Balliemeanoch Pumped Storage Hydro

Environmental Impact Assessment Report

Volume 5: Appendices
Appendix 9.1: Ornithology

ILI (Borders PSH) Ltd

July 2024

Delivering a better world

Quality information

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Revision History

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1	July 2024	Submission	DL	David Lee	Technical Director

Distribution List

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Appendix 9.1 Ornithology

Introduction

This appendix accompanies Chapter 9: Ornithology of the EIAR (Volume 2). It describes in detail the desk study and field survey carried out to establish the baseline conditions within the zone of influence (ZoI) of the Development with respect of bird species.

Certain raptor and other rare species are regarded by NatureScot as being vulnerable to persecution, for which reason the precise location of breeding sites of these species are confined to Confidential Appendix 9.1 (Volume 6).

Throughout this appendix, species are given their common and scientific names when first referred to and their common names only thereafter. All distances are cited as the shortest distance 'as the crow flies', unless otherwise specified.

This Appendix is supported by the following Figures located at the end of this document:

- 9.1.1 Ornithology Survey Areas
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Legislative and Planning Policy Context

Relevant Legislation

All species of wild bird are protected by the Wildlife and Countryside Act 1981 (as amended) (hereafter abbreviated to the 'WCA'), which makes it an offence to intentionally or recklessly:

- Kill, injure or take a wild bird;
- Take, damage, destroy or interfere with a nest of any wild bird while it is in use or being built;
- Obstruct or prevent any bird from using its nest;
- Take or destroy an egg of any bird.

In addition, a number of rare bird species are listed on Schedule 1 of the WCA and receive further legal protection which makes it an offence to intentionally or recklessly disturb these species whilst they are building a nest or while they are in, on or near a nest which contains eggs or young. It is furthermore an offence to disturb the dependent young of these species.

Under the Nature Conservation (Scotland) Act 2004, public bodies in Scotland have a duty to further the conservation of biodiversity. The Scottish Biodiversity List (SBL) is a list of habitats, plants and animals that Scottish Ministers consider to be of principal importance for biodiversity conservation in Scotland. The purpose of the SBL is to identify habitats and species that are of highest priority for biodiversity conservation, thereby helping public bodies to carry out their biodiversity duty. There are 105 bird species on the SBL, many which may occur within the ZoI of the Development.

Relevant Planning Policy

National Planning Policy

National Planning Framework 4 (NPF4) was formally adopted by Scottish Ministers on 13 February 2023. NPF4 includes the following statements of policy intent: "*To protect, restore and enhance natural assets making best use of nature-based solutions*" and "*To protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks*". Wherever possible, and proportionate to the scale and nature of the project, the Development should therefore seek to deliver benefits for biodiversity, in addition to protecting existing biodiversity. NPF4 also states that major development will only be supported where nature networks "*are in a demonstrably better state than without intervention*" using best practice and including future monitoring and management where appropriate.

Prior to the UK's exit from the European Union (EU), Scotland's Special Areas of Conservation (SACs) and Special Protection Areas (SPAs) were part of a wider European network of such sites known as the 'Natura 2000 network'. They were consequently referred to as 'European sites'. Now that the UK has left the EU, Scotland's SACs and SPAs are no longer part of the Natura 2000 network, but instead form part of a UK-wide network of designated sites referred to as the 'UK site network'. However, it is current Scottish Government policy to retain the term 'European site' to refer collectively to SACs and SPAs[1].

Local Planning Policy

The Argyll and Bute Local Development Plan 2 (LDP2) was adopted February 2024. Planning policy relevant to nature conservation and the Development contained within LDP2 is summarised in Table 1. Further details are presented in the Planning Statement for the Development, and are available from the Argyll and Bute Council website (https://www.argyll-bute.gov.uk/planning-and-building/planning-policy/local-development-plan-2).

Table 1 Summary of Potentially Relevant Policies within the Argyll and Bute LDP2

Planning Policy	Summary of Purpose
Policy 30 – The Sustainable Growth of Renewables	The Council will support renewable energy developments where these are consistent with the principles of sustainable development and it can be adequately demonstrated that there would be no unacceptable environmental effects, including on ecological features.
Policy 73 – Development Impact on Habitats, Species and Biodiversity	Argyll and Bute Council will, when assessing development proposals, consider relevant nature conservation legislation, the Argyll and Bute Biodiversity Strategy and Action Plan, and the Scottish Biodiversity Strategy. Developments may be required to complete a biodiversity checklist related to the scale, nature and location of the project. Where a development is likely to have effects on important habitats or species, the Council will require the developer to undertake appropriate surveys and, if necessary, to prepare a mitigation plan. Development proposals that are likely to have an adverse effect on protected species and habitats will only be permitted where it can be justified in accordance with the relevant protected species legislation.
Policy 74 – Development Impact on Sites of International Importance	This policy relates to the need for developments which could affect European sites to comply with the Habitats Regulations and the Council's requirements for HRA.
Policy 75 – Development Impact on Sites of Special Scientific Interest (SSSIs)	This policy seeks to control development that could have adverse effects on SSSIs. Where adverse effects on a SSSI are possible, the Council will only permit development where there is a proven public interest and benefit where social, economic, environmental or safety considerations of national important outweigh the ecological interest of the site and the need for the development cannot be met in other, less ecologically damaging locations or by reasonable alternative means.
Policy 76 – Development Impact on Local Nature Conservation Sites (LNCS)	Controls development that could have adverse effects on LNCS.
Policy 77 – Forestry, Woodland and Trees	This policy protects ancient semi-natural woodland, native or long-establish woods, hedgerows and individual trees with high nature conservation value, as well as other trees which do not fall into these categories. The Council will require appropriate mitigation to protect trees and/or to compensate for any lost trees.

[1] Scottish Government (2020). EU Exit: The Habitats Regulations in Scotland. December 2020. Available from: https://www.gov.scot/publications/eu-exit-habitats-regulations-scotland-2/.

Planning Policy	Summary of Purpose
Policy 78 – Woodland Removal	Where it has been demonstrated that it is not possible for a development to retain trees, then it will be necessary for compensatory planting to be provided. Compensatory planting should be provided on-site, with off-site planting being less preferred. Re-planting of trees should be as a minimum on a like-for-like basis relative to the area lost to the development.

Biodiversity Guidance

Birds of Conservation Concern

The Birds of Conservation Concern 5 (BoCC) (Stanbury *et al*, 2021) places birds into 'Red', 'Amber' and 'Green' lists, using standardised quantitative criteria to indicate the level of conservation concern surrounding each species. Species on the Red List are of highest conservation concern and may be Globally Threatened (under International Union for Conservation of Nature (IUCN) guidelines and assessed by BirdLife International) or have experienced breeding or wintering population declines or range contractions of more than 50% over 25 years. The Amber List contains species which have European Red List status (BirdLife International, 2015) and/or have experienced breeding or wintering population declines or range contractions of more than 25% (but less than 50%) in 25 years. Green listed bird species do not fall into any of these categories and are of lowest conservation concern.

Argyll and Bute Biodiversity Strategy and Action Plan

The Argyll and Bute Biodiversity Strategy and Action Plan (herein referred to as the 'Argyll and Bute LBAP') sets out Argyll and Bute Council's commitment to embedding sustainable development into its services, and to conserving biodiversity in compliance with its biodiversity duty. The LBAP provides a framework for strengthening existing capacity for biodiversity and documents the entire range of Council strategies and plans that support biodiversity conservation.

The LBAP identifies a range of key habitats and species for conservation in Argyll and Bute. The following LBAP habitats are potentially relevant to the Development:

- Atlantic woodland;
- Improved grassland;
- Flowing waters;
- Freshwater lochs;
- Peatlands;
- Planted conifer forest;
- Unimproved grassland.

In addition, the following LBAP bird species may occur within the ZoI of the Development:

- Black-throated diver *Gavia arctica*;
- Black grouse *Tetrao tetrix*;
- Golden eagle *Aquila chrysaetos*;
- Hen harrier *Circus cyaneus*;
- Skylark *Alauda arvensis*;
- Song thrush *Turdus philomelos*;
- White-tailed eagle *Haliaeetus albicilla*.

Methods

Desk Study

A desk study was carried out to identify nature conservation designations and records of important (as defined in Section 9.5.2 of Chapter 9 of the EIAR) bird species potentially relevant to the Development. A stratified approach was taken when defining the desk study area, based on the likely ZoI of the Development on different ornithological features. Accordingly, the desk study sought to identify:

- International nature conservation designations within 10km of the Development Site (or further afield where there is clear connectivity, for example through hydrological linkage or where the qualifying species are known to range over a wider distance than this);
- National statutory nature conservation designations within 2km of the Development Site;
- Local non-statutory nature conservation designations within 1km of the Development Site;
- Records of important bird species within 1km of the Development Site, this being extended to 6km for raptor species listed on Schedule 1 of the WCA.

The desk study was carried out using the data sources detailed in Table 2.

Table 2 Desk Study Data Sources

Data Source	Date Last Accessed	Data Obtained
NatureScot SiteLink website (https://sitelink.nature.scot/home)	24 January 2024	• Information on international and national statutory designations within the ZoI of the Development.
Ordnance Survey (OS) 1:25,000 maps	24 January 2024	• Habitats and connectivity relevant to interpretation of planning policy and potential presence of important ornithological features.
Bing Maps aerial imagery (https://www.bing.com/maps/)	24 January 2024	
Argyll and Bute Council website (https://www.argyll-bute.gov.uk/)	24 January 2024	• Local Development Plan policies relevant to nature conservation. • Argyll and Bute LBAP information. • Relevant planning applications which could give rise to cumulative effects.
Argyll and Bute Council Open Data website (https://data-argyll-bute.opendata.arcgis.com/datasets/d05f7337b41e48b4af933404dc0592a2/explore)	06 July 2023	• Local non-statutory nature conservation designations within 1km of the Development Site.
NatureScot	19 December 2018	• Confidential reports on golden eagle ranges within the potential ZoI of the Development.
Argyll Raptor Study Group	28 October 2023	• Information on the breeding locations of raptors within approximately 2km of the Development site, extended to approximately 6km for golden eagle and white-tailed eagle.
Natural Research	08 February 2024	• Data from two satellite tagged golden eagles referred to as 582 and 816, which have home ranges overlapping the Development Site, were obtained.

The proposed jetty location on Loch Fyne lies within a vacant British Trust for Ornithology (BTO) Wetland Bird Survey (WeBS) core count area referred to as 'Loch Fyne SE Otter Ferry to Inverary'. According to the BTO website (https://app.bto.org/webs-reporting/numbers.jsp?locid=LOC650733), no data for this site have been submitted since 1987, making any data very old and unreliable for the purposes of this EIA. No WeBS data were therefore obtained as part of the desk study.

Field Survey

Ornithology field surveys were carried out in the vicinity of the Headpond, access tracks and other infrastructure associated with the Development between November 2018 and July 2021. All surveys followed the *Recommended bird survey methods to inform impact assessment of onshore wind farms* (SNH, 2017), as well as other relevant guidance referred to in the following sub-sections, including:

- The Brown and Shepherd (1993) methodology for censusing upland waders;
- Species-specific approaches for surveying raptors described in Hardey *et al* (2013);
- Other species-specific methodologies described in Gilbert *et al* (1998), including for breeding divers and lekking black grouse.

The following survey areas were used for bird survey, with all buffers being based around the layout of infrastructure associated with the Development:

- Vantage point (VP) – four vantage points were chosen to cover the Headpond location plus a buffer of approximately 500m. Viewshed analysis was carried out using Esri ArcGIS software, optimising ground-level visibility to increase the chances of observing low flying birds;
- Moorland breeding bird survey – all areas of blanket bog and heath habitat within a 500m buffer;
- Breeding raptor survey – all suitable habitat within 2km buffer;
- Breeding eagle survey – all suitable habitat within a 6km buffer, but not including a minority of ground within this buffer on the opposite (north-west) side of Loch Awe where no impact on eagles from the Development is considered likely;
- Breeding diver survey – all waterbodies within a 1.5km buffer;
- Black grouse lek survey – all suitable habitat within a 1.5km buffer;
- Common Bird Census – all suitable habitat within 50m of infrastructure proposed around the town of Inverary;
- Coastal waterbird survey – waterbirds were counted along a length of coastline approximately 1km north-east to 1km south-west of the of the proposed jetty on Loch Fyne.

The survey areas described above are shown on Figure 9.1.1.

All field surveys were carried out by experienced ornithologists, operating, where necessary, under valid Schedule 1 survey licence.

Vantage Point Survey

Vantage point survey was completed from four locations between November 2018 and October 2019 (see Figure 9.1.1). Full details of the VP surveys are given in Table A1 in Annex A to this appendix. A summary of the VP survey effort between November 2018 and October 2019 is given below in Table 3. Although for reasons of adverse weather or access restrictions there were certain months where less than six hours of VP survey were carried out from each VP, at least 36 hours of survey were completed from each VP in the 2019 breeding season and across the combined 2018/19 and 2019/20 non-breeding season survey periods. In total, 174 hours of survey were completed in the non-breeding season and 147 hours in the breeding season, giving a total VP survey effort of 321 hours.

Table 3 Summary of VP Survey Effort

		Hours of Survey				
Season	**Month**	**VP1**	**VP2**	**VP3**	**VP4**	**Total**
Non-breeding (2018/19)	November 2018	6	6	0	0	12
	December 2018	6	6	12	12	36
	January 2019	12	12	9	9	42
	February 2019	12	12	15	15	54
Breeding (2019)	March 2019	3	2	6	6	17
	April 2019	12	10	9	12	43
	May 2019	6	6	3	0	15
	June 2019	6	6	6	6	24
	July 2019	6	6	6	6	24
	August 2019	6	6	6	6	24
Non-breeding (2019/20)	September 2019	6	3	6	6	21
	October 2019	6	0	0	3	9
Non-breeding season totals		**48**	**39**	**42**	**45**	**174**
Breeding season totals		**39**	**36**	**36**	**36**	**147**

VP surveys followed the methods described in SNH (2017). The surveys were carried out during daylight hours, including around sunrise and sunset, at which times certain species may be more active. Each survey lasted for a maximum of three hours, with a minimum of thirty minutes break between each three-hour survey.

Target species recorded during the VP surveys were:

- All raptor species listed on Schedule 1 of the WCA;
- All diver species;
- All wader species;
- All geese, swans and ducks;
- Black grouse.

Kestrels *Falco tinnunculus*, buzzards *Buteo buteo*, ravens *Corvus corax*, red grouse *Lagopus lagopus*, grey heron *Ardea cinerea* and gulls were also recorded as secondary species.

The flight lines of all recorded target species were drawn and flight heights estimated at fifteen second intervals. Any other observations of note were also recorded, including evidence of territorial behaviour.

Throughout this appendix, when describing the results of VP surveys, the term 'individual' is used to give an indication of the level of flight activity by particular species. However, the term 'individual' when used in this capacity does not necessarily mean different birds. Rather, 'individual' is used to illustrate the number of birds recorded in a single flight observation. For example, a flight by two birds would represent one flight, involving two individuals. The same two birds recorded together later in the same survey would represent another one flight, involving two individuals. The total for that survey would therefore be two flights, involving four individuals, even though only two different birds were present. Therefore, in summary, the number of 'individuals' is not necessarily the number of different birds but is a reflection of the level of flight activity by a species.

Moorland Breeding Bird Survey

Survey for moorland breeding birds was carried out within the footprint of Development infrastructure plus an approximately 500m buffer, following an adapted version of the methodology for surveying upland waders (Brown and Shepherd, 1993). In line with recommendations made by Calladine *et al* (2009), four survey visits were made between April and July in 2019, as detailed in Table 4. As noted below, access was limited to areas in the south-east of the Development Site and the majority of the southern access track. However, the survey in this month did cover the area around Lochan Airigh, the proposed Headpond location. During the moorland breeding bird survey, waders and passerines, with the exception of meadow pipit *Anthus pratensis,* were recorded. Meadow pipit was not recorded because the constant recording of this very abundant species in this habitat is liable to distract surveyors and thus hinder recording of more notable species.

Table 4 Moorland Breeding Bird Survey Visit Details

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
09/04/2019	1	08:40 – 15:55	ND	Wind 2-5 SW, Precipitation 0, Cloud 1-2 and high, Visibility >2km
10/04/2019	1	08:55 – 16:10	ND	Wind 0-3 SE, Precipitation 0, Cloud cover 0, Visibility >2km
11/04/2019	1	09:00 – 16:10	ND	Wind 0-3 E, Precipitation 0, Cloud cover 1-7 and high, Visibility >2km
25/04/2019	1	08:30 – 16:30	CN	Wind 2-3 E, Precipitation 0, Cloud Cover 2-5, Cloud Height >900m, Visibility >3km
26/04/2019	1	08:30 – 15:40	CN	Wind 4 SW, Precipitation light drizzle at start and end but none otherwise, Cloud Cover 6-8, Cloud Height >900m, Visibility mainly <1km
07/05/2019	2	09:45 – 18:20	AF	Wind, 0-3 E, Precipitation 0, Cloud Cover 4-8, Cloud Height >900m, Visibility >3km
09/05/2019	2	09:30 – 18:15	AF	Wind, 0-2 E, Precipitation occasional mild showers after 1400, Cloud Cover 6-8, Cloud Height >900m, Visibility >3km
15/05/2019	2	11:30 – 17:30	AF	Wind, 2-3 SSE, Precipitation 0, Cloud Cover 1-5, Cloud Height >900m, Visibility >3km
16/05/2019	2	06:30 – 15:25	AF	Wind, 2-4 S, Precipitation 0, Cloud Cover 0-5, Cloud Height >900m, Visibility >3km
20/05/2019	2	12:40 – 19:40	AF	Wind, 2-4 NW, Precipitation none, Cloud Cover 4-7, Cloud Height >900m, Visibility >3km
10/06/2019	3	15:15 – 20:30	AF	Wind, WNW 2 at start and end, NE 3 in middle, Precipitation 0, Cloud Cover 2-8, Cloud Height >900m, Visibility >3km

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
17/06/2019	3	10:00 – 18:40	AF	Wind, WNW 2 at start and end, NE 3 in middle, Precipitation none, Cloud Cover 2-8, Cloud Height >900m, Visibility >3km
18/06/2019	3	10:30 – 17:50	AF	Wind, 1-3 SW, Precipitation Some light showers throughout heavy at times between 1300 and 1500, Cloud Cover 8, Cloud Height >900m, Visibility >3km
19/06/2019	3	10:45 – 16:45	TM	Wind, 3 W, Precipitation Heavy rain between 1230 and 1330, Cloud Cover variable - some sunshine, Cloud Height >900m, Visibility >3km
19/06/2019	3	10:10 – 17:30	AF	Wind, 3 W, Precipitation Heavy rain between 1230 and 1330, Cloud Cover variable - some sunshine, Cloud Height >900m, Visibility >3km
21/06/2019	3	11:05 – 15:00	AF	Wind, 2W, Precipitation Occasional, Cloud Cover 8, Cloud Height >900m, Visibility >3km
19/07/2019	4	11:11 – 18:50	AF	Wind, 1-4 SE, Precipitation drizzle from 1700, Cloud Cover 4-8, Cloud Height >900m, Visibility >3km
23/07/2019	4	11:00 – 16:45	AF	Wind, 2-4 SW, Precipitation none, Cloud Cover 4-8, Cloud Height >900m, Visibility >3km

Pre-determined survey routes were devised which allowed surveyors to approach all parts of the survey area to within at least 100m. Surveyors maintained a constant speed, covering 500m^2 quadrats in 20 to 25 minutes. The route taken to walk the moorland breeding bird survey transects was varied between survey visits. Stops were made at regular intervals to scan for birds and to listen for song and calls. Surveys were carried out between 08:00 and 18:00 in most cases. One survey extended to 20:30 to aid detection of crepuscular wader activity. Surveys were conducted in generally favourable weather conditions with good visibility and wind speeds below Beaufort force 4.

