



Cloiche Wind Farm EIA Report

Chapter 9 Technical Appendix:

9.1. Ornithological Desk Study & Survey Report

April 2020

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1. INTRODUCTION

1.1 Purpose of this Document

- 1.1.1 This is a technical appendix to Chapter 9 (Ornithology) of the Cloiche Wind Farm Environmental Impact Assessment (EIA) Report. This document refers to various figures and other Technical Appendixes associated with Chapter 9 of the EIA Report.
- 1.1.2 This document provides further background information in relation to the various ornithological desk studies and surveys completed between August 2018 and August 2019, the results of which are summarised in Chapter 9 and fully considered within the assessment.

1.2 Background

- 1.2.1 A set of surveys was completed in order to systematically assess the use of all habitats within the Cloiche Wind Farm (the 'Proposed Development') study area by breeding and non-breeding birds, with a particular focus on species of UK conservation concern and species/groups that are potentially sensitive to wind farm development. All surveys were completed by suitably experienced surveyors following well-established survey methods, largely based on Scottish Natural Heritage (SNH) guidance for surveys of proposed onshore wind farm sites current at the time (SNH 2017¹).
- 1.2.2 The following surveys were completed to provide baseline data to inform the impact assessment:
- Winter and Summer Flight Activity Surveys, from strategically located vantage points (VPs) (August 2018 to August 2019), see Chapter 9 Figures 9.3a-9.3b, a minimum of 72 hours of observation per VP;
 - Various breeding bird surveys were completed to determine the presence and distribution of breeding territories/sites of certain key species of interest to the assessment within the core and wider survey areas (see Chapter 9 Figure 9.2a-9.2b):
 - Surveys for breeding moorland waders (April to mid-July 2019);
 - Additional focal surveys for breeding greenshank (April to June 2019); and
 - Breeding moorland raptors (March to August 2019).
 - Wintering Bird Surveys (2018/19), including walkover surveys to assess the use of the core survey area by passage and wintering birds, supplementing observations from the flight activity survey, and regular checks of waterbodies (see Chapter 9 Figure 9.2a-b).
- 1.2.3 All surveys were completed by suitably experienced and, where appropriate, licensed surveyors following current best practice methods.
- 1.2.4 The 2018-19 bird surveys were focused on the potential wind turbine areas as defined at that time, which was a larger potential development than what is now proposed. Subsequently the wind turbine area has been reduced in extent in response to the emerging engineering and environmental constraints.
- 1.2.5 The general survey scope, methods and survey effort was agreed in consultation with SNH as part of the EIA scoping process (see Chapter 9 for further details). It was agreed

¹ Scottish Natural Heritage (2017). Recommended bird survey methods to inform impact assessment of onshore wind farms. March 2017, version 2.

that 12 months of baseline survey (2 years of survey is the standard) would be sufficient to inform the EIA process, in this case, due to the amount of existing bird data available for the general area from previous surveys and monitoring work (e.g. various baseline and monitoring surveys for Glendoe Hydroelectric Scheme and Stronelairg Wind Farm and from annual breeding golden eagle monitoring).

2. METHODS

2.1 Introduction

2.1.1 This section provides a summary of the methods adopted for the desk study and field surveys which were completed to inform the assessment of the Proposed Development.

2.2 Desk Study

2.2.1 An initial desk study was completed prior to the start of fieldwork in August 2018. The purpose of this initial study was to ensure that all relevant species that could potentially be present in the study area, based on their known breeding or wintering ranges and the broad habitats present, were taken into consideration in survey planning.

2.2.2 Information on designated sites (local, regional, national and international) that have ornithological interest was also collated during the initial desk study. In addition to this, following SNH guidance on SPA bird populations and potential connectivity to habitats affected by onshore wind farm development, any potentially relevant SPAs up to 20km from the site were also considered (SNH 2016²).

2.2.3 Details of international and national designated sites, such as Special Areas of Conservation (SACs) and SSSIs, were obtained through SNH's Natural Spaces website, and associated Geographic Information System (GIS) data made publicly available by SNH.

2.2.4 A review of the extensive information available from various bird surveys completed within the vicinity of the Proposed Development was also completed. These datasets related to the Glendoe Hydroelectric Scheme and the baseline surveys and monitoring carried out for Stronelairg Wind Farm, including the following:

- Data collated for the EIA, pre-construction and post-construction monitoring for the Glendoe Hydroelectric scheme (2002-2003 and 2004, and 2006-2014);
- Results from baseline surveys and assessments completed for the EIA of Stronelairg Wind Farm, including bird flight activity data for golden eagle and other target species collected during: Summer 2009; Winter 2009 / 10; Summer 2010; Winter 2010 / 11; and Winter 2011 / 12;
- Results from pre-construction surveys and Ecological Clerk of Works (ECoW) monitoring completed prior to and during the construction of Stronelairg Wind Farm (2015-2018);
- Data provided by Highland Raptor Study Group (HRSG) in relation to annual monitoring of breeding golden eagle pairs with territories that may overlap with the Stronelairg Wind Farm and the Proposed Development (covering the period 2015-2018); and
- Winter 2017 / 18 bird flight activity data of the Proposed Development area collected by Envirocentre for SSE. Limited watches were undertaken between October 2017 to March 2018, when weather and access allowed, from five VPs overlooking the

² Scottish Natural Heritage (2016). Assessing Connectivity with Special Protection Areas. June 2016, version 3.

Proposed Development. Winter walkovers also were conducted on part of the site between October 2017 and March 2018, when weather and access allowed.

- 2.2.5 A summary of the key, non-confidential, findings from the baseline surveys is provided in Section 3 of this Appendix, and any sensitive records within the Confidential Annex. A map showing the survey areas of these various studies and how they overlap with the Proposed Development is provided in this Appendix as Figure 9.1.1.
- 2.2.6 A further desk study process was completed during the wind farm design phase. This involved contacting a range of organisations that hold bird records and requesting any relevant data they may hold for the study area. Requests for data were placed with the following organisations:
- British Trust for Ornithology (BTO);
 - Royal Society for the Protection of Birds (RSPB); and
 - Highland Raptor Study Group.
- 2.2.7 It is important to note that due to the remote nature of the site many receptor species considered in the assessment, with the exception of golden eagle, have generally not been monitored in detail by these organisations. Therefore, the absence of records for any species should not be treated as evidence that the species is not present in a particular area. Where there is suitable habitat, and the site is within the distributional range of the species, a precautionary approach is followed in relation to any judgements made on site importance or the need for surveys based on the desk study data alone.
- 2.2.8 The information from the desk studies and field surveys was used to help inform the wind farm design process as well as the assessment of effects of the proposals. In addition, outputs from the Golden Eagle Topographic (GET) model (Fielding *et al.* 2019³) and the PAT model (McLeod *et al.* 2002⁴) were used to inform the wind farm design process, in relation to reducing the potential impact of the proposals on breeding golden eagle and the assessment of effects from the Proposed Development. The results of the GET modelling work are provided in Technical Appendix 9.2 and the PAT model report is provided in the Confidential Annex to Chapter 9.

2.3 Potential Receptor Species

- 2.3.1 The surveys focused on populations of bird species that are known to be sensitive to effects from the construction and / or operation of onshore wind farms. Particular consideration has been given in this assessment to those species whose populations are also of conservation concern in the UK and / or Europe. These include:
- Species listed on Annex I of the European Council Directive 2009/147/EC on the Conservation of Wild Birds (i.e. 'Annex I' species);
 - Species listed on Schedule 1 to the Wildlife and Countryside Act 1981, as amended (i.e. 'Schedule 1' species); and
 - Species of national conservation concern, not included within the above categories, but that are present within the study area in nationally or regionally important numbers.
- 2.3.2 Table 9.1.1 provides a list of key species, based on the above criteria, which were identified through the initial desk study process as potentially present within the study

³ Fielding, A.H., Haworth, P.F., Anderson, D., Benn, S., Dennis, R., Weston, E. & Whitfield, D.P. (2019). A simple topographical model to predict Golden Eagle *Aquila chrysaetos* space use during dispersal. *Ibis*.

⁴ McLeod, D.R.A., Whitfield, D.P., Fielding, A.H., Haworth, P.F. & McGrady, M.J. (2002). Predicting home range use by golden eagles *Aquila chrysaetos* in western Scotland. *Avian Science*. 2: 183-198.

area and relevant to the assessment. Following completion of the baseline surveys, and emergence of the design for the Proposed Development, a more focused list of ornithological receptors for the assessment was determined. Further detail is provided in section 9.5 of Chapter 9.

Table 9.1.1: Key Species and their Legal and Conservation Status

Common Name	Scientific Name	Sch. 1 ⁱ	Ann. I ⁱⁱ	UK BoCC ⁱⁱⁱ	BAP ^{iv}	SBL ^v
Whooper swan	<i>Cygnus cygnus</i>	✓	✓	Amber		✓
Common scoter	<i>Melanitta nigra</i>	✓		Red	UK	✓
Black grouse	<i>Lyrurus tetrix</i>			Red	UK	✓
Red-throated diver	<i>Gavia stellata</i>	✓	✓	Green		✓
Slavonian grebe	<i>Podiceps auritus</i>	✓	✓	Red		✓
Red kite	<i>Milvus milvus</i>	✓	✓	Green		✓
White-tailed eagle	<i>Haliaeetus albicilla</i>	✓	✓	Red		✓
Hen harrier	<i>Circus cyaneus</i>	✓	✓	Red		✓
Golden eagle	<i>Aquila chrysaetos</i>	✓	✓	Green		✓
Osprey	<i>Pandion haliaetus</i>	✓	✓	Amber		✓
Golden plover	<i>Pluvialis apricaria</i>		✓	Green		✓
Dotterel	<i>Charadrius morinellus</i>	✓	✓	Red		✓
Dunlin	<i>Calidris alpina schinzii</i>		✓	Amber		✓
Greenshank	<i>Tringa nebularia</i>	✓		Amber		
Merlin	<i>Falco columbarius</i>	✓	✓	Red		✓
Peregrine	<i>Falco peregrinus</i>	✓	✓	Green		✓

i. Species listed on Schedule 1 to the Wildlife and Countryside Act 1981 (as amended).

ii. Species listed on Annex I of the EC Birds Directive (Directive 2009/147/EC on the conservation of wild birds - the codified version).

iii. Birds of Conservation Concern (BoCC) in the UK (Eaton et al. 2015⁵).

iv. Priority species in the 2007 UK Biodiversity Action Plan, The UK BAP has been superseded by the UK Post-2010 Biodiversity Framework (JNCC 2012⁶).

v. Species included on the Scottish Biodiversity List (SBL⁷), which is part of the Scottish Biodiversity Strategy (originally published by the Scottish Government in May 2004).

2.4 Flight Activity Surveys

2.4.1 Flight activity surveys, focusing on certain key species (primarily wildfowl and raptors of conservation concern), were carried out between August 2018 and August 2019. Data on flight activity, flight behaviour, direction and height above ground level for particular focal species were collected during timed watches following the methods described in Band et al. (2007⁸) and SNH (2017¹).

⁵ Eaton, M. A., Aebischer, N. J., Brown, A. F., Hearn, R. D., Lock, L., Musgrove, A. J., Noble, D. G., Stroud, D. A and Gregory, R. D. (2015) Birds of Conservation 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 108: 708-746.

⁶ JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. UK Post-2010 Biodiversity Framework. July 2012.

⁷ Scottish Biodiversity List. Available at: <https://www.nature.scot/scotlands-biodiversity/scottish-biodiversity-strategy/scottish-biodiversity-list>

⁸ Band, W., Madders, M., and Whitfield, D.P. (2007). Developing field and analytical methods to assess avian collision risk at wind farms. In: de Lucas, M., Janss, G. F. E. and Ferrer, M. (Eds.). *Birds and Wind Farms: Risk Assessment and Mitigation*, pp. 259-275. Quercus, Madrid.

- 2.4.2 The aim of these surveys was to sample and systematically record flight activity relative to the proposed wind turbine area during all periods of the year, covering the breeding season and the spring / autumn migration periods.
- 2.4.3 The flight activity survey findings, periodically collated during the survey period, were used to identify any parts of the survey area where activity by target species was concentrated at a level where the risk of bird collision or displacement from important habitats might be significant. This information was used to inform the design of the wind farm layout and avoid, where possible, potentially significant effects through the placement of wind turbines.
- 2.4.4 Additionally, the data collected during the flight activity surveys were used alongside standard modelling techniques, to provide quantitative estimates of annual bird mortality from collisions, following the methods described in Band *et al.* (2007⁸). The estimates of annual collisions were used to inform the assessment of the potential impacts of the proposed wind farm on target species.
- 2.4.5 For the flight activity survey, species were divided into two groups of 'target' and 'secondary'. Target species were those considered to be of relatively high conservation concern and sensitivity to wind turbines. This list is based on guidance on the sensitivity of different bird species to wind farm development (e.g. Bright *et al.* 2006⁹, SNH 2014¹), the location of the Proposed Development relative to the known breeding or winter range of the species, and the presence of potentially suitable habitats for the species within and adjacent to the Site.
- 2.4.6 Observers would preferentially record target species when both target and secondary species are present in their field of view. The two groups are as follows:
- Target species – common scoter, red-throated diver, and Slavonian grebe; white-tailed eagle, hen harrier, golden eagle, osprey, merlin, and peregrine; wild geese and swan species (e.g. whooper swan, pink-footed goose, greylag goose), and waders (golden plover, dunlin, and greenshank); and
 - secondary species / groups - all other Schedule 1 raptors not listed above, all other waders and waterbirds, with the possible exception of common kestrel and some gull species where flight activity levels were high.
- 2.4.7 Bird flight activity data was collected during watches from six VPs (August 2018 to August 2019) which were chosen to collectively provide good visibility of likely wind turbine flight risk volume (see Chapter 9 Figures 9.3a-9.3b).
- 2.4.8 VP 5B location was initially used but later discounted for further surveys due to the potential for significant 'observer effect' on golden eagle flight behaviour, potentially resulting in a reduction in flight activity within the Proposed Development area during the survey. This location was also unsuitable for use during the winter when much of the site was covered in deep snow cover. VP 5A was more accessible, likely to result in a reduced potential observer effect on bird behaviour and had a broadly similar viewshed, in relation to the proposed wind turbine areas, in comparison to 5B.
- 2.4.9 Various alternative locations were used for VP 2 (B, C and D) during periods of bad weather when safe access to VP 2A was hampered by deep snow cover during the winter.
- 2.4.10 Watches were also timed to ensure that observations from the VP were spread evenly through different times of day (including dawn and dusk) across the survey period as a

⁹ Bright, J.A., Langston, R.H.W., Bullman, R., Evans, R.J., Gardner, S. and Pearce-Higgins, J.W. (2008). Map of bird sensitivities to wind farms in Scotland: A tool to aid planning and conservation. *Biological Conservation* 141: 2342–2356.

whole. To assist with this distribution of the timing of the watches a schedule was used which divided days into survey periods, dependent upon day length. In the summer months, with longer day lengths, five survey periods were adopted, whilst in the autumn and spring passage periods this was reduced to four. Over the winter period, with the shortest day lengths, three survey periods were used.

2.4.11 Flight activity watches were carried out in a variety of weather conditions, only being curtailed when persistent poor visibility or high wind speeds was adversely affecting flight activity by target or secondary species.

2.4.12 During each watch the area in view (also referred to as the viewshed) was scanned constantly, by eye and by using binoculars and telescope, until a target species was detected in flight. Once detected, the target bird was followed until it ceased flying or was lost to view. The routes taken by the birds (flight lines) were plotted in the field onto appropriately scaled maps. The time the bird(s) was first detected, the approximate height (in pre-defined height bands, see below) and the duration of the flight, while in view, were recorded on standardised forms.

2.4.13 It was intended that a total of minimum of 72 hours of observations were to be completed from each VP (combined viewshed) during August 2018 to July 2019. Table 9.1.2 provide a breakdown of the flight activity survey effort by month. Further detail is provided in Appendix

Table 9.1.2: Hours of Observation Completed at each Vantage Point (August 2018 to August 2019)

Year	Season	Month	VP No.										Totals	
			1	2				3	4	5		6		
				A	B	C	D			A	B	A		B
2018	Summer	August	6	6				6	6	3	3		6	36
	Autumn Passage	September	6	6				6	6	6			6	36
		October	6	6				5.5	6	6		3	3	35.5
		November	6	3	3			3	5.75	6		6		32.75
	2019	Winter	December	6		6			5.5	3	6		6	
January			6		3	3	3	8	9.75	6		3		41.75
February			9			3		9.5	6	9		10.5		47
Spring Passage		March	3			6		4.5	5.5	3		5.5		27.5
		April	6	6				6	6	6		6		36
Summer	May	9	6				7.5	9	6		6		43.5	
	June	9	9				8.5	9	12		12		59.5	
	July	6	9				8	6	6		6		41	
		August	12										12	
Totals			90	51	12	12	3	78	78	75	3	64	15	481
				78						78		79		

2.4.14 Flight height categories were recorded for every bird observed, corresponding to flights below, within and above the proposed wind turbine blades. Bird flight height estimates were aided by reference to the known heights of structures within the surrounding area such as the Stronelairg wind turbines and met masts.

- 2.4.15 Height bands were selected to encompass all possible heights, down to ground level, and to account for observer recording accuracy. The height bands were as follows:
- Very high >250m (above ground level)
 - High 180-250m
 - Medium 30-180m
 - Low 10-30 m
 - Very Low <10 m
- 2.4.16 The medium height band encompasses the maximum and minimum swept heights of the proposed wind turbine blades and is also referred to as 'collision risk height'.
- 2.4.17 Following the SNH 'Band method' these data can be used to estimate bird collision risk from the proposed wind turbines (Band *et al.* 2007⁸). In the collision risk modelling (see Technical Appendix 9.2) adjustments were made to the flight activity data to account for any differences between the survey height bands and the dimensions of the wind turbines that have been proposed.
- 2.4.18 In addition to gathering timed observations of flight activity by target or secondary species, summaries of all bird activity during five-minute intervals throughout a watch were also made. However, priority was given to watching for and recording flight activity by target species as accurately as possible.

2.5 Breeding Wader Surveys

Brown & Shepherd Method

- 2.5.1 Moorland breeding wader surveys followed an adapted version of the method described by Brown and Shepherd (1993¹⁰) to census upland breeding waders. Surveys were undertaken of all suitable habitats (within the core survey area, see Chapter 9 Figures 9.2a-9.2b) between April and July 2019 and included four repeat visits. Fieldwork was generally conducted between 0830 and 1800 and not undertaken in high winds (greater than Beaufort force 5), in persistent rain / snow or when visibility is poor (< 300m).
- 2.5.2 The core survey area was covered by a defined walked route to ensure that all ground was visible, pausing (approximately every 100m) at appropriate vantage points to visually scan and to listen. All accessible areas were approached to within c. 100m. Standard Common Birds Census recording codes were used to annotate field maps (Marchant 1983¹¹). Breeding registrations from each of the four visits were compared and compiled (following standard criteria to allocate registrations from different visits to one or more apparent territories) onto a single map showing apparent breeding territories for the survey area.
- 2.5.3 For areas of unenclosed moorland an adapted version of the Brown & Shepherd (1993¹⁰) method for censusing upland waders was followed. This method requires the surveyor to systematically cover the survey area by walking at a steady pace, stopping periodically to scan with binoculars and listen for birds exhibiting breeding behaviours. The surveyor must aim to walk to within 100m of all suitable habitats spending a set length of time searching each 500 x 500m area. The survey is only carried out in wind speeds of Beaufort force 4 or less, and in dry weather.

¹⁰ Brown, A.F., & Shepherd, H.B., (1993) A method for censusing upland breeding waders. *Bird Study* 40: 189-195.

¹¹ Marchant, J.H. (1983) BTO Common Birds Census instructions. BTO, Tring.

- 2.5.4 Birds were assumed to be breeding or holding territory if one or more of the following was noted:
- birds displaying or singing;
 - nests, eggs or young seen;
 - adults repeatedly alarm-calling;
 - distraction displays; and/or
 - territorial disputes.
- 2.5.5 Any additional details of observations were noted onto recording forms. Any areas not surveyed (e.g. due to access constraints) were clearly marked on the map and an explanation provided as to why the area was not surveyed.
- 2.5.6 Estimates of the number of apparent territories were derived by comparing the results from the separate visits (see Gilbert *et al.* 1998¹² for further details). The central location of each apparently occupied territory (i.e. this is not necessarily the location of a nest) after comparing the mapped data between the survey visits, was plotted on a final map for presentation. It is important to note that for many species these estimates are not a full census of the entire population within a survey area, but they confirm the presence of breeding pairs and provide an indication of breeding density and the spatial distribution of territories.
- 2.5.7 Walked transects of the conifer plantation woodland, along the plantation edges, dominant forestry rides and tracks where the plantation was too dense to walk within, were completed in 2017 and 2018. All birds of conservation concern observed or heard exhibiting breeding behaviour were recorded following an adapted version of the Common Bird Census methodology outlined in Gilbert *et al.* (1998¹²).

Greenshank

- 2.5.8 In order to supplement any observations of breeding greenshank activity during the general breeding wader surveys, additional survey visits to areas of suitable habitat within the core survey area and out to 1km from the proposed development boundary (as defined at that time) were completed for this species.
- 2.5.9 Greenshank breed on the open wet moorland and flow country in the north-west of Scotland and the Western Isles. A clutch of usually four eggs is laid in May to mid-June. There is one brood and the young fledge from the end of May. The main breeding season survey method summarised below follows Hancock *et al.* (1997¹³).
- 2.5.10 Two visits to the survey area were carried out during period of anticipated highest detectability for this species. Surveys included all waterbodies, lochs, lochans, pool complexes and rivers, which are below 800m, and also on shallow slopes (i.e. <13%). The first visit was completed during the period 10 April to 25 May (highest detectability 15 April to 8 May), the second in the period 26 May to 11 July (highest detectability 1-23 June). At least one of the two visits was within a high-detectability period. Surveys were carried out at any time of day before 18:00 BST, and postponed during periods of poor visibility, continuous rain or wind speeds of Beaufort force 5 or above.
- 2.5.11 All greenshank observed were recorded, with a particular focus on display activity, birds alarm-calling, any broods seen or adults exhibiting mobbing behaviour. Registrations

¹² Gilbert, G., Gibbons, D.W. and Evans, J. (1998). Bird Monitoring Methods. Royal Society for the Protection of Birds, Sandy.

¹³ Hancock, M.H., Gibbons, D.W., and Thompson, P.S. (1997). The status of breeding greenshank *Tringa nebularia* in the United Kingdom in 1995. *Bird Study* 44: 290-302.

from the separate visits are then compiled to estimate the number and location of mating, nesting and brood-rearing territories within the survey area.

2.6 Breeding Raptors / Owls

- 2.6.1 The main objective of the breeding raptor surveys was to systematically search for and record any behaviour indicative of breeding by species of conservation concern within suitable habitats in the core and wider raptor survey areas (see Chapter 9 Figures 9.2a-9.2b). The area surveyed extended up to 2km from the Proposed Development boundary (as defined at that time), where there was suitable breeding habitat for the focal species.
- 2.6.2 Surveys to determine the presence and breeding status of raptors in the survey area were carried out over a minimum of four visits between March and August 2019. A number of focal species for the surveys were identified, based on the presence of potentially suitable habitats, and the distribution of the species in Scotland relative to the site location.
- 2.6.3 The focal species of interest for this survey were those that are relatively rare (i.e. less than 300 pairs in the UK), and/or of a relatively high conservation concern status and/or listed on Schedule 1 of the Wildlife & Countryside Act 1981 (amended) and/or Annex I of the EC Birds Directive, such as red kite, white-tailed eagle, hen harrier, golden eagle, osprey, short-eared owl, merlin and peregrine.
- 2.6.4 A breeding golden eagle survey of the breeding territories within the wider study area is carried out annually by HRSG. None of the known nest locations are within the raptor survey area. To avoid duplication, and unnecessary disturbance to breeding golden eagles, these locations were not visited. HRSG agreed to provide their observations, from each visit to the individual golden eagle range, to SSER.
- 2.6.5 The surveyor followed species-specific methods detailed in Hardey *et al.* (2013¹⁴). A summary of the general approach to the species-specific surveys and the objectives for the various site visits is provided in Table 9.1.3 below. If it was established there was no evidence of occupancy or breeding activity during the first 1-2 visits to an area, then follow-up visits were not always carried out.
- 2.6.6 The raptor surveys were concentrated on areas of suitable habitat (see Table 9.1.3 below), based on a review of OS maps and during the initial site reconnaissance visit to confirm the presence of suitable habitats and determine the logistics of completing the survey as accurately and efficiently as possible. Where available any existing information about breeding by the focal species in the general area was also taken into consideration (e.g. 'traditional' nest sites or breeding records known to the local raptor study group).

Table 9.1.3: Indicative Focal Species Survey Visit Schedule and Breeding Habitat Preferences for Species Relevant to the Study Area (source: Hardey *et al.* 2013¹⁴)

Species	Summary Visit Schedule (with primary objective in parentheses)				Breeding Habitat
	Visit 1	Visit 2	Visit 3	Visit 4	
Hen harrier	March to mid-April (check for occupancy)	Mid-April to late May (locate incubating females)	Late May to late June (check for young / evidence of breeding)	Late June to late August (check for fledged young)	Moorland (below c. 600 m) with abundance of old, deep heather; also, heather in young conifer plantations.

¹⁴ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013). *Raptors: a field guide to survey and monitoring (3rd Edition)*. The Stationery Office, Edinburgh.

Species	Summary Visit Schedule (with primary objective in parentheses)				Breeding Habitat
	Visit 1	Visit 2	Visit 3	Visit 4	
Golden eagle	January to early March (check for occupancy, built up eyries)	April (locate active nests)	June (check for young at the nest)	Late July (check for fledged young)	Range of habitats from open montane areas, through Caledonian pine woodland to island sea cliffs. Closely associated with mountainous areas and unenclosed and unimproved habitats.
Short-eared owl	Early March to mid-April (check for occupancy)	Mid-April to May (locate activity nests)	June (check for young, dispersed or still in nest)	July (check for fledged young and any late nests)	Extensive areas of open moorland or rough grassland, young forestry plantations, bogs, sand dunes and salt marshes.
Merlin	Late March to April (check for occupancy)	Early May to early June (locate active nests)	Mid- to late June (check for young)	July to early August (check for fledged young)	Open, upland heather moorland. May nest on ground in heather, rocky outcrop or in old crow's nest in tree, if open moorland is close by.
Peregrine	March to early April (check for occupancy)	Late March to early May (locate active eyries)	Late May to mid-June (check for young / evidence of breeding)	Mid-June to early July (check for fledged young)	Wide range of habitats with suitable supply of birds to hunt. Nests are typically on undisturbed cliffs and crags; or quarries, open-cast coal workings and mines excavations, suitable tall buildings / structures.

- 2.6.7 The surveyor covered the areas of suitable habitat with a combination of walked routes and specially selected vantage points, which allowed monitoring of an area for any evidence of territory occupancy and breeding behaviour (e.g. display flights, pair bonding, mating etc. during the early part of the breeding season).
- 2.6.8 The detailed methodological approaches to the raptor survey varied in relation to the target species and habitats to be covered within the survey area. In general terms surveys required a mixture of walked routes (e.g. to within c. 250m of suitable breeding/nesting habitat for upland moorland species) searching for evidence of occupancy/breeding activity, coupled with periodic watches over areas of suitable nesting habitat from carefully selected vantage points at a distance and location that minimises the risk of disturbance to any nesting birds.
- 2.6.9 All survey work was conducted during good weather conditions (that is, in good visibility, avoiding persistently wet, low-cloud and windy conditions). Care was taken to avoid/minimise disturbance to birds at their breeding sites, in particular during the sensitive early phases of the season when disturbance may cause the birds to move on and during incubation and early brood-rearing.
- 2.6.10 On the maps and forms provided, the details and location of all key species, or relevant field signs, seen or heard were recorded as accurately as possible using standard BTO species codes and target notes. On the fieldwork maps, any parts of the defined survey area that were not surveyed due to lack of suitable habitat or access constraints were clearly recorded.
- 2.6.11 At the end of the survey the information gathered during the various visits, and relevant observations from other surveys (e.g. breeding behaviour noted during the flight activity surveys) was collated and any identified raptor activity or breeding evidence was categorised as being a possible, probable or confirmed breeding territory/nest site following the species-specific methods detailed in Hardey *et al.* (2013¹⁴).

2.7 Breeding / Wintering birds

- 2.7.1 Breeding / wintering / passage waterbirds using waterbodies and adjacent moorland areas within the core and wider survey areas were recorded c. twice per month over the period August 2018 to August 2019. Surveyors were instructed to record the presence of any geese or swans observed at any time within the core and wider survey areas. This comprised observations made moving between flight activity survey vantage points and the various walkover surveys.
- 2.7.2 Recording methods followed those used for the Wetland Bird Survey (UK wide survey of coastal and inland wetlands co-ordinated by the BTO, see Gilbert *et al.* 1998¹²). Counts at waterbodies were postponed if there were unsuitable weather conditions (e.g. poor visibility).
- 2.7.3 Additionally, surveys of previously known breeding lochs used by red-throated diver and common scoter (located > 2km from the Proposed Development but near to the main access route) were completed during April to July 2019, following the methods outlined in Gilbert *et al.* 1998¹².

3. RESULTS

3.1 Desk Study

- 3.1.1 Summarised below are the key, non-confidential, findings from the desk study, with any records of a sensitive nature is provided in the Confidential Annex to Chapter 9.
- 3.1.2 A map showing the survey areas of the various studies referred to below and how they overlap with the Proposed Development is provided as Figure 9.1.1 to this document.

Whooper swan

- 3.1.3 Whooper swans were occasionally recorded flying over the development area during the winter flight activity surveys for Stronelairg wind farm. One flightline was recorded across the development area in winter 2010 and seven in winter 2011, only two of which were in the 'at risk' height band. The species was not considered in detail in the Stronelairg Wind Farm impact assessment.
- 3.1.4 During pre-construction surveys for Stronelairg Wind Farm a single adult whooper swan was seen on three occasions at the western end of the site during winter 2014-2015.
- 3.1.5 During the construction phase of the Stronelairg Wind Farm the ECoW reported small family groups of whooper swan appearing from late autumn 2016 through to spring 2017. They would use Glendoe reservoir and other smaller waterbodies for a few days before continuing their migration. Of note were comparatively large groups of 22 on Glendoe reservoir in March 2017, during a period of bad weather, and 14 on Lochan na Stairne in early March 2018 (waterbody 2, see Chapter 9 Figure 9.2a: Ornithology Survey Areas).

Common Scoter

- 3.1.6 Glendoe Lochans SSSI is located approximately 2.2km to the west of the Proposed Development. This site also forms part of the Loch Knockie and Nearby Lochs SPA. Common scoter is one of the notified features of the SSSI. These lochans support two to three breeding pairs, which is a nationally important number.
- 3.1.7 A pair of common scoter bred within this SSSI in 2002 during surveys for the Glendoe Hydro EIA.

- 3.1.8 The Stronelaig Wind Farm ES reported that no pairs of common scoter nested within the development area, but up to two pairs were recorded in 2009 nesting in the wider study area (refer to the Confidential Annex for further details). These breeding locations are more than 3km from the Proposed Development.
- 3.1.9 Post-construction monitoring surveys for the Glendoe Hydroelectric Scheme confirmed successful breeding by a pair of common scoter in 2011 at a location which lies outside of the 2km buffer around the Proposed Development (refer to the Confidential Annex for further details). During detailed breeding productivity surveys of common scoter in 2014, two breeding females were present within the Glendoe Lochans SSSI area and three breeding females with young at three other waterbodies nearby (refer to the Confidential Annex for further details). The 2014 season appeared to be an exceptionally productive year for breeding common scoter within this area, with breeding recorded on 5 lochs, with a maximum of 28 small young (5 broods), with c. 20 successfully fledged.
- 3.1.10 During Spring 2017, the Stronelaig Wind Farm ECoW recorded a pre-breeding group of eight common scoter, four males and four females, on Lochan a Choire Ghlais (waterbody 3, see Chapter 9 Figure 9.2a) on 2 May 2017. They had moved on by the following morning.
- 3.1.11 A maximum of five males and five females were seen in one pre-breeding group on Glendoe Reservoir during spring 2018, but there were also several groupings on different waterbodies for up to two weeks in the spring. One pair were confirmed to have attempted to breed in the area during 2018 at a loch which is more than 2km from the Proposed Development (refer to the Confidential Annex for further details).

