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Greater Dublin Drainage Project Addendum

Environmental Impact Assessment Report Addendum: Volume 3A Part B of 6

Appendix A11.2 Terrestrial Ornithology Technical Report

Uisce Éireann

October 2023

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1 INTRODUCTION

1.1 Purpose of this Document

RPS was commissioned by Uisce Éireann (UÉ) to complete update ecology surveys to inform the Greater Dublin Drainage Project (hereafter referred to as the Proposed Project) Environmental Impact Assessment Report (EIAR).

An EIAR was prepared for the Proposed Project and was submitted in the 2018 planning application. Chapter 11 of the EIAR considered terrestrial biodiversity.

As detailed in Chapter 1a (Introduction) in Volume 2A of the EIAR Addendum Report, we have reviewed Chapter 11 (Biodiversity (Terrestrial and Freshwater Aquatic)) and the associated appendices of the EIAR submitted with the original 2018 planning application in light of:

- Changes to the baseline environment;
- The requirement for updated surveys; and
- Any changes to the law, policy, or industry standards and guidance in the intervening period.

This Appendix documents the findings of the update terrestrial ornithology surveys and informs Chapter 11A Biodiversity (Terrestrial and Freshwater Aquatic)) of the Environmental Impact Assessment Report (EIAR) Addendum Report.

In updating the baseline ecology information for the Proposed Project this was completed cognisant of the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland – Terrestrial, Freshwater, Coastal and Marine (hereafter referred to as the CIEEM Guideline) (CIEEM 2018), with respect to the validity of baseline data.

This Appendix is a factual account of the update surveys which have been completed for the Proposed Project between 2020 and 2023, and documents the methodology and findings of these surveys. The update terrestrial ornithology surveys completed were:

- · Breeding bird surveys; and
- Winter bird surveys.

The data were collected between April and May 2021 and between April and June 2023 (breeding bird surveys), and between October and November 2022 and between February and March 2023 (winter bird surveys).

A suite of estuarine walkover surveys of Baldoyle Bay were undertaken between September 2020 and March 2021 and between October and December 2022. The methodology and results of these surveys, along with the species and designations related to the estuarine and nearshore habitats of Baldoyle Bay are reported in Appendix A10.1 in Volume 3A Part B of this EIAR Addendum.

The coverage in this current Appendix is therefore for land-based species, largely comprising the species frequently referred to under the broad term 'farmland birds', but also including all raptors and inland riverine species such as kingfisher. The following ornithological elements of this Appendix, therefore, only consider these birds and their habitats.

In addition, the data has been compared with the relevant baseline in Chapter 11 (Biodiversity (Terrestrial and Freshwater Aquatic)) in Volume 3 Part A of the EIAR in the 2018 planning application to identify any material changes to the baseline conditions in the intervening period. Any identified material changes have then been used to inform Chapter 11A (Biodiversity (Terrestrial and Freshwater Aquatic)) in Volume 3A Part A of the EIAR Addendum.

2 BREEDING BIRD SURVEYS

2.1 Survey Methodology

The breeding bird surveys comprised an abridged version of the British Trust for Ornithology's (BTO) Common Bird Census (CBC) technique as detailed within Bird Census Techniques (Bibby *et al.*, 2000) and Bird Monitoring Methods: A Manual of Techniques for Key UK Species (Gilbert *et al.*, 1998), which aims to capture data on breeding bird activity during the optimal survey window of April to July.

The survey area covered the Proposed Project (land based elements) and a buffer either side, primarily extending 250 metres (m) on each side, depending on access and other infrastructure (such as the motorway and rail corridors etc.). Surveyors walked the route at a slow and methodical pace in suitably fine weather in order to locate and identify all individual birds by sound and / or sight. Suitable optical equipment was used to observe bird behaviour. The surveyor approached all parts of the survey area to within 100m (where field boundaries and access allowed), with particular focus given to areas of potential ornithological interest such as water bodies, drainage ditches, watercourses, scrub and woodland edges.

The surveys, undertaken between April and May in 2021 and between April and June 2023 (see Appendix 2, Table A11.1), covered the western section of the route (west of the M1 Motorway) and eastern section of the route (between the shoreline and M1 Motorway). Surveys undertaken in 2021 were eight hours in duration, commencing at 08:00hrs and finishing at 17:00hrs. Surveys undertaken in 2023 were six hours in duration, commencing at 06:00hrs and finishing at 12:00hrs. Two surveys undertaken in May 2023 commenced at 06:50hrs and 06:40hrs, and finishing at 12:40hrs and 12:10hrs, respectively.

All bird locations were mapped using standard BTO one and two letter species codes on appropriate field maps. Specific diagrammatic codes were also used for singing, calling, movements between areas, flying, carrying food, nest building, aggressive encounters and other behaviour. In addition, any occupied nests were noted. Notable observations that occurred outside the survey area, but within sight of the surveyors inside the survey area, were also recorded.

All birds seen / heard within the survey area were recorded. However, the surveys focused on species that are afforded special statutory protection or those included on one, or more, of the lists of species of conservation interest. These include:

- Species listed on Annex 1 of Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (hereafter referred to as the Birds Directive), or specially protected species listed under the Wildlife Act 1976 and Wildlife (Amendment) Act 2000; and
- Species included in the Birds of Conservation Concern (BoCC) Red and Amber Lists (Gilbert et al. 2021), and priority species within Ireland's National Biodiversity Action Plan (NBAP) (Department of Housing, Local Government and Heritage, 2022).

All surveys were conducted by competent and professional ornithologists with considerable experience of bird survey techniques in Ireland.

2.2 Results

Survey effort during the breeding bird surveys is presented in Appendix 2 (Table A11.1), with weather data presented in Appendix 3 (Table A11.2). Counts of all birds recorded across the survey area are presented in Appendix 4 (Table A11.3).

A total of 33 species recorded during the surveys are listed under one or more of the following:

- Annex 1 of the Birds Directive;
- Specially protected species listed under the Wildlife Act 1976 and Wildlife (Amendment) Act 2000; and / or
- BoCC Red or Amber Lists (Gilbert et al. 2021).

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The distribution of these 33 species are presented in Appendix 1, Figures A11.1 to A11.33.

3 WINTER BIRD SURVEYS

3.1 Survey Methodology

The winter bird surveys consisted of two surveys: walkover surveys completed in Q4 2022 and Q1 2023, and Ireland Wetland Bird (IWeB) surveys, completed in 2020 / 2021 and 2022 / 2023 (see Appendix 5, Table A11.4). The results of the IweB surveys are reported in Appendix A10.1 in Volume 3A Part B of the EIAR Addendum.

