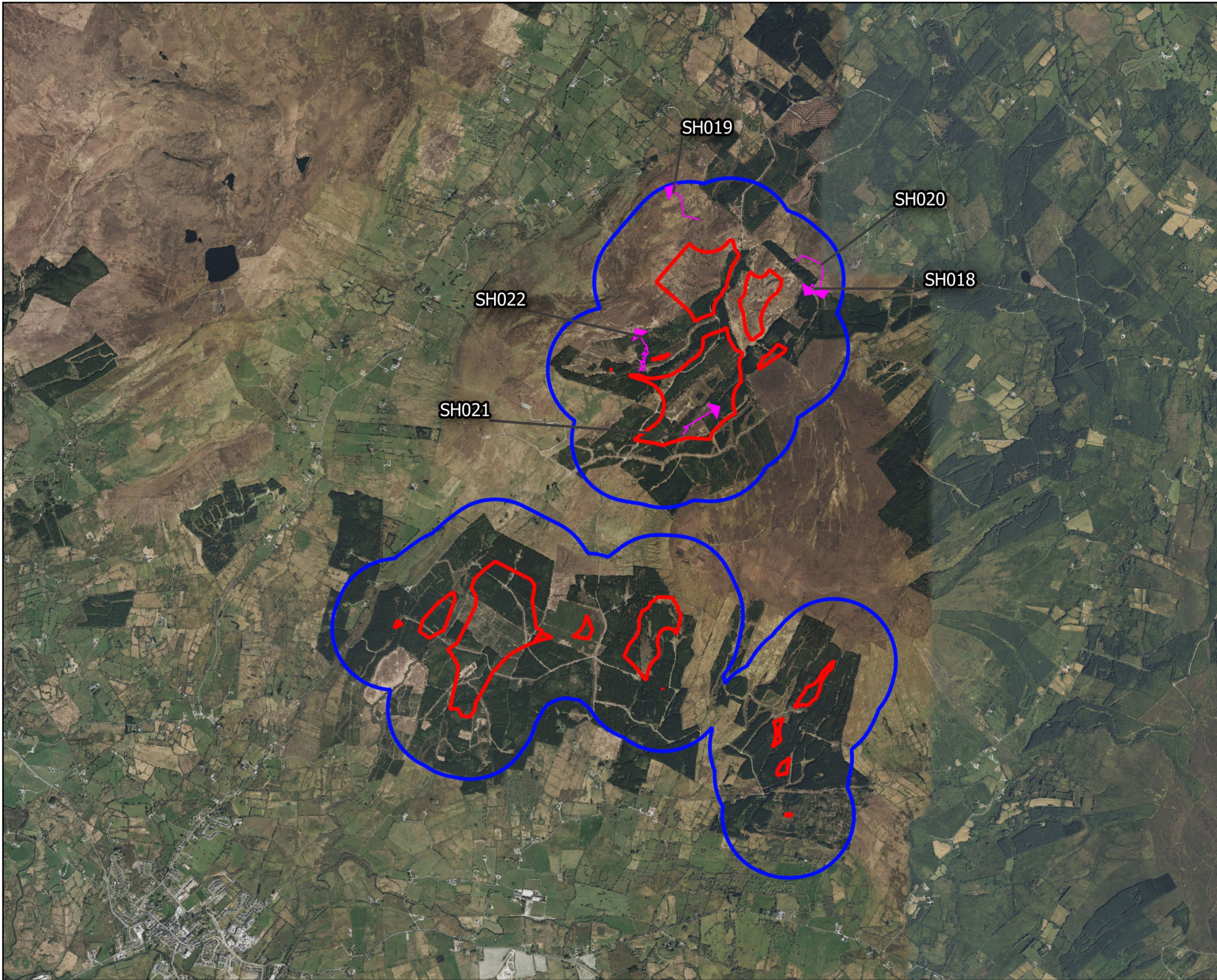
Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline






<p><small>Drawing Title</small></p> <p>Breeding Walkover Survey Buzzard Observations</p>	
<p><small>Project Title</small></p> <p>Lissinagroagh Wind Farm</p>	
<small>Drawn By</small>	<small>Checked By</small>
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200217-e	Fig. 2.6
<small>Scale</small>	<small>Date</small>
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Map Legend

-  Wind Farm Site
-  500m Survey Radius
-  Flightline



Drawing Title

Breeding Walkover Survey
Sparrowhawk Observations

Project Title

Lissinagroagh Wind Farm

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Drawing No.

Fig. 2.7

Scale

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Map Legend

-  Wind Farm Site
-  500m Survey Radius
-  5km Survey Radius

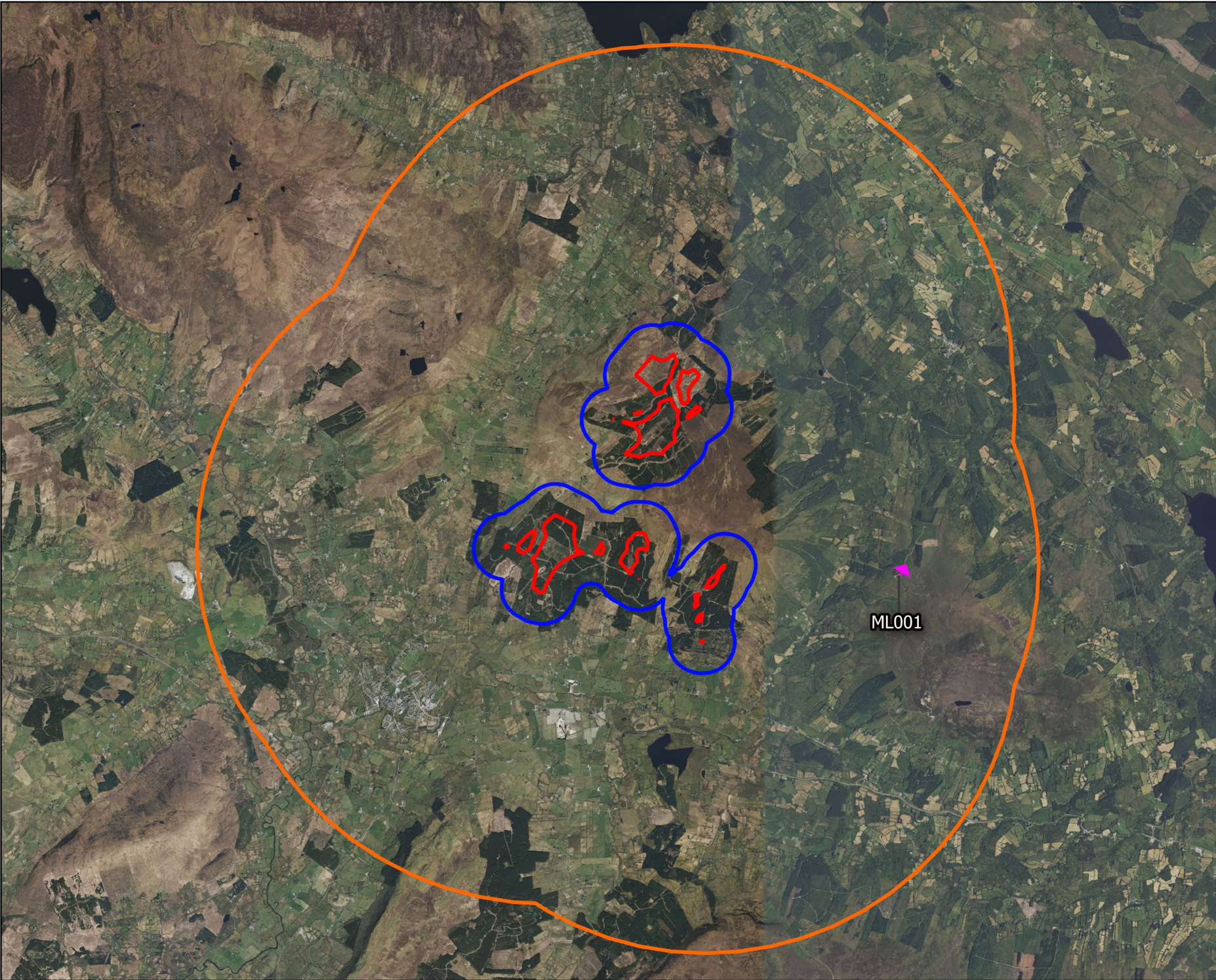


Drawing Title
Breeding Raptor Survey Area

Project Title
Lissinagroagh Wind Farm

Drawn By ZOC	Checked By AOD
Project No. 200217-e	Drawing No. Fig. 3
Scale 1:80,000	Date 30.09.2024

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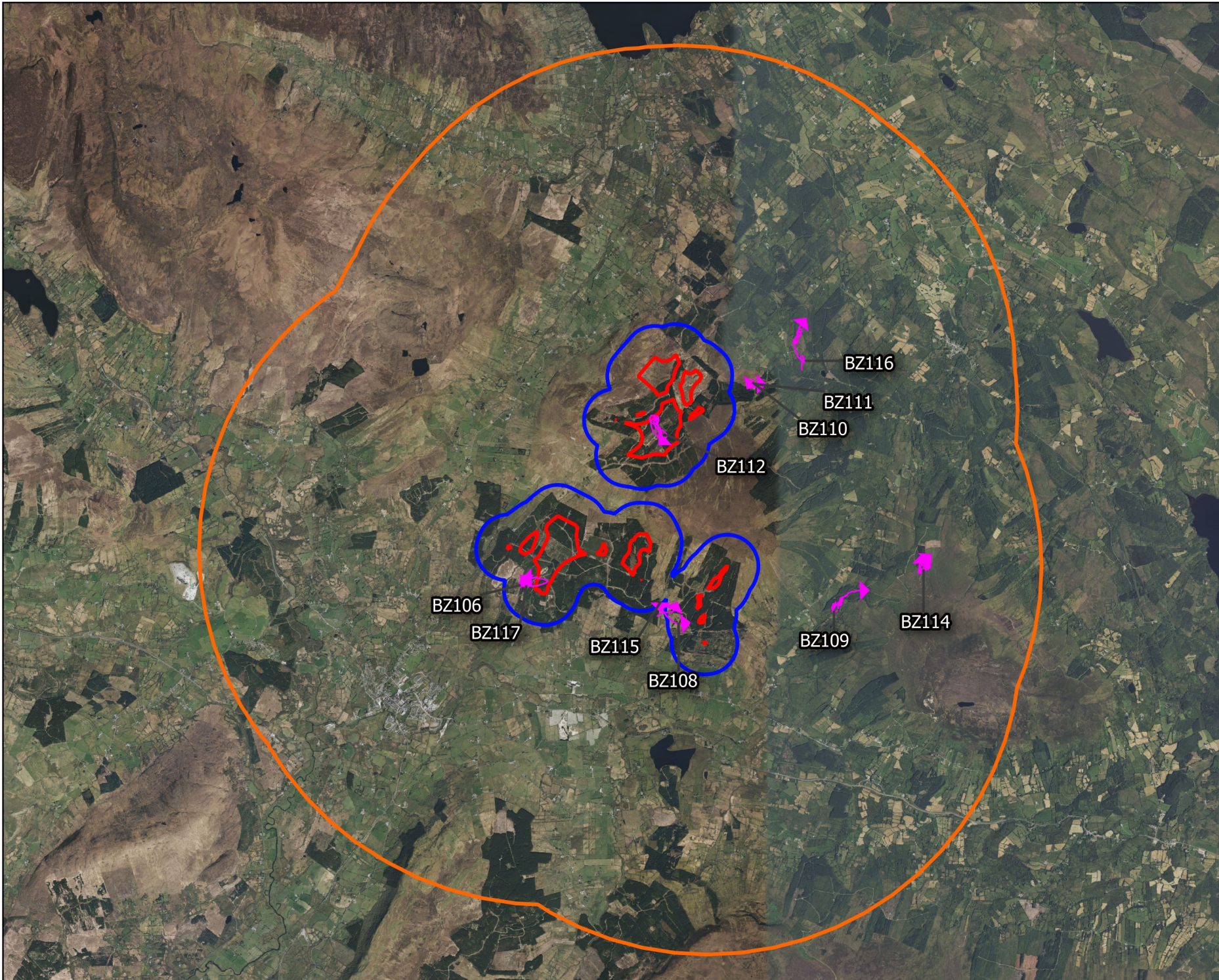
Map Legend

- Wind Farm Site
- 500m Survey Radius
- 5km Survey Radius
- Flightline







<p>Drawing Title</p> <p>Breeding Raptor Survey Merlin Observations</p>	
<p>Project Title</p> <p>Lissinagroagh Wind Farm</p>	
<p>Drawn By</p> <p>ZOC</p>	<p>Checked By</p> <p>AOD</p>
<p>Project No.</p> <p>200217-e</p>	<p>Drawing No.</p> <p>Fig. 3.2</p>
<p>Scale</p> <p>1:80,000</p>	<p>Date</p> <p>30.09.2024</p>
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Map Legend

-  Wind Farm Site
-  500m Survey Radius
-  5km Survey Radius
-  Flightline



Drawing Title

Breeding Raptor Survey
Buzzard Observations

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 3.3

Scale

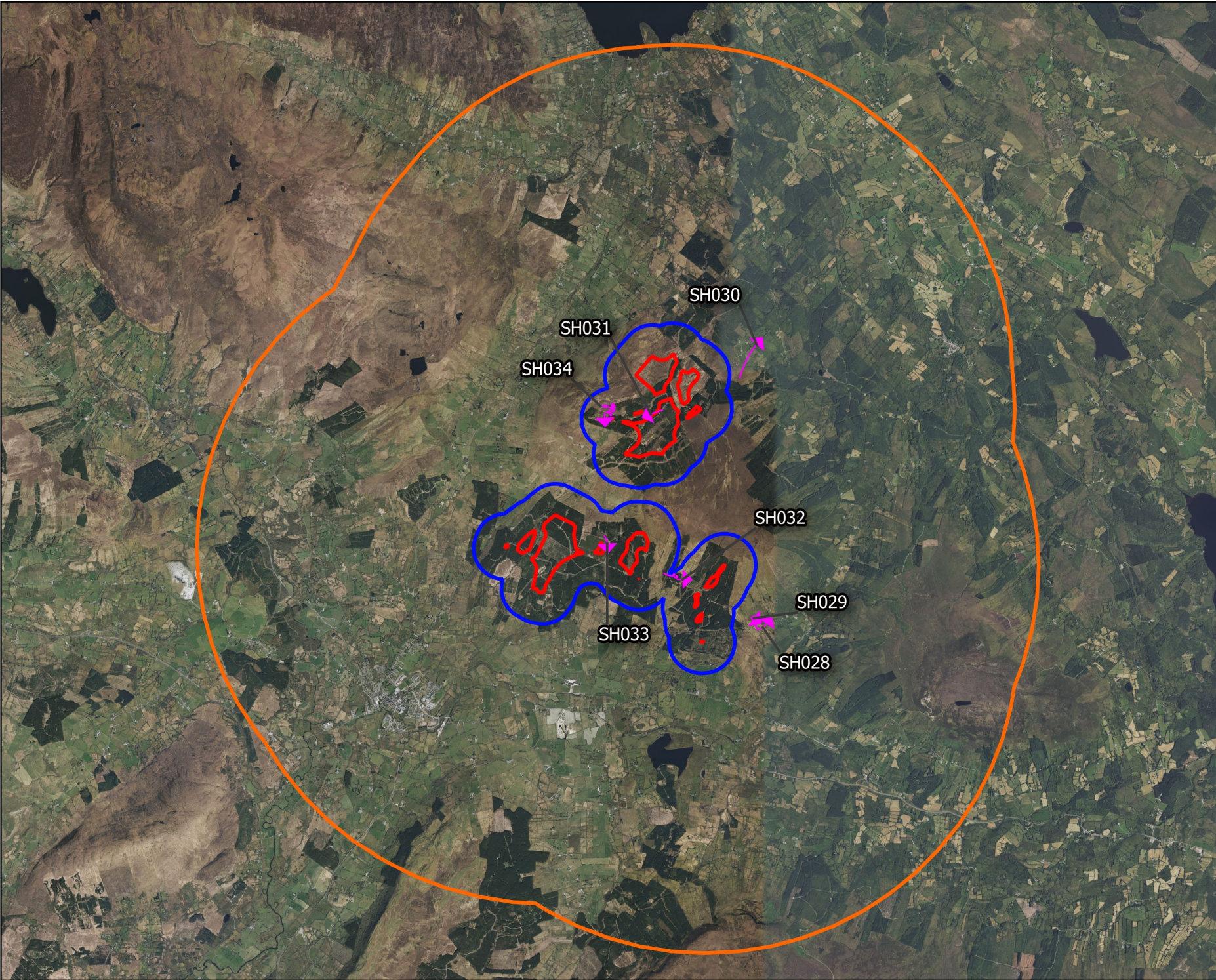
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Map Legend

