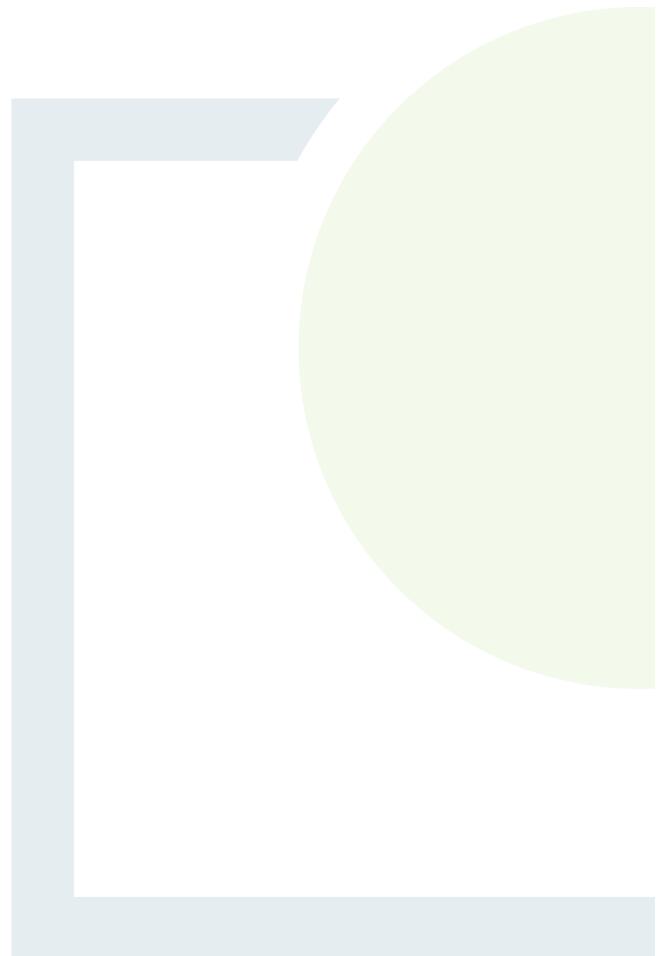




CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

APPENDIX 10.1

Ornithology Report



Coumnagappul Wind Farm Ornithology Report

April 2019 – September 2022



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1 INTRODUCTION

1.1 PROJECT BACKGROUND

This is the technical appendix to Chapter 10 (Ornithology) of the Counnagappul Wind Farm Environmental Impact Assessment Report (EIAR). This report provides further information on the various ornithological desk studies and surveys as summarised in Chapter 10 of the EIAR which were conducted over a 3.5-year period between April 2019 and September 2022.

The purpose of the ornithology surveys was to determine usage of the habitats within the study area (as defined in accordance with SNH Guidance¹) by breeding and non-breeding birds, with a particular focus on species of conservation concern and species that are potentially sensitive to wind farm development, and to provide baseline data to inform the EIAR. The surveys were focused on the potential wind turbine development area as originally defined by the Client in 2019, which was a larger potential development area than that which is now proposed.

The surveys were carried out over seven bird survey seasons as follows:

- Season 1 - Summer bird season of 2019,
- Season 2 – Winter season 2019/20,
- Season 3- Summer bird season of 2020,
- Season 4 - Winter season 2020/21,
- Season 5 – Summer season 2021,
- Season 6 – Winter season 2021/22,
- Season 7 – Summer season.

The summer bird survey season, as undertaken by MWP, commences on 1st April and ends on 30th September. The main focus of the summer bird surveys was to determine whether any target species were breeding at or in close proximity to the proposed Counnagappul Wind Farm site. The winter bird survey season, as undertaken by MWP, commences on 1st October and ends on 30th March. The main focus of the winter bird surveys was to determine if there were any target species over-wintering within the proposed development site and its surrounds, including the presence of overwintering migrant species.

The following terms are used throughout this report:

- Site – lands encompassed within the proposed Counnagappul Wind Farm development, as shown on Planning Drawings;
- Study Area(s) – as defined, appropriate to best practice ornithological survey methodologies (see Section 2.4).

¹ Scottish Natural Heritage (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms.

1.2 STATEMENT OF AUTHORITY

All surveys were completed by experienced surveyors following current best practice methods.

Monica Kane (MSc. BSc.), former Ecology Sector Manager and senior ecologist with Malachy Walsh and Partners (MWP), was the Project Manager for the Coumnaagappul Wind Farm Project from the beginning of the project in early 2019 until her departure from MWP in December 2021. Ken Fitzgerald, the current Ecology Sector Manager, has been overseeing the project in the intervening period. Bird surveys were designed and supervised by John N. Murphy, the Project Ornithologist, in conjunction with Monica Kane. John oversaw all bird surveys from the outset of the project in early 2019 up until his departure from MWP in March 2021. During that time John carried out surveys, managed all survey work and had some involvement in the reporting. Field surveyors were John N. Murphy, Eric Dempsey, Michael O’Clery, Austin Cooney, Éinne Ó Cathasaigh and Ger McGrath. This report has been prepared by Fiona McKenna (BSc.) an ecologist with MWP. Individual surveyor profiles outlining surveyor competencies, expertise and previous experience are included in **Appendix 1**.

1.3 SITE LOCATION

The proposed Coumnaagappul Wind Farm Project is located in Co. Waterford, approximately 14km north of Dungarven and approximately 35km west of Waterford city (See **Figure 1** below).

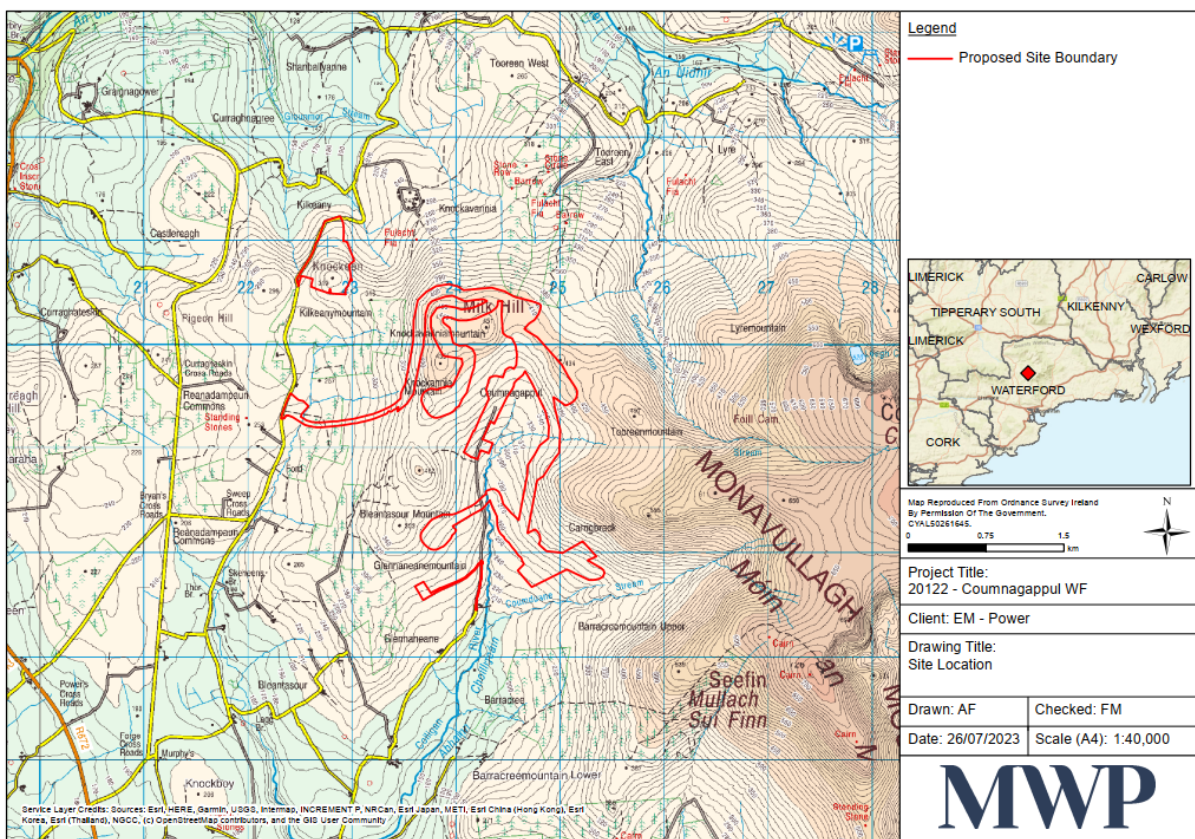


Figure 1. Proposed Coumnaagappul Wind Farm Location

2 METHODOLOGY

2.1 DESK-STUDY

A desk-top study was carried out prior to the commencement of the bird survey-work. This provided the opportunity to gain an understanding of bird populations using the area through an investigation of the habitats present and previous species records. Available ornithological data was reviewed including:

- Review of online resources: National Parks and Wildlife Service (NPWS), National Biodiversity Data Centre (NBDC), Irish Wetland Bird Survey I-WeBS,
- Review of Bird Atlases: (Sharrock, 1976; Lack, 1986; Gibbons *et al.*, 1993; Balmer *et al.*, 2013), Waterford Bird Atlas (http://www.waterfordbirds.com/atlas_specieslist.html)
- Review of Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert G, Stanbury A and Lewis L, 2021),
- General ornithological information (www.birdwatchireland.ie),
- Irish Bird Reports and the journal *Irish Birds*, published by BirdWatch Ireland.

Scottish Natural Heritage guidance were reviewed and formed the survey design of the project:

- Scottish Natural Heritage (June 2016, Version 3). Assessing Connectivity with Special Protection areas (SPAs);
- Scottish Natural Heritage (2017) Recommended bird survey methods to inform impact assessment of onshore wind farms.

2.1.1 Previous Species Records

The site lies within the 10km hectads S20 to the south and S21 to the north. For this area, the NBDC on-line mapping tool was used to generate an excel file of all bird species for which past records exist² on 8th February 2021. This list was then checked for species which are either of conservation concern³ and/or are afforded a higher level of legislative protection in an Irish or European context i.e., under the Wildlife Acts or the EU Birds Directive. The resulting species list was then checked against the 'Bird Atlas 2007-11: The breeding and wintering birds of Britain and Ireland' (Balmer *et al.*, 2013) and the 'Waterford Bird Atlas 2006-2013' to determine their breeding and wintering status within the area.

A review of the European Breeding Bird Atlas (EBBA2) was also carried out, but since the dataset for the Atlas is presented in 50km squares that cannot be further refined geographically, the range of data available was considered too extensive to be of relevance for this report and was therefore not included.

The following table (**Table 1**) outlines all species which have been previously recorded in the relevant 10km hectads S20 and S21. A review of Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert G, Stanbury A and Lewis L, 2021), was used to inform the Irish conservation status of each species and a review of European legislation was used to inform whether species are afforded a

² <https://maps.biodiversityireland.ie/Map>

³ Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert G, Stanbury A and Lewis L, 2021)

higher level of legislative protection in a European context, including their wintering and breeding status.

Table 1: Bird Atlas (2007-2011) status of species previously recorded in the 10km hectads S20 and S21 and status for Waterford County '06-13

May Species Common Name	Hectad	Winter Atlas '07-11	Breeding Atlas '07- 11	Waterford county '06-13	Conservation/Protection Status
Barn swallow (<i>Hirundo rustica</i>)	S20, S21	Absent	Confirmed	Absent	BoCCI Amber-listed/Wildlife Act 1976-2022
Blackcap (<i>Sylvia atricapilla</i>)	S20	Present	Probable	Probable	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Absent	Probable	Probable	
Black-headed gull (<i>Larus ridibundus</i>)	S20	Present	Absent	Absent	BoCCI Amber-listed/Wildlife Act 1976-2022
Blue tit (<i>Cyanistes caeruleus</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Chaffinch (<i>Fringilla coelebs</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Coal tit (<i>Periparus ater</i>)	S20, S21	Present	Confirmed	Possible	BoCCI Green-listed/Wildlife Act 1976-2022
Common Blackbird (<i>Turdus merula</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Common Bullfinch (<i>Pyrrhula pyrrhula</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Common Chiffchaff (<i>Phylloscopus collybita</i>)	S20, S21	Absent	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
Common Crossbill (<i>Loxia curvirostra</i>)	S20, S21	Absent	Absent	Possible	BoCCI Green-listed/ Wildlife Act 1976-2022
Common Cuckoo (<i>Cuculus canorus</i>)	S20	Absent	Probable	Probable	BoCCI Green-listed/ Wildlife Act 1976-2022
	S21	Absent	Possible	Possible	
Common Grasshopper warbler (<i>Locustella naevia</i>)	S20	Absent	Probable	Possible	BoCCI Amber-listed/ Wildlife Act 1976-2022
	S21	Absent	Possible	Probable	
Common Kestrel (<i>Falco tinnunculus</i>)	S20	Present	Confirmed	Possible	BoCCI Red-listed/Wildlife Act 1976-2022
	S21	Present	Possible	Confirmed	
Common Linnet (<i>Linaria cannabina</i>)	S20, S21	Present	Probable	Confirmed	BoCCI Amber-listed/ Wildlife Act 1976-2022
Common Moorhen (<i>Gallinula chloropus</i>)	S20	Absent	Possible	Possible	BoCCI Green-listed/ Wildlife Act 1976-2022
Common Pheasant (<i>Phasianus colchicus</i>)	S20	Present	Probable	Confirmed	BoCCI Green-listed/ Annex II & Annex III EU Birds Directive
	S21	Present	Confirmed	Confirmed	

May Species Common Name	Hectad	Winter Atlas '07-11	Breeding Atlas '07- 11	Waterford county '06-13	Conservation/Protection Status
Common Raven (<i>Corvus corax</i>)	S20	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
	S21	Present	Possible	Confirmed	
Common Snipe (<i>Gallinago gallinago</i>)	S20, S21	Present	Probable	Probable	BoCCI Red-listed/ Wildlife Act 1976-2022
Common Starling (<i>Sturnus vulgaris</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Amber-listed/ Wildlife Act 1976-2022
Common Swift (<i>Apus apus</i>)	S21	Absent	Absent	Possible	BoCCI Red-listed/ Wildlife Act 1976-2022
Common Whitethroat (<i>Sylvia communis</i>)	S20, S21	Absent	Possible	Probable	BoCCI Green-listed/ Wildlife Act 1976-2022
Common Wood pigeon (<i>Columba palumbus</i>)	S20	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Present	Probable	Confirmed	
Eurasian Collared dove (<i>Streptopelia decaocto</i>)	S20	Absent	Possible	Possible	BoCCI Green-listed/Wildlife Act 1976-2022
	S21			Possible	
Eurasian Curlew (<i>Numenius arquata</i>)	S20	Present	Absent	Absent	BoCCI Red-listed/Annex II EU Birds Directive
Eurasian Jackdaw (<i>Corvus monedula</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
Eurasian Jay (<i>Garrulus glandarius</i>)	S20	Present	Probable	Absent	BoCCI Green-listed / Wildlife Act 1976-2022
	S21	Present	Absent	Probable	
Eurasian Siskin (<i>Spinus spinus</i>)	S20, S21	Present	Probable	Probable	BoCCI Green-listed/Wildlife Act 1976-2022
Eurasian Sparrowhawk (<i>Accipiter nisus</i>)	S20	Present	Probable	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Present	Possible	Probable	
Eurasian Tree sparrow (<i>Passer montanus</i>)	S20	Present	Possible	Absent	BoCCI Amber-listed/Wildlife Act 1976-2022
	S21	Present	Confirmed	Absent	
Eurasian Woodcock (<i>Scolopax rusticola</i>)	S20		Probable	Probable	Red-listed/Annex II & III EU Birds Directive, BoCCI
	S21	Present	Probable	Probable	
European Golden plover (<i>Pluvialis apricaria</i>)	S20	Present	Absent	Absent	BoCCI Red-listed/Annex I, II & III EU Birds Directive,
European Goldfinch (<i>Carduelis carduelis</i>)	S20	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
	S21	Present	Probable	Probable	
	S20	Present	Probable	Confirmed	

May Species Common Name	Hectad	Winter Atlas '07-11	Breeding Atlas '07- 11	Waterford county '06-13	Conservation/Protection Status
European Greenfinch (<i>Chloris chloris</i>)	S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
European Robin (<i>Erithacus rubecula</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Fieldfare (<i>Turdus pilaris</i>)	S20, S21	Present	Absent	Absent	BoCCI Green-listed/Wildlife Act 1976-2022
Goldcrest (<i>Regulus regulus</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Amber-listed/Annex II EU Birds Directive,
Great black-backed gull (<i>Larus marinus</i>)	S20	Present	Absent	Absent	BoCCI Green-listed/ Wildlife Act 1976-2022
Great cormorant (<i>Phalacrocorax carbo</i>)	S20	Present	Absent	Absent	BoCCI Amber-listed/ Wildlife Act 1976-2022
Great tit (<i>Parus major</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Grey heron (<i>Ardea cinerea</i>)	S20	Present	Possible	Absent	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Absent	Possible	Possible	
Grey wagtail (<i>Motacilla cinerea</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Red-listed/ Wildlife Act 1976-2022
Hedge Accentor/dunnock (<i>Prunella modularis</i>)	S20	Present	Probable	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
	S21	Present	Confirmed	Confirmed	
Hawfinch (<i>Coccothraustes coccothraustes</i>)	S21	Present	Rare visitor	Absent	N/A
Hen harrier (<i>Circus cyaneus</i>)	S20	Present	Confirmed	Confirmed	BoCCI Amber-listed/Annex I EU Birds Directive
	S21	Present	Probable	Probable	
Herring gull (<i>Larus argentatus</i>)	S20	Present	Absent	Absent	BoCCI Amber-listed/ Wildlife Act 1976-2022
Hooded crow (<i>Corvus cornix</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
House martin (<i>Delichon urbicum</i>)	S20, S21	Present	Confirmed	Absent	BoCCI Amber-listed/Annex II & Annex III EU Birds Directive
House sparrow (<i>Passer domesticus</i>)	S20	Present	Confirmed	Confirmed	BoCCI Amber-listed/Annex II & Annex III EU Birds Directive
	S21	Absent	Possible	Possible	
Lesser redpoll (<i>Acanthis cabaret</i>)	S20, S21	Present	Probable	Probable	BoCCI Green-listed/ Wildlife Act 1976-2022
Little egret (<i>Egretta garzetta</i>)	S20	Absent	Possible	Absent	BoCCI Green-listed/Annex I EU Birds Directive
Long-eared owl (<i>Asio otus</i>)	S20	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022

May Species Common Name	Hectad	Winter Atlas '07-11	Breeding Atlas '07- 11	Waterford county '06-13	Conservation/Protection Status
Long-tailed tit (<i>Aegithalos caudatus</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Magpie (<i>Pica pica</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
Mallard (<i>Anas platyrhynchos</i>)	S20, S21	Absent	Probable	Confirmed	BoCCI Amber-listed/Annex II & III EU Birds Directive
Meadow pipit (<i>Anthus pratensis</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Red-listed/ Wildlife Act 1976-2022
Merlin (<i>Falco columbarius</i>)	S20	Absent	Possible	Absent	BoCCI Amber-listed/Annex I EU Birds Directive,
	S21	Present	Possible	Absent	
Mistle thrush (<i>Turdus viscivorus</i>)	S20	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
	S21	Present	Possible	Confirmed	
Northern lapwing (<i>Vanellus vanellus</i>)	S20	Present	Absent	Absent	BoCCI Red-listed/Annex II EU Birds Directive,
Northern Wheatear (<i>Oenanthe oenanthe</i>)	S20, S21	Absent	Confirmed	Confirmed	BoCCI Amber-listed/Annex II & III EU Birds Directive
Peregrine falcon (<i>Falco peregrinus</i>)	S20, S21	Present	Possible	Absent	BoCCI Green-listed/Annex I EU Birds Directive
Red grouse (<i>Lagopus lagopus</i>)	S20	Present	Absent	Absent	BoCCI Red-listed/ Annex II & Annex III EU Birds Directive
	S21	Absent	Confirmed	Confirmed	
Redwing (<i>Turdus iliacus</i>)	S20, S21	Present	Absent	Absent	BoCCI Green-listed/ Wildlife Act 1976-2022
Reed bunting (<i>Emberiza schoeniclus</i>)	S20, S21	Absent	Possible	Probable	BoCCI Green-listed/ Wildlife Act 1976-2022
Ring ouzel (<i>Turdus torquatus</i>)	S21	Absent	Possible	Absent	BoCCI Red-listed/ Wildlife Act 1976-2022
Rock pigeon/dove (<i>Columba livia</i>)	S20	Present	Possible	Possible	BoCCI Green-listed/Wildlife Act 1976-2022
Rook (<i>Corvus frugilegus</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/ Wildlife Act 1976-2022
Sand martin (<i>Riparia riparia</i>)	S20	Absent	Possible	Possible	BoCCI Amber-listed/Wildlife Act 1976-2022
Sedge warbler (<i>Acrocephalus schoenobaenus</i>)	S20	Absent	Probable	Probable	BoCCI Green-listed/Wildlife Act 1976-2022
Skylark (<i>Alauda arvensis</i>)	S20	Absent	Confirmed	Confirmed	BoCCI Amber-listed/Annex II EU Birds Directive
	S21	Present	Probable	Confirmed	

May Species Common Name	Hectad	Winter Atlas '07-11	Breeding Atlas '07- 11	Waterford county '06-13	Conservation/Protection Status
Song thrush (<i>Turdus philomelos</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
Spotted flycatcher (<i>Muscicapa striata</i>)	S21	Absent	Possible	Possible	BoCCI Amber-listed/Wildlife Act 1976-2022
	S20	Absent	Absent	Possible	
Stock pigeon/dove (<i>Columba oenas</i>)	S20	Present	Probable	Probable	BoCCI Amber-listed/Wildlife Act 1976-2022
	S21	Present	Confirmed	Probable	
Stonechat (<i>Saxicola torquata</i>)	S20	Absent	Probable	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Absent	Possible	Confirmed	
Treetreeper (<i>Certhia familiaris</i>)	S20	Absent	Absent	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Absent	Absent	Probable	
White wagtail (<i>Motacilla alba</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
White-throated dipper (<i>Cinclus cinclus</i>)	S20	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022
	S21	Present	Possible	Confirmed	
Willow warbler (<i>Phylloscopus trochilus</i>)	S20	Absent	Confirmed	Confirmed	BoCCI Amber-listed/Wildlife Act 1976-2022
	S21	Absent	Confirmed	Confirmed	
Wren (<i>Troglodytes troglodytes</i>)	S20, S21	Present	Confirmed	Confirmed	BoCCI Green-listed/Wildlife Act 1976-2022

Other species for which past records exist but which are only included in older Bird Atlas datasets are outlined in **Table 2**, below. The breeding and/or wintering status of each species and conservation/protection status outlined along with the relevant dataset from which the record was obtained².

Table 2: Historic Bird Atlas breeding/wintering status of other species recorded in hectads S20 and S21

Species	Hectad	Dataset	Conservation/Protection Status
Common Crossbill (<i>Loxia curvirostra</i>)	S20	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	BoCCI Green-listed/Wildlife Act 1976-2022
Common Kingfisher (<i>Alcedo atthis</i>)	S21	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	BoCCI Amber-listed/ Annex I EU Birds Directive
Common Swift (<i>Apus apus</i>)	S20, S21	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	BoCCI Red-listed/ Wildlife Act 1976-2022
Eurasian Teal (<i>Anas crecca</i>)	S20	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	BoCCI Amber-listed/ Annex II and Annex III EU Birds Directive
European Nightjar (<i>Caprimulgus europaeus</i>)	S20	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	BoCCI Red-listed/ Annex I EU Birds Directive
Mew Gull (<i>Larus canus</i>)	S20, S21	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	BoCCI Amber-listed/ Wildlife Acts 1976-2022

Species	Hectad	Dataset	Conservation/Protection Status
Red-billed Chough (<i>Pyrrhocorax pyrrhocorax</i>)	S20	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991	BoCCI Amber-listed/ Annex I EU Birds Directive/ Wildlife Act 1976- 2022
Yellowhammer (<i>Emberiza citronella</i>)	S20, S21	The Second Atlas of Breeding Birds in Britain and Ireland: 1988-1991.	BoCCI Red-listed/ Wildlife Act 1976- 2022

2.1.2 Data request

A data request for rare and/or protected species was made to the NPWS on 17th May 2021 for hectads S20 and S21 for which the following information was provided:

Hen harrier National surveys:

- S20: One possible breeding site in 2015, one sighting in 2010 and two sightings in 2005,
- S21: Two sightings in 2005.

Peregrine falcon National Survey 2017:

- S20: Three unoccupied breeding sites (known breeding sites in 2002) recorded.

NPWS could not confirm whether any of these records pertained to the study area. They did however confirm that the site overlaps with one of 9 non-designated but regionally important breeding areas for hen harriers, as established in the 2015 National Hen harrier Survey (Knockmealdowns, Kilworth).

A data request for the Red grouse survey Ireland 2021/2022 report was made to the NPWS on 23rd January 2023. They stated the report for the National Red Grouse Survey Ireland 2021/22 has not yet been finalised and the request has been flagged and will be they will be in touch when this report is available.

2.1.3 Special Protection Areas (SPAs) within 20km

The European Union Directive on the Conservation of Wild Birds, known as the Birds Directive (Directive 2009/147/EC) requires Member States to designate legally protected areas for the conservation of endangered or migratory species of birds, as listed in Annex I of the Directive. These areas are called Special Protection Areas (SPAs) and since 1994 all SPAs form part of the Natura 2000 network of protected sites. The EU Birds Directive is implemented in Irish law under the European Communities (Birds and Natural Habitats) Regulations 2011.

An online search for Special Protection Areas (SPAs) was conducted within a 20km radius of the proposed Counmagappul Wind Farm site. This search radius was selected based on the precautionary principal due to some goose species having a core foraging range of up to 20km, as provided in the SNH guidance document 'Assessing Connectivity with Special Protection Areas (SPAs)' (SNH, 2016). This document was reviewed to help identify potential 'connectivity' between the study area and SPAs and assess whether pathways exist through which the proposal could impact on Special Conservation Interest species (SCIs). Within this guidance document core foraging ranges from nest-sites and roost-sites are published for both the breeding and winter seasons for those bird species which are

frequently encountered when considering all development proposals. SNH recommends that typically the core foraging range should be used when determining whether there is connectivity between development proposal and SPAs. Core foraging ranges during the breeding season range from 0.5km to 10km for species such as hen harrier, goshawk, merlin, peregrine, golden plover, dunlin and curlew. with maximum recorded distances of up to 18km recorded for goshawk and peregrine (SNH, 2016).

The online search using the NPWS online mapping system⁴ determined that there are three SPAs within a 20km radius of the survey area; Dungarvan Harbour SPA (004032) approx. 12.5km south of the site, Mid-Waterford Coast SPA (004193) located approx. 15.3km southeast of the site and Helvick Head to Ballyquin SPA (004192) located approx. 19.1km to the southwest of the site See **Figure 2** below. **Table 3** below outlines the SCIs within the three SPA sites within 20km of the Coumnaappul Wind Farm site.

Table 3: Designated site with Special Conservation Interest (SCI) species

Designated Site	Distance	Special Conservation Interests
Dungarvan Harbour SPA (004032)	Approx. 12.5km southeast	<ul style="list-style-type: none"> • Great crested grebe (<i>Podiceps cristatus</i>) [A005] • Light-bellied brent goose (<i>Branta bernicla hrota</i>) [A046] • Shelduck (<i>Tadorna tadorna</i>) [A048] • Red-breasted merganser (<i>Mergus serrator</i>) [A069] • Oystercatcher (<i>Haematopus ostralegus</i>) [A130] • Golden plover (<i>Pluvialis apricaria</i>) [A140] • Grey plover (<i>Pluvialis squatarola</i>) [A141] • Lapwing (<i>Vanellus vanellus</i>) [A142] • Knot (<i>Calidris canutus</i>) [A143] • Dunlin (<i>Calidris alpina</i>) [A149] • Black-tailed godwit (<i>Limosa limosa</i>) [A156] • Bar-tailed godwit (<i>Limosa lapponica</i>) [A157] • Curlew (<i>Numenius arquata</i>) [A160] • Redshank (<i>Tringa totanus</i>) [A162] • Turnstone (<i>Arenaria interpres</i>) [A169] • Wetland and Waterbirds [A999]
Mid-Waterford Coast SPA (004193)	Approx. 15.3km southeast	<ul style="list-style-type: none"> • Cormorant (<i>Phalacrocorax carbo</i>) [A017] • Peregrine (<i>Falco peregrinus</i>) [A103] • Herring gull (<i>Larus argentatus</i>) [A184] • Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]
Helvick Head to Ballyquin SPA (004192)	Approx. 19.1km southwest	<ul style="list-style-type: none"> • Cormorant (<i>Phalacrocorax carbo</i>) [A017] • Kittiwake (<i>Rissa tridactyla</i>) [A188] • Peregrine (<i>Falco peregrinus</i>) [A103] • Herring gull (<i>Larus argentatus</i>) [A184] • Chough (<i>Pyrrhocorax pyrrhocorax</i>) [A346]

Based on the information provided in SNH 2016 on the core foraging ranges available for the SCIs listed above in **Table 3** connectivity between Dungarvan Harbour SPA (004032) and Helvick Head to Ballyquin SPA (004192) and the Coumnaappul Wind Farm Project site is unlikely. Mid-Waterford Coast

⁴ <https://dahg.maps.arcgis.com/apps/webappviewer/index.html?id=8f7060450de3485fa1c1085536d477ba>

SPA (004193) Peregrine is the only species listed in SNH 2016 with foraging ranges, the core range is 2km and the maximum range is 18km in the breeding season. The mean range between alternative nesting sites is given as a mean of 3km and a maximum of 6.5km. Based on the core foraging range connectivity is unlikely, however taking into consideration the maximum range of 18km there may be potential connectivity for peregrine.

2.1.4 Ramsar Sites within 20km

The Convention on Wetlands, also known as the Ramsar Convention, is an intergovernmental treaty which aims to conserve and protect wetlands and their resources around the world⁵. The desk-top review concluded that there is one Ramsar site within 20km of the Coumnagappul Wind Farm site : Dungarvan Harbour located approximately 12.5km southeast of the survey area (**Figure 2**). This site is described as a *'coastal bay sheltered by a spit, exposing extensive mud and sand flats at low tide. The site includes beach and dune systems, salt and freshwater marsh. Internationally important numbers of wintering waterbirds use the site and nationally or locally important numbers of numerous other species are supported'*⁶.

2.1.5 Important Bird and Biodiversity Areas (IBAs) within 20km

The Important Bird and Biodiversity Areas Programme, overseen by Birdlife International, aims to identify, conserve, and protect those areas throughout the world considered to be of the greatest significance to bird populations⁷. The desk-top review concluded that there are two IBA sites within 20km of the Coumnagappul Wind Farm site: Dungarvan Harbour⁸ approx. 12.5km to the southeast of the site Mid Waterford Coast⁹ approx. 15.3km southeast of the site.

The Ramsar site and IBA's described above overlap with a number of the SPA sites outlined in **Table 3** and are designated for the same areas of interest Using the SNH (2016) guidance and core foraging ranges available for the species listed, it is unlikely there is connectivity between the Ramsar/ IBA's and the Coumnagappul Wind Farm Project site.

⁵ <https://www.ramsar.org/wetland/ireland>

⁶ <https://rsis.ramsar.org/ris/839?language=en>

⁷ <http://www.birdlife.org/worldwide/programmes/important-bird-and-biodiversity-areas-ibas>

⁸ <http://datazone.birdlife.org/site/factsheet/604>

⁹ <http://datazone.birdlife.org/site/factsheet/mid-waterford-coast-iba-ireland>

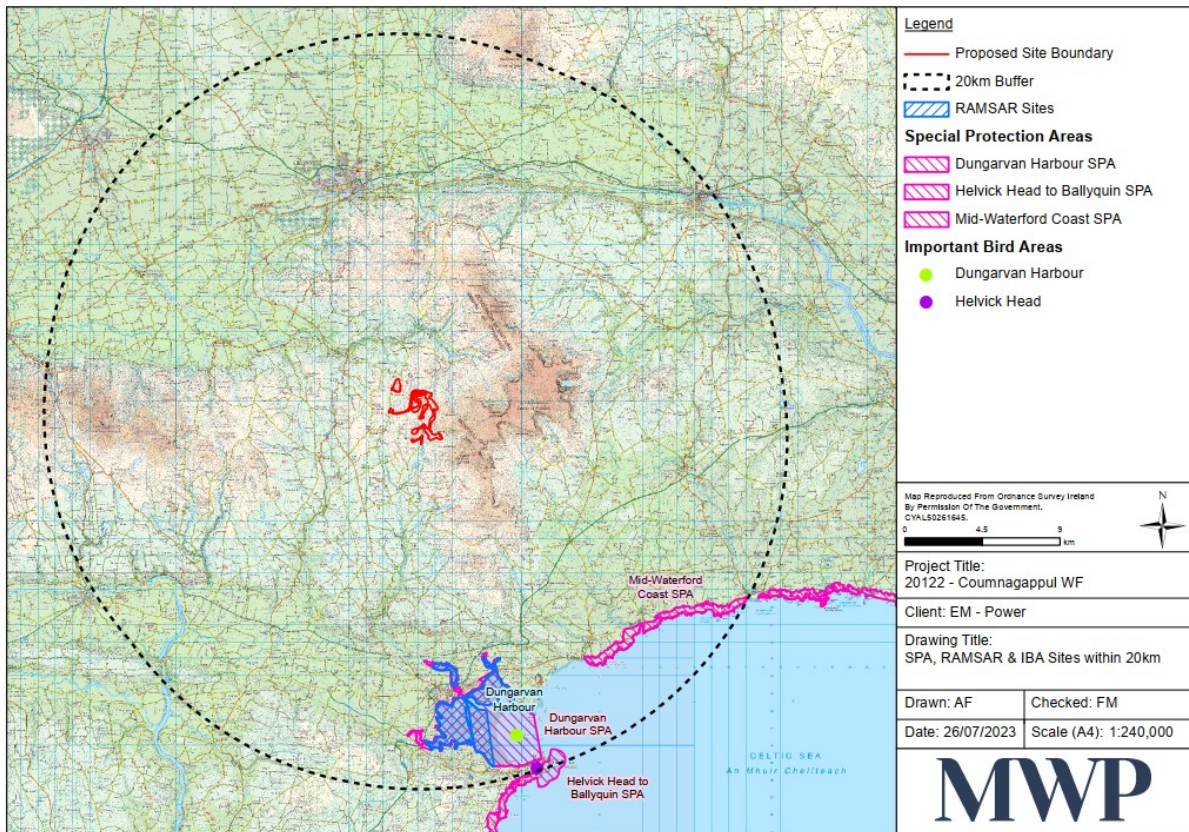


Figure 2. SPAs, Ramsar and IBAs within 20km

2.1.6 I-WeBS Sites within 20km of the Site

I-WeBS (Irish Wetland Bird Survey) is a joint project between BirdWatch Ireland and National Parks and Wildlife (NPWS) in which specific wetland sites are surveyed (BirdWatch Ireland, 2019). The aim of these surveys is to monitor non-breeding birds in Ireland and contribute to population counts and is also important to help assess the quality of these wetland areas (BirdWatch Ireland, 2019). The bird groups to be counted for I-WeBS consist of; swans and geese, ducks, divers, waders and gulls, counts are made once per month from September to March annually (BirdWatch Ireland, 2019)¹⁰. There are three I-WeBS¹¹ sites within 20km of the Coumnaappul Wind Farm site (see Table 4 below).

Table 4: I-WeBS sites within 20km of the Coumnaappul Wind Farm Site

I-WeBS Site	Proximity to site	Description
Site: River Suir Middle (subsite Newcastle-Caher (Site code - 0J39)	Approx. 9km southeast of the site	This site has an extensive list (24) of species which include species population counts of national importance between 2010/11 and 2020/21 ¹² . Species present in nationally important numbers include lapwing, curlew, and wigeon.

¹⁰<https://birdwatchireland.ie/our-work/surveys-research/research-surveys/irish-wetland-bird-survey/>.

¹¹<https://bwi.maps.arcgis.com/apps/View/index.html?appid=1043ba01fcb74c78bc75e306eda48d3a>

¹²https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88?appSession=1N8BK3Y04B95507ZW3987726GK78G412CB74JS7TZPPTQ26BQ1Y2DR57KM5C37A100XCYC9K83P07NR1LU6057WY850PUAC599C4Z55792NA3CO24G3K70OJ30310I&PageID=2&PrevPageID=2&cpipage=1&CPIsortType=asc&CPIorderby=Sp_Name&cbCurrentPageSize=

I-WeBS Site	Proximity to site	Description
Site: Dungarvan Harbour (Site code – 0M402)	Approx. 12.5km southeast of the site.	This site has an extensive list (59) of species which include species population counts of national importance between 2008/09 and 2020/21 ¹³ . Species present in nationally important numbers include whooper swan, ringed plover, golden plover, lapwing, knot, and curlew.
Site: Clonea Strand (Site code – 0M906)	Approx. 15km southeast of the site	This site has an extensive list (34) of species which include species population counts of national importance between 2008/09 and 2020/21 ¹⁴ . Species present in nationally important numbers include ringed plover, golden plover, lapwing, curlew, and dunlin.

* For the full list of species and counts for each site, see **Appendix 2**

A review of SNH 2016 guidance determined Barnacle goose (*Branta leucopsis*) has a winter core foraging range of 15km. This species is listed for the Dungarvan Harbour and Clonea Strand I-WEBS sites. There may be some potential for connectivity between these sites and the Counmagappul Wind Farm Project site.

2.1.7 Bird Sensitivity to Wind Energy Development

The National Biodiversity Data Centre's (NBDC) online mapper² includes a layer which provides information from Birdwatch Ireland on bird sensitivity to wind energy development. This layer is derived from a collation of existing distributional data, which indicates, by assessing the characteristics of a selected number of the most-sensitive bird species, whether protected birds are likely to be sensitive to wind energy developments in the areas mapped. The mapping layer is derived from McGuinness *et al.* (2015). The layer has five sensitivity ratings, namely No data (0-14.7), Low (14.8-23.4), Medium (23.5-45.4), High (45.5-62.8), and Highest (62.9-116.9) (Mc Guinness *et al.*, 2015). These ratings are mapped at a 2km grid square resolution for which 'All Birds Sensitivity Scores' (ABSS) are provided.

There is no data available for the overall lands which are proposed for the Counmagappul Wind Farm development, however the site overlaps in the far southeastern corner. The area and the lands to the south of the site are categorised as 'Low Sensitivity' (See **Figure 3** and **Figure 4**) and the ABSS is 19. This score of 19 relates to one species, hen harrier most likely to this area situated within the Knockmealdowns, Kilworth the non-designated but regionally important breeding areas for Hen harriers, as established in the 2015 National Hen harrier Survey.

¹³https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88?appSession=6S3GHQ83USR7824Z493224T34LJ2RTAY15M1M383369817JSMFMR9N8042R60Z31T1O9W163340M83H35EFSNGUO8DB6O3DYG48GXQQTZ4LWG55B395Y0E7MX7IPZ86&PageID=2&PrevPageID=2&cpipage=1&CPIsortType=asc&CPIorderby=Sp_Name&cbCurrentPageSize=8

¹⁴https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88?appSession=6XQ4485U01LPM488O131UHGF527GM66TJRNOMJ298429BOB3U4WG20OEL17204DK80FCF3R7E31RGSYX8S2899IP140Y58E710YI65T217FO3NWR9M758H510Z2O94Q3&PageID=2&PrevPageID=2&cpipage=1&CPIsortType=asc&CPIorderby=Sp_Name&cbCurrentPageSize=8

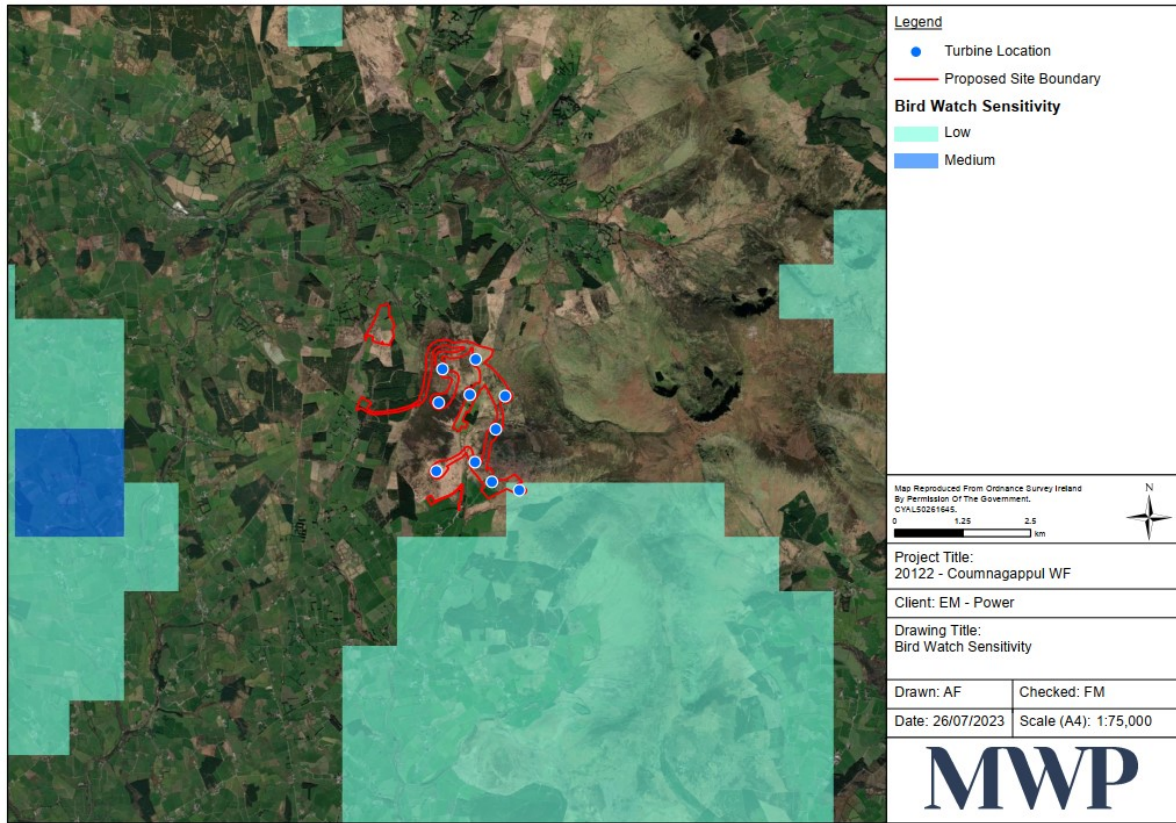


Figure 3. Bird Sensitivity to Wind Energy Development²

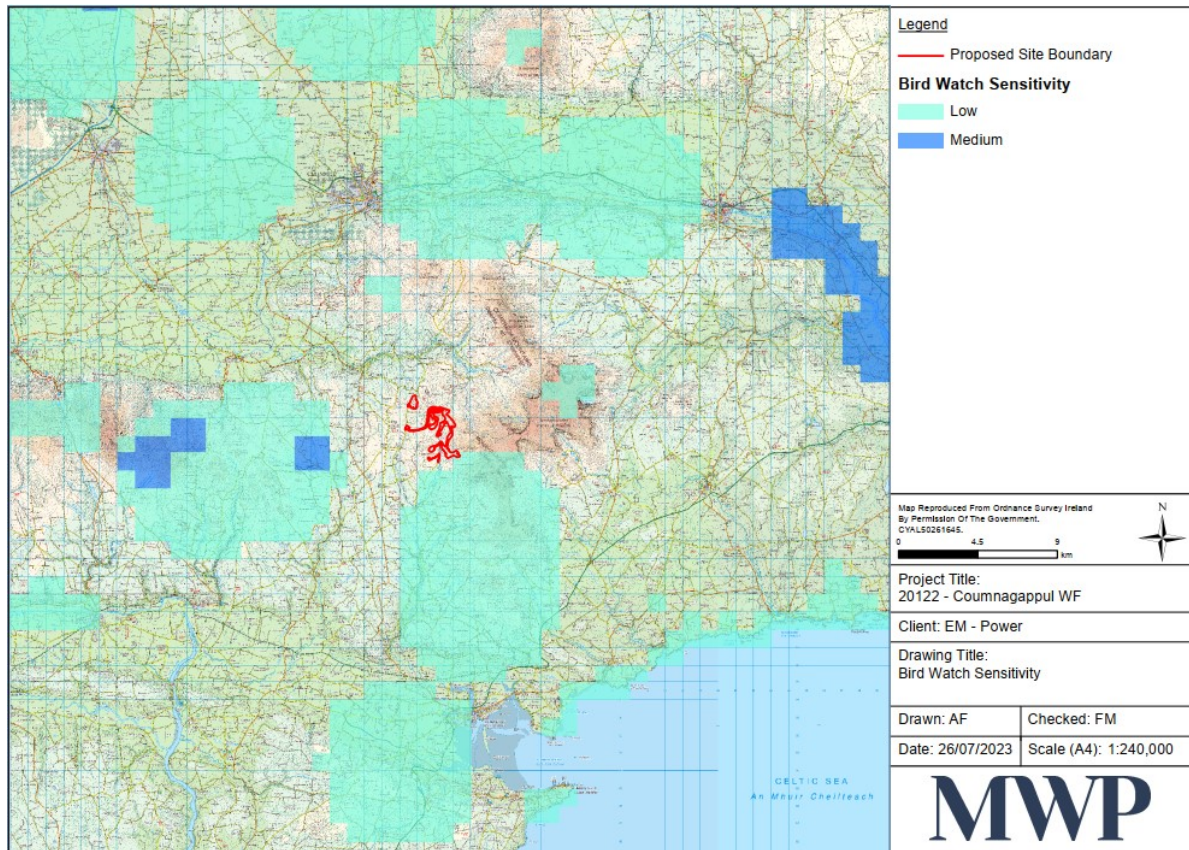


Figure 4. Bird Sensitivity to Wind Energy Development

2.2 IDENTIFICATION OF TARGET SPECIES

A reconnaissance survey, which consisted of an initial field visit, was undertaken by the Project Ornithologist. The aim of this reconnaissance survey was to review the landscape and habitats in the area in the context of its potential ornithological importance and to inform the identification of target species. The results of the desk-top study and reconnaissance surveys were used to identify those bird species which were considered likely to occur. It is important to note that the absence of records for any bird species should not be treated as evidence that the species is not present (as due to the remote nature of the site there can be a paucity of desk-top data available). As such, where there is suitable habitat present, and the site is within the distributional range of a species an assumption was made in relation to the identification of target species potentially present. Target species are typically those species which are afforded a higher level of legislative protection, or which are considered to be more sensitive to potential impacts from wind farm developments by virtue of their behaviour (Scottish Natural Heritage, 2017). Target species should be restricted to those likely to be affected by wind farms (SNH, 2017).

With regards to drawing up the target species list for the proposed Counmagappul Wind farm the SNH (2017) guidance was referred to. This guidance outlines three important sources of potential target species. Criteria to consider when identifying potential target species are:

- Annex I of the Birds Directive.
- Species under the fourth schedule of the Wildlife Acts schedule of the Wildlife Acts 1976-2022 (buzzards, eagles, falcons, harriers, hawks, kites, osprey, owls, heron) and
- Red-listed birds of Conservation Concern (Gilbert et al, 2021¹⁵).

Additionally, SCIs for Special Protection Areas (SPAs) located within a 20km radius of the site were considered as per Scottish Natural Heritage (June 2016, Version 3) 'Assessing Connectivity with Special Protection areas (SPAs)'.

The following table (**Table 5**) lists those species identified during the desk-top study (**Section 2.1.1** above) for which Bird Atlas (2007-2011) records exist within the hectads S20 and S21 and meet one or more of the target species selection criteria as outlined above to be considered as target species. The conservation status/level of protection afforded to each species is also included.

Table 5: Target species for which previous records exist in relevant hectads S20 and S21

Target Species	Hectad	Conservation/Protection Status
Common Kestrel (<i>Falco tinnunculus</i>)	S20, S21	BoCCI Red-listed/ Wildlife Acts 1976-2022
Common snipe	S20, S21	BoCCI Red-listed/ Wildlife Acts 1976-2022
Eurasian Curlew (<i>Numenius arquata</i>)	S20, S21	BoCCI Red-listed/ Annex II EU Birds Directive
Eurasian Sparrowhawk (<i>Accipiter nisus</i>)	S20	BoCCI Green-listed/Wildlife Act 1976-2022
Eurasian Woodcock (<i>Scolopax rusticola</i>)	S20, S21	BoCCI Red -listed Annex II and III EU Birds Directive
European Golden plover (<i>Pluvialis apricaria</i>)	S20	BoCCI Red-listed/ Annex I, II and III EU Birds Directive
Hen harrier (<i>Circus cyaneus</i>)	S20, S21	BoCCI Amber-listed/Annex I EU Birds Directive
Merlin (<i>Falco columbarius</i>)	S20, S21	BoCCI Amber-listed/Annex I EU Birds Directive

¹⁵ <https://birdwatchireland.ie/birds-of-conservation-concern-in-ireland/>

Target Species	Hectad	Conservation/Protection Status
Northern Lapwing (<i>Vanellus vanellus</i>)	S20, S21	BoCCI Red-listed/ Annex II EU Birds Directive
Peregrine falcon (<i>Falco peregrinus</i>)	S20, S21	BoCCI Green-listed/Annex I EU Birds Directive
Red grouse (<i>Lagopus lagopus</i>)	S20, S21	BoCCI Red-listed/Annex II and III EU Birds Directive
Ring ouzel (<i>Turdus torquatus</i>)	S21	BoCCI Red-listed/ Wildlife Act 1976-2022

As outlined above and set out in SNH (2017), target species typically comprise those species which are afforded a higher level of legislative protection and should be restricted to those likely to be affected by wind farms. Therefore, only red-listed species have been included as target species, unless the species meets one of the other target species selection criteria e.g., Annex I, Wildlife Acts outlined above.

Secondary species

To ensure other species which may be sensitive to wind farms were not missed during surveys all other species of gull, wader, duck, goose, swan, cormorant, and heron were included as secondary target species.

Passerine species

According to SNH (2017), it is generally considered that passerine species are not significantly impacted by wind farms. While they were not, therefore, included as either (primary) target or secondary target species their presence was recorded in order to provide a complete picture of bird usage of the survey area.

2.3 FIELD SURVEYS

Initial walkovers of the site were carried out to enable the identification of suitable survey locations. Field surveys were undertaken to gather detailed information on bird distribution and flight activity within the area to predict the potential effects of the wind farm proposal on birds. The field surveys comprised two main elements: vantage point watches, and targeted distribution and abundance surveys. The survey area is defined as the maximum extent of potential turbine layout for the proposed Counnagappul Wind Farm plus a 500m buffer extending away from the boundary of the potential development area as per SNH 2017 (see **Figure 4**).

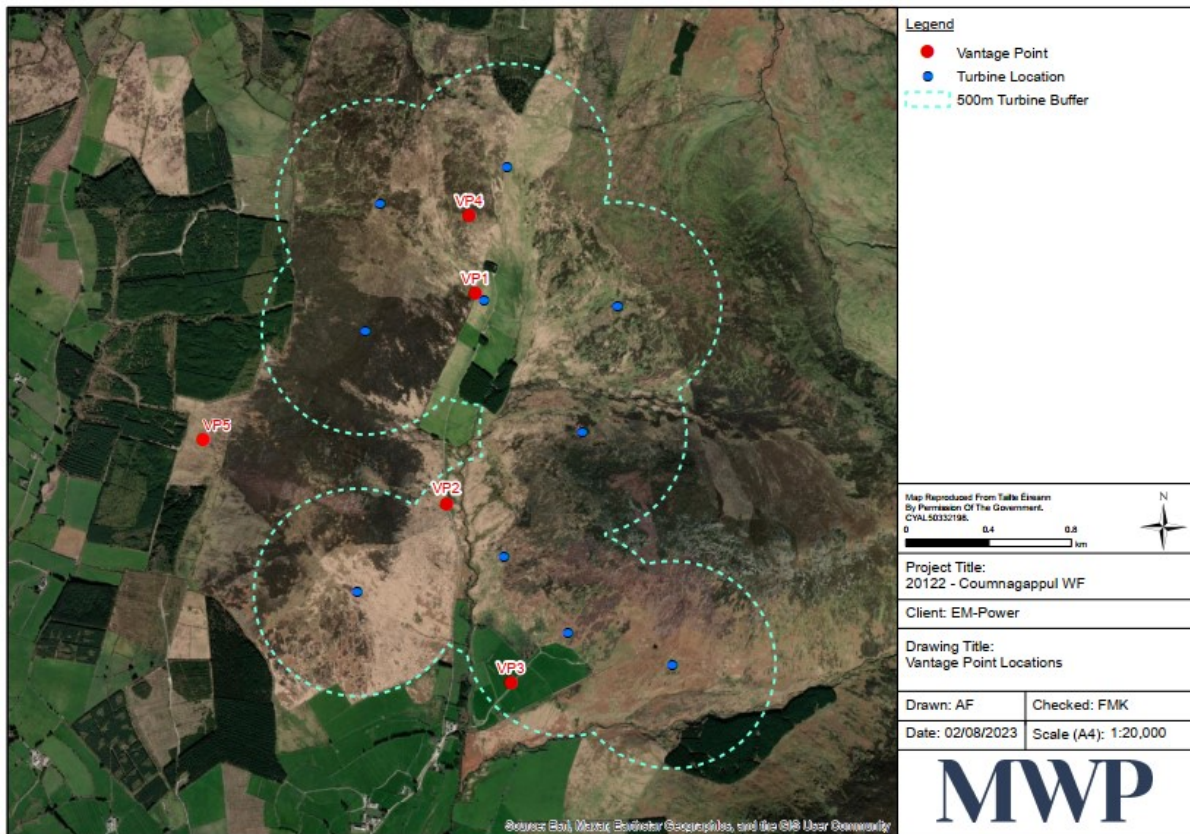


Figure 5. Survey Area and 500m buffer

2.3.1 Vantage Point Surveys

Vantage point surveys were undertaken with regard to ‘Recommended bird survey methods to inform impact assessment of onshore wind farms’ (SNH, 2017).

Vantage point times watches were carried out by suitably qualified personnel over a six-month period during each summer (breeding) season (April to September, inclusive) and a six-month period during each winter season (October to March, inclusive). The overall aim of these surveys was to quantify the level of flight activity, flight height and bird distribution over the survey area and to determine bird usage / behaviour within the study area.

2.3.1.1 Selection of Vantage Point Locations

Vantage points (VP) are ideally located on elevated areas, or other areas, which provide clear views over the survey area. Achieving maximum visibility over as much of the site as possible is important for these surveys.

According to SNH (2017), Vantage Point viewsheds should extend to 2km. Viewshed analysis was undertaken for each VP location to determine visual coverage of the survey area. Viewsheds were set to an observer height of 1.6m and 25m target height. Viewsheds encompassed a 2km radius with 360° view. Each viewshed was then cropped to a 180° arc showing the relevant direction of view.

In order to minimise observer effect on bird behaviour VPs should ideally be located outside the survey area but should be located as close as possible. SNH (2017) stipulates that where VPs are located

within the survey area, they should not be used simultaneously with other VPs which overlook them to minimise potential observer effect on birds. All effort was made to prevent any simultaneous VP watches.

A description of each VP is provided in **Table 6** and the location of each VP using Irish Transverse Mercator (ITM) grid co-ordinates are provided in **Table 7** below.

Table 6: All Vantage points

VP No.	Seasons surveyed	Duration	VP Details
VP1, VP2 and VP3	Summer 2019 Winter 2019/20 Summer 2020 Winter 2020/21 Summer 2021 Winter 2021/22 Summer2022	36 survey hours completed per VP per season. Total survey effort for all VPs over 7 seasons – 756 hours.	Three VP locations were surveyed continuously for 7 consecutive seasons, beginning in April 2019.
VP4	<u>Location 1</u> Winter 2019/20.	36 survey hours completed per month for November to February, inclusive. 72 survey hours (36 x 2) completed in March 2020 to compensate for October 2019 surveys. Total survey effort over season – 216 hours.	Due to expansion of the proposed development site, surveys at a fourth VP location (VP4) began in early November 2019. VP4 was subsequently moved to ensure sufficient coverage of the site.
	<u>Location 2</u> Summer 2020 Winter 2020/21 Summer 2021	Summer 2020 - 72 survey hours completed per month (Doubled up survey effort summer 2020 to cover summer 2019.) Winter 2020/21 – 36 survey hours completed per month Summer 2021 - 36 survey hours completed per month Total survey effort over all 3 seasons – 864 hours.	
	<u>Location 3 (Current location)</u> Winter 2021/22 Summer 2022	Winter 2021/22 – 36 survey hours completed per month Summer 2022 - 36 survey hours completed per month Total survey effort over 2 seasons – 432 hours	
VP5	Winter 2021/22 Summer 2022	Winter 2021/22 – 36 survey hours completed per month Summer 2022 - 36 survey hours completed per month	To maximise coverage of the west/south-western corner of the proposed development site, a fifth VP was added (VP5) at the beginning of season 6 (winter 2021/22).

VP No.	Seasons surveyed	Duration	VP Details
		Total survey effort over 2 seasons – 432 hours	

Table 7: Coumragappul VP locations

VP No.	ITM Grid Co-ordinates
1	624298, 609645
2	624158, 608641
3	624470, 607777
4	624268, 610028
5	622280, 608970

Figure 6 below shows the five VP locations and the corresponding combined viewshed. Full details on individual VP surveys including survey dates, times and weather conditions can be found in **Appendix 4**.

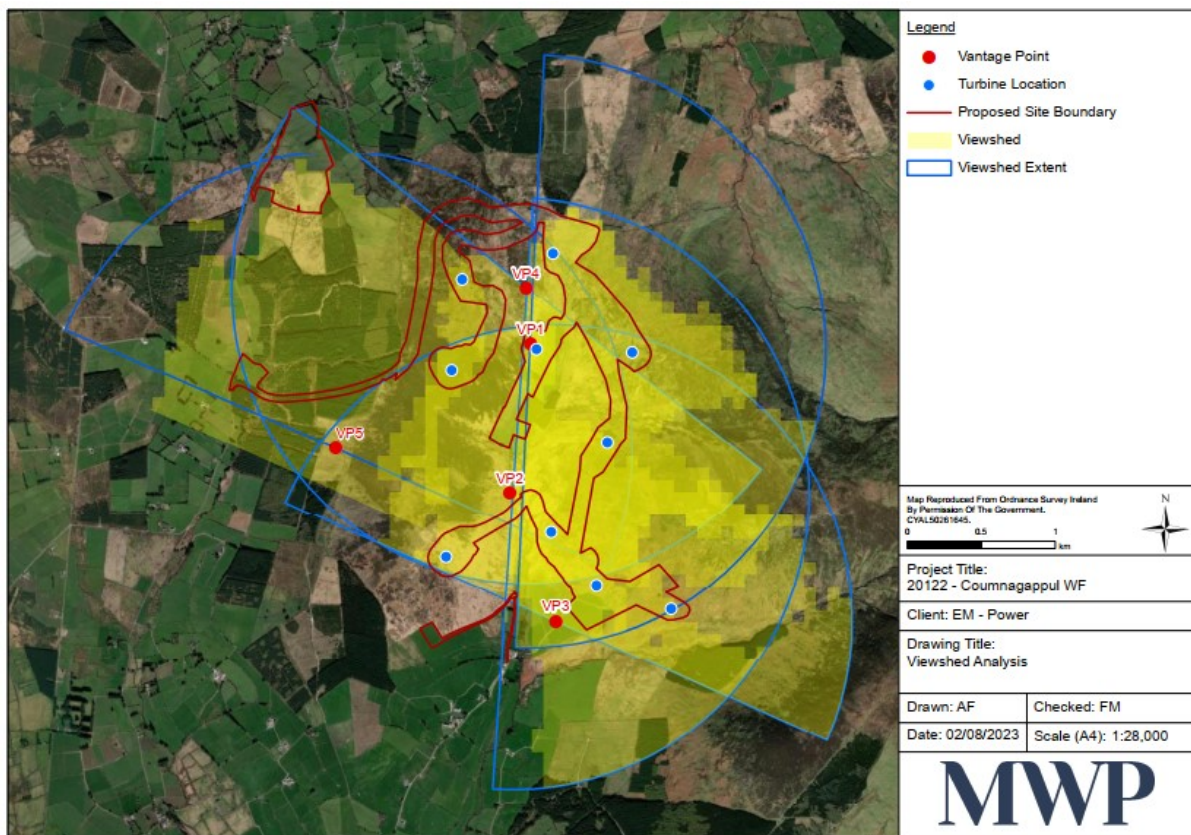


Figure 6. Vantage Point location and corresponding viewsheds

2.3.1.2 Flight Data Recording

A total of 5 vantage points were surveyed and each one was watched for a total of six hours per month. This resulted in a total of 30 survey hours per month and 180 survey hours in total over an entire season. The watches were divided into three-hour periods for each individual watch. A minimum of 36 hours of survey effort was achieved at each VP per survey season, in line with SNH (2017). Further detailed vantage point survey information can be found in **Appendix 4**.

During VP surveys the flight behaviour of target and secondary target species was recorded, however, the recording of secondary species was subsidiary to the recording of target species (SNH, 2017). At the time of each species observation the following information was recorded:

- The time that the bird was detected,
- The flight duration (seconds) within various flight height categories¹⁶ (e.g., 0-20m, 20-50m, 50-100, 100-180m and >180),
- Sex and age of the bird(s) (adult/juvenile), where possible to determine,
- Type of activity/behaviour such as hunting, flying, displaying etc,
- Estimation of actual flight height,
- Habitat(s) where the bird was observed and
- Weather conditions at the time of sighting including wind speed, direction, and degree of visibility.

Once an initial sighting was made, each target or secondary species was observed until lost from view. Flight paths were recorded as observed, including where birds travelled or were observed outside of the study area; such that all flight activity within the broader landscape was encompassed.

Details on flight behaviour for each individual target/secondary species observed, including a unique map identifier code which corresponds to a mapped flight path, are provided in tabulated format in **Appendix 5**. All flight paths and flight activity areas are provided in **Appendix 6**.

2.3.1.3 Recording of Non-target Species

During the VP surveys, non-target species were also recorded. Monthly peak counts of all non-target species of conservation concern recorded during VP surveys are provided in **Appendix 7**.

2.3.2 Distribution and Abundance Surveys

2.3.2.1 Transect Surveys

A transect survey is a survey along a defined route within and outside the survey area and is based on the methodology of Bibby *et al* (2000). Transect Route 1 followed an existing private access track which runs through the middle of the site from south to north. During the summer 2021 season, additional transect routes (2, 3 and 4) were added in the western area of the site to capture the relocation of proposed turbines. The habitat in this area differed slightly from the site's predominantly occurring habitats (mixture of conifer forestry and agricultural grassland). See **Figure 7** below for

¹⁶ First few seasons the first flight band used was 0-50m, this was later divided in to two flight bands of 0-20m and 20-50m for the remaining seasons. All data is presented in the updated flight band system with the flight heights entered accordingly.

transect routes. The overall aim of the transect surveys was to assess general bird distribution throughout the site and gather data on bird usage of the site. Transect surveys were undertaken on one date in each of the months listed in **Table 8** below:

Table 8: Transect Survey dates

Season	Month Survey Carried Out
Summer season 2019	May, June, August
Winter season 2019/20	October, December, January, February, March
Summer season 2020	April, May, June, July, August, September
Winter season 2020/21	November, January, February, March
Summer season 2021	June, July
Winter season 2021/22	November, December, February, March
Summer season 2022	May, June, July, August, September

All bird species seen or heard, typically within 100m of the transect route, were recorded, although the topography of the landscape often allowed for the detection of birds at greater distances. Details on each survey carried out including survey date, time and weather conditions can be found in **Appendix 8**. Tabulated results of peak counts for all species recorded during monthly transect surveys are provided in **Appendix 9**.

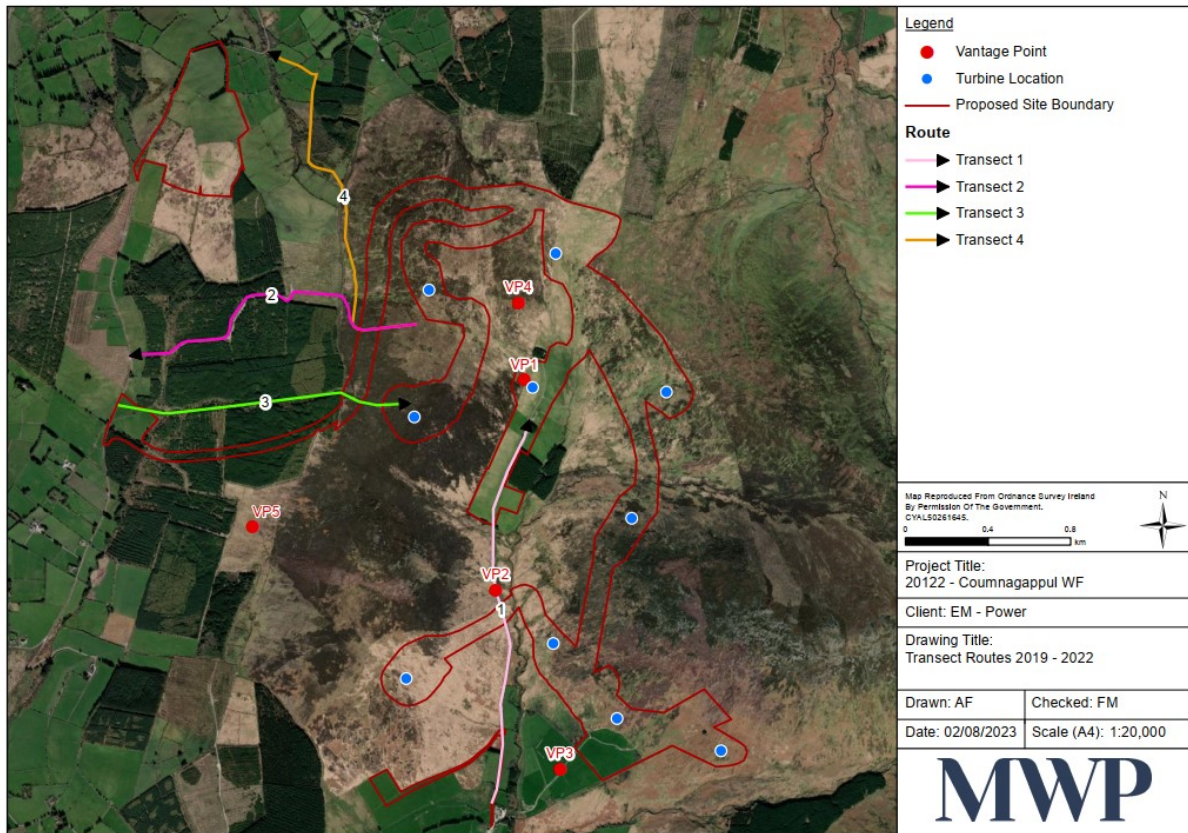


Figure 7. Transect survey routes

2.3.2.2 Walkover surveys

Nocturnal Survey

Nocturnal activity may pose greater hazards for birds at wind farms therefore nocturnal species should be surveyed (SNH, 2017). Gilbert *et al* 1998 provide guidelines to survey nightjar in which the surveyor will listen for calling birds around dusk in the months of May-July (inclusive). These surveys were carried out for nightjar (*Caprimulgus europaeus*), woodcock (*Scolopax rusticola*) and owls. The survey followed the same route as Transect 1 (**Figure 7** above). Nocturnal surveys were carried out on the following dates:

- 9th June 2020
- 16th July 2020

Details on each survey carried out including survey date, time and weather conditions and the results can be found in **Appendix 11**.

Merlin, Red grouse, Golden plover

Walkover surveys were carried out for merlin (*Falco columbarius*), red grouse (*Lagopus lagopus hibernicus*), golden plover (*Pluvialis apricaria*) and other upland target species along a pre-selected route within suitable breeding habitat. Some land within the area had been recently burnt, rendering previously suitable breeding habitat unsuitable. This survey method was broadly based on methodology in Bibby *et al* (2000). The surveyors walked this route and recorded any calls, activity or droppings observed in regard to merlin, red grouse, golden plover and any other target species recorded. The areas that had suffered recent burning were deemed unsuitable. These surveys were carried out on the following dates:

- 9th June 2020
- 17th July 2020

A map showing the route is included in **Appendix 3**. Details on each survey carried out including survey date, time and weather conditions and the results can be found in **Appendix 12**.

Red grouse

Walkover surveys were carried out over the summer 2022 season for breeding red grouse on the following dates:

- 2nd June 2022
- 5th July 2022

The route followed was the same as the previous walkover surveys in 2020. A map showing the route is included in **Appendix 3**.

It is acknowledged that the timing of the red grouse surveys undertaken in 2020 and 2022 resulted in the start of the red grouse breeding season (April to early May) to be missed. Due to these survey limitations, a precautionary approach should be taken with regard to the 2020 and 2022 survey findings.

Details on each survey carried out including survey date, time and weather conditions and the results can be found in **Appendix 13**.

*It is noted that extensive red grouse surveys have been undertaken in suitable areas of breeding habitat within the site in April and May 2023.

2.3.3 Hinterland Survey

A hinterland survey was undertaken within a 2km radius of the north part of the site with particular focus on birds of prey and potential large assemblages of birds (e.g., wildfowl, waders) occurring regularly in the locality. Accessible roads within this area were driven stopping intermittently where suitable views for activity could be observed. Hinterland surveys were carried out on the following dates:

- 14th June 2020
- 19th July 2020

A map showing the route is included in **Appendix 3**. Details on each survey carried out including survey date, time and weather conditions and the results can be found in **Appendix 14**.

3 BIRD SURVEY RESULTS

A comprehensive list of all bird species recorded within the survey area over the course of the 3.5-year survey period is provided in **Appendix 10**.

3.1 VANTAGE POINT SURVEY RESULTS

The following 15 target species were recorded during the VP surveys carried out at Coumnagappul from April 2019 to September 2022 (inclusive). Of this, nine were target species and 6 were secondary species. All Annex I species are highlighted in bold:

- Buzzard (*Buteo buteo*)
- **Golden plover** (*P. apricaria*)
- Great black-backed gull (*Larus marinus*)
- Grey heron (*Ardea cinerea*)
- **Hen harrier** (*Circus cyaneus*)
- Herring gull (*Larus argentatus*)
- Lesser black-backed gull (*Larus fuscus*)
- Kestrel (*Falco tinnunculus*)
- Mallard (*Anas platyrhynchos*)
- **Merlin** (*F. columbarius*)
- **Peregrine** (*Falco peregrinus*)
- Red grouse (*L. lagopus hibernicus*)
- Ringed plover (*Charadrius hiaticula*)
- Sparrowhawk (*Accipiter nisus*)
- Snipe (*Gallinago gallinago*)

3.1.1 Target Species Results

The following sub-sections summarise sightings of all nine target species recorded during the VP surveys and if they occurred inside or outside the flight activity area. The flight activity area consists of the site infrastructure and 500m buffer zone surrounding it. Tabulated summaries of these target species observations, including flight information, are available in **Appendix 5**. Flight line mapping for each target species is available in **Appendix 6**.

The target species recorded during all VP surveys carried out over the course of the survey period (3.5 years) can be categorised as follows (Annex I species are highlighted in bold, with the Conservation Status given for each species in accordance with Gilbert et al, 2021):

- Raptors
 - **Hen harrier** – BoCCI Amber-listed
 - **Merlin** – BoCCI Amber-listed
 - **Peregrine** – BoCCI Green-listed
 - Kestrel – BoCCI Red-listed
 - Buzzard – BoCCI Green-listed
 - Sparrowhawk – BoCCI Green-listed

- Wader/gull
 - **Golden plover** – BoCCI Red-listed
 - Snipe – BoCCI Red-listed
- Game bird
 - Red grouse BoCCI Red-listed

Each species will be discussed in the order it is listed above in the following sections.

3.1.1.1 Hen harrier

Hen harrier was recorded on 17 occasions and was present in six of the seven survey seasons. This species was observed at all VP locations except for VP5 and occurred most frequently at VP4 and VP3. All observations pertain to single birds either flying and/or hunting over mainly grassland/grassland moorland. Adult male and female birds were recorded most frequently, and one juvenile was recorded on one occasion in the summer of 2020. All activity occurred within the flight activity area. The activity recorded throughout the full survey period did not suggest there was any breeding or roosting at the proposed development site or within the study area.

The first two observations occurred in the summer of 2019, on 21st of May during a VP2 survey. In the first instance, an adult male was observed hunting low at 1-6m flight height and moving in a south-easterly direction. In the second instance, an adult female was observed hunting over the same area as the male hen harrier at 2-8m flight height whilst heading in a south-easterly direction.

During the summer 2020 survey period three observations occurred in September. On the 13th, an adult female east of VP1 hunting in a southerly direction low to the ground, ca. 1m. On the 14th, an adult male just south of VP1 hunting 2m above ground level before gaining height to 10m as it flew away in a south-westerly direction. On the 16th, a juvenile bird was seen east of VP3 hunting low at a height of 2m above the. The bird then perched for 60 seconds before heading off in a northerly direction.

During the winter 2020/21 survey period there were three observations. On 9th October 2020, an adult female was seen northeast of VP1 hunting in a southerly direction at heights of 1-2m. On 4th November 2020, an adult male was seen southeast of VP1 hunting in a northerly direction at 2m. The final observations occurred on 25th March 2021, an individual was seen southwest of VP4 hovering and hunting over grassland moorland at 5m before diving to the ground and out of sight.

During the summer 2021 survey period six observations occurred, three in April and three in May. On 28th April, an individual north of VP1 flying in a north-easterly direction at heights of 0-20m. On 29th April there were two observations of an individual hen harrier (sex and age not determined), both of which occurred at VP3. The first observation, the bird was recorded east of VP hunting at heights of 0-50m. The second observation occurred northwest of the VP; the bird was briefly soaring near a river whilst flying in a northerly direction at 0-20m before flying out of sight behind undergrowth. All three observations in May occurred on the same date (1st May) at VP4. The first observation, the hen harrier was recorded southeast of the VP flying southwards at 30m. The other two observations were of an adult female south of VP4 hunting at 30m and then perched.

During the winter 2021/22 survey period there were two observations at VP3. On 6th December 2021 an adult male was observed east of the VP flying at 0-20m flight height and heading northeast. On 13th January 2022, an adult female was observed northeast of the VP hunting at 0-20m height heading south/southeast.

During the summer 2022 survey period there was only one observation of a hen harrier which occurred at VP3. On 4th August an adult female was observed northeast of VP flying in a southerly direction at heights between 10-150m.

3.1.1.2 Merlin

Merlin was recorded on eight occasions and was present in five of the seven survey seasons. This species was observed at all VP locations and occurred most frequently at VP3. All observations pertain to single birds either flying and/or hunting over mainly grassland/grassland moorland and perching on occasion. Both adult male and female birds were recorded. Seven observations occurred within the flight activity area and one flight path in December 2021 was recorded passing through to outside the 500m buffer zone heading west.

The first two observations occurred in summer 2019. On 9th April, a female flew down from the top of the mountain to the east of VP2 and directly over the observer's head. The bird was at a height of 50-60m as it flew off over the mountain to the west behind the VP. On 30th of May, a female was seen northeast of VP3 and flew from east to west as she hunted. Flight height ranged between 20-30m as she flew over the river gorge and valley, hunting consistently as she flew.

During the winter 2019/20 survey period there was one observation. On 22nd of October, a female merlin was seen perched north of VP1 for over 3 minutes before flying off in a south-easterly direction at 2m before going out of view.

During the summer 2020 survey period there was one observation. On 16th August, an individual merlin was seen east of VP2 hunting. The bird was chasing a meadow pipit (*Anthus pratensis*), low over moorland at approximately 1m above the ground.

During the winter 2020/21 survey period there was one observation. On 1st December, an adult male merlin was seen southeast of VP1 flying at 2m in a south-easterly direction. The bird perched on a post briefly before flying off in a north-easterly direction and out of sight.

During the winter 2021/22 survey period there were three observations. On 6th December 2021, there were two observations, one at VP3 and the other at VP5. At VP3 an adult male was observed southeast of VP flying in a north-westerly direction at 0-20m. At VP5 an adult male was observed southeast of VP flying west at 0-20m passing through to the outside of the 500m buffer zone. The final observation occurred on 10th January 2022 at VP2, a merlin was recorded just south of the VP hunting in a north-westerly direction at 0-20m.

3.1.1.3 Peregrine falcon

Peregrine falcon was recorded on eight occasions and was present in four of the seven survey seasons. This species was observed in all VP locations except for VP5 and occurred most frequently at VP4. All observations pertain to individual birds mainly flying over grassland moorland. Adult birds were

recorded most frequently, and one juvenile was recorded on one occasion in the winter 2019/20 season. All activity occurred within the flight activity area.

The first four observations occurred in winter 2019/20 in the months of November, December, January, and February. On 29th November 2019, an adult flew close to the north of VP4 and headed in a south-easterly direction at a height of 17-18m. On 19th December 2019, a juvenile was seen west of VP3 flying at speed. The bird flew in a north-easterly direction over into the valley at 30m. On 11th January 2020, an individual was seen northeast of VP2. The bird flew directly down the valley at 80-100m heading south. On 16th February 2020, an adult was seen east of VP3 flying at 150m in a south-westerly direction before veering around to head back east.

During the summer 2020 survey period there was one observation. On 24th April, an adult male was observed east of VP1 flying over an area of grassland moorland in a westerly direction at 15m before going out of view.

During the winter 2020/21 survey period there was one observation of peregrine. On 10th October, an adult was seen southeast of VP4 flying at 35m in a west/northwest direction where it was seen mobbing a kestrel.

During the winter 2021/22 survey period there were two observations. On the 8th February an adult female was observed to the southwest of VP2 flying in an easterly direction at 30m flight height. On 3rd March an adult male was observed east of VP4 flying northwards, the bird perched for just over a minute before flying off southwards between 10-150m.

3.1.1.4 Kestrel

Kestrel was the most commonly recorded species throughout the whole survey period with over 100 observations and was present in all seven of the survey seasons. This species was observed at all VP locations and occurred most frequently at VP2 and VP3. Almost all recorded kestrel flights pertain to individual birds with few occasions involving pairs. Adult male and females were recorded frequently with juvenile and immature birds being observed on a few occasions. The most common activities recorded consisted of flying, hunting, and circling over grassland moorland/heather moorland. During a number of these observations a few individuals spent some time perched.

During the summer 2019 survey period, there were nine observations with the majority occurring at VP2. Most observations comprised adult females and on two occasions juveniles were recorded. All activity occurred within the flight activity area.

During the winter 2019/20 survey period there were 12 observations with the majority occurring at VP1. Most observations comprised adult females and males with immature males recorded on a few occasions. Most activity occurred within the flight activity area with one occasion in October activity was recorded on the 500m buffer boundary to the south of VP3.

During the summer 2020 survey period there were 19 observations with the majority occurring at VP2 and VP4. Most observations comprised adult females and males with immature birds recorded once. All activity occurred within the flight activity area. There is a confirmed nest site to the south of VP1 within the site boundary. It is not known if this nest is used every year.

During the winter 2020/21 survey period there were eight observations, with majority occurring at VP2 and VP4. Most observations comprised adult males while on one occasion a pair were observed (se and age undetermined). All activity occurred within the flight activity area.

During the summer 2021 survey period, there were 12 observations of kestrel with the majority occurring at VP3. Most observations comprised adults and a number of age and sex undetermined birds. All activity occurred within the flight activity area.

During the winter 2021/22 survey period there were 24 observations, with majority occurring at VP1, VP2 and VP5. Most observations comprised of adult males. Adult females were recorded but were less frequent. Of the observations, 20 occurred within the flight activity area and four occurred outside the buffer zone to the south of VP5.

During the summer 2022 survey period, there were 38 observations with majority occurring at VP1 followed by VP4 and VP5. Over half the observations comprise adult males and with the remaining observations being adult females and one age and sex undetermined bird. On occasion an adult male and female were observed in April. All activity occurred within the flight activity area.

3.1.1.5 Buzzard

Buzzard was the second most commonly observed species throughout the whole survey period over 90 observations and was present in all seven of the survey seasons. This species was observed at all VP locations and occurred most frequently at VP3 and VP5. Almost all recorded buzzard flights involved single birds with few occasions involving pairs. Adult male and females were recorded frequently, with juvenile and immature birds being observed on a few occasions as well as birds where the age and sex could not be determined. The most common activities recorded consisted of flying, hunting, soaring, and circling over grassland moorland/heather moorland. During several of these observations some individuals spent time perched. Most activity occurred within the flight activity area with a few occasions either on the boundary or just outside.

During the summer 2019 survey period there were seven observations, three occurred at VP1 and the others at VP2 and VP3. All observations pertain to individual birds. All activity occurred within flight activity area.

During the winter 2019/20 survey period there were seven observations. Three occurred at VP3 and the rest at VP1, VP2 and VP4. All observations pertain to individual adult birds. All activity occurred within flight activity area.

During the summer 2020 survey period there were 11 observations, most occurring at VP3 and the rest at VP1, VP2 and VP4. Ten of the 11 observations pertain to individual adult birds and on one occasion on 18th July, two juveniles were seen perched south of VP4 for 10 seconds before flying off in an easterly direction over grassland moorland at a height of 10m. It was noted that buzzards are holding territory south of VP3, most likely within that Valley to the south. There is also a potential nesting pair in the area to the north of VP1. Ten of the 11 observations occurred within the flight activity area whilst one bird was recorded partially inside and outside the boundary to the south of VP3.

During the winter 2020/21 survey period there were five observations, four of which occurred at VP3 and one at VP2. All observations pertain to individual adult birds flying or hunting. All activity occurred within flight activity area.