Birds encountered were recorded and mapped onto a suitably scaled OS field map using standard BTO notation, including a description of activity / behaviour. Where necessary, additional field notes were taken.

Breeding Raptor and Eagle Survey

Survey for breeding raptor species listed on Annex I of the Birds Directive[2] and/or Schedule 1 of the WCA was carried out in all areas of suitable habitat within 2km of proposed infrastructure, this being extended to 6km for golden eagle and white-tailed eagle. Surveys were carried out between February and August 2019, inclusive, and were conducted under favourable weather conditions, in particular avoiding persistent heavy rainfall. Survey details are provided in Table 5.

Table 5 Breeding Raptor and Eagle Survey Visit Details

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
18/02/2019	1	10:40 – 17:30	TG	Wind 3-4 SW, Precipitation light to heavy showers, Cloud Cover 7-8, Visibility > 3km, Frost: none, Snow: none, Temperature 7ºC
18/02/2019	1	11:00 – 17:55	AF	Wind 0-3 S to SW, Precipitation light showers to heavy rain, Cloud Cover 8, Visibility usually > 3km but hazy, Frost: none, Snow: none, Temperature 8ºC
19/02/2019	1	09:25 – 16:40	AF	Wind 2 SW, Precipitation 0, Cloud Cover 8, Cloud Height 150-900m, Temperature 8ºC, Frost: none, Snow: none
19/02/2019	1	09:30 – 16:25	TG	Wind 1-3 S, Precipitation 0, Cloud Cover 8, Cloud Height >900m, Temperature 6-7ºC, Frost: none, Snow: none
02/04/2019	2	12:00 – 19:25	AF	Wind 1-4 W, Precipitation rain and hail showers, Cloud Cover 8, Cloud height 150-900m, Visibility mainly >3km, Temperature 6-8ºC
02/04/2019	2	11:30 – 17:00	ND	Wind 1-4 W, Precipitation rain and hail showers, Cloud Cover 8, Cloud height 150-900m, Visibility mainly >3km, Temperature 6-8ºC
04/04/2019	2	10:30 – 16:00	TM	Wind 3-4 E, Precipitation snow and hard showers, Cloud cover 6-8ºC

[2] Directive 2009/147/EC on the conservation of wild birds, which is more commonly known as the 'Birds Directive'.

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
05/04/2019	2	10:00 – 14:00	AF	Wind 1-2 SE, Precipitation 0, Cloud Cover 4, Cloud Height >900m, Visibility >3km, Temperature 12-13°C, Frost: 0, Snow 0
25/04/2019	2	11:00 – 14:00	CN	Wind 2-3 E, Precipitation 0, Cloud Cover 2-3, Cloud Height >900m, Visibility >3km, No Snow or Frost
07/05/2019	3	13:25 – 18:30	AF	Wind, 1-2 SW, Precipitation 0, Cloud Cover 5-7, Cloud Height >900m, Visibility >3km, Temp: 13°C, Frost: none, Snow 0
21/05/2019	3	08:30 – 14:30	AF	Wind 2-4 W, Precipitation 0, Cloud Cover 6-7, Cloud Height >900m, Visibility >3km, Temperature 13°C, Frost: 0, Snow 0
23/05/2019	3	12:25 – 17:10	AF	Wind 1-2 W, Precipitation none, Cloud Cover 6-8, Cloud Height >900m, Visibility >3km, Temperature 10°C, Frost: 0, Snow 0
28/05/2019*	3	15:20 – 20:30	AF	Wind, 1-3 S, Precipitation 0, Cloud Cover 2-4, Cloud Height >900m, Visibility >3km, Temp: 14°C, Frost: none, Snow 0
16/07/2019	4	10:20 – 17:00	AF	Wind, 1-2 SW, Precipitation 0, Cloud Cover 2-6, Cloud Height ?, Visibility >3km, Temp: 21-23°C, Frost: none, Snow 0
05/08/2019	4	14:35 – 16:05	AF	Wind, 1-2 S, Precipitation 0, Cloud Cover 6-7, Cloud Height >900m, Visibility >3km, Temp: 18-19°C, Frost: none, Snow 0

* Included survey for breeding divers.

During preliminary visits, all suitable nesting habitats (such as areas of deep heather *Calluna vulgaris*, rocky crags or other areas of dense vegetation) within the survey area were searched for signs of occupancy. This involved a walkover of the survey area, with short *ad hoc* vantage point watches being made from suitable locations to observe birds and any behaviour indicative of breeding (for example, displaying, alarm calling, etc.). Searches were also made in potentially suitable locations for evidence of raptor presence, including prey remains, plucking posts, pellets, etc. All raptor species (or evidence) encountered were recorded and mapped onto suitably scaled OS maps. Any suspected or confirmed nest sites were also described and accurately mapped. Extended vantage point watches were made from a suitable distance to avoid disturbance. Observations of activity and behaviour were made, and the numbers of chicks / fledged birds noted where possible.

With the exception of golden eagle, for which access was constrained (see further below), no Schedule 1 or Annex I raptor species exhibited breeding behaviour and therefore further surveys to monitor breeding success were not required. In the case of golden eagle, visits were made to vicinities of eyries before and after the likely nesting periods when disturbance was no longer a risk.

Breeding Diver Survey

Targeted searches were conducted for breeding red-throated diver *Gavia stellata* and black-throated diver. The surveys were designed following the species-specific guidelines in Gilbert *et al* (1998). Two survey visits were made, one in late-May and one in July 2019, as detailed in Table 6.

Table 6 Breeding Diver Survey Visit Details

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
22/05/2019	1	11:50 – 19:15	AF	Wind W 1-3, Precipitation 0, Cloud Cover 6-8, Visibility >3km, Temperature 11-12°C.
28/05/2019	1	15:20 – 20:30	AF	Wind W 1-3, Precipitation 0, Cloud Cover 2-4, Visibility >3km, Temperature 14°C.
29/05/2019	1	10:30 – 17:15	AF	Wind W 0-2, Precipitation 0, Cloud Cover 8, Visibility >3km, Temperature 10°C.
29/05/2019	1	11:00 – 16:30	ND	Wind W 0-3, Precipitation 0, Cloud Cover 8, Visibility >3km, Temperature 10°C.
01/07/2019	2	12:50 – 18:25	AF	Wind W 1-3, Precipitation 0, Cloud Cover 8, Visibility >3km, Temperature 18°C.
02/07/2019	2	10:45 – 18:00	AF	Wind W 1-2, Precipitation 0, Cloud Cover 0, Visibility >3km, Temperature 18°C.
03/07/2019	2	11:35 – 17:55	AF	Wind W 1-4, Precipitation light showers during three hours, Cloud Cover 8, Visibility >3km, Temperature 15°C.

All potentially suitable waterbodies within 2km of proposed infrastructure were searched for the presence of divers. Viewing was initially done from a distance using telescope and binoculars to scan the surface of the water and shoreline of the waterbodies. In instances where no birds were observed on a waterbody, surveyors slowly approached and once satisfied that divers were absent, walked the entire perimeter to look for empty nest scrapes or signs that birds may have attempted to breed but had failed (for example, broken eggshells or dead chicks). Any other notes of relevance, including the presence of disturbance sources and/or evidence of predators, such as otter *Lutra lutra* and grey heron, were also recorded.

If any divers were detected on a waterbody, their behaviour was observed, taking particular note of evidence that breeding may be taking place, such as birds displaying, copulating or going ashore.

Lekking Black Grouse Survey

Survey for lekking (displaying) black grouse followed the methods described for this species in Gilbert *et al* (1998). Survey dates and weather conditions are given in Table 7.

Table 7 Lekking Black Grouse Survey Visit Details

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
09/04/2019	1	05:15 – 08:35	JD	Wind 1-4, Cloud Cover 85%, No precipitation, Visibility good.
10/04/2019	1	07:00 – 09:00	JD	Wind 0-33 on higher sections, Cloud Cover < 5%, Precipitation none, visibility good.
11/04/2019	1	06:20 – 08:30	JD	Wind 1, Cloud Cover 5%, Precipitation none, Visibility good.
12/04/2019	1	05:45 – 07:40	ND	Wind 1-4 gusting mainly still, Cloud Cover 40%, Precipitation none, Visibility good.
08/05/2019	2	04:30 – 07:05	CA	Wind 2-3, Cloud Cover 95%, Precipitation none, Temperature 5-7ºC, Visibility good.
08/05/2019	2	04:30 – 07:45	JD	Wind 2, Cloud Cover 50-70%, Precipitation occasional light rain, Visibility good.
09/05/2019	2	05:20 – 06:45	CA	Wind 2, Cloud Cover 100%, Precipitation none, Visibility good.
10/05/2019	2	05:00 – 06:30	JD	Wind 0 occasional gusts, Cloud Cover 80%, Precipitation very light until 06:30 then drizzle, Visibility good.

Areas considered potentially suitable for black grouse (for lekking or as generally suitable supporting habitat) within approximately 1.5km of Development infrastructure were identified by inspection of aerial photography and field survey. Surveys were conducted in generally dry and calm weather and typically commenced approximately one hour before dawn and continued until at least one hour after sunrise. Surveyors walked slowly, listening for lekking black grouse and scanning from suitable vantage point locations with binoculars. All suitable areas were visited on at least two occasions in April and May 2019.

Surveys were conducted in dry and calm weather and involved surveyors walking slowly, listening for lekking black grouse and scanning from suitable vantage point locations with binoculars. Where a lek was found, the number of males present was recorded, in addition to any females observed.

Common Bird Census

A modified version of the Common Bird Census (CBC), as described in Gilbert *et al* (1998), was used to survey the breeding bird assemblage within the proposed footprint of infrastructure around Inveraray plus a 50m buffer. Three CBC survey visits were made between May and July 2021, inclusive, as detailed in Table 8. Three visits was considered an adequate survey effort, and is common practice, rather than the ten visits prescribed by CBC methodology, to provide a reasonable indication of the numbers of breeding birds in the survey area, to determine the breeding bird assemblage, and to identify species which may potentially be affected by the Development. All surveys were carried out during favourable weather conditions of light winds (below Beaufort force 4), with no heavy precipitation and good visibility. Surveys were carried out as far as possible in the early morning, avoiding the period immediately after sunrise.

A pre-determined transect route was walked by experienced ornithologists that allowed all parts of the survey area to be approached to within 50-100m, depending upon the degree of openness of particular parts of the survey area.

Binoculars were used to scan all parts of the survey area and surveyors included regular stops to listen for singing or calling birds. All of the birds observed, either by sight or sound, their locations and activity / behaviour were recorded on 1:10,000 scale OS field maps using standard BTO species codes and behaviour notation, as described in Gilbert *et al* (1998).

Table 8 Common Bird Census Survey Visit Details

Date	Survey Visit	Start Time / End Time	Surveyor	Weather
12/05/2021	1	05:15 – 09:40	ND	Wind 0, Precipitation 0, Cloud cover 4-7, Visibility good
10/06/2021	2	05:15 – 08:05	TM	Wind 0-1 S, Precipitation 0, Cloud cover 8, Visibility good, Temperature 14°C
14/07/2021	3	05:40 – 10:20	SJ	Wind 0, Precipitation 0, Cloud cover 7, Visibility good, Temperature 14-16°C

Non-breeding Coastal Waterbird Survey

Survey of non-breeding waterbirds[3] was carried out once per month from September 2020 to February 2021, inclusive, at the location of the proposed jetty on Loch Fyne, plus a buffer of approximately 1km. The surveys were stratified according to tide times and focused on high and low tides, to investigate use of the area by birds under different tidal conditions. Where possible, surveys were carried out from one hour before to one hour after the focal tide condition and comprised a similar number of high and low tide surveys.

The survey generally followed the method adopted by the BTO for the national WeBS scheme (https://www.bto.org/our-science/projects/wetland-bird-survey/taking-part/core-counts-methods), which itself is based on the 'look-see' method described in Bibby *et al* (2000).

All waterbirds encountered during the survey were counted and mapped. Gulls over-flying the survey area were not recorded. Details of the survey visits are given in Table 9.

Table 9 Non-breeding Coastal Waterbird Survey Visit Details

Date	Tidal State	Time of High / Low Tide	Start Time / End Time	Surveyor	Weather
24/09/2020	Low	11:16	11:10 – 13:10	TM	Wind N 1, Cloud Cover 1/8 >900m, Visibility >3km, Precipitation 0, snow none, frost none, Temperature 11°C
13/10/2020	High	10:52	10:25 – 12:25	AF	Wind N 0-2, Cloud Cover 6/8 >900m, Visibility >3km, Precipitation 0, snow none, frost none, Temperature 14-15 °C
16/11/2020	High	13:09	12:15 – 14:15	AF	Wind W 1-2, Cloud Cover 8/8 >150 to 900m, Visibility >3km, Precipitation light rain 43%, snow none, frost none, Temperature 9-10°C
04/12/2020	Low	08:26	07:55 – 09:55	AF	Wind NW 1-2, Cloud Cover 8/8 >150 to >900m, Visibility >1km, Precipitation sleet 8% snow 5% light rain10% Snow on site, frost all day, Temperature 2-3°C
07/01/2021	Low	12:36	11:36 – 13:36	AF	Wind 0, Cloud Cover 1/8 >900m, Visibility >3km, precipitation 0, snow on high ground, frost some persistent, Temperature 6-7 °C
24/02/2021	High	11:20	10:20 – 11:20	SJ	Wind SW 4-5, Cloud Cover 6/8, Visibility >3km, light drizzle / hail showers, Temperature 4-6°C.

Territory Analysis

The results of the moorland breeding bird survey and CBC were used to determine breeding activity and to estimate territorial locations of important species, which for the purposes of this assessment were considered to be species that are:

[3] The BTO define 'waterbirds' as wildfowl (ducks, geese and swans), waders, rails, divers, grebes, cormorants, herons, gulls and terns. This BTO definition has been adopted in this EIA.

- Qualifying features of Special Protection Areas or Wetlands of International Importance (Ramsar sites) within 10km (or further where connectivity exists) of the Development;
- On Annex 1 of the Birds Directive;
- On Schedule 1 of the WCA;
- Listed on the SBL;
- On the Argyll and Bute LBAP;
- On the Red List of BoCC;
- Species otherwise considered through professional judgement to have a degree of nature conservation interest for other reasons, for example by virtue of being a species with localised distribution (such as waders).

Esri ArcGIS software was used to digitise and collate all observations made during the moorland breeding bird and CBC survey visits. One or more records of territorial behaviour (e.g. singing, displaying or alarming, or the finding of nests or dependent young) were assumed to indicate a possible, probable or confirmed breeding territory, in accordance with BTO evidence codes, as shown in Table 10 (which has been adapted from the BTO Bird Atlas survey and is available at this link: https://www.bto.org/our-science/projects/birdatlas/methods/breeding-evidence). In line with the methods adopted by Calladine *et al* (2009), simultaneous registrations of waders were used to identify different territories. Where this was not possible, a distance of 500m between observations of the same species made on the same survey visit was assumed to indicate birds occupying different territories. This distance was increased to 1,000m for observations made on different visits. For passerines, obvious clusters of records were used to help identify breeding territories, taking into consideration the relevant ecologies of the species in question and using professional judgement.

Table 10 Breeding Evidence, Adapted from BTO Bird Atlas Survey

Non-breeding	Possible Breeding	Probable Breeding	Confirmed Breeding
• Flying over. • Species observed but suspected to be still on migration. • Species observed but suspected to be a summering non-breeder.	• Species observed in breeding season in suitable nesting habitat. • Singing male present (or breeding calls heard) in breeding season in suitable habitat.	• Pair observed in suitable nesting habitat in breeding season. • Permanent territory presumed through registration of territorial behaviour (e.g. song) on at least two different days, a week or more apart and at the same place, or many individuals on one day. • Courtship and display (judged to be in or near potential habitat). • Visiting probable nest site. • Agitated behaviour or anxiety calls from adults, suggesting probable presence of nest or young nearby. • Brood patch on adult examined in hand, suggesting incubation. • Nest building or excavating nest hole.	• Distraction display or injury feigning. • Used nest or eggshells (occupied or laid within period of survey). • Recently fledged young or downy young. • Adults entering or leaving nest in circumstances indicating occupied nest, or adults seen incubating. • Adult carrying faecal sac or food for young. • Nest containing eggs. • Nest with young seen or heard.

Limitations

The aim of the desk study was to help characterise the baseline context of the Development and provide valuable background information that may not be captured by field survey alone. Information obtained during the desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for particular species does not necessarily mean they do not occur in the study area. Likewise, the presence of records for a particular species does not automatically mean that these still occur within the area of interest or are relevant to the Development.

It was not always possible to carry out a full six hours at each VP per calendar month due to adverse weather conditions or access restrictions. Sometimes poor visibility necessitated repeat surveys. However, VP survey effort per breeding and non-breeding season was equal to or exceeded the required 36 hours recommended by SNH (2017).

Land access restrictions resulted in only part of the survey area being covered in July 2019. Areas unable to be accessed included land in the south-west and north-east of the Development Site, therefore the only areas surveyed in July were the south-east of the Development Site and the majority of the southern access track. However, the survey in this month did cover the area around Lochan Airigh, which lies within the proposed Headpond area and will therefore be subject to the greatest impacts from the Development.

No nocturnal surveys were carried out during the 2019 breeding season and this could potentially lead to an underestimation of the activity of some species, including short-eared owls *Asio flammeus*, grasshopper warbler *Locustella naevia* and certain waders such as snipe *Gallinago gallinago*. Incidental observations were, however, made of snipe and grasshopper warbler during bat surveys. Short-eared owl was not recorded at any time during the breeding survey programme, and since this species can be active during daylight hours, particularly during the breeding season when they may be provisioning young, it is considered to be likely absent as a breeding species. Suitable habitat for grasshopper warbler is highly localised at the Development Site, and this species was identified nearer Loch Awe.

Survey of a location suggested by the 2015 National Golden Eagle Survey to be a possible breeding location could not be surveyed during the main breeding season without significant risk of disturbing any birds present. However, visits prior to and towards the end of the breeding season provided strong evidence that this location was not used for breeding by golden eagles in 2019.

For the coastal waterbird survey, it was not possible for reasons of logistics and tide times to alternate low and high tides each survey visit. However, an equal number of high tide and low tide survey visits were completed, and this limitation is not considered significant.

There were no other significant limitations to the desk study, field survey or subsequent analysis which could affect the reliability of this impact assessment.

Results

Desk Study

A single international nature conservation designation exists within the desk study area: Glen Etive and Glen Fyne SPA. This is a large and predominantly upland site that rises from sea level to over 1,100m and encompasses a diverse range of habitats including moorland, rough grassland, blanket bog, native woodland, montane heaths and exposed rock and screen. The sole qualifying feature of the SPA is breeding golden eagle. According to the citation for the SPA (available from https://sitelink.nature.scot/site/10113), the site supported nineteen pairs in 2003, this representing more than 4.2% of the British population. At closest, the Glen Etive and Glen Fyne SPA is approximately 230m to the east of the northern access to the Development, off the A819 road.