Black Grouse

- 3.1.12 There were no desk study records of black grouse associated with the eastern or western survey areas.
- 3.1.13 There are several traditional lek sites near to the proposed main site access route (i.e. the existing Glendoe Reservoir and Stronelaig Wind Farm access track) approximately 7km north-west of the Proposed Development. Details of the lek locations and peak count records are provided in the Confidential Annex.
- 3.1.14 A black grouse lek near to the proposed main access route (i.e. the existing Glendoe Reservoir and Stronelaig Wind Farm access track) was surveyed in 2017 and 2018 as part of the construction monitoring programme for Stronelaig Wind Farm. In 2017 there was a peak spring count of four males and no females recorded. During 2018 there was a peak spring count of four males and one, possibly two females. There are other traditional lek sites in the wider area (further from the site and proposed access route) that typically attract much larger numbers of displaying males.

Red-throated Diver

- 3.1.15 During surveys for the Glendoe Hydro EIA, a pair of red-throated diver was recorded as breeding to the northwest of the Proposed Development in 2002, but outside the western survey area. There were also two calling birds in suitable breeding habitat at a waterbody in close vicinity to the breeding record on 6 May 2002. In 2004 and 2004 the red-throated pair had shifted to another lochan close by, a location where they had been recorded breeding in the 1980s and 1990s.
- 3.1.16 The Stronelaig Wind Farm ES reported no pairs of red-throated divers breeding within the development area in 2009-2011 or in the 8km wide survey buffer during 2009 and 2010. Red-throated divers were not recorded flying in the development area during flight activity surveys. The species was not considered as a receptor for that assessment.

- 3.1.17 Post-construction monitoring surveys for the Glendoe Hydroelectric Scheme confirmed successful breeding by one red-throated diver pair at a location which lies outside of the 2km buffer around the Proposed Development (refer to the Confidential Annex for further details) in 2011, 2012, and 2014. Other locations were also occupied by a pair, but no evidence of successful breeding from 2006-2009. A pair of red-throated divers were also seen fishing on the main Glendoe Reservoir in 2014.
- 3.1.18 Pre-construction surveys for Stronelairg Wind Farm reported a single red-throated diver fishing on Glendoe Reservoir on 3 July 2015. No evidence was found of any breeding attempts on waterbodies within the survey area in 2015.
- 3.1.19 Monitoring by the ECoW during the Stronelairg Wind Farm construction period confirmed attempted breeding by a pair of red-throated divers at a site which is outside of the 2km buffer of the Proposed Development. Breeding was attempted in 2017 but was unsuccessful. A single chick was successfully fledged in 2018 from the same breeding loch.

Slavonian Grebe

- 3.1.20 The few remaining breeding sites of this rare species are generally known and monitored annually. The Glendoe Lochans SSSI, also part of the Loch Knockie and Nearby Lochs SPA, is a regular site for this species and of national importance. Breeding was first reported at this location in 1989 and an annual maximum of three pairs have been present subsequently. This is the highest altitude breeding site for the species in Scotland.
- 3.1.21 Due to concerns about potential impacts from construction disturbance Slavonian grebe was a focal species for the assessment and monitoring of the Glendoe Hydroelectric Scheme. Baseline surveys in 2002 recorded two pairs within the SPA / SSSI. During the monitoring period for the construction of the scheme (2006-2011), breeding productivity was found to be relatively high, in comparison to the rest of the Scottish population, with between two and three young fledged each year (one to three young per pair). However, surveys in 2014 (final year of post-construction monitoring) recorded only one adult and no evidence of breeding.
- 3.1.22 The ES for Stronelairg Wind Farm reported that no pairs of Slavonian grebe nested within the development area, but up to two pairs were recorded nesting in the wider study area. The development area was evaluated to be of 'No Importance' and wider study area of 'National Importance' for the species.
- 3.1.23 During the pre-construction surveys for Stronelairg Wind Farm, visits to the Glendoe Lochans SPA / SSSI recorded a single adult and no evidence of breeding occurring. Monitoring data for the site provided by RSPB Scotland show an individual present in 2016 (update for 2017-19 to follow from RSPB if available).
- 3.1.24 Slavonian grebe was not recorded by the ECoW during the main construction period for Stronelairg Wind Farm (2017-2018). The Glendoe Lochans SSSI were far enough from the works that there was considered to be no risk of disturbance at the traditional breeding site.

Red Kite

- 3.1.25 No red kite records were reported for the Glendoe Hydroelectric Scheme pre- or post-construction monitoring or in the Stronelairg Wind Farm baseline EIA surveys.
- 3.1.26 Red kite was not recorded during the 2015 pre-construction surveys for Stronelairg Wind Farm.

- 3.1.27 During the construction period for Stronelairg Wind Farm the ECoW noted the regular presence of one to two adults, mainly in the south and south-east of the wind farm area during 2017 and 2018.

White-tailed Eagle

- 3.1.28 During the pre-construction surveys for Stronelairg Wind Farm a white-tailed Eagle was recorded once on site, as an incidental sighting during October 2014.
- 3.1.29 White-tailed eagle was observed regularly (at least three different individuals: an adult male, adult female and older juvenile) by the ECoW within the Stronelairg Wind Farm construction area during 2017 and the area of the upper access track. During 2018 there were at least 4 different individuals present on the wind farm area and upper access track area: an adult male, adult female and two different sub-adults.

Hen Harrier

- 3.1.30 No records of breeding hen harrier were reported for the Glendoe Hydroelectric Scheme pre- or post-construction monitoring.
- 3.1.31 The Stronelairg Wind Farm ES reported that no pairs of hen harriers were recorded nesting within the study area in 2009-2011. Hen harriers were seldom seen from VPs and were only recorded flying across the development area twice in 2009-2012. Hen harrier was not treated as a receptor in the assessment of that project.
- 3.1.32 A single female hen Harrier was seen hunting across the western end of the site in winter 2014 during the pre-construction surveys for Stronelairg Wind Farm.
- 3.1.33 The Stronelairg Wind Farm ECoW recorded a ringtail hen harrier in autumn 2016 passing through the area. No hen harriers were seen during the whole of 2017. An adult male was seen on one occasion passing through the site in May 2018.

Golden Eagle

- 3.1.34 Annual surveys for golden eagle at three breeding territories were completed as part of the pre-construction, construction and post-construction monitoring for the Glendoe Hydroelectric Scheme. One of the breeding territories closest to the project was a particular focus of the surveys. Following a couple of years of breeding failure, the pair occupying this territory in 2014 successfully raised two chicks to fledging (the last year of post-construction monitoring). Further details are provided in the Confidential Annex.
- 3.1.35 The Stronelairg Wind Farm ES reported that no golden eagles nested within the development area, but that they did nest within the 6km wider study area in 2009-2011. Golden eagles were occasionally recorded in the development area during the flight activity surveys, most regularly in the northwest.
- 3.1.36 Golden eagles were frequently observed during the first year of construction for Stronelairg Wind Farm. The ECoW reported seeing adult golden eagles regularly around the upper access track and various juveniles and surrounding resident adults fairly regularly hunting on the wind farm site and its margins. However, there were less sightings of golden eagle within the site in 2018 as more turbines were built and became operational.
- 3.1.37 Prior to the start of the baseline surveys it was agreed, in consultation with HRSG, that information from approximately the past ten years on territory occupancy, breeding attempts and breeding success by golden eagles present within approximately 6km of the Proposed Development would be provided. A summary of information on occupancy

and breeding success for each territory is provided in Table 9.1.4 below. Further details are provided in the Confidential Annex.

Table 9.1.4: Summary information on the golden eagle breeding territories present in the wider study area, for the five-year period 2015-2019 (source: Stuart Benn, HRSG)

Territory	2015	2016	2017	2018	2019
EA1	Adult pair. No active nest found, thought to have failed early or not laid.	Fledged one young.	Adult pair - no active nest found, thought to have failed early or not laid.	Fledged two young.	No evidence of nesting. Suspected that pair did not lay.
EA2	Adult pair. No active nest found, thought to have failed early or not laid.	Fledged two young.	Fledged one young.	Adult pair. No active nest found, thought to have failed early or not laid.	One chick fledged.
EA3	Fledged two young.	Adult pair. No active nest found, thought to have failed early or not laid.	Fledged one young.	Laid two eggs but deserted.	Two chicks fledged. One chick taken for South Scotland Golden Eagle Project (SSGEP).
EA4	Fledged two young.	Fledged one young.	Fledged one young.	Fledged one young.	Failed on eggs.
EA5	Sub-adult pair didn't nest.	Adult / sub-adult pair. Nest not found.	Birds not seen but nest with undersized egg. Failed.	Two young in nest.	No evidence of nesting. Suspected that pair did not lay.

3.1.38 According to HRSG, EA1 is a long-established territory. EA2 is an old territory which appeared to be abandoned in the early 2000s and probably recolonised in 2010 or very shortly before then. EA3 was recolonised in 2010 after having been vacant since the 1970's. EA4 is a long-established territory. EA5 is an old territory which appeared to be abandoned in the early 2000s. Site was also probably recolonised in 2010 or very shortly before.

3.1.39 The western survey area overlaps partially with three golden eagle breeding territories (i.e. as defined by nominal home ranges of 6km radius from the territory centre), all of which were occupied during 2019. These territories are referred to in this Appendix and the main Chapter as EA1, EA2 and EA3. The nominal home range of a fourth breeding territory (EA5) lies just outside of the location of the western cluster. The western cluster is closest to territories EA1 and EA2, the potential effects arising from range loss and disturbance on these territories has been a key focus for this assessment.

3.1.40 The eastern cluster overlaps with the nominal home range of two golden eagle breeding territories (EA3 and EA4). Again, both of these were occupied during 2019. The eastern cluster is located in a peripheral area relative to these territories.

Osprey

3.1.41 There are no records of any osprey breeding sites within or near to the Proposed Development. Osprey are known to breed in the surrounding area (more than 5km from the Proposed Development).

3.1.42 The Glendoe Hydroelectric Scheme ES mentioned osprey as being recorded during baseline surveys (as a non-breeding Annex I species) but that the activity levels suggested that the development area was not critical to the requirements of the species. The creation of the reservoir as foraging habitat was noted a potential benefit to osprey.

- 3.1.43 No osprey activity was reported in the Stronelairg Wind Farm ES.
- 3.1.44 During the construction of Stronelairg wind farm the ECoW noted that a foraging osprey was seen occasionally during the 2017 breeding season, around the hydro infrastructure and lochans. It appeared to be coming into the wind farm from the east, although this was unconfirmed. During summer 2018 two foraging birds (assumed males) were seen frequently hunting around the main reservoir and associated lochans. One appeared to be entering the site from the south-east and the other was witnessed several times flying in from the direction of Loch Ness, the north-west.

Golden Plover

- 3.1.45 The Stronelairg Wind Farm ES reported approximately 34-41 pairs of golden plovers breeding in the wider study area, of which 14-15 territories were recorded within the development area. Golden plover were rarely recorded during the baseline flight activity surveys for the Stronelairg Wind Farm EIA. There was some evidence of limited late winter use of the area by early returning birds.
- 3.1.46 During the 2015 pre-construction surveys for Stronelairg wind farm a total of 26 golden plover breeding territories were recorded within that survey area.

Dotterel

- 3.1.47 Dotterel was not mentioned in the ornithological baseline descriptions for the Glendoe Hydroelectric Scheme or the post-construction monitoring.
- 3.1.48 Dotterel was not mentioned in the Stronelairg Wind Farm ESs.
- 3.1.49 The pre-construction surveys for Stronelairg Wind Farm recorded dotterel on suitable breeding habitat to the south of the site in 2015, but this was assumed to be birds temporarily displaced by heavy snowfall from their breeding grounds on Creag Meagaidh National Nature Reserve and not treated as a breeding record.
- 3.1.50 During the construction period for Stronelairg Wind Farm the ECoW noted the presence of a single dotterel on the wind farm site in late September 2018, for less than one day.

Dunlin

- 3.1.51 The Stronelairg Wind Farm ES reported 16 dunlin territories present in the wider study area in 2009 and 2010, of which 9 were located within the development area in 2009 and 11 in 2010. Dunlin were very rarely recorded flying across the development area during the flight activity surveys.
- 3.1.52 Within the survey area for the Glendoe Hydroelectric Scheme a total of five dunlin territories were recorded in 2014, the highest number across all survey years (i.e. 2007-2009, 2011 & 2014).
- 3.1.53 During the 2015 pre-construction surveys for Stronelairg wind farm a total of 24 dunlin breeding territories were recorded within that survey area.

Greenshank

- 3.1.54 Greenshank was not noted as a breeding species for the proposed wind farm area in the Stronelairg Wind Farm ES.
- 3.1.55 Four breeding greenshank territories associated with the Glendoe Lochans SSSI area, were reported as part of the 2014 post-construction monitoring surveys for Glendoe Hydroelectric Scheme. A probable breeding territory to the north of the reservoir

(previously the location of Loch Seileach) was also reported, although breeding was not confirmed (see the Confidential Annex for further details).

- 3.1.56 Greenshank was recorded in one location during the 2015 pre-construction breeding bird surveys for Stronelaig Wind Farm, c. 500m from the Proposed Development.
- 3.1.57 As part of the Glenshero Wind Farm 2013 baseline surveys, greenshank breeding registrations were recorded at three locations (four observations) in the eastern survey area (all are > 500m from the Proposed Development). During surveys completed in 2017 there were two locations (three observations) where breeding behaviour was recorded in the western survey area, all of which are > 500m from the Proposed Development. There was one location (three observations) of breeding greenshank within the eastern survey area in 2017, also > 500m from the Proposed Development (further details are provided in the Confidential Annex).
- 3.1.58 During pre-works surveys for nesting birds, carried out by the Stronelaig Wind Farm ECoW, greenshank was confirmed to have bred in 2017 and 2018. Well-grown chicks were seen at three locations in 2018, one of which was within the western survey area (further details are provided in the Confidential Annex).

Merlin

- 3.1.59 The Glendoe Hydroelectric Scheme monitoring reported one merlin breeding territory which is approximately 4.5km from the western cluster of the proposed development.
- 3.1.60 The Stronelaig Wind Farm ES reported that no pairs of merlin were recorded nesting within the development area or the 2km buffer in 2009-2011. Merlin was recorded from VPs flying across the development area very occasionally during three years of flight activity surveys.
- 3.1.61 The Stronelaig Wind Farm ECoW reported that merlin were only very occasionally seen within the wind farm site but more regularly on the lower to mid-level main access track where breeding near-by was suspected but unconfirmed.

Peregrine

- 3.1.62 The Stronelaig Wind Farm ES reported that there were no pairs of peregrine recorded nesting within the study area during surveys completed between 2009 and 2011. Peregrine was seldom observed from VPs and were only occasionally recorded flying across the development area, with on average less than six flightlines a year.
- 3.1.63 A pair were seen mating in March 2015, during the pre-construction breeding bird surveys for Stronelaig Wind Farm, at a location that is approximately 5km from the western cluster of the Proposed Development. There is a known peregrine breeding territory located to the north of the Proposed Development.
- 3.1.64 During the construction phase of Stronelaig Wind Farm the ECoW reported that a male peregrine was regularly seen hunting around the wind farm site during the summer. There were adult females seen in the autumn and early winter 2017. During 2018 male(s) and female(s) were regularly seen hunting around the wind farm site and passing through. In the summer, there were thought to be two breeding pairs in wider surrounding area, well outside of the wind farm site.

Other Species of Note

- 3.1.65 Ptarmigan (*Lagopus muta*) breed within the montane heath and grassland areas on the elevated ridges to the east of the eastern cluster.

- 3.1.66 The Stronelairst Wind Farm ECoW reported a single adult black-throated diver (*Gavia arctica*) loafing and feeding on the west end of Glendoe Reservoir on 28 April 2017.
- 3.1.67 A short-eared owl (*Asio flammeus*) was seen in April 2017 and also hunting on the eastern side of the wind farm site, over a three-week period, in early autumn 2017.
- 3.1.68 Ring ouzel (*Turdus torquatus*, a UK Red listed species (Eaton *et al.* 2015) was recorded breeding (several territories) near to the main access track (well to the west of the western survey area for the Proposed Development) during monitoring of the area in 2017-2018 by the ECoW for Stronelairst Wind Farm.
- 3.1.69 Large flocks of thrushes were recorded by the Stronelairst Wind Farm ECoW in late autumn 2017 generally travelling from east to west. There were two days in early November, in particular, where thousands to tens of thousands passed through the upper access track and west end of the wind farm site. These mixed flocks were largely fieldfare (*Turdus pilarus*) but there were also occasional redwing (*Turdus iliacus*) and mistle thrush (*Turdus viscivorus*).
- 3.1.70 Small parties of snow bunting (*Plectrophenax nivalis*) were seen occasionally around the upper access track and the wind farm site in the winter of 2016 / 2017 and late in 2017.
- 3.1.71 The RSPB provided a record from 2010 of a pair of red-necked phalarope (*Phalaropus lobatus*), a very rare breeding species in Scotland, seen on one occasion at a location c. 1km for the western cluster. It was assumed that these birds were on migration and did not breed in the area.

3.2 Flight Activity Surveys 2018-19

- 3.2.1 The location of the VPs selected for the flight activity survey of the Proposed Development and associated viewsheds are shown on Chapter 9 Figures 9.3a-9.3b. An index of golden eagle flight activity is provided on Chapter 9 Figures 9.4a-4.5b, with the mapped flight lines, relative to the location of the proposed wind turbines shown on Chapter 9 Figures 9.6a-9.6b. Other target species flightlines are shown on Figures 9.7a-9.7b to 9.8a-9.8b. Secondary species flightlines are provided on Figures 9.1.2a-9.1.2b to this document.
- 3.2.2 Flight activity by target and secondary species were frequently recorded within the western and eastern survey areas. The most frequently observed target species during the flight activity survey was golden eagle, corresponding to approximately 46% of the total flightlines recorded. There was also a comparatively high record of flight activity of greylag goose (c. 12% of all flights), red kite (c. 10%) and white-tailed eagle (c. 9%). Summarised below are descriptions of flight activity for the target and secondary species. For the following descriptions, seasons are referred to as spring (March-May), summer (June-August), autumn (September to November), and winter (December to February).

Greylag goose

- 3.2.3 Table 9.1.5 below summarises the flight activity for greylag goose within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.5: Summary of flight activity for greylag goose within the western and eastern survey areas (2018-2019)

Greylag Goose		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August				

Greylag Goose		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
	September	9 (569)	2 (140)	8 (452)	0 (0)
	October				
	November				
	December				
2019	January				
	February				
	March				
	April	1 (20)	1 (20)		
	May				
	June	1 (1)	1 (1)		
	July				
	August				

3.2.4 There was a total of 19 flightlines of greylag geese recorded (comprising 1042 birds), 17 of which within the autumn period, only one in the spring, and one during the summer period. There were no flights observed during surveys between October 2018 and March 2019. Similar numbers of flights (11 and 8 respectively) were recorded in the western and eastern survey areas, with the highest activity within the southern parts of both survey areas. All of the observations were of birds flying partially within the flight risk area¹⁵.

3.2.5 Four (c. 21%) of all of the flights were of birds flying partially at risk height, by far the majority (15 flights, c. 79%) were of birds flying 'very high'. Most (c. 95%) skeins were of groups >16 birds. Of note, 17 (c. 89%) of all of the flights were recorded between 20-27th September 2018, with the peak number in a skein totalling 120 birds, recorded on 27th September, and a total of 1021 greylag geese passing through.

Red kite

3.2.6 Table 9.1.6 below summarises the flight activity for red kite within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.6: Summary of flight activity for red kite within the western and eastern survey areas (2018-2019)

Red Kite		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August				
	September			2 (2)	2 (2)
	October				
	November				
	December				
2019	January				

¹⁵ Flight risk area is the area encompassed by a 500m wide buffer zone around the outermost proposed wind turbines.

Red Kite		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
	February			2 (2)	2 (2)
	March				
	April			1 (2)	1 (2)
	May	3 (3)	3 (3)	3 (3)	3 (3)
	June	1 (1)	1 (1)	4 (5)	3 (4)
	July				
	August				

3.2.7 A total of 16 red kite flightlines were recorded during the survey period, five of which were recorded within the summer period, two in the autumn, two in the winter, and seven during the spring period. May and June both had the highest totals of birds recorded, six in each month. The majority (12, c. 75%) of the flights were in the eastern survey area, with the highest activity to the north of this area (see Figure 9.8b). A total of 12 of the flight observations were of birds flying partially within the flight risk area.

3.2.8 All but two of the flightlines records were of single birds, with two adults observed together on two occasions (in April and June 2019). A total of 15 (c. 94% of all flights) flightlines were of records of birds flying partially at risk height.

White-tailed eagle

3.2.9 Table 9.1.7 below summarises the flight activity for white-tailed eagle within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.7: Summary of flight activity for white-tailed eagle within the western and eastern survey areas (2018-2019)

White-tailed Eagle		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August				
	September	2 (2)	1 (1)		
	October				
	November				
	December				
2019	January				
	February				
	March				
	April				
	May	2 (2)	2 (2)		
	June	1 (1)	0 (0)	6 (6)	1 (1)
	July				
	August	3 (3)	2 (2)		

3.2.10 A total of 14 white-tailed eagle flightlines were recorded during the survey period, 10 of which were recorded within the summer period, two during autumn, and two during the

spring period. The most flights were recorded in June, comprising of seven flights of single birds. No birds were recorded between October 2018 and April 2019. The western and eastern survey areas recorded similar numbers of flights (8 and 6 respectively), with no activity to the north of the eastern survey area. A total of six of the flights were of white-tailed eagles flying within the flight risk area. In the western survey area, flight activity was concentrated towards Carn Easgann Bàna, and between the reservoir, Meall Caca and the bowl to the south of this peak. In the eastern survey area, flight activity was highest over the peaks / ridges of Carn Fraoich and Creag an Dearg Lochain.

3.2.11 All of the flightlines records were of single birds. A total of 5 (c. 36%) flightlines were of records of birds flying partially at risk height.

Golden eagle

3.2.12 Table 9.1.8 below summarises the flight activity for golden eagle within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.8: Summary of flight activity for golden eagle within the western and eastern survey areas (2018-2019)

Golden Eagle		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August	1 (1)	1 (1)	5 (6)	3 (3)
	September	3 (3)	3 (3)	7 (11)	2 (2)
	October	1 (2)	1 (2)	5 (8)	4 (7)
	November	1 (1)	1 (1)		
	December	2 (3)	1 (2)		
2019	January	1 (1)	1 (1)	2 (2)	1 (1)
	February	4 (5)	3 (3)		
	March				
	April	9 (10)	8 (9)	5 (6)	3 (4)
	May	6 (8)	5 (6)	3 (3)	3 (3)
	June	1 (1)	1 (1)	5 (5)	3 (3)
	July			5 (5)	5 (5)
	August	5 (6)	5 (6)		

3.2.13 A total of 75 golden eagle flights were recorded during the survey period, with 45 flights (c. 63%) at, or partially at, collision risk height. 23 flights were recorded during the summer, 20 in the autumn, nine over the winter, and 23 in the spring survey period. There was no flight activity observed between November and December 2018, February and March 2019, which is likely to be associated with the worst winter weather during the survey period.

3.2.14 Most flight records were of single birds with the exception of a peak of three, an adult pair and juv. / imm. Bird, on the 24th September 2018, circling to the southwest over ridges of Geal Charn to the northeast of the eastern survey area.

3.2.15 A total of 25 of the golden eagle flight activity observations were juvenile birds, 13 of these in the winter (non-breeding) season, and 12 flights within the summer (breeding) season, a total of 16 flights in the eastern survey area and nine within the western survey area. Observations of flight records within the western survey area show juvenile birds

also spending most time flying between the ridges (e.g. to the south of Carn na Cloiche) and troughs (e.g. at A' Chraidhleag). In the eastern survey area, flight activity was mainly concentrated over the higher ground surrounding the flight risk area, over the peaks of Carn Fraoich, the ridges of Càrn na Crìche and Carn Donnachaidh. One main exception was of a juvenile flying partly with an adult bird in the relatively lower ground partially at risk height through the existing Stronelairst wind farm on 5th October 2018. The birds were observed flying within c. 50m of Stronelairst turbine OT62, although there appeared to be no behavioural reaction (e.g. sudden change in flight direction, when passing near to the rotating blades).

- 3.2.16 A total of 50 records were of adult / sub-adult birds, 17 of these flights in the spring and season in the western survey area, and 12 flights within the eastern survey area. There was an equal amount of flights recorded within the western survey area and the eastern survey area. Observations of flight records both within the western and eastern survey areas appear to show adult / sub-adult golden eagles exhibiting a similar pattern to the juveniles, by using the ridges and summits for the majority of flights, but also using the lower ground between peaks for occasional hunting. This is particularly evident in the eastern survey area, during the summer (breeding season) (see Figure 9.6b).
- 3.2.17 All of the records of adult / sub-adult golden eagle flights were of single or two birds. A total of 15 (c. 60%) of all of the juv. flights were of birds flying partially at risk height. A total of 31 out of the 50 (c. 62%) adult / sub-adult flights were of birds flying partially at risk height.

Osprey

- 3.2.18 Table 9.1.9 below summarises the flight activity for osprey within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.9: Summary of flight activity for osprey within the western and eastern survey areas (2018-2019)

Osprey		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August				
	September				
	October				
	November				
	December				
2019	January				
	February				
	March				
	April				
	May	2 (2)	2 (2)		
	June			1 (1)	1 (1)
	July				
	August				

- 3.2.19 Only three osprey flights were recorded during the survey period, and all between May and June 2019. These observations comprised two flights in the western survey area, at the eastern end of the reservoir, and one in the eastern survey area, flying over the

summit of Carn Fraoich. All were of single adult birds, flying partially at risk height, and also flying partially within the flight risk area.

Golden plover

3.2.20 Table 9.1.10 below summarises the flight activity for golden plover within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.10: Summary of flight activity for golden plover within the western and eastern survey areas (2018-2019)

Golden Plover		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August				
	September			1 (7)	1 (7)
	October				
	November				
	December				
2019	January				
	February	1 (1)	0 (0)		
	March	4 (7)	2 (3)		
	April	1 (1)	0 (0)		
	May				
	June	1 (1)	0 (0)		
	July	1 (2)	0 (0)		
	August				

3.2.21 Golden plover was recorded on nine occasions during the flight activity surveys, five flights in spring, two in the summer, one during the autumn, and one during the winter season. No birds were recorded between October 2018 and January 2019. The majority (8, c. 89%) of the flights were observed in the western survey area. All flights were of single or two birds, with a notable flock of seven birds on the 24th September 2018 in the eastern survey area (see Figure 9.7b). This was also the only record of a golden plover flying partially at risk height, seven of the nine flights observed below this height.

Merlin

3.2.22 Table 9.1.11 below summarises the flight activity for merlin within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.11: Summary of flight activity for merlin within the western and eastern survey areas (2018-2019)

Merlin		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August	2 (2)	2 (2)		
	September	2 (2)	2 (2)		
	October	1 (1)	1 (1)		
	November				

Merlin		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
	December				
2019	January				
	February				
	March				
	April				
	May				
	June				
	July				
	August				

3.2.23 Merlin was recorded on only five occasions during the survey period. All of these observations were between August and October 2019, in the western survey area. Four of the flight records were of birds flying partially through the flight risk area, and mainly between the higher summits, with the exception of observations of flights over Meall Caca and around the summit of Sidhean Dubh na Cloiche Bàine. All flights were of single birds, male and female, and all of the observations were of birds flying partially at risk height.

Peregrine

3.2.24 Table 9.1.12 below summarises the flight activity for peregrine within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.12: Summary of flight activity for peregrine within the western and eastern survey areas (2018-2019)

Peregrine		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August				
	September				
	October			2 (2)	2 (2)
	November				
	December			1 (1)	1 (1)
2019	January				
	February	1 (1)	0 (0)		
	March				
	April	1 (1)	1 (1)		
	May				
	June	1 (1)	1 (1)	1 (1)	0 (0)
	July				
	August				

3.2.25 A total of seven peregrine flights were recorded during the flight activity surveys, two flight records in the autumn, two over winter, one during the spring, and two within the summer. However, there were no observations during the July to September survey

period. Three flights were recorded in the western survey area and four in the eastern survey area, and mainly associated with the lower land between the summits. A total of three flights were of birds flying partially within the flight risk area. All flights were of single birds, male and female, and five flights of peregrine were of birds flying partially at risk height.

Common kestrel

- 3.2.26 Table 9.1.13 below summarises the flight activity for common kestrel within the western and eastern survey areas between August 2018 and August 2019.

Table 9.1.13: Summary of flight activity for common kestrel within the western and eastern survey areas (2018-2019)

Peregrine		Flightlines West Area		Flightlines East Area	
Year	Month	Total no. (no. birds)	No. at risk height (no. birds)	Total no. (no. birds)	No. at risk height (no. birds)
2018	August			1 (1)	1 (1)
	September			1 (2)	1 (2)
	October			1 (1)	1 (1)
	November				
	December				
2019	January				
	February				
	March				
	April				
	May				
	June				
	July				
	August				

- 3.2.27 Only three common kestrel flights were recorded during the survey period, and all between August and October 2019. All flight records were of birds in the eastern survey area, hunting above Meallan Odhar, and to the west of Carn Donnachaidh. Two of these flights were of birds flying partially within the flight risk area. Two flights were of single adult males, and one of a pair of adults in September 2018. All flight records were of birds flying partially at risk height.

Other Secondary Species

- 3.2.28 The only other secondary species to be recorded during the flight activity surveys are teal (two flights). These records were of birds flying below risk height.

3.3 Raptors

- 3.3.1 The following section provides a summary of the baseline survey results for the key raptor species recorded from surveys carried out between August 2018 and August 2019.

Red Kite

- 3.3.2 Red kite was recorded fairly frequently during the spring and summer periods, mostly hunting within and near to the eastern survey area. After golden eagle, red kite was the most frequently recorded target raptor species during the flight activity surveys.

- 3.3.3 There was no evidence to indicate that this species bred within the raptor survey area during 2018.

White-tailed Eagle

- 3.3.4 White-tailed eagle was recorded occasionally in flight and hunting within or near to the western and eastern survey areas during the spring and summer months. There was no evidence of any breeding behaviour by this species within the raptor survey area during 2018.

Hen harrier

- 3.3.5 There was no evidence of the presence of breeding hen harrier in the raptor survey area during 2019. There were no observations of this species during any of the baseline surveys.

Golden Eagle

- 3.3.6 Golden eagle was one of the most frequently recorded target species during the flight activity surveys. Flight activity was primarily associated with the few prominent ridges and slopes on the fringes of the eastern and western survey areas, with activity generally much lower during the winter months.
- 3.3.7 There are currently four golden eagle pairs (as of 2019) occupying breeding territories that overlap with the Proposed Development. The favoured nesting locations associated with these territories are all more than 2km from the nearest proposed wind turbine. The western and eastern survey areas are located within an area of comparatively lower value habitat for golden eagle. There appears to be abundant suitable prey available within both the western and eastern survey areas (e.g. populations of mountain hare, red grouse and red deer). However, the existing Stronelairg Wind Farm and the Proposed Development are situated in a high elevation, relatively open and gently undulating plateau, which is mostly topographically unfavourable for golden eagle due to the lack of suitable slopes to aid efficient hunting.

Osprey

- 3.3.8 An adult osprey was recorded during a flight activity survey from VP2a (western survey area) on 29 May 2019, fishing at the eastern edge of the main reservoir. An adult osprey was seen the following day, from VP1 (western survey area), hunting for fish over the reservoir and also mobbing a passing white-tailed eagle. On 27 June 2019 an adult osprey was recorded briefly from VP5a (eastern survey area), alarm calling and mobbing a white-tailed eagle that was on the ground.

Merlin

- 3.3.9 There was no evidence of breeding activity by merlin occurring within the raptor survey area during 2019.
- 3.3.10 Several flights by adult merlins (male and female) were observed in the western survey area during late summer and early autumn 2018. All appears to be birds passing through the area rather than hunting.