-  Wind Farm Site
-  500m Survey Radius
-  5km Survey Radius
-  Flightline

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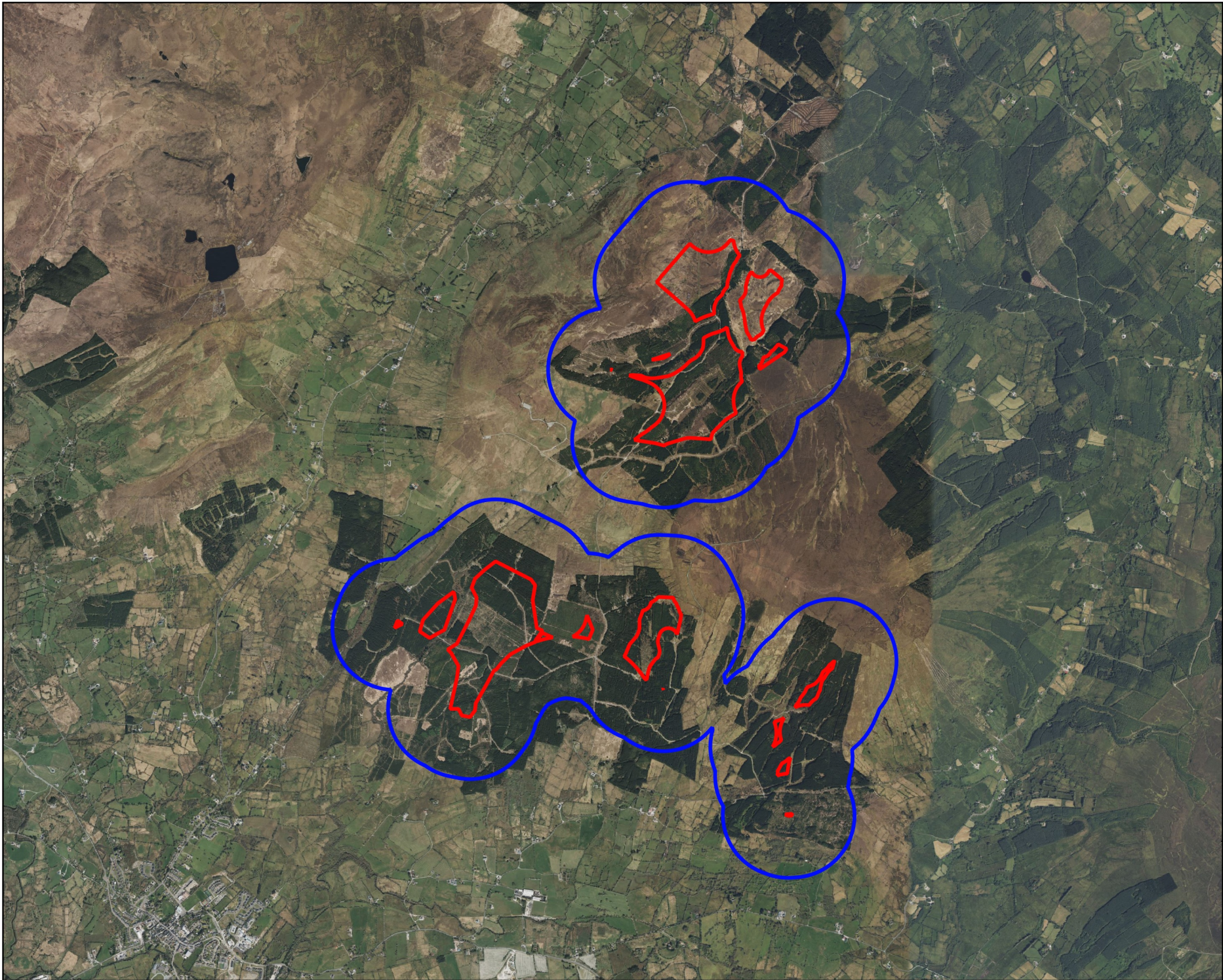
Drawing Title
**Breeding Raptor Survey
 Sparrowhawk Observations**

Project Title
Lissinagroagh Wind Farm

Drawn By ZOC	Checked By AOD
Project No. 200217-e	Drawing No. Fig. 3.4
Scale 1:80,000	Date 30.09.2024



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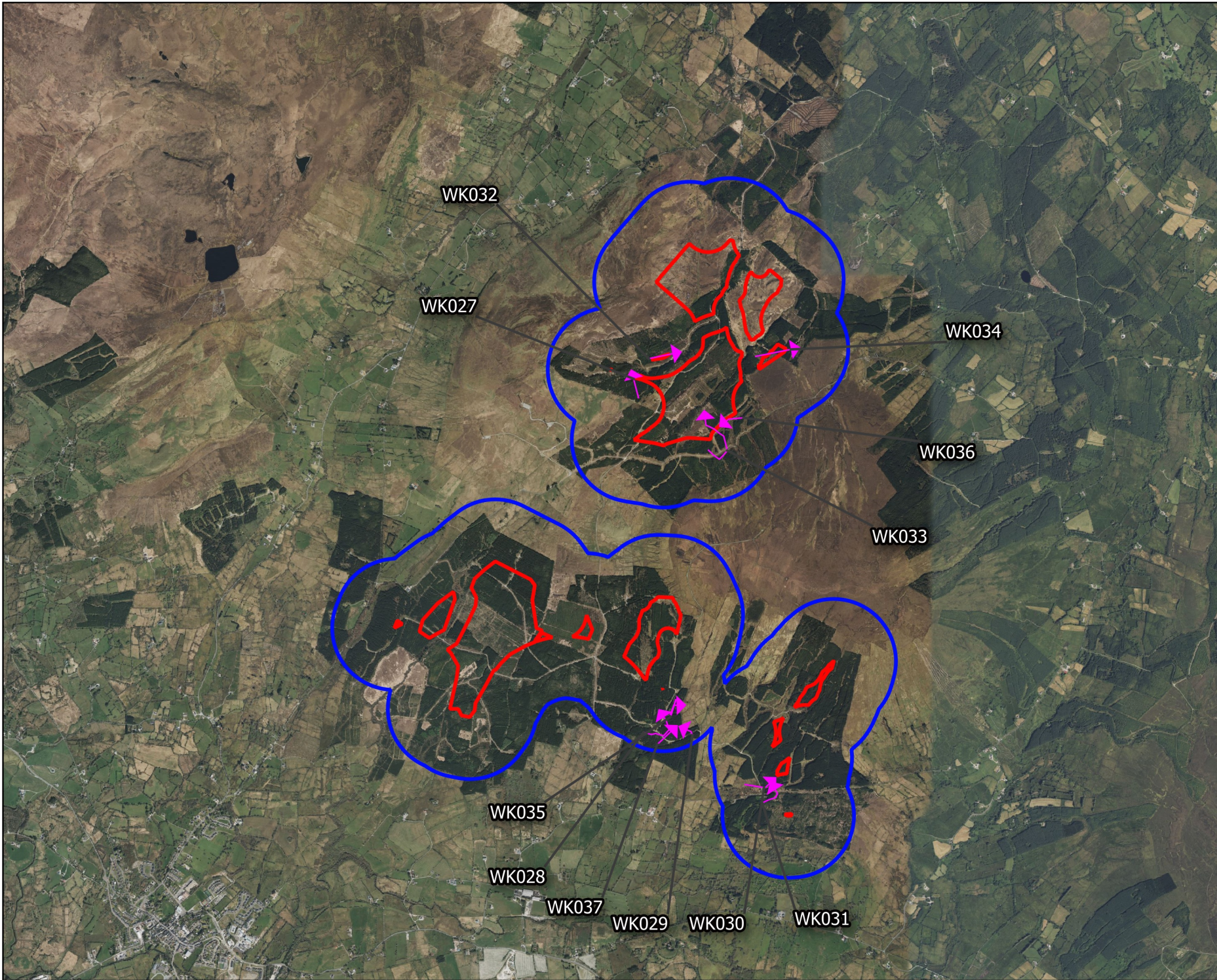
Map Legend

- Wind Farm Site
- 500m Survey Radius



<p><small>Drawing Title</small></p> <p>Breeding Woodcock Survey Area</p>	
<p><small>Project Title</small></p> <p>Lissinagroagh Wind Farm</p>	
<small>Drawn By</small>	<small>Checked By</small>
ZOC	AOD
<small>Project No.</small>	<small>Drawing No.</small>
200217-e	Fig. 4
<small>Scale</small>	<small>Date</small>
1:40,000	30.09.2024
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline



Drawing Title

Breeding Woodcock Survey
Woodcock Observations

Project Title

Lissinagroagh Wind Farm

Drawn By

ZOC

Checked By

AOD

Project No.

200217-e

Drawing No.

Fig. 4.1

Scale

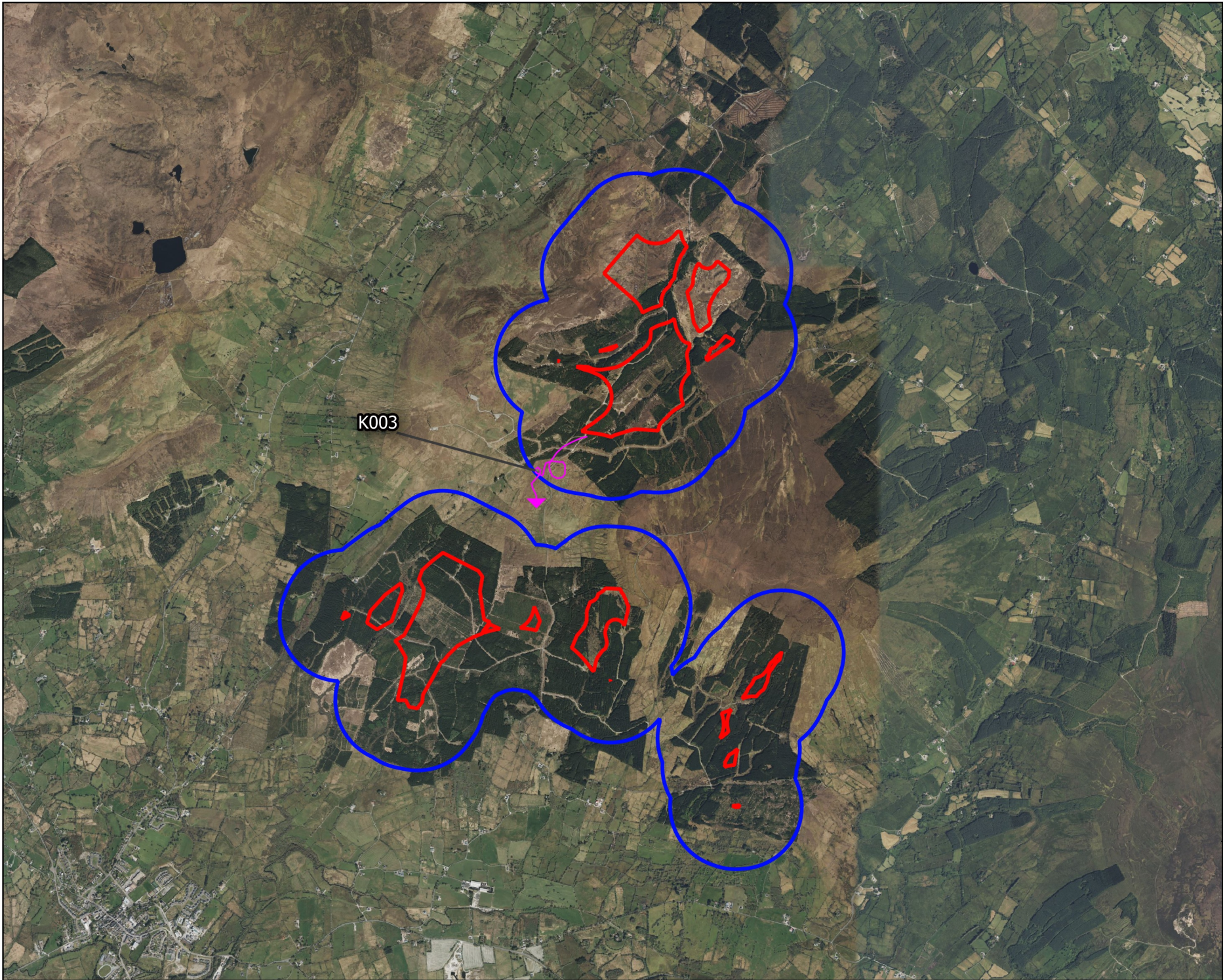
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline



Drawing Title

Incidental Kestrel Observations

Project Title

Lissinagroagh Wind Farm

Drawn By Checked By

ZOC AOD

Project No. Drawing No.