There are no other SPAs or Wetlands of International Importance (Ramsar sites) within 10km of the Development, or which could otherwise by impacted by it.

There are no Sites of Special Scientific Interest (SSSIs) within 2km of the Development.

Data from the 2015 National Golden Eagle Survey, provided by NatureScot, indicate the presence of two possible golden eagle nest sites within 6km of the Development. Personal communication with NatureScot staff refined the possible location of one of these nest sites. These possible nest site locations are described in Confidential Appendix 9.1.

The Argyll Raptor Study Group provided records of barn owl *Tyto alba*, short-eared owl *Asio flammeus* and merlin *Falco columbarius* breeding sites.

A single barn owl breeding site was highlighted by the RSG on the west side of Loch Awe, approximately 3km from the Development. A single short-eared owl site was also identified, also on the opposite side of Loch Awe, approximately 6km from the Development.

Two historic merlin territories were also identified by the RSG but there has been no recent evidence of either being occupied. One is approximately 1km south-east of the Development Site, and further than this from the nearest proposed infrastructure. The other is almost 2km from the southern access track.

Field Survey

Vantage Point Survey

Table 11 summarises the results of VP surveys carried out during the non-breeding season (i.e., between November 2018 and February 2019, inclusive, and in September and October 2019). It details the number of flights of each species recorded, the maximum number of birds present in a single observation, and the number of individuals recorded over the survey period (for the definition of 'individual' see above).

Golden eagle activity was recorded from VP1, VP2 and VP3, including some display activity. In total, 50 golden eagle flights were recorded during the non-breeding season. Single hen harrier, peregrine *Falco peregrinus* and white-tailed eagle sightings were also made from VP1. A single black grouse was seen on one occasion from VP3.

Flight lines of recorded species are shown on Figure 9.1.2.

Table 11 Non-breeding Season VP Survey Results

VP	Species	Number of Flights	Maximum Number of Birds	Number of Individuals
1	Golden eagle	16	2	20
	Goosander *Mergus merganser*	2	2	3
	Peregrine	1	1	1
	Hen harrier	1	1	1
	White-tailed eagle	1	1	1
2	Golden eagle	9	1	9
	Goosander	1	1	1
3	Golden eagle	23	1	23
	Black grouse	1	1	1
4	Golden eagle	2	1	2

Table 12 summarises the results of VP surveys carried out during the 2019 breeding season (i.e., between March and August 2019, inclusive. Flight lines of recorded species are shown on Figure 9.1.3.

There were considerably fewer flights observed from vantage points during the breeding season than in the non-breeding season. This included a reduction in golden eagle activity, despite some recordings of display flights in early-2019. No more than two golden eagles or two white-tailed eagles were seen together at a time. A flock of seven golden plover *Pluvialis apricaria* was recorded from VP2 in June 2019.

Table 12 Breeding Season VP Survey Results

VP	Species	Number of Flights	Maximum Number of Birds	Number of Individuals
1	Golden eagle	9	2	10
	Hen harrier	1	1	1
	White-tailed eagle	6	2	8
2	Golden eagle	2	2	2
	Goosander	1	2	2
	Golden plover	1	7	7
3	Golden eagle	1	1	1
	White-tailed eagle	2	2	3
4	Golden eagle	1	1	1

In total, seven target species were recorded during VP surveys between November 2018 and October 2019, inclusive. Of these, black grouse, peregrine and golden plover were recorded on single occasions. Single hen harriers were observed on two occasions, and goosander were recorded as four flights. Golden eagle was the most frequently observed species. White-tailed eagle were observed infrequently, totalling nine observations during the survey period. White-tailed eagle flights were largely to the south and south-east of the Headpond, although two flights were observed of birds heading north across Loch Awe.

Moorland Breeding Bird Survey

A total of 54 species were recorded during moorland breeding bird survey. The full list of species recorded is provided in Table B1 in Annex B. Of the 55 species recorded, 25 are considered to be important in the context of this EIA:

- Cuckoo *Cuculus canorus*;
- Common crossbill *Loxia curvirostra*;
- Common sandpiper *Actitis hypoleucos;*
- Curlew *Numenius arquata*;
- Fieldfare *Turdus pilaris*;
- Grasshopper warbler;
- Goldeneye *Bucephala clangula*;
- Golden plover;
- Hooded crow *Corvus cornix*;
- Herring gull *Larus argentatus*;
- House martin *Delichon urbicum*;
- Lesser redpoll *Carduelis cabaret*;
- Mistle thrush *Turdus viscivorus*;
- Oystercatcher *Haematopus ostralegus*;
- Osprey *Pandion haliaetus*;
- Peregrine;
- Red-throated diver;
- Skylark;
- Song thrush;
- Spotted flycatcher *Muscicapa striata*;
- Siskin *Carduelis spinus*;
- Snipe;
- Tree pipit *Anthus trivialis*;
- Whinchat *Saxicola rubetra*; and
- White-tailed eagle.

The locations of all of the important species recorded during moorland breeding bird survey are shown on Figure 9.1.4. Territory analysis was carried out on these species (with exception of those that breed gregariously and do not hold territories) and a total of thirteen are believed to have held territories within the survey area in 2019 (see Figure 9.1.5). A further three which nest in groups (and are not territorial) are also believed to have bred (common crossbill, lesser redpoll, and siskin).

Table 13 Moorland Breeding Bird Territory Analysis Results

		Estimated Number of Territories Within Survey Area			
Species	**Conservation Designation(s)**	**Confirmed Breeding**	**Probable Breeding**	**Possible Breeding**	**Comments**
Common sandpiper	-		3		Three probable territories of one to two birds calling / singing in suitable habitat on at least two visits.
Cuckoo	Red List BoCC; SBL			2	Two possible territories of a bird singing on one visit.
Curlew	Red List BoCC; SBL		1	5	One probable territory of two agitated birds in suitable habitat on one visit. Five possible territories of birds calling in suitable habitat on one visit.
Goldeneye	Red List BoCC		1		One probable territory of a pair including a displaying male on one visit.
Golden plover	SBL		1	2	One probable territory of a bird alarming on one visit and a pair displaying on another visit. Two possible territories of a bird calling in suitable habitat on one visit.
Mistle thrush	Red List BoCC	2	1	1	Two confirmed territories of adults with juveniles. One probable territory of a bird singing / flying into suitable habitat on three visits. One possible territory of a bird singing in suitable habitat on one visit.
Oystercatcher	-			1	One possible territory of a bird in suitable habitat on one visit.
Skylark	Red List BoCC; SBL		17	127	Seventeen probable territories of birds singing / calling in suitable habitat on more than one visit. 127 possible territories of bird singing / calling in suitable habitat on one visit.
Spotted flycatcher	Red List BoCC; SBL			1	One possible territory of a bird in suitable habitat on one visit.
Snipe	-		6	2	Six possible territories of birds displaying (drumming) in suitable habitat. Two possible territories of birds singing (chipping) in suitable habitat on one visit.
Song thrush	Red List BoCC; SBL			2	Two possible territories of a bird singing in suitable habitat on one visit.
Tree pipit	Red List BoCC; SBL			6	Six possible territories of a bird singing in suitable habitat on one visit.
Whinchat	Red List BoCC		1	1	One probable territory of a pair in suitable habitat on one visit. One possible territory of a bird singing in suitable habitat on one visit.

Two additional territories of grasshopper warbler (BoCC Red List species and priority species under the SBL) were recorded during other surveys. One was heard repeatedly on the low slopes in the south-west corner of the Development Site when walking to vantage points, and another was heard once during a bat survey just south of the Development Site but within the 500 m buffer. Grasshopper warblers are crepuscular birds and hence liable to be under-recorded during daytime surveys. However, suitable habitat for this species is highly localised within the Development Site, and largely confined to areas close to Loch Awe.

In the comments in Table 13, the stated total numbers of birds is the sum of birds observed across all records. This does not eliminate the possibility of repeat sightings, but provides a useful guide to abundance.

A description of the results of the moorland breeding bird surveys and territory analysis for different bird groups is given under the following sub-headings.

Waders

The density of waders within the moorland breeding bird survey area was low.

A probable golden plover territory was associated with the high ground just north-west of Lochan Airigh (the location of the proposed Headpond) and a possible territory was close to the forestry in the north-east of the Development Site. Another possible territory was recorded 20m east of the Development Site southern access route. It is also probable that a pair bred just to the south-east of the moorland breeding bird survey area.

Curlew territories were assumed, precautionarily given limited sightings, at Lochan Breac Liath, Beachlich Reservoir and on low slopes near Oaklea. A further two possible territories were recorded along the southern access route, one within the Development Site between bog pools near Cruach Bheag and one 30m west of the Development Site, amongst bog pools to the south of Cruach an Lochain. A pair alarm calling at the very south-west of the survey area, 150m south of the Development Site, near Creag a' Bhathaich provided much more robust evidence of breeding, indicating a probable territory.

Oystercatcher were recorded by the shore at the very south-west of the Development Site and were sometimes seen there prior to vantage point watches, and possibly bred at this location.

Two probable territories of common sandpiper were recorded from the shoreline of Loch Awe, with a further probable territory at Beachlich Reservoir and its associated watercourses.

Four territories of snipe were found: one possible territory near Beachlich Reservoir, one probable territory to the east above Lochan Airigh, one probable territory close to the plantation at the north of the Development Site and one possible territory low down near Balliemeanoch Farm. A further four probable territories were recorded along the southern access route, all just outside the Development Site but within the moorland breeding bird survey buffer. Snipe are much more active in twilight periods and so are likely to have been under-recorded – incidental observations of two chipping / drumming snipe were recorded during bat surveys between Lochan Airigh and the reservoir in the vicinity of rushy areas, and they are likely to be scattered across the Development Site in areas of dense rushy vegetation.

The estimated territory locations for all waders are shown on Figure 9.1.5.

Schedule 1 Passerines

Common crossbill (herein simply 'crossbill')[4] is listed on Schedule 1 of the WCA. Crossbills typically nest in forestry areas. Only a small number of sightings of crossbill were recorded during moorland breeding bird survey, although crossbill are highly likely to be common in suitable conifer plantation woodland in the vicinity of the Development. Identifying crossbill territories is difficult because they nest semi-colonially, forage over significant areas, and it is often difficult to see the birds, or (particularly), their nests.

Red Listed Passerines

Amongst the less common and more notable of the recorded Red List bird species was spotted flycatcher (which is also listed on the SBL) with a single possible territory associated with broadleaved woodland above Loch Awe, and grasshopper warbler (also on the SBL) with one territory in damp marshy grassland at the west of the Development Site and another south of the riparian woodland close to Creag a'Bhathaic.

[4] It has been assumed that the species observed was common crossbill, which is common across Scotland, rather than Scottish crossbill *Loxia scotica*, which is confined to the Scottish Highlands, or the rarer parrot crossbill *Loxia pytyopsittacus*, confined as a breeding species to certain parts of the Scottish Highlands.

Also notable amongst the Red List BoCC species, and also on the SBL, was tree pipit. In total six possible territories were found, with five different singing birds recorded along the Allt Beochlich up to the southern plantation and a further bird on the lower slopes of the Allt a' Chrosaid.

One probable and one possible territory of whinchat were found along the Allt Beochlich.

Two possible cuckoo territories were presumed to be present, at moderate elevation within the west of the Development Site.

Lesser redpoll, like most species of finch, are gregarious and highly mobile, making population estimates, without dedicated nest searching, very difficult. Lesser redpoll is typically associated with birch *Betula* spp. and alder *Alnus glutinosa,* which generally grow along watercourses, and so the majority of sightings occurred in scrub and woodland along the Allt Beochlich. There were seven records of lesser redpoll, totalling nine birds. The same principle applies to siskin, which is on the SBL but not the BoCC Red List. Siskin was recorded six times, totalling eleven birds.

Other recorded Red List species comprised those that, both locally and in Scotland as a whole, are widespread and not uncommon, namely: mistle thrush, song thrush (which is listed on the SBL and Argyll and Bute LBAP) and skylark (also on the SBL and Argyll and Bute LBAP). There were only two possible song thrush territories, close to the shore of Loch Awe, whilst four mistle thrush territories were noted: two confirmed territories close to Loch Awe and two (one probable and one possible) at the edges of plantations. Skylark was the most numerous bird in the moorland breeding bird survey area and it is estimated that there were at least 127 possible and seventeen probable territories.

The locations of the assumed territories of all passerines on the Red List of BoCC recorded by the moorland breeding bird survey are shown on Figure 9.1.5.

Breeding Raptor and Eagle Survey

The following target raptor species (i.e. those listed on Schedule 1 of the WCA and/or on Annex I of the Birds Directive) were recorded at the Development Site:

- Golden eagle;
- White-tailed eagle;
- Hen harrier;
- Peregrine;
- Osprey.

Golden Eagle

This section includes information derived from VP surveys as well as the eagle walkover surveys, since both are relevant to this species. However, the location of golden eagle nest sites is sensitive and this information is not presented here, but can be found in Confidential Appendix 9.1.

Two approximate localities identified in reports commissioned by NatureScot from 2015 were monitored, in addition to general monitoring of the wider eagle survey area through walkovers and VPs.

One of the reported locations was impossible to view without some disturbance risk and so visits were made both before the main incubation period and at the end of the likely nesting period to examine the location. Early VP work (primarily to monitor eagles) in December 2018 and January / February 2019 detected golden eagles in this vicinity on a number of occasions, both on the ground and flying around the surrounding hillsides. However, from March 2019 onwards recorded flights were few. Fresh nesting material had been added to one of the two nests at this location on 18 February 2019, but this alone provides only weak evidence of breeding intent (Walker, 2017). On 25 April 2019 two golden eagles were seen in the air at the same time in this area – this is inconclusive of breeding since it is known that pairs can be in the air for some time at change-over even with eggs in the nest (Walker, 2017). A visit at the end of the season on 05 August 2019 found two nests in a narrow ravine but no evidence of recent activity (such as carrion or faeces), and grass growing through the two nests located there. Therefore, it appears very unlikely that breeding took place at this location in 2019.

The second reported location was generally less frequently attended by eagles, although a pair was seen there on several occasions and a presumed male bird was seen to chase away a young white-tailed eagle from the vicinity on 28 May 2019. One or two golden eagles were seen on the ground in this location several times during other surveys, as well as during VP surveys. Eagle flights at or within a kilometre or so of this location were registered

from VPs or other surveys on only five days throughout the entire survey period. Intense scrutiny failed to reveal any eagle nesting and a post-breeding visit with a closer approach failed to locate an eyrie. Therefore, it is thought that no breeding took place at this location in 2019.

It is not certain whether the reported nest locations are within one golden eagle territory or two. They are easily close enough to be within the range of one pair. Direct flights between the reported general locations were, however, not recorded. No more than two golden eagles were ever seen at one time, suggesting the possibility that only one pair of golden eagles was present in the vicinity of the Development Site.

Most views were too distant to ascertain ages of birds but, while adult golden eagles were seen repeatedly, the only sighting of a sub-adult golden eagle was one seen from VP4 on the 26 June 2019. With the exception of occasions when two birds were seen together, and size discrepancies were noted, it was not possible to identify any other birds as individuals or to note any further trends in terms of the distribution of individuals around the Development Site. It is usually presumed that the larger bird is female and the smaller bird male, although this is not reliable.

White-tailed Eagle

White-tailed eagles were regularly seen on the Development Site, most often near and south of Beochlich Reservoir. Two mature birds were seen together on a number of occasions, from VP3 and during breeding raptor survey. A survey investigating the previously proposed southern access track found immature birds, probably in their second year, sat next to a small lochan at NN 0312.

White-tailed eagles are more likely to nest in trees than golden eagles (Evans *et al,* 2010). Although they could potentially nest in forestry within 6km of the Development Site, no evidence of this was found and frequent photographing of individual birds failed to reveal any recently fledged birds at the end of the summer. Some flights of white-tailed eagles from within the Development Site, including towards the eastern edge, passed south-westwards towards and ultimately beyond the eastern shore of Loch Awe. No provisioning flights were observed.

Hen Harrier

A male hen harrier was observed twice during a breeding raptor survey on 02 April 2019 in the west of the Development Site. A short flight of a female hen harrier was recorded from VP1 on 04 April 2019, about 500m north of the proposed Headpond. A male hen harrier was seen to fly over the Headpond area on 25 September 2019.

Suitable nesting habitat for hen harriers, typically with knee length scrub, is very scarce on the Development Site, and given also that these birds are not inconspicuous and there were so few sightings, it is considered extremely unlikely that this species bred within the survey area. The fenced area around Lochan Romach (north-west of Beochlich Reservoir), which was regularly passed during all types of field survey, has thick vegetation through absence of grazing, offering the best potential hen harrier nesting habitat locally. However, the lack of observations of hen harrier in this area also suggest breeding is highly unlikely to have occurred here in 2019.

Peregrine

A peregrine was seen from VP4 on 22 February 2019. Another sighting was of a bird recorded during moorland breeding bird survey at Sron Bhreach-Liath on 10 April 2019. Peregrines tend to nest conspicuously on cliff faces and, as a result of a paucity of records, it is concluded that peregrines are highly unlikely to have nested within 2km of the Development in 2019.

Osprey

A single osprey was observed within 2km of the Development Site in the bay near Inverinan on 02 April 2019. An osprey was also seen to overfly Allt Bheochlich parallel to the shore of Loch Awe and about 500m inland on 23 May 2019. Given the paucity of records, it is concluded that it is highly unlikely that osprey bred within 2km of the Development in 2019.

Non-target Raptors

Sparrowhawk *Accipiter nisus* were rarely recorded on the Development Site. A single bird was recorded on 02 May 2019 from VP1 as it soared high over Allt Beochlich. One incidental sighting was also made in this same vicinity during an invertebrate survey. No breeding by this species within 2km of the Development is suspected.

Buzzards *Buteo buteo* were most frequently encountered on the slopes at the south-west of the Development Site, with two records made during moorland breeding bird survey. No breeding by this species within 2km of the Development is suspected.

Breeding Diver Survey

A total of eleven waterbodies were identified within the breeding diver survey area. A brief description of the suitability of these waterbodies for breeding divers is given in Table 14 and their locations are shown on Figure 9.1.6.