The winter bird walkover surveys covered the Proposed Project corridor and a 250m buffer on either side, where feasible (i.e. where access allowed) with one visit undertaken over four days between late October and early November 2022, and over 10 days between February and March 2023 (see Appendix 5, Table A11.4).

A survey on 13 February 2023 commenced at 11:21hrs and finished at 14:30hrs. The survey on 6 March 2023 commenced at 12:45hrs and finished at 16:15hrs. All other surveys commenced between 07:30hrs and 09:00hrs and finished between 12:00hrs and 17:38hrs.

The same methodology was used as for the breeding bird survey (i.e. surveyors walked the route, pausing at appropriate points to focus on areas of potential ornithological interest such as water bodies, watercourses, scrub, hedges and woodland edges, stubble fields and game cover crops etc.). All parts of the survey area were approached to within 100m (where field boundaries and access allowed).

All bird locations were mapped using standard BTO one and two letter species codes on appropriate field maps. Specific diagrammatic codes were also used for singing, calling, movements between areas, flying, aggressive encounters and other behaviour. Notable observations that occurred outside the survey area, but within sight of the surveyors inside the survey area, were also recorded.

All surveys were conducted by competent and professional ornithologists with considerable experience of bird survey techniques in Ireland.

3.2 Results

Survey effort during the winter bird surveys is presented in Appendix 5 (Table A11.4) and counts of all birds recorded across the survey area are presented in Appendix 6 (Table A11.5).

A total of 37 species recorded during the surveys are listed under one or more of the following:

- Annex 1 of the Birds Directive; and / or
- BoCC Red or Amber Lists (Gilbert et al. 2021).

Reference is not made to species afforded special protection under the Wildlife Act 1976 and Wildlife (Amendment) Act 2000 as the protection measures only apply to these species within the breeding season.

The distribution of these 37 species are presented in Appendix 1, Figures A11.34 to A11.70.

4 KEY MATERIAL CHANGES IN BASELINE

The bird species present within the 250m buffer of the Proposed Project boundary during the surveys undertaken between 2021 and 2023 remain typical common birds associated with highly modified agricultural landscapes, with open fields, hedgerows, treelines, pockets of woodland, drainage ditches, ponds and watercourses. The species recorded, therefore, continue to be entirely in keeping with what would be anticipated given the land uses and habitats.

In terms of breeding birds, the surveys for the EIAR Addendum recorded two occurrences of little egret (a Birds Directive Annex 1 species) in 2023. One sighting was of an individual on the western bank of the Baldoyle Estuary in April, and another sighting of a bird flying south over it in May. A single occurrence of an Annex 1 species (kingfisher) was recorded on the River Tolka, to the west of Abbotstown which was reported in the EIAR in the 2018 planning application. Kingfisher were not recorded during the updated surveys. It is, however, possible that kingfisher(s) is / are still present, but at the time of surveys was either upstream or downstream, and therefore outside the Proposed Project study area.

Other breeding species of note, in conservation terms, are those listed as Red or Amber (BOCCs) in Ireland. Since the submission of the EIAR in the 2018 planning application, an updated BOCC assessment has been published (Gilbert *et al.* 2021), and it has therefore been used for the assessment in this EIAR Addendum. In the EIAR in the 2018 planning application, seven species were recorded that were Red-listed at the time (grey wagtail, yellowhammer, lapwing and meadow pipit as confirmed, probable or possible breeding species, and black-headed gull, cormorant, herring gull and curlew as over-flying, loafing of foraging). The surveys undertaken between 2021 and 2023 also recorded eight species that are Red-listed (Gilbert *et al.* 2021), namely grey wagtail, yellowhammer, meadow pipit (as confirmed, probable or possible breeding species) and stock dove, kestrel, razorbill, snipe and oystercatcher (as over-flying, loafing of foraging). Two curlew were heard calling (but not seen) in an area to the east of the Baldoyle Estuary in May 2023. Small numbers of redshank were recorded along the eastern shore of the estuary in April 2023. Black-headed gull and herring gull were both recorded in the surveys undertaken between 2021 and 2023, but these species are now categorised as Amber-listed, rather than Red-listed (as they were at the time of the submission of the EIAR in the 2018 planning application). Lapwing, which were recorded as part of the baseline in the EIAR in the 2018 planning application, were not present during the surveys undertaken between 2021 and 2023.

Twenty-two Amber-listed species were recorded in the EIAR in the 2018 planning application during the breeding season. The Amber-listed farmland, raptor and wildfowl species recorded between 2021 and 2023 are comparable, as would be expected, given the relative consistency of habitats between these periods. The breeding bird assemblage present therefore remains an ecological feature of site level importance and remains unchanged from that reported in the EIAR in the 2018 planning application.

As was reported in the EIAR in the 2018 planning application, there were no significant agglomerations of winter birds, such as geese or other wildfowl, or species reliant on farmland. The Proposed Project study area is therefore of no more than local importance for wintering birds.

5 REFERENCES

Bibby, C.J., Burgess, N.D., Hill, D.A., Mustoe, S. and Lambton, S. (2000). *Bird Census Techniques*. Academic Press, London.

Department of Housing, Local Government and Heritage (2022). Ireland's 4th National Biodiversity Action Plan: Draft for Public Consultation.

Gilbert G., Gibbons D.W. and Evans, J. (1998) Bird Monitoring Methods: A Manual of Techniques for Key UK Species. RSPB, Sandy.

Gilbert G., Stanbury A. and Lewis L. (2021) Birds of Conservation Concern in Ireland 2020 –2026. Irish Birds 9: 523-544.