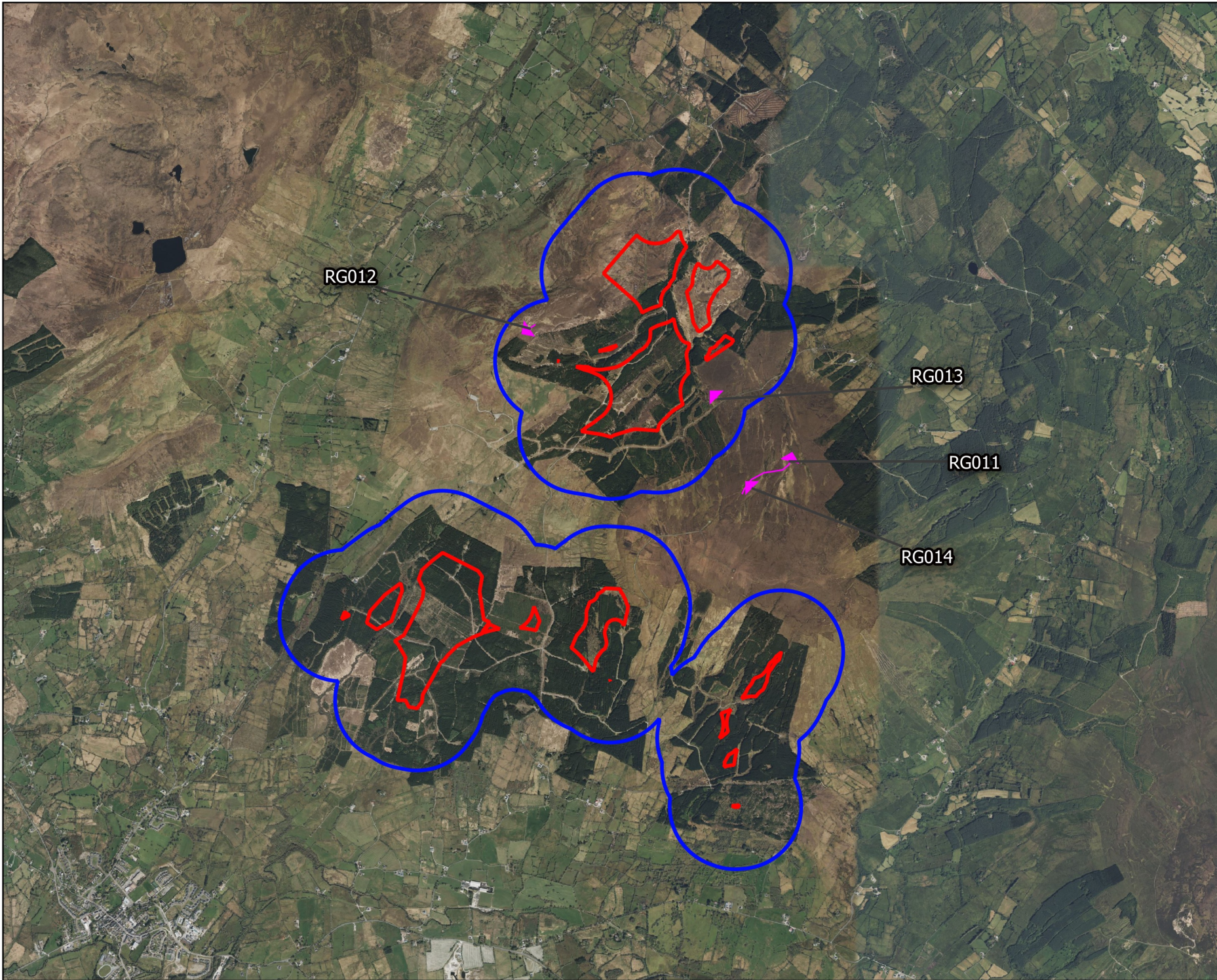
200217-e Fig. 5.2

Scale Date

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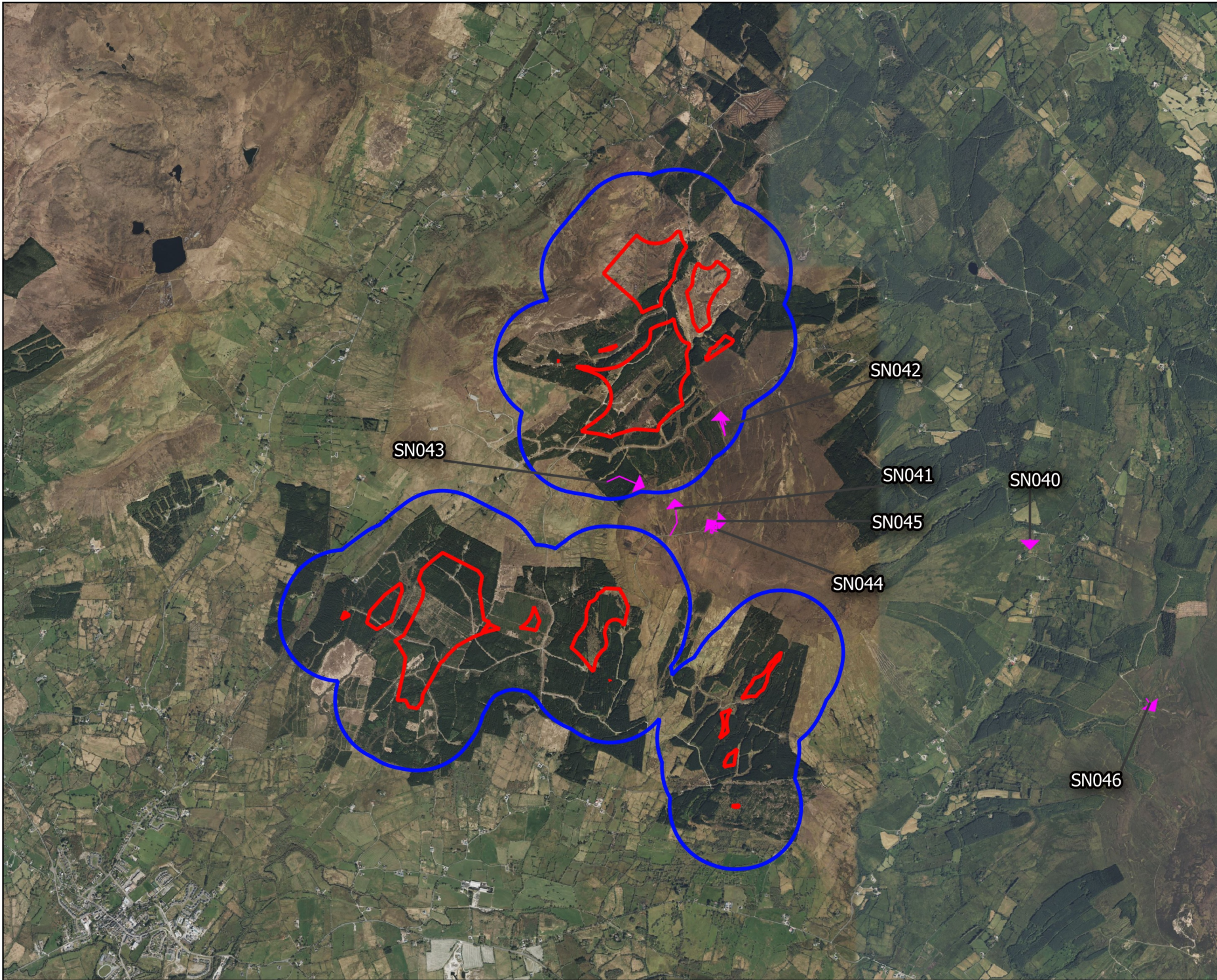
Map Legend

- Wind Farm Site
- 500m Survey Radius
- ↗ Flightline

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Drawing Title	
Incidental Red Grouse Observations	
Project Title	
Lissinagroagh Wind Farm	
Drawn By	Checked By
ZOC	AOD
Project No.	Drawing No.
200217-e	Fig. 5.3
Scale	Date
1:40,000	30.09.2024
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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline

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Drawing Title

Incidental Snipe Observations

Project Title

Lissinagroagh Wind Farm

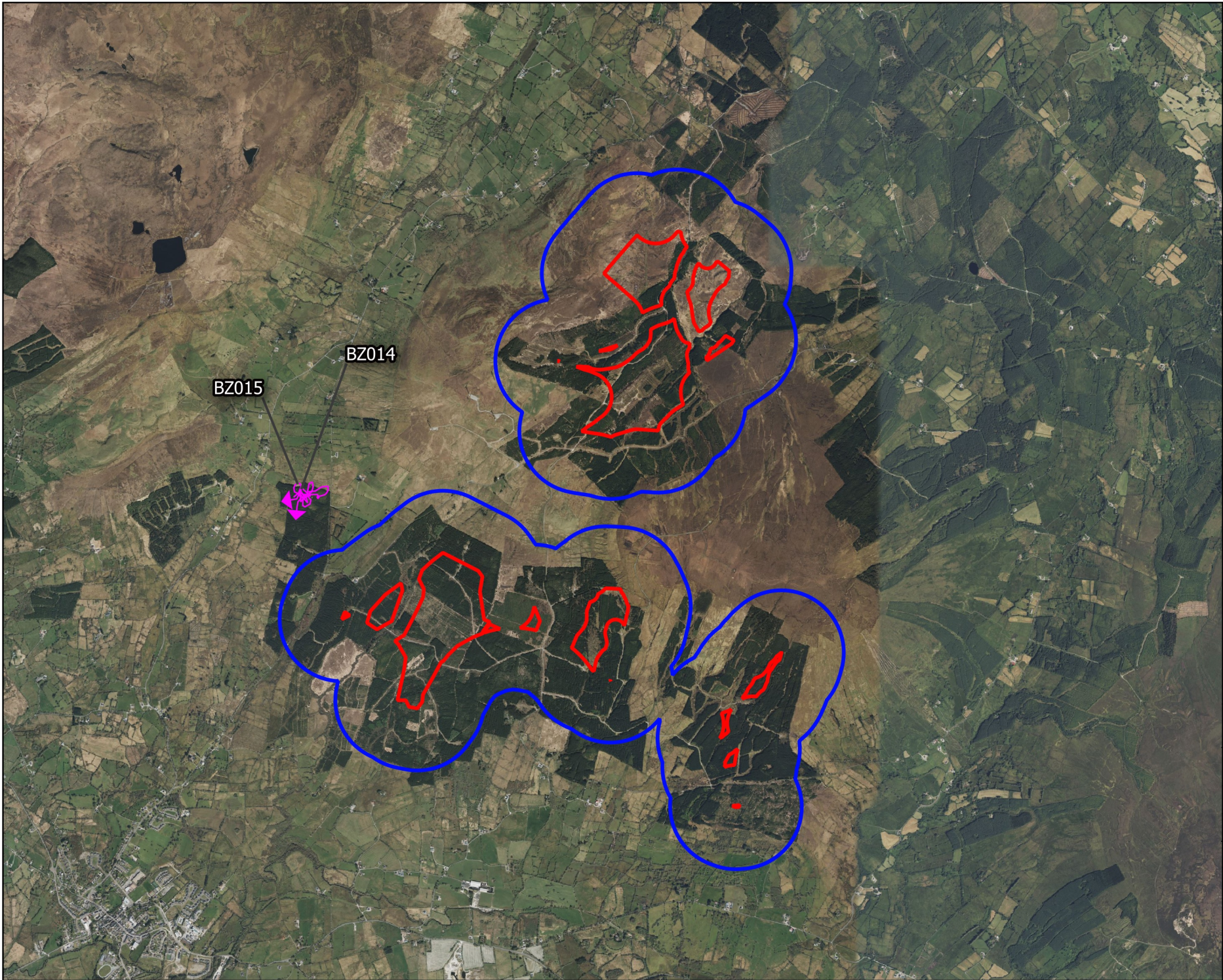
Drawn By	Checked By
ZOC	AOD

Project No.	Drawing No.
200217-e	Fig. 5.4

Scale	Date
1:40,000	30.09.2024

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- Flightline



Drawing Title

Incidental Buzzard Observations

Project Title

Lissinagroagh Wind Farm

Drawn By Checked By

ZOC AOD

Project No. Drawing No.

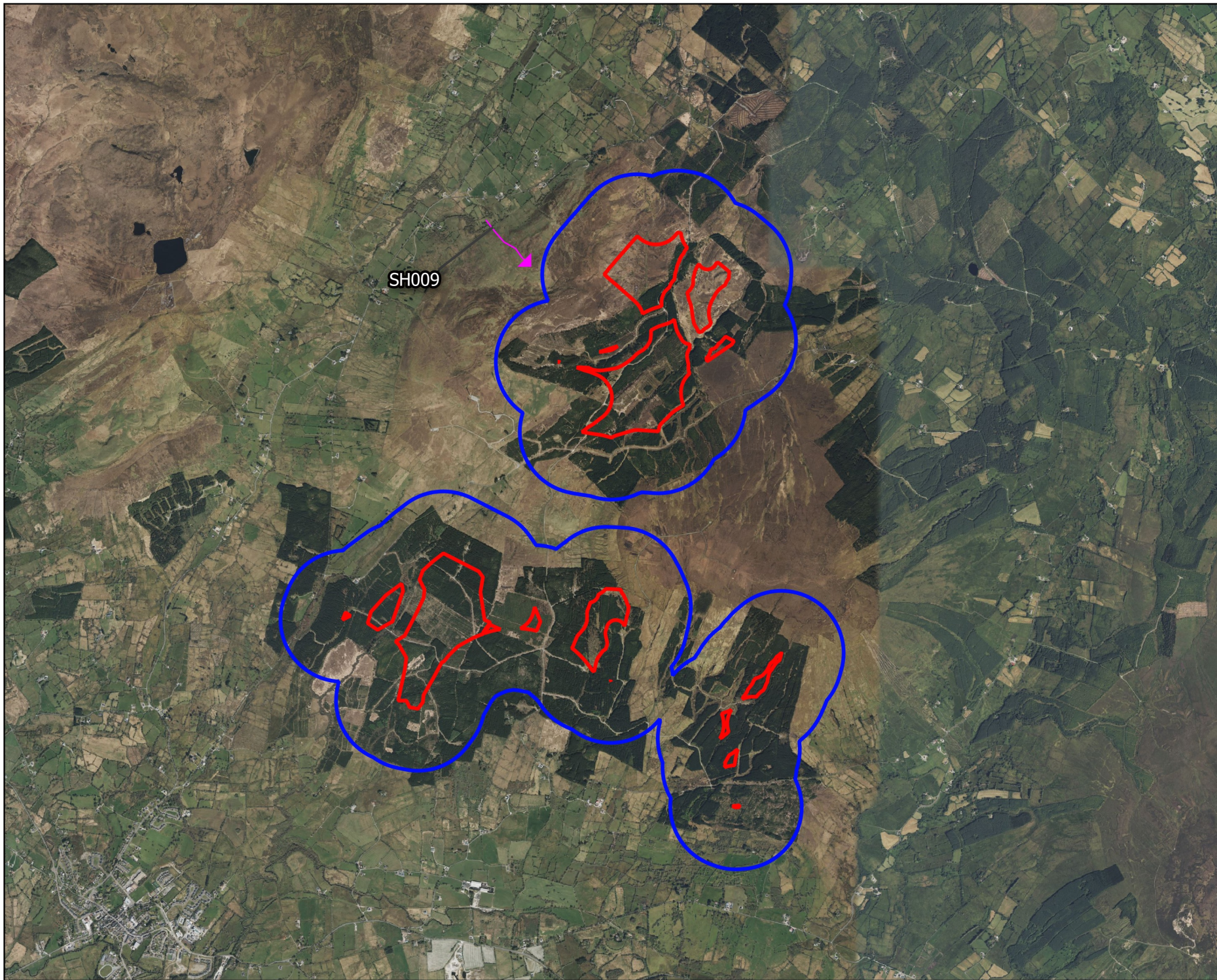
200217-e Fig. 5.5

Scale Date

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Map Legend

- Wind Farm Site
- 500m Survey Radius
- ➔ Flightline

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Drawing Title	
Incidental Sparrowhawk Observations	
Project Title	
Lissinagroagh Wind Farm	
Drawn By	Checked By
ZOC	AOD
Project No.	Drawing No.
200217-e	Fig. 5.6
Scale	Date
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APPENDIX 2

SURVEY DATA



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Table 1 Vantage Point Survey Effort

