



Pennant Walters Ltd

---

# Mynydd y Glyn Wind Farm

Draft Environmental Statement

Appendix 9A: Baseline Ornithology Report 2020 - 2022





---

## Report for

Pennant Walters Ltd.

---

## Main contributors

Rob Werran  
Michael Shackshaft

---

## Issued by

.....  
Rob Werran

---

## Approved by

.....  
Michael Shackshaft

---

## WSP Environment & Infrastructure Solutions UK Limited

Redcliff Quay  
120 Redcliff Street  
Bristol BS1 6HU  
United Kingdom  
Tel +44 (0)117 317 8950

Doc Ref. 42864-WOOD-XX-XX-RP-OE-0003\_S0\_P01.1

document1

---

## Copyright and non-disclosure notice

The contents and layout of this report are subject to copyright owned by WSP (© WSP Environment & Infrastructure Solutions UK Limited 2022) save to the extent that copyright has been legally assigned by us to another party or is used by WSP under licence. To the extent that we own the copyright in this report, it may not be copied or used without our prior written agreement for any purpose other than the purpose indicated in this report. The methodology (if any) contained in this report is provided to you in confidence and must not be disclosed or copied to third parties without the prior written agreement of WSP. Disclosure of that information may constitute an actionable breach of confidence or may otherwise prejudice our commercial interests. Any third party who obtains access to this report by any means will, in any event, be subject to the Third Party Disclaimer set out below.

---

## Third party disclaimer

Any disclosure of this report to a third party is subject to this disclaimer. The report was prepared by WSP at the instruction of, and for use by, our client named on the front of the report. It does not in any way constitute advice to any third party who is able to access it by any means. WSP excludes to the fullest extent lawfully permitted all liability whatsoever for any loss or damage howsoever arising from reliance on the contents of this report. We do not however exclude our liability (if any) for personal injury or death resulting from our negligence, for fraud or any other matter in relation to which we cannot legally exclude liability.

---

## Management systems

This document has been produced by WSP Environment & Infrastructure Solutions UK Limited in full compliance with our management systems, which have been certified to ISO 9001, ISO 14001 and ISO 45001 by Lloyd's Register.

---

## Document revisions

No.	Details	Date
1	Draft for client review	26/09/2022
2	Final Report	October 2022

# Executive summary

---

## Purpose of this report

This report has been produced to support the planning application for a potential wind farm development at Mynydd-Y-Glyn in Rhondda Cynon Taff (hereafter referred to as ‘the Site’). This report documents the methodology and results of bird surveys undertaken from April 2020 to March 2022 inclusive at the Site. These results will be used to inform an Environmental Impact Assessment (EIA) for the proposed development at the Site.

## Introduction

The Site is located approximately 3km west of Pontypridd in the Rhondda valley, Wales, and comprises upland farmland, frith woodland, open moorland, and enclosed pasture. The topography is undulating, with small streams and flushes bisecting areas of open pasture, the highest point being 377m above sea level (ASL) at Mynydd-Y-Glyn. An access track runs north through open pasture following existing farm tracks.

Survey work during 2020/22 survey period comprised of:

- fifty-four hours of observation from each of the two vantage point location during the 2020 breeding season;
- fifty-one hours hours of observation from each of the two vantage point location during the 2020/21 non-breeding season;
- thirty-six hours of observation from each of the two vantage point location during the 2021 breeding season;
- thirty-six hours of observation from each of the two vantage point location during the 2021/22 non-breeding season;
- common breeding bird census of the Site, plus a 100m buffer;
- winter walkover surveys of the Site, plus 500m buffer (where appropriate); and
- schedule 1 nesting assessment – undertaken in 2021 to assess the breeding status of goshawk (within 1km of the Site) and red kite (within 2km of the Site).

## Results

There are two Special Protection Areas (SPAs)/Ramsar sites within 20km of the Site (The Severn Estuary SPA/Ramsar). There are two Special Areas of Conservation (SACs) within 10km of the Site, Blackmill Woodlands and Cardiff Beech Woods, both are designated for woodland features and are examples of rare habitats not found within the Site. There are two Sites of Special Scientific Interest (SSSI) within 2km of the Site, Nant Gelliwion Woodland (1.2km to the south-east of the Site) and Rhos Tonyrefail (0.5km to the south-west of the Site) both designated for habitat features not found within the Site and are not notified for ornithological features.

Seven ‘target’ species were recorded during the vantage point watches. Red kite were recorded throughout both breeding and non-breeding months, and golden plover and hen harrier were recorded throughout the non-breeding season. Merlin and peregrine were recorded infrequently during winter and spring, and hobby was recorded once during the breeding season.

In addition to the 'target' species, a further twenty-five (non-target) species (criterion listed in Section 3) were recorded during the VP surveys (and from incidental records) throughout the survey period.

The breeding raptor assessment focused on frequently occurring Schedule 1 raptor species; goshawk, peregrine and red kite. Surveys initially looked for birds displaying in the survey area, before refining the search based on any such observations focusing on areas of suitable habitat (e.g., areas of mature woodland for goshawk). Thereafter, surveys focused on looking for specific nest locations and subsequent monitoring of breeding success. A single goshawk nest was located within 1km of the Site

The breeding bird surveys identified two distinct assemblages. One associated with the grassland/moorland habitats and the second associated woodland habitats that dominate the margins and buffer areas around the proposed development. The grassland/moorland assemblage includes notable species including skylark, linnet and reed bunting. The woodland assemblage includes notable species including Willow warbler, song thrush and mistle thrush

Non-breeding bird surveys (including vantage point surveys) only recorded golden plover occurring in notable numbers. Golden plover were recorded across site during three of the six winter walkover survey visits with a peak count of 135 though larger peak counts of 322 (November 2020) and 187 (December 2021) were recorded in both years of vantage point surveys.

Non-breeding bird surveys did not record any other significant use of the site by over wintering or passage migrants, with the majority of records consisting of small flocks of common but notable species such as fieldfare, linnet, redwing, skylark and song thrush.

# Contents

---

	Purpose of this report	3
	Introduction	3
	Results	3
<b>1.</b>	<b>Introduction</b>	<b>7</b>
1.1	Background	7
1.2	Purpose of this report	7
1.3	Site description	8
1.4	Background and Scope	8
<b>2.</b>	<b>Methodology</b>	<b>10</b>
2.1	Desk study	10
2.2	Vantage point surveys	10
	Target species	12
	'Incidental' records	12
	Limitations	12
2.3	Breeding bird surveys	12
	Territory mapping	13
	Limitations	13
2.4	Schedule 1 nesting assessment	13
	Limitations	14
2.5	Non-breeding bird surveys	14
	Mapping and analysis	15
	Limitations	15
<b>3.</b>	<b>Results</b>	<b>16</b>
3.1	Desk Study	16
	Statutory designated sites	16
3.2	Vantage point surveys	19
	Breeding season 2020	21
	Non-breeding season 2020 - 2021	22
	Breeding season 2021	24
	Non-breeding season 2021/2022	26
3.3	Breeding bird survey	28
	Incidental records	30
3.4	Breeding raptor survey	30
	Goshawk	30
3.5	Winter non-breeding surveys	31
<b>4.</b>	<b>Key Species summary</b>	<b>32</b>
4.1	Goshawk	32
4.2	Red Kite	32

4.3	Golden plover	33
4.4	Peregrine	34
4.5	Other notable raptors	34
4.6	Passage waders	34

---

Table 3.1	Summary of designated sites within 20km	16
Table 3.2	Recent ornithological records within 2km of the Site, provided by SEWBREC	17
Table 3.3	Summary of hourly coverage at each VP location per month 2020/2021	20
Table 3.4	Summary of hourly coverage at each VP location per month 2021/2022	20
Table 3.5	Summary of flights by target species: breeding season 2020	21
Table 3.6	Summary of flights by target species: Non-breeding season 2020/2021	23
Table 3.7	Summary of flights by target species: breeding season 2021	25
Table 3.8	Summary of flights by target species: Non-breeding season 2021	27
Table 3.9	Summary of the number of identified breeding bird territories within the breeding bird survey area and the proposed development area	28

---

## Bibliography

**Error! Bookmark not defined.**

---

Annex A	Scientific names of species referred to in this report
Annex B	Legislation and species designations
Annex C	Figures
Annex D	Survey visit details
Annex E	Territory-mapping principles
Annex F	Survey results

# 1. Introduction

---

## 1.1 Background

- 1.1.1 Pennant Walters Ltd ('the Applicant') is seeking planning permission for the construction and operation of a wind farm of up to seven turbines on land at Mynydd y Glyn ('the Site').
- 1.1.2 The Mynydd y Glyn Wind Farm ('the Proposed Development') consists of the following elements:
- up to seven wind turbines;
  - substation and transformer housing;
  - temporary contractor compounds;
  - grid connection where included in the site boundary (see below);
  - crane pads and cabling;
  - new access and junction off the highway; and
  - improvements to existing access tracks.
- 1.1.3 The Applicant has accepted a firm grid connection offer from Western Power Distribution (WPD), as the Distribution Network Operator (DNO) for a 33kV connection at Upper Boat. The connection will comprise a section of overhead line from the point of supply (on-site substation) to the boundary of the Site, where it will be undergrounded via ducting along the highway network.
- 1.1.4 The Site location and red-line boundary (RLB) is shown on **Figure 1.1**.
- 1.1.5 This baseline report has been prepared on behalf of the Applicant by WSP Environment and Infrastructure Solutions UK Limited ("WSP") (Formerly "Wood Group UK Limited")
- 1.1.6 Pennant Walters is part of the Walters Group with a focus on renewable energy having obtained consent for and/or developed a wide variety scheme including onshore wind, solar, small-scale hydro and battery storage.
- 1.1.7 WSP is registered with the Institute of Environmental Management and Assessment (IEMA)'s Environmental Impact Assessment (EIA) Quality Mark scheme. The scheme allows organisations that lead the co-ordination of EIAs in the UK to make a commitment to excellence in their EIA activities and have this commitment independently reviewed.
- 1.1.8 WSP has been commissioned by the applicant to undertake a range of ornithology surveys at the Site to provide information for the EIA.

## 1.2 Purpose of this report

- 1.2.1 This report summarises the results of the desk study (completed as part of **Preliminary Environmental Assessment (PEA), Appendix 8A of the Draft Environmental Statement**) and the field surveys undertaken during the survey period. These results will be used, along with the results from other ecological studies, to inform the Draft Environmental Statement (Draft ES) for the proposed development.
- 1.2.2 For the purposes of this report, nomenclature follows that of the British Ornithologist's Union (BOU, 2017). Scientific names for all species mentioned in the text and tables are

included in **Annex A** and details of the legislation pertaining to birds are provided in **Annex B**.

## 1.3 Site description

1.3.1 The Site is located at Mynydd-Y-Glyn, approximately 3km west of Pontypridd, in the Rhondda Valley, Rhondda Cynon Taff, in Wales (**Figure 1.1, Annex C**). The topography is undulating, with small streams and flushes bisecting areas of open grazed pasture, the highest point on the Site is 377m above sea level (ASL) at Mynydd-Y-Glyn. The Site comprises upland farmland, woodland, open moorland, and enclosed pastureland, used primarily for sheep and cattle grazing. The Site is accessed via farm tracks that run north from Rhiwinder, through open pasture. The Site borders enclosed pastureland to the north, west and south and coniferous plantation woodland to the east.

## 1.4 Background and Scope

1.4.1 The key issues relating to birds and wind farms are as follows:

- the effects of direct habitat loss due to land take by wind turbine bases, tracks and ancillary structures;
- the effects of disturbance and displacement of birds from the proximity of the wind turbines. Such disturbance may occur as a consequence of construction work, or due to the presence of the wind farm close to nest or feeding sites or on habitual flight routes; and
- the effects of collision with rotating turbine blades (i.e. killing or injury of birds), which is of particular relevance for sites located in areas with high raptor activity or which support large concentrations of waterfowl.

1.4.2 With regards to the effects of direct habitat loss, total land take by wind farm and associated infrastructure represents a small proportion of a site. Therefore, the permanent loss of nesting and foraging habitat for birds tends to be very low and will generally have negligible effect on bird populations. At most wind farm sites, it is the collision risk and displacement risks which are likely to be more significant.

1.4.3 The ornithological work carried out at the Site was based on Scottish Natural Heritage (SNH) guidance for vantage point surveys, and an adapted method based on the British Trust for Ornithology's (BTO's) Common Bird Census (CBC) methodology (Gilbert *et al.*, 1998). A range of guidance documents have been produced relating to the assessment of bird/wind farm interactions and the following publications and guidelines in particular, have been influential in determining the scope of works at the Site:

- Scottish Natural Heritage (2017). *Recommended bird survey methods to inform impact assessment of onshore wind farms*. <https://www.nature.scot/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms>;
- Scottish Natural Heritage (2018). *Assessing significance of impacts from onshore windfarms outwith designated areas*. <https://www.nature.scot/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected>

1.4.4 The survey methods were based upon that provided within the SNH guidance (as above), though Natural England (NE) guidance was consulted. SNH and NE guidance recommends that field surveys should be focussed on those species of high nature conservation value for which there is potential for an impact which may be deemed significant and adverse. In most circumstances these "target species" are limited to those



protected species and other species of conservation concern which may be subject to impact from wind farms.

1.4.5 SNH (2017) guidance states that there are three overarching species lists which describe protected species and species of conservation concern from which target species may be drawn:

- Special Protection Areas (SPA) designated species and those listed under Annex 1 within the *Directive 2009/147/ec on the conservation of wild birds*, commonly referred to as the Birds Directive;
- Species listed under Schedule 1 of the *Wildlife & Countryside Act 1981* (as amended); and
- Species listed under the red list of Birds of Conservation Concern 5 (BoCC) (Stanbury *et al.*, 2021)<sup>1</sup>; and
- Species listed under the red list of Birds of Conservation Concern Wales (BoCCW) (Johnstone *et al.*, 2016).

1.4.6 In addition, consideration should be given to species listed on Section 7 of the Environment (Wales) Act 2016. Target species should be limited to those likely to be affected by wind farms. Research indicated that passerine species are not significantly affected by wind farms. Many species included on the BoCC red list are passerines and therefore, care should be exercised when considering red list species for inclusion as target species.

---

<sup>1</sup> The PEA data has been updated to reflect the recently published Birds of Conservation Concern 5. Surveys completed in 2020 and early 2021 used the previous iteration (Birds of Conservation Concern 4, Eaton *et al* 2014). A review of the differences between these documents has shown that no changes to target species recorded would have occurred had the 2021 version been adopted.

## 2. Methodology

---

### 2.1 Desk study

- 2.1.1 A data-gathering exercise was undertaken to obtain information relating to statutory and non-statutory nature conservation sites, habitats of principle importance and species, and legally protected and controlled species (see **Boxes 1 and 2, Appendix 8A of the Draft ES**). The data were obtained from South East Wales Biodiversity Records Centre (SEWBRc), from the MAGIC website, from aerial photographs and from Ordnance Survey mapping. Data for the last ten years were gathered for:
- statutory designated biodiversity sites of international importance within 10km of the Site;
  - statutory designated biodiversity sites of national/ local importance within 2km of the Site;
  - non-statutory designated biodiversity sites areas within 2km of the Site; and
  - records of legally protected/important bird species within 2km of the Site.
- 2.1.2 An additional check for cited ornithological features took place using the Natural Resources Wales (NRW) website<sup>2</sup>.
- 2.1.3 An earlier iteration of the desk study was completed in support of the Scoping Report which extended the search for statutory designated biodiversity sites to those within 20km of the Site, focusing on those with ornithological features. The results of this additional search are presented here.

### 2.2 Vantage point surveys

- 2.2.1 Vantage Point (VP) watches were conducted in accordance with SNH (2017) guidance and were undertaken over two consecutive years (2020-21 and 2021-22). This method focuses on identifying the flight paths of target species and allows any regularly used flight lines to be identified, allowing turbine locations to be altered where necessary to reduce collision risk to birds. The data generated can also be used to estimate the theoretical risk of collision with turbines by incorporation into a suitable model.
- 2.2.2 The SNH methodology states that VPs should be chosen parsimoniously to achieve maximum visibility from the minimum number of locations, such that all parts of the survey area are within 2km of a VP location. Two VPs were identified (the VP locations and view-sheds are shown in **Figure 2.1, Annex C**) as being sufficient to survey the turbine layout, the locations of which were:
- VP1 – ST 03585 89448 – view bearing 0°; and
  - VP2 – ST 03670 89431 – view bearing 180°.
- 2.2.3 Flights were classified using the following four height bands, of which height band B (10m-50m), C (50 – 150m) and D (>150m) include flights at Potential Collision Height:
- Band A: 0-10m;

---

<sup>2</sup> <https://naturalresources.wales/guidance-and-advice/environmental-topics/wildlife-and-biodiversity/protected-areas-of-land-and-seas/find-protected-areas-of-land-and-sea/?lang=en>

- Band B: 10-50m;
  - Band C: 50-150m;
  - Band D: > 150m.
- 2.2.4 The scope for the VP survey is based on target species and SNH guidance.
- 2.2.5 During 2020-2021 additional survey effort above the minimum requirements was conducted. This additional effort was included to capture post-dispersal flights of goshawk (identified as a breeding species on Site) and to capture any migratory flights of other target species (such as honey buzzard or osprey) which had potential to pass through the Site.
- 2.2.6 The survey programme was defined as follows:
- March – June 2020 – Core breeding season (target 9 hours of survey per VP each month);
  - July – October 2020 - Post-breeding/migration (target 9 hour of survey per VP each month); and
  - November 2020 – February 2021 - Non-breeding (target 9 hours of survey per VP each month).
- 2.2.7 Following assessment of initial results, the survey programme in 2021-2022 was revised such that the survey programmes were defined as follows:
- March 2021 – August 2021 – Core breeding and post-breeding (6 hours of survey per VP each month); and
  - September 2021 – February/March 2022 - Non-breeding period (6 hours of survey per VP each month).
- 2.2.8 This method focuses on identifying the flight paths of target species and allows any regularly used flight lines to be identified, allowing turbine locations to be altered where necessary to reduce collision risk to birds. The data generated can also be used to estimate the theoretical risk of collision with turbines by incorporation into a suitable model.
- 2.2.9 For the purposes of Collision Risk Modelling (presented in **Appendix 9B of the Draft ES**) the analysis has used the standard breeding and non-breeding periods (following SNH 2017):
- Breeding Season – (March – August); and
  - Non-Breeding Season – (September – February).
- 2.2.10 This has required the combination of results from monitoring periods from the first year of observation when additional effort, above minimum requirements, was completed during the post-breeding season (August – October 2020).
- 2.2.11 Results are presented within this report to match the approach taken to Collision Risk Modelling.
- 2.2.12 Full survey details, including dates, times and weather conditions are provided in **Table D1-D4** in **Annex D**.

## Target species

- 2.2.13 The following key species of conservation concern (target species) and secondary species were identified from information within the desk study and those species considered likely to occur on the Site:
- 2.2.14 Target species:
- Protected raptors and owls: honey buzzard, hen harrier, red kite, goshawk, barn owl, short-eared owl, merlin, hobby and peregrine; and
  - Waterfowl and waders: all wildfowl species (except feral species, mute swan, Canada goose, greylag goose and mallard) and Annex I species such as wintering golden plover.
- 2.2.15 Secondary species:
- All non-Annex I wader species (e.g. oystercatcher, snipe, woodcock, curlew, and lapwing); all non-Annex I/Schedule 1 raptor species (e.g. common buzzard, sparrowhawk, long-eared owl, tawny owl, and kestrel); and raven;
  - All Schedule 1 species not considered within target species criteria (e.g. crossbill, kingfisher);
  - Priority species listed on Section 7 of the Environment (Wales) Act 2016; and
  - BoCC red-listed species (UK and Wales lists).
- 2.2.16 Secondary species were recorded in each 5-minute slot during the VP surveys. Notes were made regarding the approximate location and distribution; however accurate mapping was not carried out.

## 'Incidental' records

- 2.2.17 Birds seen outside formalised timed surveys were also recorded (i.e. those observed whilst following different survey methodologies, during walks on and off the Site, during walks between VPs and during other breaks in survey work). Detailed notes on the activity of any target and secondary species and priority species listed on Section 7 of the Environment (Wales) Act 2016 were made and target species flights mapped.

## Limitations

- 2.2.18 Where prolonged periods of poor weather impacted the ability to complete requisite hours at each VP, each month, additional hours of survey were undertaken at the next opportunity to fulfil survey schedules within each period. A summary of the total number of hours completed at each VP is provided in **Section 3.2**.

## 2.3 Breeding bird surveys

- 2.3.1 A breeding bird survey was carried out following an adapted method based on the BTO's CBC methodology (Gilbert et al., 1998). A total of six visits were undertaken over the survey area during the 2020 breeding season: two in April [early and late in the month], two in May [at broadly two-week intervals from late April visit], and two in June [at broadly two-week intervals from the May visits]. Two surveyors were used for all visits. For the purposes of defining specific coverage for each field surveyor, the survey area was split into two sections on a north-east to south-west basis (see **Figure 2.2, Annex C**). The two

surveyors both surveyed along the ridge line dividing the survey areas and the territory mapping factored this potential duplication of effort.

- 2.3.2 All surveys avoided heavy rain, or strong or cold winds, therefore minimising variation in bird activity levels due to weather conditions. All habitat within 100 m of the Site boundary were surveyed over the course of a single morning, during all six visits. All visits started at least an hour after dawn and were completed no later than midday. A different route and or starting point was used by surveyors on each survey visit to ensure that certain parts of the survey area did not receive systematically better coverage as a result of possible decline in bird activity or song output later in the morning. The location of each bird detected (visually and/or aurally) was mapped using standard two-letter BTO codes, and bird activity was recorded using standard behaviour codes (Marchant, 1983).
- 2.3.3 Full survey visit information, including dates, times and weather conditions are presented in **Table D5, Annex D**.

## Territory mapping

- 2.3.4 On completion of the field survey, results were collated and analysed and provided as maps of indicative territory centre-points, made across all visits. Territory mapping analysis was based on criteria adapted from Amar et al. (2006) (See **Annex E**) and involved an experienced ornithologist looking for spatial groupings of song registrations. No temporal restrictions have been applied, such that any grouping with more than one visit represented, or consisting of at least one registration of song, has been assessed as a territory. These data have been used to determine the number and distribution of species and overall breeding assemblage within the survey area.
- 2.3.5 As territory locations were derived from a combination of each visit map (as per CBC methodology); it should be noted that the locations do not necessarily represent specific nest locations (identifying these locations was not the aim of this survey method, which is designed to estimate population sizes).

## Limitations

- 2.3.6 Breeding bird surveys avoid as far as practicable inclement weather, including strong and or cold winds as this is known to reduce bird activity within an area. During three breeding bird surveys: 02 April 2020; 01 May 2020 and 12 June 2020 the wind was recorded as Beaufort 3 at sea level, this wind increased on the hillside producing suboptimal conditions for breeding bird surveys however it is not considered that this had any major impacts on the results of the surveys completed with no observable reduction in bird activity during these visits.

## 2.4 Schedule 1 nesting assessment

- 2.4.1 Based on the findings from the Desk Study and initial baseline surveys, three species of raptor listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) were identified utilising the Site and surrounding area for potential breeding attempts. A Schedule 1 nesting assessment was therefore undertaken by Natural Resources Wales (NRW) licenced staff (License number S089175/1) between 29 March 2021 and 25 June 2021 to assess the potential breeding attempts of goshawk, peregrine and red kite, within the Site and surrounding area.
- 2.4.2 Schedule 1 surveys followed the species-specific methods detailed in Hardey et al. (2013). For most species (including peregrine and red kite), this requires data to be

collected from within 2km of the boundary of a proposed development site, and for goshawk (within 1km of the site).

- 2.4.3 The survey area for Schedule 1 breeding bird assessment is shown in **Figure 2.3, Annex C**. A six-visit survey was undertaken aiming to identify nest sites and record any potential outcomes from nesting attempts. Full details of survey visits, including dates, times and weather conditions can be found in **Table D6, Annex D**. To optimise the chances of confirming breeding, the survey visits were timed to coincide with the likely timings of the different, breeding cycle stages of each species.
- 2.4.4 Surveys initially looked for birds displaying in the survey area, before refining the search based on any such observations, including from VP surveys, any other flights detected (e.g., birds carrying prey or territorial activity) and habitat suitability (e.g., areas of mature timber for goshawk). Thereafter, surveys focused on looking for specific nest locations and subsequent monitoring of breeding success.

## Limitations

- 2.4.5 As with breeding bird surveys, all schedule 1 breeding surveys were undertaken to avoid as far as practicable inclement weather, including strong and or cold winds; as this is known to reduce bird activity within an area. However, the exposed nature of the site and surrounding areas meant that strong winds could not always be avoided.
- 2.4.6 It is not considered that the conditions encountered have had any impact on the results of this survey.

## 2.5 Non-breeding bird surveys

- 2.5.1 Non-breeding walkover surveys were undertaken between September 2020 and March 2021 to record over-wintering and resident species present on the Site and within a 500m buffer (where appropriate). Surveys focussed on open areas, including all areas of moorland, grassland, pasture, and woodland plantations. The non-breeding bird survey followed two transects of similar length covering within 100m of all areas/habitats of interest. **Figure 2.4, Annex C** shows the non-breeding bird survey transects.
- 2.5.2 The aim of these surveys was to determine whether any notable species, as defined below, regularly feed or roost within the proposed areas for development (plus additional buffer).
- 2.5.3 Notable species are defined as:
- All waders and wildfowl (excluding feral/domestic birds, mallard, Canada goose and greylag goose);
  - Species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended);
  - Species listed on Annex 1 of the Birds Directive;
  - Species listed on Section 7 priority species, following Part 1 of the Environment (Wales) Act 2016;
  - Birds of Conservation Concern (BoCC) red list species ((Eaton et al., 2015);
  - Assemblages of 20+ birds of all other species (e.g., winter thrushes, finches, gulls or corvids).
- 2.5.4 Using survey maps and the defined transect routes, surveyors will record the approximate location of these species directly onto survey maps recording the following details:

- Species (using standard BTO 2-letter codes);
  - numbers of individuals;
  - locations of records; and
  - activity (foraging, loafing, roosting etc.).
- 2.5.5 The presence of species that do not qualify as notable using the criteria will also be noted. However, information on numbers, distribution and behaviour will not be recorded. A species list will be recorded for each transect/transect section.
- 2.5.6 Each survey visit was completed on a single day allowing a snapshot record of the number and distribution of wintering birds present each month. All areas were crossed by transects focused on areas most likely to support wintering birds.
- 2.5.7 All surveys avoided heavy rain, or strong or cold winds, minimising variation in bird activity levels due to weather conditions, wherever possible. All visits started at least an hour after dawn and were completed by 15:00 hours. Full survey details, including dates, times and weather conditions can be found in **Table D7, Annex D**.

## Mapping and analysis

- 2.5.8 The results of each survey visit have been combined for each notable species and mapped to identify any locations with repeated use throughout the course of the winter and any changes of abundance over time.
- 2.5.9 Comparison between species has been carried out to highlight any locations that support more than one species, taking into account any temporal or spatial variation.

## Limitations

- 2.5.10 Non-breeding bird surveys were carried out throughout winter 2020/21, due to long spells of cold and blustery weather some survey visits were carried out in sub-optimal conditions, including full snow-cover in January. However, given the low number of records and the management of the site (grazing) it is not felt that this has significantly altered the viability of the results.

## 3. Results

### 3.1 Desk Study

#### Statutory designated sites

- 3.1.1 There are two internationally designated site within 20km of the Site which are designated for ornithological features. **Table 3.1** provides a summary of the designated features associated with these European sites.

**Table 3.1 Summary of designated sites within 20km**

Site Name	Summary of designated features	Distance and direction (km)
<b>Severn Estuary SPA</b> <b>UK9015022</b>	<p><i>Internationally Important populations of regularly occurring Annex 1 species (under Article 4.1 of the EU Birds Directive)</i></p> <p><b>Bewick's swan</b> – Over wintering population 229 individuals –(2004/5 – 2009/10)</p> <p><i>Internationally importance populations of regularly occurring migratory bird species (under Article 4.2 of the EU Birds Directive)</i></p> <p><b>European white-fronted goose</b> - Over wintering population 495 individuals – (2004/5 – 2009/10)  <b>Dunlin</b> - Over wintering population 20,933 individuals –(2004/5 – 2009/10)  <b>Redshank</b> - Over wintering population 2,454 individuals –(2004/5 – 2009/10)  <b>Shelduck</b> - Over wintering population 4,480 individuals –(2004/5 – 2009/10)  <b>Gadwall</b> - Over wintering population 243 individuals –(2004/5 – 2009/10)</p> <p><i>An internationally important assemblage of waterfowl</i></p> <p>Population (5 yr peak mean 1988/8 – 1992/3) – 68,026 individuals comprising 17,502 wildfowl and 50,524 waders</p>	19.5km south
<b>Severn Estuary Ramsar</b>	<p><i>Ramsar Criterion 5 – Assemblages of international importance</i></p> <p>70,919 waders and waterfowl – (5 year peak mean 1998/99 – 2002/2003)</p>	19.5km south



Site Name	Summary of designated features	Distance and direction (km)
	<p><i>Ramsar Criterion 5 – species/population occurring at levels of international importance</i></p> <p><b>Bewick's swan</b> – Over wintering population 229 individuals –(1998/9 – 2002/03)</p> <p><b>European white-fronted goose</b> - Over wintering population 2,076 individuals – (1996/7 – 2000/01)</p> <p><b>Dunlin</b> - Over wintering population 25,082 individuals –(1998/9 – 2002/03)</p> <p><b>Redshank</b> - Over wintering population 2,616 individuals –(1998/9 – 2002/03)</p> <p><b>Shelduck</b> - Over wintering population 3,223 individuals – (1998/9 – 2002/03)</p> <p><b>Gadwall</b> - Over wintering population 241 individuals –(1998/9 – 2002/03)</p>	

- 3.1.2 There are no other internationally designated sites within 20km of the Site with ornithological features. There are no national statutory designated sites (i.e. SSSIs or NNRs) or non-statutory sites (i.e. Local Wildlife Sites or Local Nature Reserves) that list ornithological features within 2km of the Site.
- 3.1.3 Ornithological records pertaining legally protected/important conservation species within 2km of the Site were obtained from the South East Wales Biodiversity Record Centre (SEWBREC). Recent records are considered to be those gathered within the past ten years and are summarised in **Table 3.2**, below.

**Table 3.2 Recent ornithological records within 2km of the Site, provided by SEWBREC**

Species	Status	Number of records	Date of most recent record	Distance (m) and direction of nearest record from the Site
<b>Bullfinch</b>	S7, BoCCW	8	2018	252 E
<b>Common Crossbill</b>	WCA Sch. 1	1	2017	1,167 E
<b>Cuckoo</b>	S7, BoCC, BoCCW	5	2019	291 N
<b>Dunnock</b>	S7	2	2016	1,469 N
<b>Golden Plover</b>	Annex 1, S7, BoCCW	2	2010	<b>Within site</b>
<b>House Sparrow</b>	S7, BoCC,	3	2016	783 E
<b>Kestrel</b>	S7, BoCCW	1	2015	657 NE

Species	Status	Number of records	Date of most recent record	Distance (m) and direction of nearest record from the Site
Mistle Thrush	BoCC Red list	3	2018	Within site
Peregrine	WCA Sch. 1	1	2010	203 W
Red Kite	WCA Sch. 1, S7	3	2015	203 W
Redwing	WCA Sch. 1, BoCC	1	2010	203 W
Reed Bunting	S7	2	2014	523 W
Scaup	WCA Sch. 1, BoCC	1	2015	914 N
Skylark	S7, BoCC	3	2018	Within site
Song Thrush	S7, BoCC	3	2011	545 E
Spotted Flycatcher	S7, BoCC, BoCCW	1	2017	1,159 S
Starling	S7, BoCC, BoCCW	1	2010	545 E
Willow Tit	S7, BoCC, BoCCW	1	2015	657 NE
Wood Warbler	S7, BoCC, BoCCW	3	2016	1,088 N
Yellowhammer	S7, BoCC, BoCCW	1	2013	1,049 SE

#### Key to 'Status' abbreviations:

**Annex 1 = Annex 1 of the Birds Directive lists species and sub-species which are: in danger of extinction; vulnerable to specific changes to their habitat; considered rare because of small populations or restricted local distribution; requiring particular attention for reasons of specific nature of habitat.**

**S7 = Environment Act (Wales) Section 7 Annex 2 Species: living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.**

**WCA Sch.1 = It is an offence to disturb any wild bird listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) while it is nest building, or is at a nest containing eggs or young, or to disturb the dependent young of any such bird.**

**BoCC Red = Species listed as "Red" in Birds of Conservation Concern 5 (Stanbury et al 2021) the background to the establishment of a 'traffic light system' of conservation concern for UK birds is discussed in Gregory et al. (2002). 'Red-listed' species include those that are globally threatened, have suffered a historical population decline in the UK (between 1800 and 1995) or which have experienced rapid declines in their UK breeding population or contractions in their UK range of more than 50% over the past twenty-five years.**

**BoCCW Red = Species listed as "Red" in Birds of Conservation Concern in Wales 3 (Johnstone et al 2016)**

## 3.2 Vantage point surveys

- 3.2.1 Vantage point surveys have been undertaken at the site as defined in **Section 2. Table 3.3 and Table 3.4** provides a summary of the hourly coverage at each VP location per month for the 2020/2021 and 2021/2022 season respectively.

**Table 3.3 Summary of hourly coverage at each VP location per month 2020/2021**

	Breeding Season							Non-breeding Season				
	March	April	May	June	July	August	September	October	November	December	January	February
<b>VP 1</b>	0	9	15	12	9	9	9	9	9	9	9	6
<b>VP 2</b>	0	9	15	12	9	9	9	9	9	9	9	6

**Table 3.4 Summary of hourly coverage at each VP location per month 2021/2022**

	Breeding Season							Non-breeding Season					
	March	April	May	June	July	August	September	October	November	December	January	February	March
<b>VP 1</b>	6	6	6	6	6	6	6	6	6	0	9	6	9
<b>VP 2</b>	6	6	6	0	3	6	12	6	6	0	10	3,5	10.5

## Breeding season 2020

3.2.2 A total of 54 hours of observation were undertaken at each VP between March 2020 and August 2020. Hours not completed in March were made up through additional hours in both May and June. Each survey was split into three-hour watches. Where practicable, each VP received coverage during early, mid and late counting periods each month, resulting in an unbiased and varied dataset.

