

Breeding Bird Survey Report 2022

Lissinagroagh Wind Farm,
Co. Leitrim





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1.

SUMMARY

This report outlines the ornithological surveys completed at Lissinagroagh Wind Farm during the 2022 breeding season. Lissinagroagh Wind Farm has been surveyed previously since 2018.

The following surveys were undertaken during the 2022 breeding season:

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

The key observations during surveys were relating to breeding hen harrier. This species was recorded frequently and in high numbers and are resident at the wind farm site.

Key impacts resulting from the proposed development for local avian receptors could include habitat loss, disturbance, displacement, and collision risk. There were breeding territories identified for red grouse, woodcock, snipe, and sparrowhawk at, or within 500m of, the wind farm site. There is the potential for direct habitat loss of nest sites for these species based on the 2022 breeding season surveys.

The following constraints on the Proposed Development were identified during this survey period:

- > Hen harrier nest approx. 1km off-site.

2. INTRODUCTION

MKO were appointed to carry out bird surveys at Lissinagroagh Wind Farm, Co. Leitrim for the breeding 2022. This report describes the ornithological survey methods employed and survey data collected for the period from April 2022 to September 2022 inclusive.

2.1 Background

Lissinagroagh Wind Farm has been surveyed previously since the 2018 breeding season. Please see the relevant end of season reports for full details of the survey methods and results from these survey periods. The following constraints on the Proposed Development were outlined in these reports:

- Two hen harrier nests on site in the breeding season of 2020 and 2021.

2.2 Site Description

The site is located north of Manorhamilton (Grid Ref: X 591484.00 Y 842226.00). The dominant habitat on site is forestry, upland blanket bog and rough grassland. The wider surroundings are predominantly upland blanket bog, rough grassland, forestry, and improved agricultural grassland. The total area of the development is approximately 152 hectares. Figure 1.0 shows the wind farm site boundary.

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 from April 2022 to September 2022 inclusive. Particular attention has been paid to species of conservation importance and identified target species.

The report is supported by Technical Appendix 1 which contains the raw data from the breeding bird surveys in 2022. This includes detail on survey times, weather conditions, surveyors, survey results and other additional information. Bird observations during surveys have been digitised and are provided in Technical Appendix 2. Details relating to hen harrier are provided in Confidential Appendix 3. This appendix contains ecological sensitive information and should not be publicly disseminated.

The report is structured as follows:

- An introduction describing the background and a statement of authority.
- A comprehensive description of the ornithological surveys carried out.
- A full description of results for all ornithological surveys carried out.
- A discussion providing a synopsis of the findings of the ornithological surveys.
- A conclusion describing the key findings and possible impacts on the local ornithological receptors.

3. METHODS

3.1 Scope

The study area for the purposes of ornithological surveys is the redline boundary of the wind farm site and up to a 500m radius. Depending on the survey type, the survey area may extend to 2km and 5km off the wind farm site.

The following defines terms used in this report.

- “Zones of Influence” (ZOI) for potential ornithological receptors refers to the zone within which potential effects are anticipated. ZOIs were assigned following best available guidance (SNH 2016 and McGuinness et.al 2015).
- “Potential Collision Height” (PCH) refers to the height at which birds are regarded to be at risk of collision with turbine blades. For the purposes of this report, this refers to flights between 25m and 175m high.

Field surveys were designed to monitor the target species expected to be found at the wind farm site. Target species were determined based on the habitats on-site, the species expected in the wider area, Special Protection Areas (SPAs) within the ZOI, and protected species. Target species included those listed on Annex I of the EU Birds Directive (2009/147/EC), species that are a Special Conservation Interest (SCI) of a SPA designated under the EU Habitats Directive (92/43/EEC) Natura 2000 network within 15km of the proposed development site, species listed on the Red List of Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021), and raptor species sensitive to wind farm developments.

3.2 Field Surveys

This section of the report describes the various field survey methods employed. Field surveys were undertaken from April 2022 to September 2022 inclusive. The data provided in this report is robust and in line with industry best practises, including the NatureScot (formerly Scottish Natural Heritage) guidance “Recommended bird survey methods to inform impact assessment of onshore windfarms” (SNH, 2017). Field survey methodologies have been devised to survey for the bird species composition and assemblages that occur within the study area.

3.2.1 Vantage Point Surveys

Vantage point (VP) surveys were undertaken in accordance with SNH (2017) from four vantage point locations from April 2022 to September 2022.

Data on bird observations and flight activity was collected from a scanning arc of 180° and a 2km radius by an observer at each fixed location for six hours per month. Surveys were scheduled to provide a spread over the full daylight period including at dawn and dusk to coincide with the highest peaks of bird activity.

Details on vantage point watch survey effort and results are presented in Appendix 1 of this report. This appendix includes full details of dates, times, survey locations, survey duration and weather conditions for each survey, as well as bird records. Appendix 2, Figure 1.0 shows the locations of vantage points and technical data is provided in Appendix 1. Figure 1.1 to Figure 1.9 show maps of bird observations.

Flight activity was assigned to distinct height bands. The flight bands were chosen with reference to the dimensions of likely turbine models for the site and the resulting potential collision height. Bands are split into 0-15m, 15-25m, 25m-175m and 175m+. Taking a precautionary approach, flights recorded within the 25-175m height band were considered to be at PCH.

3.2.1.1 Viewshed Analysis

Viewshed analysis was carried out to confirm the sufficiency of the chosen vantage point locations (VP1, VP2, VP3 and VP4) prior to the commencement of surveys in 2018. The viewshed analysis aims to establish whether the selected VP offers adequate coverage of the turbine layout proposed at the time of surveying. A 500m buffer was applied to the likely maximum viable area of the site for the wind energy development in line with SNH (2017) recommendations to conduct surveys to 500m from the outermost turbines. Viewsheds were calculated using Resoft Wind Farm ZTV (Zone of Theoretical Visibility) software in combination with QGIS (Version 3.22), using a notional and precautionary layer suspended at 25m, which represents the lowest swept height of the turbine blades. 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.

The viewshed analysis involved testing each VP location for its visibility coverage by creating a view shed point 1.5m in height (to represent the height of the observer) on a map using 10 metre contours terrain data. The relative height of forestry and its effects on visibility is also accounted for in the analysis. Using the ZTV software, a viewshed of 360 degrees was produced calculating an area 25m from ground level up to a two-kilometre radius. The resulting viewshed image was then cropped to 180 degrees to give the viewshed from each VP location in line with SNH (2017).

3.2.2 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 for bird species observed within the study area. The survey methodology followed an adapted version of the Brown and Shepherd method for upland sites as outlined in Gilbert et al. (1998). The study area for these surveys was the wind farm site and to a 500m survey radius.

Transect routes were devised to ensure coverage of different habitat complexes between vantage point locations within the study area. Transects were selected in order to survey all areas of suitable breeding/foraging habitat to within 100m, where access allowed. Target species included waders, raptors, waterbirds, gulls, and other birds of conservation concern. Along with target species, all additional species observed were recorded to inform the evaluation of supporting habitat.

Walkover surveys were carried out during daylight hours, during the core breeding season months of April, May, June, and July (2022), with the wind farm 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, including details of survey duration and weather condition and results are presented in Appendix 1. Figure 2.0 in Appendix 2 shows the survey area, while bird observations are shown in Figure 2.1 to Figure 2.7.

3.2.3 Breeding Raptor Surveys

Breeding raptor surveys (i.e., birds of prey) were undertaken within the study area and its immediate surroundings. The aim of these surveys was to identify occupied territories and ascertain whether breeding was successful. Methodology followed Hardey *et al.* (2013). Raptor surveys were undertaken onsite and to a 5km radius during the core breeding season period (April to August 2022). Survey effort and results are provided in Appendix 1. Bird observations are shown in Figure 3.0 to Figure 3.4.

3.2.4 Breeding Woodcock Surveys

Breeding season surveys for woodcock were undertaken in accordance with Gilbert et.al (1998). The survey area extended 500m beyond the wind farm site. All surveys were undertaken in areas of suitable breeding habitat during May and June 2022. Surveys commenced one hour before sunset and continue for an hour after sunset or until it was too dark to see. The aim of the survey was to record the presence of roding (displaying) male woodcock and thereby establish the distribution and abundance of the species in the study

area. This survey method also allowed the observer to survey for owls, i.e., barn owls and long-eared owls. Survey effort is presented in Appendix 1, including details of survey duration and weather conditions and results. Figure 4.0 in Appendix 2 shows survey area, while bird observations are shown in Figure 4.1.

3.3 **Project Team**

This report has been prepared by Andrew O'Donoghue (B.Sc.) Project Ornithologist with MKO. The field surveys were undertaken in the 2022 breeding season by Andrew O'Donoghue, Kate Bismilla and Niall McHugh all of whom are competent bird surveyors.

3.4 **Survey Limitations**

A comprehensive suite of bird surveys was undertaken at the site between April and September 2022, as detailed in this report. Results from the 2022 breeding season 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.

4. RESULTS

4.1.1 Method of Identification of Target Species

Following a comprehensive desk study by MKO, initial site visit and consultation, a list of “Target species” likely to occur at the site was compiled. The survey work carried out at the wind farm site was specifically designed to survey for these identified target species in accordance with SNH guidance (2017). The target species list was drawn from:

- > Annex I of the EU Birds Directive
- > Red listed birds on the BoCCI
- > SCIs of SPAs within the zone of likely significant effects
- > Raptor species sensitive to wind farm developments.

4.2 Field survey results

4.2.1 Introduction

The following bird species were recorded during the 2022 breeding season and observations are described in detail in subsequent sections below. The list is ordered in accordance with conservation significance: Annex I species, SCIs of SPAs, Red listed species, and raptors:

- > Hen harrier (Annex I)
- > White-tailed eagle (Annex I)
- > Golden plover (Annex I)
- > Merlin (Annex I)
- > Red grouse (BoCCI Red Listed)
- > Kestrel (BoCCI Red Listed)
- > Snipe (BoCCI Red Listed)
- > Meadow pipit (BoCCI Red Listed)
- > Swift (BoCCI Red Listed)
- > Grey wagtail (BoCCI Red Listed)
- > Sparrowhawk (Raptor)
- > Buzzard (Raptor)

The following sections describe the observations of each target species under the individual survey headings. Raw data and maps are provided in Appendix 1 and Appendix 2, respectively. Confidential Appendix 3 contains sensitive data relating to hen harrier and should not be publicly disseminated.

4.2.2 Vantage Point Survey Results

Vantage point surveys were undertaken at the site between April and September 2022 inclusive. Summary results from vantage point surveys are presented below in Table 4-1 and discussed in further detail in Section 5 of this report.

Table 4-1 Vantage Point Survey Results

Species	Total number of observations recorded during this survey type	Total Number of Bird Seconds at PCH	Number of observations on site/within 500m	Activity of note	Figure
Hen harrier	24	105	24	All observations involved adult male birds flying, hunting, and foraging. On both the 22 nd and 23 rd of June, males were observed hunting, catching and consuming prey. On the 11 th of July two males were observed foraging in the same location.	Appendix 2, Figure 1.1
Golden plover	3	370	3	In September flocks of up to 17 birds were observed in flight over site and within 500m of the site. Birds flew towards Dough Mountain area.	Appendix 2, Figure 1.2
Merlin	1	0	1	In September a single bird was observed in flight near Tawnyfeacle on site.	Appendix 2, Figure 1.3
Red grouse	1	0	1	In September a single bird was observed in flight at Killea, within 500m of the site.	Appendix 2, Figure 1.4
Woodcock	1	0	1	A single bird observed travelling at Killea in May within 500m of the site.	Appendix 2, Figure 1.5
Snipe	16	145	16	In June and July birds were observed drumming (displaying) near Killea. In July a flock of nine birds were observed calling in flight near Tawnyfeacle. Other observations involved smaller flocks or single birds in flight or calling.	Appendix 2, Figure 1.6
Kestrel	11	585	7	On the 11 th of August two recently fledged birds were observed foraging and interacting within 500m of the site at Dough Mountain. Other observations involved single adult male, female or juvenile birds foraging, hovering, or flying.	Appendix 2, Figure 1.7
Buzzard	11	1935	11	Observations included single birds or pairs soaring, travelling, or foraging in both the northern and southern sections of the site.	Appendix 2, Figure 1.8
Sparrowhawk	3	0	3	All observations involved single birds flying over, foraging, or perched. Recorded west of Killea and at Dough Mountain.	Appendix 2, Figure 1.9
Swift	1	-	1	Three birds in flight on site.	-



Species	Total number of observations recorded during this survey type	Total Number of Bird Seconds at PCH	Number of observations on site/within 500m	Activity of note	Figure
Meadow pipit	34	-	34	Recorded across the survey area. Peak flock size of 44 birds in July, average flock size of 11.	-

4.2.3 Breeding Walkover Survey Results

Breeding walkover surveys were carried out during the 2022 breeding season: April to July. Summary results from these surveys are presented below in Table 4-2 and discussed in more detail in Section 5 of this report.

Table 4-2 Breeding Walkover Survey Results

Species	Total number of observations recorded during survey type	Number of observations on site/ within 500m	Activity of note	Breeding Status	Figure
Hen harrier	13	13	<p>In April an adult pair were observed sky dancing and in display flight over the southern section of the site in vicinity of the 2019,2020 and 2021 nest sites.</p> <p>On the 20th of April an adult pair were observed in courtship flight over the 2020 and 2021 nest location in the northern section of the site. A male from the southern pair was observed flying towards the displaying pair at the same time.</p> <p>On 19th of July a nest was confirmed at [REDACTED] approx. 1km southwest of site. An adult female was observed carrying prey into nest site and alarming.</p>	Confirmed breeding.	Appendix 2, Figure 2.1
White-tailed eagle	3	1	<p>On the 20th of April an immature tagged bird was observed perched on ground within 500m of the site. It was later observed flying west off site when disturbed by surveyor. On the 7th of July an unaged/sexed bird was observed approx. 1km north of site flying towards Lough Melvin.</p>	Non-Breeding.	Appendix 2, Figure 2.2
Red grouse	2	2	<p>In April a single bird was observed at both Killea and Saddle hill, both of which were within 500m of the site boundary.</p>	Probable breeding.	Appendix 2, Figure 2.3
Snipe	5	5	<p>Birds were observed drumming on site east of Lisdarush and within 500m of site at Dough Mountain.</p>	Probable breeding	Appendix 2, Figure 2.4
Kestrel	1	1	<p>A single bird was observed foraging within 500m of the site at Dough Mountain in April.</p>	Non-breeding	Appendix 2, Figure 2.5
Sparrowhawk	6	5	<p>On the 28th of June a male was observed carrying prey in the southern section of site west of Boleyboy. On the 7th of July a female was flushed from a nest, alarm calling on site east of Saddle Hill. On</p>	Confirmed breeding.	Appendix 2, Figure 2.6



			the 14 th of July a male was observed feeding three chicks at a nest site west of Raheelin approx. 1km from site.		
Buzzard	10	10	Observations included single birds or pairs soaring, travelling, or foraging in both the northern and southern sections of the site.	Possible breeding.	Appendix 2, Figure 2.7
Swift	1	1	Single bird in flight on site.	Non-breeding.	-
Meadow pipit	32	32	Recorded across the site with a peak flock size of twelve birds in July.	Confirmed breeding.	-
Grey wagtail	3	3	Single birds recorded on site and within 500m of site.	Possible breeding.	-

4.2.4 Breeding Raptor Survey Results

Breeding Raptor surveys were carried out during the 2022 breeding season: April to August. Summary results from these surveys are presented below in Table 4-3 and discussed in more detail in Section 5 of this report.

Table 4-3 Breeding Raptor Survey Results

Species	Total number of observations recorded during survey type	Number of observations on site/within 500m	Activity of note	Breeding Status	Figure
Hen harrier	30	8	<p>On the 26th of July a female was recorded carrying prey at the nest site at [REDACTED]. On the 30th of July two adult females were observed at the nest site, one bringing prey to unseen chicks and another circling the area. Again on 2nd of August two adult females were recorded at the nest site along with a single fledgling.</p> <p>On the 3rd of August an adult female was observed bringing prey to two fledged chicks at the same nest.</p>	Confirmed breeding.	Appendix 2, Figure 3.0
White-tailed eagle	2	0	On the 27 th of May an immature bird was observed perched and in flight at Sandy Lough approx. 2km west of site.	Non-Breeding	Appendix 2, Figure 3.1
Kestrel	7	6	On the 3 rd of August two young birds were observed at Saddle Hill approx. 1km off site. A young bird was also observed foraging on the 26 th of August at Dough Mountain within 500m of site.	Confirmed breeding.	Appendix 2, Figure 3.2
Sparrowhawk	19	8	<p>On the 30th of May a displaying bird was recorded at Tawnymanus approx. 4km south of site, indicating probable breeding here.</p> <p>On the 30th of June a male was observed carrying prey at Saddle hill towards a historic nest site on site confirming breeding here.</p> <p>On the 20th of July begging calls were recorded at Thur Mountain approx. 2.5km east of site confirming breeding here.</p> <p>On the 9th of August a recently fledged young bird was observed on site west of Killea, near a historic nest site occupied in 2020 and 2021.</p> <p>On the 10th of August recently fledged young were observed in flight near the nest approx. 1km north of site confirming breeding here.</p>	Confirmed breeding.	Appendix 2, Figure 3.3
Buzzard	19	2	On the 10 th of August five birds including recently fledged young were observed circling over the southern section of the site. Other	Confirmed breeding.	Appendix 2, Figure 3.4



Species	Total number of observations recorded during survey type	Number of observations on site/within 500m	Activity of note	Breeding Status	Figure
			observations involved one or two birds flying, soaring or foraging across the survey area.		

4.2.5 Breeding Woodcock Survey Results

Breeding woodcock surveys were carried out during the 2022 breeding season: May to June. In May a single bird was observed roding on site at Tawnylust to the south of the site. In June a single bird was observed roding on site near Killea to the north of the site. Observations are mapped in Appendix 2 Figure 4.1.

4.2.6 Incidentals

Several incidental observations of target species were recorded during the survey period. The most significant of these observations are detailed in Table 4- below and discussed in further detail in Section 5 of this report.

Table 4-1 Incidental Observations

Species	Survey Type(s)	No. of Observations	Activity of note	Figure
Hen harrier	Breeding Walkover Survey	1	Single adult male foraging at Faughry in April approx. 500m for the site.	Appendix 2, Figure 5.0
Golden plover	Vantage Point Survey	1	On 11 th of August a single bird was observed calling in flight low on Dough Mountain approx. 1km from site.	Appendix 2, Figure 5.1
Woodcock	Breeding Raptor and Vantage Point Surveys	3	In May a bird was observed roding (displaying) off site at Thur Mountain approx. 3 km from site. Also, in May two birds were flushed from the track within 500m of site near Killea.	Appendix 2, Figure 5.2
Snipe	Breeding Raptor and Vantage Point Surveys	14	In May and June birds were observed drumming at Killea and Dough Mountain both within 500m of the site. Drumming birds were also recorded at Thur Mountain approx. 2km from site.	Appendix 2, Figure 5.3
Swift	Breeding Raptor Surveys	3	In June nine birds were observed feeding approx. 1km from site on Dough Mountain. Single birds were observed feeding over site also.	-
Meadow pipit	Breeding Raptor Surveys	21	Recorded across the survey area. Peak flock size of 38 birds in July.	-
Grey wagtail	Breeding Raptor Surveys	2	Single adult bird recorded foraging on site. Adult with two recently fledged young recorded approx. 1km southeast of site at Tawnylust Barr.	-

4.2.7 Target Species Breeding Status Summary

While breeding status is assigned according to the evidence obtained during individual breeding bird survey types in Tables 4-1 to 4-4 above, Table 4-5 below summarises the breeding status of target species observed during breeding season surveys (2022) at Lissinagroagh Wind Farm.

Table 4-5 Target Species Breeding Status Summary

Species	Overall breeding status
Hen harrier	Confirmed breeding - one breeding territory, which was successful and fledged at least two chicks at [REDACTED] approx. 1km southwest of the site. See Figure 6.0
White-tailed eagle	Non-breeding - Immature bird(s) present in the area.
Golden plover	Non-breeding - Birds present likely early/late wintering.
Merlin	Non-breeding - Bird recorded on migration.
Red grouse	Probable breeding - Two breeding territories identified within 500m of the site.
Woodcock	Probable breeding - Two breeding territories identified on site.
Kestrel	Confirmed breeding - The presence of recently fledged young indicates successful breeding in the wider area; however, a nest of origin was not located.
Snipe	Probable breeding - Breeding territories recorded on and off site.
Buzzard	Confirmed breeding - The presence of recently fledged young indicates successful breeding in the wider area; however, a nest of origin was not located.
Sparrowhawk	Confirmed breeding - Two confirmed nests on one off site and confirmed breeding in other areas.
Swift	Non-breeding.
Meadow pipit	Confirmed breeding.
Grey wagtail	Confirmed breeding.

5. DISCUSSION

The following section provides a synopsis of the findings of the surveys undertaken during the 2022 breeding season (April 2022 to September 2022) for each of the target species recorded.

5.1 Hen harrier

In July, a nest was confirmed approx. 1km southwest of the site at [REDACTED]. At least two chicks were confirmed successfully fledged from this nest site. This breeding pair is believed to be the pair that previously nested in the southern section of the site in 2019, 2020 and 2021 as nesting was not recorded at these on-site historic locations.

In August, two adult females were observed at the confirmed nest site at [REDACTED] on two occasions indicating this second female may have bred in the wider area.

In April, a pair were observed in courtship flight over historic nest site in the northern section of the site in 2020 and 2021. However, breeding was not confirmed at this location.

No hen harrier were recorded at the historic nest site approx. 2km northeast of the site boundary near [REDACTED]. Ongoing forestry operations at this location during the core breeding months may have caused disturbance in this area.

Adult female, male, and recently fledged birds were observed. Birds were observed travelling, foraging, hunting, prey carrying, displaying, and engaged in courtship behaviour. Observations of multiple adults simultaneously indicate at least two pairs were possibly present in the wider area, however only one nest site was located.

5.2 White-tailed eagle

This species was recorded five times during surveys. On the 20th of April an immature tagged bird was observed perched on ground within 500m of the site. It was later observed flying west off site when disturbed by surveyor. On the 7th of July an unaged/sexed bird was observed approx. 1km north of site flying towards Lough Melvin. On the 27th of May an immature bird was observed perched and in flight at Sandy Lough approx. 2km west of site.

5.3 Golden plover

Golden plover were recorded on four occasions. In September flocks of up to 17 birds were observed in flight over site and within 500m of the site. Birds flew towards Dough Mountain area. On 11th of August a single bird was observed calling in flight low on Dough Mountain approx. 1km from site. This bird was likely an early returning migratory bird, however given the suitable habitat on Dough Mountain, future surveys would aim to examine if breeding possible for this species in the wider area.

5.4 Merlin

There was one observation of this species during surveys. On the 9th of September a single bird was observed in flight on site at Tawnyfeacle. This was likely a bird passing through the area given the time of year and lack of other observations.

5.5 Red grouse

Red grouse were recorded on three occasions. In April a single bird was observed at both Killea and Saddle hill, both of which were within 500m of the site boundary. In September a single bird was observed in flight at Killea, on site. This follows on from the two breeding territories confirmed in these same two areas during red grouse species specific surveys undertaken in March 2022.

5.6 Woodcock

A single bird observed travelling at Killea in May within 500m of the site. In May a bird was observed roding (displaying) off site at Thur Mountain approx. 3 km from site. Also in May, two birds were flushed from the track within 500m of site near Killea. In May a single bird was observed roding on site at Tawnylust to the south of the site. In June a single bird was observed roding on site near Killea to the north of the site.

5.7 Snipe

Snipe were recorded on 35 occasions during surveys. In May, June and July birds were observed drumming (displaying) near Killea. Birds were also observed drumming on site east of Lisdarush on site. In May and June birds were observed drumming at Dough Mountain within 500m of the site. Drumming birds were also recorded at Thur Mountain approx. 2km from site. In July a peak flock size of nine birds were observed calling in flight near Tawnyfeacle within 500m of site.

5.8 Kestrel

Kestrel were observed on nineteen occasions during the survey period. On the 11th of August two recently fledged birds were observed foraging and interacting within 500m of the site at Dough Mountain. Other observations involved single adult male, female or juvenile birds foraging, hovering, or flying. On the 3rd of August two young birds were observed at Saddle Hill approx. 1km off site. A young bird was also observed foraging on the 26th of August at Dough Mountain within 500m of site. This confirms breeding in the wider area, but a nest of origin was not located.

5.9 Sparrowhawk

Sparrowhawk were recorded on 28 occasions during the survey period. Breeding was confirmed on site at Saddle Hill, and within 500m of site at Raheelin. Breeding off site was confirmed at Thur Mountain.

On the 30th of June a male was observed carrying prey east of Saddle hill towards a historic nest site on site confirming breeding here. On the 7th of July a female was flushed from alarming from this same nest.

On the 14th of July a male was observed feeding three chicks at a nest site west of Raheelin approx. 1km from site. On the 10th of August recently fledged young were observed in flight near the same nest.

On the 20th of July begging calls were recorded at Thur Mountain approx. 2.5km east of site confirming breeding here.

Breeding was also confirmed or probable without nests of origin being located in the following general locations: On the 28th of June a male was observed carrying prey in the southern section of site west of Boleyboy. On the 9th of August a recently fledged bird was observed on site west of Killea, near a historic nest site occupied in 2020 and 2021. On the 30th of May a displaying bird was recorded at Tawnymanus approx. 4km south of site, indicating probable breeding here.

5.10 Buzzard

There were 40 observations of buzzard during surveys. On the 10th of August five birds including recently fledged young were observed circling and calling over the southern section of the site at Tawnyfeacle, confirming breeding in this general area. Other observations involved one or two birds flying, soaring, or foraging across the survey area.

5.11

Red listed passerines

Meadow pipit were regularly recorded across the site in suitable open habitat with breeding confirmed in several areas and a peak flock size of 38 birds. Swift were present on site during the breeding season with small flocks of up to nine birds recorded foraging on site, no breeding activity recorded. Grey wagtail were present on site in low numbers in suitable habitat, with possible breeding in three locations on site. Breeding confirmed off site at Tawnylust Barr.

6.