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APPENDIX 1 – FIGURES

- Figure A11.1 Black-headed gull records from breeding bird survey (April 2021 to June 2023)
- Figure A11.2 Common gull records from breeding bird survey (April 2021 to June 2023)
- Figure A11.3 Coot records from breeding bird survey (April 2021 to June 2023)
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- Figure A11.37 Brent goose records from winter bird surveys (October 2022 to March 2023)
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- Figure A11.39 Coot records from winter bird surveys (October 2022 to March 2023)
- Figure A11.40 Cormorant records from winter bird surveys (October 2022 to March 2023)
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- Figure A11.43 Golden plover records from winter bird surveys (October 2022 to March 2023)
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- Figure A11.45 Greenfinch records from winter bird surveys (October 2022 to March 2023)
- Figure A11.46 Grey plover records from winter bird surveys (October 2022 to March 2023)
- Figure A11.47 Herring gull records from winter bird surveys (October 2022 to March 2023)
- Figure A11.48 House sparrow records from winter bird surveys (October 2022 to March 2023)
- Figure A11.49 Kestrel records from winter bird surveys (October 2022 to March 2023)
- Figure A11.50 Lapwing records from winter bird surveys (October 2022 to March 2023)
- Figure A11.51 Lesser black-backed gull records from winter bird surveys (October 2022 to March 2023)
- Figure A11.52 Linnet records from winter bird surveys (October 2022 to March 2023)
- Figure A11.53 Little egret records from winter bird surveys (October 2022 to March 2023)
- Figure A11.54 Mallard records from winter bird surveys (October 2022 to March 2023)
- Figure A11.55 Meadow pipit records from winter bird surveys (October 2022 to March 2023)
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- Figure A11.69 Wigeon records from winter bird surveys (October 2022 to March 2023)
- Figure A11.70 Yellowhammer records from winter bird surveys (October 2022 to March 2023)

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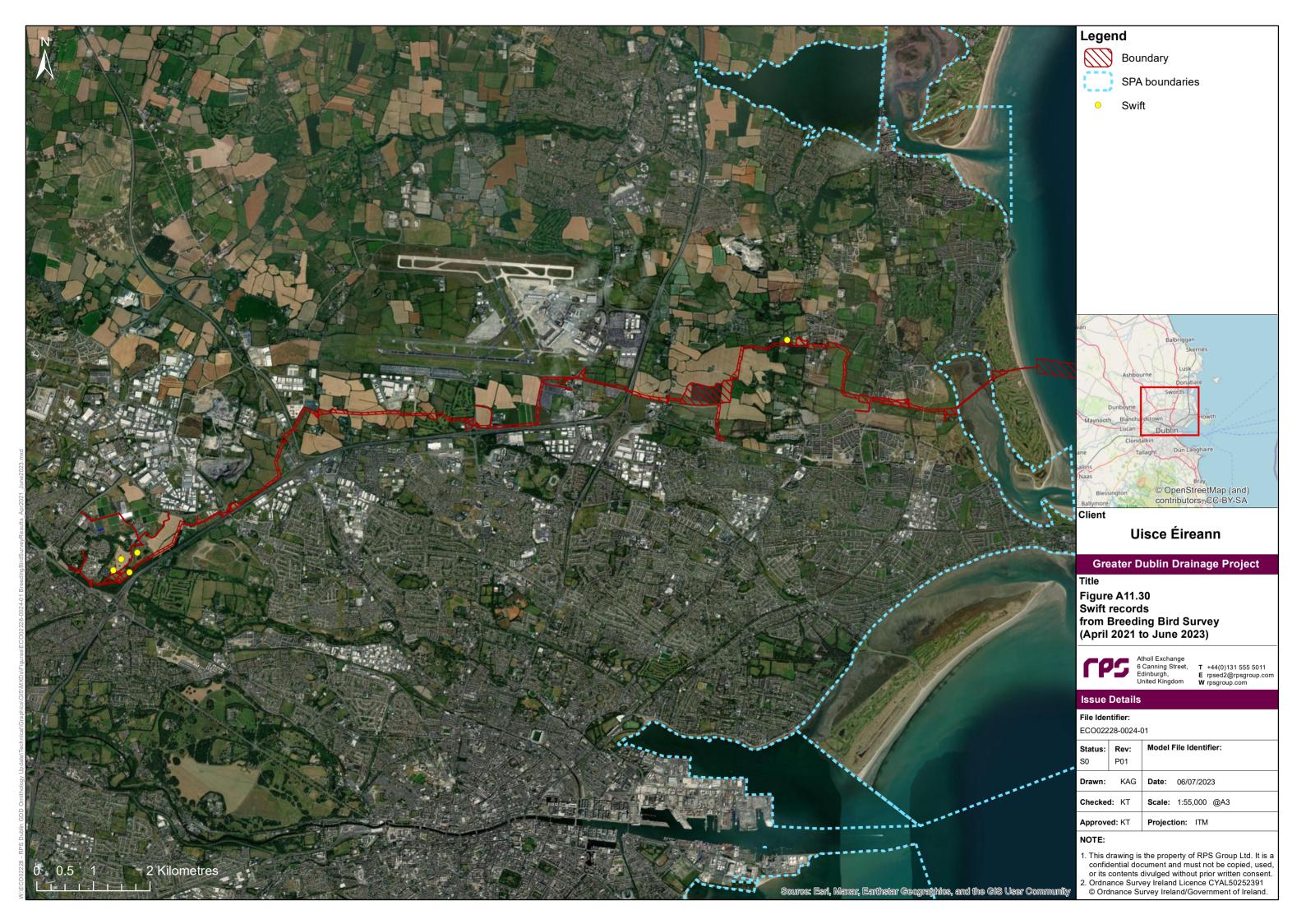
















