Appendix B: Ornithology Report

Cadamstown Solar Farm

12/08/2026



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Contents

1. Introduction 5
Background 5
2. Methodology 8
Study Areas 8
Legislation, Policy & Guidance 9
Guidance For Solar Farms 9
Policies 13
Desktop Study 13
Field Survey 14
3. Results 22
Desk Study 22
Field Survey 28
4. Discussion 31
Kingfisher 32
Red-listed Species 33
Amber-listed species 37
Additional Annex I Species 44
Recommended Measures and Mitigation 44
5. Conclusion 48
6. Appendices 49

1. INTRODUCTION

BACKGROUND

1.1. Neo Environmental Ltd has been appointed by Cadamstown Solar Limited (the "Applicant") to undertake a suite of bird surveys, compiled into an Ornithology Report for a proposed solar farm development (the "Proposed Development") located within the townlands of Cadamstown, Ballina, Clonuff and Garrisker, Co. Kildare ("Application Site").

1.2. A full year of breeding and wintering bird surveys were undertaken by Neo Environmental Ltd between June 2025 and May 2026.

1.3. This Ornithology Report has been produced to outline the results of the surveys while also responding to the Further Information (FI) request (**Appendix A** of FI Response) in relation to Kingfisher related queries by An Coimisiún Pleanála ("ACP") on 15th June 2026.

1.4. ACP requested the following:

"A breeding bird survey including both terrestrial and riparian habitats on site and 100m upstream and downstream of the site with respect to Kingfisher. Surveys should be carried out by a qualified expert, within the appropriate season and in accordance with BirdWatch Countryside Ireland Bird Survey Guidelines 2021 or Bird Census Techniques (Biddy et al., 2000). The results of the survey are to be submitted to An Coimisiún Pleanála and dependent on the results of the surveys, an updated Ecological Impact Assessment and NIS may also be required".

Development Description

1.5. The proposed solar consists of the construction of PV panels mounted on metal frames, access tracks (existing, new and upgraded), transformer stations and Glass Reinforced Plastic (GRP) enclosures, underground cabling, perimeter fencing with CCTV cameras and access gates, temporary construction compounds and all ancillary grid infrastructure and associated works.

Site Description

1.6. The area of the Proposed Development (the "Application Site") lies at an elevation of approximately 73 – 83m AOD and covers a total area of c. 173.3 hectares. It is centred at approximate Irish Grid Reference (ITM) X 670138 Y 740504 and is located c. 0.23km south of the M4 and c. 0.54 south of the R148. The Application Site is c. 9.55km southeast of the town of Kinnegad and c. 9.27km northeast of Edenderry. Smaller settlements such as Londwood

and Enfield can be found c. 3.44km and 6.13km north and east of the proposed development respectively.

1.7. Comprising of 39 fields of agricultural land, the site is currently being used for a mix of arable and pasture farming with some cut over bogland in the northern area. The fields are bound by a mixture of trees, hedgerows and post-and-wire fencing with some pockets of forestry found within the landownership boundary and outside the development boundary.

1.8. The Application Site will be accessed from three existing access points and three new access points. Two accesses are found off the L5006, one off the unnamed road to the south of the Application Site, two off an unnamed road to the west of the Application Site and one from the L1002.

1.9. There are three watercourses, the Clonuff second order watercourse which bisects the Application Site, the Calfstown first order watercourse which bisects a small field in the southernmost section of Application Site, and the Glash third order stream that runs along the outside of the northeast border of the Application Site. The majority of field boundaries within the Application Site are bound by drains.

Statement of Authority

1.10. Jamie Holyer, who completed bird surveys and co-authored this report, is an ecologist and ornithologist with over three years of experience in the ecology and conservation sector. Jamie is a qualifying member of CIEEM with experience in the ecological consultancy sector and the charity sector working for a conservation NGO. Jamie has carried out a variety of protected species and ornithological surveys across the UK and Ireland, including breeding bird surveys, vantage point surveys, and habitat assessments in support of renewable energy and infrastructure developments. He has contributed to a range of ecological reports including Preliminary Ecological Appraisals, Ecological Impact Assessments, and Habitat Regulations Assessments. Jamie has a strong academic foundation in ecology and conservation and is currently expanding his consultancy experience through his role as Assistant Ornithologist at Neo Environmental.

1.11. Catriona Graham, who co-authored this report, is an Assistant Ecologist with over 2 years of experience in the ecology and conservation sector. Catriona is a Qualifying member of the Chartered Institute for Ecology and Environmental Management (CIEEM). She holds a BSc (Hons) in Biology and completed her MSc in Ecological Management and Conservation Biology at Queen's University Belfast. Catriona has authored ecological reports including Ecological Impact Assessment (EcIA), Natura Impact Statement (NIS), shadow Habitats Regulations Assessment (sHRA), Biodiversity Management Plan (BMP), Invasive Species Management Plan (ISMP), Ornithology, and Bat Survey reports. She has experience conducting Fossitt habitat surveys, as well as badger, bird, bat and reptile protected species surveys. Catriona has completed the 'Certificate of Bat Acoustics Analysis' BatAbility course and achieved a Grade B in her Technician Level Assessment.

1.12. Eiméar Rose Cunningham, who reviewed this report, is a Senior Ecologist at Neo Environmental and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM), with over 6 years' experience in the environmental/planning sector. She has experience of conducting habitat surveys as well as protected species surveys, including bats, birds and otter. In previous roles Eiméar Rose has experience of GIS map interpretation for large scale infrastructure projects. Furthermore, Eiméar Rose has experience in the completion of ecological report writing having authored and co-authored a number of reports including Ecological Appraisals, Natura Impact Statements, Biodiversity Management Plans and Net Gain Reports, in addition to contributing to Biodiversity Chapters for EIA Developments. Furthermore, Eiméar Rose is a qualified tree climber and aerial rescuer, certified by LANTRA and utilises this qualification for bat survey work.

2. METHODOLOGY

STUDY AREAS

2.1. The various study zones considered during the ornithological assessment of the Proposed Development are outlined within **Table 2-1** below. Due to the scale and nature of the Proposed Development, it is considered that the chosen distances from the Application Site are appropriate for gathering relevant ornithological information for assessment. These distances are collectively known as the Proposed Development's Zones of Influence (ZoI).

2.2. In the absence of Irish-specific guidance, current best practice - that is utilised across the United Kingdom and the Republic of Ireland - for determining Zones of Influence is to refer to the NatureScot guidance documents "Assessing Connectivity with Special Protection Areas (SPAs)" and the Chartered Institute of Ecology and Environmental Management (CIEEM) guidance "Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater, Coastal and Marine"[1].

2.3. The purpose for reference to these best practice guidance documents is to provide a robust and universal process by which Zones of Influence, study areas and 'connectivity' between development proposals and Special Protection Areas (SPAs) or other important ornithological interests can be determined.

2.4. When defining the extent of the Zones of Influence, the SPA connectivity guidance states: "the core range should be used when determining whether there is connectivity between the proposal and the qualifying interests." The 'core range' is a measure of typical bird travel distance for foraging purposes, from its nest site during breeding season, to its chosen foraging locations. The guidance also states: "*Maximum ranges are also provided to indicate that birds will, at times, travel further. In exceptional cases distances up to the maximum foraging range may be considered*" and that birds flying beyond their core foraging range "*may still be connected if there is a lack of other closer foraging sites*." Foraging ranges for bird species during the wintering season are also given in the same guidance.

2.5. These distances, given in the guidance, were the result of extensive literature reviewing that examined ranging behaviour and produced a list of the 'core foraging range' and 'maximum foraging range' for the dispersal and foraging behaviours of a range of bird species.

2.6. All bird species listed as breeding qualifying interests of SPAs will have their nests inside the boundaries of the designated areas but may rely upon grounds outside of the designated areas for sustenance. Similarly, all bird species listed as wintering qualifying interests of SPAs will have their night roosts inside the boundaries of the designated areas but may rely upon grounds outside of the designated areas for sustenance. Safeguarding these dependent

[1] CIEEM (2024) Available at: Guidelines for Ecological Impact Assessment (EcIA) | CIEEM

sustenance aspects of qualifying bird's species lifecycles is regarded as maintaining the designated site's 'integrity'.

2.7. Therefore, Zones of Influence and potential connectivity to Designated Sites are determined, primarily by an analysis of their qualifying interest's core foraging ranges, with a secondary analysis of maximum foraging ranges and a tertiary analysis of the value of the habitats within and surrounding the Application Site and those between the Application Site and any potentially connected Designated Site.

2.8. The majority of named species core foraging ranges are up to 5km from their nest/roost site.

2.9. Table 2-1, below, lists the various study areas for the differing elements comprising this assessment process.

Table 2-1: Study Areas.

Study Type	Distance
Existing ornithological records obtained from desktop study of data records on NBDC	10km
Statutory Designated Sites for ornithological interest	15km
Breeding and non-breeding bird surveys	Application Site + 50m ("the ESA")

2.10. The above study areas have been defined in compliance with the aforementioned guidance documents during the scoping stage (noted in the following sections, where relevant) and in conducting the field surveys, and are considered appropriate for assessing any potential effects on ornithological interests arising from the Proposed Development.

2.11. It should be noted that the above study area does not cover the requested 100 metres upstream and downstream of the Application Site in respect of the surveys for Kingfisher. This is an unavoidable constraint due to lack of landowner consent required to access such a large section of the river habitat. It is considered that the volume of survey effort from 12 months of continuous bird survey effort has suitably ascertained the use of the Application Site by any potential Kingfisher.