Peregrine

- 3.3.11 There was no evidence of the presence of breeding peregrine sites within the raptor survey area during 2019. Peregrine were occasionally recorded during flight activity surveys in autumn 2018 and spring / summer 2019. There was a total of three flights within the survey area (one west, two east).

3.4 Black Grouse

- 3.4.1 Due to the elevation and poor quality of habitat within the vicinity of the Proposed Development a formal survey for black grouse was not carried out. A single adult male was flushed from a heather bank close to the southern shore of Glendoe Reservoir during breeding bird surveys in April 2019. This location is approximately 1km from the nearest proposed wind turbine. There were no other observations of this species during the baseline survey period.
- 3.4.2 Although no black grouse surveys were carried out, male black grouse were regularly observed by a known lek site during access to the survey area (see the Confidential Annex for further details).

3.5 Other Breeding Birds

- 3.5.1 The following section provides a summary of the baseline survey results for the key waterbody birds recorded from surveys carried out between August 2018 and August 2019.

Common Scoter

- 3.5.2 Previous breeding locations, within the wider area, were surveyed during 2019 but no confirmed breeding attempts by this species were recorded. A pair were seen on Glendoe Reservoir on 9 May and there were two pairs present on 10 May 2019. A single male was on the Reservoir on 13 June 2019 and a pair together on 21 June 2019.
- 3.5.3 This species was not recorded during any of the flight activity surveys between August 2018 and August 2019.

Red-throated Diver

- 3.5.4 There was no evidence of any red-throated diver breeding attempts at any waterbodies within 2km of the Proposed Development during 2019. A pair of red-throated divers were seen on several occasions at a regularly occupied breeding loch just outside of the survey area. There was no evidence of successful breeding at this site during 2019.
- 3.5.5 An adult red-throated diver was seen loafing and fishing at the southwestern end of Glendoe Reservoir on 16 May 2019.
- 3.5.6 No red-throated diver observations were made during the August 2018 to August 2019 flight activity surveys.

Slavonian Grebe

- 3.5.7 The traditional breeding loch is located more than 4 km from the Proposed Development and is monitored annually by RSPB. This location was not included as part of the baseline surveys for this EIA.
- 3.5.8 Slavonian grebe was not recorded during any of the baseline surveys between August 2018 and August 2019.

3.6 Waders

- 3.6.1 Golden plover, ringed plover, dunlin, common sandpiper and common snipe were all recorded breeding within the core survey area in 2019 (see Figures 9.9a-b: Breeding Bird Survey Results 2019 – Waders). The most abundant wader species was golden plover, with 20 apparent breeding territories recorded in the western core survey area and 12 within the eastern core survey area (an approximate density of 0.91 and 1.12 per km² respectively). Followed by dunlin, with 16 territories recorded in the western survey area and 6 on the eastern survey area (an approximate density of 0.73 and 0.55 per km²).

respectively). Of these, a total of 19 golden plover and 13 dunlin territories were located within 500m of the nearest proposed wind turbines.

3.6.2 The general pattern of recorded presence and abundance of breeding waders broadly reflected habitat quality for the individual species. For example, dunlin breeding territories were often associated with areas of blanket bog with small bog pools, a habitat matrix which is often a good predictor of dunlin breeding density (Lavers & Haines-Young 1996¹⁶). Golden plover territories were broadly distributed across both survey areas, with similar densities in the west and east, typically associated with flatter areas such as hill tops and plateaux ground, particularly where there was suitable shorter vegetation (nesting golden plover show a preference for vegetation less than 15 cm tall, Ratcliffe 1977¹⁷). Common sandpiper were closely associated with the shorelines of the larger waterbodies and with the main watercourses. The general distribution of breeding locations and the recorded territory density was broadly consistent with previous surveys of breeding waders within / near to the Proposed Development.

3.6.3 The following provides a summary of the baseline survey results for the key wader species recorded from surveys carried out between August 2018 and August 2019.

Golden Plover

3.6.4 Golden plover was the most frequently recorded species during the breeding moorland wader survey in 2019, with 20 apparent breeding territories recorded in the western core survey area and 12 within the eastern survey area. Of these a total of 19 territories were located within 500m of the nearest proposed wind turbines, 14 associated with the western cluster and 5 for the eastern cluster. This species was also recorded relatively frequently during the flight activity survey of the western area. There was some evidence of the presence of occasional small flocks during the post-breeding / passage period, however there was no evidence of regular use of the survey area (e.g. for roosting or foraging) and these were likely to be birds passing through the region.

Dotterel

3.6.5 Dotterel were not recorded during any of the baseline surveys for the Proposed Development completed between August 2018 and August 2019.

Dunlin

3.6.6 During the 2019 breeding wader surveys 16 apparent dunlin breeding territories were recorded in the western survey area and 6 in the eastern survey area. Of these, a total of 13 dunlin territories were located within 500m of the nearest proposed wind turbines, 11 in the western area and two in the eastern area. Dunlin was not recorded during the flight activity surveys.

Greenshank

3.6.7 Evidence of breeding greenshank was recorded within the survey area, with one confirmed mating territory located within 500m of the nearest proposed wind turbines (see the Confidential Annex for further details). In Scotland, breeding is typically associated with flat, or gently undulating, topography with blanket bog, bog pool complexes, rivers, lochs and lochans. Waterbodies used for courtship and foraging and drier areas for nesting can lie several kilometres apart (Nethersole-Thompson 1979¹⁸,

¹⁶ Lavers, C. P., & Haines-Young, R. H. (1996). The pattern of Dunlin *Calidris alpina* distribution and abundance in relation to habitat variation in the Flow Country of northern Scotland. *Bird Study*, 43(2), 231–239.

¹⁷ Ratcliffe, D. A. (1977). Observations on the breeding of the Golden Plover in Great Britain. *Bird Study* 23(2): 63-116.

¹⁸ Nethersole-Thompson, D. & Nethersole-Thompson, M. (1979). Greenshanks. T & AD Poyser, Berkhamsted.

Snow & Perrins 1998¹⁹). Unlike other moorland waders (such as golden plover) greenshank may also breed close to, or within, areas of open woodland, although this is more typical of the species in northern continental Europe and Asia. Breeding greenshank will display and defend several areas within their breeding grounds, and not just their nest sites (i.e. mating territories in April, nesting territories in May and chick-rearing areas in June). Parts of the survey areas (west and east) and adjacent areas, including within Stronelaig Wind Farm, provide suitable courtship, nesting and chick-rearing habitats.

- 3.6.8 There was no evidence of nesting within the survey area in 2019 or of the presence of any broods (including at locations within the western survey area where chicks had been observed during the Stronelaig Wind Farm works during 2018).

Moorland songbirds

- 3.6.9 The moorland breeding songbird assemblage is considered to be relatively species-poor and typical of moorland in the uplands of Highland Scotland. The vast majority of the species recorded are widespread and common although some species are of conservation concern at a national level (e.g. meadow pipit). The full list of species recorded as breeding within the survey area are detailed in Appendix 1, Table A2.1.

3.7 Migratory and wintering geese and swans

- 3.7.1 The Site was very occasionally visited by wild geese or whooper swan and patterns of flight activity showed no regular local or passage movements over the Site. The most recorded flight activity was by migratory greylag geese flying over the Site between 20th and 17th September 2018. This consisted of 17 flights, 16 of which were of skeins greater than 15 birds, and peaking at 120 on 27 September 2018. Two of these flights were at risk height.
- 3.7.2 There was no evidence of the use of any waterbodies within the site by geese. Wintering / passage whooper swans are occasionally present on the main Glendoe Reservoir and also on smaller lochans to the south of the western survey area.

Whooper Swan

- 3.7.3 Small family groups of wintering / passage whooper swan were recorded in three locations within the core survey area during the 2018-2019 survey period. Two adults and one juvenile were seen on Lochan Iain in November 2018 (waterbody 11, see Figure 9.2: Ornithology Survey Areas). A pair of adults were seen on Dearg Lochan (waterbody 15, see Figure 9.2b: Ornithology Survey Areas (Eastern Cluster)) in January 2019 and a pair were on the Glendoe lagoons (waterbody 10, see Figure 9.2a: Ornithology Survey Areas (Western Cluster)) in February 2019. There were three birds, two adults and a juvenile, seen on Dearg Lochan in April 2019. During the April 2019 breeding bird survey, a whooper swan carcass was found in a marshy area to south of Loch na Larige (waterbody 17, see Figure 9.2b: Ornithology Survey Areas (Eastern Cluster)).
- 3.7.4 This species was not recorded in flight within the survey area during August 2018 to August 2019.

3.8 Waterbody Counts

- 3.8.1 Records from the waterbody count surveys from August 2018 to August 2019 and from are summarised in Table A5.3-4 for key species only.

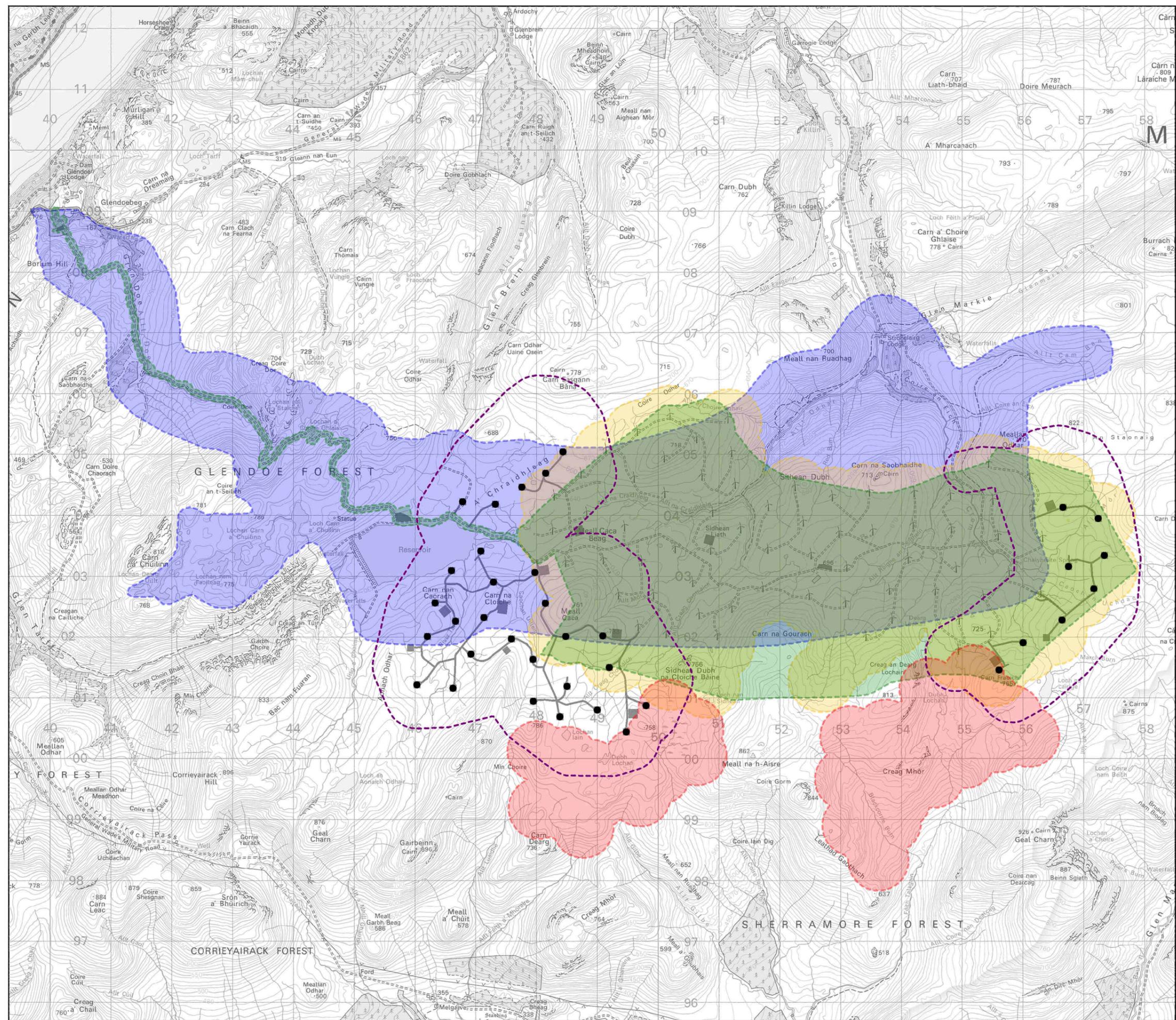
¹⁹ Snow, D.W. & Perrins, C.M. (1998). *The Birds of the Western Palearctic, Volume 1: Non-Passerines*. Oxford University Press, Oxford.

- 3.8.2 Peak counts for all waterbodies surveyed were relatively low. A small group of wintering whooper swans (2-3) were present in the survey area between October 2018 and February 2019, recorded at three different locations (Glendoe Reservoir, Lochan Lain and Dearg Lochan). No geese were recorded on any of the waterbodies or surrounding habitats throughout the survey period.
- 3.8.3 Red-throated diver and common scoter (records from May to June 2019. Including a peak of four on 10 May 2019) were recorded on Glendoe Reservoir (waterbody 8), as well as elsewhere in the survey area. Greenshank was also observed. Details of all these three species are within the Confidential Annex.
- 3.8.4 Other waterbirds recorded during the waterbody surveys, none of which were present in notable numbers, included: wigeon, teal, mallard, grey heron, ringed plover, and common gull. A peak number of 12 teal were recorded on Loch na Lairige (waterbody 17) on 15 August 2018, and 10 on Glendoe Reservoir, NE Lagoons (waterbody 10) on 21 June 2019.

3.9 Other breeding / wintering birds

- 3.9.1 There were 40 (22 – Western Cluster, 18 – Eastern Cluster) breeding red grouse records in 2019, as well as four (three – Western Cluster, one – Eastern Cluster) breeding teal. There were also records of winter visiting fieldfare flocks within the core survey area.
- 3.9.2 There was no evidence of the presence of a significant gull roost within the core survey area, or any regular movements (e.g. 'flight corridors' across the Site) from the flight activity surveys. Small mixed groups of gulls occasionally observed on ephemeral small islands at the Western end of the main Glendoe reservoir.

FIGURES



- Key**
- Footprint of Development (Cloiche Wind Farm)
 - Turbine (Cloiche Wind Farm)
- Survey Areas and Survey Periods**
- Cloiche Wind Farm EIA - Western and Eastern Core Survey Area (2019)
 - Glenshero Wind Farm EIA (2014, 2017)
 - Stronelairg Wind Farm Pre-Construction/Construction ECoW (2015-18)
 - Stronelairg Wind Farm EIA (Summer 2009-10)
 - Glendoe Hydro EIA, Pre-construction/Construction and Post-Construction Monitoring (2002-04, 2006-14)

Scale 1:60,000 @ A3

0 1.0 2.0 Km

N

Figure 9.1.1
Ornithological Desk Study -
Other Projects Survey Areas

APPENDICES

APPENDIX 1: RSPB Desk Study Records

Table A1.1 provides non-sensitive details of records provided by the RSPB for the study area for the period 2010-19. Sensitive information (e.g. breeding site locations of Schedule 1 species) is provided in the Confidential Annex to Chapter 9 of the EIA Report and the locations are mapped on Figure 8 to that Annex.

Table A1.1: RSPB Desk Study Records (2010-19)

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
1	1972 onwards - Red-necked phalaropes in Scotland	Red-necked Phalarope	01/01/10	31/12/10	1	Apparently Breeding Male	Not recorded	Possible breeding	Confidential	100M
2	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH535083	100M
3	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Pair	Not recorded	Unknown	NH537078	100M
4 (R5)	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH535080	100M
5	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Male	Not recorded	Unknown	NH536079	100M
6	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Pair	Not recorded	Unknown	NH535086	100M
7	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Male	Not recorded	Unknown	NH534089	100M
8 (R3)	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Male	Not recorded	Unknown	NH532093	100M
9 (R4)	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Male	Not recorded	Unknown	NH533095	100M
10	North Scotland Region - Incidental Species Observations	Ring Ouzel	18/04/10	18/04/10	1	Pair	Not recorded	Unknown	NH532098	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
11	North Scotland Region - Incidental Species Observations	Ring Ouzel	14/05/10	14/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH532095	100M
12 (R3)	North Scotland Region - Incidental Species Observations	Ring Ouzel	14/05/10	14/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH532093	100M
13	North Scotland Region - Incidental Species Observations	Ring Ouzel	14/05/10	14/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH534086	100M
14 (R5)	North Scotland Region - Incidental Species Observations	Ring Ouzel	14/05/10	14/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH535080	100M
15	North Scotland Region - Incidental Species Observations	Ring Ouzel	14/05/10	14/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH538078	100M
16	North Scotland Region - Incidental Species Observations	Ring Ouzel	14/05/10	14/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH536070	100M
17	North Scotland Region - Incidental Species Observations	Ring Ouzel	22/05/10	22/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH440029	100M
18	North Scotland Region - Incidental Species Observations	Ring Ouzel	22/05/10	22/05/10	1	Pair	Not recorded	Confirmed breeding	NH437027	100M
19	North Scotland Region - Incidental Species Observations	Ptarmigan	22/05/10	22/05/10	1	Male	Not recorded	Unknown	NH413031	100M
20	North Scotland Region - Incidental Species Observations	Ptarmigan	22/05/10	22/05/10	1	Male	Not recorded	Unknown	NH419037	100M
21	North Scotland Region - Incidental Species Observations	Ring Ouzel	24/05/10	24/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH531092	100M
22	North Scotland Region - Incidental Species Observations	Ring Ouzel	24/05/10	24/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH535087	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
23	North Scotland Region - Incidental Species Observations	Ring Ouzel	24/05/10	24/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH535085	100M
24	North Scotland Region - Incidental Species Observations	Ring Ouzel	24/05/10	24/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH536084	100M
25	North Scotland Region - Incidental Species Observations	Ring Ouzel	24/05/10	24/05/10	1	Pair	Not recorded	Confirmed breeding	NH536081	100M
26	North Scotland Region - Incidental Species Observations	Ring Ouzel	24/05/10	24/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH536078	100M
27	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/05/10	26/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NN428987	100M
28	North Scotland Region - Incidental Species Observations	Ring Ouzel	31/05/10	31/05/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH524084	100M
29	North Scotland Region - Incidental Species Observations	Ptarmigan	17/06/10	17/06/10	1	Pair	Not recorded	Unknown	NN564994	100M
30	North Scotland Region - Incidental Species Observations	Ptarmigan	17/06/10	17/06/10	1	Male	Not recorded	Unknown	NN524996	100M
31 (R9)	North Scotland Region - Incidental Species Observations	Ptarmigan	17/06/10	17/06/10	1	Male	Not recorded	Unknown	NN524995	100M
32	North Scotland Region - Incidental Species Observations	Ptarmigan	21/06/10	21/06/10	2	Male	Not recorded	Unknown	NN608991	100M
33	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/06/10	26/06/10	1	Individual	Not recorded	Confirmed breeding	NH538077	100M
34	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/06/10	26/06/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH535079	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
35	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/06/10	26/06/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH536082	100M
36	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/06/10	26/06/10	1	Singing / Displaying male	Not recorded	Probable breeding	NH536086	100M
37 (R4)	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/06/10	26/06/10	1	Pair	Not recorded	Confirmed breeding	NH533095	100M
38	North Scotland Region - Incidental Species Observations	Ring Ouzel	26/06/10	26/06/10	1	Pair	Not recorded	Confirmed breeding	NH532097	100M
39	North Scotland Region - Incidental Species Observations	Ptarmigan	30/06/10	30/06/10	1	Pair	Not recorded	Unknown	NH470002	100M
40	North Scotland Region - Incidental Species Observations	Ptarmigan	30/06/10	30/06/10	1	Male	Not recorded	Unknown	NN437995	100M
41	2009-2011 Raptor (Breeding) Monitoring Highlands, Scotland	Golden Eagle	01/01/10	31/07/10	1	Pair	Not recorded	Confirmed breeding	Confidential	100M
42	2009-2011 Raptor (Breeding) Monitoring Highlands, Scotland	Golden Eagle	01/01/11	31/07/11	1	Pair	Not recorded	Confirmed breeding	Confidential	100M
43	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	03/05/12	03/05/12	1	Male	Singing	Possible breeding	NH53580794	10M
44	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	21/06/12	21/06/12	1	Male	Singing	Possible breeding	NH53550785	10M
45	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	03/05/12	03/05/12	1	Male	Singing	Possible breeding	NH53660771	10M
46	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	21/06/12	21/06/12	1	Male	Observed in suitable nesting habitat	Possible breeding	NH53870767	10M
47	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	03/05/12	03/05/12	1	Male	Singing	Possible breeding	NH53010707	10M
48	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	21/06/12	21/06/12	1	Male	Singing	Possible breeding	NH53860698	10M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
49	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	21/06/12	21/06/12	1	Male	Singing	Possible breeding	NH53380695	10M
50	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	21/06/12	21/06/12	1	Female	Adults carrying faecal sac or food for young	Confirmed breeding	NH52380725	10M
51	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	24/05/12	24/05/12	1	Male	Singing	Possible breeding	NH43610518	10M
52	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	17/06/12	17/06/12	1	Male	Agitated behaviour	Probable breeding	NH43670518	10M
53 (R1)	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	24/05/12	24/05/12	1	Male	Adults carrying faecal sac or food for young	Confirmed breeding	NH43400559	10M
54 (R1)	2012 Ring Ouzel National Survey in the UK - Sightings data	Ring Ouzel	17/06/12	17/06/12	1	Pair	Recently fledged young, or downy young	Confirmed breeding	NH43490559	10M
55	2011 Adhoc species observations from Montane Survey	Ptarmigan	13/07/11	13/07/11	3	Individual	Not recorded	Unknown	NN441976	100M
56 (GK23)	2011 Adhoc species observations from Montane Survey	Greenshank	19/07/11	19/07/11	1	Individual	Not recorded	Unknown	Confidential	100M
57 (GK24)	2011 Adhoc species observations from Montane Survey	Greenshank	19/07/11	19/07/11	1	Individual	Observed in suitable nesting habitats	Possible breeding	Confidential	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
58	2011 Adhoc species observations from Montane Survey	Peregrine	28/06/11	28/06/11	1	Female	Observed in suitable nesting habitats	Possible breeding	Confidential	100M
59 (R8)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH583059	100M
60	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH583060	100M
61	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH585061	100M
62	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	2	Pair	Pair in suitable nesting habitat	Probable breeding	NH578062	100M
63	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	19/06/11	19/06/11	6	Individual	Observed in suitable nesting habitats	Possible breeding	NH582059	100M
64 (R8)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	19/06/11	19/06/11	1	Male	Observed in suitable nesting habitats	Possible breeding	NH583059	100M
65	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	19/06/11	19/06/11	1	Male	Nest with young seen or heard	Confirmed breeding	NH582061	100M
66	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	19/06/11	19/06/11	1	Male	Nest with young seen or heard	Confirmed breeding	NH581059	100M
67	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH568050	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
68	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH570052	100M
69 (R7)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH570053	100M
70 (R7)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH570053	100M
71 (R6)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH569055	100M
72 (R7)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	2	Pair	Pair in suitable nesting habitat	Probable breeding	NH571053	100M
73	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	15/05/11	15/05/11	1	Male	Holding permanent territory	Probable breeding	NH569056	100M
74 (R6)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	19/06/11	19/06/11	1	Female	Recently fledged young, or downy young	Confirmed breeding	NH569055	100M
75	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	12/05/11	12/05/11	1	Male	Not recorded	Unknown	NN566982	100M
76	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	12/05/11	12/05/11	2	Pair	Pair in suitable nesting habitat	Probable breeding	NN568974	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
77	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	27/06/11	27/06/11	2	Male	Observed in suitable nesting habitats	Possible breeding	NN564993	100M
78	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	27/06/11	27/06/11	20	Individual	Species observed but suspected to still be on migration	Passage	NN568992	100M
79	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	28/06/11	28/06/11	2	Pair	Pair in suitable nesting habitat	Probable breeding	NN561975	100M
80	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	11/05/11	11/05/11	1	Individual	Observed in suitable nesting habitats	Possible breeding	NH590030	100M
81	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	09/05/11	09/05/11	1	Male	Observed in suitable nesting habitats	Possible breeding	NN435995	100M
82	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	09/05/11	09/05/11	1	Male	Not recorded	Unknown	NN435996	100M
83	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	09/05/11	09/05/11	1	Male	Observed in suitable nesting habitats	Possible breeding	NH472006	100M
84	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	09/05/11	09/05/11	1	Male	Observed in suitable nesting habitats	Possible breeding	NH473010	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
85	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	09/05/11	09/05/11	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN465996	100M
86	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Osprey	30/06/11	30/06/11	1	Individual	In flight	Non-breeding	NN455981	100M
87 (R9)	2011 Other Observations from within Dotterel Survey sites (Montane Survey)	Ptarmigan	09/05/11	09/05/11	2	Pair	Pair in suitable nesting habitat	Probable breeding	NN524995	100M
88 (R10)	North Scotland Region - Incidental Species Observations	Ptarmigan	28/01/12	28/01/12	20	Individual	Not recorded	Unknown	NN5897	1KM
89 (R10)	North Scotland Region - Incidental Species Observations	Ptarmigan	07/03/12	07/03/12	20	Individual	Not recorded	Unknown	NN5897	1KM
90	North Scotland Region - Incidental Species Observations	Black Grouse	29/05/12	29/05/12	6	Individual	Not recorded	Unknown	Confidential	1KM
91 (R2)	North Scotland Region - Incidental Species Observations	Ring Ouzel	25/06/12	25/06/12	1	Adult(s) with brood	Not recorded	Confirmed breeding	NH5210	1KM
92 (R2)	North Scotland Region - Incidental Species Observations	Ring Ouzel	25/06/12	25/06/12	2	Individual	Not recorded	Possible breeding	NH5210	1KM
93 (GK25)	North Scotland Region - Incidental Species Observations	Greenshank	15/07/15	15/07/15	1	Pair	Agitated behaviour	Probable breeding	Confidential	1KM
94	North Scotland Region - Incidental Species Observations	Ring Ouzel	15/07/15	15/07/15	2	Juvenile	In flight	Non-breeding	NH4202	1KM
95	North Scotland Region - Incidental Species Observations	Ring Ouzel	15/07/15	15/07/15	1	Pair	Visiting nest site	Probable breeding	NH4203	1KM
96	North Scotland Region - Incidental Species Observations	Ring Ouzel	15/07/15	15/07/15	1	Female	In flight	Non-breeding	NH4204	1KM

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
97 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/11	31/12/11	1	Pair	Recently fledged young, or downy young	Confirmed breeding	Confidential	100M
98 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/12	31/12/12	1	Pair	Pair in suitable nesting habitat	Probable breeding	Confidential	100M
99 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/13	31/12/13	1	Pair	Pair in suitable nesting habitat	Probable breeding	Confidential	100M
100 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/10	31/12/10	2	Pair	Pair in suitable nesting habitat	Probable breeding	Confidential	100M
101 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/14	31/12/14	1	Individual	Observed in suitable nesting habitats	Possible breeding	Confidential	100M
102 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/15	31/12/15	1	Individual	Observed in suitable nesting habitats	Possible breeding	Confidential	100M
103 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/10	31/12/10	0	Individual	Not recorded	Non-breeding	Confidential	100M
104 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/10	31/12/10	0	Individual	Not recorded	Non-breeding	Confidential	100M
105 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/10	31/12/10	0	Individual	Not recorded	Non-breeding	Confidential	100M
106 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/10	31/12/10	0	Individual	Not recorded	Non-breeding	Confidential	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
107 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/10	31/12/10	0	Individual	Not recorded	Non-breeding	Confidential	100M
108 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/11	31/12/11	0	Individual	Not recorded	Non-breeding	Confidential	100M
109 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/11	31/12/11	0	Individual	Not recorded	Non-breeding	Confidential	100M
110 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/11	31/12/11	0	Individual	Not recorded	Non-breeding	Confidential	100M
111 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/11	31/12/11	0	Individual	Not recorded	Non-breeding	Confidential	100M
112 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/11	31/12/11	0	Individual	Not recorded	Non-breeding	Confidential	100M
113 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/12	31/12/12	0	Individual	Not recorded	Non-breeding	Confidential	100M
114 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/12	31/12/12	0	Individual	Not recorded	Non-breeding	Confidential	100M
115 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/12	31/12/12	0	Individual	Not recorded	Non-breeding	Confidential	100M
116 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/12	31/12/12	0	Individual	Not recorded	Non-breeding	Confidential	100M
117 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/12	31/12/12	0	Individual	Not recorded	Non-breeding	Confidential	100M
118 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/13	31/12/13	0	Individual	Not recorded	Non-breeding	Confidential	100M
119 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/13	31/12/13	0	Individual	Not recorded	Non-breeding	Confidential	100M
120 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/13	31/12/13	0	Individual	Not recorded	Non-breeding	Confidential	100M
121 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/13	31/12/13	0	Individual	Not recorded	Non-breeding	Confidential	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
122 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/13	31/12/13	0	Individual	Not recorded	Non-breeding	Confidential	100M
123 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/14	31/12/14	0	Individual	Not recorded	Non-breeding	Confidential	100M
124 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/14	31/12/14	0	Individual	Not recorded	Non-breeding	Confidential	100M
125 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/14	31/12/14	0	Individual	Not recorded	Non-breeding	Confidential	100M
126 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/14	31/12/14	0	Individual	Not recorded	Non-breeding	Confidential	100M
127 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/14	31/12/14	0	Individual	Not recorded	Non-breeding	Confidential	100M
128 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/15	31/12/15	0	Individual	Not recorded	Non-breeding	Confidential	100M
129 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/15	31/12/15	0	Individual	Not recorded	Non-breeding	Confidential	100M
130 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/15	31/12/15	0	Individual	Not recorded	Non-breeding	Confidential	100M
131 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/15	31/12/15	0	Individual	Not recorded	Non-breeding	Confidential	100M
132 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/15	31/12/15	0	Individual	Not recorded	Non-breeding	Confidential	100M
133 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/16	31/12/16	1	Individual	Observed in suitable nesting habitats	Possible breeding	Confidential	100M
134 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/16	31/12/16	0	Individual	Not recorded	Non-breeding	Confidential	100M
135 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/16	31/12/16	0	Individual	Not recorded	Non-breeding	Confidential	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
136 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/16	31/12/16	0	Individual	Not recorded	Non-breeding	Confidential	100M
137 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/16	31/12/16	0	Individual	Not recorded	Non-breeding	Confidential	100M
138 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/16	31/12/16	0	Individual	Not recorded	Non-breeding	Confidential	100M
139 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/17	31/12/17	0	Individual	Not recorded	Non-breeding	Confidential	100M
140 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/17	31/12/17	0	Individual	Not recorded	Non-breeding	Confidential	100M
141 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/17	31/12/17	0	Individual	Not recorded	Non-breeding	Confidential	100M
142 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/17	31/12/17	0	Individual	Not recorded	Non-breeding	Confidential	100M
143 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/17	31/12/17	0	Individual	Not recorded	Non-breeding	Confidential	100M
144 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/17	31/12/17	0	Individual	Not recorded	Non-breeding	Confidential	100M
145	2010 Glenshero Estate Moorland Bird Survey - Species Data	Ptarmigan	10/05/10	10/05/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN55209808	10M
146	2010 Glenshero Estate Moorland Bird Survey - Species Data	Ptarmigan	18/06/10	18/06/10	3	Individual	Observed in suitable nesting habitats	Possible breeding	NN55289847	10M
147	2010 Glenshero Estate Moorland Bird Survey - Species Data	Ptarmigan	19/05/10	19/05/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN45949796	10M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
148	2010 Glenshero Estate Moorland Bird Survey - Species Data	Ptarmigan	19/05/10	19/05/10	2	Individual	Observed in suitable nesting habitats	Possible breeding	NN46329887	10M
149	2010 Glenshero Estate Moorland Bird Survey - Species Data	Kestrel	24/06/10	24/06/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN462982	100M
150	2010 Glenshero Estate Moorland Bird Survey - Species Data	Peregrine	24/06/10	24/06/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	Confidential	100M
151	2010 Glenshero Estate Moorland Bird Survey - Species Data	Ring Ouzel	21/04/10	21/04/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN49829613	10M
152	2010 Glenshero Estate Moorland Bird Survey - Species Data	Ring Ouzel	21/04/10	21/04/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN48419650	10M
153	2010 Glenshero Estate Moorland Bird Survey - Species Data	Kestrel	03/06/10	03/06/10	1	Individual	Observed in suitable nesting habitats	Possible breeding	NN486966	100M
154	2010 Glenshero Estate Moorland Bird Survey - Species Data	Red-necked Phalarope	14/06/10	14/06/10	2	Individual	Not recorded	Unknown	Confidential	10M
155	2010 Glenshero Estate Moorland Bird Survey - Species Data	Golden Eagle	21/04/10	24/06/10	1	Individual	Not recorded	Unknown	Confidential	100M
156 (SZ8)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/18	31/12/18	0	Individual	Not recorded	Non-breeding	Confidential	100M
157 (SZ9)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/18	31/12/18	0	Individual	Not recorded	Non-breeding	Confidential	100M
158 (SZ10)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/18	31/12/18	0	Individual	Not recorded	Non-breeding	Confidential	100M

Ref.	Dataset	Common Name	Start Date	End Date	Primary Count	Primary Count Unit	Activity	Status	Grid Ref.	Resolution
159 (SZ12)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/18	31/12/18	0	Individual	Not recorded	Non-breeding	Confidential	100M
160 (SZ11)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/18	31/12/18	0	Individual	Not recorded	Non-breeding	Confidential	100M
161 (SZ13)	1970 - 2018 Slavonian Grebe Annual Monitoring	Slavonian Grebe	01/01/18	31/12/18	0	Individual	Not recorded	Non-breeding	Confidential	100M

APPENDIX 2: All Birds Recorded and their Status

This appendix provides a full list of bird species recorded during EIA baseline surveys completed between August 2018 and August 2019 for the Proposed Development. Included in Table A2.1 below are details of the status of each species within the site (e.g. breeding, non-breeding, wintering), the estimated number of breeding territories for the core survey areas (for applicable species), the conservation status of each species at a national level, and the legal / nature conservation policy status of the species locally and nationally.