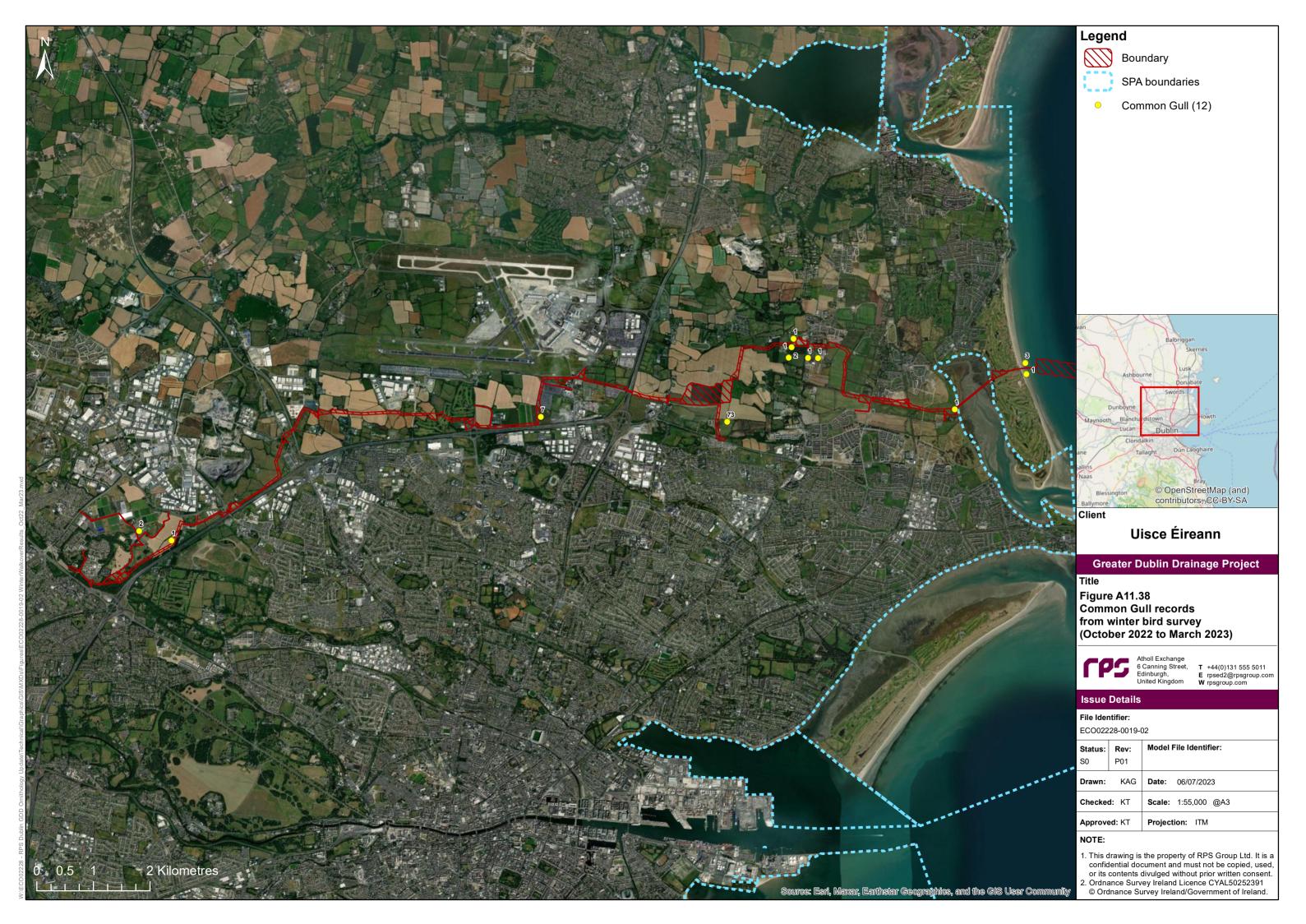










































































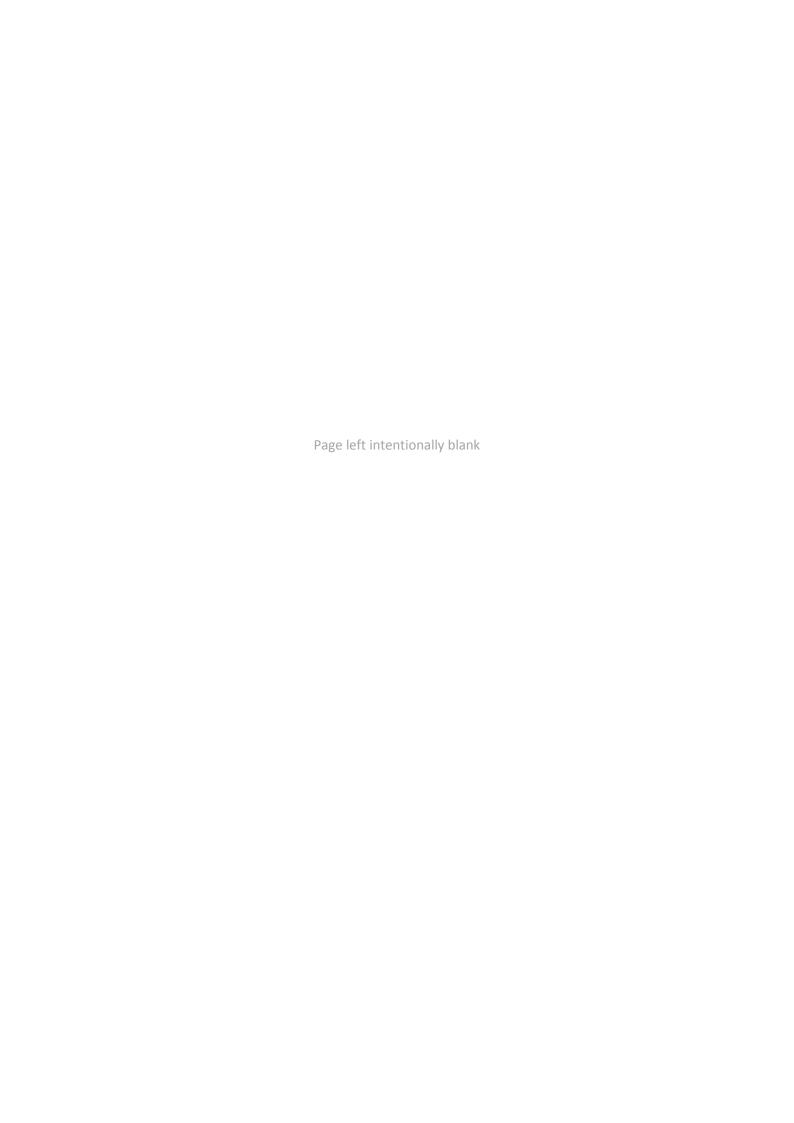


APPENDIX 2- BREEDING BIRD SURVEY EFFORT

Table A11.1 Survey effort during breeding bird surveys

Survey date	Surveyor	Start time (hh:mm)	End time (hh:mm)	Total time (hh:mm)
20/04/21	Paul Connaughton	09:00	17:00	08:00
20/05/21	Paul Connaughton	09:00	17:00	08:00
27/05/21	Nick Veale	09:00	17:00	08:00
28/05/21	Nick Veale	09:00	17:00	08:00
29/05/21	Nick Veale	09:00	17:00	08:00
24/04/23	Conor Maloney	06:00	12:00	06:00
25/04/23	Conor Maloney	06:00	12:00	06:00
26/04/23	Emma Ní Dhonnchadha	06:00	12:00	06:00
17/05/23	Conor Maloney	06:00	12:00	06:00
18/05/23	Conor Maloney	06:00	12:00	06:00
09/06/23	Lorna Gill	06:50	12:40	05:50
10/06/23	Lorna Gill	06:40	12:10	05:30
14/06/23	Emma Ní Dhonnchadha	06:00	12:00	06:00
15/06/23	Conor Maloney	06:00	12:00	06:00
28/06/23	E. Dempsey	06:55	12:15	05:20
29/06/23	E. Dempsey	07:20	12:40	05:20

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APPENDIX 3 – BREEDING BIRD SURVEY WEATHER