CONCLUSION

Key impacts resulting from the proposed development for local avian receptors could include habitat loss, disturbance, displacement, and collision risk.

There is a resident population of hen harrier, red grouse, woodcock, snipe, kestrel, sparrowhawk, and buzzard at the wind farm site. The proposed development could result in habitat loss and disturbance/displacement impacts on these species. These potential impacts should be considered in greater detail at the assessment stage. A full two years of survey data will be required to provide a robust assessment of these impacts.

There was a breeding territory identified for hen harrier approx. 1km off site at [REDACTED]. It is considered likely these birds are one of the pairs that bred on site in previous years. As the birds in this area have been shown to re-locate nest site each year, all findings should be considered in the context of multiple years.

Breeding territories for red grouse, woodcock, snipe, sparrowhawk, and buzzard were located at or within 500m of, the wind farm site. There is the potential for direct habitat loss of nest sites for these species based on the 2022 breeding season surveys.

Collision risk should be a key consideration at the assessment stage for hen harrier and buzzard. However, until the collision risk analysis is undertaken this impact cannot be considered in any detail. All findings should be considered in the context of two full years of surveys (i.e., two breeding seasons and two non-breeding seasons), as two years of flight activity data is required to inform a robust collision risk analysis.

White-tailed eagle and golden plover were recorded commuting over, and utilising habitats within 500m of the wind farm site during the breeding season. Given the number of birds recorded and the frequency of observations, it is likely that these impacts will not be significant. Future surveys will aim to establish the importance of the site to these species.

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APPENDIX 1

BIRD SURVEY DATA

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Appendix 1 Table 1 Survey Effort

Date	Survey	Location	Duration (h)	Weather Conditions	Comments	Surveyor
13/04/2022	Breeding Walkover Survey	500m Radius	4:00 starting at 13:00	Visibility: good; Wind speed and direction: light air S; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none		AOD
14/04/2022	Breeding Walkover Survey	500m Radius	6:00 starting at 14:00	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none		AOD
20/04/2022	Breeding Walkover Survey	500m Radius	5:00 starting at 14:15	Visibility: good; Wind speed and direction: fresh breeze NE; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
23/04/2022	Breeding Walkover Survey	500m Radius	6:00 starting at 12:00	Visibility: good; Wind speed and direction: moderate breeze SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
29/04/2022	Breeding Walkover Survey	500m Radius	3:00 starting at 11:30	Visibility: good; Wind speed and direction: light breeze SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
11/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 12:00	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		KB
11/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 15:30	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		KB
18/05/2022	Vantage Point Survey	VP2	3:00 starting at 04:23	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		KB
18/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 07:53	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		KB
19/05/2022	Vantage Point Survey	VP1	3:00 starting at 04:21	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 33-66% <150m; Rain: none; Frost: none; Snow: none		KB



19/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 08:00	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	KB
24/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 16:00	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
24/05/2022	Breeding Walkover Survey	500m Radius	3:00 starting at 17:45	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	AOD
24/05/2022	Vantage Point Survey	VP2	3:00 starting at 19:44	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	KB
24/05/2022	Breeding Woodcock Survey	WK1	2:00 starting at 20:45	Visibility: moderate; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	AOD
25/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 13:00	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 33-66% 150-500m; Rain: light showers; Frost: none; Snow: none	KB
25/05/2022	Breeding Walkover Survey	500m Radius	6:00 starting at 14:30	Visibility: good; Wind speed and direction: strong breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	AOD
25/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 16:30	Visibility: good; Wind speed and direction: fresh breeze W; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	KB
26/05/2022	Vantage Point Survey	VP3	3:00 starting at 04:12	Visibility: limited; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none	KB
26/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 07:42	Visibility: moderate; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	KB
26/05/2022	Breeding Walkover Survey	500m Radius	6:00 starting at 14:30	Visibility: good; Wind speed and direction: strong breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	AOD



26/05/2022	Breeding Woodcock Survey	WK2	2:00 starting at 20:30	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
27/05/2022	Vantage Point Survey	VP4	3:00 starting at 04:10	Visibility: good; Wind speed and direction: light air NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
27/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 07:45	Visibility: good; Wind speed and direction: light air NW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
27/05/2022	Breeding Walkover Survey	500m Radius	6:00 starting at 13:30	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		AOD
30/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 16:10	Visibility: good; Wind speed and direction: moderate breeze N; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		KB
30/05/2022	Breeding Walkover Survey	500m Radius	3:00 starting at 17:30	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: heavy showers; Frost: none; Snow: none		AOD
30/05/2022	Vantage Point Survey	VP3	3:00 starting at 19:53	Visibility: good; Wind speed and direction: gentle breeze N; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		KB
31/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 16:24	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none		KB
31/05/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 19:54	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		KB
01/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 16:20	Visibility: good; Wind speed and direction: light air NE; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		KB
01/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 19:55	Visibility: good; Wind speed and direction: light air NE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		KB



13/06/2022	Vantage Point Survey	VP1	3:00 starting at 09:30	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	KB
13/06/2022	Vantage Point Survey	VP1	3:00 starting at 13:00	Visibility: moderate; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none	KB
14/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 07:15	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	KB
14/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 10:45	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
15/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 13:30	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none	KB
15/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 17:00	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none	KB
16/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 09:30	Visibility: moderate; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none	KB
16/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 13:00	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
17/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 09:20	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none	KB
17/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 12:50	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
20/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 14:30	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	KB



20/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 18:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	KB
20/06/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 18:45	Visibility: moderate; Wind speed and direction: light breeze SE; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	AOD
20/06/2022	Breeding Woodcock Survey	WK1	2:00 starting at 21:10	Visibility: moderate; Wind speed and direction: light breeze SE; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	AOD
21/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 10:15	Visibility: poor; Wind speed and direction: calm W; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none	KB
21/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 13:45	Visibility: good; Wind speed and direction: calm W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
21/06/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 18:45	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
21/06/2022	Breeding Woodcock Survey	WK2	2:00 starting at 21:10	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
22/06/2022	Vantage Point Survey	VP3	3:00 starting at 11:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
23/06/2022	Vantage Point Survey	VP2	3:00 starting at 15:50	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	AOD
23/06/2022	Vantage Point Survey	VP3	3:00 starting at 17:30	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	KB
23/06/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 18:50	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	AOD



24/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 08:30	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	KB
24/06/2022	Breeding Walkover Survey	500m Radius	5:00 starting at 11:30	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 66-100% 150-500m; Rain: heavy showers; Frost: none; Snow: none	AOD
24/06/2022	Breeding Raptor Survey	5km Radius	2:00 starting at 12:00	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
27/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 14:30	Visibility: moderate; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none	KB
27/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 18:00	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none	KB
27/06/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 18:30	Visibility: moderate; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% <150m; Rain: heavy showers; Frost: none; Snow: none	AOD
27/06/2022	Breeding Woodcock Survey	WK1	2:00 starting at 21:00	Visibility: moderate; Wind speed and direction: fresh breeze SE; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	AOD
28/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 14:00	Visibility: good; Wind speed and direction: fresh breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: heavy showers; Frost: none; Snow: none	KB
28/06/2022	Breeding Walkover Survey	500m Radius	5:00 starting at 16:15	Visibility: good; Wind speed and direction: strong breeze SE; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none	AOD
28/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 17:30	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% >500m; Rain: light showers; Frost: none; Snow: none	KB
28/06/2022	Breeding Woodcock Survey	WK2	2:00 starting at 21:15	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	AOD



29/06/2022	Vantage Point Survey	VP2	3:00 starting at 15:15	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
29/06/2022	Vantage Point Survey	VP4	3:00 starting at 18:15	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
30/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 07:30	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none	KB
30/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 11:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 33-66% 150-500m; Rain: none; Frost: none; Snow: none	KB
30/06/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 14:30	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
01/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 08:00	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
01/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 11:40	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
01/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 15:10	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	KB
07/07/2022	Breeding Walkover Survey	500m Radius	6:00 starting at 15:20	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	AOD
08/07/2022	Vantage Point Survey	VP4	3:00 starting at 14:30	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
11/07/2022	Vantage Point Survey	VP2	3:00 starting at 07:30	Visibility: good; Wind speed and direction: fresh breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB



11/07/2022	Breeding Walkover Survey	500m Radius	4:00 starting at 08:00	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	AOD
11/07/2022	Vantage Point Survey	VP2	3:00 starting at 11:00	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	KB
11/07/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 13:30	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	AOD
12/07/2022	Vantage Point Survey	VP3	3:00 starting at 08:30	Visibility: moderate; Wind speed and direction: light air NW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none	KB
12/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 12:00	Visibility: moderate; Wind speed and direction: light breeze NW; Cloud cover and height: 66-101% <150m; Rain: none; Frost: none; Snow: none	KB
13/07/2022	Breeding Walkover Survey	500m Radius	3:00 starting at 08:30	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
13/07/2022	Vantage Point Survey	VP3	3:00 starting at 08:45	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	KB
13/07/2022	Vantage Point Survey	VP1	3:00 starting at 13:00	Visibility: good; Wind speed and direction: moderate breeze W; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	KB
14/07/2022	Breeding Walkover Survey	500m Radius	3:00 starting at 14:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
14/07/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 18:00	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	AOD
15/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 07:00	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	KB



15/07/2022	Vantage Point Survey	VP1	3:00 starting at 10:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
15/07/2022	Breeding Walkover Survey	500m Radius	3:00 starting at 17:30	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	AOD
18/07/2022	Vantage Point Survey	VP4	3:00 starting at 13:30	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	KB
19/07/2022	Vantage Point Survey	VP4	3:00 starting at 11:15	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	KB
19/07/2022	Breeding Walkover Survey	500m Radius	5:00 starting at 11:30	Visibility: moderate; Wind speed and direction: light air N; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	AOD
19/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 14:45	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: light showers; Frost: none; Snow: none	KB
19/07/2022	Breeding Walkover Survey	500m Radius	2:00 starting at 17:30	Visibility: moderate; Wind speed and direction: light air N; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none	AOD
19/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 18:15	Visibility: good; Wind speed and direction: light breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
20/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 10:00	Visibility: moderate; Wind speed and direction: light breeze NW; Cloud cover and height: 66-100% <150m; Rain: drizzle; Frost: none; Snow: none	KB
20/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 13:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none	KB
21/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 08:00	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none	KB



21/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 11:30	Visibility: good; Wind speed and direction: light breeze N; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		KB
25/07/2022	Vantage Point Survey	VP1	3:00 starting at 09:20	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% <150m; Rain: light showers; Frost: none; Snow: none		KB
25/07/2022	Vantage Point Survey	VP4	6:30 starting at 11:00	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 33-66% >500m; Rain: drizzle; Frost: none; Snow: none	Largely overcast with occasional clear and bright spells. Occasional drizzle closing in which caused temporary loss of visibility. Moderate W breeze, 14 - 19°C	NM
25/07/2022	Vantage Point Survey	VP1	3:00 starting at 12:50	Visibility: good; Wind speed and direction: fresh breeze NW; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		KB
26/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 10:00	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		KB
26/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 13:30	Visibility: good; Wind speed and direction: gentle breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		KB
28/07/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	6:00 starting at 12:45	Visibility: good; Wind speed and direction: gentle breeze NE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
28/07/2022	Vantage Point Survey	VP3	6:30 starting at 15:00	Visibility: good; Wind speed and direction: gentle breeze W; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none	14 - 22°C	NM
29/07/2022	Vantage Point Survey	VP2	6:30 starting at 13:00	Visibility: good; Wind speed and direction: light breeze W; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Largely clear and bright with high drifting clouds. Light breeze from the W. Humid and warm, 15 - 21°C	NM



30/07/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 12:30	Visibility: good; Wind speed and direction: calm W; Cloud cover and height: 66-100% <150m; Rain: none; Frost: none; Snow: none		KB
02/08/2022	Breeding Raptor Survey	5km Radius	3:00 starting at 12:30	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		KB
02/08/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	3:00 starting at 16:00	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: none; Frost: none; Snow: none		AOD
03/08/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	4:00 starting at 14:00	Visibility: good; Wind speed and direction: light breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none		AOD
05/08/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	6:00 starting at 10:30	Visibility: good; Wind speed and direction: moderate breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
09/08/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	4:00 starting at 08:00	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
10/08/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	6:00 starting at 11:20	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD
11/08/2022	Vantage Point Survey	VP2	5:30 starting at 07:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none		AOD



22/08/2022	Vantage Point Survey	VP4	6:30 starting at 13:30	Visibility: moderate; Wind speed and direction: moderate breeze SW; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none	Entirely overcast and grey with mid-height clouds. Occasional flurry of drizzly showers blowing across. Moderate SW breeze, 10 - 16°C	NM
24/08/2022	Vantage Point Survey	VP1	6:30 starting at 06:30	Visibility: good; Wind speed and direction: gentle breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Clear and bright throughout with high drifting cloud. Chilly early on but it gradually got warmer as the morning went on, 7 - 15°C. Gentle S breeze	NM
25/08/2022	Vantage Point Survey	VP3	6:30 starting at 09:00	Visibility: good; Wind speed and direction: light breeze S; Cloud cover and height: 0-33% >500m; Rain: none; Frost: none; Snow: none	Clear and bright throughout with ~20% cloud cover. Light S breeze, 11 - 18°C	NM
26/08/2022	Vantage Point Survey	VP2	1:00 starting at 12:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
26/08/2022	Breeding Raptor Survey	Extra HH Breeding Raptor Survey	7:00 starting at 13:30	Visibility: good; Wind speed and direction: gentle breeze SW; Cloud cover and height: 33-66% >500m; Rain: none; Frost: none; Snow: none		AOD
07/09/2022	Vantage Point Survey	VP3	2:00 starting at 14:55	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 66-100% >500m; Rain: drizzle; Frost: none; Snow: none	LIGHTNING CALLED OFF	AOD
08/09/2022	Vantage Point Survey	VP2	2:00 starting at 14:55	Visibility: good; Wind speed and direction: moderate breeze SE; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none	LIGHTNING CALLED OFF	AOD
09/09/2022	Vantage Point Survey	VP3	1:00 starting at 14:45	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		AOD
09/09/2022	Vantage Point Survey	VP2	2:00 starting at 15:50	Visibility: good; Wind speed and direction: gentle breeze SE; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		AOD



09/09/2022	Vantage Point Survey	VP3	3:00 starting at 18:20	Visibility: good; Wind speed and direction: light breeze SE; Cloud cover and height: 66-100% >500m; Rain: light showers; Frost: none; Snow: none		AOD
14/09/2022	Vantage Point Survey	VP2	5:00 starting at 16:00	Visibility: good; Wind speed and direction: moderate breeze NW; Cloud cover and height: 66-100% 150-500m; Rain: drizzle; Frost: none; Snow: none		AOD
16/09/2022	Vantage Point Survey	VP1	6:30 starting at 14:15	Visibility: good; Wind speed and direction: moderate breeze S; Cloud cover and height: 66-100% >500m; Rain: none; Frost: none; Snow: none		NM
19/09/2022	Vantage Point Survey	VP4	6:20 starting at 14:20	Visibility: limited; Wind speed and direction: moderate breeze SSW; Cloud cover and height: 66-100% <150m; Rain: persistent; Frost: none; Snow: none		NM



Appendix 1 Table 2 Vantage Point Flight Observations

Report Ref.	Ref.	VP	Date	Time	Species	Number	Duration of flight (s)	Band 1 (0-10m)	Band 2 (10-25m)	PCH (25-175m)	Band 4 (>175m)	Habitat and activity	Surveyor
	2022-10-11T14:48:01.749	VP2	18/05/2022	05:02	Meadow Pipit	1	-	-	-	-	-	bogs; singing	KB
HH001	2022-10-11T14:50:19.406	VP2	18/05/2022	05:47	Hen Harrier	1	6	0	6	0	0	conifer plantation; foraging, adult male	KB
HH002	2022-10-11T14:50:19.406	VP2	18/05/2022	05:47	Hen Harrier	1	15	0	10	5	0	conifer plantation; foraging, adult male	KB
	2022-10-11T14:57:13.610	VP2	18/05/2022	06:58	Lesser Black-backed Gull	5	40	0	0	40	0	bogs and conifer plantation; travelling	KB
	2022-10-11T15:00:30.221	VP2	18/05/2022	07:09	Lesser Black-backed Gull	2	20	0	20	0	0	conifer plantation; travelling	KB
HH003	2022-10-11T14:29:49.199	VP1	19/05/2022	06:04	Hen Harrier	1	8	8	0	0	0	bogs and conifer plantation; foraging, adult male	KB
HH004	2022-10-11T14:32:37.661	VP1	19/05/2022	06:07	Hen Harrier	1	15	15	0	0	0	bogs and conifer plantation; foraging, adult male	KB
	2022-10-11T14:35:10.168	VP1	19/05/2022	06:20	Meadow Pipit	6	-	-	-	-	-	bogs; foraging	KB
HH005	2022-10-11T14:45:11.713	VP1	19/05/2022	07:14	Hen Harrier	1	40	30	10	0	0	conifer plantation and bogs; foraging	KB
	Not Mapped	VP2	24/05/2022	20:09	Meadow Pipit	4	-	-	-	-	-	bogs; foraging	KB
	2022-10-11T16:19:07.708	VP3	26/05/2022	04:43	Meadow Pipit	1	-	-	-	-	-	bogs and wet grassland; singing	KB
	2022-10-11T16:20:50.451	VP3	26/05/2022	04:49	Meadow Pipit	1	-	-	-	-	-	bogs; singing	KB
SN011	2022-10-11T16:22:03.753	VP3	26/05/2022	05:59	Snipe	1	-	-	-	-	-	bogs and wet grassland; chipping	KB
WK001	2022-10-11T16:24:16.785	VP3	26/05/2022	07:03	Woodcock	1	5	5	0	0	0	bogs and conifer plantation; travelling	KB
SN012	2022-10-11T16:26:42.739	VP2	26/05/2022	07:11	Snipe	1	-	-	-	-	-	bogs; chipping	KB
SN013	2022-12-21T15:58:42.976	VP3	30/05/2022	19:58	Snipe	1	-	-	-	-	-	bogs; chipping	KB



	2022-12-21T16:00:59.042	VP3	30/05/2022	20:12	Meadow Pipit	1	-	-	-	-	-	bogs; singing	KB
HH006	2022-12-21T15:43:40.803	VP3	30/05/2022	20:50	Hen Harrier	1	40	40	0	0	0	bogs; foraging, adult male	KB
SN001	2022-12-21T15:37:43.125	VP3	30/05/2022	20:50	Snipe	1	4	4	0	0	0	bogs; flushed by hh	KB
	2022-12-21T16:01:31.029	VP3	30/05/2022	20:50	Meadow Pipit	6	-	-	-	-	-	bogs; flushed - alarm calling	KB
HH007	2022-10-11T16:24:16.785	VP3	30/05/2022	20:54	Hen Harrier	1	20	20	0	0	0	bogs and conifer plantation; foraging, adult male	KB
SN014	2022-12-21T16:02:19.827	VP3	30/05/2022	20:57	Snipe	1	-	-	-	-	-	bogs; chipping	KB
	2022-12-21T16:08:30.147	VP3	30/05/2022	21:16	Meadow Pipit	1	-	-	-	-	-	bogs; singing	KB
HH008	2022-12-21T15:51:15.871	VP2	30/05/2022	21:20	Hen Harrier	1	25	25	0	0	0	bogs; foraging, adult male	KB
	2022-12-21T16:11:22.137	VP3	30/05/2022	21:31	Meadow Pipit	2	-	-	-	-	-	bogs; foraging	KB
SN015	2022-12-21T16:13:09.818	VP3	30/05/2022	21:48	Snipe	1	-	-	-	-	-	bogs; chipping	KB
	2022-12-21T16:21:28.785	VP1	31/05/2022	20:03	Meadow Pipit	5	-	-	-	-	-	bogs; foraging	KB
	2022-12-21T16:22:12.706	VP1	31/05/2022	20:04	Meadow Pipit	1	-	-	-	-	-	bogs; singing	KB
HH009	2022-12-21T16:24:38.841	VP1	31/05/2022	20:11	Hen Harrier	1	4	4	0	0	0	bogs and conifer plantation; foraging, adult male	KB
	2022-12-21T16:41:00.924	VP4	01/06/2022	20:31	Meadow Pipit	3	-	-	-	-	-	bogs; foraging	KB
	2022-12-21T16:29:55.109	VP4	01/06/2022	21:54	Grey Heron	1	30	15	15	0	0	bogs, wet grassland and conifer plantation; travelling	KB
SN002	2022-12-21T16:31:00.921	VP4	01/06/2022	22:29	Snipe	1	10	0	10	0	0	bogs and conifer plantation; travelling	KB
	2022-12-01T14:11:55.870	VP1	13/06/2022	09:40	Meadow Pipit	6	-	-	-	-	-	bogs; foraging	KB
HH010	2022-12-01T12:53:05.168	VP3	22/06/2022	12:10	Hen Harrier	1	40	40	0	0	0	bogs; foraging, adult male	KB
SN003	2022-12-01T12:54:34.355	VP3	22/06/2022	12:13	Snipe	1	120	10	10	100	0	bogs; drumming	KB
HH011	2022-12-01T12:55:30.005	VP3	22/06/2022	13:37	Hen Harrier	1	20	20	0	0	0	bogs; foraging, adult male	KB
	2022-12-01T14:15:02.986	VP3	22/06/2022	13:40	Meadow Pipit	9	-	-	-	-	-	bogs; 6 foraging, 3 singing	KB



HH012	2022-12-01T12:56:11.692	VP3	22/06/2022	13:43	Hen Harrier	1	6	6	0	0	0	bogs; foraging - landed back down, adult male	KB
HH013	2022-12-01T12:56:44.411	VP3	22/06/2022	13:45	Hen Harrier	1	8	8	0	0	0	bogs; took up with prey, circled and relanded, plucking prey, adult male	KB
HH014	2022-12-01T12:57:23.389	VP3	22/06/2022	13:47	Hen Harrier	1	5	5	0	0	0	bogs; took up, circled and landed back down, adult male	KB
HH015	2022-12-01T12:58:59.288	VP3	22/06/2022	13:48	Hen Harrier	1	90	30	60	0	0	bogs and conifer plantation; foraging - no prey visible in tallons, adult male	KB
	2022-12-01T14:27:54.932	VP3	23/06/2022	17:34	Meadow Pipit	12	-	-	-	-	-	bogs; 9 foraging, 3 singing	KB
SN016	2022-12-01T14:28:29.446	VP3	23/06/2022	19:56	Snipe	1	-	-	-	-	-	bogs; chipping	KB
HH016	2022-06-23T17:39:24.077	VP2	23/06/2022	17:39	Hen Harrier	1	950	600	100	100	150	wet grassland; foraging, male caught prey and consumed, possibly flew to nest area but seemed to not be carrying prey	AOD
BZ001	2022-06-23T18:43:56.300	VP2	23/06/2022	18:43	Buzzard	1	30	0	30	0	0	conifer plantation; fly, flew between trees	AOD
	2022-12-19T10:29:45.925	VP2	11/07/2022	07:25	Meadow Pipit	5	-	-	-	-	-	bogs; fledgelings on track	KB
	2022-12-19T10:31:47.193	VP2	11/07/2022	08:00	Meadow Pipit	11	-	-	-	-	-	bogs; foraging	KB
	2022-12-19T10:32:53.656	VP2	11/07/2022	08:56	Meadow Pipit	1	-	-	-	-	-	bogs; singing	KB
HH017	2022-12-19T10:35:38.553	VP2	11/07/2022	10:24	Hen Harrier	2	6	6	0	0	0	bogs; first bird travelling/foraging followed by a second bird a few seconds later along same flight path, 2x adult males	KB
	2022-12-19T10:40:02.832	VP3	12/07/2022	08:53	Meadow Pipit	8	-	-	-	-	-	bogs; foraging	KB
	2022-12-19T10:41:59.977	VP3	12/07/2022	09:11	Swift	3	-	-	-	-	-	bogs; foraging	KB
HH018	2022-12-19T10:44:49.129	VP3	12/07/2022	10:08	Hen Harrier	1	15	15	0	0	0	bogs; foraging, adult male	KB