LEGISLATION, POLICY & GUIDANCE

GUIDANCE FOR SOLAR FARMS

2.12. Whilst there is no specific primary legislation in the Republic of Ireland that mandates bird surveys for solar energy developments, such assessments are standard best practice to ensure compliance with the Wildlife Acts 1976 to 2023 and the EU Birds Directive (2009/147/EC). Under these frameworks, it is a legal offence to disturb nesting birds or their habitats, therefore a baseline understanding of the site's ornithological value is important to inform appropriate mitigation.

2.13. In the absence of mandated survey protocols, it is appropriate to adopt a proportionate approach informed by UK/EU best practice, such as the NatureScot Pre-application Guidance for Solar Farms[2], which emphasises that surveys should be robust and appropriate to the species likely to be breeding or wintering on-site.

2.14. The Proposed Development has been assessed against existing European, national, regional and local policies and guidance. The assessment has been collated and considered based upon the following legislation, planning policy and guidance Additional guidance considered include British Trust for Ornithology (BTO) Common Bird Census (CBC) methodology[3,4] and the Bird Survey Guidelines approach[5].

European Legislation

2.15. European legislation relevant to the Proposed Development is outlined within Table 2-2 below.

Table 2-2: Relevant European Legislation

Directive	Main Provisions
EU Birds Directive EC/79/409 (amended by 2009/147/EC)	European Union members meet their obligations for bird species under the Bern Convention and Bonn Convention, and more specifically by the means of the EU Birds Directive. The Birds Directive sets out the criteria for Special Protection Areas including; a list of species requiring protection in Annex 1 of the Directive and mechanisms for protecting wild birds naturally occurring in Europe. This Directive is transposed into national legislation principally by the 'EC (Birds and Natural Habitats) Regulations 2011'6.

[2] NatureScot Pre-application Guidance for Solar Farms. Available at: https://www.nature.scot/doc/naturescot-pre-application-guidance-solar-farms

[3] Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000) Bird Census Techniques. 2nd Edition. Academic Press: London.

[4] Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods - a Manual of Techniques for Key UK Species. RSPB: Sandy.

[5] Survey methodology | Bird Survey Guidelines

[6] Office of the Attorney General (2011), European Communities (Birds and Natural Habitats) Regulations 2011, available at www.irishstatutebook.ie

Directive	Main Provisions
	The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. It sets broad objectives for a wide range of activities, although the precise legal mechanisms for their achievement are at the discretion of each Member State.
EU Habitats Directive 92/43/EEC	The EU Habitats Directive sets out the framework for the designation and protection of sites for nature conservation for species and habitats listed in Annex II, IV and V. The directive was adopted in 1992 as a response to the Bern Convention. "The main aim of the Habitats Directive is to promote the maintenance of biodiversity by requiring Member States to take measures to maintain or restore natural habitats and wild species listed on the Annexes to the Directive at a favourable conservation status, introducing robust protection for those habitats and species of European importance." The protection of species outlined in the Habitats Directive is transposed in Ireland by national legislation into the European Communities (Birds and Natural Habitats) Regulations 2011, as amended7.
Environmental Liability Directive 2004/35/EC	The Environmental Liability Directive aims to make those causing damage to the environment (water, land and nature) legally and financially responsible for remedying such damage. The Directive applies to all development sizes and values. Species and natural habitats are protected under the 1992 Habitats Directive, the 1979 Wild Birds Directive and its 2009 update. Damage to protected species and natural habitats is "any damage that has significant adverse effects on reaching or maintaining the favourable conservation status of such habitats or species".
Ramsar Convention	The Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention) came into force in 1975. It is an international treaty for the conservation and wise use of wetlands.
Bern Convention	The Bern Convention came into force in 1982, with the principal aims to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase cooperation between contracting parties,

[7] Online, available at: https://www.irishstatutebook.ie/eli/2011/si/477/made/en/print

Directive	Main Provisions
	and to regulate the exploitation of those species (including migratory species) listed in Appendix III.
Bonn Convention	The Bonn convention came into force in 1985. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international cooperation (listed in Appendix II), and by undertaking cooperative research activities.

National Legislation

2.16. The principal legislative acts and regulations underpinning biodiversity and nature conservation in Ireland are:

- The Wildlife Act 1976
- The Wildlife (Amendment) Act 2000
- The European Communities (Birds and Natural Habitats) Regulations 2011
- The Planning and Development Act (2000) (as amended)
- The Planning and Development Regulations 2001 to 2020

2.17. The national legislation governing the protection of wildlife and natural resources in Ireland further includes:

- The Irish Wildlife Act 1976 to 2012, as amended- this is the main legislation for the protection of wildlife in Ireland and outlines strict protection for species that have significant conservation value.

- It is an offence to intentionally kill, injure, or take any wild bird or their eggs or nests, with special penalties for Annex 1 species.

- Wildlife (Amendment) Act 2023
- S.I. No. 293/1998 - European Communities (Quality of Salmonid Waters) Regulations, 1988;

- S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011 as amended. These regulations form an Irish law that implements two key European directives:

- The Birds Directive (2009/147/EC)
- The Habitats Directive (92/43/EEC);

- Flora Protection Order, 2015;
- Water Framework Directive (2000/60/EC) & the European Communities Environmental Objectives (Surface Waters) Regulations 2009 (S.I. 272 of 2009), as amended;
- Heritage Act 2018 (no. 15 of 2018), Part 3;
- Planning, Heritage and Broadcasting (Amendment) Act 2021 (no.11 of 2021), Chapter 3.

POLICIES

Policies and Objectives in the following Plans were also considered:

- The National Biodiversity Action Plan 2023-2030 (NBAP);
- Offaly County Development Plan 2021-2027.

2.18. In the absence of Irish-specific guidance on bird surveys at solar farms, the NatureScot pre-application guidance for solar farms (June 2025) has been considered[8]. This document states: '*Bird distribution and abundance surveys will typically be required. The surveys should be tailored and proportionate to the scale and location of the development.'*

DESKTOP STUDY

2.19. A pre-survey data search was conducted in order to collate existing information of ornithological interest from the footprint of the Proposed Development and its surrounding area. The data search utilised the following information sources:

- Collation of bird atlas data and other known bird records from the National Biodiversity Data Centre (www.biodiversityireland.ie).

[8] Online, Available at: NatureScot pre-application guidance for solar farms | NatureScot

- Birdwatch Ireland (BWI) - https://birdwatchireland.ie/ provides open access data for the Irish Wetland Bird Survey (I-WeBS). I-WeBS is an annual survey of wintering birds undertaken at a national level, focussing on wetland sites utilised by wintering birds. Bird count data for the closest I-WeBS site was accessed and has been presented in this report.
- Conservation objectives of the River Boyne and River Blackwater SPA (004232) were accessed via - https://www.npws.ie/
- Review of Ordnance Survey mapping and aerial photography of the proposed scheme area and its environs.

FIELD SURVEY

2.20. Bird Surveys were completed over 30 days between June 2025 and May 2026. The entirety of the Application Site was covered for each of the 12 months:

- 24th – 26th June 2025;
- 22nd – 24th July 2025;
- 5th – 7th August 2025;
- 23rd – 24th September 2025;
- 22nd – 23rd October 2025;
- 19th – 20th November 2025;
- 10th and 15th December 2025;
- 14th – 15th January 2026;
- 11th – 12th February 2026;
- 10th – 12th March 2026;
- 1st – 3rd April 2026; and
- 13th – 15th May 2026.

2.21. The wintering and breeding bird surveys consisted of walked transects through each parcel of land within the site boundary. Breeding bird surveys utilised a walkover methodology based

on the British Trust for Ornithology (BTO) Common Bird Census (CBC) methodology[9,10] and the Bird Survey Guidelines approach[11]. Transects with coverage within 50m of all areas of the ESA were undertaken with all observed species recorded.

2.22. Bird surveys also utilised a non-breeding walkover survey methodology[12]. Greater priority was afforded to visual searches as opposed to auditory records with no requirement for transects affording coverage within 50m of all areas of the site. Instead, complete visual searches of individual land parcels were defined as the priority.

2.23. Most breeding transects were carried out at dawn when peak bird activity occurs, in particular Kingfisher (*Alcedo atthis*) which is most active at this time of day. However dusk surveys were also carried out to pick up species not readily recorded by conventional surveys early in the morning, as well as to identify any potential roost sites, as per the Bird Survey and Assessment Steering Group. Non-breeding surveys are less time-restricted as birds move from breeding and territorial behaviours to foraging and resource acquisition and are subsequently more present throughout the day. Further, as birds are less vocal outside the breeding season, survey timings are largely determined by visibility. [13]

2.24. During the surveys, all bird species heard or seen within and adjacent to the site were recorded. The surrounding fields were scanned, where possible, from vantages affording unobstructed views over potentially suitable habitat for notable species. A note was also made of birds flying overhead.

2.25. All bird species were recorded using standard British Trust for Ornithology codes (BTO codes)[14], and a note of the number of birds of each species present was made. As summarised in **Table 2-3**, surveys were undertaken in weather deemed appropriate for carrying out bird survey work, i.e. avoiding periods of high winds, heavy rainfall and poor visibility[15].

[9] Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000) Bird Census Techniques. 2nd Edition. Academic Press: London.
[10] Gilbert, G., Gibbons, D.W. & Evans, J. (1998) Bird Monitoring Methods - a Manual of Techniques for Key UK Species. RSPB: Sandy.
[11] Survey methodology | Bird Survey Guidelines
[12] Non-breeding Walkover Survey | Bird Survey Guidelines
[13] Survey methodology | Bird Survey Guidelines
[14] Available at: https://www.bto.org/british-list
[15] Bibby C.J., Burgess N.D., Hill D.A. & Mustoe S.H. (2000). Bird Census Techniques. Second Edition. Academic Press.