### Target Species

3.2.3 Five target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the 2020 breeding season: red kite, peregrine, hobby, merlin and golden plover. Details of all target species flights are provided in **Table F1 in Annex F**. The flight lines for red kite are shown on **Figure 3.1, Annex C** with flight lines for peregrine, hobby, merlin shown on **Figure 3.2 Annex C**.

3.2.4 **Table 3.1** presents a summary of the flights of target species recorded during the breeding season VP surveys, including the number of flights recorded within the survey area (i.e. within the 2km view-sheds) and the duration of flights (number of birds multiplied by length of flight in seconds for each observation) which were at Potential Collision Height (PCH) (i.e. between 29.5m-155m height) within the Flight Risk Area (FRA). The FRA is defined as being the proposed locations of the turbines (allowing a 50m for micrositing) plus an additional 500m buffer.

**Table 3.5 Summary of flights by target species: breeding season 2020**

Species	Number of observations in survey area	Number of observations per hour of survey	Total number of flights) in Flight Risk Area (FRA)	Total flight duration (Flight time in seconds X number of individuals) at PCH in Flight Risk Area (FRA)
Red kite	19	0.18	16	1,120
Peregrine	4	0.037	3	435
Hobby	1	0.009	2	120
Merlin	1	0.009	1	0

### Notable and Secondary Species

3.2.5 Secondary species identified in the methodology included common raptors and waterfowl potentially vulnerable to collision with turbines from the proposed development due to their size and flight characteristics. Species recorded during the VP surveys are listed below with indicative frequency of observation and peak counts

- buzzard – recorded in all months with a peak count of eight individuals records. Birds were recorded within the redline boundary and assumed breeding in woodland adjacent to the Site;

- common sandpiper – recorded once flying overhead (heard only) during August 2020, assumed a passage migrant;
- great black-backed gull – recorded in April 2020 only, peak count of two birds recorded flying south over the Site;
- lesser black-backed gull – recorded regularly in April – July 2020, birds frequently flying overhead with a peak count of nine birds recorded;
- kestrel – recorded throughout the breeding season regularly. Individual birds were recorded early in the breeding season though a record of a female bird foraging with three juvenile birds suggests breeding local to the Site;
- raven - recorded in all months with a peak count of eleven individuals records. Birds were recorded within the redline boundary;
- lapwing – individual bird recorded during one survey in June 2020;
- grey heron – individual birds recorded infrequently in April – June 2020; and
- little egret. individual bird recorded during one survey in June 2020.

3.2.6 A single Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended) and further seven species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- common crossbill – Two birds recorded on a single occasion during June 2020.
- common cuckoo – individual birds recorded throughout surveys completed between May and June 2020.
- herring gull - recorded in all months with a peak count of 15 individuals.
- linnets - recorded in all months with a peak count of four individuals. Confirmed as a breeding species on Site.
- reed bunting – recorded regularly in all months with a peak count of four individuals. Confirmed as a breeding species on Site.
- skylark - recorded regularly in all months with a peak count of 14 individuals. Confirmed as a breeding species on Site.
- starling – infrequently recorded in April – July 2020. Peak count of 14 individuals.
- song thrush – infrequently recorded in May – June 2020. Peak count of 2 individuals.
- tree pipit – infrequently recorded in July – August 2020. Peak count of 2 individuals.

3.2.7 None of these Schedule 1, Section 7 or BoCC red species were recorded in abundance or significant aggregations, with the majority of records related to single birds or flocks migrating over the Site.

## Non-breeding season 2020 - 2021

3.2.8 Fifty-one hours of observation were undertaken at each VP between September and February inclusive; nine hours per month for September – January inclusive and six hours in February. Each survey was three hours in duration. Where practicable, each VP received coverage during early, mid and late counting periods each month, resulting in an unbiased and varied dataset.

## Target Species

- 3.2.9 Six target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the 2020/21 non-breeding season: red kite, goshawk, hen harrier, peregrine, merlin, and golden plover. Details of all target species flights are provided in **Table F2** in **Annex F**. The flight lines (recorded during the formal VP surveys) for red kite, goshawk and golden plover are shown in **Figure 3.3, Figure 3.4, Figure 3.5 and Figure 3.6a-f, Annex C**.
- 3.2.10 **Table 3.3** presents a summary of the flights of target species recorded during the non-breeding season VP surveys, including the number of flights recorded within the survey area (i.e. within the 2km view-sheds) and the duration of flights (number of birds multiplied by length of flight in seconds for each observation) which occurred at PCH (i.e., between 29.5-155m height) within the FRA.

**Table 3.6 Summary of flights by target species: Non-breeding season 2020/2021**

Species	Number of observations in survey area	Number of observations per hour of survey	Total number of flights) in Flight Risk Area	Total flight duration (Flight time in seconds X number of individuals) at PCH in Flight Risk Area
Red kite	26	0.25	18	2,584
Goshawk	4	0.039	4	352
Hen harrier	5	0.049	5	647
Peregrine	6	0.058	2	135
Merlin	2	0.019	2	60
Golden plover	90	0.88	89	1,939,471

## Secondary Species

- 3.2.11 Raptors and waterfowl potentially vulnerable to collision with turbines from the proposed development due to their size and flight characteristics recorded during the breeding season VP surveys were:
- buzzard - recorded in all months with a peak count of four individuals records. Birds were recorded foraging within the redline boundary and adjacent land;
  - herring gull – recorded infrequently on single occasions in September, November 2020 and February 2021. Peak count of 12 individuals. Typically flying outside of the Site;
  - kestrel – recorded regularly in all months with records primarily on site or within 100m of the Site. Individual bird seen on all occasions;
  - lapwing – recorded rarely with four records, three occurring in November 2020 with a single bird foraging with the golden plover flock;
  - lesser black-backed gull – rarely recorded, two records in November 2020 and February 2021 respectively. Both records beyond the Site boundary;

- raven - recorded in all months with a peak count of six individuals. Recorded foraging and displaying (December 2020);
- sparrowhawk – recorded rarely, five records on three separate dates in September, October 2020 and February 2021;
- snipe – single record of an individual birds from January 2021.

3.2.12 Other notable bird species recorded included three Schedule 1 species, as listed on Wildlife and Countryside Act 1981 (as amended)<sup>3</sup> and a further six species listed in Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- common crossbill – recorded rarely with four records only. Peak count of seven birds recorded flying overhead VP locations and associated with plantation woodland to east;
- fieldfare – recorded rarely with only four occurrences. Occurred between November 2021 and February 2022 only. Peak count of 31 birds;
- redwing – recorded infrequently with ten records from the 12 and 14 October 2020. Peak count of 36 birds;
- linnet – recorded regularly between September and November 2020 and February 2021. Small groups only with a peak of seven birds. Confirmed breeding/resident species;
- reed bunting – frequent records on site in all months. Individual and pairs of birds typical. Confirmed breeding/resident species;
- song thrush - rarely recorded (only four records) from October 2020 and February 2021;
- starling – recorded occasionally with a peak of 67 birds in November 2020;
- skylark - frequent records on site in all months. Typically, in small groups (<10 birds) but larger numbers recorded in February 2021 with a peak of 13 individuals.

3.2.13 None of these Schedule 1, Section 7 or BoCC red species were recorded in abundance or significant aggregations, with the majority of records related to single birds or flocks migrating over the Site.

## Breeding season 2021

3.2.14 A total of 36 hours of observation were undertaken at VP1 between March and August 2021 inclusive. Due to poor weather in June and July the full allocation of surveys was not completed at VP2 in the same period with catch up surveys completed in early September. However, despite additional visits in this month the total number of hours of observation was 33 hours. Each VP received coverage during early, mid and late counting periods across the survey season, resulting in an unbiased and varied dataset.

<sup>3</sup> Fieldfare and redwing are both listed under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) as they are rare breeding birds in the UK, restricted to a very small number of breeding attempts each year (redwing 24 pairs, fieldfare 0-1 - 2013-2017), typically recorded in Scotland and northern England. They occur throughout the UK during the non-breeding season, often transient in nature forming large flocks.



## Target Species

- 3.2.15 Four target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken within the 2021 breeding season: red kite, peregrine, golden plover and goshawk. Details of all target species flights are provided in **Table F3** in **Annex F**. The flight lines for red kite, peregrine, golden plover and goshawk are shown in **Figures 3.7, Figure 3.8 and 3.9, Annex C**.
- 3.2.16 **Table 3.5** presents a summary of the flights of target species recorded during the non-breeding season VP surveys, including the number of flights recorded within the survey area (i.e. within the 2km view-sheds) and the duration of flights (number of birds multiplied by length of flight in seconds for each observation) which occurred at PCH (i.e., between 29.5-155m height) within the FRA.

**Table 3.7 Summary of flights by target species: breeding season 2021**

Species	Number of observations in survey area	Number of observations per hour of survey	Total number of flights) in Flight Risk Area	Total flight duration (Flight time in seconds X number of individuals) at PCH in Flight Risk Area
Red kite	9	0.13	9	552
Peregrine	1	0.014	0	0
Golden plover	1	0.014	13	2,775
Goshawk	1	0.014	1	0

## Secondary Species

- 3.2.17 Raptors and waterfowl potentially vulnerable to collision with turbines from the proposed development due to their size and flight characteristics recorded during the breeding season VP surveys were:
- buzzard - recorded in all months with a peak count of five individuals. Birds were recorded within the redline boundary and assumed breeding in woodland adjacent to the Site;
  - kestrel – recorded regularly in all months (excluding June 2021). All records were of individual birds, often recorded hunting on Site;
  - lesser black-backed gull – rarely recorded. Only four records from June and July 2021 of individual birds;
  - herring gull – rarely recorded. Three records of birds flying overhead in June 2021.
  - raven - recorded in all months with a peak count of three individuals.
- 3.2.18 Eight other species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys in 2021:
- common cuckoo – recorded during one survey in April 2021;

- linnet – recorded infrequently in July -September 2021. Pairs or individual birds recorded. Previously confirmed as breeding on Site;
- lesser redpoll – recorded rarely (four records only) between April 2021 and August 2021. Birds flying overhead vantage point and associated with plantation woodland;
- pied flycatcher – single record of a bird in May 2021 – assumed passage migrant;
- reed bunting – recorded rarely (only two occasions in April and July 2021). Previously confirmed as breeding on Site;
- skylark - recorded regularly in all months with a peak count of 7 individuals. Confirmed as a breeding species on Site;
- starling – rarely recorded. One flock ranging in number between 20 and 70 birds recorded in June 2021;
- swift – rarely recorded. One recorded of three birds feeding onsite from May 2021.

3.2.19 None of these Schedule 1, Section 7 or BoCC red species were recorded in abundance or significant aggregations, with the majority of records related to single birds or flocks migrating over the Site.

## Non-breeding season 2021/2022

3.2.20 A total of 42 and 36 hours of observation were undertaken at VP1 and VP2 respectively between September 2021 and March 2022 inclusive. An extended period of poor weather during December and February resulted in reduced survey effort and required continuation of surveys into early March to ensure that the full period of observations was completed.

### Target Species

- 3.2.21 Four target species (as defined in **Section 2.2**) were recorded during the VP surveys undertaken during the 2021/2022 non-breeding season: red kite, goshawk, peregrine and golden plover. Details of all target species flights are provided in **Table F4** in **Annex F**. The flight lines (recorded during the formal VP surveys) for red kite, goshawk, peregrine and golden plover are shown in **Figure 3.10**, **Figure 3.11** and **Figure 3.12(a-f)**.
- 3.2.22 **Table 3.7** presents a summary of the flights of target species recorded during the non-breeding season VP surveys, including the number of flights recorded within the survey area (i.e. within the 2km view-sheds) and the duration of flights (number of birds multiplied by length of flight in seconds for each observation) which occurred at PCH (i.e., between 29.5-155m height) within the FRA.

**Table 3.8 Summary of flights by target species: Non-breeding season 2021**

Species	Number of observations in survey area	Number of observations per hour of survey	Total number of flights) in Flight Risk Area	Total flight duration (Flight time in seconds X number of individuals) at PCH in Flight Risk Area
Red kite	14	0.18	14	1,035
Goshawk	8	0.1	5	1,002
Peregrine	1	0.01	1	36
Golden plover	82	1.05	80	1,332,339

### Secondary Species

3.2.23 Raptors and waterfowl that are potentially vulnerable to collision with turbines from the Proposed Development due to their size and flight characteristics recorded during the breeding season VP surveys were:

- buzzard – recorded regularly in all months with a peak count of five individuals. Birds were recorded within the redline boundary and in adjacent areas
- dotterel – a single bird recorded on one occasion in September 2021.
- kestrel – recorded rarely with only three records during the non-breeding period.
- raven – recorded regularly in all months with a peak count of four individuals.
- sparrowhawk – recorded rarely with only three records during the non-breeding period.
- snipe – recorded rarely with only four records during the non-breeding period.

3.2.24 One species listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and five species listed on Section 7 of the Environment (Wales) Act 2016 were recorded during the breeding season VP surveys:

- bullfinch – recorded rarely with two records of individual birds during the non-breeding period in September and January respectively
- linnet – recorded rarely with only two records, one of a single bird and a record of 13 individuals from September and November 2021 respectively.
- reed bunting – single record of one bird from March 2022.
- redwing – recorded rarely with only three individual records from September and November 2021;
- skylark – recorded regularly in all months with a peak count of 15 birds. A resident species with numbers swelled during passage months;
- starling – recorded regularly in all months with a peak count of 56 birds from March 2022.

3.2.25 None of these Schedule 1, Section 7 or BoCC red species were recorded in abundance or significant aggregations, with the majority of records related to single birds or flocks migrating over the site.

### 3.3 Breeding bird survey

3.3.1 Six survey visits were completed within the Study Area (the Site plus a 100m buffer) from March 2020 to June 2020 inclusive, with each visit being completed in a single morning.

3.3.2 A total of thirty-three species were recorded breeding or holding territory within the breeding bird survey area in 2020, including:

- nine species listed on Section 7 of the *Environment (Wales) Act* (2006) were recorded breeding or holding territory: cuckoo, dunnock, house sparrow, lesser redpoll, linnet, reed bunting, skylark, song thrush and tree pipit; and
- five species listed on the *Birds of Conservation Concern in Wales 3 Red list* (2016) were recorded breeding or holding territory: Cuckoo, linnet, skylark, whitethroat, and willow warbler. Three species that are listed on the *Birds of Conservation Concern 4* (UK wide) Red list are also recorded as breeding or holding territory: Mistle thrush, skylark and tree pipit.

3.3.3 **Table 3.8** summarises the number of identified territories and conservation status of species recorded and **Figure 3.13** shows the indicative centre point of each territory, with notable species highlighted in red.

**Table 3.9 Summary of the number of identified breeding bird territories within the breeding bird survey area and the proposed development area**

BTO code	Species	Number of territories within breeding bird survey area (100m buffer included)	Number of territories within Proposed Development footprint*	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
B.	Blackbird	7	0				
BC	Blackcap	2	0				
BT	Blue tit	2	0				
C.	Carrion crow	1	0				
CH	Chaffinch	5	0				
CC	Chiffchaff	3	0				
CT	Coal tit	3	0				
CK	Cuckoo	1	0		✓	✓	✓
D.	Dunnock	12	0		✓		
GC	Goldcrest	5	0				

BTO code	Species	Number of territories within breeding bird survey area (100m buffer included)	Number of territories within Proposed Development footprint*	Schedule 1 or Annex I	Section 7	BoCC 5 (UK wide)	BoCC 3 (Wales)
GO	Goldfinch	7	1				
GS	Great spotted woodpecker	1	0				
HS	House sparrow	1	0		✓	✓	
LR	Lesser redpoll	1	0		✓		
LI	Linnet	8	1		✓	✓	✓
MP	Meadow pipit	43	17				
M.	Mistle thrush	4	0			✓	
NH	Nuthatch	2	0				
RT	Redstart	1	0				
RB	Reed bunting	10	8		✓		
R.	Robin	20	0				
SK	Siskin	3	0				
S.	Skylark	82	341		✓	✓	
ST	Song thrush	2	0		✓		
SC	Stonechat	12	3				
TP	Tree pipit	2	0		✓	✓	
W.	Wheatear	4	0				
WH	Whitethroat	7	0				✓
WW	Willow warbler	38	2				✓
WR	Wren	30	1				

\*Includes all working areas, access routes and turbine construction areas with an additional 100m buffer applied

3.3.4 The greatest diversity of species were found in areas of forestry and other habitats that are found adjacent to the proposed location of the wind farm. These areas support the majority of notable bird species including Red listed species including willow warbler, tree pipit and mistle thrush. Species typical of the moorland/grassland habitat found within the red line boundary, such as skylark and meadow pipit were found in greater abundance in areas that could be impacted by land take associated with the Proposed Development.

Skylark are listed on Section 7 of the Environment Act (2006) and are also BoCC Red listed (UK wide) and BoCC Amber listed in Wales.

## Incidental records

3.3.5 A further thirty-one species were recorded within the Site during the breeding bird surveys for which no evidence of breeding / holding territory was obtained. Of these, there is potentially suitable breeding habitat within the Site and 100m buffer area for the following species:

- buildings and other manmade structures: swift, swallow;
- forestry plantations/mixed deciduous woodland: buzzard, common crossbill, great tit, green woodpecker, jackdaw, jay, kestrel, magpie, raven, red kite, rook, sparrowhawk, spotted flycatcher, starling, woodpigeon;
- areas with built up scrub: garden warbler, long-tailed tit; and
- moorland/uplands habitat: yellow wagtail.

## 3.4 Breeding raptor survey

3.4.1 Goshawk were the only species listed on Schedule 1 of the *Wildlife & Countryside Act (1981)* recorded as breeding on Site or within a set radius of the red line boundary during the breeding raptor surveys.

### Goshawk

3.4.2 A nesting pair of goshawk were observed to raise two chicks, the nest location is shown in **Confidential Figure 3.14**. A summary of the findings from the surveys is provided below:

- 30/03/2021 – the majority of the southern and south-western woodland was scoped out due to low suitability of habitats present (small blocks of uniform plantations) and high human presence/activity. The results from the desktop study also suggest that the woodland in this part of the site is not used for nesting by Schedule 1 raptors.
- 31/03/2021 – a cold search of the north-western sections of Barry Sidings Country Park was undertaken. A raptor nest was located within this block of woodland, and was considered to be an old goshawk nest. No fresh material was seen, but it was noted that the nest looked stable enough to support a future nesting attempt, and the nest was to be surveyed throughout the breeding season.
- 15/04/2021 – a female goshawk was observed in flight near the north-western area of Barry Sidings Country Park.
- 16/04/2021 – a check of the previously located nest found that no new material had been added, though a goshawk was heard calling, and subsequently a new and active nest was located, with a female sat on the nest with the male in attendance. The bird interacted with each other at the nest site, confirming that it was an active nest.
- 25/05/2021 – both male and female goshawk were observed at the nest site, and the female alarm called and circled the woodland. Observations were limited due to high potential of disturbance for the adult birds, but it was considered possible that there were young hatched.
- 17/06/2022 – two chicks were observed active on the nest.

### 3.5 Winter non-breeding surveys

- 3.5.1 Non-breeding surveys were carried out during the winter period of 2020-2021, October – February inclusive with one visit per month. The non-breeding bird survey followed two transects of similar length covering within 100m of all areas/habitats of interest.
- 3.5.2 A total of thirty species were recorded during the winter period of October 2020 to February 2021, including fifteen target species were recorded including:
- four species listed on Schedule 1 of the *Wildlife & Countryside Act* (1981): fieldfare, peregrine, red kite and redwing;
  - ten species listed on Section 7 of the *Environment (Wales) Act* (2006): Bullfinch, dunnock, golden plover, kestrel, lesser redpoll, linnet, reed bunting, skylark, song thrush, starling; and
  - five species listed on the *Birds of Conservation Concern in Wales 3 Red list* (2016): Bullfinch, golden plover, kestrel, linnet, starling. An additional three species also listed on the *Birds of Conservation of Concern 5* (UK wide) Red list also recorded as a wintering/residential species: Fieldfare, mistle thrush and skylark.
- 3.5.3 The additional target species recorded were buzzard, chaffinch (due to the flock size recorded), raven and snipe.
- 3.5.4 The majority of records were of passerines and were dominated by species that occur at the site year-round and can be considered resident species (such as dunnock, linnet, skylark, song thrush).
- 3.5.5 Transient wintering species such as fieldfare and redwing were recorded on site in small flocks. Flocks of golden plover were recorded throughout the winter in comparable numbers to those recorded during the VP surveys.
- 3.5.6 No large congregations of target species were recorded during the wintering non-breeding surveys, which was confirmed during vantage point surveys conducted during the non-breeding season with comparable densities of species recorded throughout.
- 3.5.7 Peak counts for notable species included:
- common crossbill – Flock of three recorded on 20/11/2020;
  - fieldfare – Flock of thirty-eight on 23/10/2020;
  - redwing – Flock of seventeen on 20/11/2020;
  - starling – Flock of twenty-one on 20/11/2020;
  - snipe – three were flushed on 24/02/2021; and
  - golden plover – flock of 135 on 23/10/2020.
- 3.5.8 Single records of red kite were observed during the 23 October 2020 visit only, and the single record of a peregrine was also made on the same date.

## 4. Key Species summary

---

4.1.1 Eleven target species (i.e., species identified as “target species” for specific survey types or protected/notable species occurring within the Site) were recorded during the surveys carried out between April 2020 and March 2022; goshawk, red kite, peregrine, hen harrier, merlin, hobby, golden plover, lapwing, common sandpiper, dotterel and snipe. A summary of the records for these species is provided below.

### 4.2 Goshawk

4.2.1 Goshawk is listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). In 2017 there was thought to be up to 620 pairs nesting throughout the UK (Woodward *et al* 2020), although it is widely believed this doesn't reflect the true status of the species and represents a large underestimate of the true figures. The East Glamorgan Bird Report (Glamorgan Bird Club 2021) (which covers Rhondda Cynon Taff) recorded multiple sightings of Goshawk in 2020 with 159 recorded sightings from 88 different locations. This report confirmed at least four nests were active with a further five nests considered “possible” all to the north of the M4 corridor which cuts across the wider county area. Given the expansion of this species the total number of breeding pairs is likely to be more than this and will continue to grow where suitable habitat is present.

4.2.2 During VP surveys, goshawk were recorded infrequently within the core survey area (2km viewshed) with no observations of goshawk during the 2020 breeding season and only 13 flights recorded during the remaining vantage point surveys. This equated to 0.014 flights per hour recorded during the 2021 breeding season and between 0.039 and 0.1 flights per hour of observation during the two non-breeding season. Up to two birds were recorded at any one time, although the majority of records relate to single birds.

4.2.3 Most flights were outside of the red line boundary and were concentrated around the woodland to the east and north-east of the Site, though there were also records of Goshawk flying within the Red-line boundary limited to the edges close to the woodland habitats that this species favours.

4.2.4 Goshawk were confirmed to have successfully bred in 2021, the final site visit confirming two large chicks active in their nest. The nest (**Confidential Figure 3.14**) was located within 1km of the Site in an area of woodland habitat.

### 4.3 Red Kite

4.3.1 Red kite is listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). In 2016, the UK population of red kite was estimated to be close to 4,400 pairs (Woodward *et al* 2020), although as recently as 2019 the Red Kite trust estimated the population Wales to be in excess of 2,500 pairs (Welsh Kite Trust 2021).

4.3.2 No up-to-date population estimate for red kite in RCT or the former Glamorgan County area is available, though given the number of records reported in local bird reports (Glamorgan Bird Club 2021) and number of observed nesting efforts red kite is still a rare breeding bird in RCT. In 2020 there were records of only 2 breeding records in the wider Glamorgan area. However, observations of red kite continue to increase with the species identified as a “Locally Common Resident and rare breeder”.



- 4.3.3 During VP surveys red kite were regularly recorded in all months with 0.13 - 0.15 flights per hour recorded during the breeding season and 0.18 - 0.25 flights recorded per hour of observation during the non-breeding season within the core survey area (2km viewshed). Up to three birds were recorded at any one time, although the majority of records relate to single birds. Red Kite were recorded foraging throughout the Site including records within the RLB, buffer zone and beyond the 2km viewshed.
- 4.3.4 Little evidence of breeding or territorial behaviour was observed during VP or Schedule 1 nesting surveys, with no nests found or any suspected territory established. Suitable habitat for this species is limited close to the site, with plantation woodland sub-optimal for this species and available areas of deciduous woodland small in nature and typically associated with streams and river valleys.
- 4.3.5 Based on the number and distribution of observed flights during vantage point surveys, the results of the Breeding Raptor Assessment and the observed numbers of breeding red kite in the wider area, red kite is categorised as a non-breeding resident with respect to the Proposed Development with no observed breeding attempts occurring within 2km of the Site. However, given the continued expansion of this species, breeding attempts could occur in the future.

## 4.4 Golden plover

- 4.4.1 Golden plover is listed on Annex I of the Birds Directive and is a priority species listed in Section 7 of the Environment (Wales) Act 2016. The species is also red-listed (in Wales) due to a rapid (>50%) decline in the Welsh breeding population over the past 25 years (Johnstone *et al* 2016) with only 70–90 pairs remaining, nearly half of which are on moorland within the Cambrian Mountains<sup>4</sup>. The wintering population of golden plover was estimated to be 400,000 birds in Britain in 2006/07 (Musgrove *et al.*, 2013), and the five-year peak mean count from WeBS sites located entirely (or partly) in Wales for 2015/16 – 2019/20 was 15,723 birds<sup>5</sup>. This compares to co-ordinated counts across Wales totalling 18,000 birds in January 1977 (Lovegrove *et al.*, 1994).
- 4.4.2 In East Glamorgan, the golden plover is also described as a fairly common passage migrant and winter visitor, again, mainly along the coast, with Sker Point being the main site, supporting 280 - 300 birds in 2020. Estimates of non-breeding golden plover typically focus on counts made in coastal areas where low tide counts are completed. Flocks of birds which winter on suitable habitat away from coasts are likely to be unaccounted for in estimates.
- 4.4.3 Golden plover were recorded during all months during the non-breeding season (as well as a single flight in the breeding season). A peak flock size of 322 was recorded, and there were thirty-one records of flocks more than one hundred birds. Golden plover flocks were regularly disturbed and often flew for extended periods within the red line boundary. The longest duration of flight recorded was 1,440 seconds, and there were fifty flights that were over 5 minutes in duration. The mean average duration of flight was 243 seconds. Golden plover were recorded flying across the Site including the RLB, buffer zone and a small number of flights beyond the 2km viewshed.

---

<sup>4</sup> RSPB Golden plover advisory sheet - [http://www.rspb.org.uk/Images/Englishgoldenplover\\_tcm9-133252.pdf](http://www.rspb.org.uk/Images/Englishgoldenplover_tcm9-133252.pdf)

<sup>5</sup> This figure is the sum of each 5-year peak mean count from each WeBS site counted in Wales obtained from the BTO website ([www.bto.org](http://www.bto.org)). It is acknowledged that this figure could include some double recording of birds moving from one site to another, and that WeBS does not include many sites away from estuaries and wetlands that are used by golden plover.

## 4.5 Peregrine

- 4.5.1 Peregrine is listed on Annex I of the Birds Directive and Schedule 1 of the Wildlife and Countryside Act 1981 (as amended) and therefore, receives additional protection from disturbance during the breeding season (see **Annex B**). The UK breeding population for peregrine is estimated to be 1,769 pairs (Willson *et al* 2018) with an estimated 283 pairs in Wales. While numbers of peregrine have increased markedly in England, comparison of the number of pairs between 2002 and 2014 suggest stable populations in Wales.
- 4.5.2 During VP surveys peregrine were recorded infrequently with 0.014 - 0.037 flights per hour recorded during the breeding season and 0.01 - 0.058 flights recorded per hour of observation during the non-breeding season. All records relate to single birds only with most flights recorded to the north and west of the site including areas outside of the RLB and 2km viewshed.
- 4.5.3 There were no records or behaviours observed to suggest the species breeds on or within the immediate vicinity of the site and no obvious potential breeding locations within 2km. It is likely that the species uses the Site for hunting and commuting only.

## 4.6 Other notable raptors

- 4.6.1 Hobby, merlin and hen harrier are all listed on Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). There were single records of both hobby and merlin in the 2020 breeding season, and five records of hen harrier, and one of merlin respectively in the 2020/2021 non-breeding season. These records all appeared to be of passage migrants with very low numbers recorded and only on single occasions (with the exception of hen harrier which was recorded across three separate dates but may have been three individual birds).

## 4.7 Passage waders

- 4.7.1 Across the different surveys undertaken, common sandpiper, lapwing, dotteral and snipe were also recorded though only in low numbers or on individual occasions. Snipe were the only species to occur on the site throughout the non-breeding season with records of all other waders relating to passage migrants.

# Bibliography

Amar, A., Hewson, C.M., Thewlis, R.M., Smith, K.W., Fuller, R.J., Lindsell, J.A., Conway, G., Butler, S. & MacDonald, M.A. (2006) What's Happening to Our Woodland Birds? Long-term changes in the populations of woodland birds. BTO Research Report 169 & RSPB Research Report 19. BTO, Thetford and RSPB, Sandy.

British Ornithologists Union (2017). The British List: A Checklist of Birds of Britain (9th edition). Ibis 160: 190-240.

Eaton, M. A., Aebischer, N. J., Brown, A. F., Hearn, R. D., Lock, L., Musgrove, A. J., Noble, D. G., Stroud, D. A. & Gregory, R. D. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746.

Gilbert, G, Gibbons, D.W. & Evans, J. (1998). Bird Monitoring Methods: A manual of techniques for key UK species. RSPB, Bedfordshire.

Glamorgan Bird Club (2021) Eastern Glamorgan Bird Report No.59, 2020.

Gregory, R. D., Wilkinson, N. I., Noble, D. G., Robinson, J.A., Brown, A. F., Hughes, J., Procter, D., Gibbons, D.W., & Galbraith, C.A. 2002. The population status of birds in the United Kingdom, Channel Islands and Isle of Man: an analysis of conservation concern 2002–2007. Brit. Birds 95: 410–448

Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). Raptors: a field guide to survey and monitoring. Third Edition. The Stationery Office, Edinburgh. ughes, J. Haycock, B. Green, J. Pritchard, R. Tyler, S. Noble, K. Johnstone, I. Clift, M. & Stratford, A. (2017). Welsh Bird Report. Birds in Wales. 15 (3). 1-105

Johnstone, I. Bladwell, S & Pritchard, R. (2016). Birds of Conservation Concern in Wales 3: the population status of birds in Wales. Birds in Wales 13 (1).

Lovegrove, R., Williams, G & Williams, I. (1994). Birds in Wales. T & AD Poyser, London

Magic (2021). <https://magic.defra.gov.uk/> accessed on 26 January 2022

Marchant, J.H. (1983) BTO Common Birds Census instructions. BTO, Tring.

Musgrove, A., Aebischer, N., Eaton, M., Hearn, R., Newson, S., Noble, D., Parsons, M., Risely, K. and Stroud, S. (2013). Population estimates of birds in Great Britain and the United Kingdom. British Birds, 106, pp 88-89.

Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. <https://www.nature.scot/recommended-bird-survey-methods-inform-impact-assessment-onshore-windfarms;>

Scottish Natural Heritage (2018). Assessing significance of impacts from onshore windfarms outwith designated areas. <https://www.nature.scot/guidance-assessing-significance-impacts-bird-populations-onshore-wind-farms-do-not-affect-protected;>

Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114:723-747.

Welsh Kite Trust (2021). How many kites are there in Wales?  
<http://welshkitetrust.wales/author/paddykt#:~:text=Summary%3A%20In%202019%20the%20welsh,be%20about%202500%20breeding%20pairs.>

Wilson, M. W., Balmer, D. E., Jones, K., King, V. A., Raw, D., Rollie, C. J., Rooney, E., Ruddock, M., Smith, G.D., Stevenson, A., Stirling-Aird, P.K., Wernham, C. V., Weston, J. M. & Noble, D.G (2018). The breeding population of Peregrine Falcon *Falco peregrinus* in the United Kingdom, Isle of Man and Channel Islands in 2014. *Bird Study*, March 2018.

Woodward, I., Aebischer, N., Burnell, D., Eaton, M., Frost, T., Hall, C., Stroud, D.A. & Noble, D. (2020). Population estimates of birds in Great Britain and the United Kingdom. *British Birds* 113: 69–104.