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
02/04/2021	Vantage Point Survey	VP1	6:30 starting at 14:40	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	GP, BZ, SN	RV
09/04/2021	Vantage Point Survey	VP2	6:30 starting at 14:55	Visibility: good; Wind speed and direction: moderate breeze N; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Male HH	RV
22/04/2021	Vantage Point Survey	VP3	6:30 starting at 15:15	Visibility: good; Wind speed and direction: light breeze E-SE; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Male HH, BZ	RV
24/04/2021	Vantage Point Survey	VP4	6:30 starting at 15:20	Visibility: good; Wind speed and direction: gentle breeze E; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	2 maps, busy day	RV
21/05/2021	Vantage Point Survey	VP1	6:30 starting at 04:15	Visibility: poor; Wind speed and direction: moderate breeze N; Cloud cover and height: 3% 150-500m; Rain: none; Frost: none; Snow: none	SH and BZ, regular showers	RV
23/05/2021	Vantage Point Survey	VP2	6:30 starting at 04:10	Visibility: poor; Wind speed and direction: moderate breeze S; Cloud cover and height: 3% 150-500m; Rain: light showers; Frost: none; Snow: none	Poor conditions, male HH seen carrying nest material.	RV
24/05/2021	Vantage Point Survey	VP3	6:30 starting at 04:10	Visibility: good; Wind speed and direction: light breeze W-NW; Cloud cover and height: 1% >500m; Rain: none; Frost: none; Snow: none	SN,HH and BZ all seen	RV
28/05/2021	Vantage Point Survey	VP4	6:30 starting at 04:05	Visibility: good; Wind speed and direction: light breeze N-NW; Cloud cover and height: 3% 150-500m; Rain: drizzle; Frost: none; Snow: none	Male HH seen, Fox, Hare and cuckoos also.	RV
13/06/2021	Vantage Point Survey	VP3	6:30 starting at 11:35	Visibility: good; Wind speed and direction: moderate breeze S-SW; Cloud cover and height: 2% >500m; Rain: none; Frost: none; Snow: none	3 fires lit E of VP, HH briefly	RV
14/06/2021	Vantage Point Survey	VP1	6:30 starting at 05:45	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 3% 150-500m; Rain: none; Frost: none; Snow: none	Male HH seen 3 times	RV
16/06/2021	Vantage Point Survey	VP2	6:30 starting at 05:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	Snipe, hen harrier pair seen	RV
21/06/2021	Vantage Point Survey	VP4	6:30 starting at 05:30	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 1% >500m; Rain: none; Frost: none; Snow: none	HH and BZ seen	RV
02/07/2021	Vantage Point Survey	VP1	3:00 starting at 11:30	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
02/07/2021	Vantage Point Survey	VP1	3:00 starting at 15:00	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
08/07/2021	Vantage Point Survey	VP2	3:00 starting at 17:30	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
09/07/2021	Vantage Point Survey	VP2	3:00 starting at 13:00	Visibility: poor; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
16/07/2021	Vantage Point Survey	VP3	3:00 starting at 13:30	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
20/07/2021	Vantage Point Survey	VP3	3:00 starting at 08:00	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
21/07/2021	Vantage Point Survey	VP4	3:00 starting at 11:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
21/07/2021	Vantage Point Survey	VP4	3:00 starting at 14:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
11/08/2021	Vantage Point Survey	VP3	3:00 starting at 12:58	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none	A bright day, with a moderate to gentle breeze. A male and brief view of a female Hen Harrier were seen a hood distance away below the VP, alongside a Kestrel foraging at close quarters and two LBB Gull's travelling near the lower lough.	LD
11/08/2021	Vantage Point Survey	VP3	3:00 starting at 16:28	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none		LD
16/08/2021	Vantage Point Survey	VP4	2:00 starting at 07:20	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	Light rain or drizzle at times, but plenty of activity this morning, including a female Hen Harrier seen on three occasions, and at least one, if not two Buzzards. See VP flight for more details.	LD
16/08/2021	Vantage Point Survey	VP4	1:00 starting at 09:20	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		LD

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
16/08/2021	Vantage Point Survey	VP4	1:00 starting at 10:50	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		LD
16/08/2021	Vantage Point Survey	VP4	2:00 starting at 11:50	Visibility: good; Wind speed and direction: fresh breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		LD
25/08/2021	Vantage Point Survey	VP1	3:00 starting at 11:40	Visibility: good; Wind speed and direction: moderate breeze NE; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none	A warm, sunny day on the elevated VP, but very quiet with few birds seen in flight. A Great Spotted Woodpecker was however, heard calling from conifers.	LD
25/08/2021	Vantage Point Survey	VP1	3:00 starting at 15:10	Visibility: good; Wind speed and direction: gentle breeze NE; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none		LD
26/08/2021	Vantage Point Survey	VP2	3:00 starting at 12:20	Visibility: good; Wind speed and direction: gentle breeze NE; Cloud cover and height: 0-33% 150-500m; Rain: none; Frost: none; Snow: none	A calm and very warm day again down in Leitrim, with a female hen Harrier and three fledged juvenile's in flight. Buzzard heard calling and seen hunting too.	LD
26/08/2021	Vantage Point Survey	VP2	3:00 starting at 15:50	Visibility: good; Wind speed and direction: light breeze NE; Cloud cover and height: 0-33% 150-500m; Rain: none; Frost: none; Snow: none		LD
01/09/2021	Vantage Point Survey	VP2	3:00 starting at 15:15	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
01/09/2021	Vantage Point Survey	VP2	2:00 starting at 19:25	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
02/09/2021	Vantage Point Survey	VP3	3:00 starting at 15:50	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
02/09/2021	Vantage Point Survey	VP3	2:00 starting at 19:20	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
03/09/2021	Vantage Point Survey	VP2	1:00 starting at 17:00	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
03/09/2021	Vantage Point Survey	VP4	2:00 starting at 19:20	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD



Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
09/09/2021	Vantage Point Survey	VP1	3:00 starting at 14:30	Visibility: moderate; Wind speed and direction: light air S; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
09/09/2021	Vantage Point Survey	VP1	3:00 starting at 18:00	Visibility: moderate; Wind speed and direction: light breeze S; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
13/09/2021	Vantage Point Survey	VP3	1:00 starting at 14:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		AOD
13/09/2021	Vantage Point Survey	VP4	3:00 starting at 16:00	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		AOD
13/09/2021	Vantage Point Survey	VP4	1:00 starting at 19:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		AOD

Table 2 Breeding Walkover Survey Effort

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
02/04/2021	Breeding Walkover Survey	500m buffer	6:00 starting at 11:45	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
06/04/2021	Breeding Walkover Survey	500m buffer	6:00 starting at 09:00	Visibility: good; Wind speed and direction: fresh breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: falling		AOD
07/04/2021	Breeding Walkover Survey	500m buffer	6:00 starting at 09:30	Visibility: moderate; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		AOD
08/04/2021	Breeding Walkover Survey	500m buffer	6:00 starting at 11:30	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 66-100% 150-500m; Rain: heavy showers; Frost: none; Snow: none		AOD
06/05/2021	Breeding Walkover Survey	500m buffer	3:00 starting at 12:00	Visibility: good; Wind speed and direction: fresh breeze NW; Cloud cover and height: 33-66% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD
06/05/2021	Breeding Walkover Survey	500m buffer	3:00 starting at 16:00	Visibility: good; Wind speed and direction: fresh breeze NW; Cloud cover and height: 33-66% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD
10/05/2021	Breeding Walkover Survey	500m buffer	3:00 starting at 14:45	Visibility: moderate; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none		AOD
10/05/2021	Breeding Walkover Survey	500m buffer	2:00 starting at 17:45	Visibility: moderate; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none		AOD
11/05/2021	Breeding Walkover Survey	500m buffer	4:00 starting at 14:30	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
12/05/2021	Breeding Walkover Survey	500m buffer	5:00 starting at 15:30	Visibility: good; Wind speed and direction: light air W; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none		AOD
17/05/2021	Breeding Walkover Survey	500m buffer	4:00 starting at 15:00	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
02/06/2021	Breeding Walkover Survey	500m Buffer	2:00 starting at 15:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD
02/06/2021	Breeding Walkover Survey	500m Buffer	2:00 starting at 17:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD



Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
04/06/2021	Breeding Walkover Survey	500m Buffer	2:30 starting at 18:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
08/06/2021	Breeding Walkover Survey	500m Buffer	3:00 starting at 14:00	Visibility: good; Wind speed and direction: light air W; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD
08/06/2021	Breeding Walkover Survey	500m Buffer	3:00 starting at 17:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
14/06/2021	Breeding Walkover Survey	500m Buffer	1:00 starting at 15:00	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
14/06/2021	Breeding Walkover Survey	500m Buffer	4:00 starting at 17:00	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
15/06/2021	Breeding Walkover Survey	500m Buffer	4:00 starting at 15:00	Visibility: moderate; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% <150m; Rain: heavy showers; Frost: none; Snow: none		AOD
16/06/2021	Breeding Walkover Survey	500m Buffer	3:00 starting at 17:00	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		AOD
08/07/2021	Breeding Walkover Survey	500m buffer	3:00 starting at 14:00	Visibility: moderate; Wind speed and direction: light breeze S; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
09/07/2021	Breeding Walkover Survey	500m buffer	2:00 starting at 16:00	Visibility: poor; Wind speed and direction: light breeze E; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
13/07/2021	Breeding Walkover Survey	500m buffer	6:00 starting at 13:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
14/07/2021	Breeding Walkover Survey	500m buffer	6:00 starting at 12:15	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none		AOD
15/07/2021	Breeding Walkover Survey	500m buffer	4:00 starting at 13:00	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
16/07/2021	Breeding Walkover Survey	500m buffer	3:00 starting at 16:30	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD



Table 3 Breeding Raptor Survey Effort

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
09/04/2021	Breeding Raptor Survey	BRVP1	3:00 starting at 10:50	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none	HH pair, skydancing	RV
12/04/2021	Breeding Raptor Survey	BRVP10	3:00 starting at 14:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	SH, BZ	RV
12/04/2021	Breeding Raptor Survey	BRVP2	3:00 starting at 07:30	Visibility: poor; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	Male HH	RV
12/04/2021	Breeding Raptor Survey	BRVP6	3:00 starting at 11:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	BZ	RV
20/04/2021	Breeding Raptor Survey	BR_HHVP4	3:00 starting at 08:05	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	SH, BZ I used the HHVP4 as a breeding VP as it gave a good view over a wide area where I thought I would see the comings and goings of Buzzard, Harriers etc.	RV
20/04/2021	Breeding Raptor Survey	BRVP9	2:10 starting at 15:05	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Chipping SN	RV
20/04/2021	Breeding Raptor Survey	T1	3:00 starting at 11:35	Visibility: poor; Wind speed and direction: moderate breeze N-NE; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none	Increasing Rain. It was just one transect, I included a map of it where I broke down the locations for all sightings, including meadow pipits.	RV
28/04/2021	Breeding Raptor Survey	BRVP1	6:30 starting at 13:10	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Imm and ad Male HH	RV
28/04/2021	Breeding Raptor Survey	5KM Wider Area Survey	3:00 starting at 09:30	Visibility: good; Wind speed and direction: gentle breeze N-NE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		RV
29/04/2021	Breeding Raptor Survey	BRVP2	6:45 starting at 08:45	Visibility: good; Wind speed and direction: gentle breeze N-NE; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Male and Female HH	RV

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
29/04/2021	Breeding Raptor Survey	5KM Wider Area Survey	3:00 starting at 16:15	Visibility: moderate; Wind speed and direction: gentle breeze N-NE; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	Some heavy showers	RV
17/05/2021	Breeding Raptor Survey	BRVP1	3:00 starting at 13:45	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	Male and female HH	RV
17/05/2021	Breeding Raptor Survey	BRVP5	3:00 starting at 17:15	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 2% >500m; Rain: none; Frost: none; Snow: none	RG, heavy shower towards end	RV
21/05/2021	Breeding Raptor Survey	Thur MT	3:00 starting at 11:15	Visibility: good; Wind speed and direction: moderate breeze N; Cloud cover and height: 3% 150-500m; Rain: light showers; Frost: none; Snow: none	HH, ML and 2 BZ seen	RV
23/05/2021	Breeding Raptor Survey	Wider area	3:00 starting at 11:20	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 2% >500m; Rain: drizzle; Frost: none; Snow: none	SE of site.	RV
25/05/2021	Breeding Raptor Survey	Wider area	3:00 starting at 10:15	Visibility: good; Wind speed and direction: light breeze N-NW; Cloud cover and height: 2% >500m; Rain: drizzle; Frost: none; Snow: none	NE of site, male HH seen	RV
25/05/2021	Breeding Raptor Survey	Nest 2	6:30 starting at 14:00	Visibility: good; Wind speed and direction: moderate breeze N-NW; Cloud cover and height: 2% >500m; Rain: none; Frost: none; Snow: none	Male and female HH seen, no fixed nest location found	RV
28/05/2021	Breeding Raptor Survey	Wider area	3:00 starting at 11:10	Visibility: good; Wind speed and direction: light air W; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	BZ, male and female HH at nest 1	RV
30/05/2021	Breeding Raptor Survey	Nest 1	6:30 starting at 05:20	Visibility: good; Wind speed and direction: light breeze S-SE; Cloud cover and height: 1% >500m; Rain: none; Frost: none; Snow: none	Male HH seen, preening by nest for long period	RV
30/05/2021	Breeding Raptor Survey	Nest 2	3:00 starting at 12:20	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 2% >500m; Rain: none; Frost: none; Snow: none	Walked 2020 nest valley searched from various Vps	RV
31/05/2021	Breeding Raptor Survey	Nest 2	3:00 starting at 08:20	Visibility: good; Wind speed and direction: moderate breeze SE; Cloud cover and height: 2% >500m; Rain: none; Frost: none; Snow: none	RG latrine found, no HH sightings	RV
13/06/2021	Breeding Raptor Survey	BRVP5	3:00 starting at 08:05	Visibility: good; Wind speed and direction: moderate breeze S-SW; Cloud cover and height: 1% >500m; Rain: none; Frost: none; Snow: none	Snipe displaying	RV
13/06/2021	Breeding Raptor Survey	RVP5	3:00 starting at 08:05	Visibility: good; Wind speed and direction: moderate breeze S-SW; Cloud cover and height: 1% >500m; Rain: none; Frost: none; Snow: none	Snipe displaying	RV
14/06/2021	Breeding Raptor Survey	Thur Mt.	3:00 starting at 12:45	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	Snipe displaying	RV

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
16/06/2021	Breeding Raptor Survey	Wider area	3:00 starting at 12:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	Buzzard	RV
21/06/2021	Breeding Raptor Survey	Wider area	3:00 starting at 12:30	Visibility: good; Wind speed and direction: moderate breeze N; Cloud cover and height: 2% >500m; Rain: none; Frost: none; Snow: none	HH pair at nest 1, SH with prey	RV
24/06/2021	Breeding Raptor Survey	Wider area	3:00 starting at 06:00	Visibility: good; Wind speed and direction: light breeze W-SW; Cloud cover and height: 3% 150-500m; Rain: none; Frost: none; Snow: none	Gull search around town	RV
24/06/2021	Breeding Raptor Survey	VP3/RVP5 area	3:00 starting at 09:30	Visibility: poor; Wind speed and direction: gentle breeze W-NW; Cloud cover and height: 3% 150-500m; Rain: light showers; Frost: none; Snow: none	Miserable conditions	RV
24/06/2021	Breeding Raptor Survey	RVP1	3:00 starting at 13:00	Visibility: moderate; Wind speed and direction: gentle breeze W-NW; Cloud cover and height: 3% 150-500m; Rain: heavy showers; Frost: none; Snow: none	Miserable conditions	RV
28/06/2021	Breeding Raptor Survey	Nest1	6:30 starting at 05:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	Male HH delivered food during break	RV
28/06/2021	Breeding Raptor Survey	Transect	3:00 starting at 12:00	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 3% 150-500m; Rain: drizzle; Frost: none; Snow: none	Walked around nest 2 area	RV
29/06/2021	Breeding Raptor Survey	Nest 2	6:30 starting at 07:45	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 3% >500m; Rain: none; Frost: none; Snow: none	Overlooked nest 2 valley	RV
21/07/2021	Breeding Raptor Survey	Nest 2	6:30 starting at 05:45	Visibility: good; Wind speed and direction: light breeze E-NE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	SH and Female HH seen	RV
21/07/2021	Breeding Raptor Survey	Nest 2	3:00 starting at 12:55	Visibility: good; Wind speed and direction: light breeze E-NE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	SH and Pine Marten seen	RV
23/07/2021	Breeding Raptor Survey	Nest 1	6:30 starting at 05:30	Visibility: good; Wind speed and direction: light breeze E-SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Male and Female HH on site.	RV
23/07/2021	Breeding Raptor Survey	Nest 1 area	3:00 starting at 12:30	Visibility: good; Wind speed and direction: light breeze E-SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Female HH seen twice	RV
29/07/2021	Breeding Raptor Survey	Nest 3	3:00 starting at 05:45	Visibility: good; Wind speed and direction: gentle breeze W-NW; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	Juv HH seen twice	RV
29/07/2021	Breeding Raptor Survey	RVP5	2:00 starting at 09:15	Visibility: good; Wind speed and direction: gentle breeze W-NW; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	Male HH seen distantly near nest 3	RV
29/07/2021	Breeding Raptor Survey	Nest 1	2:30 starting at 11:20	Visibility: good; Wind speed and direction: gentle breeze W-NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	Male and Female HH on site.	RV