Table A2.1: All Bird Species Recorded During Surveys Completed at Cloiche between August 2018 and August 2019 and their Status

Common Name	Scientific Name	BTO code	Site Status ⁱ	No. of Apparent Breeding Territories Recorded ⁱⁱ			Legal Status ⁱⁱⁱ	UK BoCC Status ^{iv}	BAP ^v	SBL ^{vi}
				Western Survey Area	Eastern Survey Area	Total				
Whooper swan	<i>Cygnus cygnus</i>	WS	P / W				Sch1 / Anx I	Amber		x
Greylag goose	<i>Anser anser</i>	GJ	P					Amber		
Wigeon	<i>Anas penelope</i>	WN	P / W	1		1		Amber		
Teal	<i>Anas crecca</i>	T.	Bc	3	1	4		Amber		
Mallard	<i>Anas platyrhynchos</i>	MA	Bc	2	1	3		Amber		
Common scoter	<i>Melanitta nigra</i>	CX	NBc/w				Sch1	Red	x	x
Red grouse	<i>Lagopus lagopus scoticus</i>	RG	Bc	22	18	40		Amber	x	
Ptarmigan	<i>Lagopus mutus</i>	PM	NBc					Green		
Black grouse	<i>Tetrao tetrix</i>	BK	NBc/w					Red	x	x
Red-throated diver	<i>Gavia stellata</i>	RH	NBc/w				Sch1 / Anx I	Green		x
Red kite	<i>Milvus milvus</i>	KT	NBc/w				Sch1 / Anx I	Green		x
White-tailed eagle	<i>Haliaeetus albicilla</i>	WE	NBc/w				Sch1 / Anx I	Red		x
Common buzzard	<i>Buteo buteo</i>	BZ	NBc/w					Green		
Golden eagle	<i>Aquila chrysaetos</i>	EA	NBc/w				Sch1 / Anx I	Green		x
Osprey	<i>Pandion haliaetus</i>	OP	NBc/w				Sch1 / Anx I	Amber		x
Golden plover	<i>Pluvialis apricaria</i>	GP	Bc	21	12	33	Anx I	Green		x

Common Name	Scientific Name	BTO code	Site Status ⁱ	No. of Apparent Breeding Territories Recorded ⁱⁱ			Legal Status ⁱⁱⁱ	UK BoCC Status ^{iv}	BAP ^v	SBL ^{vi}
				Western Survey Area	Eastern Survey Area	Total				
Lapwing	<i>Vanellus vanellus</i>	L.	NBc/w					Red	x	x
Ringed plover	<i>Charadrius hiaticula</i>	RP	Bc	1		1		Red		
Curlew	<i>Numenius arquata</i>	CU	NBc/w					Red	x	x
Dunlin	<i>Calidris alpina alpina</i>	DN	Bc	16	6	22	Anx I	Amber		x
Common sandpiper	<i>Actitis hypoleucos</i>	CS	Bc	2	3	5		Amber		
Greenshank	<i>Tringa nebularia</i>	GK	Bw	2		2	Sch1	Amber		
Common snipe	<i>Gallinago gallinago</i>	SN	Bc	1		1		Amber		
Common gull	<i>Larus canus</i>	CM	P / NB					Amber		
Lesser black-backed gull	<i>Larus fuscus</i>	LB	P / NB					Amber		
Common kestrel	<i>Falco tinnunculus</i>	K.	NBc/w					Amber		x
Merlin	<i>Falco columbarius</i>	ML	NBc/w				Sch1 / Anx I	Red		x
Peregrine	<i>Falco peregrinus</i>	PE	NBc/w				Sch1 / Anx I	Green		x
Raven	<i>Corvus corax</i>	RN	NBc/w					Green		
Fieldfare	<i>Turdus pilaris</i>	FF	P / W				Sch1	Red		
Northern wheatear	<i>Oenanthe oenanthe</i>	W.	Bc					Green		
Grey wagtail	<i>Motacilla cinerea</i>	GL	Bc					Red		
Meadow pipit	<i>Anthus pratensis</i>	MP	Bc					Amber		

i - Overall status of the species within the survey area over the period August 2018 – August 2019: NB – not breeding (NBc not recorded as breeding in the core survey area, NBw not recorded breeding in the wider survey area); Bc – confirmed breeding in the core survey area; Bw – confirmed breeding in the wider survey area; Wc – wintering in the core survey area; Ww – wintering in the wider area; and P – passage migrant.

ii - Estimated number of breeding bird territories recorded within the core survey area, where applicable. The exact numbers of territories of meadow pipit and other common species were not recorded.

iii - Sch. 1 - Species listed on Schedule 1 to the Wildlife and Countryside Act 1981 (as amended). Ann. I - Species listed on Annex I of the EC Birds Directive (Directive 2009/147/EC on the conservation of wild birds - the codified version). NB – all wild bird species and their nests and eggs are protected under the Wildlife & Countryside Act 1981, as amended.

- iv - Birds of Conservation Concern (BoCC) in the UK (Eaton *et al.* 2015¹). All regularly occurring species that do not qualify under any of the red or amber criteria are green listed. The Green list also includes those species listed as recovering from Historical Decline in the last review that have continued to recover and do not qualify under any of the other criteria.
- v - Priority species in the UK Biodiversity Action Plan (UK). The UK BAP has been superseded by the UK Post-2010 Biodiversity Framework (JNCC 2012²). Priority / key species in the Local Biodiversity Action Plan (LBAP, Highland Biodiversity Action Plan 2015-2020³, which is a list of species chosen as representative sample of local issues).
- vi - Priority species in the Scottish Biodiversity List (SBL).

¹ Eaton, M. A., Aebischer, N. J., Brown, A. F., Hearn, R. D., Lock, L., Musgrove, A. J., Noble, D. G., Stroud, D. A and Gregory, R. D. (2015) Birds of Conservation 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. *British Birds* 108: 708-746.

² JNCC and Defra (on behalf of the Four Countries' Biodiversity Group). 2012. UK Post-2010 Biodiversity Framework. July 2012.

³ Highland Biodiversity Action Plan (2015-2020). Available at: https://www.highland.gov.uk/download/meetings/id/68482/item_4_highland_biodiversity_action_plan_2015-2020

APPENDIX 3: Details of Flight Activity Surveys

This appendix provides further details of the baseline flight activity surveys completed for the EIA of the Proposed Development, between August 2018 and August 2019. This includes details of the timing of the individual watches and the weather conditions during the watches. The results of the flight activity surveys are included in the main Chapter 9: Ornithology, and are mapped on Figures 9.4-9.8.

Flight Activity Survey Effort and Weather Conditions

The following Tables (A3.1-A3.2) provide details of the timings of the individual vantage point watches and weather conditions for all flight activity surveys completed between August 2018 and August 2019 (inclusive).

Table A3.1: Flight Activity Survey Details - August 2018 to August 2019

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0001	13/08/18	2A	West	4	SR	14:50	17:50	03:00		Cloudy with occasional sunny intervals.
0002	14/08/18	1	West	4	SR	14:20	17:20	03:00		Cloudy, light rain, with an occasional gusty wind (BF4) and sunny spells. Weather improved throughout watch.
0003	14/08/18	3	West	5	SR	17:45	20:45	03:00		Blustery, occasional gusts to BF4.
0004	15/08/18	6B	East	2	SR	10:10	13:10	03:00		Blustery wind, cloudy, with occasional sunny spells in third hour of survey.
0005	15/08/18	5B	East	3	SR	13:45	16:45	03:00		Cloudy, with occasional blustery light rain showers.
0006	16/08/18	4	West	2	SR	09:20	12:20	03:00		
0007	27/08/18	3	West	2	SR	11:30	14:30	03:00		
0008	27/08/18	2A	West	4	SR	15:00	18:00	03:00		Four ravens flying along ridge to east of Min Choire during walk to VP.
0009	28/08/18	4	West	2	SR	08:40	11:40	03:00		Cloudy, blustery wind, occasionally to BF4 in first hour of watch. No birds.
0010	28/08/18	1	West	3	SR	12:00	15:00	03:00		Very light rain started approx. 13:40 for approx. 20 mins.

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0011	29/08/18	5A	East	2	SR	09:55	12:55	03:00		Sunny, cloudy, rain showers from c. 12.00 for approx. 20 mins.
0012	29/08/18	6B	East	4	SR	13:25	16:25	03:00		
0013	20/09/18	2A	West	2	SR	09:20	12:20	03:00		
0014	20/09/18	4	West	4	SR	13:15	16:15	03:00		Blustery wind, occasionally to BF4.
0015	21/09/18	3	West	2	SR	08:55	11:55	03:00		Light / moderate rain from c. 10:00.
0020	21/09/18	5A	East	2	KM	09:10	12:10	03:00		Light rain in the last 15 minutes of hour 1. In hour 3, occasional very low cloud moving across.
0021	24/09/18	1	West	4	KM	13:55	16:55	03:00		
0016	24/09/18	6B	East	4	SR	14:15	17:15	03:00		Sunny with occasional rain showers.
0022	27/09/18	1	West	4	KM	12:00	15:00	03:00		Weather became sunny towards the end of hour 2.
0017	27/09/18	2A	West	4	SR	12:15	15:15	03:00		Fog cleared after approx. one hour, then sunny intervals with a cold wind.
0018	27/09/18	4	West	5	SR	15:50	18:50	03:00		
0024	27/09/18	6B	East	5	KM	16:00	19:00	03:00		Very cold wind in last half of survey, with some sun glare after 17:10.
0019	28/09/18	3	West	2	SR	08:55	11:55	03:00		Cold wind. Cloudy with sunny intervals.
0023	28/09/18	5A	East	2	KM	09:05	12:05	03:00		
0025	05/10/18	5A	East	2	SR	09:15	12:15	03:00		Cloud hugging surrounding ridges, which soon lifted within the first half hour of the survey.
0028	05/10/18	3	West	2	PB	09:15	12:15	03:00		
0029	05/10/18	2A	West	3	PB	12:45	16:00	03:15	00:15	Very wintery at times. Fifteen minutes break due to hail/snow showers.
0026	05/10/18	6B	East	3	SR	12:50	15:50	03:00		
0027	06/10/18	4	West	1	SR	07:00	10:00	03:00		Cold, overnight frost and clear with a few clouds.

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0030	06/10/18	1	West	1	PB	07:00	10:00	03:00		
0034	28/10/18	2A	West	2	PB	11:00	14:00	03:00		Two vehicles passed along spine road during watch. Lochans to south (ID's 11, 12, 13) iced and covered with snow.
0035	28/10/18	5A	East	4	PB	14:40	17:40	03:00		Small work party at T53 and T56, working inside towers, throughout the whole watch.
0036	29/10/18	3	West	1	PB	07:00	09:30	02:30		Low cloud and poor visibility for final 30 minutes.
0031	29/10/18	1	West	4	KM	14:05	17:05	03:00		
0032	30/10/18	6A	East	3	KM	09:40	12:40	03:00		Cloud thickening to the south. Snow cover and drifting.
0033	30/10/18	4	West	4	KM	13:55	16:55	03:00		Snow drifting. Cloud getting lower during survey.
0037	19/11/18	1	West	2	PB	11:00	14:00	03:00		
0040	19/11/18	6A	East	3	PB	14:20	16:20	02:00		Dusk survey. Third hour completed 20/11/2018 (12:15-13:15)
0038	20/11/18	2A	West	2	PB	09:00	12:00	03:00		No works near viewshed.
0041	20/11/18	6A	East	2	PB	12:15	13:15	01:00		
0039	20/11/18	5A	East	3	PB	13:30	16:30	03:00		
0042	21/11/18	3	West	1	PB	07:45	10:45	03:00		No workers in or near viewshed.
0048	21/11/18	4	West	2	PB	11:45	14:30	02:45		Watch suspended 15 minutes early due to blizzard conditions and lightning. No works in or near viewshed.
0043	27/11/18	1	West	3	SR	13:20	16:20	03:00		Gusty wind. Ice. Lying snow above c. 700 m.
0044	28/11/18	4	West	1	SR	08:30	11:30	03:00		
0045	28/11/18	6A	East	2	SR	12:00	15:00	03:00		
0046	29/11/18	2B	West	1	SR	08:20	11:20	03:00		
0047	29/11/18	5A	East	2	SR	11:45	14:45	03:00		
0054	11/12/18	1	West	3	KM	12:50	15:50	03:00		

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0049	11/12/18	6A	East	3	SR	13:00	16:00	03:00		Low cloud occasionally hugging moorland within the viewshed. Far ridgeline to the east/north obscured by cloud.
0051	13/12/18	3	West	1	SR	08:50	11:50	03:00		Windy. Icy waterbodies.
0056	13/12/18	5A	East	1	KM	08:50	11:50	03:00		
0052	13/12/18	4	West	3	SR	12:20	15:20	03:00		Windy and chilly with icy waterbodies.
0053	14/12/18	2B	West	1	SR	08:35	11:35	03:00		Cold, but now snow. All waterbodies iced up. Sunny with few clouds.
0075	19/12/18	3	West	1	PB	09:30	12:00	02:30		Poor visibility, snow showers. No activity affecting viewshed area.
0057	19/12/18	5A	East	1	SR	09:40	12:40	03:00		
0076	19/12/18	2B	West	2	PB	12:30	15:30	03:00		No works affecting viewshed area.
0058	19/12/18	6A	East	3	SR	12:50	15:50	03:00		
0059	20/12/18	1	West	1	SR	08:20	11:20	03:00		Cloud level came in low from c. 08:50 for a few minutes, then dispersed. Very small snow patches. Waterbodies partly iced over.
0060	08/01/19	2D	West	3	KM	09:25	12:25	03:00		
0061	08/01/19	3	West	5	KM	13:15	16:15	03:00		
0062	09/01/19	4	West	1	KM	09:10	12:10	03:00		River too icy / unsafe to cross so surveyed from beside river to north-west of VP.
0063	09/01/19	1	West	5	KM	12:40	15:40	03:00		Very light rain.
0064	10/01/19	5A	East	3	KM	09:40	12:40	03:00		
0065	17/01/19	3	West	2	SR	10:10	13:10	03:00		Site snow covered (c. 2-3 cm). Sunny and waterbodies frozen.
0066	17/01/19	2B	West	3	SR	13:35	14:35	01:00		Only one hour surveyed.
0067	18/01/19	3	West	2	SR	09:15	11:15	02:00		

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0068	18/01/19	2B	West	2	SR	11:35	13:35	02:00		Sunny. Snow. Icy waterbodies, but not the reservoir or other lochs/lochans downhill of reservoir.
0069	23/01/19	6A	East	1	SR	09:00	12:00	03:00		Clear and sunny with none or very little wind. Approx. 5-10 cm of snow on ground. All waterbodies frozen.
0070	23/01/19	5A	East	2	SR	12:05	15:05	03:00		
0071	24/01/19	4	West	1	SR	08:50	11:50	03:00		Cold. Snow c. 5 cm on ground. Widespread ice/frost on all waterbodies and rivers.
0072	30/01/19	4	West	3	PB	11:45	15:30	03:45		No works affecting viewshed.
0073	31/01/19	2C	West	1	PB	08:30	11:30	03:00		No disturbance in viewshed.
0074	31/01/19	1	West	3	PB	12:00	15:00	03:00		All waterbodies iced over. Occasional vehicle movements along spine road. Workers at T5 in nacelle.
0077	13/02/19	3	West	1	SR	08:25	11:25	03:00		Snow patches. Thaw. All waterbodies iced over. Low cloud occasionally affecting visibility.
0078	13/02/19	2C	West	2	SR	12:10	15:10	03:00		
0079	14/02/19	6A	East	1	SR	08:20	11:20	03:00		Occasional low cloud. Snow patches in hollows. Ice melting on waterbodies. Distant ridges to the east of viewshed not visible.
0080	14/02/19	5A	East	2	SR	11:30	14:30	03:00		Occasional low cloud in viewshed. Distant ridges to east not visible.
0081	15/02/19	1	West	1	SR	07:50	10:50	03:00		Very little snow patches left. Reservoir about 25% iced covered (east end). Clear and sunny.
0082	19/02/19	3	West	2	KM	09:20	10:50	01:30		In hour 2, visibility going in and out. At 10:50 the cloud closed in completely so survey was stopped.
0083	19/02/19	1	West	4	KM	12:05	15:05	03:00		
0084	20/02/19	5A	East	4	KM	12:10	15:10	03:00		

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0085	21/02/19	3	West	2	KM	11:20	12:20	01:00		Very thick, patchy cloud. Visibility very variable - closed in completely by 12:15.
0086	26/02/19	6A	East	3	SR	13:55	16:55	03:00		
0091	26/02/19	3	West	3	KM	13:55	16:55	03:00		
0092	27/02/19	6A	East	1	KM	08:50	11:50	03:00		
0087	27/02/19	4	West	1	SR	09:00	12:00	03:00		Clear and sunny with very little snow left on the mountains.
0093	27/02/19	5A	East	2	KM	12:05	15:05	03:00		
0088	27/02/19	4	West	2	SR	12:15	15:15	03:00		Sunny, with increasing haze throughout the watch.
0089	28/02/19	3	West	1	SR	09:00	10:00	01:00		Low cloud over distant ridges outside of 2km viewshed, and occasionally over Meall Caca, then increasingly down to c. 250m. Finished survey after one hour due to consistent low visibility (i.e. < 200m).
0094	28/02/19	1	West	2	KM	09:00	12:00	03:00		Thick haze closing in and out during survey.
0090	28/02/19	6A	East	2	SR	10:30	12:00	01:30		Low cloud covering surrounding ridges and occasionally the 2km viewshed. Visibility improved during first 30 minutes of survey.
0098	20/03/19	6A	East	2	KM	09:15	12:15	03:00		Cloud height rising and falling throughout survey.
0095	20/03/19	3	West	2	SR	09:20	12:20	03:00		Snow and ice thawing with occasional low cloud and glimpses of sunshine.
0099	20/03/19	5A	East	3	KM	12:30	15:30	03:00		Thick cloud throughout survey.
0096	20/03/19	2C	West	3	SR	13:00	16:00	03:00		Snow and ice thaw. Occasional low cloud hugging surrounding ridges of viewshed.
0100	21/03/19	1	West	2	KM	08:50	11:50	03:00		
0097	21/03/19	4	West	2	SR	09:00	12:00	03:00		Big thaw, river levels high. Occasional low cloud in the 2-3km viewshed in the first hour of watch.

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0102	26/03/19	2C	West	4	AJM	11:30	14:30	03:00		
0104	26/03/19	4	West	4	PC	11:45	14:15	02:30		
0105	26/03/19	6A	East	5	PC	14:40	17:10	02:30		
0103	26/03/19	3	West	5	AJM	15:05	16:35	01:30		
0101	08/04/19	1	West	3	KM	14:05	17:05	03:00		Light haze appearing to the west.
0112	08/04/19	4	West	4	SR	14:25	17:25	03:00		Sunny intervals through haze. Snowy patches still in the lee of ridges and in hollows.
0107	15/04/2019	3	West	3	AJM	13:10	16:10	03:00		No flights.
0106	15/04/2019	6A	East	3	PC	13:15	16:15	03:00		No notable records.
0108	15/04/2019	3	West	5	AJM	16:40	19:40	03:00		
0109	15/04/2019	5A	East	5	PC	16:50	19:50	03:00		
0110	17/04/2019	1	West	2	PC	08:45	11:45	03:00		
0111	17/04/2019	4	West	2	AJM	08:50	11:50	03:00		
0113	23/04/19	5A	East	5	PB	17:10	20:10	03:00		
0115	23/04/19	2A	West	5	SR	17:10	20:10	03:00		
0116	24/04/19	6A	East	2	SR	10:00	13:00	03:00		Sunny, breezy, with strong gusts up to BF5.
0114	24/04/19	2A	West	2	PB	10:05	13:05	03:00		
0117	07/05/19	3	West	3	PB	13:30	16:30	03:00	01:30	Weather poor visibility. Weather deteriorated at c. 3 pm.
0118	22/05/19	1	West	4	AJM	15:00	18:00	03:00		Cloud rolled in 15 minutes after survey, preventing further surveys.
0119	22/05/19	5A	East	4	PC	15:15	18:15	03:00		
0120	28/05/19	4	West	3	PC	11:45	14:45	03:00		
0121	28/05/19	2A	West	3	AJM	11:55	14:55	03:00		
0122	28/05/19	4	West	4	PC	15:15	18:15	03:00		

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0123	28/05/19	2A	West	4	AJM	15:25	18:25	03:00		
0124	28/05/19	1	West	5	PC	18:45	21:45	03:00		
0125	28/05/19	3	West	5	AJM	19:00	22:00	03:00		
0126	29/05/19	3	West	1	AJM	04:10	07:10	03:00		Frosty start.
0127	29/05/19	5A	East	1	PC	04:20	07:20	03:00		
0128	29/05/19	4	West	2	AJM	07:40	10:40	03:00		
0129	29/05/19	6A	East	2	PC	07:50	10:50	03:00		
0130	29/05/19	1	West	3	AJM	11:30	14:30	03:00		
0131	29/05/19	6A	East	3	PC	11:50	14:50	03:00		
0132	07/06/19	3	West	2	PC	09:30	11:00	01:30		
0133	07/06/19	5A	East	3	PC	11:30	14:30	03:00		
0134	07/06/19	6A	East	4	PC	15:00	18:00	03:00		
0135	10/06/19	2A	West	2	AJM	09:30	12:30	03:00		
0136	10/06/19	4	West	3	PC	09:50	12:50	03:00		
0137	10/06/19	2A	West	3	AJM	13:00	16:00	03:00		
0138	10/06/19	6A	East	3	PC	13:25	16:25	03:00		
0139	10/06/19	3	West	4	AJM	16:35	19:35	03:00		
0140	10/06/19	5A	East	4	PC	16:55	19:55	03:00		
0141	11/06/19	1	West	2	AJM	08:35	11:35	03:00		
0142	11/06/19	1	West	3	AJM	12:05	15:05	03:00		
0143	21/06/19	1	West	4	AJM	14:50	17:50	03:00		
0144	21/06/19	6A	East	4	PC	15:00	18:00	03:00		
0145	26/06/19	4	West	2	PC	09:30	12:30	03:00		
0146	26/06/19	4	West	3	PC	13:00	16:00	03:00		

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0147	26/06/19	3	West	4	PC	16:30	19:30	03:00		
0148	27/06/19	5A	East	4	PC	14:55	17:55	03:00		
0151	28/06/19	5A	East	3	PB	12:30	15:30	03:00		Three hillwalkers on Geal Charn between 13:00 and 14:00.
0152	28/06/19	6A	East	4	PB	15:40	18:40	03:00		
0153	29/06/19	2A	West	2	PB	09:30	12:30	03:00		An excavator was observed very near Glen Brein, possibly digging grouse butts. A van drove along the dam wall, along reservoir then off site at 10:15 - 10:30. Stronelaig site very quiet.
0154	29/06/19	3	West	4	PB	15:15	16:15	01:00		Watch ended early due to lightning very close to the VP.
0149	01/07/19	2A	West	4	SR	14:50	17:50	03:00		Light rain from 17:10. Cloudy with gusty wind.
0150	05/07/19	3	West	2	KM	08:30	10:30	02:00		Thick cloud moving through but staying above the height of the VP.
0155	08/07/19	1	West	3	PC	12:20	15:20	03:00		
0156	08/07/19	6A	East	4	PC	15:50	18:50	03:00		
0157	08/07/19	5A	East	5	PC	19:20	22:20	03:00		
0158	24/07/19	3	West	3	AJM	12:55	15:55	03:00		
0159	24/07/19	6A	East	3	PC	13:00	16:00	03:00		
0160	24/07/19	3	West	4	AJM	16:25	19:25	03:00		
0161	24/07/19	5A	East	4	PC	16:30	19:30	03:00		
0162	25/07/19	4	West	1	PC	04:50	07:50	03:00		
0163	25/07/19	2A	West	1	AJM	04:55	07:55	03:00		
0164	25/07/19	4	West	2	PC	08:20	11:20	03:00		
0165	25/07/19	2A	West	2	AJM	08:25	11:25	03:00		
0166	26/07/19	1	West	2	PC	09:06	12:06	03:00		

Survey Ref	Date Surveyed	VP	WF	Period	Surveyor	Start	End	Duration (Hrs:Mins) incl. Breaks	Breaks (Hrs:Mins)	Weather & Disturbance Notes
0167	13/08/19	1	West	3	PC	12:20	15:20	03:00		
0168	13/08/19	1	West	4	PC	15:50	20:15	04:25	01:25	
0169	14/08/19	1	West	3	PC	10:30	14:00	03:30	00:30	Rain became heavy and visibility poor, took a break until it improved.
0170	14/08/19	1	West	4	PC	14:00	17:30	03:30	00:30	Statutory 30 min. break due to overlap between sessions and break taken earlier when weather was poor.

Table 9.3.2 below provides detailed of the recorded weather conditions during the flight activity surveys.