# Annex A

## Scientific names of species referred to in this report

BTO species code	Common/English name	Scientific name
B.	Blackbird	<i>Turdus merula</i>
BC	Blackcap	<i>Sylvia atricapilla</i>
BF	Bullfinch	<i>Pyrrhula pyrrhula</i>
BO	Barn owl	<i>Tyto alba</i>
BT	Blue tit	<i>Cyanistes caeruleus</i>
BZ	Buzzard	<i>Buteo buteo</i>
C.	Carrion crow	<i>Corvus corone</i>
CC	Chiffchaff	<i>Phylloscopus collybita</i>
CG	Canada goose	<i>Branta canadensis</i>
CH	Chaffinch	<i>Fringilla coelebs</i>
CK	Cuckoo	<i>Cuculus canorus</i>
CR	Crossbill	<i>Loxia curvirostra</i>
CT	Coal tit	<i>Parus ater</i>
CU	Curlew	<i>Numenius arquata</i>
D.	Dunnock	<i>Prunella modularis</i>
FF	Fieldfare	<i>Turdus pilaris</i>
G.	Green woodpecker	<i>Picus viridis</i>
GC	Goldcrest	<i>Regulus regulus</i>
GO	Goldfinch	<i>Carduelis carduelis</i>
GI	Goshawk	<i>Accipiter gentilis</i>
GP	Golden plover	<i>Pluvialis apricaria</i>
GS	Great Spotted woodpecker	<i>Dendrocopos major</i>
GT	Great tit	<i>Parus major</i>

<b>BTO species code</b>	<b>Common/English name</b>	<b>Scientific name</b>
<b>GW</b>	Garden warbler	<i>Sylvia borin</i>
<b>H.</b>	Grey heron	<i>Ardea cinerea</i>
<b>HG</b>	Herring gull	<i>Larus argentatus</i>
<b>HH</b>	Hen harrier	<i>Circus cyaneus</i>
<b>HM</b>	House martin	<i>Delichon urbicum</i>
<b>HY</b>	Hobby	<i>Falco subbuteo</i>
<b>J.</b>	Jay	<i>Garrulus glandarius</i>
<b>JD</b>	Jackdaw	<i>Corvus monedula</i>
<b>L.</b>	Lapwing	<i>Vanellus vanellus</i>
<b>LB</b>	Lesser black-backed gull	<i>Larus fuscus</i>
<b>LE</b>	Long-eared owl	<i>Asio otus</i>
<b>LI</b>	Linnet	<i>Linaria cannabina</i>
<b>LR</b>	Lesser redpoll	<i>Acanthis cabaret</i>
<b>LT</b>	Long-tailed tit	<i>Aegithalos caudatus</i>
<b>KT</b>	Red kite	<i>Milvus milvus</i>
<b>M.</b>	Mistle thrush	<i>Turdus viscivorus</i>
<b>MA</b>	Mallard	<i>Anas platyrhynchos</i>
<b>MG</b>	Magpie	<i>Picus picus</i>
<b>ML</b>	Merlin	<i>Falco columbarius</i>
<b>MP</b>	Meadow pipit	<i>Anthus pratensis</i>
<b>NH</b>	Nuthatch	<i>Sitta europaea</i>
<b>PF</b>	Pied flycatcher	<i>Ficedula hypoleuca</i>
<b>PW</b>	Pied Wagtail	<i>Motacilla alba</i>
<b>R.</b>	Robin	<i>Erithacus rubecula</i>
<b>RB</b>	Reed bunting	<i>Emberiza schoeniclus</i>
<b>RE</b>	Redwing	<i>Turdus iliacus</i>
<b>RT</b>	Redstart	<i>Phoenicurus phoenicurus</i>
<b>RN</b>	Raven	<i>Corvus corax</i>
<b>S.</b>	Skylark	<i>Alauda arvensis</i>

<b>BTO species code</b>	<b>Common/English name</b>	<b>Scientific name</b>
<b>SC</b>	Stonechat	<i>Saxicola rubicola</i>
<b>SF</b>	Spotted flycatcher	<i>Muscicapa striata</i>
<b>SH</b>	Sparrowhawk	<i>Accipiter nisus</i>
<b>SI</b>	Swift	<i>Apus apus</i>
<b>SK</b>	Siskin	<i>Spinus spinus</i>
<b>SL</b>	Swallow	<i>Hirundo rustica</i>
<b>ST</b>	Song thrush	<i>Turdus philomelos</i>
<b>TO</b>	Tawny owl	<i>Strix aluco</i>
<b>TP</b>	Tree pipit	<i>Anthus trivialis</i>
<b>W.</b>	Wheatear	<i>Oenanthe oenanthe</i>
<b>WH</b>	Whitethroat	<i>Sylvia communis</i>
<b>WO</b>	Wood warbler	<i>Phylloscopus sibilatrix</i>
<b>WP</b>	Woodpigeon	<i>Columba palumbus</i>
<b>WR</b>	Wren	<i>Troglodytes troglodytes</i>
<b>WW</b>	Willow warbler	<i>Phylloscopus trochilus</i>
<b>Y.</b>	Yellowhammer	<i>Emberiza citrinella</i>

# Annex B

## Legislation and species designations

---

### Wildlife and Countryside Act 1981 (as amended)

With certain exceptions, all wild birds, their nests and eggs are protected by Section 1 of the *Wildlife and Countryside Act 1981* (as amended). Therefore, it is an offence, inter alia, to:

- Intentionally kill, injure or take a wild bird;
- Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- Intentionally take or destroy the egg of any wild bird.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- Intentionally or recklessly disturb the dependent young of any such bird.

For golden eagle, white-tailed eagle and osprey, it is also an offence to:

- Take, damage or destroy the nest of these species (this applies at any time, not only when the nest is in use or being built).

### The Environment (Wales) Act 2016

As part of the Welsh Government's commitment to reversing the decline in biodiversity in Wales and increasing the resilience of our ecosystem, the Environment (Wales) Act introduces a new biodiversity duty, which highlights biodiversity as an essential component of ecosystem resilience. In relation to Wales, this new duty replaces the biodiversity duty in the Natural Environment and Rural Communities Act 2006 (referred to as the NERC Act) which required that public authorities must have regard to conserving biodiversity.

Section 7 of the Act, states that, in relation to Biodiversity lists and duty to take steps to maintain and enhance biodiversity:

- (1) The Welsh Ministers must prepare and publish a list of the living organisms and types of habitat which in their opinion are of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.
- (2) Before publishing a list under this section, the Welsh Ministers must consult Natural Resources Body for Wales ("NRW") as to the living organisms or types of habitat to be included in the list.
- (3) Without prejudice to section 6, the Welsh Ministers must:
  - (a) Take all reasonable steps to maintain and enhance the living organisms and types of habitat included in any list published under this section, and
  - (b) Encourage others to take such steps.
- (4) The Welsh Ministers must, in consultation with NRW



- (a) Keep under review any list published by them under this section,
  - (b) Make such revisions of any such lists as appear to them appropriate, and
  - (c) Publish any list so revised as soon as is reasonably practicable after revising it.
- (5) In exercising their functions under this section, the Welsh Ministers must apply the principles of sustainable management of natural resources.

## Directive 2009/147/EC (The Wild Birds Directive), 2009

Certain bird species receive protection at a European level as listed on Annex I of the Directive 2009/147/EC of The European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).

The Wild Birds Directive recognises that habitat loss and degradation are the most serious threats to the conservation of wild birds. It therefore places great emphasis on the protection of habitats for endangered as well as migratory species (listed on Annex I), especially through the establishment of a coherent network of Special Protection Areas (SPAs) comprising all the most suitable territories for these species. Together with Special Areas of Conservation (SACs) designated under *Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora ('Habitats Directive')*, SPAs form a network of Pan-European protected areas known as Natura 2000.

## Ramsar Sites

Ramsar sites are wetlands of international importance designated under the Ramsar Convention. Sites proposed for selection are advised by the UK statutory nature conservation agencies, or the relevant administration in the case of Overseas Territories and Crown Dependencies, co-ordinated through JNCC. In selecting sites, the relevant authorities are guided by the Criteria set out in the Convention. The Criteria pertaining specifically to birds are as follows:

- Criterion 5: A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds; and
- Criterion 6: a wetland should be considered internationally important if it regularly supports 1% of the individuals in a population of one species or subspecies of waterbird.

In the UK, the first Ramsar sites were designated in 1976 since which, many more have been designated. The initial emphasis was on selected sites of importance to waterbirds within the UK, and consequently many Ramsar sites are also Special Protection Areas (SPAs) classified under the Birds Directive. However, greater attention is now being directed towards non-bird features which are increasingly being taken into account, both in the selection of new sites and when reviewing existing sites.

## Birds of Conservation Concern: Red List birds

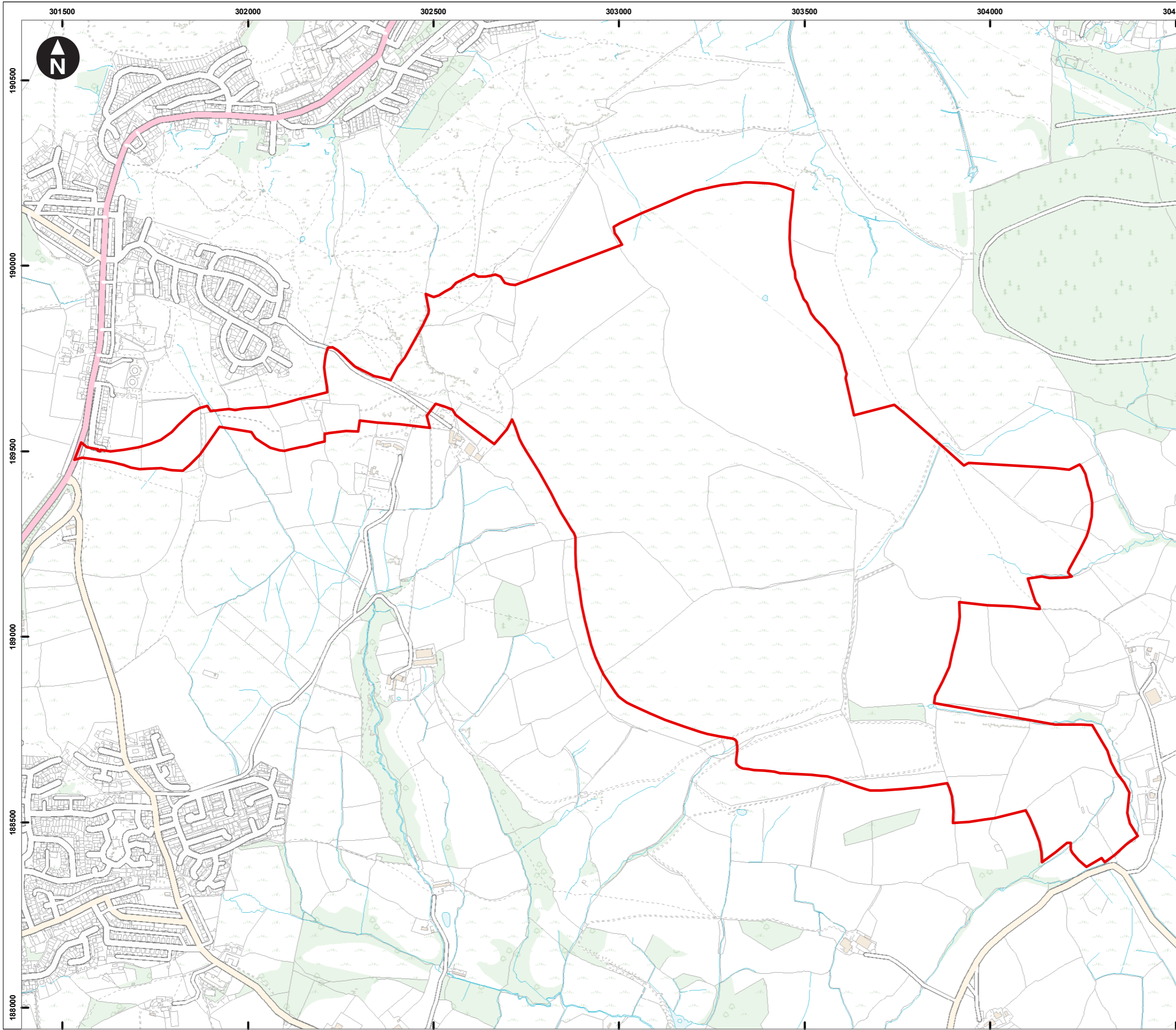
Red and Amber list birds are those listed as being of high or medium conservation concern (respectively) in Birds of Conservation Concern (BoCC) 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man (Eaton *et al.*, 2015). Red list species are those that are Globally Threatened according to the IUCN criteria; and/or those whose population or range has declined rapidly in recent years; and/or those that have declined historically and not shown a substantial recent recovery.

# Annex C

## Figures

---

\\sa-fs12.global.amec.com\SAL-FS12-SHARED\Projects\42864 Mynydd y Glyn\Deliver Stage\Design\_Technical\Drawings\GIS\Workspaces\42864-WOOD-XX-XX-FG-OE-0062\_S2\_P01.1.mxd Originator: jon.squire



Key  
[Red outline] Site boundary

0 100 200 300 400 500 600 m  
Scale at A3: 1:10,000  
© Crown copyright and database rights [2020] Ordnance Survey  
0100031673

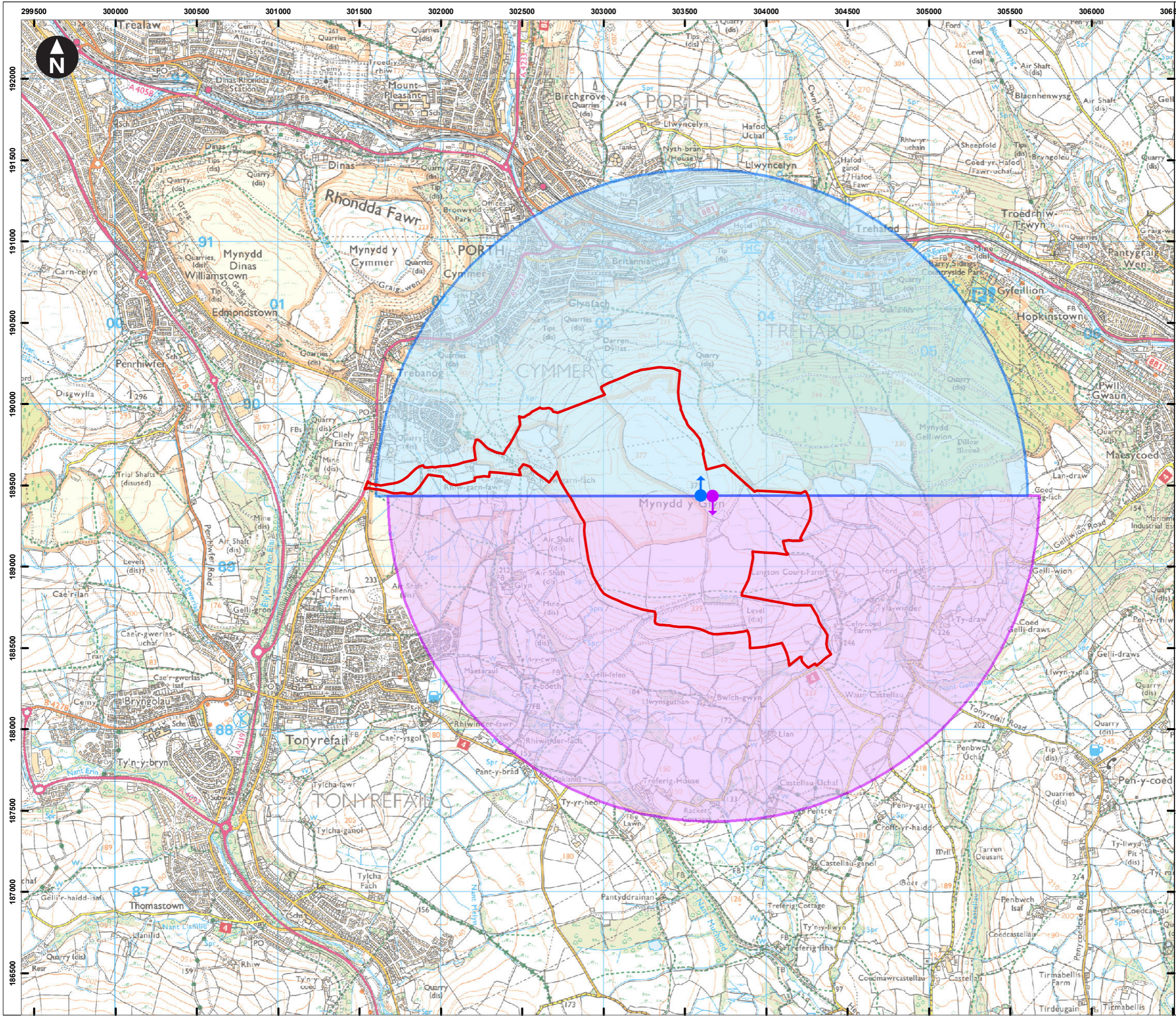
Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 1.1**  
Site location plan



October 2022

\\sa-fs12.global.amec.com\SAL-FS12-SHARED\Projects\42864 Mynydd y Glyn\Deliver Stage\Design\_Technical\Drawings\GIS\Workspaces\42864-WOOD-XX-XX-FG-OE-0064\_S2\_P01.1.mxd Originator: jon.squire



- Key
- Site boundary
  - ↑ Viewpoint 1
  - ↓ Viewpoint 2
  - Viewshed 1
  - Viewshed 2

0 250 500 750 1,000 1,250m  
 Scale at A3: 1:22,500  
 © Crown copyright and database rights [2020] Ordnance Survey  
 0100031673

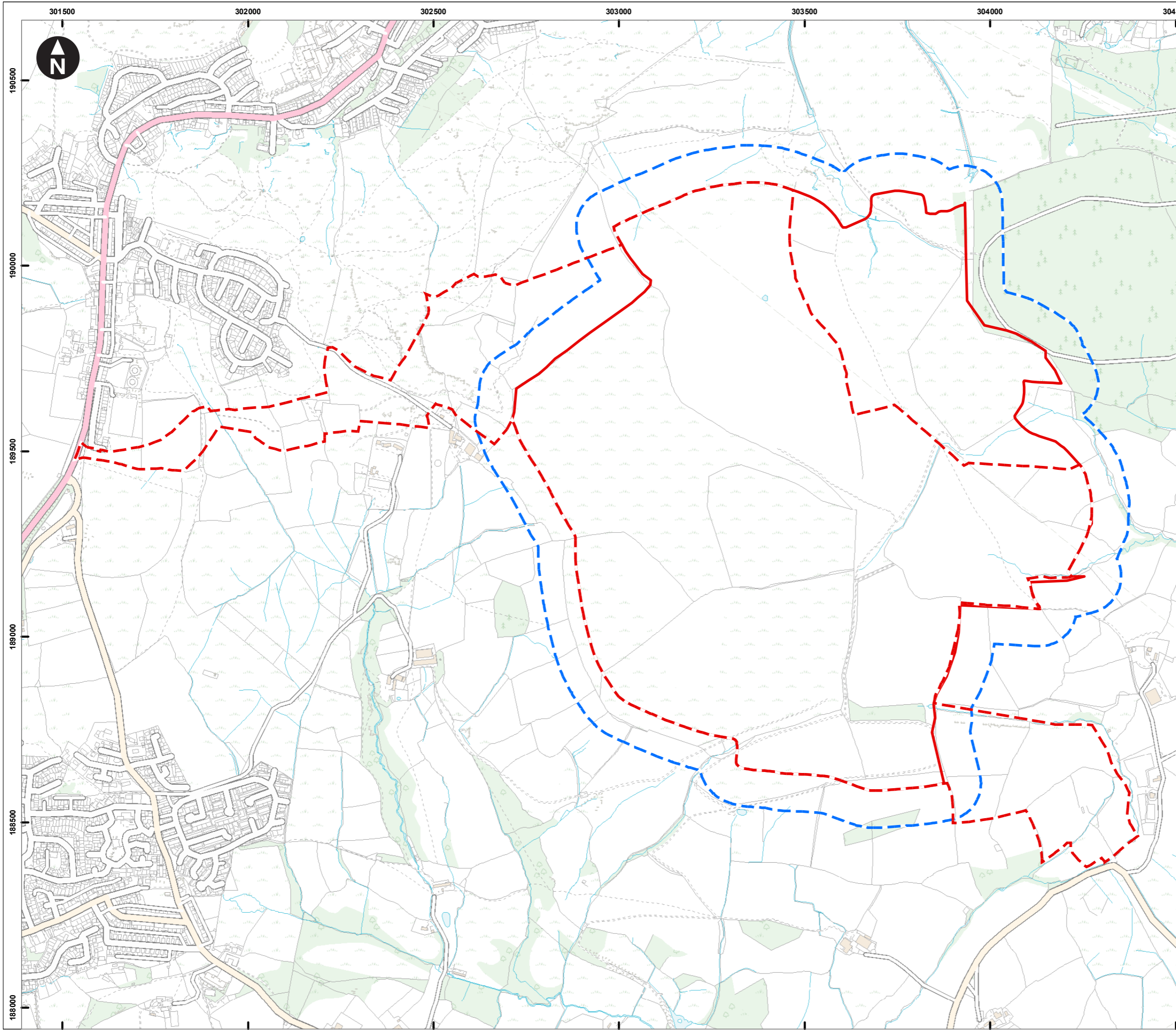
Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 2.1**  
**Vantage point survey viewshed locations**

October 2022



\\sa-fs12.global.amec.com\SAL-FS12-SHARED\Projects\42864\_Mynydd\_y\_Glyn\Deliver Stage\Design\_Technical\Drawings\GIS\Workspaces\42864-WOOD-XX-XX-FG-OE-0063\_S2\_P01.1.mxd Originator: jon.squire



- Key
- Current site boundary
  - 2020 site boundary
  - Breeding bird survey area (100m buffer)

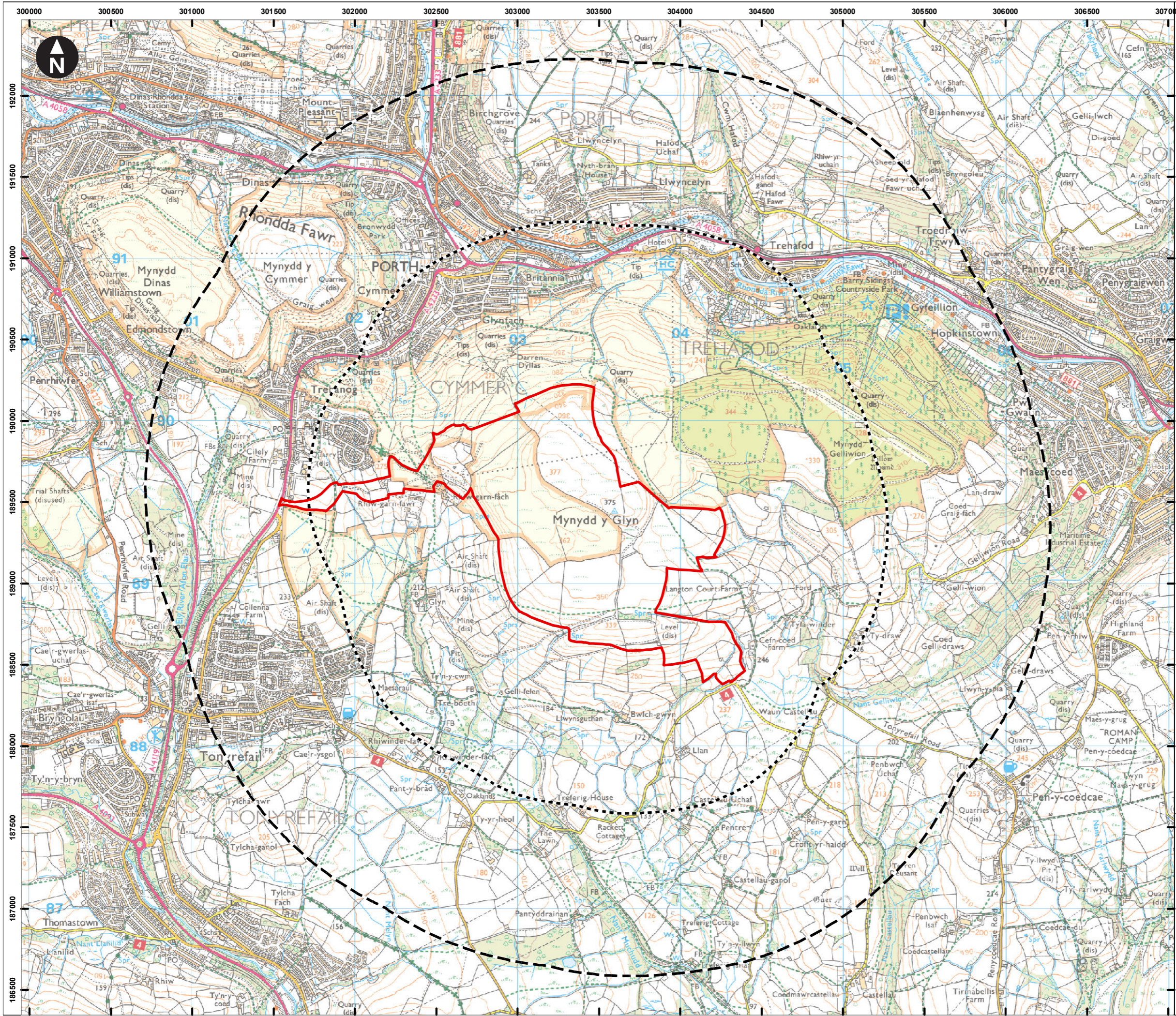
0 100 200 300 400 500 600 m  
Scale at A3: 1:10,000  
© Crown copyright and database rights [2020] Ordnance Survey  
0100031673

Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 2.2**  
Map showing breeding bird survey area  
and sub-area

October 2022





Key

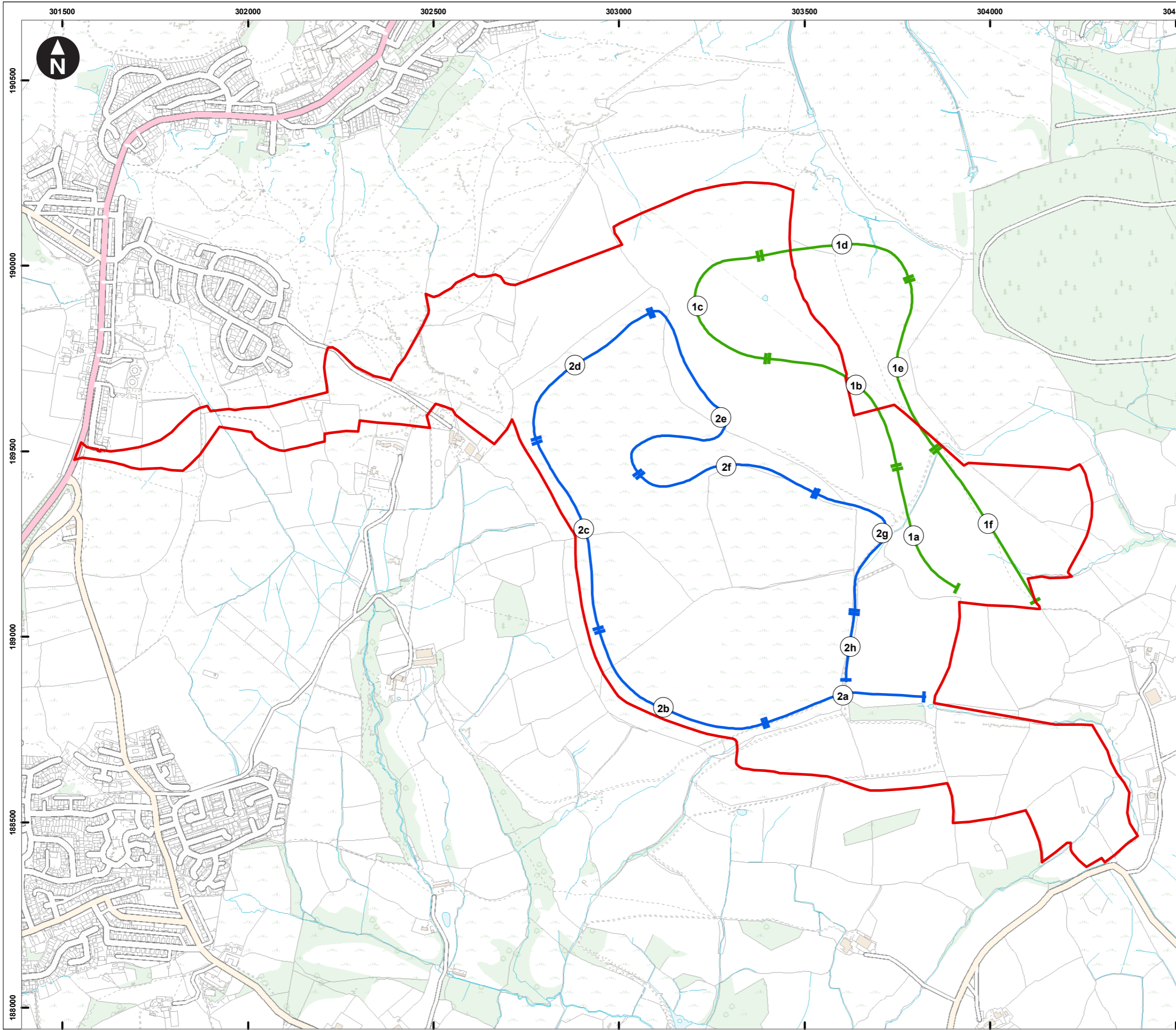
- Site boundary
- Goshawk search area
- Peregrine and red kite search area

0 250 500 750 1,000 1,250m  
 Scale at A3: 1:22,500  
 © Crown copyright and database rights [2020] Ordnance Survey  
 0100031673

Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 2.3**  
**Map showing Schedule 1 breeding bird**  
**survey area and locations**

\\sa-fs12.global.amec.com\SAL-FS12-SHARED\Projects\42864 Mynydd y Glyn\Deliver Stage\Design\_Technical\Drawings\GIS\Workspaces\42864-WOOD-XX-XX-FG-OE-0065\_S2\_P01.1.mxd Originator: jon.squire



- Key
- Site boundary
  - Transect 1
  - Transect 2

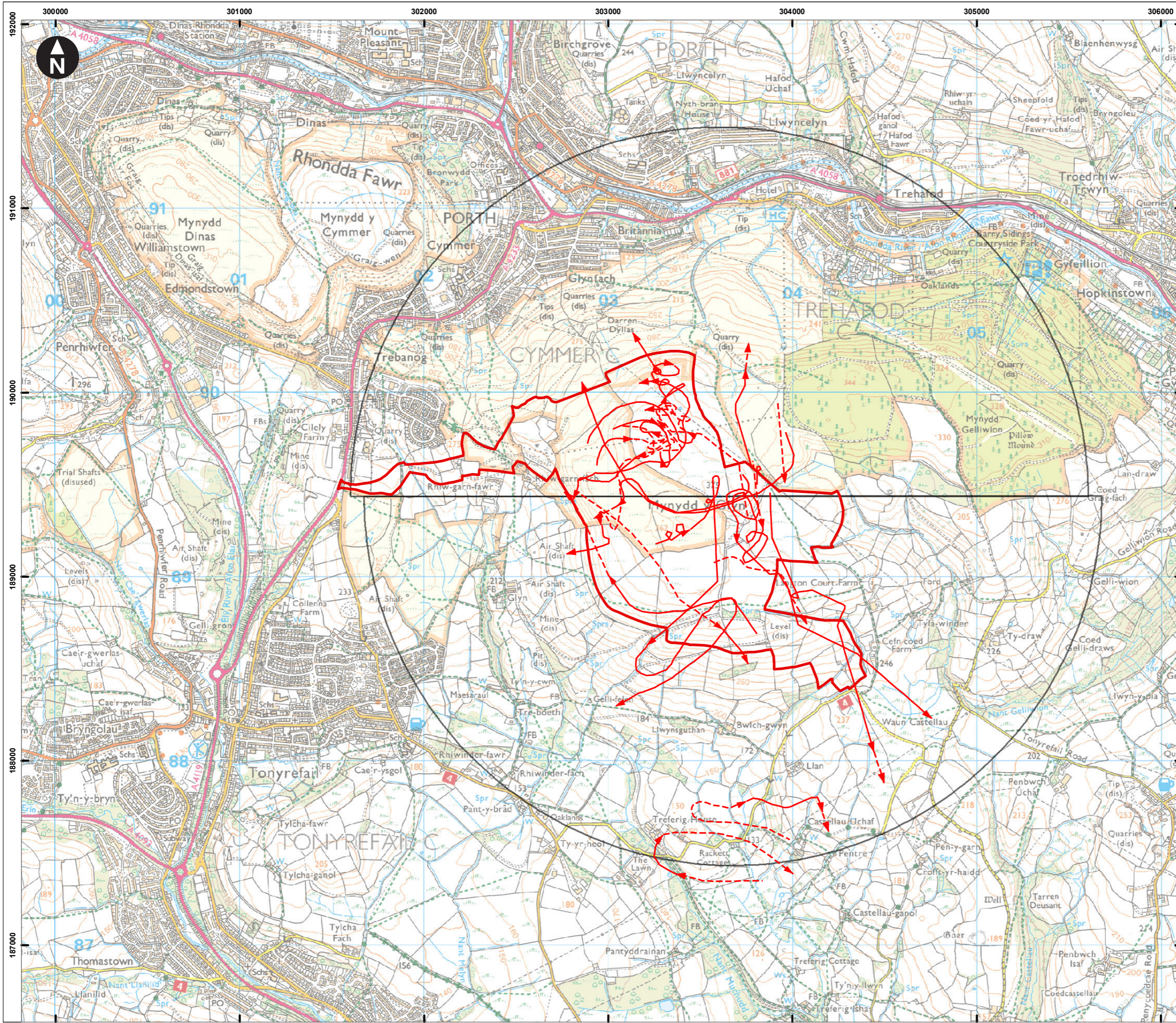
0 100 200 300 400 500 600 m  
Scale at A3: 1:10,000  
© Crown copyright and database rights [2020] Ordnance Survey  
0100031673

Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 2.4**  
Map showing non-breeding bird survey  
transects and survey areas

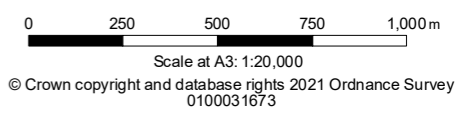
October 2022





Key

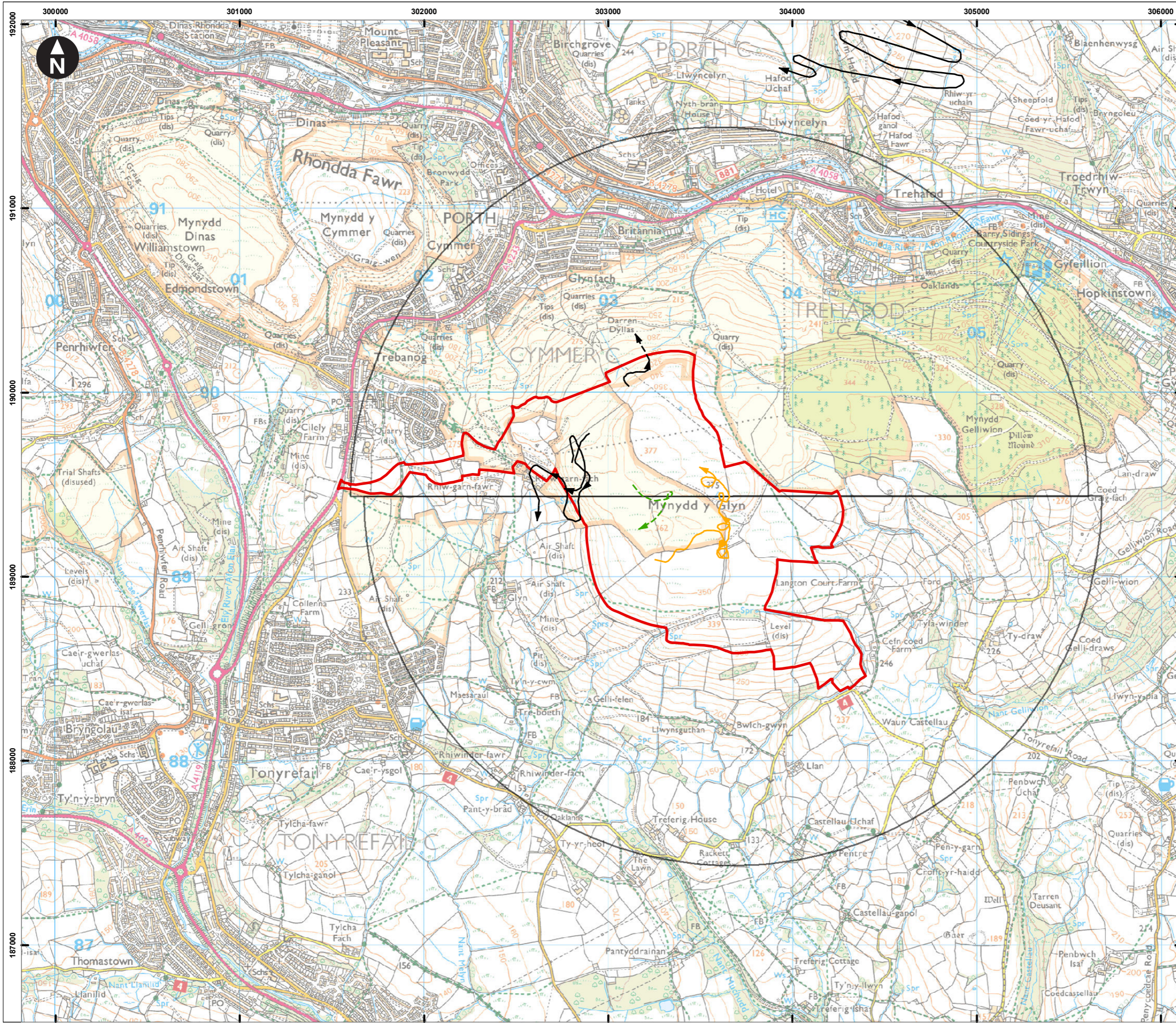
- Site boundary
- 2km viewedshed
- Red kite**
- Flights not at potential collision risk
- Flights at potential collision height



Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.1**  
 Map showing flight lines for red kite recorded during vantage point surveys - Breeding Season 2020





**Key**

- Site boundary
- 2km viewedshed

**Hobby**

- Flights at potential collision height

**Peregrine**

- Flights not at potential collision risk
- Flights at potential collision height

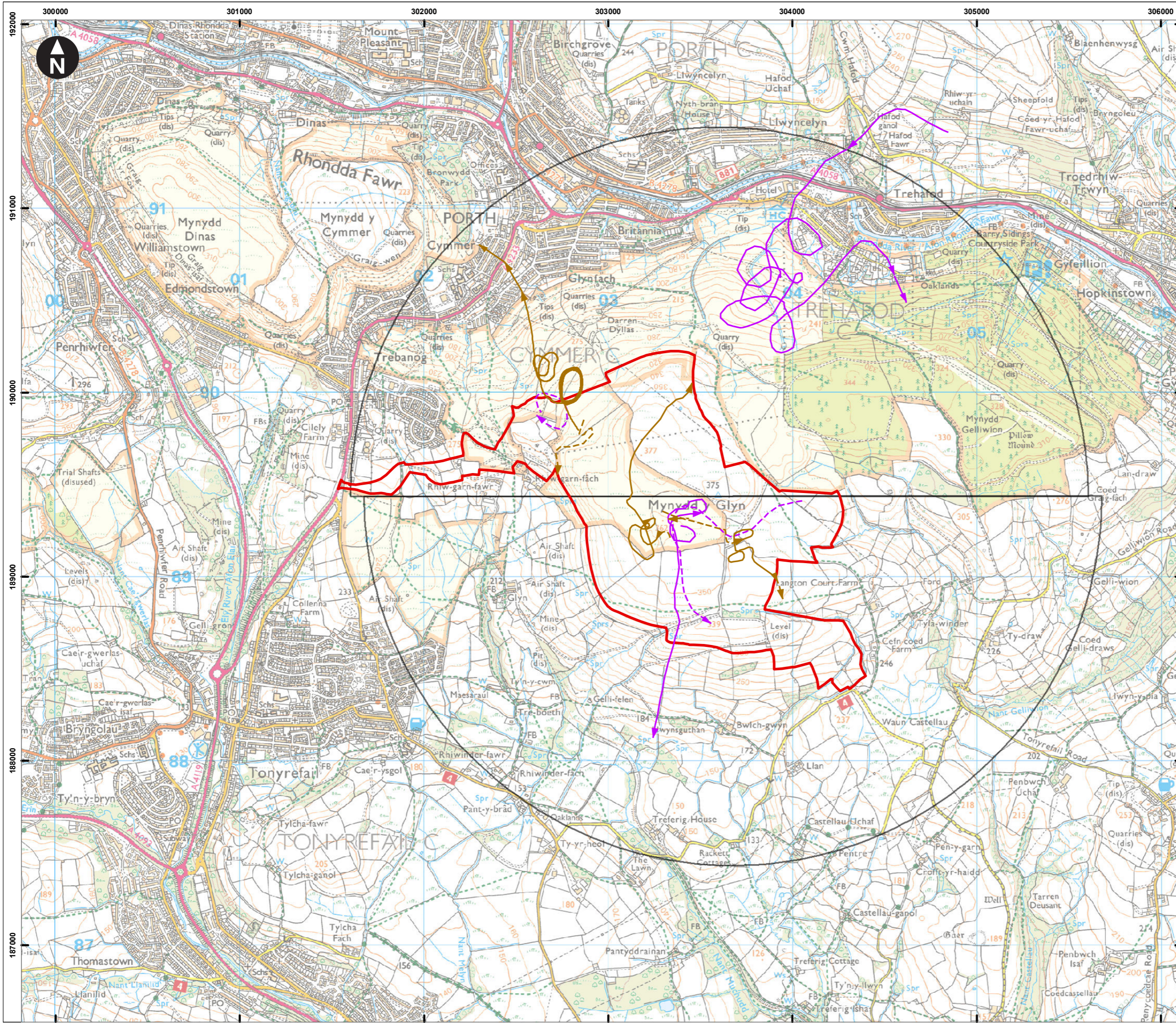
**Merlin**

- Flights not at potential collision risk
- Flights at potential collision height

0 250 500 750 1,000m  
 Scale at A3: 1:20,000  
 © Crown copyright and database rights 2021 Ordnance Survey  
 0100031673

**Pennant Walters**  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.2**  
 Map showing flight lines for peregrine, hobby and merlin recorded during vantage point surveys - Breeding Season 2020



**Key**

- Site boundary
- 2km viewshed

**Hen harrier**

- Flights not at potential collision risk
- Flights at potential collision height

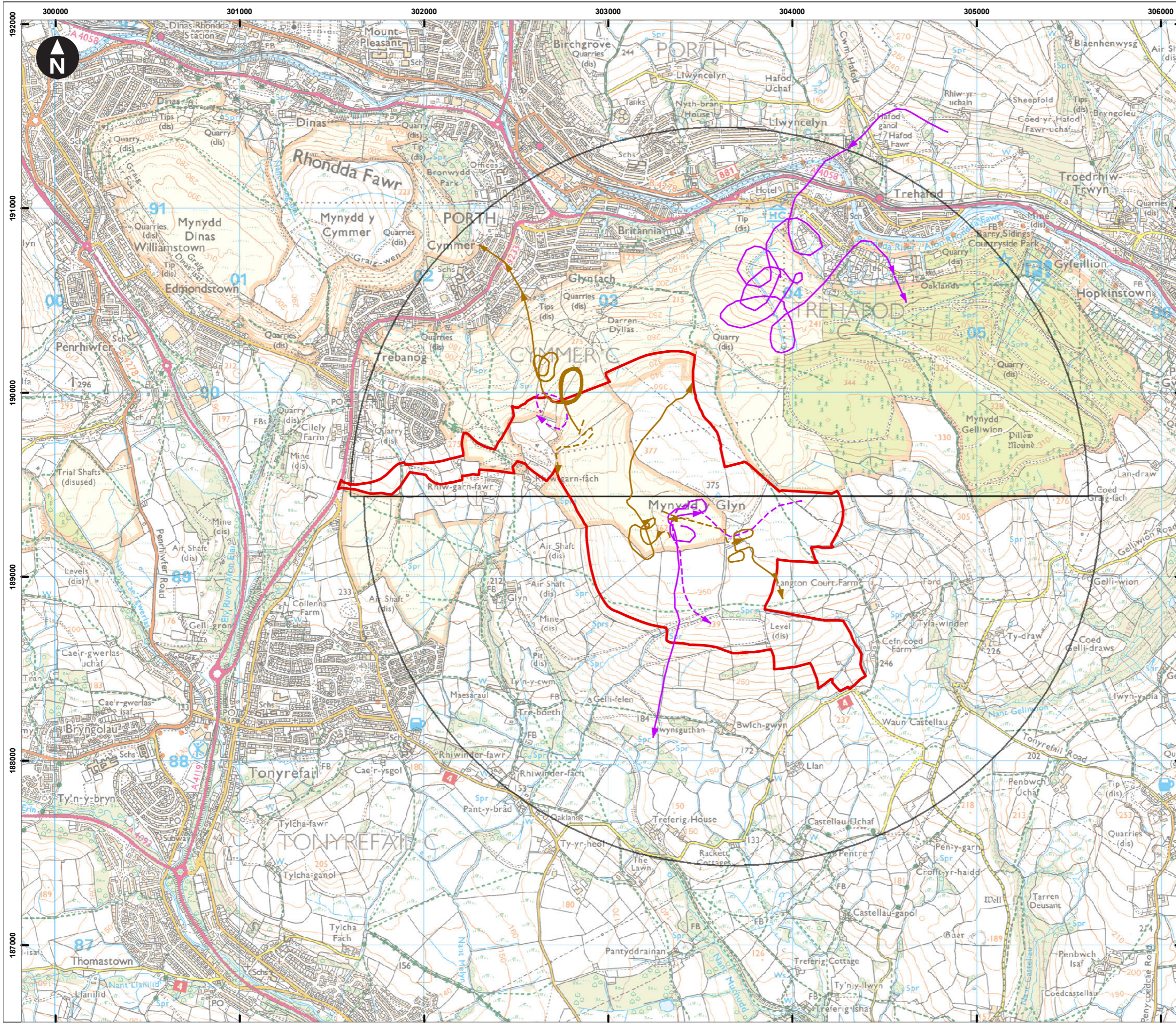
**Goshawk**

- Flights not at potential collision risk
- Flights at potential collision height

0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey  
0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.4**  
**Map showing flight lines for Goshawk and Hen Harrier recorded during vantage point surveys - Non-breeding season 2020/2021**



**Key**

- Site boundary
- 2km viewedshed

**Hen harrier**

- Flights not at potential collision risk
- Flights at potential collision height

**Goshawk**

- Flights not at potential collision risk
- Flights at potential collision height

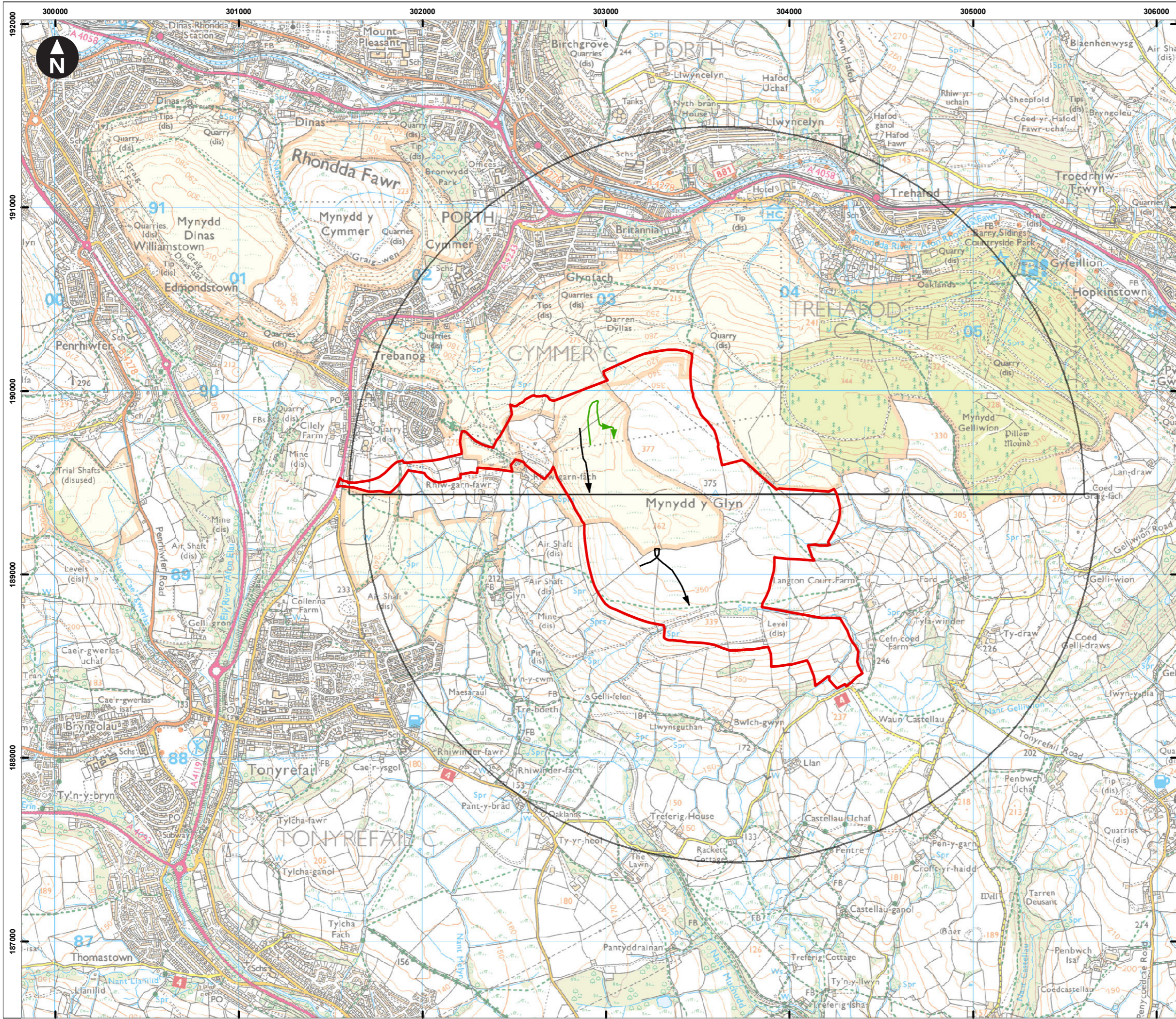
0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.4**  
**Map showing flight lines for Goshawk and Hen Harrier recorded during vantage point surveys - Non-breeding season 2020/2021**

October 2022

**wsp**



**Key**

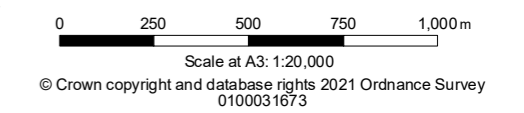
- Site boundary
- 2km viewshed

**Merlin**

- - - Flights not at potential collision risk
- Flights at potential collision height

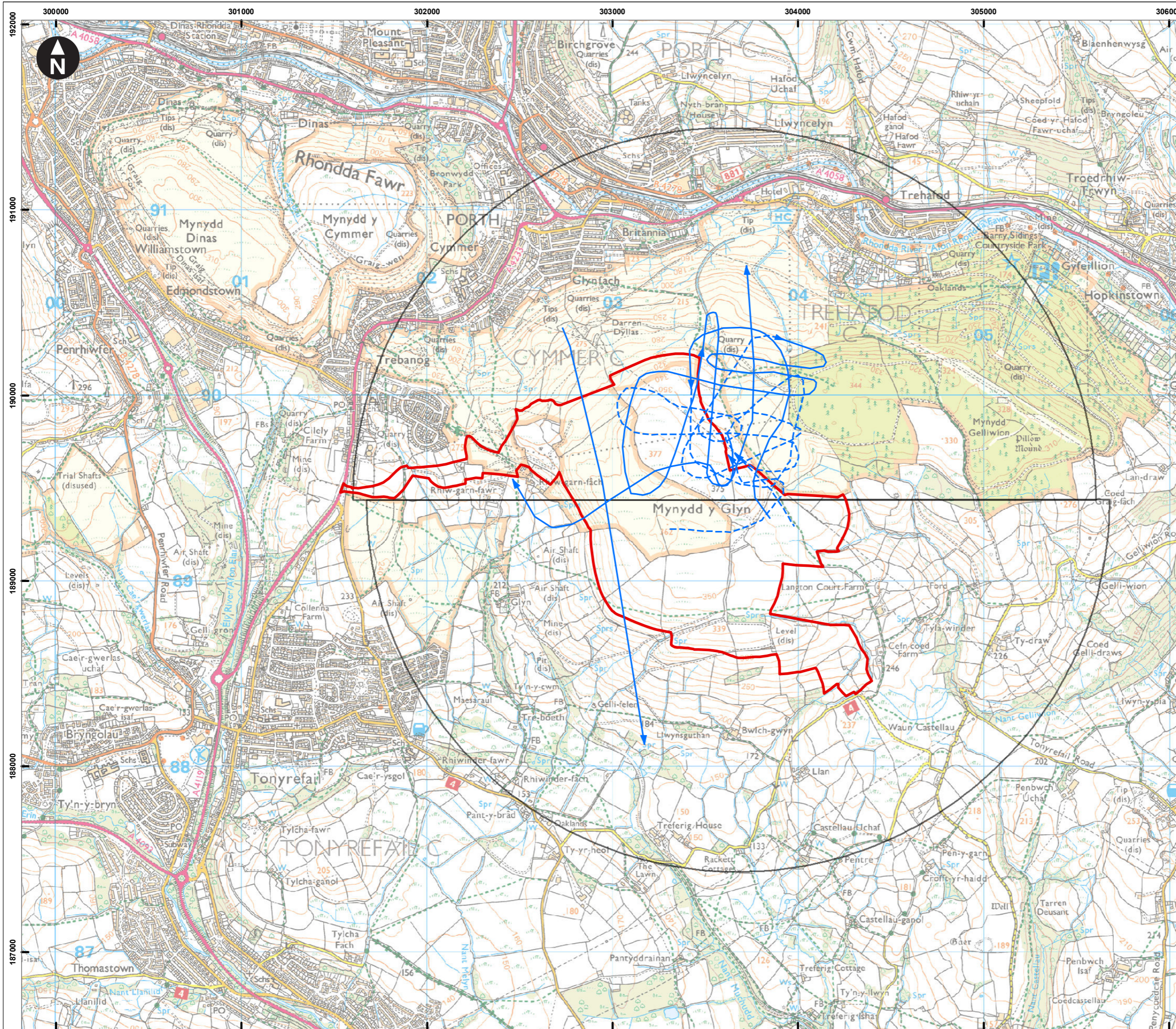
**Peregrine**

- - - Flights not at potential collision risk
- Flights at potential collision height



**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.5**  
**Map showing flight lines for Merlin and**  
**Peregrine recorded during vantage point**  
**surveys - Non-breeding season 2020/2021**



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- Flights not at potential collision risk
- Flights at potential collision height

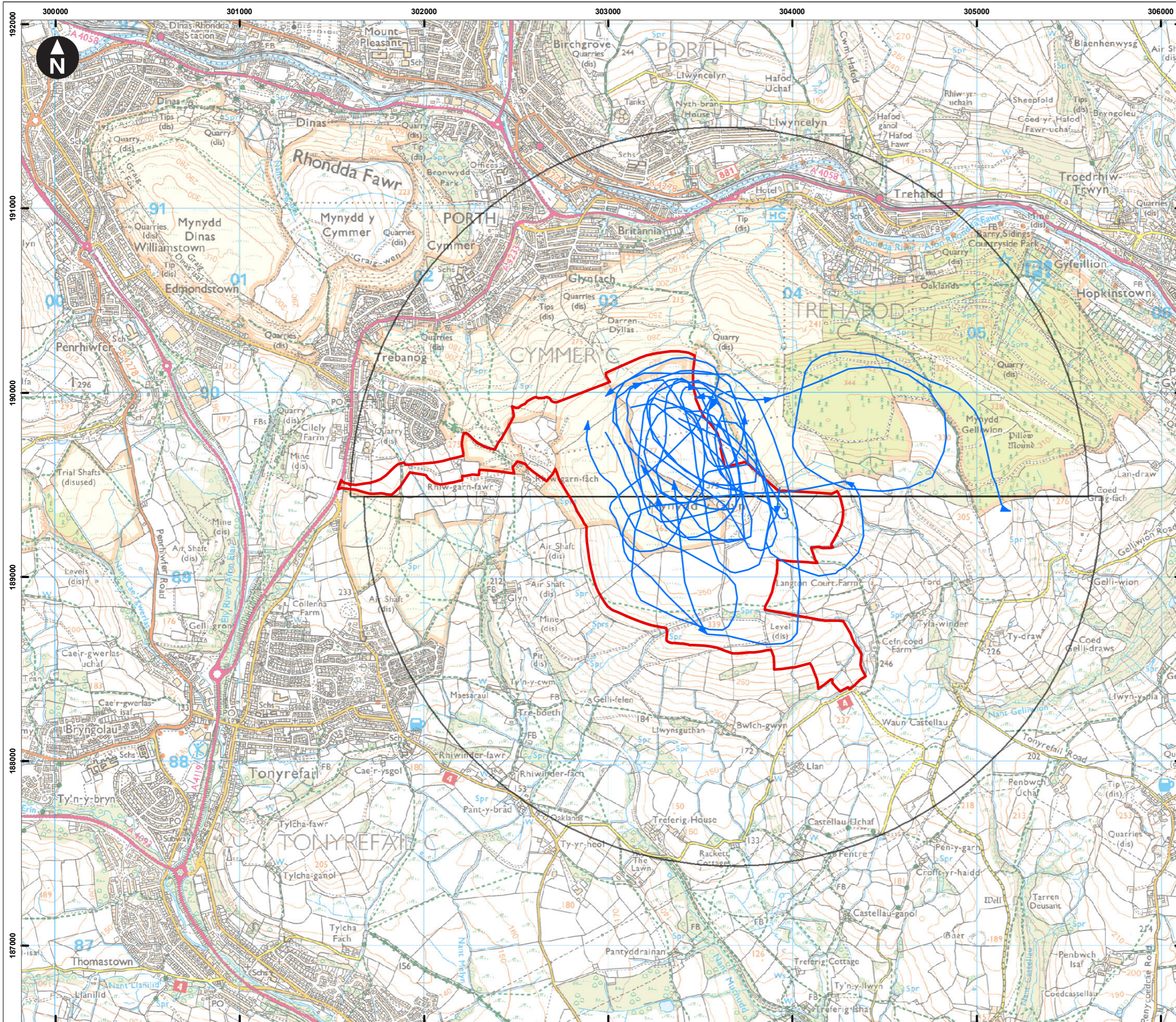
0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.6a**  
**Map showing flight lines for Golden plover**  
**recorded during vantage point surveys -**  
**Non-breeding season 2020/2021 -**  
**September**

October 2022

**wsp**

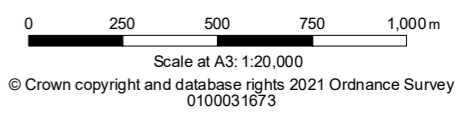


Key

- Site boundary
- 2km viewedshed

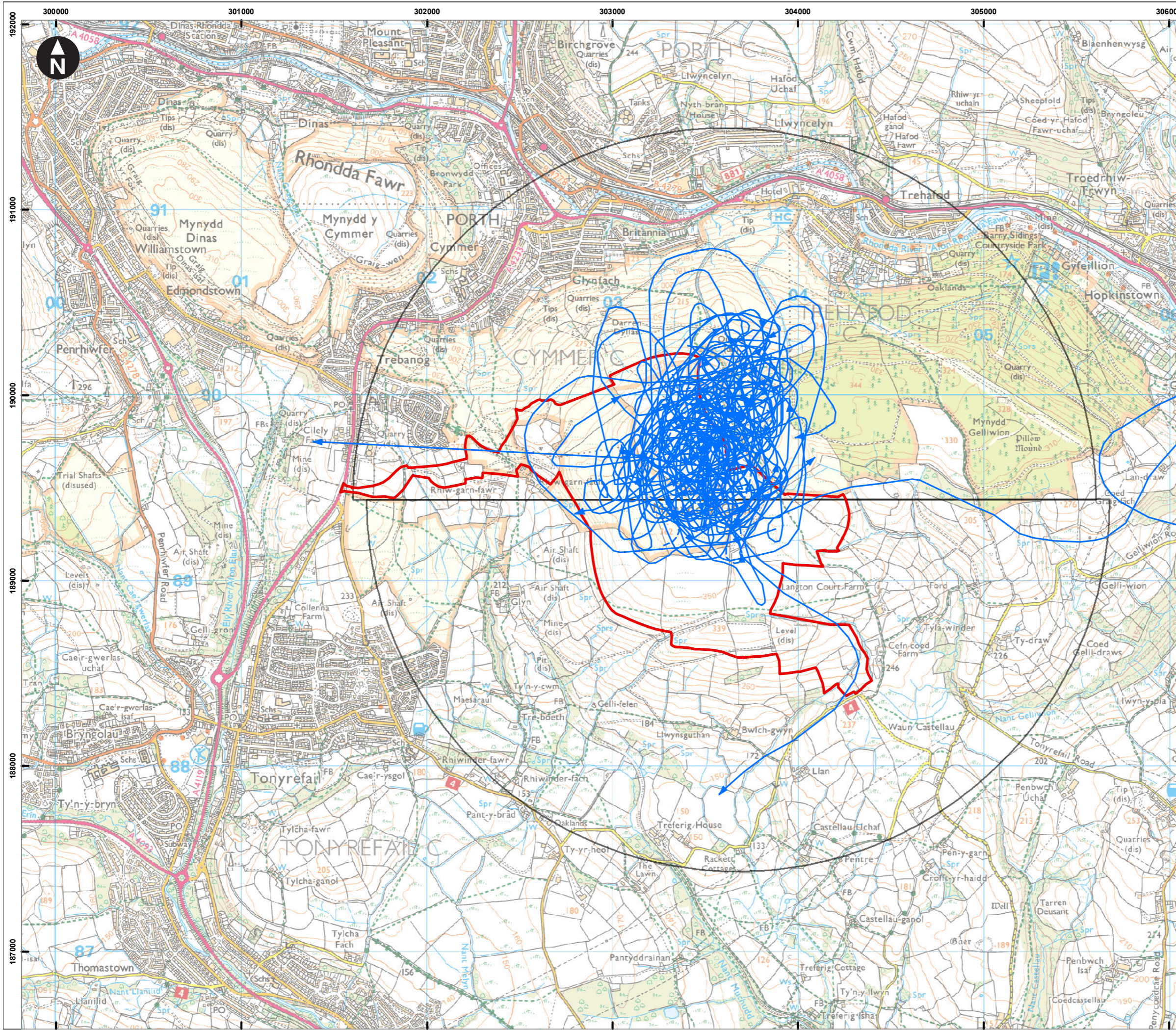
**Golden plover**

- - - ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height



Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.6b**  
 Map showing flight lines for Golden plover recorded during vantage point surveys - Non-breeding season 2020/2021 - October



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- Flights not at potential collision risk
- Flights at potential collision height

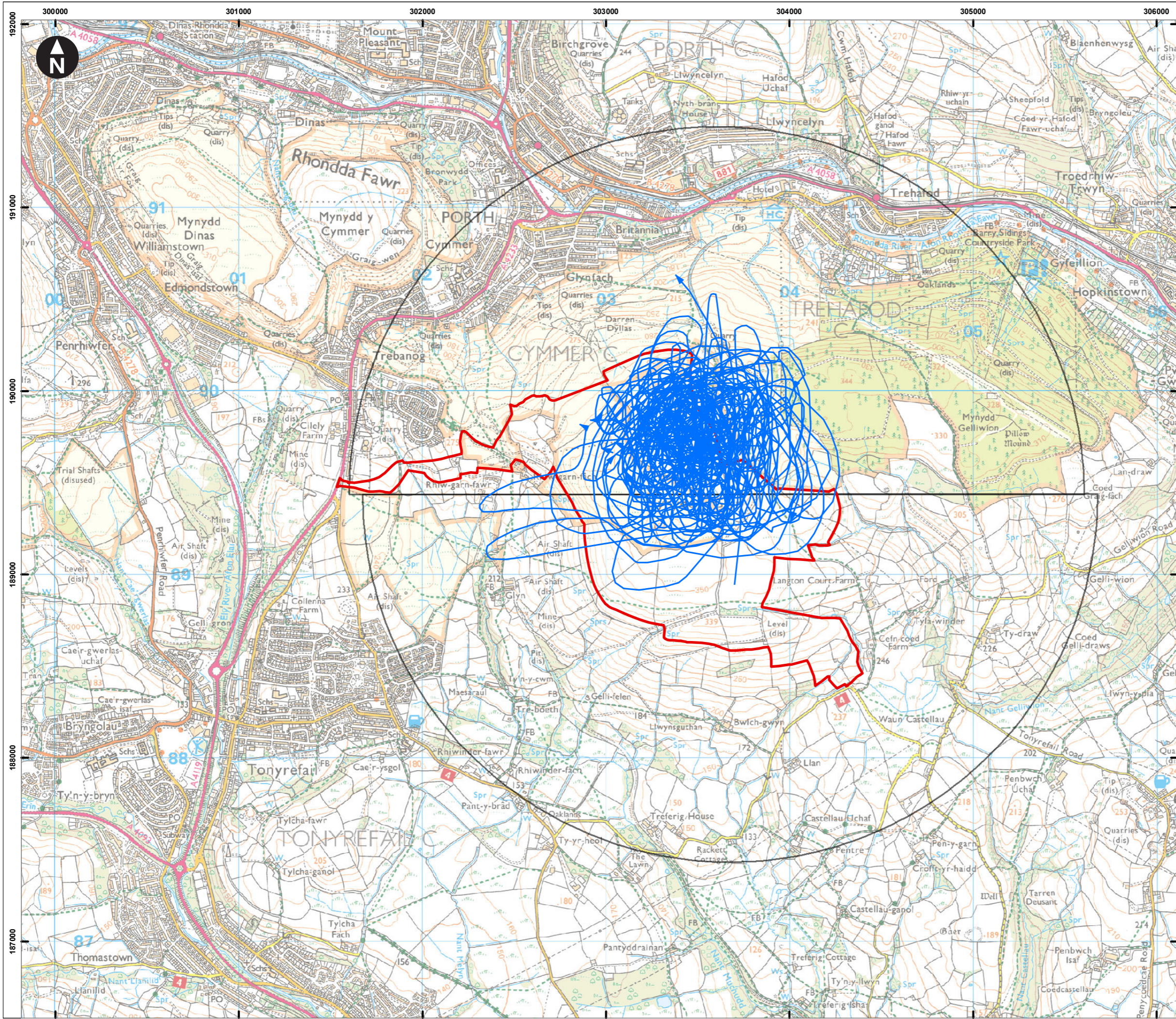
0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 3.6c**  
Map showing flight lines for Golden plover recorded during vantage point surveys - Non-breeding season 2020/2021 - November

October 2022

**wsp**



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- Flights not at potential collision risk
- Flights at potential collision height

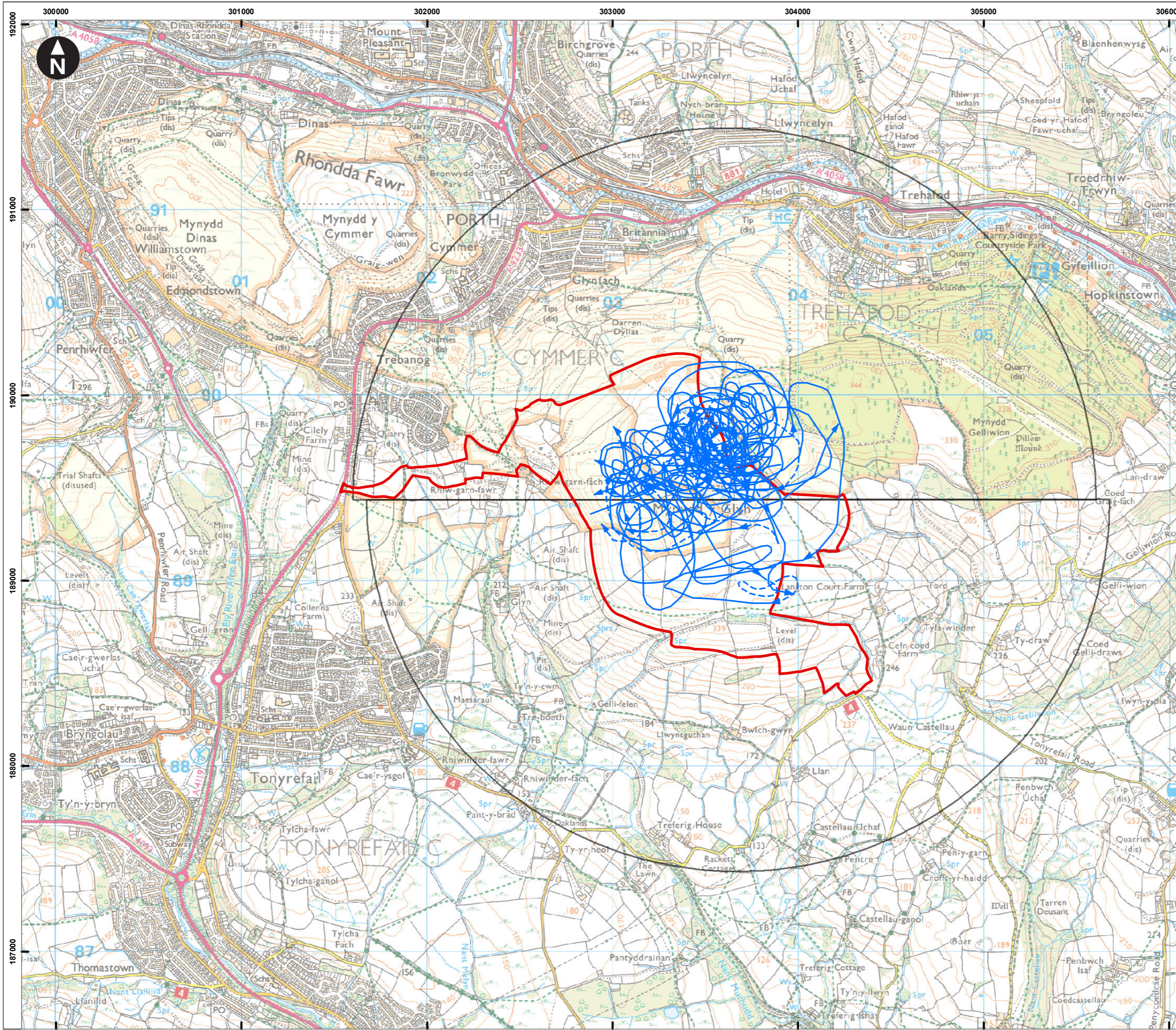
0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey  
0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.6d**  
**Map showing flight lines for Golden plover**  
**recorded during vantage point surveys -**  
**Non-breeding season 2020/2021 -**  
**December**