Table A11.2 Weather during breeding bird surveys

Survey date	Survey type	Surveyor	Start time (hh:mm)	End time (hh:mm)	Temperature (°C)	Wind Speed (BF)	Wind direction	Precipitation	Cloud cover (octas)	Notes
20/04/21	Breeding Bird Survey	Paul Connaughton	09:00	17:00	N/A	N/A	N/A	N/A	N/A	No weather information provided
20/05/21	Breeding Bird Survey	Paul Connaughton	09:00	17:00	N/A	N/A	N/A	N/A	N/A	No weather information provided
27/05/21	Breeding Bird Survey	Nick Veale	09:00	17:00	13-16	1-2	SE	0	3	No information provided on cloud height or visibility
28/05/21	Breeding Bird Survey	Nick Veale	09:00	17:00	11-15	2	SSE	1	8	No information provided on cloud height or visibility
29/05/21	Breeding Bird Survey	Nick Veale	09:00	17:00	11-17	1	SE	0	5	No information provided on cloud height or visibility
24/04/23	Breeding Bird Survey	Conor Maloney	06:00	12:00	N/A	N/A	N/A	N/A	N/A	No information provided on cloud height or visibility
25/04/23	Breeding Bird Survey	Conor Maloney	06:00	12:00	N/A	0-1	SE	0	1-2	No information provided on cloud height or visibility
26/04/23	Breeding Bird Survey	Emma Ní Dhonnchadha	06:00	12:00	6-11	1-2	S	0	2-5	Cloud height >500m, good visibility
17/05/23	Breeding Bird Survey	Conor Maloney	06:00	12:00	N/A	3	S	2-3	7-8	Poor to moderate visibility. Survey paused between 06:30-07:00 due to heavy rain
18/05/23	Breeding Bird Survey	Conor Maloney	06:00	12:00	N/A	2-3	SW	0	5-7	No information provided on cloud height or visibility
09/06/23	Breeding Bird Survey	Lorna Gill	06:50	12:40	N/A	3	NE	0	1-2	Good visibility
10/06/23	Breeding Bird Survey	Lorna Gill	06:40	12:10	N/A	3	Е	0-2	2	Good visibility

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Survey date	Survey type	Surveyor	Start time (hh:mm)	End time (hh:mm)	Temperature (°C)	Wind Speed (BF)	Wind direction	Precipitation	Cloud cover (octas)	Notes
14/06/23	Breeding Bird Survey	Emma Ní Dhonnchadha	06:00	12:00	16-21	3	SE	0	0-6	None
15/06/23	Breeding Bird Survey	Conor Maloney	06:00	12:00	10-20	1-2	NW-NE	0	0-1	None
28/06/23	Breeding Bird Survey	E. Dempsey	06:55	12:15	N/A	4	SW-NW	0	8	Good visibility
29/06/23	Breeding Bird Survey	E. Dempsey	07:20	12:40	N/A	3	NW	0	5	Good visibility

Wind speed (Beautort) 0-5; Wind direction: SE: South east, SSE = South south east; Precipitation: 0 = none, 1 = Light showers.

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APPENDIX 4 – BREEDING BIRD SURVEY DATA AND CONSERVATION STATUS

Table A11.3 Breeding bird survey data and conservation status

Species								Surve	y Date								Conservation
	20/04/21	20/05/21	27/05/21	28/05/21	29/05/21	24/04/23	25/04/23	26/04/23	17/05/23	18/05/23	09/06/23	10/06/23	14/06/23	15/06/23	28/06/23	29/06/23	Status
Blackbird	56	74	20	27	37	12	7	60	15	100	9	18	27	77	6	7	-
Blackcap	39	45	1	5	5	1	-	13	2	20	6	17	7	23	3	13	-
Black-headed gull	-	-	4	-	-	-	7	-	-	-	-	-	-	11	-	-	WA, BoCC Amber
Blue tit	20	20	6	19	18	4	-	40	5	58	14	26	41	61	6	10	-
Bullfinch	4	3	-	2	1	-	-	5	3	1	2	3	2	7	-	2	-
Buzzard	10	7	3	4	-	1	-	2	2	7	2	3	1	7	1	3	-
Chaffinch	21	36	13	19	25	6	1	24	2	34	13	31	17	59	6	8	-
Chiffchaff	16	12	2	3	2	2	-	-	1	1	2	5	2	4	3	6	-
Coal tit	-	3	2	5	2	-	-	1	-	2	-	1	5	1	-	1	-
Collared dove	3	-	-	-	-	-	-	1	-	2	-	-	3		-	-	-
Common gull	-	-	-	-	-	-	-	2	-	2	-	-	1	7	-	-	WA, BoCC Amber
Coot	2	-	-	-	-	-	-	-	-	-	-	-	-		-	-	BoCC Amber
Cormorant	-	-	-	=	-	-	-	-	-	-	-	-	-	1	1	-	WA, BoCC Amber
Curlew	-	-	-	-	-	-	-	-	-	2	-	-	-	3	-	-	BoCC Red
Dipper	1	2	-	-	-	-	-	-	-	-	-	-	-		-	-	-
Dunnock	102	40	4	15	16	3	3	22	3	17	9	17	7	21	3	5	-
Goldcrest	5	9	-	-	1	3	-	7	4	20	-	-	5	6	-	1	BoCC Amber
Goldfinch	14	17	16	15	5	1	7	20	9	53	5	6	8	77	5	6	-
Great black-backed gull	-	-	-	-	-	2	2	-	-	-	-	-	-	-	-	-	-
Great spotted woodpecker	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-
Great tit	17	17	4	8	6	8	2	11	4	17	4	12	1	10	1	2	-
Greenfinch	14	13	2	6	4	2	1	9	5	8	-	1	5	13	-	-	BoCC Amber
Grey heron	-	1	1	1	2	-	-	-	-	-	-	1	1	3	-	-	-
Grey wagtail	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BoCC Red