HH019	2022-12-19T10:48:08.040	VP3	13/07/2022	08:54	Hen Harrier	1	240	120	120	0	0	conifer plantation, bogs and scrub; foraging, adult male	KB
	2022-12-19T10:50:49.459	VP3	13/07/2022	09:02	Meadow Pipit	5	-	-	-	-	-	bogs; foraging	KB
HH020	2022-12-19T10:53:19.016	VP3	13/07/2022	10:34	Hen Harrier	1	8	8	0	0	0	bogs and conifer plantation; foraging, adult male	KB
SN004	2022-12-19T10:56:03.084	VP3	13/07/2022	10:41	Snipe	1	30	0	0	30	0	bogs; drumming	KB
	2022-12-19T11:02:47.290	VP1	13/07/2022	13:02	Meadow Pipit	33	-	-	-	-	-	bogs; foraging	KB
	2022-12-19T11:04:50.016	VP1	15/07/2022	10:35	Meadow Pipit	44	-	-	-	-	-	bogs; foraging	KB
	2022-12-19T11:07:56.029	VP4	18/07/2022	15:11	Meadow Pipit	1	-	-	-	-	-	bogs; foraging	KB
	2022-12-19T11:09:26.058	VP4	19/07/2022	12:30	Meadow Pipit	2	-	-	-	-	-	bogs; foraging	KB
	2022-12-19T11:11:47.612	VP1	25/07/2022	11:11	Meadow Pipit	42	-	-	-	-	-	bogs; foraging	KB
	2022-11-01T10:16:52.990	VP4	25/07/2022	11:15	Meadow Pipit	23	500	380	120	0	0	improved agricultural grassland, semi-natural grassland and conifer plantation; flying and calling over grassland - highly active in vp area throughout survey, max. flock - 23	NM
SN005	2022-11-01T10:03:25.903	VP4	25/07/2022	11:19	Snipe	2	55	35	20	0	0	improved agricultural grassland, semi-natural grassland and mixed conifer woodland; flushed from rushy grassland, alarm calling flying away ne	NM
SN006	2022-11-01T10:14:11.642	VP4	25/07/2022	12:11	Snipe	9	155	0	140	15	0	conifer plantation, improved agricultural grassland and semi-natural grassland; flying	NM



												erratically in group and alram calling over vp area	
	2022-11-01T10:12:47.227	VP4	25/07/2022	13:19	Lesser Black-backed Gull	18	90	0	0	90	0	conifer plantation, improved agricultural grassland and scrub; flying sw across forestry	NM
BZ002	2022-11-01T10:05:59.888	VP4	25/07/2022	15:18	Buzzard	2	380	0	0	300	80	conifer plantation and scrub; pair soaring and calling over forestry	NM
K001	2022-11-01T10:10:33.829	VP4	25/07/2022	15:32	Kestrel	1	245	0	220	25	0	improved agricultural grassland and scrub; hunting and hovering over farmland	NM
BZ003	2022-11-01T10:07:51.731	VP4	25/07/2022	16:47	Buzzard	1	250	0	30	220	0	improved agricultural grassland and conifer plantation; flying over forestry and upland farmland	NM
SH001	2022-12-19T11:21:41.123	VP1	26/07/2022	14:04	Sparrowhawk	1	30	15	15	0	0	conifer plantation and wet grassland; foraging	KB
	2022-11-01T10:40:48.185	VP3	28/07/2022	16:04	Lesser Black-backed Gull	36	640	70	380	190	0	lakes and ponds and improved agricultural grassland; swirling over l. melvin for a long period in mid-afternoon	NM
	2022-11-01T10:45:59.867	VP3	28/07/2022	18:28	Lesser Black-backed Gull	9	260	0	0	180	80	conifer plantation, semi-natural grassland and bogs; flying nw across upland and forestry	NM
	2022-11-01T10:48:37.420	VP3	28/07/2022	18:30	Black-headed Gull	28	210	0	0	90	120	conifer plantation, scrub and bogs; flying nw across n area of site and 500m buffer	NM
K002	2022-11-01T10:37:59.267	VP3	28/07/2022	18:48	Kestrel	1	240	0	60	180	0	improved agricultural grassland, scrub and hedgerows; hunting and	NM



												hovering over scrubby farmland to ene of vp	
	2022-11-01T10:44:22.931	VP3	28/07/2022	19:32	Meadow Pipit	7	135	0	135	0	0	bogs and heath; calling and flying across bog	NM
HH021	2022-11-01T10:34:58.555	VP3	28/07/2022	21:19	Hen Harrier	1	75	75	0	0	0	bogs, wet heath and conifer plantation; flying low across upland bog and along forestry fringes - disappeared within 'avenue' of forestry	NM
	2022-11-01T11:44:00.925	VP2	29/07/2022	13:29	Meadow Pipit	7	45	0	45	0	0	semi-natural grassland, bogs and improved agricultural grassland; calling across upland grassland	NM
BZ004	2022-11-01T11:33:51.495	VP2	29/07/2022	16:21	Buzzard	2	345	0	0	150	195	conifer plantation, semi-natural grassland and scrub; soaring over forestry on site	NM
	2022-11-01T11:42:52.785	VP2	29/07/2022	17:06	Wheatear	5	110	110	0	0	0	semi-natural grassland and bogs; flying low and foraging over upland grassland	NM
BZ005	2022-11-01T11:49:00.198	VP2	29/07/2022	17:58	Buzzard	1	490	0	0	370	120	conifer plantation, scrub and mixed conifer woodland; soaring and circling over forestry of site before flying away sw	NM
K003	2022-11-01T11:47:03.492	VP2	29/07/2022	18:37	Kestrel	1	340	40	20	220	60	semi-natural grassland, bogs and scrub; hunting and hovering along forestry / scrub edges of grassland	NM
BZ006	2022-11-01T11:40:00.406	VP2	29/07/2022	18:49	Buzzard	2	475	0	0	350	125	improved agricultural grassland and conifer plantation; pair soaring over forestry and scrubby farmland	NM



	2022-11-01T11:45:23.131	VP2	29/07/2022	19:03	Meadow Pipit	18	350	245	105	0	0	bogs and semi-natural grassland; calling and flying across upland - very active in area in evening	NM
K004	2022-11-01T11:41:48.431	VP2	29/07/2022	19:12	Kestrel	1	240	0	150	90	0	semi-natural grassland, conifer plantation and scrub; hunting and hovering over upland grassland	NM
SH003	2022-11-01T11:51:13.806	VP2	29/07/2022	19:30	Sparrowhawk	1	-	-	-	-	-	semi-natural grassland, scrub and bogs; perched on fence post within shallow but wide gully running downhill	NM
K005	2022-08-11T10:19:18.679	VP2	11/08/2022	07:40	Kestrel	2	200	150	50	0	0	montane heath; foraging, two young recently fledged birds foraging and interacting	AOD
K006	2022-08-11T10:25:18.882	VP2	11/08/2022	10:25	Kestrel	1	23	0	23	0	0	montane heath; foraging, young bird foraging	AOD
	2022-11-01T12:49:31.221	VP4	22/08/2022	14:32	Lesser Black-backed Gull	14	200	0	0	200	0	improved agricultural grassland, hedgerows and scrub; flying sw across rough farmland to w of vp (way outside 500m buffer)	NM
BZ007	2022-11-01T12:41:12.731	VP4	22/08/2022	15:29	Buzzard	2	320	0	0	300	0	conifer plantation, improved agricultural grassland and scrub; soaring over forestry and scrubby farmland - moving steadily se	NM
	2022-11-01T12:56:36.141	VP4	22/08/2022	16:36	Meadow Pipit	9	100	50	50	0	0	conifer plantation, semi-natural grassland and improved agricultural grassland; flying across vp	NM

	2022-11-01T12:51:32.659	VP4	22/08/2022	18:03	Lesser Black-backed Gull	2	275	0	50	225	0	improved agricultural grassland, conifer plantation and scrub; flying ne - starting over farmland and flying uphill and over forestry on site	NM
	2022-11-01T12:46:42.378	VP4	22/08/2022	18:43	Grasshopper Warbler	3	-	-	-	-	-	semi-natural grassland and conifer plantation; calling for a long period in the evening within rushy grassland in between forestry	NM
SN007	2022-11-01T12:53:51.874	VP4	22/08/2022	18:52	Snipe	6	240	0	240	0	0	conifer plantation, improved agricultural grassland and semi-natural grassland; flying in loose formation and calling over forestry fringes and adjacent grassland	NM
BZ008	2022-11-01T12:44:35.302	VP4	22/08/2022	18:56	Buzzard	1	260	0	120	140	0	conifer plantation; soaring and circling over forestry - began to descend slowly but was lost behind forestry	NM
K011	2022-11-01T12:47:47.423	VP4	22/08/2022	19:41	Kestrel	1	-	-	-	-	-	scrub, conifer plantation and improved agricultural grassland; perched within willow band at edge of forestry for a long period - flew away eventually low and e	NM
K007	2022-11-01T13:40:23.989	VP1	24/08/2022	06:41	Kestrel	1	350	100	250	0	0	scrub, semi-natural grassland and bogs; hunting and hovering relatively low across upland grassland and scrub	NM



	2022-11-01T13:45:56.813	VP1	24/08/2022	06:58	Meadow Pipit	32	1230	1090	140	0	0	bogs and semi-natural grassland; highly active in vp area for a long period early in the morning	NM
HH022	2022-11-01T13:27:22.966	VP1	24/08/2022	07:07	Hen Harrier	1	245	190	55	0	0	conifer plantation, scrub and semi-natural grassland; commuting across forestry and scrubby edges before plunging downhill flying very low along forestry, male. turned sharply at the bottom and disappeared into scrub	NM
HH023	2022-11-01T13:30:57.045	VP1	24/08/2022	07:34	Hen Harrier	1	190	190	0	0	0	scrub, semi-natural grassland and conifer plantation; emerging from scrub at edge of forestry, flying low across grassland and appeared to be hunting, male. disappeared into forestry once again. possibly the same individual as was 30mins previously	NM
BZ009	2022-11-01T13:36:30.875	VP1	24/08/2022	08:16	Buzzard	1	345	0	300	45	0	conifer plantation, improved agricultural grassland and scrub; flying across forestry - not far from tops of trees	NM
	2022-11-01T13:49:09.408	VP1	24/08/2022	09:47	Meadow Pipit	7	135	20	80	35	0	semi-natural grassland, bogs and improved agricultural grassland; flying and calling across upland moorland	NM
	2022-11-01T13:33:27.419	VP1	24/08/2022	11:06	Grey Heron	2	250	0	0	40	210	conifer plantation, scrub and improved agricultural grassland; soaring high over forestry on and off site - moving wsw	NM



BZ010	2022-11-01T13:38:03.661	VP1	24/08/2022	11:58	Buzzard	1	370	0	0	0	370	conifer plantation, recently-felled woodland and scrub; soaring and circling high across forestry	NM
	2022-11-01T13:42:36.859	VP1	24/08/2022	12:52	Lesser Black-backed Gull	6	470	0	230	140	0	conifer plantation, improved agricultural grassland and hedgerows; flying across forestry on part of site before turning s and flying over farmland	NM
	2022-11-01T13:00:23.754	VP3	25/08/2022	09:32	Wheatear	3	50	50	0	0	0	bogs, heath and semi-natural grassland; flying low and perching with heather bog and grassland	NM
	2022-11-01T13:03:15.455	VP3	25/08/2022	10:19	Meadow Pipit	22	890	740	150	0	0	heath, bogs and conifer plantation; flying and calling across vp area - highly active for a 30 min period before moving away sw	NM
BZ011	2022-11-01T13:05:57.660	VP3	25/08/2022	11:01	Buzzard	1	130	20	50	60	0	conifer plantation, improved agricultural grassland and scrub; flying low up from scrubby farmland and disappeared into area of forestry	NM
	2022-11-01T13:01:47.240	VP3	25/08/2022	12:44	Wheatear	1	35	35	0	0	0	heath, bogs and semi-natural grassland; flying low across heather moorland	NM
SN008	2022-11-01T13:07:51.917	VP3	25/08/2022	15:23	Snipe	3	175	35	140	0	0	bogs, semi-natural grassland and conifer plantation; flushed from wet heather and grassland - flew away across forestry of site and alarm calling	NM



SH002	2022-09-09T17:56:40.090	VP3	09/09/2022	17:56	Sparrowhawk	1	45	0	45	0	0	conifer plantation; flying, no sex age. flying over	AOD
K008	2022-09-09T17:57:41.985	VP3	09/09/2022	17:57	Kestrel	1	36	16	20	0	0	conifer plantation; foraging, young bird foraging	AOD
RG001	2022-09-09T20:51:52.651	VP3	09/09/2022	20:51	Red Grouse	1	8	8	0	0	0	montane heath; fly, silent	AOD
SN009	2022-09-09T20:52:48.921	VP3	09/09/2022	20:52	Snipe	6	27	10	17	0	0	montane heath; fly /call, at least 6 birds calling in flight and from ground	AOD
	2022-09-14T20:10:17.952	VP2	14/09/2022	19:10	Meadow Pipit	28	-	-	-	-	-	wet grassland; fly, flock	AOD
K009	2022-09-14T20:09:00.281	VP2	14/09/2022	17:09	Kestrel	1	60	0	60	0	0	wet grassland; foraging, female or juv	AOD
GP001	2022-10-10T14:15:26.141	VP1	16/09/2022	16:06	Golden Plover	5	325	40	100	185	0	mixed conifer woodland, upland blanket bog and semi-natural grassland; small group flying over uplands and calling	NM
HH024	2022-10-10T14:13:29.107	VP1	16/09/2022	17:32	Hen Harrier	1	160	150	10	0	0	mixed conifer woodland, semi-natural grassland and upland blanket bog; flying low along edge of forestry, going downhill along forestry edge before disappearing into wood, male	NM
GP002	2022-10-10T14:18:08.583	VP1	16/09/2022	18:57	Golden Plover	17	110	0	0	110	0	mixed conifer woodland, semi-natural grassland and heath; flying n across site	NM
SN010	2022-10-10T14:11:11.129	VP1	16/09/2022	19:50	Snipe	2	45	0	45	0	0	upland blanket bog, heath and semi-natural grassland; flying across bog, calling	NM
ML001	2022-10-10T14:03:35.686	VP4	19/09/2022	15:24	Merlin	1	28	28	0	0	0	semi-natural grassland, mixed conifer woodland and scrub; flying and rapidly along edges of scrub and woodland, +	NM



												along wooded corridors within young forestry	
GP003	2022-10-10T14:06:17.300	VP4	19/09/2022	17:17	Golden Plover	8	75	0	0	75	0	mixed conifer woodland and scrub; flying across sw 500m buffer + calling	NM
K010	2022-10-10T14:08:22.606	VP4	19/09/2022	18:44	Kestrel	1	200	25	105	70	0	semi-natural grassland, heath and scrub; hunting and hovering over boggy farmland	NM

Appendix 1 Table 3 Breeding Walkover Observations

Report Ref.	Ref.	Date	Time	Species	Number	Habitat and activity	Surveyor
HH025	2022-04-13T14:37:58.533	13/04/2022	13:55	Hen Harrier	1	conifer plantation; soaring, male circling above 2020 nest1 (suitable nesting habitat; possible breeder)	AOD
HH026	2022-04-13T14:38:46.740	13/04/2022	14:38	Hen Harrier	1	conifer plantation; soaring, female soaring high above 2020 nest1 (suitable nesting habitat; possible breeder)	AOD
HH027	2022-04-13T14:51:32.924	13/04/2022	14:51	Hen Harrier	1	wet grassland and conifer plantation; display, likely same female sky dancing and calling from dough mtn down to 2020 nest1 area.lost in trees (courtship and display; probable breeding)	AOD
	2022-04-13T14:56:48.123	13/04/2022	14:56	Meadow Pipit	6	wet grassland; fly, across area (suitable nesting habitat; possible breeder)	AOD
BZ012	2022-04-13T16:08:05.786	13/04/2022	16:08	Buzzard	1	conifer plantation; call, call unseen (suitable nesting habitat; possible breeder)	AOD
HH028	2022-04-14T18:46:30.373	14/04/2022	18:46	Hen Harrier	1	montane heath; foraging, male foraging (suitable nesting habitat; possible breeder)	AOD
	2022-04-14T18:47:11.059	14/04/2022	18:47	Meadow Pipit	5	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
RG001	2022-04-14T18:47:33.065	14/04/2022	18:47	Red Grouse	1	montane heath; flushed, flushed (suitable nesting habitat; possible breeder)	AOD
	2022-04-14T18:48:02.115	14/04/2022	18:48	Meadow Pipit	6	montane heath; fly, across area (suitable nesting habitat; possible breeder)	AOD
WE001	2022-04-20T17:34:09.899	20/04/2022	16:30	White-tailed Eagle	1	montane heath; perched/fly, immature wte green tag left wing flushed from ground lost behind hill (suitable nesting habitat; possible breeder)	AOD
WE002	2022-04-20T17:35:17.928	20/04/2022	17:05	White-tailed Eagle	1	montane heath; fly/soar, same immature wte mobbed by 6lb soaring high near lb colony (suitable nesting habitat; possible breeder)	AOD
	2022-04-20T17:36:17.135	20/04/2022	17:06	Lesser Black-backed Gull	6	montane heath and lakes and ponds; mobbing/fly, adults mobbing wte at colony (agitated behaviour; probable breeding)	AOD
BZ013	2022-04-20T17:41:13.228	20/04/2022	17:09	Buzzard	1	conifer plantation; soaring, soared briefly (suitable nesting habitat; possible breeder)	AOD
HH029	2022-04-20T17:38:10.212	20/04/2022	17:26	Hen Harrier	1	wet grassland; flying/interacting, male flew to 2nd male then also flew with female briefly (suitable nesting habitat; possible breeder)	AOD
HH030	2022-04-20T17:39:22.152	20/04/2022	17:26	Hen Harrier	2	conifer plantation; display/courtship, male and female flying together in courtship flight. female flew briefly to 2nd male and returned to 1st male soaring high over hh nest2 from 2020 and 2021 (courtship and display; probable breeding)	AOD



SN017	2022-04-20T20:07:25.350	20/04/2022	19:07	Snipe	1	montane heath; drumming, drumming on site (courtship and display; probable breeding)	AOD
RG002	2022-04-20T20:08:03.266	20/04/2022	20:08	Red Grouse	1	montane heath; flushed, on site new area for rg (suitable nesting habitat; possible breeder)	AOD
SH004	2022-04-20T20:17:51.127	20/04/2022	20:17	Sparrowhawk	1	conifer plantation; fly, flying (suitable nesting habitat; possible breeder)	AOD
	2022-04-23T17:39:45.614	23/04/2022	17:39	Grey Wagtail	1	conifer plantation; fly, adult (suitable nesting habitat; possible breeder)	AOD
	2022-04-23T17:40:21.460	23/04/2022	17:40	Meadow Pipit	8	wet grassland; fly, across area (suitable nesting habitat; possible breeder)	AOD
HH031	2022-04-29T11:52:04.070	29/04/2022	11:52	Hen Harrier	1	conifer plantation; fly, male near 2021 nest1 flying south mobbed by hc (suitable nesting habitat; possible breeder)	AOD
K012	2022-04-29T14:01:40.386	29/04/2022	14:01	Kestrel	1	montane heath and conifer plantation; foraging, foraging (suitable nesting habitat; possible breeder)	AOD
BZ014	2022-04-29T14:02:16.068	29/04/2022	14:02	Buzzard	1	conifer plantation; fly, soaring (suitable nesting habitat; possible breeder)	AOD
	2022-04-29T14:02:48.080	29/04/2022	14:02	Meadow Pipit	8	montane heath; fly, across area (suitable nesting habitat; possible breeder)	AOD
	2022-04-29T14:03:25.976	29/04/2022	14:03	Meadow Pipit	7	montane heath; fly, across area (suitable nesting habitat; possible breeder)	AOD
HH032	2022-04-29T14:19:37.252	29/04/2022	14:19	Hen Harrier	1	conifer plantation; perched, perched male near 2020 and 2021 nests (suitable nesting habitat; possible breeder)	AOD
HH033	2022-05-24T18:53:54.220	24/05/2022	18:53	Hen Harrier	1	conifer plantation; sky dance/foraging, male foraging then dancing until lost at 2021 nest1 (courtship and display; probable breeding)	AOD
	2022-05-24T18:54:53.621	24/05/2022	18:54	Lesser Black-backed Gull	2	conifer plantation; fly, adults (suitable nesting habitat; possible breeder)	AOD
	2022-05-24T18:55:20.753	24/05/2022	18:55	Meadow Pipit	8	wet grassland; fly/display, across area (courtship and display; probable breeding)	AOD
	2022-05-25T15:16:37.792	25/05/2022	15:16	Meadow Pipit	2	conifer plantation; fly (courtship and display; probable breeding)	AOD
BZ015	2022-05-27T16:20:22.232	25/05/2022	16:20	Buzzard	1	conifer plantation; fly, flying low (suitable nesting habitat; possible breeder)	AOD
	2022-05-25T16:53:47.357	25/05/2022	16:53	Meadow Pipit	4	conifer plantation; fly (suitable nesting habitat; possible breeder)	AOD



	2022-05-26T15:24:40.886	26/05/2022	15:24	Meadow Pipit	9	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
BZ016	2022-05-26T15:25:14.951	26/05/2022	15:25	Buzzard	1	conifer plantation; fly (suitable nesting habitat; possible breeder)	AOD
SN018	2022-05-26T15:34:47.562	26/05/2022	15:34	Snipe	1	wet grassland; fly, flushed (suitable nesting habitat; possible breeder)	AOD
SH005	2022-05-26T16:39:33.682	26/05/2022	16:39	Sparrowhawk	1	conifer plantation; fly, female in flight fast above trees (suitable nesting habitat; possible breeder)	AOD
	2022-05-26T22:31:53.461	26/05/2022	22:31	Lesser Black-backed Gull	6	conifer plantation; fly, flock high travelling (suitable nesting habitat; possible breeder)	AOD
	2022-05-27T14:37:00.507	27/05/2022	14:37	Lesser Black-backed Gull	1	conifer plantation; fly, adult flying over low (suitable nesting habitat; possible breeder)	AOD
	2022-05-27T16:19:10.009	27/05/2022	16:19	Meadow Pipit	10	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-05-27T16:19:37.249	27/05/2022	16:19	Meadow Pipit	4	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-05-27T19:24:46.416	27/05/2022	19:24	Grey Wagtail	1	wet grassland; perch (suitable nesting habitat; possible breeder)	AOD
	2022-05-27T19:25:14.996	27/05/2022	19:25	Grey Wagtail	1	conifer plantation; fly (suitable nesting habitat; possible breeder)	AOD
BZ017	2022-05-27T19:26:06.174	27/05/2022	19:26	Buzzard	1	conifer plantation; fly, mobbed by hc (suitable nesting habitat; possible breeder)	AOD
	2022-05-30T18:06:52.370	30/05/2022	18:06	Meadow Pipit	4	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-05-30T18:07:36.017	30/05/2022	18:07	Meadow Pipit	2	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-05-30T20:11:45.527	30/05/2022	20:11	Meadow Pipit	3	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-06-24T15:47:25.685	24/06/2022	15:47	Meadow Pipit	6	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
	2022-06-24T15:47:49.300	24/06/2022	15:47	Meadow Pipit	4	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
	2022-06-24T15:48:18.832	24/06/2022	15:48	Meadow Pipit	10	upland blanket bog; fly/display, across area inc young (fledged young; confirmed breeding)	AOD



	2022-06-28T19:42:06.669	27/06/2022	19:42	Meadow Pipit	3	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
BZ018	2022-06-28T19:43:05.195	27/06/2022	19:43	Buzzard	1	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
	2022-06-28T19:40:44.809	28/06/2022	17:40	Meadow Pipit	8	wet grassland; fly, across area (suitable nesting habitat; possible breeder)	AOD
BZ019	2022-06-28T19:35:49.992	28/06/2022	18:35	Buzzard	1	conifer plantation; fly, fly over high (suitable nesting habitat; possible breeder)	AOD
	2022-06-28T19:19:36.277	28/06/2022	19:19	Meadow Pipit	5	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
SH006	2022-06-28T19:36:47.648	28/06/2022	19:36	Sparrowhawk	1	conifer plantation; carrying prey, male carrying prey (adult carrying food/faecal sac; confirmed breeding)	AOD
HH034	2022-06-28T19:56:47.134	28/06/2022	19:56	Hen Harrier	1	conifer plantation; fly, male flying nest 2020 hh1 nest (suitable nesting habitat; possible breeder)	AOD
SH007	2022-06-28T19:57:31.978	28/06/2022	19:57	Sparrowhawk	1	conifer plantation; hunting, chasing passerine (suitable nesting habitat; possible breeder)	AOD
HH035	2022-06-29T20:38:45.066	29/06/2022	20:38	Hen Harrier	1	conifer plantation; foraging, male foraging (suitable nesting habitat; possible breeder)	AOD
SN019	2022-06-29T20:52:22.794	29/06/2022	20:52	Snipe	1	montane heath; drumming, drumming (courtship and display; probable breeding)	AOD
HH036	2022-07-07T21:04:37.396	07/07/2022	19:31	Hen Harrier	1	montane heath; foraging, male hunting north of saddle hill on site (suitable nesting habitat; possible breeder)	AOD
SH008	2022-07-07T21:05:31.521	07/07/2022	20:25	Sparrowhawk	1	conifer plantation; nest, female flushed from nest alarming (occupied nest; confirmed breeding)	AOD
WE003	2022-07-07T21:06:32.772	07/07/2022	20:45	White-tailed Eagle	1	wet grassland, conifer plantation and improved agricultural grassland; soaring, wte soaring high towards lough melvin.too far to sex/age (suitable nesting habitat; possible breeder)	AOD
BZ020	2022-07-08T14:35:04.529	08/07/2022	14:35	Buzzard	2	conifer plantation; soaring, pair soaring from site (suitable nesting habitat; possible breeder)	AOD
BZ021	2022-07-11T14:09:10.068	11/07/2022	11:09	Buzzard	1	montane heath; fly, flying low (suitable nesting habitat; possible breeder)	AOD
	2022-07-11T14:09:42.218	11/07/2022	11:11	Meadow Pipit	8	montane heath; fly, across area (suitable nesting habitat; possible breeder)	AOD
	2022-07-11T11:44:33.649	11/07/2022	11:44	Meadow Pipit	7	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD



	2022-07-11T11:55:43.020	11/07/2022	11:55	Meadow Pipit	6	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
	2022-07-11T14:10:13.009	11/07/2022	14:10	Meadow Pipit	12	montane heath; fly, across area (suitable nesting habitat; possible breeder)	AOD
	2022-07-11T14:12:58.728	11/07/2022	14:12	Meadow Pipit	6	wet grassland; fly, across area (suitable nesting habitat; possible breeder)	AOD
SN020	2022-07-11T14:16:32.867	11/07/2022	14:16	Snipe	1	montane heath; flushed, flushed (suitable nesting habitat; possible breeder)	AOD
SH009	2022-07-14T18:43:17.495	14/07/2022	16:40	Sparrowhawk	4	conifer plantation; nest, male bringing prey into nest area.at least 3 chicks begging (occupied nest; confirmed breeding)	AOD
SN021	2022-07-14T20:00:34.729	14/07/2022	20:00	Snipe	1	montane heath and conifer plantation; drumming (courtship and display; probable breeding)	AOD
	2022-07-15T18:42:59.150	15/07/2022	18:42	Swift	1	conifer plantation; fly (flyover; non-breeding)	AOD
	2022-07-15T18:43:26.640	15/07/2022	18:43	Meadow Pipit	7	montane heath; fly (suitable nesting habitat; possible breeder)	AOD
	2022-07-19T16:21:13.132	19/07/2022	16:21	Meadow Pipit	4	conifer plantation; fly (suitable nesting habitat; possible breeder)	AOD
	2022-07-19T16:21:38.128	19/07/2022	16:21	Meadow Pipit	5	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-07-19T17:26:50.097	19/07/2022	17:26	Meadow Pipit	6	upland blanket bog; fly (suitable nesting habitat; possible breeder)	AOD
HH037	2022-07-19T18:14:43.533	19/07/2022	17:45	Hen Harrier	1	conifer plantation; carrying prey/alarmed, female in with prey.alarmed.nest located.young wd4 (adult carrying food/faecal sac; confirmed breeding)	AOD
	2022-07-19T18:25:15.386	19/07/2022	18:25	Meadow Pipit	7	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD
	2022-07-19T18:25:34.360	19/07/2022	18:25	Meadow Pipit	6	wet grassland; fly (suitable nesting habitat; possible breeder)	AOD