Table 14 Waterbody Descriptions

Waterbody Name	Relationship to the Development	Description
Lochan Airigh	Proposed Headpond location	Approximately 24 hectares in size. The majority of the shoreline is unsuitable for divers having steep sides and little emergent vegetation. This lochan, along with most of the Headpond area, is in the viewshed of VP1, and waterfowl are discernible from there with binoculars, though no divers were ever recorded.
Un-named Lochan "Far South Lochan"	Approximately 550m north-west of the closest point of the Headpond	Approximately seven hectares in size. The majority of the shoreline is unsuitable for divers, being rocky and having very limited emergent vegetation. This lochan is not visible from VP2 but is close by and any calling divers would likely have been picked up during vantage point surveys.
Un-named Lochan "Ridge Lochan"	Approximately 650m west of the Headpond	Approximately 2.5 hectares in size. The majority of the shoreline is unsuitable for divers, consisting of raised peat and having very limited emergent vegetation. This lochan is not in the viewshed of VP1 but is close behind it and any calling divers would likely have been picked up during vantage point surveys at this location.
Un-named Lochan "North Lochan"	Approximately 740m north-west of the closest point of the Headpond	Approximately fifteen hectares in size. The majority of the shoreline is unsuitable for divers, being rocky and having very limited emergent vegetation. Much of this area is visible from and close to VP2 and watches from this location failed to detect any divers.
Un-named Lochan "Mid Lochan"	Approximately 800m north-west of the closest point of the Headpond	Approximately fifteen hectares in size. The majority of the shoreline is unsuitable for divers, being rocky and having very limited emergent vegetation. Much of this area is visible from and close to VP2 and watches from this location failed to detect any divers.
Un-named Lochan "South Lochan"	Approximately 800m north-west of the closest point of the Headpond	Approximately seven hectares in size. The majority of the shoreline is unsuitable for divers, being rocky and having very limited emergent vegetation. Much of this area is visible from and close to VP2 and watches from this location failed to detect any divers.
Lochan Dubh na Cruaiche	Approximately 1.3km east-north-east of the Headpond	Approximately sixteen hectares in size. Has some emergent vegetation and is potentially suitable. A pool to the south-east is probably too small and shallow and liable to dry out.
Lochan Romach	1.4km west-south-west of the closest point of the headpond	Approximately 24.5 hectares in size. A very suitable lochan with shallow sides and substantial emergent vegetation. Sometimes viewed on walking to VP1 and VP2 and also regularly visited during moorland breeding bird surveys. Occasional grey heron presence might suggest that it is stocked with fish although it is possible that they were foraging on amphibians.
Beochlich Reservoir (not marked on OS maps)	1.5km south-west of the closest point of the Headpond	Variable water level, up to sixteen hectares in size. Sometimes held aggregations of waterbirds but never divers. The variable water level of this artificial feature makes it unsuitable for divers.
Un-named Lochan "Cruach Bheag Lochan"	1.8km south of the closest point of the Headpond	Approximately four hectares in size. Very suitable lochan with substantial emergent vegetation and floating mire which made it impossible to safely walk the entire perimeter. Difficult to view at a distance and visited regularly on survey. A pair of red-throated divers was seen leaving this area on one occasion. Nonetheless it is considered highly unlikely that divers nested here unless they failed very early.

No breeding by red-throated divers or black-throated divers within the survey area was suspected during the 2019 breeding season.

The only sighting of red-throated divers on any waterbody within 1.5km of above-ground infrastructure was of a pair on a waterbody referred to as near Cruach Bheag, noted during a moorland breeding bird survey on 19 June 2019. No other observations of red-throated divers were made at this location.

Black-throated divers were never observed during the course of ornithological field survey for the Development.

Lekking Black Grouse Survey

Black grouse leks were not confirmed with certainty within the survey area, and none were found during the targeted field surveys. The only confirmed occurrence of lekking black grouse was an auditory record (the lek was not seen) outside the survey area (and therefore beyond 1.5km from above-ground infrastructure) near to Portsonachan on 11 April 2019. This was noted incidentally whilst the surveyor was walking onto the Development Site for fieldwork.

Three black grouse, at least two of which were males, were flushed during a raptor walkover on 02 April 2019. The flushed birds flew from a flat-topped hillock approximately 600m south of the proposed Balliemeanoch (western) access route and approximately 500m inland (east) of Loch Awe. The flushed birds were initially out of sight on higher ground than the surveyor. This may have been lek, although no calling was heard, and no black grouse were located during the black grouse surveys in this area. However, several black grouse droppings, recent and old, were found on the hillock the birds flew from, which is topped by short grass with scattered rushes *Juncus* sp. constituting ideal lekking habitat; these factors suggest a possible lek site. A single black grouse dropping was also found incidentally during moorland breeding bird survey nearby to the south-east, close to the south-west corner of Bheachlich conifer plantation. The location of this potential black grouse lek is shown on Figure 9.1.7.

Black grouse (not lekking) were also incidentally recorded on six occasions outside the survey area, again near Portsonachan. Two birds were seen near the public road on 21 December 2018, and on 15 May 2019 a female which was incubating a clutch of seven eggs was flushed from a dense rushy area (see Figure 9.1.7).

Common Bird Census

A total of 44 species were recorded during CBC around Inveraray. The full list of species recorded is provided in Table C1 in Annex C. Of the 44 species recorded, sixteen are considered to be important in the context of this EIA:

- Bullfinch *Pyrrhula pyrrhula;*
- Common crossbill;
- Common sandpiper;
- Curlew;
- Greenfinch *Chloris chloris*;
- Hooded crow;
- House martin;
- Kestrel;
- Lesser redpoll;
- Mistle thrush;
- Oystercatcher;
- Spotted flycatcher;
- Siskin;
- Song thrush;
- Tree pipit; and
- Wood warbler *Phylloscopus sibilatrix*

The locations of all of the important species recorded during the CBC survey are shown on Figure 9.1.9. Territory analysis was carried out on these species and a total of twelve are believed to have held territories (or bred gregariously) within the survey area in 2021 (see Figure 9.1.10). Table 15 lists those that are believed to held territory.

Table 15. CBC Territory Analysis Results

		Estimated Number of Territories Within Survey Area			
Species	**Conservation Designation(s)**	**Confirmed Breeding**	**Probable Breeding**	**Possible Breeding**	**Comments**
Common sandpiper	-			5	Five possible territories of one to two birds calling in suitable habitat on one visit.
Mistle thrush	Red List BoCC	2	3	2	Two confirmed territories of an adult carrying food, one of which was with juveniles. Three probable territories of a bird alarming on one visit. Two possible territories of a bird calling / singing in suitable habitat on one visit.
Oystercatcher	-	1	1	2	One confirmed territory of an adult calling with two young juveniles. One probable territory of two birds in suitable habitat on two visits. Two possible territories of a bird calling in suitable habitat on one visit.
Spotted flycatcher	Red List BoCC; SBL	1	1	7	One confirmed territory of a bird carrying food. One probable territory of a bird singing in suitable habitat on two visits. Seven possible territories of a bird singing in suitable habitat on one visit.
Song thrush	Red List BoCC; SBL		1	17	One probable territory of a bird singing in suitable habitats on two visits. Seventeen possible territories of a bird singing / calling in suitable habitat on one visit.
Tree pipit	Red List BoCC; SBL		1	6	One probable territory of two birds having an aggressive encounter. Six possible territories of a bird singing in suitable habitat on one visit.
Wood warbler	Red List BoCC; SBL			8	Eight possible territories of a bird singing in suitable habitat on one visit.

9.1.21

In addition, bullfinch, crossbill and greenfinch are believed to have possibly bred at single locations, based on observations of individuals calling on one survey visit. Lesser redpoll were observed in three locations representing suitable breeding habitat, and siskin in nineteen locations.

Non-breeding Coastal Waterbird Survey

Low numbers of birds were encountered at high and low tide surveys and it does not appear that the area holds significant numbers of waterbirds either feeding or roosting. No specially-notable species or aggregations of coastal birds were seen. The largest aggregation of shorebirds recorded during these surveys was of four turnstones *Arenaria interpres* and five redshanks *Tringa totanus* on 13 October 2020 in the bay 200m south of Inveraray jail, over 500m from the proposed jetty. Herring gulls, oystercatchers and shags *Gulosus aristotelis* were the most frequently occurring species. There were no large aggregations of waterbirds close to the proposed jetty location but the sea and shoreline with 200m did hold, on some visits, small numbers (three or fewer), of oystercatcher, redshank, red-breasted merganser *Mergus serrator*, shag, herring gull and mallard *Anas platyrhynchos*.

Four curlew, 28 oystercatcher and six greylag geese *Anser anser* were all recorded in a field at Dalchenna Farm approximately 1km south of the Development Site.

A summary of the results of the coastal bird surveys, including the peak count of each species recorded, is provided in Table 16. The locations of all birds recorded during the surveys are illustrated on Figure 9.1.11.

Table 16 Coastal Waterbird Survey Results

Species	Number of Survey Visits on Which Species was Present	Minimum Count*	Peak Count	Month of Peak Count
Black guillemot *Cepphus grylle*	2	1	1	January / September
Cormorant *Phalacrocorax carbo*	1	3	3	September
Curlew	1	4	4	September
Eider *Somateria mollissima*	1	1	1	February
Gannet *Morus bassanus*	1	2	2	September
Goldeneye	1	1	1	January
Grey heron	2	1	2	January
Greylag goose	1	6	6	December
Guillemot *Uria aalge*	1	5	5	September
Herring gull	6	2	5	November
Lesser black-backed gull *Larus fuscus*	1	1	1	October
Mallard	2	2	2	January / February
Oystercatcher	4	3	38	February
Redshank	3	1	5	November
Red-breasted merganser	3	2	13	February
Ringed plover *Charadrius hiaticula*	1	2	2	February
Razorbill *Alca torda*	1	2	2	September
Shag	6	1	5	January
Turnstone	1	4	4	November

* Minimum count when species was present, does not include zeros for when species was absent (see column detailing number of survey visits on which the species was present).

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Annex A Vantage Point Survey Details

Table A1 provides details of the vantage point (VP) surveys carried out between November 2018 and October 2019, inclusive.

Table A1 VP Survey Details

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
Non-breeding Season (2018/19)						
27/11/2018	1	08:50 – 11:50	08:20 15:52	03:00	TG	Wind SE, 0-1, Cloud Cover 7, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 5-6°C
27/11/2018	1	12:10 – 15:10	08:20 15:52	03:00	AF	Wind SE, 4-6, Cloud Cover 8, Cloud Height > 900m, Visibility >3km, Precipitation rain showers in last two hours, Temperature 9-10°C
27/11/2018	2	08:40 – 11:40	08:20 15:52	03:00	AF	Wind SE, 3-6, Cloud Cover 6-8, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 8-10°C
27/11/2018	2	12:20 – 15:20	08:20 15:52	03:00	TG	Wind E, 7, Cloud Cover 7-8, Cloud Height > 900m, Visibility >3km, Precipitation continuous rain in the last hour, Temperature 6-7°C
19/12/2018	1	12:50 – 15:50	08:51 15:42	03:00	AF	Wind SSE, 2-4, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km, Precipitation intermittent showers, Temperature 7-8°C
19/12/2018	1	09:20 – 12:20	08:51 15:42	03:00	AF	Wind SE, 2-4, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km, Precipitation none, Temperature 6-8°C
19/12/2018	2	12:35 – 15:35	08:51 15:42	03:00	JB	Wind SE, 4-5, Cloud Cover 6-8, Cloud Height 150-900m, Visibility >3km, Precipitation rain showers in last two hours, Temperature 5-6°C
19/12/2018	2	09:05 – 12:05	08:51 15:42	03:00	JB	Wind SE, 4-5, Cloud Cover 7-8, Cloud Height 150-900m, Visibility >3km, Precipitation rain showers in last two hours, Temperature 6°C
18/12/2018	3	11:35 – 14:35	08:50 15:42	03:00	JB	Wind SE, 4-6, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km, Precipitation rain showers, Temperature 9°C
20/12/2018	3	09:25 – 12:25	08:51 15:43	03:00	AF	Wind NE to SE, 3-5, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km, Precipitation rain continuous for first two hours, showers in last hour, Temperature 5°C
20/12/2018	3	12:55 – 15:55	08:51 15:43	03:00	AF	Wind NE, 4, Cloud Cover 8, Cloud Height >900m in first hour, 150-900m in remainder, Visibility >3km, Precipitation rain and sleet showers in first and last hours and continuous in middle hour, Temperature 4-5°C
21/12/2018	3	09:45 – 12:45	08:52 15:43	03:00	AF	Wind SE, 2-4, Cloud Cover 8, Cloud Height 150-900m in first two, <150m in last hour, Visibility >3km in first hour, 1-3km in remainder, Precipitation rain intermittent, Temperature 5-7°C
18/12/2018	4	12:50 – 15:00	08:50 15:42	02:10	AF	Wind SE, 4-5, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km, Precipitation rain continuous declining to showers, Temperature 9-10°C
20/12/2018	4	09:30 – 12:30	08:51 15:43	03:00	JB	Wind NE to SE, 4, Cloud Cover 7-8, Cloud Height 150-900m, Visibility >3km, Precipitation rain continuous in first hour, declining to showers by end, Temperature 4°C
20/12/2018	4	13:00 – 16:00	08:51 15:43	03:00	JB	Wind NE, 4-5, Cloud Cover 7-8, Cloud Height >900m in first hour, 150-900m for remainder, Visibility >3km, Precipitation rain showers in first

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
						hour, hail showers in middle hour, continuous sleet in last hour, Temperature 3-4°C
21/12/2018	4	09:40 – 12:40	08:52 15:43	03:00	JB	Wind SE, 3, Cloud Cover 8, Cloud Height 150-900m in first two, <150m in last hour, Visibility >3km in first hour, 1-3km in remainder, Precipitation rain intermittent, Temperature 6-7°C
21/12/2018	4	13:10 – 14:00	08:52 15:43	00:50	JB	Wind SE, 3, Cloud Cover 8, Cloud Height <150m in last hour, Visibility >3km in first hour, 1-3km in remainder, Precipitation rain continuous, Temperature 7°C
24/01/2019	1	10:07 – 13:07	08:31 16:33	03:00	AF	Wind S, 0-1, Cloud Cover 6-8, Cloud Height >900m, Visibility >3km, Precipitation light drizzle showers in second hour, Snow on site, Frost all day, Temperature 2-4°C
24/01/2019	1	13:45 – 16:45	08:31 16:33	03:00	TG	Wind S, 0-1, Cloud Cover 8, Cloud Height 150m-900m in first and last hour, >900m in middle hour, Visibility 1-3km in first hour, >3km in middle hour, <1km in final hour, Precipitation continuous drizzle in last hour, Snow on site, Temperature 2°C
31/01/2019	1	10:24 – 13:24	08:18 16:48	03:00	AF	Wind SE, 0-3, Cloud Cover 0, Cloud Height >900m, Visibility >3km, Precipitation none, Snow on site, Temperature -1 to -2°C
31/01/2019	1	13:56 – 16:56	08:18 16:48	03:00	ND	Wind E, 3-5, Cloud Cover 0, Cloud Height >900m, Visibility >3km, Precipitation None, Snow On site, Temperature -1 to -2°C
24/01/2019	2	10:15 – 13:15	08:31 16:33	03:00	TG	Wind S, 0-1, Cloud Cover 5-7 decreasing, Cloud Height >900m, Visibility >3km, Precipitation None, Snow on site, Frost all day, Temperature 0 to 2°C
24/01/2019	2	13:37 – 16:37	08:31 16:33	03:00	AF	Wind S to SW, 1-2, Cloud Cover 8, Cloud Height 150-900m in first two hours, <150m in last hour, Visibility >3km, Precipitation continuous drizzle in last hour, Snow on site, Frost all day, Temperature 1 to 2°C
31/01/2019	2	10:25 – 13:25	08:18 16:48	03:00	ND	Wind NE,2-3, Cloud Cover 0, Cloud Height >900m, Visibility >3km, Precipitation None, Snow on site, Temperature 1°C
31/01/2019	2	13:54 – 16:54	08:18 16:48	03:00	AF	Wind E,1-4 declining towards end, Cloud Cover 0, Cloud Height >900m, Visibility >3km, Precipitation None, Snow on site, Temperature -2 to -1°C
23/01/2019	3	13:00 – 16:00	08:32 16:31	03:00	AF	Wind S, 0-1, Cloud Cover 1-6 increasing, Cloud Height 150m - 900m low mist and high mist, visibility 1-3km, intermediate heights with good view, Precipitation none, Snow on site, Frost all day, Temperature -4°C
25/01/2019	3	09:30 – 12:30	08:29 16:35	03:00	TG	Wind W, 4-5, Cloud Cover 6, Cloud Height >900m, Visibility 1-3km in first hour >3km in last two hours, Precipitation drizzle intermittently in first two hours, Temperature 9°C
30/01/2019	3	13:47 – 16:47	08:20 16:46	03:00	ND	Wind SW 2, Cloud Cover 1-5 increasing, Cloud Height >900m, Visibility >3km, Precipitation none, Snow on site, Temperature 0 -1°C
23/01/2019	4	13:15 – 16:15	08:32 16:31	03:00	TG	Wind S, 2-3, Cloud Cover 5-6, Cloud Height 150-900m in first hour >900m in remainder, Visibility 1-3 km in first hour >3km in remainder, Precipitation none, Snow on site, Frost all day, Temperature -1°C
25/01/2019	4	09:55 – 12:55	08:29 16:35	03:00	AF	Wind W to SW, 3-5, Cloud Cover 7- 8, Cloud Height 150-900m for first two hours, >900m in last hour, Visibility >3km, Precipitation occasional drizzle in second hour, Snow on high ground, Temperature 8-9°C

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
30/01/2019	4	14:12 – 17:12	08:20 16:46	03:00	AF	Wind S, 1-3, Cloud Cover 1, Cloud Height 150-900m to over 900m throughout, Visibility<1km to >3km throughout - mainly good but orographic clouds spilling over the ridge from the south reducing visibility, Precipitation occasional drizzle in second hour, Snow on site, Frost all day, Temperature 0-1°C
21/02/2019	1	10:14 – 13:14	07:32 17:35	03:00	ND	Wind SE, 2-4, Cloud Cover 8, Cloud Height <150m, Visibility <1km for most of first two hours with occasional breaks in second hour to 3km, 1-3km in last hour, Precipitation none, Temperature 8°C
21/02/2019	1	13:44 – 16:44	07:32 17:35	03:00	AF	Wind S, 3-6 increasing, Cloud Cover 7-8, Cloud Height 150-900m, Visibility >3km, Precipitation None, Temperature 8-9°C
27/02/2019	1	10:50 – 13:50	07:17 17:48	03:00	AF	Wind S, 1-2, Cloud Cover 1-8 increasing, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 12-13°C
27/02/2019	1	14:15 – 17:15	07:17 17:48	03:00	TG	Wind SW, 1-2, Cloud Cover 5-6, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 9-11°C
21/02/2019	2	10:14 – 13:14	07:32 17:35	03:00	AF	Wind S, 2-3, Cloud Cover 8, Cloud Height 150-900m, Visibility <1km in first hour, <1km to 1-3km in second hour, 1-3km to >3km in last hour, Precipitation drizzle continuous in first hour, intermittent in mid hour, no precipitation in last hour, Temperature 9°C
21/02/2019	2	13:44 – 16:44	07:32 17:35	03:00	ND	Wind SE, 3-6 increasing, Cloud Cover: 7-8, Cloud Height <150m, Visibility 1-3km, Precipitation none, Temperature 7-8°C
27/02/2019	2	14:20 – 17:20	07:17 17:48	03:00	AF	Wind SW, 1-2, Cloud Cover 8, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature: 8-9°C
27/02/2019	2	10:45 – 13:45	07:17 17:48	03:00	TG	Wind SW, 1-2, Cloud Cover 1-4 increasing, Cloud Height >900m, Visibility >3km, Precipitation none, Temperature 5-9°C increasing
01/02/2019	3	10:22 – 13:22	08:17 16:50	03:00	AF	Wind N with SSE eddies, 0-2, Cloud Cover 0, last hour increased to 8, Cloud Height None until last hour 150-900m, Visibility >3km, Precipitation snow in last 20 mins, Snow on site, Frost all day, Temperature -1 to 2°C
20/02/2019	3	13:24 – 16:24	07:35 17:32	03:00	AF	Wind S, 1-4 decreasing, Cloud Cover 8, Cloud Height 150-900m, Visibility <1km most of time terrible, Precipitation Rain throughout increasing to continuous, Temperature 10-11°C
22/02/2019	3	09:48 – 12:48	07:30 17:37	03:00	ND	Wind SE, 0-4, Cloud Cover 8, Cloud Height 150-900m, sometimes <150m in second hour, Visibility >3km, Precipitation none, Temperature 8°C
26/02/2019	3	13:44 – 16:44	07:20 17:46	03:00	AF	Wind S-SW, 0-4 increasing, Cloud Cover 0, Cloud Height none, Visibility >3km, Precipitation none, Temperature 13-15°C
28/02/2019	3	10:15 – 13:15	07:15 17:50	03:00	TG	Wind SE, 1-2, Cloud Cover 7, Cloud Height >900m, Visibility >3km, Precipitation none, Temperature 8-9°C
01/02/2019	4	10:53 – 13:53	08:17 16:50	03:00	ND	Wind S, 2-3 Cloud Cover 5-6, Cloud Height 150-900m in first hour, >900m in remainder Visibility 1-3 km in first hour, >3km in remainder, Precipitation None, Snow On site, Frost All day, Temperature -1°C
20/02/2019	4	13:32 – 16:32	07:35 17:32	03:00	ND	Wind SW,3-5 Cloud Cover 8, Cloud Height 150-900m in first hour, <150m in remainder, Visibility 1-3km in first hour, mainly <1km in remainder, Precipitation rain showers increasing to continuous, Snow On site, Temperature 7-8°C