October 2022





Key

- Site boundary
- 2km viewedshed

**Golden plover**


- ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height

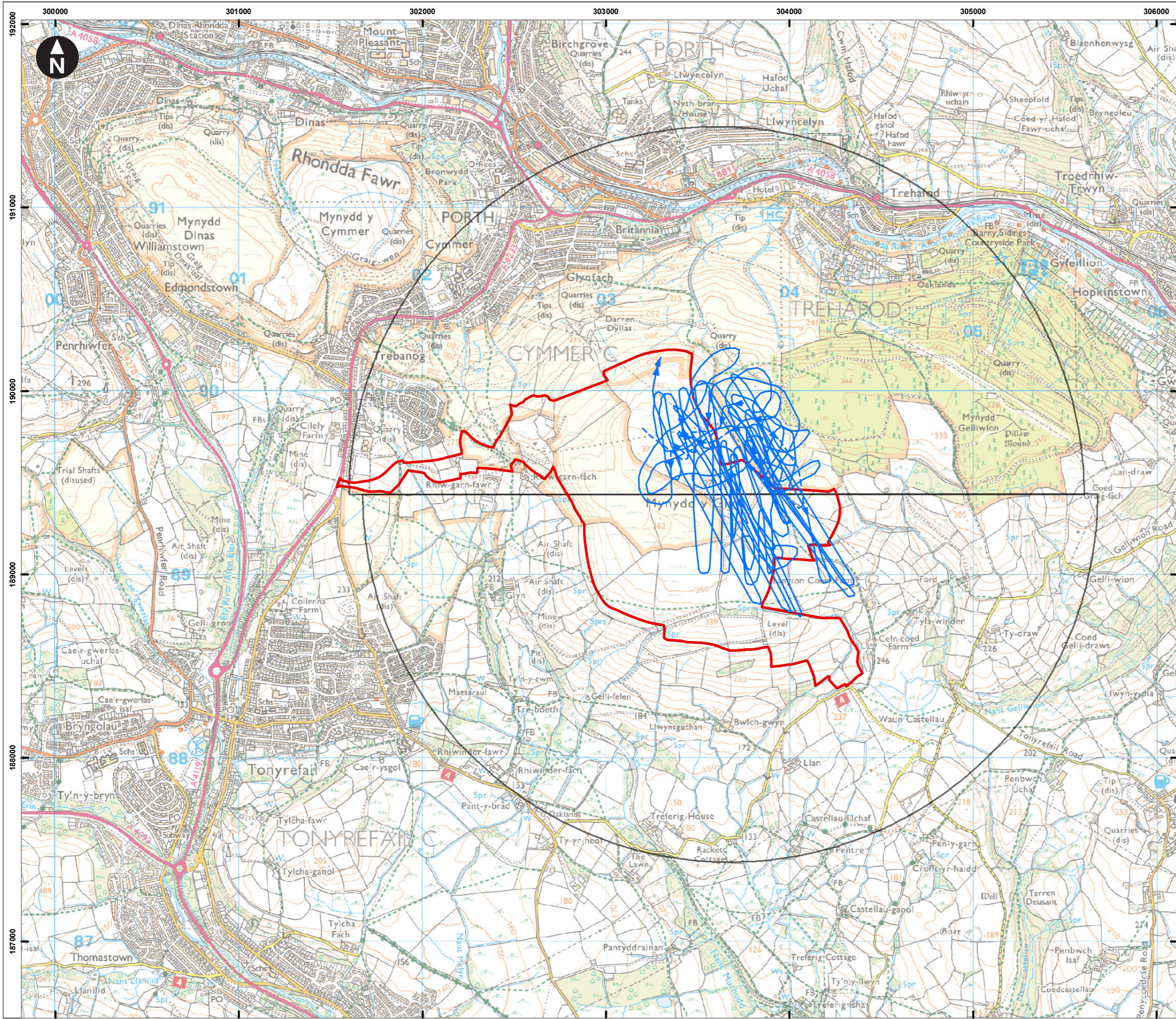
0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.6e**  
**Map showing flight lines for Golden plover**  
**recorded during vantage point surveys -**  
**Non-breeding season 2020/2021 - January**

October 2022





Key

- Site boundary
- 2km viewedshed

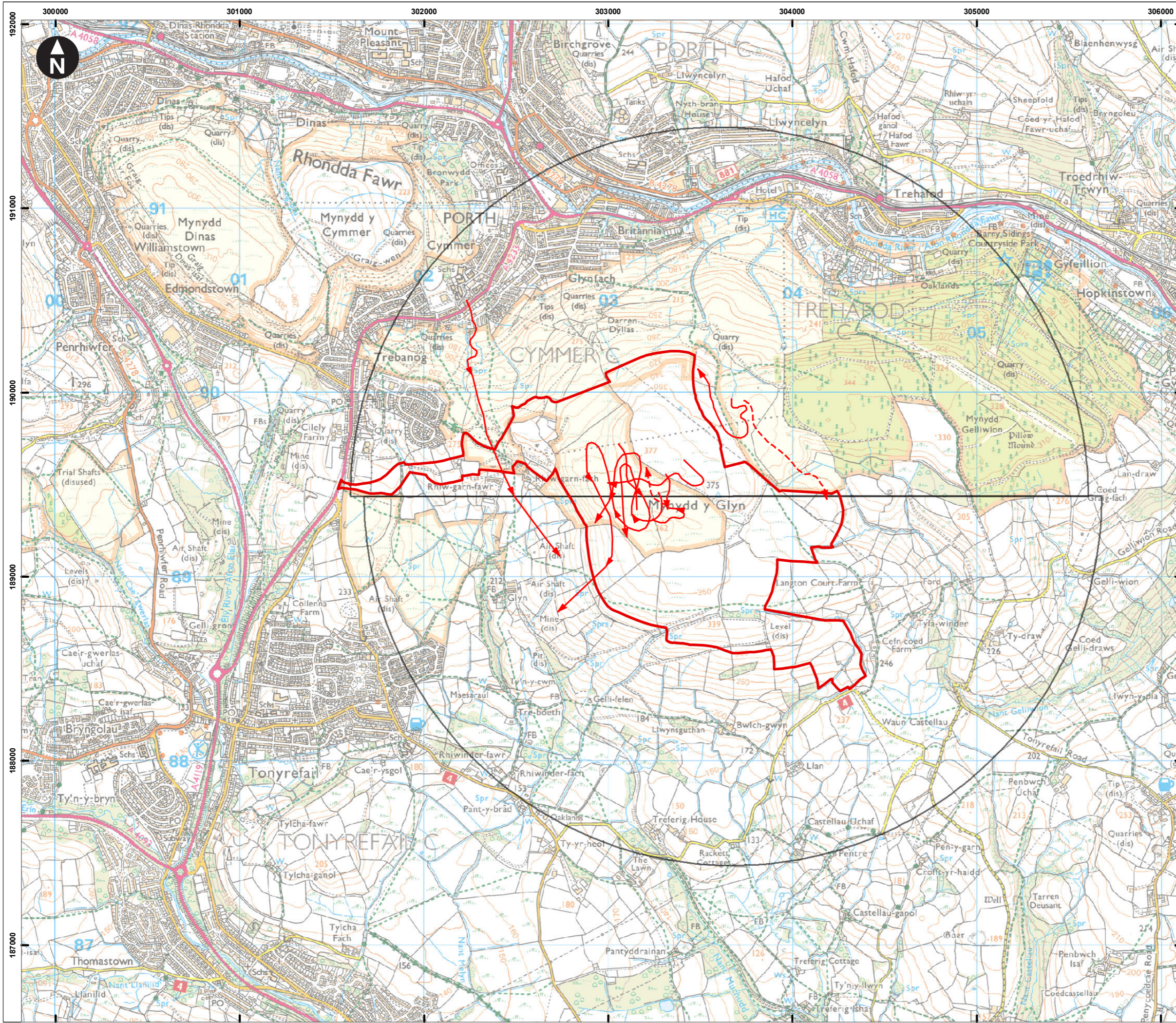
**Golden plover**

- ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height

0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

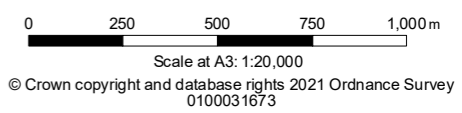
Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 3.6f**  
Map showing flight lines for Golden plover recorded during vantage point surveys - Non-breeding season 2020/2021 - February



Key

- Site boundary
- 2km viewedshed
- Red kite**
- Flights not at potential collision risk
- Flights at potential collision height

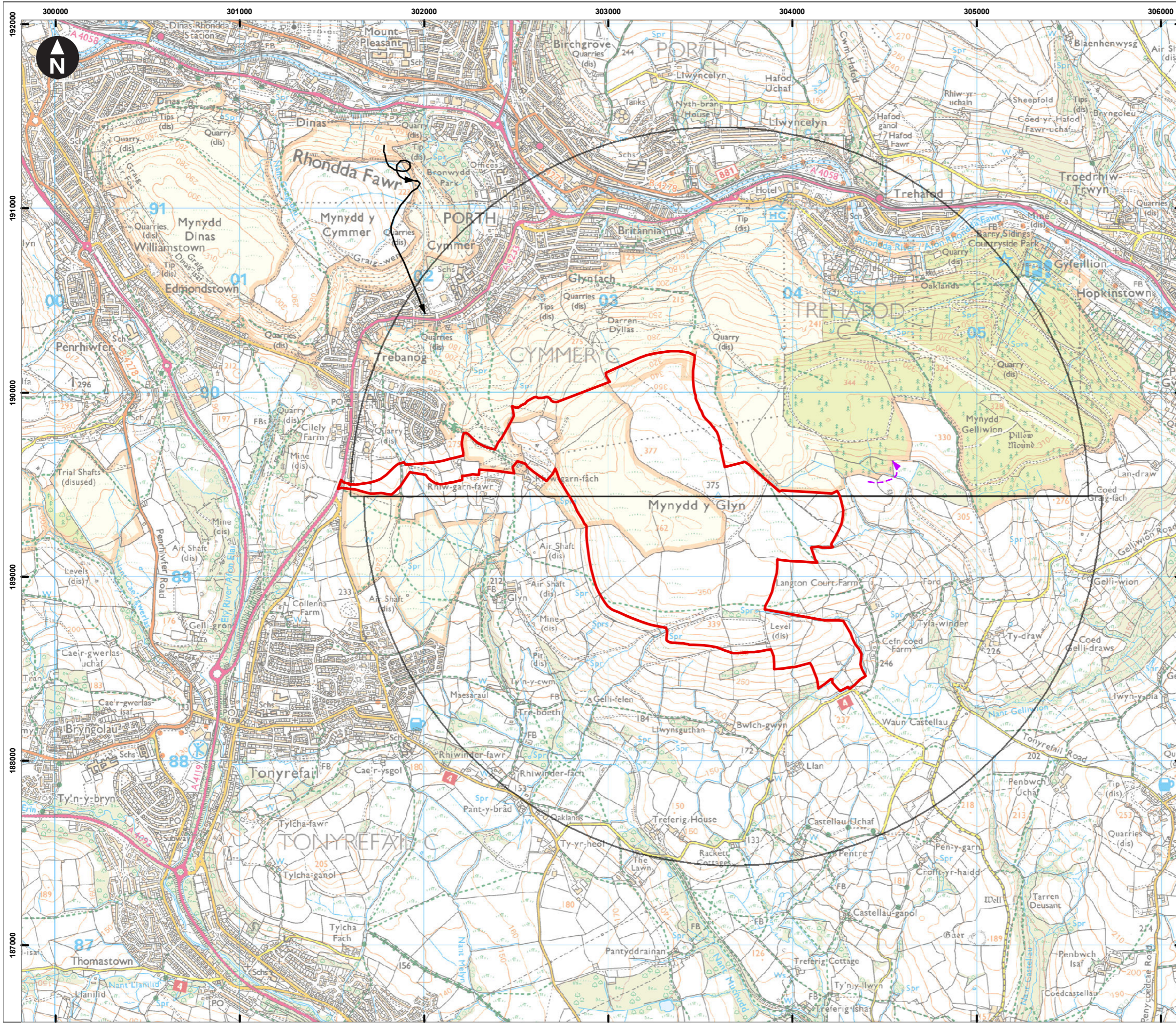


Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.7**  
 Map showing flight lines for red kite recorded during vantage point surveys - Breeding season 2021

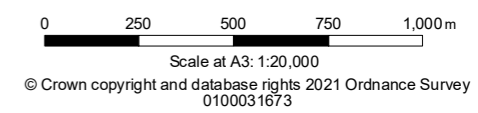
October 2022





Key

- Site boundary
- 2km viewedshed
- Peregrine**
- Flights not at potential collision risk
- Flights at potential collision height
- Goshawk**
- Flights not at potential collision risk
- Flights at potential collision height

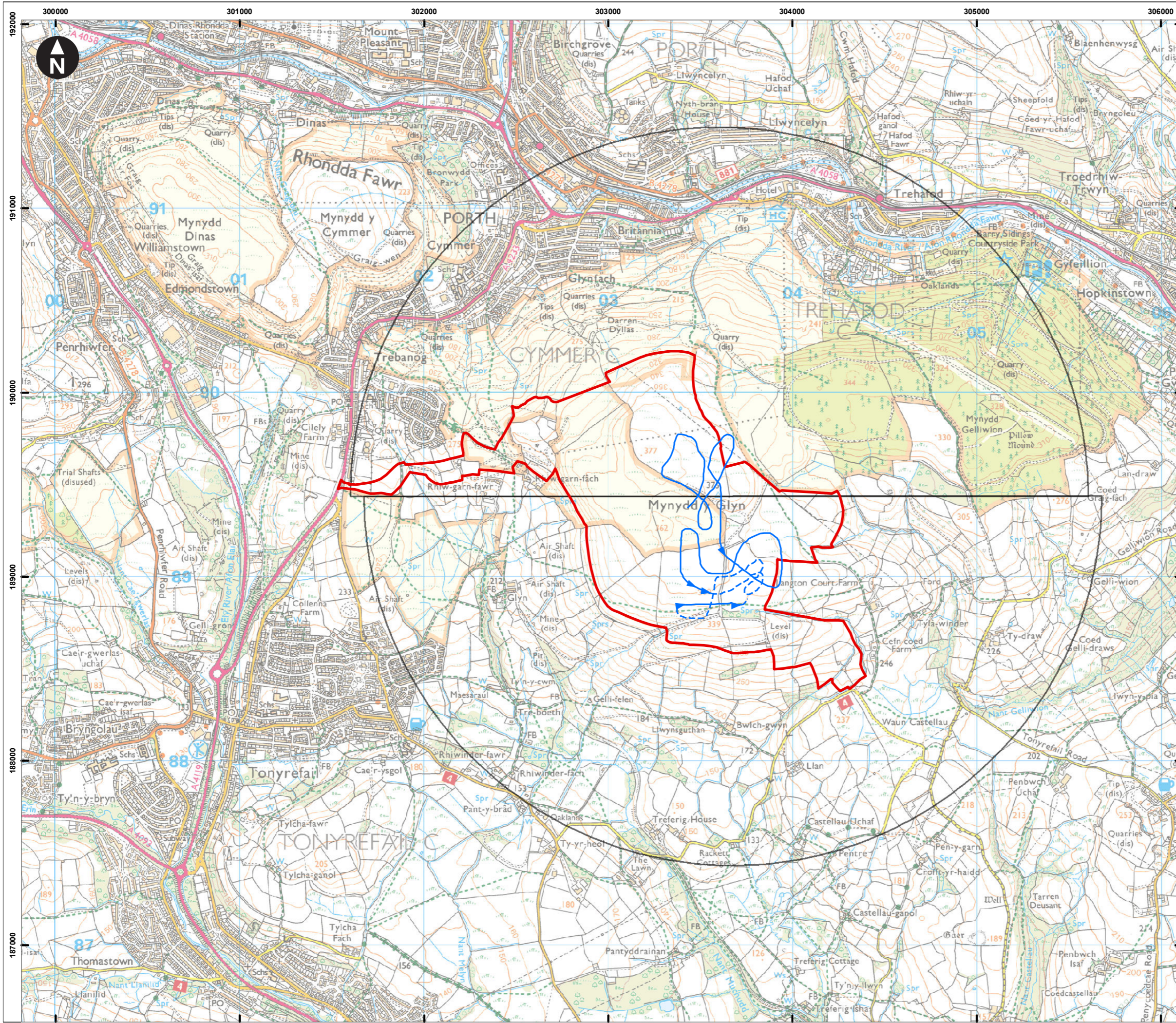


Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.8**  
 Map showing flight lines for goshawk and peregrine recorded during vantage point surveys - Breeding season 2021

October 2022





Key

- Site boundary
- 2km viewedshed

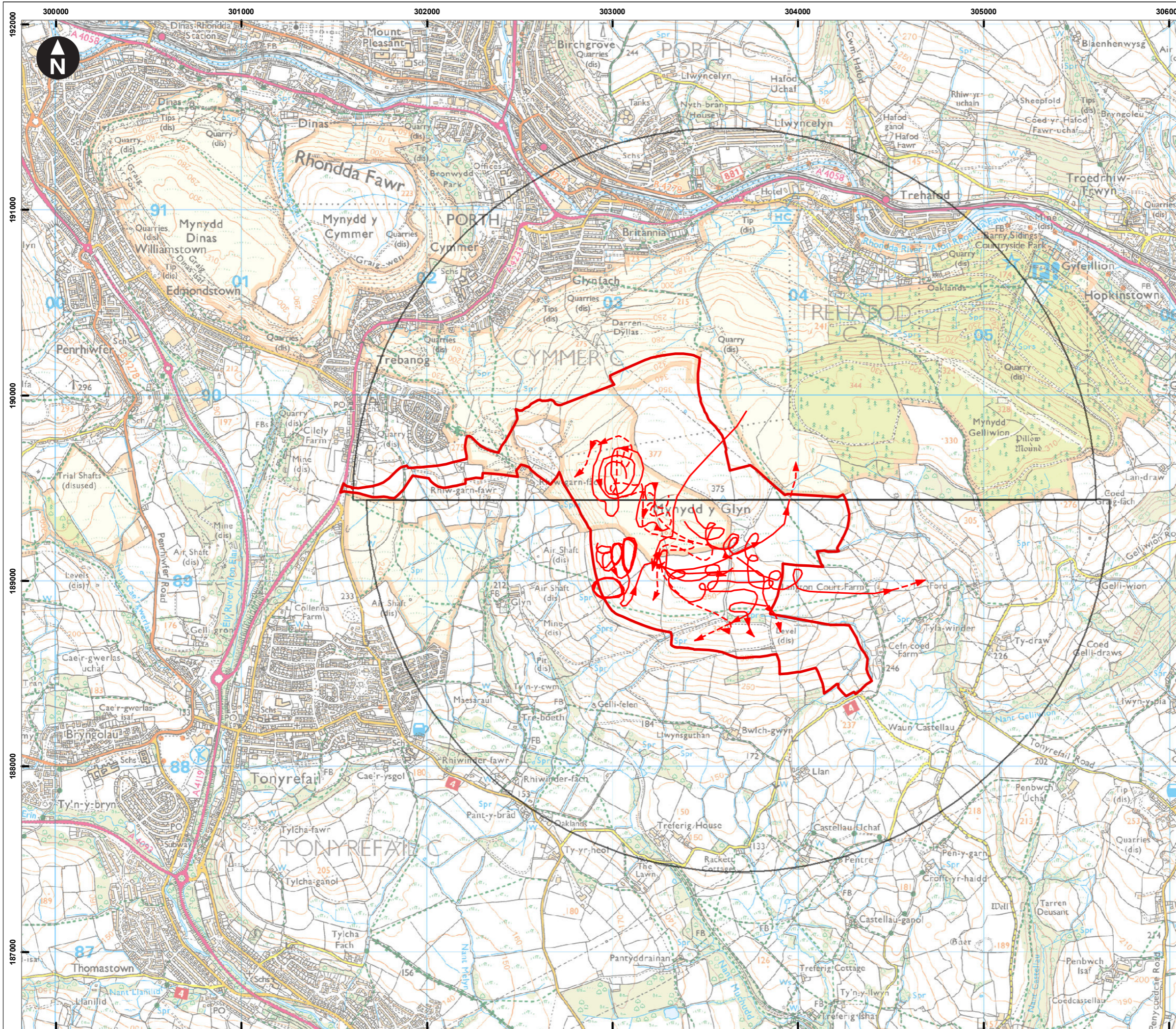
**Golden plover**

- - - ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height

0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 3.9**  
Map showing flight lines for golden plover recorded during vantage point surveys - Breeding season 2021

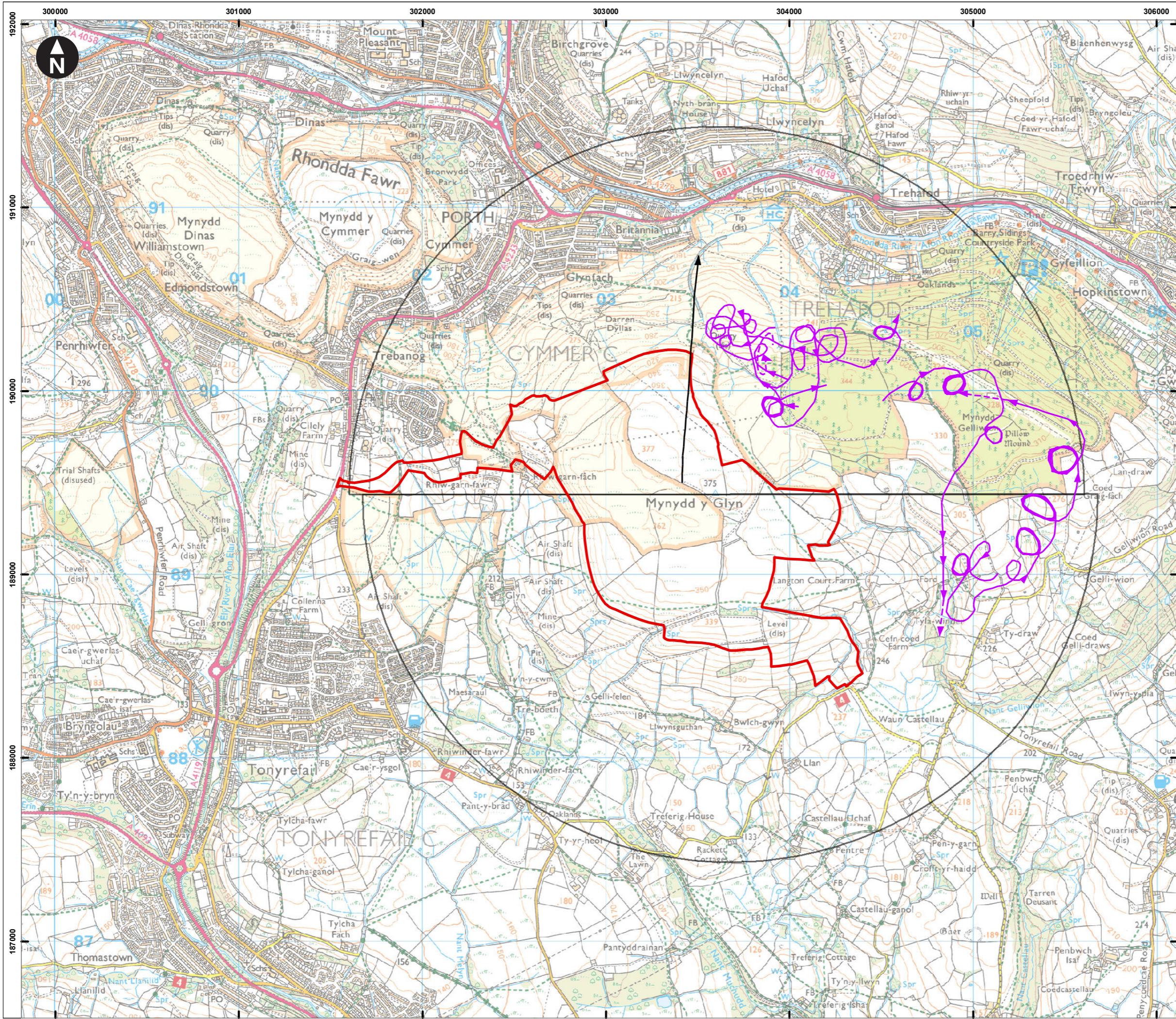


Key

- Site boundary
- 2km viewedshed
- Red kite**
- Flights not at potential collision risk
- Flights at potential collision height

Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.10**  
 Map showing flight lines for red kite recorded during vantage point surveys - Non-breeding season 2021/2022



Key

- Site boundary
- 2km viewedshed

**Goshawk**

- Flights not at potential collision risk
- Flights at potential collision height

**Height\_Ban**

- Flights not at potential collision risk
- Flights at potential collision height

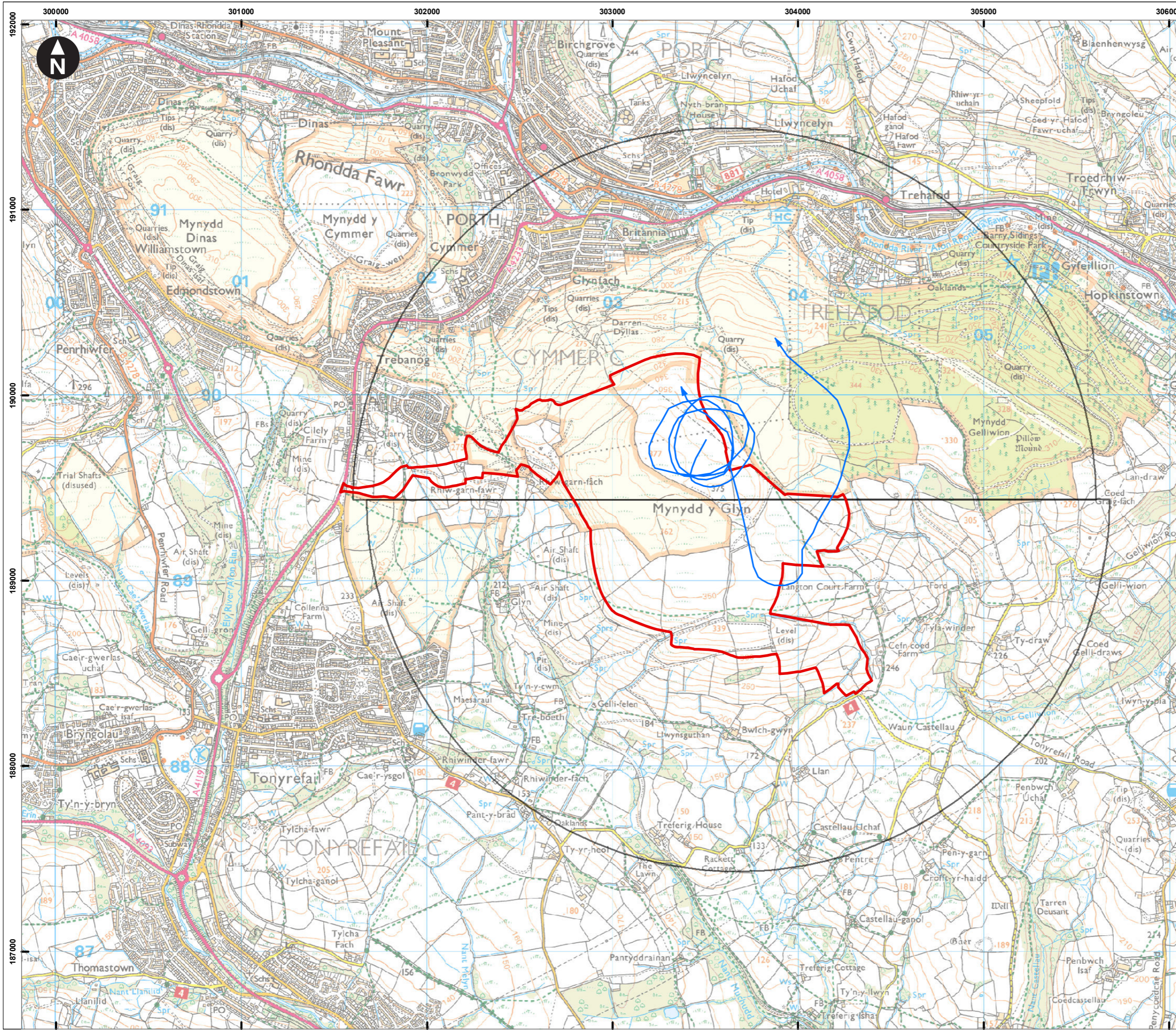
0 250 500 750 1,000 m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.11**  
**Map showing flight lines for goshawk and peregrine recorded during vantage point surveys - Non-breeding season 2021/2022**

October 2022

**wsp**



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- Flights not at potential collision risk
- Flights at potential collision height

0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey  
0100031673

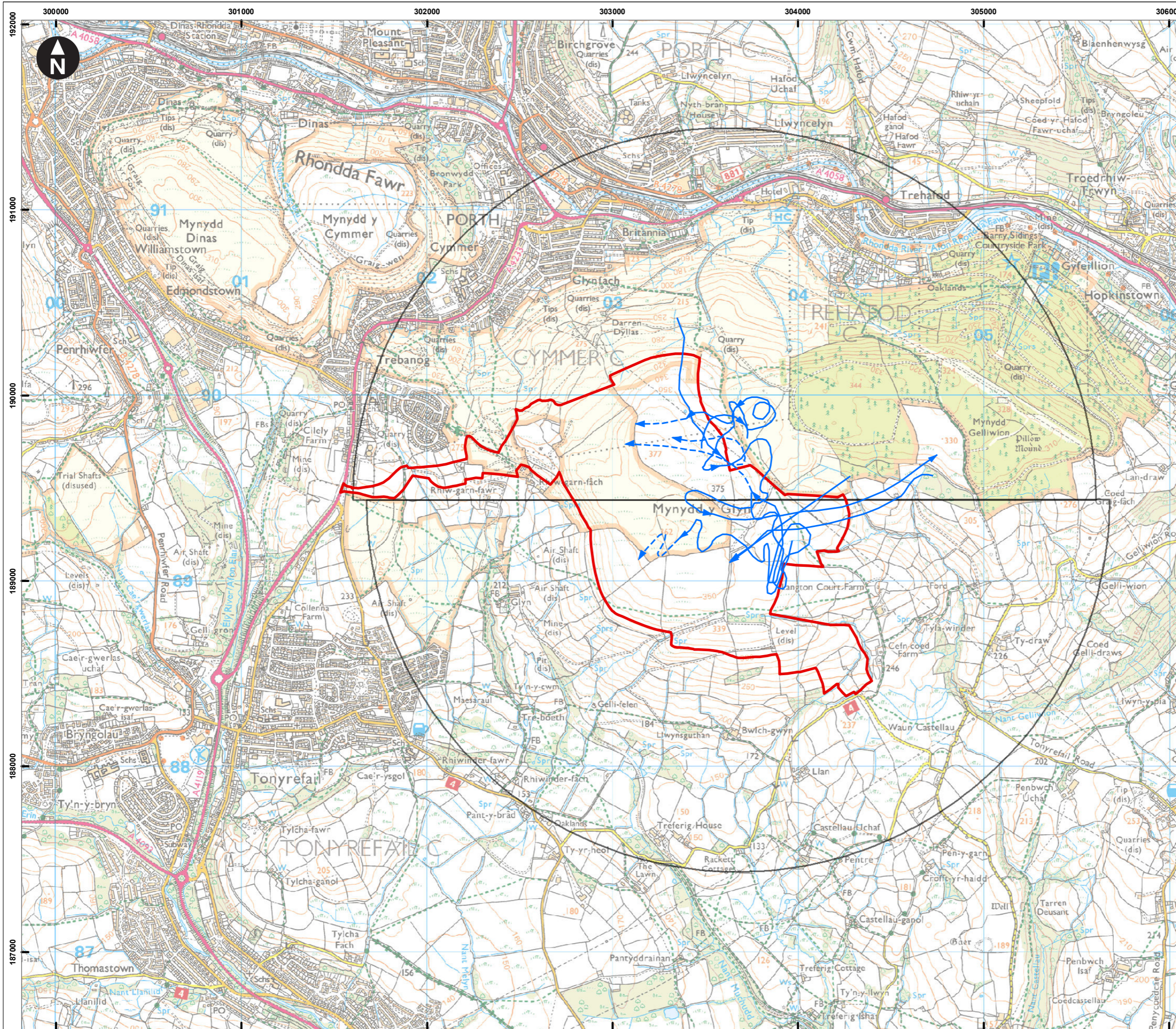
**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.12a**  
**Map showing flight lines for Golden plover**  
**recorded during vantage point surveys -**  
**Non-breeding season 2020/2021 -**  
**September**

October 2022

**wsp**





Key

- Site boundary
- 2km viewedshed

**Golden plover**

- Flights not at potential collision risk
- Flights at potential collision height