Appendix 1 Table 4 Breeding Raptor Survey Observations

Report Ref.	Ref.	BR	Date	Time	Species	Number	Habitat and activity	Breeding status	Surveyor
HH038	2022-12-21T14:30:20.030	5km Radius	11/05/2022	13:05	Hen Harrier	1	bogs and conifer plantation, foraging, adult male	suitable nesting habitat; possible breeder	KB
BZ022	2022-12-21T14:32:45.708	5km Radius	11/05/2022	17:04	Buzzard	1	conifer plantation and bogs, foraging	suitable nesting habitat; possible breeder	KB
BZ023	2022-10-11T16:49:20.102	5km Radius	18/05/2022	10:18	Buzzard	1	bogs and conifer plantation, soaring	suitable nesting habitat; possible breeder	KB
SH010	2022-10-11T16:54:12.627	5km Radius	18/05/2022	10:45	Sparrowhawk	1	wet grassland and conifer plantation, foraging	suitable nesting habitat; possible breeder	KB
HH039	2022-10-11T17:13:16.882	5km Radius	24/05/2022	17:49	Hen Harrier	1	bogs, foraging, adult male	suitable nesting habitat; possible breeder	KB
BZ024	2022-10-27T09:54:07.508	5km Radius	25/05/2022	14:12	Buzzard	1	conifer plantation, hedgerows and highly modified/non-native woodland, foraging	suitable nesting habitat; possible breeder	KB
K013	2022-10-27T10:24:20.111	5km Radius	25/05/2022	14:21	Kestrel	1	wet grassland, scrub and semi-natural woodland, foraging, adult female	suitable nesting habitat; possible breeder	KB



BZ025	2022-10-27T10:28:27.501	5km Radius	25/05/2022	15:05	Buzzard	1	semi-natural grassland and hedgerows, soaring - landed in tree	suitable nesting habitat; possible breeder	KB
BZ026	2022-10-27T10:31:03.887	5km Radius	25/05/2022	15:49	Buzzard	1	semi-natural grassland and hedgerows, foraging	suitable nesting habitat; possible breeder	KB
BZ027	2022-10-27T10:46:49.555	5km Radius	25/05/2022	16:39	Buzzard	1	semi-natural grassland, foraging - landed in field	suitable nesting habitat; possible breeder	KB
WE004	2022-10-27T11:20:30.568	5km Radius	27/05/2022	09:12	White-tailed Eagle	1	bogs, foraging - low to ground, juvenile white-tailed sea eagle	flyover; non-breeding	KB
WE005	2022-10-27T11:24:09.325	5km Radius	27/05/2022	09:30	White-tailed Eagle	1	bogs, foraging - low to ground	flyover; non-breeding	KB
SH011	2022-10-27T11:30:31.502	5km Radius	30/05/2022	17:13	Sparrowhawk	1	conifer plantation, display flight	courtship and display; probable breeding	KB
BZ028	2022-10-27T11:32:22.690	5km Radius	30/05/2022	18:36	Buzzard	1	semi-natural grassland and hedgerows, soaring	suitable nesting habitat; possible breeder	KB
BZ029	2022-12-01T14:38:53.281	5km Radius	14/06/2022	07:59	Buzzard	1	conifer plantation, calling	suitable nesting habitat; possible breeder	KB



BZ030	2022-12-01T14:39:32.620	5km Radius	14/06/2022	08:24	Buzzard	1	conifer plantation, calling	suitable nesting habitat; possible breeder	KB
BZ031	2022-12-01T14:47:59.743	5km Radius	15/06/2022	13:30	Buzzard	1	bogs and conifer plantation, foraging	suitable nesting habitat; possible breeder	KB
BZ032	2022-12-01T14:48:55.519	5km Radius	15/06/2022	14:34	Buzzard	1	bogs and conifer plantation, foraging, second bird	suitable nesting habitat; possible breeder	KB
BZ033	2022-12-01T14:51:56.422	5km Radius	15/06/2022	17:02	Buzzard	1	semi-natural grassland, hedgerows and conifer plantation, soaring	suitable nesting habitat; possible breeder	KB
HH040	2022-12-01T15:02:34.866	5km Radius	16/06/2022	13:05	Hen Harrier	1	wet grassland, bogs and conifer plantation, foraging around saddle hill for 12 min	suitable nesting habitat; possible breeder	KB
HH041	2022-12-01T14:41:58.953	5km Radius	16/06/2022	13:42	Hen Harrier	1	bogs and conifer plantation, foraging male	suitable nesting habitat; possible breeder	KB
HH042	2022-12-01T15:12:28.145	5km Radius	24/06/2022	09:07	Hen Harrier	1	wet grassland and conifer plantation, foraging, adult male	suitable nesting habitat; possible breeder	KB
HH043	2022-12-01T15:13:47.962	5km Radius	24/06/2022	09:20	Hen Harrier	1	wet grassland and conifer plantation, foraging, adult male	suitable nesting habitat; possible breeder	KB

HH044	2022-12-01T15:15:26.862	5km Radius	28/06/2022	16:28	Hen Harrier	1	bogs, foraging, adult male	suitable nesting habitat; possible breeder	KB
SH012	2022-12-01T15:21:28.937	5km Radius	30/06/2022	16:13	Sparrowhawk	1	conifer plantation and bogs, carrying prey into stand of conifers	adult carrying food/faecal sac; confirmed breeding	KB
HH045	2022-12-01T15:48:10.952	5km Radius	01/07/2022	13:16	Hen Harrier	1	wet grassland, conifer plantation and bogs, foarging for 30min until out of sight, adult male	suitable nesting habitat; possible breeder	KB
HH046	2022-12-01T15:56:39.324	5km Radius	01/07/2022	16:44	Hen Harrier	1	wet grassland, bogs and conifer plantation, foraging, adult male	suitable nesting habitat; possible breeder	KB
HH047	2022-12-01T15:57:29.656	5km Radius	01/07/2022	17:01	Hen Harrier	1	conifer plantation, foraging, adult male	suitable nesting habitat; possible breeder	KB
SH013	2022-12-19T11:28:50.801	5km Radius	12/07/2022	12:04	Sparrowhawk	1	conifer plantation, foraging, male	suitable nesting habitat; possible breeder	KB
BZ034	2022-12-19T11:35:09.310	5km Radius	12/07/2022	12:45	Buzzard	1	bogs and conifer plantation, soaring	suitable nesting habitat; possible breeder	KB
SH014	2022-12-19T11:38:33.425	5km Radius	15/07/2022	08:42	Sparrowhawk	1	conifer plantation, bogs and wet grassland, foraging	suitable nesting habitat; possible breeder	KB



SH015	2022-12-19T11:51:41.813	5km Radius	20/07/2022	10:47	Sparrowhawk	1	bogs and conifer plantation, soaring	suitable nesting habitat; possible breeder	KB
SH016	2022-12-19T11:54:56.136	5km Radius	20/07/2022	11:11	Sparrowhawk		conifer plantation, begging calls heard in forestry	nest with young; confirmed breeding	KB
BZ035	2022-12-19T12:00:21.252	5km Radius	20/07/2022	12:15	Buzzard	2	bogs, soaring	suitable nesting habitat; possible breeder	KB
BZ036	2022-12-19T12:55:34.570	5km Radius	20/07/2022	13:36	Buzzard	1	conifer plantation, calling heard	suitable nesting habitat; possible breeder	KB
SH017	2022-12-19T13:48:43.165	5km Radius	20/07/2022	15:27	Sparrowhawk	1	bogs and conifer plantation, soaring and foraging	suitable nesting habitat; possible breeder	KB
SH018	2022-12-19T13:50:49.608	5km Radius	20/07/2022	15:27	Sparrowhawk		conifer plantation, begging calls heard in forestry	nest with young; confirmed breeding	KB
BZ037	2022-12-19T13:52:28.414	5km Radius	20/07/2022	15:46	Buzzard	1	conifer plantation, soaring	suitable nesting habitat; possible breeder	KB
SH019	2022-12-19T13:55:20.222	5km Radius	20/07/2022	15:57	Sparrowhawk	1	conifer plantation, foraging, came out of area chick begging calls were heard	suitable nesting habitat; possible breeder	KB



SH020	2022-12-19T14:03:33.146	5km Radius	21/07/2022	12:17	Sparrowhawk	1	conifer plantation, male foraging	suitable nesting habitat; possible breeder	KB
BZ038	2022-12-19T14:04:53.907	5km Radius	21/07/2022	14:22	Buzzard	1	conifer plantation, foraging	suitable nesting habitat; possible breeder	KB
HH048	2022-12-19T16:08:10:10	5km Radius	26/07/2022	10:10	Hen Harrier	1	conifer plantation and wet grassland, female alarm calling at nest	occupied nest; confirmed breeding	KB
BZ039	2022-12-19T14:15:00.770	5km Radius	26/07/2022	12:43	Buzzard	1	wet grassland and conifer plantation, soaring	suitable nesting habitat; possible breeder	KB
HH049	2022-07-28T13:14:06.928	BR1	28/07/2022	13:14	Hen Harrier	1	conifer plantation, prey carrying, female into nest with prey	adult carrying food/faecal sac; confirmed breeding	AOD
HH050	2022-07-28T13:30:09.176	BR1	28/07/2022	13:30	Hen Harrier	1	conifer plantation and wet grassland, at nest, female up out of nest flew off towards site	occupied nest; confirmed breeding	AOD
SH021	2022-07-28T13:48:34.665	BR1	28/07/2022	13:48	Sparrowhawk	1	wet grassland, fly, soaring high	suitable nesting habitat; possible breeder	AOD
HH051	2022-07-28T14:13:58.557	BR1	28/07/2022	14:13	Hen Harrier	1	conifer plantation, prey carrying, female in to nest with prey	adult carrying food/faecal sac; confirmed breeding	AOD



HH052	2022-12-19T14:26:47.551	BR1	30/07/2022	13:13	Hen Harrier	1	conifer plantation and wet grassland, female carrying prey flew in from sw, dropped down and disappeared from view. came back up, flew around, landed on perch then flew off westwards	occupied nest; confirmed breeding	KB
HH053	2022-12-19T14:28:57.669	BR1	30/07/2022	13:13	Hen Harrier	1	conifer plantation and wet grassland, second female came up from ground as first female flew in with prey - second female flew around, landed on perch, and then was lost from view as the surveyor was watching the first female	occupied nest; confirmed breeding	KB
HH054	2022-12-19T14:31:39.867	BR1	30/07/2022	13:26	Hen Harrier	1	conifer plantation and wet grassland, female flew in from west, dropped down and was lost from view	occupied nest; confirmed breeding	KB



HH055	2022-12-19T14:33:42.608	BR1	30/07/2022	13:31	Hen Harrier		conifer plantation, begging calls heard at nest	occupied nest; confirmed breeding	KB
HH056	2022-12-19T14:36:39.975	BR1	30/07/2022	13:53	Hen Harrier	1	conifer plantation, ringtail soaring over fields behind nest	suitable nesting habitat; possible breeder	KB
HH057	2022-12-19T14:38:41.978	BR1	30/07/2022	13:55	Hen Harrier	1	conifer plantation, ringtail soaring over fields behind nest and dropped down	suitable nesting habitat; possible breeder	KB
HH058	2022-12-19T14:40:25.635	BR1	30/07/2022	14:38	Hen Harrier	2	conifer plantation, 2x fledgelings flying low around nest site	nest with young; confirmed breeding	KB
HH059	2022-12-19T14:44:17.384	BR1	30/07/2022	14:39	Hen Harrier	1	conifer plantation and wet grassland, female flew around nest site and flew off towards wsw	occupied nest; confirmed breeding	KB
HH060	2022-12-19T16:01:51.874	BR1	02/08/2022	12:30	Hen Harrier	1	conifer plantation, ringtail in sky over nest (seen from car as driving past)	occupied nest; confirmed breeding	KB
HH061	2022-12-19T16:03:32.936	BR1	02/08/2022	12:46	Hen Harrier	1	conifer plantation, wet grassland and bogs, female foraging	suitable nesting habitat; possible breeder	KB



SH022	2022-12-19T16:05:10.244	BR1	02/08/2022	14:16	Sparrowhawk	1	conifer plantation, foraging	suitable nesting habitat; possible breeder	KB
HH062	2022-12-19T16:07:49.908	BR1	02/08/2022	14:57	Hen Harrier	1	wet grassland, bogs and conifer plantation, ringtail foraging	suitable nesting habitat; possible breeder	KB
SH023	2022-08-02T16:46:33.330	BR1	02/08/2022	16:46	Sparrowhawk	1	conifer plantation, foraging, flying very high stooped to tree level hunting	suitable nesting habitat; possible breeder	AOD
HH063	2022-08-02T18:25:06.432	BR1	02/08/2022	18:25	Hen Harrier	3	conifer plantation, circling nest, 2 adult females and at least one chick circling nest. one adult female left one stayed alarming until surveyor left the area	fledged young; confirmed breeding	AOD
	2022-08-03T15:38:13.360	BR1	03/08/2022	15:38	Lesser Black-backed Gull	1	conifer plantation, travelling, flying over adult	suitable nesting habitat; possible breeder	AOD
	2022-08-03T15:38:55.349	BR1	03/08/2022	15:38	Grey Heron	1	wet grassland, fly, flying low over wet fields	suitable nesting habitat; possible breeder	AOD
SH024	2022-08-03T15:39:32.208	BR1	03/08/2022	15:39	Sparrowhawk	1	conifer plantation, fly, juv flying low	suitable nesting habitat; possible breeder	AOD



K014	2022-08-03T15:55:21.319	BR1	03/08/2022	15:55	Kestrel	2	wet grassland and montane heath, foraging young, 2 young birds foraging	fledged young; confirmed breeding	AOD
HH064	2022-08-03T17:47:10.982	BR1	03/08/2022	16:54	Hen Harrier	1	conifer plantation, fly, young bird flew low at nest	fledged young; confirmed breeding	AOD
HH065	2022-08-03T17:48:14.074	BR1	03/08/2022	17:20	Hen Harrier	1	conifer plantation, chick w prey, chick with item in talons.no adult visible.landed in hedgrow	fledged young; confirmed breeding	AOD
HH066	2022-08-03T17:49:15.746	BR1	03/08/2022	17:39	Hen Harrier	3	conifer plantation, adult feeding young, female in with prey gave to unseen chick/nest another chick continued chasing adult.adult left area immediatly chicks settled.	fledged young; confirmed breeding	AOD
K015	2022-08-03T18:09:13.284	BR1	03/08/2022	18:09	Kestrel	1	wet grassland, foraging, female/imm bird foraging	suitable nesting habitat; possible breeder	AOD
HH067	2022-08-05T10:40:01.373	BR1	05/08/2022	10:40	Hen Harrier	1	conifer plantation and wet grassland, mobbing, hh chick mobbing	fledged young; confirmed breeding	AOD

							female sh contiued away from nest area		
SH025	2022-08- 05T10:41:04.10 0	BR1	05/08/2022	10:41	Sparrowhawk	1	conifer plantation, foraging, female being mobbed by hh chick	suitable nesting habitat; possible breeder	AOD
K016	2022-08- 05T11:56:02.46 1	BR1	05/08/2022	11:56	Kestrel	1	wet grassland, foraging, no age/sex foraging	suitable nesting habitat; possible breeder	AOD
SH026	2022-08- 05T12:18:41.98 7	BR1	05/08/2022	12:18	Sparrowhawk	1	wet grassland, foraging, female foraging	suitable nesting habitat; possible breeder	AOD
K017	2022-08- 05T13:52:51.17 9	BR1	05/08/2022	13:52	Kestrel	1	conifer plantation and montane heath, foraging, female foraging	suitable nesting habitat; possible breeder	AOD
SH027	2022-08- 09T10:57:03.50 0	BR1	09/08/2022	10:57	Sparrowhawk	1	conifer plantation and montane heath, soaring, female soaring mobbed by passerines	suitable nesting habitat; possible breeder	AOD
SH028	2022-08- 09T11:01:20.40 5	BR1	09/08/2022	11:01	Sparrowhawk	1	conifer plantation, fly, recently fledged bird flew between trees.possible chick from known sh nest nearby	fledged young; confirmed breeding	AOD



	2022-08-10T11:44:45.982	BR1	10/08/2022	11:44	Lesser Black-backed Gull	1	conifer plantation, fly, young bird flying over	fledged young; confirmed breeding	AOD
K018	2022-08-10T11:45:33.295	BR1	10/08/2022	11:45	Kestrel	1	montane heath, foraging, no age/sex foraging	suitable nesting habitat; possible breeder	AOD
BZ040	2022-08-10T11:57:01.440	BR1	10/08/2022	11:57	Buzzard	5	conifer plantation, soaring, soaring birds including some young birds.likely nest of origin on site	fledged young; confirmed breeding	AOD
SH029	2022-08-10T14:54:06.302	BR1	10/08/2022	13:54	Sparrowhawk	1	conifer plantation, fly, young bird flew low	fledged young; confirmed breeding	AOD
SH030	2022-08-10T14:55:08.453	BR1	10/08/2022	14:24	Sparrowhawk	1	conifer plantation and wet grassland, fly, juv flying	suitable nesting habitat; possible breeder	AOD
K019	2022-08-26T16:35:52.386	BR1	26/08/2022	16:35	Kestrel	1	conifer plantation, foraging, young bird	fledged young; confirmed breeding	AOD

Appendix 1 Table 5 Incidental Observations

Report Ref.	Ref.	Location	Date	Time	Species	Number	Habitat and activity	Surveyor
SN022	2022-10-11T17:08:11.901	Breeding Raptor Survey; 5Km Radius	24/05/2022	17:12	Snipe	2	bogs; vociferous chipping and drumming/displaying in sky together	KB
SN023	2022-10-11T17:11:02.439	Breeding Raptor Survey; 5Km Radius	24/05/2022	17:18	Snipe	2	bogs; chipping and drumming	KB
SN024	2022-10-11T17:15:04.204	Breeding Raptor Survey; 5Km Radius	24/05/2022	18:00	Snipe	1	bogs; chipping	KB
SN025	2022-10-11T17:16:09.781	Breeding Raptor Survey; 5Km Radius	24/05/2022	18:27	Snipe	1	bogs; chipping	KB
SN026	2022-10-11T17:17:19.355	Breeding Raptor Survey; 5Km Radius	24/05/2022	18:34	Snipe	1	bogs; display flight	KB
SN027	2022-10-11T17:18:33.321	Breeding Raptor Survey; 5Km Radius	24/05/2022	18:59	Snipe	1	bogs; display flight	KB
SN028	2022-10-27T11:13:28.595	Breeding Raptor Survey; 5Km Radius	26/05/2022	07:44	Snipe	1	bogs; chipping	KB
SN029	2022-12-02T08:36:14.881	Breeding Raptor Survey; 5Km Radius	14/06/2022	07:48	Snipe	1	bogs; chipping	KB
SN030	2022-12-02T08:36:40.278	Breeding Raptor Survey; 5Km Radius	14/06/2022	09:50	Snipe	1	bogs; chipping	KB
SN031	2022-12-02T08:37:29.926	Breeding Raptor Survey; 5Km Radius	14/06/2022	10:48	Snipe	1	bogs; drumming	KB
SN032	2022-12-02T08:42:52.487	Breeding Raptor Survey; 5Km Radius	14/06/2022	11:32	Snipe	1	bogs; drumming	KB
SN033	2022-12-02T08:43:18.898	Breeding Raptor Survey; 5Km Radius	14/06/2022	13:39	Snipe	1	bogs; chipping	KB
SN034	2022-12-19T14:00:16.431	Breeding Raptor Survey; 5Km Radius	21/07/2022	08:11	Snipe	1	bogs; chipping	KB
SN035	2022-08-11T10:22:08.523	Vantage Point Survey; VP2	11/08/2022	09:22	Snipe	1	montane heath; fly	AOD



APPENDIX 2

FIGURES



Map Legend

- Site Boundary
- 500m Buffer of Site
- ▲ VP Locations
- Viewsheds



Drawing Title:

Vantage Point Locations and Viewsheds

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 1.0

Scale:

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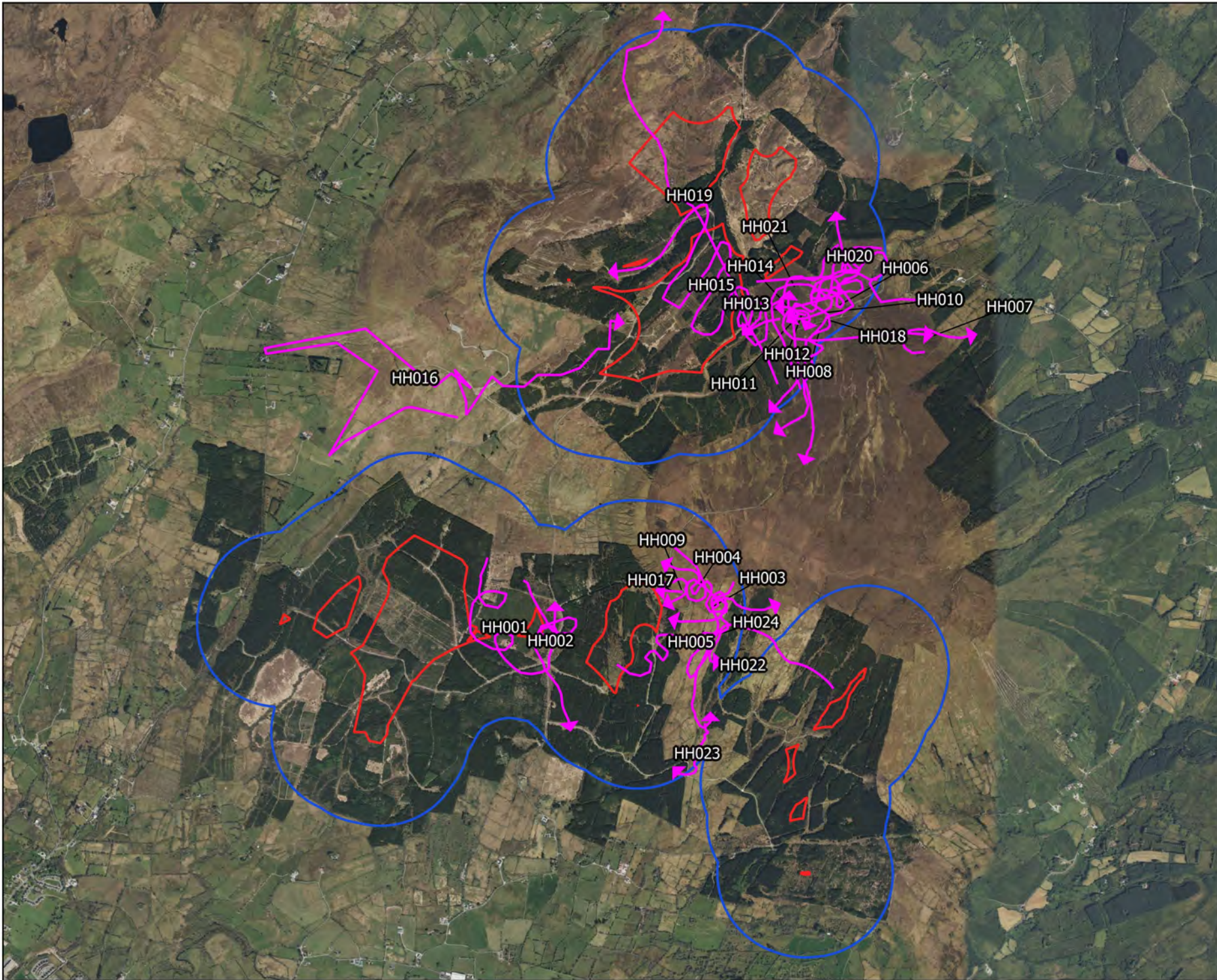
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27.04.23



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Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

Hen harrier
VP Observations

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 1.1

Scale:

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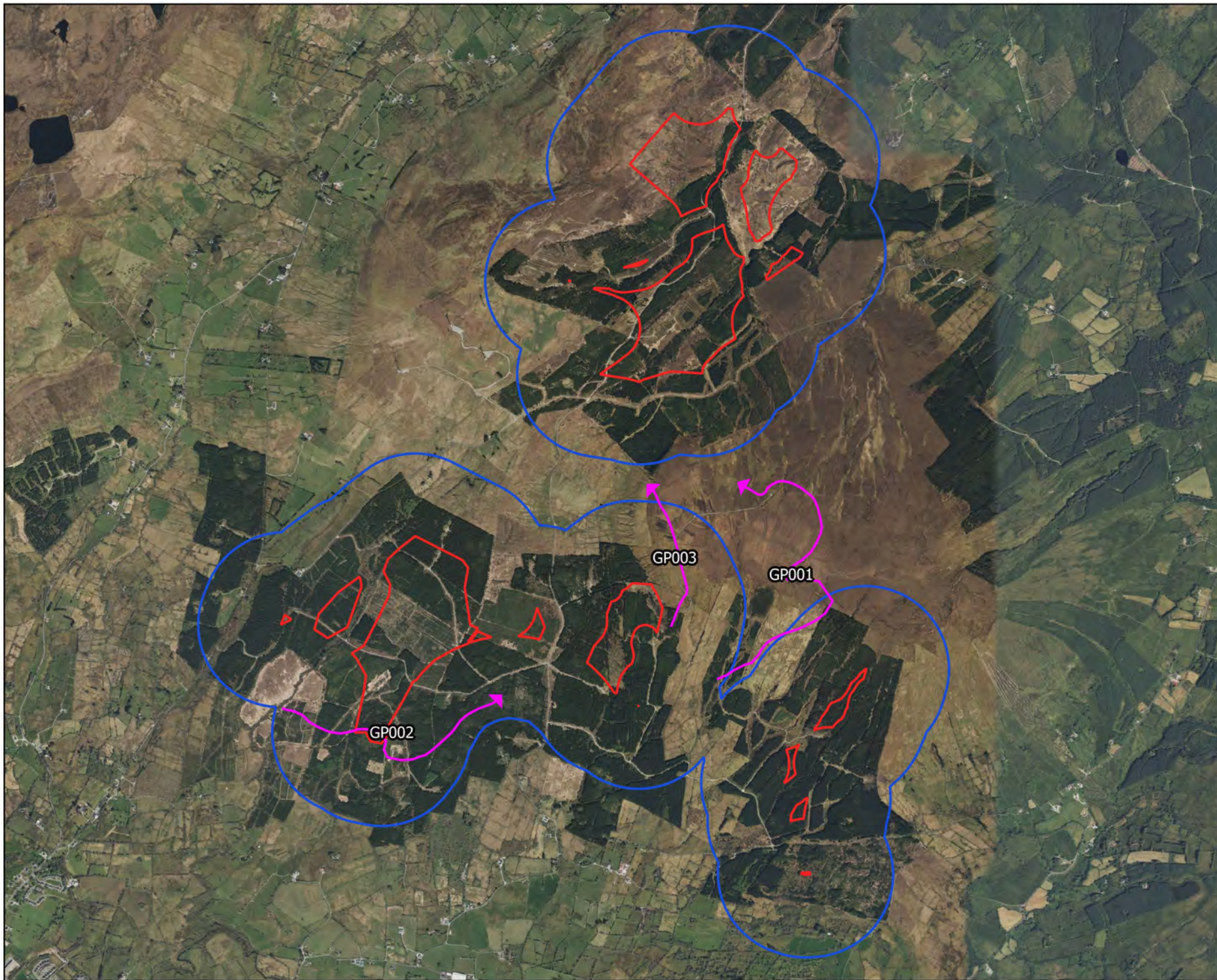
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- ↗ Observation Flightline