During the summer 2021 survey period there were 11 observations, nine of which occurred at VP3 and the remaining two at VP4. Most observations pertain to individual birds but on a few occasions, there were two or three birds recorded at once. Age and sex for most of the birds recorded was undetermined although there was one juvenile recorded in August at VP3. All activity occurred within flight activity area.

During the winter 2021/22 survey period there were 13 observations, six at VP5, five at VP3 and the remaining two at VP2. All observations pertain to individual adult birds flying, hunting, or soaring over grassland moorland. Age and sex for most of the birds recorded was undetermined with adults identified on a few occasions. Most activity occurred within the flight activity area, on two occasions birds passed through the 500m buffer into the site, one south of VP3 and the other south of VP5.

During the summer 2022 survey period there were 38 observations with majority occurring at VP5 followed by VP3 and VP2. Over half the observations comprise adult birds with the remaining birds age and sex undetermined. On two occasions a male and female pair were recorded on two separate occasions in May. All activity occurred within and outside the flight activity area.

3.1.1.6 Sparrowhawk

Sparrowhawk was recorded on 11 occasions over the course of the whole survey period and was present in five of the seven survey seasons. This species was observed at all VP locations except for VP1 and occurred most frequently at VP2 and VP3. All flights pertain to single birds either flying, hunting, soaring over grassland moorland and one occasion a bird perched. The majority of the observations comprise adult males and females and on two occasions juveniles were recorded. All activity occurred within flight activity area.

During the summer 2019 survey period there were two observations in August, one on the 7th of an adult male at VP2 circling and soaring at 50-70m and one on the 16th of a female at VP3 soaring at 100m flight height.

During the winter 2019/20 survey period there were 2 observations of sparrowhawk at VP2, one on 29th November of a juvenile female hunting at 4-5m and one on 12th January of an adult female flying/soaring at 2-15m.

During the summer 2020 survey period there were 2 observations at VP4, one on 16th August of an adult male perched and flying at 1.5m and one on September 15th of female soaring at 100m.

During the winter 2020/21 survey period there were two observations. On 12th October, a juvenile female was seen east of VP2, she flew to a fence where it perched at 1m height. On 5th November, a female was seen east of VP3 soaring at 50m before heading off east.

During the winter 2020/21 survey period there were three observations. On 30th Oct an adult male was east of VP3 flying west and then veering north-easterly at 20-50m. on 18th November an adult

male was observed north of VP5 flying in a southwest direction between 0-20m. The final observation was on 12th January whereby an individual bird was observed north of VP5 flying northeast at 0-20m.

3.1.1.7 Golden plover

Golden plover was recorded on 20 occasions over the course of the whole survey period and present in five of the seven survey seasons. This species was observed at all VP locations and most frequently at VP3. Over half of the observations pertain to flocks of 40 birds or greater flying over 100m with the remaining relating to singles birds or flocks of less than 20.

During the winter 2019/20 survey period there were five observations occurred in the month of October and one in the month of February. Two observations on 21st October at VP1, the first was of a flock of 40 birds southeast of the VP circling and flying in an easterly direction at heights greater than 180m. The second on this date was a flock of 60 birds circling around an area of heather moorland to the southwest of the VP at heights between 110-180m. One observation on 22nd October, a flock of 80 birds were observed east of VP3 circling and flying in an easterly direction at a height of 400m. Two observations on 23rd October, both sightings were of flocks of 200 birds with flight heights greater than 400m. The first observation the flock was seen to the east of the VP heading in an easterly direction. A short while later the second flock was seen north of the VP heading in a northerly direction. These two observations may have been of the same flock due to the size and the short time duration between both sightings. One observation of an individual on 14th February east of VP4. An adult bird flushed and flew a few metres before landing and walking around the heather for approximately five minutes before going out of view. All activity occurred within flight activity area.

During the summer 2020 survey period there was one observation. On 23rd April. An individual golden plover was observed south of VP4 calling as it was passing through the area in a north-easterly direction at a height greater than 400m. This observation occurred within flight activity area.

During the winter 2020/21 survey period there was five observations. On 9th October, a small flock of six were seen east of VP1 flying southeast at 100m. On 10th October, a flock of 40 were seen north of VP1 flying south/southeast at 50m. Two observations occurred on 11th October; the first sight was of a flock of 50 east of VP3 flying north over the mountain at 20m. The second sighting was during VP2, a flock of 150 was observed circling the area around the VP at 150m before flying off northeast. On 4th December, four birds were seen northeast of VP3 flying south at 10m. All activity occurred within the flight activity area.

During the winter 2021/22 survey period there were seven observations. On 30th October a flock of 100 was observed south of VP5 flying at 50-100 in a northward direction before veering northeast. This observation began outside the flight activity area and passed through the boundary into the activity area. On 15th November a small flock of 10 were observed east of VP1 flying in a north-easterly direction at 100-180m. On 17th November an individual was observed northeast of VP3 flying south-westerly at 100-180m. On 4th March a flock of 30 were observed north of VP1 flying east at 150m. The remaining three observations pertain to individual birds recorded in March close to VP3, two of which were occurred within the flight activity area and one on the boundary.

During the summer 2022 survey period there was one observation. On 5th April an individual was observed at VP5 flying eastward over grassland moorland before veering southeast. This observation occurred within the flight activity area.

3.1.1.8 Snipe

Snipe was recorded on 16 occasions over the course of the whole survey period and present in six of the seven survey seasons. This species was observed at all VP locations apart from VP5 and most frequently at VP3. All observations pertain to individual birds, some adults and some age undetermined birds either flying/displaying and perched/on the ground in grassland moorland. The majority of the activity occurred within the flight activity area and on one occasion in the winter 2019/20 season one snipe was flying south and passing through the 500m buffer zone boundary.

During the summer 2019 survey period there was one observation. On 7th August just east of VP1 a snipe loudly called four times as it flew down the valley in a south-westerly direction at heights between 23-30m.

During the winter 2019/20 survey period there were three observations, one in the month of October and two in the month of November. On 22nd October, an adult was observed northeast of VP3 flying south at 80m. On 29th November, a bird flew north of VP4 at heights of 10-12m. On 30th November, the surveyor flushed a snipe north of VP4. The bird flew low, at only 2-4m in height downslope over grassland and heather moorland and out of view.

During the summer 2020 survey period there were eight observations, all during surveys at VP4. Two occurred on 24th April, first an adult did a brief display flight at 15m flight height. The bird was later heard several times but was not seen. It was noted as possibly/probably calling from the ground. Second, an adult was observed doing a brief display flight at 40m. One observation occurred on each of the following dates. On 25th August, southeast of VP an adult was observed again doing a display flight at 30m. On 12th May, southeast of VP an adult was doing a display flight at 20-50m and calling. On 15th May, southeast of VP an adult was observed for a period of 5 minutes, the bird gave a series of 'wicka-wicka' display calls from the ground. On 10th June, southeast of VP an adult was flying northeast at 35m whilst calling. On 11th June, east of VP an adult was observed perched and displaying from a fence post for approximately 10 minutes. On 12th June, east of VP4 snipe was observed perched on a fence post and displaying. It is likely snipe was attempting to breed in this area accounting for display behaviour that was recorded in the summer season of 2020.

During the winter 2020/21 survey period there was two observations. On 9th October, an individual was seen east of VP1 flying south/southeast at 5m. On 22nd January, an individual was seen just east of VP1 flying south/southwest at 0-50 and was lost from view behind a stand of conifer trees.

During the summer 2021 survey period there was one observation. On 27th April an individual was observed west of VP flying northwards at 30m.

During the winter 2020/21 survey period there was one observation. On 5th December an individual was observed southeast of the VP3 flying in a north-easterly direction at 20-50m

3.1.1.9 Red grouse

Red grouse was recorded on two occasions over the whole survey period and was present in just one of the seven survey seasons (summer 2021). This species was heard calling in April and June to the east of VP2 but was not seen.

3.1.2 Secondary Target Species

The following sub-sections summarise sightings of all six secondary species recorded during vantage point surveys and states whether they occurred inside or outside the flight activity area. Tabulated summaries of these secondary species observations, including flight information, are available in **Appendix 5**. Flight line mapping for each secondary species is available in **Appendix 6**.

The secondary species recorded during all VP surveys carried out over the course of the survey period (3.5 years) can be categorised as follows (Conservation Status given for each species in accordance with Gilbert et al, 2021):

- Gulls
 - Great black-backed gull - BoCCI Green-listed
 - Herring gull - BoCCI Amber-listed
 - Lesser black-backed gull - BoCCI Amber-listed
- Waders
 - Ringed plover - BoCCI Amber-listed
 - Grey heron - BoCCI Green-listed
- Ducks
 - Mallard (*Anas platyrhynchos*) BoCCI Green-listed

Each species will be discussed in the order it is listed above in the following sections.

3.1.2.1 Great black-backed gull

Great black-backed gull was recorded on four occasions over the course of the whole survey period and was observed at VP1 and VP4 only. All observations occurred in the summer 2020 survey period and comprised one adult or pairs. All activity occurred within flight activity area.

On 10th June, two adult gulls were observed southeast of VP4 flying over grassland moorland at 40m in a south-easterly direction. Two observations occurred on 13th July, first, an adult was seen east of VP1 flying in a south-westerly direction over grassland moorland at 45m. Second, an adult was seen on the ground to the east of the VP4 feeding on what appeared to be a carcass for 70 minutes before flying off south. On 14th July, two birds (1 adult and 1 juvenile) were seen east of VP4 feeding on what appeared to be a carcass for approximately 90 minutes.

3.1.2.2 Herring gull

Herring gull was recorded on five occasions over the course of the whole survey period and present in two of the seven survey seasons. This species was observed and was observed at VP1, VP2 and VP3 only. All activity pertains to individual adults either flying or soaring.

During the summer 2020 there were two observations in June and. On the 8th an adult was seen southeast of VP1 soaring at 100m above grassland moorland heading in a northerly direction. On the

11th an adult was seen east of VP3 flying at 150m over grassland moorland. The bird flew north-westerly before veering round to head back southeast. All activity occurred within flight activity area.

During the summer 2021 there were three observations, two in July and one in August. Both observations in July were during VP2 and the bird was seen east of the VP flying northwards at 25m and 75m, respectively. The final observation on 15th August was at VP3, the bird was first observed south of the VP and flew in a north-easterly before veering northwest at 200m. The first two observations occurred inside the flight activity area and the third observation occurred partially inside and outside the flight activity area.

3.1.2.3 *Lesser black-backed gull*

Lesser black-backed gull was recorded on 15 occasions over the course of the whole survey period and present in four of the seven survey seasons. This species was observed at all VP locations except for VP5. Eleven of the observations pertain to individual birds, three relate to pairs and one occasion a small flock of four birds were recorded. Most of the birds recorded were adults along with a few immature birds. Activity recorded was mostly flying and, on a few occasions, perching/on the ground. The majority of the activity occurred within the flight activity area with a few occasions just on the 500m buffer boundary or passing through outside the boundary to the south of VP3.

During the summer 2019 survey period, there were two observations. First observation was of a pair of birds on 9th April heading west at 90m. The second observation was on 6th August of an individual heading south at 30-40m.

During the winter 2019/20 survey period there was one observation, on 16th March two birds (1 adult and 1 immature bird) were seen northeast of VP3 outside the site boundary. The birds were soaring south down the valley at 70m above grassland moorland.

During the summer 2020 survey period there were eight observations. Two occurred on 11th May of individual adult birds, one at VP1 flying north at 40m and the other an adult at VP4 flying north at 100m. Two occurred on 15th May of adult birds, one at VP3 circling high at 150-170m over a valley and the other one at VP4 flying northeast at 18m. Two occurred in the month of June, on the 11th an adult was observed at VP flying northeast at 30. On the 13th two birds (one adult and one immature bird) were observed at VP flying north at 35m. One occurred on 18th July, when an adult was observed at VP3 flying northwest at 40m. One occurred 17th August, an adult flew in and landed in improved grassland fields northeast of VP3 and remained there until the end of the VP survey (90 minutes in total). The bird was still present when leaving.

During the summer 2020 survey period there were four observations. On 16th June an individual was observed north of VP2 flying in a southerly direction at 120m before landing on the ground. On 24th June an individual was observed south of VP1 flying in a southerly direction at 25-30m. On 27th July an individual was observed southwest of VP3 flying northwards at 0-20m before perching. This bird then flew off southwards. The final record was on 15th September at VP3. The bird was observed north of VP3 and VP2 and was flying southwards at 50-100m and passed through to outside of the 500m buffer boundary to the south of VP3.

3.1.2.4 Ringed plover

Ringed plover was recorded on one occasion over the course of the whole survey period. During the summer 2020 survey period on 16th August, a ringed plover was observed southeast of VP4 calling and flying passing through site 50-100m. This observation occurred within flight activity area.

3.1.2.5 Grey heron

Grey heron was recorded on one occasion over the course of the whole survey period. During the summer 2019 survey period on 11th July, an adult was seen west of VP3 within the site boundary. This individual flew northwards up along the stream at a height of 10-14m consistently until it disappeared behind the hills. This observation occurred within flight activity area.

3.1.2.6 Mallard

Mallard recorded on two occasions over the course of the whole survey period and these observations occurred in summer of 2021. On 27th April a pair were observed just south of VP2 flying alongside a stream at 40m whilst heading northwards. On 31st May a pair were observed south of VP4 and VP1 flying over a stream at 15m heading in a south-westerly direction. Both observations occurred within flight activity area.

3.1.2.7 Incidental observations

In May during the summer survey period 2019 at VP3, a juvenile long-eared owl (*Asio otus*) was heard calling from a conifer plantation to the south of the VP. No visual was obtained.

3.1.3 Non-target Species

3.1.3.1 Red and Amber-listed

A Total of 53 non-target species were recorded over the course of the whole survey period. Non-target Red and Amber-listed species recorded are listed in Table 9 below, showing the species present in each survey season. Meadow pipit was the most frequently recorded species and was encountered during both the VP and Transect surveys. Monthly peak counts of all non-target species recorded during VP surveys are provided in **Appendix 7**.

Table 9: Non-target species recorded

Common Name	Scientific Name	Summer 2019	Winter 2019/20	Summer 2020	Winter 2020/21	Summer 2021	Winter 2021/22	Summer 2022
Grey wagtail	<i>Motacilla cinerea</i>							
Meadow pipit	<i>Anthus pratensis</i>							
Stock dove	<i>Columba oenas</i>							
Swift	<i>Apus apus</i>							
Goldcrest	<i>Regulus regulus</i>							
House martin	<i>Delichon urbicum</i>							
House Sparrow	<i>Passer domesticus</i>							
Linnet	<i>Carduelis cannabina</i>							
Sand martin	<i>Riparia riparia</i>							
Skylark	<i>Alauda arvensis</i>							

Common Name	Scientific Name	Summer 2019	Winter 2019/20	Summer 2020	Winter 2020/21	Summer 2021	Winter 2021/22	Summer 2022
Spotted flycatcher	<i>Muscicapa striata</i>							
Starling	<i>Sturnus vulgaris</i>							
Swallow	<i>Hirundo rustica</i>							
Tree sparrow	<i>Passer montanus</i>							
Wheatear	<i>Oenanthe oenanthe</i>							
Willow warbler	<i>Phylloscopus trochilus</i>							

3.1.3.2 Green-listed

Excluding the target, 34 other green-listed species were recorded during the vantage point surveys. The majority of these species are common and widespread passerines which occur in a wide variety of habitat types, many of which are found within the survey area. Most of these species are present throughout the year such as blackbird (*Turdus merula*) and goldfinch (*Carduelis carduelis*) while some are summer visitors to Ireland such as blackcap (*Sylvia atricapilla*) and cuckoo (*Cuculus canorus*).

All species recorded during VP surveys are provided in **Appendix 10**.

3.1.4 Distribution and Abundance Surveys

3.1.4.1 Transect

A total of 57 species were recorded during the Transect surveys carried out over course of the whole survey period. **Table 10** below, shows the species present in each survey season.

Overall, there were four Red-listed species, 12 Amber-listed species and 40 Green-listed species.

Six target species were recorded:

- Kestrel – five seasons
- **Hen harrier** – one season
- Lesser black-backed gull - one season
- Buzzard – four seasons
- Peregrine – one season
- Sparrowhawk – one season.

Survey summary details are provided in **Appendix 8** and tabulated results of peak counts for all species recorded during monthly transect and point count surveys are provided in **Appendix 9**.

Table 10: Transect survey counts

Common Name	Scientific Name	Summer 2019	Winter 2019/20	Summer 2020	Winter 2020/21	Summer 2021	Winter 2021/22	Summer 2022
Grey wagtail	<i>Motacilla cinerea</i>							
Kestrel	<i>Falco tinnunculus</i>							
Meadow pipit	<i>Anthus pratensis</i>							

Common Name	Scientific Name	Summer 2019	Winter 2019/20	Summer 2020	Winter 2020/21	Summer 2021	Winter 2021/22	Summer 2022
Stock dove	<i>Columba oenas</i>							
Goldcrest	<i>Regulus regulus</i>							
Hen harrier	<i>Circus cyaneus</i>							
Herring gull	<i>Larus argentatus</i>							
House martin	<i>Delichon urbicum</i>							
House sparrow	<i>Passer domesticus</i>							
Lesser black-backed gull	<i>Larus fuscus</i>							
Linnet	<i>Carduelis cannabina</i>							
Skylark	<i>Alauda arvensis</i>							
Starling	<i>Sturnus vulgaris</i>							
Swallow	<i>Hirundo rustica</i>							
Wheatear	<i>Oenanthe oenanthe</i>							
Willow warbler	<i>Phylloscopus trochilus</i>							
Blackbird	<i>Turdus merula</i>							
Blackcap	<i>Sylvia atricapilla</i>							
Blue Tit	<i>Parus caeruleus</i>							
Bullfinch	<i>Pyrrhula pyrrhula</i>							
Buzzard	<i>Buteo buteo</i>							
Chiffchaff	<i>Fringilla coelebs</i>							
Chaffinch	<i>Phylloscopus collybita</i>							
Coal Tit	<i>Parus ater</i>							
Collared dove	<i>Streptopelia decaocto</i>							
Crossbill	<i>Prunella modularis</i>							
Cuckoo	<i>Cuculus canorus</i>							
Dunnock	<i>Prunella modularis</i>							
Fieldfare	<i>Turdus pilaris</i>							
Goldfinch	<i>Carduelis carduelis</i>							
Great Tit	<i>Parus major</i>							
Greenfinch	<i>Anser albifrons</i>							
Hooded crow	<i>Corvus cornix</i>							
Jackdaw	<i>Corvus monedula</i>							
Jay	<i>Garrulus glandarius</i>							
Long-tailed tit	<i>Aegithalos caudatus</i>							
Magpie	<i>Pica pica</i>							
Mistle thrush	<i>Turdus viscivorus</i>							
Peregrine	<i>Falco peregrinus</i>							
Pheasant	<i>Phasianus colchicus</i>							
Pied wagtail	<i>Motacilla alba</i>							
Raven	<i>Corvus corax</i>							

Common Name	Scientific Name	Summer 2019	Winter 2019/20	Summer 2020	Winter 2020/21	Summer 2021	Winter 2021/22	Summer 2022
Redpoll	<i>Acanthis flammea</i>							
Redwing	<i>Turdus iliacus</i>							
Reed bunting	<i>Emberzia schoenichus</i>							
Robin	<i>Erithacus rubecula</i>							
Rook	<i>Corvus frugilegus</i>							
Siskin	<i>Carduelis spinus</i>							
Song thrush	<i>Turdus philomelos</i>							
Sparrowhawk	<i>Accipiter nisus</i>							
Spotted flycatcher	<i>Muscicapa striata</i>							
Stonechat	<i>Saxicola torquatus</i>							
Whitethroat	<i>Sylvia communis</i>							
willow warbler	<i>Phylloscopus trochilus</i>							
Woodpigeon	<i>Columba palumbus</i>							
Wren	<i>Troglodytes troglodytes</i>							

3.1.4.2 Nocturnal Walkover Survey

There were no nightjar, woodcock or owls recorded during the nocturnal surveys carried out in summer 2020. Other species observed during these surveys consisted of snipe. On both nights of surveying, snipe was observed displaying.

Survey summary details and a map of snipe are provided in **Appendix 11**.

3.1.4.3 Walkover Survey

Merlin, Red grouse and Golden plover (2020)

There were no merlin, red grouse or golden plover recorded during the walkover surveys carried out in summer 2020. Other species observed during these surveys consisted of hen harrier. On the second walkover survey a hen harrier was observed flying through the northern part of the site boundary.

Survey summary details and a map of hen harrier are provided in **Appendix 12**.

Red grouse (2022)

There were no red grouse recorded during the walkover surveys carried out in summer 2022. The only target species recorded was a male kestrel (not mapped).

Survey summary details are provided in **Appendix 13**.

3.2 HINTERLAND SURVEY

During the Hinterland survey carried out during summer 2020, birds of prey were active in the site, whilst there were no large assemblages of waders recorded. During the first hinterland survey buzzard were recorded in-flight three times and kestrel once. During the second hinterland, survey sparrowhawk was recorded in-flight once and buzzard twice.

Survey summary details and maps are provided in **Appendix 14**.

4 COLLISION RISK MODEL (CRM)

Collision with the turbine rotors of onshore wind farms is a potential source of avian mortality and to assess that risk a Collision Risk Model (CRM) was used for the proposed Coumnaappul Wind Farm site in upland central County Waterford.

Using the Band method of collision risk modelling (Band *et al.*, 2007; Band, 2012a), a CRM has been completed for the proposed Coumnaappul Wind Farm development. The data for this assessment was obtained from vantage point (VP) surveys carried out on site at Coumnaappul from April 2019 to September 2022, inclusive. The Band model operates using many assumptions, particularly in relation to bird behaviour and characteristics, and relies on accurate information regarding species' avoidance rates, turbine specifications, and the recording of data. Due to these assumptions and the limitations presented by collision risk modelling, any collision risk predictions are highly precautionary, solely speculative and are representative of worst-case estimates. Accordingly, results must be interpreted with a certain degree of caution and should only be considered indicative rather than conclusive.

Not all target species recorded during the VP surveys were assessed in the CRM. Only species that met the criteria (e.g., flight with suitable height band, flight within viewshed, etc.) were included in the model. For the full CRM report see Appendix XX of Chapter 10 (Ornithology) of the Coumnaappul Wind Farm Environmental Impact Assessment Report (EIAR).

5 REFERENCES

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Appendix 1

Statement of Surveyor Competency and Expertise

Report writing, project management and mapping undertaken by the following competent personnel:

Team Role	Name and Qualifications
Project Manager (former)	Monica Kane (Senior Ecologist, MSc. BSc.)
Project Ornithologist/Survey Team Lead/ Report Input (former)	John Murphy (Senior Ornithologist, Dip.)
Overseeing project after Monica left	Ken Fitzgerald (Associate Director, BSc. Surv Dip, CEcon Dip, Planning EIA CZM)
Reporting	Fiona McKenna (Ecologist, BSc.)
GIS Mapping & Data	Jeremy King (GIS Technician, Dip. PGDip.)
GIS Mapping & Data	Valerie Heffernan (Environmental Scientist, MSc. BSc.)
GIS Mapping & Data	Ashling Fenton (GIS Analyst, BA, MSc, HDip. Sc.)
CRM Assessment Report	Úna Williams (Ecologist and Environmental Scientist MSc., BSc.)

The field surveys were undertaken by the following competent personnel:

- John Murphy (Senior Ornithologist, Dip.)
- Eric Dempsey (Ornithologist)
- Michael O'Clery (Ornithologist)
- Austin Cooney (Ornithologist)
- Ger McGrath (MSc. BSc.)
- Éinne Ó Cathasaigh (BSc.)
- Aidan Duggan (Ornithologist)

Monica Kane

Monica Kane manages the Environmental Section of Malachy Walsh and Partners (MWP) where her role involves managing the day-to-day running of the section and the Environmental Team. She is an Environmental and Ecological Consultant with over 15 years of consultancy experience. She has been responsible for EIA and planning application project management, Appropriate Assessments, Ecological Impact Assessments, auditing, and constraints studies. She undertook and managed the environmental inputs into the Cluddaun Wind Farm, a Strategic Infrastructure Development, as well as the Boggeragh Wind Park, Knockranny Wind Farm and Clydaghroe Wind Farm EIS. As part of her involvement in the EU stoRE Project, she was the principal author of EC guidelines for PHES and Natura 2000 sites. She was an expert witness for the Oral Hearing on the Kenmare Water Supply Scheme for Kerry County Council and Cluddaun Wind Farm.

Role: Project Manager, liaising with the client

John Murphy

John Murphy is a senior ornithologist with Malachy Walsh and Partners and is the Project Ornithologist. He is very experienced having worked in the field of ornithology and ecology since 1982 and has extensive knowledge of the Irish landscape with regard to bird populations. He

collaborates regularly with NPWS on different projects throughout the country. John is one of the country's foremost ornithologists and is a licensed bird ringer. He has always had an interest in wildlife photography and his work has been published in many magazines and books. As a 'Heritage in the Schools Specialist', he has travelled the country lecturing in schools and colleges, and to various clubs and organizations. He was the Biodiversity Officer with Clare County Council and has been working as part of the MWP Ecology team on a variety of projects nationwide since 2010. He spends as much time in the field as possible as a bird observer.

Role: Project ornithologist, lead surveyor responsible for all field activity

Ken Fitzgerald

Ken Fitzgerald set up and previously managed the Environmental and Planning Department in MWP. Today he has a dual role in managing the Ecology Department and secondly focussing on Business Development for Renewable Energy, Marine, Ecology, Environment and Infrastructure across the company. In addition, he also acts as a Project Manager on Large scale Renewable Energy and Marine infrastructure projects across the country. He has worked on all aspects of environmental undertakings, including EIA project management, planning practice/legislation, project feasibility studies, Energy Assessment, EMS, IPPC, Marine & Coastal, Public Consultation, Stakeholder Management and Waste Management. His role sees him having an input on feasibility, environmental, planning and cost viability across a range of business sectors, including renewable energy, commercial, marine and sports/leisure. In managing the environmental and planning department he has worked with a number of key clients, and was responsible for managing multidisciplinary teams, tight deadlines, and full engagement with key stakeholders.

Role: Overseeing project after Monica left

Fiona McKenna

Fiona McKenna is a Graduate field ecologist who has been working with Malachy Walsh and Partners for the past four years on a part-time and full-time basis. She qualified with a degree in Wildlife Biology from MTU (formerly Tralee IT) in 2019. Over the last three years, she has contributed and helped complete numerous reports for bird survey work and is experienced in the collation of data and in field ecology survey techniques.

Role: Report author

Jeremy King

Jeremy is the lead GIS technician at Malachy Walsh and Partners. He assists the environmental team in completing EIAR's, wind farm feasibility studies and planning applications and also works closely with the wind farm civil design team. He also works on LVIA, photomontages and shadow flicker assessments with the EIA team. Jeremy assists in the final reporting for all bird survey projects through the production of mapping and other drawings, as well as any other GIS requirements which arise throughout the life of the project.

Role: Responsible for mapping, GIS project and report inputs

Valerie Hefferman

Valerie has worked as an environmental professional since graduating in 2015 and has been employed as an Environmental Scientist with Malachy Walsh and Partners since 2018. She has

considerable experience in Solar Farm development and has had input in a variety of projects including solar farms, and marine and wind energy developments. She is experienced in GIS, planning and environmental report input.

Role: Responsible for viewshed analysis and flight path mapping

Ashling Fenton

Ashling has worked in both Data and GIS Analysis. Her experience spans a variety of project types including wind and solar site origination and development, and due diligence within the utilities and agriculture sector. She is also experienced in data cleansing & analysis, report writing, and the provision of PRAI-compliant maps.

Role: GIS Analyst responsible for location and flight path mapping

Úna Williams

Úna has worked with MWP for nearly four years and is an experienced field ecologist. She is familiar with various ecological survey methodologies including habitat/survey mapping and zoological surveys and has worked on research teams both in Ireland and abroad. She has undertaken assessments for a wide variety of projects including renewable energy developments, and infrastructural and coastal development projects. Úna has designed and carried out several Collision Risk Models for proposed wind farms and has authored many ecological reports including Screenings for Appropriate Assessment Reports (Stage 1), Natura Impact Statements (Stage 2), and Ecological Impact Assessments.

Role: CRM Assessment Report

*The CRM report is not included in the Ornithology Report but will be appended to the EIAR

Eric Dempsey

Eric Dempsey is an Environmental Consultant and Ornithologist who has worked on a wide range of conservation, research, and ecological monitoring projects across Ireland. Eric has over 40 years in the field and is the author of the best-selling books, *The Complete Field Guide to Ireland's Birds* and *Finding Birds in Ireland*. He is experienced in coordinating and undertaking surveys along with being highly proficient in report writing and data management. Eric is very experienced with all survey methodology and has provided input for various Environmental Impact Assessment Reports, Environmental Assessments and Appropriate Assessments for numerous projects. Eric has been leading a team of field ornithologists undertaking the long-term Dublin Winter Birds Survey.

Role: Field surveyor

Michael O' Clery

Michael graduated from the National College of Art & Design, Dublin in 1992. Immediately upon leaving college, he was commissioned to paint all 640 bird paintings for the best-selling book, *The Complete Guide to Ireland's Birds*. He has since worked as a full-time bird surveyor, wildlife artist, bird illustrator, designer, and author. As well as illustrating and co-authoring major books on birds in Ireland, he has undertaken numerous bird surveys, including Vantage point and Transect counts, throughout the country. He has also been actively involved with many ornithological projects such as the Co. Kerry Raptor Conservation Project, and the National Bird Atlas Project, as well as

contributing to ongoing schemes such as the Countryside Bird Survey, and Maharee Islands seabird surveys.

Role: Field surveyor

Austin Cooney

Austin has more than 35 years of bird surveying experience both in Ireland and abroad and is an active member of the Clare branch of Birdwatch Ireland. Austin has worked on a variety of projects in many locations around Ireland. He is proficient in Vantage Point surveys, Transect Surveys, Point Count surveys, Hinterland surveys, Merlin surveys and Red grouse surveys. Austin has over 10 years of I-WeBS survey experience and is co-author of the book “Shannon Airport Lagoon – A Unique Irish Habitat”.

Role: Field surveyor

Ger McGrath

Ger graduated from University College Cork in 2013 having completed a bachelor’s degree in Zoology in 2012 and completed a master’s degree in Ecological Assessment in 2013. Ger has experience in counts as well as mapping, design and interpretation of both bird and bat surveys. He is also competent in the interpretation of ecological data in the context of environmental legislation, habitat mapping, Appropriate Assessment, Environmental Impact Assessment and Strategic Environmental Assessment. He has attained skills in the ecological assessment of both terrestrial and freshwater habitats. Ger has been working as a freelance ecologist since 2013 carrying out bird surveys (VP and transect), at several sites around Munster/Leinster area.

Role: Field surveyor

Éinne Ó Cathasaigh

Einne is a recent graduate of Marine Biology (MSc) with an undergraduate degree in Zoology (BSc). Einne has a wide range of field surveying experience with more than 5 years of international fieldwork, statistical analysis, data collation and field ecology experience. Einne is proficient in Vantage Point surveys, Transect Surveys, Point Count surveys, and Hinterland surveys.

Role: Field surveyor

Aidan Duggan

Aidan has a wide range of field and bird surveying experience with more than 15 years working for various Ecological Consultancies. Aidan is proficient in Vantage Point surveys, Transect Surveys, Point Count surveys, and Hinterland surveys, as well as Breeding Merlin surveys, Red Grouse surveys, Hen Harrier nest monitoring, White-tailed Eagle roost watches, Hen Harrier roost watches, Countryside bird surveys, Breeding waders surveys, Breeding Woodcock survey, & Chough Surveys. From 1999 to 2004 Aidan was a voting member of the Irish Rare Bird Committee (IRBC), the recognized national expert group on bird identification, which operates under the auspices of Birdwatch Ireland.

Role: Field surveyor

Appendix 2

IWeBS counts for:

River Suir Middle, Dungarvan Harbour and Clonea Strand

River Suir Middle

River Suir Middle I-WeBS site, which has an extensive list (24) of species which include species population counts of national importance between 2010/11 and 2020/21¹.

Table 1. Species list of I-WeBs site for River Suir Middle

Species	1% National	1% International	2010/11	2013/14	2015/16	2018/19	2019/20	2020/21	Mean
Black-headed gull (<i>Larus ridibundus</i>)				48	2	40	3	50*	29
Black-tailed godwit (<i>Limosa limosa</i>)	200	1100					2		0
Common gull (<i>Larus canus</i>)						9	5	1	32
Common sandpiper (<i>Actitis hypoleucos</i>)					1*				0
Cormorant (<i>Phalacrocorax carbo</i>)	110	1200		3*	37*	17*	24	7*	17
Curlew (<i>Numenius arquata</i>)	350	7600		76	112	66	59	2*	61
Green Sandpiper						1	2*	1*	1
Grey heron (<i>Ardea cinerea</i>)	25	5000		1*	2*	7*	13	8*	7
Grey plover (<i>Pluvialis squatarola</i>)	30	2000						50	10
Greylag goose (<i>Anser anser</i>)	35	980			2				1
Kingfisher (<i>Alcedo atthis</i>)					1*	1*	1*		0
Lapwing (<i>Vanellus vanellus</i>)	850	72300		70	6	70	62*	75*	60
Lesser black-				15	4	45*	5	25*	18

¹https://c0amf055.caspio.com/dp/f4db30005d8e20614b404564be88?appSession=1N8BK3Y04B95507ZW3987726GK78G412CB74JS7TZPPTQ26BQI1Y2DRS7KM5C37A100XCYC9K83P07NR1LU6057WY85OPUAC599C4Z55792NA3CO24G3KC70OJ30310I&PageID=2&PrevPageID=2&cpipage=1&CPISortType=asc&CPIOrderby=Sp_Name&cbCurrentPageSize=

Species	1% National	1% International	2010/11	2013/14	2015/16	2018/19	2019/20	2020/21	Mean
backed gull (<i>Larus fuscus</i>)									
Little egret (<i>Egretta garzetta</i>)	20	1100		1*	11*	6	13	14*	8
Little Grebe (<i>Tachybaptus ruficollis</i>)	20	4700							1
Mallard (<i>Anas platyrhynchos</i>)	280	53000		20	48	42*	23	26	35
Moorhen (<i>Gallinula chloropus</i>)				3*	1*	5*	4*	1*	3
Mute swan (<i>Cygnus olor</i>)	90	100		9	22	40	52	34	42
Shelduck (<i>Tadorna tadorna</i>)	100	2500			1				0
Shoveler (<i>Anas clypeata</i>)	20	650				4	3	4*	2
Snipe (<i>Gallinago gallinago</i>)				3*	12*	18	6*	16	12
Teal (<i>Anas crecca</i>)	360	5000			60	73	25	42	67
Whooper swan (<i>Cygnus cygnus</i>)	150	340		70	50	103	107	66	100
Wigeon (<i>Anas penelope</i>)	560	14000			135	12	191	8*	74

* Counts that are poor quality are represented by an asterisk.

Dungarvan Harbour

Dungarvan Harbour I-WeBS site has an extensive list (63) of species which includes species population counts of national importance between 2008/09 and 2020/21².

Table 2: Species list of I-WeBs site for the Dungarvan Harbour

Species	1% National	1% International	2008/09	2011/12	2013/14	2015/16	2017/18	2020/21	Mean
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²https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88?appSession=6S3GHQ83USR78Z4Z493224T34LJ2RTAY15M1M383369817JSMFMR9N8042R60Z31T109W163340M83H35EFSNGU08DB603DYG48GJXQQTZ4LGV5S8395Y0E7MX71PZ86&PageID=2&PrevPageID=2&cpipage=1&CPISortType=asc&CPIorderby=Sp_Name&cbCurrentPageSize=

Species	1% National	1% International	2008/ 09	2011/ 12	2013/ 14	2015/ 16	2017/ 18	2020/ 21	Mean
Barnacle goose (<i>Branta leucopsis</i>)	160	810		11					0
Bar-tailed godwit (<i>Limosa lapponica</i>)	170	1500	621	962	1151	1127	806	294	688
Black-headed gull (<i>Larus ridibundus</i>)				133*	184	139		449	132
Black-necked grebe (<i>Podiceps nigricollis</i>)			3				2	1	2
Black-tailed godwit (<i>Limosa limosa</i>)	200	1100	1248	677	520	1386	1109	267	948
Brent goose (Black brant) (<i>Branta bernicla nigricans</i>)			2	1					0
Cattle egret (<i>Bubulcus ibis</i>)									3
Common gull (<i>Larus canus</i>)				166*	218	249		95	31
Common sandpiper (<i>Actitis hypoleucos</i>)							1		0
Common scoter (<i>Melanitta nigra</i>)	110	7500		3				10	2
Cormorant (<i>Phalacrocorax carbo</i>)	110	1200	72	36	181	54	36	26	76
Curlew (<i>Numenius arquata</i>)	350	7600	502	447	861	564	477	263	575
Dark-bellied brent goose (<i>Branta bernicla bernicla</i>)			3	2		2			0
Dunlin (<i>Calidris alpine</i>)	460	13300	3763	1125	2506	2232	2197	644	1987
Egyptian goose (<i>Alopochen aegyptiaca</i>)						6			0
Eider (<i>Somateria mollissima</i>)	55	9800							

Species	1% National	1% International	2008/ 09	2011/ 12	2013/ 14	2015/ 16	2017/ 18	2020/ 21	Mean
Gadwall (<i>Anas strepera</i>)	20	1200							240
Glaucous gull (<i>Larus hyperboreus</i>)					1				0
Golden plover (<i>Pluvialis apricaria</i>)	920	9300	2030	15	3450	3250	4104	1	2421
Goldeneye (<i>Bucephala clangula</i>)	40	11400	4	5	5	7	3		4 2
Great Black-backed gull (<i>Larus marinus</i>)				47*	52	21		1	3
Great crested grebe (<i>Podiceps cristatus</i>)	30	6300	36	112	50	52	14	59	40
Great northern diver (<i>Gavia immer</i>)	20	50	8		17	17	6	19	18
Greenshank (<i>Tringa nebularia</i>)	20	3300	43	13	16	31	31	28	27
Grey heron (<i>Ardea cinerea</i>)	25	5000	21		23	24	21	17	20
Grey plover (<i>Pluvialis squatarola</i>)	30	2000	399	189	220	173	210	112	192
Herring gull (<i>Larus argentatus</i>)				25*	158	21		10	16
Iceland gull (<i>Larus glaucooides</i>)				1				1	0
Kingfisher (<i>Alcedo atthis</i>)			1					1	0
Knot (<i>Calidris canutus</i>)	160	5300	890	370	203	689	312	405	402
Lapwing (<i>Vanellus vanellus</i>)	850	72300	2345	829	2414	1322	843	392	838
Lesser black-backed gull (<i>Larus fuscus</i>)				193	723	88		1	1
Lesser Yellowlegs (<i>Tringa flavipes</i>)								1	0
Light-bellied	350	400	1767	1516	1143	1062	1034	881	1007

Species	1% National	1% International	2008/09	2011/12	2013/14	2015/16	2017/18	2020/21	Mean
brent goose (<i>Branta bernicla hrota</i>)									
Little egret (<i>Egretta garzetta</i>)	20	1100	9	4	28		31	6	14
Little grebe (<i>Tachybaptus ruficollis</i>)	20	4700	6	2	6	13	6	8	7
Long-tailed duck (<i>Clangula hyemalis</i>)					3	2			0
Mallard (<i>Anas platyrhynchos</i>)	280	53000	78	45	84	110	43	52	68
Mediterranean Gull (<i>Larus melanocephalus</i>)									0
Moorhen (<i>Gallinula chloropus</i>)					1				2
Mute swan (<i>Cygnus olor</i>)	90	100	2	2					0
Oystercatcher (<i>Haematopus ostralegus</i>)	610	8200	1055	697	1047	889	849	509	709
Pintail (<i>Anas acuta</i>)	20	600	2			6			1
Red-breasted merganser (<i>Mergus serrator</i>)	25	860	40	38	46	81	27	36	47
Redshank (<i>Tringa totanus</i>)	240	2400	1339	604	1126	1042	1165	617	897
Red-throated diver (<i>Gavia stellate</i>)	20	3000		2	1	8	1		2
Ringed plover (<i>Charadrius hiaticula</i>)	120	540	113	54	109	103	95	116	109
Sanderling (<i>Calidris alba</i>)	85	2000	61	41	23	59	35	55	62
Scaup (<i>Anas marila</i>)	25	3100							0
Shag (<i>Phalacrocorax aristotelis</i>)			2	8	27	25	8	29	42
Shelduck (<i>Tadorna</i>)	100	2500	314	341	337	348	245	195	277

Species	1% National	1% International	2008/09	2011/12	2013/14	2015/16	2017/18	2020/21	Mean
<i>tadorna</i>)									
Shoveler (<i>Shoveler</i>)	20	650				17	2		3
Slavonian grebe (<i>Podiceps auratus</i>)					2		1		0
Snipe (<i>Gallinago gallinago</i>)			37*	5*	19	40	29	8	38
Spoonbill (<i>Platalea leucorodia</i>)					1	2	3		2
Spotted redshank (<i>Tringa erythropus</i>)			1		1				0
Surf scoter (<i>Melanitta perspicillata</i>)					2				0
Teal (<i>Anas crecca</i>)	360	5000	124	350	278	328	281	201	408
Tufted duck (<i>Aythya fuligula</i>)	270	8900			1		3		1
Turnstone (<i>Arenaria interpres</i>)	95	1400	272	106	217	247	140	91	146
Water rail (<i>Rallus aquaticus</i>)					1	1*			0
Whimbrel (<i>Numenius phaeopus</i>)						2	2		1
Wigeon (<i>Anas penelope</i>)	560	14000	333	268	258	303	169	168	238

* Counts that are poor quality are represented by an asterisk.

Clonea Strand

Clonea Strand I-WeBS site, which has an extensive list (33) of species which include species population counts of national importance between 2008/09 and 2020/21³

Table 3: Species list of I-WeBs site for the Clonea Strand

Species	1% National	1% International	2008/09	2011/12	2013/14	2015/16	2017/18	2020/21	Mean
Barnacle goose (<i>Branta</i>)	160	810			1				0

³https://c0amf055.caspio.com/dp/f4db30005dbe20614b404564be88?appSession=6XQ4485U01LPM488OI31UHGf527GM66TJRNOMJ298429BOB3U4WG200EL17204DK80FCF3R7E31RGSYX8S2899IPI40Y58E7I0YI65T2I7F03NWR9M758H5I0Z2O94Q3&PageID=2&PrevPageID=2&cpipage=1&CPIsortType=asc&CPIorderby=Sp_Name&cbCurrentPageSize=

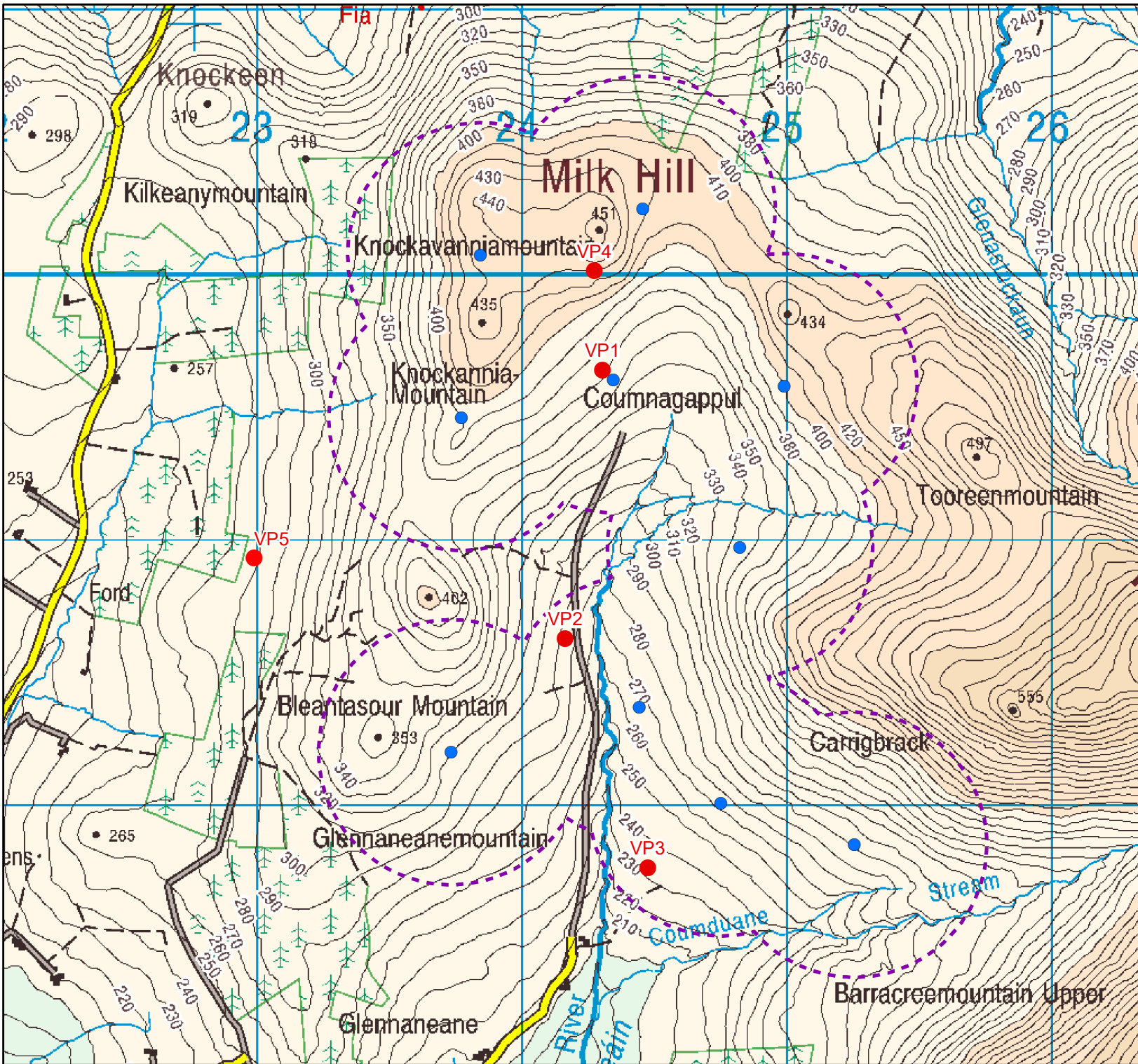
Species	1% National	1% International	2008/ 09	2011/ 12	2013/ 14	2015/ 16	2017/ 18	2020/ 21	Mean
<i>leucopsis</i>)									
Bar-tailed godwit (<i>Limosa lapponica</i>)	170	1500	22	18	19	31	14		14
Black-headed gull (<i>Larus ridibundus</i>)						520	980		980
Black-tailed godwit (<i>Limosa limosa</i>)	200	1100							0
Common gull (<i>Larus canus</i>)						320	180		180
Cormorant (<i>Phalacrocorax carbo</i>)	110	1200	9	12	14	4	6		6
Curlew (<i>Numenius arquata</i>)	350	7600	7	11*	23	38	52		52
Dunlin (<i>Calidris alpine</i>)	460	13300	68	69	40	53	65		65
Golden plover (<i>Pluvialis apricaria</i>)	920	9300					1		1
Great Black- backed gull (<i>Larus marinus</i>)						17			0
Great-crested grebe (<i>Podiceps cristatus</i>)	30	6300		1					0
Great northern diver (<i>Gavia immer</i>)	20	50	19	5	6	8	6		6
Greenshank (<i>Tringa nebularia</i>)	20	3300	1	2	1	4	2		2
Grey heron (<i>Ardea cinerea</i>)	25	5000	2	2	1	3	7		7
Grey plover (<i>Pluvialis squatarola</i>)	30	2000	9	19	11	17	15		15
Herring gull (<i>Larus argentatus</i>)						54	1		1
Lapwing (<i>Vanellus vanellus</i>)	850	72300					24		24
Lesser black-						5	5		5

Species	1% National	1% International	2008/ 09	2011/ 12	2013/ 14	2015/ 16	2017/ 18	2020/ 21	Mean
backed gull (<i>Larus fuscus</i>)									
Light-bellied brent goose (<i>Branta bernicla hrota</i>)	350	400	196	43	350	300	65		65
Little egret (<i>Egretta garzetta</i>)	20	1100				2			0
Mediterranean gull (<i>Larus melanocephalus</i>)				1					0
Oystercatcher (<i>Haematopus ostralegus</i>)	610	8200	190	146	100	120	92		92
Purple sandpiper (<i>Calidris maritima</i>)	20	110	2	1			1		0
Red-breasted merganser (<i>Mergus serrator</i>)	25	860			1				0
Redshank (<i>Tringa totanus</i>)	240	2400	13	27	11	31	46		46
Red-throated diver (<i>Gavia stellate</i>)	20	3000	2	1	11	2	1		1
Ringed plover (<i>Charadrius hiaticula</i>)	120	540	39		45	33	53		53
Sanderling (<i>Calidris alba</i>)	85	2000	45	3	15	28	14		14
Shag (<i>Phalacrocorax aristotelis</i>)			3	10	41	13	4		4
Snipe (<i>Gallinago gallinago</i>)							3		3
Turnstone (<i>Arenaria interpres</i>)	95	1400	55	44	11	14	42		42
Whimbrel (<i>Numenius phaeopus</i>)			1	3		14	1		1
Yellow-legged Gull (<i>Larus</i>						1			0

Species	1% National	1% International	2008/ 09	2011/ 12	2013/ 14	2015/ 16	2017/ 18	2020/ 21	Mean
<i>michahellis</i>)									

Appendix 3

Figures – Survey Locations, Survey Routes, and Viewshed Maps



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Map Reproduced From Tailte Éireann
 By Permission Of The Government.
 CYAL50332198.

0 0.4 0.8
 km

Project Title:
 20122 - Coumragappul WF

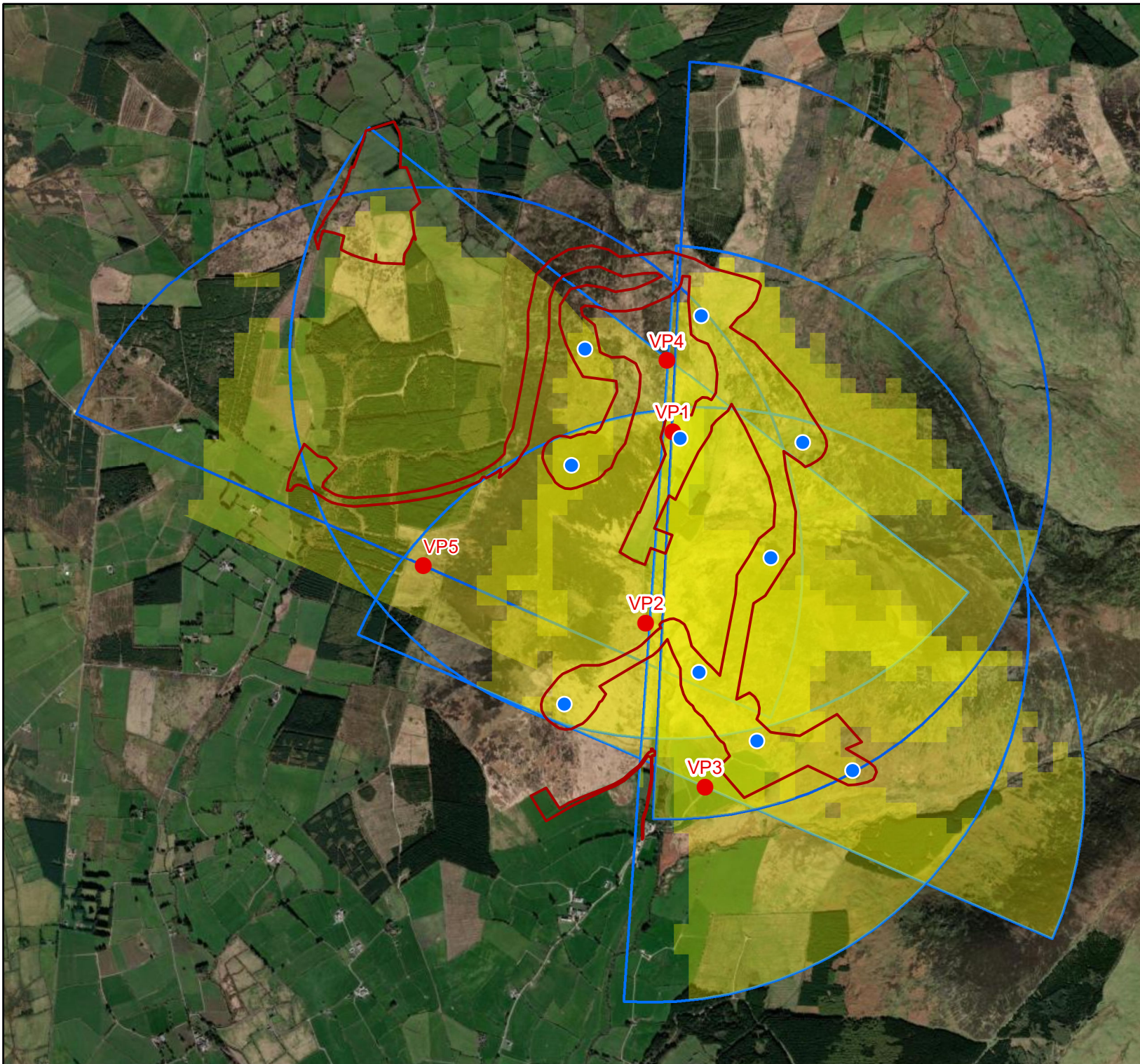
Client: EM-Power

Drawing Title:
 Vantage Point Locations

Drawn: AF	Checked: FMK
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Date: 02/08/2023	Scale (A4): 1:20,000
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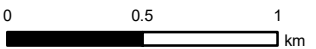




Legend

- Vantage Point
- Turbine Location
- Proposed Site Boundary
- Viewshed
- Viewshed Extent

Map Reproduced From Ordnance Survey Ireland
By Permission Of The Government.
CYAL50261645.



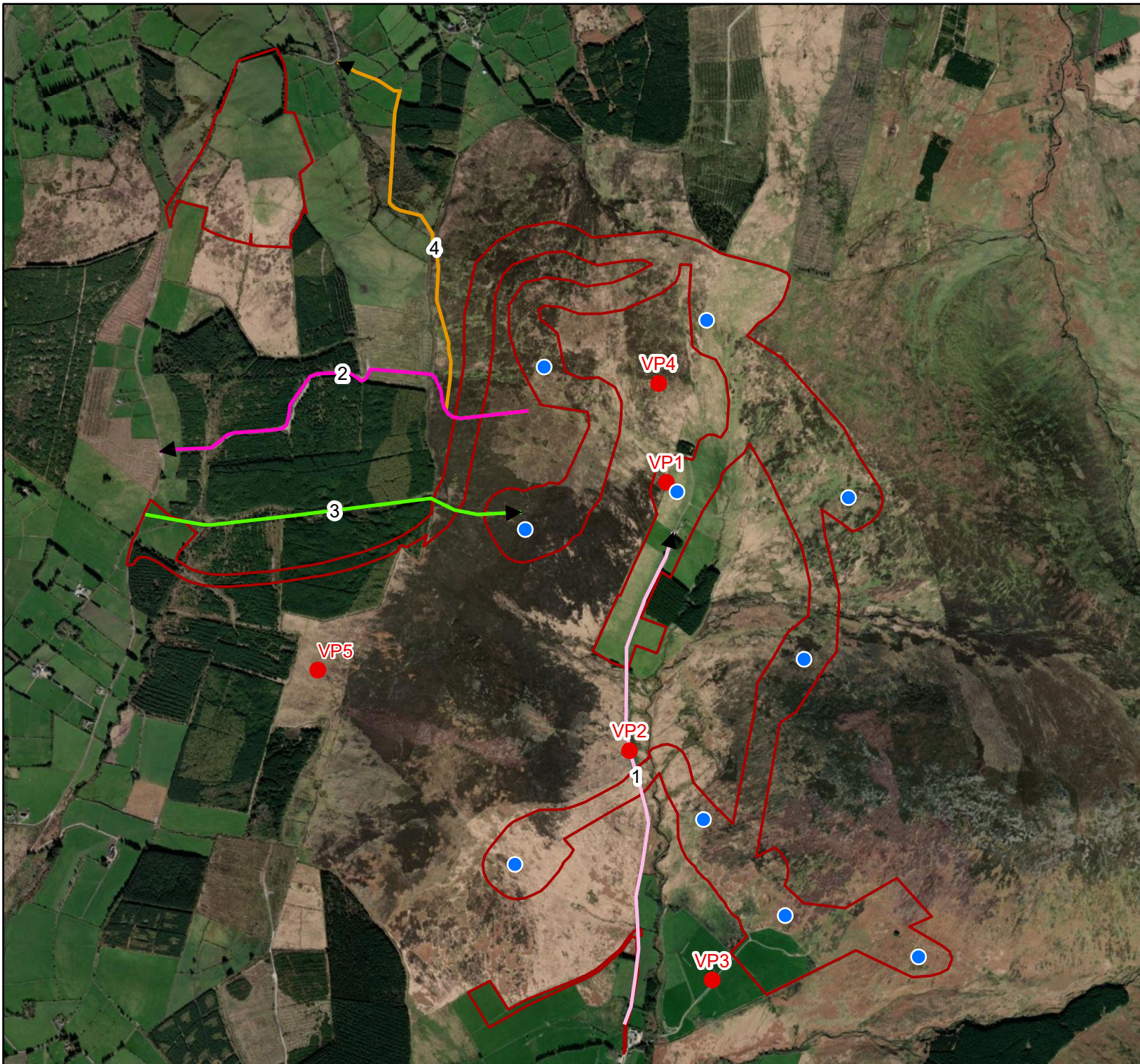
Project Title:
20122 - Coumnagappul WF

Client: EM - Power

Drawing Title:
Viewshed Analysis

Drawn: AF	Checked: FM
Date: 02/08/2023	Scale (A4): 1:28,000





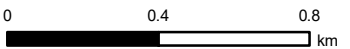
Legend

- Vantage Point
- Turbine Location
- Proposed Site Boundary

Route

- ▶ Transect 1
- ▶ Transect 2
- ▶ Transect 3
- ▶ Transect 4

Map Reproduced From Ordnance Survey Ireland
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CYAL50261645.



Project Title:
20122 - Coumragappul WF

Client: EM - Power

Drawing Title:
Transect Routes 2019 - 2022

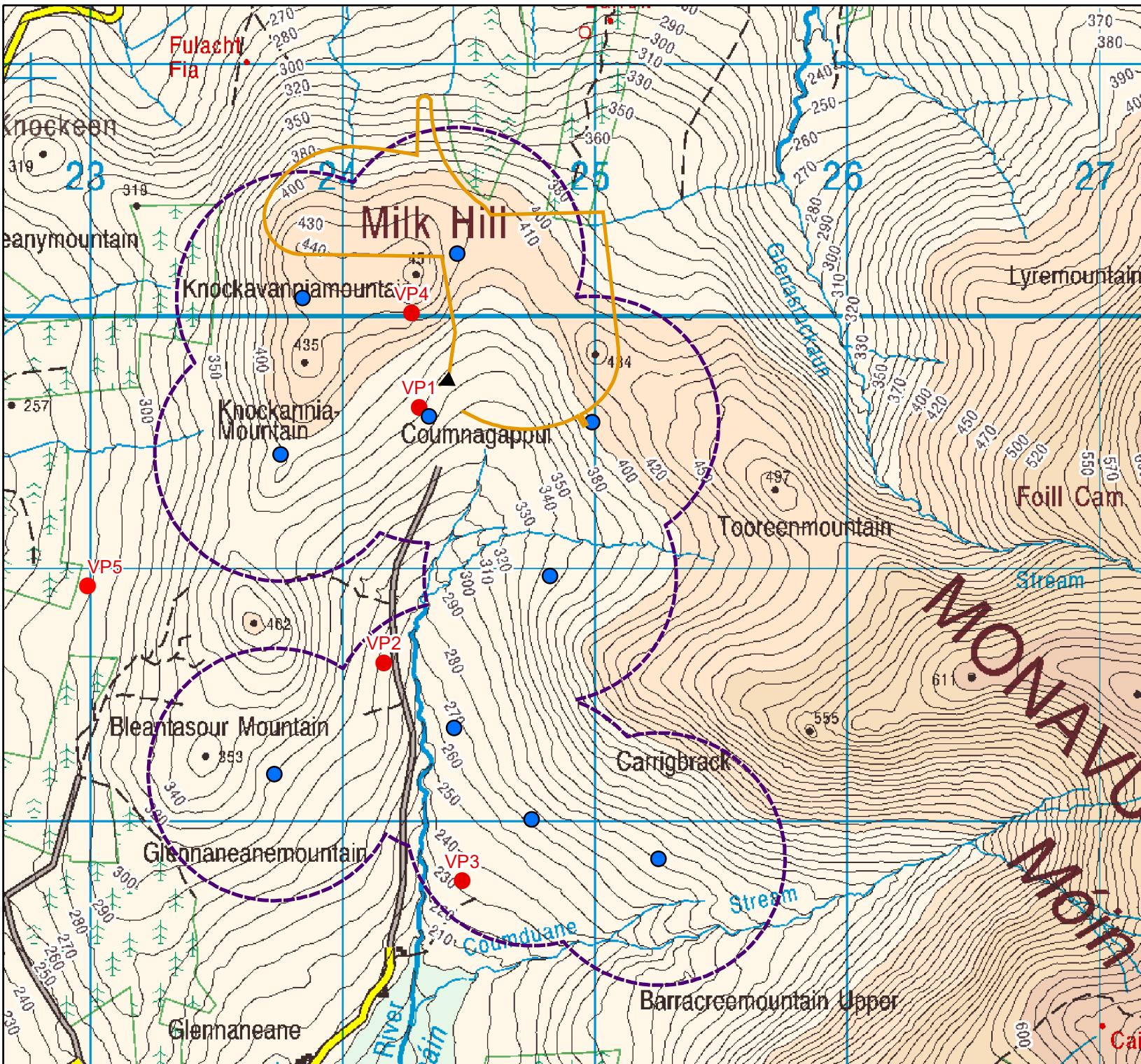
Drawn: AF

Checked: FM

Date: 02/08/2023

Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- ▶ Merlin & Golden Plover Walkover Route

Map Reproduced From Ordnance Survey Ireland
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 CYAL50261645.

0 0.425 0.85
 km

Project Title:
 20122 - Coumna gappul WF Bird Surveys

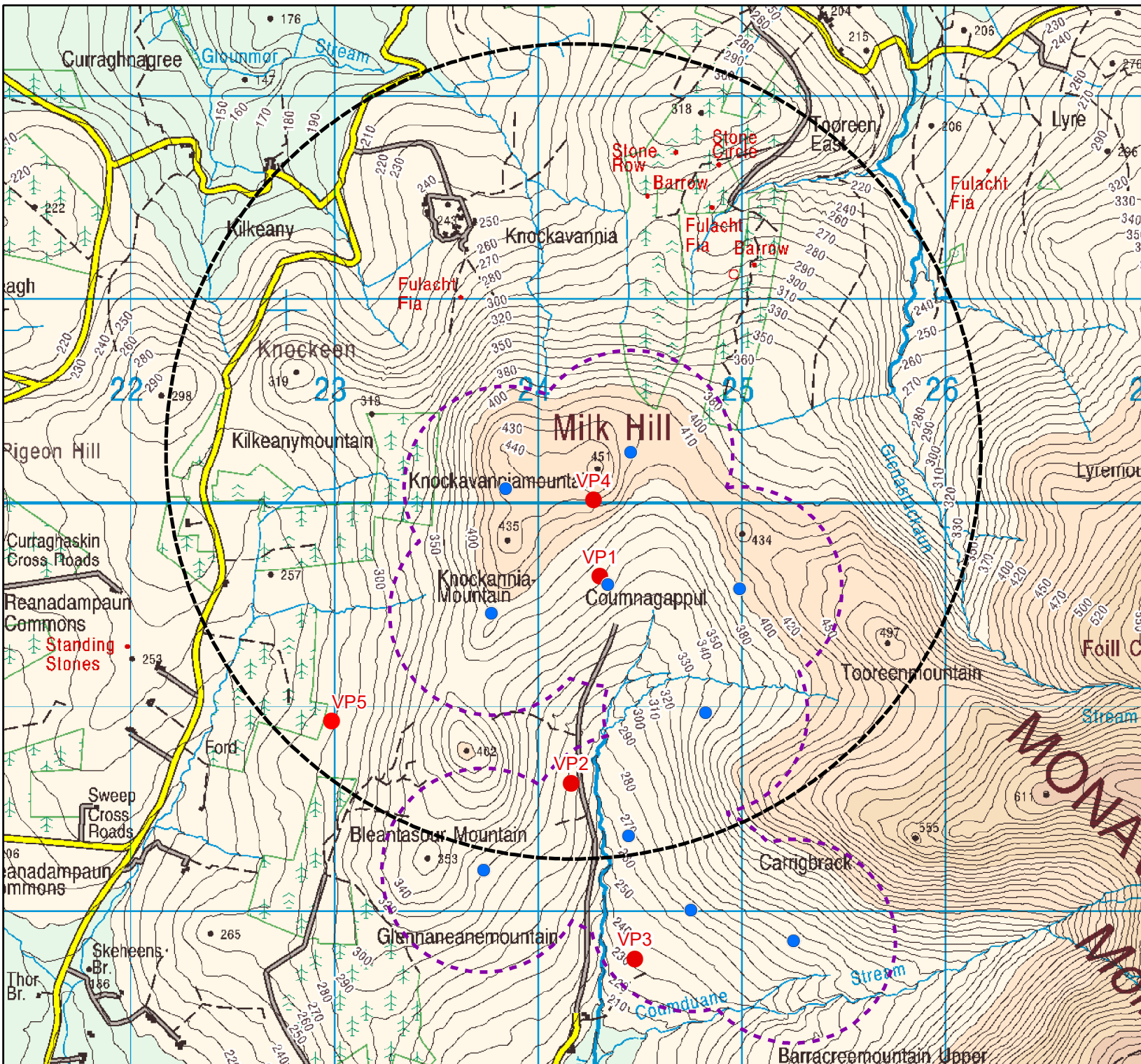
Client: EM - Power

Drawing Title:
 Summer 2020 Merlin and Golden Plover
 Walkover Route

Drawn: AF **Checked:** FM

Date: 08/12/2022 **Scale (A4):** 1:21,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- Hinterland Raptor Survey Area

Map Reproduced From Tailte Éireann
By Permission Of The Government.
CYAL50332198.

0 0.5 1 km

Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer 2020 Hinterland Raptor
Survey Area

Drawn: AF **Checked:** FM

Date: 22/06/2023 **Scale (A4):** 1:26,000



Appendix 4

Vantage Point Survey Summary

Vantage Point Survey Summary

Breeding 2019						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	05/04/2019	JNM	10.00	13.00	3	A fine day and sunny morning with a cool easterly breeze. Wind E-SE F1-3, temp 7-8oC, visibility good.
1	08/04/2019	JNM	14.30	17.30	3	A fine day and hazy at times. Wind S-SE F3-5, temp 11oC, visibility good.
2	05/04/2019	JNM	13.30	16.30	3	A fine day and sunny morning with a cool easterly breeze. Wind E-SE F1-3, temp 7-10oC, visibility good.
2	09/04/2019	JNM	14.00	17.00	3	A misty morning with low cloud cover, clearing in the afternoon. Wind S-SE F2-4, temp 11-8oC, visibility ok.
3	08/04/2019	JNM	11.00	14.00	3	A dry sunny day. Wind S-SE F3-5, temp 11oC, visibility good.
3	09/04/2019	JNM	17.05	20.05	3	Weather cleared in the afternoon to a fine, bright day. Wind E-SE F2-4, temp 11-8oC,
1	21/05/2019	JNM	12.00	15.00	3	A dry, sunny day. Wind S F1-3, temp 24oC, visibility good.
1	22/05/2019	JNM	15.15	18.15	3	A fine day with some sunshine. Wind S F1-2, temp 15oC, visibility good.
2	21/05/2019	JNM	15.15	18.15	3	A fine, warm sunny day. Wind S F1-3, temp 24oC, visibility good.
2	22/05/2019	JNM	12.00	15.00	3	A fine, dry sunny day. Wind SE-E F1-2, temp 15oC, visibility good.
3	30/05/2019	JNM	11.00	14.00	3	A fine dry warm sunny day. Wind S-SW F3-5, temp 19-20oC, visibility good.
3	30/05/2019	JNM	15.00	18.00	3	A fine dry warm sunny day. Wind S-SW F3-5, temp 19-20oC, visibility good.
1	11/06/2019	JNM	17.00	20.00	3	A dry day with some sunny periods. Wind N-NE F3-4, temp 16-18oC, visibility good.
1	20/06/2019	JNM	09.00	12.00	3	A showery day with some bright spells. Wind N-W F1-3, temp 12oC, visibility ok.
2	11/06/2019	JNM	13.00	16.00	3	A dry day with sunny periods and some cloud cover in the evening. Wind N-NE F2-4. Temp 16-18oC, visibility good.
2	12/06/2019	JNM	15.00	18.00	3	A dry, overcast, and dull day. Wind N F2-4, temp 10-16oC, visibility ok.
3	12/06/2019	JNM	19.00	22.00	3	Dull in the evening with some light rain. Wind N F1-2, temp 10oC,

Vantage Point Survey Summary

Breeding 2019						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
						visibility ok.
3	17/06/2019	JNM	14.00	17.00	3	A dry day with low cloud cover. Wind SW F3-5, temp 16-13-11oC, visibility ok.
1	10/07/2019	JNM	10.30	13.30	3	A misty damp morning with low cloud cover, south to southwest wind f1-2, temp 17oC, visibility poor
1	11/07/2019	JNM	15.30	18.30	3	Misty rain that cleared in the afternoon with some sunshine, the wind shifted to the west, f2-3, temp ok, visibility 17-20oC
2	09/07/2019	JNM	10.00	13.00	3	A dry warm sunny day, slack southerly winds, temp 19-20oC, visibility good
2	10/07/2019	JNM	13.35	16.35	3	A wet afternoon, mist, and rain, south to southwest wind f1-3, temp 15-16oC, visibility poor
3	09/07/2019	JNM	13.30	16.30	3	A dry warm sunny day, slack southerly winds, temp 19-20oC, visibility good
3	11/07/2019	JNM	12.00	15.00	3	A misty wet overcast morning, south – southeast slack winds f1, temp 17-20oC, visibility ok
1	06/08/2019	MOC	14.50	17.50	3	Cloudy breezy, light showers, some sunny spells, cloud cover 7/8-6/8-5/8, southwest wind f4, temp 17oC, visibility very good.
1	07/08/2019	MOC	19.20	22.20	3	Calm day, cloud cover 3/8-2/8, northwest wind f2, temp 14oC, visibility very good
2	06/08/2019	MOC	18.00	21.00	3	Light rain at the start, breezy, cloudy, cloud cover 7/8-6/8, west wind f3-2, gusts of f4, temp 15oC, visibility good
2	07/08/2019	MOC	16.10	19.10	3	Sunny, light breeze, cloud cover 3/8-4/8, northwest wind f2, temp 19oC, visibility very good
3	16/08/2019	ED	14.15	20.15	6	Sunny spells but strong windy conditions, southwest wind f6, temp 18oC, visibility good
1	06/09/2019	JNM	09.00	12.00	3	A fine dry morning with some good sunny spells, northwest wind f2-5, temp 17oC, visibility good
1	08/09/2019	JNM	12.15	15.15	3	A fine dry day with lots of sunshine but cool, northwest wind f3-5, temp 14-15oC, visibility good
2	05/09/2019	JNM	09.00	12.00	3	A fine dry morning with lots of sunshine but cool northwest wind f3-5, temp 14-15oC, visibility good

Vantage Point Survey Summary

Breeding 2019						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
2	06/09/2019	JNM	09.00	12.00	3	A fine dry day with good sunny spells, northwest wind f2-5, veering west, temp 17oC, visibility good
3	09/09/2019	ED	11.00	17.00	3	A dry sunny morning with light showers throughout the day, strong north winds f5-6, temp 14-16oC, visibility good

Winter 2019/20						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	21/01/2019	AC	09.40	12.40	3	Cloud cover 0/8, sunshine, north wind f0-2, temp 4-9oC, visibility good
1	22/10/2019	AC	13.30	16.30	3	Cloud cover 8/8, south wind f2-3, temp 10-9oC, visibility good
2	21/10/2019	AC	13.15	16.15	3	Cloud cover 1/8-3/8, sunshine, north wind f1-2, temp 9-11oC, visibility good
2	23/10/2019	AC	09.45	12.45	3	Cloud cover 8/8, intermittent sunshine from 12.00 south wind f3-5, temp 11-12oC, visibility good
3	22/10/2019	AC	10.00	13.00	3	Cloud cover 8/8, south southwest wind f1-2, temp 8oC, visibility good
3	23/10/2019	AC	13.15	16.15	3	Cloud cover 8/8, rain from 14.45, south wind f4-5, temp 12-11oC, visibility good but poor from 15.15 onwards
1	27/11/2019	MOC	08.25	11.25	3	Misty, breezy day, cloud cover 8/8, northwest wind f3-2, temp 6oC, visibility poor to 500m
1	28/11/2019	MOC	12.05	15.05	3	Calm, mostly cloudy, cloud cover 8/8,-7/8, northwest wind f1, temp 8oC, visibility very good
2	26/11/2019	MOC	08.45	11.45	3	Rain, misty, windy, cloud cover 8/8, south wind f4, gusts of f5, temp 11oC, visibility poor to 800m
2	29/11/2019	MOC	12.35	15.35	3	Sunny, breezy, cloud cover 3/8-1/8. Southeast wind f2-3, temp 7oC, visibility very good
3	27/11/2019	MOC	11.50	14.50	3	Light breeze, cloudy, cloud cover 8/8, northwest wind f2, temp 7oC,

Vantage Point Survey Summary

Winter 2019/20						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
						visibility very good
3	28/11/2019	MOC	08.45	11.45	3	Cloudy, light breeze, cloud cover 8/8, northwest wind f2, temp 8oC, visibility very good
4	29/11/2019	MOC	09.00	12.00	3	Sunny, breezy and cold, cloud cover 2/8-3/8, east to southeast wind f3, temp 3oC, visibility very good
4	30/11/2019	MOC	11.50	14.50	3	Windy day, cloud cover 8/8-7/8, east wind f4, gusts of f5, temp 7oC, visibility good
1	20/12/2019	ED	10.15	13.15	3	Calm, clear, south wind f1, temp 2oC, visibility very good
1	21/12/2019	ED	13.00	16.00	3	Calm, foggy with occasional sunny spells, south wind f1, temp 4oC, visibility very good
2	18/12/2019	ED	10.10	13.10	3	Heavy rain, poor conditions, southeast wind f8, temp 10oc, visibility moderate
2	19/12/2019	ED	12.20	15.20	3	Very misty conditions, heavy rain, overcast, south wind f5, temp 8oC, visibility moderate
3	18/12/2019	ED	13.15	16.15	3	Heavy rain, poor conditions, southeast wind f5, temp 9oC, visibility moderate
3	19/12/2019	ED	09.10	12.10	3	Misty, heavy rain at first – followed by misty conditions for the remainder of the VP watch, south wind f6, temp 9oC, visibility poor
4	20/12/2019	ED	13.30	16.30	3	A mixture of sunny spells and foggy conditions. South wind f3, temp 0oC, visibility good.
4	21/12/2019	ED	09.40	12.40	3	Calm conditions with intermittent fog and then clear sunny spells. South wind f1, temp 1oC, visibility very good.
1	08/01/2020	MOC	09.15	12.15	3	Calm, high cloud, sunny spells, west wind f2, temp 5oC, visibility very good
1	09/01/2020	MOC	12.30	15.30	3	Foggy, calm, cloud cover 8/8, northeast wind f2-3, temp 1oC, visibility poor to 100m
2	10/01/2020	MOC	11.45	14.45	3	Cloudy with sunny spells and a light breeze, cloud cover 5/8-4/8, southwest wind f3, gust of f4, temp 6oC, visibility very good
2	12/01/2020	ED	10.40	13.40	3	Sunny spells with occasional misty conditions, calm, southwest wind f2, temp 8oC, visibility very good
3	10/01/2020	MOC	08.35	11.35	3	Clear, sunny spells with some frost to start, cloud cover 3/8,

Vantage Point Survey Summary

Winter 2019/20						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
						southwest wind f2, temp 4oC, visibility very good
3	12/01/2020	ED	13.45	16.45	3	Overcast with occasional sunny spells, light winds, southwest wind f3, temp 8oC, visibility very good
4	08/01/2020	MOC	12.40	15.40	3	High cloud and calm, cloud cover 8/8-7/8-6/7, west to southwest wind f2-1, temp 5oC, visibility very good
4	09/01/2020	MOC	08.55	11.55	3	Calm, sunny day, frosty to start with snow on the ground, cold, cloud cover 4/8-3/8-1/8, north to northeast wind f2, temp 0oC, visibility very good
1	14/02/2020	ED	09.25	12.25	3	Heavy rain and mist clearing to brighter conditions – stormy, southwest wind f6-7, temp 10oC, visibility poor to good
1	17/02/2020	ED	13.50	16.50	3	Windy, heavy showers, southwest to west wind f5, temp 6oC, visibility good
2	15/02/2020	ED	09.20	12.20	3	Heavy rain and storm force winds (Storm Dennis), southwest wind f8-9, temp 9oC, visibility very poor
2	16/02/2020	ED	12.30	15.30	3	Very cold, windy, rain showers of rain, sleet hailstones and snow, southwest wind f6, temp 4oC, visibility good to poor
3	15/02/2020	ED	12.30	15.30	3	Heavy rain and stormy conditions, southwest wind f8, temp 8oC, visibility poor
3	16/02/2020	ED	09.20	12.20	3	Misty with occasional clearing to sunny spells, windy with heavy showers, southwest wind f4, temp 5oC, visibility good
4	14/02/2020	ED	12.55	15.55	3	Clear conditions, very windy, southwest wind f6, temp 10oC, visibility good
4	17/02/2020	ED	10.30	13.30	3	Misty conditions, drizzle/showers, windy, west wind f5, temp 5oC, visibility good
1	13/03/2020	ED	14.00	17.00	3	Heavy rain throughout VP, southeast wind f4, temp 8oC, visibility poor
1	14/03/2020	ED	11.20	14.20	3	Heavy rain clearing to mist conditions, southeast wind f4, temp 10oC, visibility poor
2	15/03/2020	ED	08.50	11.50	3	Misty conditions, clearing to sunny spells, northwest wind f3, temp 11oC, visibility very good
2	17/03/2020	ED	12.20	15.20	3	Misty, drizzle, southwest wind f5, temp 10oC, visibility poor

Vantage Point Survey Summary

Winter 2019/20						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
3	15/03/2020	ED	12.00	15.00	3	Sunny spells with some heavy showers, northwest wind f4, temp 8oC, visibility good
3	16/03/2020	ED	10.20	13.20	3	Overcast conditions, southwest wind f3, temp 8oC, visibility good
4	13/03/2020	ED	10.40	13.40	3	Overcast and misty with rain coming in by the early afternoon, southeast wind f4, temp 8oC, visibility good - poor
4	14/03/2020	ED	14.50	17.50	3	Heavy mist/drizzle, wind strength increasing in later afternoon, southeast wind f4-6, temp 10oC, visibility very poor
4	16/03/2020	ED	14.00	17.00	3	Overcast and misty, southwest wind f6, temp 8oC, visibility good
4	17/03/2020	ED	09.10	12.10	3	Misty, drizzle, low cloud, southwest wind f3, temp 11oC, visibility poor

Breeding 2020						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	23/04/2020	ED	10.15	13.15	3	Warm, hazy sunshine, northeast wind f2, temp 14oC, visibility excellent
1	24/04/2020	ED	11.50	14.50	3	Hazy sunshine, northeast wind f2, temp 14oC, visibility excellent
2	25/04/2020	ED	15.00	18.00	3	Hazy sunshine, southeast wind f3, temp 18oC, visibility excellent
2	26/04/2020	ED	10.35	13.35	3	Calm and misty, southwest wind f1, temp 12oC, visibility very good
3	25/04/2020	ED	08.40	11.40	3	Calm conditions, hazy sunshine, northeast wind f2, temp 12oC, visibility excellent
3	26/04/2020	ED	13.40	16.40	3	Calm, misty conditions, southwest wind f1, temp 12oC, visibility very good
4	23/04/2020	ED	13.20	16.20	3	Hazy sunshine, calm conditions, northeast wind f2, temp 14oC, visibility excellent
4	24/04/2020	ED	08.45	11.45	3	Hazy sunshine, light winds, northeast wind f2, temp 14oC, visibility excellent
4	24/04/2020	ED	14.55	17.55	3	Overcast but mild, east wind f2, temp 13oC, visibility excellent

Vantage Point Survey Summary

Breeding 2020						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
4	25/04/2020	ED	11.50	14.50	3	Hazy sunshine and warm. Wind E F2, temp 17oC, visibility excellent.
1	11/05/2020	ED	11.15	14.15	3	Strong northeast winds but sunny conditions, wind f5, temp 13oC, visibility excellent
1	12/05/2020	ED	12.15	15.15	3	Sunny, clear, cool northeast winds, f3, temp 11oC, visibility excellent
2	13/05/2020	ED	12.15	15.15	3	Sunny to start but clouding and overcast by early afternoon, northeast wind f3, temp 12oC, visibility excellent
2	14/05/2020	ED	09.05	12.05	3	Light winds, sunny, northeast wind f2, temp 10oC, visibility excellent
3	14/05/2020	ED	12.20	15.20	3	Overcast but with sunny spells, calm conditions, northeast wind f2, temp 10oC, visibility excellent
3	15/05/2020	MOC	08.50	11.50	3	Sunny, light breeze, cloud cover 1/8-3/8-5/8, temp 11-12oC, northwest wind f2-3, gusts of f4, temp very good
4	11/05/2020	ED	14.20	17.20	3	Strong northeast winds f5, sunny, temp 11oC, visibility excellent
4	12/05/2020	ED	09.10	12.10	3	Sunny with cold northeast winds, f3, temp 11oC, visibility excellent
4	13/05/2020	ED	09.10	12.10	3	Overcast, cool conditions, northeast wind f3, temp 7oC, visibility excellent
4	15/05/2020	MOC	12.05	15.05	3	Sunny periods, partly cloudy, cloud cover 5.8, temp 12-13oC, northwest wind f3-2, visibility very good
1	08/06/2020	ED	11.40	14.40	3	Light winds, sunny spells, northwest wind f2, temp 13oC, visibility excellent
1	10/06/2020	ED	12.40	15.40	3	Overcast with showers, some prolonged showers, northwest wind f3, temp 12oC, visibility very good
2	12/06/2020	ED	14.50	7.50	3	Misty conditions, northeast wind f4, temp 12oC, visibility good
2	13/06/2020	ED	10.25	13.25	3	Warm with sunny spells, southeast wind f3, temp 14oC, visibility excellent
3	11/06/2020	ED	09.40	12.40	3	Overcast, windy, northeast wind f5, temp 13oC, visibility good
3	13/06/2020	ED	13.35	16.35	3	Warm conditions, sunny spells, southeast wind f3, temp 18oC, visibility excellent
4	08/06/2020	ED	14.45	17.45	3	Calm with sunny spells, northwest wind f2, temp 14oC, visibility excellent
4	10/06/2020	ED	09.35	12.35	3	Overcast with light rain in the early afternoon, northwest wind f3, temp 11oC, visibility very good

Vantage Point Survey Summary

Breeding 2020						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
4	11/06/2020	ED	12.50	15.50	3	Windy, overcast with some showers, northwest wind f5, temp 13oC, visibility very good
4	12/06/2020	ED	11.40	14.40	3	Damp, misty conditions, northeast wind f3, temp 10oC, visibility poor
1	13/07/2020	ED	12.10	15.10	3	Misty conditions at first, sunny spells, northwest wind f2, temp 18oC, visibility good
1	14/07/2020	ED	12.25	15.25	3	Some light showers but brighter conditions as the afternoon moved on, northwest wind f3, temp 15oC, visibility very good
2	15/07/2020	ED	09.50	12.50	3	Sunny spells, turning to misty rain, northwest wind f2-3, temp 17oC, visibility excellent
2	16/07/2020	ED	13.10	16.10	3	Sunny conditions, northwest wind f2, temp 19oC, visibility excellent
3	16/07/2020	ED	09.55	12.55	3	Misty conditions clearing to sunny spells, west wind f2, temp 16oC, visibility poor
3	18/07/2020	ED	13.30	16.30	3	Sunny spells, west wind f3, temp 17oC, visibility excellent
4	13/07/2020	ED	15.15	18.15	3	Misty conditions, northwest wind f2, temp 16oC, visibility good
4	14/07/2020	ED	09.20	12.20	3	Overcast with occasional drizzle, northwest wind f4, temp 15oC, visibility good
4	15/07/2020	ED	12.55	15.55	3	Misty conditions with some sunny spells, northwest wind f3, temp 16oC, visibility very good
4	18/07/2020	ED	10.15	13.15	3	Misty conditions, clearing slowly, west wind f2, temp 17oC, visibility good
1	14/08/2020	ED	11.50	14.50	3	Misty conditions, overcast, northeast wind f2, temp 16oC, visibility poor
1	15/08/2020	ED	13.20	16.20	3	Very warm, overcast with some heavy showers, southeast wind f3, temp 18oC, visibility good
2	16/08/2020	ED	14.35	17.35	3	Misty with drizzle in the late afternoon, northeast wind f2, temp 18oC, visibility moderate.
2	18/08/2020	ED	10.40	13.40	3	Overcast with showers, southwest wind f3 , temp 19oC, visibility very good
3	17/08/2020	ED	09.35	12.35	3	Heavy rain clearing to drizzle, southwest wind f1, temp 18oC, visibility poor

Vantage Point Survey Summary

Breeding 2020						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
3	18/08/2020	ED	13.50	16.50	3	Overcast with showers, southwest wind f3, temp 19oC, visibility very good
4	14/08/2020	ED	15.00	18.00	3	Very misty with light drizzle on occasions, northeast wind f1, temp 20oC, visibility poor
4	15/08/2020	ED	10.10	13.10	3	Misty conditions, southeast wind f1, temp 19oC, visibility very good
4	16/08/2020	ED	11.30	14.30	3	Very misty conditions, northeast wind f2, temp 17oC, visibility moderate
4	17/08/2020	ED	12.45	15.45	3	Constant rain, misty conditions, southwest wind f1, temp 17oC, visibility moderate
1	13/09/2020	ED	12.05	15.05	3	Misty and overcast, southwest wind f4, temp 15oC, visibility very good
1	14/09/2020	ED	13.40	16.40	3	Sunny spells with light showers, southwest wind f5, temp 16oC, visibility very good
2	15/09/2020	ED	14.10	17.10	3	Sunny spells, south wind f2, temp 18oC, visibility very good
2	17/09/2020	ED	10.05	13.05	3	Sunny and warm, east wind f2, temp 19oC, visibility excellent
3	16/09/2020	ED	10.05	13.05	3	Calm, sunny weather, northeast to east wind f2, temp 17oC, visibility excellent
3	17/09/2020	ED	13.15	16.15	3	Sunny spells, east wind f4, temp 18oC, visibility excellent
4	13/09/2020	ED	15.10	18.10	3	Misty with occasional sunny spells, southwest wind f5, temp 14oC, visibility very good
4	14/09/2020	ED	10.35	13.35	3	Misty with occasional sunny spells, southeast wind f4, temp 15oC, visibility good
4	15/09/2020	ED	11.00	14.00	3	Misty clearing to sunny spells, south wind f2, temp 17oC, visibility very good
4	16/09/2020	ED	13.20	16.20	3	Sunny spells, east wind f3, temp 18oC, visibility excellent

Vantage Point Survey Summary

Winter 2020/21						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	09/10/2020	ED	15.20	18.20	3	Sunny spells and showers, northwest wind f2, temp 13oC, visibility excellent
1	10/10/2020	ED	10.55	13.55	3	Misty with drizzle/light showers, northwest wind f2, temp 12oC, visibility good
2	11/10/2020	ED	13.45	16.45	3	Calm and sunny day, northwest wind f2, temp 12oC, visibility excellent
2	12/10/2020	ED	09.50	12.50	3	Heavy rain turning to drizzle/mist, occasional sunny spells, northwest wind f4, temp 10oC, visibility good
3	11/10/2020	ED	10.35	13.35	3	Sunny spells, northwest wind f2, temp 12oC, visibility excellent
3	12/10/2020	ED	13.00	16.00	3	Sunny spells, northwest wind f4, temp 12oC, visibility very good
4	09/10/2020	ED	12.15	15.15	3	Sunny spells with light showers, northwest wind f2, temp 12oC, visibility excellent
4	10/10/2020	ED	14.00	17.00	3	Misty drizzle and light showers, northwest wind f2, temp 13oC, visibility good
1	03/11/2020	ED	10.40	13.40	3	Sunny spells with some heavy showers, west wind f2, temp 12oC, visibility excellent
1	04/11/2020	ED	13.10	16.10	3	Cold, clear, and sunny spells, northwest wind f3, temp 12oC, visibility excellent
2	05/11/2020	ED	14.05	17.05	3	Calm, misty conditions with sunny spells, southwest wind f1, temp 12oC, visibility good
2	05/11/2020	ED	11.00	14.00	3	Calm, cold with sunny spells, southwest wind f1, temp 8oC, visibility excellent
3	06/11/2020	ED	09.20	12.20	3	Cold and sunny, east wind f3, temp 8oC, visibility excellent
3	06/11/2020	ED	12.30	15.30	3	Sunny spells, winds increasing, east wind f4, temp 10oC, visibility excellent
4	03/11/2020	ED	13.45	16.45	3	Sunny spells with heavy showers, west wind f2, temp 12oC, visibility excellent
4	04/11/2020	ED	10.05	13.05	3	Cold, clear, and sunny, northwest wind f2, temp 10oC, visibility excellent

Vantage Point Survey Summary

Winter 2020/21						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	01/12/2020	ED	10.15	13.15	3	Misty, calm conditions, northwest wind f2, temp 8oC, visibility moderate
1	02/12/2020	ED	12.55	15.55	3	Calm, some drizzle/mist and sunny spells, west wind f2, temp 6oC, visibility very good
2	03/12/2020	ED	12.35	15.35	3	Cold with wintry showers, wind increasing, northwest wind f4, temp 2oC, visibility poor
2	04/12/2020	ED	09.10	12.10	3	Cold, overcast, and misty, north wind f4, temp 1oC, visibility good
3	03/12/2020	ED	09.25	12.25	3	Cold, misty/drizzle conditions, northwest wind f2, temp 3oC, visibility moderate
3	04/12/2020	ED	12.20	15.20	3	Cold and overcast with wintry showers, north wind f5, temp 1oC, visibility poor
4	01/12/2020	ED	13.20	16.20	3	Calm and misty, northwest wind f2, temp 9oC, visibility good
4	02/12/2020	ED	09.50	12.50	3	Calm, westerly wind f1, temp 6oC, visibility excellent
1	22/01/2021	EOC	08.30	11.30	3	Light snow underfoot. West wind f1, temp 0oC, visibility poor.
1	22/01/2021	EOC	11.30	14.30	3	Light snow under foot and light snow falling until 13.20. West wind f1, temp 0oC, visibility poor.
2	26/01/2021	EOC	09.00	12.00	3	A dry day, westerly wind f3, temp 10oC, visibility good.
2	26/01/2021	EOC	12.00	15.00	3	Dry day, westerly wind f3, temp 10oC, visibility good.
3	27/01/2021	EOC	09.00	12.00	3	Rainy day, southwest wind f5, temp 8oC, visibility poor.
3	27/01/2021	EOC	12.00	15.00	3	Rainy day, southwest wind f5, temp 8oC, visibility poor.
4	28/01/2021	EOC	09.00	12.00	3	Raining to begin and cleared up throughout the morning. Southwest wind f5, temp 7oC, visibility poor.
4	28/01/2021	EOC	12.00	15.00	3	Raining Southwest wind f5, temp 7oC, visibility poor.
1	16/02/2021	EOC	09.00	12.00	3	Cloudy day, southwest wind f5, temp 9oC, visibility moderate.
1	16/02/2021	EOC	12.00	15.00	3	Cloudy day, southwest wind f5, temp 9oC, visibility moderate.
2	09/02/2021	EOC	09.00	12.00	3	Dry and overcast, southwest wind f9, temp 7oC, visibility moderate.
2	09/02/2021	EOC	12.00	15.00	3	Dry and overcast, southwest wind f9, temp 7oC, visibility moderate.
3	15/02/2021	EOC	09.00	12.00	3	Good, southwest wind f2, temp 9oC, visibility good.
3	15/02/2021	EOC	12.00	15.00	3	Good, southwest wind f2, temp 9oC, visibility good.
4	18/02/2021	EOC	09.00	12.00	3	Dry and cold to start. Southwest wind f4, temp 6oC, visibility good.
4	18/02/2021	EOC	12.00	15.00	3	Dry and cold. Southwest wind f4, temp 6oC, visibility good.