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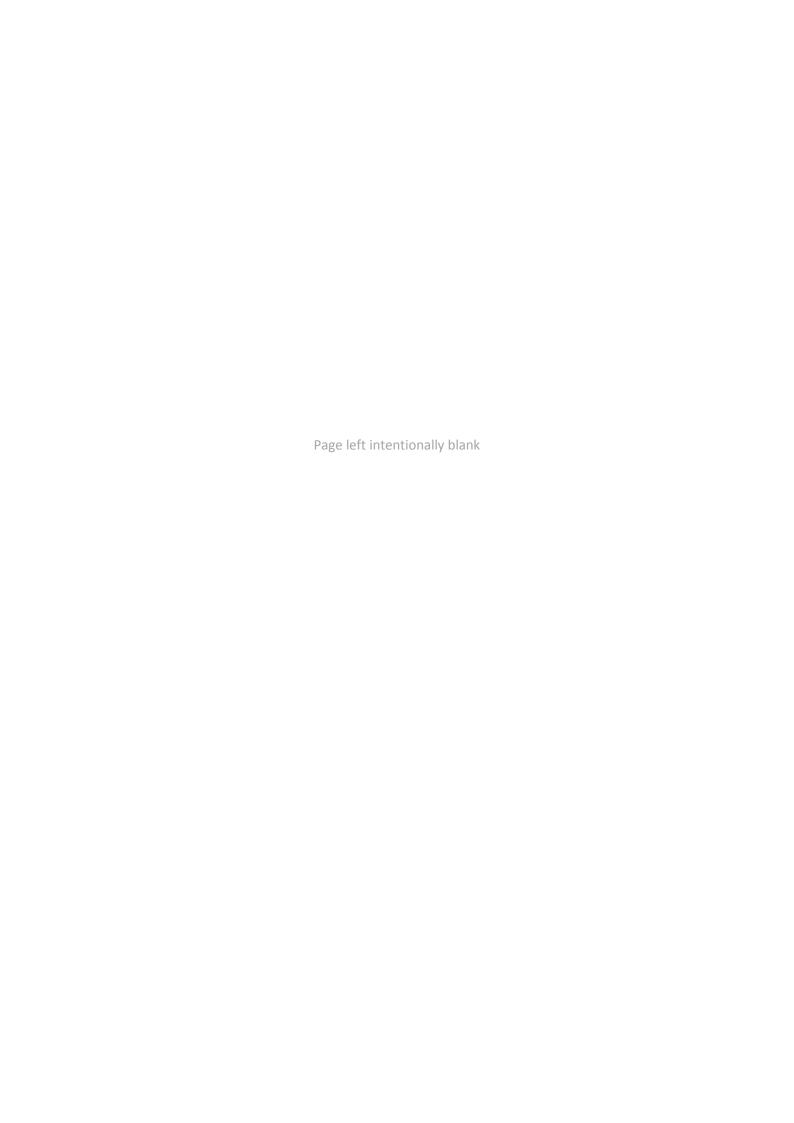
Species								Surve	y Date								Conservation Status
	20/04/21	20/05/21	27/05/21	28/05/21	29/05/21	24/04/23	25/04/23	26/04/23	17/05/23	18/05/23	09/06/23	10/06/23	14/06/23	15/06/23	28/06/23	29/06/23	Status
Greylag goose	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	BoCC Amber
Herring gull	-	-	-	-	2	13	96	19	-	25	-	-	6	62	-	-	BoCC Amber
Hooded crow	8	3	4	-	4	8	19	23	15	69	3	4	1	76	2	3	-
House martin	-	-	-	-	-	-	-	-	-	7	2	3	3	9	2	3	BoCC Amber
House sparrow	-	1	20	10	8	3	1	6	-	2	2	6	-	5	1	4	BoCC Amber
Jackdaw	31	1	2	-	13	2	8	8	3	14	4	3	5	19	2	3	-
Jay	-	-	-	-	-	-	-	-	-	1	-	-	1	1	-	-	-
Kestrel	-	-	3	-	1	-	-	-	-	-	-	-	-	-	-	-	BoCC Red
Lesser black-backed gull	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	BoCC Amber
Linnet	12	17	12	6	6	1	6	-	-	6	5	5	1	38	4	5	BoCC Amber
Little egret	-	-	=	-	-	-	1	-	-	1	-	-	-	7	-	-	Annex 1
Little grebe	-	-	4	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Long-tailed tit	1	4	-	6	5	-	-	1	-	2	-	1	-	6	-	-	-
Magpie	24	4	2	4	9	-	-	-	1	28	3	5	17	31	2	3	-
Mallard	5	6	4	-	-	2	15	-	-	16	-	-	18	7	-	-	BoCC Amber
Meadow pipit	9	12	3	-	3	6	21	1	-	13	4	1	3	19	1	1	BoCC Red
Mistle thrush	-	-	-	1	-	-	-	2	-	3	-	3	2	10	-	-	-
Moorhen	-	1	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-
Mute swan	1	-	-	-	-	-	-	-	-	1	-	-	8	2	-	-	BoCC Amber
Oystercatcher	-	-	2	-	-	-	-	-	-	-	-	-	-	14	-	-	BoCC Red
Pheasant	-	-	-	-	-	-	-	-	1	2	-	2	-	3	-	1	-
Pied wagtail	6	2	-	4	11	1	-	1	-	5	-	1	-	7	-	1	-
Raven	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Razorbill	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	BoCC Red
Redshank	-	-	-	-	-	-	5	-	-	-	-	-	-	-	-	-	BoCC Red
Reed bunting	1	4	9	-	-	-	1	1	-	5	-	1	-	-	-	-	-
Robin	76	83	11	22	34	12	5	49	17	67	10	23	8	14	11	8	-
Rook	-	-	2	-	10	-	1	7	2	32	1	1	3	35	-	2	-
Sand martin	-	-	-	-	-	-	-	-	-	5	-	-	-	2	-	-	BoCC Amber

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Species								Surve	y Date								Conservation
	20/04/21	20/05/21	27/05/21	28/05/21	29/05/21	24/04/23	25/04/23	26/04/23	17/05/23	18/05/23	09/06/23	10/06/23	14/06/23	15/06/23	28/06/23	29/06/23	Status
Sedge warbler	-	-	3	-	-	-	-	-	-	4	-	-	-	4	-	-	-
Shelduck	-	-	-	-	-	-	1	-	-	4	-	-	-	4	-	-	BoCC Amber
Siskin	1	-	-	-	-	-	-	1	-	-	-	-	-	-	1	-	-
Skylark	5	9	-	-	-	-	14	1	3	27	1	-	3	10	-	-	BoCC Amber
Snipe	1	-	-	-	-	-	-	4	-	1	-	-	-	-	-	-	BoCC Red
Song thrush	22	25	2	6	6	-	-	2	3	31	4	10	3	19	4	6	-
Spotted flycatcher	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	BoCC Amber
Starling	3	46	6	15	18	26	50	208	70	324	4	5	48	329	1	3	BoCC Amber
Stock dove	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	BoCC Red
Stonechat	-	1	5	-	-	-	-	-	-	2	-	-	1	7	-	-	-
Swallow	-	-	-	-	-	-	8	6	14	59	7	7	7	60	6	11	BoCC Amber
Swift	-	-	-	-	-	-	-	-	-	-	-	-	8	-	-	1	BoCC Red
Treecreeper	1	2	-	3	3	-	-	-	-	-	-	-	-	1	-	-	-
Tufted duck	-	-	-	-	-	-	-	-	-	2	-	-	3	-	-	-	
Water rail	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Whitethroat	3	6	-	-	-	-	-	-	-	1	-	1	-	2	-	2	-
Willow warbler	-	1	8	7	7	-	-	3	-	7	1	1	-	7	-	4	BoCC Amber
Woodpigeon	12	19	4	22	87	20	19	11	14	89	7	10	17	72	8	6	-
Wren	104	115	8	11	23	16	6	61	22	121	19	17	37	102	15	17	-
Yellowhammer	8	16	6	7	4	-	-	28	7	27	6	6	2	26	3	5	BoCC Red