Table A3.2: Flight Activity Survey Weather Conditions

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0001	13/08/18	2A	1	W	500-1000	100	2	5-10	15	Rain	25	Light	Intermittent
0001	13/08/18	2A	2	W	500-1000	100	1-2	5-10	15	None	n/a	n/a	n/a
0001	13/08/18	2A	3	W	500-1000	100	2-3	5-10	15	Rain	25	Light	Intermittent
0002	14/08/18	1	1	W	500-1000	100	3-4	5-10	15	Rain	10	Light	Intermittent
0002	14/08/18	1	2	W	500-1000	90	3	5-10	15	Rain	5	Light	Intermittent
0002	14/08/18	1	3	W	500-1000	95	2-3	5-10	15	None	n/a	n/a	n/a
0003	14/08/18	3	1	W	500-1000	85	3-4	5-10	15	None	n/a	n/a	n/a
0003	14/08/18	3	2	W	500-1000	80	3-4	5-10	13	None	n/a	n/a	n/a
0003	14/08/18	3	3	W	500-1000	95	3	5-10	11	None	n/a	n/a	n/a
0004	15/08/18	6B	1	W	500-1000	80	3	>10	13	None	n/a	n/a	n/a
0004	15/08/18	6B	2	W	500-1000	100	3	>10	13	None	n/a	n/a	n/a
0004	15/08/18	6B	3	W	500-1000	95	2-3	>10	12	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0005	15/08/18	5B	1	W	500-1000	100	3	>10	13	Rain	25	Light	Intermittent
0005	15/08/18	5B	2	W	500-1000	100	3	>10	10	Rain	10	Light	Intermittent
0005	15/08/18	5B	3	SW	500-1000	90	2	>10	10	None	n/a	n/a	n/a
0006	16/08/18	4	1	SW	500-1000	95	3	5-10	10	Rain	25	Light	Intermittent
0006	16/08/18	4	2	SW	500-1000	90	3	5-10	10	Rain	10	Light	Intermittent
0006	16/08/18	4	3	SW	500-1000	95	3	5-10	10	Rain	25	Light	Intermittent
0007	27/08/18	3	1	W-NW	>1000	75	2	>10	12	None	n/a	n/a	n/a
0007	27/08/18	3	2	W-NW	>1000	75	2	>10	12	None	n/a	n/a	n/a
0007	27/08/18	3	3	W-NW	>1000	90	2	>10	12	None	n/a	n/a	n/a
0008	27/08/18	2A	1	W-NW	>1000	95	3	>10	11	None	n/a	n/a	n/a
0008	27/08/18	2A	2	W-NW	>1000	95	3	>10	11	None	n/a	n/a	n/a
0008	27/08/18	2A	3	W-NW	>1000	90	3	>10	11	None	n/a	n/a	n/a
0009	28/08/18	4	1	SW	500-1000	100	3-4	5-10	8	None	n/a	n/a	n/a
0009	28/08/18	4	2	SW	500-1000	100	3-4	5-10	8	None	n/a	n/a	n/a
0009	28/08/18	4	3	SW	500-1000	100	3	5-10	8	None	n/a	n/a	n/a
0010	28/08/18	1	1	SW	500-1000	100	2-3	5-10	10	None	n/a	n/a	n/a
0010	28/08/18	1	2	SW	500-1000	100	2-3	5-10	10	Rain	30	Light	Intermittent
0010	28/08/18	1	3	SW	500-1000	100	2-3	2-5	10	None	n/a	n/a	n/a
0011	29/08/18	5A	1	SW	>1000	50	2-3	>10	9	None	n/a	n/a	n/a
0011	29/08/18	5A	2	SW	>1000	75	2-3	>10	9	None	n/a	n/a	n/a
0011	29/08/18	5A	3	W	500-1000	95	2-3	5-10	9	Rain	30	Light	Intermittent
0012	29/08/18	6B	1	W	500-1000	60	3	>10	9	Rain	10	Light	Intermittent
0012	29/08/18	6B	2	W	500-1000	75	3	>10	9	None	n/a	n/a	n/a
0012	29/08/18	6B	3	W	500-1000	90	3	>10	9	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0013	20/09/18	2A	1	SW-W	500-1000	95	3-4	>10	5	None	n/a	n/a	n/a
0013	20/09/18	2A	2	SW-W	500-1000	50	3-4	>10	6	None	n/a	n/a	n/a
0013	20/09/18	2A	3	SW-W	500-1000	75	3-4	>10	7	Rain	5	Light	Intermittent
0014	20/09/18	4	1	SW-W	>1000	50	3-4	>10	7	None	n/a	n/a	n/a
0014	20/09/18	4	2	SW-W	>1000	75	3-4	>10	7	None	n/a	n/a	n/a
0014	20/09/18	4	3	SW-W	>1000	90	3	>10	8	None	n/a	n/a	n/a
0015	21/09/18	3	1	W-NW	500-1000	95	2	>10	4	None	n/a	n/a	n/a
0015	21/09/18	3	2	W-NW	500-1000	100	2	2-10	5	Rain / Sleet	100	Light / Mod.	Continuous
0015	21/09/18	3	3	NW	500-1000	100	2	2-10	5	Rain	100	Light / Mod.	Continuous
0020	21/09/18	5A	1	SE	500-1000	95	2	>10	~	Rain	25	Light	Continuous
0020	21/09/18	5A	2	SE	500-1000	100	2	5-10	~	Rain	100	Light / Mod.	Continuous
0020	21/09/18	5A	3	SE	500-1000	100	1-2	2-5	~	Rain	100	Light / Mod.	Continuous
0016	24/09/18	6B	1	NW	500-1000	50	2	5-10	8	None	n/a	n/a	n/a
0016	24/09/18	6B	2	NW	500-1000	95	2	5-10	8	Rain	20	Light	Intermittent
0016	24/09/18	6B	3	NW	500-1000	75	2	>10	8	None	n/a	n/a	n/a
0021	24/09/18	1	1	E	>1000	40	2	>10	8	Rain	10	Light	Intermittent
0021	24/09/18	1	2	E	>1000	75	2	>10	~	Rain	5	Light	Continuous
0021	24/09/18	1	3	E	>1000	90	2	>10	~	None	n/a	n/a	n/a
0017	27/09/18	2A	1	W-NW	500-1000	100	2-3	5-10	7	Rain	10	Light	Intermittent
0017	27/09/18	2A	2	W-NW	500-1000	95	2-3	5-10	5	None	n/a	n/a	n/a
0017	27/09/18	2A	3	W-NW	500-1000	95	2-3	5-10	5	None	n/a	n/a	n/a
0018	27/09/18	4	1	W-NW	500-1000	100	2-3	5-10	8	None	n/a	n/a	n/a
0018	27/09/18	4	2	W-NW	500-1000	80	2-3	5-10	5	None	n/a	n/a	n/a
0018	27/09/18	4	3	W-NW	500-1000	50	2	>10	3	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0022	27/09/18	1	1	NW	500-1000	98	2	5-10	7	Rain	50	Light	Continuous
0022	27/09/18	1	2	NW	500-1000	90	2	5-10	~	None	n/a	n/a	n/a
0022	27/09/18	1	3	NW	>1000	75	2	>10	~	None	n/a	n/a	n/a
0024	27/09/18	6B	1	NW	>1000	95	2	>10	~	Rain	10	Light	Intermittent
0024	27/09/18	6B	2	NW	>1000	95	2	>10	~	None	n/a	n/a	n/a
0024	27/09/18	6B	3	NW	>1000	80	2-3	>10	~	~	~	~	~
0019	28/09/18	3	1	W-NW	500-1000	30	2	>10	6	Rain	5	Light	Intermittent
0019	28/09/18	3	2	W-NW	500-1000	65	2-3	>10	5	None	n/a	n/a	n/a
0019	28/09/18	3	3	W-NW	500-1000	50	2	>10	5	None	n/a	n/a	n/a
0023	28/09/18	5A	1	~	>1000	50	1	>10	~	None	n/a	n/a	n/a
0023	28/09/18	5A	2	~	>1000	60	2	>10	9	None	n/a	n/a	n/a
0023	28/09/18	5A	3	~	>1000	60	2	>10	~	None	n/a	n/a	n/a
0025	05/10/18	5A	1	W	500-1000	75	1-2	2-10	4	Rain	5	Light	Intermittent
0025	05/10/18	5A	2	W	500-1000	50	2	>10	5	None	n/a	n/a	n/a
0025	05/10/18	5A	3	W	500-1000	80	2	>10	4	Rain	5	Light	Intermittent
0026	05/10/18	6B	1	W	500-1000	25	2	>10	6	None	n/a	n/a	n/a
0026	05/10/18	6B	2	W	500-1000	50	2	>10	5	Rain / Hail / Sleet / Snow	10	Light	Intermittent
0026	05/10/18	6B	3	W	500-1000	50	2	>10	5	Rain / Hail / Sleet / Snow	10	Light	Intermittent
0028	05/10/18	3	1	SW	>1000	20	2-3	5-10	10	None	n/a	n/a	n/a
0028	05/10/18	3	2	SW	>1000	30	2-3	5-10	9	None	n/a	n/a	n/a
0028	05/10/18	3	3	SW	500-1000	80	2	5-10	9	Rain	10	Light	Intermittent
0029	05/10/18	2A	1	SW	>1000	40	3-4	>10	9	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0029	05/10/18	2A	2	SW	500-1000	100	4	2-5	8	Rain / Hail / Sleet / Snow	10	Light	Intermittent
0029	05/10/18	2A	3	SW	500-1000	60-80	4-5	2-5	8	Rain / Hail / Sleet / Snow	10	Light	Intermittent
0027	06/10/18	4	1	W	>1000	10	2	>10	-1	None	n/a	n/a	n/a
0027	06/10/18	4	2	W	>1000	25	2	>10	0	None	n/a	n/a	n/a
0027	06/10/18	4	3	W	>1000	35	2	>10	2	None	n/a	n/a	n/a
0030	06/10/18	1	1	W	>1000	10	0-1	>10	0	None	n/a	n/a	n/a
0030	06/10/18	1	2	W	>1000	5	1	>10	0	None	n/a	n/a	n/a
0030	06/10/18	1	3	W	>1000	40	1	>10	2	None	n/a	n/a	n/a
0034	28/10/18	2A	1	n/a	>1000	10	0	>10	0	None	n/a	n/a	n/a
0034	28/10/18	2A	2	E	>1000	15	0-1	>10	1	None	n/a	n/a	n/a
0034	28/10/18	2A	3	E	>1000	25	1	>10	1	None	n/a	n/a	n/a
0035	28/10/18	5A	1	E	>1000	20	1	>10	0	None	n/a	n/a	n/a
0035	28/10/18	5A	2	E	>1000	30	1	>10	0	None	n/a	n/a	n/a
0035	28/10/18	5A	3	E	>1000	30	1	>10	0	None	n/a	n/a	n/a
0031	29/10/18	1	1	SE	>1000	40	2	>10	-1	None	n/a	n/a	n/a
0031	29/10/18	1	2	SE	>1000	30	2-3	>10	-2	None	n/a	n/a	n/a
0031	29/10/18	1	3	SE	>1000	30	2	>10	-3	None	n/a	n/a	n/a
0036	29/10/18	3	1	SE	500-1000	70	2	5-10	0	None	n/a	n/a	n/a
0036	29/10/18	3	2	SE	500-1000	80	1-2	5-10	0	None	n/a	n/a	n/a
0036	29/10/18	3	3	SE	100-500	100	3	2-5	1	None	n/a	n/a	n/a
0032	30/10/18	6A	1	SE	>1000	10	3	>10	-1	None	n/a	n/a	n/a
0032	30/10/18	6A	2	SE	>1000	50	2	>10	0	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0032	30/10/18	6A	3	SE	>1000	40	2	>10	-1	None	n/a	n/a	n/a
0033	30/10/18	4	1	SE	500-1000	50	2	5-10	-1	Snow	5	Light	Continuous
0033	30/10/18	4	2	SE	>1000	60	1-2	>10	0	None	n/a	n/a	n/a
0033	30/10/18	4	3	SE	>1000	80	2	>10	-2	None	n/a	n/a	n/a
0037	19/11/18	1	1	SE	500-1000	90	2-3	5-10	2	None	n/a	n/a	n/a
0037	19/11/18	1	2	SE	500-1000	60	3	5-10	3	None	n/a	n/a	n/a
0037	19/11/18	1	3	SE	500-1000	70	3	5-10	2	None	n/a	n/a	n/a
0040	19/11/18	6A	1	SE	500-1000	90	3	5-10	1	None	n/a	n/a	n/a
0040	19/11/18	6A	2	E	500-1000	100	2	5-10	1	None	n/a	n/a	n/a
0038	20/11/18	2A	1	E	500-1000	100	3-4	2-5	1	None	n/a	n/a	n/a
0038	20/11/18	2A	2	E	100-500	100	3-4	2-5	0	None	n/a	n/a	n/a
0038	20/11/18	2A	3	E-NE	500-1000	50	3-4	5-10	1	None	n/a	n/a	n/a
0039	20/11/18	5A	1	NE	100-500	100	2	2-5	-1	Snow	10	Light	Intermittent
0039	20/11/18	5A	2	NE	100-500	100	2	2-5	-1	Snow	10	Light	Intermittent
0039	20/11/18	5A	3	E	100-500	100	3	2-5	-2	Snow	15	Light	Intermittent
0041	20/11/18	6A	3	NE	100-500	100	2	2-5	-1	None	n/a	n/a	n/a
0042	21/11/18	3	1	E	100-500	100	3	2-5	-1	Snow	20	Moderate	Intermittent
0042	21/11/18	3	2	E	100-500	80	3	2-5	-1	Snow	10	Light	Intermittent
0042	21/11/18	3	3	E	100-500	70	3	2-5	-1	Snow	15	Moderate	Intermittent
0048	21/11/18	4	1	E	100-500	100	3	2-5	-1	Snow	15	Light / Moderate	Intermittent
0048	21/11/18	4	2	E	500-1000	60	3	5-10	-1	Snow	10	Light / Moderate	Intermittent
0048	21/11/18	4	3	E	100-500	90	3	2-5	-1	Snow	20	Light / Moderate	Intermittent

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0043	27/11/18	1	1	SW	500-1000	95	4-5	5-10	2	None	n/a	n/a	n/a
0043	27/11/18	1	2	SW	500-1000	95	4-5	5-10	2	None	n/a	n/a	n/a
0043	27/11/18	1	3	SW	500-1000	95	4-5	5-10	2	None	n/a	n/a	n/a
0044	28/11/18	4	1	S-SW	500-1000	100	4-5	<1-2	2	Rain	100	Light	Continuous
0044	28/11/18	4	2	S	500-1000	100	4	1-5	2	Rain	100	Light	Continuous
0044	28/11/18	4	3	S	500-1000	100	4	1-5	2	Rain	100	Light	Continuous
0045	28/11/18	6A	1	S	500-1000	100	4	1-2	1	Rain	100	Light	Continuous
0045	28/11/18	6A	2	S	500-1000	100	4	1-2	1	Rain	100	Light	Continuous
0045	28/11/18	6A	3	S	500-1000	100	4	1-2	1	Rain	100	Light / Moderate / Heavy	Continuous
0046	29/11/18	2B	1	S	100-1000	100	3	1-5	5	Rain	100	Light	Continuous
0046	29/11/18	2B	2	S	100-1000	100	3-4	1-5	5	Rain	100	Light	Continuous
0046	29/11/18	2B	3	S	100-1000	100	3	1-5	5	Rain	100	Light	Continuous
0047	29/11/18	5A	1	S	500-1000	100	2	2	5	Rain / Sleet	50	Light	Intermittent
0047	29/11/18	5A	2	S	500-1000	100	2	2	5	Rain / Sleet / Snow	100	Light	Continuous
0047	29/11/18	5A	3	S	500-1000	100	2	2	5	Rain	25	Light	Intermittent
0049	11/12/18	6A	1	SE	500-1000	100	3	1-5	5	None	n/a	n/a	n/a
0049	11/12/18	6A	2	SE	500-1000	100	2-3	1-5	5	None	n/a	n/a	n/a
0049	11/12/18	6A	3	SE	500-1000	100	2-3	<1-2	5	None	n/a	n/a	n/a
0054	11/12/18	1	1	S	100-500	100	3-4	1-2	4	None	n/a	n/a	n/a
0054	11/12/18	1	2	S	100-500	100	3	1-2	3	None	n/a	n/a	n/a
0054	11/12/18	1	3	S	<100	100	2	<1	3	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0051	13/12/18	3	1	SE-S	500-1000	75	3-4	5-10	-2	None	n/a	n/a	n/a
0051	13/12/18	3	2	SE-S	500-1000	80	3	5-10	-2	None	n/a	n/a	n/a
0051	13/12/18	3	3	SE-S	500-1000	75	3	5-10	-2	None	n/a	n/a	n/a
0052	13/12/18	4	1	SE-S	500-1000	80	3-4	5-10	-1	None	n/a	n/a	n/a
0052	13/12/18	4	2	SE-S	500-1000	75	3-4	5-10	-1	None	n/a	n/a	n/a
0052	13/12/18	4	3	SE-S	500-1000	70	3-4	5-10	-1	None	n/a	n/a	n/a
0056	13/12/18	5A	1	SE	500-1000	100	4	>10	-2	None	n/a	n/a	n/a
0056	13/12/18	5A	2	SE	>1000	100	3	>10	-3	None	n/a	n/a	n/a
0056	13/12/18	5A	3	SE	>1000	100	3-4	>10	-3	None	n/a	n/a	n/a
0053	14/12/18	2B	1	S	>1000	80	2-3	>10	-2	None	n/a	n/a	n/a
0053	14/12/18	2B	2	S	>1000	25	2-3	>10	-2	None	n/a	n/a	n/a
0053	14/12/18	2B	3	S	>1000	25	2-3	>10	-2	None	n/a	n/a	n/a
0057	19/12/18	5A	1	S	500-1000	60	2-3	5-10	2	Snow	5	Light	Intermittent
0057	19/12/18	5A	2	S	500-1000	75	2-3	5-10	0	None	n/a	n/a	n/a
0057	19/12/18	5A	3	S	500-1000	100	2-4	5-10	1	Sleet	10	Light	Intermittent
0058	19/12/18	6A	1	S	500-1000	90	3	2-5	1	Sleet	5	Light	Intermittent
0058	19/12/18	6A	2	S	500-1000	100	3	2-5	1	Rain	5	Light	Intermittent
0058	19/12/18	6A	3	S	500-1000	100	3	2-5	1	Rain	5	Light	Intermittent
0075	19/12/18	3	1	S	100-500	80	2-3	2-5	2	Snow	10	Light	Intermittent
0075	19/12/18	3	2	S	<100	90	2-3	2-5	2	Snow	20	Moderate	Intermittent
0075	19/12/18	3	3	S	<100	100	2-3	1-2	2	Snow	50	Moderate	Intermittent
0076	19/12/18	2B	1	S	500-1000	80	2	2-5	3	None	n/a	n/a	n/a
0076	19/12/18	2B	2	S	100-500	100	2-3	2-5	2	Snow	20	Light	Intermittent
0076	19/12/18	2B	3	S	100-500	80	2-3	5-10	2	Snow	15	Light	Intermittent

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0059	20/12/18	1	1	SE-S-SW	500-1000	95	1	5-10	1	None	n/a	n/a	n/a
0059	20/12/18	1	2	SE-S-SW	500-1000	95	1-2	5-10	0	None	n/a	n/a	n/a
0059	20/12/18	1	3	SE-S-SW	500-1000	95	1-2	5-10	0	None	n/a	n/a	n/a
0060	08/01/19	2D	1	NW	>1000	60	3	>10	4	None	n/a	n/a	n/a
0060	08/01/19	2D	2	NW	>1000	50	3	>10	3	None	n/a	n/a	n/a
0060	08/01/19	2D	3	NW	>1000	50	2-3	>10	3	None	n/a	n/a	n/a
0061	08/01/19	3	1	NW	>1000	40	3	>10	3	None	n/a	n/a	n/a
0061	08/01/19	3	2	NW	>1000	75	3	>10	3	None	n/a	n/a	n/a
0061	08/01/19	3	3	NW	>1000	100	2	>10	2	Snow	10	Light	Continuous
0062	09/01/19	4	1	NW	>1000	30	1	>10	-1	None	n/a	n/a	n/a
0062	09/01/19	4	2	NW	>1000	40	1	>10	1	None	n/a	n/a	n/a
0062	09/01/19	4	3	NW	>1000	80	1	>10	1	None	n/a	n/a	n/a
0063	09/01/19	1	1	W	>1000	100	0-1	>10	2	Rain	50	Light	Continuous
0063	09/01/19	1	2	W	>1000	100	1	5-10	2	Rain	75	Light	Continuous
0063	09/01/19	1	3	SW	500-1000	100	1	5-10	3	Rain	75	Light	Continuous
0064	10/01/19	5A	1	SW	500-1000	100	1	5-10	3	None	n/a	n/a	n/a
0064	10/01/19	5A	2	SW	>1000	95	1	>10	3	Rain	25	Light	Intermittent
0064	10/01/19	5A	3	SW	>1000	100	1	>10	4	Rain	25	Light	Intermittent
0065	17/01/19	3	1	SW	>1000	65	1-2	>10	-5	Snow	25	Light	Intermittent
0065	17/01/19	3	2	SW	>1000	75	1	>10	-5	None	n/a	n/a	n/a
0065	17/01/19	3	3	SW	>1000	75	1	>10	-5	None	n/a	n/a	n/a
0066	17/01/19	2B	1	N	>1000	20	1	>10	-3	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0067	18/01/19	3	1	SW	>1000	70	1	>10	-5	None	n/a	n/a	n/a
0067	18/01/19	3	2	SW	>1000	70	1	>10	-5	None	n/a	n/a	n/a
0068	18/01/19	2B	1	SW	>1000	75	1	>10	-4	None	n/a	n/a	n/a
0068	18/01/19	2B	2	SW	>1000	75	1	>10	-4	None	n/a	n/a	n/a
0069	23/01/19	6A	1	~	>1000	5	0	>10	-6	None	n/a	n/a	n/a
0069	23/01/19	6A	2	SW	>1000	25	0-1	>10	-6	None	n/a	n/a	n/a
0069	23/01/19	6A	3	SW	>1000	45	0-1	>10	-5	None	n/a	n/a	n/a
0070	23/01/19	5A	1	SW	500-1000	95	1	2-10	-4	Snow	10	Light	Intermittent
0070	23/01/19	5A	2	SW	500-1000	55	1-2	2-10	-4	None	n/a	n/a	n/a
0070	23/01/19	5A	3	SW	500-1000	75	1-2	2-10	-4	None	n/a	n/a	n/a
0071	24/01/19	4	1	SW-W	>1000	95	2	>10	-2	None	n/a	n/a	n/a
0071	24/01/19	4	2	SW-W	>1000	95	1-2	>10	-2	None	n/a	n/a	n/a
0071	24/01/19	4	3	SW-W	>1000	95	1	>10	0	None	n/a	n/a	n/a
0072	30/01/19	4	1	SW	500-1000	90	2-3	2-5	-3	None	n/a	n/a	n/a
0072	30/01/19	4	2	SW	500-1000	80	2-3	2-5	-3	None	n/a	n/a	n/a
0072	30/01/19	4	3	SW	100-500	100	2-3	2-5	-3	None	n/a	n/a	n/a
0073	31/01/19	2C	1	S	>1000	0	0-1	>10	-5	None	n/a	n/a	n/a
0073	31/01/19	2C	2	S	>1000	0	0-1	>10	-5	None	n/a	n/a	n/a
0073	31/01/19	2C	3	S	>1000	0	0-1	>10	-5	None	n/a	n/a	n/a
0074	31/01/19	1	1	SE	>1000	0	1	>10	-3	None	n/a	n/a	n/a
0074	31/01/19	1	2	SE	>1000	0	1	>10	-3	None	n/a	n/a	n/a
0074	31/01/19	1	3	SE	>1000	0	1	>10	-3	None	n/a	n/a	n/a
0077	13/02/19	3	1	SW	500-1000	100	3	1-5	5	None	n/a	n/a	n/a
0077	13/02/19	3	2	SW	500-1000	100	3	1-5	5	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0077	13/02/19	3	3	SW	500-1000	100	3	1-5	5	None	n/a	n/a	n/a
0078	13/02/19	2C	1	SW	500-1000	100	2-3	2-5	5	Rain	25	Light	Intermittent
0078	13/02/19	2C	2	SW	500-1000	100	2-3	2-5	5	None	n/a	n/a	n/a
0078	13/02/19	2C	3	SW	500-1000	100	2-3	2-5	5	Rain/Hail	10	Light	Intermittent
0079	14/02/19	6A	1	SE-S	500-1000	100	2	<1-2	8	Rain	20	Light	Intermittent
0079	14/02/19	6A	2	SE-S	500-1000	100	2-3	1-2	8	Rain	10	Light	Intermittent
0079	14/02/19	6A	3	SE-S	500-1000	100	2-3	1-2	8	Rain	15	Light	Intermittent
0080	14/02/19	5A	1	SE-S	500-1000	100	2-3	1-5	7	Rain	10	Light	Intermittent
0080	14/02/19	5A	2	SE-S	500-1000	100	2-3	1-5	7	None	n/a	n/a	n/a
0080	14/02/19	5A	3	SE-S	500-1000	100	2-3	1-5	7	None	n/a	n/a	n/a
0081	15/02/19	1	1	SW	>1000	0	1	>10	0	None	n/a	n/a	n/a
0081	15/02/19	1	2	SW	>1000	10	1	>10	1	None	n/a	n/a	n/a
0081	15/02/19	1	3	SW	>1000	15	1	>10	5	None	n/a	n/a	n/a
0082	19/02/19	3	1	E	100-500	100	2	2-5	2	Rain	75	Light	Intermittent
0082	19/02/19	3	2	E	100-500	100	2	1-5	4	None	n/a	n/a	n/a
0083	19/02/19	1	1	SE	100-500	100	2	2-5	4	Rain	10	Light	Continuous
0083	19/02/19	1	2	SE	100-500	100	1	2-5	5	Rain	50	Light	Intermittent
0083	19/02/19	1	3	SE	100-500	100	1	2-5	5	Rain	25	Light	Intermittent
0084	20/02/19	5A	1	SE	500-1000	100	3	5-10	5	Rain	10	Light	Continuous
0084	20/02/19	5A	2	SE	100-500	100	2-3	2-5	5	Rain	50	Light	Intermittent
0084	20/02/19	5A	3	SE	500-1000	100	2-3	5-10	6	None	n/a	n/a	n/a
0085	21/02/19	3	1	SE	<100-500	100	2-3	<1-5	10	None	n/a	n/a	n/a
0086	26/02/19	6A	1	S	>1000	30	1-2	>10	13	None	n/a	n/a	n/a
0086	26/02/19	6A	2	S	>1000	20	1-2	>10	13	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0086	26/02/19	6A	3	S	>1000	5	1-2	>10	13	None	n/a	n/a	n/a
0091	26/02/19	3	1	S	>1000	80	1-2	>10	7	None	n/a	n/a	n/a
0091	26/02/19	3	2	S	>1000	40	2	>10	7	None	n/a	n/a	n/a
0091	26/02/19	3	3	S	>1000	10	1	>10	6	None	n/a	n/a	n/a
0087	27/02/19	4	1	S-SW	>1000	50	2-3	>10	4	None	n/a	n/a	n/a
0087	27/02/19	4	2	SW	>1000	50	2	>10	9	None	n/a	n/a	n/a
0087	27/02/19	4	3	SW	>1000	50	2	>10	10	None	n/a	n/a	n/a
0088	27/02/19	4	1	SW	>1000	60	2-3	>10	10	None	n/a	n/a	n/a
0088	27/02/19	4	2	SW	>1000	75	2-3	>10	12	None	n/a	n/a	n/a
0088	27/02/19	4	3	SW	>1000	90	2	>10	12	None	n/a	n/a	n/a
0092	27/02/19	6A	1	S	>1000	30	1	>10	4	None	n/a	n/a	n/a
0092	27/02/19	6A	2	S	>1000	30	1	>10	10	None	n/a	n/a	n/a
0092	27/02/19	6A	3	SW	>1000	50	1	>10	10	None	n/a	n/a	n/a
0093	27/02/19	5A	1	SW	>1000	50	1	>10	12	None	n/a	n/a	n/a
0093	27/02/19	5A	2	SW	>1000	30	1	>10	10	None	n/a	n/a	n/a
0093	27/02/19	5A	3	SW	>1000	80	1-2	>10	7	None	n/a	n/a	n/a
0089	28/02/19	3	1	SW	500-1000	100	3	<1-2	5	None	n/a	n/a	n/a
0090	28/02/19	6A	1	SW	500-1000	100	3	1-5	5	None	n/a	n/a	n/a
0090	28/02/19	6A	2	SW	500-1000	100	3	2-5	5	None	n/a	n/a	n/a
0094	28/02/19	1	1	S	500-1000	100	2	5-10	5	None	n/a	n/a	n/a
0094	28/02/19	1	2	S	100-500	100	2	2-5	4	None	n/a	n/a	n/a
0094	28/02/19	1	3	SE	100-500	100	2	2-5	5	None	n/a	n/a	n/a
0095	20/03/19	3	1	W	500-1000	100	3	2-5	5	Rain	20	Light	Intermittent
0095	20/03/19	3	2	W	500-1000	100	3	2-5	6	Rain	25	Light	Intermittent

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0095	20/03/19	3	3	W	500-1000	100	3	2-5	6	Rain	40	Light	Intermittent
0096	20/03/19	2C	1	W	500-1000	100	3	2-5	6	Rain	5	Light	Intermittent
0096	20/03/19	2C	2	SW	500-1000	100	3	2-5	6	Rain	5	Light	Intermittent
0096	20/03/19	2C	3	SW	500-1000	100	3	2-5	6	Rain	10	Light	Intermittent
0098	20/03/19	6A	1	NW	100-5000	100	2	1-5	4	Rain	25	Light	Intermittent
0098	20/03/19	6A	2	NW	500-1000	100	3	2-5	4	None	n/a	n/a	n/a
0098	20/03/19	6A	3	NW	500-1000	100	2	2-5	4	Rain	25	Light	Intermittent
0099	20/03/19	5A	1	NW	100-500	100	3	1-2	6	Rain	90	Light	Continuous
0099	20/03/19	5A	2	NW	100-500	100	3	1-2	6	Rain	100	Light-Mod.	Continuous
0099	20/03/19	5A	3	NW	100-500	100	3	2-5	7	Rain	100	Light	Continuous
0097	21/03/19	4	1	SW-W	500-1000	95	10	2-5	10	Rain	5	Light	Intermittent
0097	21/03/19	4	2	SW-W	500-1000	65	10	2-5	10	None	n/a	n/a	n/a
0097	21/03/19	4	3	SW-W	500-1000	50	11	2-5	11	None	n/a	n/a	n/a
0100	21/03/19	1	1	W	500-1000	200	2	5-10	5	None	n/a	n/a	n/a
0100	21/03/19	1	2	W	>1000	99	2	5-10	5	Rain	30	Light	Continuous
0100	21/03/19	1	3	SW	>1000	95	2	>10	6	None	n/a	n/a	n/a
0102	26/03/19	2C	1	NW	100-500	100	5	2-5	8	Rain	60	Light	Intermittent
0102	26/03/19	2C	2	NW	100-500	100	5	2-5	8	Rain	40	Light	Intermittent
0102	26/03/19	2C	3	NW	100-500	95	5	1-2	8	Rain	50	Light	Intermittent
0103	26/03/19	3	1	NW	100-500	100	4	1-2	8	Rain	60	Light	Continuous
0103	26/03/19	3	2	NW	100-500	100	4	1-2	8	Rain	20	Light	Continuous
0104	26/03/19	4	1	W	100-500	100	4-5	1-2	4	Rain	70	Light	Intermittent
0104	26/03/19	4	2	W	500-1000	100	4	2-5	4	None	n/a	n/a	n/a
0104	26/03/19	4	3	W	100-1000	100	3-4	1-5	4	Rain	50	Light	Continuous

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0105	26/03/19	6A	1	W-NW	100-500	100	4	2-5	6	Rain	100	Light	Continuous
0105	26/03/19	6A	2	W-NW	100-500	100	4	1-5	8	Rain	100	Light	Continuous
0105	26/03/19	6A	3	W-NW	100-500	100	4	1-5	7	Rain	100	Light	Continuous
0101	08/04/19	1	1	E	>1000	40	2	>10	12	None	n/a	n/a	n/a
0101	08/04/19	1	2	E	>1000	30	2	>10	10	None	n/a	n/a	n/a
0101	08/04/19	1	3	E	>1000	20	2	>10	10	None	n/a	n/a	n/a
0112	08/04/19	4	1	NE-E	>1000	50	2	5-10	11	None	n/a	n/a	n/a
0112	08/04/19	4	2	NE-E	>1000	35	2	5-10	11	None	n/a	n/a	n/a
0112	08/04/19	4	3	NE-E	>1000	25	2	5-10	11	None	n/a	n/a	n/a
0106	15/04/19	6A	1	SE	>1000	65	5-6	>10	6	None	n/a	n/a	n/a
0106	15/04/19	6A	2	SE	>1000	65	5-6	>10	6	None	n/a	n/a	n/a
0106	15/04/19	6A	3	SE	>1000	75	5-6	>10	5	None	n/a	n/a	n/a
0107	15/04/19	3	1	SE	>1000	60	5	>10	6	None	n/a	n/a	n/a
0107	15/04/19	3	2	SE	>1000	80	5	>10	6	None	n/a	n/a	n/a
0107	15/04/19	3	3	SE	>1000	90	5	>10	6	None	n/a	n/a	n/a
0108	15/04/19	3	1	SE	>1000	90	5	>10	5	None	n/a	n/a	n/a
0108	15/04/19	3	2	SE	>1000	95	6	>10	4	None	n/a	n/a	n/a
0108	15/04/19	3	3	SE	>1000	100	5	>10	4	Hail	40	Light	Intermittent
0109	15/04/19	5A	1	SE	>1000	95	5-6	>10	3	None	n/a	n/a	n/a
0109	15/04/19	5A	2	SE	>1000	95	5-6	>10	3	None	n/a	n/a	n/a
0109	15/04/19	5A	3	SE	>1000	100	5	>10	3	None	n/a	n/a	n/a
0110	17/04/19	1	1	SE	>1000	85	4	>10	2	None	n/a	n/a	n/a
0110	17/04/19	1	2	SE	>1000	90	4	>10	2	None	n/a	n/a	n/a
0110	17/04/19	1	3	SE	>1000	50	4	>10	8	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0111	17/04/19	4	1	SE	>1000	8	4	>10	4	None	n/a	n/a	n/a
0111	17/04/19	4	2	SE	>1000	80	4	>10	6	None	n/a	n/a	n/a
0111	17/04/19	4	3	SE	>1000	60	4	>10	7	None	n/a	n/a	n/a
0113	23/04/19	5A	1	SE	>1000	90	3-4	>10	14	None	n/a	n/a	n/a
0113	23/04/19	5A	2	SE-SW	>1000	100	0-1	>10	12	None	n/a	n/a	n/a
0113	23/04/19	5A	3	SE	>1000	100	1-4	>10	10	None	n/a	n/a	n/a
0115	23/04/19	2A	1	S	>1000	100	2-3	>10	14	None	n/a	n/a	n/a
0115	23/04/19	2A	2	S	>1000	100	2-3	>10	12	None	n/a	n/a	n/a
0115	23/04/19	2A	3	S	>1000	65	2-3	>10	10	None	n/a	n/a	n/a
0114	24/04/19	2A	1	E	500-1000	90	4-5	2-5	12	None	n/a	n/a	n/a
0114	24/04/19	2A	2	E	500-1000	80	4-5	2-5	13	None	n/a	n/a	n/a
0114	24/04/19	2A	3	E	>1000	75	4	2-5	15	None	n/a	n/a	n/a
0116	24/04/19	6A	1	SE	>1000	30	4	>10	12	None	n/a	n/a	n/a
0116	24/04/19	6A	2	SE	>1000	45	4-5	>10	13	None	n/a	n/a	n/a
0116	24/04/19	6A	3	SE	>1000	40	4-5	>10	13	None	n/a	n/a	n/a
0117	07/05/19	3	1	SE	100-500	60	2-3	5-10	-1	Snow	20	Light	Intermittent
0117	07/05/19	3	2	SE	100-500	100	1-2	1-5	-1	Snow	50	Moderate	Intermittent
0117	07/05/19	3	3	SE	100-500	80	2	1-5	-1	Snow	50	Moderate	Intermittent
0118	22/05/19	1	1	N	100-500	100	4	>10	9	Rain	30	Light	Intermittent
0118	22/05/19	1	2	N	100-500	100	4	>10	7	Rain	20	Light	Intermittent
0118	22/05/19	1	3	N	100-500	100	4	5-10	7	Rain	30	Light	Intermittent
0119	22/05/19	5A	1	W	500-1000	100	4	5-10	7	Rain	20	Light	Intermittent
0119	22/05/19	5A	2	W	100-1000	100	4	2-5	6	Rain	5	Light	Intermittent
0119	22/05/19	5A	3	W	100-1000	100	4	2-5	6	Rain	15	Light	Intermittent