Table 2-3: Bird survey details

Date	Survey Method	Survey – Time of Day	Weather
24/06/2025	Breeding Transect	Morning	Temp: 15 °C Precipitation: Light showers Wind: Force 4 Cloud: 50% Visibility: Good
25/06/2025	Breeding Transect	Morning	Temp: 16 °C Precipitation: None Wind: Force 1 Cloud: 50% Visibility: Good
26/06/2025	Breeding Transect	Morning	Temp: 15 °C Precipitation: Light showers Wind: Force 3 Cloud: 60% Visibility: Good
22/07/2025	Breeding Transect	Morning	Temp: 13 °C Precipitation: None Wind: Force 1 Cloud: 100% Visibility: Good
23/07/2025	Breeding Transect	Morning	Temp: 11 °C Precipitation: None Wind: Force 1 Cloud: 100% Visibility: Good
24/07/2025	Breeding Transect	Morning	Temp: 12 °C Precipitation: None Wind: Force 2 Cloud: 100% Visibility: Good
05/08/2025	Breeding Transect	Morning	Temp: 12 °C Precipitation: None

Date	Survey Method	Survey – Time of Day	Weather
			Wind: Force 2 Cloud: 25% Visibility: Good
06/08/2025	Breeding Transect	Morning	Temp: 13 °C Precipitation: None Wind: Force 2 Cloud: 25% Visibility: Good
07/08/2025	Breeding Transect	Morning	Temp: 14 °C Precipitation: Drizzle mist Wind: Force 2 Cloud: 100% Visibility: Good
23/09/2025	Non-Breeding Transect	Afternoon	Temp: 12 °C Precipitation: None Wind: Force 2 Cloud: 5% Visibility: Good
24/09/2025	Non-Breeding Transect	Morning	Temp: 12 °C Precipitation: None Wind: Force 4 Cloud: 50% Visibility: Good
22/10/2025	Non-Breeding Transect	Afternoon	Temp: 12 °C Precipitation: None Wind: Force 1 Cloud: 50% Visibility: Good
23/10/2025	Non-Breeding Transect	Morning	Temp: 7 °C Precipitation: Light showers Wind: Force 3 Cloud: 100% Visibility: Moderate

Date	Survey Method	Survey – Time of Day	Weather
19/11/2025	Non-Breeding Transect	Afternoon	Temp: 3 °C Precipitation: None Wind: Force 2 Cloud: 50% Visibility: Good
20/11/2025	Non-Breeding Transect	Morning	Temp: 1 °C Precipitation: None Wind: Force 1 Cloud: 0% Visibility: Good
10/12/2025	Non-Breeding Transect	Afternoon	Temp: 11 °C Precipitation: None Wind: Force 3 Cloud: 50% Visibility: Good
15/12/2025	Non-Breeding Transect	Afternoon	Temp: 6 °C Precipitation: None Wind: Force 2 Cloud: 95% Visibility: Moderate
14/01/2026	Non-Breeding Transect	Afternoon	Temp: 6 °C Precipitation: Light showers Wind: Force 5 Cloud: 100% Visibility: Good
15/01/2026	Non-Breeding Transect	Morning	Temp: 3 °C Precipitation: None Wind: Force 3 Cloud: 5% Visibility: Good
11/02/2026	Non-Breeding Transect	Afternoon	Temp: 9 °C Precipitation: Light showers Wind: Force 2

Date	Survey Method	Survey – Time of Day	Weather
			Cloud: 70% Visibility: Good
12/02/2026	Non-Breeding Transect	Afternoon	Temp: 12 °C Precipitation: None Wind: Force 1 Cloud: 50% Visibility: Good
10/03/2026	Breeding Transect	Dusk	Temp: 10 °C Precipitation: Drizzle Wind: Force 5 Cloud: 100% Visibility: Good
11/03/2026	Breeding Transect	Morning	Temp: 7 °C Precipitation: Dry Wind: Force 4 Cloud: 30% Visibility: Good
12/03/2026	Breeding Transect	Morning	Temp: 10 °C Precipitation: None Wind: Force 3 Cloud: 80% Visibility: Good
01/04/2026	Breeding Transect	Dusk	Temp: 9 °C Precipitation: None Wind: Force 3 Cloud: 50% Visibility: Good
02/04/2026	Breeding Transect	Morning	Temp: 3 °C Precipitation: Dry, light frost Wind: Force 2 Cloud: 60% Visibility: Moderate
03/04/2026	Breeding Transect	Morning	Temp: 9 °C

Date	Survey Method	Survey – Time of Day	Weather
			Precipitation: Intermittent showers Wind: Force 3 Cloud: 100% Visibility: Good
13/05/2026	Breeding Transect	Dusk	Temp: 8 °C Precipitation: Light showers Wind: Force 4 Cloud: 50% Visibility: Good
14/05/2026	Breeding Transect	Morning	Temp: 7 °C Precipitation: None Wind: Force 3 Cloud: 20% Visibility: Good
15/05/2026	Breeding Transect	Morning	Temp: 8 °C Precipitation: None Wind: Force 2 Cloud: 60% Visibility: Good

Limitations

2.26. On a limited number of occasions, fields were surveyed from the surrounding area where livestock presented a potential risk to surveyors, however these fields were still visible from a vantage with the use of visual aids. When this occurred, access was reinstated following contact with landowners and movement of cattle was organised, as such this did not negatively impact survey effort or results.

2.27. As previously mentioned, the breeding bird surveys were not inclusive of watercourses 100m upstream and downstream of the Application Site, as requested by ACP. However, as only one instance of Kingfisher was observed during the entirety of the bird surveys conducted, it was deemed that the survey effort was sufficient to ascertain the relative value of the site for Kingfisher. This single recorded instance of Kingfisher is entirely consistent with the known ecology of the species, limited to use of the minor watercourse itself. No other sightings of kingfisher have been recorded within the site. It is considered therefore that the site offers limited opportunities for the species, and such use is likely to be limited to occasional

commuting and foraging along the watercourses present within the site. Monthly bird surveys undertaken throughout the breeding period are sufficient to establish the potential presence of a species within the Application Site and in proximity to it. If Kingfisher were nesting within or near the Application Site, significant activity would be expected. This is due to the localised foraging behaviour of Kingfisher during the breeding period[16]. Furthermore, Kingfisher movements are generally confined to areas of suitable habitat inclusive of watercourses and other aquatic habitats. As such it is not anticipated that Kingfisher populations within the River Boyne and River Black water SPA would migrate, commute or forage in a straight line from the SPA to the Application Site but rather would move along surface water pathways linking the Application Site to the SPA. The closest hydrological link between the SPA and the Application Site is approximately 8.52km in length. In addition to documents published by NPWS and the conservation objectives of the SPA for which Kingfisher are designated, it is considered that Kingfisher are neither reliant on agricultural grassland habitats nor use such habitats for the purposes of foraging. The occurrence of the species within areas of agricultural grassland is therefore likely to be limited to brief journeys between areas of suitable aquatic habitat.

2.28. It is considered therefore that the installation of solar arrays and other associated infrastructure within areas of agricultural grasslands would not give rise to any habitat loss for foraging kingfisher or associated displacement effects and the aforementioned aquatic habitats will receive an appropriate buffer from works as outlined the design of the Proposed Development Site.

2.29. It should be noted that flight lines observed in the accompanying bird map figures (**Appendix 1: Figures 1-12**) do not denote the entire movement of some of the observed flyover species due to incomplete line of site and blockage of view by treelines/land topography. As such flight lines only detail the movement of birds as seen by surveyors, and not their estimated onward travel. If a species was seen to land within the Application Site, this was shown with a point at the end of a flight line.

2.30. Surveys were otherwise conducted without limitations, and it is not considered that the limitations encountered are sufficient to undermine the validity of the survey findings and associated conclusions.

[16] Raphaël, M *et al.* (2023). Sensitivity of the European Kingfisher (*Alcedo atthis*) to global change: evidence from home range features and contaminations by trace elements and organic pollutants, a case study in the marshes of Western Europe.

3. RESULTS

DESK STUDY

Statutory Designated Sites

3.1. The Proposed Development is not situated within or adjacent to any statutory or non-statutory sites designated sites for ornithological interest. Using a Geographic Information System (GIS) and the National Parks and Wildlife Service (NPWS) online map search utility, it was found that there is one European Designated Special Protection Area (SPA) within 15km of the Proposed Development: River Boyne and Blackwater SPA [004232].

3.2. River Boyne and Blackwater SPA [004232] is located approximately 3.25km north of the Application Site and is designated for Kingfisher (*Alcedo atthis*) [A229]. It is considered to have potential ornithological connectivity with the Application Site.

Biological Records

3.3. Table 3-1 details the bird species returned from National Biodiversity Data Centre (NBDC) datasets for the grid squares which encompasses the site and 10km surrounding area (N63Z, N64Q, N64R, N64V, N64W, N73E, N73J, N74A, N74B and N74F). Records older than 15 years were considered no longer relevant and were not included.

3.4. Table 3-1 also indicates species listed in Annex I of the EU Birds Directive and those listed in the Birds of Conservation Concern in Ireland (BoCCI) Amber or Red List[17]. Red-listed species are those of highest conservation priority, Amber-listed species are those which are of secondary priority and Green-listed species are those not currently of conservation concern, with stable or increasing populations.