Vantage Point Survey Summary

Winter 2020/21						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	13/03/2021	EOC	09.00	12.00	3	Dry day, northwest wind, f2, temp 4oC, visibility good.
1	13/03/2021	EOC	12.00	15.00	3	Dry day, northwest wind, f2, temp 4oC, visibility good.
2	23/03/2021	EOC	09.00	12.00	3	Cloudy with showers later. Southwest wind f4, temp 8oC, visibility good.
2	23/03/2021	EOC	12.00	15.00	3	Cloudy with showers later. Southwest wind f4, temp 8oC, visibility good.
3	24/03/2021	EOC	09.00	12.00	3	Rain until 10.00 then cleared up. Southwest wind, f4, temp 10oC, visibility good.
3	24/03/2021	EOC	12.00	15.00	3	Clear after rain, Southwest wind, f4, temp 10oC, visibility good.
4	25/03/2021	EOC	09.00	12.00	3	Dry and overcast, southwest wind f5, temp 9oC, visibility good.
4	25/03/2021	EOC	12.00	15.00	3	Dry and overcast, southwest wind f5, temp 9oC, visibility good.

Breeding 2021						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	26/04/2021	EOC	14.00	17.00	3	Sunny with southerly wind f3, temp 13oC, visibility good.
1	26/04/2021	EOC	17.30	20.30	3	Sunny with southerly wind f3, temp 13oC, visibility good.
2	27/04/2021	EOC	14.00	17.00	3	Cloudy with northwest wind f4, temp 10oC, visibility good.
2	27/04/2021	EOC	17.30	20.30	3	Cloudy with northwest wind f4, temp 10oC, visibility good.
3	29/04/2021	EOC	14.00	17.00	3	Rain with northeast wind f2, temp 6oC, visibility moderate.
3	29/04/2021	EOC	17.30	20.30	3	Rain with northeast wind f2, temp 6oC, visibility moderate.
4	28/04/2021	EOC	14.00	17.00	3	Cloudy with northwest wind f5, temp 9oC, visibility good.
4	28/04/2021	EOC	17.30	20.30	3	Cloudy with northwest wind f5, temp 9oC, visibility good.
1	28/05/2021	GMG	05.25	08.25	3	Cloud cover 8/8 with light rain, northeast wind f2, temp 11oC, visibility poor.
1	28/05/2021	GMG	08.55	11.55	3	Cloud cover 8/8 with light rain, northeast wind f2, temp 11oC, and visibility poor.

Vantage Point Survey Summary

Breeding 2021						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
2	20/05/2021	EOC	15.00	18.00	3	Cloud cover 0/8, dry. Wind f2, temp 13oC, visibility good.
2	20/05/2021	EOC	18.30	21.30	3	Cloud cover 0/8, dry. Wind f2, temp 13oC, visibility good.
3	30/05/2021	EOC	05.30	08.30	3	Cloud cover 1/8, easterly wind f3, temp 17oC, visibility good.
3	30/05/2021	EOC	10.00	13.00	3	Cloud cover 1/8, easterly wind f3, temp 17oC, visibility good.
4	01/05/2021	EOC	05.40	08.40	3	Cloud cover 6/8, southeast wind f1, temp 17oC, visibility good.
4	01/05/2021	EOC	09.10	12.10	3	Cloud cover 6/8, southeast wind f1, temp 17oC, visibility good.
1	24/06/2021	GMG	14.45	17.45	3	Cloud cover 6/8, dry with westerly wind f2, temp 14oC, visibility good.
1	24/06/2021	GMG	18.15	21.15	3	Cloud cover 8/8, dry with westerly wind f2, temp 15oC, visibility good.
2	16/06/2021	EOC	11.00	14.00	3	Cloud cover 0/8, sunny. Wind f2, temp 20oC, visibility good.
2	16/06/2021	EOC	14.30	17.30	3	Cloud cover 0/8, sunny. Wind f2, temp 20oC, visibility good.
3	25/06/2021	GMG	14.45	17.45	3	Cloud cover 7/8, dry and breezy with wind f3, temp 14oC, visibility good.
3	25/06/2021	GMG	18.15	21.15	3	Cloud cover 8/8, dry with a northerly wind, wind f3, temp 13oC, visibility good.
4	16/06/2021	EOC	12.00	15.00	3	Cloud cover 7/8, dry with northwest wind f3, temp 13oC, visibility good.
4	16/06/2021	EOC	15.30	18.30	3	Cloud cover 7/8, dry. with northwest wind f3, temp 13oC, visibility good.
1	22/07/2021	EOC	06.00	09.00	3	Cloud cover 2/8, dry and sunny with northeast wind f2, temp 17oC, visibility good.
1	22/07/2021	EOC	09.30	12.30	3	Cloud cover 3/8, dry and sunny with northeast wind f2, temp 20oC, visibility good.
2	27/07/2021	GMG	05.35	08.35	3	Cloud cover 8/8, dry with northwest wind f3, temp 12oC, visibility fair.
2	27/07/2021	GMG	08.55	11.55	3	Cloud cover 7/8, dry with northerly wind f2, temp 14oC, visibility good.
3	27/07/2021	EOC	06.00	09.00	3	Cloud cover 8/8, dry with northwest wind f3, temp 12oC, visibility fair.
3	27/07/2021	EOC	09.30	12.30	3	Cloud cover 7/8, dry with northerly wind f2, temp 14oC, visibility

Vantage Point Survey Summary

Breeding 2021						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
						good.
4	22/07/2021	GMG	05.30	08.30	3	Cloud cover 2/8, dry and sunny with northeast wind f2, 17oC, visibility good.
4	22/07/2021	GMG	09.00	12.00	3	Cloud cover 3/8, dry and sunny with northeast wind f2, 20oC, visibility good.
1	17/08/2021	EOC	06.00	09.00	3	Cloud cover 3/8, sunny with northeast wind f2, temp 20oC, visibility good.
1	17/08/2021	EOC	09.30	12.30	3	Cloud cover 3/8, sunny. sunny with northeast wind f2, temp 20oC, visibility good.
2	31/08/2021	GMG	12.05	15.05	3	Cloud cover 8/8, dry moderate southeast breeze f4, temp 15oC, visibility good.
2	31/08/2021	GMG	15.35	18.35	3	Cloud cover 8/8, dry and breezy with easterly wind f4, temp 14oC, visibility good.
3	27/08/2021	GMG	17.10	20.10	3	Cloud cover 0/8, dry and sunny with southeast winds f3, temp 17oC, visibility good.
3	28/08/2021	GMG	12.10	15.10	3	Cloud cover 5/8, dry and calm with easterly wind f1, temp 18oC, visibility good.
4	18/08/2021	EOC	06.00	09.00	3	Cloud cover 8/8, cloud and dry with northerly wind f2, temp 14oC, visibility moderate.
4	18/08/2021	EOC	09.30	12.30	3	Cloud cover 8/8, cloud and dry with northerly wind f2, temp 14oC, visibility moderate.
1	13/09/2021	EOC	06.00	09.00	3	Cloud cover 8/8 with drizzle with east /southeast wind f2, temp 15oC, visibility moderate.
1	13/09/2021	EOC	09.30	12.30	3	Cloud cover 8/8 with drizzle with east/southeast wind f2, temp 15oC, visibility moderate.
2	19/09/2021	EOC	15.00	18.00	3	Cloud cover 8/8, overcast with south/southeast wind f1, temp 16oC, visibility good.
2	19/09/2021	EOC	18.30	21.30	3	Cloud cover 8/8, overcast with south/southeast wind f1, temp 16oC, visibility good.
3	15/09/2021	EOC	06.00	09.00	3	Cloud cover 5/8, cloudy with northwest wind f2. Temp 17oC, visibility good.

Vantage Point Survey Summary

Breeding 2021						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
3	15/09/2021	EOC	09.30	12.30	3	Cloud cover 5/8, cloudy with northwest wind f2. Temp 17oC, visibility good.
4	16/09/2021	EOC	06.00	09.00	3	Cloud cover 2/8, sunny with southerly wind f3. Temp 17oC, visibility good.
4	16/09/2021	EOC	09.30	12.30	3	Cloud cover 2/8, sunny with southerly wind f3. temp 17oC, visibility good.

Winter 2021/22						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	26/10/2021	ED	14.25	17.25	3	Cloud cover 8/8 with mist and drizzle with southwest wind f5. Temp 13oC, visibility moderate.
1	28/10/2021	ED	09.20	12.20	3	Cloud cover 8/8 with rain leading to misty drizzle with south-southwest wind f4. Temp 13oC, visibility poor.
2	27/10/2021	ED	09.20	12.20	3	Cloud cover 8/8 with heavy rain with southwest wind f6. Temp 13oC, visibility poor.
2	28/10/2021	ED	12.30	15.30	3	Cloud cover 7/8 with sunny spells and mist, with south-southwest wind f4. Temp 13oC, visibility moderate.
3	29/10/2021	ED	10.05	13.05	3	Cloud cover 5/8 with sunny spells, with southwest wind f3. Temp 12oC, visibility very good.
3	30/10/2021	ED	12.05	15.05	3	Cloud cover 2/8 but clear with southwest wind f2. Temp 7oC, visibility very good.
4	26/10/2021	ED	11.15	14.15	3	Cloud cover 3/8 – 8/8, overcast and misty with southwest wind f5. Temp 13oC, visibility moderate.
4	27/10/2021	ED	12.35	15.35	3	Cloud cover 8/8, overcast with heavy rain with southwest wind f6. Temp 13oC, visibility poor.
5	29/10/2021	ED	13.30	16.30	3	Cloud cover 5/8 with sunny spells and showers with southwest wind f3. Temp 13oC, visibility very good.

Vantage Point Survey Summary

Winter 2021/22						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
5	30/10/2021	ED	08.45	11.45	3	Cloud cover 1/8 but clear and sunny with southwest wind f2. Temp 6oC, visibility very good.
1	14/11/2021	ED	13.45	16.45	3	Cloud cover 4/8 with sunny spells, calm with southwest wind f1. Temp 12oC, visibility very good.
1	16/11/2021	ED	09.20	12.20	3	Cloud cover 8/8 with heavy fog and mist with southwest wind f2. Temp 6oC, visibility poor.
2	15/11/2021	ED	09.25	12.25	3	Cloud cover 3/8 – 8/8, sunny with fog moving in. Northwest wind f3, temp 12oC, visibility very good.
2	16/11/2021	ED	12.30	15.30	3	Cloud cover 4/8 with mist clearing to sunny spells with southwest wind f2. Temp 8oC, visibility good.
3	17/11/2021	ED	09.25	12.25	3	Cloud cover 8/8, calm and cool with a southwest wind, wind F2, temp 7oC, visibility very good.
3	18/11/2021	ED	13.00	16.00	3	Cloud cover 8/8 with calm and misty conditions with southwest wind f2. Temp 11oC, visibility moderate.
4	14/11/2021	ED	10.40	13.40	3	Cloud cover 8/8, calm but misty with the fog burning off with southwest wind f1. Temp 12oC, visibility poor to good.
4	15/11/2021	ED	12.35	15.35	3	Cloud cover 8/8 – 3/8, fog and mist with sunny spells with northwest wind f3. Temp 9oC, visibility good.
5	17/11/2021	ED	12.40	15.40	3	Cloud cover 8/8 but calm and cool with southwest wind f2. Temp 8oC, visibility very good.
5	18/11/2021	ED	09.40	12.40	3	Cloud cover 8/8 with calm and misty conditions with southwest wind f2. Temp 11oC, visibility moderate.
1	02/12/2021	ED	13.40	16.40	3	Cloud cover 8/8, calm and overcast with westerly wind f1. Temp 3oC, visibility good.
1	04/12/2021	ED	09.15	12.15	3	Cloud cover 8/8, cold with heavy showers and strong westerly wind f4. Temp 3oC, and visibility good.
2	03/12/2021	ED	09.25	12.25	3	Cloud cover 8/8, calm and misty with, westerly wind f1. Temp 4oC, visibility very good.
2	04/12/2021	ED	12.25	15.25	3	Cloud cover 4/8, cold with westerly wind f1. Temp 5oC, visibility very good.
3	05/12/2021	ED	09.30	12.30	3	Cloud cover 1/8 but calm and clear with northwest wind f2. Temp 3oC, visibility excellent.

Vantage Point Survey Summary

Winter 2021/22						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
3	06/12/2021	ED	12.35	15.35	3	Cloud cover 5/8, cold with heavy showers with west-southwest, wind f4, temp 4oC, visibility very good.
4	02/12/2021	ED	10.35	13.35	3	Cloud cover 8/8, calm and overcast with westerly wind f1, temp 4oC, visibility good.
4	03/12/2021	ED	12.45	15.45	3	Cloud cover 8/8, calm and misty with westerly wind f1, temp 6oC, visibility very good.
5	05/12/2021	ED	12.45	15.45	3	Cloud cover 1/8, calm and clear with northwest wind f2, temp 5oC, visibility excellent.
5	06/12/2021	ED	09.20	12.20	3	Cloud cover 8/8, cold with heavy showers, west-southwest wind f4, temp 3oC, visibility good.
1	09/01/2022	ED	13.30	16.30	3	Cloud cover 8/8 with mist and drizzle, wind direction west-southwest, wind F2, temp 5oC, and visibility moderate.
1	11/01/2022	ED	08.50	11.50	3	Cloud cover 1/8, calm, cold and sunny west-southwest wind f1, temp 5oC, visibility very good.
2	10/01/2022	ED	08.25	11.25	3	Cloud cover 8/8, calm and misty with west-southwest wind f1, temp 9oC, and visibility poor.
2	11/01/2022	ED	12.00	15.00	3	Cloud cover 1/8, calm and sunny with northwest wind f1, temp 9oC, visibility very good.
3	12/01/2022	ED	09.15	12.15	3	Cloud cover 0/8, calm and sunny with northwest wind f1, temp 3oC, visibility very good.
3	13/01/2022	ED	12.30	15.30	3	Cloud cover 7/8, calm and overcast with, southerly wind f1, temp 6oC, visibility very good.
4	09/01/2022	ED	10.20	13.20	3	Cloud cover 8/8 with mist and heavy showers. West-southwest wind f4, temp 5oC, visibility moderate.
4	10/01/2022	ED	11.40	14.40	3	Cloud cover 8/8, calm and drizzle with west-southwest wind f1, temp 9oC, visibility poor.
5	12/01/2022	ED	12.40	15.40	3	Cloud cover 0/8, calm and sunny with northwest wind f1, temp 4oC, visibility very good.
5	13/01/2022	ED	09.10	12.10	3	Cloud cover 6/8, calm conditions with southerly wind f1, temp 4oC, visibility very good.
1	06/02/2022	ED	13.40	16.40	3	Cloud cover 6/8 with sunny spells and stormy showers with west-northwest wind f6, temp 7oC, visibility good.

Vantage Point Survey Summary

Winter 2021/22						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	08/02/2022	ED	08.15	11.15	3	Cloud cover 8/8, windy and misty with westerly wind f4, temp 10oC, visibility moderate.
2	07/02/2022	ED	10.05	13.05	3	Cloud cover 8/8 with strong winds, mist, and drizzle with west-southwest wind f5, temp 8oC, visibility moderate.
2	08/02/2022	ED	11.25	14.25	3	Cloud cover 8/8 with mist, drizzle with westerly wind f4, temp 10oC, visibility moderate.
3	09/02/2022	ED	08.05	11.05	3	Cloud cover 2/8 – 6/8, cloudy, cool, sunny with westerly wind f2, temp 6oC, and visibility very good.
3	10/02/2022	ED	12.20	15.20	3	Cloud cover 3/8 with sunny spells with wind west-northwest wind f3, temp 5oC, visibility very good.
4	06/02/2022	ED	10.25	13.25	3	Cloud cover 4/8 with stormy showers, west-northwest wind f6, temp 7oC, visibility good.
4	07/02/2022	ED	13.30	16.30	3	Cloud cover 8/8 with strong winds and mist with west-southwest wind f5, temp 8oC, visibility moderate.
5	09/02/2022	ED	11.30	14.30	3	Cloud cover 6/8 with sunny spells with westerly wind f2, temp 6oC, visibility very good.
5	10/02/2022	ED	08.55	11.55	3	Cloud cover 2/8 but clear sunny spells with west-northwest wind f3, temp 4oC, visibility very good.
1	03/03/2022	ED	14.10	17.10	3	Cloud cover 6/8 with sunny spells and heavy hail showers. West-northwest wind f2, temp 8oC, visibility good.
1	05/03/2022	ED	08.35	11.35	3	Cloud cover 1/8, clear and sunny with northeast wind f1, temp 4oC, visibility very good.
2	04/03/2022	ED	08.20	11.20	3	Cloud cover 2/8, clear and sunny with northwest wind f1, temp 6oC, visibility very good.
2	05/03/2022	ED	11.45	14.45	3	Cloud cover 1/8, clear, calm, and sunny with northeast wind f1, temp 7oC, visibility very good.
3	06/03/2022	ED	07.45	10.45	3	Cloud cover 1/8, clear and sunny with northeast wind f3, temp 4oC, visibility very good.
3	07/03/2022	ED	11.40	14.40	3	Cloud cover 8/8, cold and overcast with southeast wind f4-5, temp 6oC, visibility very good.
4	03/03/2022	ED	11.05	14.05	3	Cloud cover 4/8 with sunny spells, with west-northwest wind f2, temp 8oC, visibility very good.

Vantage Point Survey Summary

Winter 2021/22						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
4	04/03/2022	ED	11.30	14.30	3	Cloud cover 3/8, calm and sunny with northwest wind f1, temp 5oC, visibility very good.
5	06/03/2022	ED	11.00	14.00	3	Cloud cover 1/8, clear and sunny with a northeast wind, wind F3, temp 6oC, visibility very good.
5	07/03/2022	ED	08.25	11.25	3	Cloud cover 8/8, overcast and cold with southeast wind, wind F4, temp 4oC, visibility very good.

Breeding 2022						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	02/04/2022	ED	16.15	19.15	3	Cloud cover 4/8, sunny spells with heavy hail showers. Northerly wind f3. Temp 6oC, visibility good.
1	04/04/2022	ED	13.10	16.10	3	Cloud cover 8/8, overcast with constant drizzle with north/north westerly winds f3-4. Temp 10oC, visibility moderate.
2	03/04/2022	ED	12.40	15.40	3	Cloud cover 1/8, sunny and clear with westerly wind f2-3. Temp 10oC, visibility very good.
2	04/04/2022	ED	16.25	19.25	3	Cloud cover 8/8, overcast day with drizzle. North to north-westerly wind f3. Temp 10oC, visibility moderate.
3	05/04/2022	ED	16.50	19.50	3	Cloud cover 8/8, overcast day with showers. Southwest winds f4 Temp 11oC, visibility good.
3	06/04/2022	ED	11.05	14.05	3	Cloud cover 7/8, overcast day with showers. Southwest winds f4. Temp 9oC, visibility good.
4	02/04/2022	ED	13.05	16.05	3	Cloud cover 4/8, heavy hail showers, sometimes sunny. Northerly winds f3. Temp 6oC, visibility very good.
4	03/04/2022	ED	16.00	19.00	3	Cloud cover 3/8, calm, clear evening. Westerly winds f2. Temp 11oC, visibility very good.
5	05/04/2022	ED	13.25	16.25	3	Cloud cover 8/8. An overcast afternoon. South westerly wind, F4. Temp 11oC, visibility very good.

Vantage Point Survey Summary

Breeding 2022						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
5	06/04/2022	ED	15.45	18.45	3	Cloud cover 8/8. A windy overcast evening with showers. South westerly wind, F6. Temp 11oC, visibility good.
1	09/05/2022	ED	14.05	17.05	3	Cloud cover 8/8. F7 winds with heavy rain. Temp 13oC, visibility poor.
1	11/05/2022	ED	8.10	11.10	3	Cloud cover 3/8. A windy day with sunny spells. North-easterly F5 winds with no rain. Temp 10oC, visibility very good.
2	10/05/2022	ED	9.05	12.05	3	Cloud cover 3/8, windy day with sunny spells. Winds f6, temp 14oC, visibility very good.
2	11/05/2022	ED	11.30	14.30	3	Cloud cover 4/8, windy day with sunny spells and light showers. North-easterly wind f5. Temp 13oC, visibility good.
3	12/05/2022	ED	9.10	12.10	3	Cloud cover 8/8, misty and overcast day. South-westerly winds f3. Temp 13oC, visibility very good.
3	13/05/2022	ED	11.55	14.55	3	Cloud cover 4/8. South-westerly winds f3. Temp 13oC, visibility very good.
4	09/05/2022	ED	10.50	13.50	3	Cloud cover 8/8, windy and wet day with heavy rain. South-westerly winds f7. Temp 12oC, visibility poor.
4	10/05/2022	ED	12.30	15.30	3	Cloud cover 5/8, windy day with sunny spells and f6 winds. Temp 13oC, visibility very good.
5	12/05/2022	ED	12.40	15.40	3	Cloud cover 8/8, overcast day with heavy showers. South-westerly winds f4. Temp 13oC, visibility very good.
5	13/05/2022	ED	8.20	11.20	3	Cloud cover 4/8, sunny spells with south-westerly wind f3 Temp 12oC, visibility very good.
1	01/06/2022	ED	16.40	19.40	3	Cloud cover 3/8, sunny with light winds. South-westerly winds f2. Temp 12oC, visibility very good.
1	05/06/2022	ED	13.40	16.40	3	Cloud cover 8/8, misty day with drizzle. North-easterly winds f2. Temp 13oC, visibility moderate.
2	02/06/2022	ED	14.45	17.45	3	Cloud cover 8/8, rain developed in the afternoon. South-westerly winds f3. Temp 13oC, visibility good.
2	05/06/2022	ED	16.50	19.50	3	Cloud cover 8/8, overcast evening with light drizzle and showers. North-easterly winds f2. Temp 13oC, visibility good.
3	03/06/2022	ED	17.20	20.20	3	Cloud cover 7/8, sunny spells. South-westerly winds f3. Temp 13oC, visibility very good.

Vantage Point Survey Summary

Breeding 2022						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
3	04/06/2022	ED	13.20	16.20	3	Cloud cover 8/8, windy day with heavy rain in the afternoon. North-easterly winds f6. Temp 14oC, visibility moderate.
4	01/06/2022	ED	13.25	16.25	3	Cloud cover 3/8, sunny spells with light winds. South-westerly winds f3. Temp 13oC, visibility very good.
4	02/06/2022	ED	18 00	21 00	3	Cloud cover 8/8, overcast evening with rain. South-westerly winds f3. Temp 12oC, visibility moderate.
5	03/06/2022	ED	14.05	17.05	3	Cloud cover 7/8, sunny spells with showers. South-westerly winds f3. Temp 13oC, visibility very good.
5	04/06/2022	ED	16.45	19.45	3	Cloud cover 8/8, windy evening with heavy rain. North-easterly winds f6. Temp 14oC, visibility moderate.
1	04/07/2022	ED	15 20	18 20	3	Cloud cover 8/8, overcast and muggy. North-westerly winds f3. Temp 13oC, visibility very good.
1	06/07/2022	ED	09 15	12 15	3	Cloud cover 8/8, overcast day. North-westerly winds f4. Temp 15oC, visibility very good.
2	05/07/2022	ED	09 10	12 10	3	Cloud cover 8/8, misty conditions. North-westerly winds f2. Temp 15oC. Visibility good.
2	06/07/2022	ED	12 40	15 40	3	Cloud cover 8/8, overcast afternoon with drizzle later. North-westerly winds f4. Temp 15oC, visibility very good.
3	07/07/2022	ED	15.15	18.15	3	Cloud cover 5/8, warm day with sunny spells. Northwesterly winds f2. Temp 18oC, visibility very good.
3	08/07/2022	ED	09 20	12 20	3	Cloud cover 3/8, warm day with sunny spells. North-westerly winds f3. Temp 15oC, visibility very good.
4	04/07/2022	ED	11.50	14.50	3	Cloud cover 8/, overcast warm day. North-westerly winds f3. Temp 15oC, visibility very good.
4	05/07/2022	ED	12 50	15 50	3	Cloud cover 8/8, misty conditions. North-westerly winds f3. Temp 14oC. Visibility good.
5	07/07/2022	ED	11.40	14.40	3	Cloud cover 6/8, warm day with sunny spells. North-westerly winds f2. Temp 17oC, visibility very good.
5	08/07/2022	ED	13.00	16.00	3	Cloud cover 3/8, warm day with sunny spells. North-westerly winds f3. Temp 16oC, visibility very good.
1	01/08/2022	ED	14.15	17.15	3	Cloud cover 8/8, heavy rain. Southwest winds f3, temp 15oC, visibility poor.

Vantage Point Survey Summary

Breeding 2022						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
1	03/08/2022	ED	09.10	12.10	3	Cloud cover 8/8, overcast and misty. West/southwest winds f3. Temp 15oC, visibility good.
2	02/08/2022	ED	09.20	12.20	3	Cloud cover 8/8, misty, warm and drizzle. Southwest winds f4, temp 17oC, visibility moderate.
2	03/08/2022	ED	12.40	15.40	3	Cloud cover 8/8-5/8, overcast, misty with some sunny spells. West/southwest winds f3, temp 15oC, visibility good.
3	04/08/2022	ED	09.20	12.20	3	Cloud cover 5/8, sunny spells. North/west wind f3, temp 15oC, visibility good.
3	15/08/2022	ED	12.45	15.45	3	Cloud cover 5/8, muggy with sunny spells. East/southeast wind f2, temp 21oC, visibility very good.
4	01/08/2022	ED	10.50	13.50	3	Cloud cover 8/8, constant heavy rain. Southwest wind f3, temp 15oC, visibility poor.
4	02/08/2022	ED	13.00	16.00	3	Cloud cover 8/8, warm with misty drizzle. Southwest wind f4, temp 17oC, visibility moderate.
5	04/08/2022	ED	13.00	16.00	3	Cloud cover 5/8, sunny spells. Northwest wind f3, temp 15oC, visibility good.
5	15/08/2022	ED	09.05	12.05	3	Cloud cover 7/8, muggy with some showers. East/southeast wind f2, temp 20oC, visibility very good.
1	05/09/2022	ED	14.10	17.10	3	Cloud cover 8/8, overcast, heavy showers and gale force winds. Southeast wind f7, temp 15oC, visibility poor.
1	07/09/2022	ED	09.10	12.10	3	Cloud cover 8/8, misty with heavy showers. South/east wind f5, temp 14oC, visibility moderate.
2	06/09/2022	ED	09.10	12.10	3	Cloud cover 8/8, windy with prolonged heavy rain. Southeast wind f4, temp 12oC, visibility moderate.
2	07/09/2022	ED	12.30	15.30	3	Cloud cover 8/8, heavy rain. South/east wind f4, temp 15oC, visibility moderate.
3	08/09/2022	ED	09.05	12.05	3	Cloud cover 8/8, overcast with heavy showers. North/east wind f4, temp 14oC, visibility good.
3	09/09/2022	ED	13.00	16.00	3	Cloud cover 8/8, overcast with showers. Northeast wind f4, temp 13oC.
4	05/09/2022	ED	10.45	13.45	3	Cloud cover 8/8, heavy rain showers and gales. Southeast wind f7, temp 15oC, visibility poor.

Vantage Point Survey Summary

Breeding 2022						
VP	Date	Observer	Start Time	Finish Time	Length of VP watch (hours)	Weather
4	06/09/2022	ED	13.15	16.15	3	Cloud cover 8/8, windy with heavy showers. Southeast wind f4, temp 13oC, visibility moderate.
5	08/09/2022	ED	12.55	15.55	3	Cloud cover 8/8, overcast with heavy showers. North/east wind f4, temp 15oC, visibility moderate.
5	09/09/2022	ED	09.10	12.10	3	Cloud cover 8/8, overcast with showers. Northeast wind f4, temp 13oC, visibility good.

Appendix 5

Target/Secondary Species Observations

Coumnagappul Target Species

Main Target Species

Hen harrier

Hen harrier															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
21/05/2019	2	Male	Adult	1	Improved grassland, rough grassland, Grassland moorland	1	16.48	Flying, hunting	1-6	-	480	-	-	-	-
21/05/2019	2	Female	Adult	2	Improved grassland, rough grassland, Grassland moorland, scrub	1	17.15	Hunting, flying	2-8	-	180	-	-	-	-
Summer 2020															
13/09/2020	1	Female	Adult	3	Grassland moorland	1	12.39	Hunting	1	-	25	-	-	-	-
14/09/2020	1	Male	Adult	4	Grassland moorland	1	15.38	Hunting	2-10	-	45	-	-	-	-
16/09/2020	3	Unknown	Juvenile	5	Grassland moorland	1	11.15	Hunting, on ground	2	60	60	-	-	-	-
Winter 2020/21															
09/10/2020	1	Female	Adult	6	Grassland moorland	1	16.50	Hunting	1-2	-	25	-	-	-	-
04/11/2020	1	Male	Adult	7	Grassland moorland	1	13.40	Hunting	2	-	35	-	-	-	-
25/03/2021	4	Unknown	Unknown	8	Grassland moorland	1	14.06	Flying, on ground	5	10	30	-	-	-	-
Summer 2021															
28/04/2021	4	Unknown	Unknown	9	Grassland moorland	1	14.32	Flying	-	-	40	-	-	-	-
29/04/2021	3	Unknown	Unknown	10	Grassland moorland	1	17.42	Hunting	-	-	30	60	-	-	-
29/04/2021	3	Unknown	Unknown	11	Grassland moorland	1	19.22	Hunting, soaring, flying	-	-	60	-	-	-	-
01/05/2021	4	Female	Adult	12	Grassland moorland	1	07.20	Flying	20	-	30	-	-	-	-

Coumnagappul Target Species

Hen harrier															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
01/05/2021	4	Female	Adult	13	Grassland moorland	1	08.27	Hunting	30	-	-	50	-	-	-
01/05/2021	4	Female	Adult	14	Grassland moorland	1	09.02	Perched	15	900	-	-	-	-	-
Winter 2021/22															
06/12/2021	3	Male	Adult	15	Grassland moorland	1	13.45	Flying	-	-	15	-	-	-	-
13/01/2021	3	Female	Adult	16	Grassland moorland	1	13.35	Hunting	-	-	40	-	-	-	-
Summer 2022															
04/08/2022	3	Female	Adult	17	Grassland moorland	1	10.05	Flying	10-150	-	15	40	20	10	-

Merlin

Merlin															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
09/04/2019	2	Female	Unknown	1	Grassland moorland	1	16.27	Flying	60-80	-	-	-	60	-	-
30/05/2019	3	Female	Unknown	2	Rough grassland, Grassland moorland	1	16.48	Flying, hunting	20-30	-	-	120	-	-	-
Winter 2019/20															
22/10/2019	1	Female	Adult	3	Heather moorland	1	13.40	Perching, flying,	0-20	210	30	-	-	-	-
Summer 2020															
16/08/2020	2	Unknown	Unknown	4	Grassland moorland	1	15.50	Hunting	1	-	15	-	-	-	-
Winter 2020/21															
01/12/2020	4	Male	Adult	5	Grassland moorland	1	15.50	Flying, perching	2	10	30	-	-	-	-
Winter 2021/22															
06/12/2021	3	Male	Adult	6	Improved grassland,	1	13.20	Hunting	-	-	25	-	-	-	-

Coumnagappul Target Species

Merlin															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
					Grassland moorland										
06/12/2021	5	Male	Adult	7	Grassland moorland	1	10.10	Flying	-	-	20	-	-	-	-
10/01/2022	2	Unknown	Unknown	8	Improved grassland, Grassland moorland	1	09.10	Hunting	-	-	15	-	-	-	-

Peregrine falcon

Peregrine falcon															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20 – 50m	50-100m	100-180m	>180m
Winter 2019/20															
29/11/2019	4	Unknown	Adult	1	Grassland moorland	1	11.21	Flying	17-18	-	18	-	-	-	-
19/12/2019	3	Unknown	Juvenile	2	Grassland moorland	1	12.01	Flying	30	-	15	-	-	-	-
10/01/2020	2	Unknown	Unknown	3	Improved grassland, Grassland moorland	1	-	Flying	80-100	-	-	-	35	-	-
16/02/2020	3	Unknown	Adult	4	Grassland moorland	1	09.55	Flying	150	-	-	-	-	40	-
Summer 2020															
24/04/2020	1	Male	Adult	5	Grassland moorland	1	14.34	Flying	15	-	20	-	-	-	-
Winter 2020/21															
10/10/2020	4	Unknown	Adult	6	Grassland moorland	1	14.40	Flying, mobbing	35	-	-	25	-	-	-
Winter 2021/22															
08/02/2022	2	Female	Adult	7	Grassland moorland	1	13.10	Flying	30	-	-	20	-	-	-
03/03/2022	4	Male	Adult	8	Grassland moorland	1	13.02	Flying, perched	2-150	70	40	30	50	20	-

Coumragappul Target Species

Kestrel

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight / Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
22/05/2019	1	Female	Adult	1	Improved grassland, 1 st rotation forestry, Grassland moorland	1	17.06	Flying	60	-	-	-	120	-	-
11/07/2019	1	Male	Adult	2	1 st rotation forest, Grassland moorland, rough grassland	1	15.50	Flying	80	-	-	-	40	-	-
06/08/2019	1	Female	Juvenile	3	Rough grassland, thicket, Forestry,	1	17.27	Flying, perched,	10-20	5	37	-	-	-	-
06/08/2019	2	Female	Adult	4	Grassland moorland, Improved grassland	1	18.05	Flying, circling	15-70	-	20	-	280	-	-
07/08/2019	2	Female	Adult	5	Rough grassland, Grassland moorland, thicket	1	17.18	Flying, circling	15-20	-	70	-	-	-	-
07/08/2019	1	Unknown	Juvenile	6	thicket	1	19.35	perched	-	1380	-	-	-	-	-
					Improved grassland	1	19.57	Flying	0-20	-	5	-	-	-	-
					Improved grassland	1	19.57	On the ground	-	780	-	-	-	-	-
					Improved grassland, rough grassland	1	20.09	Flying	0-20	-	25	-	-	-	-
					Thicket	1	20.09	perched	-	360	-	-	-	-	-
					Improved grassland, rough grassland	1	20.15	Flying	0-20	-	23	-	-	-	-
07/08/2019	1	Unknown	Unknown	7	Forestry	1	22.22	Flushed, flying	20	-	15	-	-	-	-
16/08/2019	3	Female	Adult	8	Thicket, Grassland moorland	1	15.55	perched, hunting, flying	40	5	-	435	-	-	-
16/08/2019	3	Female male	Adult pair	9	Thicket	2	18.10	Flying	70	-	-	-	35	-	-
Winter 2019/20															

Coumragappul Target Species

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight / Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
21/10/2019	1	Female	Adult	10	Heather moorland	1	11.00	Hunting	90	-	-	-	120	-	-
21/10/2019	2	Female	Adult	11	Heather moorland	1	15.35	Flying	80	-	-	-	6	-	-
22/10/2019	3	Female	Adult	12	Heather moorland	1	12.05	Hunting	80	-	-	-	12	-	-
22/10/2019	1	Female	Adult	13	Heather moorland	1	15.09	Hunting	80-100	-	-	-	540	-	-
23/10/2019	2	Female	Adult	14	Heather moorland	1	12.33	Hunting	3-5	-	20	-	-	-	-
23/10/2019	3	Female	Adult	15	Heather moorland	1	13.59	Hunting	80	-	-	-	50	-	-
27/11/2019	3	Female	Adult	16	Improved grassland, scrub	1	11.52	Perched, flying	15-25	120	25	20	-	-	-
27/11/2019	3	Male	Immature	17	Improved grassland, scrub, thicket	1	13.40	Perched, flying	5-15	190	24	-	-	-	-
28/11/2019	3	Male	Immature	18a 18b	Improved grassland, scrub	1	08.49 10.05	Perched, flying	3-7 7-12	20 320	8 27	- -	- -	- -	- -
29/11/2019	2	Male	Immature	19	Scrub, Grassland moorland	1	13.53	Flying, perched, hunting	7-40	16	260	100	-	-	-
19/12/2019	2	Male	Adult	20	Moorland	1	14.25	Hunting	20	-	45	-	-	-	-
15/03/2020	2	Male	Adult	21	Grassland moorland	1	10.25	Flying	75	-	-	-	25	-	-
Summer 2020															
23/04/2020	4	Female	Adult	22	Grassland moorland and thicket	1	13.51	Flying, perched	25	480	-	3	-	-	-
24/04/2020	4	Female	Adult	23	Grassland moorland	1	09.25	Flying	10	-	15	-	-	-	-
24/04/2020	1	Male	Adult	24	Grassland moorland	1	13.10	Hunting, flying	30	-	-	40	-	-	-
25/04/2020	2	Female	Adult	25	Grassland moorland	1	16.35	Flying	15	-	25	-	-	-	-
14/05/2020	2	Male	Adult	26	Grassland moorland	1	11.25	Circling	75	-	-	-	95	-	-
15/05/2020	3	Male	Adult	27	Grassland moorland	1	11.32	Hunting, flying	30-60	-	-	130	25	-	-
08/06/2020	1	Male	Adult	28	Grassland moorland	1	13.50	Flying	20-50	-	-	35	-	-	-
18/07/2020	4	Male	Adult	29	Grassland moorland	1	-	Flying, hunting	40	-	-	35	-	-	-
14/08/2020	1	Male	Adult	30	Grassland moorland	1	12.35	Flying	10	-	20	-	-	-	-
15/08/2020	4	Female	Adult	31	Thicket	1	11.55	Flying, perched	0-20	10	320	-	-	-	-

Coumragappul Target Species

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight / Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
16/08/2020	4	Male	Adult	32	Thicket	1	11.50	Flying	10	-	15	-	-	-	-
18/08/2020	2	Female	Adult	33	Grassland moorland	1	12.10	Flying	10	-	25	-	-	-	-
13/09/2020	4	Female	Adult	34	Grassland moorland	1	14.10	Flying	40	-	-	40	-	-	-
14/09/2020	1	Male	Adult	35	Grassland moorland	1	15.35	Flying	10	-	15	-	-	-	-
15/09/2020	2	Female	Adult	36	Grassland moorland	1	15.35	Hunting	40	-	-	145	-	-	-
16/09/2020	3	Male	Adult	37	Improved grassland	1	10.55	Flying, perched	15	25	45	-	-	-	-
17/09/2020	2	Male	Unknown	38	Grassland moorland	1	10.32	Soaring	100	-	-	-	40	-	-
17/09/2020	2	Female	Adult	39	Grassland moorland	1	12.25	Hunting, flying	40	-	-	25	-	-	-
17/09/2020	3	Unknown	Immature	40	Improved grassland	1	13.20	Perched, flying	2	20	20	-	-	-	-
Winter 2020/21															
10/10/2020	4	Male	Unknown	41	Grassland moorland	1	14.40	Hunting	35	-	-	20	-	-	-
11/10/2020	2	Male	Adult	42	Grassland moorland	1	14.40	Hunting	50-100	-	-	-	320	-	-
04/11/2020	4	Male	Adult	43	Grassland moorland	1	12.25	Flying, hunting	50	-	-	35	-	-	-
05/11/2020	2	Male	Unknown	44	Grassland moorland	1	14.35	Hunting	30	-	-	30	-	-	-
06/11/2020	3	Male	Adult	45	Grassland moorland	1	14.50	Flying	30	-	-	40	-	-	-
02/12/2020	1	Female	Adult	46	Grassland moorland	1	13.10	Flying	25	-	-	30	-	-	-
18/02/2021	4	Unknown	Unknown	47	Grassland moorland	1	14.40	Hunting	30	-	-	80	-	-	-
23/03/2021	2	Male	Adult	48	Grassland moorland	1	11.24	Hunting	20-25	-	-	180	-	-	-
Summer 2021															
28/04/2021	4	Unknown	Unknown	49	Grassland moorland	1	18.02	Hunting	-	-	20	30	-	-	-
01/05/2021	4	Unknown	Unknown	50	Grassland moorland	1	10.15	Hunting	20	-	30	-	-	-	-
16/06/2021	2	Unknown	Adult	51	Grassland moorland	1	14.50	Hunting	30	-	-	300	-	-	-
16/06/2021	2	Unknown	Adult	52	Grassland moorland	1	16.01	Hunting	40	-	-	220	-	-	-
25/06/2021	3	Unknown	Unknown	53	2 nd rotation forestry	1	16.12	Flying	8-10	-	5	-	-	-	-
25/06/2021	3	Unknown	Unknown	54	Improved grassland	2	16.34	Hunting	10-15	-	30	-	-	-	-
22/07/2021	4	Unknown	Unknown	55	Rough grassland	1	11.05	Hunting, hovering	20	-	140	-	-	-	-
28/08/2021	3	Unknown	Unknown	56	Improved grassland	1	12.34	Flying	30-50	-	-	15	-	-	-
28/08/2021	3	Male	Adult	57	2 nd rotation forestry,	1	14.20	Flying	-	-	-	90	-	-	-

Coumnagappul Target Species

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight / Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
					<i>improved grassland</i>										
28/08/2021	3	Female	Adult	58	2 nd rotation forestry, improved grassland	1	14.22	Flying	-	-	-	40	-	-	-
31/08/2021	2	Female	Adult	59	Rough grassland	1	12.17	Hunting, flying	6-8	-	380	-	-	-	-
31/08/2021	2	Female	Adult	60	Rough grassland	1	14.12	Hunting	-	-	90	-	-	-	-
Winter 2021/22															
26/10/2021	1	Male	Adult	61	Heather moorland	1	15.50	Flying	-	-	15	-	-	-	-
28/10/2021	2	Unknown	Unknown	62	Heather moorland, Grassland moorland	1	13.40	Flying	-	-	-	70	-	-	-
30/10/2021	3	Female	Adult	63	Grassland moorland	1	14.14	Hunting	-	-	-	40	-	-	-
14/11/2021	1	Male	Adult	64	Grassland moorland	1	15.25	Flying	-	-	-	25	-	-	-
15/11/2021	2	Male	Adult	65	Grassland moorland	1	11.10	Flying	-	-	-	20	-	-	-
17/11/2021	5	Male	Adult	66	Grassland moorland	1	14.50	Flying	-	-	35	-	-	-	-
18/11/2021	3	Male	Adult	67	Grassland moorland	1	14.35	Flying	-	-	-	35	-	-	-
02/12/2021	1	Male	Adult	68	Grassland moorland	1	15.20	Flying	-	-	-	25	-	-	-
03/12/2021	2	Male	Adult	69	Grassland moorland	1	11.20	Flying	-	-	-	15	-	-	-
05/12/2021	3	Female	Adult	70	Grassland moorland	1	12.10	Flying	-	-	-	30	-	-	-
05/12/2021	5	Female	Adult	71	Grassland moorland	1	13.58	Flying	-	-	-	-	35	-	-
06/12/2021	3	Female	Adult	72	Heather Moorland, Grassland moorland	1	14.25	Flying	-	-	40	-	-	-	-
09/01/2022	4	Male	Adult	73	Grassland moorland	1	12.10	Flying	-	-	-	25	-	-	-
11/01/2022	1	Female	Adult	74	Improved Grassland, 1 st rotation forestry	1	10.12	Flying	-	-	-	25	-	-	-
12/01/2022	3	Male	Adult	75	Grassland moorland	1	11.10	Flying	-	-	-	30	-	-	-
13/01/2022	5	Male	Adult	76	Grassland moorland, Thicket forestry	1	11.20	Hunting	-	-	30	-	-	-	-
06/02/2022	1	Male	Adult	77	Grassland moorland	1	14.25	Flying	35	-	-	20	-	-	-
07/02/2022	2	Male	Adult	78	Grassland moorland	1	11.15	Flying	80	-	-	-	35	-	-
09/02/2022	5	Male	Adult	79	Grassland moorland	1	12.55	Flying	40	-	-	30	-	-	-
10/02/2022	5	Female	Adult	80	Grassland moorland	1	10.03	Hunting	30	-	-	30	-	-	-

Coumnagappul Target Species

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight / Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
03/03/2022	1	Male	Adult	81	Grassland moorland	1	14.55	Flying	30	-	-	40	-	-	-
04/03/2022	2	Male	Adult	82	Grassland moorland	1	11.10	Hunting	30	-	-	20	-	-	-
05/03/2022	2	Female	Adult	83	Grassland moorland	1	12.25	Flying	30	-	-	20	-	-	-
06/03/2022	5	Male	Adult	84	Grassland moorland	1	12.40	Hunting	30	-	-	20	-	-	-
Summer 2022															
02/04/2022	1	Male	Adult	83 85	Grassland moorland	1	16.50	Flying	35	-	-	25		-	-
03/04/2022	2	Male	Adult	86	Grassland moorland	1	13.10	Flying	75	-	-		20	-	-
03/04/2022	4	Male	Adult	87	Grassland moorland	1	17.25	Flying	25	-	-	30	-	-	-
05/04/2022	5	1 Male 1 Female	Adult	88	Grassland moorland	2	15.25	Mobbing	30-80	-	-	20	35	-	-
05/04/2022	3	Male	Adult	89	Grassland moorland	1	17.10	Flying	75	-	-		30	-	-
09/05/2022	1	Male	Adult	90	Grassland moorland	1	15.10	Flying	40	-	-	25	-	-	-
11/05/2022	1	Male	Adult	91	Grassland moorland	1	10.40	Flying	40	-	-	20	-	-	-
11/05/2022	2	Male	Adult	92	Grassland moorland	1	14.20	Flying	15	-	20	-	-	-	-
12/05/2022	3	Unknown	Unknown	93	Grassland moorland	1	10.02	Flying	150	-	-	-	-	40	-
13/05/2022	3	Male	Adult	94	Grassland moorland	1	13.50	Flying	75	-	-	-	25		-
01/06/2022	1	Male	Adult	95	Grassland moorland	1	18.20	Flying, hovering	25	-	-	70	-	-	-
02/06/2022	4	Male	Adult	96	Grassland moorland	1	18.35	Hunting	40	-	-	35	-	-	-
03/06/2022	5	Male	Adult	97	Grassland moorland	1	14.55	Flying	25	-	-	35	-	-	-
04/06/2022	3	Male	Adult	98	Grassland moorland	1	14.05	Flying	40	-	-	25	-	-	-
05/06/2022	1	Male	Adult	99	Grassland moorland	1	15.55	Flying	15	-	30	-	-	-	-
04/07/2022	4	Female	Adult	100	Grassland moorland	1	12.25	Hunting	60	-	-		140	-	-
04/07/2022	4	Female	Adult	101	Grassland moorland	1	13.45	Flying	40	-	-	50	-	-	-
04/07/2022	1	Male	Adult	102	Grassland moorland	1	16.10	Flying	30	-	-	20	-	-	-
05/07/2022	4	Female	Adult	103	Grassland moorland	1	14.05	Flying	75	-	-		35	-	-
06/07/2022	1	Female	Adult	104	Grassland moorland	1	10.35	Flying	25	-	-	25	-	-	-
07/07/2022	5	Female	Adult	105	Grassland moorland	1	12.50	Flying	10-25	-	20	30	-	-	-
08/07/2022	5	Male	Adult	106	Grassland moorland	1	14.10	Flying	40	-	-	35	-	-	-

Coumnagappul Target Species

Kestrel															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight / Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
02/08/2022	2	Female	Adult	107	Grassland moorland	1	10.30	Flying	75	-	-	-	35	-	-
02/08/2022	4	Female	Adult	108	Grassland moorland	1	14.55	Flying	75	-	-	-	100	-	-
02/08/2022	4	Male	Adult	109	Grassland moorland	1	14.55	Hunting	75	-	-	-	100	-	-
03/08/2022	1	Male	Adult	110	Grassland moorland	1	11.25	Hunting	75	-	-	-	25	-	-
04/08/2022	5	Male	Adult	111	Grassland moorland	1	13.40	Flying	25	-	-	30	-	-	-
04/08/2022	5	Female	Adult	112	Grassland moorland	1	14.10	Hunting	50	-	-	40	-	-	-
04/08/2022	5	Male	Adult	113	Grassland moorland	1	14.10	Hunting	75	-	-	-	35	-	-
15/08/2022	5	Male	Adult	114	Grassland moorland	1	10.10	Flying	20	-	25	-	-	-	-
15/08/2022	3	Male	Adult	115	Grassland moorland	1	14.10	Flying	75	-	-	-	35	-	-
05/09/2022	4	Male	Adult	116	Grassland moorland	1	11.25	Flying	30	-	-	20	-	-	-
05/09/2022	1	Male	Adult	117	Grassland moorland	1	14.50	Flying	25	-	-	15	-	-	-
05/09/2022	1	Female	Adult	118	Grassland moorland	1	16.10	Flying	30	-	-	30	-	-	-
06/09/2022	2	Female	Adult	119	Grassland moorland	1	10.25	Flying	15	-	25	-	-	-	-
07/09/2022	2	Male	Adult	120	Grassland moorland	1	14.11	Flying	0-60	-	30	20	10	-	-
08/09/2022	3	Female	Adult	121	Improved agricultural grassland	1	11.25	Flying	5	-	20	-	-	-	-
09/09/2022	3	Male	Adult	122	Grassland moorland	1	14.20	Flying	75	-	-	-	25	-	-

Buzzard

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
05/04/2019	1	Unknown	Unknown	1	Improved grassland, Grassland moorland	1	10.39	Soaring, circling	80-120	-	-	-	140	140	-
21/05/2019	1	Unknown	Unknown	2	Improved grassland, 1 st	1	13.02	Flying	70-80	-	-	-	45	-	-

Coumnagappul Target Species

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
					rotation grassland, Grassland moorland										
22/05/2019	2	Unknown	Unknown	3	Improved grassland, Grassland moorland	1	14.40	Flying	40-50	-	-	60	-	-	-
22/05/2019	1	Unknown	Unknown	4	Improved grassland, Grassland moorland	1	15.46	Flying	90	-	-	-	60	-	-
30/05/2019	3	Unknown	Unknown	5	Grassland moorland, improved grassland, scrub	1	12.44	Flying, circling	0-40	-	120	120	-	-	-
16/08/2019	3	Unknown	Adult	6	Rough grassland	1	17.20	Flying	30	-	-	50	-	-	-
06/09/2019	2	Unknown	Unknown	7	Improved grassland, 1 st rotation forestry, Grassland moorland	1	14.33	Flying	50-60	-	-	-	60	-	-
Winter 2019/20															
23/10/2019	2	Unknown	Adult	8	Heather moorland	1	10.22	Hunting	150-200	-	-	-	-	120	120
23/10/2019	3	Unknown	Adult	9	Heather moorland	1	13.22	Hunting	100-150	-	-	-	60	60	-
23/10/2019	3	Unknown	Adult	10	Heather moorland	1	15.35	Hunting	30	-	-	270	-	-	-
18/12/2019	2	Unknown	Adult	11	Grassland moorland	1	11.25	Flying	20	-	20	-	-	-	-
14/02/2020	4	Unknown	Adult	12	Grassland moorland	1	15.08	Flying	15	-	75	-	-	-	-
16/02/2020	3	Unknown	Adult	13	Grassland moorland	1	10.20	Soaring	150	-	-	-	-	95	-
17/02/2020	1	Unknown	Adult	14	Grassland moorland	1	14.18	Flying	3	-	35	-	-	-	-
Summer 2020															
23/04/2020	1	Unknown	Adult	15	Grassland moorland	1	11.25	Flying	150	-	-	-	-	25	-
25/04/2020	3	Unknown	Adult	16	Grassland moorland	1	11.32	Soaring	80	-	-	-	130	-	-
26/04/2020	3	Unknown	Unknown	17	Grassland moorland	1	-	Flying	75	-	-	-	20	-	-
14/05/2020	3	Unknown	Adult	18	Grassland moorland	1	13.05	Soaring	150	-	-	-	-	40	-
13/06/2020	3	Unknown	Adult	19	Improved grassland	1	14.55	Flying	10	-	20	-	-	-	-
13/07/2020	1	Unknown	Adult	20	Grassland moorland	1	14.20	Flying	5	-	15	-	-	-	-

Coumragappul Target Species

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
15/07/2020	4	Unknown	Adult	21	Grassland moorland	1	14.58	Flying	40	-	-	35	-	-	-
16/07/2020	2	Unknown	Adult	22	Grassland moorland	1	15.05	Soaring	75	-	-	-	20	-	-
18/07/2020	4	Unknown	Juvenile	23	Grassland moorland	2	11.20	Soaring, perched	10	20	20	-	-	-	-
16/09/2020	3	Unknown	Adult	24	Grassland moorland	1	10.20	Flying	10	-	20	-	-	-	-
16/09/2020	3	Unknown	Adult	25	Improved grassland	1	12.45	Flying	10	-	15	-	-	-	-
Winter 2020/21															
11/10/2020	2	Unknown	Adult	26	Grassland moorland	1	14.15	Flying	3	-	20	-	-	-	-
12/10/2020	3	Unknown	Adult	27	Improved grassland	1	14.10	Flying	5	-	20	-	-	-	-
03/12/2020	3	Unknown	Adult	28	Grassland moorland	1	10.08	Flying	30	-	-	25	-	-	-
15/02/2021	3	Unknown	Adult	29	Grassland moorland	1	09.39	Hunting	40	-	-	100	-	-	-
24/03/2021	3	Unknown	Adult	30a 30b	Grassland moorland	1	13.44 14.30	Hunting	70 50	-	-	-	100 60	-	-
Summer 2021															
29/04/2021	3	Unknown	Adult	31	Grassland moorland	1	15.12	Hunting, soaring	20-100	-	-	30	40	-	-
01/05/2021	4	Unknown	Unknown	32	Improved grassland	1	11.37	Circling	90	-	-	-	120	-	-
01/05/2021	4	Unknown	Unknown	33	Grassland moorland	2	11.48	Circling	90	-	-	-	180	-	-
30/05/2021	3	Unknown	Unknown	34	Improved grassland	1	06.17	Soaring	30	-	-	40	-	-	-
30/05/2021	3	Unknown	Unknown	35	Improved grassland	1	08.52	Soaring	60	-	-	-	50	-	-
30/05/2021	3	Unknown	Unknown	36	Improved grassland	2	10.20	Soaring	70	-	-	-	150	-	-
30/05/2021	3	Unknown	Unknown	37	Improved grassland	3	10.35	Soaring	30	-	-	130	-	-	-
25/06/2021	3	Unknown	Unknown	38	Improved grassland	1	15.46	Hunting, flying	5-10	-	40	-	-	-	-
25/06/2021	3	Unknown	Unknown	39	Improved grassland	1	18.31	Flying	10	-	50	-	-	-	-
27/08/2021	3	Unknown	Juvenile	40	Valley	1	18.27	Flying	5	-	3	-	-	-	-
28/08/2021	3	Unknown	Unknown	41a 41b	2 nd rotation forestry, improved grassland	2	12.51	Circling, flying	80-100	-	-	-	90	-	-
Winter 2021/22															
29/10/2021	3	Unknown	Unknown	42	Grassland moorland	1	12.10	Flying	-	-	-	-	15	-	-
29/10/2021	5	Unknown	Adult	43	Grassland moorland	1	14.05	Soaring	-	-	-	-	40	-	-

Coumnagappul Target Species

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
30/10/2021	3	Unknown	Unknown	44	Grassland moorland	1	13.20	Flying	-	-	25	-	-	-	-
16/11/2021	2	Unknown	Unknown	45	Grassland moorland	1	14.15	Flying	-	-	-	25	-	-	-
17/11/2021	3	Unknown	Adult	46	Improved Grassland	1	11.56	Flying	-	-	15	-	-	-	-
05/12/2021	5	Unknown	Unknown	47	Grassland moorland	1	13.05	Flying	-	-	-	-	25	-	-
06/12/2021	5	Unknown	Unknown	48	Grassland moorland	1	09.40	Soaring	-	-	-	-	20	-	-
11/01/2022	2	Unknown	Unknown	49	Grassland moorland	1	14.05	Soaring	-	-	-	-	25	-	-
12/01/2022	5	Unknown	Unknown	50	Grassland moorland	1	14.40	Soaring	-	-	25	-	-	-	-
09/02/2022	3	Unknown	Adult	51	Improved Grassland	1	09.10	Flying	40	-	-	20	-	-	-
10/02/2022	5	Unknown	Adult	52	Grassland moorland	1	09.40	Hunting	40	-	-	45	-	-	-
10/02/2022	3	Unknown	Unknown	53	Grassland	1	13.40	Flying	80	-	-	-	30	-	-
07/03/2022	5	Unknown	Unknown	54	Grassland moorland	1	09.10	Soaring	90	-	-	-	30	-	-
Summer 2022															
02/04/2022	1	Unknown	Unknown	55	Grassland moorland	1	17.40	Flying, Soaring	250	-	-	-	-	-	40
04/04/2022	2	Unknown	Adult	56	Grassland moorland	1	17.12	Flying	75	-	-	-	20	-	-
05/04/2022	5	Unknown	Adult	57	Grassland moorland	3	14.05	Flying	40-75	-	-	30	70	-	-
05/04/2022	5	Unknown	Unknown	58	Grassland moorland	1	15.25	Flying	50	-	-	55	-	-	-
06/04/2022	3	Unknown	Unknown	59	Grassland moorland	1	12.35	Flying	150	-	-	-	-	25	-
06/04/2022	5	Unknown	Adult	60	Grassland moorland	1	16.25	Flying	80	-	-	-	20	-	-
10/05/2022	2	Unknown	Unknown	61	Grassland moorland	1	11.20	Flying	40	-	-	50	-	-	-
10/05/2022	4	1 Male 1 Female	Adult	62	Grassland moorland	2	14.55	Display	10-75	-	50	40	220	-	-
11/05/2022	2	Unknown	Unknown	63	Grassland moorland	1	13.05	Soaring	150	-	-	-	-	25	-
12/05/2022	3	Unknown	Unknown	64	Grassland moorland	1	10.00	Flying	150	-	-	-	-	30	-
12/05/2022	3	Unknown	Unknown	65	Improved agricultural grassland	1	11.40	Flying	25	-	-	20	-	-	-
12/05/2022	5	Unknown	Adult	66	Grassland moorland	1	13.40	Flying	40	-	-	35	-	-	-
12/05/2022	5	Unknown	Adult	67	Grassland moorland	1	14.50	Soaring	25	-	-	30	-	-	-
12/05/2022	5	Unknown	Adult	68	Grassland moorland	2	15.30	Display	30-75	-	-	35	20	-	-

Coumnagappul Target Species

Buzzard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
13/05/2022	5	1 Male 1 Female	Adult	69	Grassland moorland	2	10.05	Soaring	75	-	-	-	40	-	-
01/06/2022	4	Unknown	Adult	70	Grassland moorland	1	14.30	Flying	75	-	-	-	30	-	-
02/06/2022	2	Unknown	Adult	71	Grassland moorland	1	15.50	Flying	75	-	-	-	25	-	-
03/06/2022	5	Unknown	Adult	72	Grassland moorland	1	14.40	Flying, Perched	20-40	210	-	40	-	-	-
03/06/2022	5	Unknown	Adult	73	Grassland moorland	1	16.10	Flying	75	-	-	-	30	-	-
03/06/2022	3	Unknown	Adult	74	Grassland moorland	1	18.15	Flying	75	-	-	-	30	-	-
04/06/2022	5	Unknown	Adult	75	Grassland moorland	1	17.10	Flying	75	-	-	-	30	-	-
05/06/2022	1	Unknown	Adult	76	Grassland moorland	1	14.25	Hunting	30	-	-	45	-	-	-
05/06/2022	2	Unknown	Adult	77	Grassland moorland	1	17.05	Flying	75	-	-	-	35	-	-
06/07/2022	2	Unknown	Adult	78	Grassland moorland	1	14.00	Flying	25	-	-	35	-	-	-
07/07/2022	3	Unknown	Adult	79	Grassland moorland	1	16.10	Flying	75	-	-	-	35	-	-
08/07/2022	3	Unknown	Adult	80	Grassland moorland	1	10.25	Flying	75	-	-	-	20	-	-
02/08/2022	2	Unknown	Adult	81	Grassland moorland	1	10.25	Flying	75	-	-	-	40	-	-
02/08/2022	4	Unknown	Adult	82	Grassland moorland	1	13.15	Perched, flying	10	20	15	-	-	-	-
03/08/2022	2	Unknown	Adult	83	Grassland moorland	1	15.05	Flying	75	-	-	-	25	-	-
04/08/2022	3	Unknown	Adult	84	Grassland moorland	1	09.50	Flying	25	-	-	30	-	-	-
04/08/2022	3	Unknown	Adult	85	Grassland moorland	1	10.40	Flying	40	-	-	30	-	-	-
04/08/2022	3	Unknown	Adult	86	Grassland moorland	1	11.50	Flying	40	-	-	25	-	-	-
04/08/2022	5	Unknown	Adult	87	Grassland moorland	1	14.36	Flying	75	-	-	-	35	-	-
15/08/2022	5	Unknown	Adult	88	Grassland moorland	1	09.35	Flying	40	-	-	20	-	-	-
07/09/2022	1	Unknown	Adult	89	Grassland moorland	1	11.35	Flying	15	-	20	-	-	-	-
07/09/2022	2	Unknown	Adult	90	Grassland moorland	1	14.10	Flying	20	-	30	-	-	-	-
08/09/2022	5	Male	Adult	91	Grassland moorland	1	14.05	Soaring	75	-	-	-	40	-	-
09/09/2022	5	Unknown	Adult	92	Grassland moorland	1	10.55	Hunting	150	-	-	-	-	80	-

Coumnagappul Target Species

Sparrowhawk

Sparrowhawk															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
07/08/2019	2	Female	Unknown	1	Grassland moorland, heather grassland	1	17.36	Soaring, circling	50-70	-	-	-	170	-	-
16/08/2019	3	Male	Adult	2	Grassland moorland	1	14.35	Soaring	100	-	-	-	45	-	-
Winter 2019/20															
29/11/2019	2	Female	Juvenile	3	Scrub, river	1	12.53	Flying, hunting	4-8	-	12	-	-	-	-
12/01/2020	2	Female	Adult	4	Grassland moorland	1	12.18	Flying, soaring	2-15	-	40	-	-	-	-
Summer 2020															
16/08/2020	4	Male	Adult	5	Grassland moorland	1	12.20	Flying, perched	15	70	70	-	-	-	-
15/09/2020	4	Female	Unknown	6	Grassland moorland	1	12.05	Soaring	100	-	-	-	75	-	-
Winter2020/21															
12/10/2020	2	Female	Juvenile	7	Grassland moorland	1	11.55	Perched, flying	1	20	20	-	-	-	-
05/11/2020	3	Female	Unknown	8	Grassland moorland	1	13.20	Soaring	50	-	-	40	-	-	-
Winter2021/22															
30/10/2021	3	Male	Adult	9	Grassland moorland	1	13.31	Flying	-	-	-	20	-	-	-
18/11/2021	5	Male	Adult	10	Thicket forestry	1	11.05	Flying	-	-	20	-	-	-	-
12/01/2022	5	Unknown	Unknown	11	1 st rotation forestry	1	14.15	Flying	-	-	15	-	-	-	-

Golden plover

Golden Plover															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20 – 50m	50-100m	100-180m	>180m
Winter 2019/20															
21/10/2019	1	Unknown	Adult	1	Thicket	60	10.50	Circling	>180	-	-	-	-	-	180
21/10/2019	1	Unknown	Adult	2	Heather moorland	40	11.05	Circling	110-180	-	-	-	-	120	-

Coumragappul Target Species

Golden Plover															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20 – 50m	50-100m	100-180m	>180m
22/10/2019	3	Unknown	Adult	3	Bog, heather moorland	80	12.02	Circling	400	-	-	-	-	-	60
23/10/2019	2	Unknown	Adult	4	Heather moorland	200	10.35	Circling	200-400	-	-	-	-	-	480
23/10/2019	2	Unknown	Adult	5	Heather moorland	200	10.50	Circling	200-500	-	-	-	-	-	300
14/02/2020	4	Unknown	Adult	6	Grassland moorland	1	13.40	On the ground	1-2	300	2	-	-	-	-
Summer 2020															
23/04/2020	4	Unknown	Unknown	7	Grassland moorland	1	15.05	Flying	400	-	-	-	-	-	35
Winter 2020/21															
09/10/2020	1	Unknown	Unknown	8	Grassland moorland	6	16.20	Flying	100	-	-	-	15	-	-
10/10/2020	1	Unknown	Unknown	9	Grassland moorland	40	12.10	Flying	50	-	-	35	-	-	-
11/10/2020	3	Unknown	Unknown	10	Grassland moorland	50	11.20	Flying	20	-	-	35	-	-	-
11/10/2020	2	Unknown	Unknown	11	Grassland moorland	150	16.15	Flying	150	-	-	-	-	480	-
04/12/2020	3	Unknown	Unknown	12	Grassland moorland	4	14.35	Flying	100	-	-	-	-	15	-
Winter 2021/22															
30/10/2021	5	Unknown	Unknown	13	Grassland moorland	100	10.10	Flying	-	-	-	-	50	-	-
15/11/2021	4	Unknown	Unknown	14	Grassland moorland	10	12.40	Flying	-	-	-	-	-	20	-
17/11/2021	3	Unknown	Unknown	15	Grassland moorland	15	11.20	Flying	-	-	-	-	-	25	-
04/03/2022	4	Unknown	Unknown	16	Grassland moorland	30	12.55	Flying	150	-	-	-	-	25	-
05/03/2022	2	Unknown	Unknown	17	Grassland moorland	1	14.35	Flying	100	-	-	-	35	-	-
06/03/2022	3	Unknown	Unknown	18	Grassland moorland	20	09.35	Flying	150	-	-	-	-	20	-
07/03/2022	3	Unknown	Unknown	19	Grassland moorland	8	12.15	Flying	180	-	-	-	-	20	-
Summer 2022															
05/04/2022	5	Unknown	Unknown	20	Grassland moorland	1	14.40	Flying	150	-	-	-	-	20	-

Coumnagappul Target Species

Snipe

Snipe															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
07/08/2019	1	Unknown	Unknown	1	Improved grassland	1	10.04	Calling, flying	20-30	-	-	10	-	-	-
Winter 2019/20															
22/10/2019	3	Unknown	Adult	2	Improved grassland	1	10.09	Flying	80	-	-	-	14	-	-
29/11/2019	4	Unknown	Unknown	3	Grassland moorland, heather moorland	1	11.37	Flying	10-12	-	8	-	-	-	-
30/11/2019	4	Unknown	Unknown	4	Grassland moorland, heather moorland	1	12.45	Flying (flushed)	2-4	-	9	-	-	-	-
Summer 2020															
24/04/2020	4	Unknown	Adult	5	Grassland moorland	1	09.50	Display	15	-	35	-	-	-	-
24/04/2020	4	Unknown	Adult	6	Grassland moorland	1	15.25	Display	40	-	-	25	-	-	-
25/04/2020	4	Unknown	Adult	7	Grassland moorland	1	13.20	Display	30	-	-	20	-	-	-
12/05/2020	4	Unknown	Adult	8	Grassland moorland	1	10.25	Display	20-50	-	-	35	-	-	-
15/05/2020	4	Unknown	Adult	9	Rough grassland	1	14.35	On ground	-	300	-	-	-	-	-
10/06/2020	4	Unknown	Adult	10	Grassland moorland	1	10.25	Flying	35	-	-	15	-	-	-
11/06/2020	4	Unknown	Adult	11	Grassland moorland	1	13.10	Perched, displaying	-	600	-	-	-	-	-
12/06/2020	4	Unknown	Adult	12	Grassland moorland	1	-	Perched, displaying	-	150	-	-	-	-	-
Winter 2020/21															
09/10/2020	1	Unknown	Unknown	13	Grassland moorland	1	16.10	Flying	5	-	10	-	-	-	-
22/01/2021	1	Unknown	Unknown	14	Scrub	1	09.33	Flying	1-2	-	30	-	-	-	-
Summer 2021															
27/04/2021	2	Unknown	Unknown	15	Grassland moorland	1	14.01	Flying	30	-	-	30	-	-	-
Winter 2021/22															
05/12/2021	3	Unknown	Unknown	16	Grassland moorland	1	10.55	Flying	-	-	-	15	-	-	-

Coumnagappul Target Species

Red grouse

Red grouse															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2021															
27/04/2021	2	Unknown	Unknown	1	Grassland moorland	1	14.55	Heard calling	On ground	-	-	-	-	-	-
16/06/2021	2	Unknown	Unknown	2	Grassland moorland	1	16.30	Heard calling	On ground	-	-	-	-	-	-

Secondary Species

Great black-backed gull

Great black-backed gull															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20 – 50m	50-100m	100-180m	>180m
Summer 2020															
10/06/2020	4	Unknown	Adults	1a 1b	Grassland moorland	2	12.07	Flying	40	-	-	20	-	-	-
13/07/2020	1	Unknown	Adult	2	Grassland moorland	1	14.30	Flying	45	-	-	25	-	-	-
13/07/2020	4	Unknown	Adult	3	Grassland moorland	1	15.30	On ground	-	4180	20	-	-	-	-
14/07/2020	4	Unknown	Adult	4a 4b	Grassland moorland	2	09.25	On ground, flying	-	5380	20	-	-	-	-

Coumnagappul Target Species

Herring gull

Herring gull															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20 – 50m	50- 100m	100- 180m	>180m
Summer 2020															
08/06/2020	1	Unknown	Adult	1	Grassland moorland	1	13.10	Soaring	100	-	-	-	70	-	-
11/06/2020	3	Unknown	Adult	2	Grassland moorland	1	10.12	Flying	150	-	-	-	-	25	-
Summer 2022															
05/07/2022	2	Unknown	Adult	3	Grassland moorland	1	11.25	Flying	25	-	-	30	-	-	-
06/07/2022	2	Unknown	Adult	4	Grassland moorland	1	14 15	Flying	75	-	-	-	25	-	-
15/08/2022	3	Unknown	Adult	5	Improved agricultural grassland	1	14.20	Flying	200	-	-	-	-	-	40

Lesser black-backed gull

Lesser black-backed gull															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50- 100m	100- 180m	>180m
Summer 2019															
09/04/2019	3	Unknown	Unknown	1	Improved grassland, rough grassland, Grassland moorland	2	17.53	Flying	90	-	-	-	60	-	-
06/08/2019	2	Unknown	Adult	2	Grassland moorland	1	18.37	Flying	30-40	-	-	50	-	-	-
Winter 2019/20															
16/03/2020	3	Unknown	Adult and immature	3	Grassland moorland	2	11.25	Soaring	70	-	-	-	48	-	-
Summer 2020															
11/05/2020	1	Unknown	Adult	4	Grassland moorland	1	12.05	Flying	40	-	-	35	-	-	-
11/05/2020	4	Unknown	Adult	5	Grassland moorland	1	15.25	Flying	100	-	-	-	-	25	-
15/05/2020	3	Unknown	Adult	6	Improved grassland,	1	10.31	Flying,	150-170	-	-	-	-	130	-

Coumnagappul Target Species

Lesser black-backed gull															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
					heather moorland			circling							
15/05/2020	4	Unknown	Adult	7	Improved grassland, Grassland moorland	1	13.33	Flying	18-20	-	18	-	-	-	-
11/06/2020	4	Unknown	Adult	8	Grassland moorland	4	14.45	Flying	30	-	-	25	-	-	-
13/06/2020	2	Unknown	Adult and immature	9	Grassland moorland	2	11.05	Flying	35	-	-	25	-	-	-
18/07/2020	3	Unknown	Adult	10	Grassland moorland	1	14.40	Flying	40	-	-	40	-	-	-
17/08/2020	3	Unknown	Adult	11	Improved grassland	1	11.05	On the ground, flying	5450	-	50	-	-	-	-
Summer 2021															
16/06/2021	2	Unknown	Adult	12	Grassland moorland	1	16.01	Soaring, on ground	70	1	-	-	120	-	-
24/06/2021	1	Unknown	Unknown	13	Improved grassland	1	16.01	Flying	25-30	-	-	30	-	-	-
27/07/2021	3	Unknown	Adult	14	Improved grassland	1	09.50	On ground, flying	-	240	240	-	-	-	-
15/09/2021	3	Unknown	Adult	15	Improved grassland	1	11.42	Flying	-	-	-	-	120	-	-

Ringed plover

Ringed plover															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20 – 50m	50-100m	100-180m	>180m
Summer 2020															
16/08/2020	4	Unknown	Unknown	1	Grassland moorland	1	14.10	Flying	-	-	-	-	20	-	-

Coumnagappul Target Species

Grey heron

Grey heron															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2019															
11/07/2019	3	Unknown	Adult	1	Stream	1	14.32	Flying	10-14	-	40	-	-	-	-

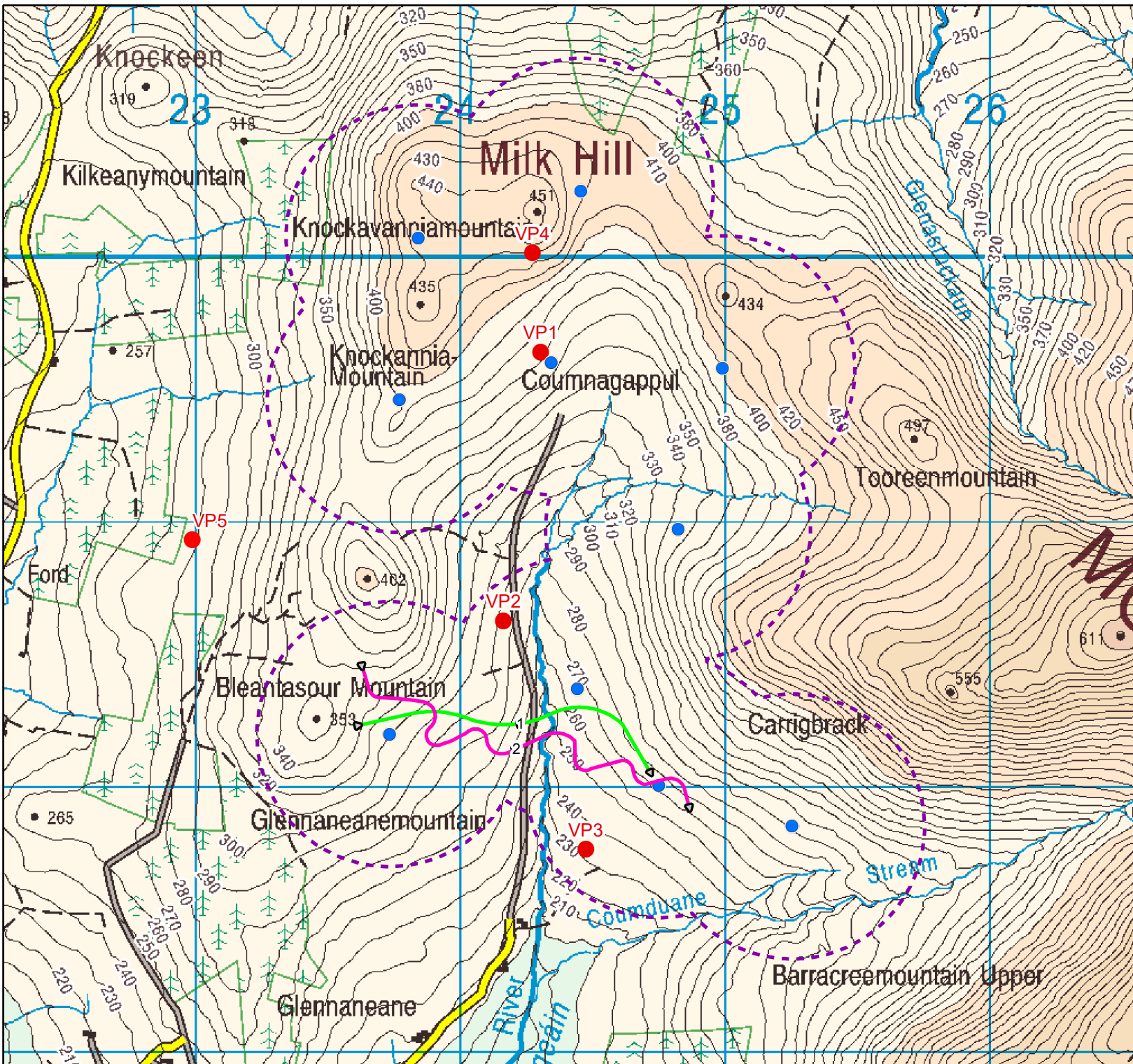
Mallard

Mallard															
Date	VP	Sex	Age	Map Ref	Habitat	No. Of Birds	Time of Flight/ Obs.	Activity	Flight Height (m)	Time (sec) in Height Category					
										Non-flight	0-20m	20-50m	50-100m	100-180m	>180m
Summer 2021															
27/04/2021	2	Unknown	Unknown	1	Grassland moorland	2	19.27	Flying	40	-	-	40	-	-	-
01/05/2021	4	Unknown	Unknown	2	Stream	2	09.04	Flying	15	-	20	-	-	-	-

Appendix 6

Flight Path and Activity Areas Maps

Hen Harrier



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Hen_Harrier_FP

Date, Time, Ref No.