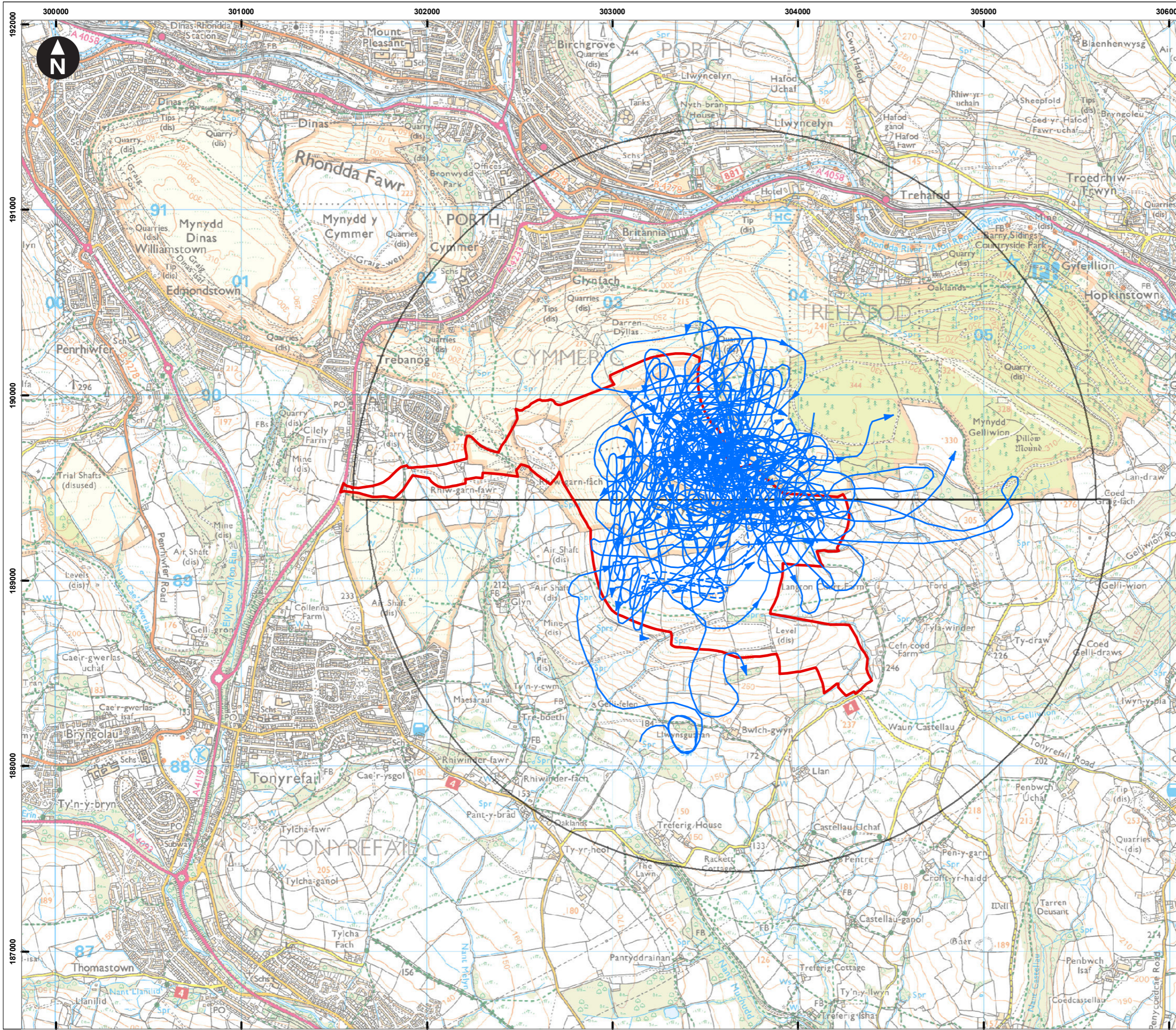
0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.12b**  
**Map showing flight lines for Golden plover**  
**recorded during vantage point surveys -**  
**Non-breeding season 2020/2021 - October**

October 2022

**wsp**



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- Flights not at potential collision risk
- Flights at potential collision height

0 250 500 750 1,000m  
Scale at A3: 1:20,000  
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

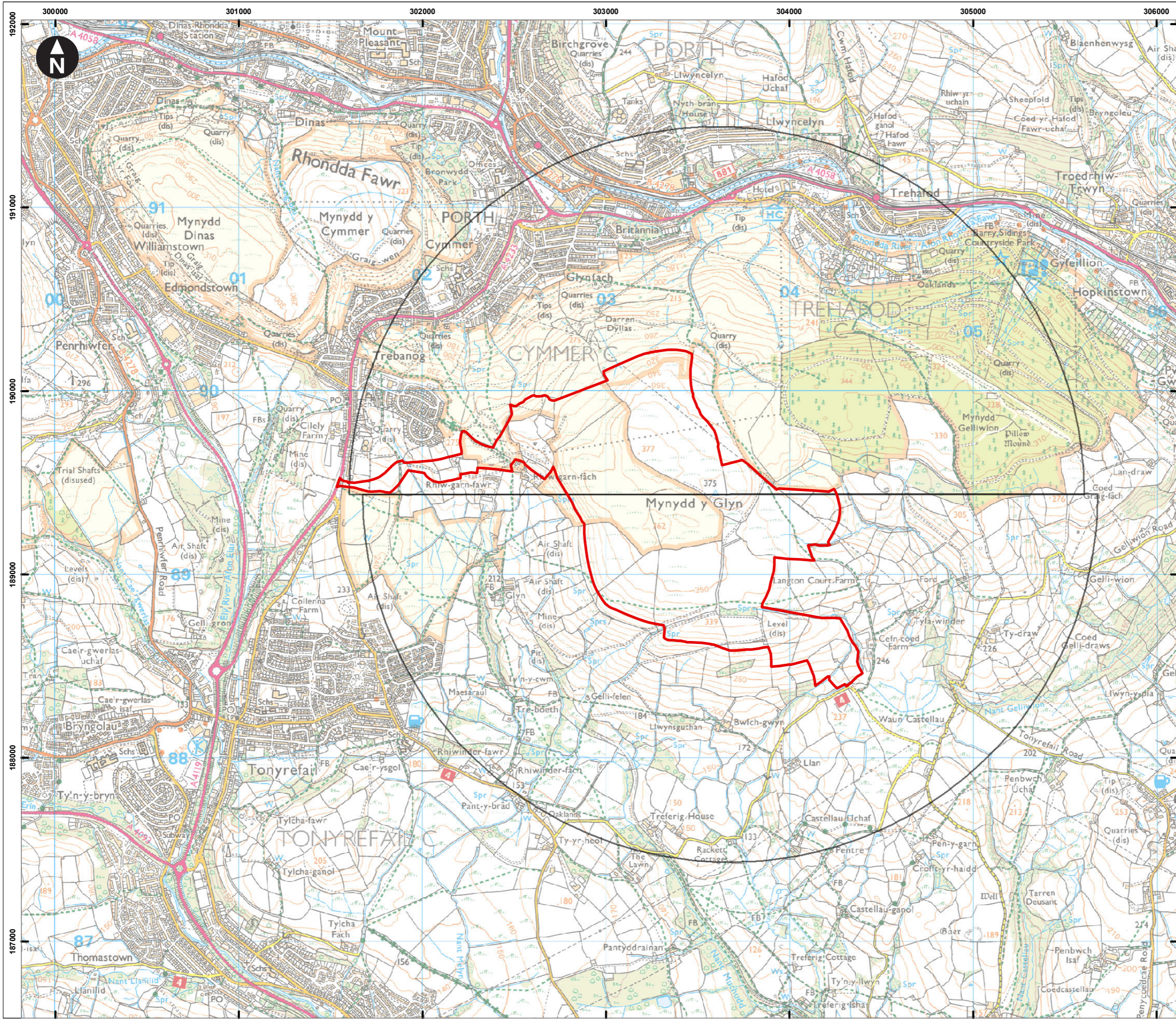
Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 3.12c**  
Map showing flight lines for Golden plover recorded during vantage point surveys - Non-breeding season 2020/2021 - November

October 2022

**wsp**

42864-WOOD-XX-XX-FG-OE-0110\_S2\_P01.1



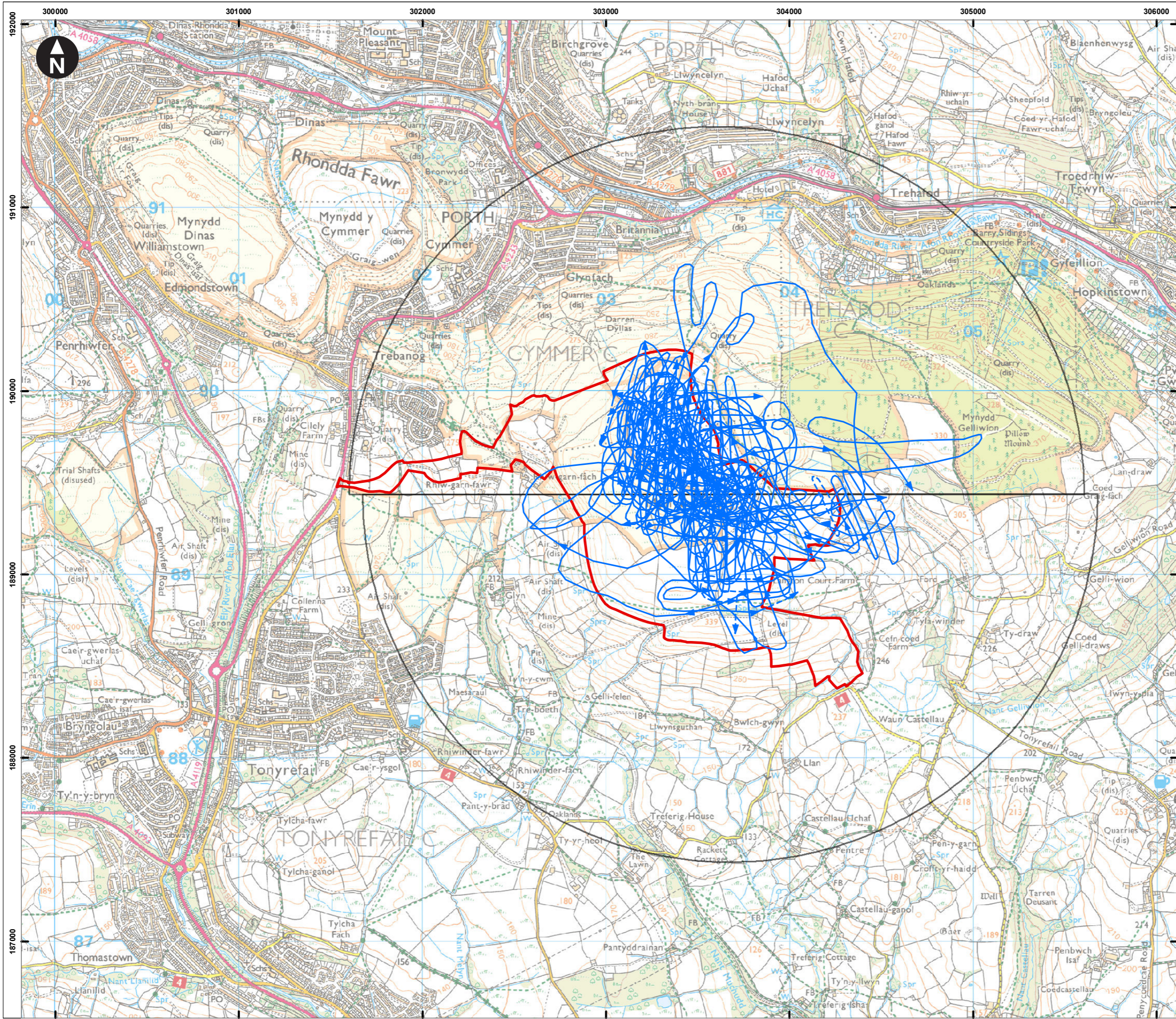
**Key**

- Site boundary
- 2km viewedshed
- Golden plover**
- ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height

0 250 500 750 1,000m  
 Scale at A3: 1:20,000  
 © Crown copyright and database rights 2021 Ordnance Survey  
 0100031673

**Pennant Walters**  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.12d**  
 Map showing flight lines for Golden plover recorded during vantage point surveys - Non-breeding season 2020/2021 - December



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- - - - - ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height

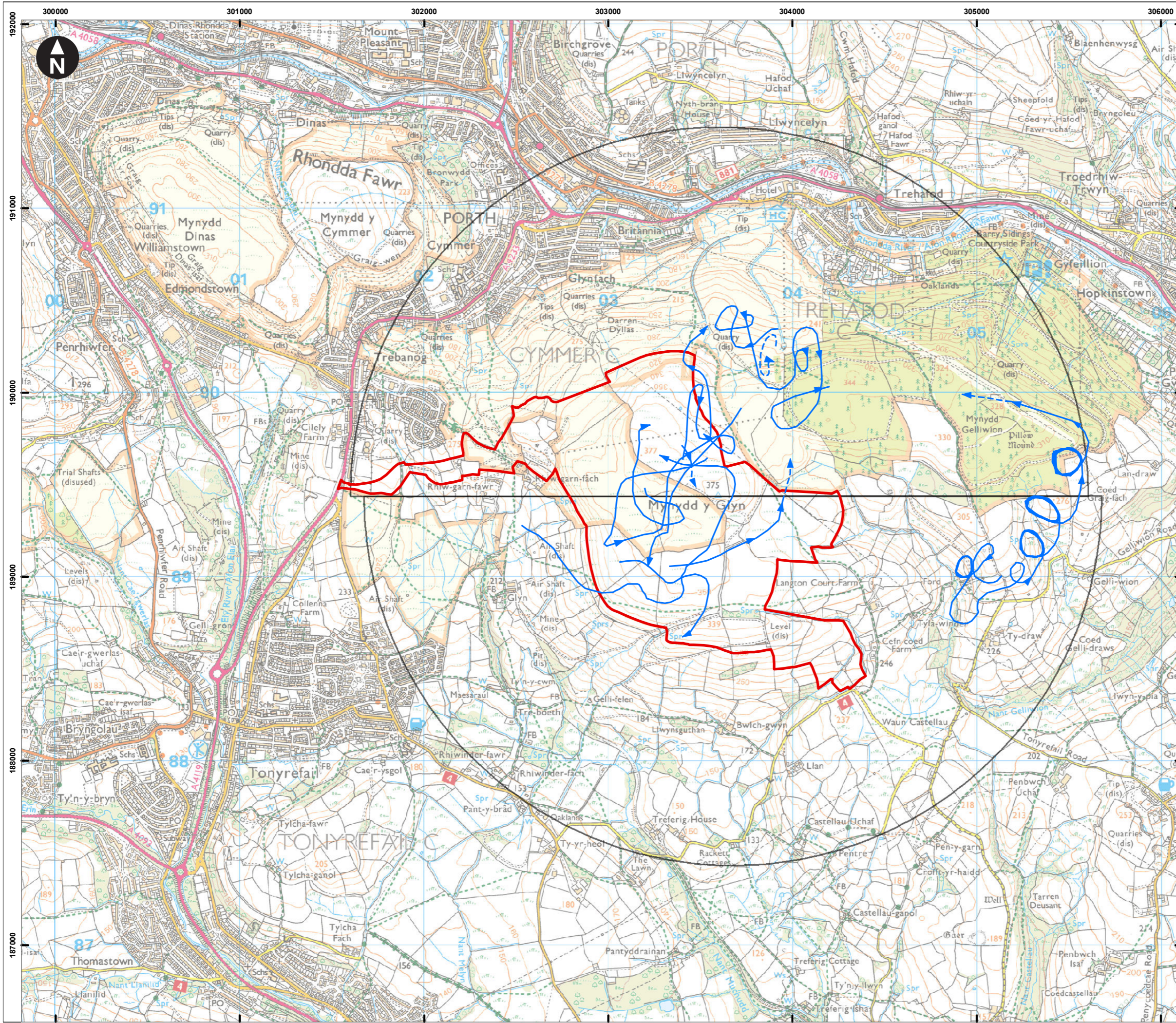
0 250 500 750 1,000m

Scale at A3: 1:20,000

© Crown copyright and database rights 2021 Ordnance Survey 0100031673

Pennant Walters  
 Mynydd y Glyn Wind Farm  
 Baseline Ornithology Report 2020 - 2022

**Figure 3.12e**  
 Map showing flight lines for Golden plover recorded during vantage point surveys - Non-breeding season 2020/2021 - January



Key

- Site boundary
- 2km viewedshed

**Golden plover**

- — — — — ▶ Flights not at potential collision risk
- ▶ Flights at potential collision height

0 250 500 750 1,000m

Scale at A3: 1:20,000

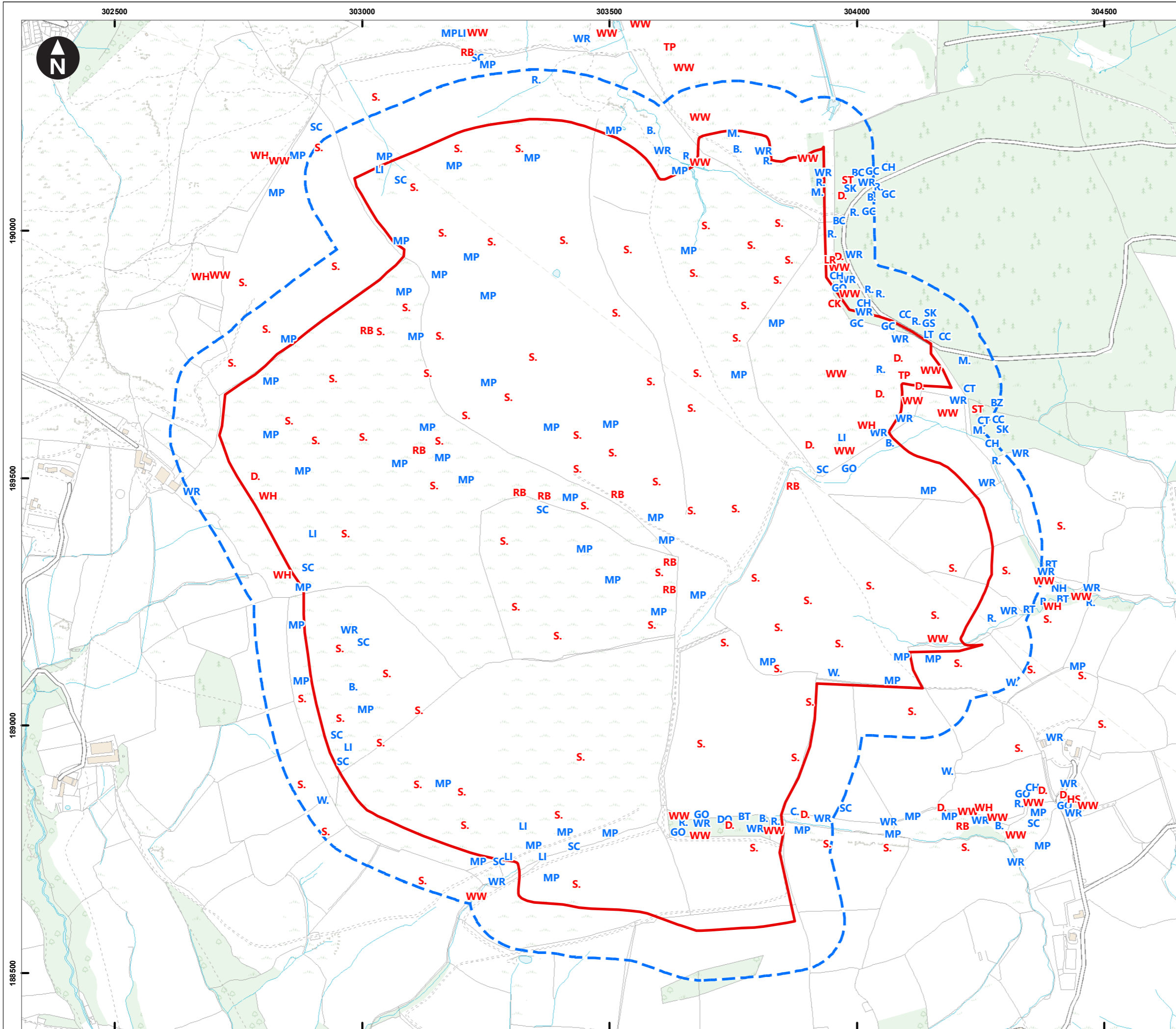
© Crown copyright and database rights 2021 Ordnance Survey 0100031673

**Pennant Walters**  
**Mynydd y Glyn Wind Farm**  
**Baseline Ornithology Report 2020 - 2022**

**Figure 3.12f**  
**Map showing flight lines for Golden plover**  
**recorded during vantage point surveys -**  
**Non-breeding season 2020/2021 - February**  
**and March**

October 2022

**wsp**



Key

- 2020 site boundary
- 100m buffer

**BTO Code and Species**

BZ	Buzzard - 1
GS	Great spotted woodpecker
C.	Carion crow - 1
CT	Coal tit - 3
BT	Blue tit - 3
LT	Long-tailed tit - 1
CC	Chiffchaff - 3
BC	Blackcap - 2
GC	Goldcrest - 5
WR	Wren - 30
B.	Blackbird - 7
R.	Robin - 20
CH	Chaffinch - 5
GO	Goldfinch - 7
MP	Meadow pipit - 43
SC	Stonechat - 12
W.	Wheatear - 4
SK	Siskin - 3
NH	Nuthatch - 1
RT	Redstart - 2
CK	Cuckoo - 1
S.	Skylark - 82
ST	Song thrush - 2
M.	Mistle thrush - 3
HS	House sparrow - 1
D.	Dunnock - 12
LI	Linnet - 8
RB	Reed bunting - 10
WW	Willow warbler - 28
TP	Tree pipit - 2
LR	Lesser redpoll - 1
WH	Whitethroat - 7

0 100 200 300 400 m

Scale at A3: 1:7,500

© Crown copyright and database rights [2020] Ordnance Survey 0100031673

Pennant Walters  
Mynydd y Glyn Wind Farm  
Baseline Ornithology Report 2020 - 2022

**Figure 3.13**  
Map showing indicative territory centres identified through the breeding bird survey (2020)

# Annex D

## Survey visit details

**Table D1 Vantage Point Survey: Survey visit details; breeding season March 2020 – August 2020**

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
03/04/2020	1	13:45	16:45	3	Dry, 11°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 3
03/04/2020	2	17:00	20:00	3	Dry, 8°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 3
14/04/2020	1	06:00	09:00	3	Dry, 1-3°C, 1/8 Oktas cloud, visibility > 3km, easterly Beaufort 3, ground frost throughout
14/04/2020	2	09:00	12:00	3	Dry, 4-6°C, 1/8 Oktas cloud, visibility > 3km, easterly Beaufort 3
29/04/2020	1	16:45	19:45	3	Dry, 10°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 4
29/04/2020	2	13:45	16:45	3	Dry, 11°C, 5/8 Oktas, cloud, visibility > 3km, south-westerly Beaufort 4-5
06/05/2020	1	06:55	09:55	3	Dry, 6°C, 0/8 Oktas cloud, visibility > 3 km, easterly Beaufort 3
06/05/2020	2	10:15	13:15	3	Dry, 9-16°C, 0/8 Oktas cloud, visibility > 3km, easterly Beaufort 3
19/05/2020	1	06:00	09:00	3	Mist, clearing, 11°C, 8/8 Oktas cloud, visibility 1-3km, westerly Beaufort 3
19/05/2020	2	09:00	12:00	3	Dry, 13°C, 6/8 Oktas cloud, visibility 1-3km, westerly Beaufort 3
20/05/2020	1	15:30	18:30	3	Dry, 25°C, 0/8 Oktas cloud, visibility > 3km, southerly Beaufort 2
20/05/2020	2	18:30	21:30	3	Dry, 25-16°C, 0/8 Oktas cloud, visibility > 3km, southerly Beaufort 2
22/05/2020	1	08:00	11:00	3	Dry, 15°C, 7/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 6
22/05/2020	2	05:00	08:00	3	Heavy showers, clearing to dry, 13°C, 8/8 Oktas cloud, visibility 1-3km, south-westerly Beaufort 4-6 (gusting 7-8)

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
03/06/2020	2	15:45	18:45	3	Light showers, 13°C, 8/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 3-4
03/06/2020	2	18:45	21:45	3	Dry, 12°C, 8/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 3
04/06/2020	1	15:30	18:30	3	Dry, 15°C, 8/8 Oktas cloud, visibility > 3km, north-north-westerly Beaufort 3-4
04/06/2020	1	18:30	21:30	3	Drizzle showers, then rain from 2100, 13°C, 8/8 Oktas cloud, visibility 1-3km, north-westerly Beaufort 4
16/06/2020	1	08:35	11:35	3	Dry, 15°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 1
16/06/2020	2	05:30	08:30	3	Light shower at 06:00 clearing, 14°C, 8/8 Oktas cloud, visibility > 3km, north-westerly Beaufort 1
19/06/2020	1	07:00	10:00	3	Dry to light showers, 13°C, 8/8 Oktas cloud, visibility 1 - 3km, westerly Beaufort 3
19/06/2020	2	10:05	13:05	3	Light showers then clearing at 11:00, 13°C, 8/8 Oktas cloud, visibility > 3km, westerly Beaufort 3
23/06/2020	1	16:30	19:30	3	Dry, 26°C, 0/8 Oktas cloud, visibility > 3km, southerly Beaufort 3
23/06/2020	2	13:30	16:30	3	Dry, 24°C, 0/8 Oktas cloud, visibility > 3km, southerly Beaufort 4
01/07/2020	1	14:30	17:30	3	Dry, 16°C, 3/8 Oktas cloud, visibility > 3km, westerly Beaufort 4
01/07/2020	2	17:35	20:35	3	Dry, 16°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 4
02/07/2020	2	15:10	18:10	3	Dry, 17°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 2
02/07/2020	1	18:20	21:20	3	Dry, 15°C, 5/8 Oktas cloud, visibility > 3km, westerly Beaufort 2
21/07/2020	1	08:30	11:30	3	Dry, 17°C, 0/8 Oktas cloud, visibility > 3km, southerly Beaufort 1
21/07/2020	2	11:30	14:30	3	Dry, 22°C, 0/8 Oktas cloud, visibility > 3km, southerly Beaufort 3
11/08/2020	1	07:45	10:45	3	Dry, 24°C, 0/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 2
11/08/2020	2	10:45	13:45	3	Dry, 26°C, 0/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2
12/08/2020	1	10:45	13:45	3	Dry, 27°C, 1/8 Oktas cloud, visibility > 3km, south-easterly Beaufort 3



Survey date	VP	Start time	End time	Survey Duration	Weather conditions
12/08/2020	2	07:40	10:40	3	Dry, 24°C, 1/8 Oktas cloud, visibility > 3km, south-easterly Beaufort 2
26/08/2020	1	14:15	17:15	3	Dry, 18°C, 5/8 Oktas cloud, visibility > 3km, westerly Beaufort 3
26/08/2020	2	17:15	20:15	3	Dry, 17°C, 5/8 Oktas cloud, visibility > 3km, westerly Beaufort 3

**Table D2 Vantage Point Survey: Survey visit details non-breeding season September 2020 – February 2021**

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
09/09/2020	1	13:00	16:00	3	Dry, 18°C, 6/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2
09/09/2020	2	16:05	19:05	3	Dry, 17°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 3
15/09/2020	1	15:30	18:30	3	Dry, 21°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 2
15/09/2020	2	12:30	15:30	3	Very light shower during second hour, 23°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 3
29/09/2020	1	11:30	14:30	3	Dry, 17°C, 5/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2
29/09/2020	2	08:15	11:15	3	Dry, 17°C, 2/8 Oktas cloud, visibility > 3km, northerly Beaufort 1 for first hour, wind still thereafter
12/10/2020	1	10:30	13:30	3	Light showers then mist, 9°C, 8/8 Oktas cloud, visibility 1-3km, south-south-westerly Beaufort 2
12/10/2020	2	07:30	10:30	3	Showers throughout, heavy at times, 9°C, 7/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 2
14/10/2020	1	07:30	10:30	3	Dry, 10°C, 2/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 3
14/10/2020	2	10:30	13:30	3	Dry, 12°C, 3/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 3
04/11/2020	2	10:30	13:30	3	Dry, 7°C, 0/8 Oktas cloud, visibility > 3km, south-westerly veering north-easterly Beaufort 2
04/11/2020	1	13:30	16:30	3	Dry, 6°C, 0/8 Oktas cloud, visibility > 3km, easterly Beaufort 2
10/11/2020	1	07:40	10:40	3	Mist clearing after first hour, 12°C, 8/8 Oktas cloud, visibility 1-3km, south-westerly Beaufort 2

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
10/11/2020	2	10:45	13:45	3	Light shower in final hour, 12°C, 7/8 Oktas cloud, visibility > 3km, 1-3km for final hour, south-westerly Beaufort 2
18/11/2020	1	10:25	13:25	3	Mist and light showers throughout, 12°C, 8/8 Oktas cloud, visibility 1-3km (falling to < 1 km for second hour), south-westerly Beaufort 3
18/11/2020	2	13:30	16:30	3	Dry, 12°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 4
19/11/2020	2	07:25	10:25	3	Light showers from second hour onwards, 7°C, 4/8 Oktas cloud, visibility > 3km, north-westerly Beaufort 6
19/11/2020	1	10:30	13:30	3	Light showers during second hour, 6°C, 3/8 Oktas cloud, visibility > 3km, north-westerly Beaufort 6
01/12/2020	1	07:45	10:45	3	Dry, 3°C, 1/8 Oktas cloud, visibility > 3km, easterly Beaufort 1
01/12/2020	2	10:45	13:45	3	Dry, 7°C, 4/8 Oktas cloud, visibility > 3km, easterly Beaufort 1
02/12/2020	1	07:40	10:40	3	Dry, 7°C, 8/8 Oktas cloud, visibility > 3km, westerly Beaufort 1
02/12/2020	2	10:45	13:45	3	Heavy shower during second hour, 7°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 2
07/12/2020	2	08:05	11:05	3	Mist during second hour, 3°C, 6/8 Oktas cloud, visibility > 3km, east-north-easterly Beaufort 1
07/12/2020	1	11:10	14:10	3	Dry, 4°C, 6/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 1
12/01/2021	1	09:00	12:00	3	Heavy showers, clearing after first hour, 7°C, 6/8 Oktas cloud, visibility 1-3km, south-westerly, veering north-west Beaufort 2
12/01/2021	2	12:00	15:00	3	Dry, 8°C, 7/8 Oktas cloud, visibility > 3km, north-westerly Beaufort 3
13/01/2021	2	08:45	11:45	3	Light drizzle, 7°C, 8/8 Oktas cloud, visibility 1-3km, westerly Beaufort 4
13/01/2021	1	11:45	14:45	3	Light drizzle clearing after first hour, 7°C, 7/8 Oktas cloud, visibility > 3km, westerly Beaufort 4
22/01/2021	1	08:50	11:50	3	Dry, 1°C, 1/8 Oktas cloud, visibility > 3km, westerly Beaufort 1, ground frost until 10:00
22/01/2021	2	11:55	14:55	3	Snow showers, 2°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 2
17/02/2021	1	07:45	10:45	3	9°C, 7/8 Oktas cloud, visibility > 3km, south-westerly Beaufort 4, precipitation: dry

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
17/02/2021	2	10:45	13:45	3	10°C, 7/8 Oktas cloud, visibility >3km, south-westerly Beaufort 4, precipitation: dry, drizzle after 2 hours, light rain after 3 hours.
22/02/2021	1	10:55	13:55	3	10°C, 3/8 Oktas cloud, visibility >3km, north-westerly Beaufort 2, precipitation: dry
22/02/2021	2	07:50	10:50	3	9°C, 4/8 Oktas cloud, visibility >3km, north-westerly Beaufort 2, precipitation: dry

**Table D3 Vantage Point Survey: Survey visit details; breeding season March 2021-August 2021**

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
17/03/2021	1	11:00	14:00	3	Dry, 12°C, 6/8 Oktas cloud, visibility >3km, south-westerly Beaufort 2
17/03/2021	2	14:00	17:00	3	Dry, 12°C, 6/8 Oktas cloud, visibility >3km, south-westerly switching north westerly Beaufort 2
25/03/2021	2	11:25	14:25	3	Dry, 10°C, 3/8 Oktas cloud, visibility >3km, south-westerly Beaufort 5
25/03/2021	1	14:30	17:30	3	Dry, 10°C, 3/8 Oktas cloud, visibility >3km, south-westerly Beaufort 5
27/04/2021	2	11:50	14:50	3	Dry, 13°C, 7/8 Oktas cloud, visibility >3km, south-easterly Beaufort 1
27/04/2021	2	14:50	17:50	3	Dry, 14°C, 7/8 Oktas cloud, visibility >3km, south-easterly Beaufort 1
30/04/2021	1	07:00	10:00	3	Dry, 7°C, 7/8 Oktas cloud, visibility >3km, north-easterly Beaufort 2
30/04/2021	1	10:30	14:00	3	Light showers and sleet, 9°C, 7/8 Oktas cloud, visibility >3km, north-easterly Beaufort 2
12/05/2021	2	06:30	10:00	3	Dry, 10°C, 7/8 Oktas cloud, visibility 1-3km, south-westerly Beaufort 3
12/05/2021	2	10:30	13:30	3	Dry, 12°C, 6/8 Oktas cloud, visibility >3km, south-westerly Beaufort 3
24/05/2021	1	14:00	17:00	3	Dry, 12°C, 7/8 Oktas cloud, visibility >3km, north-westerly Beaufort 4
24/05/2021	1	17:30	20:30	3	Dry, 10°C, 5/8 Oktas cloud, visibility >3km, north-westerly Beaufort 3
16/06/2021	1	05:30	08:30	3	Dry, 13°C, 2/8 Oktas cloud, visibility >3km, south-westerly Beaufort 3

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
16/06/2021	1	09:00	12:00	3	Dry, 18°C, 1/8 Oktas cloud, visibility >3km, south-westerly Beaufort 4
09/07/2021	1	12:30	15:30	3	Dry, 16°C, 8/8 Oktas cloud, visibility >3km, south-westerly Beaufort 2
09/07/2021	2	09:30	12:30	3	Dry, 15°C, 7/8 Oktas cloud, visibility >3km, south-westerly Beaufort 2
15/07/2021	1	12:45	15:45	3	Dry, 24°C, 1/8 Oktas cloud, visibility >3km, south-easterly Beaufort 2
15/07/2021	2	16:45	19:45	3	Dry, 24°C, 1/8 Oktas cloud, visibility >3km, south-easterly Beaufort 2
10/08/2021	1	12:00	15:00	3	Dry, 17-19°C, 4-7/8 Oktas cloud, visibility >3km, westerly Beaufort 3-4
10/08/2021	2	09:00	12:00	3	Dry, 15-17°C, 4-6/8 Oktas cloud, visibility >3km, westerly Beaufort 2-3
17/08/2021	1	09:00	12:00	3	Dry, 15-17°C, 4-7/8 Oktas cloud, visibility >3km, westerly Beaufort 3-5
17/08/2021	2	12:00	15:00	3	Dry, 15-17°C, 4-6/8 Oktas cloud, visibility >3km, westerly Beaufort 4-5
07/09/2021	2	10:00	13:00	3	Dry, 20-25°C, Oktas cloud 0/8, visibility >3km, south westerly Beaufort 2
07/09/2021	2	13:00	16:00	3	Dry, 25-27°C, Oktas cloud 0/8, Visibility >3km, south westerly Beaufort 3-4

**Table D4 Vantage Point Survey: Survey visit details; non-breeding season 2021-2022**

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
14/09/2021	2	07:30	10:30	3	Light rain, 13-14°C, Oktas cloud 8/8, Visibility >3km, north easterly Beaufort 2-4
14/09/2021	1	10:30	13:30	3	Light rain, 16-18°C, Oktas cloud 8/8, Visibility >3km, north easterly Beaufort 2-4
21/09/2021	1	09:00	12:00	3	Dry, 12-16°C, Oktas cloud 2-6/8, Visibility >3km, south westerly Beaufort 1
21/09/2021	2	12:00	15:00	3	Dry, 16-18°C, Oktas cloud 6/8, visibility >3km, north westerly Beaufort 1
05/10/2021	2	10:15	13:15	3	Showers first 15 min dry rest survey, 10-12°C, Oktas cloud 3-7/8, Visibility >3km, north westerly Beaufort 5-6