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
29/07/2021	Breeding Raptor Survey	Nest 3	2:00 starting at 14:10	Visibility: good; Wind speed and direction: gentle breeze W-NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	Male and Female seen, 1+ juvenile heard,	RV
03/08/2021	Breeding Raptor Survey	Nest 3	0:30 starting at 06:15	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	2 Juveniles flying around nest area	RV
03/08/2021	Breeding Raptor Survey	Nest 1	5:20 starting at 07:00	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	Male and Female HH on site.	RV
03/08/2021	Breeding Raptor Survey	Nest 3	4:30 starting at 12:35	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	Male, Female and 2 Juveniles seen	RV
16/08/2021	Breeding Raptor Survey	HHBVP1	1:00 starting at 15:00	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
16/08/2021	Breeding Raptor Survey	HHBVP2	2:00 starting at 16:00	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD
18/08/2021	Breeding Raptor Survey	HHBVP1	3:00 starting at 13:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		AOD
18/08/2021	Breeding Raptor Survey	HHBVP2	3:00 starting at 16:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		AOD
19/08/2021	Breeding Raptor Survey	HHBVP1	3:00 starting at 09:30	Visibility: moderate; Wind speed and direction: light air W; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD

Table 4 Breeding Woodcock Survey Effort

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
12/05/2021	Breeding Woodcock Survey	2km buffer	2:00 starting at 20:30	Visibility: good; Wind speed and direction: light air W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
13/05/2021	Breeding Woodcock Survey	2km buffer	2:00 starting at 20:30	Visibility: good; Wind speed and direction: light air SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
04/06/2021	Breeding Woodcock Survey	2km Buffer	2:00 starting at 20:30	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
08/06/2021	Breeding Woodcock Survey	2km Buffer	2:00 starting at 20:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
14/06/2021	Breeding Woodcock Survey	2km Buffer	2:00 starting at 21:05	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
16/06/2021	Breeding Woodcock Survey	2km Buffer	2:00 starting at 21:05	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none		AOD

Table 5 Vantage Point Survey Data

Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-10m)	Band 2 (10-25m)	Band 3 (25-175m)	Band 4 (>175m)	Habitat and activity	Surveyor
GP016	VP01	02/04/2021	15:02	Golden Plover	22	143	0	55	88	0	upland blanket bog; flying, calling and circling	RV
GP017	VP01	02/04/2021	15:29	Golden Plover	22	63	0	0	63	0	upland blanket bog; flying, calling and circling	RV
BZ137	VP01	02/04/2021	15:52	Buzzard	1	216	0	45	171	0	improved agricultural grassland; circling, circling	RV
BZ138	VP01	02/04/2021	16:21	Buzzard	1	18	0	18	0	0	improved agricultural grassland; flying, flying, landed, flying	RV
GP018	VP01	02/04/2021	19:05	Golden Plover	75	1260	0	575	685	0	upland blanket bog; flying, circling and calling	RV
GP019	VP01	02/04/2021	19:32	Golden Plover	75	435	0	85	350	0	upland blanket bog; flying, circling and calling	RV
BZ139	VP01	02/04/2021	16:21	Buzzard	1	-	-	-	-	-	improved agricultural grassland and eroding/upland rivers; perched, 1440 s, landed in tree over stream	RV
MP001	VP1	02/04/2021		Meadow Pipit	8	-	-	-	-	-	upland blanket bog; displaying and singing within 100 metres of VP, most sighting close to VP	RV
SN023	VP01	02/04/2021	18:08	Snipe	1	7	7	0	0	0	upland blanket bog; flying, flushed on walk to VP	RV
MP002	VP2	09/04/2021		Meadow Pipit	7	-	-	-	-	-	raised bog; displaying and singing within 100 metres of vp, most sighting close to vp	RV
SN024	VP02	09/04/2021	20:58	Snipe	1	9	0	0	9	0	upland blanket bog; flying, flying	RV
BZ140	VP03	22/04/2021	15:57	Buzzard	2	524	0	0	524	0	upland blanket bog; circling, circling, adult and immature, immature flew low across site from 1605	RV
BZ141	VP03	22/04/2021	16:55	Buzzard	1	420	0	0	420	0	upland blanket bog; circling, circling	RV
BZ142	VP03	22/04/2021	19:24	Buzzard	1	240	0	240	0	0	upland blanket bog and conifer plantation; hunting, hunting	RV
MP003	VP3	22/04/2021		Meadow Pipit	7	-	-	-	-	-	raised bog; displaying and singing within 100 metres of vp, most sighting close to vp	RV
BZ143	VP04	24/04/2021	16:09	Buzzard	1	580	0	0	580	0	conifer plantation; hunting, hunting, lost when hen harrier arrived	RV
LB019	VP04	24/04/2021	18:56	Lesser Black-backed Gull	4	51	0	0	51	0	upland blanket bog and conifer plantation; flying, flying	RV

Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-10m)	Band 2 (10-25m)	Band 3 (25-175m)	Band 4 (>175m)	Habitat and activity	Surveyor
BZ144	VP04	24/04/2021	19:11	Buzzard	1	375	0	0	375	0	improved agricultural grassland and conifer plantation; hunting, hunting and circling	RV
MP004	VP4	24/04/2021		Meadow Pipit	7	-	-	-	-	-	raised bog and conifer plantation; displaying and singing within 100 metres of vp, most sighting close to vp	RV
SH031	VP1	21/05/2021	08:34	Sparrowhawk	1	19	0	19	0	0	conifer plantation and scrub; circling, male circling stream and flew down hill	RV
SH032	VP1	21/05/2021	09:57	Sparrowhawk	1	26	0	26	0	0	conifer plantation; circling, male circling quickly low over plantation	RV
BZ145	VP1	21/05/2021	10:21	Buzzard	1	17	5	12	0	0	conifer plantation and semi-natural grassland; flying, flew from plantation out of view along road	RV
MP005	VP1	21/05/2021	04:15	Meadow Pipit	7	-	-	-	-	-	upland blanket bog; 4 pairs close to vp, singing and displaying	RV
MP006	VP2	23/05/2021	04:10	Meadow Pipit	13	-	-	-	-	-	upland blanket bog and scrub; 5 pairs close to vp, another mobbing hen harrier, singing and displaying	RV
SN025	VP2	23/05/2021	08:42	Snipe	1	-	-	-	-	-	upland blanket bog; displaying, heard not seen	RV
BZ146	VP3	24/05/2021	09:46	Buzzard	1	134	0	44	90	0	cutover bog; circling, circling along plantation edge	RV
MP007	VP3	24/05/2021	04:10	Meadow Pipit	11	-	-	-	-	-	upland blanket bog; 5 pairs close to vp, singing and displaying	RV
SN026	VP3	24/05/2021	04:24	Snipe	1	5	0	5	0	0	upland blanket bog; displaying, displaying, silhouetted briefly over vp	RV
SN027	VP3	24/05/2021	05:06	Snipe	1	10	0	10	0	0	upland blanket bog; displaying, displaying, flew over and landed, also heard 05:11, 05:19, 06:25, 06:29 but not seen.	RV
SN028	VP3	24/05/2021	04:20	Snipe	1	-	-	-	-	-	upland blanket bog; displaying, heard not seen	RV
MP008	VP4	28/05/2021	04:05	Meadow Pipit	6	-	-	-	-	-	conifer plantation, scrub and semi-natural grassland; at least 4 pairs close to vp, singing and displaying	RV
MP009	3	13/06/2021	11:35	Meadow Pipit	4	-	-	-	-	-	upland blanket bog; 4 pairs close to vp, singing and displaying	RV
MP010	1	14/06/2021	05:45	Meadow Pipit	9	-	-	-	-	-	upland blanket bog; 4-5 pairs close to vp, singing and displaying- not mapped	RV

Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-10m)	Band 2 (10-25m)	Band 3 (25-175m)	Band 4 (>175m)	Habitat and activity	Surveyor
MP011	2	16/06/2021	05:30	Meadow Pipit	8	-	-	-	-	-	upland blanket bog; 4 pairs close to vp, singing and displaying	RV
SN029	VP2	16/06/2021	05:45	Snipe	1	-	-	-	-	-	present	RV
BZ147	VP4	21/06/2021	09:14	Buzzard	1	14		14			semi-natural grassland and scrub; flying, flew across rough area behind vp	RV
BZ148	VP4	21/06/2021	11:20	Buzzard	1	149		15	134		conifer plantation and semi-natural grassland; circling, circling and hovering	RV
MP012	4	21/06/2021	05:30	Meadow Pipit	5	-	-	-	-	-	conifer plantation, scrub and semi-natural grassland; 5 birds singing and displaying close to vp, singing and displaying	RV
BZ149	VP1	02/07/2021	13:40	Buzzard	1	70	0	70	0	0	conifer plantation; travelling	AOD
BZ150	VP1	02/07/2021	13:20	Buzzard	2	280	0	100	180	0	improved agricultural grassland; soaring	AOD
MP013	VP2	09/07/2021	14:21	Meadow Pipit	12	-	-	-	-	-	wet grassland; fly/display, across area high count	AOD
BZ151	VP2	09/07/2021	15:34	Buzzard	1	-	-	-	-	-	conifer plantation; call, call unseen	AOD
SH033	VP3	16/07/2021	15:45	Sparrowhawk	1	190	0	0	90	100	conifer plantation and montane heath; soaring, female soaring from site. mobbed by sand martin	AOD
MP014	VP3	16/07/2021	14:12	Meadow Pipit	7	-	-	-	-	-	montane heath; fly	AOD
K.053	VP3	20/07/2021	08:38	Kestrel	1	200	0	150	50	0	conifer plantation; foraging/perched, juvenile bird. foraging flying perch to perch	AOD
BZ152	VP3	20/07/2021	09:41	Buzzard	1	80	0	0	80	0	conifer plantation; soaring, soaring	AOD
BZ153	VP4	21/07/2021	13:50	Buzzard	1	360	0	100	100	160	conifer plantation; soaring, soaring	AOD
BZ154	VP4	21/07/2021	17:00	Buzzard	1	90	0	0	90	0	conifer plantation and montane heath; soaring/calling, adult soaring and calling	AOD
SI001	VP4	21/07/2021	16:35	Swift	2	-	-	-	-	-	conifer plantation; feeding, over site at pch and above	AOD
K.054	VP3	11/08/2021	14:28	Kestrel	1	380	380	-	-	-	wet grassland and dry siliceous heath; hunting and travelling, female kestrel seen hunting over the moor, which flew in and hovered very close to the vp.	LD
K.055	VP3	11/08/2021	14:58	Kestrel	1	50	50	-	-	-	wet grassland and dry siliceous heath; hunting and travelling, kestrel hunting again over the moor, flying west out of view.	LD
LB020	VP3	11/08/2021	18:20	Lesser Black-backed Gull	2	28	3	25	-	-	wet grassland, conifer plantation and lakes and ponds; travelling, two lesser black-	LD

Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-10m)	Band 2 (10-25m)	Band 3 (25-175m)	Band 4 (>175m)	Habitat and activity	Surveyor
											backed gull's flying along way off, heading towards the lough.	
MP015	VP3	11/08/2021	18:30	Meadow Pipit	4	10	10	-	-	-	wet grassland, dry siliceous heath and lakes and ponds; travelling, pipit's on site.	LD
BZ155	VP4	16/08/2021	08:08	Buzzard	1	34	4	30			wet grassland and conifer plantation; hunting and travelling, buzzard seen hunting and travelling behind the vp.	LD
BZ156	VP4	16/08/2021	10:12	Buzzard	1	50	2	48			wet grassland and conifer plantation; hunting, probable second buzzard hunting high, and further afield to the north.	LD
GL001	VP4	16/08/2021	10:29	Grey Wagtail	1	15	15				wet grassland, conifer plantation and lakes and ponds; travelling, grey wag travelling in flight.	LD
MP016	VP3	16/08/2021	12:00	Meadow Pipit	4	10	10	-	-	-	wet grassland, and lakes and ponds; travelling, pipit's on site.	LD
MP017	VP1	25/08/2021	16:00	Meadow Pipit	4	10	10	-	-	-	wet grassland, and lakes and ponds; travelling, pipit's on site.	LD
BZ157	VP2	26/08/2021	13:49	Buzzard	1	64	6	58			wet grassland and conifer plantation; hunting, buzzard seen hunting around the edge of farmland and forestry.	LD
MP018	VP1	26/08/2021		Meadow Pipit	4	10	10	-	-	-	wet grassland; travelling, pipit's on site.	LD
BZ158	VP2	26/08/2021	13:47	Buzzard	1	-	-	-	-	-	wet grassland and conifer plantation; calling, buzzard heard calling from farmland and conifers.	LD
BZ159	VP2	26/08/2021	13:48	Buzzard	1	-	-	-	-	-	wet grassland and conifer plantation; calling, buzzard heard calling from farmland and conifers.	LD
MP019	VP2	01/09/2021	16:25	Meadow Pipit	28	-	-	-	-	-	montane heath; fly, flock max	AOD
MP020	VP3	02/09/2021	18:38	Meadow Pipit	10	-	-	-	-	-	montane heath; fly, max flock	AOD
RG052	VP3	02/09/2021	20:37	Red Grouse	1	-	-	-	-	-	montane heath; call, call unseen	AOD
SN030	VP3	02/09/2021	21:15	Snipe	2	5	5	0	0	0	montane heath; fly, 2 flew over	AOD
RG053	VP3	02/09/2021	21:11	Red Grouse	2	-	-	-	-	-	montane heath; call, call	AOD
SH034	VP1	09/09/2021	17:03	Sparrowhawk	1	15	0	15	0	0	conifer plantation; flying, immature male	AOD

Table 6 Breeding Walkover Survey Data

Ref.	Date	Time	Transect	Species	Number	Habitat and activity	Surveyor
MP123	02/04/2021	12:16		Meadow Pipit	5	montane heath; f (distraction display; confirmed breeding)	AOD
BZ028	02/04/2021	12:34		Buzzard	1	montane heath and conifer plantation; f, soaring over site (flyover; non-breeding)	AOD
LB010	02/04/2021	12:22		Lesser Black-backed Gull	1	montane heath; f, adult flying over (flyover; non-breeding)	AOD
MP124	02/04/2021	13:20		Meadow Pipit	6	montane heath; f (flyover; non-breeding)	AOD
MP125	02/04/2021	13:21		Meadow Pipit	2	montane heath; f (flyover; non-breeding)	AOD
LB011	02/04/2021	13:49		Lesser Black-backed Gull	2	conifer plantation; f, adult pair travelling low (flyover; non-breeding)	AOD
BZ029	02/04/2021	15:28		Buzzard	3	montane heath and conifer plantation; f, 3 soaring one bird displaying (distraction display; confirmed breeding)	AOD
MP126	02/04/2021	15:29		Meadow Pipit	4	montane heath; f (flyover; non-breeding)	AOD
MP127	02/04/2021	15:46		Meadow Pipit	2	montane heath; d (courtship and display; probable breeding)	AOD
MP128	02/04/2021	16:30		Meadow Pipit	2	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP129	02/04/2021	16:31		Meadow Pipit	1	montane heath; f (courtship and display; probable breeding)	AOD
MP130	06/04/2021	09:49		Meadow Pipit	2	upland blanket bog; f (suitable nesting habitat; possible breeder)	AOD
MP131	06/04/2021	09:57		Meadow Pipit	1	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP132	06/04/2021	10:06		Meadow Pipit	1	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP133	06/04/2021	10:48		Meadow Pipit	3	montane heath; f (suitable nesting habitat; possible breeder)	AOD
SH018	06/04/2021	11:08		Sparrowhawk	1	conifer plantation; f, female quick flight (suitable nesting habitat; possible breeder)	AOD
K010	06/04/2021	11:48		Kestrel	1	conifer plantation; f, hovering over.no age/sex (suitable nesting habitat; possible breeder)	AOD
MP134	06/04/2021	12:29		Meadow Pipit	4	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP135	06/04/2021	12:29		Meadow Pipit	3	montane heath; f, spread across area (suitable nesting habitat; possible breeder)	AOD
BZ030	06/04/2021	13:06		Buzzard	1	conifer plantation; r, perched then flew (suitable nesting habitat; possible breeder)	AOD
ML002	06/04/2021	13:59		Merlin	1	conifer plantation; flying, male in flight high on wind. rare for site. flew west (suitable nesting habitat; possible breeder)	AOD
MP136	06/04/2021	14:00		Meadow Pipit	1	conifer plantation; f (suitable nesting habitat; possible breeder)	AOD
MP137	07/04/2021	10:48		Meadow Pipit	7	montane heath; f, across area (suitable nesting habitat; possible breeder)	AOD
MP138	07/04/2021	10:49		Meadow Pipit	9	montane heath; f, across area (suitable nesting habitat; possible breeder)	AOD
MP139	07/04/2021	10:50		Meadow Pipit	4	montane heath; f, across area (suitable nesting habitat; possible breeder)	AOD
MP140	07/04/2021	11:03		Meadow Pipit	2	montane heath; f (suitable nesting habitat; possible breeder)	AOD