- ◇ 21/05/2019, 16:48, 1
- ◇ 21/05/2019, 17:15, 2

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0 0.425 0.85 km

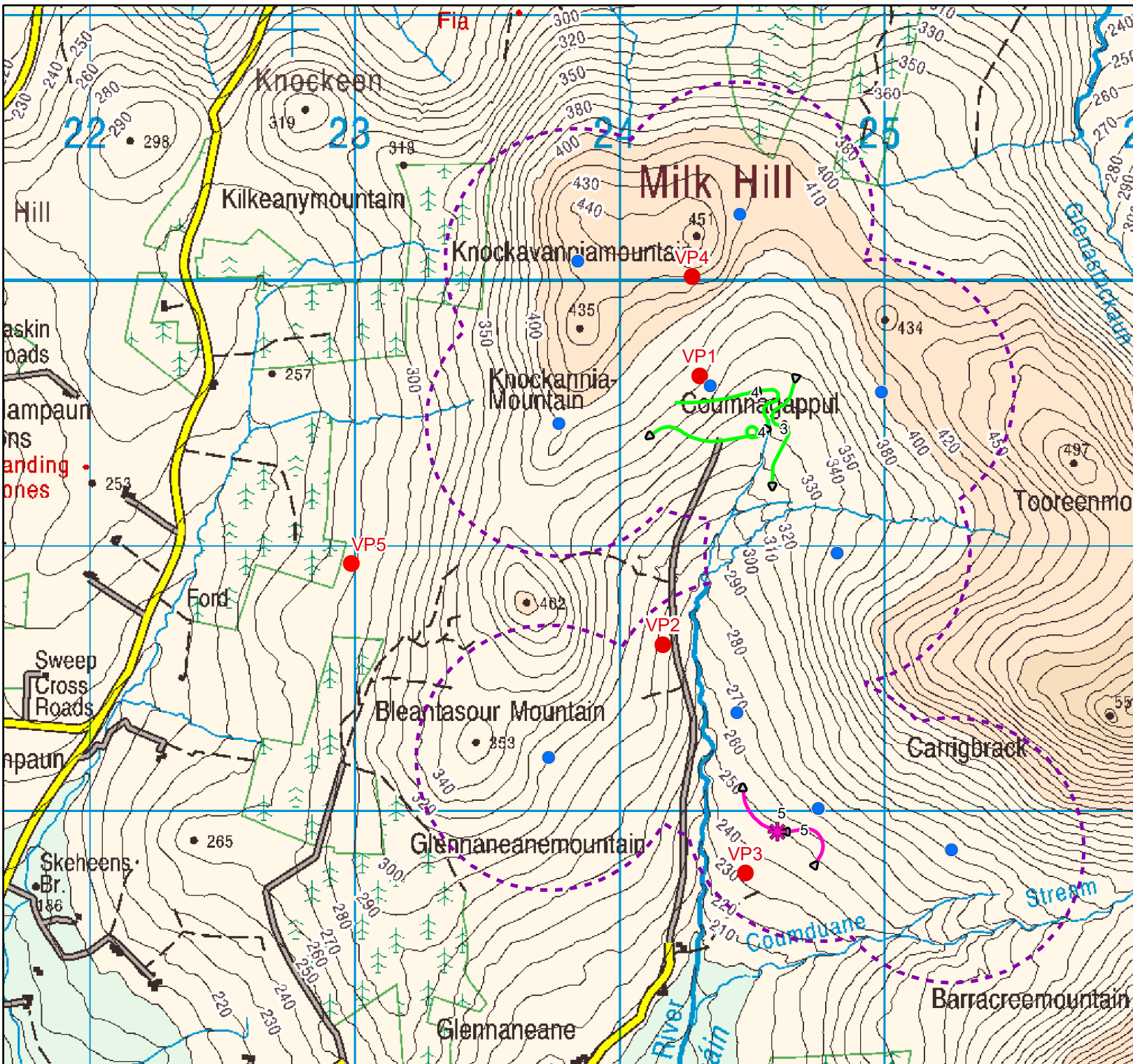
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- - - 500m Turbine Buffer

Hen Harrier Flight Path
Date, Time, Ref no.


- ▶▶▶ 13/09/2020, 12:39, 3
- ▶▶▶ 14/09/2020, 15:38, 4
- ▶▶▶ 16/09/2020, 11:15, 5

Hen Harrier Perched
Date, Time, Ref no.

- ★ 16/09/2020, 11:15, 5

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CYAL50332198.

0 0.45 0.9 km



Project Title:
20122 - Coumduane WF Bird Surveys

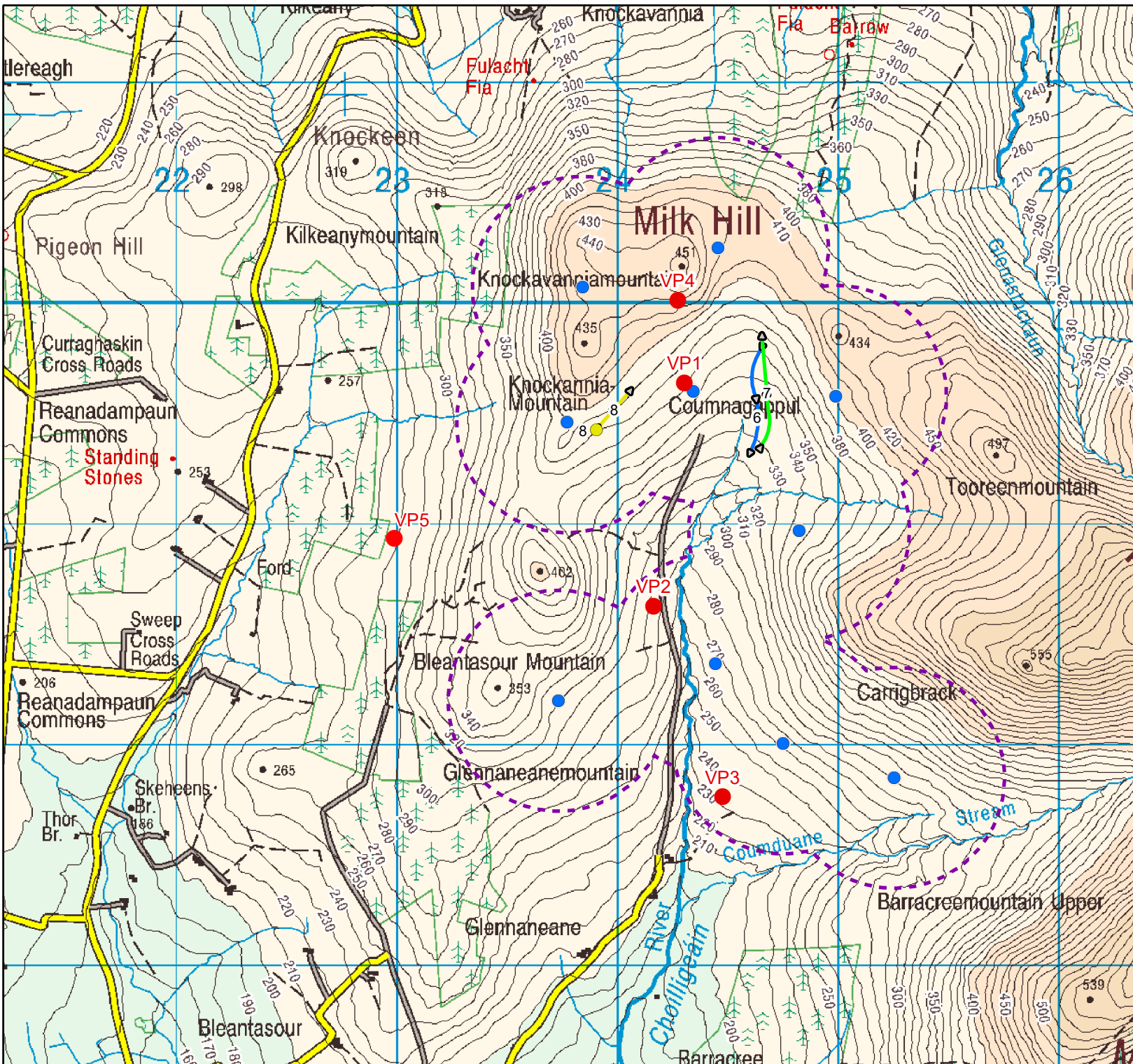
Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF **Checked:** FM

Date: 22/06/2023 **Scale (A4):** 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Hen Harrier Flight Path
Date, Time, Ref no.

- ▶▶▶ 09/10/2020, 16:50, 6
- ▶▶▶ 04/11/2020, 13:40, 7
- ▶▶▶ 25/03/2021, 14:06, 8

Hen Harrier on Ground
Date, Time, Ref no.

- 25/03/2021, 14:06, 8

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 CYAL50332198.

0 0.5 1 km

Project Title:
 20122 - Coumna gappul WF Bird Surveys

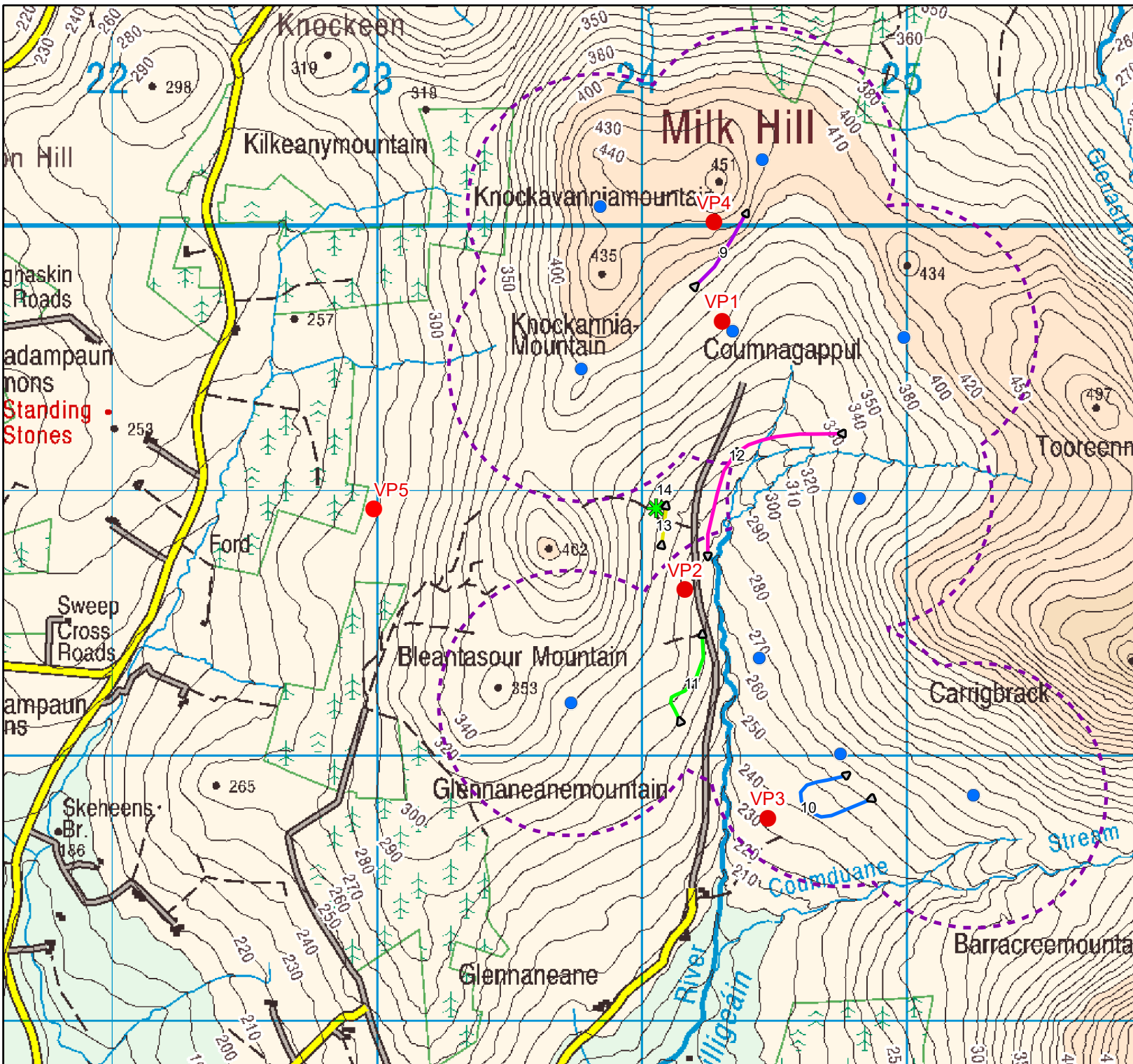
Client: EM - Power

Drawing Title:
 Winter Bird Survey 2020 - 2021

Drawn: AF **Checked:** FM

Date: 26/06/2023 **Scale (A4):** 1:24,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Hen Harrier Flight Path

Date, Time, Ref no.

- ▶▶▶ 28/04/2021, 14:32, 9
- ▶▶▶ 29/04/2021, 17:42, 10
- ▶▶▶ 29/04/2021, 19:22, 11
- ▶▶▶ 01/05/2021, 07:20, 12
- ▶▶▶ 01/05/2021, 08:27, 13

Hen Harrier Perched

Date, Time, Ref no.

- ★ 01/05/2021, 09:02, 14

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CYAL50332198.

0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

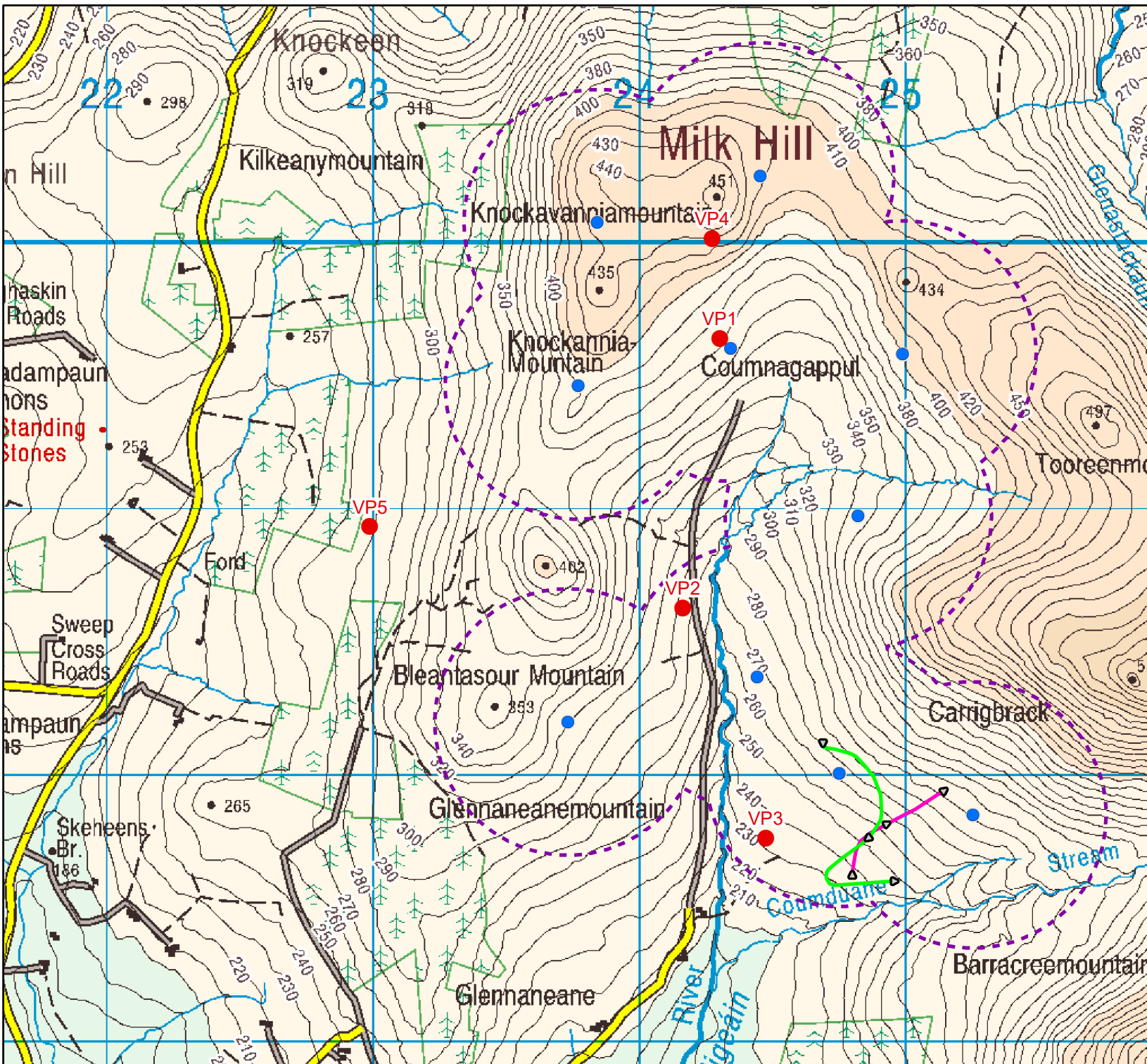
Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Hen Harrier Flight Path
Date, Time, Ref no.

- ◀▶ 06/12/2021, 13:45, 15
- ◀▶ 13/01/2021, 13:35, 16

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CYAL50332198.

0 0.4 0.8
km

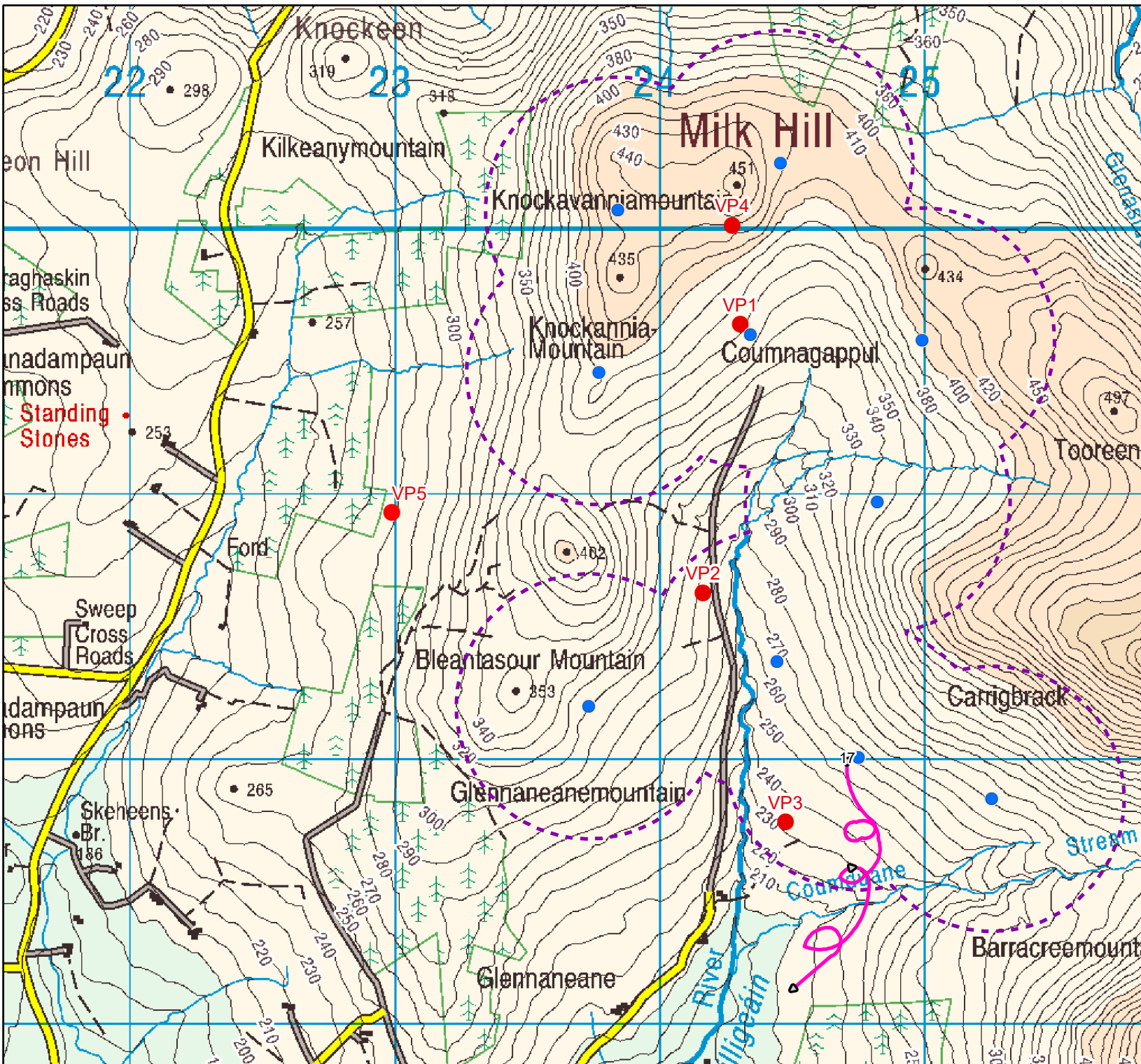
Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF	Checked: FM
Date: 26/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- - - 500m Turbine Buffer


Hen Harrier

Date, Time, Ref No.

◀▶▶▶ 04/08/2022, 10:05, 17

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CYAL50332198.

0 0.4 0.8 km



Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

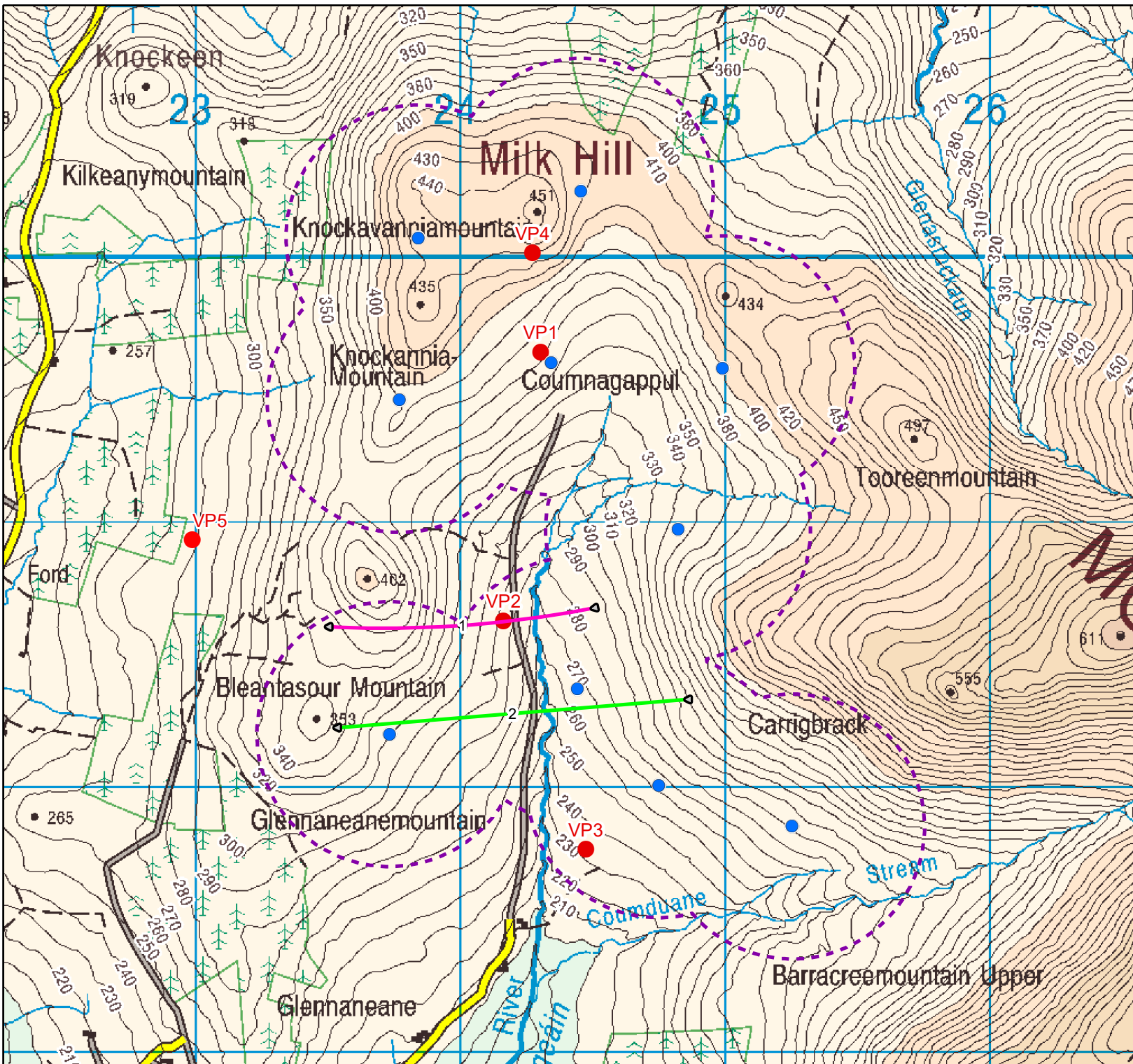
Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Merlin



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Merlin Flight Path

Date, Time, Ref No.

- ▶ 09/04/2019, 16:27, 1
- ▶ 30/05/2019, 16:48, 2

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CYAL50332198.

0 0.425 0.85 km

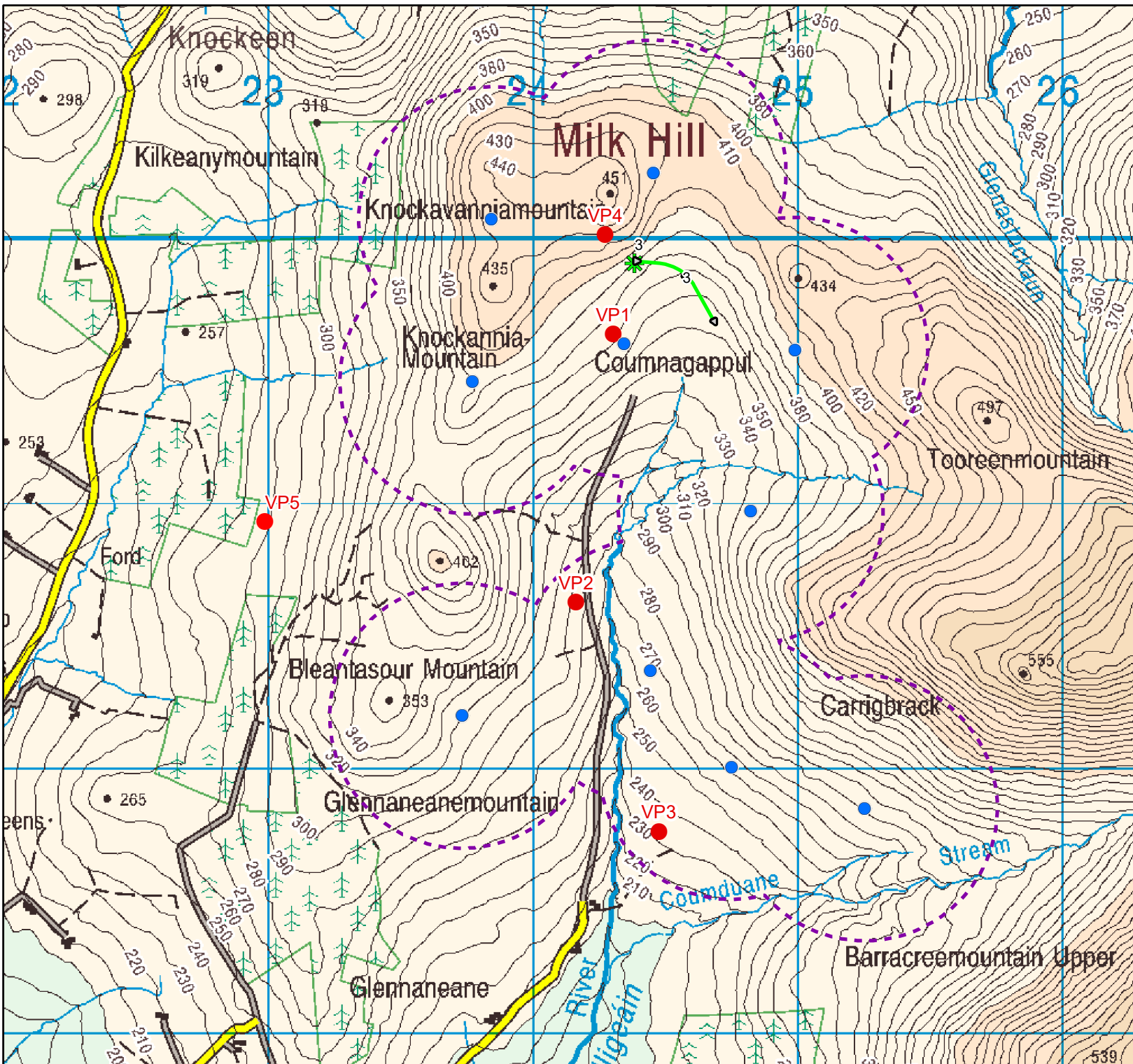
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Merlin Flight Path
Date, Time, Ref no.

- 22/10/2019, 13:40, 3

Merlin Perched
Date, Time, Ref no.

- ★ 22/10/2022, 13:40, 3

Map Reproduced From Tailte Éireann
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CYAL50332198.

0 0.4 0.8 km

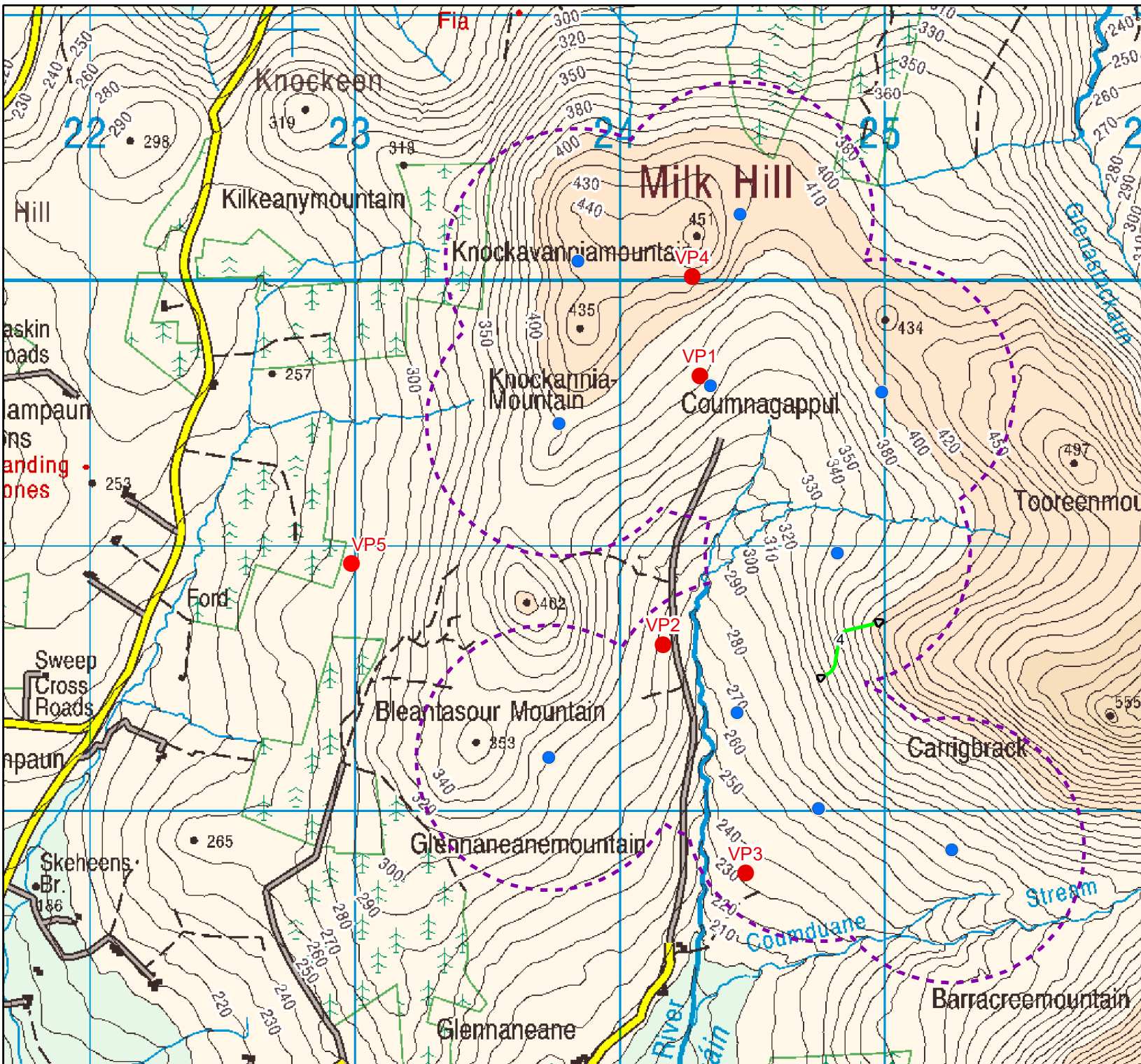
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Merlin Flight Path
Date, Time, Ref No.
▶ 16/08/2020, 15:50, 4

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Project Title:
 20122 - Coumragappul WF Bird Surveys

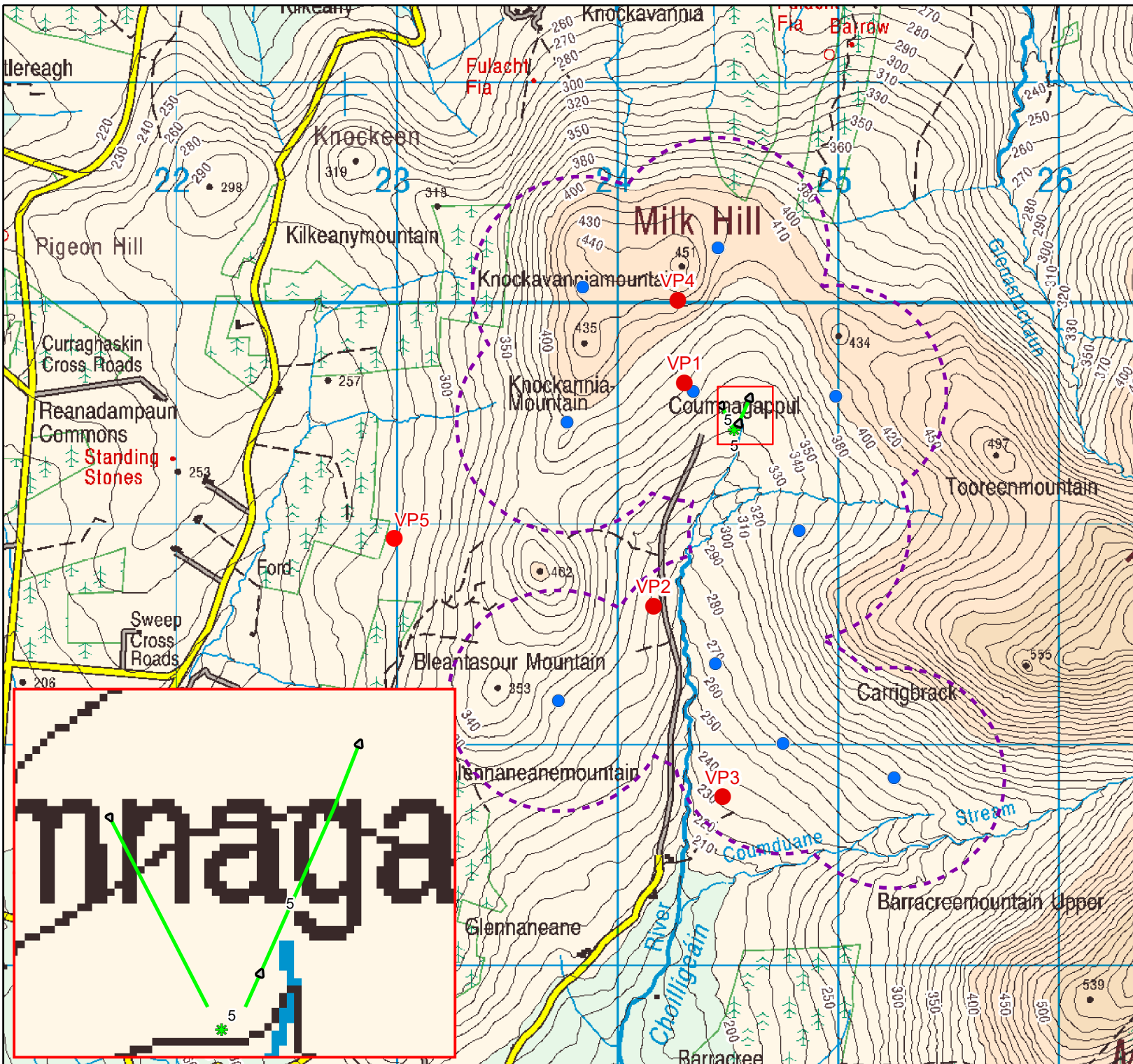
Client: EM - Power

Drawing Title:
 Summer Bird Survey 2020

Drawn: AF	Checked: FM
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Date: 21/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Merlin Perched
Date, Time, Ref no.
 * 01/12/2020, 15.:50, 5

Merlin Flight Path
Date, Time, Ref no.
 > 01/12/2020, 15.:50, 5

Map Reproduced From Tailte Éireann
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 CYAL50332198.

0 0.5 1 km

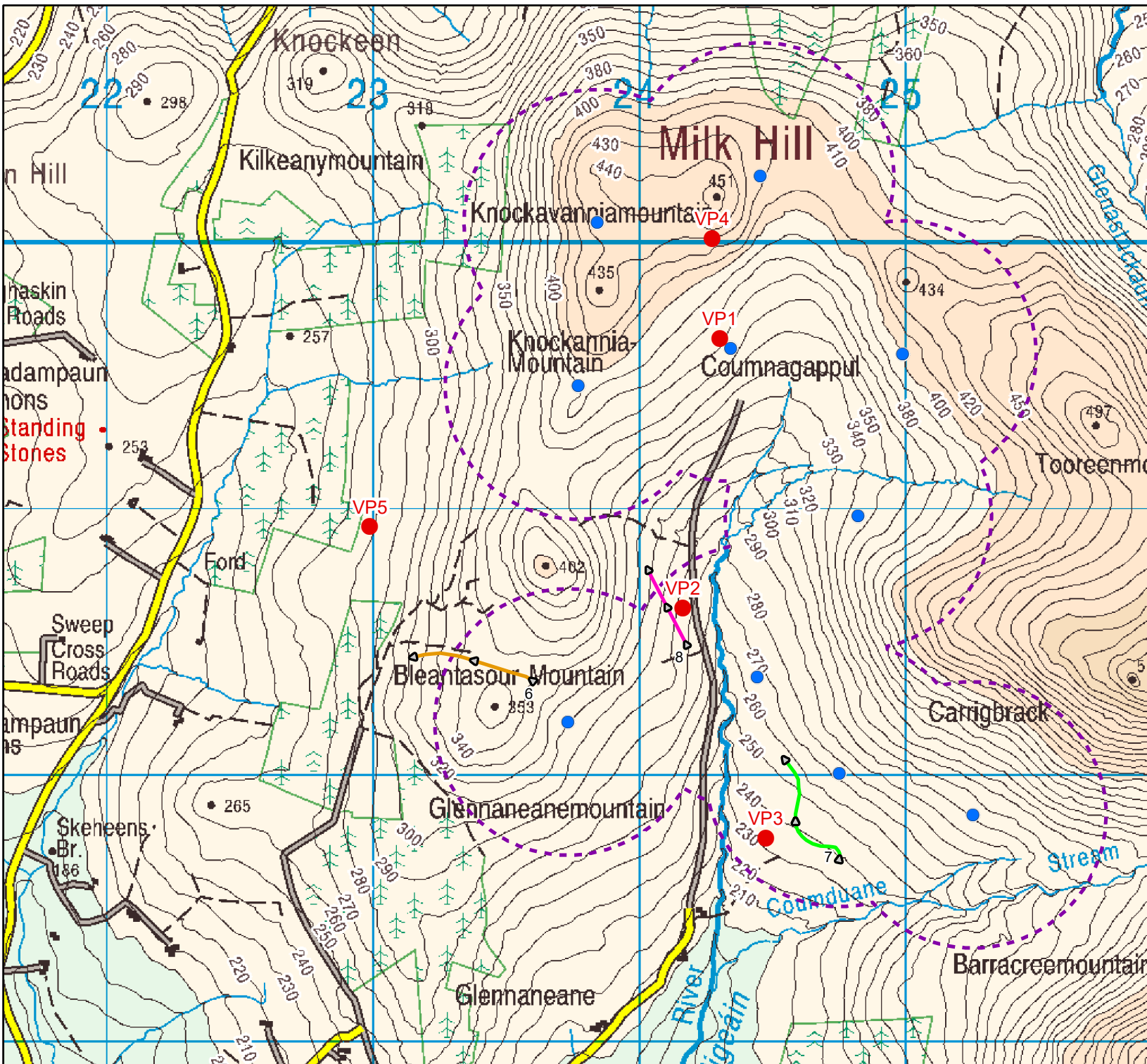
Project Title:
 20122 - Coumna WF Bird Surveys

Client: EM - Power

Drawing Title:
 Winter Bird Survey 2020 - 2021

Drawn: AF	Checked: FM
Date: 26/06/2023	Scale (A4): 1:24,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Merlin Flight Path
Date, Time, Ref no.

- ▶▶▶ 06/12/2021, 10:10, 6
- ▶▶▶ 06/12/2021, 13:20, 7
- ▶▶▶ 10/01/2022, 09:10, 8

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0 0.4 0.8 km

Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

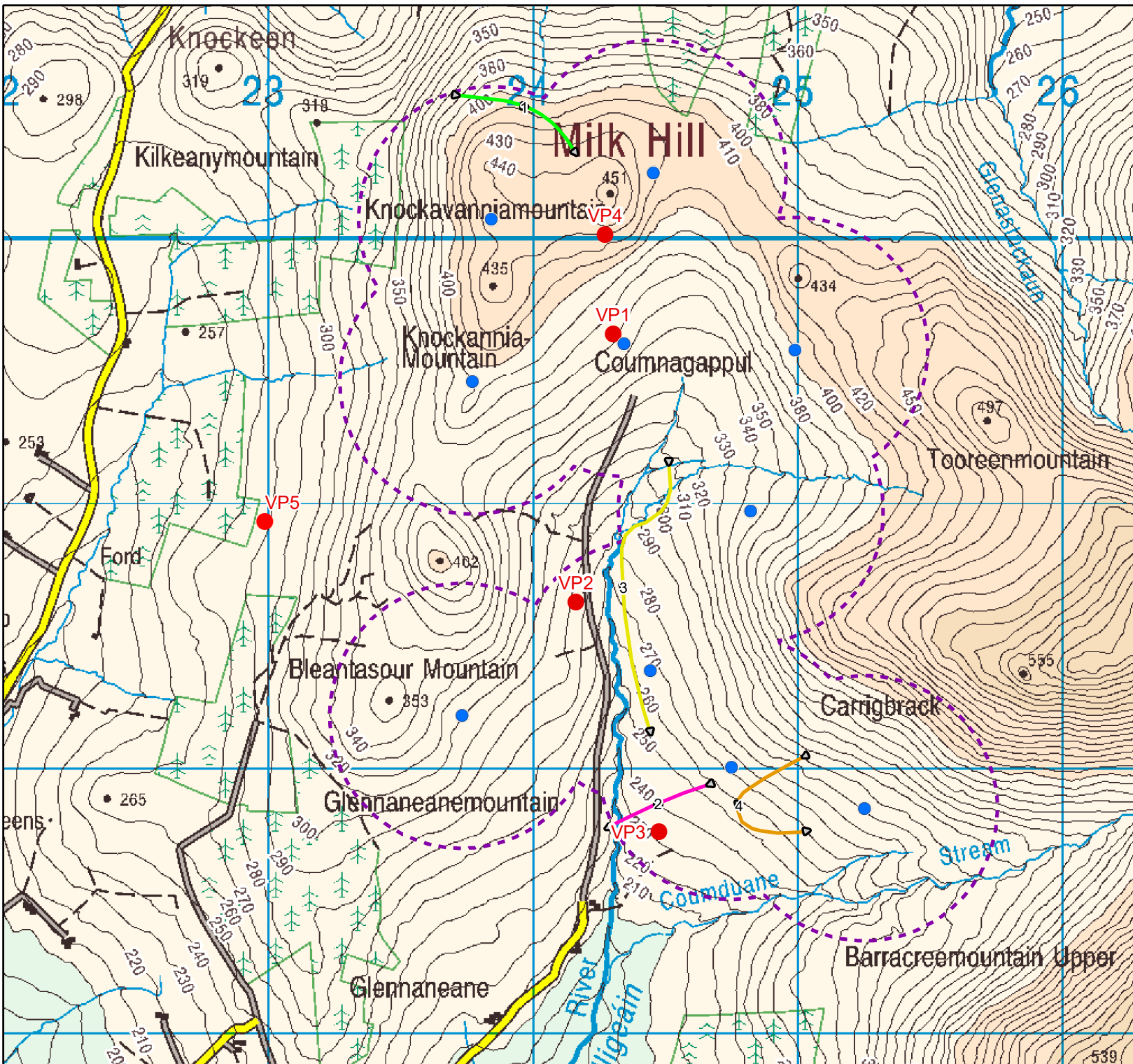
Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF **Checked:** FM

Date: 26/06/2023 **Scale (A4):** 1:20,000



Peregrine falcon



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Peregrine Falcon Flight Path

Date, time, Ref no.

- ▶▶▶ 29/11/2019, 11:21, 1
- ▶▶▶ 19/12/2019, 12:01, 2
- ▶▶▶ 10/01/2020, Unknown, 3
- ▶▶▶ 16/02/2020, 09:55, 4

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CYAL50332198.

0 0.4 0.8 km

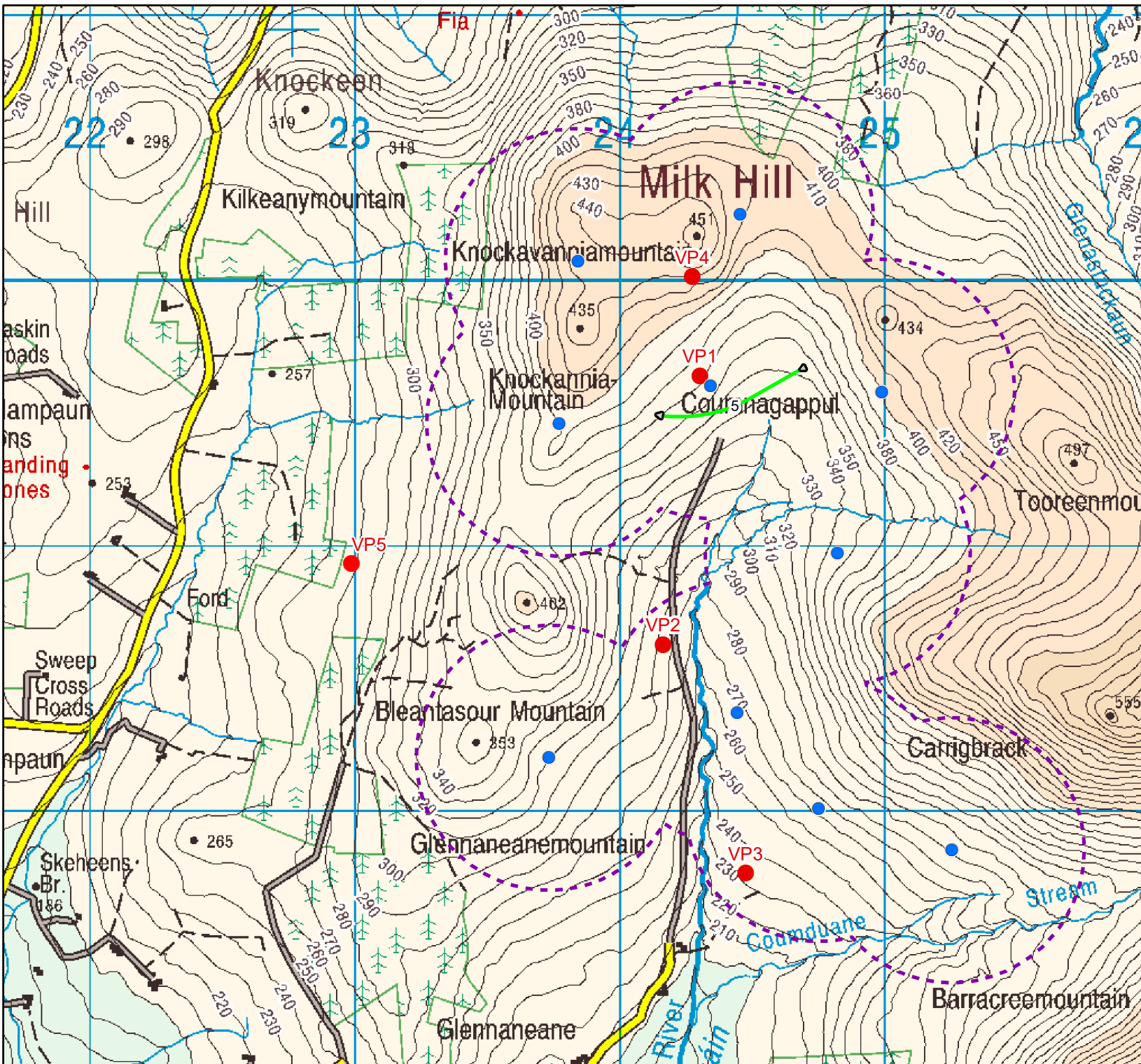
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Peregrine Falcon Flight Path
Date, Time, Ref No.
▶—▶ 24/04/2020, 14:34, 5

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0 0.45 0.9 km

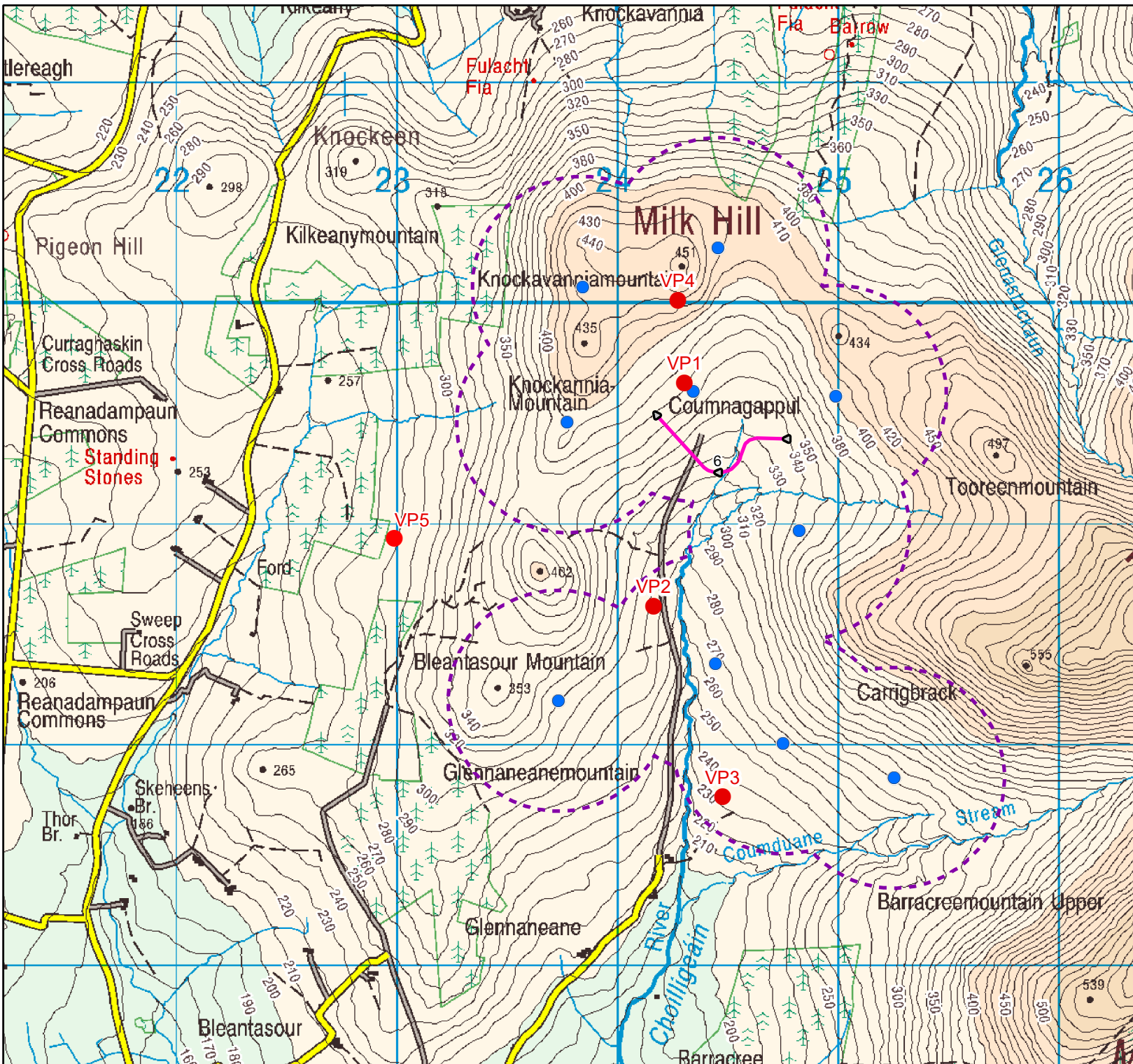
Project Title:
 20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
 Summer Bird Survey 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000






Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Peregrine Flight Path
 Date, Time, Ref no.
 ◀▶ 10/10/2020, 14:40, 6

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0 0.5 1 km



Project Title:
 20122 - Coumna gappul WF Bird Surveys

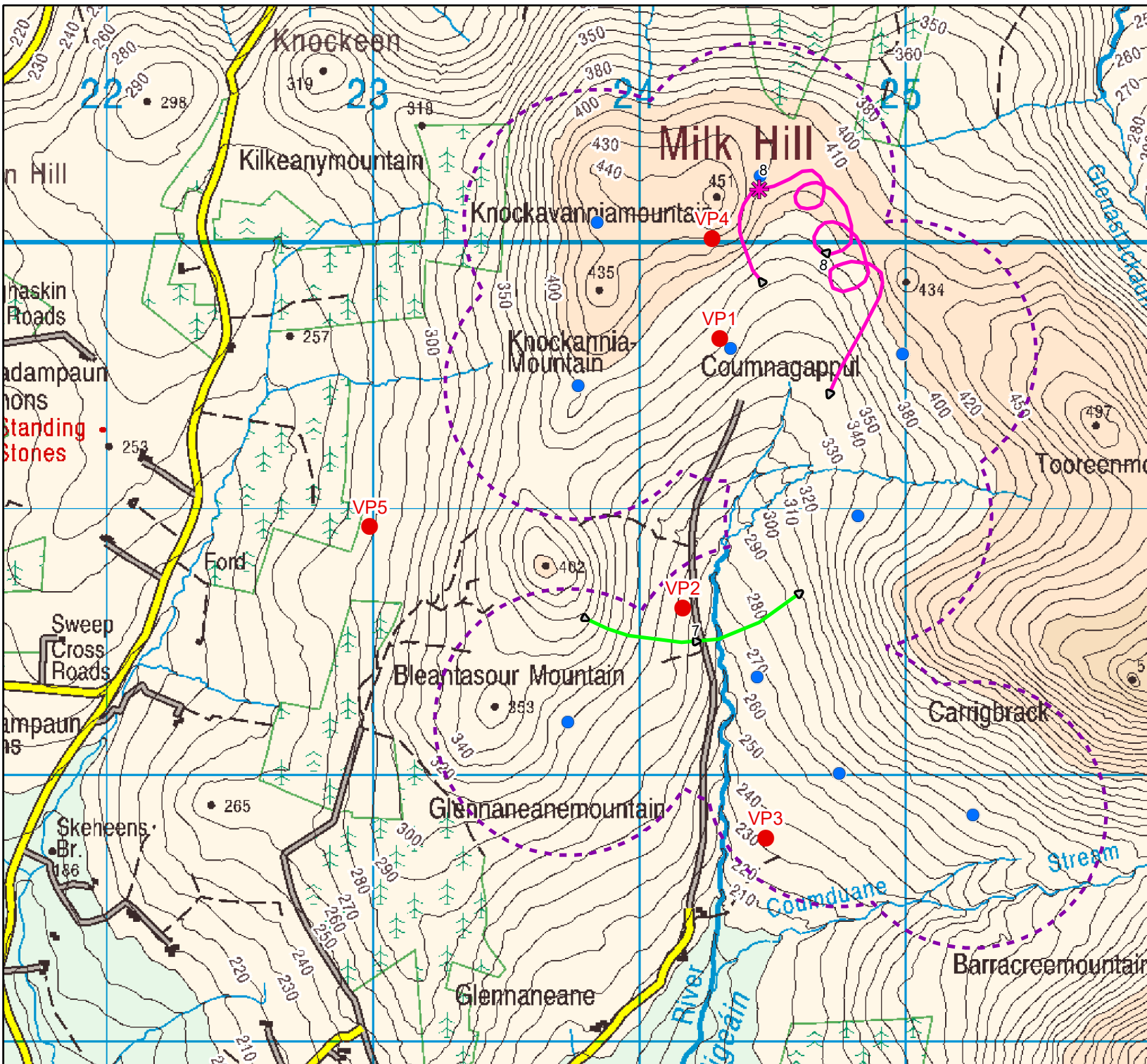
Client: EM - Power

Drawing Title:
 Winter Bird Survey 2020 - 2021

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:24,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Peregrine Flight Path
Date, Time, Ref no.


- 08/02/2022, 13:10, 7
- 03/03/2022, 13:02, 8

Peregrine Perched
Date, Time, Ref no.

- * 03/03/2022, 13:02, 8

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0 0.4 0.8 km



Project Title:
20122 - Coumna gappul WF Bird Surveys

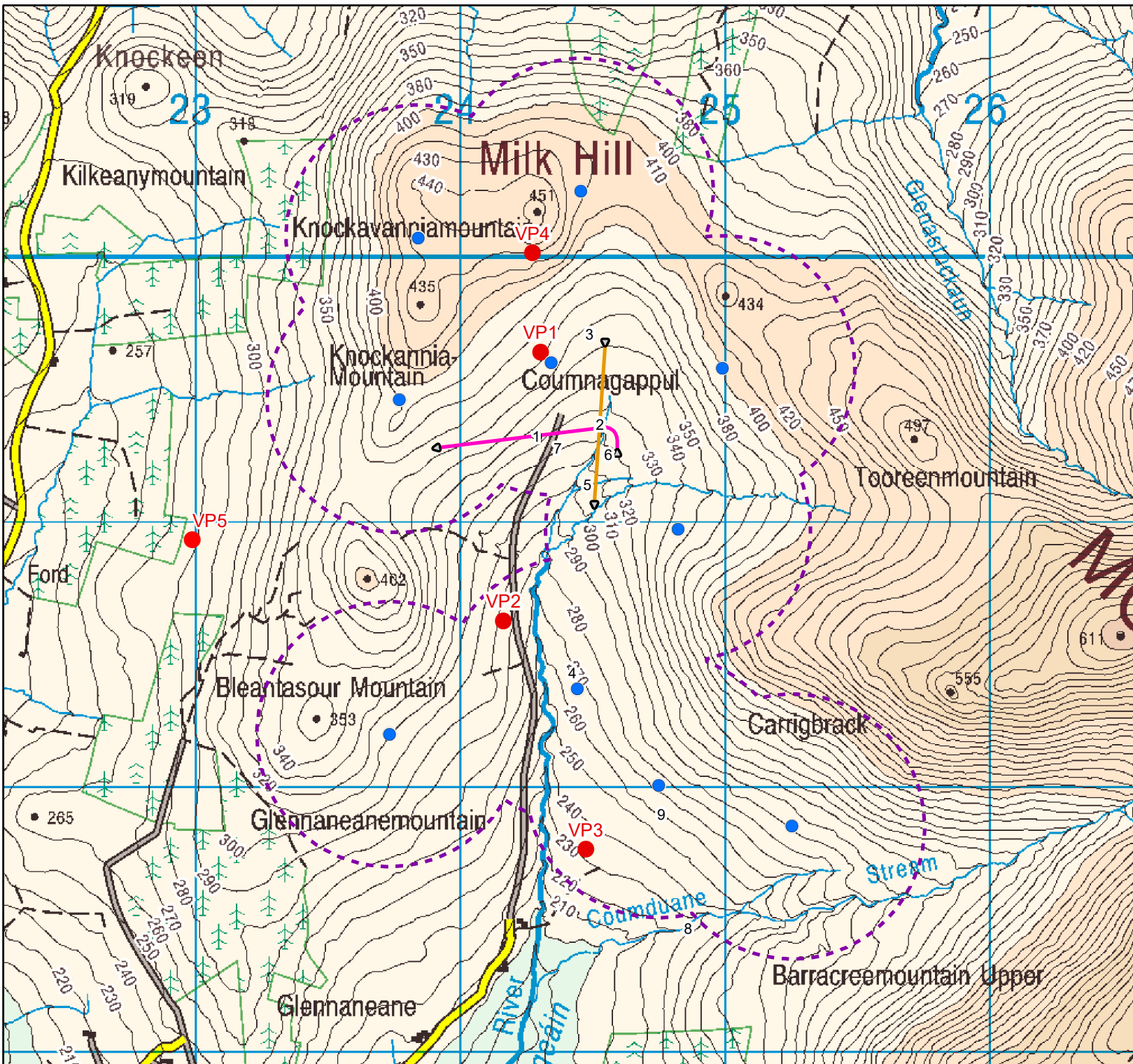
Client: EM - Power

Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF	Checked: FM
Date: 26/06/2023	Scale (A4): 1:20,000



Kestrel



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

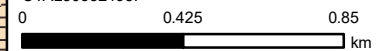
Kestrel Flight Path

Date, Time, Ref No.

▶▶▶ 22/05/2019, 17:06, 1

▶▶▶ 11/07/2019, 15:50, 2

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Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

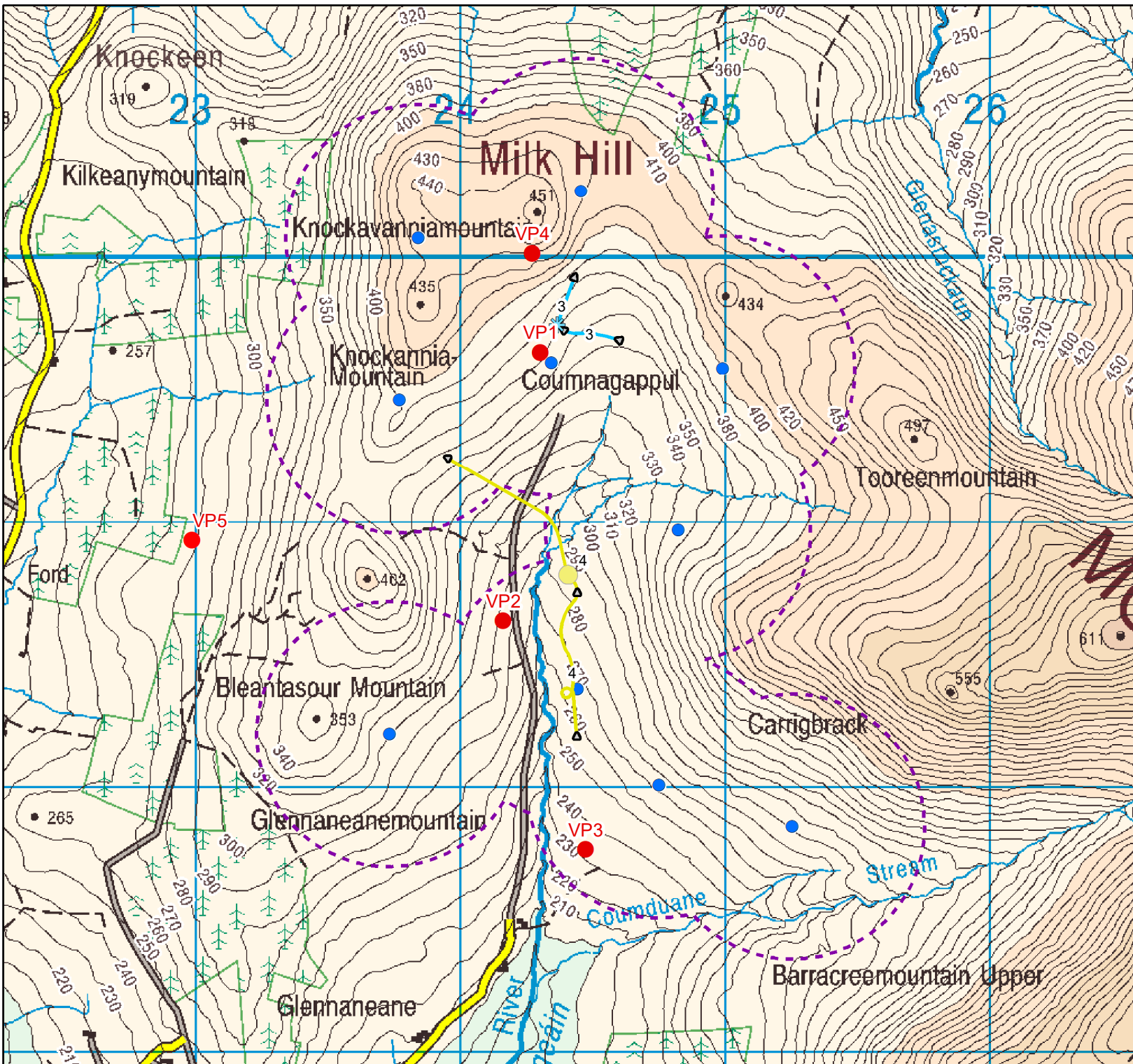
Drawn: AF

Checked: FM

Date: 20/06/2023

Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 06/08/2019, 17:27, 3
- ▶▶▶ 06/08/2019, 18:05, 4

Kestrel Perched

Date, Time, Ref No.

- ✱ 06/08/2019, 17:27, 3

Kestrel Activity

Date, Time, Ref No.

- 06/08/2019, 18:09, 4

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0 0.425 0.85 km

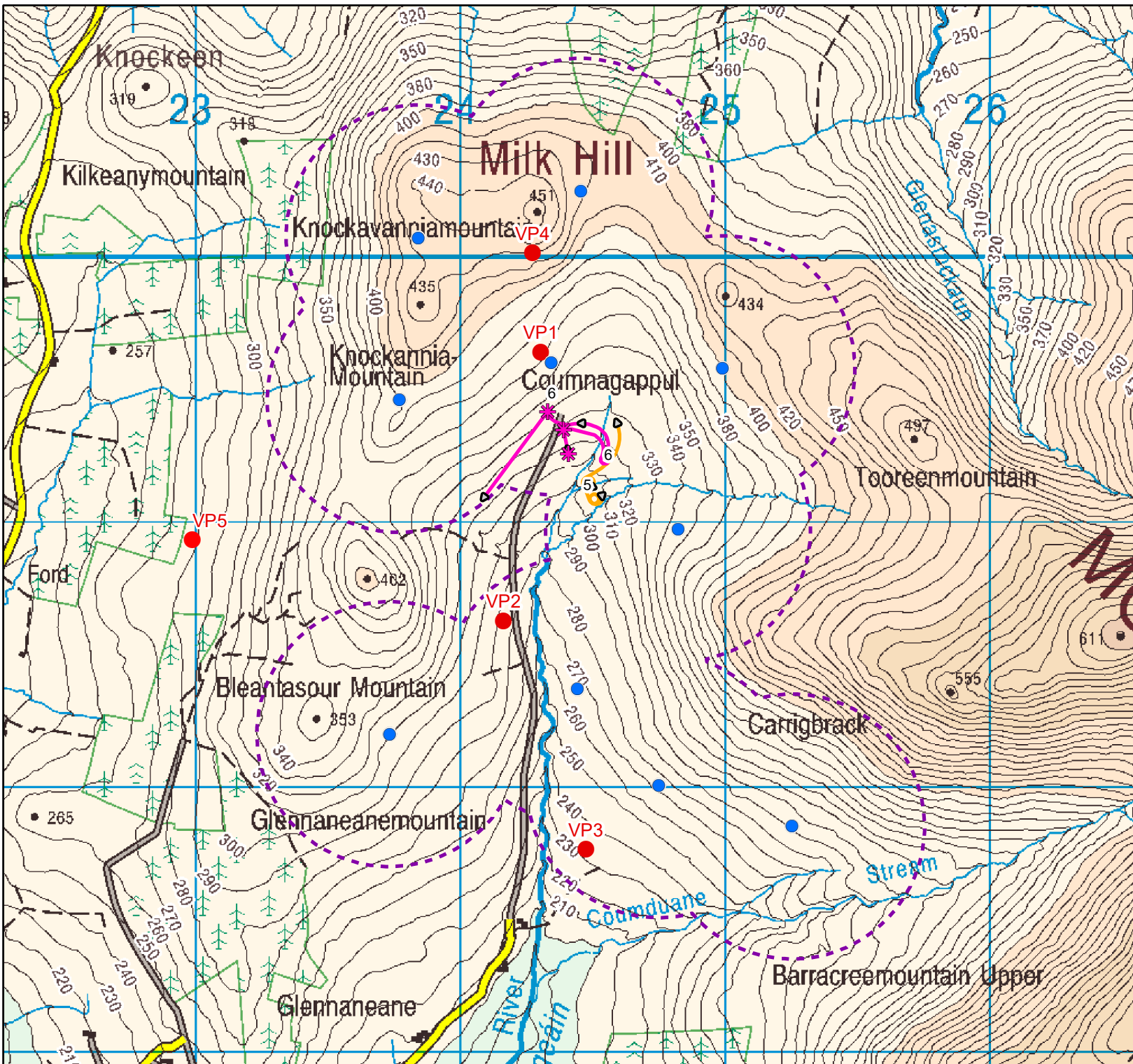
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 07/08/2019, 17:18, 5
- ▶▶▶ 07/08/2019, 19:35, 6

Kestrel Perched

Date, Time, Ref No.

- ✱ 07/08/2019, 19:35, 6

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0 0.425 0.85 km

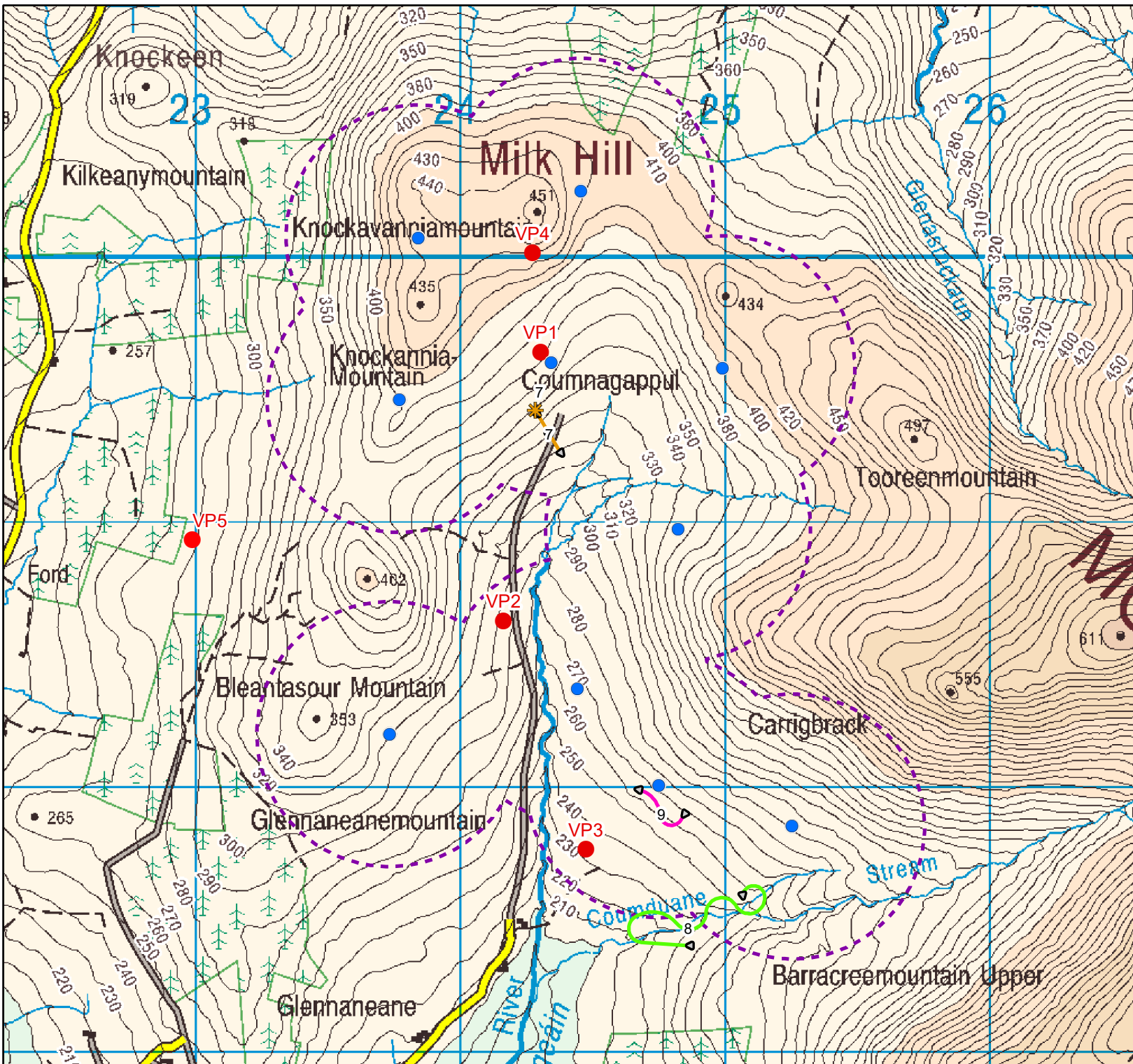
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 07/08/2019, 22:22, 7
- ▶▶▶ 16/08/2019, 15:55, 8
- ▶▶▶ 16/08/2019, 18:10, 9

Kestrel Perched

Date, Time, Ref No.