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
05/10/2021	2	13:15	16:15	3	Dry, 12-13°C, Oktas cloud 5-7/8, Visibility >3km, north westerly Beaufort 5-6
06/10/2021	1	08:30	11:30	3	Dry, 10-13°C, Oktas cloud 4/8, Visibility >3km, north westerly Beaufort 3-4
06/10/2021	1	11:30	14:30	3	Dry, 12-15°C, Oktas cloud 4-7/8, Visibility >3km, north westerly Beaufort 5-6
03/11/2021	2	08:30	11:30	3	Dry, 4-9°C, Oktas cloud 6/8, Visibility >3km, north westerly Beaufort 3
03/11/2021	1	11:30	14:30	3	Dry, 9°C, Oktas cloud 4/8, Visibility >3km, north westerly Beaufort 3
16/11/2021	1	09:00	12:00	3	Dry, 10°C, Oktas cloud 7/8, Visibility >3km, south westerly Beaufort 2
16/11/2021	2	12:00	15:00	3	Dry to light persistent rain, 10°C, Oktas cloud 7/8, Visibility 1-3km, westerly Beaufort 3
05/01/2022	1	10:15	13:15	3	Dry, -3°C, Oktas cloud 4/8, Visibility >3km, westerly Beaufort 3, ground snow
05/01/2022	2	13:30	14:30	1	Heavy rain, 3°C, Oktas cloud 8/8, Visibility >3km, westerly Beaufort 4
25/01/2022	1	12:00	15:00	3	Dry, 5-6°C, Oktas cloud 8/8, Visibility 1-3km, south westerly Beaufort 1
25/01/2022	2	09:00	12:00	3	Dry, 3-5°C, Oktas cloud 8/8, Visibility 1-3km, south westerly Beaufort 1
26/01/2022	1	08:30	11:30	3	Dry, 5-6°C, Oktas cloud 8/8, Visibility >3km, north westerly Beaufort 3
26/01/2022	2	11:30	14:30	3	Dry, 7°C, Oktas cloud 8/8, Visibility >3km, north westerly Beaufort 3
27/01/2022	2	09:00	12:00	3	Dry to drizzle, 7°C, Oktas cloud 8/8, Visibility 1-3km, north westerly Beaufort 3. Low clouds for last 20 minutes
15/02/2022	1	12:55	15:25	3.5	Dry to light showers, 8°C, Oktas cloud 8/8, Visibility 1-3km, westerly Beaufort 5
15/02/2022	2	12:55	15:25	3.5	Dry to light showers, 8°C, Oktas cloud 8/8, Visibility 1-3km, westerly Beaufort 5
16/02/2022	1	07:20	09:50	2.5	Heavy rain, 11°C, Oktas cloud 8/8, Visibility <1km, westerly Beaufort 8-9.
09/03/2022	1	08:35	11:35	3	Dry, 7°C, Oktas cloud 7/8, Visibility >3km, north westerly Beaufort 5
09/03/2022	2	11:45	15:15	3.5	Dry, 7°C, Oktas cloud 7/8, Visibility >3km, north westerly Beaufort 5

Survey date	VP	Start time	End time	Survey Duration	Weather conditions
15/03/2022	1	13:30	16:30	3	Dry, 9-11°C, Oktas cloud 4-6/8, Visibility >3km, south easterly Beaufort 2
15/03/2022	2	10:00	13:30	3.5	Dry, 5-11°C, Oktas cloud 7/8, Visibility >3km, south easterly Beaufort 3
18/03/2022	2	08:00	11:30	3.5	Dry, 8°C, Oktas cloud 0/8, Visibility >3km, south westerly Beaufort 1
18/03/2022	1	11:30	14:30	3	Dry, 8°C, Oktas cloud 0/8, Visibility >3km, easterly Beaufort 2

**Table D5 Breeding bird survey: Survey visit details April to June 2020**

Survey date	Start time	End time	Weather conditions	Surveyor
02/04/2020	08:20	12:00	Dry, 6-9°C, 4/8 Oktas cloud, visibility > 3km, westerly Beaufort 3	Craig Brookes & Conor MacKenzie
23/04/2020	07:20	11:55	Dry, 10-18°C, 4/8 Oktas cloud, visibility >3km, easterly Beaufort 2	Craig Brookes & Michael Shackshaft
01/05/2020	07:10	11:00	Dry, 9-12°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 3	Craig Brookes & Michael Shackshaft
14/05/2020	07:05	11:25	Dry, 7-16°C, 0/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 2	Craig Brookes & Michael Shackshaft
02/06/2020	06:05	11:25	Dry, 13-22°C, 0/8 - 2/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 1	Craig Brookes & Michael Shackshaft
12/06/2020	07:00	10:45	Dry, 14°C, 8/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 3	Craig Brookes & Michael Shackshaft

**Table D6 Schedule 1 Bird Survey – Visit Details**

Survey date	Survey type	Start time	End time	Survey Duration	Weather conditions
30/03/2021	Search of habitat	08:00	14:00		Dry, 14°C, 4/8 Oktas cloud, visibility > 3km, easterly Beaufort 2
31/03/2021	Search of habitat	08:00	14:00		Dry, 14°C, 2/8 Oktas cloud, visibility > 3km, north-easterly Beaufort 1

Survey date	Survey type	Start time	End time	Survey Duration	Weather conditions
15/04/2021	Nest checks and VP watch	08:30	14:45	6.25 hours	Dry, 5°C, 2/8 Oktas cloud, visibility > 3km, southerly Beaufort 2
16/04/2021	Nest searching	08:00	13:00	4 hours	Dry, 8°C, 4/8 Oktas cloud, visibility > 3km, easterly Beaufort 2
25/05/2021	Nest watch	09:00	10:45	1.75 hours	Dry, 8°C, 5/8 Oktas cloud, visibility > 3km, easterly Beaufort 3
17/06/2021	Nest watch	08:00	10:00	2 hours	Dry, 12°C, 6/8 Oktas cloud, visibility > 3km, westerly Beaufort 3

**Table D7 Winter walkover survey – Survey Details**

Survey date	Start time	End time	Survey Duration	Weather conditions
23/10/2020	09:00	12:00	3 hours	Heavy showers/light rain, 10°C, 8/8 Oktas cloud, visibility 1-3km, southerly Beaufort 4
20/11/2020	08:30	11:30	3 hours	Heavy showers/light rain, 10°C, 8/8 Oktas cloud, visibility <1km, southerly Beaufort 4
11/12/2020	08:00	11:00	3 hours	Light showers, 10°C, 8/8 Oktas cloud, visibility >3km, North westerly Beaufort 2
26/01/2021	08:30	11:30	3 hours	Occasional sleet showers, 0°C, 8/8 Oktas cloud, visibility >3km, south westerly Beaufort 2
24/02/2021	10:40	13:45	3 hours	Dry, 8°C, 6/8 Oktas cloud, visibility >3km, south westerly Beaufort 2
10/03/2021	08:00	11:30	3.5	Dry, 8°C, 1/8 Oktas cloud, visibility >3km, westerly Beaufort 1

# Annex E

## Territory-mapping principles

---

The number of territorial clusters have been defined from maps based on a six visit survey programme and adapted from criteria outlined in Amar et al. (2006):

- The minimum number of visit registrations used to form a territory would be two.
- Where the species is a songbird, alone and in song, two registrations can stand as a territory. Two singing individuals recorded simultaneously would be treated as two territories.
- A lone bird alarm calling or other vocalisations thought to have strong territorial significance would require two registrations to be accepted as a territory.
- The presence of an occupied nest or very recently fledged, or branched young, with no other registrations, would be acceptable as a territory.
- A lone songbird not in song would not count as a territory, regardless of whether it is located toward the middle of the survey area or near the edges.
- A territory would not be counted where there is just a single registration of a bird in mid-flight.
- The presence of a family (fully winged) on a single visit (juvenile birds with attendant parents) would not be permitted as a territory, as they may have moved into the area from outside the survey area.
- Two registrations of a lone pair would be permitted as a territory, provided that the birds were not in mid-flight. In instances involving pairs of birds in flights, territories would only be permitted when the pair were recorded taking off from a fixed point within the plot, e.g. a tree or the ground (but excluded when they have been seen in mid-flight).
- For certain species that are colonial, or occur in large groups where it may be hard to define separate individual territories e.g. woodpigeon, feral pigeon, rook and jackdaw, such species will be recorded as 'present' or 'not recorded'.
- Low density species seen just once, and not in song would not be permitted as a territory (e.g. barn owl, kestrel and sparrowhawk), regardless of whether the bird is in flight or perched. There needs to be a minimum of two visit registrations for these species to count.
- Once territory circles have been identified and drawn around groups of registrations, there is the issue of registrations straddling the survey area boundary. Where a territory crosses the survey area boundary, the number of registrations either side of the boundary would be counted: where there are more within the area than outwith, the territory would be included in the total count for the survey area. Where there are fewer the territory would be excluded. In cases where the registrations are equal either side of the boundary, the territory will be counted as within the survey area.



# Annex F

## Survey results

**Table F1 Breeding season 2020 (March 2020 – August 2020) - Target Species Flight data**

Flight ID	Species	Date	Time	VP	Count	Height Band	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_04_L_001A	KT	03/04/2020	18:15	2	1	B	45	45	45
VP2_04_L_001B	KT	03/04/2020	18:15	2	1	C	75	75	75
VP2_04_L_001C	KT	03/04/2020	18:17	2	1	D	45	45	45
VP1_05_E_010A	PE	19/05/2020	08:52	1	1	B	30	30	30
VP1_05_E_010B	PE	19/05/2020	08:52	1	1	A	15	0	0
VP2_05_M_011A	KT	19/05/2020	11:19	2	1	A	45	0	0
VP2_05_M_011B	KT	19/05/2020	11:19	2	1	B	15	15	15
VP1_06_M_012A	KT	04/06/2020	15:41	1	1	B	45	45	45
VP1_06_M_012B	KT	04/06/2020	15:41	1	1	A	255	0	0
VP1_06_M_013A	KT	04/06/2020	16:07	1	1	B	45	45	45
VP1_06_M_013B	KT	04/06/2020	16:07	1	1	A	30	0	0

Flight ID	Species	Date	Time	VP	Count	Height Band	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_06_M_013C	KT	04/06/2020	16:08	1	1	B	165	165	165
VP1_06_M_013D	KT	04/06/2020	16:11	1	1	A	75	0	0
VP1_06_M_014	PE	04/06/2020	17:30	1	1	B	90	90	90
VP1_06_L_015B	PE	04/06/2020	19:14	1	1	C	135	135	135
VP1_06_L_015C	PE	04/06/2020	19:16	1	1	B	30	30	30
VP1_06_L_015A	PE	04/06/2020	19:12	1	1	B	150	150	150
VP2_06_E_016A	KT	16/06/2020	07:46	2	1	B	75	75	75
VP2_06_E_016B	KT	16/06/2020	07:47	2	1	A	15	0	0
VP1_06_E_017A	KT	19/06/2020	09:05	1	1	B	45	45	45
VP1_06_E_017B	KT	19/06/2020	09:05	1	1	A	60	0	0
VP1_06_E_017C	KT	19/06/2020	09:06	1	1	B	105	105	105
VP2_06_M_018B	KT	19/06/2020	10:47	2	1	B	60	60	60
VP2_06_M_018C	KT	19/06/2020	10:48	2	1	A	15	0	0
VP2_06_M_018A	KT	19/06/2020	10:47	2	1	A	15	0	0
VP2_06_M_019A	KT	19/06/2020	11:04	2	1	A	60	0	0
VP2_06_M_019B	KT	19/06/2020	11:05	2	1	B	105	105	105

Flight ID	Species	Date	Time	VP	Count	Height Band	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_06_M_019C	KT	19/06/2020	11:06	2	1	A	30	0	0
VP2_04_L_002	ML	03/04/2020	19:42	2	1	A	45	0	0
VP1_06_L_020A	PE	23/06/2020	18:55	1	1	D	30	30	30
VP1_06_L_020B	PE	23/06/2020	18:55	1	1	C	180	180	180
VP1_06_L_020C	PE	23/06/2020	18:58	1	1	B	105	105	105
VP1_04_E_003	KT	14/04/2020	07:35	1	1	B	90	90	90
VP1_05_E_004	KT	06/05/2020	08:50	1	1	A	15	0	0
VP1_05_E_005A	KT	06/05/2020	08:55	1	1	B	15	15	15
VP1_05_E_005B	KT	06/05/2020	08:55	1	1	A	15	0	0
VP1_05_E_006A	KT	06/05/2020	09:36	1	1	A	30	0	0
VP1_05_E_006B	KT	06/05/2020	09:36	1	1	B	15	15	15
VP1_05_E_006C	KT	06/05/2020	09:36	1	1	C	15	15	15
VP1_05_E_006D	KT	06/05/2020	09:37	1	1	B	15	15	15
VP2_05_M_007A	KT	06/05/2020	10:44	2	1	B	45	45	45
VP2_05_M_007B	KT	06/05/2020	10:44	2	1	A	15	0	0
VP2_05_M_008A	KT	06/05/2020	11:02	2	1	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height Band	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_05_M_008B	KT	06/05/2020	11:02	2	1	B	30	30	30
VP2_05_M_008C	KT	06/05/2020	11:02	2	1	C	15	15	15
VP2_05_M_009A	HY	06/05/2020	11:35	2	2	B	15	15	30
VP2_05_M_009B	HY	06/05/2020	11:35	2	2	C	15	15	30
VP2_05_M_009C	HY	06/05/2020	11:35	2	2	D	30	30	30
VP1_07_M_021B	KT	01/07/2020	15:16	1	1	A	15	0	0
VP1_07_M_021A	KT	01/07/2020	15:14	1	1	B	120	120	120
VP2_07_E_022B	KT	21/07/2020	12:58	2	1	A	45	0	0
VP2_07_E_022A	KT	21/07/2020	12:57	2	1	B	105	105	105
VP1_08_M_023	KT	12/08/2020	10:54	1	1	A	120	0	0
VP1_08_L_024B	KT	26/08/2020	16:08	1	1	B	60	60	60
VP1_08_L_024A	KT	26/08/2020	16:06	1	1	A	135	0	0

**Table F2 Non-breeding season (September 2020 – February 2021) – Target Species Flight data**

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_09_L_025	GP	15/09/2020	16:29	1	1	D	90	90	90
VP1_09_M_026A	GP	29/09/2020	11:39	1	48	B	45	45	2160
VP1_09_M_026D	GP	29/09/2020	11:45	1	48	C	75	75	3600
VP1_09_M_026C	GP	29/09/2020	11:44	1	48	B	90	90	4320
VP1_09_M_026B	GP	29/09/2020	11:39	1	48	A	255	0	0
VP1_09_M_027	GP	29/09/2020	12:18	1	2	A	15	0	0
VP1_09_M_028	GP	29/09/2020	12:20	1	3	A	15	0	0
VP2_09_M_067B	KT	09/09/2020	17:44	2	1	B	45	45	45
VP2_09_M_067A	KT	09/09/2020	17:43	2	1	A	60	0	0
VP2_09_E_068	GP	29/09/2020	10:58	2	48	C	45	45	2160
VP1_10_E_029C	GP	14/10/2020	07:40	1	57	B	210	210	11970
VP1_10_E_029B	GP	14/10/2020	07:38	1	57	C	75	75	4275

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_10_E_030	GP	14/10/2020	09:53	1	6	B	135	135	810
VP1_10_M_031C	GP	12/10/2020	12:33	1	57	B	30	30	1710
VP1_10_M_031B	GP	12/10/2020	12:32	1	57	C	90	90	5130
VP1_10_M_031A	GP	12/10/2020	12:31	1	57	B	60	60	3420
VP1_10_L_032B	GP	04/11/2020	13:53	1	16	C	225	225	3600
VP1_10_L_032A	GP	04/11/2020	13:53	1	16	B	30	30	480
VP1_10_L_033A	GP	04/11/2020	13:58	1	53	B	45	45	2385
VP1_10_L_033D	GP	04/11/2020	14:06	1	53	A	15	0	0
VP1_10_L_033C	GP	04/11/2020	13:59	1	53	B	420	420	22260
VP1_10_L_033B	GP	04/11/2020	13:59	1	53	C	60	60	3180
VP1_10_L_034	GP	04/11/2020	14:09	1	11	A	15	0	0
VP1_10_L_035C	GI	04/11/2020	14:22	1	1	C	15	15	15

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_10_L_035B	GI	04/11/2020	14:14	1	1	D	480	480	480
VP1_10_L_035A	GI	04/11/2020	14:14	1	1	C	30	30	30
VP1_10_L_036	GP	04/11/2020	14:17	1	10	B	15	15	150
VP1_10_L_037	GP	04/11/2020	14:39	1	10	D	30	30	300
VP1_10_L_038	GP	04/11/2020	14:45	1	10	D	30	30	300
VP1_10_L_039	GP	04/11/2020	15:22	1	16	A	15	0	0
VP1_10_L_040D	GP	04/11/2020	15:35	1	1	C	75	75	75
VP1_10_L_040C	GP	04/11/2020	15:32	1	1	B	150	150	150
VP1_10_L_040B	GP	04/11/2020	15:31	1	1	A	60	0	0
VP1_10_L_040A	GP	04/11/2020	15:28	1	1	B	210	210	210
VP1_10_L_041A	GP	04/11/2020	16:06	1	74	B	45	45	3330
VP1_10_L_041C	GP	04/11/2020	16:10	1	74	D	165	165	12210

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_10_L_041B	GP	04/11/2020	16:06	1	74	C	255	255	18870
VP1_11_E_042	GP	10/11/2020	07:58	1	18	A	30	0	0
VP1_11_E_043C	GP	10/11/2020	09:59	1	213	C	15	15	3195
VP1_11_E_043B	GP	10/11/2020	09:58	1	213	B	30	30	6390
VP1_11_E_043A	GP	10/11/2020	09:48	1	213	C	570	570	121410
VP1_11_E_044B	GP	10/11/2020	10:03	1	110	C	105	105	11550
VP1_11_E_044A	GP	10/11/2020	10:03	1	110	B	30	30	3300
VP1_11_E_044D	GP	10/11/2020	10:12	1	110	A	30	0	0
VP1_11_E_044C	GP	10/11/2020	10:05	1	110	B	405	405	44550
VP1_11_E_045E	GP	10/11/2020	10:25	1	104	C	75	75	7800
VP1_11_E_045D	GP	10/11/2020	10:23	1	104	B	120	120	12480
VP1_11_E_045C	GP	10/11/2020	10:22	1	104	C	45	45	4680



Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_11_E_045B	GP	10/11/2020	10:16	1	104	B	345	345	35880
VP1_11_E_045A	GP	10/11/2020	10:16	1	104	A	30	0	0
VP1_11_E_045K	GP	10/11/2020	10:38	1	141	C	120	120	16920
VP1_11_E_045J	GP	10/11/2020	10:37	1	141	B	60	60	8460
VP1_11_E_045I	GP	10/11/2020	10:30	1	141	C	375	375	52875
VP1_11_E_045G	Gp	10/11/2020	10:28	1	141	A	45	0	0
VP1_11_E_045F	GP	10/11/2020	10:26	1	141	B	135	135	19035
VP1_11_E_046	GP	10/11/2020	10:22	1	3	A	30	0	0
VP1_11_M_047B	GP	18/11/2020	10:47	1	226	B	15	15	3390
VP1_11_M_047A	GP	18/11/2020	10:47	1	226	A	15	0	0
VP1_11_M_048	GP	18/11/2020	10:58	1	280	B	315	315	88200
VP1_11_M_049	GP	18/11/2020	11:03	1	280	A	60	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_11_M_050	GP	18/11/2020	11:36	1	29	B	15	15	435
VP1_11_M_051	GP	18/11/2020	13:07	1	260	B	75	75	19500
VP1_11_M_052D	GP	19/11/2020	11:40	1	12	B	75	75	900
VP1_11_M_052C	GP	19/11/2020	11:40	1	12	A	15	0	0
VP1_11_M_052B	GP	19/11/2020	11:39	1	12	B	30	30	360
VP1_11_M_052A	GP	19/11/2020	11:36	1	12	C	210	210	2520
VP1_11_M_052G	GP	19/11/2020	11:42	1	12	C	30	30	360
VP1_11_M_052F	GP	19/11/2020	11:42	1	12	B	45	45	540
VP1_11_M_052E	GP	19/11/2020	11:41	1	12	A	30	0	0
VP1_11_M_053C	GP	19/11/2020	12:56	1	26	C	300	300	7800
VP1_11_M_053B	GP	19/11/2020	12:55	1	26	B	75	75	1950
VP1_11_M_053A	GP	19/11/2020	12:55	1	26	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_12_E_054B	GP	01/12/2020	08:49	1	9	C	195	195	1755
VP1_12_E_054A	GP	01/12/2020	08:48	1	9	B	105	105	945
VP1_12_E_055B	GP	01/12/2020	08:55	1	89	D	60	60	5340
VP1_12_E_055A	GP	01/12/2020	08:53	1	89	C	120	120	10680
VP1_12_E_056C	GP	01/12/2020	09:01	1	114	D	60	60	6840
VP1_12_E_056B	GP	01/12/2020	08:59	1	114	C	120	120	13680
VP1_12_E_056A	GP	01/12/2020	08:56	1	114	D	210	210	23940
VP1_12_E_057	GP	01/12/2020	09:09	1	96	B	870	870	83520
VP1_12_E_058B	GP	01/12/2020	09:24	1	30	B	30	30	900
VP1_12_E_058A	GP	01/12/2020	09:24	1	30	A	45	0	0
VP1_12_E_059D	GP	01/12/2020	09:38	1	126	A	90	0	0
VP1_12_E_059C	GP	01/12/2020	09:37	1	126	B	90	90	11340

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_12_E_059B	GP	01/12/2020	09:36	1	126	A	60	0	0
VP1_12_E_059A	GP	01/12/2020	09:25	1	126	B	675	675	85050
VP1_12_E_060B	GP	01/12/2020	10:13	1	63	A	45	0	0
VP1_12_E_060A	GP	01/12/2020	10:12	1	63	B	60	60	3780
VP1_12_E_061	GP	02/12/2020	08:22	1	31	B	405	405	12555
VP1_12_E_062D	GP	02/12/2020	09:44	1	26	C	60	60	1560
VP1_12_E_062C	GP	02/12/2020	09:36	1	26	B	480	480	12480
VP1_12_E_062B	GP	02/12/2020	09:34	1	26	C	75	75	1950
VP1_12_E_062A	GP	02/12/2020	09:24	1	26	B	645	645	16770
VP1_12_M_063B	GP	07/12/2020	11:42	1	14	A	30	0	0
VP1_12_M_063A	GP	07/12/2020	11:42	1	14	B	30	30	420
VP1_12_M_064C	GP	07/12/2020	12:49	1	255	C	615	615	156825

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_12_M_064B	GP	07/12/2020	12:49	1	255	B	30	30	7650
VP1_12_M_064A	GP	07/12/2020	12:49	1	255	A	15	0	0
VP1_12_M_065A	GP	07/12/2020	13:03	1	17	B	240	240	4080
VP1_12_M_065B	GP	07/12/2020	13:07	1	17	A	60	0	0
VP1_12_M_066B	GP	07/12/2020	14:02	1	158	B	465	465	73470
VP1_12_M_066A	GP	07/12/2020	13:56	1	158	C	375	375	59250
VP2_10_E_069E	GP	12/10/2021	07:38	2	34	B	105	105	3570
VP2_10_E_069D	GP	12/10/2021	07:37	2	34	A	30	0	0
VP2_10_E_069B	GP	12/10/2021	07:35	2	34	C	135	135	4590
VP2_10_E_069C	GP	12/10/2021	07:35	2	34	B	15	15	510
VP2_10_E_069A	GP	12/10/2021	07:33	2	34	B	135	135	4590
VP2_10_E_070	GP	12/10/2020	07:46	2	34	B	60	60	2040

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_10_E_071B	GP	12/10/2020	07:56	2	57	C	165	165	9405
VP2_10_E_071A	GP	12/10/2020	07:55	2	57	B	60	60	3420
VP2_10_E_072C	GP	12/10/2020	08:19	2	2	B	120	120	240
VP2_10_E_072B	GP	12/10/2020	08:18	2	2	C	60	60	120
VP2_10_E_072A	GP	12/10/2020	08:18	2	2	B	30	30	60
VP2_11_M_073C	GP	04/11/2020	11:26	2	88	D	120	120	10560
VP2_11_M_073B	GP	04/11/2020	11:25	2	88	C	60	60	5280
VP2_11_M_073A	GP	04/11/2020	11:25	2	88	B	15	15	1320
VP2_11_M_074	GP	04/11/2020	11:48	2	78	D	465	465	36270
VP2_11_M_075F	GP	04/11/2020	13:14	2	25	B	135	135	3375
VP2_11_M_075E	GP	04/11/2020	13:11	2	25	C	180	180	4500
VP2_11_M_075D	GP	04/11/2020	13:10	2	25	B	75	75	1875

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_11_M_075C	GP	04/11/2020	13:09	2	25	A	30	0	0
VP2_11_M_075B	GP	04/11/2020	13:09	2	25	B	45	45	1125
VP2_11_M_075A	GP	04/11/2020	13:08	2	25	C	60	60	1500
VP2_11_M_076B	GP	04/11/2020	13:26	2	32	D	210	210	6720
VP2_11_M_076A	GP	04/11/2020	13:26	2	32	C	30	30	960
VP2_11_M_077C	GP	10/11/2020	12:40	2	322	D	30	30	9660
VP2_11_M_077B	GP	10/11/2020	12:36	2	322	C	240	240	77280
VP2_11_M_077A	GP	10/11/2020	12:36	2	322	B	45	45	14490
VP2_11_M_078	GP	10/11/2020	12:43	2	15	B	30	30	450
VP2_11_M_079	KT	10/11/2020	12:48	2	1	B	60	60	60
VP2_11_L_080B	Gp	18/11/2020	14:50	2	243	B	60	60	14580
VP2_11_L_080A	GP	18/11/2020	14:50	2	243	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_11_L_081	GP	18/11/2020	15:54	2	114	C	630	630	71820
VP2_11_E_082B	GP	19/11/2020	08:24	2	43	A	30	0	0
VP2_11_E_082A	GP	19/11/2020	08:24	2	43	B	45	45	1935
VP2_11_E_083B	GP	19/11/2020	08:26	2	20	A	15	0	0
VP2_11_E_083A	Gp	19/11/2020	08:26	2	20	B	30	30	600
VP2_11_E_084	GP	19/11/2020	08:45	2	63	A	30	0	0
VP2_11_E_085B	GP	19/11/2020	08:59	2	110	A	30	0	0
VP2_11_E_085A	GP	19/11/2020	08:58	2	110	B	60	60	6600
VP2_12_M_086B	GP	01/12/2020	12:06	2	18	B	120	120	2160
VP2_12_M_086A	GP	01/12/2020	12:06	2	18	C	15	15	270
VP2_12_M_087B	GP	01/12/2020	12:17	2	126	B	45	45	5670
VP2_12_M_087A	GP	01/12/2020	12:08	2	126	C	570	570	71820



Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_12_M_088B	KT	01/12/2020	13:37	2	1	B	120	120	120
VP2_12_M_088A	KT	01/12/2020	13:35	2	1	C	135	135	135
VP2_12_M_089	GP	02/12/2020	12:46	2	304	B	765	765	232560
VP2_12_E_090	GP	07/12/2020	08:36	2	27	C	510	510	13770
VP2_12_E_091	GP	07/12/2020	08:37	2	93	D	405	405	37665
VP2_12_E_092B	KT	07/12/2020	09:09	2	1	A	60	0	0
VP2_12_E_092A	KT	07/12/2021	09:09	2	1	B	45	45	45
VP1_11_E_045H	GP	10/11/2020	10:29	1	141	B	90	90	12690
VP1_10_E_029A	GP	14/10/2020	07:36	1	57	B	165	16	9405
VP1_01_E_093C	GP	12/01/2021	10:29	1	79	D	30	30	2370
VP1_01_E_093B	GP	12/01/2021	10:29	1	79	C	60	60	4740
VP1_01_E_093A	GP	12/01/2021	10:28	1	79	B	30	30	2370

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_01_E_094B	GP	12/01/2021	10:35	1	6	A	60	0	0
VP1_01_E_094A	GP	12/01/2021	10:35	1	6	B	30	30	180
VP1_01_E_095D	GP	12/01/2021	11:46	1	19	C	15	15	285
VP1_01_E_095C	GP	12/01/2021	11:44	1	19	B	120	120	2280
VP1_01_E_095B	GP	12/01/2021	11:43	1	19	A	30	0	0
VP1_01_E_095A	GP	12/01/2021	11:43	1	19	B	45	45	855
VP1_01_M_096A	KT	13/01/2021	12:24	1	2	A	151	0	0
VP1_01_M_096B	KT	13/01/2021	12:24	1	2	B	75	75	150
VP1_01_M_097	KT	13/01/2021	12:25	1	1	B	270	270	270
VP1_01_M_098D	GP	13/01/2021	13:49	1	14	A	15	0	0
VP1_01_M_098C	GP	13/01/2021	13:47	1	14	B	120	120	1680
VP1_01_M_098B	GP	13/01/2021	13:46	1	14	A	75	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_01_M_098A	GP	13/01/2021	13:46	1	14	B	30	30	420
VP1_01_M_099B	GP	13/01/2021	14:11	1	29	C	30	30	870
VP1_01_M_099A	GP	13/01/2021	14:11	1	29	B	30	30	870
VP1_01_M_100	GP	13/01/2021	14:13	1	29	B	135	135	3915
VP1_01_M_101B	GP	13/01/2021	14:34	1	29	A	45	0	0
VP1_01_M_101A	GP	13/01/2021	14:34	1	29	B	15	15	435
VP1_01_M_102C	GP	13/01/2021	14:40	1	97	A	30	0	0
VP1_01_M_102B	GP	13/01/2021	14:39	1	97	B	45	45	4365
VP1_01_M_102A	GP	13/01/2021	14:39	1	97	A	15	0	0
VP1_01_E_103B	GP	22/01/2021	09:10	1	12	B	315	315	3780
VP1_01_E_103A	GP	22/01/2021	09:10	1	12	A	15	0	0
VP1_01_E_103C	GP	22/01/2021	09:15	1	12	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_01_E_104B	GP	22/01/2021	10:19	1	31	A	15	0	0
VP1_01_E_104A	GP	22/01/2021	10:16	1	31	B	215	215	6665
VP1_01_E_105C	GP	22/01/2021	10:30	1	43	A	30	0	0
VP1_01_E_105B	GP	22/01/2021	10:21	1	43	B	555	555	23865
VP1_01_E_105A	GP	22/01/2021	10:21	1	43	A	15	0	0
VP1_01_E_106G	GP	22/01/2021	11:15	1	32	C	75	75	2400
VP1_01_E_106F	GP	22/01/2021	11:14	1	32	B	60	60	1920
VP1_01_E_106E	GP	22/01/2021	11:14	1	32	A	15	0	0
VP1_01_E_106D	GP	22/01/2021	11:13	1	32	B	60	60	1920
VP1_01_E_106C	GP	22/01/2021	11:12	1	32	C	45	45	1440
VP1_01_E_106B	GP	22/01/2021	11:11	1	32	B	75	75	2400
VP1_01_E_106A	GP	22/01/2021	11:11	1	32	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_01_E_107	GP	22/01/2021	11:32	1	49	C	210	210	10290
VP2_01_M_108B	HH	12/01/2021	14:04	2	1	B	90	90	90
VP2_01_M_108A	HH	12/01/2021	14:03	2	1	A	45	0	0
VP2_01_M_108C	HH	12/01/2021	14:05	2	1	A	15	0	0
VP2_01_M_109	KT	12/01/2021	14:23	2	1	B	90	90	90
VP2_01_M_110B	GP	12/01/2021	14:26	2	66	D	135	135	8910
VP2_01_M_110A	GP	12/01/2021	14:24	2	66	C	120	120	7920
VP2_01_M_111B	GP	12/01/2021	14:36	2	41	D	135	135	5535
VP2_01_M_111A	GP	12/01/2021	14:33	2	41	C	225	225	9225
VP2_01_M_112B	KT	12/01/2021	14:46	2	1	C	45	45	45
VP2_01_M_112A	KT	12/01/2021	14:43	2	1	B	180	180	180
VP2_01_M_113B	GP	12/01/2021	14:55	2	9	A	30	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_01_M_113A	GP	12/01/2021	14:55	2	9	B	45	45	405
VP2_01_E_114B	GP	13/01/2021	09:51	2	109	B	120	120	13080
VP2_01_E_114A	GP	13/01/2021	09:51	2	109	A	15	0	0
VP2_01_E_115B	GP	13/01/2021	10:00	2	19	B	30	30	570
VP2_01_E_115A	GP	13/01/2021	10:00	2	19	A	15	0	0
VP2_01_E_116	GP	13/01/2021	11:34	2	28	B	405	405	11340
VP2_01_E_117A	KT	22/01/2021	11:55	2	1	A	45	0	0
VP2_01_E_117D	KT	22/01/2021	11:56	2	1	B	45	45	45
VP2_01_E_117C	KT	22/01/2021	11:56	2	1	A	30	0	0
VP2_01_E_117B	KT	22/01/2021	11:55	2	1	B	30	30	30
VP2_01_E_118	KT	22/01/2021	12:10	2	1	B	60	60	60
VP2_01_E_119C	GP	22/01/2021	13:37	2	6	B	150	150	900

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_01_E_119B	GP	22/01/2021	13:36	2	6	A	30	0	0
VP2_01_E_119A	GP	22/01/2021	13:36	2	6	B	45	45	270
VP1_01_E_120C	GP	12/01/2021	11:51	1	9	A	15	0	0
VP1_01_E_120B	GP	12/01/2021	11:51	1	9	B	15	15	135
VP1_01_E_120A	GP	12/01/2021	11:51	1	9	A	30	0	0
VP1_02_E_121G	GP	17/02/2021	08:35	1	2	A	15	0	0
VP1_02_E_121F	GP	17/02/2021	08:35	1	2	B	30	30	60
VP1_02_E_121E	GP	17/02/2021	08:34	1	2	C	90	90	180
VP1_02_E_121D	GP	17/02/2021	08:33	1	2	B	75	75	150
VP1_02_E_121C	GP	17/02/2021	08:32	1	2	A	30	0	0
VP1_02_E_121B	GP	17/02/2021	08:32	1	2	B	15	15	30
VP1_02_E_121A	GP	17/02/2021	08:32	1	2	C	15	15	30