Ref.	Date	Time	Transect	Species	Number	Habitat and activity	Surveyor
MP141	07/04/2021	11:42		Meadow Pipit	4	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP142	07/04/2021	11:42		Meadow Pipit	3	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP143	07/04/2021	11:42		Meadow Pipit	2	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP144	07/04/2021	12:57		Meadow Pipit	6	wet grassland; f, across area (suitable nesting habitat; possible breeder)	AOD
LB012	07/04/2021	13:03		Lesser Black-backed Gull	2	wet grassland; r, two adults perched in sheep field (flyover; non-breeding)	AOD
BZ031	07/04/2021	13:09		Buzzard	1	conifer plantation; f, soaring and calling several mins. (suitable nesting habitat; possible breeder)	AOD
MP145	07/04/2021	13:10		Meadow Pipit	5	wet grassland; f, across area (suitable nesting habitat; possible breeder)	AOD
BZ032	08/04/2021	11:42		Buzzard	2	conifer plantation; display, pair display flight/calling near 2020 nest site (courtship and display; probable breeding)	AOD
GL009	08/04/2021	13:28		Grey Wagtail	2	wet grassland; f, pair (suitable nesting habitat; possible breeder)	AOD
MP146	08/04/2021	13:54		Meadow Pipit	5	wet grassland; f, across area (suitable nesting habitat; possible breeder)	AOD
RN003	08/04/2021	14:16		Raven	26	wet grassland; f, large flock on dead sheep (suitable nesting habitat; possible breeder)	AOD
MP147	08/04/2021	14:17		Meadow Pipit	3	wet grassland; f (suitable nesting habitat; possible breeder)	AOD
BZ033	08/04/2021	14:17		Buzzard	1	mixed broadleaved/conifer woodland and wet grassland; f, mobbed by raven (suitable nesting habitat; possible breeder)	AOD
LB013	08/04/2021	14:56		Lesser Black-backed Gull	2	wet grassland; f, 2 immature flying over (flyover; non-breeding)	AOD
MP148	08/04/2021	14:57		Meadow Pipit	1	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP149	08/04/2021	17:43		Meadow Pipit	3	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP150	08/04/2021	17:43		Meadow Pipit	1	montane heath; d (courtship and display; probable breeding)	AOD
MA001	10/05/2021	16:14		Mallard	1	conifer plantation and upland blanket bog; on nest flushed, female on eggs in heather in forestry (nest with eggs; confirmed breeding)	AOD
SH019	11/05/2021	15:15		Sparrowhawk	1	conifer plantation and upland blanket bog; flew, male flew from suitable nest area.no nest found (suitable nesting habitat; possible breeder)	AOD
RG008	11/05/2021	16:32		Red Grouse	1	upland blanket bog; call, call (suitable nesting habitat; possible breeder)	AOD
MP151	12/05/2021	17:05		Meadow Pipit	7	wet grassland; fly, across area (suitable nesting habitat; possible breeder)	AOD
LB014	12/05/2021	17:13		Lesser Black-backed Gull	1	conifer plantation; flying over, adult (flyover; non-breeding)	AOD
MP152	12/05/2021	17:18		Meadow Pipit	3	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
MP153	17/05/2021	15:54		Meadow Pipit	4	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
GL010	17/05/2021	16:26		Grey Wagtail	2	wet grassland; feeding (adult carrying food/faecal sac; confirmed breeding)	AOD

Ref.	Date	Time	Transect	Species	Number	Habitat and activity	Surveyor
MP154	17/05/2021	16:34		Meadow Pipit	2	wet grassland; fly (adult carrying food/faecal sac; confirmed breeding)	AOD
SH020	06/05/2021	13:41		Sparrowhawk	1	upland blanket bog; foraging, female foraging (suitable nesting habitat; possible breeder)	AOD
MP155	06/05/2021	13:42		Meadow Pipit	8	upland blanket bog; fly, across area (suitable nesting habitat; possible breeder)	AOD
MP156	06/05/2021	14:43		Meadow Pipit	6	upland blanket bog; fly, across area (suitable nesting habitat; possible breeder)	AOD
MP157	06/05/2021	15:45		Meadow Pipit	6	wet grassland and conifer plantation; fly (suitable nesting habitat; possible breeder)	AOD
MP158	10/05/2021	15:14		Meadow Pipit	8	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP159	10/05/2021	15:15		Meadow Pipit	6	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP160	11/05/2021	16:16		Meadow Pipit	8	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP161	11/05/2021	16:22		Meadow Pipit	4	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
LB015	11/05/2021	17:06		Lesser Black-backed Gull	1	conifer plantation; fly, adult (flyover; non-breeding)	AOD
MP162	17/05/2021	18:33		Meadow Pipit	5	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP163	02/06/2021	18:16		Meadow Pipit	7	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
MP164	02/06/2021	17:56		Meadow Pipit	6	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
MP165	02/06/2021	17:17		Meadow Pipit	5	wet grassland; fly (courtship and display; probable breeding)	AOD
LB016	08/06/2021	20:11		Lesser Black-backed Gull	2	conifer plantation; flying, adults flying over (flyover; non-breeding)	AOD
BZ034	08/06/2021	20:28		Buzzard	1	conifer plantation; flying, soaring low over wd4 (suitable nesting habitat; possible breeder)	AOD
BZ035	14/06/2021	16:14		Buzzard	1	wet grassland; flying, flying low (suitable nesting habitat; possible breeder)	AOD
SN014	14/06/2021	20:32		Snipe	1	conifer plantation and cutover bog; drumming, drumming (courtship and display; probable breeding)	AOD
MP166	15/06/2021	17:25		Meadow Pipit	4	wet grassland; fly, across area (suitable nesting habitat; possible breeder)	AOD
MP167	15/06/2021	17:26		Meadow Pipit	3	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
MP168	16/06/2021	17:23		Meadow Pipit	4	montane heath; fly (courtship and display; probable breeding)	AOD
MP169	16/06/2021	19:58		Meadow Pipit	10	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP170	04/06/2021	18:11		Meadow Pipit	3	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP171	08/06/2021	17:31		Meadow Pipit	9	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP172	02/06/2021	18:32		Meadow Pipit	10	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
MP173	16/06/2021	17:33		Meadow Pipit	10	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
RG009	08/06/2021	17:34		Red Grouse	1	montane heath; flushed, flushed (suitable nesting habitat; possible breeder)	AOD

Ref.	Date	Time	Transect	Species	Number	Habitat and activity	Surveyor
SH021	21/07/2021	13:04		Sparrowhawk	1	eroding/upland rivers, conifer plantation and recently-felled woodland; circling, male singing, circling 13:04 ()	RV
MP174	21/07/2021	12:55		Meadow Pipit	10	upland blanket bog and scrub; displaying and feeding at 6 locations, rough numbers and locations mapped (agitated behaviour; probable breeding)	RV
MP175	23/07/2021	15:00		Meadow Pipit	3	semi-natural grassland; feeding, 3 feeding along roadside ()	RV
SN015	08/07/2021	17:12		Snipe	1	conifer plantation; fly, fly over high (suitable nesting habitat; possible breeder)	AOD
MP176	08/07/2021	17:13		Meadow Pipit	6	conifer plantation; fly (suitable nesting habitat; possible breeder)	AOD
WH003	08/07/2021	17:13		Whitethroat	3	wet grassland; fly, wheatears inc fledglings (fledged young; confirmed breeding)	AOD
BZ036	13/07/2021	15:12		Buzzard	1	conifer plantation; flying, flying low over wd4 (suitable nesting habitat; possible breeder)	AOD
SN016	13/07/2021	15:51		Snipe	1	montane heath; call, calling unseen (suitable nesting habitat; possible breeder)	AOD
RG010	13/07/2021	17:10		Red Grouse	1	montane heath; call, call unseen (suitable nesting habitat; possible breeder)	AOD
SI001	13/07/2021	17:12		Swift	3	conifer plantation; foraging, feeding high (flyover; non-breeding)	AOD
MP177	13/07/2021	16:13		Meadow Pipit	7	montane heath; f (suitable nesting habitat; possible breeder)	AOD
MP178	13/07/2021	17:13		Meadow Pipit	6	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
H.001	13/07/2021	17:28		Grey Heron	1	conifer plantation; flying over, adult travelling high (flyover; non-breeding)	AOD
SH022	14/07/2021	13:49		Sparrowhawk	2	conifer plantation and scrub; carrying prey/juv, male flew in with prey. fledgling flew from 2020 nest area to follow male ne. (fledged young; confirmed breeding)	AOD
MP179	14/07/2021	15:29		Meadow Pipit	8	montane heath; fly/display (courtship and display; probable breeding)	AOD
MP180	14/07/2021	15:30		Meadow Pipit	4	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
GB001	15/07/2021	13:56		Great Black-backed Gull	1	montane heath; fly, adult flying over (flyover; non-breeding)	AOD
MP181	15/07/2021	14:44		Meadow Pipit	8	montane heath; fly (courtship and display; probable breeding)	AOD
MP182	15/07/2021	16:43		Meadow Pipit	3	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
MP183	16/07/2021	16:43		Meadow Pipit	3	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
BZ037	16/07/2021	16:46		Buzzard	1	improved agricultural grassland and conifer plantation; soaring, soaring (suitable nesting habitat; possible breeder)	AOD
MP184	16/07/2021	17:36		Meadow Pipit	4	montane heath; fly (suitable nesting habitat; possible breeder)	AOD

Table 7 Breeding Raptor Survey Data

Ref.	BR	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
BZ106	BRVP1	09/04/2021	12:22	Buzzard	2	upland blanket bog and conifer plantation, circling, pair circling behind hen harrier	pair; probable breeding	RV
BZ107	BRVP6	12/04/2021	11:43	Buzzard	1	improved agricultural grassland, flying, flew across field	suitable nesting habitat; possible breeder	RV
SH028	BRVP10	12/04/2021	14:58	Sparrowhawk	1	scrub and improved agricultural grassland, preening and hunting, preening then chased meadow pipit	suitable nesting habitat; possible breeder	RV
BZ108	BRVP10	12/04/2021	15:55	Buzzard	1	improved agricultural grassland and conifer plantation, flying, flew across field	suitable nesting habitat; possible breeder	RV
BZ109	BRVP10	12/04/2021	16:45	Buzzard	2	improved agricultural grassland and conifer plantation, circling, pair circling together	pair; probable breeding	RV
SH029	BRVP10	12/04/2021	14:58	Sparrowhawk	1	scrub, male preening, in tree preening 1200s		RV
SH030	BRHHVP4	20/04/2021	10:54	Sparrowhawk	1	improved agricultural grassland and scrub, flying, flying across field	suitable nesting habitat; possible breeder	RV
BZ110	BRHHVP4	20/04/2021	11:02	Buzzard	1	scrub, calling, calling from plantation	suitable nesting habitat; possible breeder	RV
BZ111	BRHHVP4	20/04/2021	11:02	Buzzard	1	conifer plantation, heard, heard calling		RV
BZ112	BRHHN2	29/04/2021	10:45	Buzzard	2	conifer plantation, circling, adult and immature	permanent territory; probable breeding	RV
SH031	BRHHN2	29/04/2021	15:24	Sparrowhawk	1	conifer plantation and scrub, flying, male flew over	suitable nesting habitat; possible breeder	RV
ML001		21/05/2021	11:36	Merlin	1	upland blanket bog and conifer plantation, flying, male chasing 2 hooded crow		RV
BZ113		21/05/2021	12:10	Buzzard	2	upland blanket bog and conifer plantation, circling, 2 buzzard circling together		RV
BZ114		21/05/2021	14:04	Buzzard	2	upland blanket bog and conifer plantation, circling, 2 buzzard circling together		RV
BZ115		28/05/2021	11:55	Buzzard	1	semi-natural grassland and conifer plantation, flying, buzzard flew from tree to plantation		RV
BZ116	BRVP	16/06/2021	15:14	Buzzard	1	scrub, hunting, hunting over scrub		RV
SH032	BRVP	21/06/2021	13:32	Sparrowhawk	1	conifer plantation, with prey, male circling with prey		RV

Ref.	BR	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
SH033	BRVP	28/06/2021	00:00	Sparrowhawk	1	scrub, flying, female low along road		RV
SH034	BRHH2	21/07/2021	07:11	Sparrowhawk	1	conifer plantation, circling, circling north of vp lissinagroagh	permanent territory; probable breeding	RV
BZ117	BRHH1	23/07/2021	10:58	Buzzard	1	conifer plantation and semi-natural grassland, circling, circling high up distantly	permanent territory; probable breeding	RV

Table 8 Breeding Woodcock Survey Data

Ref.	Transect	Date	Time	Species	Number	Habitat and activity	Surveyor
WK027	1	12/05/2021	21:56	Woodcock	1	conifer plantation, roding, roding	AOD
WK028	2	13/05/2021	21:55	Woodcock	1	conifer plantation, roding	AOD
WK029	2	13/05/2021	22:02	Woodcock	1	conifer plantation, roding	AOD
WK030	2	13/05/2021	22:12	Woodcock	1	conifer plantation, roding	AOD
WK031	2	13/05/2021	22:18	Woodcock	1	conifer plantation, roding	AOD
WK032	1	04/06/2021	22:10	Woodcock	1	conifer plantation, roding, heard, unseen	AOD
WK033	1	04/06/2021	22:41	Woodcock	1	conifer plantation, roding	AOD
WK034	1	04/06/2021	22:48	Woodcock	1	conifer plantation, roding	AOD
WK035	2	08/06/2021	21:41	Woodcock	1	conifer plantation, roding, heard, unseen	AOD
WK036	1	14/06/2021	22:41	Woodcock	1	conifer plantation, roding, roding	AOD
WK037	2	16/06/2021	22:48	Woodcock	1	conifer plantation, roding, roding	AOD