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0120	28/05/19	4	1	NW	>1000	80	3	>10	5	Hail/rain/sleet/snow	50	Light-Mod.	Intermittent
0120	28/05/19	4	2	WNW	>1000	90	3	>10	5	Sleet/rain	50	Light	Intermittent
0120	28/05/19	4	3	WNW	>1000	90	3	>10	5	Hail/rain/sleet	50	Light	Intermittent
0121	28/05/19	2A	1	NW	>1000	70	3	>10	5	Snow	30	Moderate	Continuous
0121	28/05/19	2A	2	NW	>1000	80	4	>10	5	Hail	20	Moderate	Continuous
0121	28/05/19	2A	3	NW	>1000	90	4	>10	5	Hail	25	Light	Intermittent
0122	28/05/19	4	1	W	>1000	98	3	>10	6	Hail/Rain	30	Light	Intermittent
0122	28/05/19	4	2	WNW	>1000	95	2-3	>10	6	Hail/Rain	20	Light	Intermittent
0122	28/05/19	4	3	NW	>1000	99	2-3	>10	5	Hail	10	Light	Intermittent
0123	28/05/19	2A	1	NW	>1000	90	4	>10	5	Hail	20	Light	Intermittent
0123	28/05/19	2A	2	NW	>1000	95	4	>10	5	None	n/a	n/a	n/a
0123	28/05/19	2A	3	NW	>1000	90	4	>10	5	None	n/a	n/a	n/a
0124	28/05/19	1	1	NW	>1000	99	3	>10	6	Hail/Rain	10	Light	Intermittent
0124	28/05/19	1	2	WNW	>1000	85	3	>10	6	Rain	5	Light	Intermittent
0124	28/05/19	1	3	W	>1000	45	3	>10	6	None	n/a	n/a	n/a
0125	28/05/19	3	1	NW	>1000	70	2	>10	6	None	n/a	n/a	n/a
0125	28/05/19	3	2	NW	>1000	50	3	>10	5	None	n/a	n/a	n/a
0125	28/05/19	3	3	NW	>1000	30	3	>10	5	None	n/a	n/a	n/a
0126	29/05/19	3	1	S	>1000	10	1	>10	0	None	n/a	n/a	n/a
0126	29/05/19	3	2	S	>1000	20	2	>10	1	None	n/a	n/a	n/a
0126	29/05/19	3	3	S	>1000	30	2	>10	2	None	n/a	n/a	n/a
0127	29/05/19	5A	1	SE	>1000	5	2	>10	0	None	n/a	n/a	n/a
0127	29/05/19	5A	2	SE	>1000	30	2	>10	6	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0127	29/05/19	5A	3	SE	>1000	50	2	>10	8	None	n/a	n/a	n/a
0128	29/05/19	4	1	S	>1000	30	3	>10	4	None	n/a	n/a	n/a
0128	29/05/19	4	2	SW	>1000	10	2	>10	4	None	n/a	n/a	n/a
0128	29/05/19	4	3	SW	>1000	30	3	>10	5	None	n/a	n/a	n/a
0129	29/05/19	6A	1	SW	>1000	60	3	>10	8	None	n/a	n/a	n/a
0129	29/05/19	6A	2	SW	>1000	50	3	>10	6	None	n/a	n/a	n/a
0129	29/05/19	6A	3	SW	>1000	20	3	>10	8	None	n/a	n/a	n/a
0130	29/05/19	1	1	SW	>1000	30	3	>10	8	None	n/a	n/a	n/a
0130	29/05/19	1	2	SW	>1000	60	3	>10	9	None	n/a	n/a	n/a
0130	29/05/19	1	3	SW	>1000	80	3	>10	9	None	n/a	n/a	n/a
0131	29/05/19	6A	1	SW	>1000	40	3	>10	11	None	n/a	n/a	n/a
0131	29/05/19	6A	2	SW	>1000	80	3	>10	10	None	n/a	n/a	n/a
0131	29/05/19	6A	3	SW	>1000	95	3	>10	9	None	n/a	n/a	n/a
0132	07/06/19	3	1	S	>1000	25	3	>10	11	None	n/a	n/a	n/a
0132	07/06/19	3	2	S	>1000	20	3	>10	13	None	n/a	n/a	n/a
0133	07/06/19	5A	1	SE	>1000	70	3	>10	13	None	n/a	n/a	n/a
0133	07/06/19	5A	2	SE	>1000	60	3	>10	14	None	n/a	n/a	n/a
0133	07/06/19	5A	3	SE	>1000	75	3	>10	14	None	n/a	n/a	n/a
0134	07/06/19	6A	1	SSE	>1000	80	4	>10	14	None	n/a	n/a	n/a
0134	07/06/19	6A	2	S	>1000	80	4	>10	14	None	n/a	n/a	n/a
0134	07/06/19	6A	3	S	>1000	95	4	>10	13	None	n/a	n/a	n/a
0135	10/06/19	2A	1	N	500-1000	60	2	>10	11	None	n/a	n/a	n/a
0135	10/06/19	2A	2	N	500-1000	70	2	>10	11	None	n/a	n/a	n/a
0135	10/06/19	2A	3	N	>1000	50	3	>10	12	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0136	10/06/19	4	1	N	>1000	75	2	>10	11	None	n/a	n/a	n/a
0136	10/06/19	4	2	N	>1000	75	2-3	>10	11	None	n/a	n/a	n/a
0136	10/06/19	4	3	NNE	>1000	75	2	>10	12	None	n/a	n/a	n/a
0137	10/06/19	2A	1	N	>1000	50	3	>10	13	None	n/a	n/a	n/a
0137	10/06/19	2A	2	N	>1000	40	4	>10	13	None	n/a	n/a	n/a
0137	10/06/19	2A	3	N	>1000	40	3	>10	13	None	n/a	n/a	n/a
0138	10/06/19	6A	1	NNE	>1000	80	2	>10	12	None	n/a	n/a	n/a
0138	10/06/19	6A	2	NNE	>1000	75	2-3	>10	14	None	n/a	n/a	n/a
0138	10/06/19	6A	3	NNE	>1000	75	2-3	>10	14	None	n/a	n/a	n/a
0139	10/06/19	3	1	N	>1000	40	3	>10	13	None	n/a	n/a	n/a
0139	10/06/19	3	2	N	>1000	50	2	>10	13	None	n/a	n/a	n/a
0139	10/06/19	3	3	N	>1000	50	2	>10	11	None	n/a	n/a	n/a
0140	10/06/19	5A	1	N	>1000	70	2-3	>10	13	None	n/a	n/a	n/a
0140	10/06/19	5A	2	N	>1000	70	2-3	>10	12	None	n/a	n/a	n/a
0140	10/06/19	5A	3	N	>1000	75	2-3	>10	12	None	n/a	n/a	n/a
0141	11/06/19	1	1	N	500-1000	90	2	>10	5	None	n/a	n/a	n/a
0141	11/06/19	1	2	NE	500-1000	100	3	>10	6	Rain	20	Light	Intermittent
0141	11/06/19	1	3	NE	100-500	100	3	5-10	6	Rain	30	Light	Intermittent
0142	11/06/19	1	1	NE	100-500	95	4	2-5	7	Rain	30	Light	Intermittent
0142	11/06/19	1	2	NE	100-500	95	4	2-5	7	Rain	20	Light	Intermittent
0142	11/06/19	1	3	NE	100-500	90	3	5-10	7	Rain	20	Light	Intermittent
0143	21/06/19	1	1	W	>1000	60	4	>10	10	Rain	20	Light	Intermittent
0143	21/06/19	1	2	W	>1000	60	4	>10	10	Rain	10	Moderate	Continuous
0143	21/06/19	1	3	W	>1000	70	4	>10	10	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0144	21/06/19	6A	1	NW	>1000	98	3	>10	10	Rain	20	Light	Intermittent
0144	21/06/19	6A	2	WNW	>1000	90	3	>10	10	Rain	10	Light	Intermittent
0144	21/06/19	6A	3	W	>1000	80	3	>10	10	None	n/a	n/a	n/a
0145	26/06/19	4	1	N	>1000	2	2	>10	12	None	n/a	n/a	n/a
0145	26/06/19	4	2	NW	>1000	2	2	>10	12	None	n/a	n/a	n/a
0145	26/06/19	4	3	NW	>1000	2	2-3	>10	14	None	n/a	n/a	n/a
0146	26/06/19	4	1	NW	>1000	5	1-2	>10	16	None	n/a	n/a	n/a
0146	26/06/19	4	2	W	>1000	5	2	>10	18	None	n/a	n/a	n/a
0146	26/06/19	4	3	W	>1000	5	2	>10	18	None	n/a	n/a	n/a
0147	26/06/19	3	1	NW	>1000	2	3	>10	17	None	n/a	n/a	n/a
0147	26/06/19	3	2	NW	>1000	5	3	>10	15	None	n/a	n/a	n/a
0147	26/06/19	3	3	NW	>1000	5	3	>10	14	None	n/a	n/a	n/a
0148	27/06/19	5A	1	NW	>1000	0	2	>10	24	None	n/a	n/a	n/a
0148	27/06/19	5A	2	NW	>1000	0	2	>10	24	None	n/a	n/a	n/a
0148	27/06/19	5A	3	N-NE-E	>1000	0	1-2	>10	24	None	n/a	n/a	n/a
0151	28/06/19	5A	1	SE	>1000	0	3-4	>10	17	None	n/a	n/a	n/a
0151	28/06/19	5A	2	SE	>1000	0	3-4	>10	17	None	n/a	n/a	n/a
0151	28/06/19	5A	3	SE	>1000	0	3-4	>10	18	~	~	~	~
0152	28/06/19	6A	1	SE	>1000	5	3	>10	18	~	~	~	~
0152	28/06/19	6A	2	SE	>1000	5	2-3	>10	17	~	~	~	~
0152	28/06/19	6A	3	SE	>1000	5	2	>10	17	~	~	~	~
0153	29/06/19	2A	1	SW	500-1000	100	2	2-5	14	None	n/a	n/a	n/a
0153	29/06/19	2A	2	SW	500-1000	100	2	5-10	15	None	n/a	n/a	n/a
0153	29/06/19	2A	3	SW	500-1000	90	1	5-10	15	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0154	29/06/19	3	1	S	500-1000	100	1-2	5-10	14	~	~	~	~
0149	01/07/19	2A	1	NW	>1000	90	3-4	>10	11	None	n/a	n/a	n/a
0149	01/07/19	2A	2	NW	>1000	100	3-4	5-10	10	None	n/a	n/a	n/a
0149	01/07/19	2A	3	NW	500-1000	100	3-4	2-10	10	Rain	25	Light	Intermittent
0150	05/07/19	3	1	SW	500->1000	90	2-3	5->10	11	None	n/a	n/a	n/a
0150	05/07/19	3	2	SW	500-1000	100	2-3	5-10	12	Rain	50	Light	Intermittent
0155	08/07/19	1	1	SW	>1000	80	3	>10	16	None	n/a	n/a	n/a
0155	08/07/19	1	2	SW	>1000	95	3	>10	16	None	n/a	n/a	n/a
0155	08/07/19	1	3	SW	>1000	100	2-3	>10	16	None	n/a	n/a	n/a
0156	08/07/19	6A	1	SW	>1000	99	2	>10	16	None	n/a	n/a	n/a
0156	08/07/19	6A	2	SW	>1000	99	3	>10	14	None	n/a	n/a	n/a
0156	08/07/19	6A	3	SW	>1000	100	3	>10	14	None	n/a	n/a	n/a
0157	08/07/19	5A	1	SE	>1000	100	3	>10	13	None	n/a	n/a	n/a
0157	08/07/19	5A	2	SE	>1000	100	3	>10	11	None	n/a	n/a	n/a
0157	08/07/19	5A	3	SE	>1000	100	3	>10	10	None	n/a	n/a	n/a
0158	24/07/19	3	1	SW	500-1000	95	3	>10	18	None	n/a	n/a	n/a
0158	24/07/19	3	2	S	500-1000	95	4	>10	18	Rain	20	Light	Continuous
0158	24/07/19	3	3	SW	>1000	80	3	>10	18	None	n/a	n/a	n/a
0159	24/07/19	6A	1	SW	>1000	98	3-4	>10	17	None	n/a	n/a	n/a
0159	24/07/19	6A	2	SW	>1000	98	4	>10	17	None	n/a	n/a	n/a
0159	24/07/19	6A	3	SW	>1000	85	4-5	>10	16	None	n/a	n/a	n/a
0160	24/07/19	3	1	SW	>1000	70	3	>10	18	None	n/a	n/a	n/a
0160	24/07/19	3	2	SW	>1000	70	3	>10	18	None	n/a	n/a	n/a
0160	24/07/19	3	3	SW	>1000	70	3	>10	17	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0161	24/07/19	5A	1	S-SW	>1000	85	4-5	>10	18	None	n/a	n/a	n/a
0161	24/07/19	5A	2	S	>1000	80	4	>10	18	None	n/a	n/a	n/a
0161	24/07/19	5A	3	S	>1000	85	3	>10	17	None	n/a	n/a	n/a
0162	25/07/19	4	1	SE	>1000	85	1-3	>10	13	None	n/a	n/a	n/a
0162	25/07/19	4	2	SE	>1000	80	3-4	>10	12	None	n/a	n/a	n/a
0162	25/07/19	4	3	SE	>1000	80	4	>10	12	None	n/a	n/a	n/a
0163	25/07/19	2A	1	S	>1000	90	1	>10	13	None	n/a	n/a	n/a
0163	25/07/19	2A	2	SE	>1000	90	2	>10	14	None	n/a	n/a	n/a
0163	25/07/19	2A	3	SE	>1000	80	2	>10	15	None	n/a	n/a	n/a
0164	25/07/19	4	1	SE	>1000	90	4	>10	13	None	n/a	n/a	n/a
0164	25/07/19	4	2	SE	>1000	75	4	>10	14	None	n/a	n/a	n/a
0164	25/07/19	4	3	SE	>1000	75	3-4	>10	15	None	n/a	n/a	n/a
0165	25/07/19	2A	1	SE	>1000	70	2	>10	16	None	n/a	n/a	n/a
0165	25/07/19	2A	2	SE	>1000	60	3	>10	17	None	n/a	n/a	n/a
0165	25/07/19	2A	3	SE	>1000	60	3	>10	18	None	n/a	n/a	n/a
0166	26/07/19	1	1	S	>1000	60	2-3	>10	18	None	n/a	n/a	n/a
0166	26/07/19	1	2	S	>1000	40	3	>10	20	None	n/a	n/a	n/a
0166	26/07/19	1	3	S	>1000	70	3	>10	18	None	n/a	n/a	n/a
0167	13/08/19	1	1	SW	>1000	70	3	>10	11	Rain	28	Light-Heavy	Continuous
0167	13/08/19	1	2	SW	>1000	70	3-4	>10	11	Rain	25	Light-Heavy	Continuous
0167	13/08/19	1	3	SW	>1000	70	3	>10	11	Rain	23	Light-Mod.	Intermittent
0168	13/08/19	1	1	SW	>1000	75	3-4	>10	10	Rain	30	Light	Continuous
0168	13/08/19	1	2	SW	>1000	60	3-4	>10	10	Rain	15	Light	Intermittent
0168	13/08/19	1	3	SW	>1000	30	3	>10	10	None	n/a	n/a	n/a

Survey Ref	Date	VP	Hour	Wind Dir.	Cloud Base (m AOD)	Cloud Cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. (% Hr)	Intensity	Duration
0169	14/08/19	1	1	SE	>1000	98	3	>10	10	None	n/a	n/a	n/a
0169	14/08/19	1	2	SE	>1000	96	3	>10	13	Rain	55	Light	Continuous
0169	14/08/19	1	3	SE	500->1000	100	3	>10	11	Rain	40	Light	Intermittent
0170	14/08/19	1	1	SE	>1000	100	3	>10	12	None	n/a	n/a	n/a
0170	14/08/19	1	2	SE	>1000	80	3	>10	16	None	n/a	n/a	n/a
0170	14/08/19	1	3	SE	>1000	80	3	>10	16	None	n/a	n/a	n/a

APPENDIX 4: Flight Activity Survey Results

This appendix provides details of the five-minute summary records and the detailed target and secondary species data from the baseline flight activity surveys carried out for the EIA of the Proposed Development, between August 2018 and August 2019. All recorded flight lines are shown on Figures 9.5a-b to 9.8a-b to Chapter 9 of the EIA Report.

Table A4.1 provides the notes from five-minute summaries of all bird activity, including non-target/secondary species, recorded during the individual watches. Species names for the corresponding BTO codes are provided Table A2.1.

Records of flight activity by target and secondary focal species, for which the duration at each flight height band were recorded, are provided in Table A4.2. Any notable non-flying bird records from the flight activity surveys are included in Table A4.3, and a summary of any disturbance sources noted during these surveys is summarised in Table A4.4.

Table A4.1: Flight Activity Survey Details – Five Minute Summaries (August 2018 – August 2019)

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0002	14/08/18	1	15:35	15:40	1	EA		Adult golden eagle flew over Carn Easgann Bàna to the west, then out of view to the north.
0002	14/08/18	1	16:00	16:05	2	ML		Adult female merlin flew across the moor, over currently working met mast (PMM1) foundations, then out of sight to the south.
0003	14/08/18	3	18:45	18:50	1	ML		Adult merlin (sex unidentified) was observed flying over Meall Caca, then it flew northeast over the borrowpit BP04.
0004	15/08/18	6B	11:45	11:50	1	EA		Golden eagle (juv./imm.) observed circling over ridge to the south.
0004	15/08/18	6B	12:05	12:10	2	EA		Golden eagle (juv./imm.) observed flying northeast along ridge, then out of sight.
0004	15/08/18	6B	12:30	12:35	3	EA		Golden eagle (juv./imm.) flew along ridge to the southeast.
0007	27/08/18	3	11:40	11:45	n/a	BZ		Common buzzard flew from the north to the southeast, high over the moorland.
0007	27/08/18	3	11:55	12:00	1	RN		A raven flew over the ridge to the west of Min Choire.
0011	29/08/18	5A	10:25	10:30	1	EA		Adult and juv. / imm. golden eagle observed flying along ridge to the east of Geal Charn.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0011	29/08/18	5A	11:05	11:10	2	BZ		Common buzzard observed flying over the eastern flank of Carn Fraoich.
0012	29/08/18	6B	15:00	15:05	1	K.		A male common kestrel observed hunting.
0012	29/08/18	6B	16:20	16:25	2	EA		A juv. / imm. golden eagle flew to the north of An Staonaig.
0014	20/09/18	4	13:20	13:25	1	GJ		A large flock of greylag geese flew over VP2 to the south.
0015	21/09/18	3	09:00	09:05	1	GJ		A small skein of 10 greylag geese flew south.
0015	21/09/18	3	10:00	10:05	2	GJ		Approx. 85 greylag geese flew south.
0015	21/09/18	3	11:40	11:45	3	GJ		A large skein of approx. 100 greylag geese flew from north to south.
0020	21/09/18	5A	09:10	09:15	1	GJ		A skein of 35 greylag geese flew very high overhead heading southeast.
0020	21/09/18	5A	09:15	09:20	2	GJ		Approx. 45 greylag geese flew very high in front of the VP, heading south.
0020	21/09/18	5A	10:00	10:05	3	KT		A red kite flew, heading northeast in front of the VP, then out of sight.
0020	21/09/18	5A	10:35	10:40	4/5	GJ		Two separate skeins of approx. 50 greylag geese heading south (flight line 4) and heading southwest (flight line 5).
0020	21/09/18	5A	10:55	11:00	6	GJ		A large skein of approx. 80 greylag geese flew over VP heading south.
0020	21/09/18	5A	11:25	11:30	7	GJ		A large skein of approx. 100 greylag geese flew overhead heading southwest, then lost to view in cloud.
0020	21/09/18	5A	11:45	11:50	8	GJ		A skein of approx. 85 greylag geese flew over the VP heading south.
0020	21/09/18	5A	11:57	12:00	9	GJ		Approx. 57 greylag geese flew over heading southwest and lost to view in cloud.
0016	24/09/18	6B	14:45	14:50	n/a	RN		A single raven flew from south to north up the Allt Mor.
0016	24/09/18	6B	15:00	15:05	1	K.		A pair of common kestrels were observed hunting to the east of Meallam Odhar.
0016	24/09/18	6B	15:10	15:15	2	EA		Golden eagle (juv. / imm.) appeared to the south of VP, circled, then flew off in the direction of Carn na Criche.
0016	24/09/18	6B	15:15	15:20	2	EA		As above.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0016	24/09/18	6B	15:20	15:25	3	EA		A pair of golden eagles and a juv. / imm. were observed circling to the southwest over ridges to the northeast of Geal Charn.
0016	24/09/18	6B	15:30	15:35	4	GP		Seven golden plover flew to the east and out of view.
0016	24/09/18	6B	15:50	15:55	5	EA		An adult golden eagle flew to the northwest, circling, then lost to view.
0021	24/09/18	1	16:00	16:05	1	WE		A white-tailed eagle (probable male) flew from the direction of the main reservoir towards the VP heading away to the south.
0021	24/09/18	1	16:30	16:35	2	WE		A white-tailed eagle flew south over near the main reservoir, held in wind before losing height and flying over hillside to the south before heading out of view.
0017	27/09/18	2A	12:20	12:25	1	EA		A juv. / imm. golden eagle flew to the southwest.
0017	27/09/18	2A	12:35	12:40	2	GJ		A large skein of c. 120 greylag geese flew over very high calling.
0017	27/09/18	2A	12:40	12:45	3	GJ		A skein of 18 greylag geese flew to the south.
0017	27/09/18	2A	12:55	13:00	4	GJ		A skein of approx. 60 greylag geese flew to the southeast.
0018	27/09/18	4	16:15	16:20	1	ML		A merlin flew around the side of the hill, then flew to the south.
0022	27/09/18	1	12:30	12:35	1	GJ		A large skein of 70 greylag geese flew over from the north, changed direction overhead and headed southwest.
0022	27/09/18	1	12:35	12:40	2	GJ		A small skein of 16 greylag geese flew over and headed towards the reservoir.
0022	27/09/18	1	14:25	14:30	3	EA		A golden eagle (probable sub-adult) flew over from Stronelaig Wind Farm Compound 3, and started heading north, lost height, then out of view due to topography.
0022	27/09/18	1	14:25	14:30	4	UO	EA	Approx. 23-30 unidentified geese flew over the main reservoir at the same time as surveyor was watching a golden eagle.
0022	27/09/18	1	14:35	14:40	5	EA		A golden eagle flew north heading very slowly, gaining height after approx. two minutes, then mobbed by up to three ravens before heading out of sight over a hill.
0019	28/09/18	3	10:50	10:55	1	ML		A merlin flew from the northwest and out of view to the south.
0023	28/09/18	5A	09:25	09:30	1	KT		A red kite flew in slow flight from the north of the VP, then curved around and headed south and out of view due to topography.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0023	28/09/18	5A	10:15	10:20	2	EA		Two golden eagles circling slowly over by Carn Fraoich, then lost to view over the hill.
0023	28/09/18	5A	10:20	10:25	3	EA		A golden eagle circling slowly over Carn Fraoich, holding in the wind.
0023	28/09/18	5A	10:25	10:30	3	EA		A golden eagle circling slowly over Carn Fraoich, holding in the wind.
0023	28/09/18	5A	10:35	10:40	4	EA		A golden eagle flew over Carn Fraoich, then out of view.
0023	28/09/18	5A	11:00	11:05	5	EA		Two golden eagles circling over Carn Fraoich.
0025	05/10/18	5A	09:30	09:35	1	RG		A male red grouse flew over the track into a gully.
0025	05/10/18	5A	10:10	10:15	2	RN		Pair of ravens flew south to north.
0025	05/10/18	5A	11:00	11:30	3	EA		A pair of golden eagles were observed flying, circling, and occasional diving to the west of the ridge.
0025	05/10/18	5A	11:30	11:35	4/5/6	EA		An adult (probable female) and imm. golden eagle observed flying north. The birds were observed flying within c. 50 m of Stronelaig turbine OT62, although there appeared to be no behavioural reaction (e.g. sudden change in flight direction, when passing near to the rotating blades). A different adult (probable male) and immature golden eagle were observed flying north, then west.
0026	05/10/18	6B	13:00	13:05	1	EA		An adult male golden eagle circled, then flew to the southeast and out of view.
0026	05/10/18	6B	13:05	13:10	2/3	PE		Observer was alerted by two peregrine falcons alarm calling in mid-air to the northeast of the VP. One (2) of the peregrines flew to the west, then north, whilst the other (3) flew south and out of view.
0026	05/10/18	6B	15:20	15:25	4	K.		A common kestrel was observed hunting, then flew to the northeast.
0030	06/10/18	1	07:20	07:25	n/a	WN	RG	Two male wigeon landed in pool c. 100 m west of VP. Constant red grouse song and two males in display flight throughout watch.
0030	06/10/18	1	08:15	08:20	1	ML		A male merlin.
0030	06/10/18	1	08:35	08:40	n/a	BZ		A buzzard flew low for c. 30 seconds, then disappeared into dead ground over the Allt na Fèithe Gobhlaich.
0034	28/10/18	2A	13:20	12:25	n/a	EA		Golden eagle (sub-adult and adult) observed briefly (low - 10 secs). They flew low from the south along ridgeline, the sub-adult was