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
22/02/2019	4	10:05 – 13:05	07:30 17:37	03:00	AF	Wind SE, 1-5, Cloud Cover 7-8, Cloud Height 150-900m, Visibility 1-3km, Precipitation none, Temperature 13-15°C
26/02/2019	4	14:10 – 17:10	07:20 17:46	03:00	TG	Wind S, 1-2, Cloud Cover 0, Visibility >3km, Precipitation none, Temperature 10-13°C
28/02/2019	4	10:53 – 13:53	07:15 17:50	03:00	AF	Wind SE, 1-2, Cloud Cover 8, Cloud Height 150-900m for first two hours, >900m for remainder, Visibility >3km, Precipitation none, Temperature 7-8°C
Breeding Season (2019)						
19/03/2019	3	13:12 – 15:12	06:25 18:30	02:00	ND	Wind S, 3-4, Cloud Cover 8, Cloud Height<150m, Visibility <1km, Precipitation rain, continuous, Temperature 7°C
19/03/2019	4	13:05 – 15:05	06:25 18:30	02:00	AF	Wind SSE, 2-4, Cloud Cover 8, Cloud Height 150-900m, Visibility <1km, Precipitation rain, continuous, Temperature 9°C
20/03/2019	1	11:00 – 14:00	06:23 18:33	03:00	AF	Wind W, 3-4, Cloud Cover 8, Cloud Height 150-900m, Visibility < 1 km to < 3 km in first and last hour, over 3km in middle hour, Precipitation drizzle showers for first two hours, Temperature 9°C
20/03/2019	2	10:57 – 12:57	06:23 18:33	02:00	ND	Wind S, 2-4, Cloud Cover 8, Cloud Height<150m, Visibility <1km, Precipitation rain, intermittent, Temperature 8°C
21/03/2019	3	10:34 – 13:34	06:20 18:35	03:00	AF	Wind SWS, 2, Cloud Cover 8. Cloud Height 150-900m, Visibility: 1-3km in first two hours, >3km in last hour, Precipitation drizzle showers for first two hours, Temperature 9°C
21/03/2019	3	14:04 – 15:04	06:20 18:35	01:00	AF	Wind SWS, 2, Cloud Cover 8, Cloud Height<150m, Visibility >3km, Precipitation drizzle, showers, Temperature 9°C
21/03/2019	4	10:45 – 13:45	06:20 18:35	03:00	ND	Wind S, 2-3, Cloud Cover 8, Cloud Height<150 to < 900m, Visibility <1km to < 3km in first two hours and >1km to >3km in last hour, Precipitation rain, showers in second hour, Temperature 7°C
21/03/2019	4	14:15 – 15:15	06:20 18:35	01:00	ND	Wind S, 1-3, Cloud Cover 8, Cloud Height<150 to < 900m, Visibility >1km to >3km, Precipitation Rain, Continuous, Temperature 9°C
01/04/2019	1	11:44 – 14:44	06:51 19:57	03:00	AF	Wind SSE, 4, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km for first two hours, 1-3km in last hour, Precipitation intermittent drizzle in last hour, Temperature 6°C
01/04/2019	2	15:14 – 18:14	06:51 19:57	03:00	AF	Wind SSE, 3-4, Cloud Cover 8, Cloud Height<150 to < 900m, Visibility >1km to >3km, Precipitation Rain, Intermittent, Temperature 7°C
01/04/2019	1	11:44 – 14:44	06:51 19:57	03:00	AF	Wind SSE, 4, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km for first two hours, 1-3km in last hour, Precipitation intermittent drizzle in last hour, Temperature 6°C
02/04/2019	2	13:36 – 14:36	06:48 20:00	01:00	AF	Wind SW, 3-4, Cloud Cover 6-8, Cloud Heigh:<150 to < 900m, Visibility >3km, Precipitation Rain, Intermittent, Snow on site None, Frost All day, Temperature 8°C
03/04/2019	3	12:50 – 15:50	06:45 20:02	03:00	ND	Wind N, 2-4, Cloud Cover 7-8, Cloud Height 150 to 900m for first two hours, >900m in last, Visibility 1-3km, Precipitation Rain Showers throughout, Temperature 6°C
03/04/2019	3	16:20 – 19:20	06:45 20:02	03:00	ND	Wind NE, 3-4, Cloud Cover 3-7, Cloud Height 150 to 900m for first two hours, >900m in last, Visibility >3km, Precipitation rain showers in last hour, Temperature 7°C at start, 3°C in last hour

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
03/04/2019	4	12:56 – 15:56	06:45 20:02	03:00	AF	Wind NW, 1-2 generally reducing with time, Cloud Cover 8, Cloud Height 150 - 900m, Visibility >3km, Precipitation light rain, continuous throughout, Temperature 6°C
03/04/2019	4	16:26 – 19:26	06:45 20:02	03:00	AF	Wind N, 1-4 generally increasing with time, Cloud Cover 7-8, Cloud Height 150-900m, Visibility >3km, Precipitation rain, showers, Temperature 6-7°C
04/04/2019	1	11:08 – 14:08	06:43 20:04	03:00	AF	Wind NE, 2-3, Cloud Cover 8, Cloud Height 150 to 900m, Visibility >3km, 1-3km last hour, Precipitation rain, intermittent in first hour, showers for remainder with hail in second hour, Temperature 5-6°C
04/04/2019	2	11:15 – 14:15	06:43 20:04	03:00	ND	Wind NE, 4-6, Cloud Cover 5-8, Cloud Height 150 to 900m, Visibility >3km, Precipitation rain, showers, Temperature 3-5°C
04/04/2019	1	14:45 – 17:45	06:43 20:04	03:00	ND	Wind NE - E, 5-6, Cloud Cover 1-8 varying wildly, Cloud Height 150 to 900m, Visibility <1km at times in second hour, but over 3km at times in all hours, Precipitation rain showers in first hour, Snow showers in second hour, Temperature 4-6°C
04/04/2019	2	14:38 – 17:38	06:43 20:04	03:00	AF	Wind E, 4-6, Cloud Cover 1-8 mainly 8, Cloud Height 150 to 900m for first two hours, >900m in last, Visibility >3km, Precipitation rain and hail showers in first two hours, Temperature 6°C
29/04/2019	3	12:40 – 15:40	05:39 20:56	03:00	AF	Wind SE, 1-4 generally reducing with time, Cloud Cover 5-7, Cloud Height > 900m, Visibility >3km, Precipitation rain, intermittent, Temperature 21-18°C
30/04/2019	4	11:03 – 14:03	05:37 20:58	03:00	AF	Wind SE, 3, Cloud Cover 8, Cloud Height 150 - 900m, Visibility >3km, Precipitation drizzle, continuous in second hour, intermittent in last, Temperature 12°C
30/04/2019	4	14:33 – 17:33	05:37 20:58	03:00	AF	Wind SE, 2, Cloud Cover 8, Cloud Height 150 - 900m, Visibility >3km, Precipitation drizzle, intermittent throughout, Temperature 11-12°C
01/05/2019	1	11:08 – 14:08	05:35 21:00	03:00	AF	Wind SE, 1, Cloud Cover 8, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 14°C
01/05/2019	2	15:08 – 18:08	05:35 21:00	03:00	AF	Wind SE, 0-1, Cloud Cover 6-8, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 13°C
02/05/2019	1	14:38 – 17:38	05:32 21:02	03:00	AF	Wind S in first hour N in rest, 0-2, Cloud Cover 7-8, Cloud Height > 900m, Visibility >3km, Precipitation rain showers in last hour, Temperature 10-12°C
02/05/2019	2	11:08 – 14:08	05:32 21:02	03:00	AF	Wind W, 1-2, Cloud Cover: 3-7, Cloud Height: > 900m, Visibility: >3km, Precipitation: None, Snow: None, Frost: None, Temp: 10-12°C
03/05/2019	3	10:15 – 13:15	05:30 21:04	03:00	AF	Wind: NW, 1-3, Cloud Cover 7-8, Cloud Height > 900m, Visibility >3km, Precipitation hail showers in last hour, Temperature 8-10°C
24/06/2019	3	14:20 – 17:20	04:30 21:04	03:00	AF	Wind NW 3 to 1 in first two hours, NE 2, Cloud Cover 1-2, Cloud Height > 900m, Visibility >3km most of time but sometimes below 3km in second hour, Precipitation continuous rain in second hour, intermittent in last hour, Temperature 11°C
25/06/2019	2	12:22 – 15:22	04:31 21:04	03:00	AF	Wind SE, 3-4, Cloud Cover 1-2, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 18°C
25/06/2019	1	15:52 – 18:52	04:31 22:13	03:00	AF	Wind NE, 2-3, Cloud Cover 0-1, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 26-27°C

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
25/06/2019	2	19:22 – 22:22	04:31 22:13	03:00	AF	Wind NE, 2-3, Cloud Cover 0-1, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 20-25°C
26/06/2019	4	19:32 – 22:32	04:31 22:13	03:00	AF	Wind NW, 1-2, Cloud Cover 0, Visibility >3km, Precipitation none, Temperature 18-19°C
26/06/2019	4	14:32 – 17:32	04:31 22:13	03:00	AF	Wind NW, 1-3, Cloud Cover 0, Visibility >3km, Precipitation none, Temperature 20-21°C
27/06/2019	1	19:32 – 22:32	04:32 22:13	03:00	AF	Wind SE, 2-3, Cloud Cover 0, Visibility >3km, Precipitation none, Temperature 18-20°C
27/06/2019	3	12:09 – 15:09	04:32 22:13	03:00	AF	Wind S in first hour, N in remainder, 1-2, Cloud Cover 0, Visibility >3km, Precipitation none, Temperature 24-25°C
08/07/2019	3	16:10 – 19:10	04:42 22:07	03:00	AF	Wind SW, 2, Cloud Cover 8, Cloud Height > 900m most of time but 150-900m in last hour, Visibility >3km, Precipitation intermittent rain in last hour, Temperature 14-15°C
08/07/2019	3	19:40 – 22:40	04:42 22:07	03:00	AF	Wind SW, 0-3, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km for first two hours, <3km in last hour, Precipitation intermittent throughout, Temperature 13-14 C
15/07/2019	2	19:26 – 22:26	04:51 21:59	03:00	AF	Wind S, 0-2, Cloud Cover 6, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 15-17°C
15/07/2019	1	15:56 – 18:56	04:51 21:59	03:00	AF	Wind S, 2-3, Cloud Cover 5-7, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 17-19°C
17/07/2019	1	11:29 – 14:29	04:54 21:56	03:00	AF	Wind S, 2-4, Cloud Cover 8, Cloud Height 150-900m, Visibility >3km but Cruach Mor ridge often obscured by cloud, Precipitation continuous rain, heavy in second hour, Temperature 13-15°C
17/07/2019	2	14:59 – 17:59	04:54 21:56	03:00	AF	Wind S, 3-4, Cloud Cover 8, Cloud Height 150-900m, Visibility >1km to >3km, Precipitation continuous in first hour, intermittent for rest of time, Temperature 12-13°C
24/07/2019	4	14:14 – 17:14	05:06 21:45	03:00	AF	Wind SW, 2, Cloud Cover 5-7, Cloud Height >900m, Visibility >3km, Precipitation intermittent throughout, Temperature 16-17°C
24/07/2019	4	17:44 – 20:44	05:06 21:45	03:00	AF	Wind SW, 2-3, Cloud Cover 5, Cloud Height >900m, Visibility >3km, Precipitation none, Temperature 15-17°C
05/08/2019	3	16:55 – 19:55	05:28 21:21	03:00	AF	Wind S, 2-3, Cloud Cover 7-8, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 14-17°C
06/08/2019	2	17:22 – 20:22	05:30 21:19	03:00	AF	Wind 0, Cloud Cover 8, Cloud Height 150- 900m, Visibility >3km, briefly 1-3km in second hour, Precipitation intermittent in first hour but continuous thereafter, Temperature 14-15°C
06/08/2019	1	10:22 – 13:22	05:30 21:19	03:00	AF	Wind S, 0-3, Cloud Cover 7-8, Cloud Height 150-900m, Visibility >3km, Precipitation light showers in last two hours, Temperature 16°C
06/08/2019	2	13:52 – 16:52	05:30 21:19	03:00	AF	Wind 0, Cloud Cover 7-8, Cloud Height >900m in first hour, 150-900m for remainder, Visibility >3km, Precipitation continuous rain in last two hours, Temperature 16°C
07/08/2019	4	07:15 – 10:15	05:32 21:17	03:00	AF	Wind W, 0-1, Cloud Cover 8, Cloud Height 150-900m in first two hours > 900m in last hour, Visibility >1 km in first hour, >3km in last hour, Precipitation none, Temperature 13-14°C

Date	VP	Start Time / End Time	Time of Sunrise / Sunset	Hours of Survey	Surveyor	Weather
07/08/2019	1	15:45 – 18:45	05:32 21:17	03:00	AF	Wind W, 2-4, Cloud Cover 8, Cloud Height >900m, Visibility >3km, Precipitation light rain throughout, Temperature 14°C
07/08/2019	4	10:45 – 13:45	05:32 21:17	03:00	AF	Wind W, 0-2, Cloud Cover 8, Cloud Height >900m, Visibility >3km, Precipitation none, Temperature 15°C
08/08/2019	3	10:41 – 13:41	05:34 21:15	03:00	AF	Wind W, 0-1, Cloud Cover 6-7, Cloud Height: > 900m, Visibility >3km, Precipitation none, Temperature 16-17°C
Non-breeding Season (2019/20)						
25/09/2019	1	13:38 – 16:38	07:10 19:11	03:00	AF	Wind S to SE, 2 to 4, Cloud Cover 8, Cloud Height >900m, Visibility >3km, Precipitation 18.3 % rain in last hour, Temperature 16 to 15°C
26/09/2019	1	10:42 – 13:42	07:12 19:09	03:00	AF	Wind SSW, 1 to 3, Cloud Cover 8, Height 150 to 900m, Visibility <1km to >3km in first two hours head pond visible 70% of time, >3km last hour, Precipitation light rain 36.6%, heavy rain 33.3%, Temperature 13°C
25/09/2019	2	10:08 – 13:08	07:10 19:11	03:00	AF	Wind SE, 0 - 2, Cloud Cover 2 to 4, Cloud Height >900m, Visibility >3km, Precipitation 16.7 % all in last hour, Temperature 16°C
24/09/2019	3	10:01 – 13:01	07:08 19:14	03:00	AF	Wind 1 to 3, Cloud Cover 8, Cloud Height 150-900m mainly but 900m plus in last hour, Precipitation 5% drizzle, Temperature 15°C.
24/09/2019	3	13:31 – 16:31	07:08 19:14	03:00	AF	Wind SE, 1 - 3 in first hour, E 1- 3 for remainder, Cloud Cover 8, Cloud Height over 900m, Visibility > 3km, Precipitation light rain 10%, Temperature 16 to 14°C
23/09/2019	4	16:20 – 19:20	07:06 19:17	03:00	AF	Wind S, 3, Cloud Cover 5 to 7, Cloud Height > 900m, Visibility >3km, Precipitation none, Temperature 16 to 15°C
23/09/2019	4	12:50 – 15:50	07:06 19:17	03:00	AF	Wind S, 3 to 5, Cloud Cover 6-8, Cloud Height 150 to 900m, Precipitation 16.7% light rain, 5% drizzle
08/10/2019	1	15:28 – 18:28	07:36 18:37	03:00	AF	Wind SW, 2 to 5, Cloud Cover 8, Cloud Height 150-900m, Visibility <1km to >3km in first and last hours, 1km and over in middle hour, Precipitation light rain 33%, heavy rain 20%, Temperature 11 to 10°C
08/10/2019	1	11:58 – 14:58	07:36 18:37	03:00	AF	Wind SW, 1 to 4, Cloud Cover 8, Cloud Height 150-900m, Visibility <1km to >3km in first hour, 1 km to >3km in second hour, >3km in last hour, Precipitation light rain, 47%, Temperature 12°C
07/10/2019	3	14:01 – 17:01	07:34 18:39	03:00	AF	Wind SE 1 to 2, Cloud Cover 7, Cloud Height >900m, Visibility 1-3 km in first hour, >3km in last two hours, Precipitation light rain 20% of time, mainly first hour, Temperature 14 to 13°C

Annex B Moorland Breeding Bird Survey Results

Table B1 lists all of the species recorded by moorland breeding bird surveys carried out during the 2019 breeding season.