Table 3-1: NBDC records of Wildlife Act bird species for 10km surrounding area

Common Name	Scientific Name	Grid Square	Annex I	BoCCI
Barn Owl	*Tyto alba*	N74F, N73J	No	
Blackbird	*Turdus merula*	N74F, N74B, N64Q, N73J, N73E, N74A	No	

[17] Gilbert G, Stanbury A and Lewis L (2021), "Birds of Conservation Concern in Ireland 2020 –2026"

Common Name	Scientific Name	Grid Square	Annex I	BoCCI
Blackcap	*Sylvia atricapilla*	N74B, N64Q, N73J, N74A	No	
Blue Tit	*Cyanistes caeruleus*	N73J, N74A	No	
Brambling	*Fringilla montifringilla*	N42	No	
Bullfinch	*Pyrrhula pyrrhula*	N64Q, N73J, N74A	No	
Buzzard	*Buteo buteo*	N63Z, N74F, N64W, N63Z, N74B, N73J, N74A, N64R	No	
Chaffinch	*Fringilla coelebs*	N74B, N64Q, N73J, N74A	No	
Chiffchaff	*Phylloscopus collybita*	N74F, N74B, N64Q, N73J, N74A	No	
Coal Tit	*Periparus ater*	N63Z, N73J, N74A	No	
Collared Dove	*Streptopelia decaocto*	N73J	No	
Coot	*Fulica atra*	N63Z, N73J	No	
Cormorant	*Phalacrocorax carbo*	N42	No	
Cuckoo	*Cuculus canorus*	N74A	No	
Dunnock	*Prunella modularis*	N74B, N73J, N74A	No	
Fieldfare	*Turdus pilaris*	N73J, N74A	No	
Goldcrest	*Regulus regulus*	N73J, N74A	No	
Golden Plover	*Pluvialis apricaria*	N73J, N64R	Yes	
Goldfinch	*Carduelis carduelis*	N64Q, N73J, N74A	No	

Common Name	Scientific Name	Grid Square	Annex I	BoCCI
Grasshopper Warbler	*Locustella naevia*	N73J	No	
Great Tit	*Parus major*	N64Q, N73J, N74A	No	
Greenfinch	*Chloris chloris*	N64Q, N73J, N74A	No	
Grey Heron	*Ardea cinerea*	N63Z, N74F, N63Z, N74B, N73J	No	
Grey Wagtail	*Motacilla cinerea*	N73J	No	
Hooded Crow	*Corvus cornix*	N63Z, N74F, N63Z, N74B, N73J, N74A, N64R	No	
House Martin	*Delichon urbicum*	N64Q, N73J, N74A	No	
House Sparrow	*Passer domesticus*	N73J, N74A	No	
Jackdaw	*Coloeus monedula*	N74F, N74B, N73J, N74A	No	
Jay	*Garrulus glandularius*	N74B, N64Q, N73J	No	
Kestrel	*Falco tinnunculus*	N73J, N74A	No	
Kingfisher	*Alcedo atthis*	N74F, N73J	Yes	
Lapwing	*Vanellus vanellus*	N63Z, N63Z, N73J, N64R	No	
Lesser Redpoll	*Acanthis cabaret*	N74B, N64Q N73J, N74A,	No	
Linnet	*Linaria cannabina*	N73J	No	
Little Egret	*Egretta garzetta*	N74F, N73J, N74A	Yes	

Common Name	Scientific Name	Grid Square	Annex I	BoCCI
Little Grebe	*Tachybaptus ruficollis*	N63Z, N74F, N63Z, N64Q, N73J	No	
Long-eared Owl	*Asio otus*	N64V	No	
Long-tailed Tit	*Aegithalos caudatus*	N73J, N74A	No	
Magpie	*Pica pica*	N63Z, N74F, N63Z, N73J, N74A	No	
Mallard	*Anas platyrhynchos*	N63Z, N74F, N63Z, N64Q, N73J, N74A	No	
Meadow Pipit	*Anthus pratensis*	N74B, N73J, N74A	No	
Mistle Thrush	*Turdus viscivorus*	N74F, N73J, N74A	No	
Moorhen	*Gallinula chloropus*	N63Z, N74F, N63Z, N74B, N73J	No	
Mute Swan	*Cygnus olor*	N63Z, N63Z, N73J	No	
Pheasant	*Phasianus colchicus*	N73J	No	
Pied Wagtail	*Motcilla alba sp.*	N63Z, N63Z, N74A, N64W, N74A	No	
Raven	*Corvus corax*	N63Z, N63Z, N73J	No	
Red-legged Partridge	*Alectorius rufa*	N64Q	No	
Redwing	*Turdus iliacus*	N73J	No	
Reed Bunting	*Emberiza schoeniclus*	N64Q, N73J N74A	No	
Ringed Plover	*Charadrius hiaticula*	N63Z	No	

Common Name	Scientific Name	Grid Square	Annex I	BoCCI
Robin	*Ericathus rubecula*	N74F, N74B, N73J, N74A		
Rock Pigeon	*Columba livia*	N63Z, N74F N63Z, N73J	No	
Rook	*Corvus frugilegus*	N74F, N64W, N74B, N64Q, N73J, N74A	No	
Sand Martin	*Riparia riparia*	N63Z, N63Z, N74B, N73J	No	
Sedge Warbler	*Acrocephalus schoenobaenus*	N74F, N74B	No	
Siskin	*Spinus spinus*	N74A	No	
Skylark	*Alauda arvensis*	N74F	No	
Snipe	*Gallinago gallinago*	N63Z, N63Z, N74B, N64Q, N73J, N74A	No	
Song Thrush	*Turdus philomelos*	N73J, N74A	No	
Sparrowhawk	*Accipiter nisus*	N63Z, N74F, N63Z, N73J, N74A	No	
Spotted Flycatcher	*Muscicapa striata*	N74F, N73J	No	
Starling	*Sturnus vulgaris*	N74F, N74B, N73J, N74A	No	
Stonechat	*Saxicola torquata*	N74B, N73J, N74A	No	
Swallow	*Hirundo rustica*	N74F, N64Q, N73J, N73E, N74A	No	
Swift	*Apus apus*	N73J	No	

Common Name	Scientific Name	Grid Square	Annex I	BoCCI
Teal	*Anas crecca*	N73J	No	
Tree Sparrow	*Passer montanus*	N73J	No	
Treecreeper	*Certhia familiaris*	N73J, N74A	No	
Tufted Duck	*Aythya fuligula*	N63Z	No	
Wheatear	*Oenanthe oenanthe*	N73J, N74A	No	
Whitethroat	*Curruca communis*	N74A	N	
Willow Warbler	*Phylloscopus trochilus*	N74B, N64Q, N73J, N74A	No	
Woodcock	*Scolopax rusticola*	N73J	No	
Wood Pigeon	*Columba palumbus*	N63Z, N74F, N63Z, N74B, N64Q, N73J, N74A	No	
Wren	*Troglodytes troglodytes*	N74F, N74B, N64Q, N73J, N74A	No	
Yellowhammer	*Emberiza citrinella*	N63Z, N74F, N63Z, N74B, N64Q, N73J	No	

* Annex I or BOCCI status cannot be determined

3.5. There is an Irish Wetland Bird Survey (I-WeBS) site in close proximity to the Application Site – The Mill Pond (0S203) – located approximately 690m southwest at the closest point. Table 3-2 details survey data available for The Mill Pond. Data is only available from the 2022/23 survey season.

Table 3-2: I-WeBS site 0S203 The Mill Pond survey count data

Common Name	Scientific Name	Peak Count	Annex I	BoCCI
Moorhen	*Gallinula chloropus*	8	No	
Grey Heron	*Ardea cinerea*	1	No	
Mallard	*Anas platyrhynchos*	11	No	
Coot	*Fulica atra*	10	No	

Little Grebe	*Tachybaptus ruficollis*	13	No	
Mute Swan	*Cygnus olor*	22	No	

FIELD SURVEY

3.6. A total of 67 bird species were recorded within the ESA. Four Annex 1 listed species were observed during the surveys: Kingfisher in July 2025, Whooper Swan in October 2025, Golden Plover in January 2026 and Little Egret in February 2026.

3.7. Of the species recorded, 10 red-listed and 17 amber-listed species are included on the BoCCI list. The remaining 40 species are green status.

3.8. **Table 3-3** summarises the species recorded along with their BoCCI status. Red and Amber listed species and any species listed on Annex I of the Bird's Directive recorded during individual surveys are illustrated in **Appendix 1 Figures 1 – 12** of this report.

Table 3-3: Bird species recorded during ornithological surveys

Common Name	Scientific Name	Season recorded	Annex I	BoCCI
Blackbird	*Turdus merula*	Both	No	
Blackcap	*Sylvia atricapilla*	Both	No	
Blue tit	*Parus caeruleus*	Both	No	
Brambling	*Fringilla montifringilla*	Non-breeding	No	
Bullfinch	*Pyrrhula pyrrhula*	Both	No	
Buzzard	*Buteo buteo*	Both	No	
Chaffinch	*Fringilla coelebs*	Both	No	
Chiffchaff	*Phylloscopus collybita*	Both	No	
Coal Tit	*Periparus ater*	Both	No	
Collard Dove	*Streptopelia decaocto*	Both	No	
Cuckoo	*Cuculus canorus*	Breeding	No	
Dunnock	*Prunella modularis*	Both	No	
Feral Pigeon	*Columba livia*	Both	No	
Fieldfare	*Turdus pilaris*	Both	No	
Goldcrest	*Regulus regulus*	Both	No	