Abbreviations used in Table A11.5: Annex 1: Annex 1 of the EU Birds Directive; WA: Specially protected species under the Wildlife Act 1976 and Wildlife (Amendment) Act 2000; BoCC Amber: Birds of Conservation Concern (Amber); BoCC Red: Birds of Conservation Concern (Red).

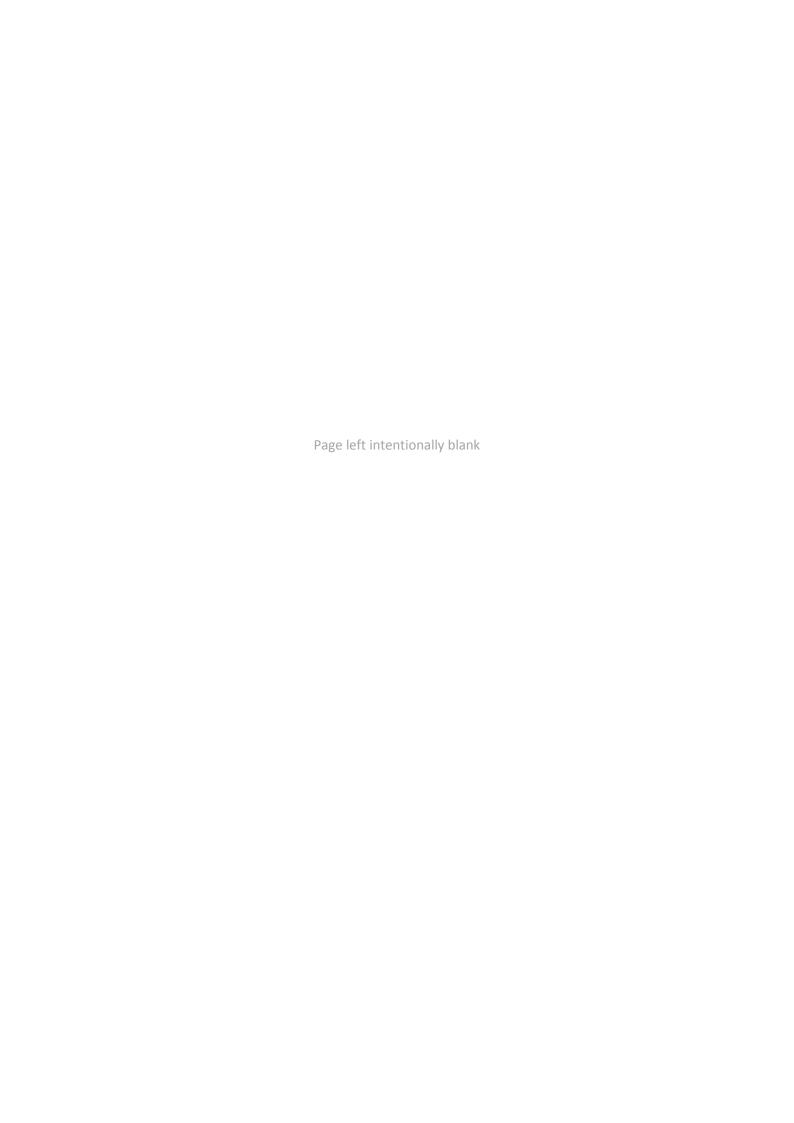
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APPENDIX 5 – WINTER BIRD SURVEY EFFORT

Table A11.4 Survey effort during winter bird surveys

Survey date	Surveyor	Start time (hh:mm)	End time (hh:mm)	Total time (hh:mm)
25/10/22	Lorna Gill	08:45	17:38	08:53
27/10/22	Lorna Gill	09:00	17:00	08:00
01/11/22	Lorna Gill	09:00	17:00	08:00
02/11/22	Lorna Gill	09:00	17:00	08:00
02/02/23	Lorna Gill	08:09	15:00	06:53
07/02/23	Lorna Gill	08:01	15:40	07:39
08/02/23	Lorna Gill	08:00	15:30	07:30
09/02/23	Lorna Gill	08:00	16:00	08:00
13/02/23	Lorna Gill	11:21	14:30	03:09
02/03/23	Lorna Gill	07:30	12:00	04:30
03/03/23	Lorna Gill	08:00	14:00	06:00
06/03/23	Lorna Gill	12:45	16:15	03.30
07/03/23	Lorna Gill	08:00	15:00	07:00
08/03/23	Lorna Gill	07:30	14:30	07:00