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_02_E_122B	GP	17/02/2021	09:05	1	1	A	30	0	0
VP1_02_E_122A	GP	17/02/2021	09:04	1	1	B	105	105	105
VP1_02_E_122D	GP	17/02/2021	09:07	1	1	A	15	0	0
VP1_02_E_122C	GP	17/02/2021	09:06	1	1	B	90	90	90
VP1_02_E_123B	ML	17/02/2021	09:21	1	1	A	15	0	0
VP1_02_E_123A	ML	17/02/2021	09:20	1	1	B	60	60	60
VP1_02_E_124	GP	17/02/2021	09:55	1	2	A	30	0	0
VP1_02_E_125	PE	17/02/2021	10:23	1	1	B	45	45	45
VP2_02_M_126	GI	17/02/2021	13:02	2	1	A	75	0	0
VP1_02_M_127	KT	22/02/2021	11:07	1	1	B	15	15	15
VP1_02_M_128	KT	22/02/2021	11:29	1	3	D	210	210	630
VP1_02_M_129	KT	22/02/2021	11:34	1	1	D	90	90	90



Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_02_M_130	KT	22/02/2021	11:34	1	1	D	45	45	45
VP1_02_M_131	KT	22/02/2021	11:34	1	1	D	30	30	30
VP1_02_M_132B	KT	22/02/2021	11:57	1	1	C	30	30	30
VP1_02_M_132A	KT	22/02/2021	11:55	1	1	D	150	150	150
VP1_02_M_133B	KT	22/02/2021	12:04	1	3	C	30	30	90
VP1_02_M_133A	KT	22/02/2021	11:59	1	3	D	345	345	1035
VP1_02_M_134	KT	22/02/2021	12:05	1	2	C	150	150	300
VP1_02_M_135	KT	22/02/2021	12:05	1	1	C	45	45	45
VP1_02_M_136	GI	22/02/2021	12:09	1	1	A	15	0	15
VP1_02_M_137B	GP	22/02/2021	12:11	1	1	A	30	0	0
VP1_02_M_137A	GP	22/02/2021	12:11	1	1	B	45	45	45
VP1_02_M_138B	KT	22/02/2021	12:16	1	2	C	75	75	150

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_02_M_138A	KT	22/02/2021	12:15	1	2	B	90	90	180
VP1_02_M_139A	HH	22/02/2021	12:18	1	1	B	75	75	75
VP1_02_M_139C	HH	22/02/2021	12:19	1	1	B	45	45	45
VP1_02_M_139B	HH	22/02/2021	12:19	1	1	C	30	30	30
VP1_02_M_140	HH	22/02/2021	13:01	1	1	A	30	0	0
VP1_02_M_141C	KT	22/02/2021	13:25	1	1	A	15	0	0
VP1_02_M_141B	KT	22/02/2021	13:23	1	1	B	75	75	75
VP1_02_M_141A	KT	22/02/2021	13:23	1	1	A	60	0	0
VP1_02_M_142	KT	22/02/2021	13:42	1	1	A	15	0	0
VP2_02_E_143A	GP	22/02/2021	10:25	2	15	B	480	480	7200
VP2_02_E_143C	GP	22/02/2021	10:35	2	15	B	30	30	450
VP2_02_E_143B	GP	22/02/2021	10:33	2	15	C	150	150	2250

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP1_02_M_144	GP	25/02/2021	14:15	1	121	A	15	0	0
VP2_02_E_145D	KT	25/02/2021	10:06	2	2	C	45	45	90
VP2_02_E_145C	KT	25/02/2021	10:05	2	2	D	60	60	120
VP2_02_E_145B	KT	25/02/2021	10:01	2	2	C	255	255	510
VP2_02_E_145A	KT	25/02/2021	10:00	2	2	B	60	60	120
VP2_02_E_146	KT	25/02/2021	10:07	2	1	C	60	60	60
VP2_02_E_147	KT	25/02/2021	10:07	2	1	C	60	60	60
VP2_02_E_148	HH	25/02/2021	10:25	2	1	A	30	0	0
VP2_02_E_149B	GI	25/02/2021	11:05	2	1	C	270	270	270

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5m and 155m)	Total Flight time (i.e. number of birds x time at risk height)
VP2_02_E_149A	GI	25/02/2021	11:04	2	1	B	75	75	75
VP2_02_E_150	KT	25/02/2021	11:06	2	1	C	60	60	60
VP2_02_E_151C	HH	25/02/2021	11:49	2	1	C	450	450	450
VP2_02_E_151B	HH	25/02/2021	11:48	2	1	B	45	45	45
VP2_02_E_151A	HH	25/02/2021	11:48	2	1	A	15	0	0
VP2_02_E_152	PE	25/02/2021	11:51	2	1	C	90	90	90

**Table F3 Breeding season 2020 (March 2020 – August 2020) - Target Species Flight data**

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0001	KT	16/06/2021	07:50	1	1	B	60	60	60
GL_VP1_0002	KT	16/06/2021	08:00	1	1	B	30	30	30
GL_VP1_0003A	KT	16/06/2021	09:35	1	1	B	15	60	60
GL_VP1_0003B	KT	16/06/2021	09:35	1	1	C	30	60	60
GL_VP1_0003C	KT	16/06/2021	09:35	1	1	B	15	60	60
GL_VP1_0004A	KT	16/06/2021	11:01	1	1	B	15	15	15
GL_VP1_0004B	KT	16/06/2021	11:01	1	1	C	30	30	30
GL_VP1_0004C	KT	16/06/2021	11:01	1	1	D	30	0	0
GL_VP1_0004D	KT	16/06/2021	11:02	1	1	B	15	15	15
GL_VP1_0004E	KT	16/06/2021	11:02	1	1	C	15	15	15
GL_VP1_0005	KT	16/06/2021	11:20	1	1	B	30	30	30
GL_VP2_0006A	KT	10/08/2021	10:03	2	1	B	30	30	30

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0006B	KT	10/08/2021	10:03	2	1	A	30	0	0
GL_VP1_0007	GI	17/08/2021	09:05	1	1	A	15	0	0
GL_VP1_0008A	KT	15/07/2021	12:56	1	1	D	60	0	0
GL_VP1_0008B	KT	15/07/2021	12:57	1	1	C	60	60	60
GL_VP1_0008C	KT	15/07/2021	12:58	1	1	B	45	45	45
GL_VP1_0009A	PE	15/07/2021	13:09	1	1	D	45	0	0
GL_VP1_0009B	PE	15/07/2021	13:09	1	1	C	45	45	45
GL_VP1_0113	KT	17/03/2021	12:05	1	1	B	135	135	135
GL_VP2_0114A	GP	17/03/2021	16:25	2	13	B	135	135	1215
GL_VP2_0114B	GP	17/03/2021	16:27	2	13	C	75	75	975
GL_VP2_0114C	GP	17/03/2021	16:28	2	13	B	15	15	195
GL_VP2_0114D	GP	17/03/2021	16:28	2	13	A	75	0	0
GL_VP2_0114E	GP	17/03/2021	16:30	2	13	B	30	30	390

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0114F	GP	17/03/2021	16:30	2	13	A	15	0	0
GL_VP1_0115	KT	24/05/2021	16:36	1	2	A	30	0	0

**Table F4 Non-breeding season (September 2020 – February 2021) – Target Species Flight data**

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0010	GP	14/09/2021	10:13	2	1	B	45	45	45
GL_VP1_0011	GP	14/09/2021	12:41	1	1	B	45	45	45
GL_VP2_0012A	GP	05/10/2021	10:21	2	85	B	210	210	17850
GL_VP2_0012B	GP	05/10/2021	10:24	2	85	A	15	0	0
GL_VP2_0013A	KT	05/10/2021	12:12	2	1	B	75	75	75
GL_VP2_0013B	KT	05/10/2021	12:13	2	1	A	30	0	0
GL_VP2_0014A	GP	05/10/2021	16:08	2	34	B	180	180	6120

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0014B	GP	05/10/2021	16:11	2	34	A	45	0	0
GL_VP1_0015A	KT	06/10/2021	11:24	1	1	B	60	60	60
GL_VP1_0015B	KT	06/10/2021	11:25	1	1	C	45	45	45
GL_VP1_0015C	KT	06/10/2021	11:25	1	1	B	30	30	30
GL_VP1_0015D	KT	06/10/2021	11:26	1	1	A	15	0	0
GL_VP1_0016A	GP	06/10/2021	11:39	1	2	B	30	30	60
GL_VP1_0016B	GP	06/10/2021	11:39	1	2	A	15	0	0
GL_VP1_0017A	GP	06/10/2021	12:04	1	41	B	45	45	1845
GL_VP1_0017B	GP	06/10/2021	12:04	1	41	C	75	75	3075
GL_VP1_0017C	GP	06/10/2021	12:06	1	41	B	30	30	1230
GL_VP1_0017D	GP	06/10/2021	12:07	1	41	C	60	60	2460
GL_VP1_0017E	GP	06/10/2021	12:08	1	41	D	30	30	1230
GL_VP1_0018	GP	06/10/2021	12:12	1	16	D	105	105	1680



Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0019	GP	06/10/2021	12:13	1	19	D	60	60	1140
GL_VP1_0020A	GP	06/10/2021	12:20	1	17	B	45	45	765
GL_VP1_0020B	GP	06/10/2021	12:20	1	17	A	15	0	0
GL_VP1_0021A	GI	06/10/2021	12:39	1	1	C	30	30	30
GL_VP1_0021B	GI	06/10/2021	12:39	1	1	D	150	150	150
GL_VP1_0022A	GI	06/10/2021	12:39	1	1	C	30	30	30
GL_VP1_0022B	GI	06/10/2021	12:39	1	1	D	30	30	30
GL_VP1_0023	GI	06/10/2021	12:42	1	2	D	75	75	150
GL_VP1_0024A	GI	06/10/2021	13:17	1	1	C	90	90	90
GL_VP1_0024B	GI	06/10/2021	13:18	1	1	D	270	270	270
GL_VP1_0024C	GI	06/10/2021	13:23	1	1	C	15	15	15
GL_VP1_0024D	GI	06/10/2021	13:23	1	1	B	15	15	15
GL_VP1_0024E	GI	06/10/2021	13:23	1	1	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0025A	GP	03/11/2021	9:34	2	8	A	45	0	0
GL_VP2_0025B	GP	03/11/2021	9:34	2	8	B	45	45	360
GL_VP2_0025C	GP	03/11/2021	9:35	2	8	A	15	0	0
GL_VP2_0026A	GP	03/11/2021	9:54	2	60	C	15	15	900
GL_VP2_0026B	GP	03/11/2021	9:54	2	60	D	15	15	900
GL_VP2_0027A	GP	03/11/2021	9:54	2	1	A	15	0	0
GL_VP2_0027B	GP	03/11/2021	9:54	2	1	B	45	45	45
GL_VP2_0027C	GP	03/11/2021	9:55	2	1	C	15	15	15
GL_VP2_0027D	GP	03/11/2021	9:55	2	1	D	15	15	15
GL_VP2_0028A	GP	03/11/2021	10:28	2	24	D	30	30	720
GL_VP2_0028B	GP	03/11/2021	10:28	2	24	C	120	120	2880
GL_VP2_0028C	GP	03/11/2021	10:30	2	24	B	45	45	1080
GL_VP2_0028D	GP	03/11/2021	10:31	2	24	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0029A	GP	03/11/2021	10:35	2	210	B	30	30	6300
GL_VP2_0029B	GP	03/11/2021	10:35	2	210	C	225	225	47250
GL_VP2_0029C	GP	03/11/2021	10:39	2	210	B	30	30	6300
GL_VP2_0030	GP	03/11/2021	10:40	2	140	A	15	0	0
GL_VP2_0029D	GP	03/11/2021	10:39	2	210	A	15	0	0
GL_VP2_0031A	GP	03/11/2021	10:41	2	73	B	165	165	12045
GL_VP2_0031B	GP	03/11/2021	10:43	2	73	A	15	0	0
GL_VP2_0032A	GP	03/11/2021	10:45	2	310	A	15	0	0
GL_VP2_0032B	GP	03/11/2021	10:45	2	310	B	15	15	4650
GL_VP2_0032C	GP	03/11/2021	10:45	2	310	C	15	15	4650
GL_VP2_0032D	GP	03/11/2021	10:45	2	310	D	45	45	13950
GL_VP2_0032E	GP	03/11/2021	10:46	2	310	C	645	645	199950
GL_VP2_0033A	GP	03/11/2021	11:09	2	180	C	45	45	8100

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0033B	GP	03/11/2021	11:09	2	180	D	195	195	35100
GL_VP2_0033C	GP	03/11/2021	11:13	2	180	C	75	75	13500
GL_VP2_0033D	GP	03/11/2021	11:14	2	180	D	60	60	10800
GL_VP2_0033E	GP	03/11/2021	11:15	2	180	C	210	210	37800
GL_VP2_0033F	GP	03/11/2021	11:18	2	180	D	245	245	44100
GL_VP2_0034A	GP	03/11/2021	11:24	2	240	D	135	135	32400
GL_VP2_0034B	GP	03/11/2021	11:26	2	240	C	45	45	10800
GL_VP2_0034C	GP	03/11/2021	11:27	2	240	B	105	105	25200
GL_VP2_0034D	GP	03/11/2021	11:28	2	240	C	30	30	7200
GL_VP2_0034E	GP	03/11/2021	11:29	2	240	D	75	75	18000
GL_VP2_0034F	GP	03/11/2021	11:30	2	240	C	30	30	7200
GL_VP2_0034G	GP	03/11/2021	11:31	2	240	B	90	90	21600
GL_VP2_0034H	GP	03/11/2021	11:32	2	240	C	30	30	7200

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0034I	GP	03/11/2021	11:32	2	240	D	390	390	93600
GL_VP1_0035A	GP	03/11/2021	11:41	1	187	C	165	165	29700
GL_VP1_0035B	GP	03/11/2021	11:43	1	187	B	15	15	2805
GL_VP1_0035C	GP	03/11/2021	11:43	1	187	A	15	0	0
GL_VP1_0035D	GP	03/11/2021	11:44	1	187	B	30	30	5610
GL_VP1_0035E	GP	03/11/2021	11:44	1	187	C	90	90	16830
GL_VP1_0035F	GP	03/11/2021	11:46	1	187	D	150	150	28050
GL_VP1_0035G	GP	03/11/2021	11:48	1	187	C	165	165	29700
GL_VP1_0035H	GP	03/11/2021	11:51	1	187	D	105	105	19635
GL_VP1_0036A	GP	03/11/2021	11:57	1	145	C	120	120	17400
GL_VP1_0036B	GP	03/11/2021	11:59	1	145	B	30	30	4350
GL_VP1_0036C	GP	03/11/2021	11:59	1	145	C	45	45	6525
GL_VP1_0036D	GP	03/11/2021	12:00	1	145	D	75	75	10875

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0037A	GP	03/11/2021	12:00	1	41	B	75	75	3075
GL_VP1_0037B	GP	03/11/2021	12:01	1	41	A	15	0	0
GL_VP1_0038A	GP	03/11/2021	12:11	1	4	C	15	15	60
GL_VP1_0038B	GP	03/11/2021	12:11	1	4	B	15	15	60
GL_VP1_0038C	GP	03/11/2021	12:11	1	4	C	15	15	60
GL_VP1_0039A	GP	03/11/2021	12:12	1	130	D	30	30	3900
GL_VP1_0039B	GP	03/11/2021	12:12	1	130	C	15	15	1950
GL_VP1_0039C	GP	03/11/2021	12:12	1	130	D	90	90	11700
GL_VP1_0039D	GP	03/11/2021	12:14	1	130	C	75	75	9750
GL_VP1_0039E	GP	03/11/2021	12:15	1	130	B	75	75	9750
GL_VP1_0039F	GP	03/11/2021	12:16	1	130	C	45	45	5850
GL_VP1_0039G	GP	03/11/2021	12:17	1	130	B	60	60	7800
GL_VP1_0039H	GP	03/11/2021	12:18	1	130	C	45	45	5850

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0039I	GP	03/11/2021	12:19	1	130	D	315	315	40950
GL_VP1_0040A	GP	03/11/2021	12:26	1	129	C	30	30	3870
GL_VP1_0040B	GP	03/11/2021	12:26	1	129	B	45	45	5805
GL_VP1_0040C	GP	03/11/2021	12:27	1	129	A	15	0	0
GL_VP1_0040D	GP	03/11/2021	12:27	1	129	B	30	30	3870
GL_VP1_0040E	GP	03/11/2021	12:28	1	129	C	30	30	3870
GL_VP1_0040F	GP	03/11/2021	12:28	1	129	B	75	75	9675
GL_VP1_0040G	GP	03/11/2021	12:29	1	129	C	45	45	5805
GL_VP1_0040H	GP	03/11/2021	12:30	1	129	B	15	15	1935
GL_VP1_0041	GP	03/11/2021	12:32	1	30	A	30	0	0
GL_VP1_0042A	GP	03/11/2021	12:32	1	159	B	45	45	7155
GL_VP1_0042B	GP	03/11/2021	12:32	1	159	A	15	0	0
GL_VP1_0043A	GP	03/11/2021	12:41	1	3	C	30	30	90

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0043B	GP	03/11/2021	12:41	1	3	B	30	30	90
GL_VP1_0043C	GP	03/11/2021	12:42	1	3	A	15	0	0
GL_VP1_0044A	GP	03/11/2021	12:43	1	176	B	75	75	13200
GL_VP1_0044B	GP	03/11/2021	12:44	1	176	A	15	0	0
GL_VP1_0044C	GP	03/11/2021	12:44	1	176	B	30	30	5280
GL_VP1_0044D	GP	03/11/2021	12:45	1	176	C	45	45	7920
GL_VP1_0044E	GP	03/11/2021	12:45	1	176	B	75	75	13200
GL_VP1_0044F	GP	03/11/2021	12:47	1	176	A	45	0	0
GL_VP1_0045A	GP	03/11/2021	13:36	1	2	C	75	75	150
GL_VP1_0045B	GP	03/11/2021	13:37	1	2	D	15	15	30
GL_VP1_0046A	GP	03/11/2021	13:43	1	4	B	75	75	300
GL_VP1_0046B	GP	03/11/2021	13:44	1	4	A	15	0	0
GL_VP1_0047A	GP	03/11/2021	14:23	1	24	B	105	105	2520



Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0047B	GP	03/11/2021	14:24	1	24	A	15	0	0
GL_VP1_0048A	GP	16/11/2021	9:39	1	43	C	30	30	1290
GL_VP1_0048B	GP	16/11/2021	9:39	1	43	D	15	15	645
GL_VP1_0049	GP	16/11/2021	10:07	1	24	B	225	225	5400
GL_VP1_0050	GP	16/11/2021	10:09	1	8	B	45	45	360
GL_VP1_0051	GP	16/11/2021	10:10	1	32	B	30	30	960
GL_VP1_0052A	GP	16/11/2021	10:13	1	32	C	15	15	480
GL_VP1_0052B	GP	16/11/2021	10:13	1	32	D	105	105	3360
GL_VP1_0052C	GP	16/11/2021	10:15	1	32	C	30	30	960
GL_VP1_0052D	GP	16/11/2021	10:15	1	32	D	30	30	960
GL_VP1_0052E	GP	16/11/2021	10:16	1	32	C	15	15	480
GL_VP1_0052F	GP	16/11/2021	10:16	1	32	B	105	105	3360
GL_VP1_0052G	GP	16/11/2021	10:18	1	32	C	45	45	1440

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0052H	GP	16/11/2021	10:18	1	32	D	15	15	480
GL_VP1_0052I	GP	16/11/2021	10:19	1	32	C	15	15	480
GL_VP1_0053A	GP	16/11/2021	10:24	1	17	B	105	105	1785
GL_VP1_0053B	GP	16/11/2021	10:25	1	17	A	45	0	0
GL_VP1_0053C	GP	16/11/2021	10:26	1	17	B	15	15	255
GL_VP1_0053D	GP	16/11/2021	10:26	1	17	C	30	30	510
GL_VP1_0053E	GP	16/11/2021	10:27	1	17	B	15	15	255
GL_VP1_0053F	GP	16/11/2021	10:27	1	17	C	15	15	255
GL_VP1_0054	GP	16/11/2021	10:27	1	32	C	45	45	1440
GL_VP1_0055B	GP	16/11/2021	10:31	1	49	B	45	45	2205
GL_VP1_0055C	GP	16/11/2021	10:32	1	49	A	15	0	0
GL_VP1_0055A	GP	16/11/2021	10:28	1	49	C	225	225	11025
GL_VP1_0056A	GP	16/11/2021	10:32	1	51	A	15	0	0

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0056B	GP	16/11/2021	10:32	1	51	B	90	90	4590
GL_VP1_0056C	GP	16/11/2021	10:33	1	51	C	195	195	9945
GL_VP1_0056D	GP	16/11/2021	10:36	1	51	D	30	30	1530
GL_VP1_0057	GP	16/11/2021	11:06	1	2	A	45	0	0
GL_VP1_0058A	GP	16/11/2021	11:12	1	3	B	60	60	180
GL_VP1_0058B	GP	16/11/2021	11:13	1	3	A	15	0	0
GL_VP1_0059	GP	16/11/2021	11:32	1	25	C	45	45	1125
GL_VP1_0060	GP	16/11/2021	11:35	1	29	C	105	105	3045
GL_VP1_0061A	GP	16/11/2021	11:52	1	31	B	45	45	1395
GL_VP1_0061B	GP	16/11/2021	11:52	1	31	C	105	105	3255
GL_VP1_0061C	GP	16/11/2021	11:54	1	31	D	30	30	930
GL_VP1_0061D	GP	16/11/2021	15:55	1	31	C	60	60	1860
GL_VP1_0061E	GP	16/11/2021	11:56	1	31	D	30	30	930

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0062A	GP	16/11/2021	11:57	1	54	C	45	45	2430
GL_VP1_0062B	GP	16/11/2021	11:57	1	54	B	15	15	810
GL_VP1_0062C	GP	16/11/2021	11:58	1	54	C	210	210	11340
GL_VP1_0062D	GP	16/11/2021	12:01	1	54	D	15	15	810
GL_VP2_0063	GP	16/11/2021	12:12	2	13	B	45	45	585
GL_VP2_0064	GP	16/11/2021	12:37	2	15	A	75	0	0
GL_VP2_0065	GP	16/11/2021	13:19	2	2	A	30	0	0
GL_VP1_0066	KT	05/01/2022	11:17	1	1	A	150	0	0
GL_VP1_0067A	GP	05/01/2022	12:58	1	50	C	210	210	10500
GL_VP1_0067B	GP	05/01/2022	13:01	1	50	D	60	60	3000
GL_VP2_0068A	GP	05/01/2022	13:33	2	87	C	90	90	7830
GL_VP2_0068B	GP	05/01/2022	13:34	2	87	D	90	90	7830
GL_VP2_0068C	GP	05/01/2022	13:36	2	87	C	30	30	2610

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0068D	GP	05/01/2022	13:36	2	87	D	30	30	2610
GL_VP2_0068E	GP	05/01/2022	13:37	2	87	C	30	30	2610
GL_VP2_0068F	GP	05/01/2022	13:37	2	87	B	45	45	3915
GL_VP2_0068G	GP	05/01/2022	10:33	2	87	A	45	0	0
GL_VP2_0069A	KT	25/01/2022	10:34	2	1	B	90	90	90
GL_VP2_0069B	KT	25/01/2022	10:36	2	1	C	120	120	120
GL_VP2_0069C	KT	25/01/2022	10:48	2	1	B	105	105	105
GL_VP2_0070	GP	25/01/2022	10:52	2	39	C	45	45	1755
GL_VP2_0071A	GP	25/01/2022	10:53	2	49	B	105	105	5145
GL_VP2_0071B	GP	25/01/2022	10:55	2	49	C	75	75	3675
GL_VP2_0071C	GP	25/01/2022	10:56	2	49	B	90	90	4410
GL_VP2_0071D	GP	25/01/2022	10:57	2	49	C	60	60	2940
GL_VP2_0071E	GP	25/01/2022	10:59	2	49	B	105	105	5145

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0071F	GP	25/01/2022	11:08	2	49	C	30	30	1470
GL_VP2_0072A	GP	25/01/2022	11:08	2	44	B	30	30	1320
GL_VP2_0072B	GP	25/01/2022	11:08	2	44	A	15	0	0
GL_VP2_0072C	GP	25/01/2022	11:10	2	44	B	30	30	1320
GL_VP2_0072F	GP	25/01/2022	11:11	2	44	C	75	75	3300
GL_VP2_0072G	GP	25/01/2022	11:12	2	44	B	60	60	2640
GL_VP2_0072H	GP	25/01/2022	11:09	2	44	A	15	0	0
GL_VP2_0072D	GP	25/01/2022	11:09	2	44	A	15	0	0
GL_VP2_0072E	GP	25/01/2022	11:42	2	44	B	60	60	2640
GL_VP2_0073A	GP	25/01/2022	11:44	2	37	B	120	120	4400
GL_VP2_0073B	GP	25/01/2022	11:44	2	37	A	60	0	0
GL_VP2_0073C	GP	25/01/2022	11:45	2	37	B	45	45	1665
GL_VP2_0073D	GP	25/01/2022	13:04	2	37	C	15	15	555

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0075A	GP	25/01/2022	13:05	1	24	B	105	105	2520
GL_VP1_0075B	GP	25/01/2022	12:46	1	24	A	15	0	0
GL_VP1_0074A	GP	25/01/2022	12:48	1	28	B	120	120	3360
GL_VP1_0074B	GP	25/01/2022	12:49	1	28	C	75	75	2100
GL_VP1_0074C	GP	25/01/2022	12:50	1	28	B	45	45	1260
GL_VP1_0074D	GP	25/01/2022	12:50	1	28	C	45	45	1260
GL_VP1_0074E	GP	25/01/2022	12:51	1	28	B	15	15	420
GL_VP1_0074F	GP	25/01/2022	12:52	1	28	C	60	60	1680
GL_VP1_0074G	GP	25/01/2022	12:53	1	28	B	75	75	2100
GL_VP1_0074H	GP	25/01/2022	12:55	1	28	C	105	105	2940
GL_VP1_0074I	GP	25/01/2022	12:57	1	28	B	120	120	3360
GL_VP1_0074J	GP	25/01/2022	13:40	1	28	A	30	0	0
GL_VP1_0076A	GP	25/01/2022	13:43	1	59	B	180	180	10620

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0076B	GP	25/01/2022	13:43	1	59	C	30	30	1770
GL_VP1_0076C	GP	25/01/2022	14:17	1	59	B	60	60	3540
GL_VP1_0077A	GP	25/01/2022	14:20	1	65	D	180	180	11700
GL_VP1_0077B	GP	25/01/2022	14:21	1	65	C	105	105	6825
GL_VP1_0077C	GP	25/01/2022	9:56	1	65	D	120	120	7800
GL_VP1_0078A	GP	26/01/2022	9:56	1	7	C	30	30	210
GL_VP1_0078B	GP	26/01/2022	9:56	1	7	D	15	15	105
GL_VP1_0078C	GP	26/01/2022	9:57	1	7	C	15	15	95
GL_VP1_0078D	GP	26/01/2022	9:57	1	7	B	15	15	95
GL_VP1_0078E	GP	26/01/2022	9:57	1	7	A	15	0	0
GL_VP1_0078F	GP	26/01/2022	9:58	1	7	B	45	45	305
GL_VP1_0078G	GP	26/01/2022	10:01	1	7	A	15	0	0
GL_VP1_0079	GP	26/01/2022	10:27	1	7	A	60	0	0



Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0081	PE	26/01/2022	10:20	1	1	B	45	45	45
GL_VP1_0080A	GP	26/01/2022	10:21	1	48	B	75	75	3600
GL_VP1_0080B	GP	26/01/2022	10:22	1	48	C	60	60	2880
GL_VP1_0080C	GP	26/01/2022	10:23	1	48	B	30	30	1440
GL_VP1_0080D	GP	26/01/2022	10:24	1	48	C	135	135	6480
GL_VP1_0080E	GP	26/01/2022	10:45	1	48	D	135	135	6480
GL_VP1_0082A	GP	26/01/2022	10:46	1	18	B	75	75	1350
GL_VP1_0082B	GP	26/01/2022	10:47	1	18	C	60	60	1080
GL_VP1_0082C	GP	26/01/2022	10:48	1	18	B	60	60	1080
GL_VP1_0082D	GP	26/01/2022	11:16	1	18	A	30	0	0
GL_VP1_0083	KT	26/01/2022	11:21	1	1	A	30	0	0
GL_VP1_0084A	GP	26/01/2022	11:21	1	37	A	30	0	0
GL_VP1_0084B	GP	26/01/2022	11:22	1	37	B	45	45	1665

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0084C	GP	26/01/2022	11:23	1	37	C	90	90	3300
GL_VP1_0084D	GP	26/01/2022	11:34	1	37	D	90	90	3330
GL_VP2_0085A	GP	26/01/2022	11:38	2	76	D	270	270	20520
GL_VP2_0085B	GP	26/01/2022	11:39	2	76	C	60	60	4560
GL_VP2_0085C	GP	26/01/2022	11:40	2	76	B	45	45	3420
GL_VP2_0085D	GP	26/01/2022	11:46	2	76	C	30	30	2280
GL_VP2_0086A	GP	26/01/2022	11:47	2	53	B	75	75	3975
GL_VP2_0086B	GP	26/01/2022	11:48	2	53	C	90	90	4770
GL_VP2_0086C	GP	26/01/2022	11:48	2	53	B	15	15	795
GL_VP2_0087	GP	26/01/2022	11:48	2	9	B	15	15	135
GL_VP2_0088A	GP	26/01/2022	11:49	2	62	B	90	90	5580
GL_VP2_0088B	GP	26/01/2022	11:57	2	62	C	105	105	6510
GL_VP2_0089A	KT	26/01/2022	11:57	2	1	B	30	30	30

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0089B	KT	26/01/2022	9:21	2	1	A	15	0	0
GL_VP2_0090A	GP	27/01/2022	9:22	2	16	B	60	60	960
GL_VP2_0090B	GP	27/01/2022	9:22	2	16	C	45	45	720
GL_VP2_0090C	GP	27/01/2022	9:23	2	16	B	45	45	720
GL_VP2_0090D	GP	27/01/2022	9:44	2	16	C	15	15	240
GL_VP2_0091A	GP	27/01/2022	9:44	2	1	B	45	45	45
GL_VP2_0091B	GP	27/01/2022	10:41	2	1	A	45	0	0
GL_VP2_0092	GP	27/01/2022	10:49	2	6	C	45	45	270
GL_VP2_0093	GP	27/01/2022	11:05	2	17	C	60	60	1020
GL_VP2_0094	KT	27/01/2022	11:06	2	2	B	45	45	90
GL_VP2_0095A	KT	27/01/2022	11:07	2	1	B	60	60	60
GL_VP2_0095B	KT	27/01/2022	11:06	2	1	A	15	0	0
GL_VP2_0096A	KT	27/01/2022	11:07	2	1	B	75	75	75

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0096B	KT	27/01/2022	11:11	2	1	A	15	0	0
GL_VP2_0097A	KT	27/01/2022	11:11	2	1	B	45	45	45
GL_VP2_0097B	KT	27/01/2022	11:53	2	1	A	15	0	0
GL_VP2_0098A	GP	27/01/2022	11:54	2	7	B	60	60	420
GL_VP2_0098B	GP	27/01/2022	14:45	2	7	C	15	15	105
GL_VP2_0099A	KT	15/02/2022	14:45	2	1	B	30	30	30
GL_VP2_0099B	KT	15/02/2022	14:24	2	1	A	30	0	0
GL_VP1_0100A	GP	15/02/2022	14:24	1	2	B	15	15	30
GL_VP1_0100B	GP	15/02/2022	14:45	1	2	A	15	0	0
GL_VP1_0101A	KT	15/02/2022	14:45	1	1	B	30	30	30
GL_VP1_0101B	KT	15/02/2022	12:07	1	1	A	30	0	0
GL_VP2_0102	GP	09/03/2022	13:11	2	34	C	60	60	2040
GL_VP2_0103	GP	09/03/2022	14:06	2	43	C	45	45	1935

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP2_0104A	GP	09/03/2022	14:06	2	27	B	30	30	810
GL_VP2_0104B	GP	09/03/2022	14:09	2	27	C	60	60	1620
GL_VP2_0105	GP	09/03/2022	11:42	2	27	B	105	105	2835
GL_VP2_0106A	KT	15/03/2022	11:42	2	1	C	45	45	45
GL_VP2_0106B	KT	15/03/2022	11:43	2	1	B	30	30	30
GL_VP2_0106C	KT	15/03/2022	12:26	2	1	A	30	0	0
GL_VP2_0107A	GI	15/03/2022	12:26	2	1	B	45	45	45
GL_VP2_0107B	GI	15/03/2022	12:29	2	1	C	135	135	135
GL_VP2_0107C	GI	15/03/2022	12:32	2	1	D	210	210	210
GL_VP2_0107D	GI	15/03/2022	12:33	2	1	C	45	45	45
GL_VP2_0107E	GI	15/03/2022	12:34	2	1	B	30	30	30
GL_VP2_0107F	GI	15/03/2022	15:57	2	1	A	15	0	0
GL_VP1_0108A	GP	15/03/2022	15:57	1	5	B	30	30	150

Flight ID	Species	Date	Time	VP	Count	Height	Flight Time	Time at risk height (i.e. between 29.5 and 155m)	Total Flight time (i.e. number of birds x time at risk height)
GL_VP1_0108B	GP	15/03/2022	15:58	1	5	C	30	30	150
GL_VP1_0108C	GP	15/03/2022	11:52	1	5	D	15	15	75
GL_VP1_0109	GI	18/03/2022	11:55	1	1	A	75	0	0
GL_VP1_0110A	GI	18/03/2022	11:55	1	2	B	45	45	90
GL_VP1_0110B	GI	18/03/2022	11:57	1	2	C	75	75	150
GL_VP1_0110C	GI	18/03/2022	12:04	1	2	D	435	435	870
GL_VP1_0111A	GI	18/03/2022	12:05	1	1	C	45	45	45
GL_VP1_0111B	GI	18/03/2022	12:05	1	1	B	30	30	30
GL_VP1_0111C	GI	18/03/2022	12:18	1	1	A	15	0	0
GL_VP1_0112	KT	18/03/2022	12:18	1	1	B	75	75	75