Table B1 Moorland Breeding Bird Survey Results

BTO Code	Common Name	Scientific Name	Conservation Designation(s)	Considered to Have Bred Within Survey Area?
B.	Blackbird	*Turdus merula*	-	Possibly
BC	Blackcap	*Sylvia atricapilla*	-	Probably
BZ	Buzzard	*Buteo buteo*	-	Possibly
CH	Chaffinch	*Fringilla coelebs*	-	Probably
CK	Cuckoo	*Cuculus canorus*	Red List BoCC; SBL	Possibly
CR	Common crossbill	*Loxia curvirostra*	WCA Sch 1	No
CS	Common sandpiper	*Actitis hypoleucos*	-	Probably
CU	Curlew	*Numenius arquata*	Red List BoCC; SBL	Probably
D.	Dunnock	*Prunella modularis*	-	Possibly
DI	Dipper	*Cinclus cinclus*	-	Possibly
FF	Fieldfare	*Turdus pilaris*	WCA Sch 1; Red List BoCC	No
GD	Goosander	*Mergus merganser*	-	No
GL	Grey wagtail	*Motacilla cinerea*	-	Probably
GN	Goldeneye	*Bucephala clangula*	Red List BoCC	Probably
GO	Goldfinch	*Carduelis carduelis*	-	No
GP	Golden plover	*Pluvialis apricaria*	SBL	Probably
GT	Great tit	*Parus major*	-	Possibly
GW	Garden warbler	*Sylvia borin*	-	Possibly
H.	Grey heron	*Ardea cinerea*	-	No
HC	Hooded crow	*Corvus cornix*	SBL	Possibly
HG	Herring gull	*Larus argentatus*	Red List BoCC; SBL	No
HM	House martin	*Delichon urbicum*	Red List BoCC	No
LB	Lesser black-backed gull	*Larus fuscus*	-	No
LR	Lesser redpoll	*Acanthis cabaret*	Red List BoCC; SBL	Possibly
M.	Mistle thrush	*Turdus viscivorus*	Red List BoCC	Yes
MA	Mallard	*Anas platyrhynchos*	-	Yes
MP	Meadow pipit	*Anthus pratensis*	-	Probably
OC	Oystercatcher	*Haematopus ostralegus*	-	Possibly
OP	Osprey	*Pandion haliaetus*	WCA Sch 1; SBL	No
PE	Peregrine	*Falco peregrinus*	WCA Sch 1; SBL	No
PW	Pied wagtail	*Motacilla alba*	-	No
R.	Robin	*Erithacus rubecula*	-	Probably
RG	Red grouse	*Lagopus lagopus*	-	Probably

BTO Code	Common Name	Scientific Name	Conservation Designation(s)	Considered to Have Bred Within Survey Area?
RH	Red-throated diver	*Gavia stellata*	WCA Sch 1; SBL	Possibly
RN	Raven	*Corvus corax*	-	Yes
RT	Redstart	*Phoenicurus phoenicurus*	-	Possibly
S.	Skylark	*Alauda arvensis*	Red List BoCC; SBL	Probably
SC	Stonechat	*Saxicola rubicola*	-	Yes
SF	Spotted flycatcher	*Muscicapa striata*	Red List BoCC; SBL	Possibly
SG	Starling	*Sturnus vulgaris*	Red List BoCC; SBL	No
SK	Siskin	*Carduelis spinus*	SBL	Possibly
SL	Swallow	*Hirundo rustica*	-	Possibly
SM	Sand martin	*Riparia riparia*	-	Possibly
SN	Snipe	*Gallinago gallinago*	-	Probably
ST	Song thrush	*Turdus philomelos*	Red List BoCC; SBL	Possibly
T.	Teal	*Anas crecca*	-	Possibly
TP	Tree pipit	*Anthus trivialis*	Red List BoCC; SBL	Possibly
W.	Wheatear	*Oenanthe oenanthe*	-	Yes
WC	Whinchat	*Saxicola rubetra*	Red List BoCC	Probable
WE	White-tailed eagle	*Haliaeetus albicilla*	WCA Sch 1; SBL	
WH	Whitethroat	*Sylvia communis*	-	Possibly
WP	Woodpigeon	*Columba palumbus*	-	Possibly
WR	Wren	*Troglodytes troglodytes*	-	Possibly
WW	Willow warbler	*Phylloscopus trochilus*	-	Probably

SBL – species of principal importance for conservation in Scotland, listed on the Scottish Biodiversity List
BoCC Red List – species on the Red List of Birds of Conservation Concern (Stanbury *et al*, 2021)

Annex C CBC Results

Table C1 below lists all of the species recorded by CBC surveys carried out during the 2021 breeding season.

Table C1 CBC Results

BTO Code	Common Name	Scientific Name	Conservation Designation(s)	Considered to Have Bred Within Survey Area?
B.	Blackbird	*Turdus merula*	-	Probably
BC	Blackcap	*Sylvia atricapilla*	-	Probably
BF	Bullfinch	*Pyrrhula pyrrhula*	SBL	Possibly
BT	Blue tit	*Cyanistes caeruleus*	-	Probably
BZ	Buzzard	*Buteo buteo*	-	Possibly
CC	Chiffchaff	*Phylloscopus collybita*	-	Possibly
CD	Collared dove	*Streptopelia decaocto*	-	Possibly
CH	Chaffinch	*Fringilla coelebs*	-	Probably
CM	Cormorant	*Phalacrocorax carbo*	-	No
CR	Common crossbill	*Loxia curvirostra*	WCA Sch 1	Possibly
CS	Common sandpiper	*Actitis hypoleucos*	-	Possibly
CT	Coal tit	*Periparus ater*	-	Possibly
CU	Curlew	*Numenius arquata*	Red List BoCC; SBL	No
D.	Dunnock	*Prunella modularis*	-	Possibly
GC	Goldcrest	Regulus regulus	-	Probably
GL	Grey wagtail	*Motacilla cinerea*	-	Possibly
GO	Goldfinch	*Carduelis carduelis*	-	Probably
GR	Greenfinch	*Chloris chloris*	Red List BoCC	Possibly
GT	Great tit	*Parus major*	-	Yes
H.	Grey heron	*Ardea cinerea*	-	No
HC	Hooded crow	*Corvus cornix*	SBL	No
HM	House martin	*Delichon urbicum*	Red List BoCC	No
J.	Jay	*Garrulus glandarius*	-	Probably
K.	Kestrel	*Falco tinnunculus*	SBL	No
LB	Lesser black-backed gull	*Larus fuscus*	-	No
LR	Lesser redpoll	*Acanthis cabaret*	Red List BoCC; SBL	Possibly
LT	Long-tailed tit	*Aegithalos caudatus*	-	Possibly
M.	Mistle thrush	*Turdus viscivorus*	Red List BoCC	Yes
MA	Mallard	*Anas platyrhynchos*	-	Probably
NH	Nuthatch	*Sitta europaea*	-	Probably
OC	Oystercatcher	*Haematopus ostralegus*	-	Probably
PW	Pied wagtail	*Motacilla alba*	-	No
R.	Robin	*Erithacus rubecula*	-	Confirmed
RT	Redstart	*Phoenicurus phoenicurus*	-	Possibly
SF	Spotted flycatcher	*Muscicapa striata*	Red List BoCC; SBL	Confirmed
SK	Siskin	*Carduelis spinus*	SBL	Possibly
SL	Swallow	*Hirundo rustica*	-	No

ST	Song thrush	*Turdus philomelos*	Red List BoCC; SBL	Probably
TC	Treecreeper	*Certhia familiaris*	-	Possibly
TP	Tree pipit	*Anthus trivialis*	Red List BoCC; SBL	Possibly
WH	Whitethroat	*Sylvia communis*	-	Possibly
WO	Wood warbler	*Phylloscopus sibilatrix*	Red List BoCC; SBL	Possibly
WR	Wren	*Troglodytes troglodytes*	-	Probably
WW	Willow warbler	*Phylloscopus trochilus*	-	Probably

SBL – species of principal importance for conservation in Scotland, listed on the Scottish Biodiversity List
BoCC Red List – species on the Red List of Birds of Conservation Concern (Stanbury *et al*, 2021)

Figures

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-03-26

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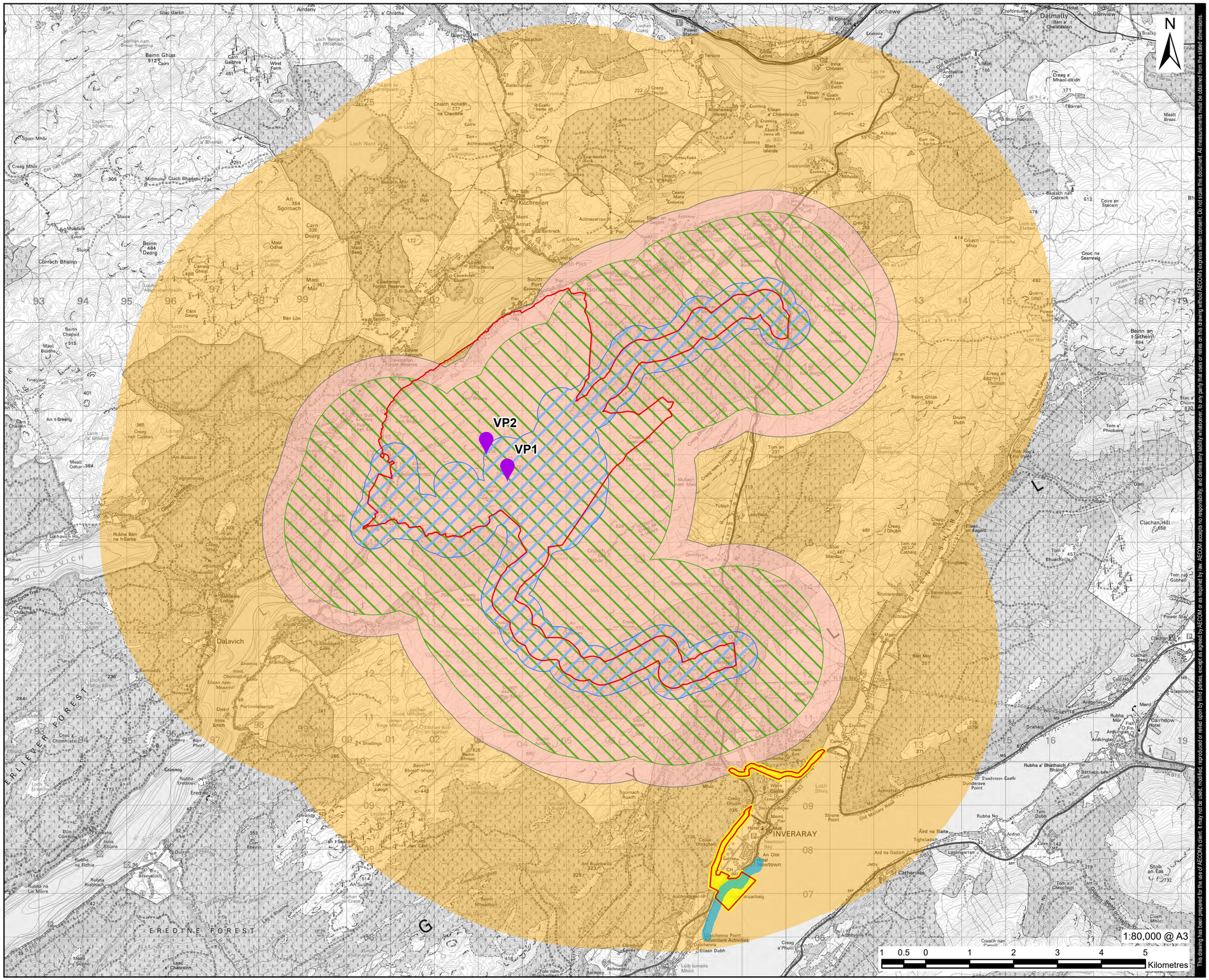

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PROJECT

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CLIENT

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CONSULTANT

AECOM Limited
177 Bothwell Street
Glasgow G2 7ER
www.aecom.com

LEGEND

- Development Boundary
- Moorland Breeding Birds Surveys
- Breeding Raptor Surveys
- Common Bird Census
- Non-breeding Coastal Waterbird Surveys
- Black Grouse and Red-throated Diver Surveys
- Breeding Eagle Surveys
- Vantage Points

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

Ornithology Survey Areas

FIGURE NUMBER

Figure 9.1.1

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-06-27

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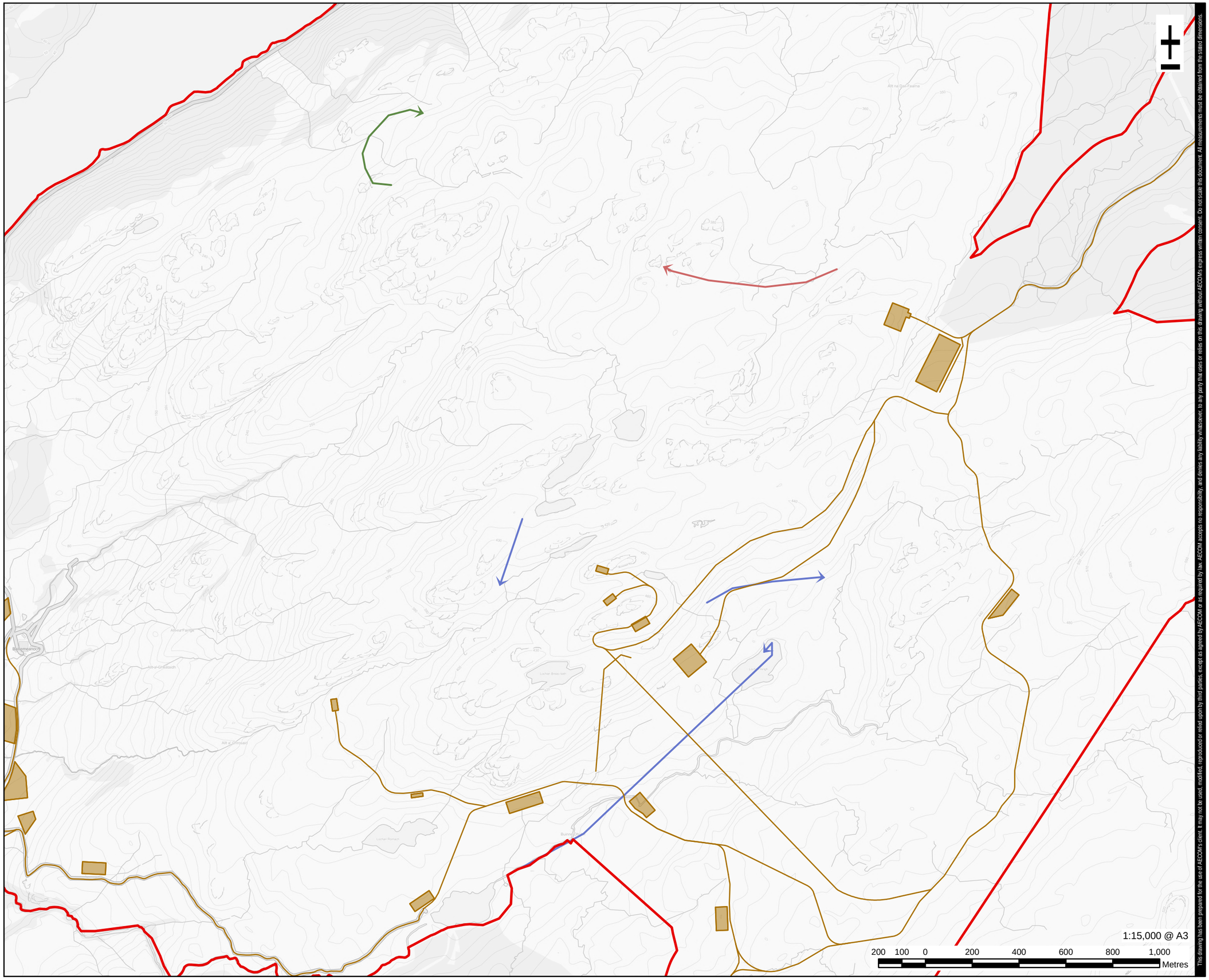

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177 Bothwell Street
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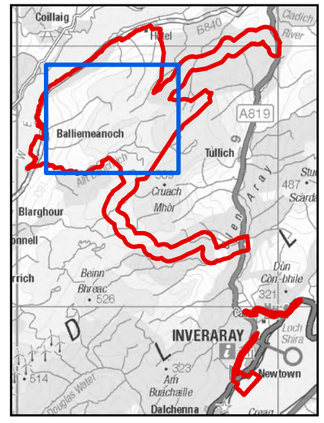
LEGEND

- Development Boundary
- Above Ground Infrastructure

Recorded Flightlines

- Black grouse
- Goosander
- Peregrine



NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

Flightlines Recorded by Vantage Point Surveys During Non-breeding Season

FIGURE NUMBER

Figure 9.1.2

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-06-27

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177 Bothwell Street
Glasgow G2 7ER
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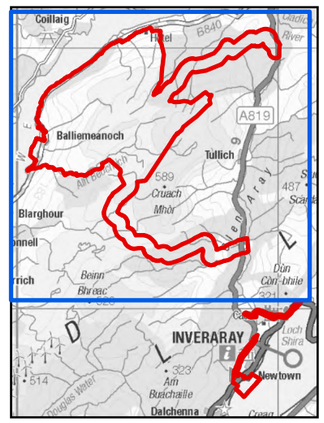
LEGEND

- Development Boundary
- Above Ground Infrastructure

Recorded Flightlines

- Goosander
- Golden plover
- Hen harrier
- White-tailed eagle



NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

Flightlines Recorded by Vantage Point Surveys During Breeding Season

FIGURE NUMBER

Figure 9.1.3

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-06-27

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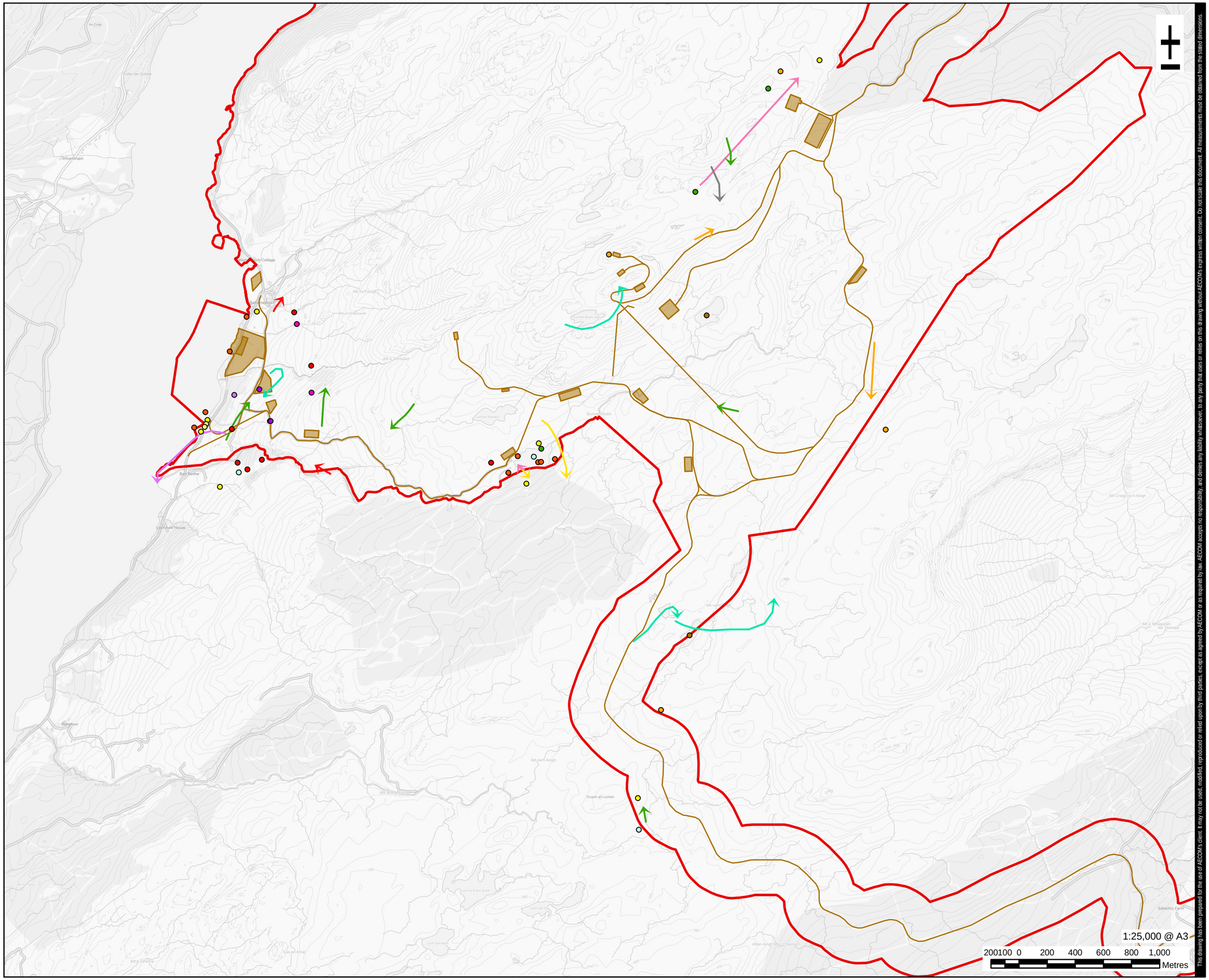