- ★ 07/08/2019, 22:22, 7

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0 0.425 0.85 km

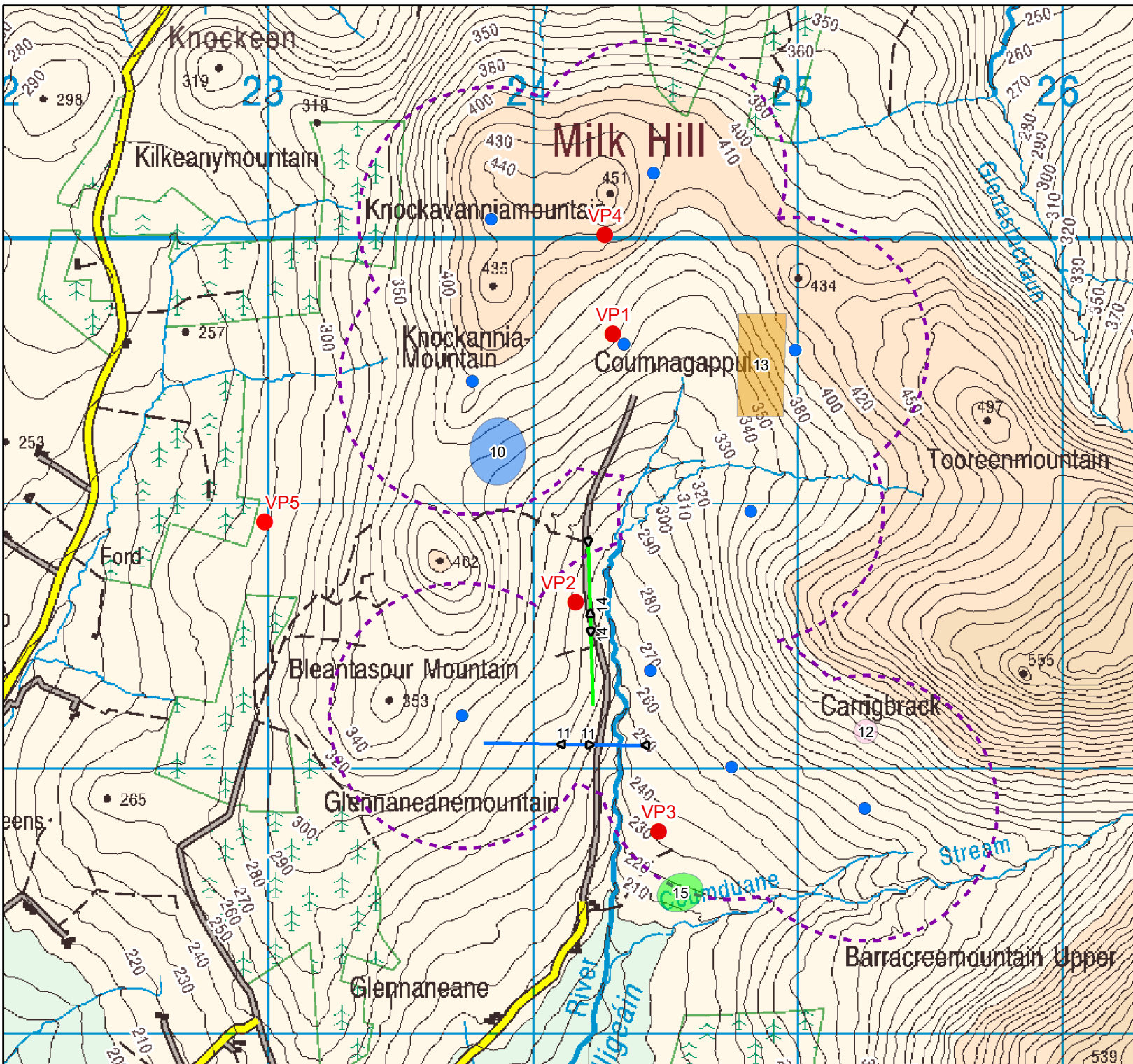
Project Title:
20122 - Coumna WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Activity

Date, Time, Ref no.

- 21/10/2019, 11:00, 10
- 22/10/2019, 12:05, 12
- 22/10/2019, 15:09, 13
- 23/10/2019, 13:59, 15

Kestrel Flight Path

Date, Time, Ref no.

- ▶▶▶ 21/10/2019, 15:35, 11
- ▶▶▶ 23/10/2019, 12:33, 14

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0 0.4 0.8 km

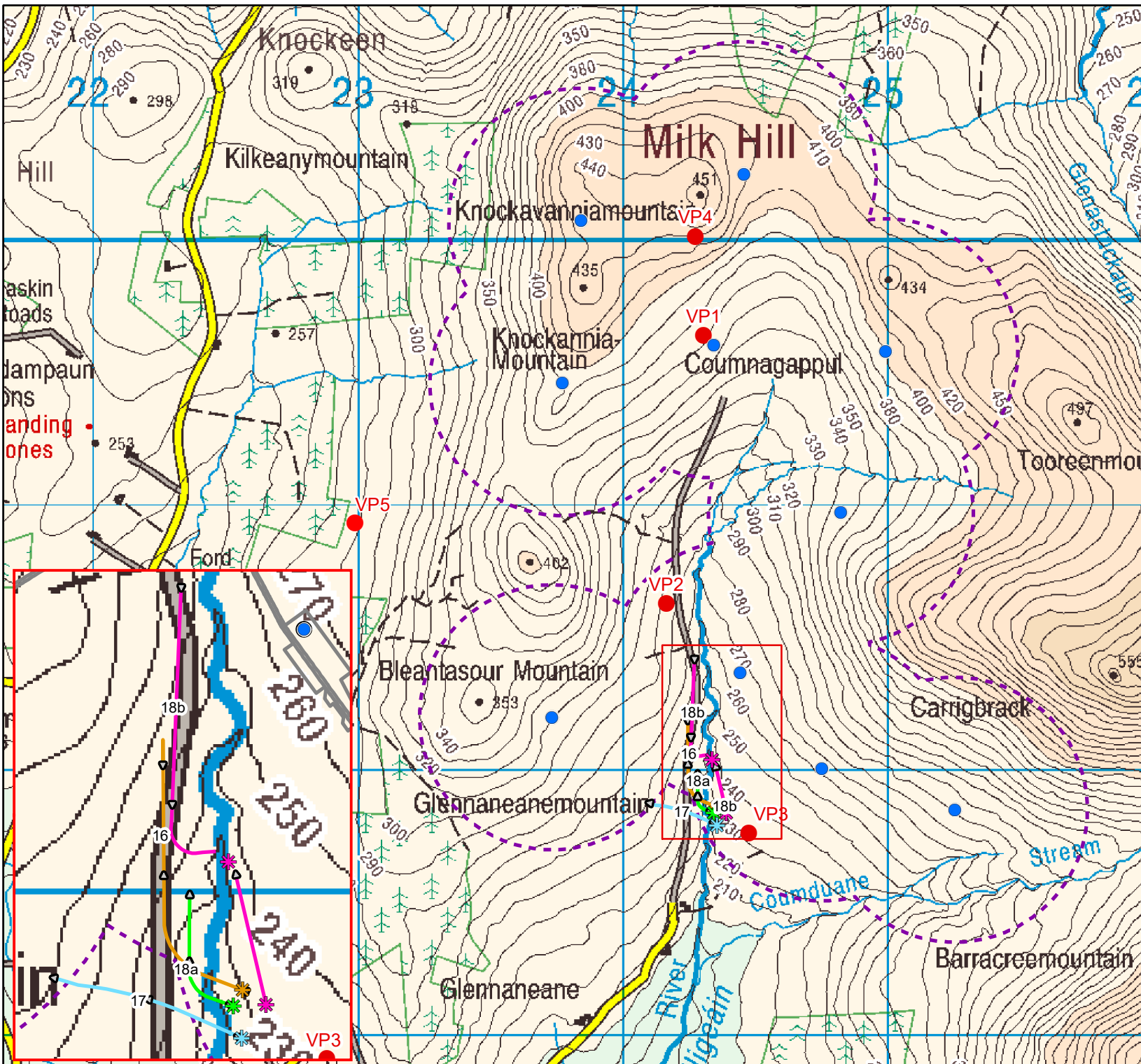
Project Title:
20122 - Coumna WF Bird Surveys

Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Perched

Date, Time, Ref No.

- ✱ 27/11/2019, 11:52, 16
- ✱ 27/11/2019, 13:40, 17
- ✱ 28/11/2019, 08:49, 18a
- ✱ 28/11/2019, 10:05, 18b

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 27/11/2019, 11:52, 16
- ▶▶▶ 27/11/2019, 13:40, 17
- ▶▶▶ 28/11/2019, 08:49, 18a
- ▶▶▶ 28/11/2019, 10:05, 18b

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N

0 0.4 0.8
km

Project Title:
20122 - Coumna WF Bird Surveys

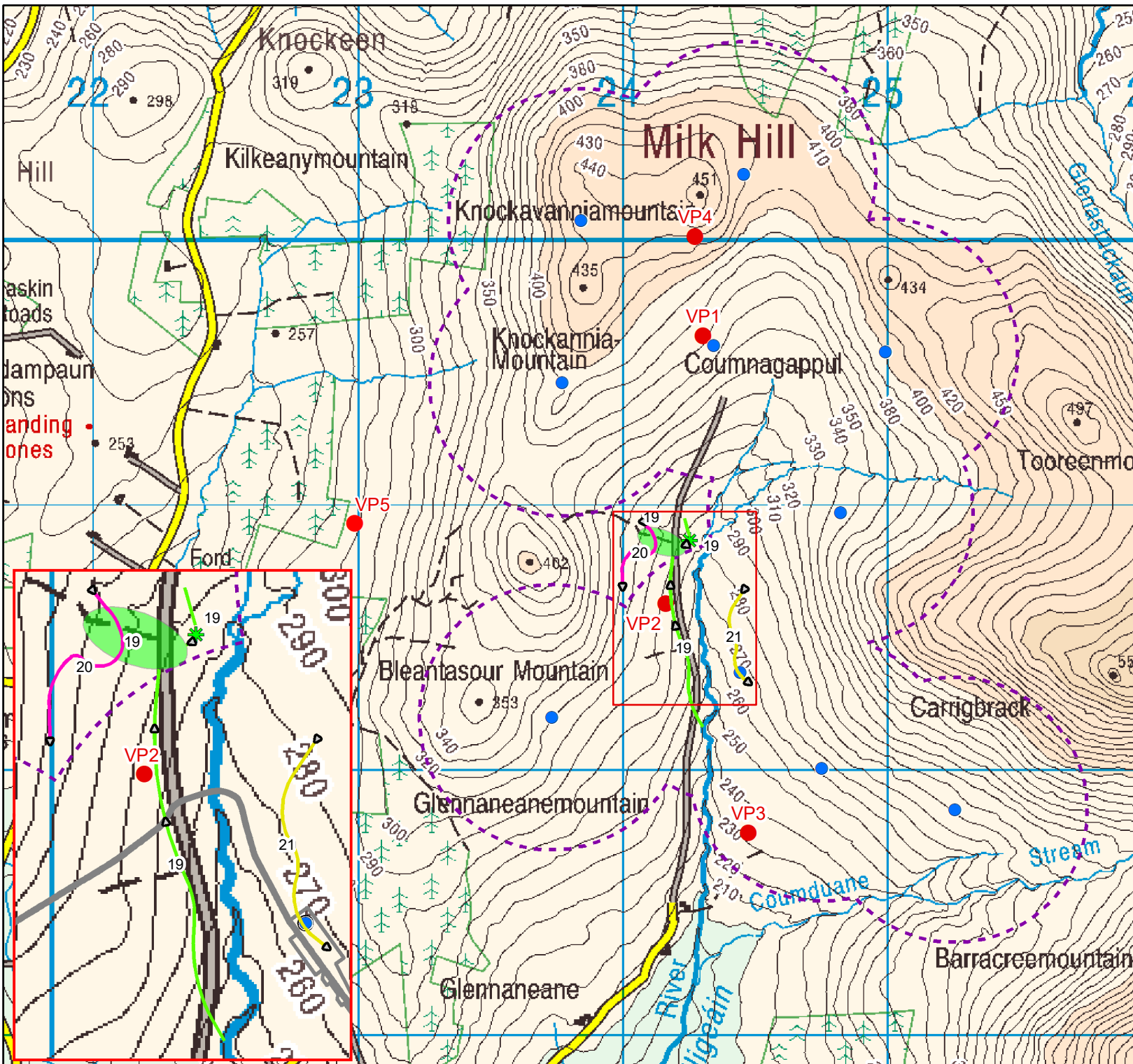
Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF Checked: FM

Date: 21/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 29/11/2019, 13:53, 19
- ▶▶▶ 19/12/2019, 14:25, 20
- ▶▶▶ 15/03/2020, 10:25, 21

Kestrel Perched

Date, Time, Ref No.

- ✱ 29/11/2019, 13:53, 19

Kestrel Activity

Date, Time, Ref No.

- 29/11/2019, 13:53, 19

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N

0 0.4 0.8
km

Project Title:
20122 - Coumna WF Bird Surveys

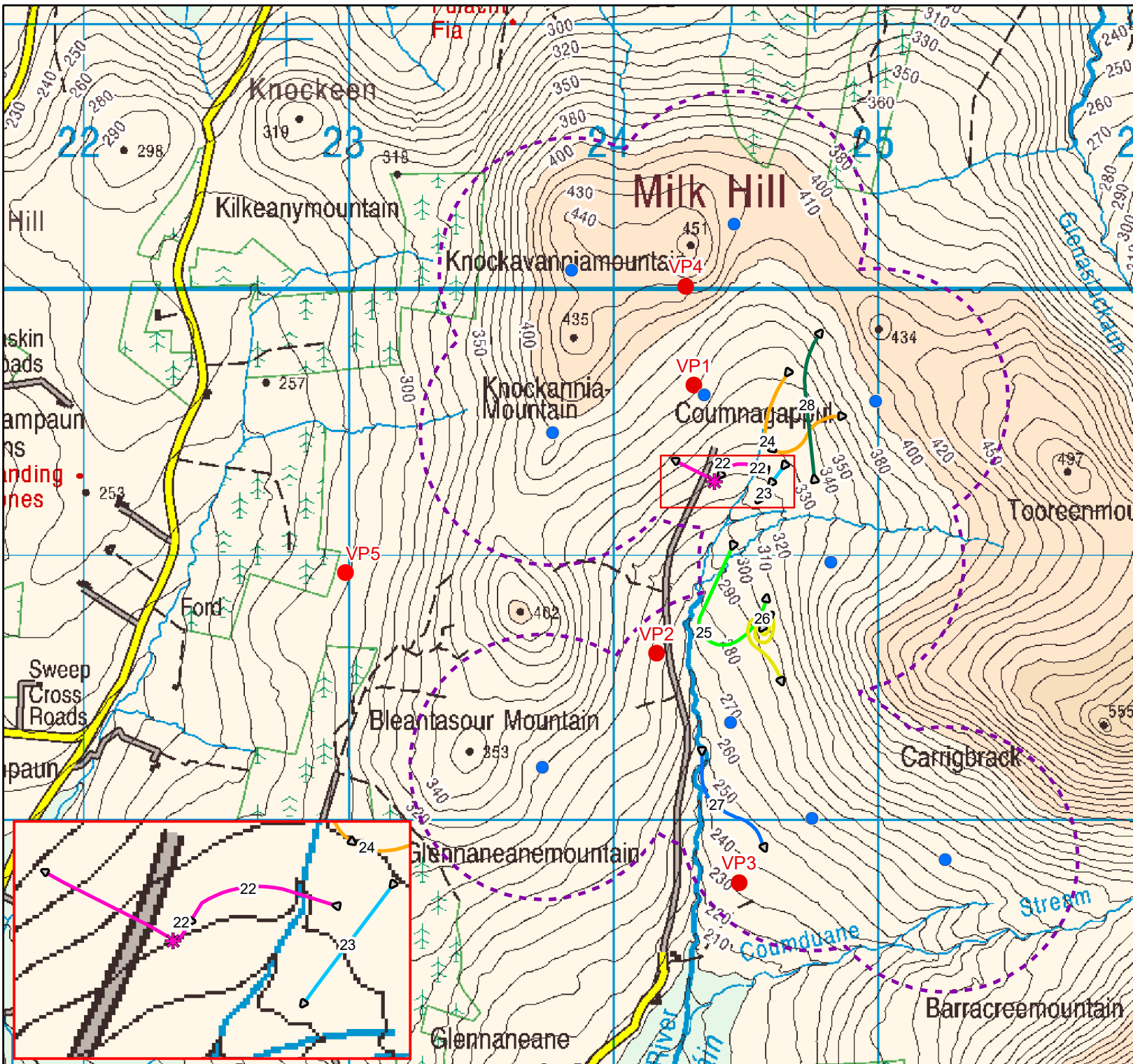
Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF	Checked: FM
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Date: 21/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

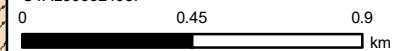
- ▶▶ 23/04/2020, 13:51, 22
- ▶▶ 24/04/2020, 09:25, 23
- ▶▶ 24/04/2020, 13:10, 24
- ▶▶ 25/04/2020, 16:35, 25
- ▶▶ 14/05/2020, 11:25, 26
- ▶▶ 15/05/2020, 11:32, 27
- ▶▶ 08/06/2020, 13:50, 28

Kestrel Perched

Date, Time, Ref No.

- ✱ 23/04/2020, 13:51, 22

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Project Title:
20122 - Coumna Gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

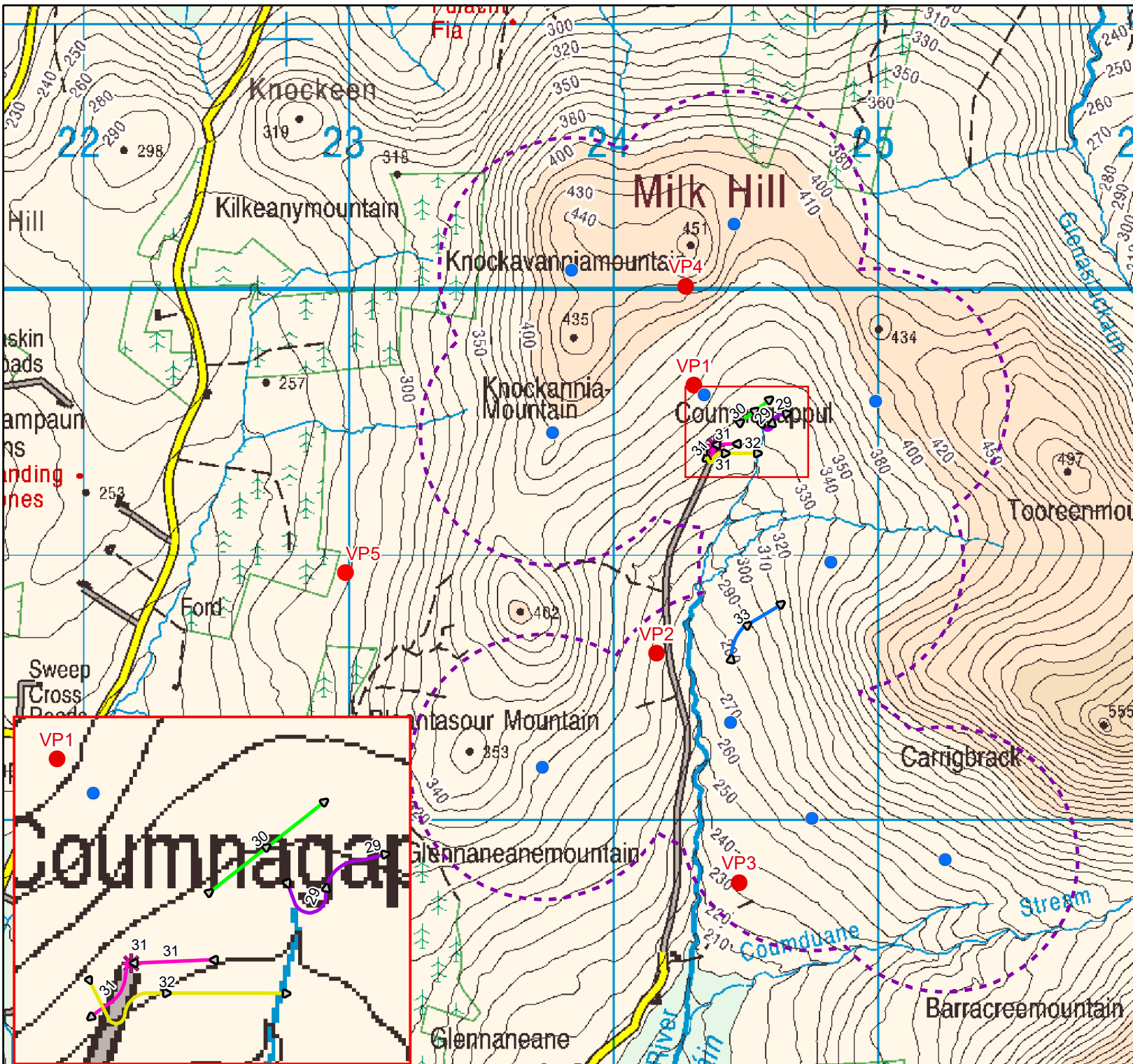
Drawn: AF

Checked: FM

Date: 22/06/2023

Scale (A4): 1:20,000

MWP



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path
Date, Time, Ref no.

- ▶ 18/07/2020, Unknown, 29
- ▶ 14/08/2020, 12:35, 30
- ▶ 15/08/2020, 11:55, 31
- ▶ 16/08/2020, 11:50, 32
- ▶ 18/08/2020, 12:10, 33

Kestrel Perched
Date, Time, Ref no.

- ✱ 15/08/2020, 11:55, 31

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0 0.45 0.9 km

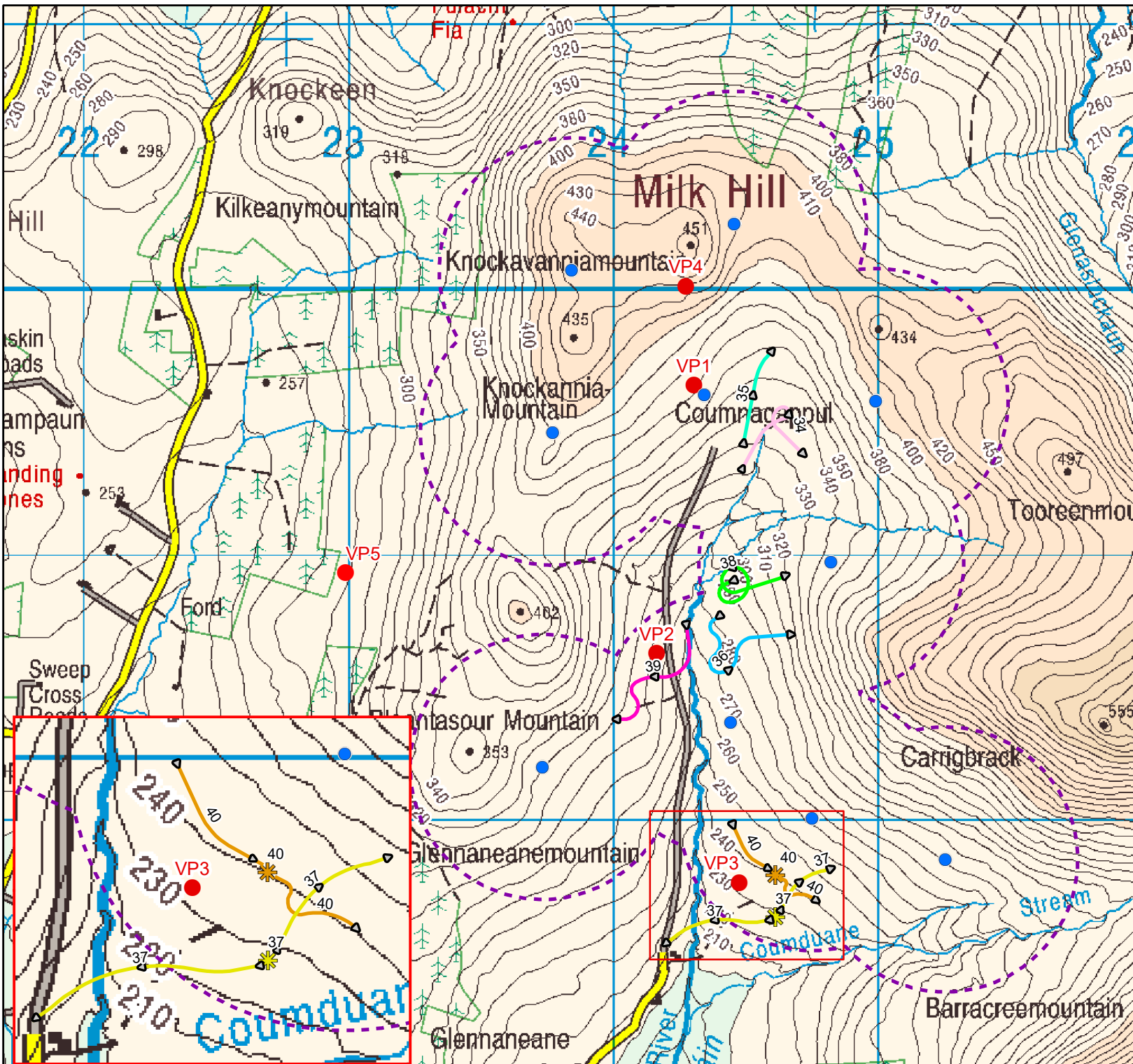
Project Title:
 20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
 Summer Bird Survey 2020

Drawn: AF	Checked: FM
Date: 22/06/2023	Scale (A4): 1:20,000





- Legend**
- Vantage Point
 - Turbine Location
 - 500m Turbine Buffer
- Kestrel Flight Path**
- Date, Time, Ref no.*
- ▶▶▶ 13/09/2020, 14:10, 34
 - ▶▶▶ 14/09/2020, 15:35, 35
 - ▶▶▶ 15/09/2020, 15:35, 36
 - ▶▶▶ 16/09/2020, 10:55, 37
 - ▶▶▶ 17/09/2020, 10:32, 38
 - ▶▶▶ 17/09/2020, 12:25, 39
 - ▶▶▶ 17/09/2020, 13:20, 40
- Kestrel Perched**
- Date, Time, Ref no.*
- ★ 16/09/2020, 10:55, 37
 - ★ 17/09/2020, 13:20, 40

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0 0.45 0.9 km

Project Title:
20122 - Coumduare WF Bird Surveys

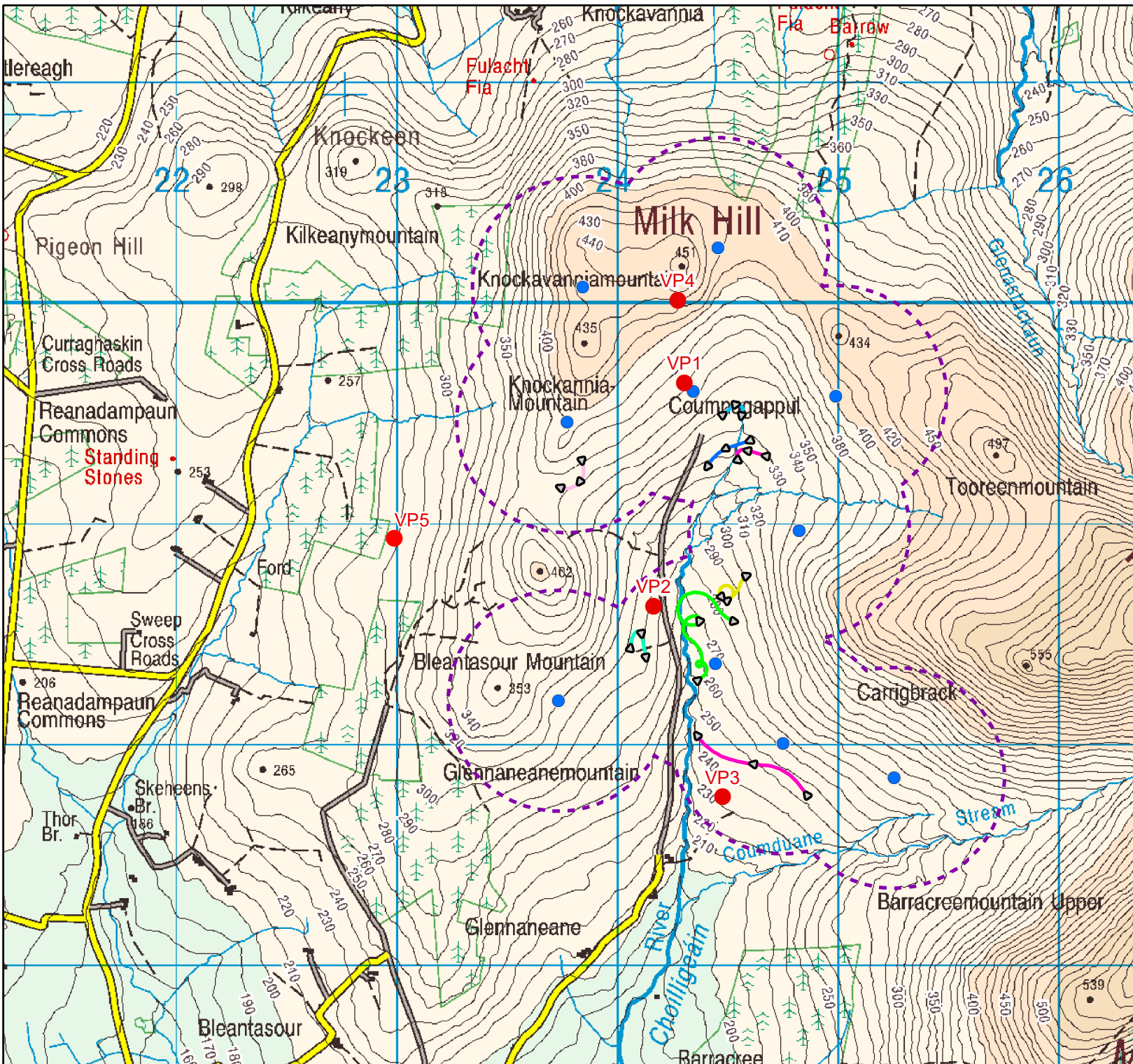
Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF Checked: FM

Date: 22/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 10/10/2020, 14:40, 41
- ▶▶▶ 11/10/2020, 14:40, 42
- ▶▶▶ 04/11/2020, 12:25, 43
- ▶▶▶ 05/11/2020, 14:35, 44
- ▶▶▶ 06/11/2020, 14:50, 45
- ▶▶▶ 02/12/2020, 13:10, 46
- ▶▶▶ 18/02/2021, 14:40, 47
- ▶▶▶ 23/03/2021, 11:24, 48

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0 0.5 1 km

Project Title:
20122 - Coumragappul WF Bird Surveys

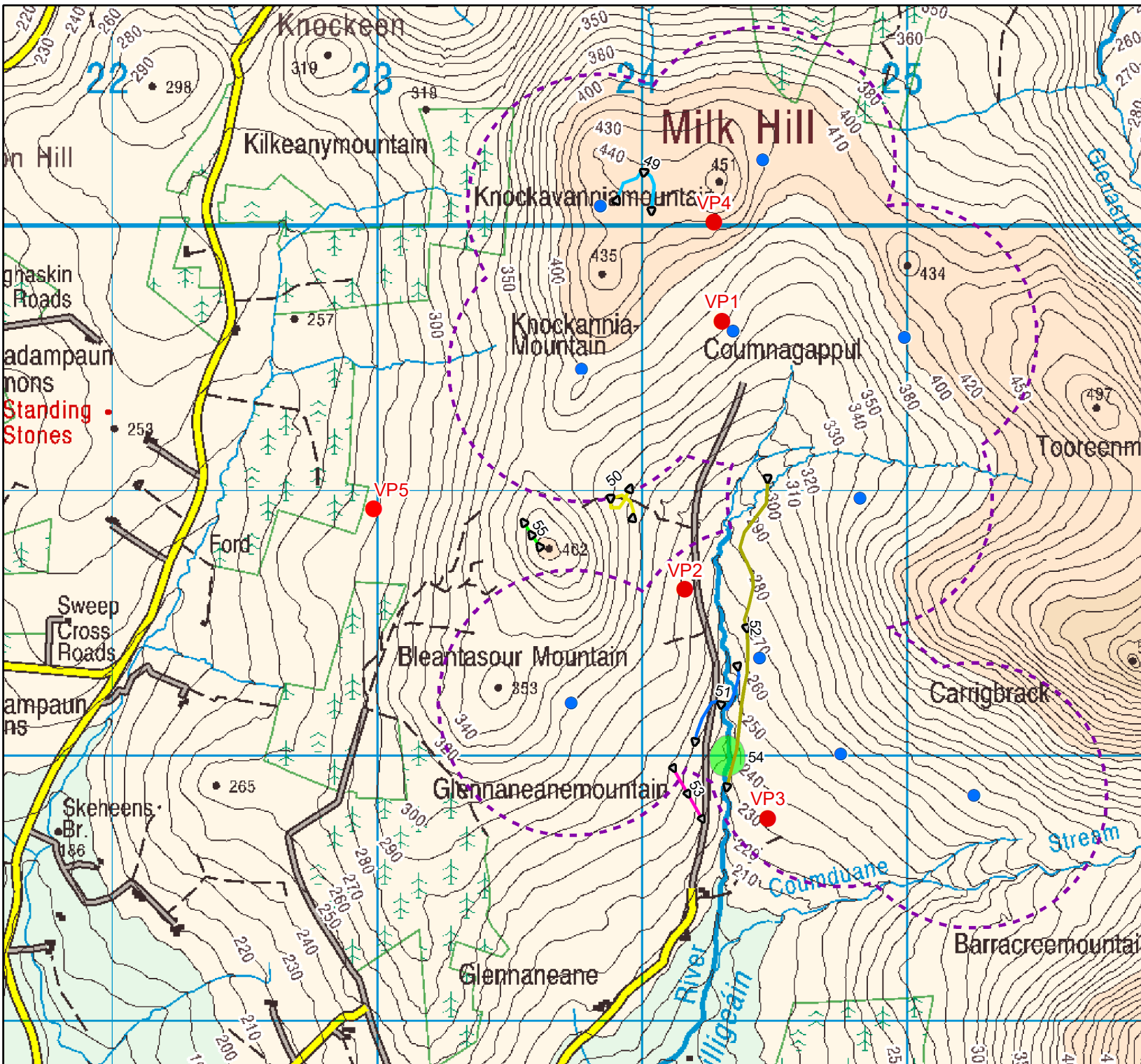
Client: EM - Power

Drawing Title:
Winter Bird Survey 2020 - 2021

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:24,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 28/04/2021, 18:02, 49
- ▶▶▶ 01/05/2021, 10:15, 50
- ▶▶▶ 16/06/2021, 14:50, 51
- ▶▶▶ 16/06/2021, 16:01, 52
- ▶▶▶ 22/07/2021, 11:05, 55
- ▶▶▶ 25/06/2021, 16:12, 53

Kestrel Activity

Date, Time, Ref no.

- 25/06/2021, 16:34, 54

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0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

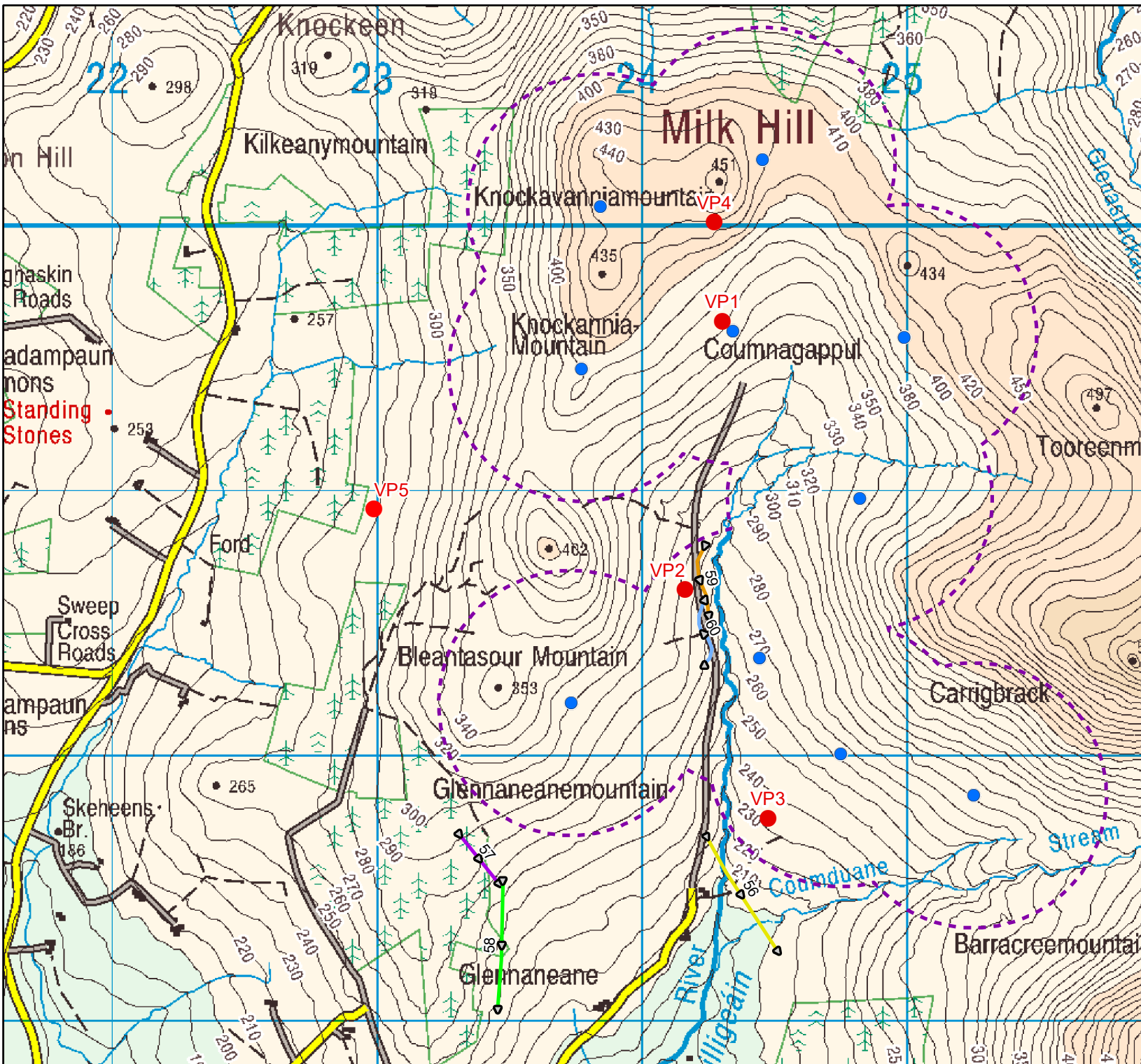
Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref no.

- ▶▶ 28/08/2021, 12:34, 56
- ▶▶ 28/08/2021, 14:20, 57
- ▶▶ 28/08/2021, 14:22, 58
- ▶▶ 31/08/2021, 12:17, 59
- ▶▶ 31/08/2021, 14:12, 60

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CYAL50332198.

0 0.4 0.8 km

Project Title:
20122 - Coumragappul WF Bird Surveys

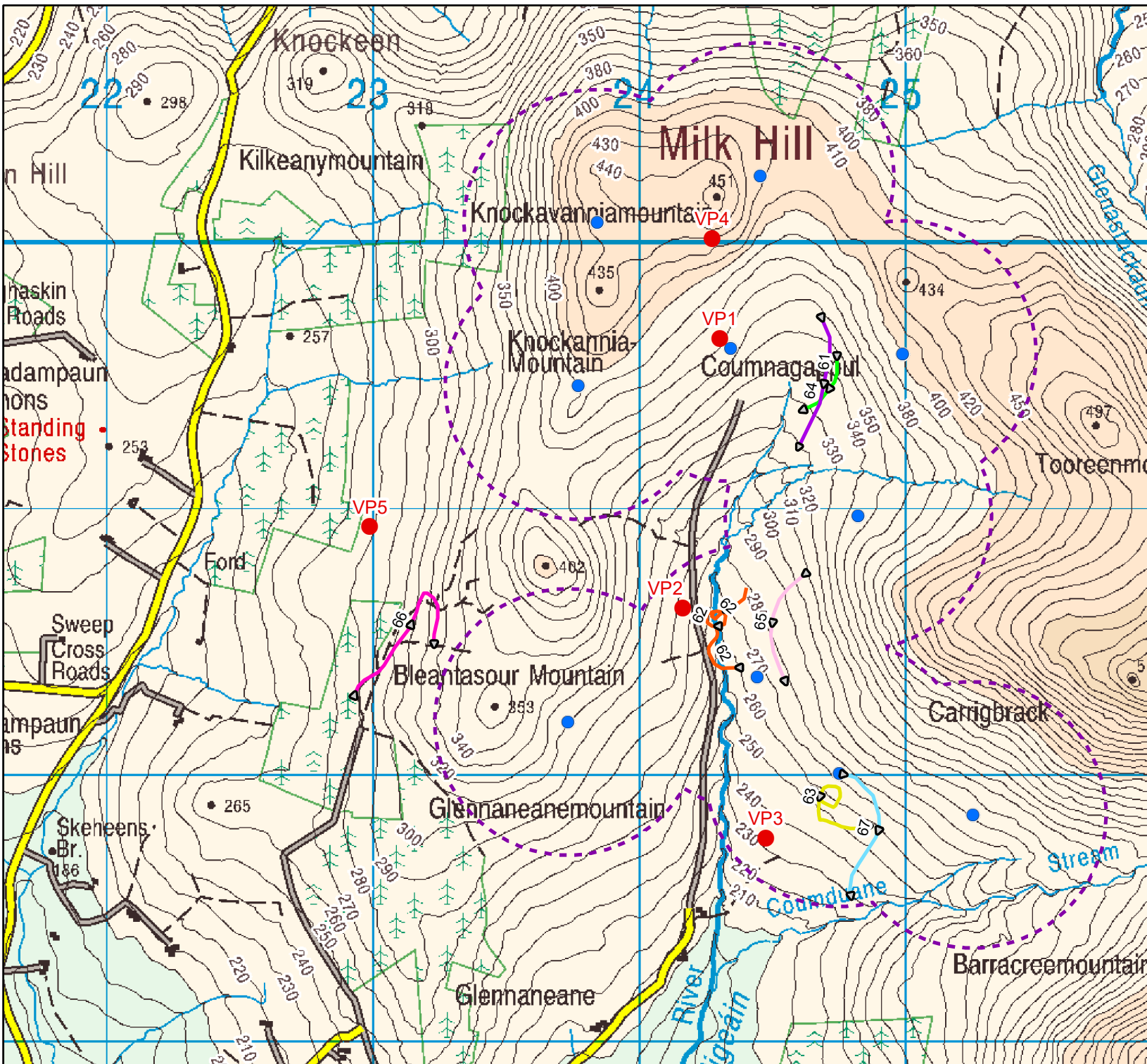
Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref no.

- ▶▶▶ 26/10/2021, 15:50, 61
- ▶▶▶ 28/10/2021, 13:40, 62
- ▶▶▶ 30/10/2021, 14:14, 63
- ▶▶▶ 14/11/2021, 15:25, 64
- ▶▶▶ 15/11/2021, 11:10, 65
- ▶▶▶ 17/11/2021, 14:50, 66
- ▶▶▶ 18/11/2021, 14:35, 67

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CYAL50332198.

0 0.4 0.8 km

Project Title:
20122 - Coumragappul WF Bird Surveys

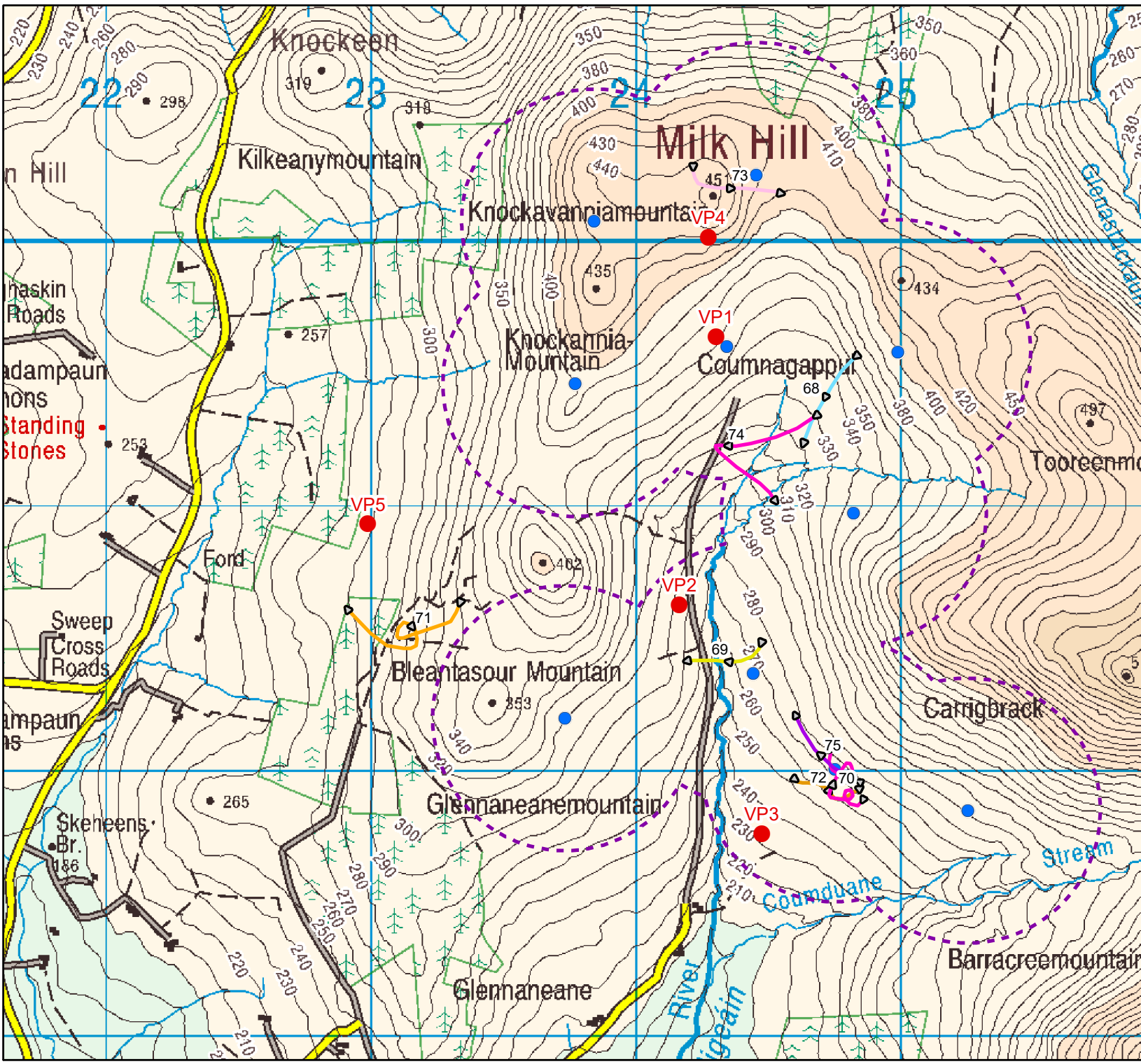
Client: EM - Power

Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





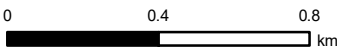
Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

- ▶▶▶ 02/12/2021, 15:20, 68
- ▶▶▶ 03/12/2021, 11:20, 69
- ▶▶▶ 05/12/2021, 12:10, 70
- ▶▶▶ 05/12/2021, 13:58, 71
- ▶▶▶ 06/12/2021, 14:25, 72
- ▶▶▶ 09/01/2022, 12:10, 73
- ▶▶▶ 11/01/2022, 10:12, 74
- ▶▶▶ 12/01/2022, 11:10, 75

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Project Title:
20122 - Coumna gappul WF Bird Surveys

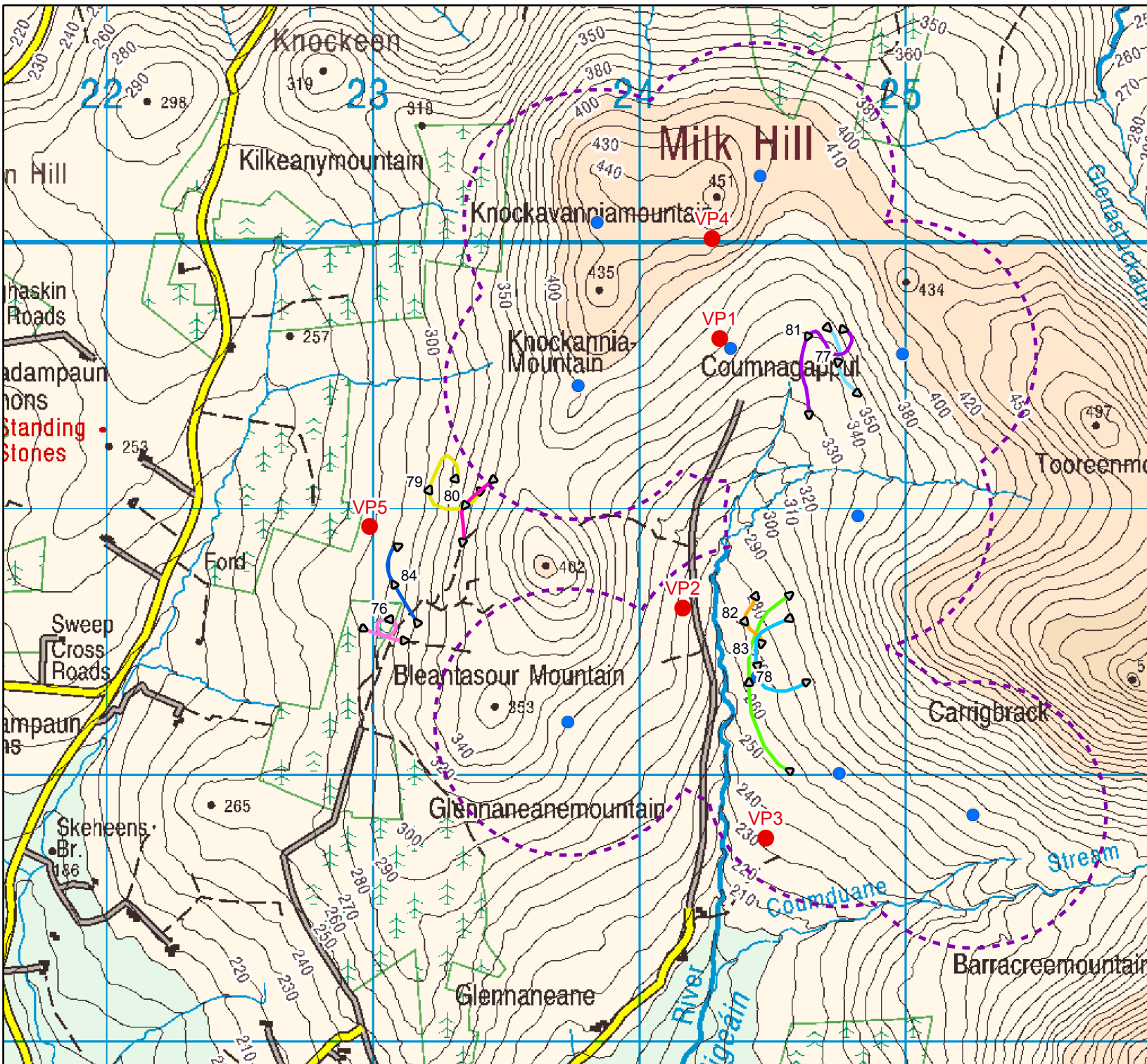
Client: EM - Power

Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path
Date, Time, Ref no.

▶▶▶▶	13/01/2022, 11:20, 76
▶▶▶▶	06/02/2022, 14:25, 77
▶▶▶▶	07/02/2022, 11:15, 78
▶▶▶▶	09/02/2022, 12:55, 79
▶▶▶▶	10/02/2022, 10:03, 80
▶▶▶▶	03/03/2022, 14:55, 81
▶▶▶▶	04/03/2022, 11:10, 82
▶▶▶▶	05/03/2022, 12:25, 83
▶▶▶▶	06/03/2022, 12:40, 84

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0 0.4 0.8 km

Project Title:
20122 - Coumragappul WF Bird Surveys

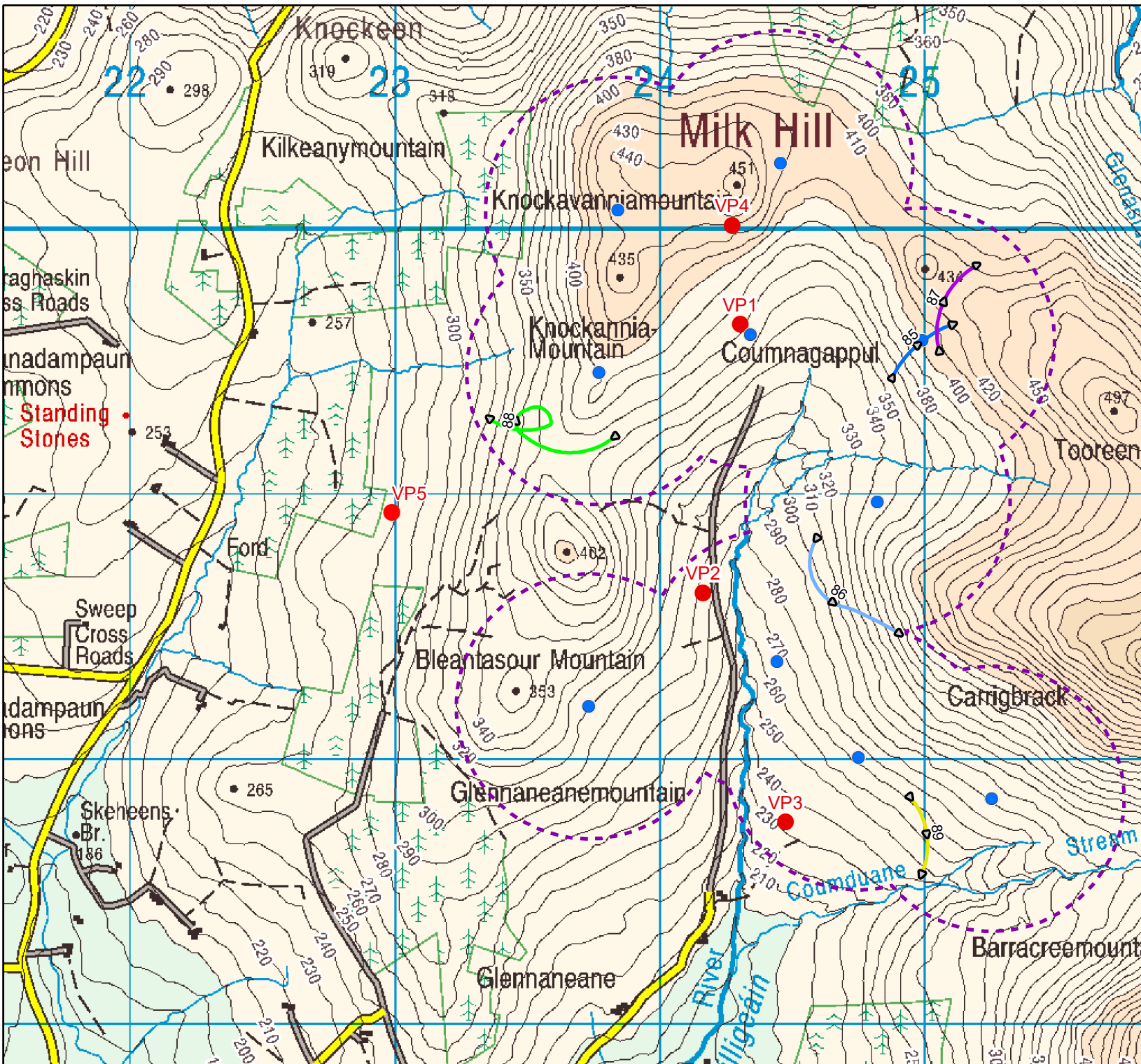
Client: EM - Power

Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶▶ 02/04/2022, 16:50, 85
- ▶▶▶▶ 03/04/2022, 13:10, 86
- ▶▶▶▶ 03/04/2022, 17:25, 87
- ▶▶▶▶ 05/04/2022, 15:25, 88
- ▶▶▶▶ 05/04/2022, 17:10, 89

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CYAL50332198.

0 0.4 0.8
km

Project Title:
20122 - Coumduane WF Bird Surveys

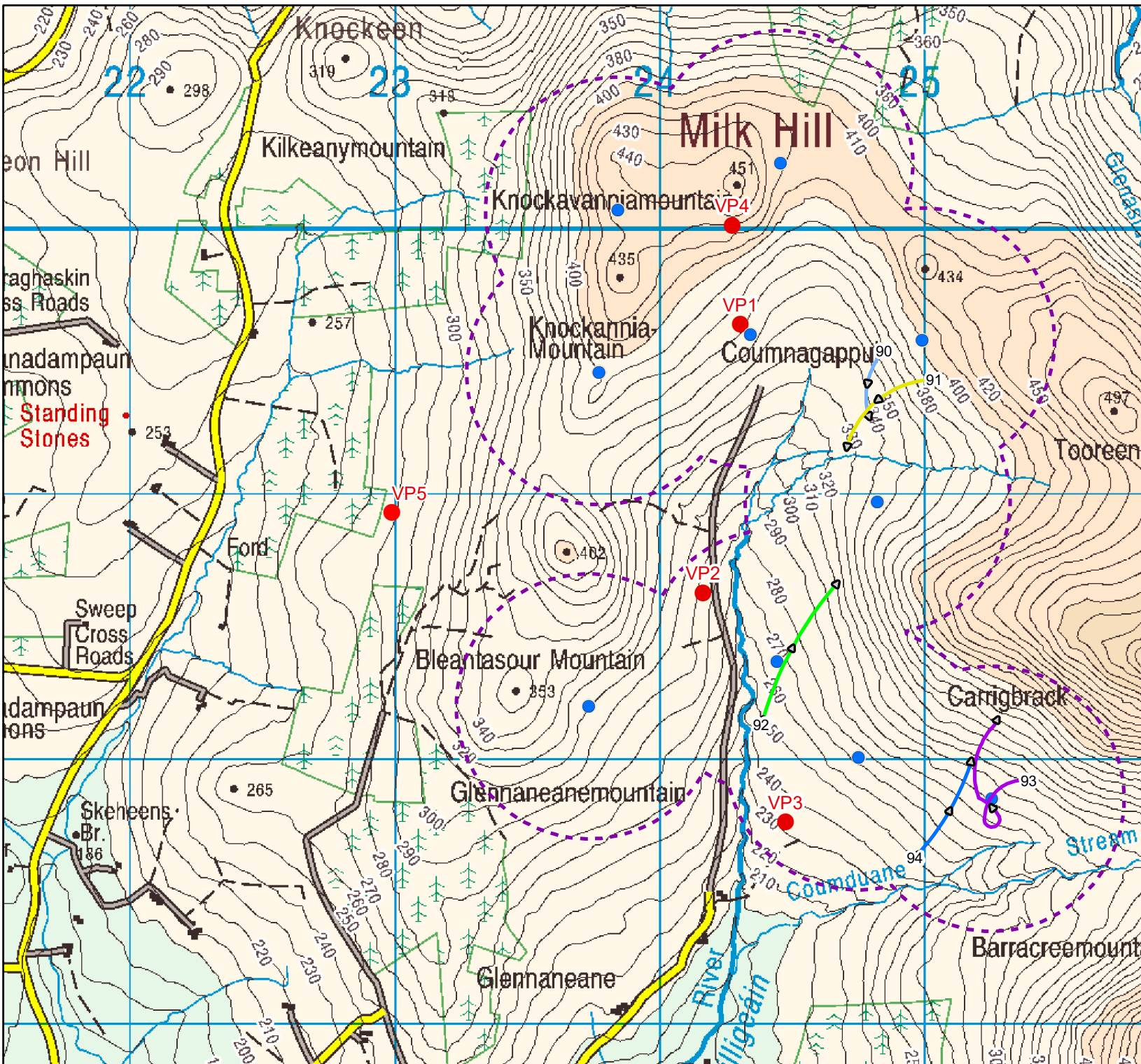
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 09/05/2022, 15:10, 90
- ▶▶▶ 11/05/2022, 10:40, 91
- ▶▶▶ 11/05/2022, 14:20, 92
- ▶▶▶ 12/05/2022, 10:02, 93
- ▶▶▶ 13/05/2022, 13:50, 94

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0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

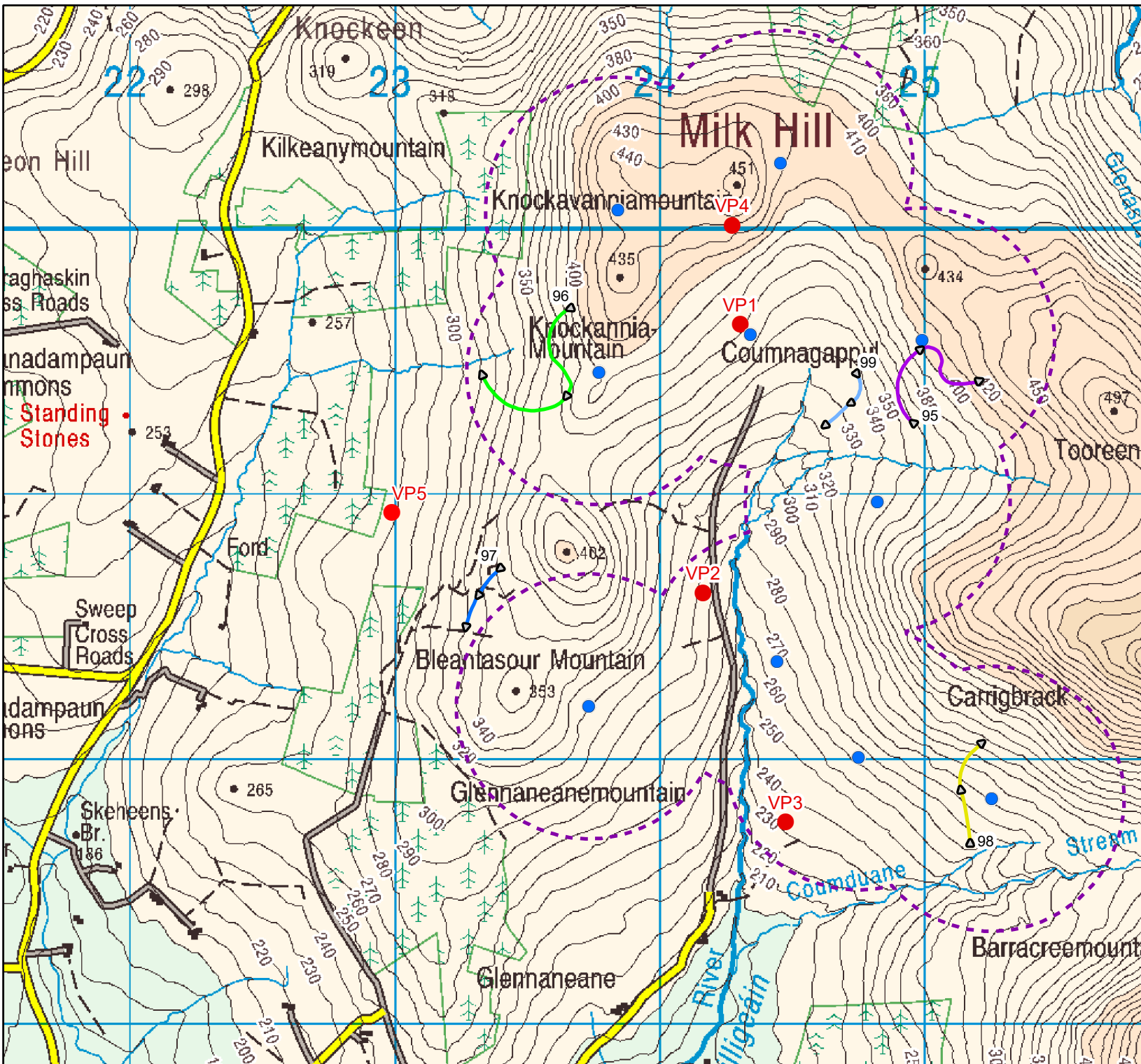
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶ 01/06/2022, 18:20, 95
- ▶ 02/06/2022, 18:35, 96
- ▶ 03/06/2022, 14:55, 97
- ▶ 04/06/2022, 14:05, 98
- ▶ 05/06/2022, 15:55, 99

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CYAL50332198.

0 0.4 0.8 km

Project Title:
20122 - Coumna Coumna WF Bird Surveys

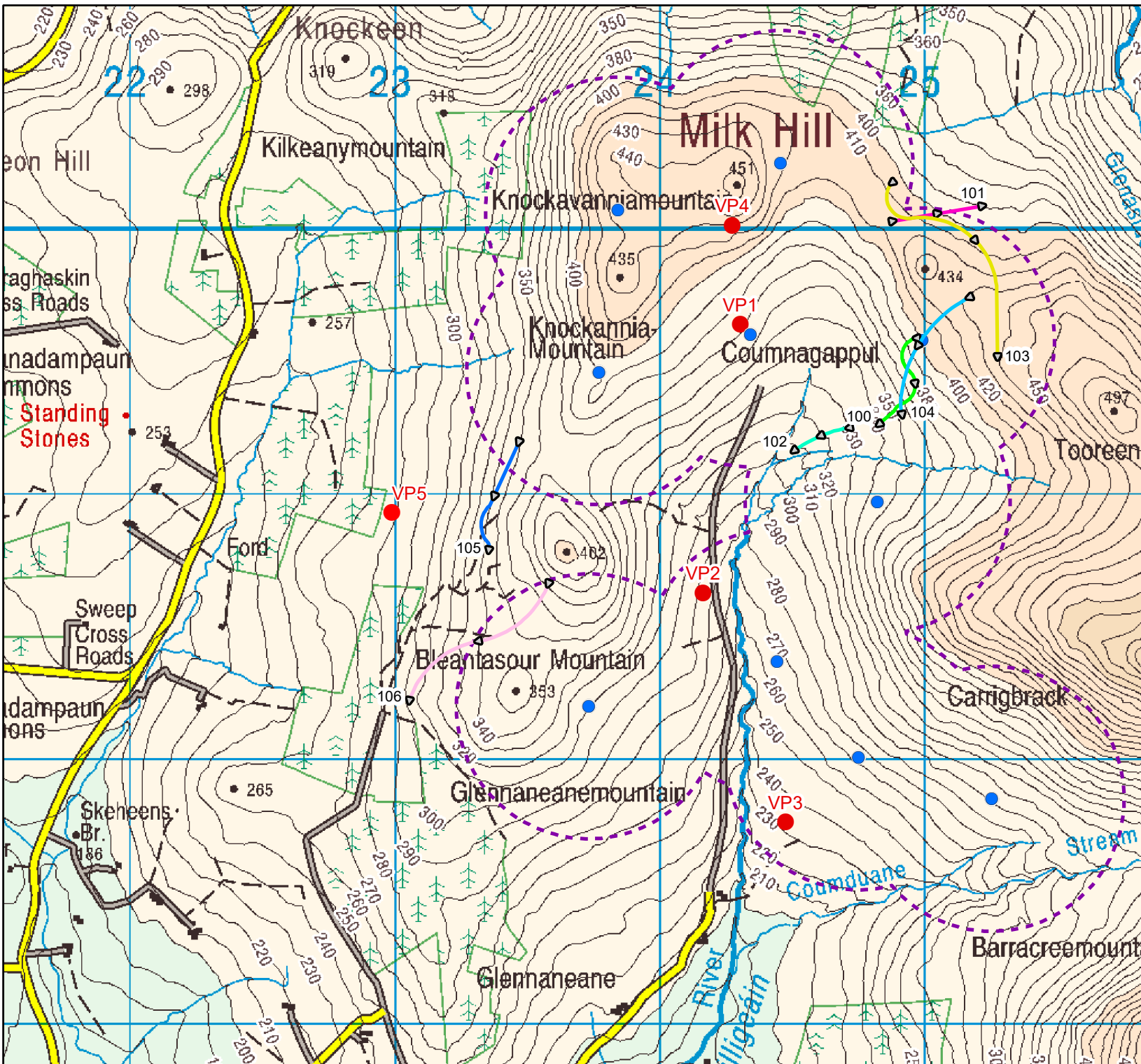
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 04/07/2022, 12:25, 100
- ▶▶▶ 04/07/2022, 13:45, 101
- ▶▶▶ 04/07/2022, 16:10, 102
- ▶▶▶ 05/07/2022, 14:05, 103
- ▶▶▶ 06/07/2022, 10:35, 104
- ▶▶▶ 07/07/2022, 12:50, 105
- ▶▶▶ 08/07/2022, 14:10, 106

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0 0.4 0.8 km

Project Title:
20122 - Coumna gappul WF Bird Surveys

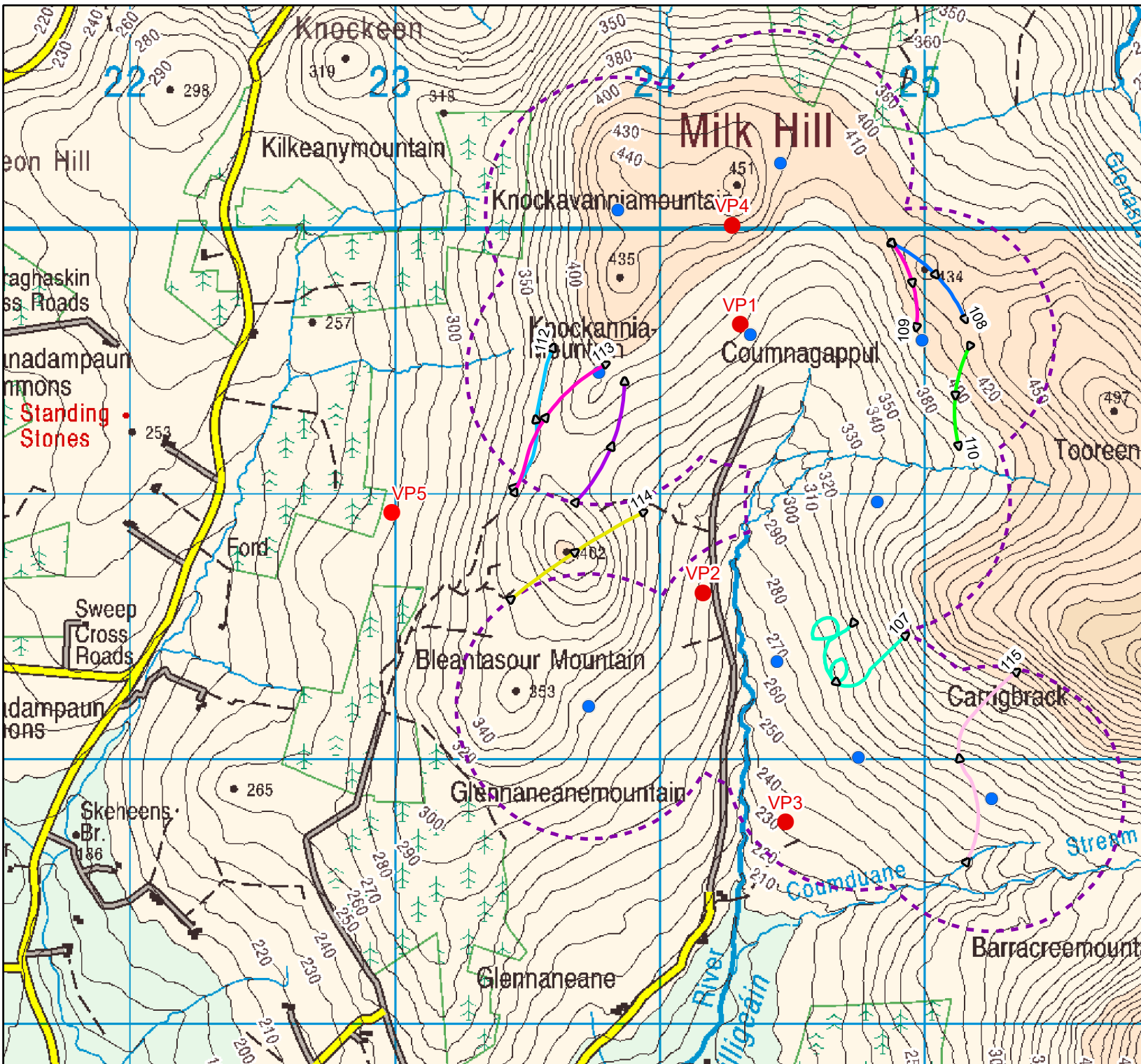
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶ 02/08/2022, 10:30, 107
- ▶▶▶ 02/08/2022, 14:55, 108
- ▶▶▶ 02/08/2022, 14:55, 109
- ▶▶▶ 03/08/2022, 11:25, 110
- ▶▶▶ 04/08/2022, 13:40, 111
- ▶▶▶ 04/08/2022, 14:10, 112
- ▶▶▶ 04/08/2022, 14:10, 113
- ▶▶▶ 15/08/2022, 10:10, 114
- ▶▶▶ 15/08/2022, 14:10, 115

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0 0.4 0.8 km

Project Title:
20122 - Coumna gappul WF Bird Surveys

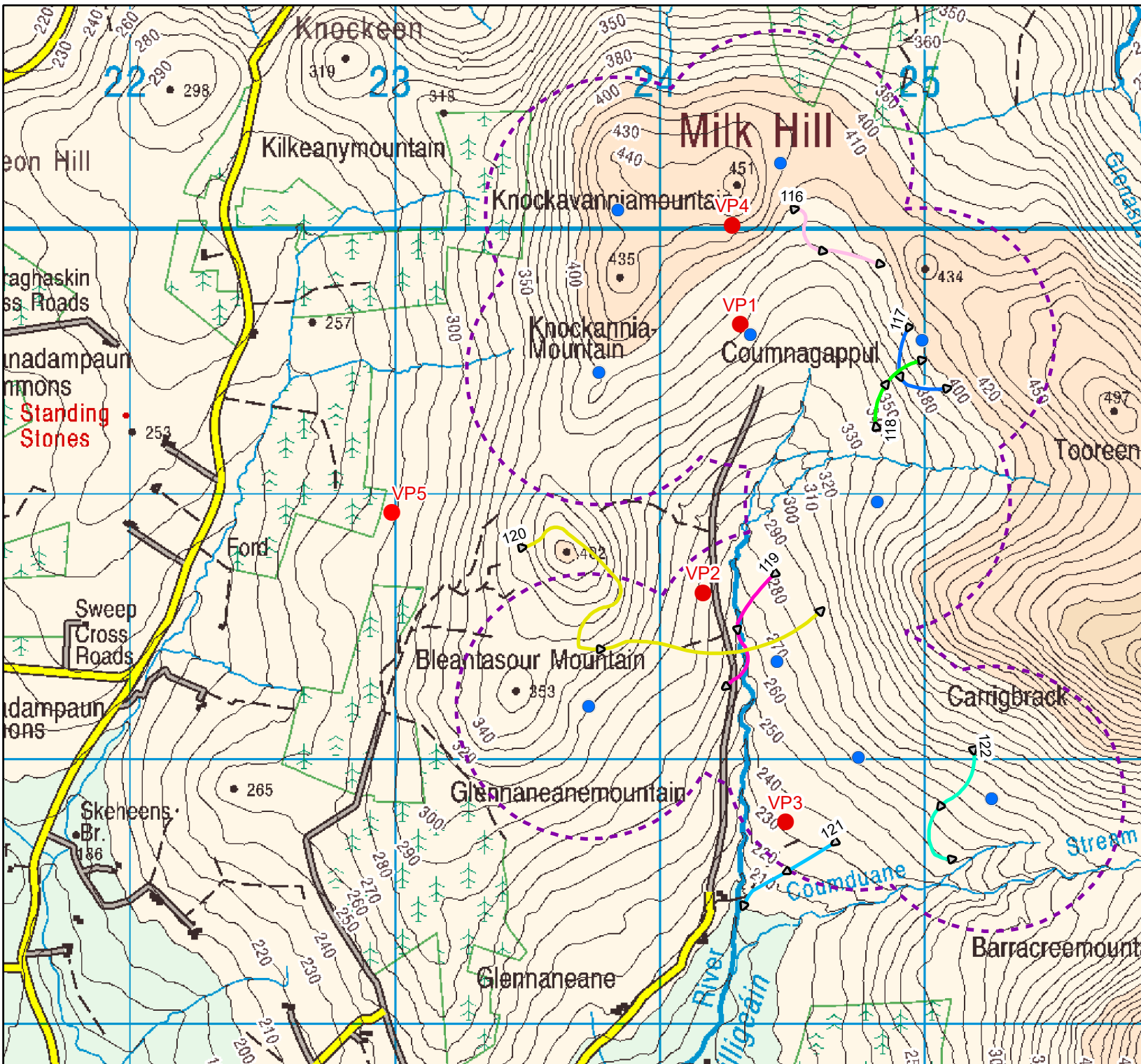
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF **Checked:** FM

Date: 26/06/2023 **Scale (A4):** 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Kestrel Flight Path

Date, Time, Ref No.

- ▶▶▶▶ 05/09/2022, 11:25, 116
- ▶▶▶▶ 05/09/2022, 14:50, 117
- ▶▶▶▶ 05/09/2022, 16:10, 118
- ▶▶▶▶ 06/09/2022, 10:25, 119
- ▶▶▶▶ 07/09/2022, 14:11, 120
- ▶▶▶▶ 08/09/2022, 11:25, 121
- ▶▶▶▶ 09/09/2022, 14:20, 122

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0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

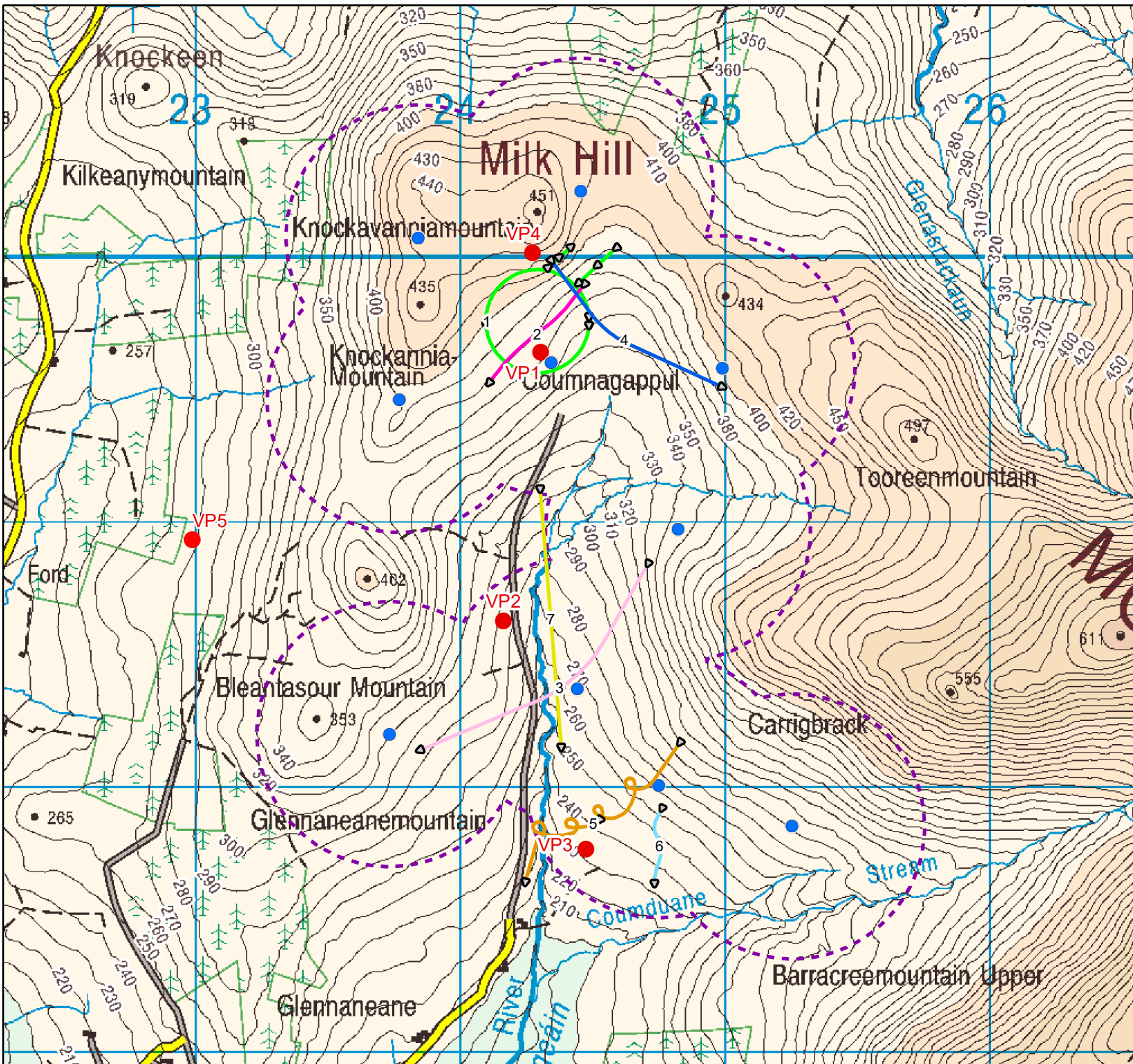
Drawing Title:
Summer Bird Survey 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000



Buzzard



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer


Buzzard Flight Path

Date, Time, Ref No.