Drawing Title:

Golden plover
VP Observations

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 1.2

Scale:

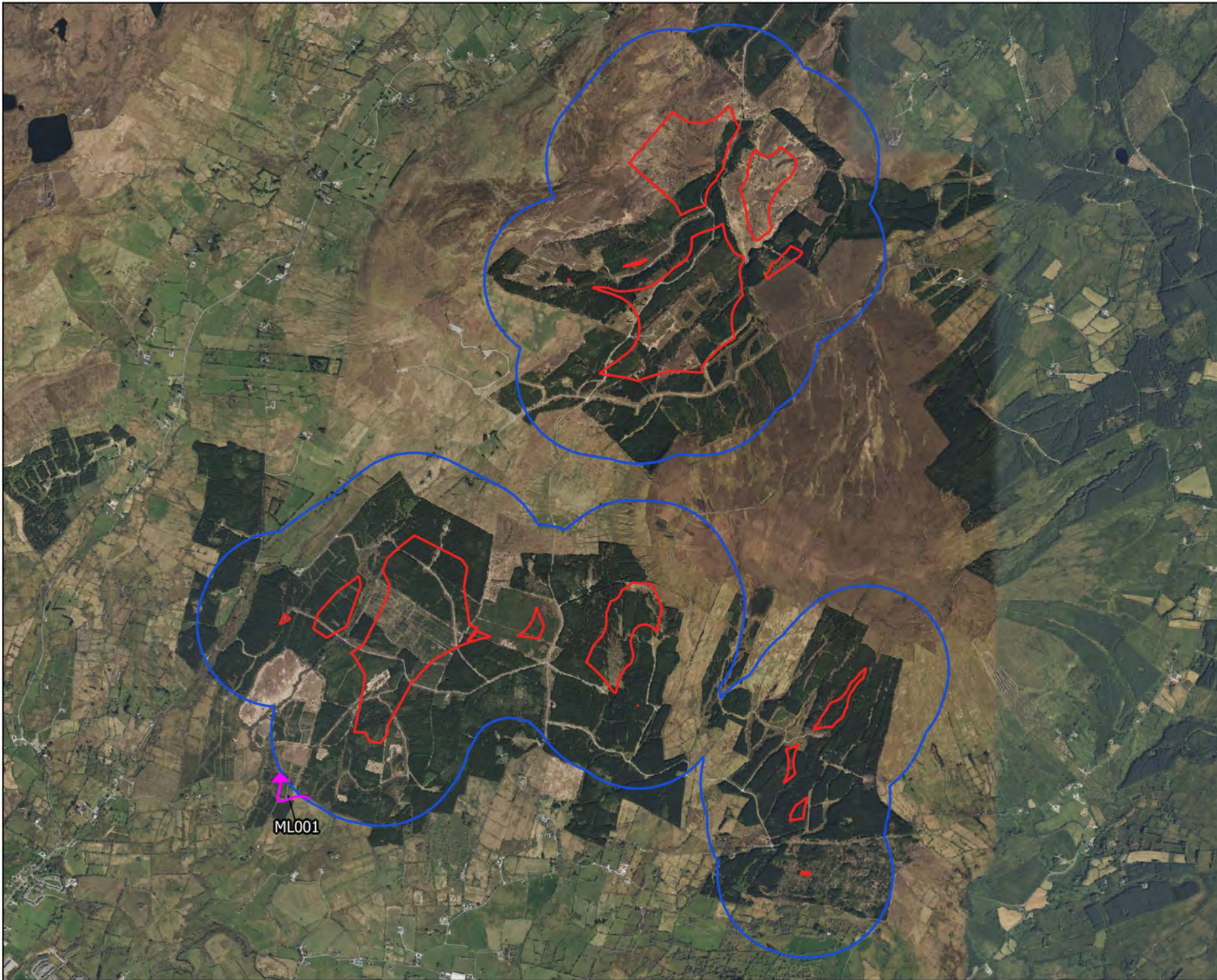
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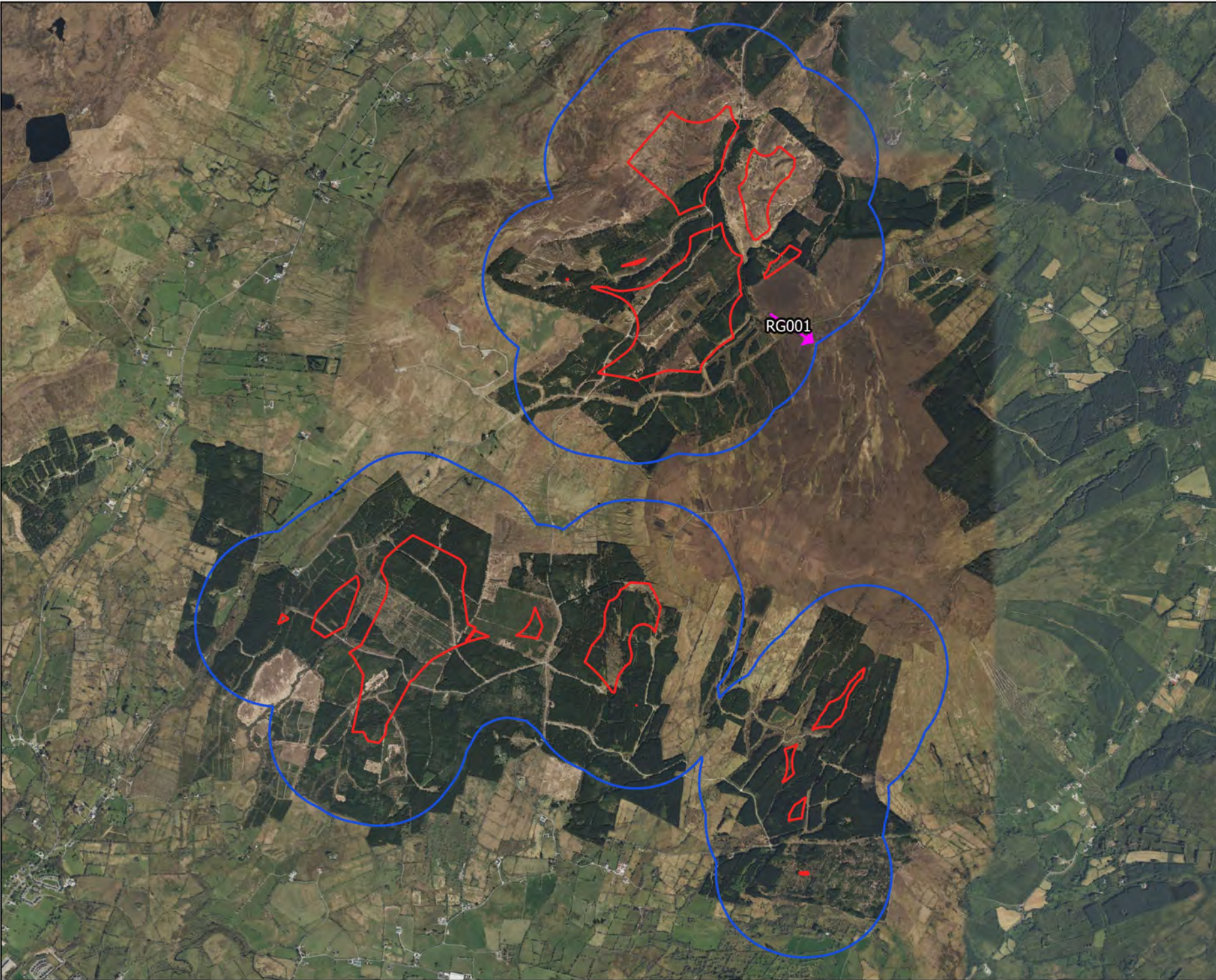
Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



Drawing Title Merlin VP Observations	
Project Title Lissinagroagh	
Drawn By AO'D	Drawing No. Fig 1.3
Project No. 200217-g	Date 27.04.23
Scale 1:30000	
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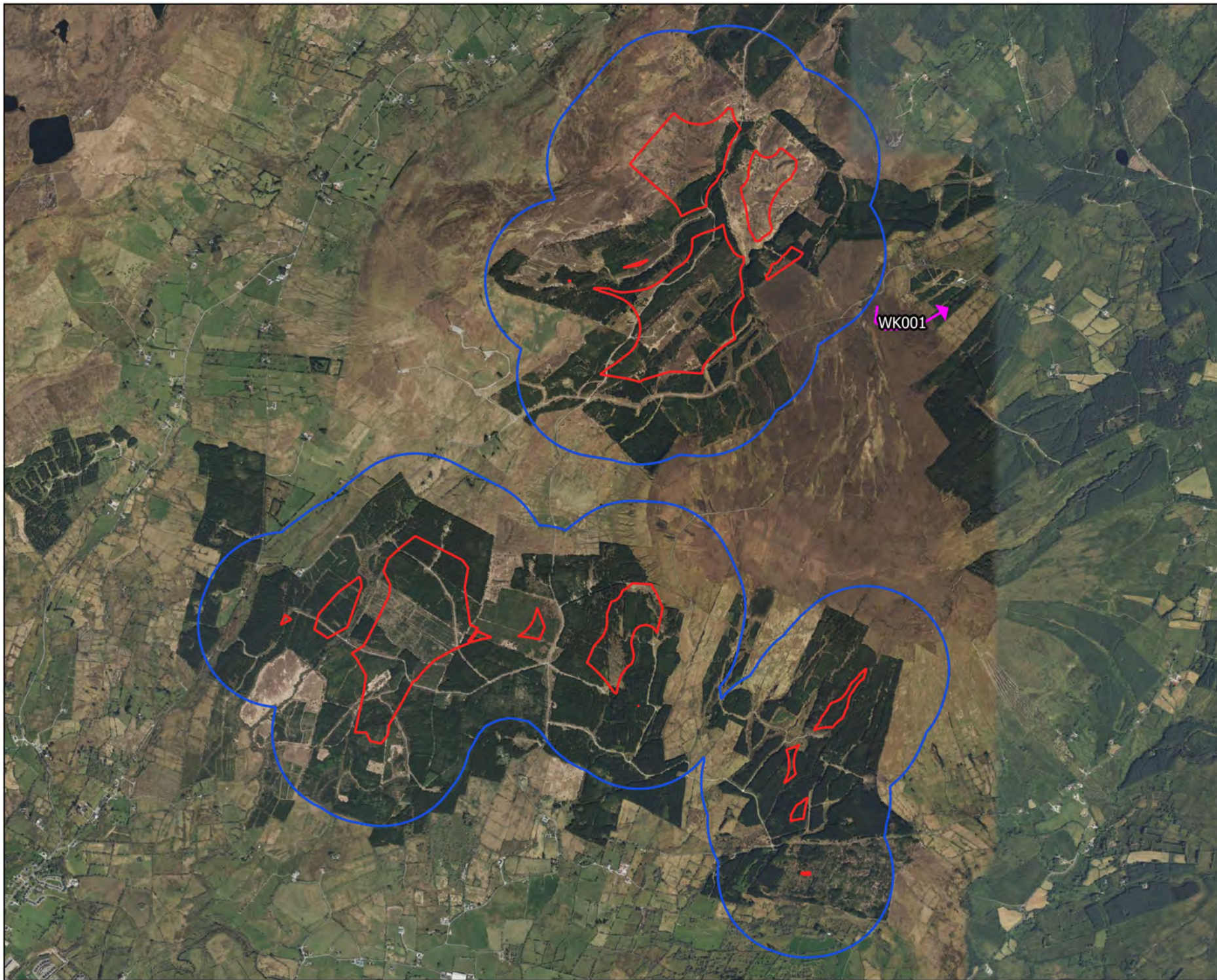
Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



<p>Red Grouse VP Observations</p>	
<p>Lissinagroagh</p>	
<p>Drawn By AO'D</p>	<p>Drawing No. Fig 1.4</p>
<p>Project No. 200217-g</p>	<p>Date 27.04.23</p>
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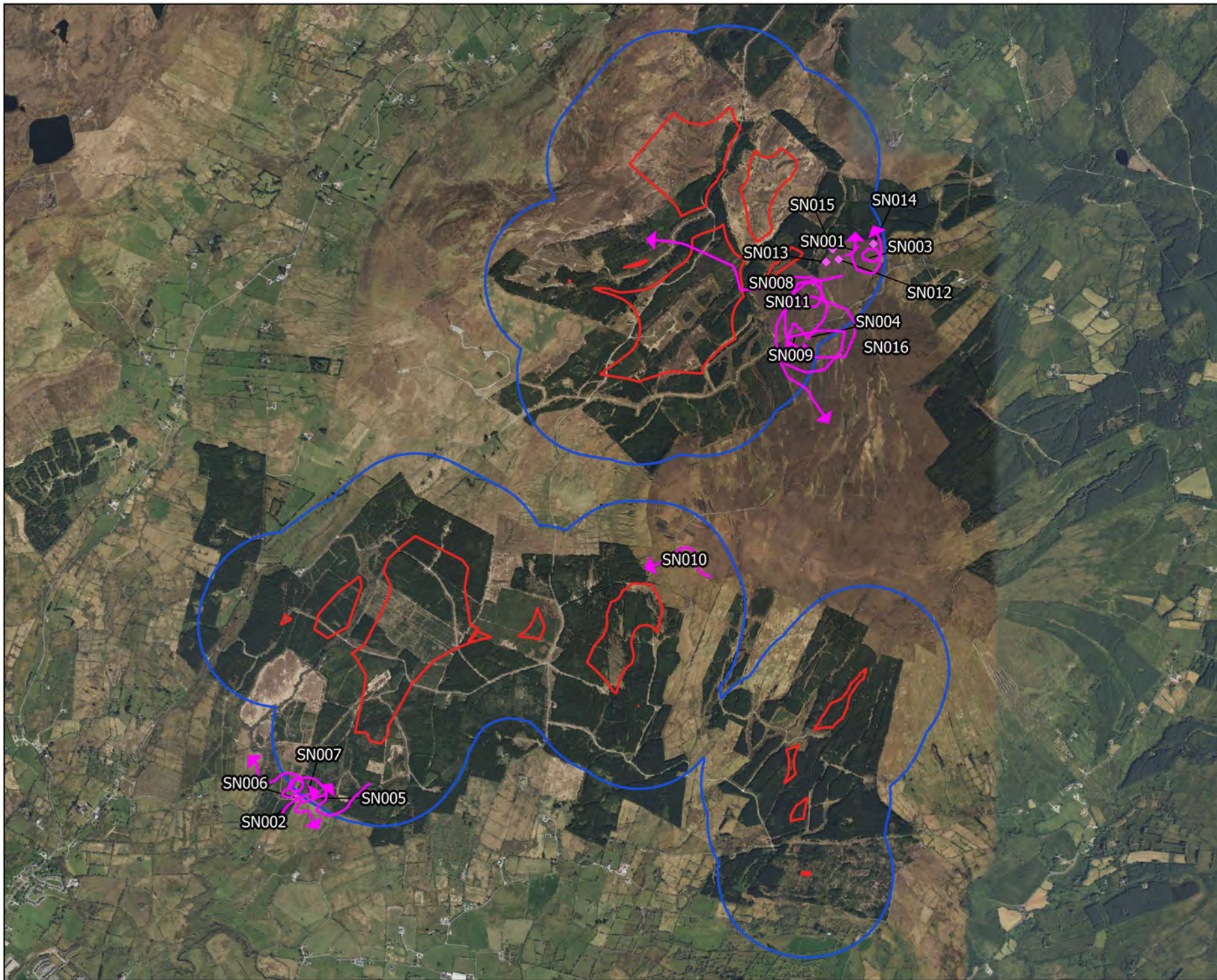
- ### Map Legend
- Site Boundary
 - 500m Buffer of Site
 - Observation Flightline



Drawing Title	
Woodcock VP Observations	
Project Title	
Lissinagroagh	
Drawn By	
AO'D	
Project No.	Drawing No.
200217-g	Fig 1.5
Scale	Date
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Map Legend

- Site Boundary
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- ↗ Observation Flightline



Drawing Title

Snipe
VP Observations

Project Title

Lissinagroagh

Drawn By

AO'D

Project No.

200217-g

Drawing No.

Fig 1.6

Scale

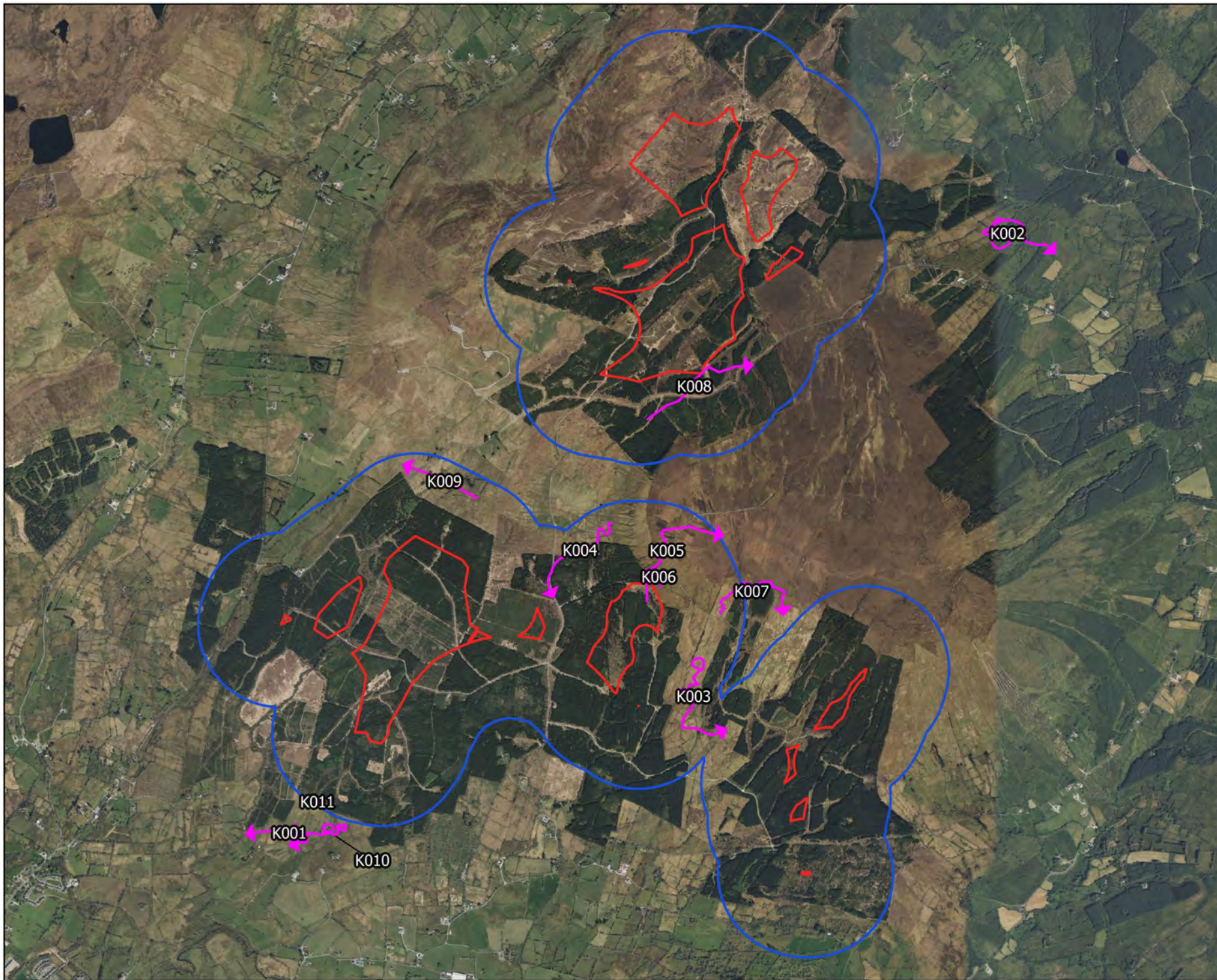
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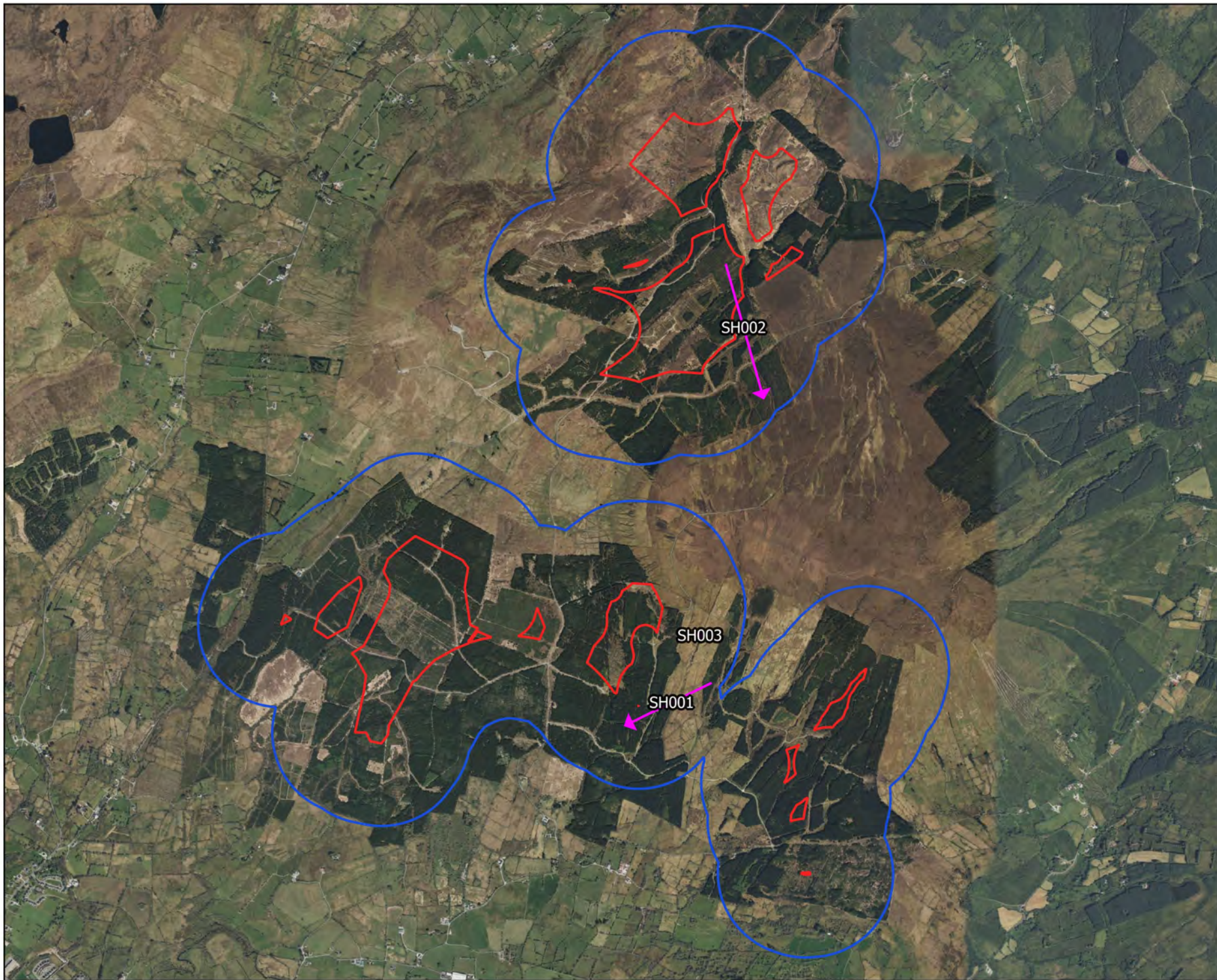
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- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



Drawing Title	
Kestrel VP Observations	
Project Title	
Lissinagroagh	
Drawn By	
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Project No.	Drawing No.
200217-g	Fig 1.7
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Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

Sparrowhawk
VP Observations

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 1.8

Scale:

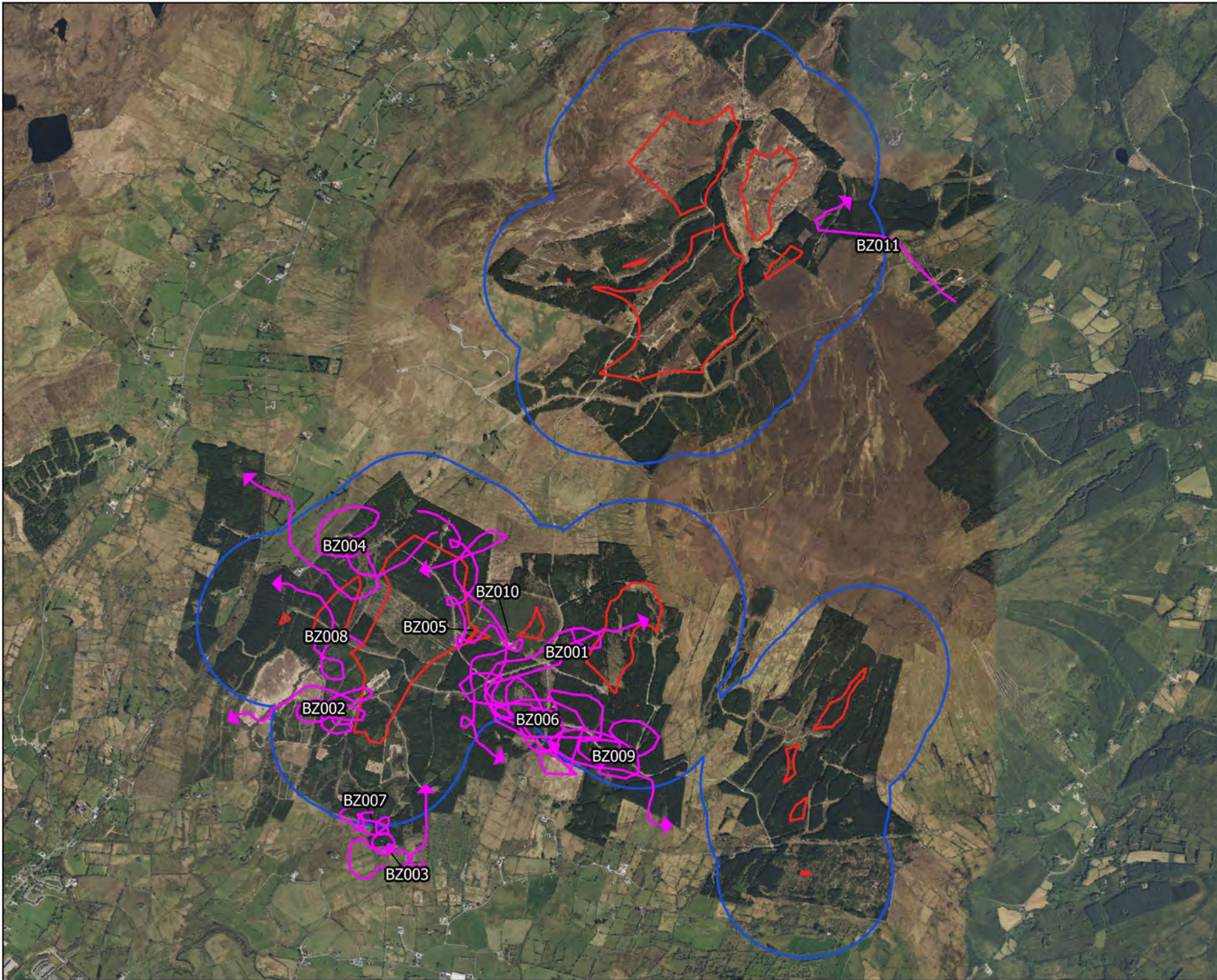
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27.04.23



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email: info@mkofireland.ie
Website: www.mkofireland.ie



Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

**Buzzard
VP Observations**

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 1.9

Scale:

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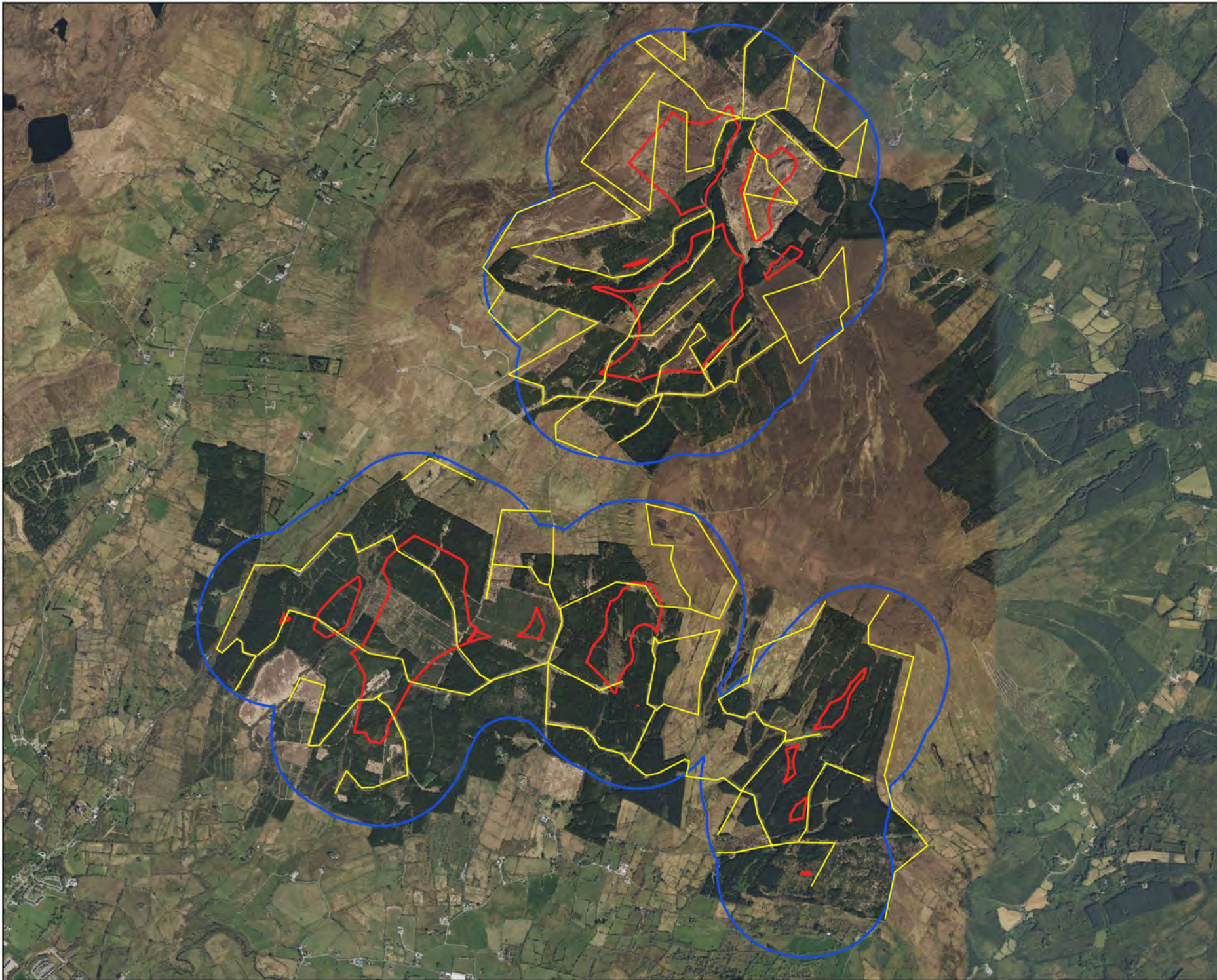
Date:

27.04.23



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Map Legend

- Site Boundary
- 500m Buffer of Site
- Transects



Drawing Title

**Breeding Walkover
Transects**

Project Title

Lissinagroagh

Drawn By

AO'D

Project No.

200217-g

Drawing No.

Fig 2.0

Scale

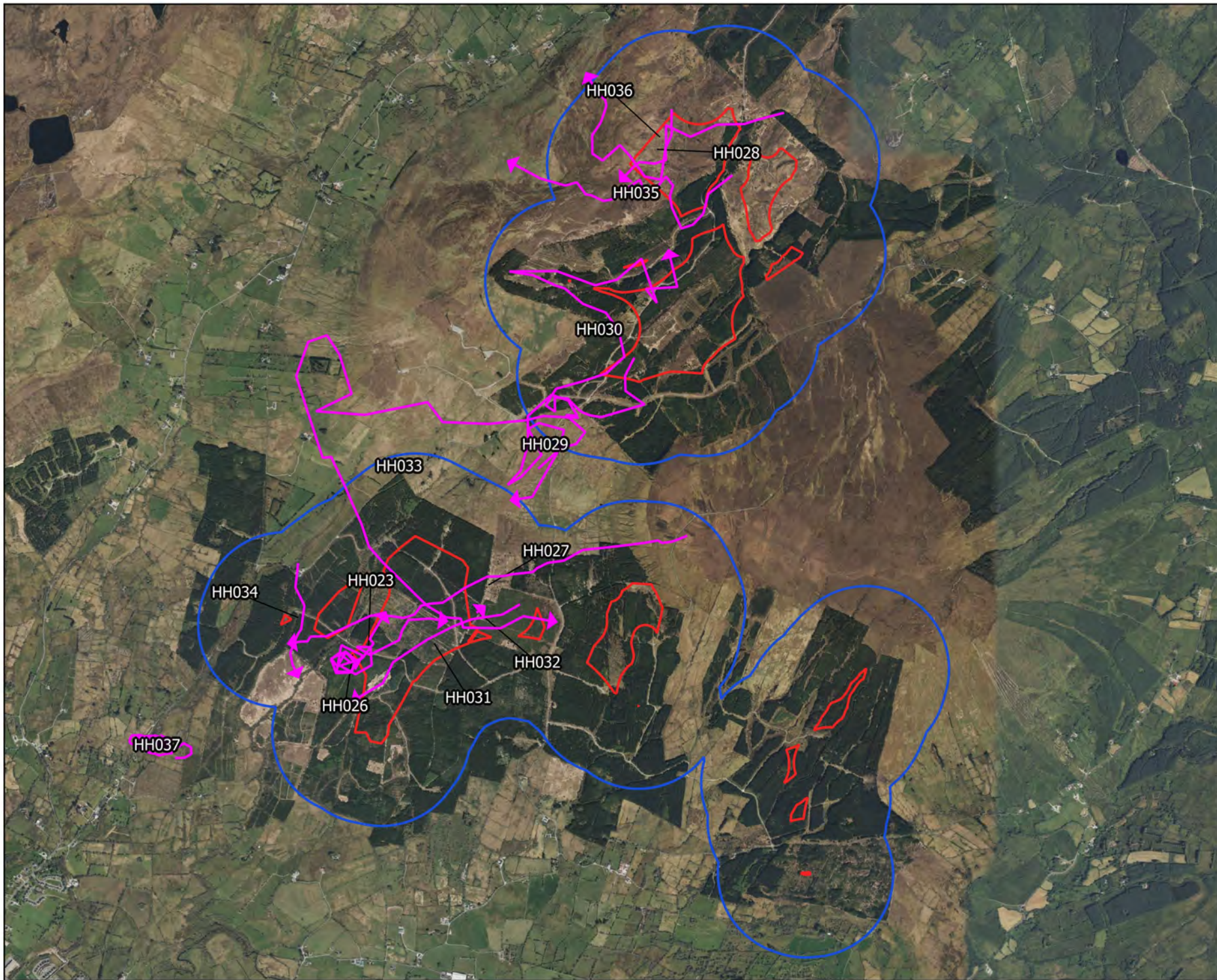
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Date

27.04.23



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Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

**Hen harrier
Breeding Walkover Observations**

Project Title:
Lissinagroagh

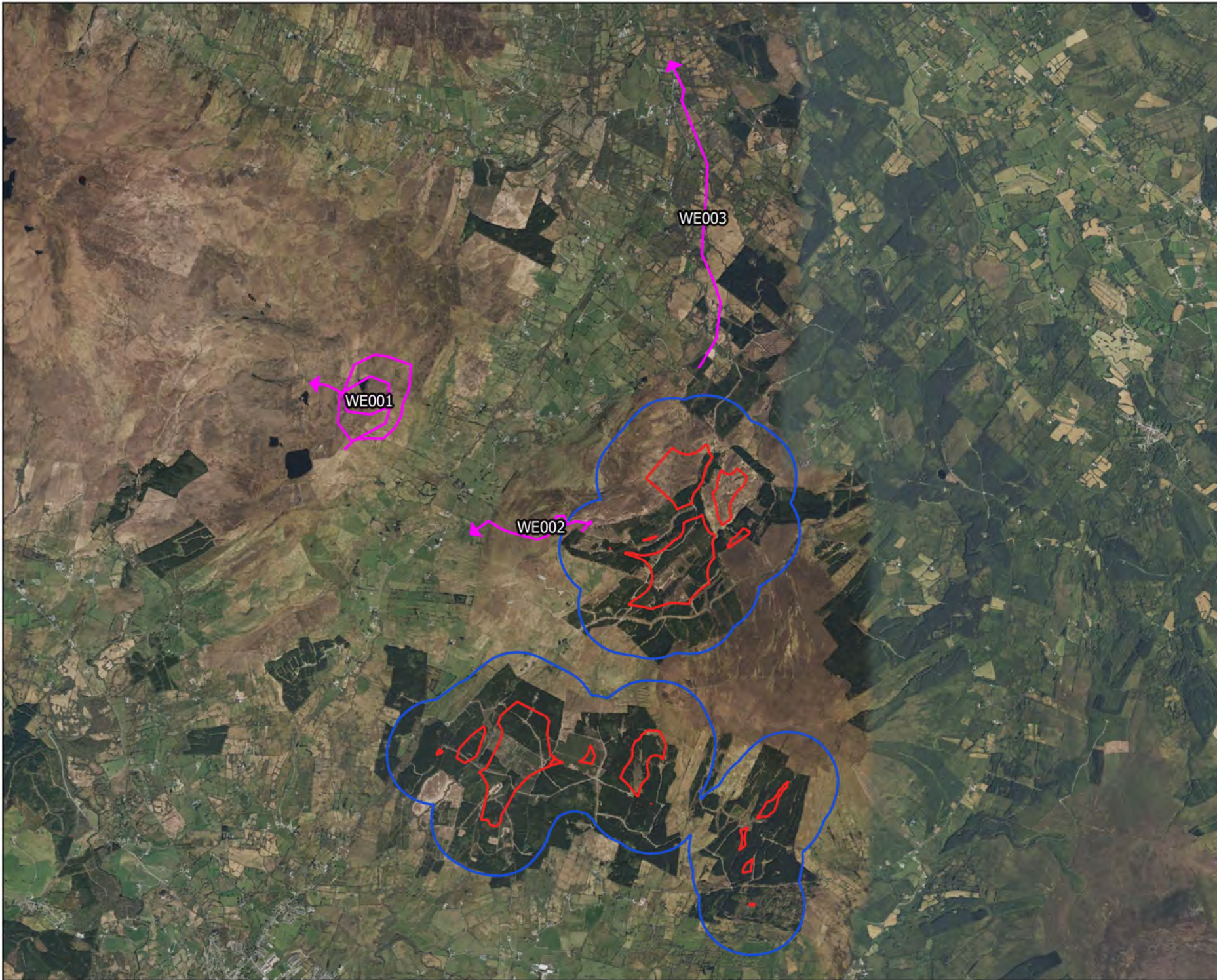
Drawn By: AO'D	Drawing No.:
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Project No.:	Drawing No.:
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Scale:	Date:
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Map Legend

-  Site Boundary
-  500m Buffer of Site
-  Observation Flightline



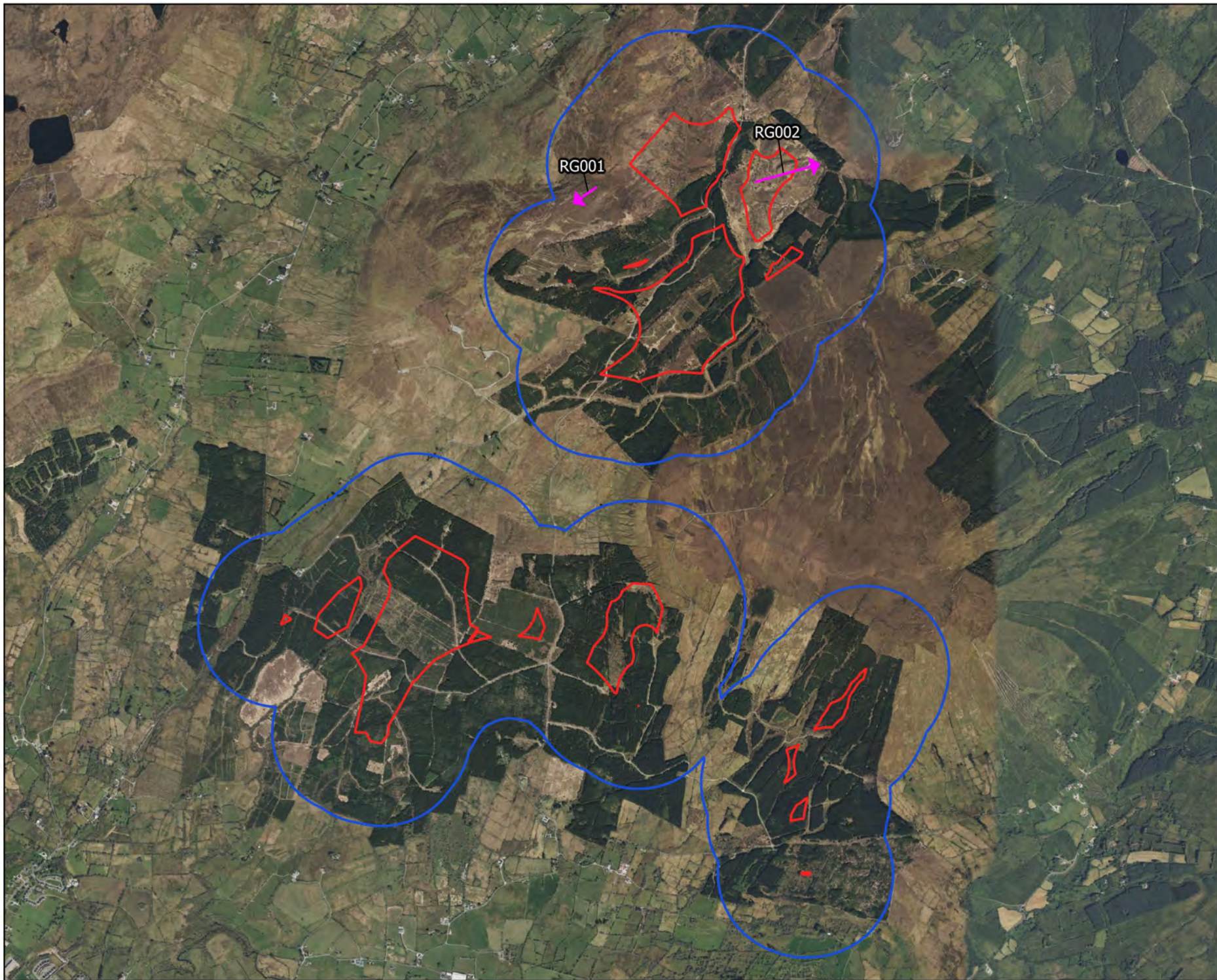
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Drawing Title:
**White-tailed eagle
 Breeding Walkover Observations**

Project Title:
Lissinagroagh

Drawn By: AO'D	
Project No. 200217-g	Drawing No. Fig 2.2
Scale 1:50000	Date 27.04.23

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Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

**Red grouse
Breeding Walkover Observations**

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 2.3

Scale:

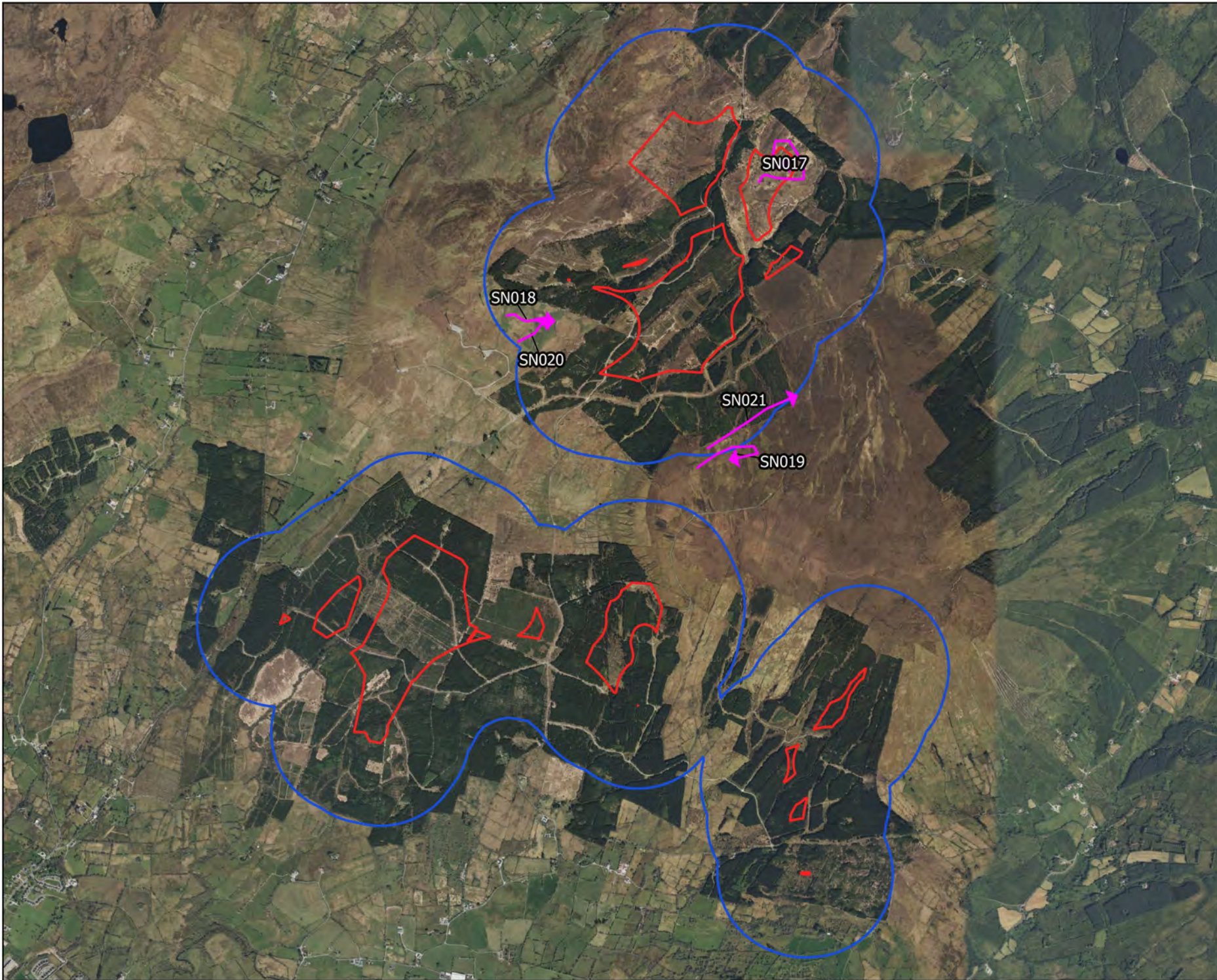
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Date:

27.04.23



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Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



Drawing Title:

**Snipe
Breeding Walkover Observations**

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 2.4

Scale:

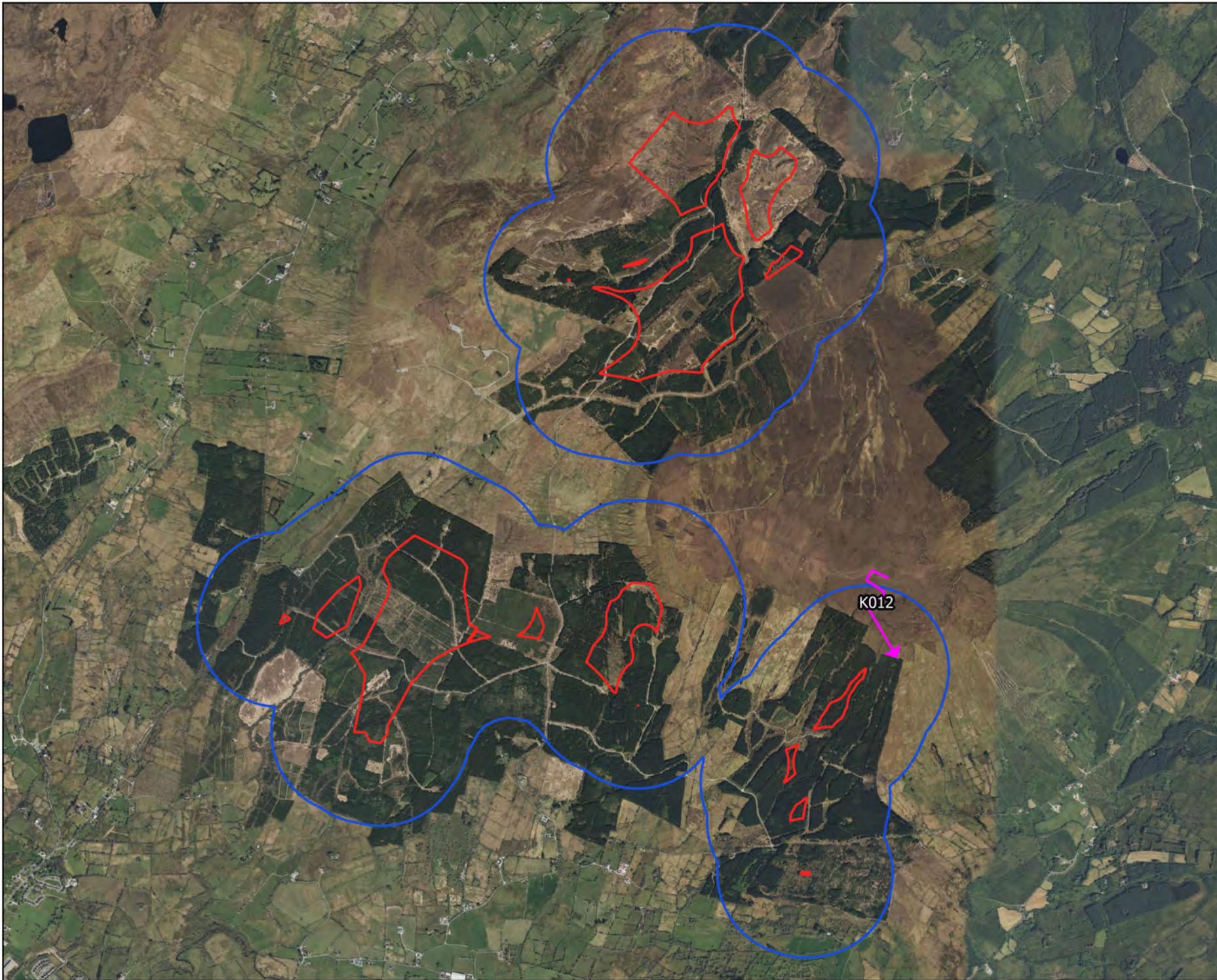
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Date:

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Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

**Kestrel
Breeding Walkover Observations**

Project Title:
Lissinagroagh

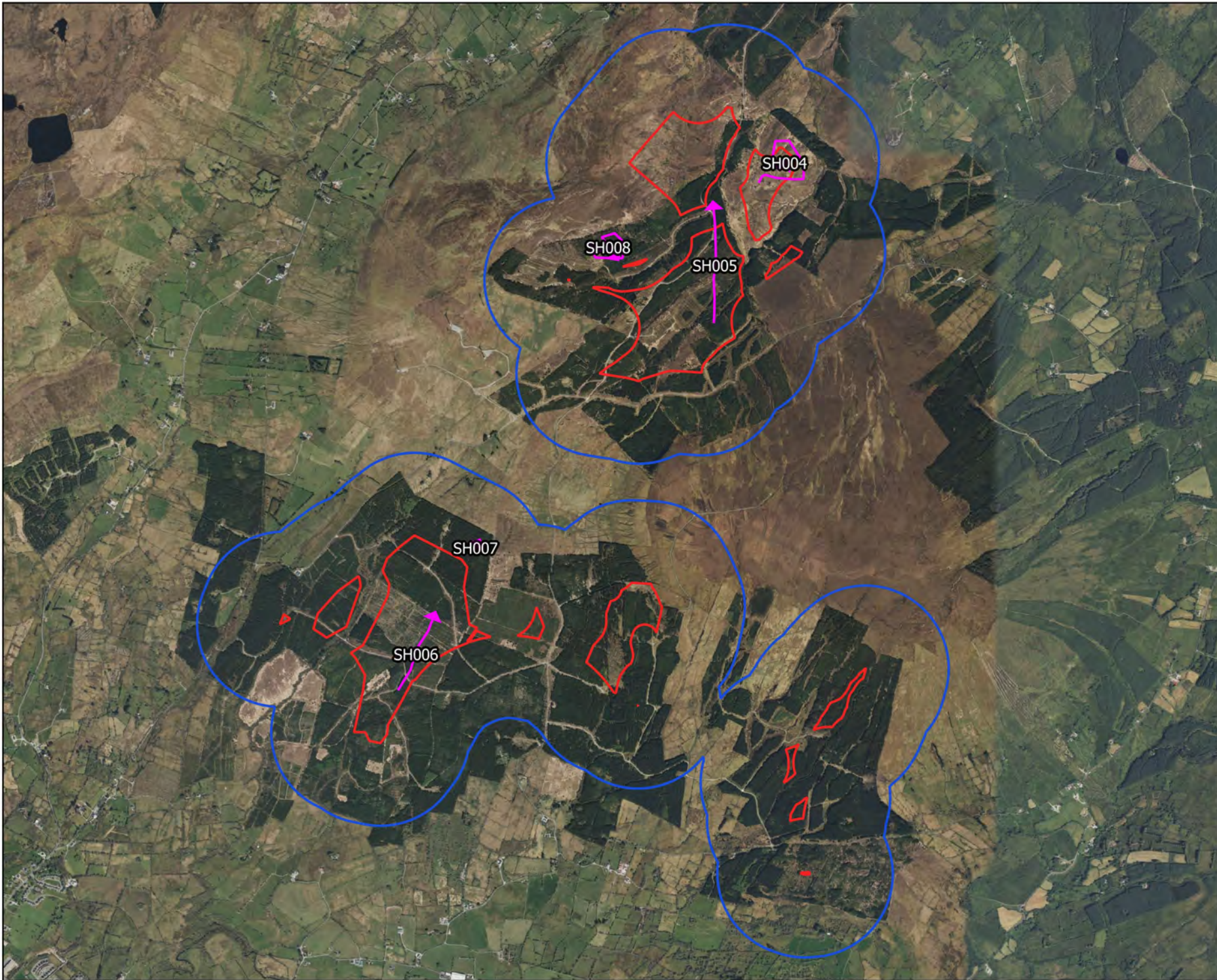
Drawn By:
AO'D

Project No. 200217-g	Drawing No. Fig 2.5
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Scale 1:30000	Date 27.04.23
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Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

**Sparrowhawk
Breeding Walkover Observations**

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 2.6

Scale:

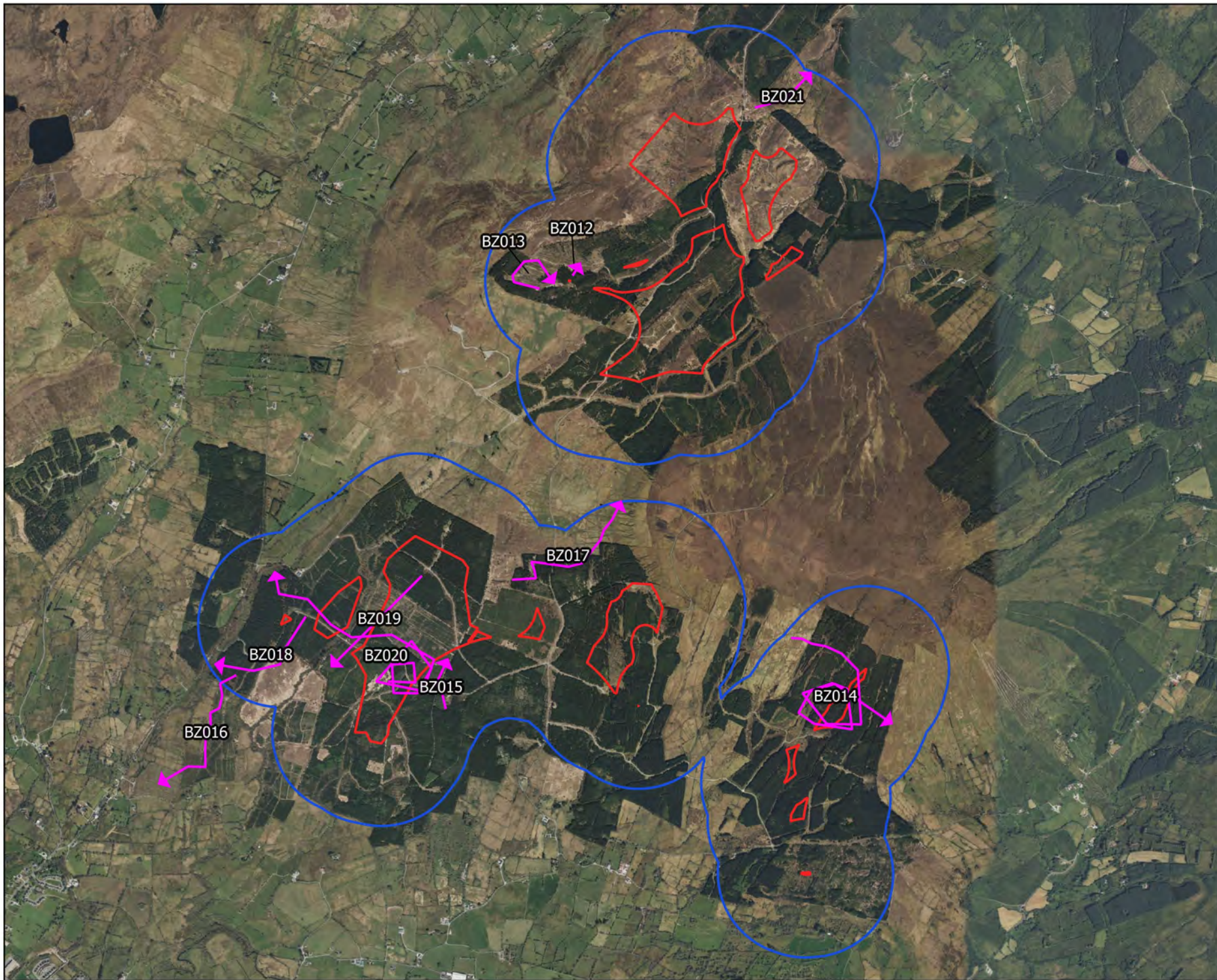
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Date:

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Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



Drawing Title:

**Buzzard
Breeding Walkover Observations**

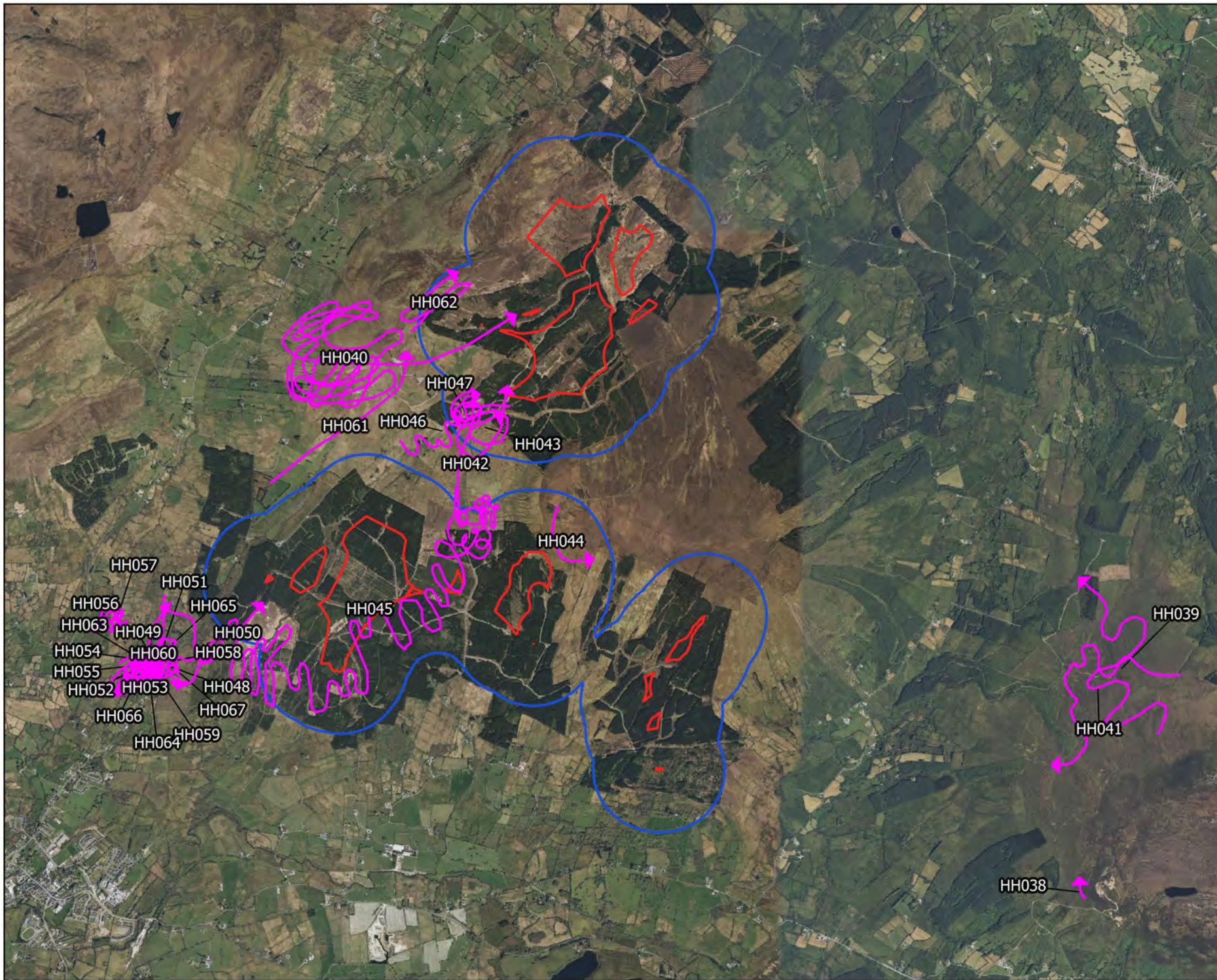
Project Title:

Lissinagroagh

Drawn By:	AO'D
Project No.:	200217-g
Drawing No.:	Fig 2.7
Scale:	1:30000
Date:	27.04.23

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Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



Drawing Title:
**Hen harrier
Breeding Raptor Surveys**

Project Title:
Lissinagroagh

Drawn By: AO'D	Drawing No.:
Project No.:	Fig 3.0
Scale:	Date:
1:40000	27.04.23

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WE004
WE005

Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



Drawing Title:

White-tailed eagle
Breeding Raptor Surveys

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 3.1

Scale:

1:30000

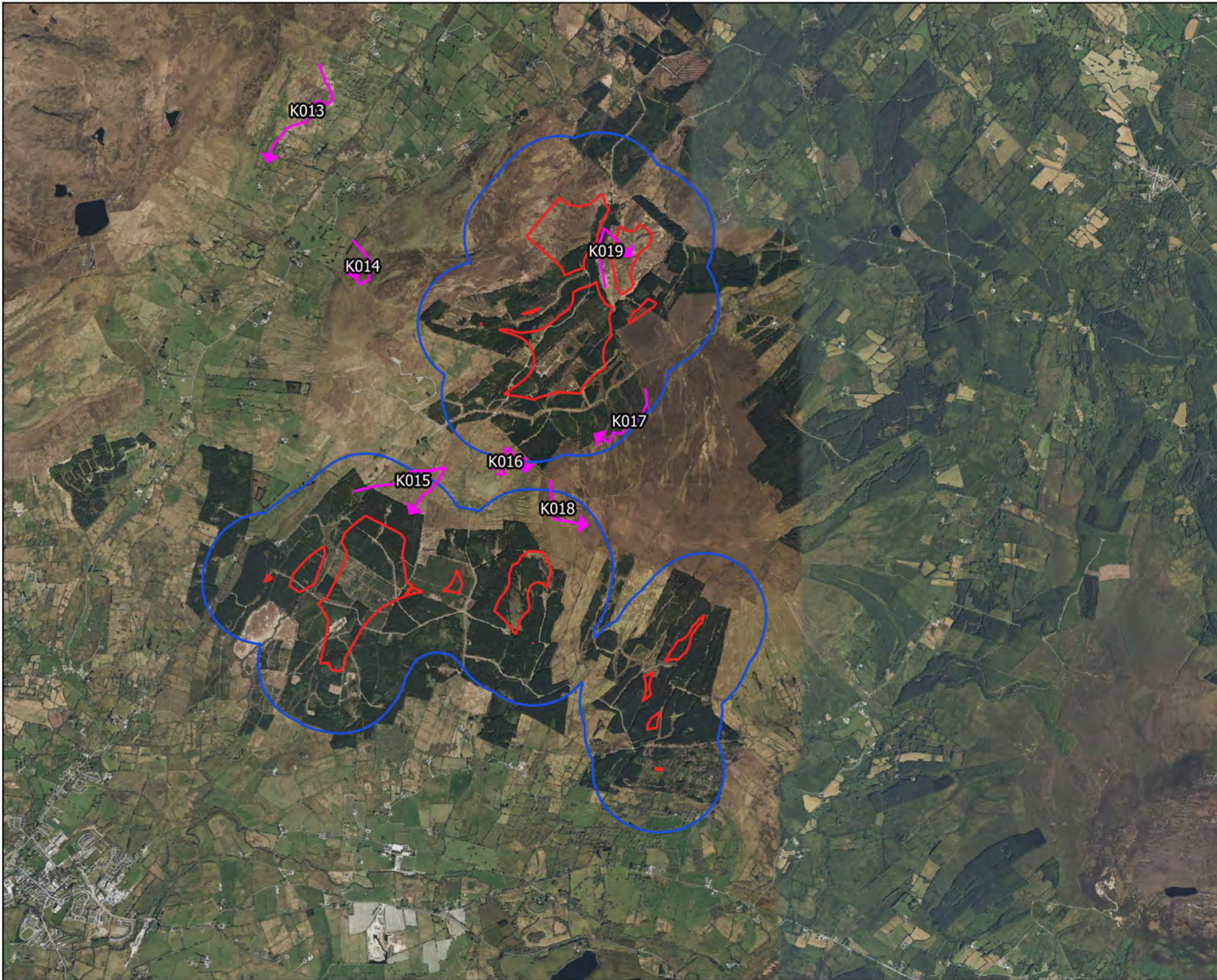
Date:

27.04.23



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Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



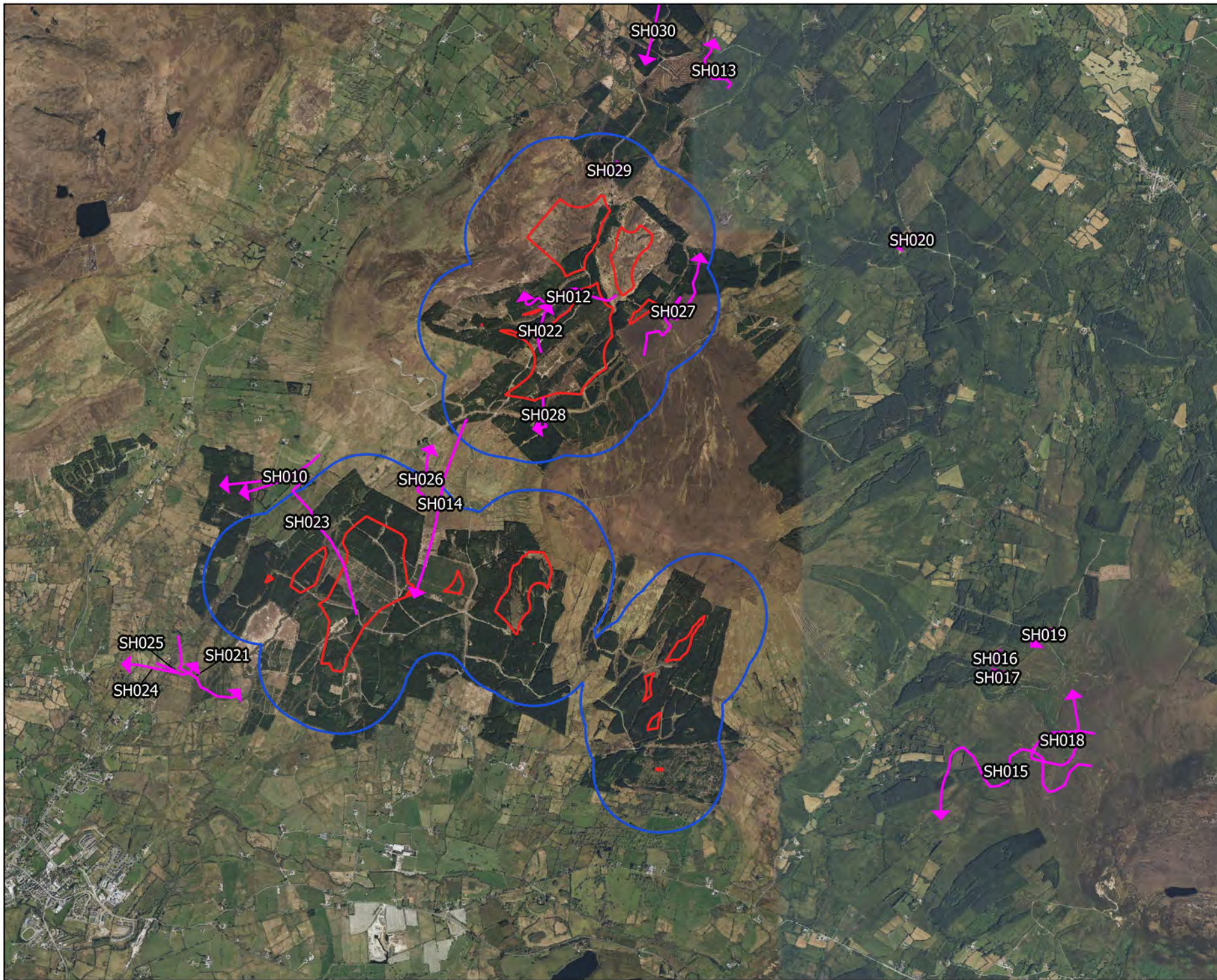
Drawing Title: **Kestrel Breeding Raptor Surveys**

Project Title: **Lissinagroagh**

Drawn By: AO'D	Drawing No.: Fig 3.2
Project No.: 200217-g	Date: 27.04.23
Scale: 1:40000	

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Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



Drawing Title:

Sparrowhawk
Breeding Raptor Surveys

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 3.3

Scale:

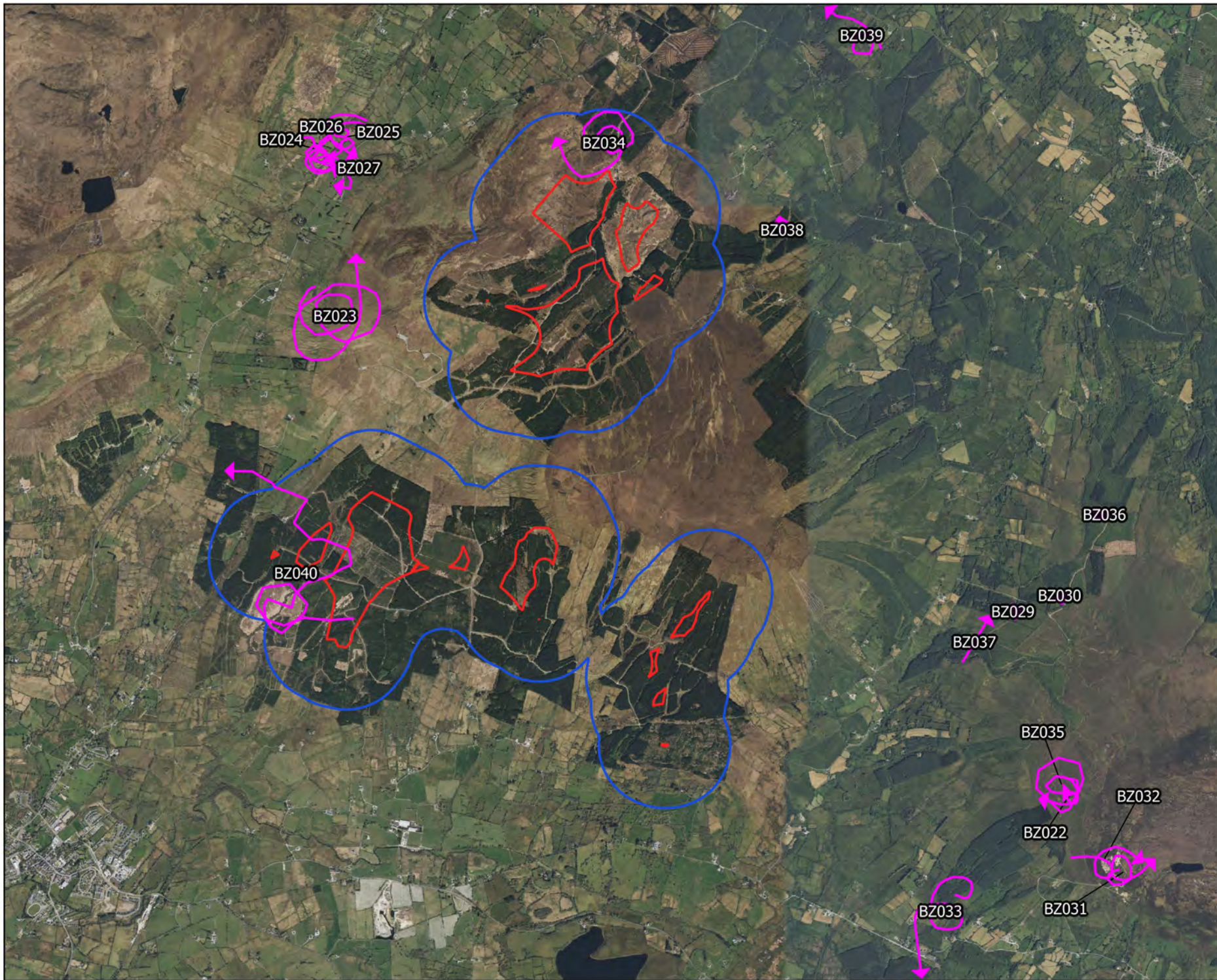
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Date:

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Map Legend

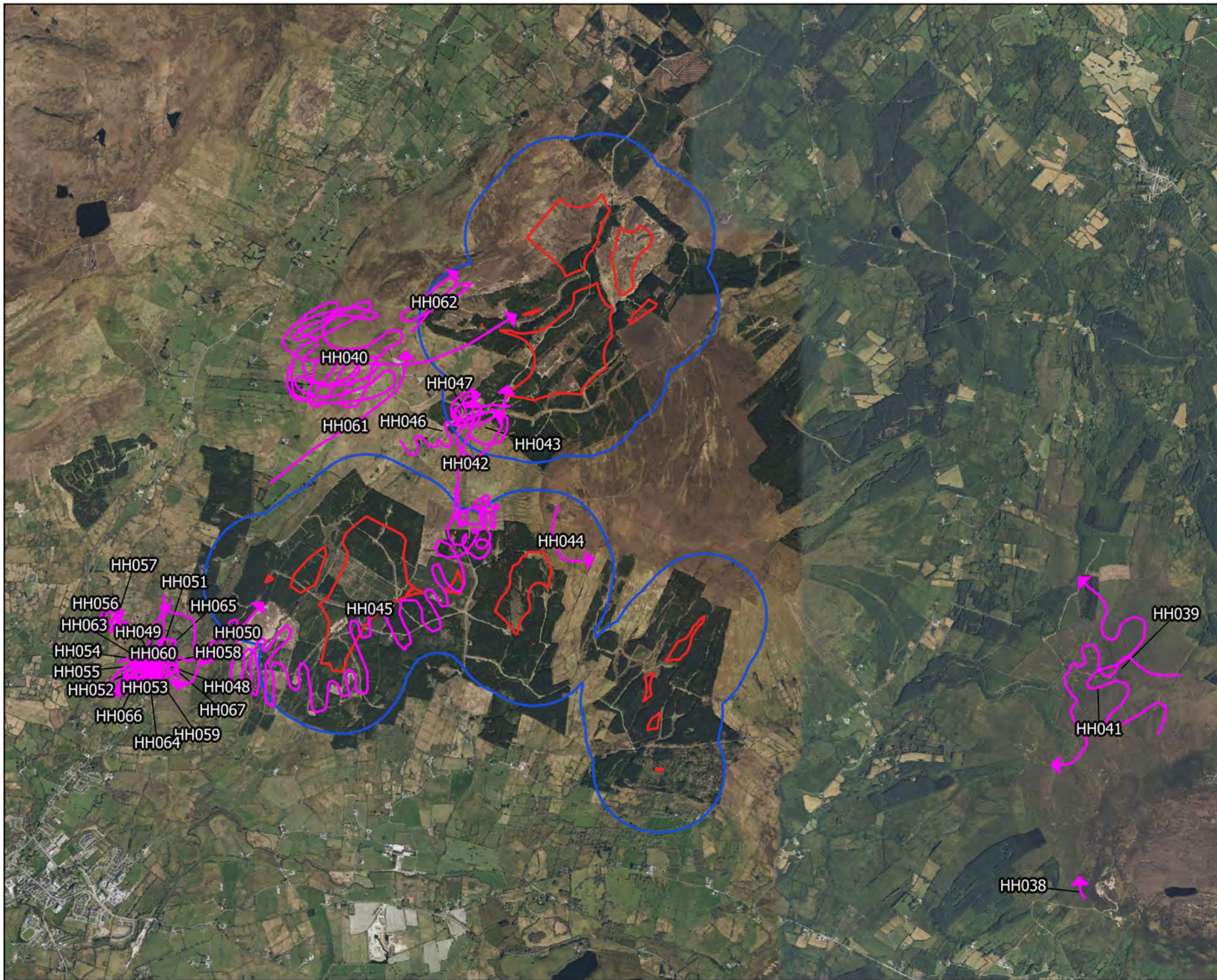
- Site Boundary
- 500m Buffer of Site
- Observation Flightline