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CLIENT

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CONSULTANT

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www.aecom.com

LEGEND

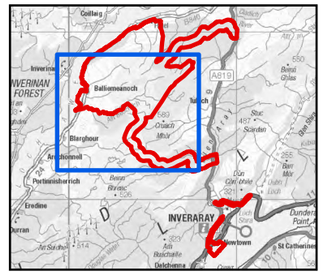
- Development Boundary
- Above Ground Infrastructure

Species

- Common Sandpiper
- Cuckoo
- Curlew
- Fieldfare
- Goldeneye
- Golden Plover
- Hooded Crow
- House Martin
- Lesser Redpoll
- Mistle Thrush
- Oyster Catcher

Recorded Flightlines

- Common Crossbill
- Curlew
- Golden Plover
- Hooded Crow
- Herring Gull
- Lesser Redpoll
- Mistle Thrush
- Oyster Catcher



NOTES

ISSUE PURPOSE

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PROJECT NUMBER

60570241

FIGURE TITLE

Results of Moorland Breeding Bird Surveys

FIGURE NUMBER

Figure 9.1.4 (Sheet 1 of 2)

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-06-27

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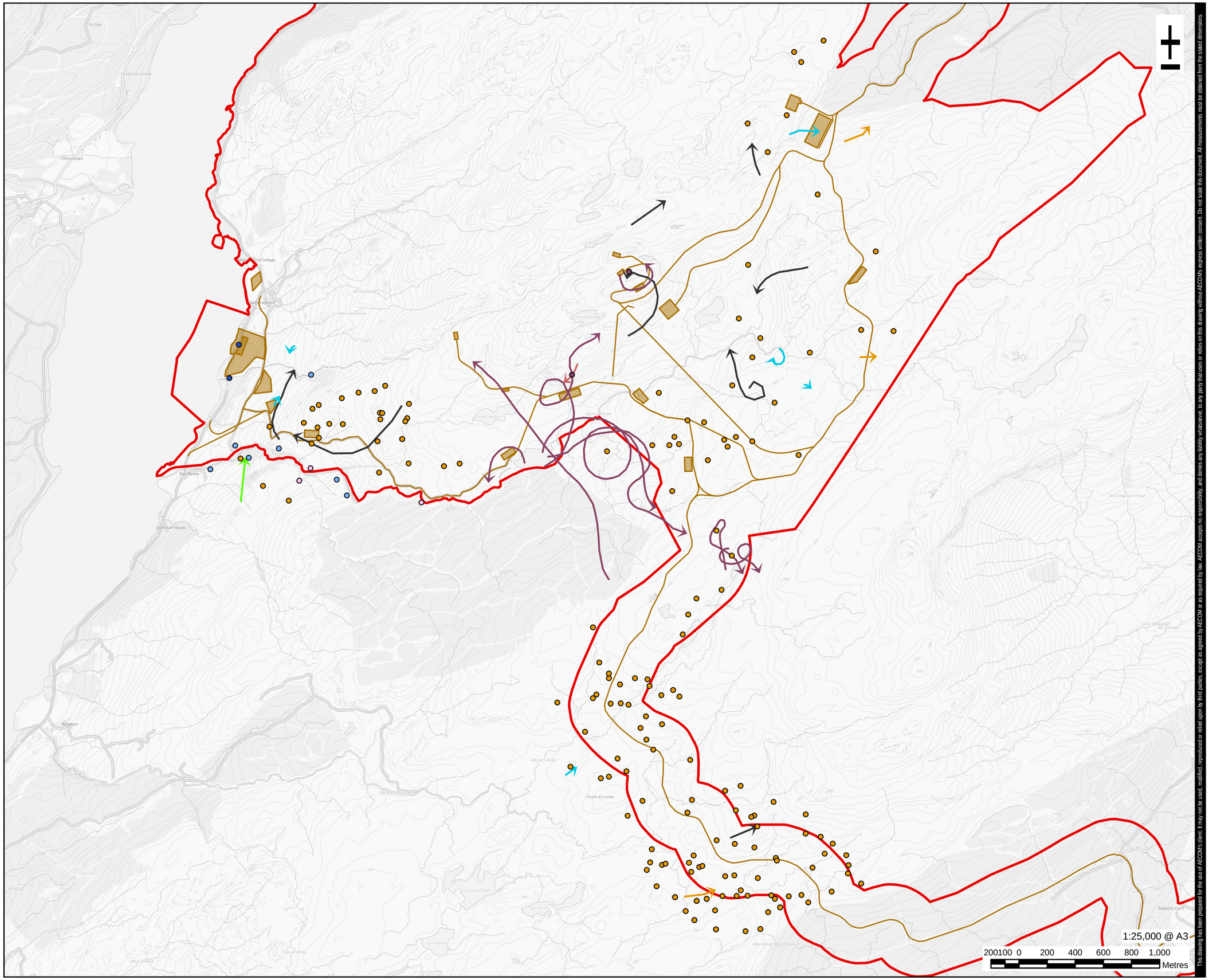

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LEGEND

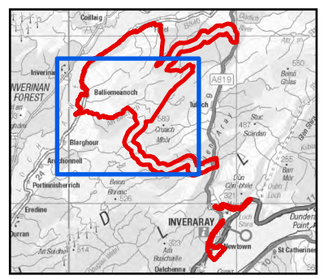
- Development Boundary
- Above Ground Infrastructure

Species

- Skylark
- Song Thrush
- Tree Pipit
- Whinchat
- White-tailed Eagle

Recorded Flightlines

- Peregrine
- Raven
- Skylark
- Siskin
- Snipe
- White-tailed Eagle



NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

Results of Moorland Breeding Bird Surveys

FIGURE NUMBER

Figure 9.1.4 (Sheet 2 of 2)

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-06-27

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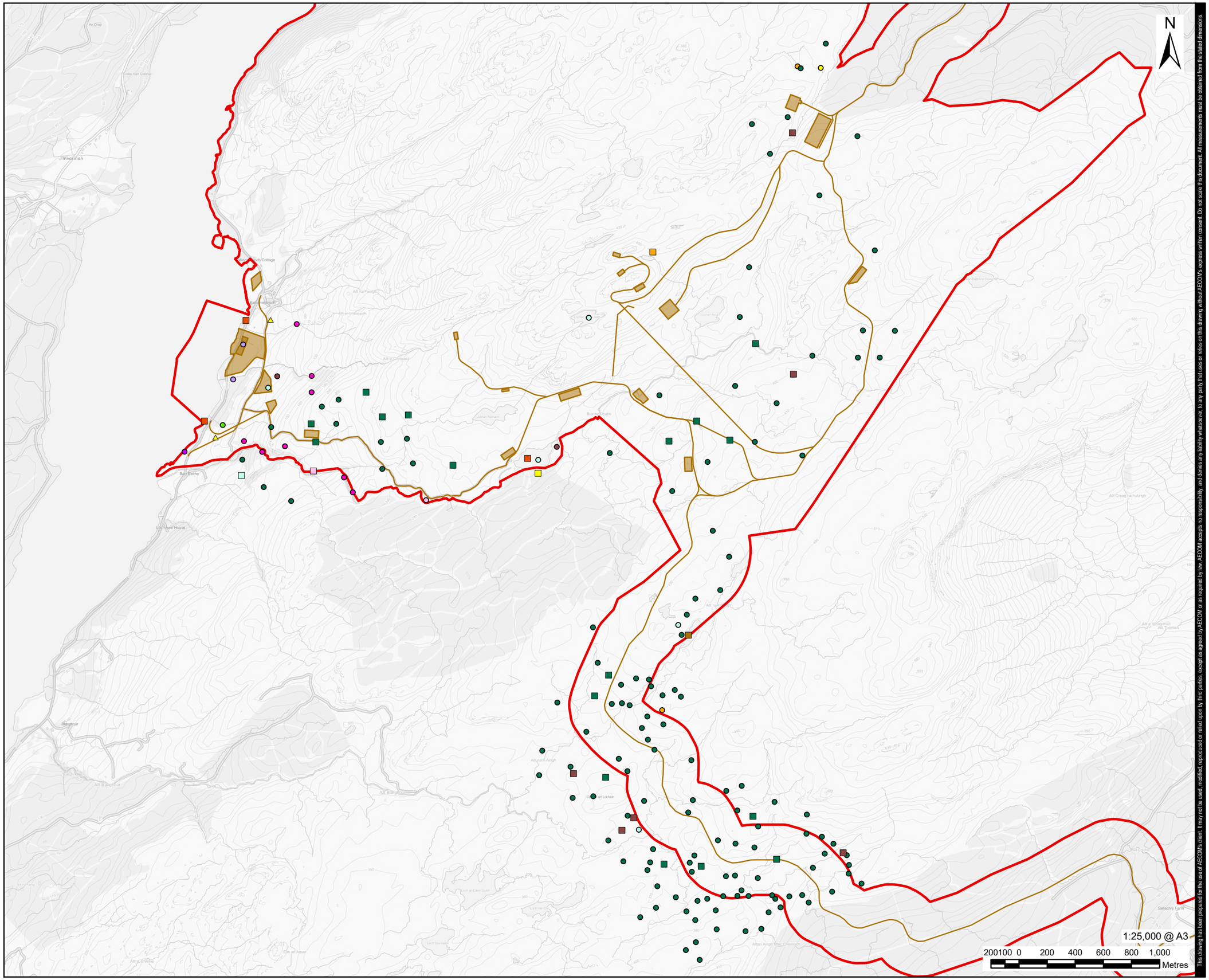

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LEGEND

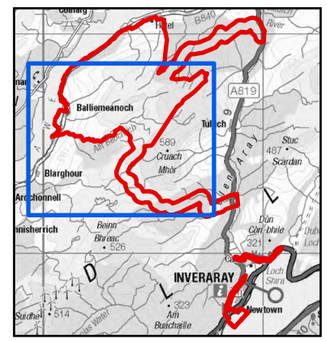
- Development Boundary
- Above Ground Infrastructure

Species

- Common Sandpiper
- Cuckoo
- Curlew
- Goldeneye
- Golden Plover
- Mistle Thrush
- Oystercatcher
- Skylark
- Spotted Flycatcher
- Snipe
- Song Thrush
- Tree Pipit
- Whinchat

Breeding Evidence

- Confirmed
- Possible
- Probable



NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

Results of Territory Analysis for Important Moorland Breeding Birds

FIGURE NUMBER

Figure 9.1.5

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-03-25

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North Lochan
Mid Lochan
South Lochan
Ridge Lochan
Far South Lochan
Lochan Airigh
Lochan Dubh na Cruaiche
Lochan Romach
Beochlich Reservoir
Chad Lochan

N

1:15,000 @ A3

200 100 0 200 400 600 800 1,000
Metres

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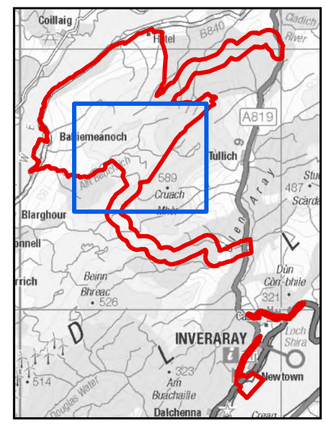
LEGEND

Development Boundary
Waterbodies Surveyed



NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

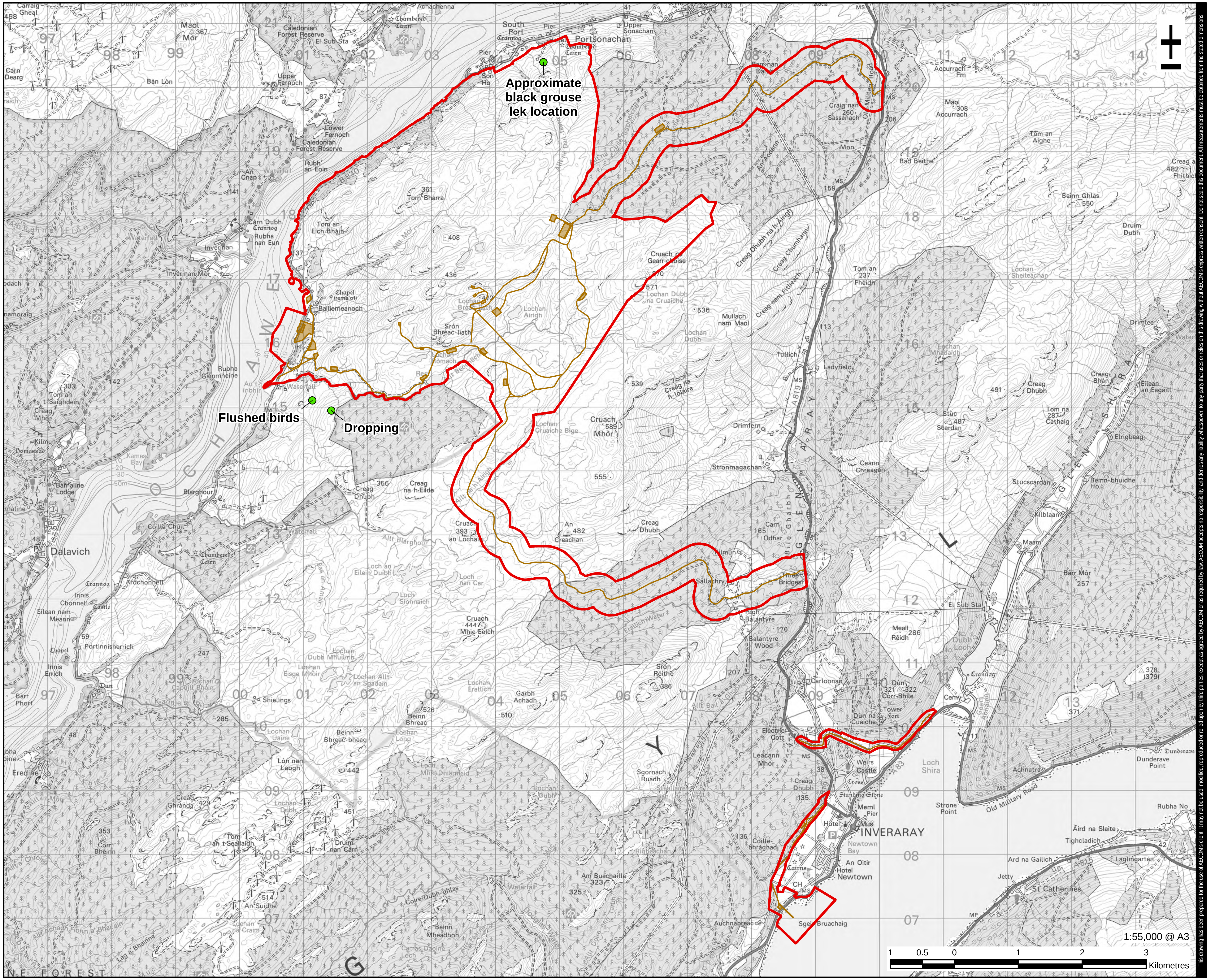
FIGURE TITLE

Waterbodies Surveyed for Breeding Divers

FIGURE NUMBER

Figure 9.1.6

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-06-27



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LEGEND

- Development Boundary
- Above Ground Infrastructure
- Black Grouse Observations

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ISSUE PURPOSE

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PROJECT NUMBER

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FIGURE TITLE

Black Grouse Survey Results

FIGURE NUMBER

Figure 9.1.7

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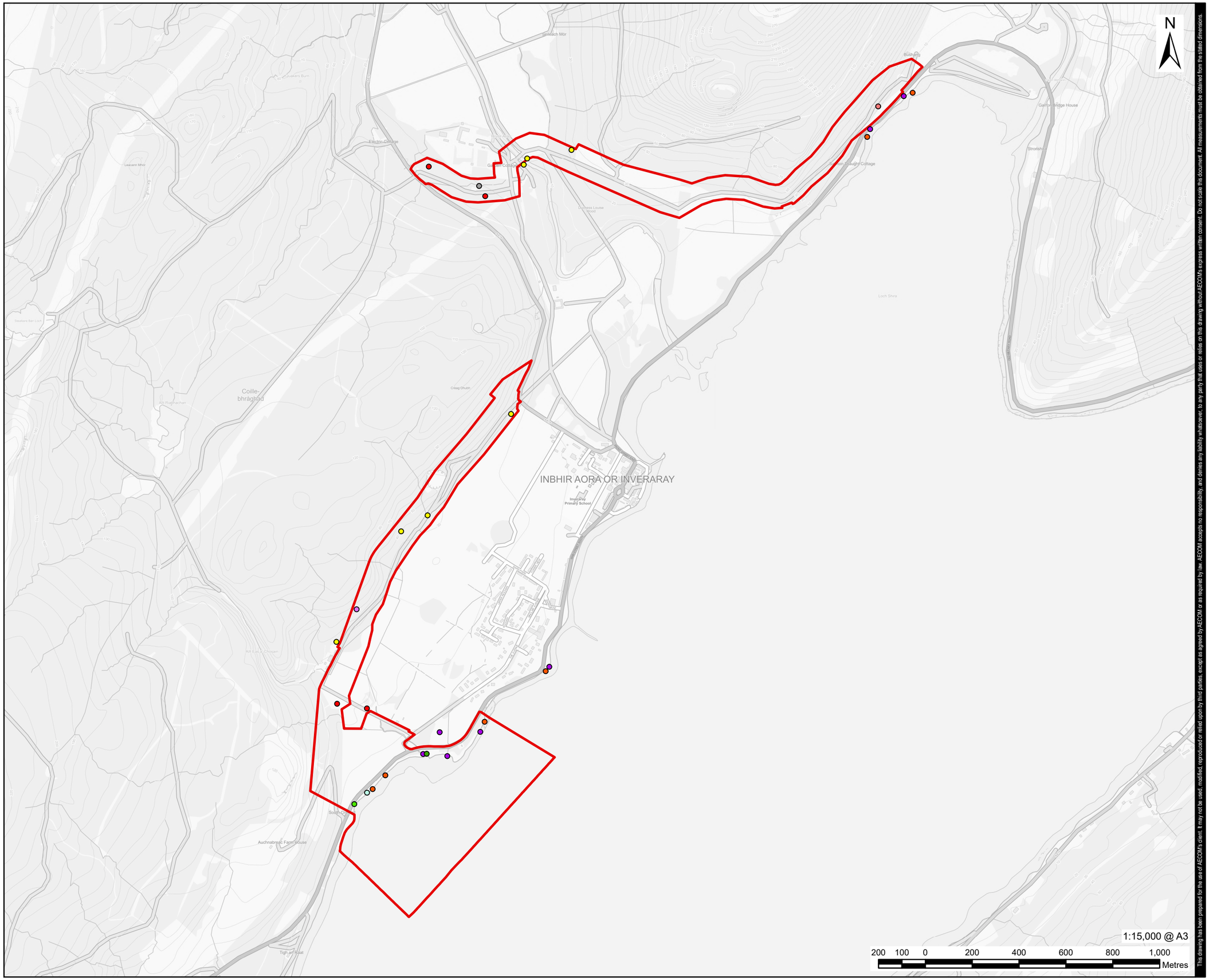
Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-03-27



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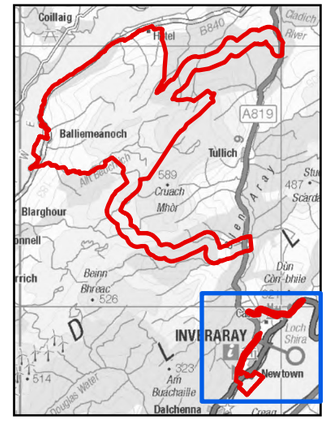
LEGEND