- ▶▶▶ 05/04/2019, 10:39, 1
- ▶▶▶ 21/05/2019, 13:02, 2
- ▶▶▶ 22/05/2019, 14:40, 3
- ▶▶▶ 22/05/2019, 15:46, 4
- ▶▶▶ 30/05/2019, 12:44, 5
- ▶▶▶ 16/08/2019, 17:20, 6
- ▶▶▶ 06/09/2019, 14:33, 7

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0 0.425 0.85 km



Project Title:
20122 - Coumduane WF Bird Surveys

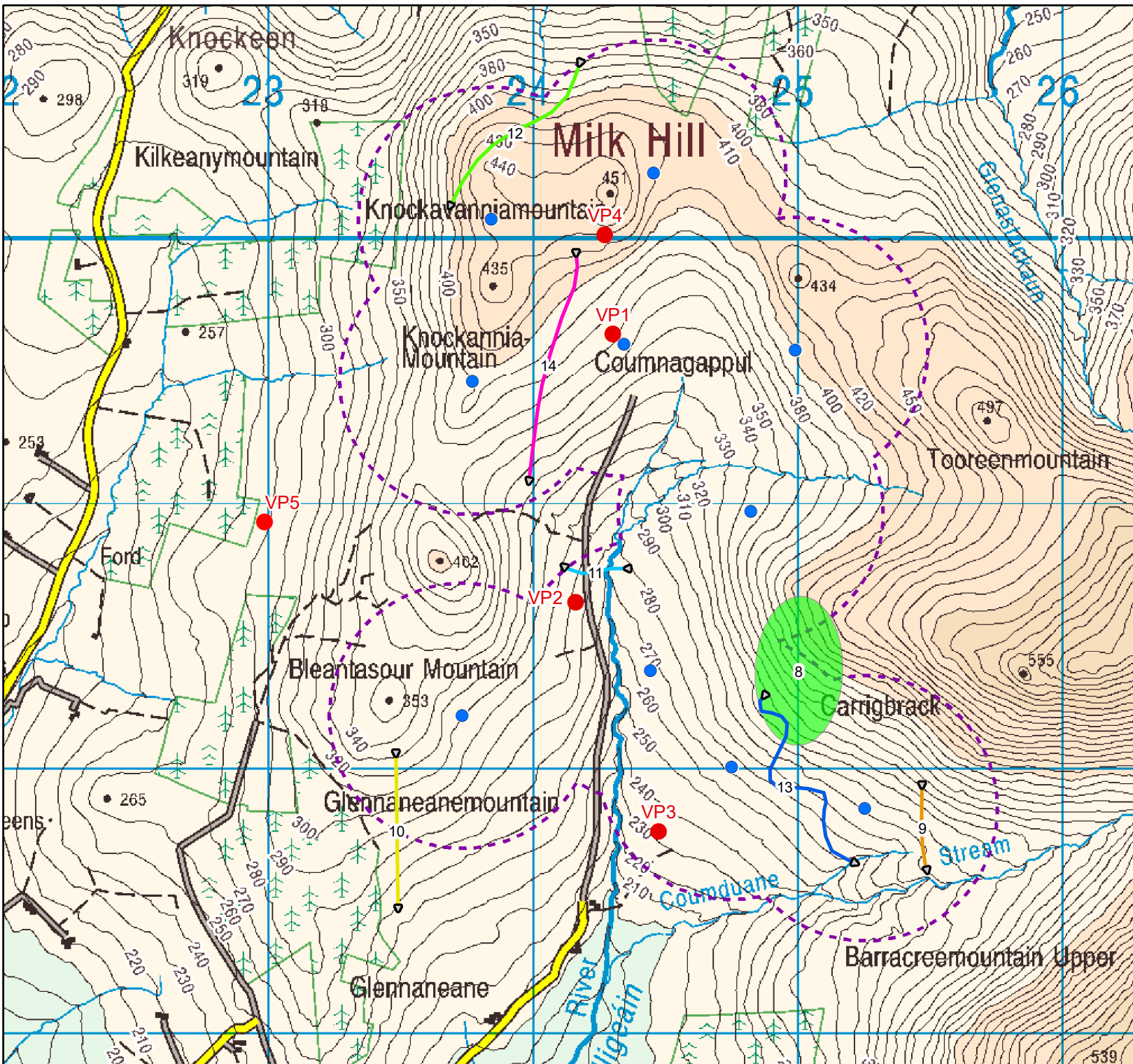
Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF **Checked:** FM

Date: 20/06/2023 **Scale (A4):** 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Activity

Date, Time, Ref No.

- 23/10/2019, 10:22, 8

Buzzard Flight Path

Date, Time, Ref No.

- ▶▶ 23/10/2019, 13:22, 9
- ▶▶ 23/10/2019, 15:35, 10
- ▶▶ 18/12/2019, 11:25, 11
- ▶▶ 14/02/2020, 15:08, 12
- ▶▶ 16/02/2020, 10:20, 13
- ▶▶ 17/02/2020, 14:18, 14

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0 0.4 0.8 km

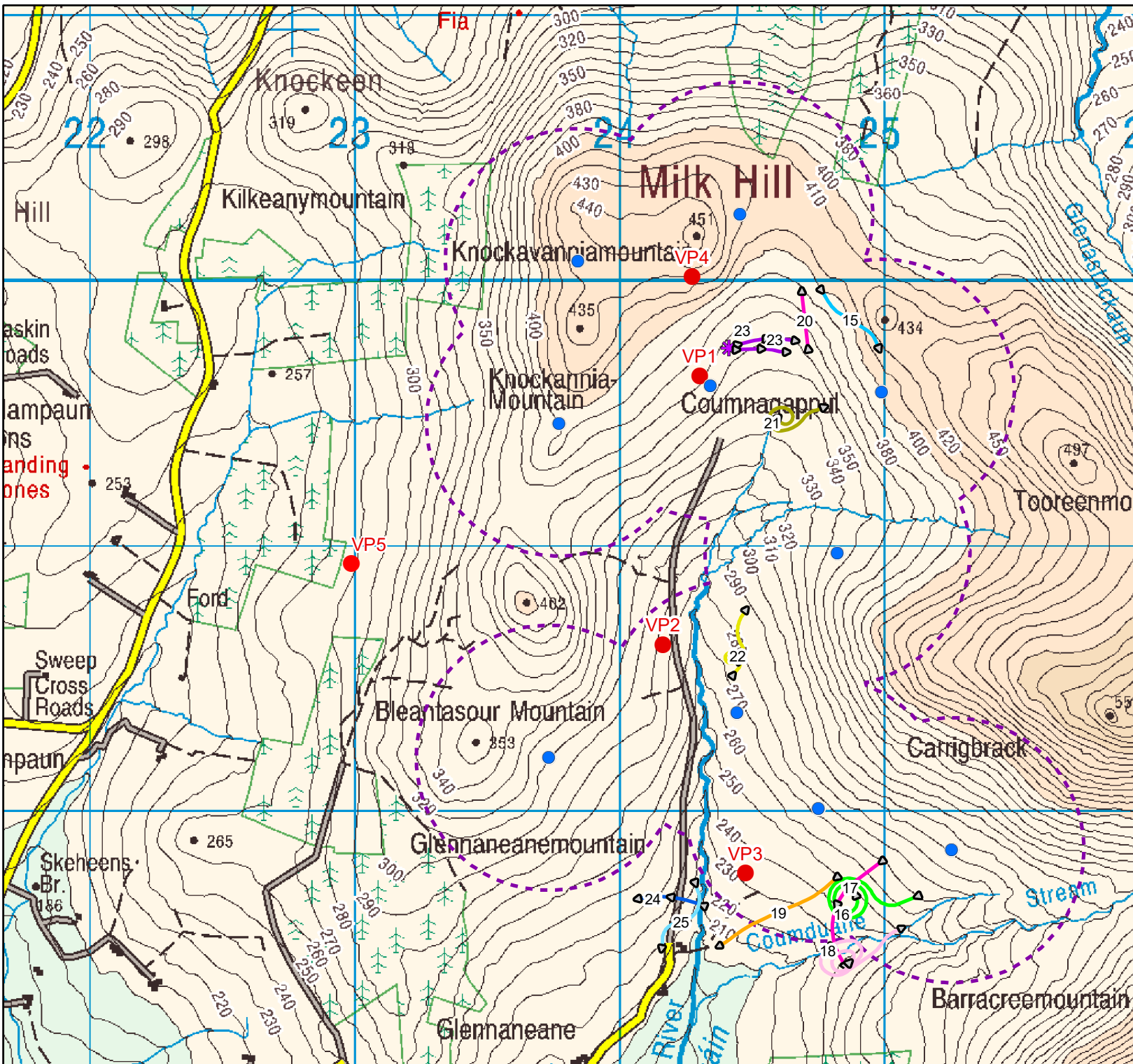
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000





- Legend**
- Vantage Point
 - Turbine Location
 - - - 500m Turbine Buffer
- Buzzard Perched**
Date, Time, Ref No.
- ✳ 18/07/2020, 11:20, 23
- Buzzard Flight Path**
Date, Time, Ref No.
- ▶▶▶▶▶ 23/04/2020, 11:25, 15
 - ▶▶▶▶▶ 25/04/2020, 11:32, 16
 - ▶▶▶▶▶ 26/04/2020, Unknown, 17
 - ▶▶▶▶▶ 14/05/2020, 13:05, 18
 - ▶▶▶▶▶ 13/06/2020, 14:55, 19
 - ▶▶▶▶▶ 13/07/2020, 14:20, 20
 - ▶▶▶▶▶ 15/07/2020, 14:58, 21
 - ▶▶▶▶▶ 16/07/2020, 15:05, 22
 - ▶▶▶▶▶ 16/09/2020, 10:20, 24
 - ▶▶▶▶▶ 16/09/2020, 12:45, 25
 - ▶▶▶▶▶ 18/07/2020, 11:20, 23

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0 0.45 0.9 km

Project Title:
20122 - Coumna WF Bird Surveys

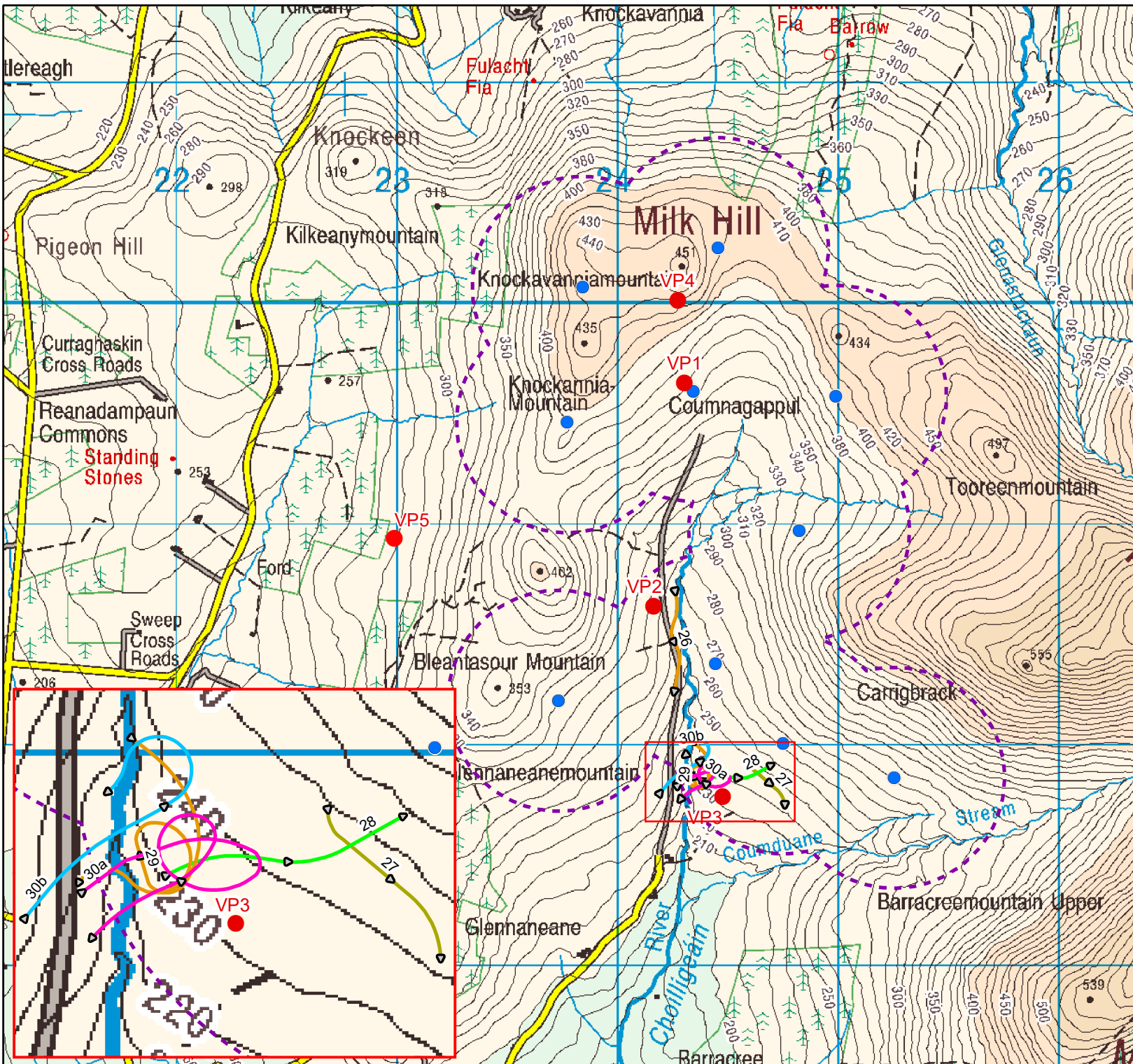
Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF Checked: FM

Date: 22/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path
Date, Time, Ref No.

- ▶▶▶ 11/10/2020, 14:15, 26
- ▶▶▶ 12/10/2020, 14:10, 27
- ▶▶▶ 03/12/2020, 10:08, 28
- ▶▶▶ 15/02/2021, 09:39, 29
- ▶▶▶ 24/03/2021, 13:44, 30a
- ▶▶▶ 24/03/2021, 14:30, 30b

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0 0.5 1 km

Project Title:
20122 - Coumna WF Bird Surveys

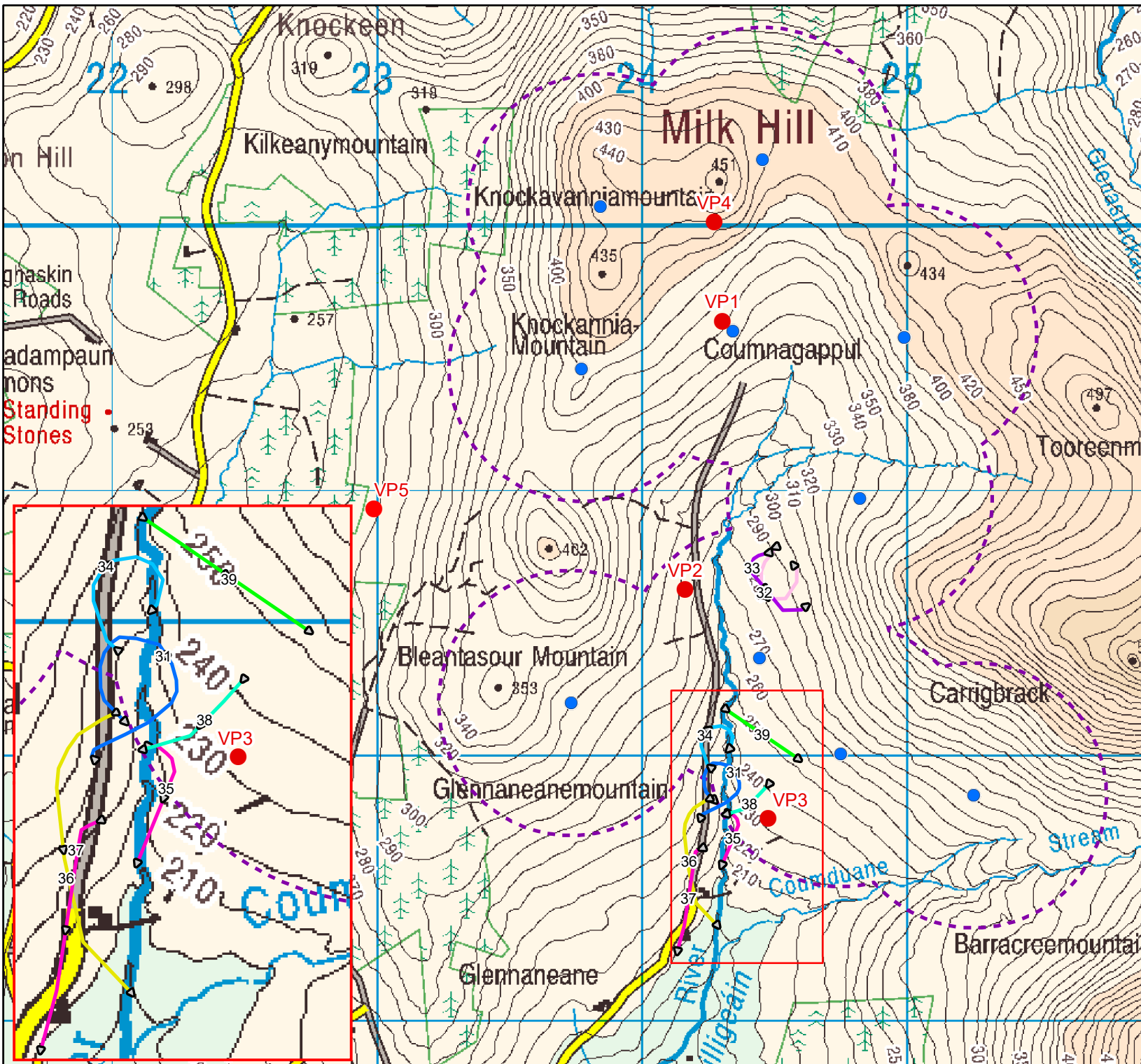
Client: EM - Power

Drawing Title:
Winter Bird Survey 2020 - 2021

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:24,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path

Date, Time, Ref No.

- ▶▶▶ 29/04/2021, 15:12, 31
- ▶▶▶ 01/05/2021, 11:37, 32
- ▶▶▶ 01/05/2021, 11:48, 33
- ▶▶▶ 30/05/2021, 06:17, 34
- ▶▶▶ 30/05/2021, 08:52, 35
- ▶▶▶ 30/05/2021, 10:20, 36
- ▶▶▶ 30/05/2021, 10:35, 37
- ▶▶▶ 25/06/2021, 18:31, 39
- ▶▶▶ 25/06/2021, 15:46, 38

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0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

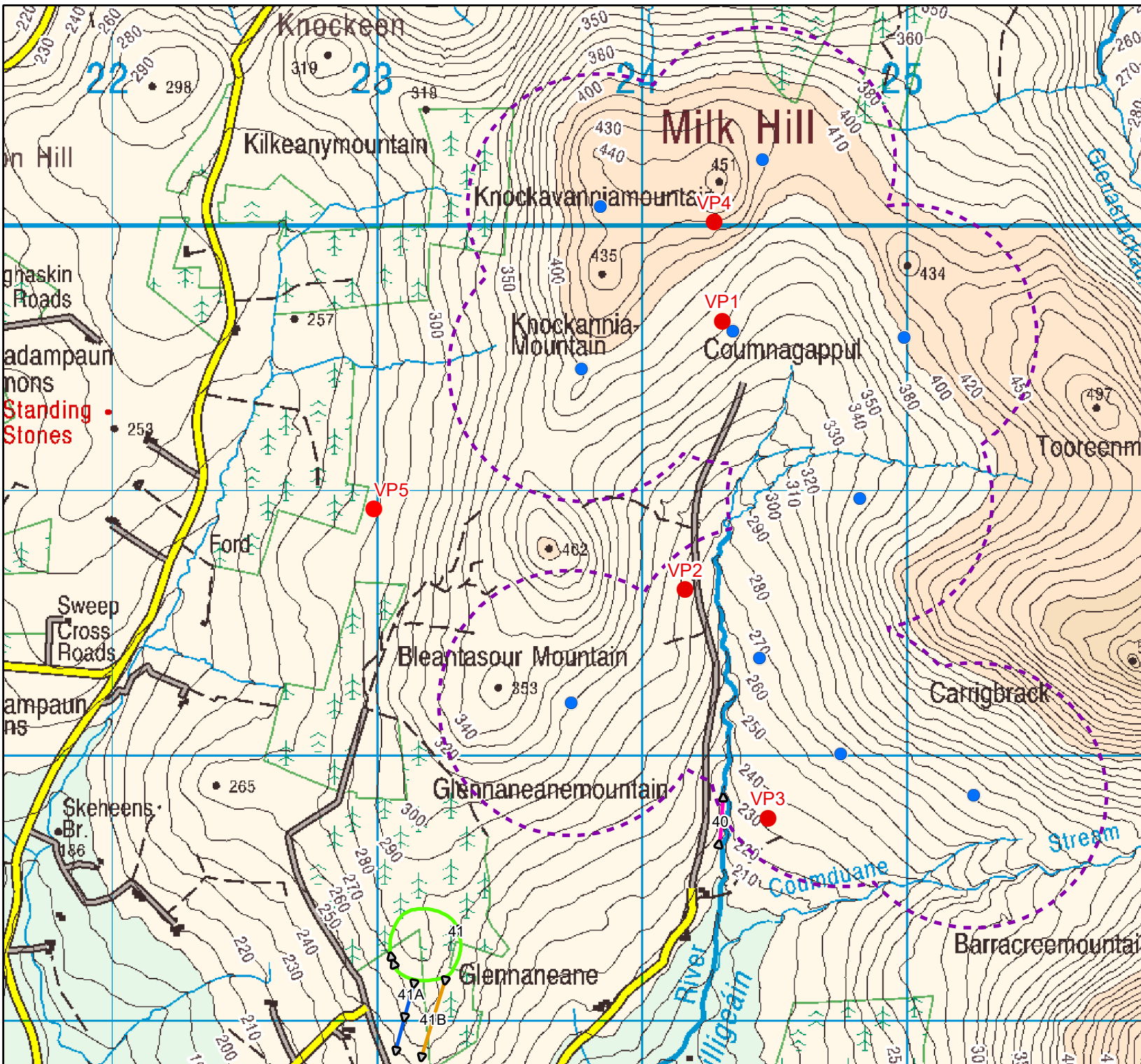
Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path

Date, Time, Ref no.

- ▶▶▶ 27/08/2021, 18:27, 40
- ▶▶▶ 28/08/2021, 12:51, 41
- ▶▶▶ 28/08/2021, 12:51, 41A
- ▶▶▶ 28/08/2021, 12:51, 41B

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0 0.4 0.8
km

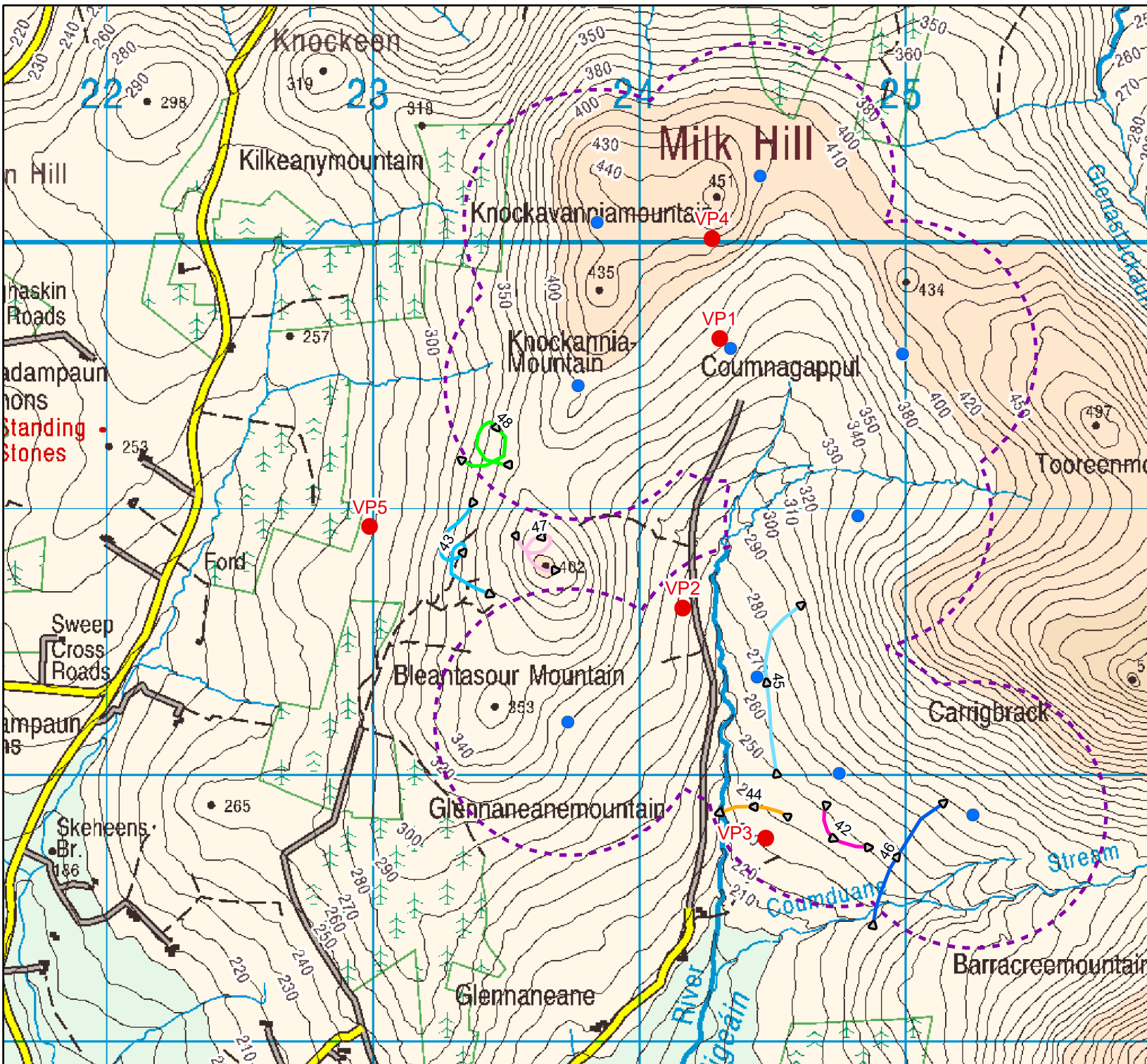
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF	Checked: FM
Date: 26/06/2023	Scale (A4): 1:20,000





Legend


- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path
Date, Time, Ref no.

- ▶▶▶ 29/10/2021, 12:10, 42
- ▶▶▶ 29/10/2021, 14:05, 43
- ▶▶▶ 30/10/2021, 13:20, 44
- ▶▶▶ 16/11/2021, 14:15, 45
- ▶▶▶ 17/11/2021, 11:56, 46
- ▶▶▶ 05/12/2021, 13:05, 47
- ▶▶▶ 06/12/2021, 09:40, 48

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0 0.4 0.8
km



Project Title:
20122 - Coumna gappul WF Bird Surveys

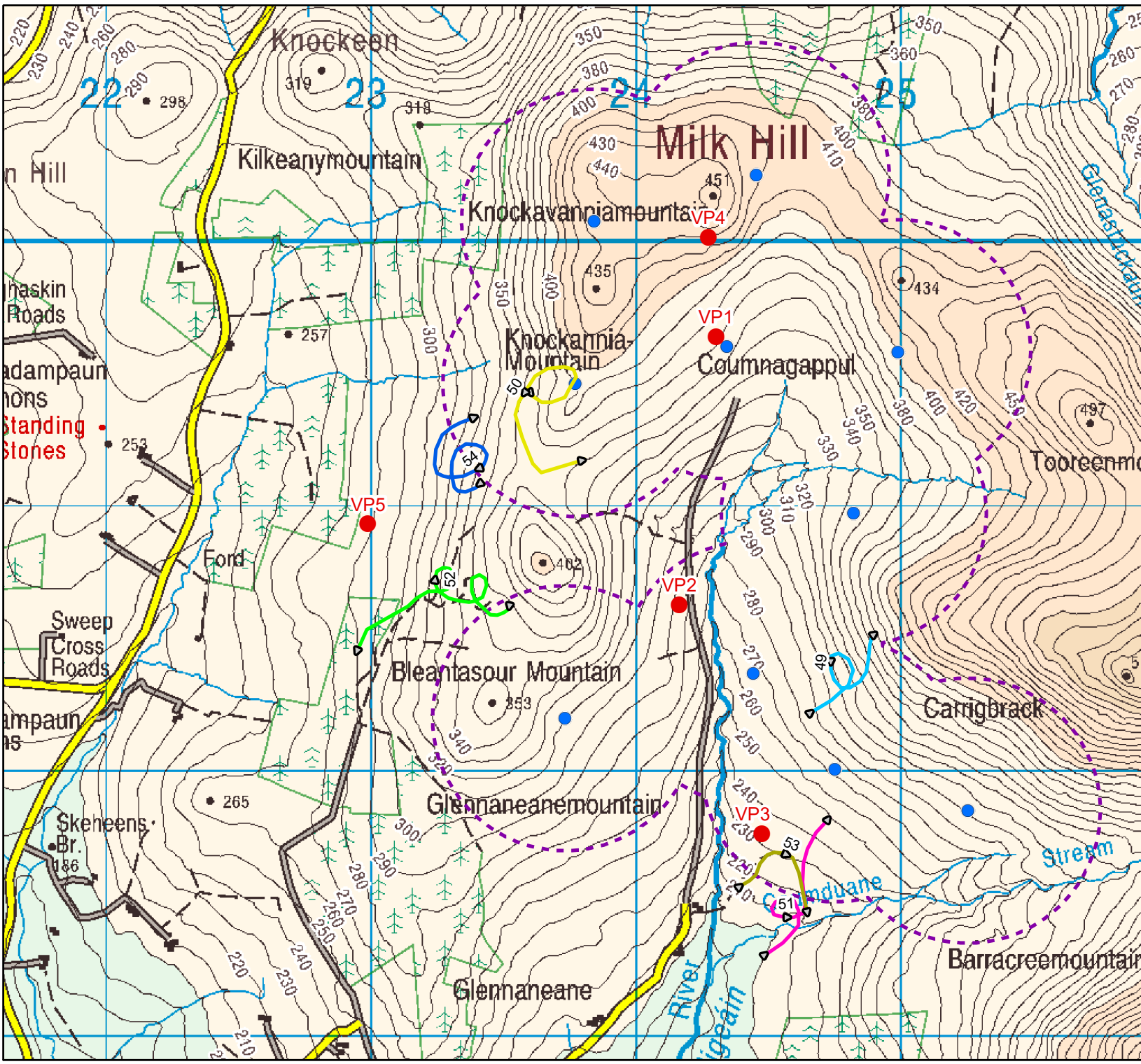
Client: EM - Power

Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path

- ▶▶▶ 11/01/2022, 14:05, 49
- ▶▶▶ 12/01/2022, 14:40, 50
- ▶▶▶ 09/02/2022, 09:10, 51
- ▶▶▶ 10/02/2022, 09:40, 52
- ▶▶▶ 10/02/2022, 13:40, 53
- ▶▶▶ 07/03/2022, 09:10, 54

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0 0.4 0.8 km

Project Title:
 20122 - Coumna gappul WF Bird Surveys

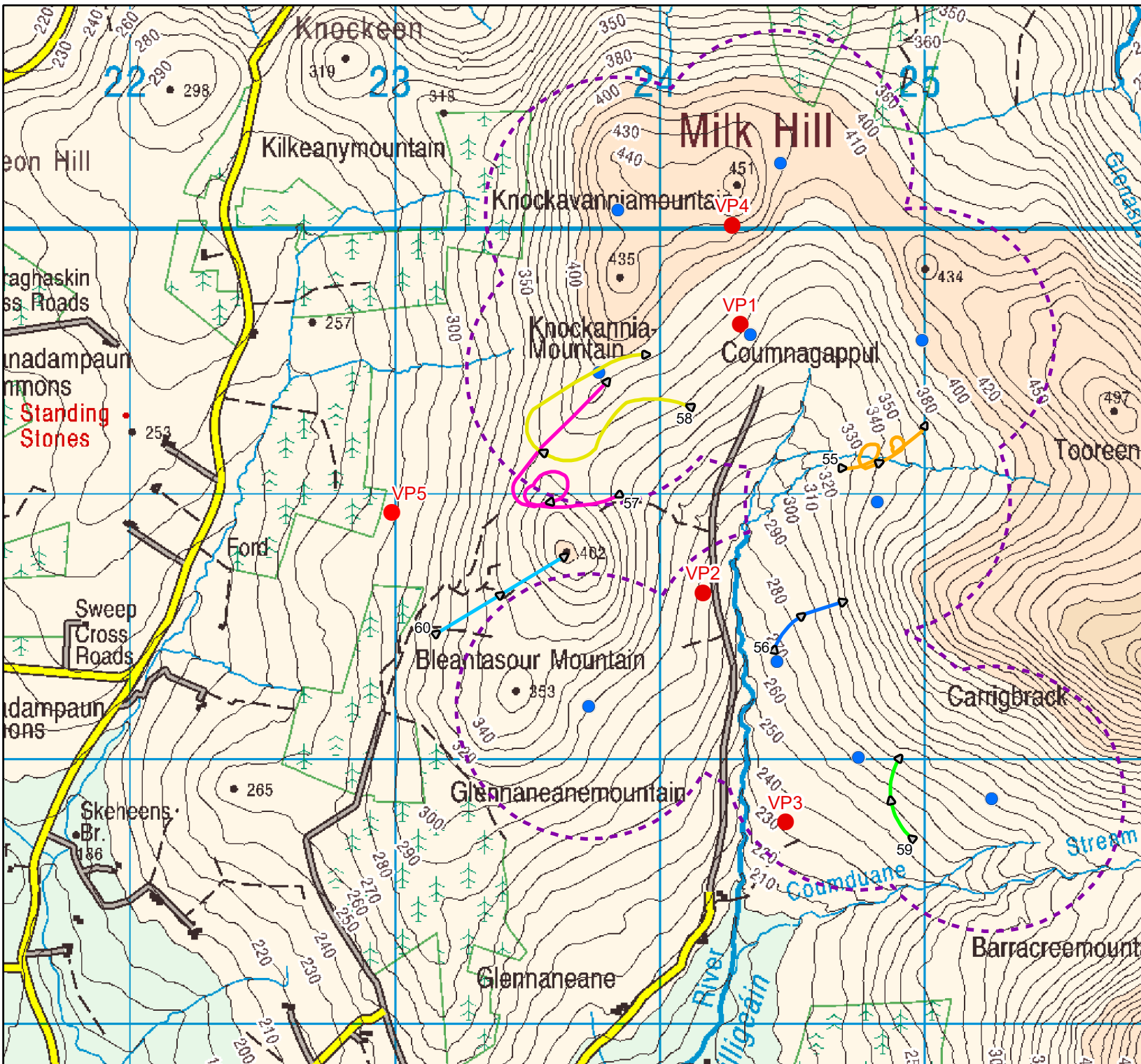
Client: EM - Power

Drawing Title:
 Winter Bird Survey 2021 - 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer


Buzzard Flight Path

Date, Time, Ref No.

- ▶▶▶ 02/04/2022, 17:40, 55
- ▶▶▶ 04/04/2022, 17:12, 56
- ▶▶▶ 05/04/2022, 14:05, 57
- ▶▶▶ 05/04/2022, 15:25, 58
- ▶▶▶ 06/04/2022, 12:35, 59
- ▶▶▶ 06/04/2022, 16:25, 60

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0 0.4 0.8 km



Project Title:
20122 - Coumduane WF Bird Surveys

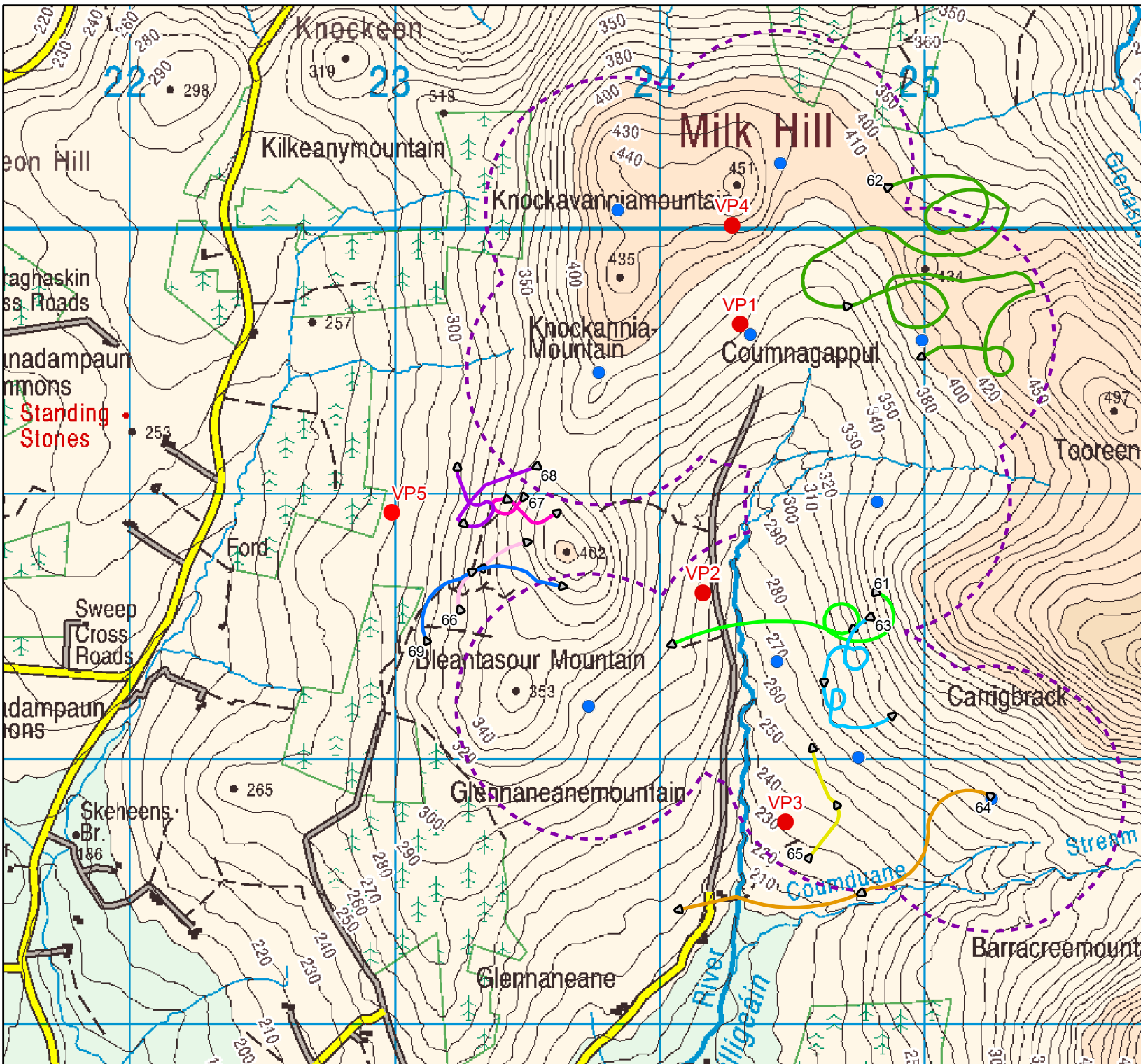
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer


Buzzard Flight Path

Date, Time, Ref No.

- ▶▶ 10/05/2022, 11:20, 61
- ▶▶ 10/05/2022, 14:55, 62
- ▶▶ 11/05/2022, 13:05, 63
- ▶▶ 12/05/2022, 10:00, 64
- ▶▶ 12/05/2022, 11:40, 65
- ▶▶ 12/05/2022, 13:40, 66
- ▶▶ 12/05/2022, 14:50, 67
- ▶▶ 12/05/2022, 15:30, 68
- ▶▶ 13/05/2022, 10:05, 69

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0 0.4 0.8 km



Project Title:
20122 - Coumduane WF Bird Surveys

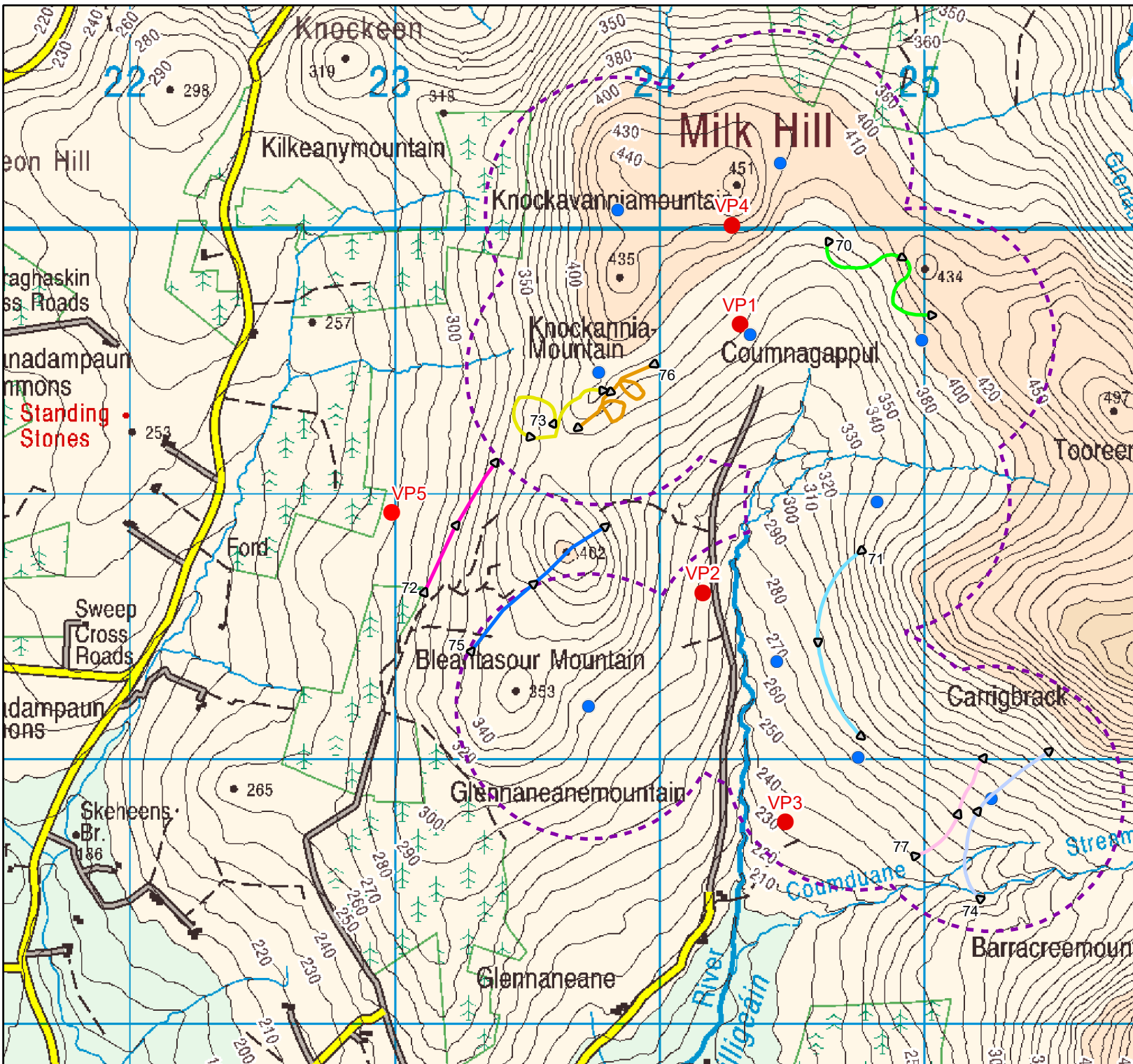
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path

Date, Time, Ref No.

- ▶▶▶ 01/06/2022, 14:30, 70
- ▶▶▶ 02/06/2022, 15:50, 71
- ▶▶▶ 03/06/2022, 14:40, 72
- ▶▶▶ 03/06/2022, 16:10, 73
- ▶▶▶ 03/06/2022, 18:15, 74
- ▶▶▶ 04/06/2022, 17:10, 75
- ▶▶▶ 05/06/2022, 14:25, 76
- ▶▶▶ 05/06/2022, 17:05, 77

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0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

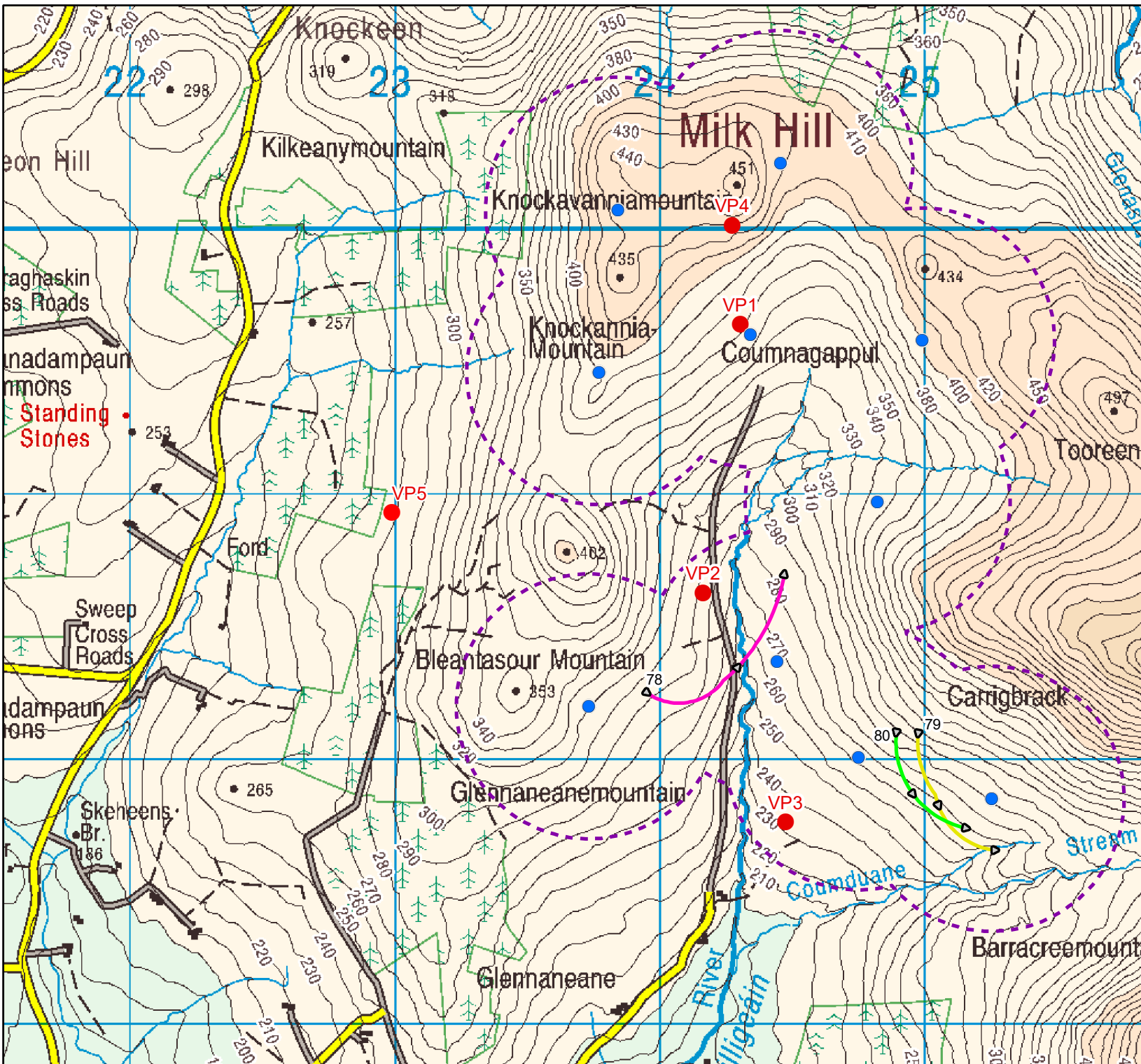
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer


Buzzard Flight Path

Date, Time, Ref No.

- ▶▶▶ 06/07/2022, 14:00, 78
- ▶▶▶ 07/07/2022, 16:10, 79
- ▶▶▶ 08/07/2022, 10:25, 80

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0 0.4 0.8 km



Project Title:
20122 - Coumna gappul WF Bird Surveys

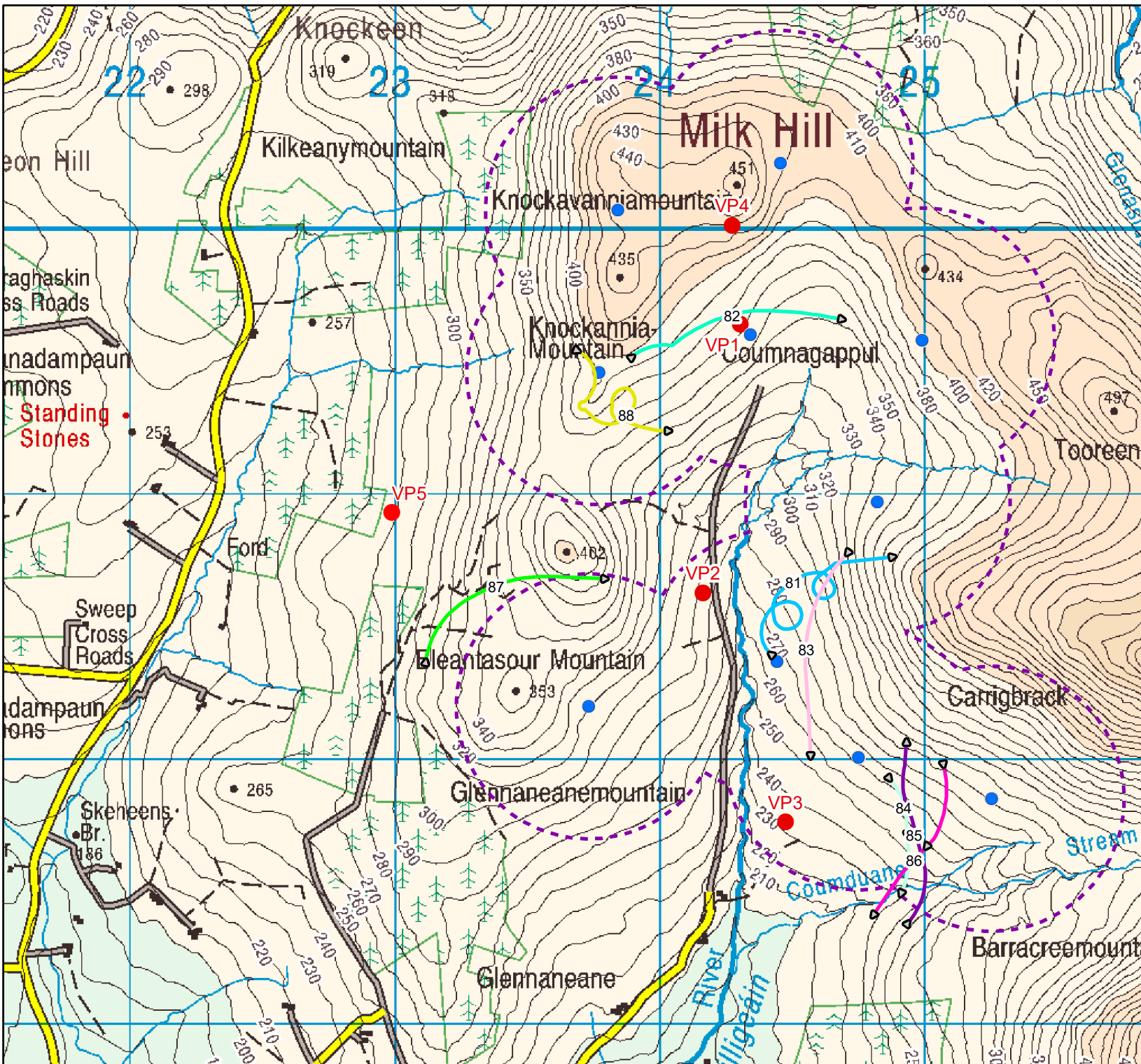
Client: EM - Power

Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Buzzard Flight Path

Date, Time, Ref No.

- ▶▶▶ 02/08/2022, 10:25, 81
- ▶▶▶ 02/08/2022, 13:15, 82
- ▶▶▶ 03/08/2022, 15:05, 83
- ▶▶▶ 04/08/2022, 09:50, 84
- ▶▶▶ 04/08/2022, 10:40, 85
- ▶▶▶ 04/08/2022, 11:50, 86
- ▶▶▶ 04/08/2022, 14:35, 87
- ▶▶▶ 15/08/2022, 09:35, 88

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0 0.4 0.8 km

Project Title:
20122 - Coumduan WF Bird Surveys

Client: EM - Power

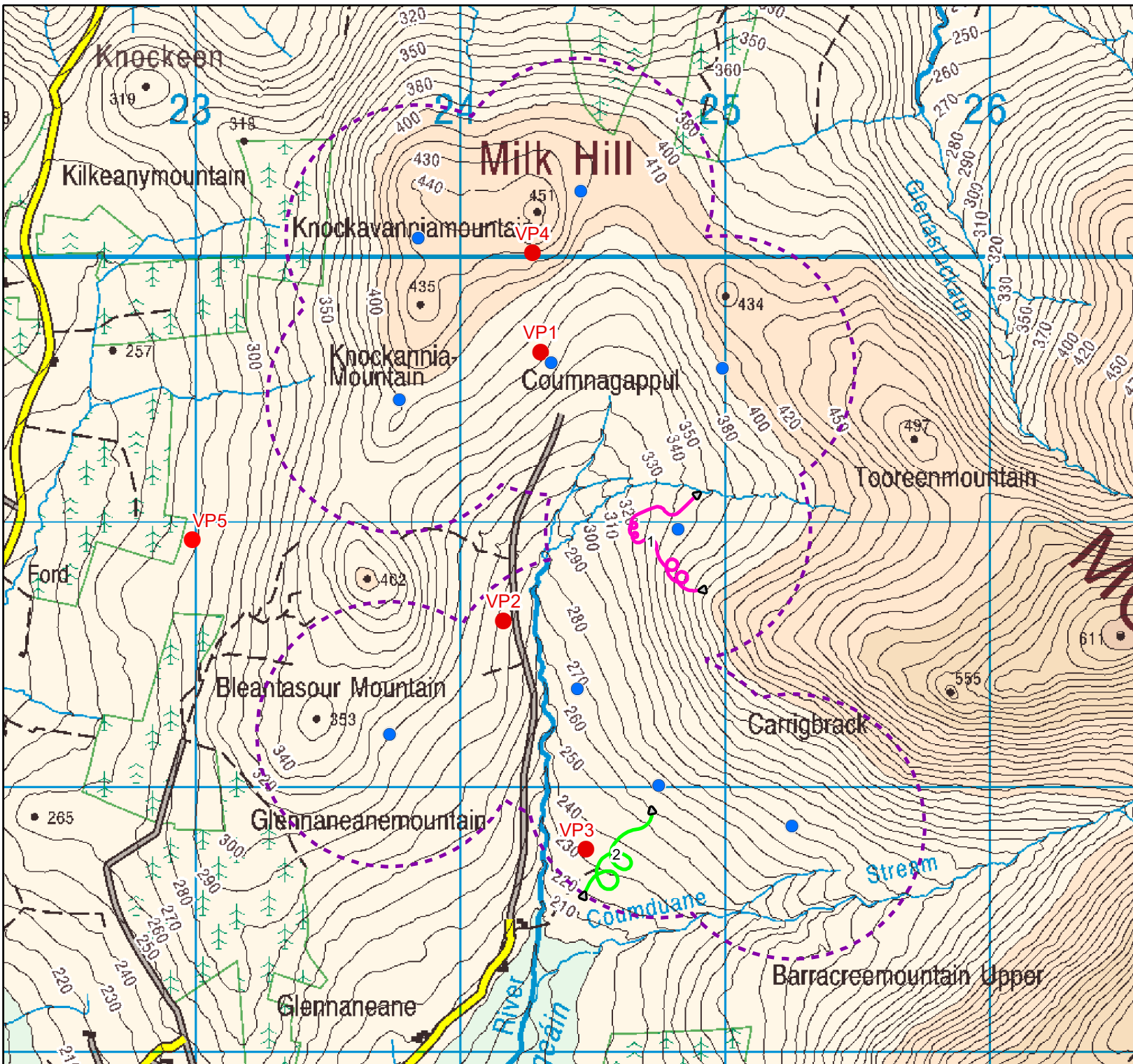
Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Sparrowhawk



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Sparrowhawk Flight Path

- ▶ 07/08/2019, 17:36, 1
- ▶ 16/08/2019, 14:35, 2

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CYAL50332198.

0 0.425 0.85 km

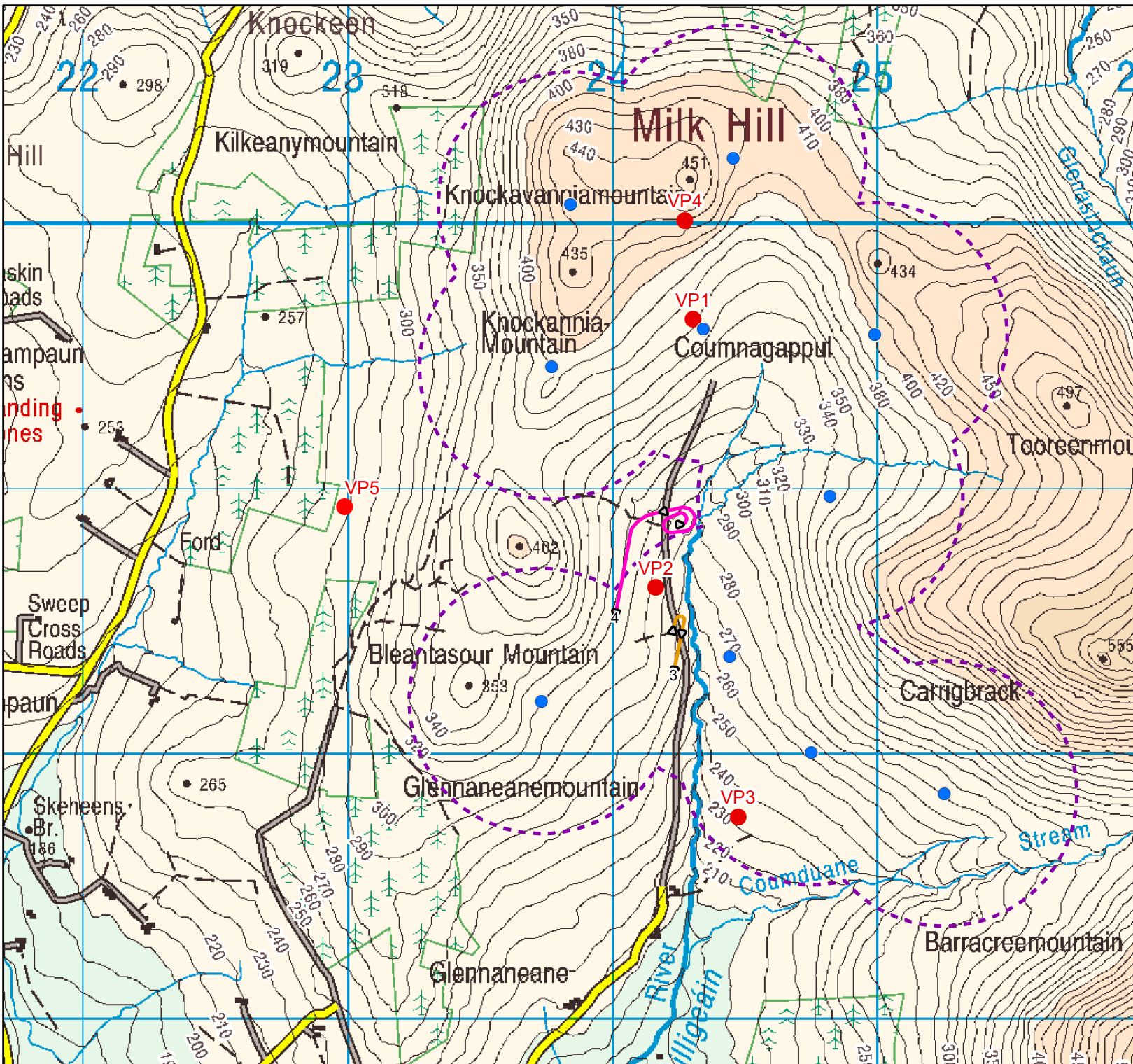
Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Sparrowhawk Flight Path

Date, Time, Ref no.

- ▶▶ 29/11/2019, 12:53, 3
- ▶▶ 12/01/2020, 12:18, 4

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0 0.4 0.8
km

Project Title:
20122 - Coumna gappul WF Bird Surveys

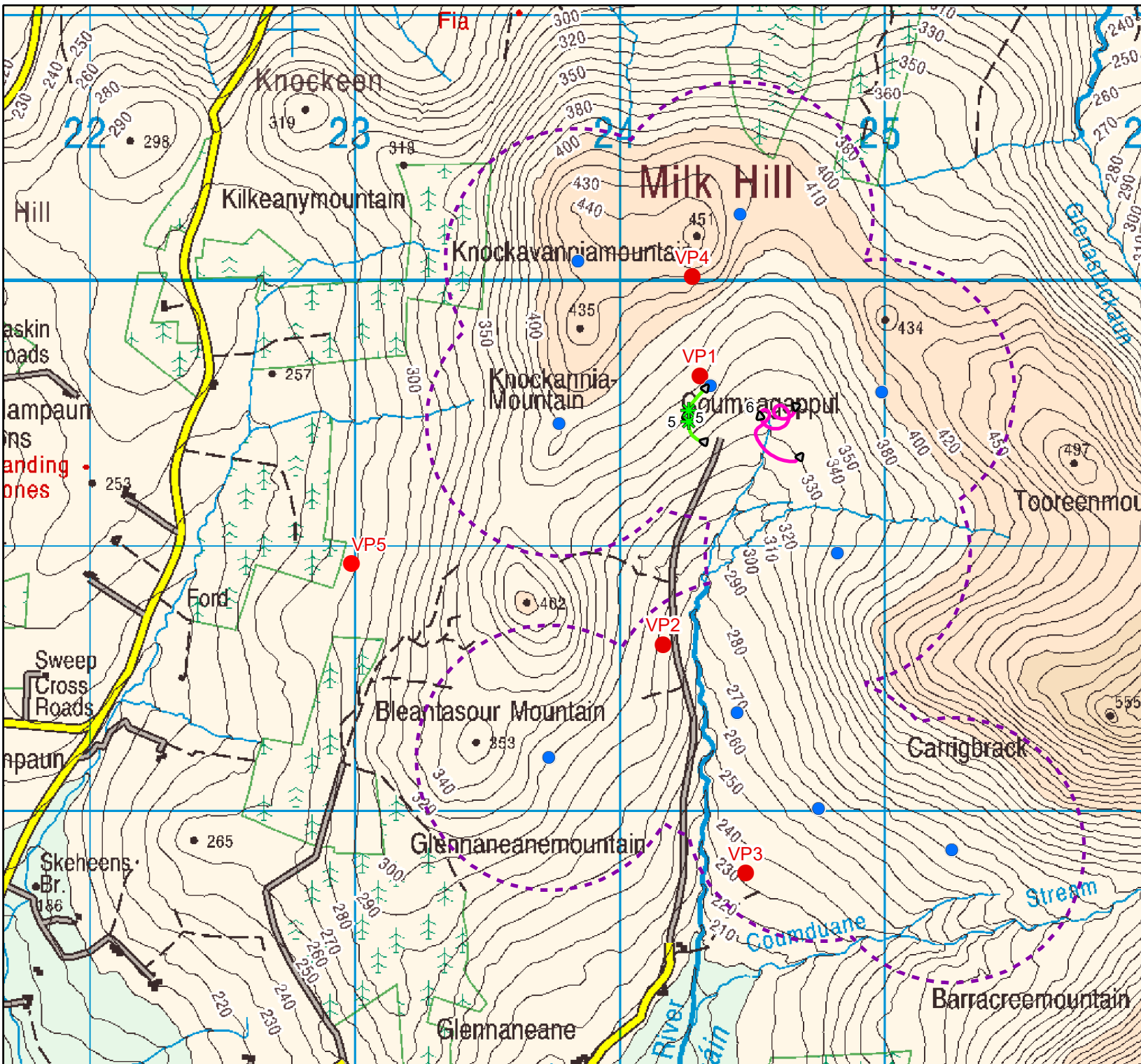
Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF **Checked:** FM

Date: 21/06/2023 **Scale (A4):** 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Sparrowhawk Perched
Date, Time, Ref No.

- ✱ 16/08/2020, 12:20, 5

Sparrowhawk Flight Path

- ▶ 16/08/2020, 12:20, 5
- ▶ 15/09/2020, 12:05, 6

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0 0.45 0.9 km

Project Title:
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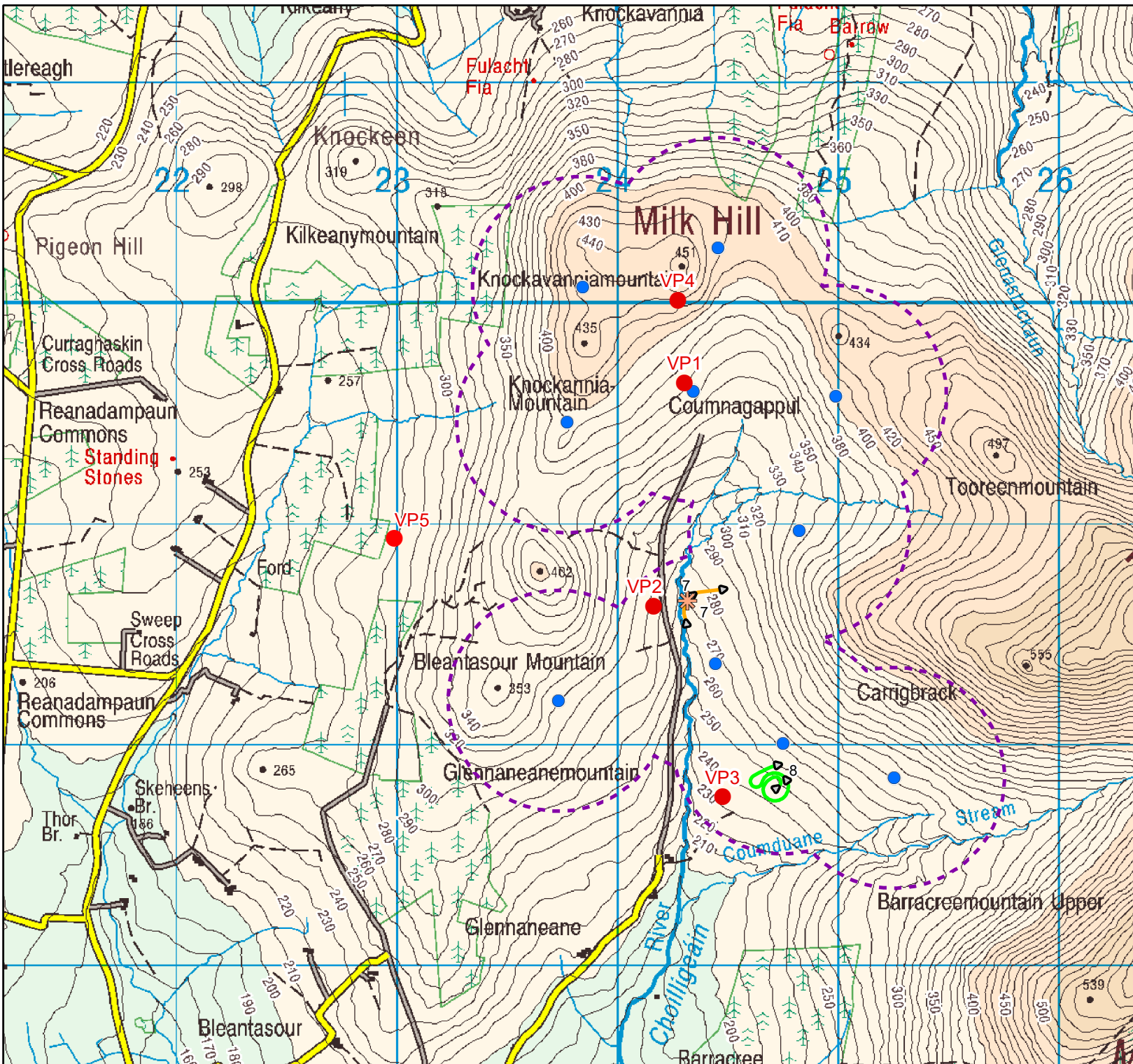
Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF	Checked: FM
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Date: 21/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- ⋯ 500m Turbine Buffer

Sparrowhawk Flight Path
Date, Time, Ref no.

- ▶▶▶ 12/10/2020, 11:55, 7
- ▶▶▶ 05/11/2020, 13:20, 8

Sparrowhawk Perched

- ✿ 12/10/2020, 11:55, 7

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0 0.5 1 km

Project Title:
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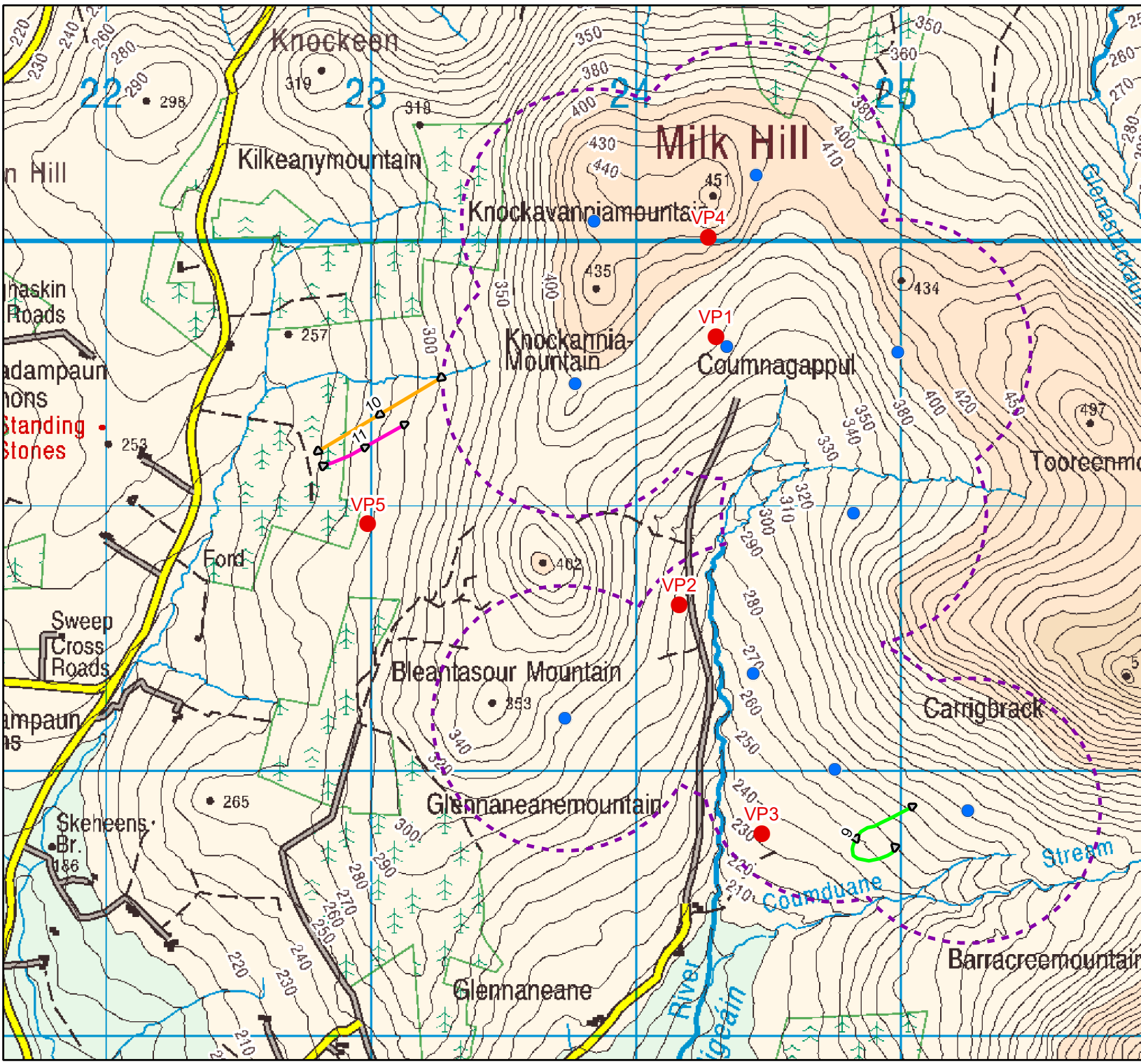
Client: EM - Power

Drawing Title:
Winter Bird Survey 2020 - 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:24,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Sparrowhawk Flight Path
Date, Time, Ref no.

- ▶▶▶ 12/01/2022, 14:15, 11
- ▶▶▶ 18/11/2021, 11:05, 10
- ▶▶▶ 30/10/2021, 13:31, 9

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0 0.4 0.8 km

Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

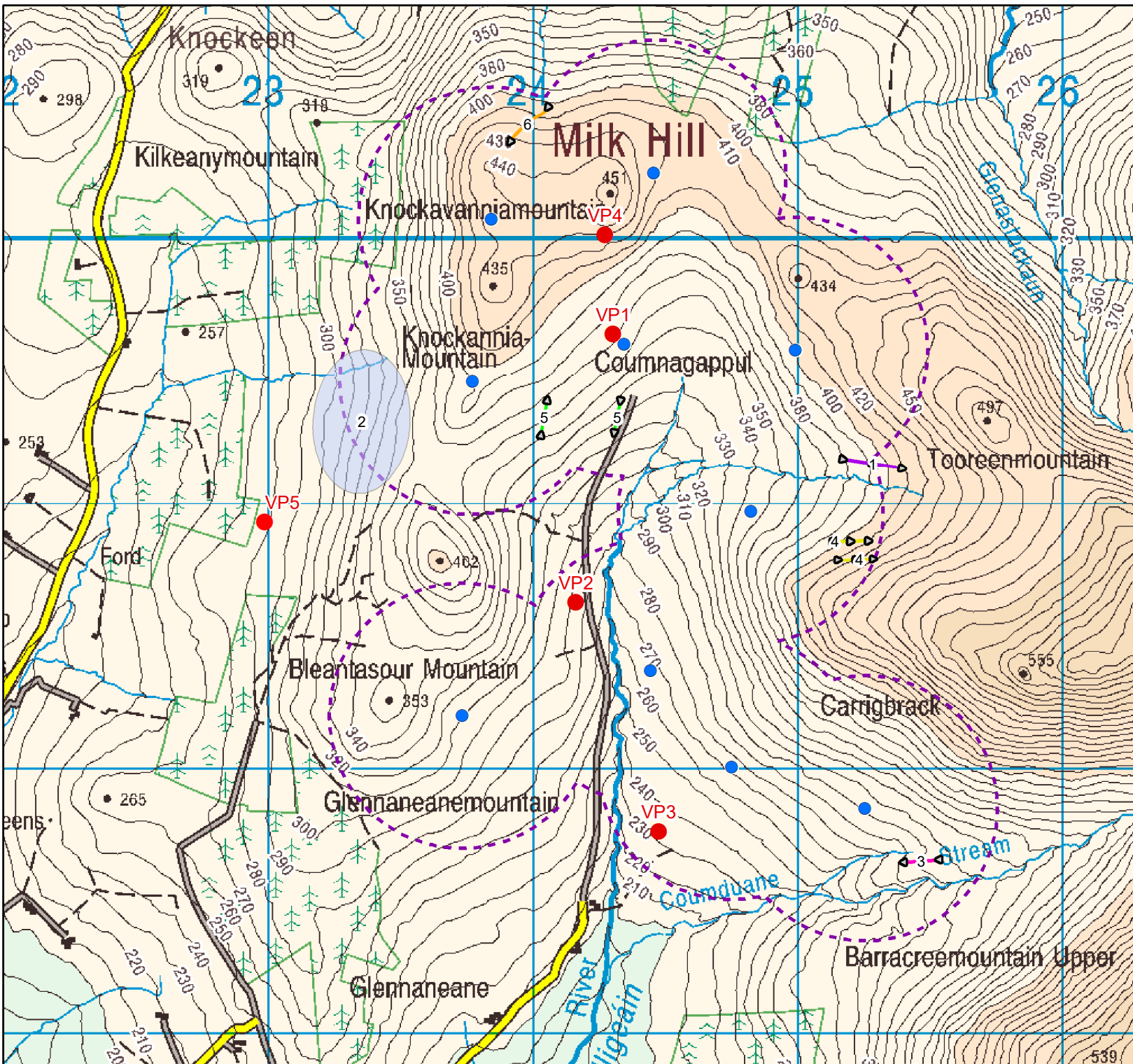
Drawing Title:
Winter Bird Survey 2021 - 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Golden plover



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Golden Plover Flight Path

Date, Time, Ref No.

- ▶▶ 21/10/2019, 10:50, 1
- ▶▶ 22/10/2019, 12:02, 3
- ▶▶ 23/10/2019, 10:35, 4
- ▶▶ 23/10/2019, 10:50, 5
- ▶▶ 14/02/2020, 13:40, 6

Golden Plover Activity

Date, Time, Ref No.

- 21/10/2019, 11:05, 2

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0 0.4 0.8 km

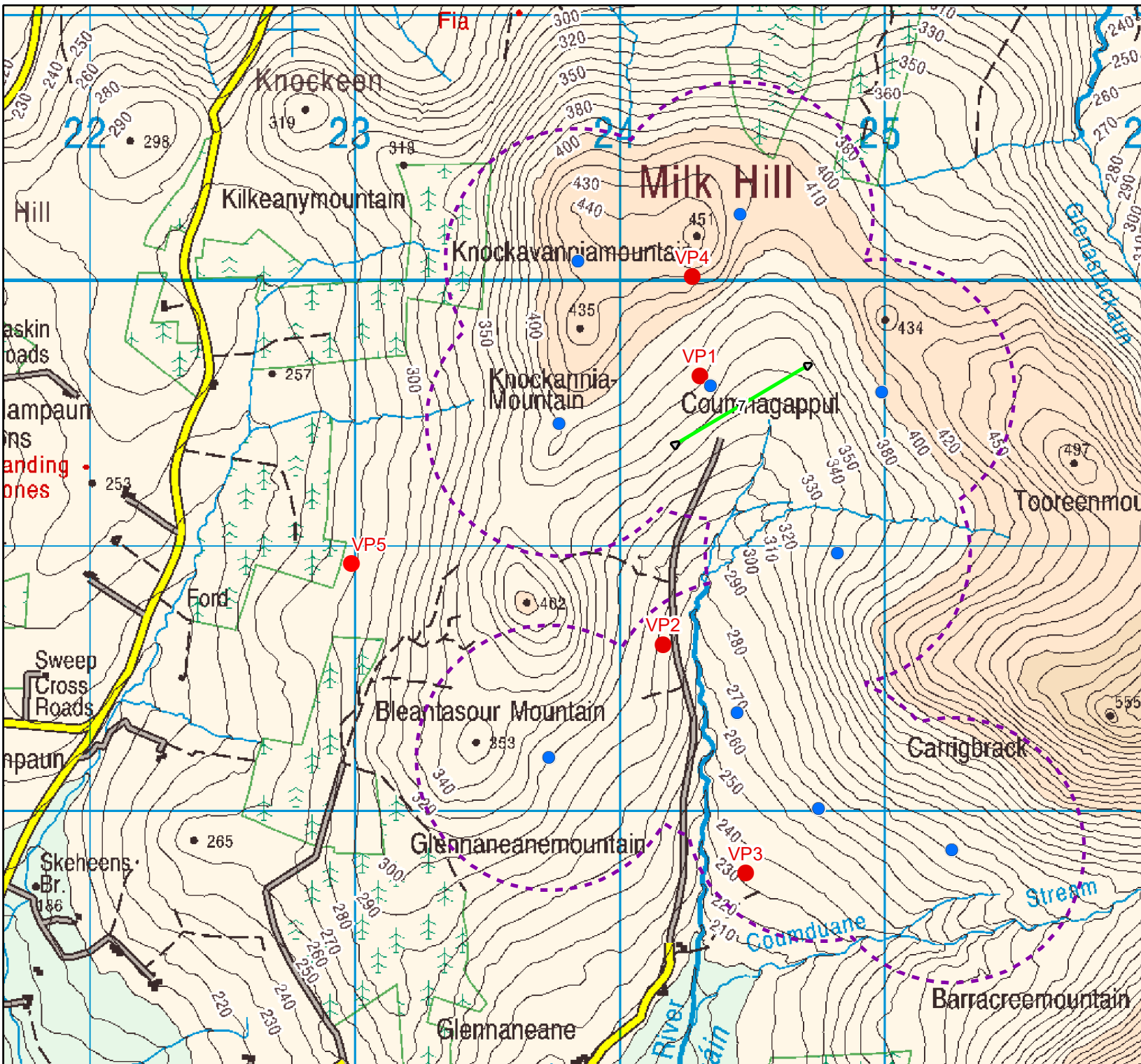
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Golden Plover Flight Path
Date, Time, Ref No.
▶ 23/04/2020, 15:05, 7

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0 0.45 0.9 km

Project Title:
 20122 - Coumduane WF Bird Surveys

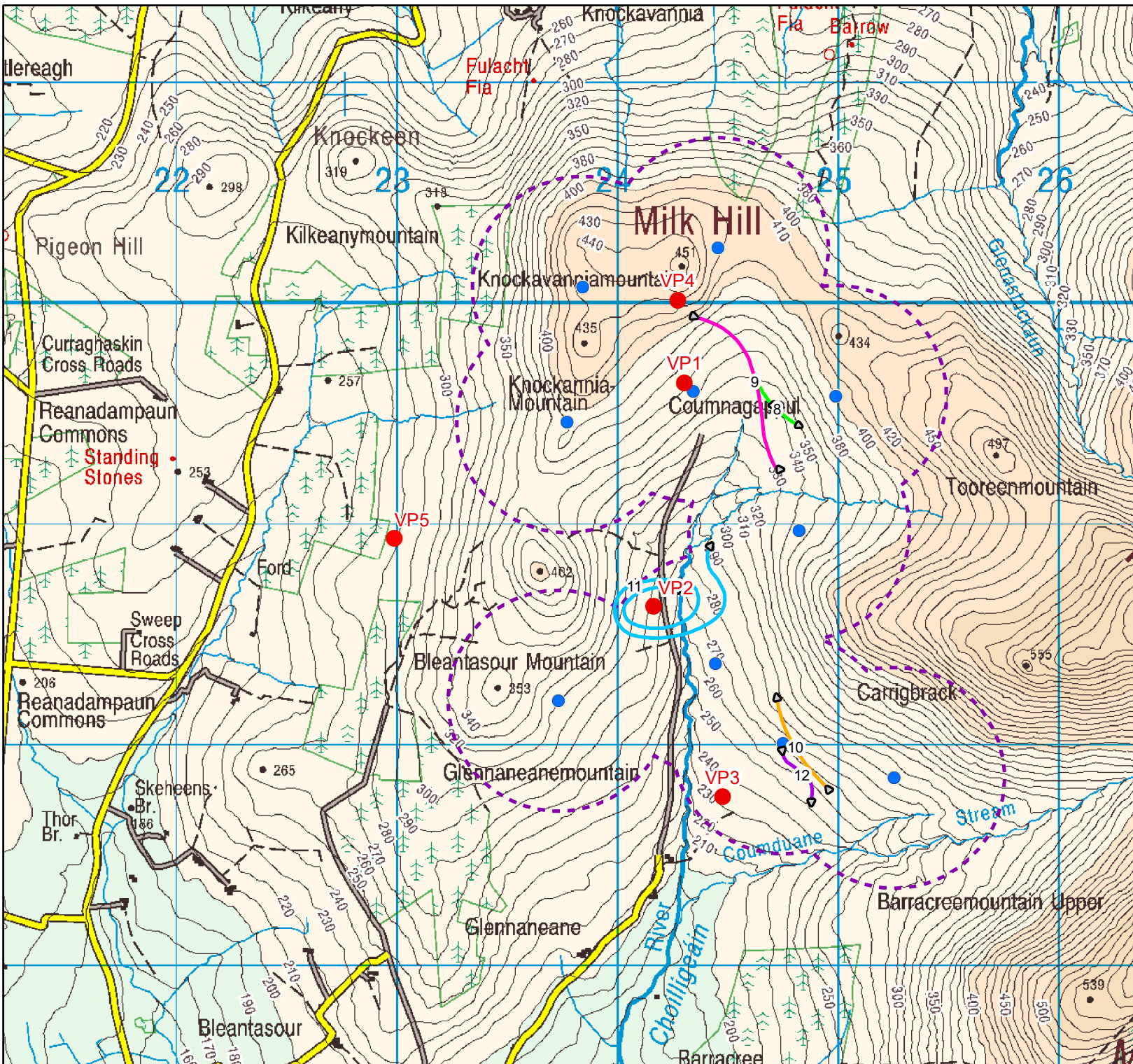
Client: EM - Power

Drawing Title:
 Summer Bird Survey 2020

Drawn: AF **Checked:** FM

Date: 22/06/2023 **Scale (A4):** 1:20,000





Legend


- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Golden Plover Flight Path
Date, Time, Ref no.