Table 9 Incidental Survey Data

Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
MP007	Breeding Raptor Survey; T1	20/04/2021	11:00	Meadow Pipit	36	improved agricultural grassland and upland blanket bog; feeding along transect route, rough numbers and locations mapped	RV
GL001	Breeding Raptor Survey; T2	20/04/2021	12:15	Grey Wagtail	2	eroding/upland rivers; pair on stream, male singing	RV
RG011	Breeding Raptor Survey; T4	20/04/2021	14:10	Red Grouse	1	upland blanket bog; flushed, male flushed	RV
SN040	Breeding Raptor Survey; RVP9	20/04/2021	15:58	Snipe	1	improved agricultural grassland; chipping, heard chipping	RV
SN041	Breeding Raptor Survey; T3	20/04/2021	13:45	Snipe	1	upland blanket bog; flushed, flushed from trackside ditch	RV
HARE011	Breeding Walkover Survey; BOLEYBOY	12/05/2021	17:16	Hare	1	conifer plantation; feeding	AOD
RED DEER002	Breeding Walkover Survey; LISDARUSH	12/05/2021	17:17	Red Deer	2	conifer plantation; f	AOD
RG012	Breeding Woodcock Survey; SADDLE HILL	12/05/2021	21:57	Red Grouse	1	montane heath; call, calling	AOD
RG013	Breeding Woodcock Survey; KILLEA	12/05/2021	22:22	Red Grouse	2	montane heath; call, call	AOD
SN042	Breeding Woodcock Survey; KILLEA	12/05/2021	22:15	Snipe	1	conifer plantation; flying over a conifer plantation 1km from the site, at , drumming	AOD
SN043	Breeding Woodcock Survey; killea	12/05/2021	22:22	Snipe	1	montane heath; drumming	AOD
BZ014	Breeding Raptor Survey;	17/05/2021	13:31	Buzzard		semi-natural grassland; flying	RV
RG014	Breeding Raptor Survey; BRVP5	17/05/2021	19:10	Red Grouse	1	upland blanket bog; displaying, male heard then seen a few mins later	RV
LB029	Breeding Raptor Survey; BRVP1	17/05/2021	14:42	Lesser Black-backed Gull	3	upland blanket bog and semi-natural grassland; circling, 3 circling high over wide area	RV
SN044	Breeding Raptor Survey;	13/06/2021	09:07	Snipe	1	upland blanket bog; displaying, displayed several times, seen once	RV
SN045	Breeding Raptor Survey;	13/06/2021	08:37	Snipe	1	upland blanket bog;	RV
SN046	Breeding Raptor Survey;	14/06/2021	15:17	Snipe	1	upland blanket bog; displaying, displayed several times, seen once	RV
BZ015	Breeding Raptor Survey; G 90142 43093	23/07/2021	15:40	Buzzard	1	semi-natural grassland and conifer plantation; circling, circling along plantation edge	RV
K003	Breeding Raptor Survey; RVP1	29/07/2021	13:53	Kestrel	1	semi-natural grassland; hunting, hunting along roadside	RV
SH009	Breeding Raptor Survey; G 90142 45414	29/07/2021	08:49	Sparrowhawk	1	semi-natural grassland; with prey, flew over with prey	RV
GREAT SPOTTED WOODPECKER005	Vantage Point Survey; VP1	25/08/2021	17:10	Great Spotted Woodpecker	1	conifer plantation; calling, a great spotted woodpecker was heard calling from conifers below the vp, but not seen. approximate grid ref: 9280 4211.	LD



Table 10 Non-target Species

Date	Survey	Species	Notes	Surveyor
02/04/2021	Vantage Point Survey, VP1	Skylark	9, displaying and singing	RV
02/04/2021	Vantage Point Survey, VP1	Sand Martin	11	RV
02/04/2021	Vantage Point Survey, VP1	Hooded Crow	4	RV
02/04/2021	Vantage Point Survey, VP1	Raven	13, roost flock	RV
02/04/2021	Vantage Point Survey, VP1	Magpie	2	RV
02/04/2021	Vantage Point Survey, VP1	Barn Swallow	2	RV
02/04/2021	Vantage Point Survey, VP1	Blackbird	2	RV
02/04/2021	Vantage Point Survey, VP1	Mistle Thrush	2	RV
02/04/2021	Vantage Point Survey, VP1	Woodpigeon	3	RV
02/04/2021	Vantage Point Survey, VP1	Chaffinch	7	RV
02/04/2021	Vantage Point Survey, VP1	Reed Bunting	2	RV
09/04/2021	Vantage Point Survey, VP2	Sand Martin	2	RV
09/04/2021	Vantage Point Survey, VP2	Skylark	6, displaying	RV
09/04/2021	Vantage Point Survey, VP2	Mistle Thrush	2	RV
09/04/2021	Vantage Point Survey, VP2	Blackbird	2	RV
09/04/2021	Vantage Point Survey, VP2	Wren	2	RV
09/04/2021	Vantage Point Survey, VP2	Woodpigeon	3	RV
09/04/2021	Vantage Point Survey, VP2	Raven	18, roost flock	RV
09/04/2021	Vantage Point Survey, VP2	Magpie	2	RV
09/04/2021	Vantage Point Survey, VP2	Hooded Crow	3	RV
09/04/2021	Vantage Point Survey, VP2	Chaffinch	7	RV
22/04/2021	Vantage Point Survey, VP3	Cuckoo	2 males singing	RV
22/04/2021	Vantage Point Survey, VP3	Woodpigeon	7	RV
22/04/2021	Vantage Point Survey, VP3	Blue Tit	2	RV
22/04/2021	Vantage Point Survey, VP3	Great Tit	4	RV
22/04/2021	Vantage Point Survey, VP3	Robin	3	RV
22/04/2021	Vantage Point Survey, VP3	Wren	3	RV
22/04/2021	Vantage Point Survey, VP3	Song Thrush	3	RV
22/04/2021	Vantage Point Survey, VP3	Blackbird	3	RV
22/04/2021	Vantage Point Survey, VP3	Mistle Thrush	2	RV
22/04/2021	Vantage Point Survey, VP3	Skylark	3 singing	RV

Date	Survey	Species	Notes	Surveyor
22/04/2021	Vantage Point Survey, VP3	Lesser Redpoll	2 flyovers	RV
22/04/2021	Vantage Point Survey, VP3	Siskin	6 flyovers	RV
22/04/2021	Vantage Point Survey, VP3	Hooded Crow	3	RV
22/04/2021	Vantage Point Survey, VP3	Raven	3	RV
22/04/2021	Vantage Point Survey, VP3	Magpie	2 flyovers	RV
22/04/2021	Vantage Point Survey, VP3	Willow Warbler	3 singing	RV
22/04/2021	Vantage Point Survey, VP3	Whitethroat	1 singing	RV
22/04/2021	Vantage Point Survey, VP3	Chiffchaff	2 singing	RV
24/04/2021	Vantage Point Survey, VP4	Cuckoo	2, pair	RV
24/04/2021	Vantage Point Survey, VP4	Woodpigeon	8	RV
24/04/2021	Vantage Point Survey, VP4	Hooded Crow	3	RV
24/04/2021	Vantage Point Survey, VP4	Blackbird	2	RV
24/04/2021	Vantage Point Survey, VP4	Song Thrush	3	RV
24/04/2021	Vantage Point Survey, VP4	Siskin	7	RV
24/04/2021	Vantage Point Survey, VP4	Lesser Redpoll	3, flyovers	RV
24/04/2021	Vantage Point Survey, VP4	Chaffinch	8	RV
24/04/2021	Vantage Point Survey, VP4	Coal Tit	3 singing	RV
24/04/2021	Vantage Point Survey, VP4	Blue Tit	3 singing	RV
24/04/2021	Vantage Point Survey, VP4	Great Tit	2	RV
24/04/2021	Vantage Point Survey, VP4	Magpie	2	RV
24/04/2021	Vantage Point Survey, VP4	Grasshopper Warbler	4, reeling around sunset	RV
24/04/2021	Vantage Point Survey, VP4	Willow Warbler	6, singing	RV
24/04/2021	Vantage Point Survey, VP4	Chiffchaff	2 singing	RV
24/04/2021	Vantage Point Survey, VP4	Blackcap	3 singing	RV
21/05/2021	Vantage Point Survey, VP1	Skylark	6 singing and displaying	RV
21/05/2021	Vantage Point Survey, VP1	Magpie	3	RV
21/05/2021	Vantage Point Survey, VP1	Hooded Crow	3	RV
21/05/2021	Vantage Point Survey, VP1	Raven	12, mostly at dawn leaving roost	RV
21/05/2021	Vantage Point Survey, VP1	Jay	2	RV
21/05/2021	Vantage Point Survey, VP1	Mistle Thrush	2	RV
21/05/2021	Vantage Point Survey, VP1	Blackbird	2	RV

Date	Survey	Species	Notes	Surveyor
21/05/2021	Vantage Point Survey, VP1	Song Thrush	1	RV
21/05/2021	Vantage Point Survey, VP1	Reed Bunting	2 pair	RV
21/05/2021	Vantage Point Survey, VP1	Siskin	3	RV
21/05/2021	Vantage Point Survey, VP1	Lesser Redpoll	1, flyover	RV
21/05/2021	Vantage Point Survey, VP1	Chaffinch	8, mostly flyovers	RV
21/05/2021	Vantage Point Survey, VP1	Coal Tit	2	RV
21/05/2021	Vantage Point Survey, VP1	Woodpigeon	7	RV
21/05/2021	Vantage Point Survey, VP1	Wren	4	RV
21/05/2021	Vantage Point Survey, VP1	Duncock	2	RV
21/05/2021	Vantage Point Survey, VP1	Barn Swallow	3	RV
21/05/2021	Vantage Point Survey, VP1	Sand Martin	4	RV
21/05/2021	Vantage Point Survey, VP1	Goldcrest	3	RV
23/05/2021	Vantage Point Survey, VP2	Skylark	6 singing and displaying	RV
23/05/2021	Vantage Point Survey, VP2	Wren	3	RV
23/05/2021	Vantage Point Survey, VP2	Raven	6	RV
23/05/2021	Vantage Point Survey, VP2	Hooded Crow	3	RV
23/05/2021	Vantage Point Survey, VP2	Magpie	4	RV
23/05/2021	Vantage Point Survey, VP2	Mistle Thrush	2 pair	RV
23/05/2021	Vantage Point Survey, VP2	Song Thrush	2	RV
23/05/2021	Vantage Point Survey, VP2	Blackbird	1	RV
23/05/2021	Vantage Point Survey, VP2	Siskin	2	RV
23/05/2021	Vantage Point Survey, VP2	Lesser Redpoll	2 pair	RV
23/05/2021	Vantage Point Survey, VP2	Chaffinch	7	RV
23/05/2021	Vantage Point Survey, VP2	Woodpigeon	8, mostly flyovers	RV
23/05/2021	Vantage Point Survey, VP2	Collared Dove	2 flybys	RV
23/05/2021	Vantage Point Survey, VP2	Duncock	2	RV
23/05/2021	Vantage Point Survey, VP2	Blackcap	2 singing	RV
23/05/2021	Vantage Point Survey, VP2	Goldcrest	4	RV
23/05/2021	Vantage Point Survey, VP2	Chiffchaff	1 singing	RV
23/05/2021	Vantage Point Survey, VP2	Coal Tit	6	RV
24/05/2021	Vantage Point Survey, VP3	Cuckoo	2singing males	RV

Date	Survey	Species	Notes	Surveyor
24/05/2021	Vantage Point Survey, VP3	Willow Warbler	3 singing	RV
24/05/2021	Vantage Point Survey, VP3	Blackcap	2 singing	RV
24/05/2021	Vantage Point Survey, VP3	Coal Tit	3	RV
24/05/2021	Vantage Point Survey, VP3	Blue Tit	1	RV
24/05/2021	Vantage Point Survey, VP3	Skylark	7 singing and displaying	RV
24/05/2021	Vantage Point Survey, VP3	Mistle Thrush	2 pair	RV
24/05/2021	Vantage Point Survey, VP3	Song Thrush	2 singing	RV
24/05/2021	Vantage Point Survey, VP3	Blackbird	3	RV
24/05/2021	Vantage Point Survey, VP3	Robin	2 singing	RV
24/05/2021	Vantage Point Survey, VP3	Wren	6 singing	RV
24/05/2021	Vantage Point Survey, VP3	Siskin	3	RV
24/05/2021	Vantage Point Survey, VP3	Lesser Redpoll	2 flyovers	RV
24/05/2021	Vantage Point Survey, VP3	Raven	3	RV
24/05/2021	Vantage Point Survey, VP3	Hooded Crow	4	RV
24/05/2021	Vantage Point Survey, VP3	Magpie	2	RV
28/05/2021	Vantage Point Survey, VP4	Blackbird	6	RV
28/05/2021	Vantage Point Survey, VP4	Song Thrush	2	RV
28/05/2021	Vantage Point Survey, VP4	Mistle Thrush	2	RV
28/05/2021	Vantage Point Survey, VP4	Cuckoo	3, 2 male and 1 female	RV
28/05/2021	Vantage Point Survey, VP4	Robin	5	RV
28/05/2021	Vantage Point Survey, VP4	Wren	3	RV
28/05/2021	Vantage Point Survey, VP4	Grasshopper Warbler	1 singing	RV
28/05/2021	Vantage Point Survey, VP4	Willow Warbler	3 singing	RV
28/05/2021	Vantage Point Survey, VP4	Chiffchaff	1 singing	RV
28/05/2021	Vantage Point Survey, VP4	Blackcap	2singing	RV
28/05/2021	Vantage Point Survey, VP4	Goldcrest	3	RV
28/05/2021	Vantage Point Survey, VP4	Chaffinch	8	RV
28/05/2021	Vantage Point Survey, VP4	Siskin	4 flyovers	RV
28/05/2021	Vantage Point Survey, VP4	Barn Swallow	4	RV
28/05/2021	Vantage Point Survey, VP4	Sand Martin	2	RV
28/05/2021	Vantage Point Survey, VP4	Pheasant	1 male heard	RV

Date	Survey	Species	Notes	Surveyor
28/05/2021	Vantage Point Survey, VP4	Starling	7	RV
28/05/2021	Vantage Point Survey, VP4	Woodpigeon	6	RV
28/05/2021	Vantage Point Survey, VP4	Collared Dove	2 flybys	RV
28/05/2021	Vantage Point Survey, VP4	Hooded Crow	3	RV
28/05/2021	Vantage Point Survey, VP4	Magpie	4	RV
28/05/2021	Vantage Point Survey, VP4	Raven	2	RV
28/05/2021	Vantage Point Survey, VP4	Great Tit	3	RV
28/05/2021	Vantage Point Survey, VP4	Coal Tit	6	RV
28/05/2021	Vantage Point Survey, VP4	Blue Tit	2	RV
13/06/2021	Vantage Point Survey, VP3	Skylark	6	RV
13/06/2021	Vantage Point Survey, VP3	Cuckoo	1 singing briefly	RV
13/06/2021	Vantage Point Survey, VP3	Woodpigeon	3	RV
13/06/2021	Vantage Point Survey, VP3	Raven	2 pair	RV
13/06/2021	Vantage Point Survey, VP3	Hooded Crow	3	RV
13/06/2021	Vantage Point Survey, VP3	Magpie	2	RV
13/06/2021	Vantage Point Survey, VP3	Mistle Thrush	2 pair	RV
13/06/2021	Vantage Point Survey, VP3	Blackbird	2 singing	RV
13/06/2021	Vantage Point Survey, VP3	Siskin	3 flyovers	RV
13/06/2021	Vantage Point Survey, VP3	Lesser Redpoll	2 flyovers, singing	RV
13/06/2021	Vantage Point Survey, VP3	Coal Tit	4 singing	RV
13/06/2021	Vantage Point Survey, VP3	Blue Tit	2	RV
13/06/2021	Vantage Point Survey, VP3	Song Thrush	1 singing	RV
13/06/2021	Vantage Point Survey, VP3	Wren	3 singing	RV
13/06/2021	Vantage Point Survey, VP3	Dunnock	1 singing	RV
13/06/2021	Vantage Point Survey, VP3	Chaffinch	3	RV
13/06/2021	Vantage Point Survey, VP3	Willow Warbler	2 singing	RV
13/06/2021	Vantage Point Survey, VP3	Barn Swallow	2 flyovers	RV
13/06/2021	Vantage Point Survey, VP3	Stonechat	2 pair	RV
14/06/2021	Vantage Point Survey, VP1	Skylark	8 displaying and singing	RV
14/06/2021	Vantage Point Survey, VP1	Hooded Crow	3	RV
14/06/2021	Vantage Point Survey, VP1	Raven	4	RV