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
								calling. Eagle probably saw surveyor, then turned sharply south. They were not seen again.
0035	28/10/18	5A	15:10	15:15	n/a	RN		A pair of ravens (medium - 120 secs) flew along the skyline on eastern edge of viewshed. No target species seen during watch.
0036	29/10/18	3	08:00	08:05	n/a	RN		Two ravens interacting over VP4 location. One flew next to the other (medium - c. 2 minutes).
0036	29/10/18	3	08:40	08:45	n/a	RN		Two ravens (medium-low 30 secs), then 3 ravens (medium 60 secs).
0037	19/11/18	1	11:15	11:20	n/a	FF		A small flock of five fieldfare (60 secs, low).
0037	19/11/18	1	11:30	11:35	n/a	BZ		Common buzzard (120 secs, medium) was observed hunting between the turbines.
0037	19/11/18	1	12:00	12:05	n/a	RN		A pair of ravens on northern ridge line (60 secs).
0037	19/11/18	1	12:03	12:35	n/a	BZ		Two buzzards hunting (180 secs, medium).
0037	19/11/18	1	12:50	13:05	n/a	BZ		Two buzzards hunting (approx. 15 mins, medium).
0037	19/11/18	1	13:50	13:55	n/a	BZ		Two ravens (30 secs, medium).
0040	19/11/18	6A	15:05	15:10	n/a	RN		Raven (10 secs, low).
0038	20/11/18	2A	09:20	09:25	1	EA		Distant golden eagle in flight along southern edge of viewshed (5 minutes, medium). Very distant golden eagle pair noted over VP1 viewshed to north. No other target or secondary species. No birds on Glendoe reservoir.
0039	20/11/18	5A	14:10	14:15	n/a	BZ		Common buzzard (45 secs, medium), flew over VP north to south.
0042	21/11/18	3	07:45	08:45	n/a	RN		Up to three ravens active in viewshed through the first hour.
0048	21/11/18	4	14:30	14:35	n/a	BZ		Very distant common buzzard (60 secs, medium). No target or secondary species. Conditions poor with snow showers.
0049	11/12/18	6A	13:55	14:00	n/a	BZ		A buzzard flew through the viewshed from south to north hunting (low - 120 secs).
0049	11/12/18	6A	14:30	14:35	n/a	BZ		A buzzard flew over moorland from north to south (low - 60 secs).
0051	13/12/18	3	10:05	10:10	n/a	RN		Two ravens flew from south to northeast (low - 120 secs).
0053	14/12/18	2B	10:05	10:10	n/a	RN		Two ravens flew through the viewshed.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0058	19/12/18	6A	13:00	13:05	n/a	BZ		A common buzzard flew over the borrow pit to the northeast.
0058	19/12/18	6A	13:20	13:25	1	PE		A male peregrine flew west to east to the north of the Allt Mor.
0058	19/12/18	6A	14:05	14:10	n/a	BZ		A common buzzard was observed flying through the viewshed south to north.
0058	19/12/18	6A	14:20	14:25	n/a	RN		A raven was observed flying through the viewshed south to north.
0059	20/12/18	1	08:40	08:45	1	EA		Two golden eagles (ad. / sub-adult) observed circling to the northwest of the viewshed through low cloud.
0059	20/12/18	1	11:15	11:20	2	EA		A very distant golden eagle (ad. / sub-adult) observed circling to the north of the viewshed.
0062	09/01/19	4	10:45	10:50	1	EA		Over top of hill to south-west of VP. Circled once then headed away south.
0064	10/01/19	5A	11:15	11:20	1	EA		Flew slowly from rock on Carn Fraoich, landed briefly on another rock where it landed for approx. 30 sec before flying over hill summit and out of view.
0066	17/01/19	2B	14:15	14:20	n/a	RN		A couple of ravens flew north to south over reservoir and over ridgeline to the south.
0070	23/01/19	5A	12:30	12:35	1	EA		A distant golden eagle was briefly observed circling over ridgeline to the east.
0071	24/01/19	4	10:55	11:00	n/a	RN		A lone raven flew west to east over the viewshed and over observer.
0072	30/01/19	4	12:00	12:05	n/a	RN		A raven flew through the viewshed.
0072	30/01/19	4	13:15	13:20	n/a	RN		A pair of ravens flew through the viewshed.
0074	31/01/19	1	13:30	13:35	n/a	EA		Very distant golden eagle display over Tarff crags, which is a long distance outside the survey area.
0081	15/02/19	1	08:10	08:15	1	EA		A pair of distant golden eagles (adult / sub-adult?) were observed circling, then flying east and out of view.
0086	26/02/19	6A	16:15	16:20	n/a	RN		A pair of ravens observed flying towards distant ridge to the northeast of VP.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0091	26/02/19	3	14:20	14:25	n/a	GP		A golden plover was heard about 5-6 times to the southwest of the VP, but not located. It was then intermittently heard throughout the survey.
0091	26/02/19	3	15:30	15:35	1	GP		A golden plover was observed flying very low across the bog, landing in heather, calling whilst in flight. Another golden plover was on the ground where it had landed.
0087	27/02/19	4	09:40	09:45	n/a	RN		A lone raven heard, but not seen flying to the south of VP.
0087	27/02/19	4	09:50	09:55	n/a	GP		A golden plover heard, but not seen to the south of VP.
0087	27/02/19	4	10:35	10:40	n/a	RN		A single raven flew north to south above, and along ridge towards Gairbeinn.
0087	27/02/19	4	11:20	11:25	n/a	RN		A pair of ravens flew past VP from the northwest to the southeast.
0088	27/02/19	4	14:40	14:45	1	EA		An adult (presumed male) golden eagle observed briefly flying along the northern end of the spur of Gairbeinn. Bird then lost to view on the west side of the ridge.
0093	27/02/19	5A	13:05	13:10	1	KT		Red kite in flight at medium height, flying slowly southeast and over ridge.
0093	27/02/19	5A	14:15	14:20	2	KT		Red kite in slow flight at medium height heading west.
0089	28/02/19	3	09:40	09:45	n/a	GP		A couple of golden plover heard calling to the south of VP, but not seen due to low visibility.
0094	28/02/19	1	10:10	10:15	1	PE		A peregrine flew low past the VP heading southwest, gaining height slightly as it flew away.
0094	28/02/19	1	11:15	11:20	1-2	EA		An immature golden eagle flew low from the east to west and landed on the ground for approx. one minute (scattering red grouse). The bird lifted again and continued west, rising to medium height and then high.
0095	20/03/19	3	09:45	09:50	n/a	GP		A golden plover was heard briefly for about 5 seconds, but not seen in an area c. 500 m to the southwest of the VP.
0095	20/03/19	3	10:05	10:10	1	GP		A pair of golden plover flew past fast behind the VP from the northeast, then heard calling for c. 2 minutes afterwards.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0095	20/03/19	3	11:35	11:40	2	GP		A male golden plover was observed flying from northeast to southwest very low in front of the VP.
0095	20/03/19	3	11:40	11:45	3	GP		A pair of golden plover flew low to the southwest calling, then out of sight.
0095	20/03/19	3	11:50	11:55	n/a	GP		Approx. 2-3 golden plover heard calling, but not seen approx. 500 m to the south of the VP.
0096	20/03/19	2C	14:10	14:15	n/a	GP		Two golden plovers heard calling to the north of the VP towards the met mast (PMM1) area.
0100	21/03/19	1	09:55	12:55	1	T.		Pair flew west past the VP in fast, Very Low flight.
0102	26/03/19	2C	12:10	12:15	1	GP		
0112	08/04/19	4	14:40	14:45	1	EA		A male golden eagle flew high across viewshed to the southeast. Meadow pipit heard singing downstream of vantage point.
0112	08/04/19	4	15:50	15:55	n/a	RN		A raven flew fast from the north to south (eastern end of viewshed).
0112	08/04/19	4	16:05	16:10	2	EA		A male golden eagle circled to the south of viewshed and landed on rock.
0112	08/04/19	4	16:10	16:15	3	EA		Male golden eagle flew from rock, circled and headed southwest and out of view.
0112	08/04/19	4	16:15	16:20	4	GJ		A small skein of 20 greylag geese flew above ridge to the north towards the reservoir and out of view.
0109	15/04/19	5A	16:50	16:55	1	EA		First year male golden eagle hunting.
0109	15/04/19	5A	17:20	17:25	2	EA	ML	First year male golden eagle (same bird as previous record) hunting. Brief attack by a merlin.
0110	17/04/19	1	09:10	09:15	1	GP		Golden plover, possibly scared by large raptor seen for a couple of seconds before it dropped out of view.
0110	17/04/19	1	09:25	09:30	n/a	RN		One raven displaying in flight at Low and Medium heights.
0110	17/04/19	1	10:05	10:10	2	EA		Female 2nd year golden eagle, hunting, and flushed a buzzard from the ground.
0110	17/04/19	1	10:40	10:45	3	EA		Same bird as previous record hunting, then lost behind ridge.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0111	17/04/19	4	08:50	08:55	n/a	RN		One raven, flying High-Very Low, east north-east onsite past VP.
0111	17/04/19	4	10:40	10:45	n/a	LB		One lesser black-backed gull, flying High-Low, west through site.
0111	17/04/19	4	11:15	11:20	n/a	RN		One raven, flying Low, north past VP.
0111	17/04/19	4	11:40	11:45	1	PE		
0111	17/04/19	4	11:45	11:50	1	PE		
0113	23/04/19	5A	19:00	19:05	1	EA		A possible golden eagle pair were observed in the distance to land on Creag Mhor, settled for five minutes, then both took off to the south. Gaining height quickly to Very High, and lost to view after c. 60 seconds.
0113	23/04/19	5A	19:05	19:15	n/a	EA		Joined by third golden eagle, now all three 'thermallng', Very High, distant south of Glenshero direction.
0113	23/04/19	5A	19:35	19:40	2-3	EA		Golden eagle, sub-adult, medium height, 45 seconds. Golden eagle (3) 'kiting' for 4 minutes and medium height.
0115	23/04/19	2A	17:25	17:30	n/a	GP		Golden plover heard calling upslope (c. 250 m) to south of vantage point.
0115	23/04/19	2A	17:40	17:45	n/a	GP		A golden plover heard briefly, but not seen, to the west (c. 500 m) of vantage point.
0115	23/04/19	2A	18:45	18:50	1	EA		A probable pair of golden eagles observed flying together over distant ridge to south of viewshed. They displayed together (incl. tumbling, talon holding), for c. 2 minutes, then flew off to the southeast and out of sight.
0115	23/04/19	2A	19:50	19:55	2	EA		A male golden eagle recorded flying very high to the west of the reservoir, circled, then flew out of sight to the west behind a ridge.
0114	24/04/19	2A	11:00	11:05	1	EA		A very distant golden eagle drifting over Bac nam Fuaran ridge, medium height for 30 seconds.
0114	24/04/19	2A	11:35		2	EA		A probable male adult golden eagle was observed flying at Medium height for 45 seconds over 'Green Banks', then headed south and out of view.
0116	24/04/19	6A	11:15	11:20	1	RG		Three red grouse (2M & 1F) flew downstream over moorland.
0116	24/04/19	6A	11:25	11:30	2	KT		Two adult red kites were observed hunting through the viewshed.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0116	24/04/19	6A	11:35	11:40	n/a	RN		A pair of ravens flew through viewshed (Low for 2 minutes).
0117	07/05/19	3	13:45	13:50	1	EA		A pair of adult golden eagles display in the High-Very High height band, then land together on Gairbeinn.
0120	28/05/19	4	11:55	12:00	1	EA		First year female, hunting.
0120	28/05/19	4	14:25	14:30	2	EA		Same bird as previous record, very close past VP with full crop, and flew off strongly to northeast.
0121	28/05/19	2A	12:00	12:05	1	OP		Fishing at eastern edge of reservoir. Lost against background.
0121	28/05/19	2A	12:05	12:10	2	EA		Adult male flying at Medium height to north of Min Choire. Headed away south.
0121	28/05/19	2A	14:25	14:30	3	EA		Adult male at Low height heading southeast.
0122	28/05/19	4	16:10	16:15	1	KT		Adult hunting at Medium height.
0128	29/05/19	4	09:45	09:50	n/a	BZ		Hunting in front of VP3 at High and Medium heights.
0129	29/05/19	6A	09:20	09:25	1	EA		Adult male hunting. Stooped to ground on slope of Carn Donnachaidh Beag but did not appear to catch any prey.
0129	29/05/19	6A	10:20	10:25	2	EA		Same adult male as previous record, hunting. Attacked a raven, which was on the ground, then they had an aerial skirmish before the raven flew off. Eagle eventually flew off to the west.
0130	29/05/19	1	12:05	12:10	1	KT		Flying at Medium height and heading away north over Carn Easgann Bana.
0130	29/05/19	1	13:00	13:05	2	KT		Flying at Medium height to west of Carn Easgann Bana.
0130	29/05/19	1	13:10	13:15	3	WE		Very large bird. Mobbed by Osprey. Headed away to south.
0130	29/05/19	1	13:10	13:15	4	OP		Mobbing white-tailed eagle (previous record). Carried on fishing after seeing it off and swooped down towards Loch but aborted attempt to catch.
0130	29/05/19	1	13:15	13:20	4	OP		Continuation of previous record.
0130	29/05/19	1	13:25	13:30	5	WE		Flying at Medium height then gained height and headed away to north over Carn Easgann Bana.
0130	29/05/19	1	13:30	13:35	5	WE		Continuation of previous record.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0130	29/05/19	1	14:20	14:25	6	EA		Pair circling to west of Carn Easgann Bana.
0131	29/05/19	6A	12:00	12:05	n/a	BZ		Hunting at Low, Medium and High heights.
0131	29/05/19	6A	12:05	12:10	n/a	BZ		Same bird as previous record, hunting at Medium height.
0131	29/05/19	6A	12:50	12:55	1	KT		Adult hunting over Carn Donnachaidh Beag.
0131	29/05/19	6A	13:40	13:45	2	KT		Adult hunting. Dropped into small stream valley and a golden eagle appeared while it was out of view, so eagle was mapped instead.
0131	29/05/19	6A	13:45	13:50	3	EA		Adult male hunting over Carn Donnachaidh Beag.
0131	29/05/19	6A	14:25	14:30	4	KT		Adult hunting. Lost to view against background but may have landed.
0133	07/06/19	5A	12:35	12:40	1	EA		Adult male mobbing adult white-tailed eagle on the ground.
0133	07/06/19	5A	13:05	13:10	2	WE		Adult flew from one perch on ground to another.
0133	07/06/19	5A	13:10	13:15	3	EA		Flew in and landed on the ground.
0133	07/06/19	5A	13:10	13:15	4	WE		Flew over to golden eagle (previous record) and landed beside it. Both birds hopped and walked about; small tussle as well.
0133	07/06/19	5A	13:10	13:15	5	WE		Flew off southeast.
0133	07/06/19	5A	13:10	13:15	6	EA		Flew off west.
0133	07/06/19	5A	13:35	13:40	7	WE		Presumed adult hunting at Creag an Dearg Lochain.
0133	07/06/19	5A	14:00	14:05	8	WE		Adult hunting; heading east.
0134	07/06/19	6A	15:10	15:15	1	KT		Adult hunting.
0134	07/06/19	6A	15:45	15:50	2	PE		Adult female hunting low and fast across moor.
0134	07/06/19	6A	16:35	16:40	3	KT		Two adults hunting together and lost to view at great height.
0135	10/06/19	2A	10:00	10:05	n/a	BZ		Single bird heading east through site at Medium height.
0135	10/06/19	2A	11:20	11:25	n/a	BZ		Single bird heading west past VP at Medium height.
0136	10/06/19	4	10:30	10:35	1	GJ		Single bird in strong flight northwest across site at High and Medium heights.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0138	10/06/19	6A	16:10	16:15	1	EA		Sub-adult female hunting. Distinctive plumage: very white uppertail with dark subterminal band, but no other white on wings or underside of tail. Lost to view at great height.
0139	10/06/19	3	18:50	18:55	1	H.		Highest I have ever seen a heron fly. Hit a thermal and gained height.
0140	10/06/19	5A	18:50	18:55	n/a	RN		Two very low, heading north at Low and Very Low heights.
0141	11/06/19	1	09:15	09:20	1	GP		Single bird at Very Low height to west of VP.
0141	11/06/19	1	09:50	09:55	2	KT		Flew north at Medium height, over reservoir and beyond.
0142	11/06/19	1	13:50	13:55	n/a	RN		In buffer to south of reservoir at Medium height.
0142	11/06/19	1	14:30	14:35	1	T.		Pair in Very Low flight, heading ENE along watercourse to west of VP.
0143	21/06/19	1	15:00	15:05	1	EA		Adult female heading west to north of VP at Medium height. Distant.
0143	21/06/19	1	15:00	15:05	2	PE		Flying at Medium height and heading west.
0143	21/06/19	1	16:45	16:50	n/a	RN		Two flying northeast through the site at Medium height.
0144	21/06/19	6A	17:00	17:05	n/a	RN		Single raven flew at Very Low height and landed on the ground, then flew a short distance to where a second bird was also on the ground, and landed again.
0145	26/06/19	4	09:50	09:55	1	WE		Sub-adult hunting, heading north through centre of site at High and Very High heights.
0145	26/06/19	4	10:10	10:15	n/a	RN		Five together at Medium, Low and Very Low heights. Split into two and three.
0145	26/06/19	4	10:15	10:20	n/a	RN		Three at Low and Medium heights.
0145	26/06/19	4	10:50	10:55	n/a	RN		Five at Very Low, Low and Medium heights.
0146	26/06/19	4	13:30	13:35	n/a	RN		One at Medium height.
0146	26/06/19	4	14:35	14:40	n/a	RN		Two at Low and Very Low heights.
0146	26/06/19	4	14:40	14:45	n/a	RN		One at Medium height.
0151	28/06/19	5A	14:30	14:35	1	EA		Sub adult in view for 45 seconds at Medium height. Appeared to go to ground along Caochan Uchdach just to east of the Lidar station. No white on wings.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0152	28/06/19	6A	16:05	16:10	n/a	EA		Very distant golden eagle, over 4 km away. Thermalling to east of main ridge for 60 seconds at Medium height. Seen again at 17:05. Not mapped as well outside of survey area.
0152	28/06/19	6A	17:25	17:30	1	KT		Quartering initially at Low height, then landed (possibly feeding) for three minutes, then flew at Medium height. Joined by a second kite and both thermalled at High and Very High heights for 10 minutes.
0152	28/06/19	6A	17:25	17:30	2	KT		Joined bird in previous record at high and Very High heights for 10 minutes.
0153	29/06/19	2A	09:50	09:55	n/a	RN		Five birds at Medium height for 45 seconds, landed briefly then took off towards reservoir from the southwest along the course of the Tarff in the VP viewshed.
0159	24/07/19	6A	13:15	13:20	n/a	RN		Single bird at Very Low height.
0159	24/07/19	6A	14:05	14:10	n/a	RN		Single bird at Low height.
0161	24/07/19	5A	16:50	16:55	1	EA		Immature male flew directly to adult female that was on the ground. They circled together for a time before the male dropped behind ridge (shortly after second immature male appeared).
0161	24/07/19	5A	16:50	16:55	2	EA		Adult female was sitting on the ground before first male disturbed her. Circled with male before dropping out of view behind ridge.
0161	24/07/19	5A	16:50	16:55	3	EA		Immature male appeared beside the first two birds, then moved off relatively quickly.
0161	24/07/19	5A	16:55	17:00	4	EA		Same adult female as before. Appeared to chase off the young male before heading back southeast and dropping behind ridge again.
0161	24/07/19	5A	16:55	17:00	5	EA		Immature male sitting on ground before female appeared and seemed to see him off.
0163	25/07/19	2A	06:15	06:20	1	GP		Two golden plover flew in from the east and landed.
0164	25/07/19	4	10:05	10:10	n/a	BZ		Hunting at Low height.
0164	25/07/19	4	11:05	11:10	n/a	BZ		Hunting at Low height in same area as before.
0165	25/07/19	2A	08:40	08:45	n/a	RN		One flying at Low height near to reservoir.
0165	25/07/19	2A	09:15	09:20	n/a	RN		One flying at Low height to west of VP.

Survey Ref	Date	VP	5-min Period		Flight ID	BTO Code (main)	BTO Code (other)	Notes
			Start Time	End Time				
0166	26/07/19	1	10:10	10:15	n/a	RN		Two flying at Medium, Low and Very Low heights.
0167	13/08/19	1	12:20	12:25	1	EA		Adult female hunting over Carn Easgann Bana. Lost to view behind ridge.
0168	13/08/19	1	16:10	16:15	1	EA		Adult female hunting, stalling against wind, then dropped out of sight behind ridge.
0168	13/08/19	1	16:25	16:30	2	EA		Adult male followed almost exact same flight path as female (previous record).
0168	13/08/19	1	16:30	16:35	3	EA		Pair of adult birds. Male mainly at Medium height across top of Carn Easgann Bana, hunting, then dropped behind ridge. Female landed on hillside and sat for one minute.
0168	13/08/19	1	16:40	16:45	4	EA		Adult female hunting.
0169	14/08/19	1	11:10	11:15	n/a	RN		Two foraging at Low and Very Low heights on Carn Easgann Bana.
0170	14/08/19	1	14:25	14:30	n/a	RN		Two at Medium height, south towards reservoir.
0170	14/08/19	1	15:00	15:05	n/a	RN		Two at Low and Very Low heights heading northeast.
0170	14/08/19	1	15:05	15:10	n/a	RN		Same two birds circling at Medium height and a flock of five over Carn Easgann Bana at Very Low to Medium heights.
0170	14/08/19	1	15:15	15:20	1	WE	RN	Adult hunting, mobbed by a raven, then landed on Carn Easgann Bana.
0170	14/08/19	1	15:25	15:30	2	WE	RN	Same bird as previous record along ridge of Carn Easgann Bana and landed on other side of ridge out of view. Mobbed by a raven.
0170	14/08/19	1	15:30	15:35	3	WE		Same bird as previous record flew along ridge and off to northeast.
0170	14/08/19	1	15:55	16:00	n/a	RN		Two at Low and Medium heights, heading south.
0170	14/08/19	1	17:20	17:25	n/a	RN		One at Medium height, heading west.

Table A4.2: Target / Secondary Species Flight Details (August 2018 – August 2019)

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0002	14/08/18	1	1	EA	1	Unk.	Ad.	15:35			180			180
0002	14/08/18	1	2	ML	1	F	Ad.	16:00		45				45
0003	14/08/18	3	1	ML	1	Unk.	Ad.	18:46			75			75
0004	15/08/18	6B	1	EA	1	Unk.	Juv. / imm.	11:46				120		120
0004	15/08/18	6B	2	EA	1	Unk.	Juv. / imm.	12:05			90			90
0004	15/08/18	6B	3	EA	1	Unk.	Juv. / imm.	12:30			45			45
0011	29/08/18	5A	1	EA	2	Unk.	Ad + imm. / juv.	10:26				180		180
0012	29/08/18	6B	1	K.	1	M	Ad.	15:00		75	45			120
0012	29/08/18	6B	2	EA	1	Unk.	Juv. / imm.	16:25			45			45
0014	20/09/18	4	1	GJ	80	Unk.	Unk.	13:20			180			180
0015	21/09/18	3	1	GJ	10	Unk.	Unk.	09:02					210	210
0015	21/09/18	3	2	GJ	85	Unk.	Unk.	10:00					195	195
0015	21/09/18	3	3	GJ	110	Unk.	Unk.	11:41					210	210
0016	24/09/18	6B	1	K.	2	M + F	Ad.	15:00		135	60			195
0016	24/09/18	6B	2	EA	1	Unk.	Ad.	15:15			210			210
0016	24/09/18	6B	3	EA	3	M + F + Unk.	Ad. pr. + juv. / imm.	15:20				75	225	300
0016	24/09/18	6B	4	GP	7	Unk.	Ad.	15:30			45			45
0016	24/09/18	6B	5	EA	1	Unk.	Ad.	15:50				240		240
0017	27/09/18	2A	1	EA	1	Unk.	Juv. / imm.	12:21			45	180		225
0017	27/09/18	2A	2	GJ	120	Unk.	Unk.	12:37					120	120
0017	27/09/18	2A	3	GJ	18	Unk.	Unk.	12:42					105	105
0017	27/09/18	2A	4	GJ	60	Unk.	Unk.	12:58			240			240
0018	27/09/18	4	1	ML	1	Unk.	Unk.	16:15			30			30

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0019	28/09/18	3	1	ML	1	Unk.	Unk.	10:51		55	60			115
0020	21/09/18	5A	1	GJ	35	Unk.	Unk.	09:11					120	120
0020	21/09/18	5A	2	GJ	45	Unk.	Unk.	09:15					120	120
0020	21/09/18	5A	3	KT	1	Unk.	Unk.	10:00			75			75
0020	21/09/18	5A	4	GJ	50	Unk.	Unk.	10:37					75	75
0020	21/09/18	5A	5	GJ	50	Unk.	Unk.	10:37					75	75
0020	21/09/18	5A	6	GJ	80	Unk.	Unk.	10:56					75	75
0020	21/09/18	5A	7	GJ	100	Unk.	Unk.	11:26					45	45
0020	21/09/18	5A	8	GJ	35	Unk.	Unk.	11:47					30	30
0020	21/09/18	5A	9	GJ	57	Unk.	Unk.	11:57					30	30
0021	24/09/18	1	1	WE	1	M	Ad.	16:04			30			30
0021	24/09/18	1	2	WE	1	Unk.	Unk.	16:32				135	45	180
0022	27/09/18	1	1	GJ	70	Unk.	Unk.	12:32					45	45
0022	27/09/18	1	2	GJ	16	Unk.	Unk.	12:36					30	30
0022	27/09/18	1	3	EA	1	Unk.	Imm.	14:25	15	15	45		75	150
0022	27/09/18	1	4	UO	30	Unk.	Unk.	14:28					15	15
0022	27/09/18	1	5	EA	1	Unk.	Imm.	14:36			60	165		225
0023	28/09/18	5A	1	KT	1	Unk.	Unk.	09:28			135			135
0023	28/09/18	5A	2	EA	2	Unk.	Unk.	10:17				90		90
0023	28/09/18	5A	3	EA	1	M	Unk.	10:18			45	255		300
0023	28/09/18	5A	4	EA	1	Unk.	Unk.	10:36				75		75
0023	28/09/18	5A	5	EA	2	Unk.	Unk.	11:00				180		180
0025	05/10/18	5A	3	EA	2	Unk.	Ad. + imm. / juv.	11:01			720	1080		1800
0025	05/10/18	5A	4	EA	1	F	Ad.	11:30			105			105
0025	05/10/18	5A	5	EA	2	Unk.	Imm.	11:30			105			105

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0025	05/10/18	5A	6	EA	2	M / Unk.	Ad. + imm.	11:31			60			60
0026	05/10/18	6B	1	EA	1	M	Ad.	13:01				75		75
0026	05/10/18	6B	2	PE	1	Unk.	Unk.	13:06			120			120
0026	05/10/18	6B	3	PE	1	Unk.	Unk.	13:06			30			30
0026	05/10/18	6B	4	K.	1	M	Ad.	15:20		135	60			195
0030	06/10/18	1	1	ML	1	M	Ad.	09:15			45			45
0038	20/11/18	2A	1	EA	1	Unk.	Unk.	09:20			300			300
0034	28/10/18	2A	1	EA	2	M + F	Ad. + Subad.	13:20			10			10
0058	19/12/18	6A	1	PE	1	M	Unk.	13:21		30	60			90
0059	20/12/18	1	1	EA	2	Unk.	Ad. / Subad.	08:41			120			120
0059	20/12/18	1	2	EA	1	Unk.	Unk.	11:18				60		60
0062	09/01/19	4	1	EA	1	Unk.	Unk.	10:45		15	30			45
0064	10/01/19	5A	1	EA	1	Unk.	Imm.	11:15	30					30
0070	23/01/19	5A	1	EA	1	Unk.	Ad.	12:34		30				30
0081	15/02/19	1	1	EA	2	M + F	Ad. / Subad.	08:11				135		135
0088	27/02/19	4	1	EA	1	M	Ad.	14:41			75			75
0091	26/02/19	3	1	GP	1	Unk.	Ad.	15:32	15					15
0093	27/02/19	5A	1	KT	1	Unk.	Unk.	13:05			45			45
0093	27/02/19	5A	2	KT	1	Unk.	Unk.	14:17			15			15
0094	28/02/19	1	1	PE	1	Unk.	Unk.	10:12	15					15
0094	28/02/19	1	2	EA	1	Unk.	Imm.	11:15		15				15
0094	28/02/19	1	3	EA	1	Unk.	Imm.	11:17		15	60	15		90
0095	20/03/19	3	1	GP	2	M / F	Ad.	10:07	15					15
0095	20/03/19	3	2	GP	1	M	Ad.	11:37		15				15
0095	20/03/19	3	3	GP	2	M + F	Ad.	11:40		30				30

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0100	21/03/19	1	1	T.	2	Pr	Ad.	09:55	15					15
0102	26/03/19	2C	1	GP	2	Unk.	Ad.	12:13	15					15
0109	15/04/19	5A	1	EA	1	M	Imm. (1st yr)	16:51	15					15
0109	15/04/19	5A	2	EA	1	M	Imm. (1st yr)	17:20	65					65
0110	17/04/19	1	1	GP	1	Unk.	Ad.	09:11				9	15	24
0110	17/04/19	1	2	EA	1	F	Imm. (2nd yr)	10:07	2	60				62
0110	17/04/19	1	3	EA	1	F	Imm. (2nd yr)	10:44		12		135		147
0111	17/04/19	4	1	PE	1	M	Unk.	11:44			145			145
0112	08/04/19	4	1	EA	1	M	Ad.	14:41				60		60
0112	08/04/19	4	2	EA	1	M	Ad.	16:07			45	135		180
0112	08/04/19	4	3	EA	1	M	Ad.	16:11		15	15	150		180
0112	08/04/19	4	4	GJ	20	Unk.	Unk.	16:17			120	120		240
0113	23/04/19	5A	1	EA	2	M + F	Ad.	19:05			60			60
0113	23/04/19	5A	2	EA	1	Unk.	Sub-ad.	19:35			45			45
0113	23/04/19	5A	3	EA	1	Unk.	Sub-ad.	19:35			240			240
0114	24/04/19	2A	1	EA	1	Unk.	Unk.	11:00			30			30
0114	24/04/19	2A	2	EA	1	M?	Ad.	11:35			45			45
0115	23/04/19	2A	1	EA	2	M + F	Ad.	18:45			135	195	30	360
0115	23/04/19	2A	2	EA	1	M	Ad.	19:50			30	45	120	195
0116	24/04/19	6A	2	KT	2	Unk.	Ad.	11:25		30	135			165
0117	07/05/19	3	1	EA	2	Pr.	Ad.	13:45				150	150	300
0120	28/05/19	4	1	EA	1	F	Imm. (1st yr)	11:58			290			290
0120	28/05/19	4	2	EA	1	F	Imm. (1st yr)	14:26		15	25			40
0121	28/05/19	2A	1	OP	1	Unk.	Ad.	12:03			50			50
0121	28/05/19	2A	2	EA	1	M	Ad.	12:07			95			95

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0121	28/05/19	2A	3	EA	1	M	Ad.	14:26		15				15
0122	28/05/19	4	1	KT	1	Unk.	Ad.	16:11			35			35
0129	29/05/19	6A	1	EA	1	M	Ad.	09:23	85	45	105	135		370
0129	29/05/19	6A	2	EA	1	M	Ad.	10:20			456	684		1140
0130	29/05/19	1	1	KT	1	Unk.	Unk.	12:06			75			75
0130	29/05/19	1	2	KT	1	Unk.	Unk.	13:00			90			90
0130	29/05/19	1	3	WE	1	F	Ad.	13:11	5	15	75			95
0130	29/05/19	1	4	OP	1	Unk.	Ad.	13:12		30	205			235
0130	29/05/19	1	5	WE	1	Unk.	Ad.	13:28			105	30	190	325
0130	29/05/19	1	6	EA	2	Pr.	Ad.	14:21			180			180
0131	29/05/19	6A	1	KT	1	Unk.	Ad.	12:54		45	180	85		310
0131	29/05/19	6A	2	KT	1	Unk.	Ad.	13:41	45	330	45			420
0131	29/05/19	6A	3	EA	1	M	Ad.	13:48			250			250
0131	29/05/19	6A	4	KT	1	Unk.	Ad.	14:28	65	225	15			305
0133	07/06/19	5A	1	EA	1	M	Ad.	12:36	15	15	20			50
0133	07/06/19	5A	2	WE	1	Unk.	Ad.	13:09	21					21
0133	07/06/19	5A	3	EA	1	M	Ad.	13:11	10					10
0133	07/06/19	5A	4	WE	1	Unk.	Ad.	13:11	10					10
0133	07/06/19	5A	5	WE	1	Unk.	Ad.	13:14	10					10
0133	07/06/19	5A	6	EA	1	M	Ad.	13:15	15					15
0133	07/06/19	5A	7	WE	1	Unk.	Ad.	13:36				75	55	130
0133	07/06/19	5A	8	WE	1	Unk.	Ad.	14:00				40		40
0134	07/06/19	6A	1	KT	1	Unk.	Ad.	15:10			330	330		660
0134	07/06/19	6A	2	PE	1	F	Ad.	15:46	15					15
0134	07/06/19	6A	3	KT	2	Unk.	Ad.	16:39			216	504		720

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0136	10/06/19	4	1	GJ	1	Unk.	Ad.	10:30			135	109		244
0138	10/06/19	6A	1	EA	1	F	Sub-ad.	16:10			72	648		720
0141	11/06/19	1	1	GP	1	Unk.	Ad.	09:16	15					15
0141	11/06/19	1	2	KT	1	Unk.	Unk.	09:50			185			185
0143	21/06/19	1	1	EA	1	F	Ad.	15:01			40			40
0142	11/06/19	1	1	T.	2	Pr.	Ad.	14:34	30					30
0143	21/06/19	1	2	PE	1	Unk.	Unk.	15:03			85			85
0145	26/06/19	4	1	WE	1	Unk.	Imm.	09:53				195	271	466
0148	27/06/19	5A	1	OP	1	Unk.	Ad.	17:00	15		25			40
0148	27/06/19	5A	2	WE	1	Unk.	Ad.	17:00		15	45	90	340	490
0151	28/06/19	5A	1	EA	1	Unk.	Imm.	14:30		5	45			50
0152	28/06/19	6A	1	KT	1	Unk.	Unk.	17:25		75	60	300	300	735
0152	28/06/19	6A	2	KT	1	Unk.	Unk.	17:25				300	300	600
0161	24/07/19	5A	1	EA	1	M	Imm.	16:50	15	60	180			255
0161	24/07/19	5A	2	EA	1	F	Ad.	16:51		30	345			375
0161	24/07/19	5A	3	EA	1	M	Imm.	16:54		40				40
0161	24/07/19	5A	4	EA	1	F	Ad.	16:57		30	165			195
0161	24/07/19	5A	5	EA	1	M	Imm.	16:58		15	17			32
0163	25/07/19	2A	1	GP	2	Unk.	Ad. + juv.	06:16	30					30
0167	13/08/19	1	1	EA	1	F	Ad.	12:22		25	15			40
0168	13/08/19	1	1	EA	1	F	Ad.	16:10		70				70
0168	13/08/19	1	2	EA	1	M	Ad.	16:26		75				75
0168	13/08/19	1	3	EA	2	Pr.	Ad.	16:34		20	200	20		240
0168	13/08/19	1	4	EA	1	F	Ad.	16:40		70				70
0170	14/08/19	1	1	WE	1	Unk.	Ad.	15:17	5	45	330			380

Survey Ref	Date	VP	Flight ID	BTO Code	No. of Birds	Sex	Age	Start Time	Seconds / Height Band					Total Dur. (Secs)
									VL	L	M	H	VH	
0170	14/08/19	1	2	WE	1	Unk.	Ad.	15:26	50					50
0170	14/08/19	1	3	WE	1	Unk.	Ad.	15:32	15	50				65

Table A4.3: Flight Activity Survey Details – Notable Non-Flying Birds

Survey Ref	Date	VP	Unique ID	BTO Code	No. of Birds	Start Time	Notes
0042	21/11/18	3	1	WS	3	09:00	Two adults and one juvenile whooper swan observed on Loch 11 (Lochan Lain).
0064	10/01/19	5A	~	EA	1	09:40	Perched on rock on side of Carn Fraoich when FAS begun. Flew off at 11:15.
0091	26/02/19	3	~	GP	1	14:20	A golden plover was heard about 5-6 times to the southwest of the VP, but not located. It was then intermittently heard throughout the survey.
0087	27/02/19	4	1	GP	1	09:50	A golden plover heard, but not seen to the south of VP.
0089	28/02/19	3	1	GP	2	09:40	A couple of golden plover heard calling to the south of VP, but not seen due to low visibility.
0101	08/04/19	1	~	GP	1	14:45	Golden plover heard calling twice distantly to the north of VP2. Could not locate the bird.
0161	24/07/19	5A	6	GP	1	18:49	Golden plover running about on ground on Carn Fraoich.

Table A4.4: Flight Activity Survey Details – Disturbance

Survey Ref	Date	VP	Activity Description	Level	Affect Birds (Y/N)	Notes
0001	13/08/18	2A	Vehicles / working machinery	Low	N	Not in viewshed.
0002	14/08/18	1	Vehicles / working machinery	Low	N	Reinstatement at met mast and Compound 3 noise, occasional traffic on spine road through viewshed.
0004	15/08/18	6B	Vehicles / working machinery	Low	N	
0005	15/08/18	5B	Vehicles / working machinery	Low	N	
0006	16/08/18	4	Vehicles / working machinery	Moderate	N	Active borrow pit reinstatement.

Survey Ref	Date	VP	Activity Description	Level	Affect Birds (Y/N)	Notes
0009	28/08/18	4	Vehicles / working machinery	Low	N	Active borrow pit reinstatement.
0011	29/08/18	5A	Vehicles / working machinery	Moderate	N	Turbine being erected.
0012	29/08/18	6B	Vehicles / working machinery	Moderate	N	Turbine being erected and borrow pit workings / reinstatement.
0014	20/09/18	4	Vehicles / working machinery	Low	N	
0016	24/09/18	6B	Vehicles / working machinery	Low	N	Active borrow pit reinstatement.
0025	05/10/18	5A	Vehicles / working machinery	Low	N	
0025	05/10/18	5A	Workers only	Low	N	
0026	05/10/18	6B	Vehicles / working machinery	Low	N	
0028	05/10/18	3	Vehicles / working machinery	Low	N	
0030	06/10/18	1	Vehicles / working machinery	Moderate	N	Steady stream of traffic on main access (c. 10 per hour).
0034	28/10/18	2A	Vehicles / working machinery	Low	N	
0035	28/10/18	5A	Vehicles / working machinery	Low	N	
0035	28/10/18	5A	Workers only	Low	N	
0031	29/10/18	1	Vehicles / working machinery	Low	N	Occasional helicopter passing over (estate carrying out a deer count)
0037	19/11/18	1	Vehicles / working machinery	Moderate	N	Vehicles on main access track regularly repairing track. Two workers unloaded fencing materials during the third hour of the watch.
0039	20/11/18	5A	Vehicles / working machinery	Low	N	
0043	27/11/18	1	Vehicles / working machinery	Low	N	
0047	29/11/18	5A	Vehicles / working machinery	Moderate	N	Reinstatement near turbine with excavator for first half hour.
0059	20/12/18	1	Vehicles / working machinery	Moderate	N	Works at Compound 3.
0074	31/01/19	1	Vehicles / working machinery	Low	N	Occasional vehicle movements along spine road.
0074	31/01/19	1	Workers only	Low	N	Workers at T5 in nacelle.
0106	15/04/19	6A	Vehicles / working machinery	Low	N	Truck moving stone.
0129	29/05/19	6A	Vehicles / working machinery	Low	N	Working on track.
0130	29/05/19	1	Vehicles / working machinery	Moderate	N	Usual wind farm workings.