Common Name	Scientific Name	Season recorded	Annex I	BoCCI
Golden Plover	***Pluvialis apricaria***	**Non-breeding**	**Yes**	
Goldfinch	*Carduelis carduelis*	Both	No	
Great Spotted Woodpecker	*Denrocopus major*	Both	No	
Great Tit	*Parus major*	Both	No	
Greenfinch	*Chloris chloris*	Both	No	
Grey Heron	*Ardea cinerea*	Non-breeding	No	
Grey Wagtail	*Motacilla cinerea*	Non-breeding	No	
Herring Gull	*Larus argentatus*	Both	No	
Hooded Crow	*Corvus cornix*	Both	No	
House Martin	*Delichon urbicum*	Both	No	
House Sparrow	*Passer Domesticus*	Both	No	
Jack Snipe	*Lymnocryptes minimus*	Non-breeding	No	
Jackdaw	*Corvus monedula*	Both	No	
Jay	*Garrulus glandarius*	Both	No	
Kestrel	*Falco tinnunculus*	Non-breeding	No	
Kingfisher	***Alcedo atthis***	**Breeding**	**Yes**	
Lapwing	*Vanellus vanellus*	Non-breeding	No	
Linnet	*Linnaria cannabina*	Both	No	
Little Egret	***Egretta garzetta***	**Non-breeding**	**Yes**	
Long-tailed Tit	*Aegithalos caudatus*	Both	No	
Magpie	*Pica pica*	Both	No	
Mallard	*Anas platyrhyncos*	Non-breeding	No	
Meadow Pipit	*Anthus pratensis*	Both	No	
Mistle Thrush	*Turdus viscivorus*	Both	No	
Pheasant	*Phasianus colchicus*	Both	No	
Pied Wagtail	*Motacilla alba*	Both	No	
Raven	*Corvus corax*	Both	No	
Redpoll	*Acanthis flammea*	Both	No	
Redwing	*Turdus iliacus*	Both	No	

Common Name	Scientific Name	Season recorded	Annex I	BoCCI
Reed Bunting	*Emberiza schoeniclus*	Both	No	
Robin	*Erithacus rubecula*	Both	No	
Rook	*Corvus frugilegus*	Both	No	
Sedge Warbler	*Acrocephalus schoenobaenus*	Breeding	No	
Siskin	*Carduelis spinus*	Both	No	
Snipe	*Gallinago gallinago*	Both	No	
Skylark	*Alauda arvensis*	Both	No	
Song Thrush	*Turdus philomelos*	Both	No	
Sparrowhawk	*Accipiter nisus*	Non-breeding	No	
Spotted Flycatcher	*Musciapa striata*	Non-breeding	No	
Starling	*Sturnus vulgaris*	Both	No	
Stonechat	*Saxicola rubicola*	Both	No	
Swallow	*Hirundo rustica*	Both	No	
Swift	*Apus apus*	Breeding	No	
Tree Sparrow	*Passer montanus*	Non-breeding	No	
Treecreeper	*Certhia familiaris*	Both	No	
Whitethroat	*Curruca communis*	Breeding	No	
Whooper Swan	***Cygnus cygnus***	**Non-breeding**	**Yes**	
Willow Warbler	*Phylloscopus trichilus*	Breeding	No	
Woodcock	*Scolopax rusticola*	Non-breeding	No	
Wood Pigeon	*Columba palumbus*	Both	No	
Wren	*Troglodytes troglodytes*	Both	No	
Yellowhammer	*Emberiza citrinella*	Both	No	

Incidental records

3.9. In addition, a single Pine Marten (*Martes martes*) was observed within the Application Site in July 2025, and a single Common Frog (*Rana temporaria*) was observed within the Application Site in October 2025.

3.10. Irish Hare (*Lepus timidus hibernicus*) was observed within the Application Site on multiple occasions in July, August, October and November 2025 and March and May 2026.

4. DISCUSSION

4.1. The construction of the Proposed Development will occur over land which has been identified to comprise improved agricultural grassland, arable farmland, cutover bog, recolonising bare ground, scrub, and wet grassland with some additional impacts occurring to hedgerows and treelines. Other habitats within the ESA including watercourses, riparian habitat, woodland and forestry will be retained within the Proposed Development.

4.2. The primary objective of the bird surveys conducted was to assess whether the Application Site has the potential to support qualifying bird species from surrounding SPAs, with particular focus on Kingfisher.

4.3. As requested by ACP, a breeding bird survey was carried out by a qualified expert within the breeding season, covering both terrestrial and riparian habitats within the Application Site, in accordance with the appropriate guidelines. This was conducted as part of a full suite of breeding and wintering bird surveys.

4.4. As previously mentioned, the survey was not inclusive of watercourses 100m upstream and downstream of the Application Site as a result of lack of private landowner access. Furthermore, only one instance of Kingfisher was observed during the entirety of the bird surveys conducted and it was therefore deemed that the survey effort was sufficient to determine the value of the site for Kingfisher and to conclude that Kingfisher are not breeding within or in close proximity to the Application Site. If Kingfisher were nesting nearby, significant activity within the Application Site would be expected due to the localised foraging behaviour of Kingfisher during the breeding period[18].

4.5. The majority of birds recorded within the Application Site were common, green-listed species that are typical of farmland habitats.

4.6. A total of 67 bird species were recorded across all surveys. 56 species were recorded within the ESA during the breeding season surveys undertaken in June, July and August 2025, and March, April and May 2026. 56 species were also noted across the non-breeding surveys from September 2025 to February 2026. Of these species, six were seen only in flight commuting over the site or outside of the Proposed Development boundary, namely Whooper Swan, Grey Heron, Golden Plover, Kingfisher, Little Egret, and Swift.

4.7. Species of conservation concern and species listed on Annex I of the Birds Directive recorded within the Application Site and wider ESA during the bird surveys are discussed individually below, with a specific section for Kingfisher in light of the request by ACP.

[18] Raphaël, M *et al.* (2023). Sensitivity of the European Kingfisher (*Alcedo atthis*) to global change: evidence from home range features and contaminations by trace elements and organic pollutants, a case study in the marshes of Western Europe.

KINGFISHER

4.8. Kingfisher, an amber listed and Annex I species, are a brightly coloured species associated with slow-moving or still water, where they hunt small fish or large aquatic invertebrates. They are resident year-round, breeding in tunnels along vertical banks of rivers or streams. They are generally sedentary but may migrate to lakes or coastal areas during extended periods of poor weather[19].

4.9. The Application Site is located 3.25km south of the River Boyne and River Blackwater SPA, the closest SPA which lists Kingfisher as an SCI species.

4.10. A single Kingfisher was noted flying low along the Clonuff order 2 watercourse and over a short section of agricultural fields in the south of the Application Site in July 2025 (See **Appendix 1 – Figure 2**).

4.11. Kingfisher are neither reliant on agricultural grassland habitats nor use such habitats for the purposes of foraging. The occurrence of the species flying over agricultural fields is therefore highly likely to be a brief journey between areas of suitable aquatic habitat.

4.12. Habitats within the Application Site are considered to have poor potential to support the species. The Application Site is largely comprised of agricultural grasslands, with approximately 66% of the site and wider ecological study area being comprised of improved agricultural grassland. The majority of the remaining areas of the Application Site comprise a range of terrestrial habitat also offering no suitable habitat for Kingfisher.

4.13. Three watercourses, the Clonuff Watercourse, Calfstown Watercourse and Glash Stream, run along or within the Application Site, predominantly traversing the southern and western site boundaries, with the majority of field boundaries bound by drains. These watercourses are considered to be the only habitat offering limited opportunities for Kingfisher within and adjacent to the site.

4.14. It is considered that the Proposed Development, which will retain and buffer watercourses by 10m within the Application Site, will not give rise to the loss of significant habitats for Kingfisher.

4.15. No signs of breeding Kingfisher were observed in any of the surveys. Breeding Kingfisher have been found to have relatively small home ranges (2.50 ± 0.55 ha)[20]. Therefore, it is not considered that Kingfisher are breeding close to the Application Site, given the very low activity levels observed.

4.16. Disturbance to Kingfisher arising from the construction and decommissioning phases of the Proposed Development will be limited to noise and human presence associated with the

[19] Kingfisher. Available at: https://birdwatchireland.ie/birds/kingfisher/

[20] Raphaël, M *et al.* (2023). Sensitivity of the European Kingfisher (*Alcedo atthis*) to global change: evidence from home range features and contaminations by trace elements and organic pollutants, a case study in the marshes of Western Europe.

installation of the solar arrays. Such disturbance will be short-term in nature, relatively low impact (given the extent and nature of works) and will take place away the from watercourses given the retained buffer areas.

4.17. During the operational phase of the Proposed Development, there will be minimal disturbance to any Kingfisher, should they be on-site. There will be a reduction in disturbance from farming practises and the presence of machinery, and human presence will be minimal.

4.18. No significant impacts to Kingfisher are considered to arise as a result of the Proposed Development.

RED-LISTED SPECIES

4.19. The following red-listed species were noted across both seasons of bird surveys: Common Snipe (*Gallinago gallinago*), Golden Plover (*Pluvialis apricaria*), Grey Wagtail (*Motacilla cinerea*), Kestrel (*Falco tinnunculus*), Lapwing (*Vanellus Vanellus*), Meadow Pipit (*Anthus pratensis*), Redwing (*Turdus iliacus*), Swift (*Apus apus*), Woodcock (*Scolopax rusticola*), and Yellowhammer (*Emberiza citrinella*).

Common Snipe

4.20. Snipe is a common wader typically foraging across a range of wetland and damp habitats, especially on the fringes of lowland lakes[21]. Snipe breed on the ground, typically in grassy tussock, in or near wet or boggy terrain. The wintering distribution of Snipe in Ireland is widespread.

4.21. Snipe were flushed on multiple occasions within the Application Site during all surveys from October 2025 to April 2026 surveys (See **Appendix 1 – Figures 5-11**).

4.22. Areas of wet grassland and bog habitats in the north of the site may have potential to support breeding populations, however, there was no evidence observed that Snipe are breeding within the Application Site.

4.23. It is not considered that the Proposed Development would give rise to significant habitat loss effects upon Snipe. Similar abundant wetland and damp grassland habitats, for breeding and foraging Snipe, are present surrounding the Application Site and wider area. Therefore, no significant impacts on the species are anticipated.