- Development Boundary

Species

- Bullfinch
- Common Crossbill
- Common Sandpiper
- Curlew
- Greenfinch
- Hooded Crow
- Kestrel
- Lesser Redpoll
- Mistle Thrush
- Oystercatcher



NOTES

ISSUE PURPOSE

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PROJECT NUMBER

60570241

FIGURE TITLE

Results of Common Bird Census

FIGURE NUMBER

Figure 9.1.8 (Sheet 1 of 2)

Filename: \\eu.aecomnet.com\UK\UKED4\Jobs\PR-291676_ILI_Portfolio_EIA\400_Technical\437_GIS\Balliemeanoch\02_Maps\00_EIA_Figures_Jan2024\Appendix_9.1_6.2_240220.aprx

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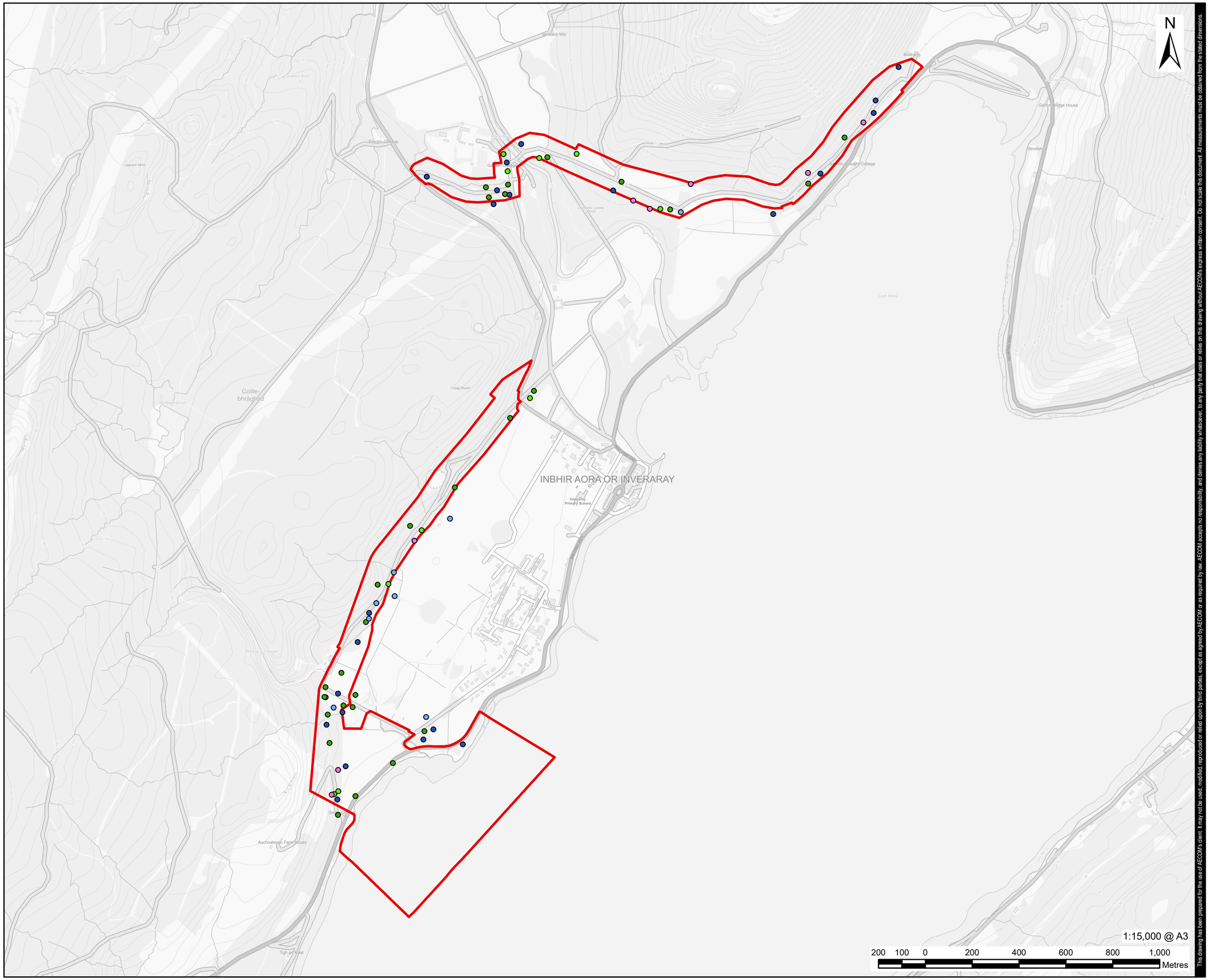

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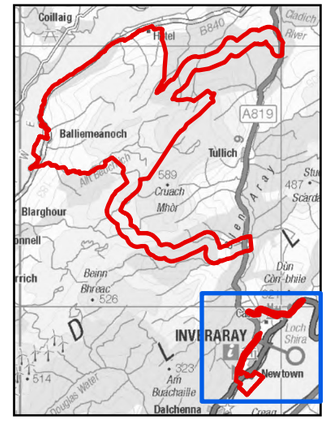
LEGEND

Development Boundary

Species

- Spotted Flycatcher
- Siskin
- Song Thrush
- Tree Pipit
- Wood Warbler



NOTES

ISSUE PURPOSE

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PROJECT NUMBER

60570241

FIGURE TITLE

Results of Common Bird Census

FIGURE NUMBER

Figure 9.1.8 (Sheet 2 of 2)

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-03-27

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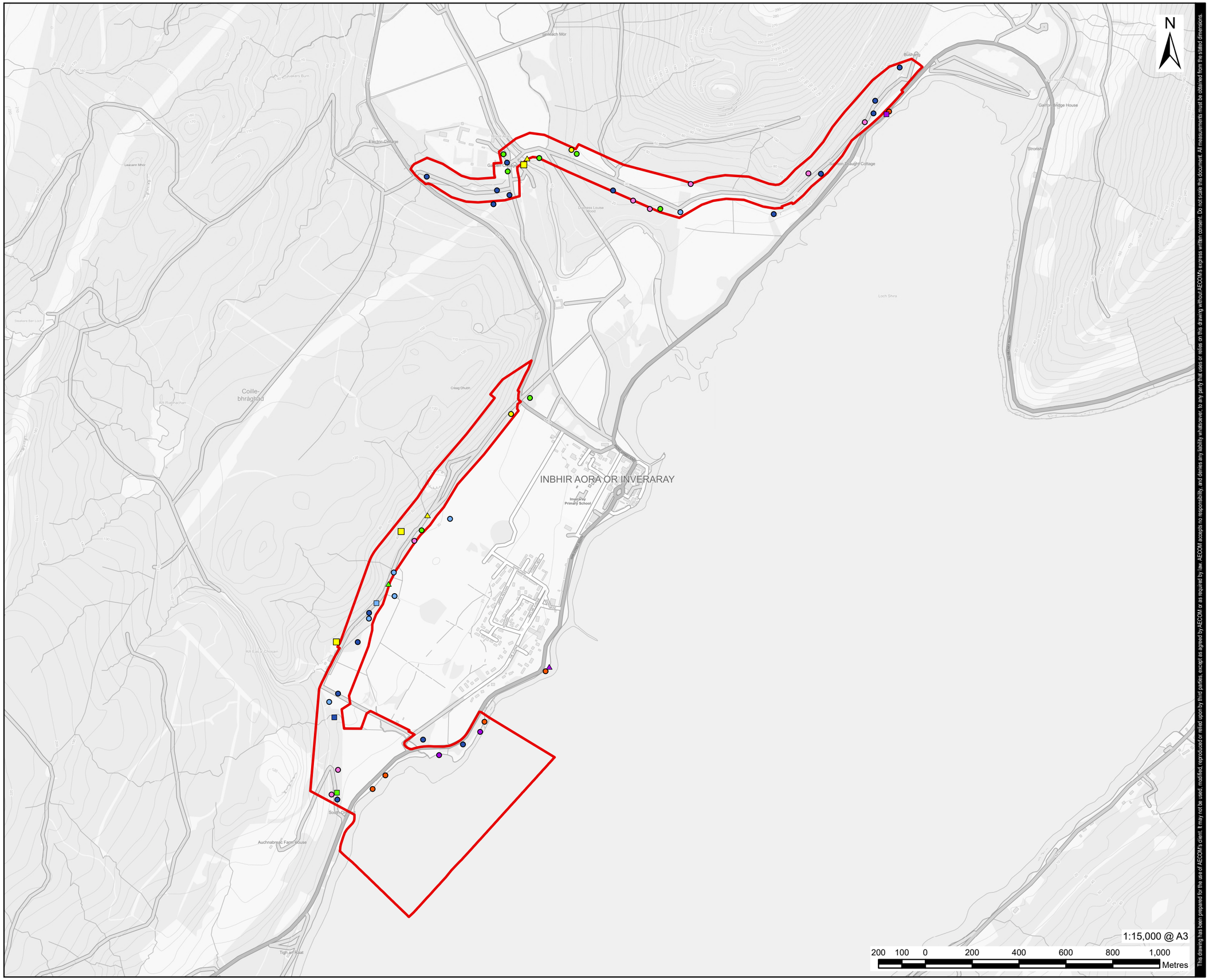

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LEGEND

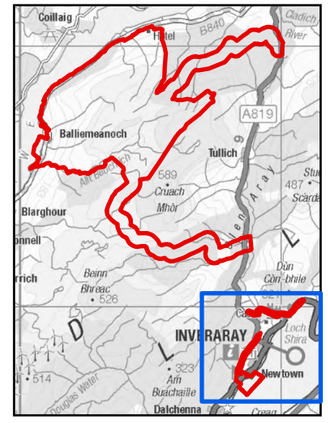
Development Boundary

Species

- Common Sandpiper
- Mistle Thrush
- Oystercatcher
- Spotted Flycatcher
- Song Thrush
- Tree Pipit
- Wood Warbler

Breeding Evidence

- Confirmed
- Possible
- Probable



NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

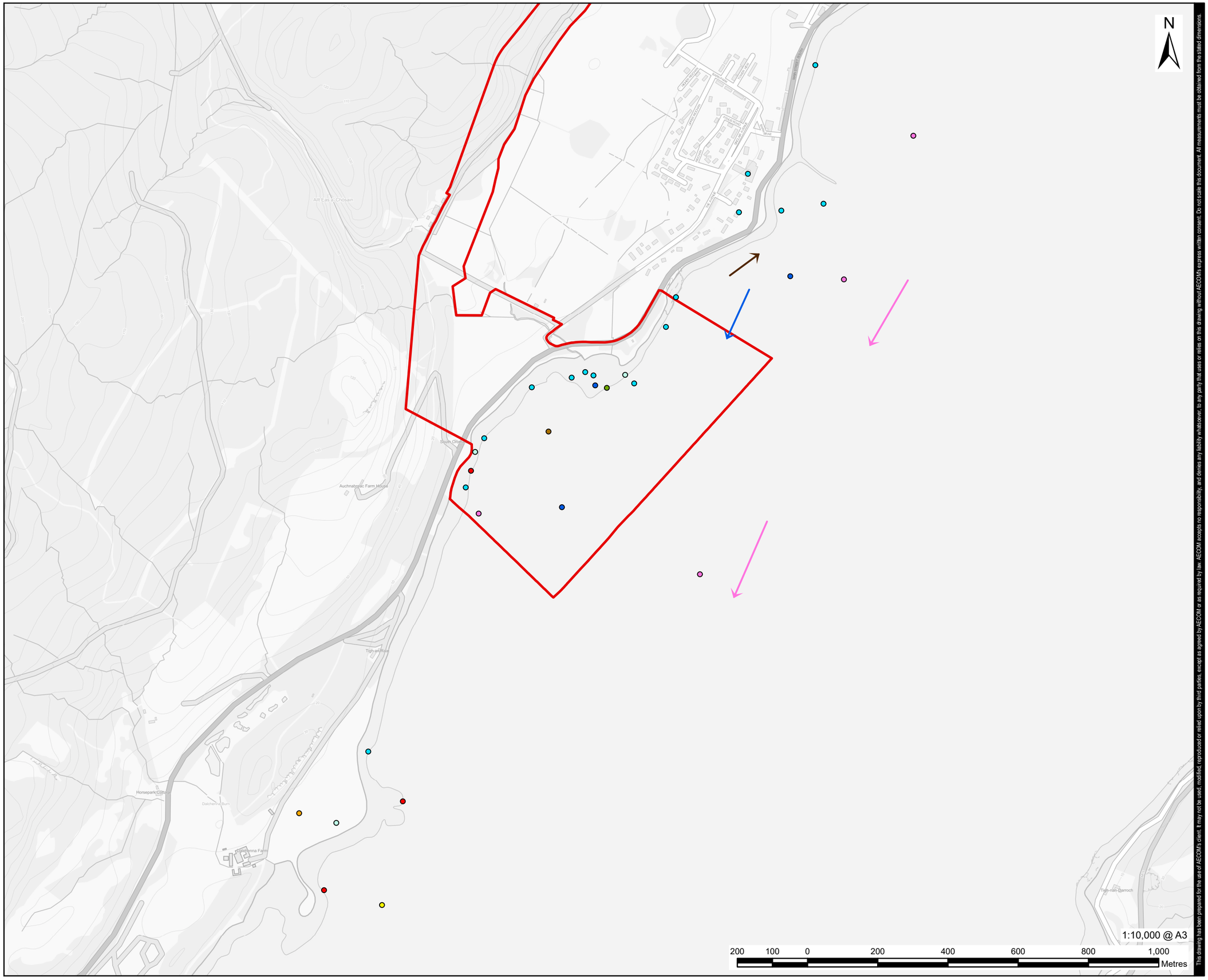
Results of Territory Analysis for Important Breeding Birds Near Inveraray

FIGURE NUMBER

Figure 9.1.9

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-03-27

Filename: \\eu.aecomnet.com\UKUKED4\Jobs\PR-291676_ILI_Portfolio_EIA\400_Technical\437_GIS\Balliemeanoch\02_Maps\00_EIA_Figures_Jan2024\Appendix_9.1_6.2_2402220.aprx



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LEGEND

- Development Boundary

Species

- Cormorant
- Curlew
- Eider
- Greylag Goose
- Goldeneye
- Guillemot
- Grey Heron
- Herring Gull
- Lesser Black-backed Gull

Recorded Flightlines

- Cormorant
- Guillemot
- Gannet

NOTES

ISSUE PURPOSE

FINAL

PROJECT NUMBER

60570241

FIGURE TITLE

Results of Non-breeding Coastal Waterbird Surveys

FIGURE NUMBER

Figure 9.1.10 (Sheet 1 of 2)

Revision: 0 Drawn: MH Checked: BM Approved: TM Date: 2024-03-27

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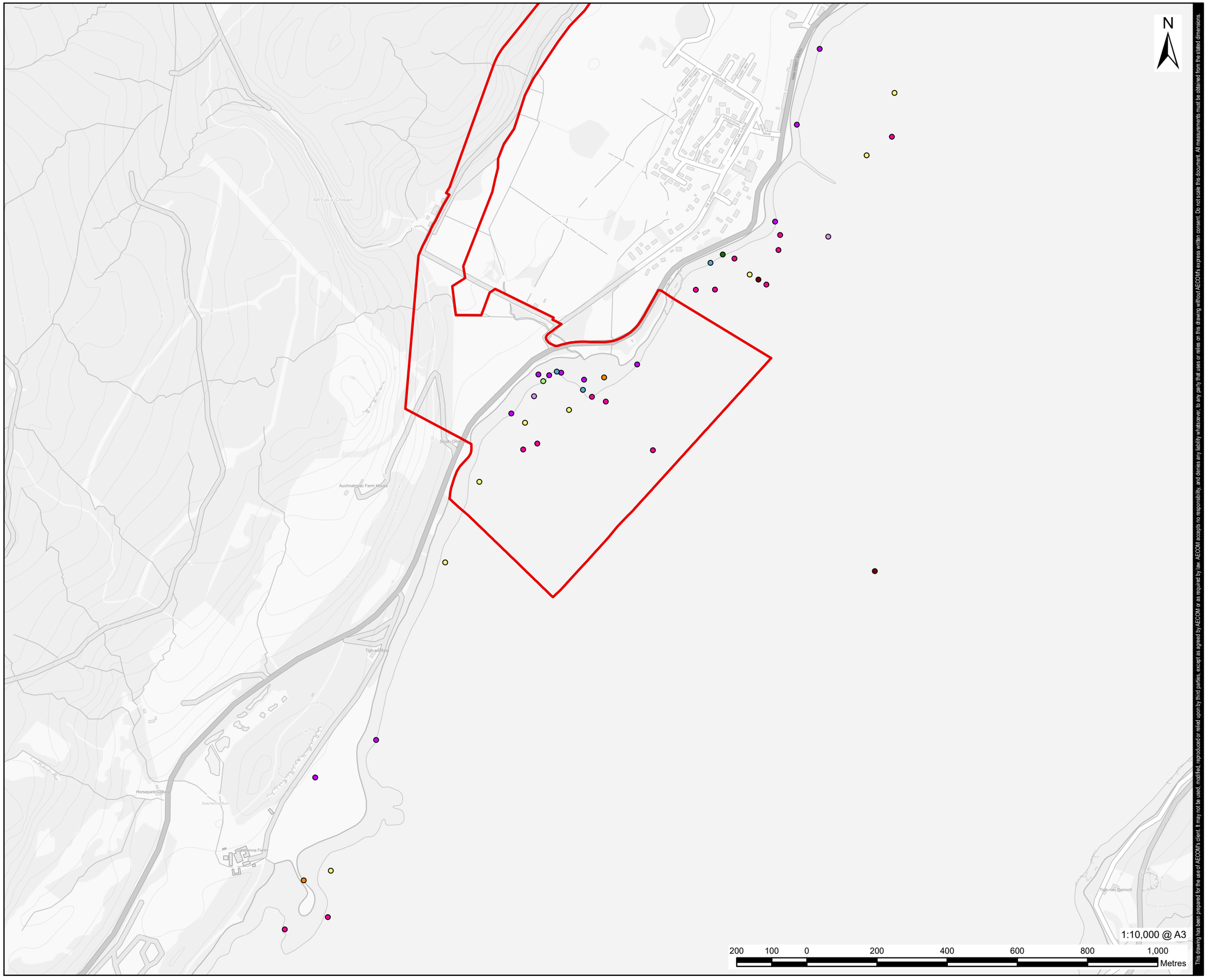

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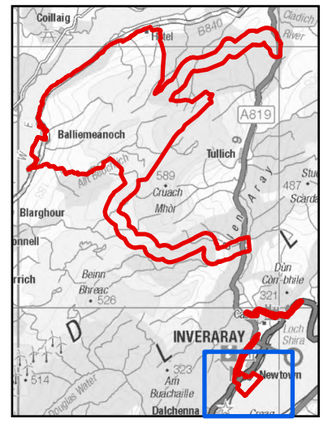
LEGEND

- Development Boundary

Species

- Mallard
- Oystercatcher
- Redshank
- Red-breasted Merganser
- Ringed Plover
- Ring Ouzel
- Shag
- Turnstone
- Black Guillemot



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PROJECT NUMBER

60570241

FIGURE TITLE

Results of Non-breeding Coastal Waterbird Surveys

FIGURE NUMBER

Figure 9.1.10 (Sheet 2 of 2)