- ▶▶▶ 09/10/2020, 16:20, 8
- ▶▶▶ 10/10/2020, 12:10, 9
- ▶▶▶ 11/10/2020, 11:20, 10
- ▶▶▶ 11/10/2020, 16:15, 11
- ▶▶▶ 04/12/2020, 14:35, 12

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0 0.5 1 km



Project Title:
20122 - Coumna Gappul WF Bird Surveys

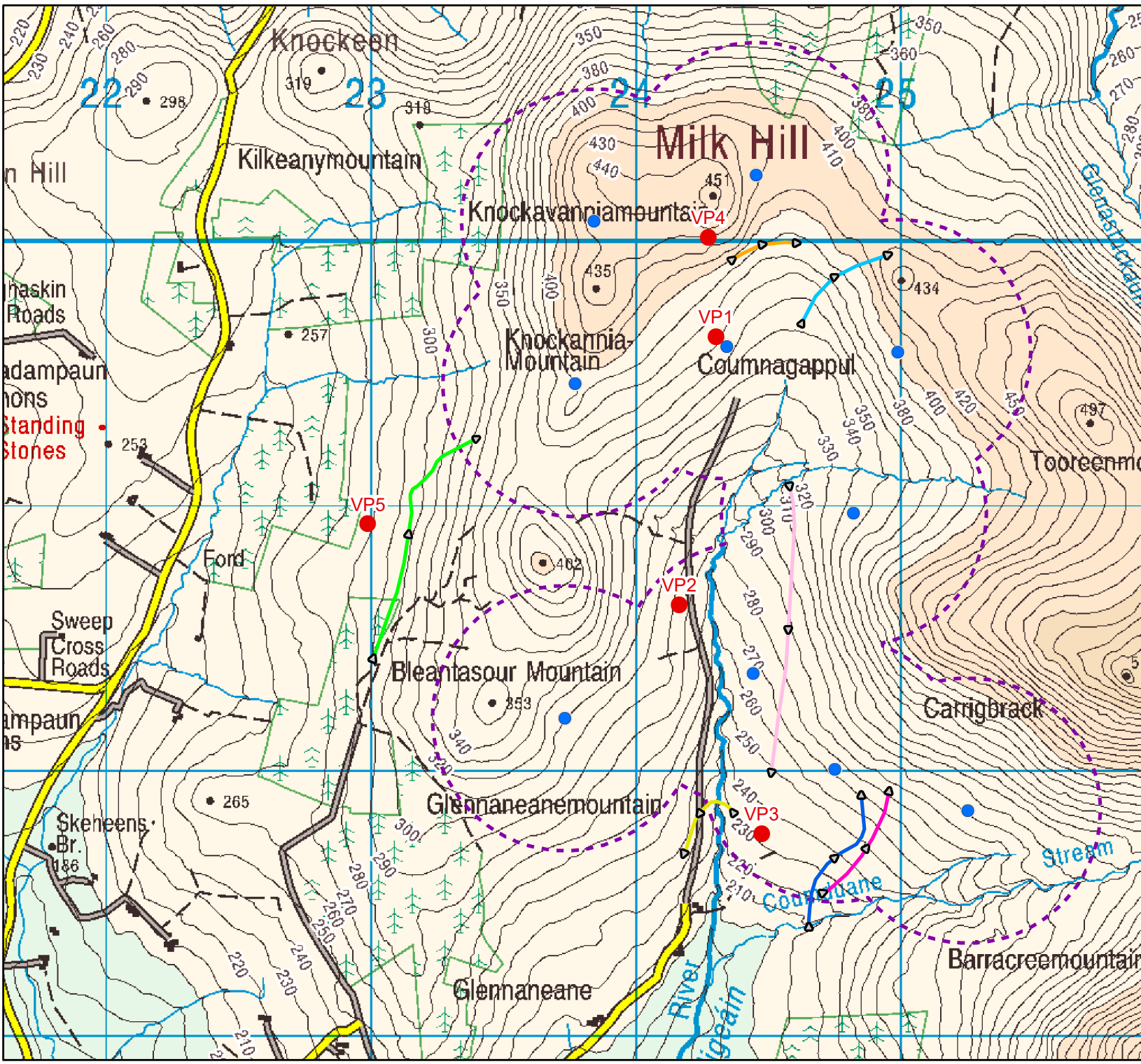
Client: EM - Power

Drawing Title:
Winter Bird Survey 2020 - 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:24,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Golden Plover Flight Path

- ▶▶▶▶▶ 30/10/2021, 10:10, 13
- ▶▶▶▶▶ 15/11/2021, 12:40, 14
- ▶▶▶▶▶ 17/11/2021, 11:20, 15
- ▶▶▶▶▶ 04/03/2022, 12:55, 16
- ▶▶▶▶▶ 05/03/2022, 14:35, 17
- ▶▶▶▶▶ 06/03/2022, 09:35, 18
- ▶▶▶▶▶ 07/03/2022, 12:15, 19

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0 0.4 0.8 km

Project Title:
 20122 - Coumragappul WF Bird Surveys

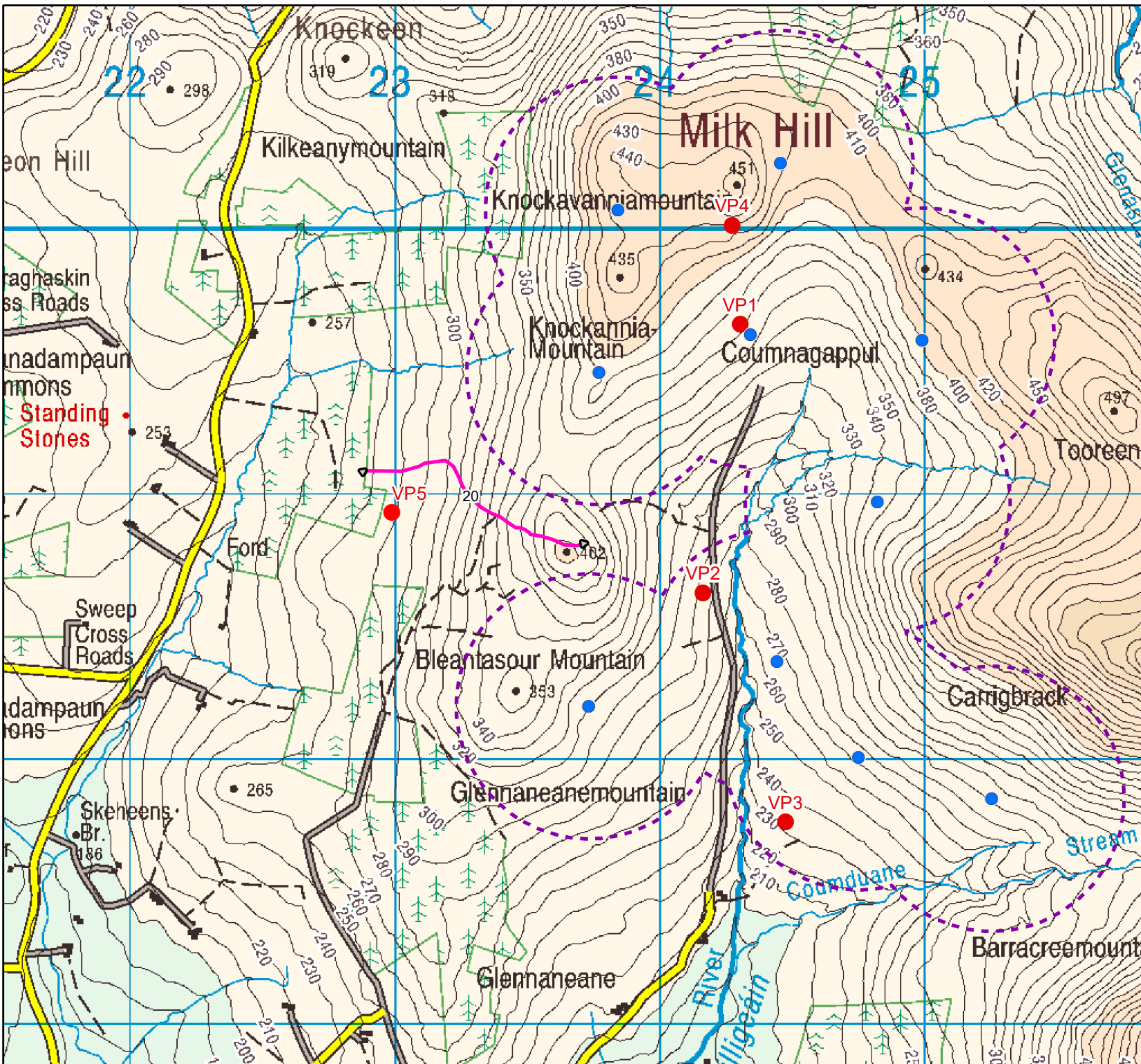
Client: EM - Power

Drawing Title:
 Winter Bird Survey 2021 - 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Golden Plover
Date, Time, Ref No.

▶ 05/04/2022, 14:40, 20

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0 0.4 0.8
km

Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

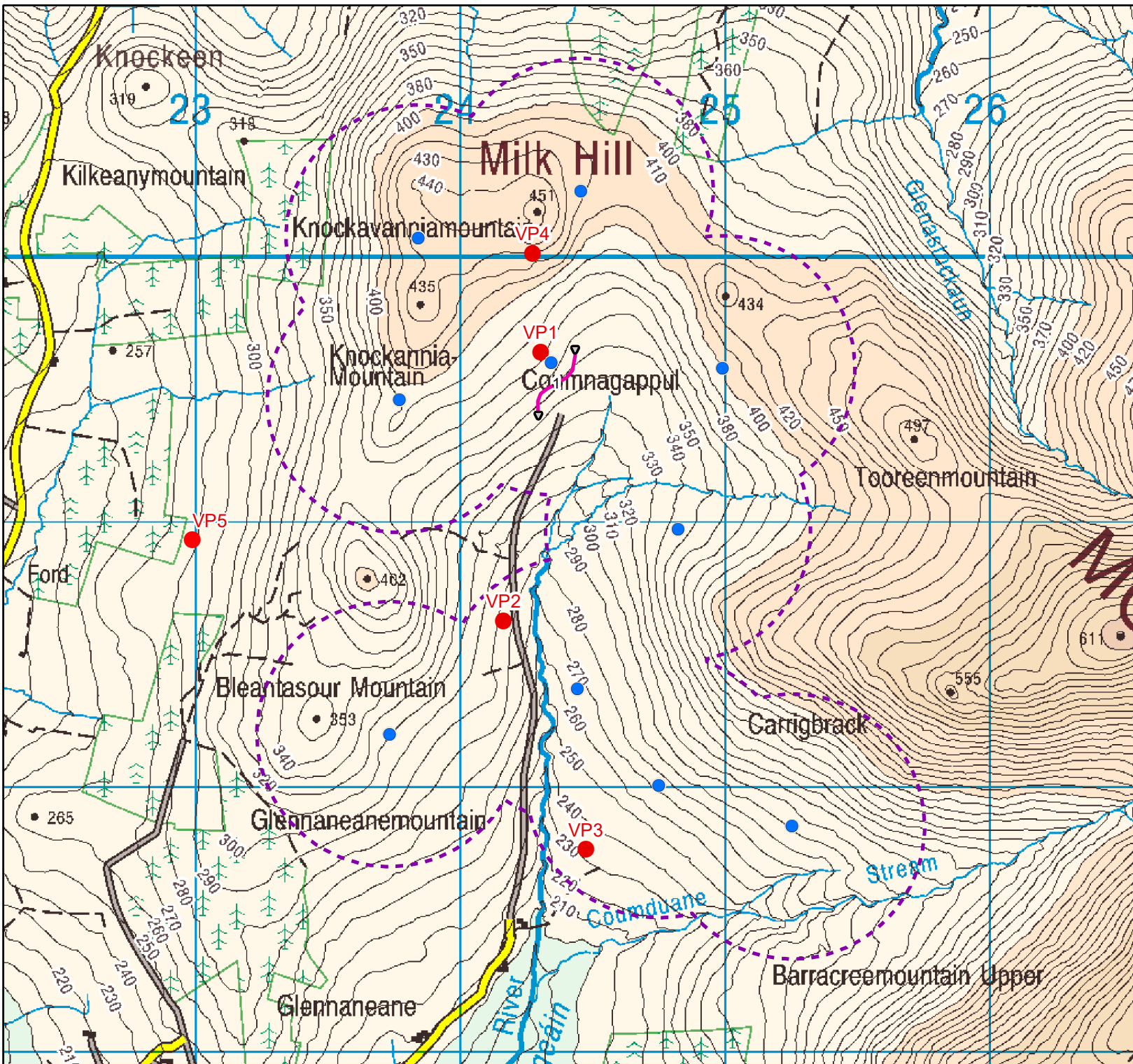
Drawing Title:
Summer Bird Survey 2022

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Snipe



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Snipe Flight Path

Date, Time, Ref No.

▶◀▶ 07/08/2019, 10:04, 1

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0 0.425 0.85 km

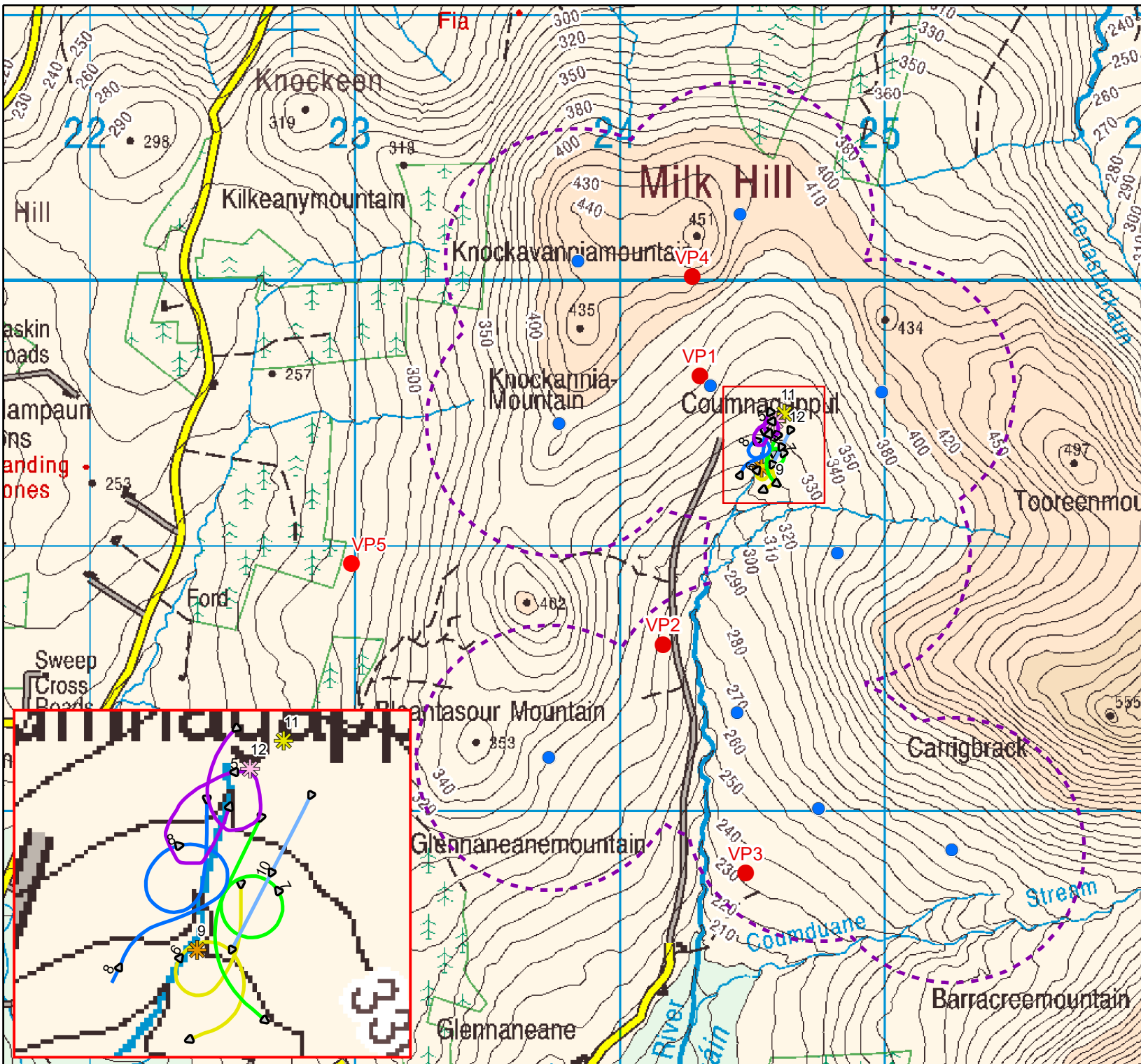
Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- - - 500m Turbine Buffer

Snipe Flight Path

Date, Time, Ref no.

- ▶▶▶ 24/04/2020, 09:50, 5
- ▶▶▶ 24/04/2020, 15:25, 6
- ▶▶▶ 25/04/2020, 13:20, 7
- ▶▶▶ 12/05/2020, 10:25, 8
- ▶▶▶ 10/06/2020, 10:25, 10


Snipe on Ground

Date, Time, Ref no.

- ★ 15/05/2020, 14:35, 9
- ★ 11/06/2020, 13:10, 11
- ★ 12/06/2020, Unknown, 12

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0 0.45 0.9 km



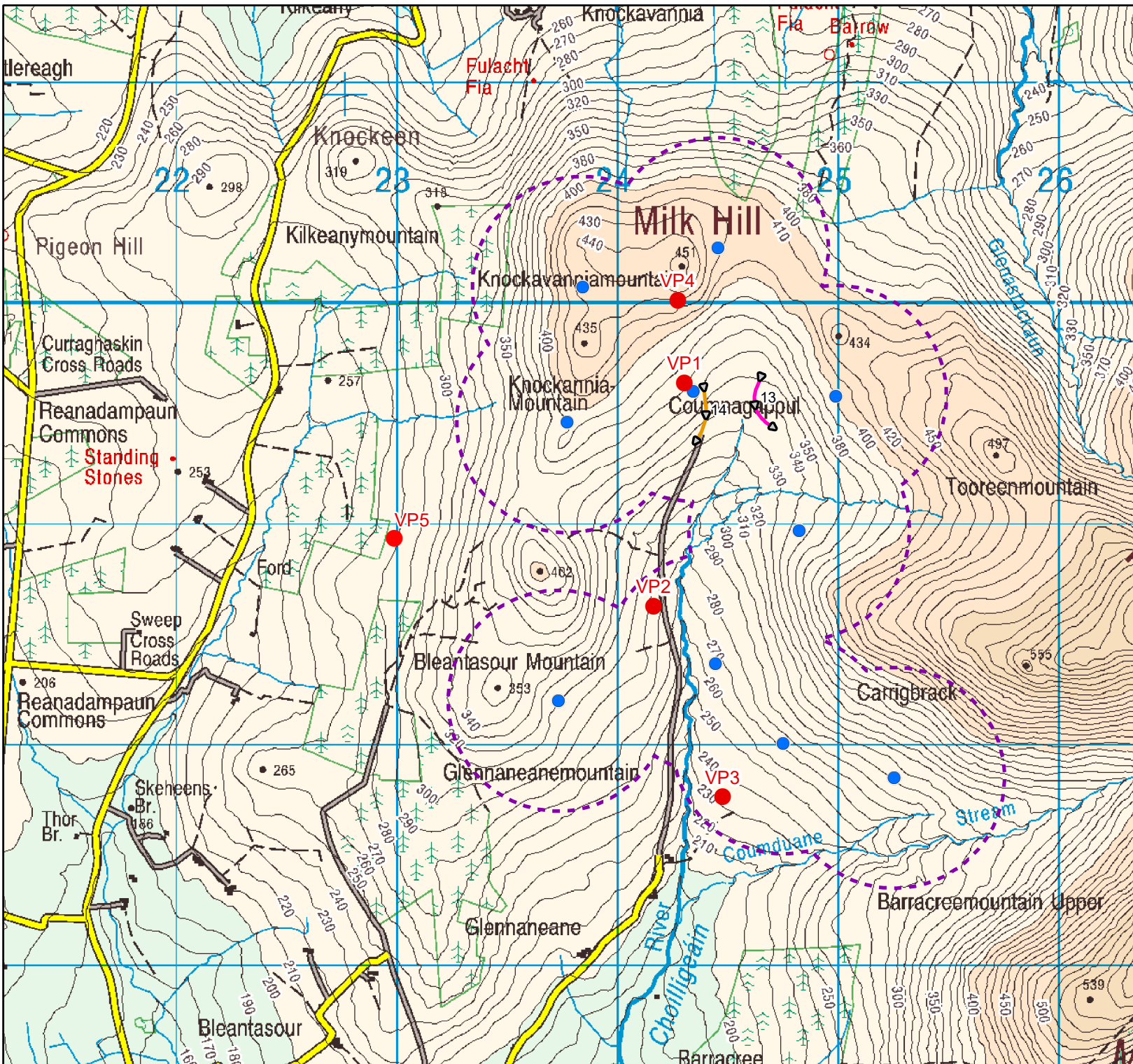
Project Title:
20122 - Coumna Gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF	Checked: FM
Date: 21/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Snipe Flight Path
Date, Time, Ref no.

- ◀▶ 09/10/2020, 16:10, 13
- ◀▶ 22/01/2021, 09:33, 14

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0 0.5 1 km

Project Title:
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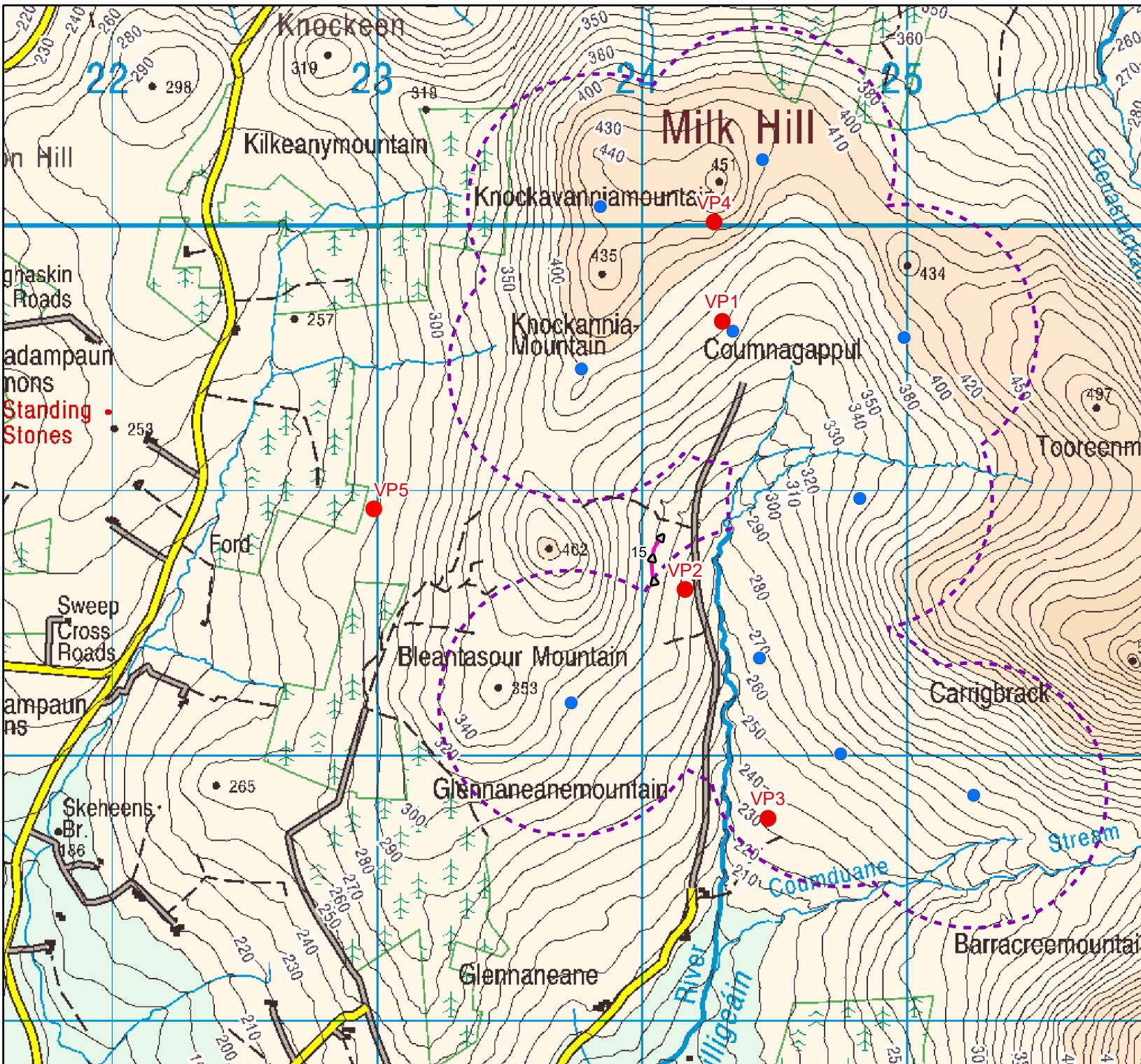
Client: EM - Power

Drawing Title:
Winter Bird Survey 2020 - 2021

Drawn: AF **Checked:** FM

Date: 26/06/2023 **Scale (A4):** 1:24,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Snipe Flight Path

Date, Time, Ref no.

▶ ▶ ▶ 27/04/2021, 14:01, 15

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0 0.4 0.8
km

Project Title:
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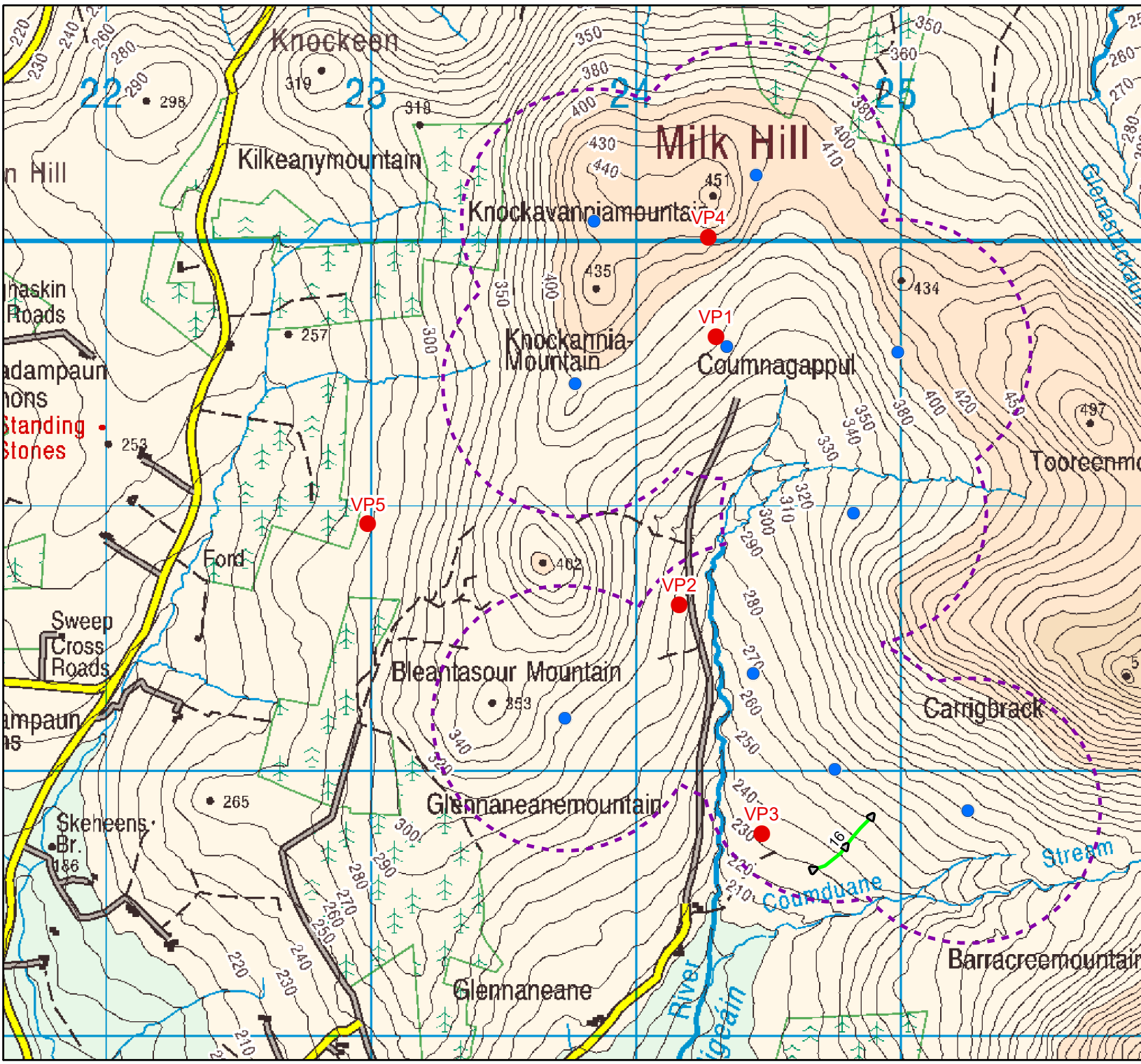
Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Snipe Flight Path
Date, Time, Ref no.
 ◀▶ 05/12/2021, 10:55, 16

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0 0.4 0.8 km

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Client: EM - Power

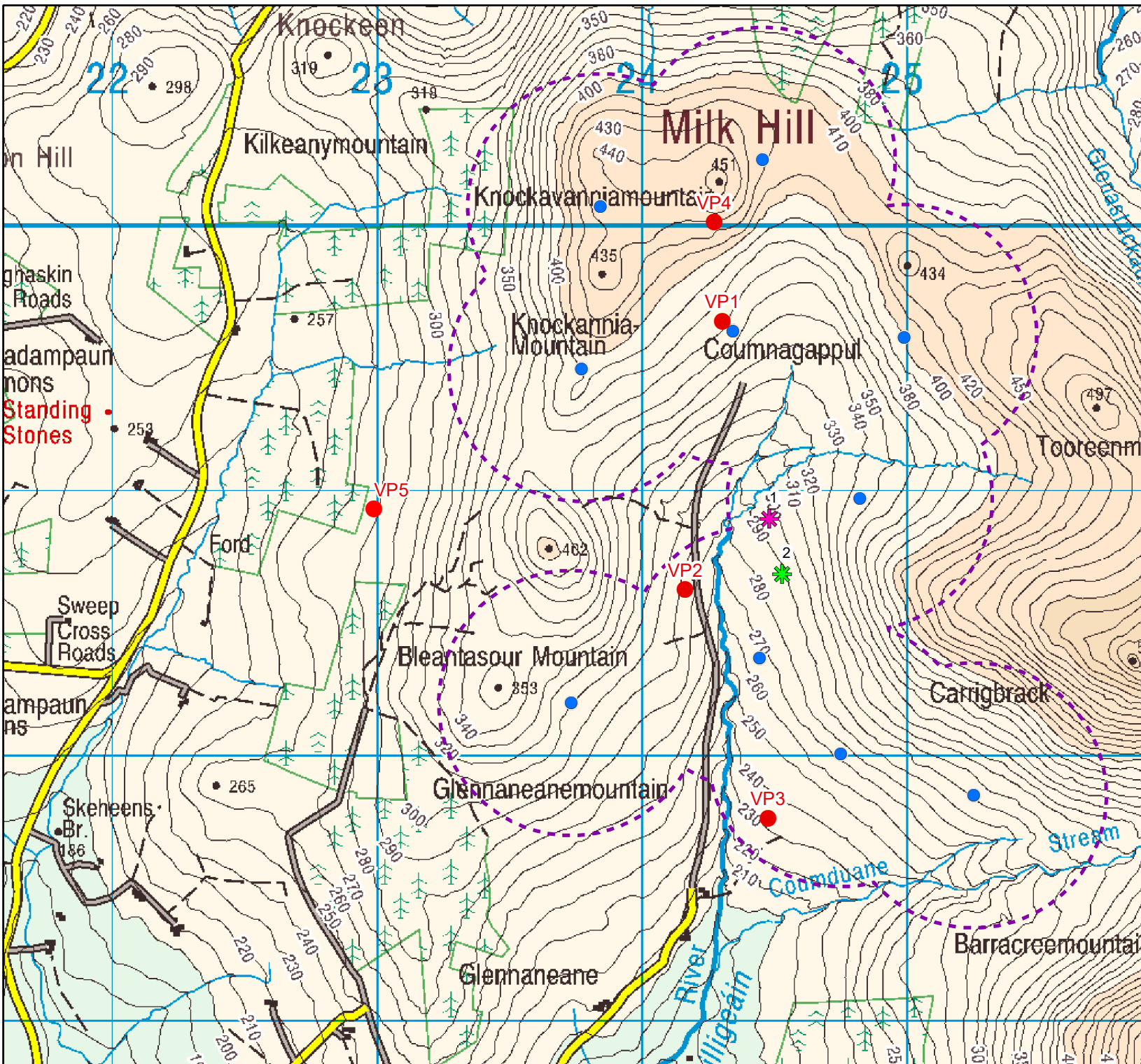
Drawing Title:
 Winter Bird Survey 2021 - 2022

Drawn: AF **Checked:** FM

Date: 26/06/2023 **Scale (A4):** 1:20,000



Red grouse



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Red Grouse Calling

Date, Time, Ref no.

- ✱ 27/04/2021, 14:55, 1
- ✱ 16/06/2021, 16:30, 2

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0 0.4 0.8
km

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Client: EM - Power

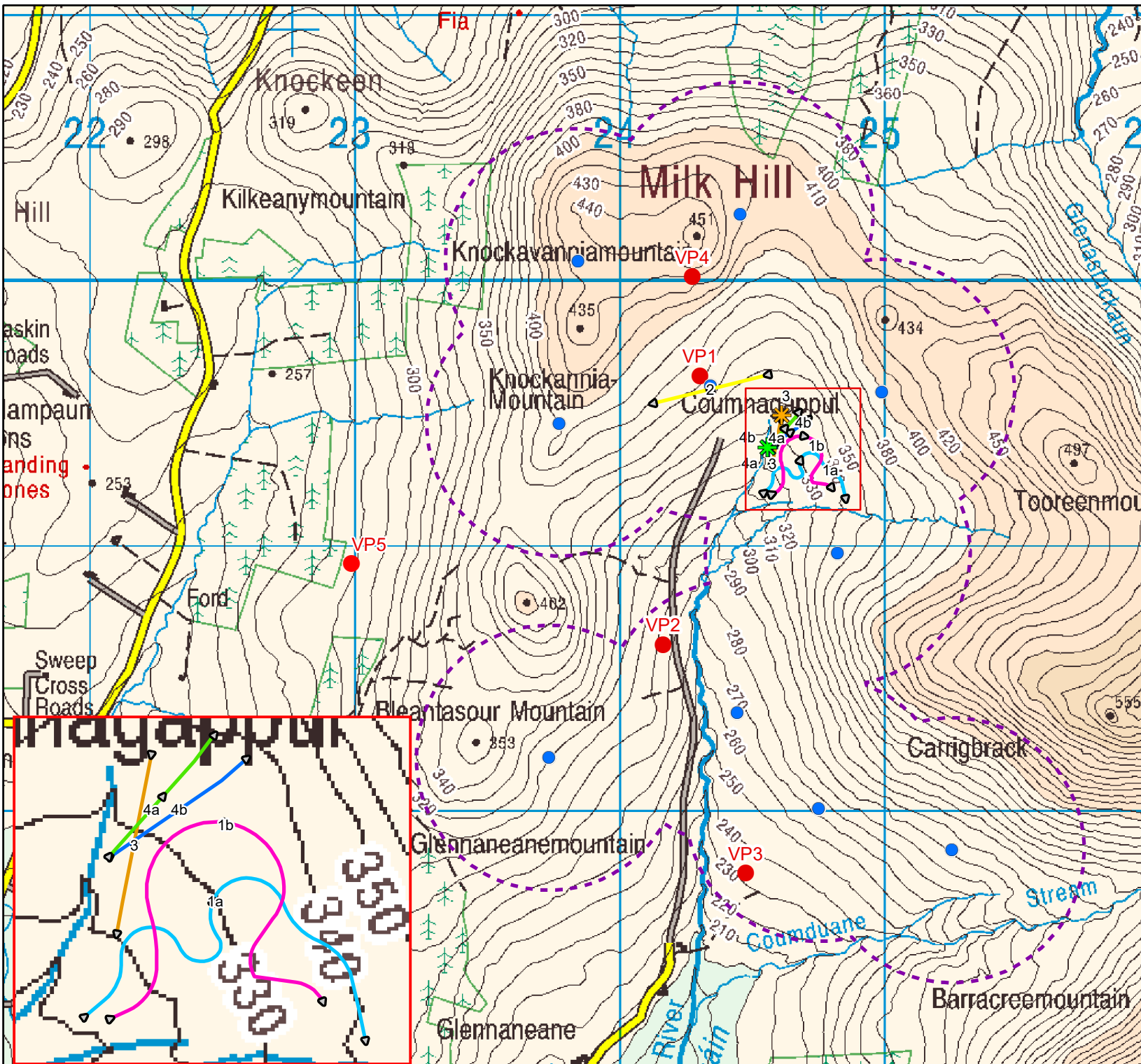
Drawing Title:
Summer Bird Survey 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Great black-backed gull (GBBG)



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

GBBG Flight Path

- ▶▶▶ 13/07/2020, 14:30, 1a
- ▶▶▶ 10/06/2020, 12:07, 1b
- ▶▶▶ 13/07/2020, 15:30, 2
- ▶▶▶ 14/07/2020, 09:25, 3
- ▶▶▶ 14/07/2020, 09:25, 4a
- ▶▶▶ 14/07/2020, 09:25, 4b

GBBG on Ground

- ✱ 14/07/2020, 09:25, 3
- ✱ 14/07/2020, 09:25, 4a
- ✱ 14/07/2020, 09:25, 4b

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0 0.45 0.9 km

Project Title:
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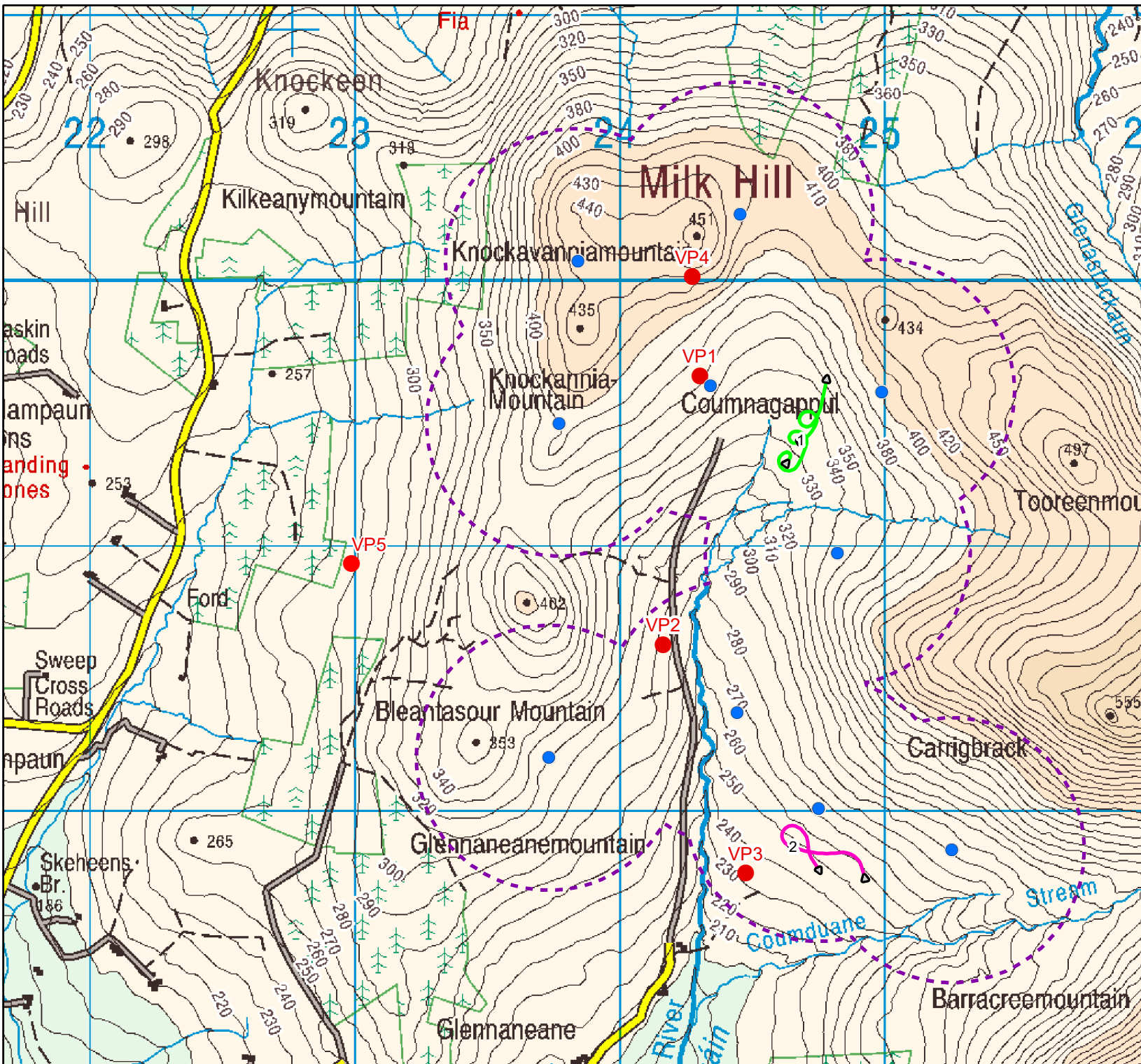
Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF	Checked: FM
Date: 22/06/2023	Scale (A4): 1:20,000



Herring gull



Legend


- Vantage Point
- Turbine Location
- - - 500m Turbine Buffer

Herring Gull Flight Path
Date, Time, Ref No.

- 08/06/2020, 13:10, 1
- 11/06/2020, 10:12, 2

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0 0.45 0.9 km



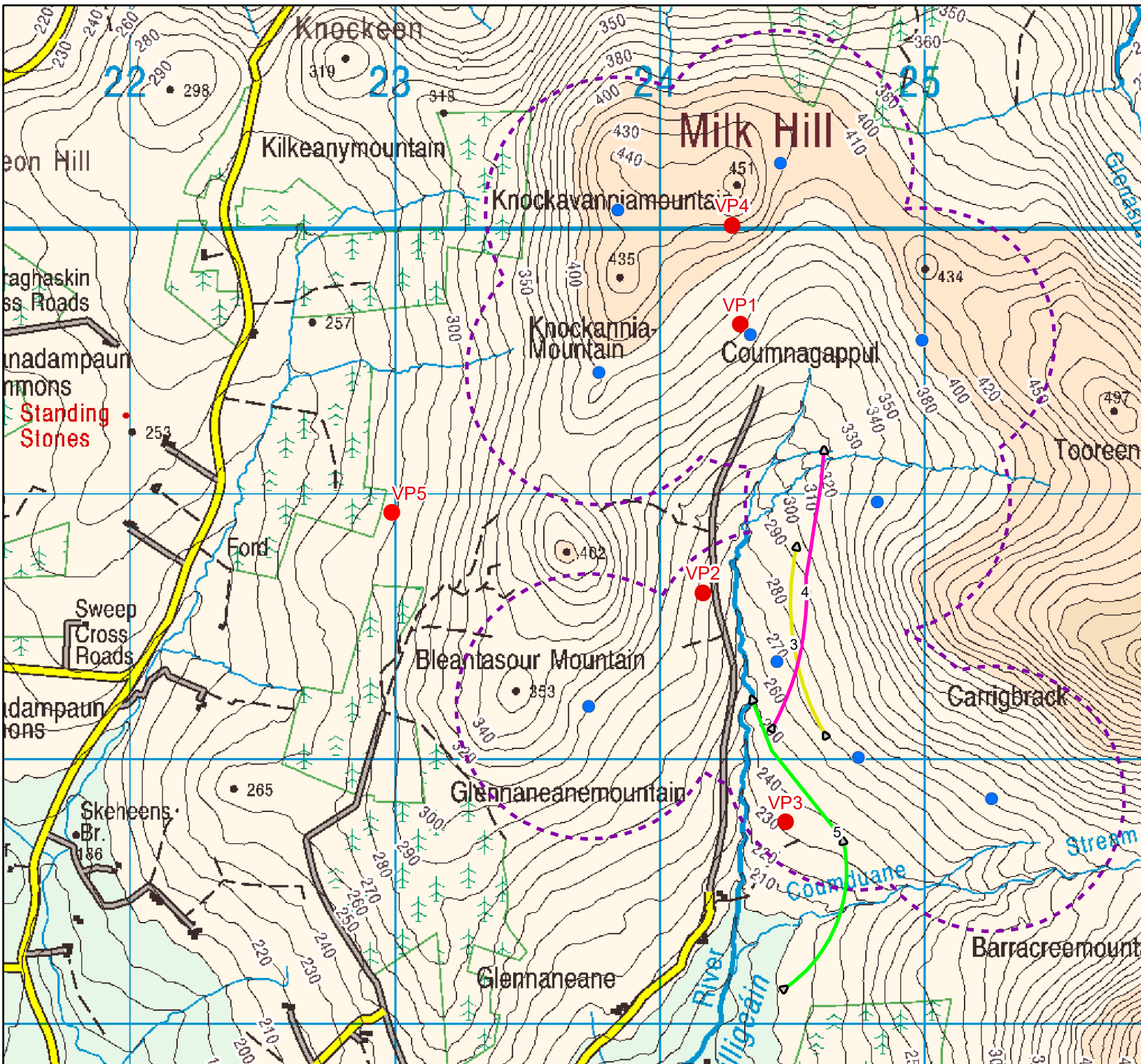
Project Title:
 20122 - Coumna Gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
 Summer Bird Survey 2020

Drawn: AF	Checked: FM
Date: 22/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Herring Gull

Date, Time, Ref No.

- ▶▶▶ 05/07/2022, 11:25, 3
- ▶▶▶ 06/07/2022, 14:15, 4
- ▶▶▶ 15/08/2022, 14:20, 5

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0 0.4 0.8 km

Project Title:
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Client: EM - Power

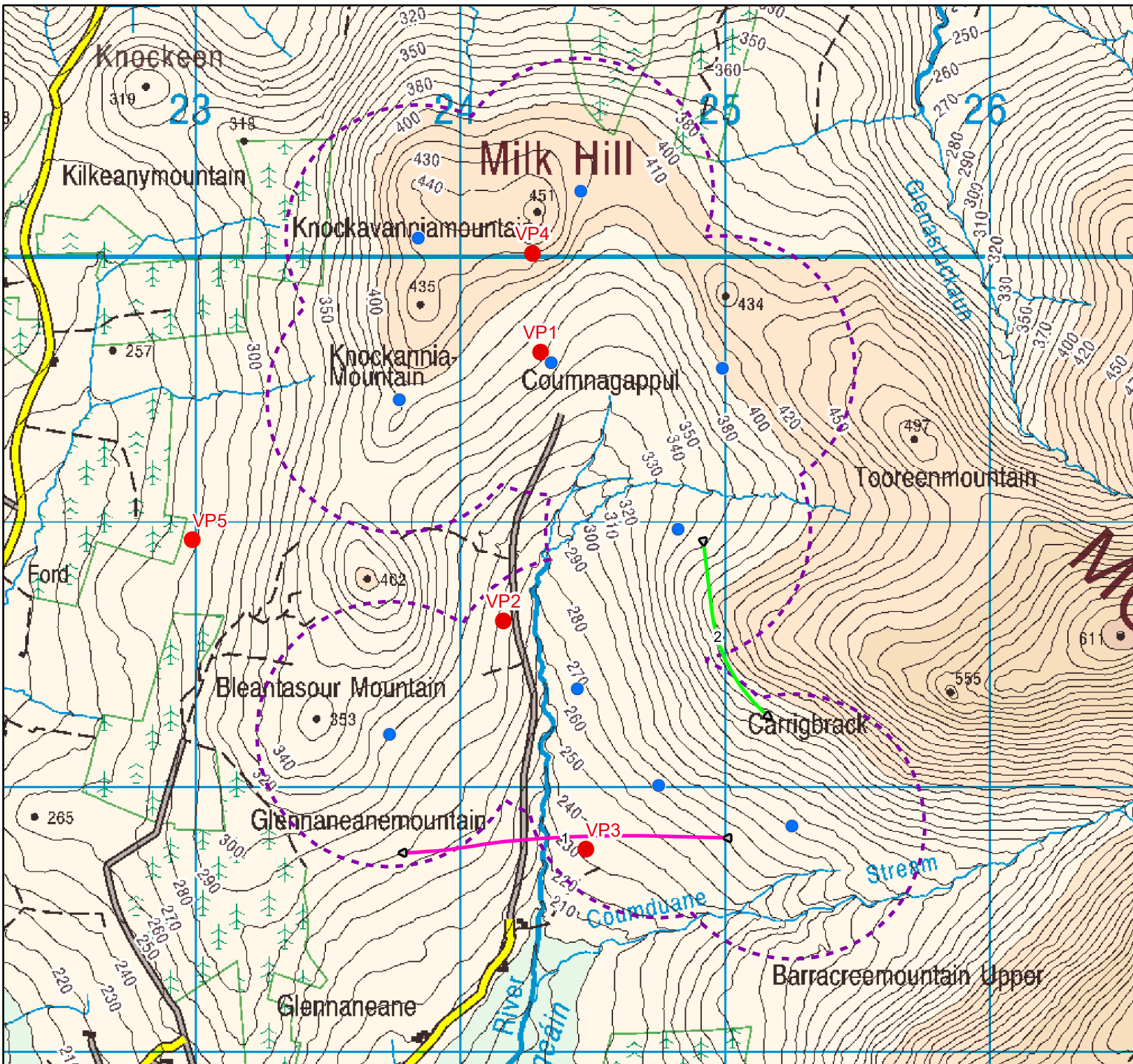
Drawing Title:
Summer Bird Survey 2022

Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000



Lesser black-backed gull



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Lesser Black-backed Gull Flight Path

Date, Time, Ref No.

- ▶▶▶ 09/04/2019, 17:53, 1
- ▶▶▶ 06/08/2019, 18:37, 2

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0 0.425 0.85 km

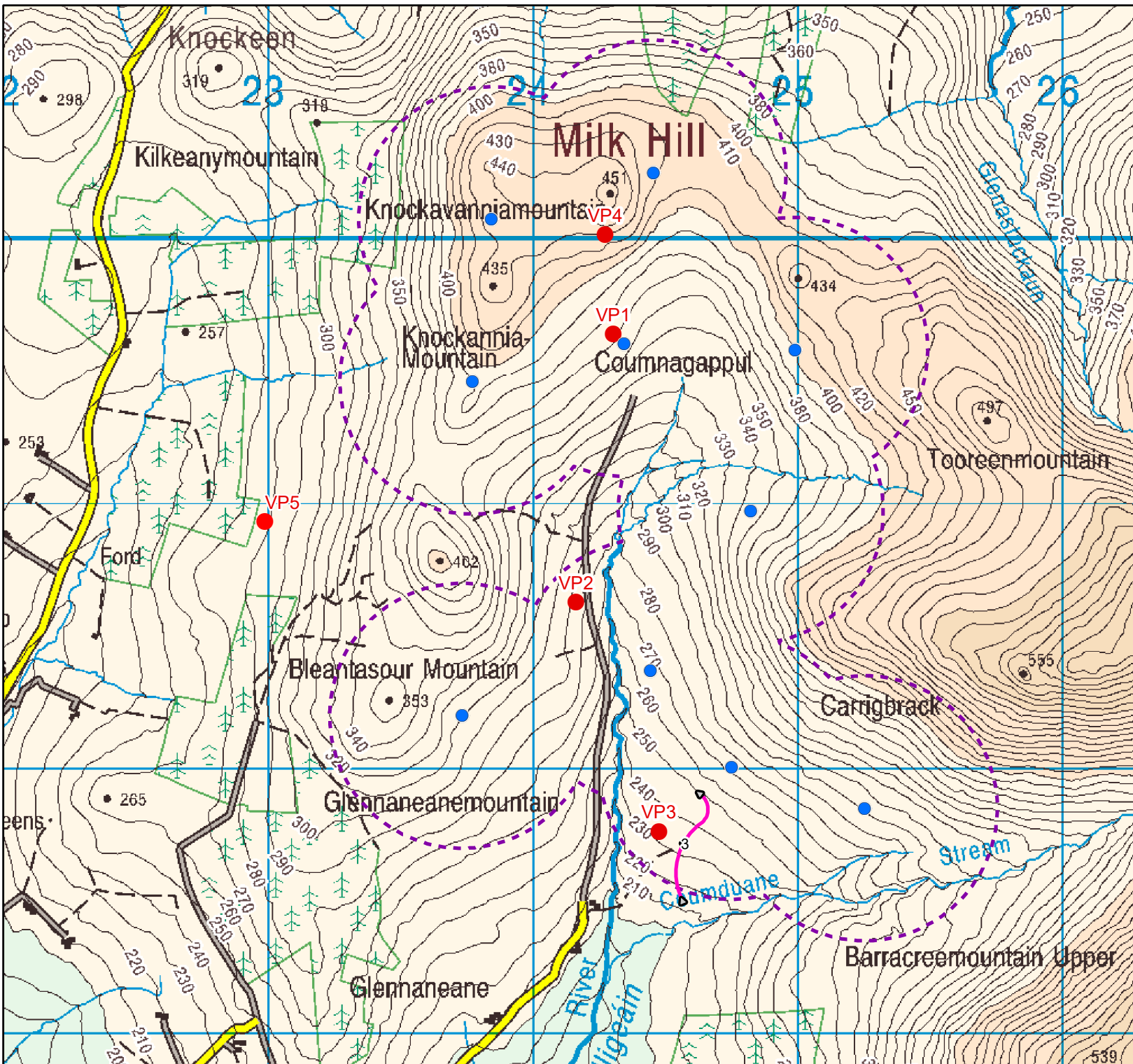
Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2019

Drawn: AF	Checked: FM
Date: 20/06/2023	Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Lesser Black-backed Gull Flight Path

Date, Time, Ref no.

▶ ▶ 16/03/2020, 11:25, 3

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0 0.4 0.8 km

Project Title:
20122 - Coumduane WF Bird Surveys

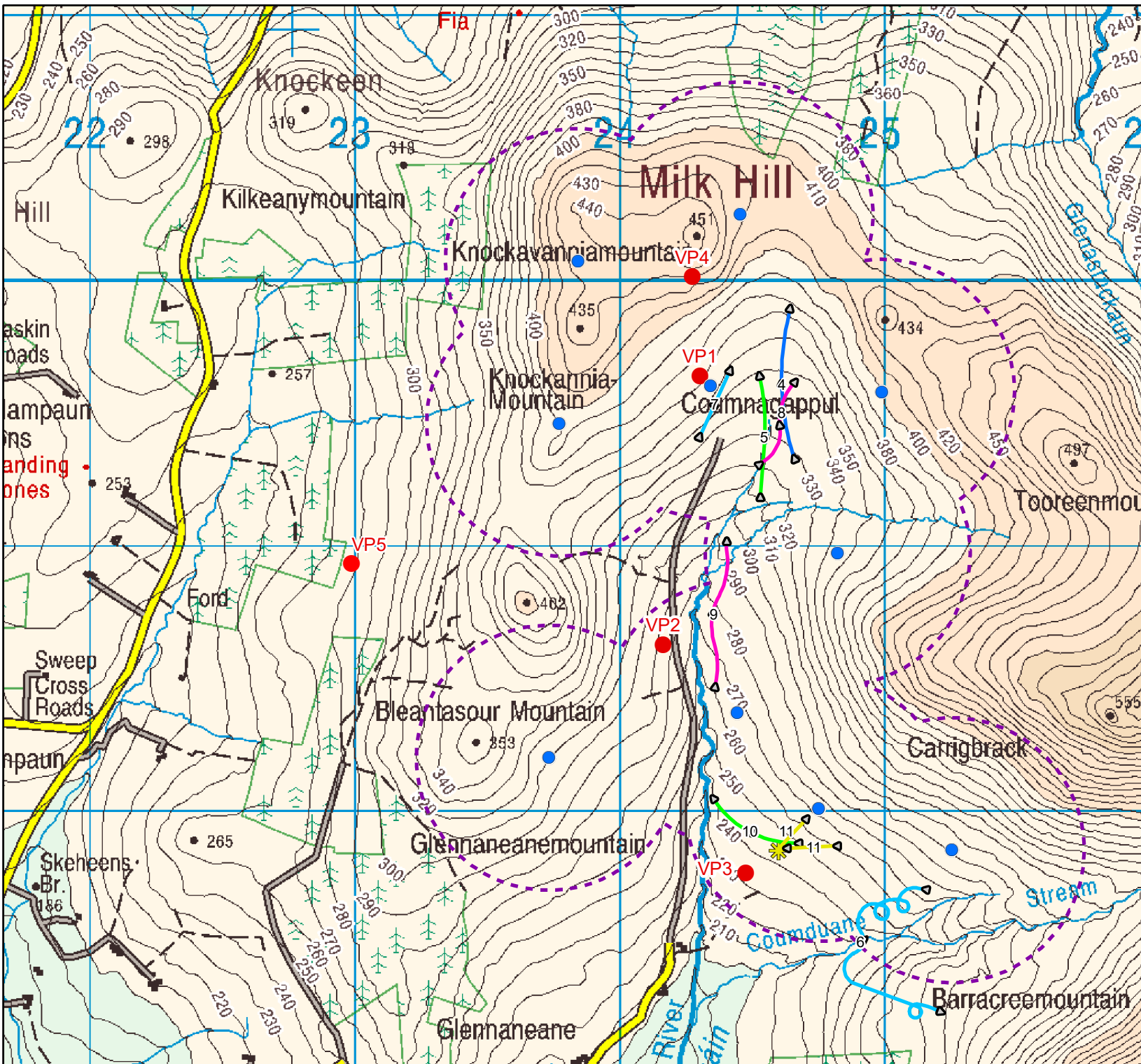
Client: EM - Power

Drawing Title:
Winter Bird Survey 2019 - 2020

Drawn: AF Checked: FM

Date: 21/06/2023 Scale (A4): 1:20,000






- Legend**
- Vantage Point
 - Turbine Location
 - - - 500m Turbine Buffer
- Lesser Black-backed Gull Flight Path**
- Date, Time, Ref no.*
- ▶▶▶ 11/05/2020, 12:05, 4
 - ▶▶▶ 11/05/2020, 15:25, 5
 - ▶▶▶ 15/05/2020, 10:31, 6
 - ▶▶▶ 15/05/2020, 13:33, 7
 - ▶▶▶ 11/06/2020, 14:45, 8
 - ▶▶▶ 13/06/2020, 11:05, 9
 - ▶▶▶ 18/07/2020, 14:40, 10
 - ▶▶▶ 17/08/2020, 11:05, 11
- Lesser Black-backed Gull Perched**
- Date, Time, Ref no.*
- ★ 17/08/2020, 11:05, 11

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0 0.45 0.9 km



Project Title:
20122 - Coumduane WF Bird Surveys

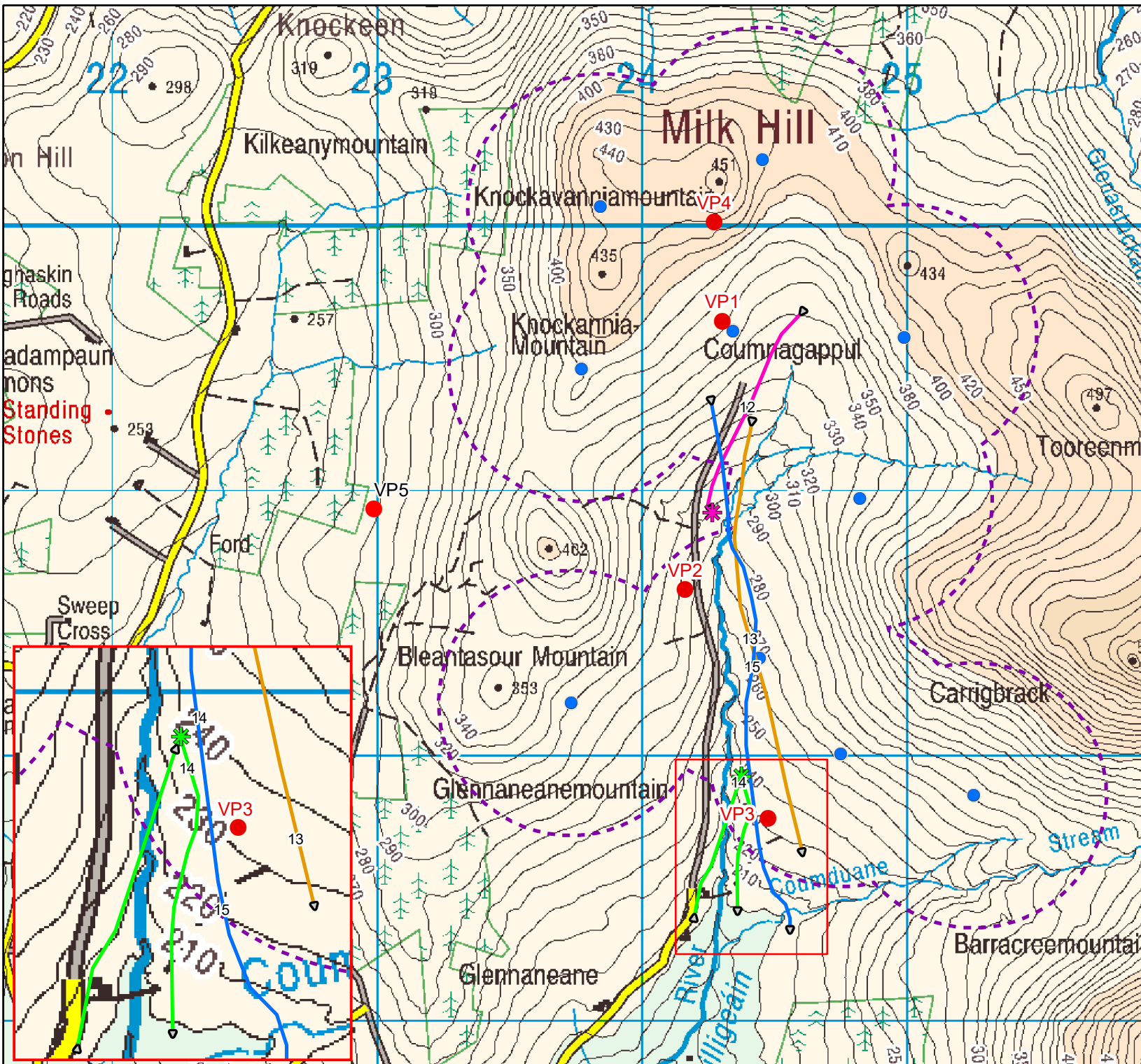
Client: EM - Power

Drawing Title:
Summer Bird Survey 2020

Drawn: AF Checked: FM

Date: 22/06/2023 Scale (A4): 1:20,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Lesser Black-backed Gull on Ground

Date, Time, Ref no.

- ✱ 16/06/2021, 16:01, 12
- ✱ 27/07/2021, 09:50, 14

Lesser Black-backed Gull Flight Path

Date, Time, Ref no.

- ▶▶▶ 16/06/2021, 16:01, 12
- ▶▶▶ 24/06/2021, 16:01, 13
- ▶▶▶ 27/07/2021, 09:50, 14
- ▶▶▶ 15/09/2021, 11:42, 15

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0 0.4 0.8 km

Project Title:
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Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

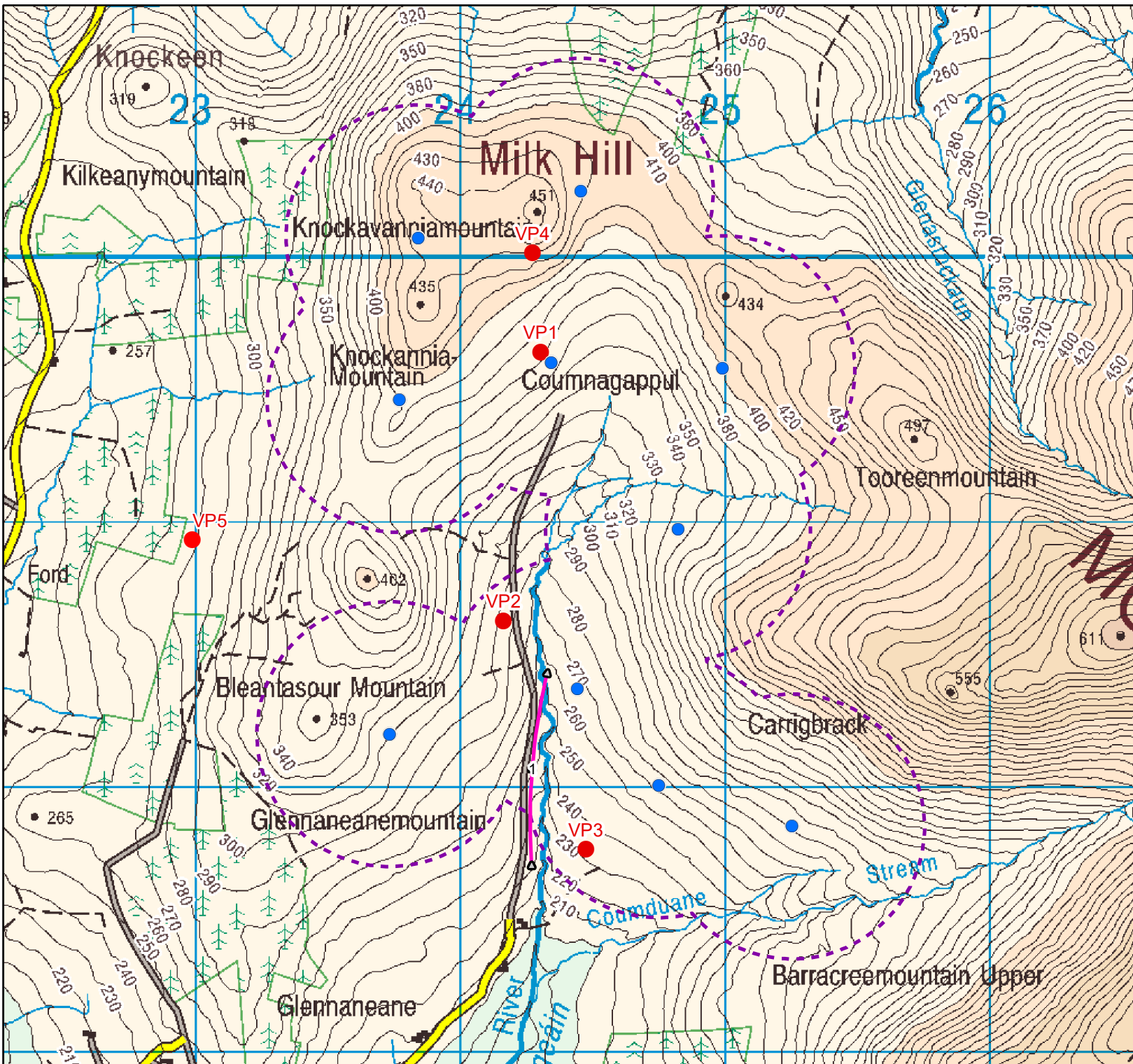
Drawn: AF Checked: FM

Date: 26/06/2023 Scale (A4): 1:20,000



Ringed plover

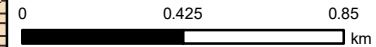
Grey heron



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- Grey Heron Flight Path**
- Date, Time, Ref No.*
- ▶◀▶ 09/04/2019, 16:27, 1

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CYAL50332198.



Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

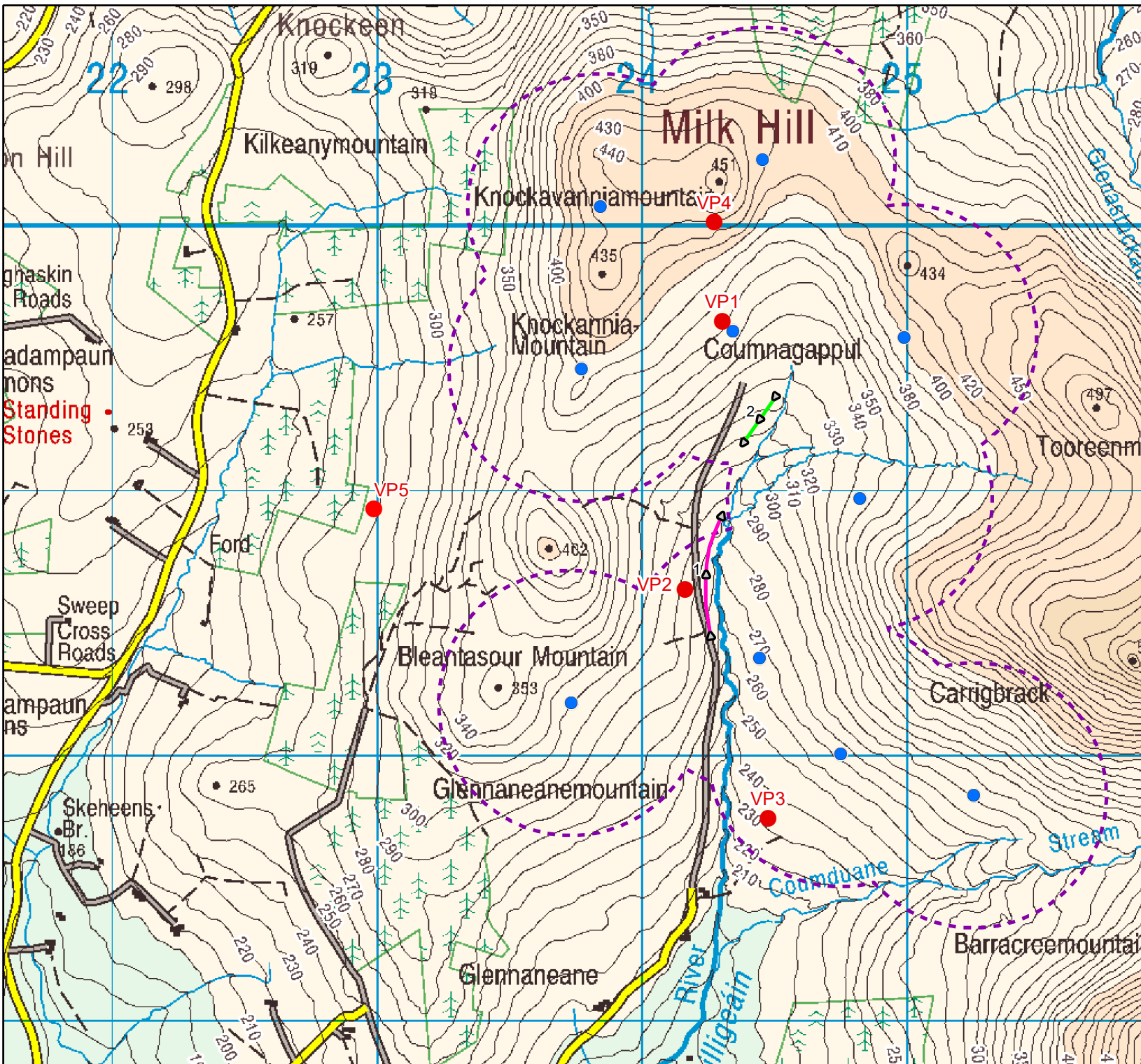
Drawing Title:
Summer Bird Survey 2019

Drawn: AF **Checked:** FM

Date: 20/06/2023 **Scale (A4):** 1:20,000



Mallard



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer

Mallard Flight Path

Date, Time, Ref no.

- ▶ 27/04/2021, 19:27, 1
- ▶ 01/05/2021, 09:04, 2

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Project Title:
20122 - Coumduane WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer Bird Survey 2021

Drawn: AF	Checked: FM
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Date: 26/06/2023	Scale (A4): 1:20,000
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Appendix 7

Non-Target Species recorded during VP Surveys

Each table below outlines all non- target species recorded during VP surveys each season.

The following table shows non-Target species peak counts recorded during the breeding season 2019.

Breeding 2019							
Common Name	Scientific Name	April	May	June	July	Aug	Sep
Blackbird	<i>Turdus merula</i>	4	5	5	5	1	3
Blackcap	<i>Sylvia atricapilla</i>	1	2	1	2	0	1
Blue tit	<i>Parus caeruleus</i>	2	0	0	0	0	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	2	2	0	1	0
Chaffinch	<i>Fringilla coelebs</i>	7	12	6	14	1	9
Chiffchaff	<i>Phylloscopus collybita</i>	0	1	0	24	0	0
Coal tit	<i>Periparus ater</i>	2	2	2	0	1	2
Crossbill	<i>Loxia curvirostra</i>	0	1	1	1	1	0
Cuckoo	<i>Cuculus canorus</i>	0	1	0	0	0	0
Dunnock	<i>Prunella modularis</i>	0	0	0	0	0	1
Fieldfare	<i>Turdus pilaris</i>	1	0	0	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	2	2	2	4	3	6
Grey wagtail	<i>Motacilla cinerea</i>	1	1	1	0	0	0
Hooded crow	<i>Corvus cornix</i>	4	6	4	4	14	6
House martin	<i>Delichon urbicum</i>	0	2	0	2	0	5
Jackdaw	<i>Corvus monedula</i>	3	24	14	14	0	17
Linnet	<i>Carduelis cannabina</i>	2	2	4	2	3	5
Magpie	<i>Pica pica</i>	2	4	2	3	2	4
Meadow pipit	<i>Anthus pratensis</i>	11	12	10	17	15	40
Mistle thrush	<i>Turdus viscivorus</i>	2	6	2	10	0	7
Pheasant	<i>Phasianus colchicus</i>	1	2	1	1	0	2
Pied wagtail	<i>Motacilla alba</i>	2	2	4	3	5	4
Raven	<i>Corvus corax</i>	4	38	18	9	12	8
Redpoll	<i>Carduelis flammea cabaret</i>	0	0	0	2	0	2
Reed bunting	<i>Emberzia schoenichus</i>	2	0	1	1	0	1
Robin	<i>Erithacus rubecula</i>	1	3	2	0	0	1
Rook	<i>Corvus frugilegus</i>	4	37	92	18	7	46
Sand Martin	<i>Riparia riparia</i>	0	0	0	0	0	2
Siskin	<i>Carduelis spinus</i>	0	2	2	1	1	3
Skylark	<i>Alauda arvensis</i>	3	5	4	2	1	2
Song thrush	<i>Turdus philomelos</i>	5	1	2	1	0	1
Spotted flycatcher	<i>Muscicapa striata</i>	0	0	6	0	0	0
Starling	<i>Sturnus vulgaris</i>	0	0	0	0	6	5
Stock dove	<i>Columba oenas</i>	0	0	0	2	0	0
Stonechat	<i>Saxicola torquatus</i>	2	0	1	0	0	2
Swallow	<i>Hirundo rustica</i>	1	4	12	25	16	23
Swift	<i>Apus apus</i>	0	0	1	0	0	0
Wheatear	<i>Oenanthe oenanthe</i>	2	2	5	2	0	0
Whitethroat	<i>Sylvia communis</i>	0	0	0	0	1	0

Breeding 2019							
Common Name	Scientific Name	April	May	June	July	Aug	Sep
Willow Warbler	<i>Phylloscopus trochilus</i>	0	1	2	1	0	1
Woodpigeon	<i>Columba palumbus</i>	3	4	7	5	5	3
Wren	<i>Troglodytes troglodytes</i>	1	1	2	1	3	2

The following table shows non-Target species peak counts recorded during the winter season 2019/20.

Winter 2019/20							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	March
Blue tit	<i>Parus caeruleus</i>	0	2	1	1	1	2
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	0	2	0	0	0
Chaffinch	<i>Fringilla coelebs</i>	4	15	2	11	3	6
Coal tit	<i>Periparus ater</i>	1	2	2	1	2	1
Crossbill	<i>Loxia curvirostra</i>	2	4	2	2	2	3
Duncock	<i>Prunella modularis</i>	0	1	1	0	1	1
Fieldfare	<i>Turdus pilaris</i>	0	4	48	129	18	45
Goldcrest	<i>Regulus regulus</i>	2	0	0	1	4	0
Goldfinch	<i>Carduelis carduelis</i>	0	2	0	1	0	0
Great tit	<i>Parus major</i>	0	1	1	0	0	1
Grey wagtail	<i>Motacilla cinerea</i>	0	0	0	0	0	1
Hooded crow	<i>Corvus cornix</i>	13	9	4	8	6	6
House martin	<i>Delichon urbicum</i>	0	0	0	0	5	0
Jackdaw	<i>Corvus monedula</i>	0	22	0	14	0	14
Linnet	<i>Carduelis cannabina</i>	4	35	0	0	15	2
Magpie	<i>Pica pica</i>	8	4	2	3	0	0
Meadow pipit	<i>Anthus pratensis</i>	10	23	9	6	12	17
Mistle thrush	<i>Turdus viscivorus</i>	0	3	1	10	2	2
Pheasant	<i>Phasianus colchicus</i>	1	0	1	4	0	0
Pied wagtail	<i>Motacilla alba</i>	4	4	1	1	2	1
Raven	<i>Corvus corax</i>	16	8	4	7	23	6
Redpoll	<i>Carduelis flammea cabaret</i>	0	1	2	1	7	2
Redwing	<i>Turdus iliacus</i>	0	3	10	15	0	0
Reed bunting	<i>Emberzia schoenichus</i>	10	0	1	0	1	4
Robin	<i>Erithacus rubecula</i>	2	1	1	2	1	1
Rook	<i>Corvus frugilegus</i>	45	23	0	35	0	8
Siskin	<i>Carduelis spinus</i>	0	3	3	0	1	0
Skylark	<i>Alauda arvensis</i>	0	0	0	0	2	2
Song thrush	<i>Turdus philomelos</i>	0	1	0	1	0	0
Starling	<i>Sturnus vulgaris</i>	0	506	60	175	80	27
Stonechat	<i>Saxicola torquatus</i>	2	1	1	2	1	1
Woodpigeon	<i>Columba palumbus</i>	0	0	2	1	3	3
Wren	<i>Troglodytes troglodytes</i>	2	3	2	1	1	1

The following table shows non-Target species peak counts, summer breeding season 2020.

Breeding 2020							
Common Name	Scientific Name	April	May	Jun	July	Aug	Sep
Blackbird	<i>Turdus merula</i>	1	4	1	2	1	0
Blackcap	<i>Sylvia atricapilla</i>	2	1	0	0	0	0
Blue tit	<i>Parus caeruleus</i>	2	0	2	0	1	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	0	0	2	0	0
Chaffinch	<i>Fringilla coelebs</i>	6	13	2	10	9	2
Chiffchaff	<i>Phylloscopus collybita</i>	1	1	0	2	1	2
Coal tit	<i>Parus ater</i>	2	2	2	5	2	0
Collared dove	<i>Streptopelia decaocto</i>	0	2	0	0	0	0
Crossbill	<i>Loxia curvirostra</i>	0	0	13	2	4	2
Cuckoo	<i>Cuculus canorus</i>	2	1	0	0	0	1
Dunnock	<i>Prunella modularis</i>	1	1	1	0	0	1
Goldcrest	<i>Regulus regulus</i>	2	4	1	2	2	2
Goldfinch	<i>Carduelis carduelis</i>	2	0	2	8	0	11
Great tit	<i>Parus major</i>	1	1	0	0	0	0
Grey wagtail	<i>Motacilla cinerea</i>	0	1	2	1	0	0
Hooded crow	<i>Corvus cornix</i>	4	10	7	4	8	6
House martin	<i>Delichon urbicum</i>	0	0	2	2	12	100
Jackdaw	<i>Corvus monedula</i>	6	0	35	20	28	40
Linnet	<i>Carduelis cannabina</i>	2	0	4	4	10	7
Magpie	<i>Pica pica</i>	3	3	3	2	6	4
Meadow pipit	<i>Anthus pratensis</i>	14	12	12	10	7	12
Mistle thrush	<i>Turdus viscivorus</i>	1	2	3	12	1	3
Pheasant	<i>Phasianus colchicus</i>	2	3	0	1	2	0
Pied wagtail	<i>Motacilla alba</i>	2	2	2	1	1	2
Raven	<i>Corvus corax</i>	4	31	5	47	17	24
Redpoll	<i>Carduelis flammea cabaret</i>	2	2	2	4	5	10
Reed bunting	<i>Emberzia schoenichus</i>	2	2	1	1	0	0
Robin	<i>Erithacus rubecula</i>	1	2	1	1	1	1
Rook	<i>Corvus frugilegus</i>	0	5	60	45	40	30
Siskin	<i>Carduelis spinus</i>	7	5	5	4	6	10
Skylark	<i>Alauda arvensis</i>	7	6	4	2	0	15
Song thrush	<i>Turdus philomelos</i>	1	2	0	0	0	2
Starling	<i>Sturnus vulgaris</i>	3	6	20	10	30	25
Stonechat	<i>Saxicola torquatus</i>	1	1	0	0	17	2
Swallow	<i>Hirundo rustica</i>	5	40	9	14	12	1500
Wheatear	<i>Oenanthe oenanthe</i>	2	2	3	4	2	1
Willow Warbler	<i>Phylloscopus trochilus</i>	1	3	1	2	2	0
Woodpigeon	<i>Columba palumbus</i>	3	6	9	6	8	6
Wren	<i>Troglodytes troglodytes</i>	1	3	1	1	1	1

The following table shows non-Target species peak counts recorded during the winter season 2020/21.