Date	Survey	Species	Notes	Surveyor
14/06/2021	Vantage Point Survey, VP1	Magpie	3	RV
14/06/2021	Vantage Point Survey, VP1	Starling	12	RV
14/06/2021	Vantage Point Survey, VP1	Jay	1	RV
14/06/2021	Vantage Point Survey, VP1	Jackdaw	3	RV
14/06/2021	Vantage Point Survey, VP1	Robin	1	RV
14/06/2021	Vantage Point Survey, VP1	Blackbird	3	RV
14/06/2021	Vantage Point Survey, VP1	Song Thrush	1	RV
14/06/2021	Vantage Point Survey, VP1	Barn Swallow	2	RV
14/06/2021	Vantage Point Survey, VP1	Sand Martin	10 around colony	RV
14/06/2021	Vantage Point Survey, VP1	Woodpigeon	3	RV
14/06/2021	Vantage Point Survey, VP1	Siskin	4	RV
14/06/2021	Vantage Point Survey, VP1	Lesser Redpoll	2	RV
14/06/2021	Vantage Point Survey, VP1	Chaffinch	3	RV
14/06/2021	Vantage Point Survey, VP1	Stonechat	2 pair	RV
14/06/2021	Vantage Point Survey, VP1	Reed Bunting	1 male	RV
16/06/2021	Vantage Point Survey, VP2	Raven	7	RV
16/06/2021	Vantage Point Survey, VP2	Hooded Crow	4	RV
16/06/2021	Vantage Point Survey, VP2	Magpie	3	RV
16/06/2021	Vantage Point Survey, VP2	Blackcap	3 singing	RV
16/06/2021	Vantage Point Survey, VP2	Goldcrest	2 singing	RV
16/06/2021	Vantage Point Survey, VP2	Blackbird	3	RV
16/06/2021	Vantage Point Survey, VP2	Mistle Thrush	2 pair	RV
16/06/2021	Vantage Point Survey, VP2	Song Thrush	2	RV
16/06/2021	Vantage Point Survey, VP2	Skylark	7 singing and displaying	RV
16/06/2021	Vantage Point Survey, VP2	Sand Martin	7	RV
16/06/2021	Vantage Point Survey, VP2	Crossbill	13 flyover flock	RV
16/06/2021	Vantage Point Survey, VP2	Barn Swallow	3	RV
16/06/2021	Vantage Point Survey, VP2	Chiffchaff	1 singing	RV
16/06/2021	Vantage Point Survey, VP2	Willow Warbler	3 singing	RV
16/06/2021	Vantage Point Survey, VP2	Coal Tit	4	RV
16/06/2021	Vantage Point Survey, VP2	Woodpigeon	6	RV

Date	Survey	Species	Notes	Surveyor
16/06/2021	Vantage Point Survey, VP2	Feral Pigeon	3 white pigeons flew over	RV
16/06/2021	Vantage Point Survey, VP2	Siskin	3	RV
16/06/2021	Vantage Point Survey, VP2	Chaffinch	3	RV
21/06/2021	Vantage Point Survey, VP4	Woodpigeon	3	RV
21/06/2021	Vantage Point Survey, VP4	Feral Pigeon	2	RV
21/06/2021	Vantage Point Survey, VP4	Magpie	2	RV
21/06/2021	Vantage Point Survey, VP4	Raven	4	RV
21/06/2021	Vantage Point Survey, VP4	Hooded Crow	6	RV
21/06/2021	Vantage Point Survey, VP4	Jay	2	RV
21/06/2021	Vantage Point Survey, VP4	Starling	23 in one flock	RV
21/06/2021	Vantage Point Survey, VP4	Grasshopper Warbler	2 singing	RV
21/06/2021	Vantage Point Survey, VP4	Chiffchaff	3 singing	RV
21/06/2021	Vantage Point Survey, VP4	Willow Warbler	6 singing and feeding	RV
21/06/2021	Vantage Point Survey, VP4	Blackcap	4 singing	RV
21/06/2021	Vantage Point Survey, VP4	Goldcrest	5	RV
21/06/2021	Vantage Point Survey, VP4	Coal Tit	3	RV
21/06/2021	Vantage Point Survey, VP4	Great Tit	2	RV
21/06/2021	Vantage Point Survey, VP4	Bullfinch	2	RV
21/06/2021	Vantage Point Survey, VP4	Chaffinch	7	RV
21/06/2021	Vantage Point Survey, VP4	Siskin	4	RV
21/06/2021	Vantage Point Survey, VP4	Lesser Redpoll	4	RV
21/06/2021	Vantage Point Survey, VP4	Goldfinch	3	RV
21/06/2021	Vantage Point Survey, VP4	Mistle Thrush	2 pair	RV
21/06/2021	Vantage Point Survey, VP4	Blackbird	2 singing	RV
21/06/2021	Vantage Point Survey, VP4	Song Thrush	3singing	RV
21/06/2021	Vantage Point Survey, VP4	Barn Swallow	7	RV
21/06/2021	Vantage Point Survey, VP4	House Martin	2	RV
21/06/2021	Vantage Point Survey, VP4	Wren	3 singing	RV
21/06/2021	Vantage Point Survey, VP4	Dunnock	3 singing	RV
21/06/2021	Vantage Point Survey, VP4	Cuckoo	4, 1 female and 3 males	RV
21/06/2021	Vantage Point Survey, VP4	Pheasant	1 male heard distantly	RV



Date	Survey	Species	Notes	Surveyor
02/07/2021	Vantage Point Survey, VP1	Mistle Thrush		AOD
02/07/2021	Vantage Point Survey, VP1	Raven		AOD
02/07/2021	Vantage Point Survey, VP1	Skylark		AOD
02/07/2021	Vantage Point Survey, VP1	Sand Martin		AOD
02/07/2021	Vantage Point Survey, VP1	Barn Swallow		AOD
08/07/2021	Vantage Point Survey, VP2	Sand Martin		AOD
08/07/2021	Vantage Point Survey, VP2	Skylark		AOD
08/07/2021	Vantage Point Survey, VP2	Raven	12 at roost	AOD
08/07/2021	Vantage Point Survey, VP2	Hooded Crow		AOD
09/07/2021	Vantage Point Survey, VP2	Sand Martin		AOD
09/07/2021	Vantage Point Survey, VP2	Barn Swallow		AOD
09/07/2021	Vantage Point Survey, VP2	Raven		AOD
16/07/2021	Vantage Point Survey, VP3	Barn Swallow		AOD
16/07/2021	Vantage Point Survey, VP3	Sand Martin		AOD
16/07/2021	Vantage Point Survey, VP3	Skylark		AOD
16/07/2021	Vantage Point Survey, VP3	Stonechat		AOD
16/07/2021	Vantage Point Survey, VP3	Pied Wagtail		AOD
20/07/2021	Vantage Point Survey, VP3	Stonechat		AOD
20/07/2021	Vantage Point Survey, VP3	Magpie		AOD
20/07/2021	Vantage Point Survey, VP3	Woodpigeon		AOD
20/07/2021	Vantage Point Survey, VP3	Raven		AOD
21/07/2021	Vantage Point Survey, VP4	Blackcap		AOD
21/07/2021	Vantage Point Survey, VP4	Willow Warbler		AOD
21/07/2021	Vantage Point Survey, VP4	Woodpigeon		AOD
21/07/2021	Vantage Point Survey, VP4	Jay		AOD
21/07/2021	Vantage Point Survey, VP4	Barn Swallow		AOD
21/07/2021	Vantage Point Survey, VP4	House Martin		AOD
21/07/2021	Vantage Point Survey, VP4	Song Thrush		AOD
21/07/2021	Vantage Point Survey, VP4	Blackbird		AOD
21/07/2021	Vantage Point Survey, VP4	Dunnock		AOD
11/08/2021	Vantage Point Survey, VP3	Hooded Crow		LD

Date	Survey	Species	Notes	Surveyor
11/08/2021	Vantage Point Survey, VP3	Wren		LD
11/08/2021	Vantage Point Survey, VP3	Barn Swallow		LD
11/08/2021	Vantage Point Survey, VP3	Raven		LD
11/08/2021	Vantage Point Survey, VP3	Woodpigeon		LD
11/08/2021	Vantage Point Survey, VP3	Chaffinch		LD
11/08/2021	Vantage Point Survey, VP3	Siskin		LD
11/08/2021	Vantage Point Survey, VP3	Raven		LD
11/08/2021	Vantage Point Survey, VP3	Mistle Thrush		LD
11/08/2021	Vantage Point Survey, VP3	Blackbird		LD
11/08/2021	Vantage Point Survey, VP3	Jackdaw		LD
16/08/2021	Vantage Point Survey, VP4	Chaffinch		LD
16/08/2021	Vantage Point Survey, VP4	Wren		LD
16/08/2021	Vantage Point Survey, VP4	Hooded Crow		LD
16/08/2021	Vantage Point Survey, VP4	Barn Swallow		LD
16/08/2021	Vantage Point Survey, VP4	Raven		LD
16/08/2021	Vantage Point Survey, VP4	Coal Tit		LD
16/08/2021	Vantage Point Survey, VP4	Mistle Thrush		LD
16/08/2021	Vantage Point Survey, VP4	House Martin		LD
16/08/2021	Vantage Point Survey, VP4	Reed Bunting		LD
16/08/2021	Vantage Point Survey, VP4	Blackbird		LD
16/08/2021	Vantage Point Survey, VP4	Jackdaw		LD
16/08/2021	Vantage Point Survey, VP4	Song Thrush		LD
16/08/2021	Vantage Point Survey, VP4	Woodpigeon		LD
16/08/2021	Vantage Point Survey, VP4	Magpie		LD
16/08/2021	Vantage Point Survey, VP4	Siskin		LD
16/08/2021	Vantage Point Survey, VP4	Willow Warbler		LD
25/08/2021	Vantage Point Survey, VP1	Wren		LD
25/08/2021	Vantage Point Survey, VP1	Chaffinch		LD
25/08/2021	Vantage Point Survey, VP1	Barn Swallow		LD
25/08/2021	Vantage Point Survey, VP1	Hooded Crow		LD
25/08/2021	Vantage Point Survey, VP1	Coal Tit		LD

Date	Survey	Species	Notes	Surveyor
25/08/2021	Vantage Point Survey, VP1	Robin		LD
25/08/2021	Vantage Point Survey, VP1	Raven		LD
25/08/2021	Vantage Point Survey, VP1	Jackdaw		LD
25/08/2021	Vantage Point Survey, VP1	Siskin		LD
25/08/2021	Vantage Point Survey, VP1	Linnet		LD
25/08/2021	Vantage Point Survey, VP1	Great Spotted Woodpecker		LD
25/08/2021	Vantage Point Survey, VP1	Dunnock		LD
26/08/2021	Vantage Point Survey, VP2	Robin		LD
26/08/2021	Vantage Point Survey, VP2	Wren		LD
26/08/2021	Vantage Point Survey, VP2	Barn Swallow		LD
26/08/2021	Vantage Point Survey, VP2	House Martin		LD
26/08/2021	Vantage Point Survey, VP2	Raven		LD
26/08/2021	Vantage Point Survey, VP2	Chaffinch		LD
26/08/2021	Vantage Point Survey, VP2	Coal Tit		LD
26/08/2021	Vantage Point Survey, VP2	Siskin		LD
26/08/2021	Vantage Point Survey, VP2	Woodpigeon		LD
26/08/2021	Vantage Point Survey, VP2	Mistle Thrush		LD
26/08/2021	Vantage Point Survey, VP2	Blue Tit		LD
26/08/2021	Vantage Point Survey, VP2	Hooded Crow		LD
26/08/2021	Vantage Point Survey, VP2	Jackdaw		LD
01/09/2021	Vantage Point Survey, VP2	Goldfinch		AOD
01/09/2021	Vantage Point Survey, VP2	Raven		AOD
01/09/2021	Vantage Point Survey, VP2	Sand Martin		AOD
01/09/2021	Vantage Point Survey, VP2	Pied Wagtail		AOD
01/09/2021	Vantage Point Survey, VP2	Chaffinch		AOD
01/09/2021	Vantage Point Survey, VP2	Barn Swallow		AOD
02/09/2021	Vantage Point Survey, VP3	Barn Swallow		AOD
02/09/2021	Vantage Point Survey, VP3	Sand Martin		AOD
02/09/2021	Vantage Point Survey, VP3	Lesser Redpoll		AOD
02/09/2021	Vantage Point Survey, VP3	Reed Bunting		AOD
02/09/2021	Vantage Point Survey, VP3	Raven		AOD

Date	Survey	Species	Notes	Surveyor
02/09/2021	Vantage Point Survey, VP3	Hooded Crow		AOD
02/09/2021	Vantage Point Survey, VP3	Magpie		AOD
02/09/2021	Vantage Point Survey, VP3	Starling		AOD
03/09/2021	Vantage Point Survey, VP2	Raven		AOD
03/09/2021	Vantage Point Survey, VP2	Barn Swallow		AOD
03/09/2021	Vantage Point Survey, VP2	Sand Martin		AOD
03/09/2021	Vantage Point Survey, VP2	Skylark		AOD
03/09/2021	Vantage Point Survey, VP2	House Martin		AOD
03/09/2021	Vantage Point Survey, VP4	Dunnock		AOD
03/09/2021	Vantage Point Survey, VP4	Robin		AOD
03/09/2021	Vantage Point Survey, VP4	Blackbird		AOD
03/09/2021	Vantage Point Survey, VP4	Starling		AOD
03/09/2021	Vantage Point Survey, VP4	Jay		AOD
03/09/2021	Vantage Point Survey, VP4	Song Thrush		AOD
03/09/2021	Vantage Point Survey, VP4	Goldcrest		AOD
03/09/2021	Vantage Point Survey, VP4	Barn Swallow		AOD
03/09/2021	Vantage Point Survey, VP4	House Martin		AOD
09/09/2021	Vantage Point Survey, VP1	Raven	60 plus at roost on site at vp1	AOD
09/09/2021	Vantage Point Survey, VP1	Robin		AOD
09/09/2021	Vantage Point Survey, VP1	Wren		AOD
09/09/2021	Vantage Point Survey, VP1	Woodpigeon		AOD
09/09/2021	Vantage Point Survey, VP1	Jay		AOD
09/09/2021	Vantage Point Survey, VP1	Barn Swallow		AOD
09/09/2021	Vantage Point Survey, VP1	House Martin		AOD
09/09/2021	Vantage Point Survey, VP1	Chaffinch		AOD
13/09/2021	Vantage Point Survey, VP3	Stonechat		AOD
13/09/2021	Vantage Point Survey, VP3	Raven		AOD
13/09/2021	Vantage Point Survey, VP3	Woodpigeon		AOD
13/09/2021	Vantage Point Survey, VP3	Pied Wagtail		AOD
13/09/2021	Vantage Point Survey, VP3	Robin		AOD
13/09/2021	Vantage Point Survey, VP3	Blackbird		AOD



Date	Survey	Species	Notes	Surveyor
13/09/2021	Vantage Point Survey, VP4	Dunnock		AOD
13/09/2021	Vantage Point Survey, VP4	Robin		AOD
13/09/2021	Vantage Point Survey, VP4	Goldfinch		AOD
13/09/2021	Vantage Point Survey, VP4	Blue Tit		AOD
13/09/2021	Vantage Point Survey, VP4	Song Thrush		AOD
13/09/2021	Vantage Point Survey, VP4	Hooded Crow		AOD
13/09/2021	Vantage Point Survey, VP4	Jay		AOD
13/09/2021	Vantage Point Survey, VP4	Barn Swallow		AOD



APPENDIX 3

CONFIDENTIAL SURVEY DATA