Golden Plover

4.24. Golden Plover, an Annex I species, is a medium-sized plover with characteristic gold and black summer plumage. They are a summer and winter visitor to Ireland; summer populations

[21] Snipe. Available at: https://birdwatchireland.ie/birds/snipe/

migrate from France and Iberia, and winter populations migrate from Iceland, with Irish populations peaking in October and February. Limited numbers breed on heather moors, blanket bogs, and acidic grasslands in northwest Ireland. In winter they are found in large flocks in various inland and coastal habitats[22].

4.25. A single Golden Plover was observed flying over site while calling in January 2026 (See **Appendix 1 – Figure 8**). No additional observations of the species were recorded within the Application Site.

4.26. Given that only a single individual was observed flying over and the species has not been recorded utilising the site, there is no evidence that the Application Site holds any significant value for the species. Furthermore, habitats on site which may be utilised by the species – largely pastoral grasslands – are abundant and widely represented in the wider environs outside the Application Site. No significant impacts on this species are anticipated.

4.27. Furthermore, given the distance separating the Application Site and the closest SPA for which this Annex I species is included as an SCI, that being Lough Iron SPA, located approximately 37km to the northwest, it is not considered that the recorded Golden Plover are associated with any nearby SPAs. Therefore, no significant impacts on the species are anticipated.

Grey Wagtail

4.28. Grey Wagtail is a widespread resident wagtail species found along fast flowing streams and rivers throughout Ireland[23]. They breed in these riparian habitats, frequently under bridges, and remain largely sedentary throughout winter, with occasional individuals moving to coastal areas.

4.29. Grey Wagtail was observed perching, foraging, flying over, and flushing from cover in October and November 2025, and January 2026. The species is considered to be possibly breeding along watercourses throughout the site (See **Appendix 1 – Figure 5, 6 and 8**).

4.30. It is considered that the Proposed Development, which will retain and buffer watercourses by 10m within the Application Site, will not give rise to the loss of significant habitats for breeding Grey Wagtail.

Kestrel

4.31. Kestrel are small birds of prey, mainly hunting small mammals in open grassland habitats. They are resident and widespread throughout Ireland; they are often seen hovering above fields whilst foraging[24].

4.32. A single Kestrel was recorded taking flight from the ground and perching in a tree during the February 2026 survey (See **Appendix 1 – Figure 9**).

[22] Golden Plover. Available at: https://birdwatchireland.ie/birds/golden-plover/
[23] Grey Wagtail. Available at: Grey Wagtail - BirdWatch Ireland
[24] Kestrel. Available at: https://birdwatchireland.ie/birds/kestrel/

4.33. It is not considered that the Application Site is of particular value for the species. Habitats present across the majority of the Application Site inclusive of intensively managed arable farmland and agricultural grasslands offer poor foraging opportunities for the species. Margins of woodland habitats, field margins and other habitats which are of limited extent within the Application Site are likely to support small mammal populations and thus offer foraging opportunities for the species.

4.34. The Proposed Development, which will involve the installation of solar arrays within areas of habitat of poor value for the species, will retain features of relatively higher value. Furthermore, operational solar farms are known to be utilised by foraging Kestrel[25]. It is not considered that the Proposed Development would give rise to any significant adverse effects upon this species.

4.35. Proposed mitigation inclusive of areas of species-rich grassland and wildflower meadows will deliver enhancements to the available foraging habitat for the species within the Application Site.

Lapwing

4.36. Lapwing are pigeon-size black and white waders with a characteristic wispy crest extending from the back of the head. There are resident, summer, and winter populations, which can overlap at certain times of year, with peak numbers in September and April[26]. Lapwing breed on open farmland, preferring bare fields adjacent to grass, and remain widespread over winter.

4.37. A single Lapwing was recorded flying from vegetation on the degraded bog habitat within the Application Site in August, toward the northern border of the development boundary (See **Appendix 1 – Figure 3**).

4.38. The single observation during the late breeding season suggests the site was being used opportunistically by the species, likely as a temporary foraging site during dispersal or migration. There is little evidence to suggest the species is breeding on site. Furthermore, there are no SPA's within 15km of the Application Site with the species listed as a qualifying interest.

4.39. It is not considered that the Proposed Development would give rise to significant habitat loss effects upon Lapwing. Similar habitats, for opportunistically foraging Lapwing are present surrounding the Application Site and in the wider environs.

Meadow Pipit

[25] Martín-Taboada, A., García-Quevedo, P., Díaz-Ruiz, F., Duarte, J., Real, R., Karekezi, M.S.M. and Farfán, M.A., 2025. Raptors Using a Solar Photovoltaic Facility in Southern Spain. *Journal of Raptor Research*, *1*(aop).

[26] Lapwing. Available at: Lapwing - BirdWatch Ireland

4.40. Meadow Pipits are a common passerine bird in Ireland, seen to use rough pastures, bogs, uplands, scrub and pasture for breeding[27]. They typically move towards lowland area in the winter, with many European birds arriving in Ireland to winter.

4.41. Meadow Pipits were observed perching, foraging, calling, and singing within the Application Site as well as flying over site in all surveys (See **Appendix 1 – Figures 1-12**). The species is considered to be possibly breeding within grassland and arable margins throughout the site.

4.42. It is considered that the Proposed Development which will retain and buffer the vast majority of hedgerows and field margins within the Application Site, will not give rise to the loss of significant habitats for breeding meadow pipit.

Redwing

4.43. Redwing are a widespread winter visitor to Ireland from Iceland and Scandinavia, favouring open fields in lowland areas, and typically avoiding urban regions[28]. Redwing do not breed in Ireland.

4.44. Redwing were noted perching, singing, calling and flying over the Application Site during all surveys from October 2025 to April 2026 surveys (see **Appendix 1 – Figures 5-11**). The largest flock of the species recorded comprised 26 birds in January 2026.

4.45. The Proposed Development will largely retain habitats within the Application Site including woodland, hedgerows and treelines which are of relatively greater value for Redwing. Solar arrays will also retain the vast majority of grassland habitats which are likely to function as additional foraging habitat for the species Within the Application Site.

Swift

4.46. Swift are a summer visitor throughout Ireland from May to early September[29]. They tend to breed in small recesses in buildings and feed on invertebrates caught on the wing.

4.47. A single Swift was observed flying on site during the June 2025 survey (See **Appendix 1 – Figure 1**).

4.48. No buildings or other features offering nesting opportunities for the species will be affected by the Proposed Development. It is not considered that the Proposed Development would give rise to significant adverse effects upon Swifts.

Woodcock

[27] Meadow Pipit. Available at: https://birdwatchireland.ie/birds/meadow-pipit/
[28] Redwing. Available at: https://birdwatchireland.ie/birds/redwing/
[29] Swift. Available at: Swift - BirdWatch Ireland

4.49. Woodcock have a plump body and cryptic plumage and are often hidden amongst woodland vegetation during the day[30]. The resident population is supplemented with visitors from Scandinavia and Russia in winter. Woodcock breed on the ground in forested areas and expand their distribution in winter to include scrub and moorland habitats as well as woodland.

4.50. Two Woodcock were flushed from the area of conifer plantation during the November 2025 survey (See **Appendix 1 – Figure 6**). No construction will occur in this habitat under the Proposed Development.

4.51. Areas of woodland within the Application Site are to be retained and as such no significant habitat loss or disturbance effects are considered likely to arise for Woodcock.

Yellowhammer

4.52. Yellowhammer are a typical-sized bunting known for their striking yellow summer plumage. They are restricted to mainly to eastern and southern counties and are strongly linked with cereal cultivation during breeding season. They are largely resident year-round in Ireland, with flocks forming in favoured feeding areas such as winter stubble[31].

4.53. Yellowhammer were observed calling, singing and foraging during June, July, September, October, and November 2025 surveys and in January, February, March and May 2026 (See **Appendix 1 – Figures 1, 2, 4-6, 8-10, 12**).

4.54. It is considered that the installation of the proposed solar arrays would have potential to give rise to some loss of habitat for Yellowhammer, due to the cessation of arable farming within the Application Site. However, solar farms have been shown to support increased numbers of breeding Yellowhammer when subject to management as meadows[32]. As such, proposed areas of species-rich grassland and wildflower meadows are likely to deliver an enhancement of the site for breeding Yellowhammer, with significant arable habitats present in the adjacent and wider areas.

AMBER-LISTED SPECIES

4.55. The following amber-listed species were noted across both seasons of bird surveys: Brambling (*Fringilla montifringilla*), Goldcrest (*Regulus regulus*), Greenfinch (*Chloris chloris*), Herring Gull (*Larus argentatus*), House Martin (*Delichon urbicum*), House Sparrow (*Passer domesticus*), Kingfisher (*Alcedo atthis*), Linnet (*Linaria cannabina*), Mallard (*Anas platyrhyncos*), Skylark (*Alauda arvensis*), Spotted Flycatcher (*Muscicapa striata*), Starling (*Sturnus vulgaris*), Swallow

[30] Woodcock. Available at: Woodcock - BirdWatch Ireland
[31] Yellowhammer. Available at: https://birdwatchireland.ie/birds/yellowhammer/
[32] Copping, J. P. *et al.* (2025) 'Solar farm management influences breeding bird responses in an arable-dominated landscape', *Bird Study*, 72(3), pp. 217–222. doi: 10.1080/00063657.2025.2450392.

(*Hirundo rustica*), Tree Sparrow (*Passer montanus*), Treecreeper (*Certhia familiaris*), Whooper swan (*Cygnus cygnus*), and Willow Warbler (*Phylloscopus trochilus*).