Winter 2020/21							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	1	4	3	5	4	5
Blue tit	<i>Parus caeruleus</i>	2	1	0	2	4	3
Chaffinch	<i>Fringilla coelebs</i>	2	11	15	7	3	4
Coal tit	<i>Parus ater</i>	3	2	2	2	1	3
Dotterel	<i>Charadrius morinellus</i>	1	0	0	0	0	0
Dunnock	<i>Prunella modularis</i>	1	0	1	3	3	1
Fieldfare	<i>Turdus pilaris</i>	0	35	260	9	10	5
Goldcrest	<i>Regulus regulus</i>	2	2	2	2	2	3
Goldfinch	<i>Carduelis carduelis</i>	4	8	0	3	5	10
Great tit	<i>Parus major</i>	2	0	1	3	2	3
Grey wagtail	<i>Motacilla cinerea</i>	0	0	0	0	3	2
Hooded crow	<i>Corvus cornix</i>	4	4	5	7	3	5
House Sparrow	<i>Passer domesticus</i>	0	0	0	2	0	0
Jackdaw	<i>Corvus monedula</i>	14	40	16	4	2	3
Linnet	<i>Carduelis cannabina</i>	10	8	10	0	0	0
Magpie	<i>Pica pica</i>	2	2	2	3	4	1
Meadow pipit	<i>Anthus pratensis</i>	22	20	12	0	5	8
Mistle thrush	<i>Turdus viscivorus</i>	1	2	3	2	2	3
Pheasant	<i>Phasianus colchicus</i>	3	2	0	5	7	13
Pied wagtail	<i>Motacilla alba</i>	2	5	3	7	3	7
Raven	<i>Corvus corax</i>	4	4	3	2	2	7
Redwing	<i>Turdus iliacus</i>	0	8	40	7	7	0
Reed bunting	<i>Emberzia schoenobaenus</i>	1	2	0	0	0	0
Robin	<i>Erithacus rubecula</i>	1	1	1	7	1	3
Rook	<i>Corvus frugilegus</i>	25	40	22	4	6	7
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	0	0	0	3	4	7
Siskin	<i>Carduelis spinus</i>	8	4	4	0	0	0
Skylark	<i>Alauda arvensis</i>	0	7	0	7	5	3
Song thrush	<i>Turdus philomelos</i>	0	0	4	0	2	1
Starling	<i>Sturnus vulgaris</i>	14	60	80	15	12	14
Stonechat	<i>Saxicola torquatus</i>	2	3	2	10	6	5
Tree sparrow	<i>Passer montanus</i>	0	0	0	3	4	5
Wheatear	<i>Oenanthe oenanthe</i>	0	0	0	13	10	15
Woodpigeon	<i>Columba palumbus</i>	0	4	0	10	5	7
Wren	<i>Troglodytes troglodytes</i>	1	1	1	2	3	5

The following table shows non-Target species peak counts during the summer breeding season 2021.

Breeding 2021							
Common Name	Scientific Name	April	May	June	July	Aug	Sept
Blackbird	<i>Turdus merula</i>	3	2	1	1	1	0
Blue Tit	<i>Parus caeruleus</i>	2	1	0	0	0	0
Chaffinch	<i>Fringilla coelebs</i>	6	5	1	1	0	0
Coal Tit	<i>Parus ater</i>	2	0	0	0	0	0
Cuckoo	<i>Cuculus canorus</i>	0	2	0	0	0	0
Dunnock	<i>Prunella modularis</i>	2	0	0	0	0	0
Goldcrest	<i>Regulus regulus</i>	1	0	0	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	3	3	0	0	0	0
Great Tit	<i>Parus major</i>	3	2	0	0	0	0
Hooded Crow	<i>Corvus cornix</i>	8	3	1	1	0	0
House Martin	<i>Delichon urbicum</i>	0	0	0	0	1	0
House Sparrow	<i>Passer domesticus</i>	3	2	0	0	0	0
Jackdaw	<i>Corvus monedula</i>	4	0	0	0	0	0
Magpie	<i>Pica pica</i>	3	3	0	1	1	0
Meadow Pipit	<i>Anthus pratensis</i>	3	2	1	1	1	0
Mistle Thrush	<i>Turdus viscivorus</i>	3	1	1	1	1	0
Pheasant	<i>Phasianus colchicus</i>	2	9	1	1	1	0
Pied Wagtail	<i>Motacilla alba</i>	3	2	0	1	0	0
Raven	<i>Corvus corax</i>	2	1	1	1	1	0
Reed Bunting	<i>Emberiza schoenicus</i>	2	1	0	0	0	0
Robin	<i>Erithacus rubecula</i>	4	4	1	1	0	0
Rook	<i>Corvus frugilegus</i>	6	7	1	1	1	0
Skylark	<i>Alauda arvensis</i>	4	4	1	1	0	0
Song Thrush	<i>Turdus philomelos</i>	0	1	0	1	0	0
Starling	<i>Sturnus vulgaris</i>	12	0	0	0	1	0
Swallow	<i>Hirundo rustica</i>	3	3	1	1	1	0
Wheatear	<i>Oenanthe oenanthe</i>	9	1	0	0	0	0
Woodpigeon	<i>Columba palumbus</i>	4	3	1	1	1	0
Wren	<i>Troglodytes troglodytes</i>	2	6	0	1	0	0

The following table shows non-Target species peak counts recorded during the winter season 2021/22.

Winter 2021/22							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	1	5	3	7	3	3
Blue Tit	<i>Parus caeruleus</i>	0	2	4	4	3	2

Winter 2021/22							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	1	4	0	0	0
Chaffinch	<i>Fringilla coelebs</i>	5	7	5	6	9	7
Coal Tit	<i>Periparus ater</i>	1	1	1	2	2	0
Crossbill	<i>Loxia curvirostra</i>	0	6	3	0	2	0
Dunnock	<i>Prunella modularis</i>	0	1	1	1	1	0
Fieldfare	<i>Turdus pilaris</i>	0	15	170	500	100	40
Goldcrest	<i>Regulus regulus</i>	3	2	9	1	1	2
Goldfinch	<i>Carduelis carduelis</i>	0	0	0	0	6	2
Great Tit	<i>Parus major</i>	0	1	0	2	1	0
Hooded Crow	<i>Corvus cornix</i>	25	4	5	7	6	9
Jackdaw	<i>Corvus monedula</i>	40	25	30	20	50	30
Jay	<i>Garrulus glandarius</i>	3	0	1	0	1	0
Linnet	<i>Carduelis cannabina</i>	0	4	0	8	0	0
Magpie	<i>Pica pica</i>	6	6	3	4	7	3
Meadow Pipit	<i>Anthus pratensis</i>	10	13	10	7	6	5
Mistle Thrush	<i>Turdus viscivorus</i>	2	1	3	7	4	2
Pheasant	<i>Phasianus colchicus</i>	1	3	4	2	4	3
Pied Wagtail	<i>Motacilla alba</i>	2	2	1	1	3	2
Raven	<i>Corvus corax</i>	5	3	6	12	7	6
Redpoll	<i>Carduelis flammea cabaret</i>	0	7	0	3	0	0
Redwing	<i>Turdus iliacus</i>	0	0	15	12	0	0
Reed Bunting	<i>Emberzia schoenichus</i>	0	0	0	3	1	2
Robin	<i>Erithacus rubecula</i>	1	1	1	1	2	1
Rook	<i>Corvus frugilegus</i>	30	16	70	30	80	18
Siskin	<i>Carduelis spinus</i>	0	12	0	4	4	14
Skylark	<i>Alauda arvensis</i>	0	2	0	0	2	4
Song Thrush	<i>Turdus philomelos</i>	0	0	2	3	6	1
Starling	<i>Sturnus vulgaris</i>	24	50	120	50	90	40
Stonechat	<i>Saxicola torquatus</i>	2	1	2	0	1	2
Woodpigeon	<i>Columba palumbus</i>	10	9	3	7	9	3
Wren	<i>Troglodytes troglodytes</i>	1	1	1	2	2	1

The following table shows non-Target species peak counts recorded during the summer breeding season 2022.

Summer 2022							
Common Name	Scientific Name	April	May	June	Jul	Aug	Sep
Meadow Pipit	<i>Anthus pratensis</i>	4	6	10	12	10	6
Blackbird	<i>Turdus merula</i>	1	4	6	6	4	1

Summer 2022							
Common Name	Scientific Name	April	May	June	Jul	Aug	Sep
Blackcap	<i>Sylvia atricapilla</i>	0	2	0	0	0	0
Blue Tit	<i>Parus caeruleus</i>	0	4	0	0	0	0
Chaffinch	<i>Fringilla coelebs</i>	5	4	3	4	3	2
Chiffchaff	<i>Phylloscopus collybita</i>	0	4	1	2	1	0
Coal Tit	<i>Periparus ater</i>	2	3	1	0	1	1
Crossbill	<i>Loxia curvirostra</i>	0	0	0	4	2	5
Cuckoo	<i>Cuculus canorus</i>	0	2	0	0	0	0
Dunnock	<i>Prunella modularis</i>	0	1	0	0	0	0
Fieldfare	<i>Turdus pilaris</i>	2	0	0	0	0	0
Goldcrest	<i>Regulus regulus</i>	2	4	2	3	1	0
Goldfinch	<i>Carduelis carduelis</i>	0	0	0	4	0	3
Great Tit	<i>Parus major</i>	1	0	0	0	0	0
Hooded Crow	<i>Corvus cornix</i>	6	4	6	4	5	6
House Martin	<i>Delichon urbicum</i>	0	0	0	2	0	10
House Sparrow	<i>Passer domesticus</i>	0	0	0	5	0	0
Jackdaw	<i>Corvus monedula</i>	12	4	18	12	15	20
Jay	<i>Garrulus glandarius</i>	0	2	0	1	0	0
Magpie	<i>Pica pica</i>	2	2	4	4	7	6
Mistle Thrush	<i>Turdus viscivorus</i>	2	1	2	9	32	7
Pheasant	<i>Phasianus colchicus</i>	2	5	6	2	1	3
Pied Wagtail	<i>Motacilla alba</i>	1	2	2	2	2	2
Raven	<i>Corvus corax</i>	6	4	4	4	4	4
Redpoll	<i>Carduelis flammea cabaret</i>	0	0	2	4	3	4
Reed Bunting	<i>Emberzia schoenichus</i>	2	1	0	0	0	0
Robin	<i>Erithacus rubecula</i>	1	2	1	1	1	1
Rook	<i>Corvus frugilegus</i>	14	7	20	30	20	30
Sand Martin	<i>Riparia riparia</i>	0	0	0	0	0	10
Siskin	<i>Carduelis spinus</i>	6	5	6	8	7	8
Skylark	<i>Alauda arvensis</i>	2	2	4	3	4	0
Song Thrush	<i>Turdus philomelos</i>	2	2	0	0	0	0
Starling	<i>Sturnus vulgaris</i>	12	14	16	20	30	40
Stonechat	<i>Saxicola torquatus</i>	2	2	2	2	4	2
Swallow	<i>Hirundo rustica</i>	0	7	20	22	25	20
Wheatear	<i>Oenanthe oenanthe</i>	0	1	2	2	3	1
Whitethroat	<i>Sylvia communis</i>	0	0	1	0	0	0
Willow Warbler	<i>Phylloscopus trochilus</i>	0	2	2	1	0	0
Woodpigeon	<i>Columba palumbus</i>	6	6	6	12	4	6
Wren	<i>Troglodytes troglodytes</i>	2	2	2	2	1	1

Appendix 8

Transect Survey Summary

Transect Survey Summary

Breeding 2019

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
24/05/2019	May	JNM	1	10.30	12.30	A fine dry day with southerly winds	Clear
20/06/2019	June	JNM	1	13.00	15.00	A showery day with some dry periods, northwest wind f1-3, temp 12oC	Ok
16/08/2019	August	ED	1	10.50	14.05	Misty conditions, clearing in the late morning, southwest wind f4, temp 16oC	Moderate

Winter 2019/20

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
24/10/2019	October	AC	1	09.55	12.05	Cloud cover 2/8, temp 8-10oC, sunshine, southwest wind f1-2	Very good
20/12/2019	December	ED	1	08.15	10.15	Calm, cold and sunny, south wind f1, temp 1oC	Very good
12/01/2020	January	ED	1	08.35	10.35	Calm, misty, southwest wind f1, temp 8oC	Very good
17/02/2020	February	ED	1	08.30	10.00	Windy and misty conditions, west wind f4, temp 5oC	Good
16/03/2020	March	ED	1	07.20	10.20	Clear, cold, sunny conditions, southwest wind f3, temp 2oC	Very good

Breeding 2020

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
26/04/2020	April	ED	1	08.30	10.30	Calm, slightly misty, southwest wind f1, temp 12oC	Very good
12/05/2020	May	ED	1	15.20	18.10	Sunny, cool, northeast winds, northeast wind f3, temp 12oC	Excellent
09/06/2020	June	ED	1	16.00	19.00	Light winds, overcast, southwest wind f2, temp 13oC	Excellent
16/07/2020	July	ED	1	16.20	18.30	Sunny conditions, west wind f2, temp 18oC	Excellent
16/08/2020	August	ED	1	09.25	11.25	Misty but calm conditions, northeast wind f2, temp 17oC	Good
15/09/2020	September	ED	1	09.20	10.55	Misty conditions, south wind f2,	Very good

Winter 2020/21

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
05/11/2020	November	ED	1	08.50	10.50	Calm, cold and overcast, southwest wind, temp 6oC	Good

Transect Survey Summary

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
29/01/2021	January	EOC	1	09.00	12.00	Cloudy day, southwest wind f4, temp 11oC	Poor
19/02/2021	February	EOC	1	09.00	13.00	Cloudy, southwest wind, temp 8oC	Good
26/03/2021	March	EOC	1	09.00	13.00	Overcast, southwest wind, temp 11oC	Good

Breeding 2021

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
28/06/2021	June	GMG	2	09.41	10.40	13.4Cloud cover 8/8, dry with a light northerly breeze, wind f2, temp 12oC	Good
			3	10.40	11.45		
			4	11.50	13.45		
			4	11.50	13.45		
29/07/2021	July	GMG	2	14.08	15.08	Cloud cover 8/8 with some showers, wind direction southwest, wind f2, temp 16oC	Poor
			3	15.10	16.05		
			4	16.10	17.15		
			4	16.10	17.15		

Winter 2021/22

Date	Month	Observer	Transect	Start Time	Finish Time	Weather	Visibility
27/11/2021	November	AD	1	09.25	-	Cloud cover 1/8, sunny, dry, and cold, wind direction north, wind f4, temp 2oC	Excellent
			2	-	-		
			3	-	-		
			4	-	15.09		
19/12/2021	December	AD	2	09.52	10.50	Very good conditions, sunny and clear, wind direction east, wind f1, temp 2oC	Very good
			3	10.53	11.53		
			4	13.02	14.05		
			4	13.02	14.05		
08/02/2022	February	ED	2	14.40	-	Misty and windy, wind direction west, wind f4, temp 11oC	Moderate
			3	-	-		
			4	-	17.20		
			4	-	17.20		
04/03/2022	March	ED	2	14.45	-	Clear and sunny, wind direction northwest, wind f1, temp 6oC	Very good
			3	-	-		
			4	-	18.10		
			4	-	18.10		

Transect Survey Summary

Breeding 2022

Date	Month	Observer		Start Time	Finish Time	Weather	Visibility
11/05/2022	May	ED	2	15.10	-	Windy, sunny spells. Wind northeast f5, temp 12oC	Very good
			3	-	-		
			4	-	18.30		
03/06/2022	June	ED	2	10.40	-	Overcast with light showers. Northeast wind f3, temp 12oC	Very good
			3	-	-		
			4	-	13.50		
06/07/2022	July	ED	2	16.05	-	Overcast with light showers. Wind northwest f4, temp 14oC	Good
			3	-	-		
			4	-	19.20		
04/08/2022	August	ED	2	16.30	-	Sunny spells, wind northwest f3, temp 15oC	Good
			3	-	-		
			4	-	19.05		
07/09/2022	September	ED	2	16.15	-	Heavy rain, clearing to showers. Wind southeast f4, temp 15oC	Moderate
			3	-	-		
			4	-	19.05		

Appendix 9

Transect Results

Each table below outlines all species recorded each season during Transect surveys.

The following table shows the total number of species recorded during the Breeding 2019 season.

Summer 2019				
Common Name	Scientific Name	June	May	Aug
Blackbird	<i>Turdus merula</i>	7	7	11
Blackcap	<i>Sylvia atricapilla</i>	3	2	0
Blue tit	<i>Parus caeruleus</i>	4	4	2
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	4	1
Buzzard	<i>Buteo buteo</i>	0	0	1
Chaffinch	<i>Fringilla coelebs</i>	5	8	10
Chiffchaff	<i>Phylloscopus collybita</i>	1	0	0
Coal tit	<i>Periparus ater</i>	4	4	5
Dunnock	<i>Prunella modularis</i>	3	5	2
Goldcrest	<i>Regulus regulus</i>	2	2	2
Goldfinch	<i>Carduelis carduelis</i>	0	7	0
Great tit	<i>Parus major</i>	0	2	0
Greenfinch	<i>Anser albifrons</i>	0	2	0
Grey wagtail	<i>Motacilla cinerea</i>	2	2	0
Hooded crow	<i>Corvus cornix</i>	6	4	6
House martin	<i>Delichon urbicum</i>	6	0	0
House sparrow	<i>Passer domesticus</i>	0	3	0
Jackdaw	<i>Corvus monedula</i>	12	8	0
Kestrel	<i>Falco tinnunculus</i>	1	0	1
Lesser black-backed gull	<i>Larus fuscus</i>	0	6	0
Linnet	<i>Carduelis cannabina</i>	8	0	0
Magpie	<i>Pica pica</i>	7	4	4
Meadow pipit	<i>Anthus pratensis</i>	18	16	22
Mistle thrush	<i>Turdus viscivorus</i>	8	2	2
Pheasant	<i>Phasianus colchicus</i>	2	2	0
Pied wagtail	<i>Motacilla alba</i>	4	2	0
Raven	<i>Corvus corax</i>	10	18	5
Redpoll	<i>Carduelis flammea cabaret</i>	2	0	0
Reed bunting	<i>Emberzia schoenichus</i>	3	2	0
Robin	<i>Erithacus rubecula</i>	5	8	4
Siskin	<i>Carduelis spinus</i>	2	0	3
Skylark	<i>Alauda arvensis</i>	3	4	0
Song thrush	<i>Turdus philomelos</i>	5	3	1
Spotted flycatcher	<i>Muscicapa striata</i>	6	0	1
Starling	<i>Sturnus vulgaris</i>	0	0	14
Stock dove	<i>Columba oenas</i>	0	0	0
Stonechat	<i>Saxicola torquatus</i>	5	2	0
Swallow	<i>Hirundo rustica</i>	14	9	0
Wheatear	<i>Oenanthe oenanthe</i>	0	3	1
Willow warbler	<i>Phylloscopus trochilus</i>	5	8	0
Woodpigeon	<i>Columba palumbus</i>	8	6	0

Summer 2019				
Common Name	Scientific Name	June	May	Aug
Wren	<i>Troglodytes troglodytes</i>	3	4	6

The following table shows the total number of species recorded during the Winter 2019/20 season.

Winter 2019/20						
Common Name	Scientific Name	Oct	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	7	3	14	7	9
Blue tit	<i>Parus caeruleus</i>	0	0	0	0	1
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	0	2	0	0
Buzzard	<i>Buteo buteo</i>	1	0	0	0	0
Chaffinch	<i>Fringilla coelebs</i>	14	6	15	13	15
Coal tit	<i>Periparus ater</i>	2	3	10	3	6
Crossbill	<i>Loxia curvirostra</i>	0	0	0	0	3
Dunnock	<i>Prunella modularis</i>	1	0	2	0	5
Fieldfare	<i>Turdus pilaris</i>	0	9	45	120	50
Goldcrest	<i>Regulus regulus</i>	5	1	3	0	3
Great tit	<i>parus major</i>	2	0	2	2	2
Hooded crow	<i>Corvus cornix</i>	6	3	7	14	13
Jackdaw	<i>Corvus monedula</i>	0	9	22	2	24
Kestrel	<i>Falco tinnunculus</i>	1	0	0	0	0
Linnet	<i>Carduelis cannabina</i>	2	0	0	5	3
Magpie	<i>Pica pica</i>	3	0	6	8	0
Meadow pipit	<i>Anthus pratensis</i>	7	16	11	12	27
Mistle thrush	<i>Turdus viscivorus</i>	2	0	7	4	2
Pheasant	<i>Phasianus colchicus</i>	2	0	0	0	5
Pied wagtail	<i>Motacilla alba</i>	6	0	0	2	3
Raven	<i>Corvus corax</i>	2	2	4	11	7
Redpoll	<i>Carduelis flammea cabaret</i>	0	0	2	0	6
Redwing	<i>Turdus iliacus</i>	0	2	81	4	0
Reed bunting	<i>Emberzia shoenichus</i>	1	0	0	0	1
Robin	<i>Erithacus rubecula</i>	9	2	4	3	7
Rook	<i>Corvus frugilegus</i>	0	0	6	0	0
Siskin	<i>Carduelis spinus</i>	0	0	4	0	3
Song thrush	<i>Turdus philomelos</i>	0	0	0	3	0
Starling	<i>Sturnus vulgaris</i>	0	75	89	0	48
Stock dove	<i>Columba oenas</i>	0	0	0	0	3
Stonechat	<i>Saxicola torquatus</i>	4	2	1	1	2
Woodpigeon	<i>Columba palumbus</i>	0	0	3	11	0
Wren	<i>Troglodytes troglodytes</i>	8	3	3	0	9

The following table shows total of species recorded during the Breeding 2020 season.

Breeding 2020							
Common Name	Scientific Name	April	May	June	July	Aug	Sep
Blackbird	<i>Turdus merula</i>	10	6	6	6	2	2
Blackcap	<i>Sylvia atricapilla</i>	3	4	1	0	0	0
Blue tit	<i>Parus caeruleus</i>	1	4	2	4	1	1
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	2	0	1	0	0
Chaffinch	<i>Fringilla coelebs</i>	11	13	14	12	3	3
Chiffchaff	<i>Phylloscopus collybita</i>	3	2	3	0	0	1
Coal tit	<i>Periparus ater</i>	6	4	4	9	1	2
Collared dove	<i>Streptopelia decaocto</i>	1	0	0	0	0	0
Crossbill	<i>Loxia curvirostra</i>	0	0	6	3	1	0
Cuckoo	<i>Cuculus canorus</i>	1	0	0	0	0	0
Dunnock	<i>Prunella modularis</i>	1	1	1	2	1	2
Goldcrest	<i>Regulus regulus</i>	9	5	7	7	1	2
Goldfinch	<i>Carduelis carduelis</i>	2	5	6	16	1	0
Great tit	<i>Parus major</i>	1	2	2	2	1	1
Grey wagtail	<i>Motacilla cinerea</i>	0	0	2	1	0	0
Hooded crow	<i>Corvus cornix</i>	8	6	17	10	3	2
House martin	<i>Delichon urbicum</i>	0	1	2	4	1	1
House sparrow	<i>Passer domesticus</i>	0	9	0	0	0	0
Jackdaw	<i>Corvus monedula</i>	8	10	40	25	0	1
Linnet	<i>Carduelis cannabina</i>	0	0	0	8	3	1
Magpie	<i>Pica pica</i>	1	2	3	3	2	2
Meadow pipit	<i>Anthus pratensis</i>	31	24	19	10	2	2
Mistle thrush	<i>Turdus viscivorus</i>	2	2	3	22	0	1
Pheasant	<i>Phasianus colchicus</i>	2	0	0	0	0	0
Pied wagtail	<i>Motacilla alba</i>	0	4	10	3	0	1
Raven	<i>Corvus corax</i>	9	2	18	41	2	3
Redpoll	<i>Carduelis flammea cabaret</i>	5	4	6	16	1	1
Reed bunting	<i>Emberzia schoenichus</i>	2	2	2	1	1	0
Robin	<i>Erithacus rubecula</i>	3	3	5	3	0	3
Rook	<i>Corvus frugilegus</i>	0	0	10	16	0	1
Siskin	<i>Carduelis spinus</i>	8	9	20	18	2	2
Song thrush	<i>Turdus philomelos</i>	2	3	2	2	1	0
Skylark	<i>Alauda arvensis</i>	14	8	4	1	0	1
Starling	<i>Sturnus vulgaris</i>	4	6	30	20	0	0
Stock dove	<i>Columba oenas</i>	0	1	0	2	0	0
Stonechat	<i>Saxicola torquatus</i>	1	5	4	2	0	2
Swallow	<i>Hirundo rustica</i>	7	7	11	25	3	1
Wheatear	<i>Oenanthe oenanthe</i>	4	0	6	1	2	0
Whitethroat	<i>Sylvia communis</i>	1	1	0	0	0	0
Willow warbler	<i>Phylloscopus trochilus</i>	5	6	4	0	0	0
Woodpigeon	<i>Columba palumbus</i>	10	7	18	13	1	2
Wren	<i>Troglodytes troglodytes</i>	8	3	5	4	1	2

The following table shows total of species recorded during the Winter 2020/21 season.

Winter 2020/21					
Common Name	Scientific Name	Nov	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	5	3	4	3
Blue tit	<i>Parus caeruleus</i>	3	0	2	2
Buzzard	<i>Buteo buteo</i>	0	0	0	2
Chaffinch	<i>Fringilla coelebs</i>	16	0	4	0
Coal tit	<i>Periparus ater</i>	4	0	0	0
Dunnock	<i>Prunella modularis</i>	1	0	3	0
Fieldfare	<i>Turdus pilaris</i>	0	0	5	0
Goldcrest	<i>Regulus regulus</i>	3	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	0	1	3	10
Great tit	<i>parus major</i>	0	0	1	5
Hooded crow	<i>Corvus cornix</i>	4	10	9	17
Jackdaw	<i>Corvus monedula</i>	18	0	6	25
Linnet	<i>Carduelis cannabina</i>	23	0	0	0
Magpie	<i>Pica pica</i>	4	3	4	0
Meadow pipit	<i>Anthus pratensis</i>	19	0	0	0
Mistle thrush	<i>Turdus viscivorus</i>	1	2	2	0
Pheasant	<i>Phasianus colchicus</i>	9	0	10	0
Pied wagtail	<i>Motacilla alba</i>	4	1	0	0
Raven	<i>Corvus corax</i>	10	0	0	0
Redwing	<i>Turdus iliacus</i>	0	1	7	0
Reed bunting	<i>Emberzia schoenichus</i>	2	0	0	0
Robin	<i>Erithacus rubecula</i>	3	5	3	5
Rook	<i>Corvus frugilegus</i>	8	1	7	5
Siskin	<i>Carduelis spinus</i>	4	0	0	0
Skylark	<i>Alauda arvensis</i>	2	0	6	4
Snipe	<i>Gallinago gallinago</i>	0	0	4	0
Starling	<i>Sturnus vulgaris</i>	0	5	12	10
Stonechat	<i>Saxicola torquatus</i>	2	0	0	0
Wheatear	<i>Oenanthe oenanthe</i>	0	8	26	0
Woodpigeon	<i>Columba palumbus</i>	11	0	1	9
Wren	<i>Troglodytes troglodytes</i>	7	0	0	2

The following table shows the total number of species recorded during the Breeding 2021 season.

Breeding 2021			
Common Name	Scientific Name	June	July
Blackbird	<i>Turdus merula</i>	10	11
Blackcap	<i>Sylvia atricapilla</i>	2	2
Chaffinch	<i>Fringilla coelebs</i>	4	4
Goldcrest	<i>Regulus regulus</i>	1	3
Herring gull	<i>Larus argentatus</i>	1	2

Breeding 2021			
Common Name	Scientific Name	June	July
Hooded crow	<i>Corvus cornix</i>	2	4
Kestrel	<i>Falco tinnunculus</i>	1	2
Meadow pipit	<i>Anthus pratensis</i>	10	11
Pied wagtail	<i>Motacilla alba</i>	3	3
Robin	<i>Erithacus rubecula</i>	0	3
Rook	<i>Corvus frugilegus</i>	7	8
Skylark	<i>Alauda arvensis</i>	9	7
Swallow	<i>Hirundo rustica</i>	1	6
Wheatear	<i>Oenanthe oenanthe</i>	3	4
Wren	<i>Troglodytes troglodytes</i>	9	13

The following table shows the total number of species recorded during the Winter 2021/22 season.

Winter 2021/22					
Common Name	Scientific Name	Nov	Dec	Feb	Mar
Blackbird	<i>Turdus merula</i>	3	9	4	1
Blue tit	<i>Parus caeruleus</i>	0	1	3	0
Chaffinch	<i>Fringilla coelebs</i>	0	3	4	1
Coal tit	<i>Parus ater</i>	0	1	3	1
Crossbill	<i>Loxia curvirostra</i>	0	2	0	0
Dunnock	<i>Prunella modularis</i>	2	3	1	1
Fieldfare	<i>Turdus pilaris</i>	30	40	0	0
Goldcrest	<i>Regulus regulus</i>	1	3	5	1
Goldfinch	<i>Carduelis carduelis</i>	0	2	0	0
Great tit	<i>Parus major</i>	0	1	1	1
Grey wagtail	<i>Motacilla cinerea</i>	0	0	0	1
Hen harrier	<i>Circus cyaneus</i>	0	1	0	0
Hooded crow	<i>Corvus cornix</i>	3	2	2	1
Jackdaw	<i>Corvus monedula</i>	0	2	0	0
Kestrel	<i>Falco tinnunculus</i>	1	1	0	0
Linnet	<i>Carduelis cannabina</i>	0	0	0	1
Magpie	<i>Pica pica</i>	1	0	0	1
Meadow pipit	<i>Anthus pratensis</i>	0	10	1	0
Mistle thrush	<i>Turdus viscivorus</i>	1	2	0	0
Peregrine	<i>Falco peregrinus</i>	0	1	0	0
Pheasant	<i>Phasianus colchicus</i>	3	0	0	0
Raven	<i>Corvus corax</i>	13	2	3	0
Redpoll	<i>Carduelis flammea cabaret</i>	0	1	0	0
Redwing	<i>Turdus iliacus</i>	23	2	0	0
Reed bunting	<i>Emberiza schoenicus</i>	0	3	0	0
Robin	<i>Erithacus rubecula</i>	2	5	1	1

Winter 2021/22						
Common Name	Scientific Name	Nov	Dec	Feb	Mar	
Rook	<i>Corvus frugilegus</i>	9	37	0	0	
Siskin	<i>Carduelis spinus</i>	0	1	0	1	
Song thrush	<i>Turdus philomelos</i>	0	1	0	1	
Sparrowhawk	<i>Accipiter nisus</i>	0	1	0	0	
Starling	<i>Sturnus vulgaris</i>	30	4	14	0	
Stonechat	<i>Saxicola torquatus</i>	2	1	0	1	
Woodpigeon	<i>Columba palumbus</i>	0	0	3	1	
Wren	<i>Troglodytes troglodytes</i>	6	6	2	1	

The following table shows the total number of species recorded during the Breeding 2022 season.

Breeding 2022						
Common Name	Scientific Name	May	June	July	Aug	Sep
Blackbird	<i>Turdus merula</i>	10	10	11	11	4
Blackcap	<i>Sylvia atricapilla</i>	3	4	1	1	1
Blue Tit	<i>Parus caeruleus</i>	6	7	1	6	4
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	0	0	1	0
Buzzard	<i>Buteo buteo</i>	0	2	0	0	0
Chiffchaff	<i>Phylloscopus collybita</i>	6	4	2	2	3
Chaffinch	<i>Fringilla coelebs</i>	11	10	22	9	10
Coal Tit	<i>Periparus ater</i>	10	6	8	4	6
Crossbill	<i>Loxia curvirostra</i>	0	0	1	2	1
Duncock	<i>Prunella modularis</i>	5	4	2	1	4
Goldcrest	<i>Regulus regulus</i>	10	9	3	2	5
Goldfinch	<i>Carduelis carduelis</i>	1	1	0	0	2
Great Tit	<i>Parus major</i>	5	3	1	3	1
Grey wagtail	<i>Motacilla cinerea</i>	0	0	2	2	2
Hooded crow	<i>Corvus cornix</i>	4	10	2	5	10
Jackdaw	<i>Corvus monedula</i>	0	0	2	0	1
Jay	<i>Garrulus glandarius</i>	0	2	2	1	3
Linnet	<i>Carduelis cannabina</i>	1	2	2	3	3
Long-tailed tit	<i>Aegithalos caudatus</i>	0	0	1	1	0
Magpie	<i>Pica pica</i>	5	6	4	1	0
Meadow pipit	<i>Anthus pratensis</i>	11	19	16	17	15
Mistle thrush	<i>Turdus viscivorus</i>	5	6	5	4	1
Pied wagtail	<i>Motacilla alba</i>	0	0	1	0	0
Raven	<i>Corvus corax</i>	4	7	4	2	6
Redpoll	<i>Carduelis flammea cabaret</i>	0	0	1	3	2
Robin	<i>Erithacus rubecula</i>	12	9	10	11	7
Rook	<i>Corvus frugilegus</i>	2	0	0	0	0
Siskin	<i>Carduelis spinus</i>	6	6	6	6	2
Skylark	<i>Alauda arvensis</i>	2	7	2	2	2

Breeding 2022						
Common Name	Scientific Name	May	June	July	Aug	Sep
Song thrush	<i>Turdus philomelos</i>	2	6	6	1	2
Starling	<i>Sturnus vulgaris</i>	3	3	1	0	0
Stonechat	<i>Saxicola torquatus</i>	2	2	0	5	1
Swallow	<i>Hirundo rustica</i>	0	0	4	5	5
Whitethroat	<i>Sylvia communis</i>	2	0	0	0	0
willow warbler	<i>Phylloscopus trochilus</i>	3	4	1	3	0
Woodpigeon	<i>Columba palumbus</i>	9	5	4	1	6
Wren	<i>Troglodytes troglodytes</i>	16	12	11	9	13

Appendix 10

List of all species recorded during VP Surveys

Each table below outlines all species recorded during VP surveys each season. Species highlighted in bold are listed as Annex I under the EU Habitats Directive.

The following table outlines peak counts of all species recorded during the breeding VP surveys 2019. A total of 53 species were recorded.

Breeding 2019							
Common Name	Scientific Name	April	May	June	July	Aug	Sep
Blackbird	<i>Turdus merula</i>	4	5	5	5	1	3
Blackcap	<i>Sylvia atricapilla</i>	1	2	1	2	0	1
Blue tit	<i>Parus caeruleus</i>	2	0	0	0	0	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	2	2	0	1	0
Buzzard	<i>Buteo buteo</i>	1	1	0	0	1	1
Chaffinch	<i>Fringilla coelebs</i>	7	12	6	14	1	9
Chiffchaff	<i>Phylloscopus collybita</i>	0	1	0	24	0	0
Coal tit	<i>Periparus ater</i>	2	2	2	0	1	2
Crossbill	<i>Loxia curvirostra</i>	0	1	1	1	1	0
Cuckoo	<i>Cuculus canorus</i>	0	1	0	0	0	0
Dunnock	<i>Prunella modularis</i>	0	0	0	0	0	1
Fieldfare	<i>Turdus pilaris</i>	1	0	0	0	0	0
Goldcrest	<i>Regulus regulus</i>	0	2	0	0	0	1
Golden plover	<i>Pluvialis apricaria</i>	1	0	0	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	2	2	2	4	3	6
Grey heron	<i>Ardea cinerea</i>	0	0	0	1	0	0
Grey wagtail	<i>Motacilla cinerea</i>	1	1	1	0	0	0
Hen harrier	<i>Circus cyaneus</i>	0	2	0	0	0	0
Hooded crow	<i>Corvus cornix</i>	4	6	4	4	14	6
House martin	<i>Delichon urbicum</i>	0	2	0	2	0	5
Jackdaw	<i>Corvus monedula</i>	3	24	14	14	0	17
Kestrel	<i>Falco tinnunculus</i>	0	1	1	1	3	0
Lesser Black-backed gull	<i>Larus fuscus</i>	2	0	0	0	1	0
Linnet	<i>Carduelis cannabina</i>	2	2	4	2	3	5
Long-eared owl	<i>Asio otus</i>	0	1	0	0	0	0
Magpie	<i>Pica pica</i>	2	4	2	3	2	4
Meadow pipit	<i>Anthus pratensis</i>	11	12	10	17	15	40
Merlin	<i>Falco columbarius</i>	1	1	0	0	0	0
Mistle thrush	<i>Turdus viscivorus</i>	2	6	2	10	0	7
Pheasant	<i>Phasianus colchicus</i>	1	2	1	1	0	2
Pied wagtail	<i>Motacilla alba</i>	2	2	4	3	5	4
Raven	<i>Corvus corax</i>	4	38	18	9	12	8
Redpoll	<i>Carduelis flammea cabaret</i>	0	0	0	2	0	2
Reed bunting	<i>Emberzia schoenichus</i>	2	0	1	1	0	1
Robin	<i>Erithacus rubecula</i>	1	3	2	0	0	1
Rook	<i>Corvus frugilegus</i>	4	37	92	18	7	46
Sand Martin	<i>Riparia riparia</i>	0	0	0	0	0	2
Siskin	<i>Carduelis spinus</i>	0	2	2	1	1	3

Breeding 2019							
Common Name	Scientific Name	April	May	June	July	Aug	Sep
Skylark	<i>Alauda arvensis</i>	3	5	4	2	1	2
Snipe	<i>Gallinago gallinago</i>	0	0	0	0	1	0
Song thrush	<i>Turdus philomelos</i>	5	1	2	1	0	1
Sparrowhawk	<i>Accipiter nisus</i>	0	0	0	0	1	0
Spotted flycatcher	<i>Muscicapa striata</i>	0	0	6	0	0	0
Starling	<i>Sturnus vulgaris</i>	0	0	0	0	6	5
Stock dove	<i>Columba oenas</i>	0	0	0	2	0	0
Stonechat	<i>Saxicola torquatus</i>	2	0	1	0	0	2
Swallow	<i>Hirundo rustica</i>	1	4	12	25	16	23
Swift	<i>Apodidae</i>	0	0	1	0	0	0
Wheatear	<i>Oenanthe oenanthe</i>	2	2	5	2	0	0
Whitethroat	<i>Sylvia communis</i>	0	0	0	0	1	0
Willow Warbler	<i>Phylloscopus trochilus</i>	0	1	2	1	0	1
Woodpigeon	<i>Columba palumbus</i>	3	4	7	5	5	3
Wren	<i>Troglodytes troglodytes</i>	1	1	2	1	3	2

The following table outlines peak counts of all species recorded during the winter surveys 2019/20. A total of 42 species were recorded.

Winter 2019/20							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	1	6	4	2	2	2
Blue tit	<i>Parus caeruleus</i>	0	2	1	1	1	2
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	0	2	0	0	0
Buzzard	<i>Buteo buteo</i>	1	0	1	0	1	0
Chaffinch	<i>Fringilla coelebs</i>	4	15	2	11	3	6
Coal tit	<i>Periparus ater</i>	1	2	2	1	2	1
Crossbill	<i>Loxia curvirostra</i>	2	4	2	2	2	3
Dunnock	<i>Prunella modularis</i>	0	1	1	0	1	1
Fieldfare	<i>Turdus pilaris</i>	0	4	48	129	18	45
Goldcrest	<i>Regulus regulus</i>	2	0	0	1	4	0
Golden plover	<i>Pluvialis apricaria</i>	200	0	0	0	1	0
Goldfinch	<i>Carduelis carduelis</i>	0	2	0	1	0	0
Great tit	<i>Parus major</i>	0	1	1	0	0	1
Grey wagtail	<i>Motacilla cinerea</i>	0	0	0	0	0	1
Hooded crow	<i>Corvus cornix</i>	13	9	4	8	6	6
House martin	<i>Delichon urbicum</i>	0	0	0	0	5	0
Jackdaw	<i>Corvus monedula</i>	0	22	0	14	0	14
Kestrel	<i>Falco tinnunculus</i>	1	2	1	0	0	1
Linnet	<i>Carduelis cannabina</i>	4	35	0	0	15	2
Lesser Black-backed gull	<i>Larus fuscus</i>	0	0	0	0	0	2
Magpie	<i>Pica pica</i>	8	4	2	3	0	0
Meadow pipit	<i>Anthus pratensis</i>	10	23	9	6	12	17

Winter 2019/20							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Merlin	<i>Falco columbarius</i>	1	0	0	0	0	0
Mistle thrush	<i>Turdus viscivorus</i>	0	3	1	10	2	2
Peregrine	<i>Falco peregrinus</i>	0	1	1	1	1	0
Pheasant	<i>Phasianus colchicus</i>	1	0	1	4	0	0
Pied wagtail	<i>Motacilla alba</i>	4	4	1	1	2	1
Raven	<i>Corvus corax</i>	16	8	4	7	23	6
Redpoll	<i>Carduelis flammea cabaret</i>	0	1	2	1	7	2
Redwing	<i>Turdus iliacus</i>	0	3	10	15	0	0
Reed bunting	<i>Emberzia schoenichus</i>	10	0	1	0	1	4
Robin	<i>Erithacus rubecula</i>	2	1	1	2	1	1
Rook	<i>Corvus frugilegus</i>	45	23	0	35	0	8
Siskin	<i>Carduelis spinus</i>	0	3	3	0	1	0
Song thrush	<i>Turdus philomelos</i>	0	1	0	1	0	0
Skylark	<i>Alauda arvensis</i>	0	0	0	0	2	2
Snipe	<i>Gallinago gallinago</i>	1	1	0	0	0	0
Sparrowhawk	<i>Accipiter nisus</i>	0	1	0	1	0	0
Starling	<i>Sturnus vulgaris</i>	0	506	60	175	80	27
Stonechat	<i>Saxicola torquatus</i>	2	1	1	2	1	1
Woodpigeon	<i>Columba palumbus</i>	0	0	2	1	3	3
Wren	<i>Troglodytes troglodytes</i>	2	3	2	1	1	1

The following table outlines peak counts of all species recorded during the breeding surveys 2020. A total of 52 species were recorded.

Breeding 2020							
Common Name	Scientific Name	April	May	Jun	July	Aug	Sep
Blackbird	<i>Turdus merula</i>	1	4	1	2	1	0
Blackcap	<i>Sylvia atricapilla</i>	2	1	0	0	0	0
Blue tit	<i>Parus caeruleus</i>	2	0	2	0	1	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	1	0	0	2	0	0
Buzzard	<i>Buteo buteo</i>	1	1	1	2	0	2
Chaffinch	<i>Fringilla coelebs</i>	6	13	2	10	9	2
Chiffchaff	<i>Phylloscopus collybita</i>	1	1	0	2	1	2
Coal tit	<i>Parus ater</i>	2	2	2	5	2	0
Collared dove	<i>Streptopelia decaocto</i>	0	2	0	0	0	0
Crossbill	<i>Loxia curvirostra</i>	0	0	13	2	4	2
Cuckoo	<i>Cuculus canorus</i>	2	1	0	0	0	1
Duncock	<i>Prunella modularis</i>	1	1	1	0	0	1
Goldcrest	<i>Regulus regulus</i>	2	4	1	2	2	2
Golden plover	<i>Pluvialis apricaria</i>	1	0	0	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	2	0	2	8	0	11
Great black-backed gull	<i>Larus marinus</i>	0	0	2	2	0	0
Great tit	<i>Parus major</i>	1	1	0	0	0	0

Breeding 2020							
Common Name	Scientific Name	April	May	Jun	July	Aug	Sep
Grey wagtail	<i>Motacilla cinerea</i>	0	1	2	1	0	0
Hen Harrier	<i>Circus cyaneus</i>	0	0	0	0	0	1
Herring gull	<i>Larus argentatus</i>	0	0	1	0	0	0
Hooded crow	<i>Corvus cornix</i>	4	10	7	4	8	6
House martin	<i>Delichon urbicum</i>	0	0	2	2	12	100
House sparrow	<i>Passer domesticus</i>	0	0	0	0	9	0
Jackdaw	<i>Corvus monedula</i>	6	0	35	20	28	40
Kestrel	<i>Falco tinnunculus</i>	1	1	1	1	1	2
Linnet	<i>Carduelis cannabina</i>	2	0	4	4	10	7
Lesser black-backed gull	<i>Larus fuscus</i>	0	1	2	1	1	0
Magpie	<i>Pica pica</i>	3	3	3	2	6	4
Meadow pipit	<i>Anthus pratensis</i>	14	12	12	10	7	12
Merlin	<i>Falco columbarius</i>	0	0	0	0	1	0
Mistle thrush	<i>Turdus viscivorus</i>	1	2	3	12	1	3
Peregrine	<i>Falco peregrinus</i>	1	0	0	0	0	0
Pheasant	<i>Phasianus colchicus</i>	2	3	0	1	2	0
Pied wagtail	<i>Motacilla alba</i>	2	2	2	1	1	2
Raven	<i>Corvus corax</i>	4	31	5	47	17	24
Redpoll	<i>Carduelis flammae cabaret</i>	2	2	2	4	5	10
Reed bunting	<i>Emberzia schoenichus</i>	2	2	1	1	0	0
Ringed plover	<i>Charadrius hiaticula</i>	0	0	0	0	1	0
Robin	<i>Erithacus rubecula</i>	1	2	1	1	1	1
Rook	<i>Corvus frugilegus</i>	0	5	60	45	40	30
Siskin	<i>Carduelis spinus</i>	7	5	5	4	6	10
Song thrush	<i>Turdus philomelos</i>	1	2	0	0	0	2
Skylark	<i>Alauda arvensis</i>	7	6	4	2	0	15
Snipe	<i>Gallinago gallinago</i>	1	1	1	0	0	0
Sparrowhawk	<i>Accipiter nisus</i>	0	0	0	0	1	1
Starling	<i>Sturnus vulgaris</i>	3	6	20	10	30	25
Stonechat	<i>Saxicola torquatus</i>	1	1	0	0	17	2
Swallow	<i>Hirundo rustica</i>	5	40	9	14	12	1500
Wheatear	<i>Oenanthe oenanthe</i>	2	2	3	4	2	1
Willow Warbler	<i>Phylloscopus trochilus</i>	1	3	1	2	2	0
Woodpigeon	<i>Columba palumbus</i>	3	6	9	6	8	6
Wren	<i>Troglodytes troglodytes</i>	1	3	1	1	1	1

The following table outlines peak counts of all species recorded during the winter surveys 2020/21. A total of 43 species were recorded.

Winter 2020/21							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	1	4	3	5	4	5
Blue tit	<i>Parus caeruleus</i>	2	1	0	2	4	3
Buzzard	<i>Buteo buteo</i>	1	0	1	1	1	1

Winter 2020/21							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Chaffinch	<i>Fringilla coelebs</i>	2	11	15	7	3	4
Coal tit	<i>Periparus ater</i>	3	2	2	2	1	3
Dotterel	<i>Charadrius morinellus</i>	1	0	0	0	0	0
Duncock	<i>Prunella modularis</i>	1	0	1	3	3	1
Fieldfare	<i>Turdus pilaris</i>	0	35	260	9	10	5
Goldcrest	<i>Regulus regulus</i>	2	2	2	2	2	3
Goldfinch	<i>Carduelis carduelis</i>	4	8	0	3	5	10
Golden plover	<i>Pluvialis apricaria</i>	150	0	4	0	0	0
Great tit	<i>Parus major</i>	2	0	1	3	2	3
Grey wagtail	<i>Motacilla cinerea</i>	0	0	0	0	3	2
Hen Harrier	<i>Circus cyaneus</i>	1	1	0	0	0	1
Hooded crow	<i>Corvus cornix</i>	4	4	5	7	3	5
House Sparrow	<i>Passer domesticus</i>	0	0	0	2	0	0
Jackdaw	<i>Corvus monedula</i>	14	40	16	4	2	3
Kestrel	<i>Falco tinnunculus</i>	1	1	1	0	1	1
Linnet	<i>Carduelis cannabina</i>	10	8	10	0	0	0
Magpie	<i>Pica pica</i>	2	2	2	3	4	1
Meadow pipit	<i>Anthus pratensis</i>	22	20	12	0	5	8
Merlin	<i>Falco columbarius</i>	0	0	1	0	0	0
Mistle thrush	<i>Turdus viscivorus</i>	1	2	3	2	2	3
Peregrine	<i>Falco peregrinus</i>	1	0	0	0	0	0
Pheasant	<i>Phasianus colchicus</i>	3	2	0	5	7	13
Pied wagtail	<i>Motacilla alba</i>	2	5	3	7	3	7
Raven	<i>Corvus corax</i>	4	4	3	2	2	7
Redwing	<i>Turdus iliacus</i>	0	8	40	7	7	0
Reed bunting	<i>Emberzia schoenichus</i>	1	2	0	0	0	0
Robin	<i>Erithacus rubecula</i>	1	1	1	7	1	3
Rook	<i>Corvus frugilegus</i>	25	40	22	4	6	7
Sedge warbler	<i>Acrocephalus schoenobaenus</i>	0	0	0	3	4	7
Siskin	<i>Carduelis spinus</i>	8	4	4	0	0	0
Song thrush	<i>Turdus philomelos</i>	0	0	4	0	2	1
Skylark	<i>Alauda arvensis</i>	0	7	0	7	5	3
Snipe	<i>Gallinago gallinago</i>	1	0	0	1	1	0
Sparrowhawk	<i>Accipiter nisus</i>	1	1	0	0	0	0
Starling	<i>Sturnus vulgaris</i>	14	60	80	15	12	14
Stonechat	<i>Saxicola torquatus</i>	2	3	2	10	6	5
Tree sparrow	<i>Passer montanus</i>	0	0	0	3	4	5
Wheatear	<i>Oenanthe</i>	0	0	0	13	10	15
Woodpigeon	<i>Columba palumbus</i>	0	4	0	10	5	7
Wren	<i>Troglodytes troglodytes</i>	1	1	1	2	3	5

The following table outlines peak counts of all species recorded during the breeding surveys 2021. A total of 37 species were recorded.

Breeding 2021							
Common Name	Scientific Name	April	May	June	July	Aug	Sept
Blackbird	<i>Turdus merula</i>	3	2	1	1	1	0
Blue Tit	<i>Parus caeruleus</i>	2	1	0	0	0	0
Buzzard	<i>Buteo buteo</i>	1	3	1	0	1	0
Chaffinch	<i>Fringilla coelebs</i>	6	5	1	1	0	0
Coal Tit	<i>Periparus ater</i>	2	0	0	0	0	0
Cuckoo	<i>Cuculus canorus</i>	0	2	0	0	0	0
Dunnock	<i>Prunella modularis</i>	2	0	0	0	0	0
Goldcrest	<i>Regulus regulus</i>	1	0	0	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	3	3	0	0	0	0
Great Tit	<i>Parus major</i>	3	2	0	0	0	0
Hen Harrier	<i>Circus cyaneus</i>	2	0	0	0	0	0
Hooded Crow	<i>Corvus cornix</i>	8	3	1	1	0	0
House Martin	<i>Delichon urbicum</i>	0	0	0	0	1	0
House Sparrow	<i>Passer domesticus</i>	3	2	0	0	0	0
Jackdaw	<i>Corvus monedula</i>	4	0	0	0	0	0
Kestrel	<i>Falco tinnunculus</i>	1	0	1	0	1	0
Lesser Black-backed Gull	<i>Larus fuscus</i>	0	0	1	0	0	0
Magpie	<i>Pica pica</i>	3	3	0	1	1	0
Mallard	<i>Anas platyrhynchos</i>	2	0	0	0	0	0
Meadow Pipit	<i>Anthus pratensis</i>	3	2	1	1	1	0
Merlin	<i>Falco columbarius</i>	0	0	0	0	0	0
Mistle Thrush	<i>Turdus viscivorus</i>	3	1	1	1	1	0
Pheasant	<i>Phasianus colchicus</i>	2	9	1	1	1	0
Pied Wagtail	<i>Motacilla alba</i>	3	2	0	1	0	0
Raven	<i>Corvus corax</i>	2	1	1	1	1	0
Red Grouse	<i>Lagopus lagopus hibernicus</i>	2	0	0	0	0	0
Reed Bunting	<i>Emberzia schoeniclus</i>	2	1	0	0	0	0
Robin	<i>Erithacus rubecula</i>	4	4	1	1	0	0
Rook	<i>Corvus frugilegus</i>	6	7	1	1	1	0
Skylark	<i>Alauda arvensis</i>	4	4	1	1	0	0
Snipe	<i>Gallinago gallinago</i>	1	0	0	0	0	0
Song Thrush	<i>Turdus philomelos</i>	0	1	0	1	0	0
Starling	<i>Sturnus vulgaris</i>	12	0	0	0	1	0
Swallow	<i>Hirundo rustica</i>	3	3	1	1	1	0
Wheatear	<i>Oenanthe oenanthe</i>	9	1	0	0	0	0
Woodpigeon	<i>Columba palumbus</i>	4	3	1	1	1	0
Wren	<i>Troglodytes troglodytes</i>	2	6	0	1	0	0

The following table outlines peak counts of all species recorded during the winter surveys 2021/22. A total of 41 species were recorded.

Winter 2021/22							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Blackbird	<i>Turdus merula</i>	1	5	3	7	3	3
Blue Tit	<i>Parus caeruleus</i>	0	2	4	4	3	2
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	1	4	0	0	0
Buzzard	<i>Buteo buteo</i>	0	1	1	0	0	0
Chaffinch	<i>Fringilla coelebs</i>	5	7	5	6	9	7
Coal Tit	<i>Periparus ater</i>	1	1	1	2	2	0
Crossbill	<i>Loxia curvirostra</i>	0	6	3	0	2	0
Dunnock	<i>Prunella modularis</i>	0	1	1	1	1	0
Fieldfare	<i>Turdus pilaris</i>	0	15	170	500	100	40
Goldcrest	<i>Regulus regulus</i>	3	2	9	1	1	2
Golden Plover	<i>Pluvialis apricaria</i>	0	15	0	0	0	20
Goldfinch	<i>Carduelis carduelis</i>	0	0	0	0	6	2
Great Tit	<i>Parus major</i>	0	1	0	2	1	0
Hen Harrier	<i>Circus cyaneus</i>	0	0	1	0	0	0
Hooded Crow	<i>Corvus cornix</i>	25	4	5	7	6	9
Jackdaw	<i>Corvus monedula</i>	40	25	30	20	50	30
Jay	<i>Garrulus glandarius</i>	3	0	1	0	1	0
Kestrel	<i>Falco tinnunculus</i>	0	1	1	0	0	0
Linnet	<i>Carduelis cannabina</i>	0	4	0	8	0	0
Magpie	<i>Pica pica</i>	6	6	3	4	7	3
Mallard	<i>Anas platyrhynchos</i>	0	0	7	0	0	0
Meadow Pipit	<i>Anthus pratensis</i>	10	13	10	7	6	5
Merlin	<i>Falco columbarius</i>	0	0	1	0	0	0
Mistle Thrush	<i>Turdus viscivorus</i>	2	1	3	7	4	2
Pheasant	<i>Phasianus colchicus</i>	1	3	4	2	4	3
Pied Wagtail	<i>Motacilla alba</i>	2	2	1	1	3	2
Raven	<i>Corvus corax</i>	5	3	6	12	7	6
Redpoll	<i>Carduelis flammea cabaret</i>	0	7	0	3	0	0
Redwing	<i>Turdus iliacus</i>	0	0	15	12	0	0
Reed Bunting	<i>Emberzia schoenichus</i>	0	0	0	3	1	2
Robin	<i>Erithacus rubecula</i>	1	1	1	1	2	1
Rook	<i>Corvus frugilegus</i>	30	16	70	30	80	18
Siskin	<i>Carduelis spinus</i>	0	12	0	4	4	14
Skylark	<i>Alauda arvensis</i>	0	2	0	0	2	4
Snipe	<i>Gallinago gallinago</i>	0	0	1	0	0	0
Song Thrush	<i>Turdus philomelos</i>	0	0	2	3	6	1
Sparrowhawk	<i>Accipiter nisus</i>	0	1	0	0	0	0
Starling	<i>Sturnus vulgaris</i>	24	50	120	50	90	40
Stonechat	<i>Saxicola torquatus</i>	2	1	2	0	1	2
Woodpigeon	<i>Columba palumbus</i>	10	9	3	7	9	3

Winter 2021/22							
Common Name	Scientific Name	Oct	Nov	Dec	Jan	Feb	Mar
Wren	<i>Troglodytes troglodytes</i>	1	1	1	2	2	1

The following table outlines peak counts of all species recorded during the breeding surveys 2022. A total of 46 species were recorded.

Breeding 2022							
Common Name	Scientific Name	April	May	June	Jul	Aug	Sep
Blackbird	<i>Turdus merula</i>	1	4	6	6	4	1
Blackcap	<i>Sylvia atricapilla</i>	0	2	0	0	0	0
Blue Tit	<i>Parus caeruleus</i>	0	4	0	0	0	0
Bullfinch	<i>Pyrrhula pyrrhula</i>	0	2	2	2	0	0
Buzzard	<i>Buteo buteo</i>	4	3	2	1	3	1
Chaffinch	<i>Fringilla coelebs</i>	5	4	3	4	3	2
Chiffchaff	<i>Phylloscopus collybita</i>	0	4	1	2	1	0
Coal Tit	<i>Periparus ater</i>	2	3	1	0	1	1
Crossbill	<i>Loxia curvirostra</i>	0	0	0	4	2	5
Cuckoo	<i>Cuculus canorus</i>	0	2	0	0	0	0
Dunnock	<i>Prunella modularis</i>	0	1	0	0	0	0
Fieldfare	<i>Turdus pilaris</i>	2	0	0	0	0	0
Goldcrest	<i>Regulus regulus</i>	2	4	2	3	1	0
Golden Plover	<i>Pluvialis apricaria</i>	1	0	0	0	0	0
Goldfinch	<i>Carduelis carduelis</i>	0	0	0	4	0	3
Great Tit	<i>Parus major</i>	1	0	0	0	0	0
Hen Harrier	<i>Circus cyaneus</i>	0	0	0	0	1	0
Herring Gull	<i>Larus argentatus</i>	0	0	0	1	1	0
Hooded Crow	<i>Corvus cornix</i>	6	4	6	4	5	6
House Martin	<i>Delichon urbicum</i>	0	0	0	2	0	10
House Sparrow	<i>Passer domesticus</i>	0	0	0	5	0	0
Jackdaw	<i>Corvus monedula</i>	12	4	18	12	15	20
Jay	<i>Garrulus glandarius</i>	0	2	0	1	0	0
Kestrel	<i>Falco tinnunculus</i>	2	1	1	2	3	2
Magpie	<i>Pica pica</i>	2	2	4	4	7	6
Meadow Pipit	<i>Anthus pratensis</i>	4	6	10	12	10	6
Mistle Thrush	<i>Turdus viscivorus</i>	2	1	2	9	32	7
Pheasant	<i>Phasianus colchicus</i>	2	5	6	2	1	3
Pied Wagtail	<i>Motacilla alba</i>	1	2	2	2	2	2
Raven	<i>Corvus corax</i>	6	4	4	4	4	4
Redpoll	<i>Carduelis flammea cabaret</i>	0	0	2	4	3	4
Reed Bunting	<i>Emberzia schoenichus</i>	2	1	0	0	0	0
Robin	<i>Erithacus rubecula</i>	1	2	1	1	1	1
Rook	<i>Corvus frugilegus</i>	14	7	20	30	20	30
Sand Martin	<i>Riparia riparia</i>	0	0	0	0	0	10

Breeding 2022							
Common Name	Scientific Name	April	May	June	Jul	Aug	Sep
Siskin	<i>Carduelis spinus</i>	6	5	6	8	7	8
Skylark	<i>Alauda arvensis</i>	2	2	4	3	4	0
Song Thrush	<i>Turdus philomelos</i>	2	2	0	0	0	0
Starling	<i>Sturnus vulgaris</i>	12	14	16	20	30	40
Stonechat	<i>Saxicola torquatus</i>	2	2	2	2	4	2
Swallow	<i>Hirundo rustica</i>	0	7	20	22	25	20
Wheatear	<i>Oenanthe oenanthe</i>	0	1	2	2	3	1
Whitethroat	<i>Sylvia communis</i>	0	0	1	0	0	0
Willow Warbler	<i>Phylloscopus trochilus</i>	0	2	2	1	0	0
Woodpigeon	<i>Columba palumbus</i>	6	6	6	12	4	6
Wren	<i>Troglodytes troglodytes</i>	2	2	2	2	1	1

Appendix 11

Nocturnal Surveys Summary and Results

Nocturnal Survey Summary and Results

Woodcock, Nightjar, Owl Nocturnal Survey Summary

Date	Observer	Start Time	Finish Time	Length of watch (hours)	Weather
09/06/2020	ED	21.00	24.05	3	light winds, overcast, southwest wind f3, temp 10oC, visibility -
16/07/2020	ED	21.25	23.55	3	Clear, calm conditions, west wind f2, temp 13oC, visibility excellent

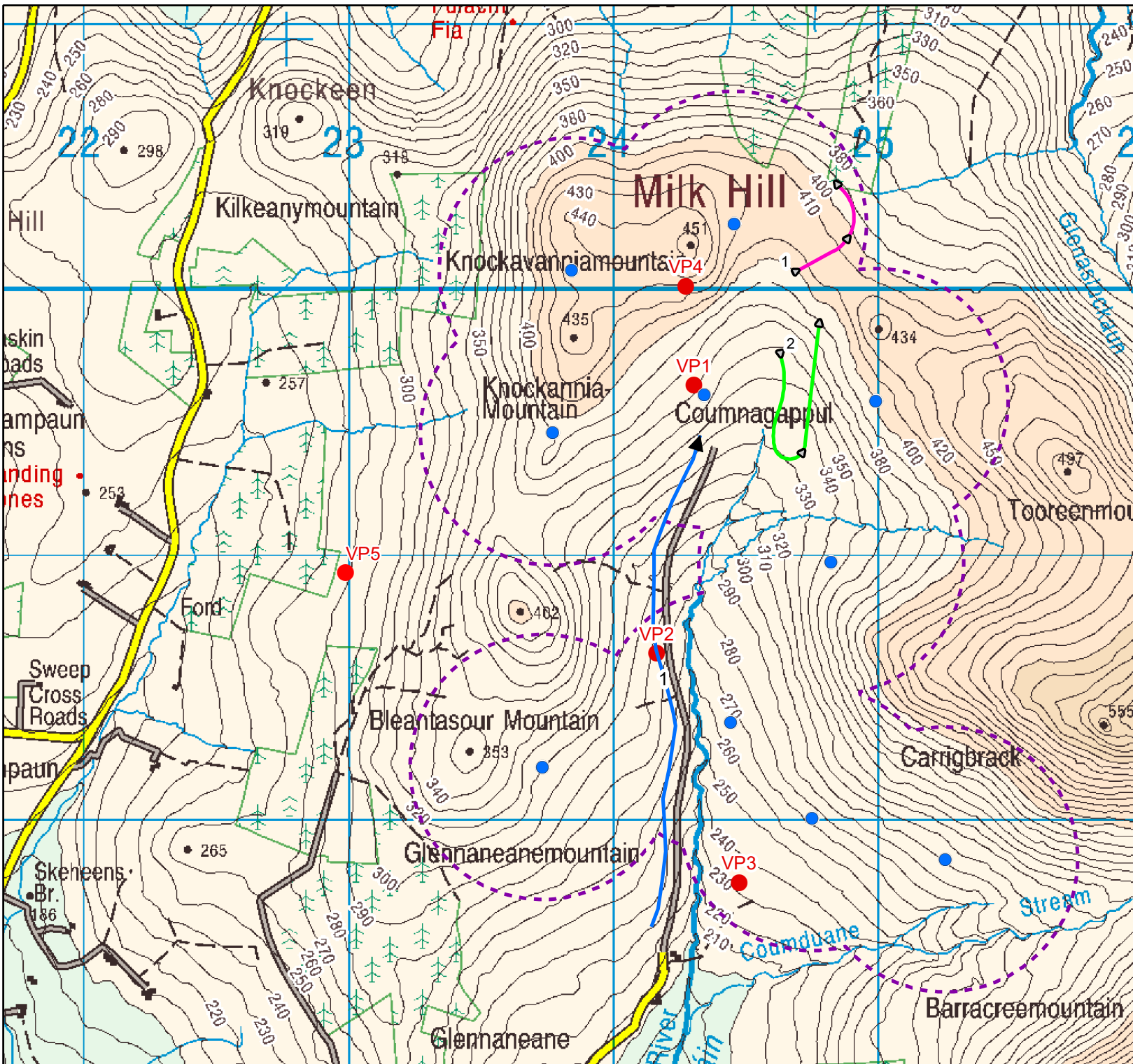
Woodcock and Nightjar, Owl Nocturnal Survey Results

- No woodcock, nightjar or owl observed during the June and July surveys.

Other Species Recorded During Survey

Species	Date	Flight Path No.	Description
Snipe	09/06/2020	1	One snipe was observed to the northeast displaying.
Snipe	16/07/2020	2	One snipe was observed to the northeast displaying.

See map below



Legend


- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- ➔ Transect 1

Snipe Flight Path
Date, Ref no.

- ➔ 09/06/2020, 1
- ➔ 16/07/2020, 2

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CYAL50332198.

0 0.45 0.9 km



Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer 2020 Nightjar and
Woodcock Nocturnal Surveys

Drawn: AF **Checked:** FM

Date: 22/06/2023 **Scale (A4):** 1:20,000



Appendix 12

Merlin, Red grouse & Golden plover Walkover Summary and Results

Walkover Survey Summary and Result

Merlin, Red grouse and Golden plover Walkover Survey Summary

Date	Observer	Start Time	Finish Time	Length of watch (hours)	Weather
09/06/2020	ED	09.20	15.20	6	Light winds, overcast, southwest wind f2, temp 12oC, visibility excellent
17/07/2020	ED	10.25	16.25	6	Overcast with showers, southwest wind f4, temp 16oC, visibility moderate to good

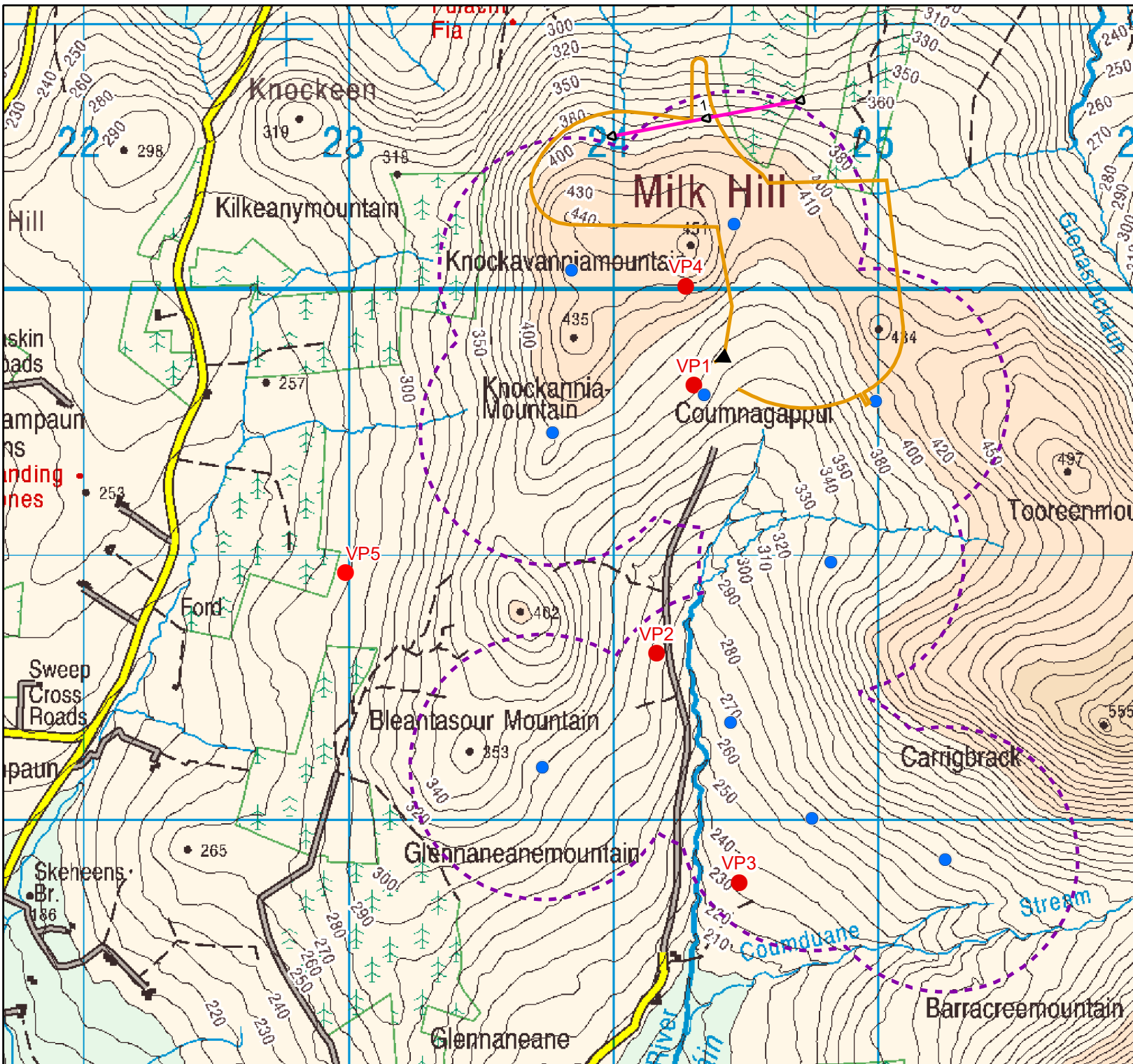
Merlin, Red grouse and Golden plover Walkover Survey Results

- No golden plover or merlin were observed in June or July.

Other Species Recorded During Surveys

Species	Date	Flight Path No.	Description
Hen harrier	17/07/2020	1	At 12.35am a male hen harrier was observed to the north flying in an east to west direction over grassland moorland at a height of 3m.

See map below.



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- Merlin, Red Grouse & Golden Plover Walkover Route


Hen Harrier Flight Path

Date, Time, Ref No.

→ 17/10/2020, 12:35, 1

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CYAL50332198.

0 0.45 0.9 km



Project Title:
20122 - Coumna gappul WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer 2020 Merlin, Red Grouse and
Golden Plover Walkover

Drawn: AF Checked: FM

Date: 22/06/2023 Scale (A4): 1:20,000



Appendix 13

Red grouse Walkover Survey Summary and Results

Red grouse Walkover Survey Summary and Results

Red grouse Walkover Survey Summary

Date	Observer	Start Time	Finish Time	Weather
02/06/2022	ED	10.10	14.25	Cloud cover 5/8, sunny spells. Southwest wind f3, temp 13oC, visibility very good.
05/07/2022	ED	16.00	19.50	Cloud cover 8/8, misty conditions. Northwest wind f4, temp 13oC. Visibility good.

Red grouse Walkover Survey Results

- No red grouse were observed in June.
- No red grouse were observed in July.

Appendix 14

Hinterland Raptor Survey Summary and results

Hinterland Raptor Survey Summary and Results

Hinterland Raptor Survey Summary

Date	Observer	Start Time	Finish Time	Length of watch (hours)	Weather
14/06/2020	ED	09.40	15.40	6	Sunny spells with showers, southwest wind f3, temp 15oC, visibility very good
19/07/2020	ED	09.50	15.55	6	Sunny and warm, northwest wind f3, temp 18oC, visibility excellent

Hinterland Raptor Survey Results

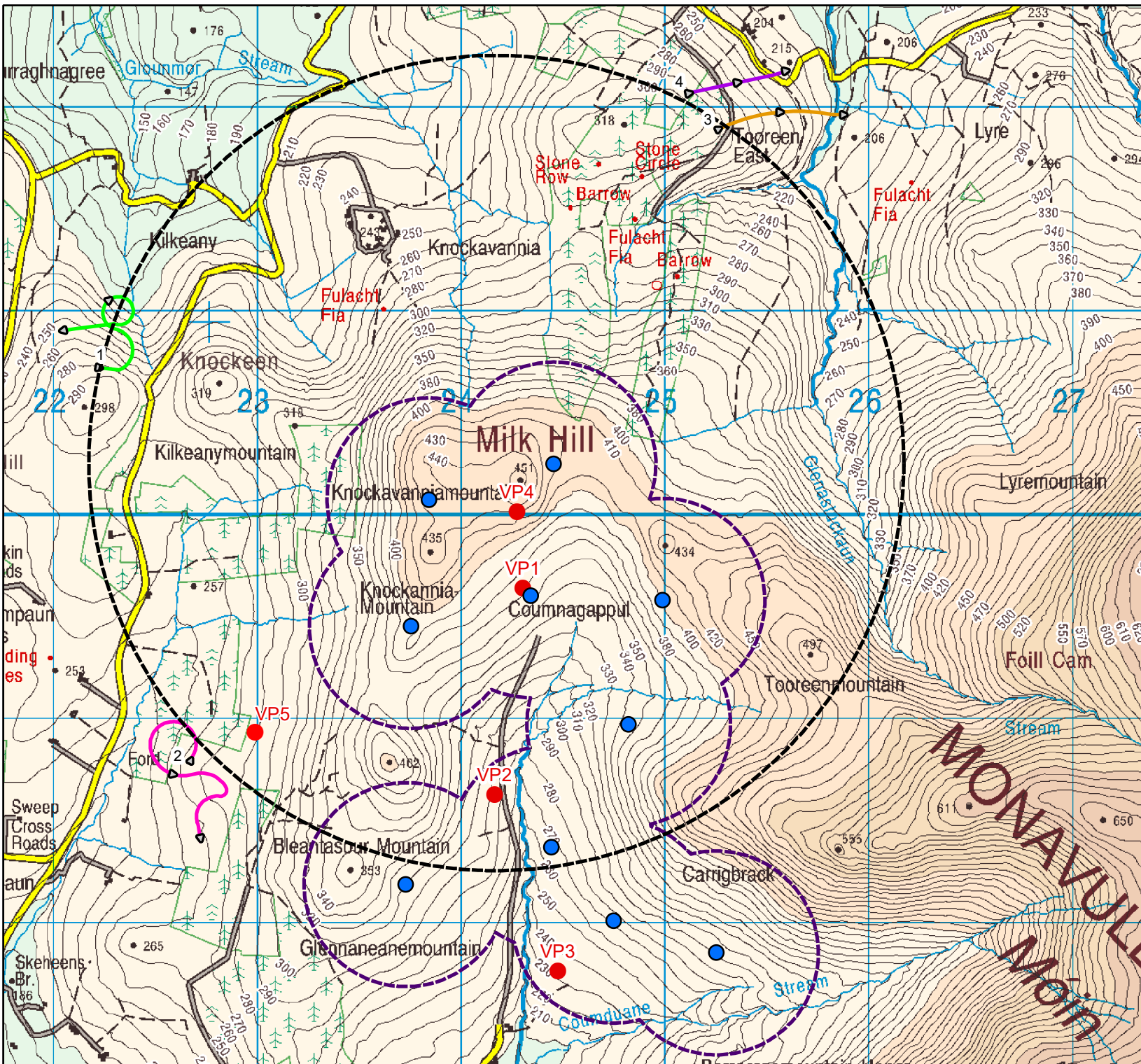
June

Species	Date	Flight Path No.	Description
Buzzard	14/06/2020	1	A buzzard was observed hunting at 20m flight height.
Buzzard	14/06/2020	2	A buzzard was observed flying at 40m flight height.
Buzzard	14/06/2020	3	Two buzzards were observed soaring at 70m flight height.
Kestrel	14/06/2020	4	A kestrel was observed flying at 30m flight height.

July

Species	Date	Flight Path No.	Description
Sparrowhawk	19/07/2020	5	At 12.20pm a sparrowhawk was observed soaring at 20m flight height above thicket for 25 seconds.
Buzzard	19/07/2020	6	At 13.50pm an adult buzzard was observed soaring at 50m flight height over grassland moorland for 15 seconds.
Buzzard	19/07/2020	7	At 15.40pm a buzzard was observed flying at 100m flight height for 20 seconds.

See maps below



Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- Hinterland Raptor Survey

Buzzard Flight Path
Date, Ref no.

- ▶ 14/06/2020, 1
- ▶ 14/06/2020, 2
- ▶ 14/06/2020, 3

Kestrel Flight Path
Date, Ref no.

- ▶ 14/06/2020, 4

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CYAL50261645.

0 0.5 1 km

Project Title:
20122 - Coumna WF Bird Surveys

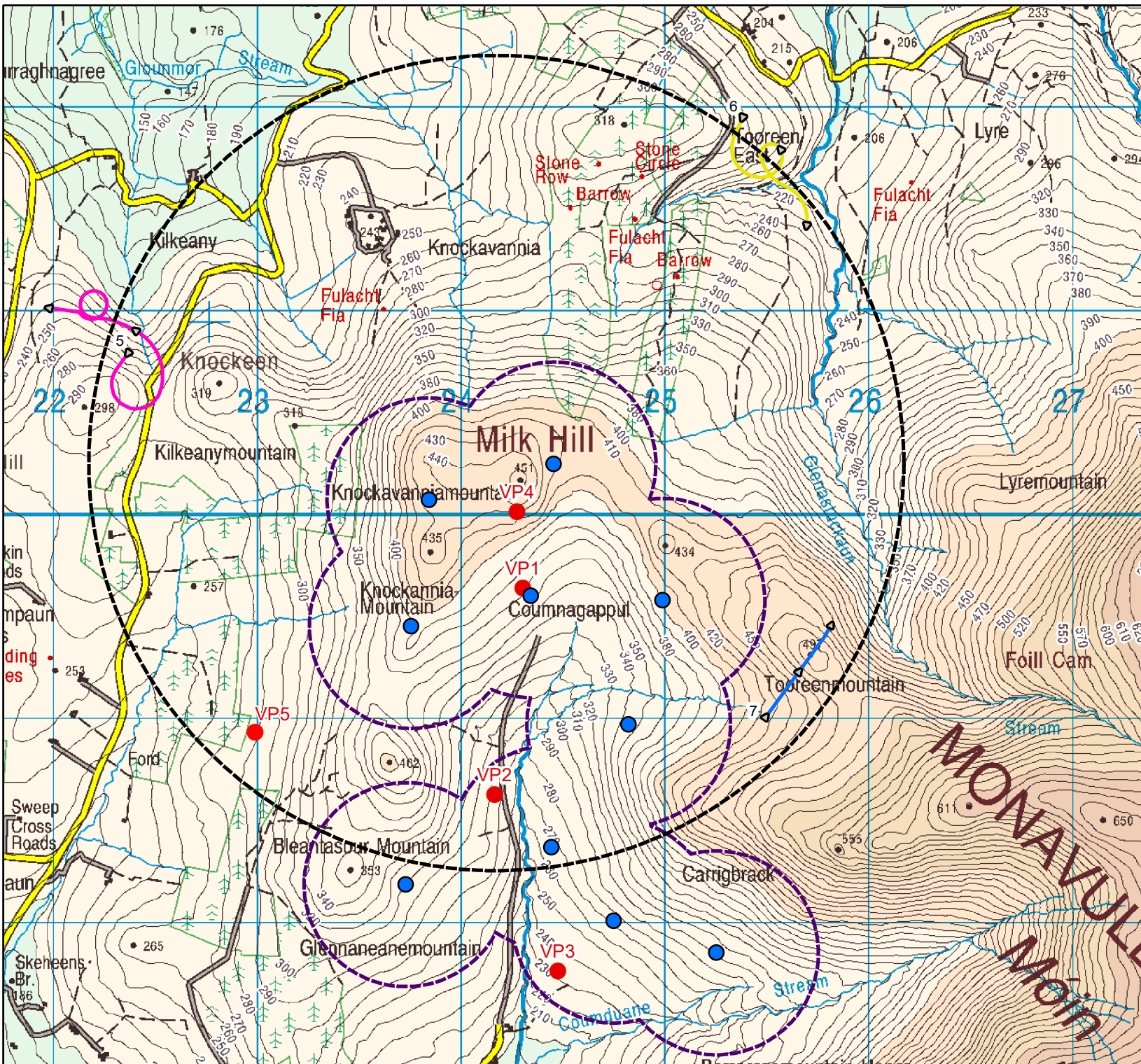
Client: EM - Power

Drawing Title:
Summer 2020 Hinterland Raptor
Survey June

Drawn: AF Checked: FM

Date: 08/12/2022 Scale (A4): 1:26,000





Legend

- Vantage Point
- Turbine Location
- 500m Turbine Buffer
- Hinterland Raptor Survey Area

Sparrowhawk Flight Path
Date, Ref no.
▶▶▶ 19/07/2020, 5

Buzzard Flight Path
Date, Ref no.
▶▶▶ 19/07/2020, 6
▶▶▶ 19/07/2020, 7

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0 0.5 1 km

Project Title:
20122 - Coumna WF Bird Surveys

Client: EM - Power

Drawing Title:
Summer 2020 Hinterland Raptor Survey July

Drawn: AF **Checked:** FM

Date: 08/12/2022 **Scale (A4):** 1:26,000





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