Survey Ref	Date	VP	Activity Description	Level	Affect Birds (Y/N)	Notes
0134	07/06/19	6A	Vehicles / working machinery	Low	N	Working on track.
0143	21/06/19	1	Vehicles / working machinery	Low	N	Usual traffic.
0144	21/06/19	6A	Gas gun	Low	~	Gas gun somewhere in northeast of viewshed. Going off once an hour.

APPENDIX 5: Breeding & Wintering Bird Survey Details

Introduction

This appendix provides the survey details and results of the various baseline breeding and wintering bird surveys (i.e. excluding Flight Activity Survey results reported elsewhere) undertaken to inform the EIA of the Proposed Development between August 2018 and August 2019. The survey results as presented here are fully considered within the impact assessment for the proposed Development (see Chapter 9 of the EIA Report).

The information presented here is from the following surveys:

- Waterbody Counts (August 2018 to August 2019);
- Moorland breeding wader surveys (April to July 2019); and
- Breeding moorland raptor surveys (March to July 2019).

Details of the various survey methodologies are provided in Section 2 of this report (Technical Appendix 9.1).

Details of the timing and weather conditions during the various breeding bird surveys in 2019 are provided in Tables A5.1 and A5.2. Collated observations from the various surveys are provided in Table A5.3. The results of the waterbody counts are provided in Table 5.4.

Information related to the location of breeding sites for those species listed on Schedule 1 to the Wildlife & Countryside Act 1981 (as amended) are reported in a separate Confidential Annex.

Survey Details

Tables A5.1 and A5.2 below details the survey visits and weather conditions during the surveys (i.e. raptor, moorland wader, waterbody surveys) carried out in 2018-19 along with any notes related to access, disturbance and weather constraints, associated with these surveys. NB waterbody counts were also completed prior to or following other surveys, such as flight activity watches, details of which (in relation to weather conditions) are provided in Appendix 3.

Table A5.1: Breeding and Wintering Bird Surveys – Survey Visit Details

Survey Ref.	Date	Survey Focus	Surveyor	Start Time	End Time	Notes (general, weather, access constraints, disturbance)
B0001	15/08/18	Waterbody	SR	16:45	16:55	
B0002	16/08/18	Waterbody	SR	12:45	16:45	
B0003	27/08/18	Waterbody	SR	18:15	18:45	
B0004	29/08/18	Waterbody	SR	17:15	18:00	
B0005	05/10/18	Waterbody	PB	16:15	~	
B0006	10/01/19	Waterbody	KM	12:50	13:00	
B0007	20/02/19	Waterbody	KM	15:40	15:50	
B0009	27/02/19	Waterbody	KM	16:30	16:45	
B0008	28/02/19	Adhoc	SR	12:30	13:15	
B0010	20/03/19	Adhoc	KM	08:50	~	
B0011	09/04/19	Waders	SR	09:00	16:00	
B0015	09/04/19	Waders	KM	09:20	16:00	Warm and sunny. Snow patches beginning to melt.
B0012	10/04/19	Waders	SR	08:40	16:00	

Survey Ref.	Date	Survey Focus	Surveyor	Start Time	End Time	Notes (general, weather, access constraints, disturbance)
B0016	10/04/19	Waders	KM	09:00	16:30	Snow continuing to melt. Warm and sunny. Cloudless at times.
B0013	11/04/19	Waders	SR	08:45	16:45	Remnant snow patches in hollows and on ridges. Sunny, then increasing cloud in the afternoon.
B0017	11/04/19	Waders	KM	09:00	16:30	Large snow patches on higher ground. No access to estate at southern end.
B0019	11/04/19	Adhoc	SR/KM	17:00	17:05	
B0014	12/04/19	Waders	SR	08:40	12:30	Cold with increasing cloud during survey. Few snow patches left and some ice on burns.
B0018	12/04/19	Waders	KM	09:00	12:00	
B0030	17/04/19	Raptor	PC	12:00	18:00	
B0031	17/04/19	Raptor	AJM	12:05	18:35	
B0050	17/04/19	Raptor	AJM	12:05	18:35	
B0051	17/04/19	Raptor	PC	12:00	18:00	
B0020	24/04/19	Waterbody	SR	16:45	16:50	
B0021	24/04/19	Raptor	SR	13:10	17:15	Hazy and windy. VPs at Carn Fraoich (13:45-14:25) and Carn Easgann Bana (15:30-16:45).
B0063	24/04/19	Waders / Raptor	PB	10:00	19:00	Clear with excellent visibility. Focus on southern section of the western survey area.
B0032	26/04/19	Adhoc	AM	~	~	Generally cold wind with snow showers passing through.
B0033	06/05/19	Adhoc	AM	~	~	Generally cold wind with snow showers passing through.
B0060	06/05/19	Waders	PB	11:45	18:30	Snow lying at > 700 m.
B0061	07/05/19	Waders	PB	09:30	18:00	Snow in morning, heavy showers at times. Cleared up by 13:00.
B0034	08/05/19	Adhoc	AM	~	~	Generally cold wind with snow showers passing through.
B0062	08/05/19	Waders	PB	07:30	14:30	Snow showers, intermittent through the morning, good visibility between flurries. Gas gun operating in OS square 4604.
B0035	09/05/19	Adhoc	AM	~	~	Generally cold wind with snow showers passing through.
B0036	10/05/19	Adhoc	AM	~	~	Bright and sunny.
B0022	13/05/19	Waders	SR	14:00	17:45	Warm, sunny, hazy, breezy.
B0026	13/05/19	Waders	KM	14:00	17:45	
B0023	14/05/19	Waders	SR	08:45	16:00	Warm, sunny with a light breeze.
B0027	14/05/19	Waders	KM	09:15	16:15	
B0052	14/05/19	Raptor	AJM	11:15	12:30	
B0053	14/05/19	Raptor	PC	11:15	17:15	
B0024	15/05/19	Waders	SR	08:15	15:30	Warm, sunny with a light breeze.
B0028	15/05/19	Waders	KM	09:00	15:30	
B0025	16/05/19	Waders	SR	08:15	15:30	Warm, sunny, breezy.
B0029	16/05/19	Waders	KM	08:50	15:10	
B0037	10/06/19	Waders	KM	14:00	17:30	
B0041	10/06/19	Waders	SR	13:45	17:30	Sunny, cloudy and fine.
B0038	11/06/19	Waders	KM	09:00	15:45	Rain for 90% of the time. Cold and gusty.

Survey Ref.	Date	Survey Focus	Surveyor	Start Time	End Time	Notes (general, weather, access constraints, disturbance)
B0042	11/06/19	Waders	SR	08:35	15:55	Rain showers, cloudy with occasional sunny spells.
B0054	11/06/19	Raptor	PC	08:50	14:50	
B0039	12/06/19	Waders	KM	09:00	16:15	Gusty. Occasional rain showers, mostly light but some moderate.
B0043	12/06/19	Waders	SR	08:30	16:00	Persistent light drizzle.
B0040	13/06/19	Waders	KM	08:45	14:30	Cold, gusty wind.
B0044	13/06/19	Waders	SR	08:20	14:30	Cloudy. Occasional light rain.
B0049	21/06/19	Waders	PC/AJM	~	~	
B0055	27/06/19	Raptor	PC	08:55	14:50	
B0045	01/07/19	Waders	KM	14:15	18:30	
B0064	02/07/19	Waders	SR	08:15	15:55	
B0046	02/07/19	Waders	KM	09:00	16:00	Rain shower at around 13:00 for approximately 20 minutes.
B0065	03/07/19	Waders	SR	08:15	16:00	
B0047	03/07/19	Waders	KM	08:40	15:30	Very occasional light rain showers.
B0066	04/07/19	Waders	SR	08:15	16:00	
B0048	04/07/19	Waders	KM	08:40	14:30	Occasional very light rain showers.
B0067	05/07/19	Waders	SR	08:15	11:15	
B0056	25/07/19	Raptor	PC	11:20	14:20	
B0057	25/07/19	Raptor	AJM	11:40	15:05	
B0058	26/07/19	Raptor	AJM	08:55	15:00	
B0059	26/07/19	Raptor	PC	12:05	15:05	

Table A5.2: Breeding and Wintering Bird Surveys – Weather Conditions

Survey Ref.	Date	Wind Dirn.	Cloud base (m AOD)	Cloud cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. Intensity	Pptn. Dur.
B0001	15/08/18	W	500-1000	100	3	>10	10	Rain	Light	Intermittent
B0002	16/08/18	SW	500-1000	90	3	5-10	10	Rain	Light	Intermittent
B0003	27/08/18	W	500-1000	90	2-3	5-10	10	None	n/a	n/a
B0004	29/08/18	W	>1000	65	2-3	>10	9	None	n/a	n/a
0030	06/10/18	W	>1000	10	0-1	>10	0	None	n/a	n/a
0042	21/11/18	E	100-5000	100	3	2-5	-1	Snow	Moderate	Intermittent
B0006	10/01/19	NW	>1000	100	1	>10	4	None	n/a	n/a
B0007	20/02/19	SE	100-500	100	2-3	2-5	7	None	n/a	n/a
B0009	27/02/19	SW	>1000	80	1	>10	7	None	n/a	n/a
B0008	28/02/19	SW	500-1000	100	3	2-5	5	None	n/a	n/a
B0011	09/04/19	SE	>1000	5-0	1-2	>10	12	None	n/a	n/a
B0015	09/04/19	SE	>1000	5	1-2	>10	8	None	n/a	n/a
B0012	10/04/19	N-NE	>1000	20-70	1-2	>10	12	None	n/a	n/a
B0016	10/04/19	SE	>1000	10	2	>10	12	None	n/a	n/a
B0013	11/04/19	SW	>1000	25-95	1	5-10	11	None	n/a	n/a
B0017	11/04/19	SE	>1000	15	2	>10	10	None	n/a	n/a
B0014	12/04/19	SE-S	>1000	20-80	2-3	>10	8	None	n/a	n/a
B0018	12/04/19	SE	>1000	20	2	>10	9	None	n/a	n/a
B0030	17/04/19	SE	>1000	20	4	>10	8	None	n/a	n/a
B0050	17/04/19	SE	>1000	50	4	>10	10	None	n/a	n/a
B0051	17/04/19	SE	>1000	20	4	>10	8	None	n/a	n/a
B0021	24/04/19	SW	>1000	75	4	5-10	10	None	n/a	n/a
B0063	24/04/19	SW	~	0	1-2	>10	10	None	n/a	n/a

Survey Ref.	Date	Wind Dirn.	Cloud base (m AOD)	Cloud cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. Intensity	Pptn. Dur.
B0060	06/05/19	NW	~	~	1-2	5-10	3	Hail/Snow	Light	Intermittent
B0061	07/05/19	E-SE	~	~	1-2	1->10	~	Snow	Light-Heavy	Intermittent
B0062	08/05/19	E-SE	~	~	2-3	1-5	5	Snow	Light	Intermittent
B0022	13/05/19	W	>1000	75	2	>10	14	None	n/a	n/a
B0026	13/05/19	SW	>1000	70	2-3	>10	16	None	n/a	n/a
B0023	14/05/19	W	>1000	5-10	1	>10	18	None	n/a	n/a
B0027	14/05/19	S	>1000	25	2	>10	20	None	n/a	n/a
B0052	14/05/19	SW	>1000	20	3	>10	18	None	n/a	n/a
B0053	14/05/19	SW	>1000	40	2-3	>10	18	None	n/a	n/a
B0024	15/05/19	SW	>1000	10	1	>10	21	None	n/a	n/a
B0028	15/05/19	S	>1000	25	2	>10	22	None	n/a	n/a
B0025	16/05/19	S	>1000	5-10	1-2	>10	20	None	n/a	n/a
B0029	16/05/19	SW	>1000	40	2-3	>10	19	None	n/a	n/a
B0037	10/06/19	NW	>1000	90	1-2	>10	11	None	n/a	n/a
B0041	10/06/19	N-NE	>1000	65	3	>10	13	None	n/a	n/a
B0038	11/06/19	N	500-1000	100	3-4	2-10	8	Rain	Light	Continuous
B0042	11/06/19	NW	500-1000	95	2-3	2-10	11	Rain	Light	Intermittent
B0054	11/06/19	NE	100->1000	95	4	2->10	8	Rain	Light-Mod.	Intermittent
B0039	12/06/19	NW	>1000	100	3	>10	9	Rain	Light-Mod.	Intermittent
B0043	12/06/19	NW	100-1000	100	2	<1-2	10	Rain	Light	Continuous
B0040	13/06/19	N	>1000	100	2	>10	8	Rain	Light	Intermittent
B0044	13/06/19	N	500-1000	75-100	2	1-10	15	Rain	Light	Intermittent
B0049	21/06/19	SW-W-NW	~	80	3	~	10	Rain	Light	Intermittent
B0055	27/06/19	NW	>1000	0	2	>10	22	None	n/a	n/a

Survey Ref.	Date	Wind Dirn.	Cloud base (m AOD)	Cloud cover (%)	Wind Speed (BS)	Visibility (km)	Temp (°C)	Pptn. Type	Pptn. Intensity	Pptn. Dur.
B0045	01/07/19	W	500-1000	100	2-4	5-10	10	Rain	Light	Intermittent
B0064	02/07/19	NW	500-1000	75-100	3	5-10	16	Rain	Light	Intermittent
B0046	02/07/19	NW	500->1000	95	2-3	>10	11	Rain	Moderate	Intermittent
B0065	03/07/19	W	500-1000	75	2-3	1-10	12	Rain	Light	Intermittent
B0047	03/07/19	SW	500->1000	95	2	>10	12	Rain	Light	Intermittent
B0066	04/07/19	W	500-1000	5-75	3	5->10	17	Rain	Light	Intermittent
B0048	04/07/19	SW	500->1000	100	2-3	>10	10	Rain	Light	Intermittent
B0067	05/07/19	W	>1000	50-75	2	>10	16	None	n/a	n/a
B0056	25/07/19	SE	>1000	50	3-4	>10	20	None	n/a	n/a
B0057	25/07/19	SE	>1000	40	5	>10	22	None	n/a	n/a
B0058	26/07/19	SW	>1000	40	4	>10	22	None	n/a	n/a
B0059	26/07/19	SE-S	>1000	50	3-4	>10	21	None	n/a	n/a

Collated Records

Table A5.3, below, provides the collated observations from the various walkover surveys (i.e. excluding the Flight Activity Survey) completed between August 2018 and August 2019. Table A5.4 provides a summary of the waterbody counts. Refer to the Confidential Annex for further details in relation to red-throated diver and greenshank.

Table A5.3: Collated Observations from Breeding and Wintering Bird Surveys and Ad Hoc Records

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0001	Waterbody	15/08/18	16:47	T.	Ad.			12	12	17	Loch na Lairige	
B0001	Waterbody	15/08/18	16:55	H.	Ad.			1	1	15	Dearg Lochan	
B0002	Waterbody	16/08/18	12:45	T.	Ad.		8		8	12	Unidentified	

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0002	Waterbody	16/08/18	15:00	T.	Ad.		7		7	10	Glendoe Reservoir (NE lagoons)	
B0002	Waterbody	16/08/18	16:45	RH	Ad., juv.	1		1	2	See Confidential Annex		Adult male red-throated diver with juvenile on loch.
B0003	Waterbody	27/08/18	18:20	T.	Unk.		7		7	11	Lochan Lain	
B0003	Waterbody	27/08/18	~	T.	Ad.		3		3	10	Glendoe Reservoir (NE lagoons)	
B0004	Waterbody	29/08/18	~	T.				7	7	17	Loch na Lairige	
0030	FAS	06/10/18	07:20	WN	Ad.	2			2	10	Glendoe Reservoir (NE lagoons)	Two male wigeon landed in pool c. 100m west of VP.
0042	FAS	21/11/18	09:00	WS	Ad.				3	11	Lochan Lain	Two adults and one juvenile whooper swan observed on Loch 11 (Lochan Lain).
B0006	Waterbody	10/01/19	12:50	WS	Ad.			2	2	15	Dearg Lochan	Towards southern end of Lochan.
B0007	Waterbody	20/02/19	15:40	WS	Ad.			2	2	10	Glendoe Reservoir (NE lagoons)	At far side of lagoon.
B0009	Waterbody	27/02/19	16:30	T.		3	1		4	10	Glendoe Reservoir (NE lagoons)	
B0009	Waterbody	27/02/19	16:30	MA		1	1		2	10	Glendoe Reservoir (NE lagoons)	
B0008	Adhoc	28/02/19	12:30	EA	Ad.	1			1	8	Glendoe Reservoir	A male golden eagle flew over the east end of the reservoir to the south, flying towards the northern end of the ridge of Gairbeinn (medium height).
B0008	Adhoc	28/02/19	13:15	L.	Ad.			12	12	4008	Glen Doe access track	A flock of 12 lapwings were observed flying around the main reservoir access track by Glen Doe (c. 300m altitude).

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0010	Adhoc	20/03/19	10:50	WE	Unk.			1	1	5203	West of Stronelairston WF substation.	Single WE in flight through wind farm, to west of substation. Circling slowly at Medium height, and making its way north.
B0011	BBS	09/04/19	11:00	GJ				100	100	4899, 6800, 4901, 4902, 4903, 5004, 5005	Carn Dearg to Coire Odhar.	A large skein of greylag geese flew (VH, 180 secs) south to north very high over the wind farm until out of view.
B0011	BBS	09/04/19	11:02	GJ				85	85	4899, 6800, 4901, 4902, 4903, 5004, 5005	Carn Dearg to Coire Odhar.	A similar, but smaller skein to previous, but on same flight path flew (VH, 180 secs) south to north until out of sight.
B0012	BBS	10/04/19	08:45	GJ				95	95	4903, 5004, 5005	Meall Caca (east)	A large skein of greylag geese flew south to north over wind farm (VH, 150 secs).
B0012	BBS	10/04/19	08:46	GJ				70	70	4903, 5004, 5005	Meall Caca (east)	A large skein of greylag geese following previous skein on very similar flightpath (VH, 175 secs).
B0017	BBS	11/04/19	~	WS				1	1	17	Loch na Lairige	Whooper swan carcass on marsh to south of Loch na Lairige. Just a few feathers and bones remaining. It has been plucked.
B0017	BBS	11/04/19	~	WS				3	3	15	Dearg Lochan	Three whooper swans on Dearg Lochan.
B0019	Adhoc	11/04/19	~	RH		1	1		2	See Confidential Annex		See Confidential Annex
B0018	BBS	12/04/19	~	GK				1	1	See Confidential Annex		A greenshank in suitable breeding habitat, appeared to be foraging. On the edge of water to the south of sluice. It then flew west, alarm calling once.
B0021	Raptor	24/04/19	14:05	EA		1	1		2	5299, 5399, 5499,	Creag Mhor, Meall na h-Aisre	A pair of distant golden eagles of unknown age were observed displaying together at the extreme (> 2 km) southwest end of the eastern survey area. They displayed and flew separately for c. 10-15 minutes, then flew off to the south.

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0020	Waterbody	24/04/19	16:45	T.		4	4		8	10	Glendoe Reservoir (NE lagoons)	Four pairs of teal observed foraging in lagoons.
B0063	BBS / Raptor	24/04/19	~	PM				1	1	47420, 00957	NE ridge spur of Gairbeinn	Ptarmigan pluck.
B0063	BBS / Raptor	24/04/19	~	EA	Ad.			1	1	4401	Bac nam Fuaran	Adult golden eagle in low flight.
B0063	BBS / Raptor	24/04/19	~	BK	Ad.	1			1	45542, 02880	South of Glendoe Dam	Male black grouse flushed from the south-western edge of the reservoir.
B0063	BBS / Raptor	24/04/19	~	CM	Ad.			4	4	8	Glendoe Reservoir	Four common gull on western area of reservoir.
B0032	Adhoc	26/04/19	15:00	WE	Sub-Ad.				1	8	Glendoe Reservoir	A sub-adult white tailed eagle was recorded at the eastern end of Glendoe reservoir near Stronelaig Turbine OT1.
B0033	Adhoc	06/05/19	10:00	RH	Ad.	1	1		2	See Confidential Annex		See Confidential Annex
B0060	Greenshank	06/05/19	12:50	PM	Ad.	1			1	586020	Càrn na Criche	Male 'song' of ptarmigan from ground within suitable breeding habitat on Càrn na Criche at c. 800m elevation.
B0060	Greenshank	06/05/19	13:30	DN	Ad.	1	1		2	17	Loch na Lairige	Dunlin pair near the eastern edge of Loch na Lairige.
B0060	Greenshank	06/05/19	13:30	CS	Ad.			1	1	17	Loch na Lairige	Common sandpiper on south bank of Loch na Lairige.
B0060	Greenshank	06/05/19	13:30	T.	Ad.			4	4	17	Loch na Lairige	Four teal on Loch na Lairige.
B0060	Greenshank	06/05/19	14:00	MA	Ad.	1	1		2	16	Dubh Lochan (East)	Pair of mallard on Dubh Lochan.
B0060	Greenshank	06/05/19	14:45	DN	Ad.	1			1	55240, 02215	Northeast of Dearg Lochan	Male dunlin displaying near bog pools between existing turbines.
B0060	Greenshank	06/05/19	15:00	T.	Ad.		1		1	15	Dearg Lochan	Teal on nest, on the western side of Dearg Lochan.
B0061	Greenshank	07/05/19	10:45	GK	Ad.	1	1		2	See Confidential Annex		Pair of greenshank displaying.
B0061	Greenshank	07/05/19	11:10	GK	Ad.			1	1	See Confidential Annex		Single greenshank foraging on the edge of loch.
B0061	Greenshank	07/05/19	11:10	GP	Ad.	1			1	508009	Loch nan Sidhean	Single male golden plover displaying to the north of Loch nan Sidhean.

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0061	Greenshank	07/05/19	11:50	CS	Ad.			2	2	54251, 03606	Sluice on the Allt Ruighe an t-sidhein.	Pair of common sandpiper at the sluice on the Allt Ruighe an t-sidhein.
B0034	Adhoc	08/05/19	08:00	RH	Ad.	1	1		2	See Confidential Annex		See Confidential Annex
B0034	Adhoc	08/05/19	08:30		Unk.			4	4	8	Glendoe Reservoir	A heron and three male teal recorded at the eastern end of the reservoir.
B0062	Greenshank	08/05/19	12:45	GK	Ad.			1	1	See Confidential Annex		Single adult greenshank foraging along minor watercourse.
B0062	Greenshank	08/05/19	~	CS	Ad.			1	1	9	Allt na Feithe Gobhlaich lochans	Allt na Fèithe Gobhlaich lochans, single bird.
B0035	Adhoc	09/05/19	14:30	CX	Unk.	1	1		2	8	Glendoe Reservoir	A pair of common scoters on Glendoe reservoir.
B0036	Adhoc	10/05/19	08:15	CX	Unk.	2	2		4	8	Glendoe Reservoir	Two pairs of common scoters on Glendoe reservoir.
B0036	Adhoc	10/05/19	11:00	WE	Ad.	1?			1	8	Glendoe Reservoir	White-tailed eagle adult, possibly a male, observed near Stronelairg turbine OT39 on the ground. It then flew northeast through the wind farm. Wings had a nick (left primary finger feather).
B0036	Adhoc	10/05/19	14:00	GP	Ad.	1			1	5002	Stronelairg WF by OT39, north of Allt Creag Chomaich	One male golden plover calling near main access track at 8,000 m.
B0036	Adhoc	10/05/19	14:00	DN	Ad.			1	1	4404	Main access track (c. 8000m)	One dunlin calling near main access track at 8,000 m.
B0026	BBS	13/05/19	16:55	EA	Ad.	1			1	4404	Main access track (c. 8000m)	Adult, judged to be a male on size. Slow flight south-west, at 'High' height.
B0026	BBS	13/05/19	17:15	GP	Ad.	1	1		2	4604	Allt na Feithe Gobhlaich lochans	Pair calling from ground, very close to hydro track.
B0023	BBS	14/05/19	08:35	OP	Ad.			1	1	4604	Allt na Feithe Gobhlaich lochans	Adult osprey with fish (approx. 20 cm long) observed resting approx. 50 m to north of spine road by middle of reservoir.

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0023	BBS	14/05/19	09:20	EA	Ad.	1		1	1	8	Glendoe Reservoir	Male golden eagle observed soaring to the south of Dubh Lochan (West). It then flew off to the east and out of view (Medium height, 90 secs).
B0023	BBS	14/05/19	10:10	OP	Ad.			1	1	13	Dubh Lochan (West)	Adult osprey recorded attempting to fish on Lochan Lain, although unsuccessful. It then flew off to the east (possibly to try the other two lochans) and out of view.
B0027	BBS	14/05/19	11:57	KT	Ad.			1	1	11	Lochan Lain	Circling, at 'High' and 'Very High' heights.
B0052	Raptor	14/05/19	12:31	EA	Ad.		1		1	See Confidential Annex		See Confidential Annex
B0052	Raptor	14/05/19	12:32	EA	Ad.	1			1	4606	Coire Odhar	Flew with female for a while.
B0027	BBS	14/05/19	12:48	WE	Ad.			1	1	5604	Allt Uaine Mhachair	Adult, probably male (on size). Flying very low over slope, heading west and then gaining height.
B0053	Raptor	14/05/19	13:29	WE	Sub-Ad.			1	1	5299	Coire Gorm, south-east of Meall na h-Aisre.	Sub-adult hunting. Probably second calendar year bird. Moulting primaries on right wing.
B0052	Raptor	14/05/19	14:30	KT	Unk.			1	1	4706	Carn Odhar Uaine Osein	Hunting. Long flight.
B0052	Raptor	14/05/19	14:46	EA	Ad.	1			1	See Confidential Annex		See Confidential Annex
B0052	Raptor	14/05/19	15:07	WE	Ad.			1	1	4704	Carn Odhar Uaine Osein	Hunting.
B0052	Raptor	14/05/19	16:19	EA	Ad.	1			1	See Confidential Annex		See Confidential Annex.
B0024	BBS	15/05/19	15:00	EA	Ad.	1				4702	Carn na Cloiche	Adult male golden eagle circling over Carn na Cloiche, then flew north and out of view.
B0025	BBS	16/05/19	13:30	RH	Ad.	1			1	8	Glendoe Reservoir	A male red-throated diver loafing, and occasional attempts at fishing towards the southwest end of the reservoir for c. 15 minutes.
B0054	Raptor	11/06/19	09:45	KT	Ad.			1	1	5503, 5403	Arom Chalybeate Spring	Adult hunting at Very Low and Low heights.

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0054	Raptor	11/06/19	09:49	ML	Ad.		1		1	5404, 5403	Allt Ruighe am t-Sidhein	Adult female hunting at Low and Very Low heights.
B0054	Raptor	11/06/19	09:53	KT	Ad.			1	1	5505, 5403, 5402	Allt Ruighe am t-Sidhein	Adult hunting. Possibly same bird as seen earlier but may have been a second individual.
B0044	BBS	13/06/19	14:00	CX	Ad.	1				8	Glendoe Reservoir	A single male common scoter feeding at the reservoir.
B0049	Greenshank	21/06/19	08:45	CX	Ad.	1	1		2	8	Glendoe Reservoir	Adult pair together on Glendoe Reservoir, and in flight over it.
B0049	Greenshank	21/06/19	09:00	T.	Ad. & juv.		1	1	2	8	Glendoe Reservoir	Adult female with one medium-sized chick.
B0049	Greenshank	21/06/19	09:05	T.	Ad. & juv.	7	1	2	10	10	Glendoe Reservoir (NE lagoons)	Seven adult drakes, one adult female and two chicks.
B0049	Greenshank	21/06/19	09:05	WN	Ad.		2			10	Glendoe Reservoir (NE lagoons)	Two adult females.
B0049	Greenshank	21/06/19	09:15	RP	Ad.			1	1	9	Allt na Feithe Gobhlaich lochans	Adult on suitable territory.
B0049	Greenshank	21/06/19	09:18	KT	Ad.			1	1	10	Glendoe Reservoir (NE lagoons)	Adult hunting along trackside.
B0049	Greenshank	21/06/19	09:37	T.	Ad.		1		1	4803	Meall Caca Beag	Adult female flushed from peat hagg/stream. No sign of nest or chicks.
B0049	Greenshank	21/06/19	09:52	GK	Ad.	1			1	See Confidential Annex		Adult male on territory, calling from tussock.
B0049	Greenshank	21/06/19	11:29	KT	Ad.			2	2	5402	Allt an Dearg Lochain	Adults hunting at Low and Very Low heights.
B0049	Greenshank	21/06/19	11:30	CS	Pr	1	1		1	5103	Allt Creag Chomaich	Pair on territory.
B0049	Greenshank	21/06/19	11:35	CS	Pr	1	1		2	5002	Allt Creag Chomaich	Pair on territory.
B0049	Greenshank	21/06/19	12:00	GK	Ad.			3	3	See Confidential Annex		Three adults together.

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0049	Greenshank	21/06/19	12:10	CS	Ad.			1	1	5403	By sluice on the Allt Ruighe am t-Sidhein	Adult on territory, calling.
B0049	Greenshank	21/06/19	13:15	DN	Ad.	3			3	11	Lochan Lain	Three displaying males on suitable breeding territory.
B0049	Greenshank	21/06/19	13:25	T.	Ad.	1	1		2	11	Lochan Lain	Pair of adults.
B0049	Greenshank	21/06/19	13:46	DN	Ad.	1			1	17	Loch na Lairige	Adult male singing on suitable territory.
B0055	Raptor	27/06/19	10:50	EA	Ad.			1	1	4301	Garbh Choire	Adult flew across valley then stooped onto perch on side of valley. Too distant to sex or to see on perch.
B0055	Raptor	27/06/19	13:10	EA	Imm	1	1		2	5101	Carn na Gourach	Seen on approach to VP. Both birds were first summer birds with extensive white on upper and lower wings and on tail. Size difference suggested male and female. Circled up together, drifting off south-east. Initially only at Low height before climbing to Very High height.
B0055	Raptor	27/06/19	13:28	WE	Imm			1	1	5100, 5101	Carn na Gourach, Allt Creag Chomaich	Near adult bird dropped into view before landing on ground in front of VP, out of view. Possibly a carcass on the ground? May explain the presence of three eagles in the same area.
B0055	Raptor	27/06/19	14:00	EA	Ad.		1		1	5001	Sidhean Dubh na Cloiche Bàine	Adult female in Low flight from the west. Tagged bird. Circled then landed. Not in same place as the WE (above), but did appear to be feeding on something. Took off and hunted Low and Very Low to south-east of VP. Dropped behind ridge at 14:10. No response from WE, which had not been seen to fly off by this point.
B0055	Raptor	27/06/19	14:40	KT	Ad.			1	1	5002	Allt Creag Chomaich	Adult hunting at Low height.
B0045	BBS	01/07/19	~	GK	Ad.			1	1	See Confidential Annex		Flew from heath. Rose while calling and heading slowly north-west.
B0064	BBS	02/07/19	09:10	GK	Ad.			1	1	See Confidential Annex		Greenshank repeatedly alarm calling and flying.

Survey Ref.	Survey Focus	Date	Time	BTO Code	Age (s)	No. (M)	No. (F)	No. (Unk.)	No. (Tot.)	Waterbody ID / Grid Sq.	Location	Notes
B0058	Raptor	26/07/19	10:36	K.	Juv.		1		1	4403	West of Glendoe Dam	Juvenile female hunting.
B0059	Raptor	26/07/19	12:53	K.	Unk.			1	1	4705	Allt na Fèithe Gobhllaich	Only seen briefly above ridge, hunting, then dropped out of view.
B0059	Raptor	26/07/19	14:13	EA	Ad.	1			1	4705	Allt na Fèithe Gobhllaich	Adult male hunting.