Brambling

4.56. Brambling are winter visitors to Ireland from November to March, with numbers varying each year depending on conditions in breeding ranges. They feed on seeds and split grain in stubble fields, often associated with other finches. They breed in Scandinavia and eastwards towards Siberia[33].

4.57. A single group of four Brambling were recorded perched within the Application Site in November 2025 (See **Appendix 1 – Figure 6**).

4.58. This species is a relatively uncommon visitor and is considered unlikely to be present within the site on a yearly basis or reliant on habitats within the site. Impacts to the species associated with the Proposed Development are considered to be negligible.

Goldcrest

4.59. Goldcrest are a resident passerine bird typically found in coniferous forests throughout Ireland[34]. They can breed in broadleaf forests, dense coniferous forests, hedgerows and suburban gardens. Goldcrest are resident wintering birds in Ireland.

4.60. Goldcrest were noted foraging, singing, calling, and perching within the Application Site during all surveys from June 2025 to May 2026 (See **Appendix 1 – Figures 1-12**).

4.61. The Proposed Development will largely retain habitats of value for the species including woodland, forestry, hedgerows and treelines, habitats that are largely being bolstered through species rich infilling and additional planting as highlighted in the Biodiversity Management Plan submitted with the Planning Application. As such, post development it is considered there is potential for a positive impact for species such as goldcrest using these habitats. No significant impacts to goldcrest are predicted to arise as a result of the Proposed Development subject to mitigation.

Greenfinch

4.62. Greenfinch are a widespread resident species in Ireland that have seen recent declines due to the spread of trichomonosis. They breed throughout Ireland in hedgerows, parks, and gardens, and remain over winter, being found frequently at peanut feeders with other finches. Their winter numbers can be bolstered by individuals from continental Europe[35].

[33] Brambling. Available at: https://birdwatchireland.ie/birds/brambling/
[34] Goldcrest. Available at: https://birdwatchireland.ie/birds/goldcrest/
[35] Greenfinch. Available at: https://birdwatchireland.ie/birds/greenfinch/

4.63. Greenfinch were observed calling and foraging within the Application Site in June, October and November 2025 and March 2026 (See **Appendix 1 – Figure 1, 5, 6, 10**).

4.64. No significant impacts to this species are considered to arise as a result of the Proposed Development subject to mitigation.

Herring Gull

4.65. Herring Gull are a large gull species typical of the coasts of Ireland. They breed in coastal colonies, with occasionally recorded inland colonies. They are widespread both along coasts and inland over winter.[36]

4.66. Herring Gull were recorded flying over site in June 2025 and January 2026 (See **Appendix 1 – Figures 1 and 8**). There is no evidence that the species is breeding or foraging on site.

4.67. No significant impacts to this species are considered likely to arise as a result of the Proposed Development subject to mitigation.

House Martin

4.68. House Martins are a common summer visitor to Ireland from March to September. They are aerial feeders, catching insects such as aphids and mayflies in flight. They construct mud nests commonly in the eaves of houses but can also nest on cliffs and may form large colonies[37].

4.69. Groups of House Martin were recorded flying and foraging over fields within the Application Site in July and August (See **Appendix 1 – Figures 2 and 3**). There is no evidence that the species is breeding on site.

4.70. No significant impacts to this species are considered to arise as a result of the Proposed Development.

House Sparrow

4.71. House Sparrow are one of Ireland's most widespread garden birds. They breed throughout Ireland, primarily around buildings, nesting in cavities and under eaves. Recent declines may be linked to a reduction of available nesting sites[38].

4.72. House Sparrows were recorded foraging, singing, calling, and perching in June, July and October 2025, and February, April and May 2026 (See **Appendix 1 – Figures 1, 2, 5, 9, 11 and 12**).

[36] Herring Gull. Available at: https://birdwatchireland.ie/birds/herring-gull/
[37] House Martin. Available at: https://birdwatchireland.ie/birds/house-martin/
[38] House Sparrow. Available at: https://birdwatchireland.ie/birds/house-sparrow/

4.73. The Proposed Development will largely retain habitats of value for the species including woodland, forestry, hedgerows and treelines. No significant impacts to House Sparrow are predicted to arise as a result of the Proposed Development subject to mitigation.

Linnet

4.74. Linnet are a widespread resident finch species in Ireland. They breed in a variety of habitats including rough grassland, uplands, and coastal areas with gorse. In winter they often gather in larger flocks than those seen in breeding season, but they are a social bird year-round[39].

4.75. Linnet were recorded in varying numbers across all surveys from June 2025 to May 2026, apart from December 2025 and March 2026, and were noted singing, calling, foraging, and perching within the Application Site (See **Appendix 1 – Figures 1-6, 8, 9, 11, 12**). The largest flock observed comprised around 150 individuals in August. The species is considered to be potentially breeding on site.

4.76. No significant impacts to the species are considered to arise as a result of the Proposed Development, subject to mitigation.

Mallard

4.77. Mallard are the most widespread duck species in Ireland, with both resident and winter migrant populations from Iceland and across Europe. They breed in almost all wetland habitats across Ireland, mostly on the ground concealed by vegetation.[40]

4.78. Two male and female pairs of Mallards were observed, once in October 2025, and once in February 2026, both flying from the same watercourse within the Application Site. The species is considered to potentially be breeding within the Application Site.

4.79. It is considered that the Proposed Development, which will retain and buffer watercourses within the Application Site, will not give rise to the loss of significant habitats for breeding Mallard.

Skylark

4.80. Skylark are a common resident throughout Ireland in uplands and farmlands, especially where cereal is cultivated. They breed in a variety of habitats including cultivated areas, ungrazed lands and upland heaths. They move away from breeding areas in winter to form flocks in stubble fields, grasslands and coastal areas. Skylark are included in the amber list due to agricultural intensification leading to a loss of suitable nesting habitat and lack of winter and summer food[41].

[39] Linnet. Available at: https://birdwatchireland.ie/birds/linnet/
[40] Mallard. Available at: https://birdwatchireland.ie/birds/mallard/
[41] Skylark. Available at: https://birdwatchireland.ie/birds/skylark/

4.81. Skylark were recorded on site singing, calling, flying over, and being flushed in all surveys conducted (See **Appendix 1 – Figures 1-12**). Territorial behaviour and vertical display flights were observed during the breeding season.

4.82. The Proposed Development is considered likely to give rise to the loss of breeding sites of the species within areas of arable land and agricultural grasslands through the installation of solar arrays which are known to prevent nesting by the species.

4.83. There is currently a range of research available across a number of existing solar farms relating to ground nesting bird behaviours, however, this research is equally divided amongst a number of ages of solar farm and design philosophies. The Proposed Development's elements are in line with the principles which have been considered within Peschel et al. 2019[42], which has identified that breeding records of skylark within solar parks have been recorded where panel row spacing exceeds 3m (the Proposed Development has a panel spacing of 4m). Additional recent surveys have also found high levels of Skylark nesting within solar farms as found in Weesow-Willmersdorf solar park which provide a proof of concept that with appropriate design and management, nesting Skylark can be found.

4.84. It is considered therefore that the Proposed Development which will retain wide buffers around the field margins, 4m gaps between arrays and other non-developed areas will largely preserve nesting opportunities for the species within the Application Site.

4.85. Some of the primary threats to biodiversity, amongst others, are habitat degradation, fragmentation and loss due to changes in agricultural practices (such as intensification) as highlighted in the National Biodiversity Action Plan ("NBAP") 2023-2030. This is particularly relevant to our ground nesting bird species such as skylark. The reduction in intensive agricultural practices within the Application Site which will reduce risk to ground nests in the breeding period, in addition to the grassland meadow measures as detailed within the Biodiversity Management Plan will significantly improve the Application Site as a habitat for ground nesting birds such as skylark.

Spotted Flycatcher

4.86. Spotted Flycatcher are a widespread summer visitor to Ireland. As their name suggests, they primarily catch insects in flight, darting out from exposed branches. They are a widespread breeding species in broadleaved woodlands, hedgerows, parks, and gardens[43].

4.87. A Spotted Flycatcher was recorded singing on site in August 2025 (See **Appendix 1 – Figure 3**).

4.88. The Proposed Development will largely retain habitats of value for the species including woodland, forestry, hedgerows and treelines. No significant impacts to Spotted Flycatcher are predicted to arise as a result of the Proposed Development subject to mitigation.

[42] Peschel, R., Peschel, T., Marchand, M. and Hauke, J., 2019. Solar parks-profits for biodiversity. *Association of Energy Market Innovators: Berlin, Germany*.
[43] Spotted Flycatcher. Available at: https://birdwatchireland.ie/birds/spotted-flycatcher/

Starling

4.89. Starling is a common resident species throughout Ireland, breeding in the countryside, woodland and in farmland as well as towns and cities. Starling breed in holes or crevices in buildings and in trees, typically in loose colonies[44]. Starlings are also a widespread wintering resident, with additional birds joining from the continent in the winter. In winter they roost in urban regions such as old buildings and piers and in the countryside in reed beds, woodland and on the coast.

4.90. Starlings were noted flying over the Application Site as well as perching, calling, singing, and foraging in all surveys conducted except February 2026 (See **Appendix 1 – Figures 1-8, 10-12**).

4.91. No significant impacts to this species are considered to arise as a result of the Proposed Development subject to mitigation.

Swallow

4.92. Swallows are a common summer visitor to Ireland from mid-March to late-September. Similarly to House Martins, they are aerial hunters, feeding on insects in flight. They construct bowl-shaped mud nests in barns and other buildings.[45]

4.93. Flocks of Swallows were recorded flying and foraging over fields within the Application Site in June, July, August, and September 2025 and May 2026 (See **Appendix 1 – Figures 1-4 and 12**).

4.94. No buildings or other features offering nesting opportunities for the species will be affected by the Proposed Development. The site will continue to act as a foraging resource for Swallows throughout the operational phase.