North

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Drawing Title: Buzzard Breeding Raptor Surveys	
Project Title: Lissinagroagh	
Drawn By: AO'D	Drawing No.: Fig 3.4
Project No.: 200217-g	Date: 27.04.23
Scale: 1:40000	
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Map Legend

- Site Boundary
- 500m Buffer of Site
- ↗ Observation Flightline



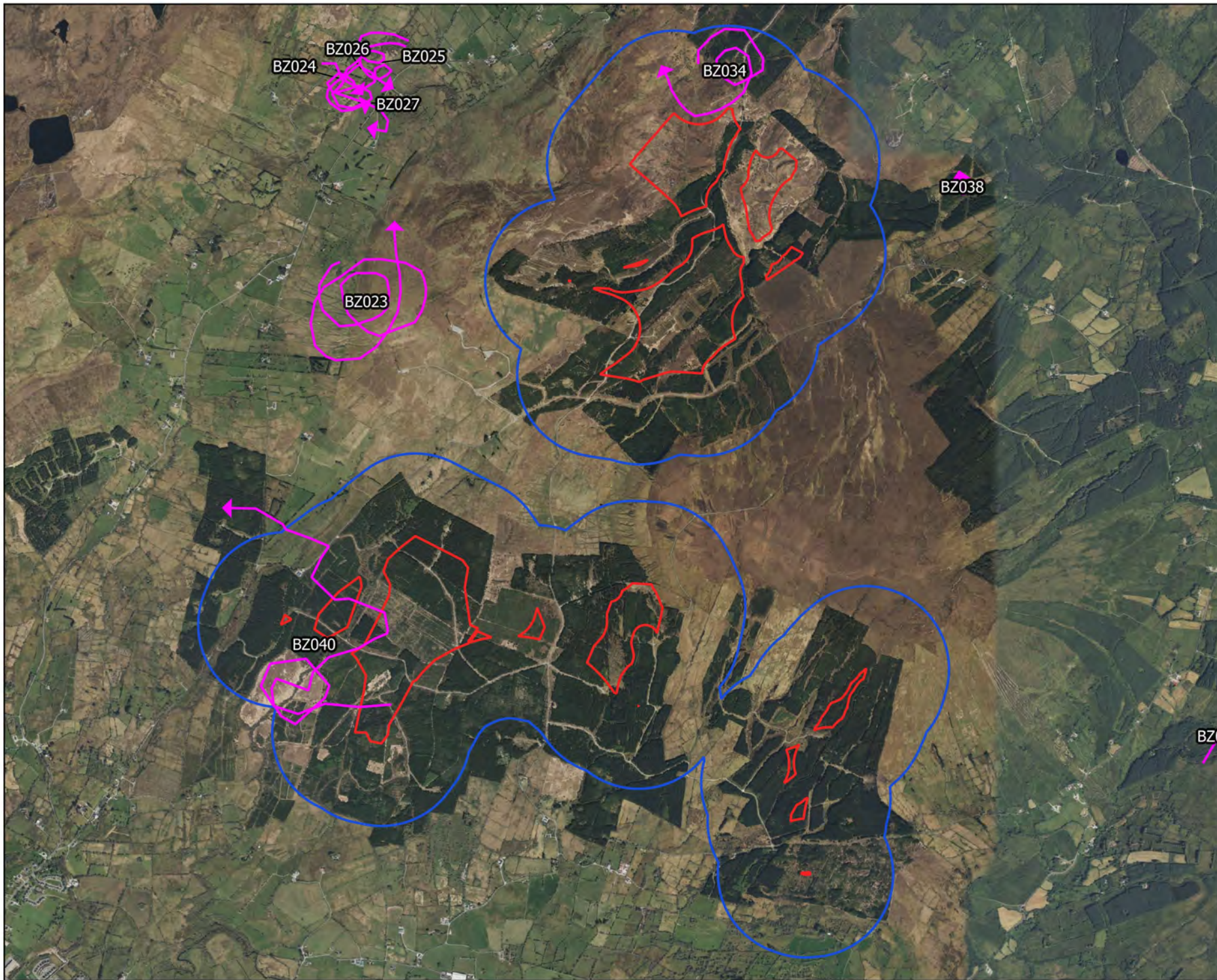
Drawing Title: **Hen harrier Breeding Raptor Surveys**

Project Title: **Lissinagroagh**

Drawn By: AO'D	Drawing No.: Fig 4.0
Project No.: 200217-g	Date: 27.04.23
Scale: 1:40000	

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Map Legend

- Site Boundary
- 500m Buffer of Site
- Transects



Drawing Title:

**Breeding Woodcock Survey
Transects**

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 4.0

Scale:

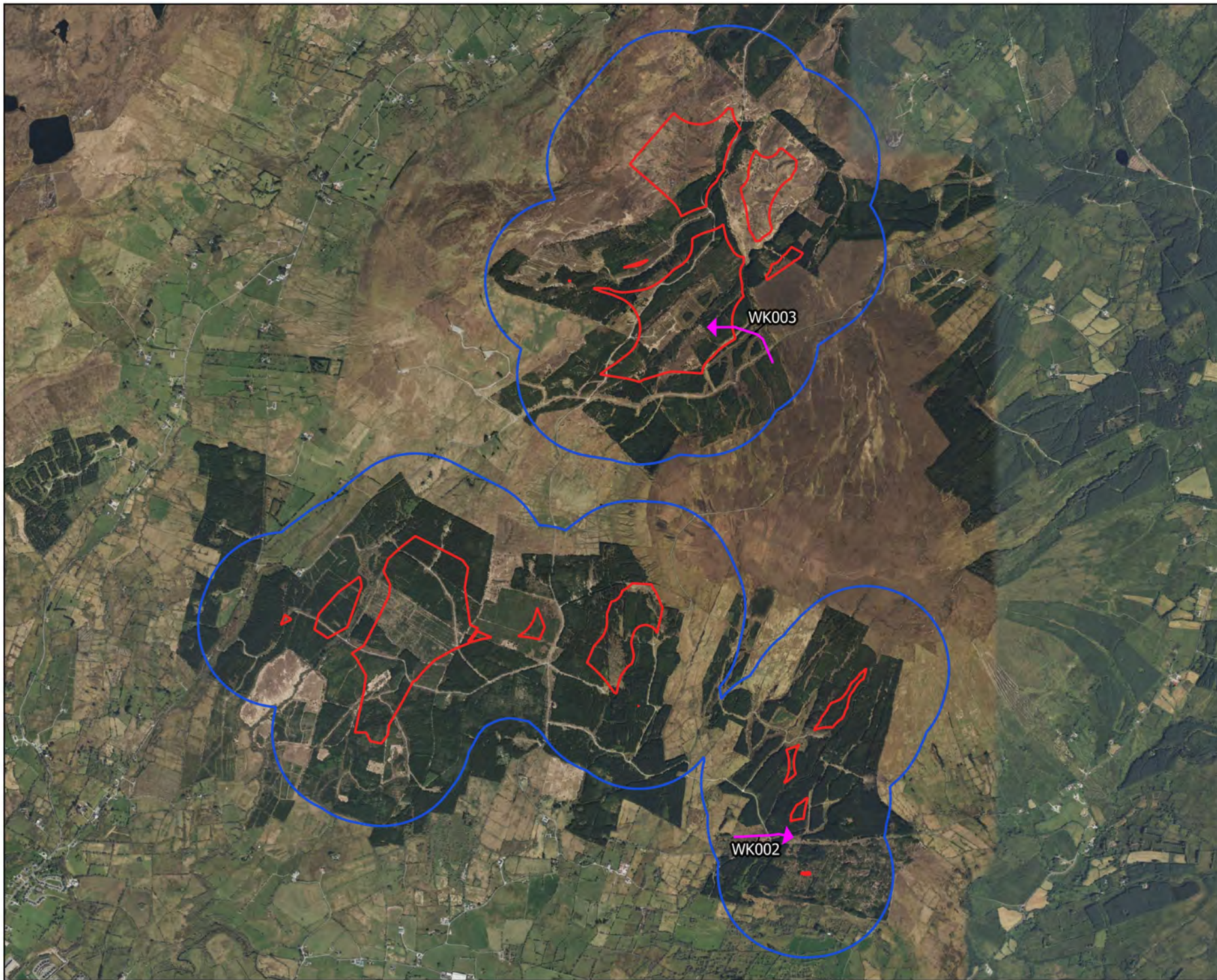
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Date:

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Map Legend

- Site Boundary
- 500m Buffer of Site
- Displaying Woodcock Flightline



Drawing Title:

**Woodcock Observations
Breeding Woodcock Survey**

Project Title:

Lissinagroagh

Drawn By:

AO'D

Project No.:

200217-g

Drawing No.:

Fig 4.1

Scale:

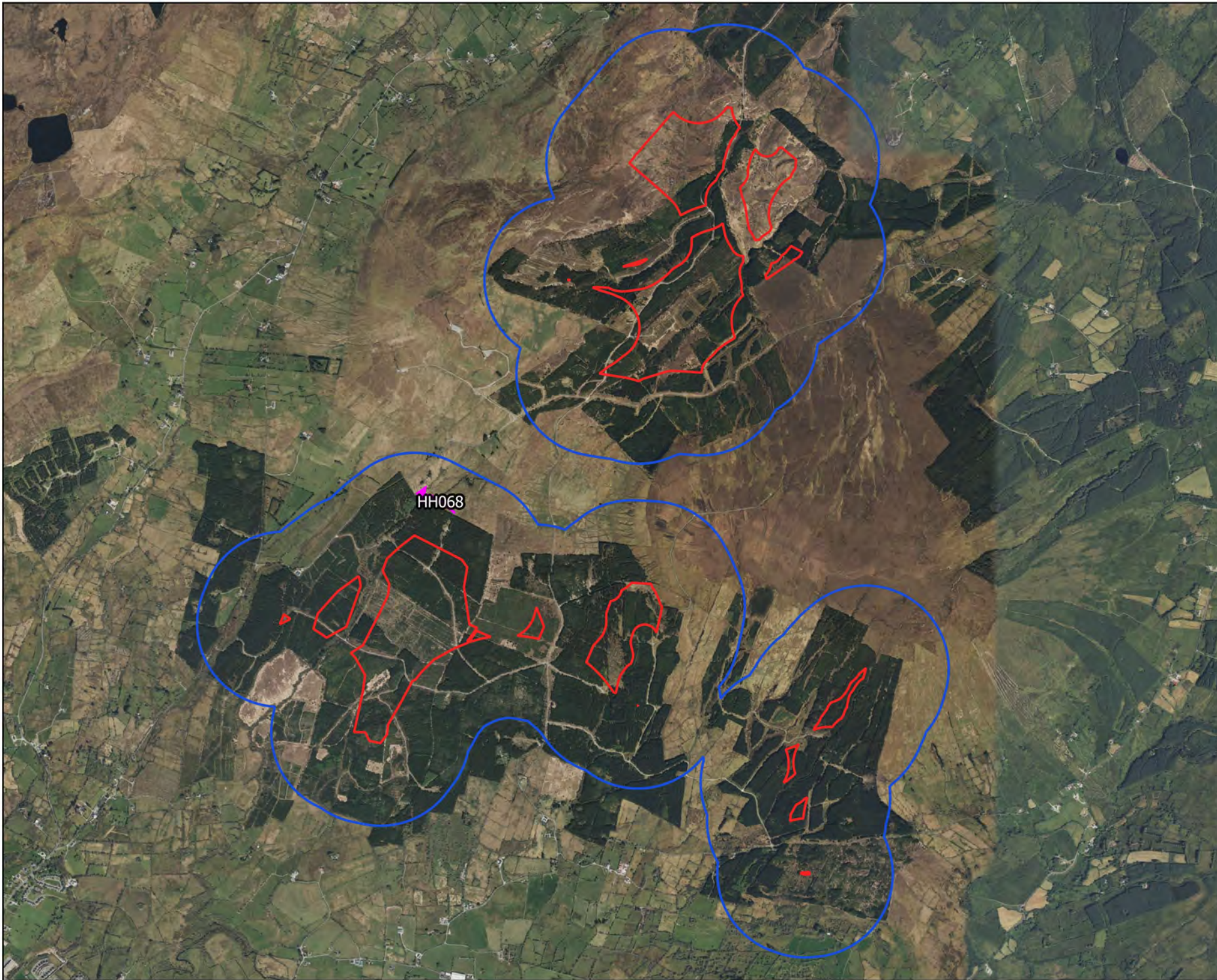
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Date:

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Map Legend

- Site Boundary
- 500m Buffer of Site
- ➔ Observation Flightline



Drawing Title

Hen harrier
Incidental Observations

Project Title

Lissinagroagh

Drawn By

AO'D

Project No.

200217-g

Drawing No.

Fig 5.0

Scale

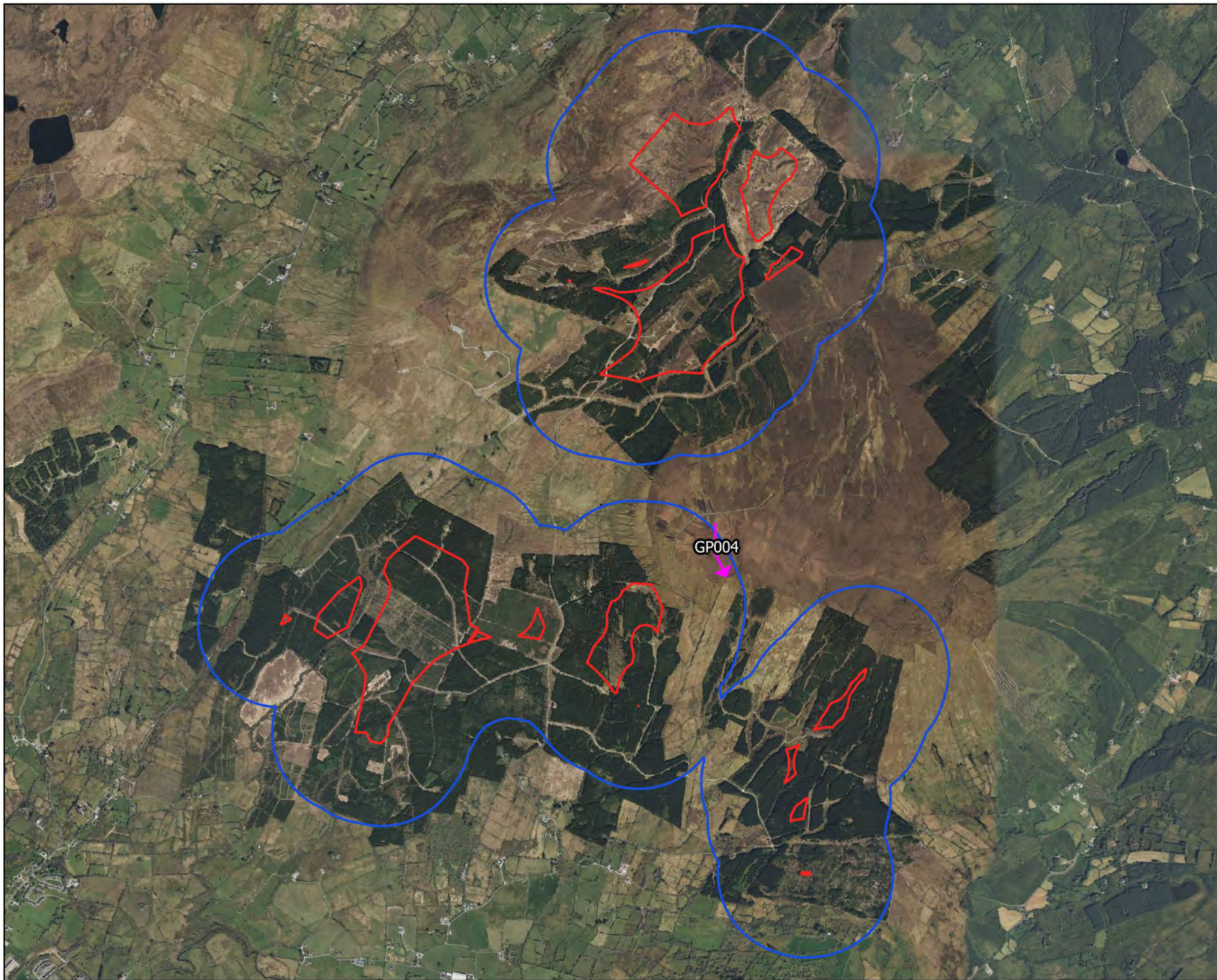
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Map Legend

- Site Boundary
- 500m Buffer of Site
- ➔ Observation Flightline



Drawing Title

Golden plover
Incidental Observations

Project Title

Lissinagroagh

Drawn By

AO'D

Project No.

200217-g

Drawing No.

Fig 5.1

Scale

1:30000

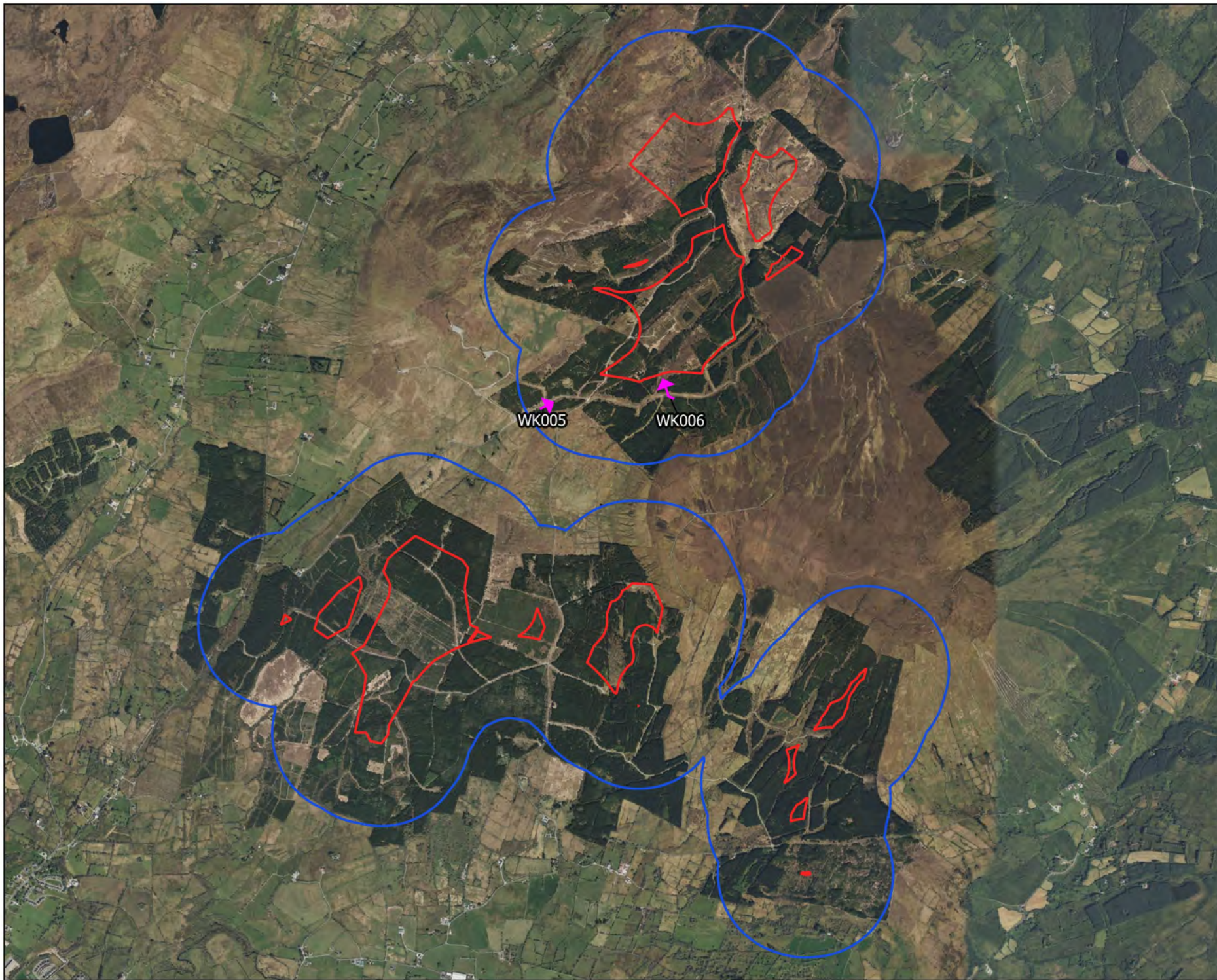
Date

27.04.23



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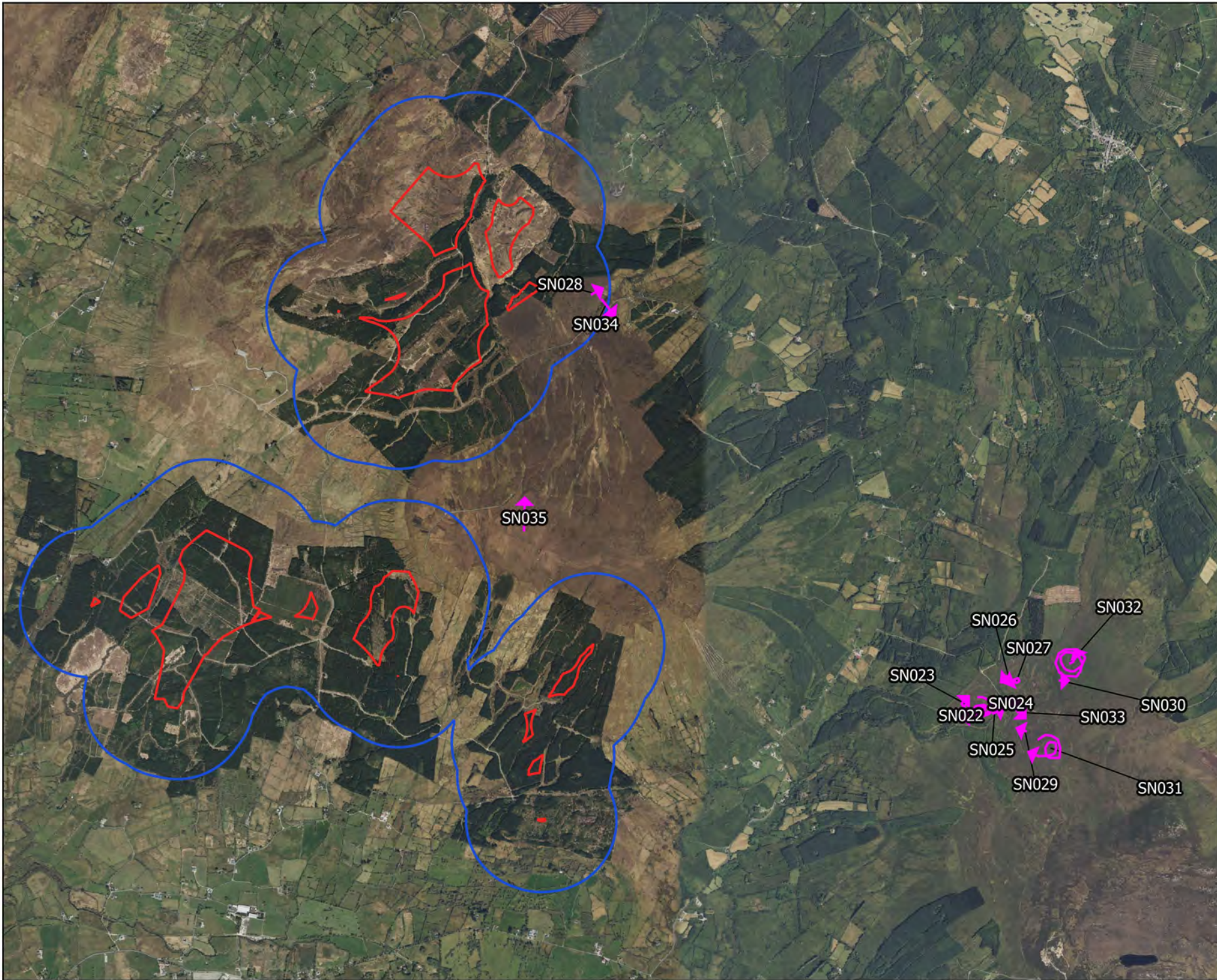
Map Legend

- Site Boundary
- 500m Buffer of Site
- Observation Flightline



<p>Drawing Title</p> <p>Woodcock Incidental Observations</p>	
<p>Project Title</p> <p>Lissinagroagh</p>	
Drawn By	AO'D
Project No.	Drawing No.
200217-g	Fig 5.2
Scale	Date
1:30000	27.04.23
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- Observation Flightline



Drawing Title: Snipe Incidental Observations	
Project Title: Lissinagroagh	
Drawn By: AO'D	Drawing No.: Fig 5.3
Project No.: 200217-g	Date: 27.04.23
Scale: 1:35000	
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APPENDIX 3

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