APPENDIX 6 - WINTER BIRD SURVEY DATA AND CONSERVATION STATUS

Table A11.5 Winter bird survey data and conservation status

Species							Su	rvey Date							Conservation
	25/10/22	27/10/22	01/11/22	02/11/22	02/02/23	07/02/23	08/02/23	09/02/23	13/02/23	02/03/23	03/03/23	06/03/23	07/03/23	08/03/23	■ Status
Black guillemot	-	-	-	-	-	-	-	-	-	8	-	-	-	-	BoCC Amber
Blackbird	7	8	5	1	19	12	5	16	2	23	3	-	22	17	-
Black-tailed godwit	-	-	-	-	-	-	-	-	11	-	21	-	-	-	BoCC Red
Black-headed gull	2	50	334	-	149	-	56	32	1	78	12	1	4	34	BoCC Amber
Blue tit	7	5	1	1	6	12	2	28	-	16	2	-	14	19	-
Brent goose	-	-	31	-	104	-	-	-	2	-	-	-	-	-	BoCC Amber
Bullfinch	-	-	-	-	-	2	-	1	-	-	-	-	2	-	-
Buzzard	1	5	8	2	1	1	6	6	-	2	2	1	8	3	-
Chaffinch	4	29	24	2	4	8	22	47	-	9	12	-	11	11	-
Coal tit	-	-	1	-	-	-	-	1	-	-	-	-	6	-	-
Common gull	-	-	10	-	-	-	-	6	1	4	73	-	-	-	BoCC Amber
Coot	-	-	-	-	1	-	-	-	-	3	-	-	-	-	BoCC Amber
Cormorant	-	-	-	-	-	-	-	-	1	1	-	-	-	1	BoCC Amber
Curlew	-	-	4	-	-	-	-	3	2	3	-	-	3	-	BoCC Red
Dunnock	-	3	4	-	-	3	5	2	-	4	1	-	6	3	-
Fieldfare	-	-	-	-	-	20	-	7	-	-	-	-	-	43	-
Goldcrest	4	1	2	-	4	2	1	1	-	3	-	-	1	1	BoCC Amber
Golden plover	-	-	-	-	-	19	-	-	-	-	-	-	-	26	Annex 1, BoCC Red
Goldfinch	-	43	24	-	-	40	43	24	2	18	10	-	8	4	-
Great black- backed gull	-	-	4	-	-	-	-	-	3	7	-	-	-	-	-
Great crested grebe	-	-	-	-	-	-	-	-	-	1	-	-	-	-	BoCC Amber
Great tit	1	1	-	-	4	3	1	8	-	5	-	-	5	1	-
Greenfinch	-	-	-	-	-	3	1	6	-	1	-	-	-	4	BoCC Amber
Grey plover	-	-	-	-	-	-	-	-	-	2	-	-	-	-	BoCC Red
Herring gull	1	9	143	4	5	5	7	33	59	21	13	-	77	19	BoCC Amber

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Species							Su	rvey Date							Conservation
	25/10/22	27/10/22	01/11/22	02/11/22	02/02/23	07/02/23	08/02/23	09/02/23	13/02/23	02/03/23	03/03/23	06/03/23	07/03/23	08/03/23	■ Status
Hooded crow	3	8	19	64	-	4	18	13	6	40	11	5	32	34	-
House sparrow	-	-	-	-	-	-	6	11	-	-	-	-	12	6	BoCC Amber
Jackdaw	-	11	-	20	6	-	2	10	2	12	8	-	19	4	-
Jay	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-
Kestrel	-	-	1	-	-	-	-	-	-	-	-	-	-	-	BoCC Red
Lapwing	-	-	19	-	-	-	-	-	56	-	-	-	-	-	BoCC Red
Lesser black- backed gull	-	-	4	-	-	-	-	-	-	-	-	-	-	-	BoCC Amber
Lesser redpoll	-	-	6	-	-	-	-	8	-	-	-	-	-	-	-
Linnet	4	-	2	-	-	-	38	6	-	-	-	-	-	75	BoCC Amber
Little egret	-	-	2	-	-	-	-	-	1	2	-	-	-	-	Annex 1
Long-tailed tit	-	-	-	-	8	1	-	5	4	7	6	4	6	-	-
Magpie	2	11	11	1	22	12	19	13	5	28	2	2	10	30	-
Mallard	7	-	23	-	15	-	-	-	15	43	-	-	-	1	BoCC Amber
Meadow pipit	-	4	7	6	12	22	15	13	1	30	12	2	17	3	BoCC Red
Merlin	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Annex 1, BoCC Amber
Mistle thrush	1	2	1	-	8	-	2	1	-	-	1	-	-	1	-
Moorhen	1	-	-	-	1	-	1	-	-	1	-	-	-	1	-
Mute swan	2	-	8	-	2	-	-	-	-	2	-	-	-	-	BoCC Amber
Oystercatcher	-	-	58	-	-	-	-	-	45	20	-	-	-	-	BoCC Red
Peregrine	-	-	1	-	-	-	-	-	-	-	-	-	-	-	Annex 1
Pheasant	-	8	1	-	-	1	-	1	-	-	-	-	1	1	-
Pied wagtail	-	-	-	-	-	-	2	-	2	2	5	-	1	-	-
Raven	-	-	-	-	-	-	1	1	-	-	-	-	-	-	-
Redshank	-	-	5	-	-	-	-	-	-	24	-	-	-	-	BoCC Red
Redwing	-	-	15	-	-	60	2	93	-	-	-	-	-	113	BoCC Red
Red-throated diver	-	-	-	-	-	-	-	-	-	-	-	-	-	1	Annex 1, BoCC Amber
Reed bunting	-	-	1	-	1	-	2	2	-	24	2	-	-	5	-
Robin	1	-	5	-	10	3	12	25	2	24	3	-	20	11	-

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Species							Su	rvey Date							Conservation
	25/10/22	27/10/22	01/11/22	02/11/22	02/02/23	07/02/23	08/02/23	09/02/23	13/02/23	02/03/23	03/03/23	06/03/23	07/03/23	08/03/23	■ Status
Rook	9	51	2	40	6	5	4	18	34	3	4	5	12	26	-
Sanderling	-	-	-	-	-	-	-	-	-	11	-	=	-	-	-
Shelduck	-	-	19	-	-	-	-	-	-	47	-	=	-	-	BoCC Amber
Siskin	-	-	-	-	1	-	-	1	-	-	-	=	3	-	-
Skylark	-	-	42	-	-	-	4	47	3	7	-	=	-	8	BoCC Amber
Snipe	1	3	1	1	1	5	-	-	6	-	-	6	-	-	BoCC Red
Song thrush	-	3	1	-	2	4	1	2	-	2	-	=	3	-	-
Sparrowhawk	-	-	-	-	1	-	-	2	-	1	-	-	-	-	-
Starling	-	56	163	-	42	40	6	133	1	135	4	=	3	48	BoCC Amber
Stonechat	-	6	5	-	4	-	-	-	4	-	1	-	-	-	-
Teal	-	-	43	-	=	=	=	=	23	168	-	=	-	-	BoCC Amber
Tufted duck	-	-	-	-	=	=	=	=	-	8	3	=	-	-	BoCC Amber
Woodpigeon	56	18	99	1	13	33	140	401	1	23	43	67	72	206	-
Wigeon	-	-	-	-	-	-	-	-	9	7	-	-	-	-	BoCC Amber
Wren	7	4	9	2	5	4	6	13	-	10	4	-	14	8	-
Yellowhammer	-	-	17	-	-	-	12	31	-	-	24	-	1	17	BoCC Red

Abbreviations used in Table A11.5: Annex 1: Annex 1 of the EU Birds Directive; BoCC Amber: Birds of Conservation Concern (Amber); BoCC Red: Birds of Conservation Concern (Red).

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