Tree Sparrow

4.95. Tree Sparrow is a local resident sparrow species in the east of Ireland, being scarcer along the south and west coasts. They are amber listed due to ongoing declines in the European breeding population; however, the Irish population is presently considered stable. They are largely associated with cereal production and, much like house sparrows, nest in cavities in buildings including eaves and holes in brickwork[46].

4.96. One individual Tree Sparrow was recorded perched on site in February 2026 (See **Appendix 1 – Figure 9**).

4.97. It is considered that the installation of the proposed solar arrays would have potential to give rise to some loss of habitat for Tree Sparrow, due to the cessation of arable farming within the Application Site. However, solar farms have been shown to support increased numbers of

[44] Starling. Available at: https://birdwatchireland.ie/birds/starling/
[45] Swallow. Available at: https://birdwatchireland.ie/birds/swallow/
[46] Tree Sparrow. Available at: https://birdwatchireland.ie/birds/tree-sparrow/

breeding songbirds when subject to management as meadows[47]. As such, proposed areas of species-rich grassland and wildflower meadows are likely to deliver an enhancement of the site for breeding Tree Sparrow, with significant arable habitats present in the adjacent and wider areas.

Treecreeper

4.98. Treecreeper is a small widespread resident species found in mature hedgerows and deciduous forests. They have a characteristic habit of creeping up tree trunks and branches using their sharp curved claws, foraging for invertebrates found in bark. They are widespread though elusive throughout the year, with only some local dispersal of young in Autumn [48].

4.99. Treecreeper were recorded calling and foraging in August 2025 and March and April 2026 (See **Appendix 1 – Figures 3, 10 and 11**).

4.100. The Proposed Development will largely retain habitats of value for the species including woodland, forestry, hedgerows and treelines. No significant impacts to Treecreeper are predicted to arise as a result of the Proposed Development subject to mitigation.

Whooper Swan

4.101. Whooper Swan, an Annex I species, are winter visitors to wetlands throughout Ireland. Habitats on site are considered suitable to support wintering Whooper Swan, due to the presence of open farmland with grasslands upon which they typically feed[49] and loaf.

4.102. Three birds were recorded flying over the site in October 2025 (See **Appendix 1 – Figure 5**). No additional observations of the species were recorded within the Application Site.

4.103. Given that Whooper Swan was only observed flying over and the species has not been recorded utilising the site, there is no evidence that the Application Site holds any significant value for the species. Furthermore, habitats on site which may be utilised by the species – largely pastoral grasslands – are widely represented in the wider environs outside the Application Site. No significant impacts on this species are anticipated.

4.104. Furthermore, given the distance separating the Application Site and the closest SPA for which this Annex I species is included as an SCI, that being Lough Ree SPA, located approximately 61km to the northwest, it is not considered that the recorded Whooper Swans are associated with any nearby SPAs.

Willow Warbler

[47] Copping, J. P. *et al.* (2025) 'Solar farm management influences breeding bird responses in an arable-dominated landscape', *Bird Study*, 72(3), pp. 217–222. doi: 10.1080/00063657.2025.2450392.
[48] Treecreeper. Available at: https://birdwatchireland.ie/birds/treecreeper/
[49] Whooper Swan. Available at: https://birdwatchireland.ie/birds/whooper-swan/

4.105. Willow Warbler are a summer visitor to Ireland, identical in size to a Chiffchaff and very similar in appearance. They are one of the commonest breeding birds in Ireland, with the highest densities found in willow stands along the edges of bogs and marshes[50].

4.106. Willow Warbler were recorded singing, calling and foraging in June, July and August 2025 and April and May 2026 (See **Appendix 1 – Figures 1-3, 11 and 12**). Territorial behaviour was also observed in May 2026.

4.107. The Proposed Development will largely retain habitats of value for the species including woodland, forestry, hedgerows and treelines. No significant impacts to Willow Warbler are predicted to arise as a result of the Proposed Development subject to mitigation.

ADDITIONAL ANNEX I SPECIES

Little Egret

4.108. Little Egret is a medium-sized, stark white heron species. They occur along coasts and rivers throughout Ireland, having greatly expanded in range since first breeding on the island in 1997[51]. They breed in lakes, marshes, estuaries and flooded fields.

4.109. They are a green-listed species according to BoCCI and a species of least concern for Species of European Conservation Concern, as well as the IUCN Red List. They are listed on Annex I of the Bird's Directive due to requiring specific habitat protections – specifically their breeding wetland habitats.

4.110. A single Little Egret was recorded flying over, but not utilising, the Application Site in February 2026 (See **Appendix 1 – Figure 9**).

4.111. It is not considered that the Application Site is of particular value for the species; the site does not offer any breeding habitat, and there were no observations of the species utilising habitats within the Application Site. As such, it is not considered that the Proposed Development would give rise to any significant adverse effects upon this species.

RECOMMENDED MEASURES AND MITIGATION

4.112. Given that the Proposed Development will involve the loss of habitat with potential to support nesting birds including hedgerows and trees, such works would have potential to give rise to adverse effects upon a wide range of bird species which are likely to utilise such habitats for nesting. This includes a number of species of conservation concern including Yellowhammer,

[50] Willow Warbler. Available at: https://birdwatchireland.ie/birds/willow-warbler/
[51] Little Egret. Available at: Little Egret - BirdWatch Ireland

Goldcrest, Greenfinch, House Sparrow, Linnet, Tree Sparrow, Treecreeper, Whitethroat and Willow Warbler.

4.113. To prevent an offence under the Wildlife Acts and to minimise potential adverse effects to these species any tree or vegetation removal works that are required as part of this development shall be done outside of the bird nesting season, from March 1st until August 31st inclusive.

4.114. This mitigation will effectively address any potential adverse effects upon the vast majority of species recorded within the Application Site.

4.115. Four ground-nesting species were identified to be present on site: three red-listed species, Lapwing, Common Snipe and Meadow Pipit, and one amber-listed species, Skylark. **Pre-commencement breeding bird ground-nest checks** will be undertaken by a dedicated Ecological Clerk of Works (ECoW) or suitably qualified ornithologist before any construction takes place if works are being carried out during breeding season (March to August inclusive).

4.116. If ground nesting birds or their nests are identified within the site at this time, or other protected or notable birds are present on site, the ECoW will implement an appropriate buffer from construction works, in line with relevant guidance[5253], which will remain in place until nesting has completed and the birds have fledged, to be established through monitoring.

4.117. The proposed construction of the development would occur in a phased manner, ensuring that substantial portions of the site at any given time would not be subject to live construction works, thus reducing the area which is subject to disturbance and allowing breeding species to establish new territories within the completed parts of the development.

4.118. In addition, due to the prevalence of foraging Common Snipe observed during the wintering surveys, on a precautionary basis, it is recommended that a dedicated ECoW or a suitably qualified ornithologist carries out a **pre-commencement vegetation removal check for wintering species**, where vegetation removal is planned, if works are to take place within the winter period (September to February inclusive). As the construction of the Proposed Development will follow a phased approach, the pre-commencement wintering bird check shall mirror timing but up to 48 hours before construction activities begin.

[52]Hötker, H., Thomsen, K.-M. & H. Jeromin (2006): Impacts on biodiversity of exploitation of renewable energy sources: the example of birds and bats - facts, gaps in knowledge, demands for further research, and ornithological guidelines for the development of renewable energy exploitation. Available at: Impacts on biodiversity of exploitation of renewable energy sources: the example

[53] NatureScot (2022): Disturbance Distances in selected Scottish Bird Species. Available at: Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance | NatureScot

4.119. In the event that Snipe, or any notable or protected species, are identified on-site, species-specific buffers will be applied. The dedicated ECoW shall determine the species-specific buffers following the relevant guidance[5455].

4.120. As set out in **Appendix 2D - Biodiversity Management Plan (BMP)**[56], the planting of species rich diverse grassland will occur, with the management regime ensuring a varied sward structure. This will benefit local biodiversity by encouraging invertebrate prey which is a key foraging resource; for example, Skylark chicks rely solely on invertebrate prey. Areas of wildflower meadow have also been proposed to be planted in replacement of the improved agricultural grassland on site. This will create an insect-rich habitat and support a range of birds and invertebrates.

4.121. During the operational phase of the Proposed Development, there will be minimal disturbance to local birds. There will be a reduction in disturbance from farming practises and the presence of machinery, and human presence will be minimal.

4.122. These areas of species-rich grassland and wildflower meadow will provide richer heterogenous feeding areas for passerine species such as Goldcrest, Redwing, Starling and Skylark. The promotion of habitat suitable for a range of macroinvertebrate species and thus passerine species also increases food abundance for apex predators as a result of the trophic triangle, whereby primary producers provide food for primary and secondary consumers, ultimately benefitting tertiary consumers, such as raptors.

4.123. It is considered that the presence of a solar farm and the response of local bird species may be dependent on Application Site management and design, such as whether they are designed with biodiversity in mind, by including hedges, wildflower meadows, etc. Studies have demonstrated that solar farms can provide habitat for species in an otherwise homogenous and habitat-depleted landscape, such as those dominated by high-intensity agriculture[57]. This is further supported by a large-scale assessment of multiple solar farms and their positive impact on farmland birds in the UK[58]. As is the case with the Application Site in question. As detailed in the accompanying Biodiversity Management Plan, species rich hedgerow and grassland have been incorporated into the design of the Proposed Development in order to bolster the site for local bird species and those that are present within the Application Site.

4.124. Adopted design principles include retaining and buffering watercourses by 10m within the Application Site. These exclusion zones will minimise disturbance and retain critical habitat for Kingfisher and other birds that utilise riparian habitats, such as Grey Wagtail.

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[54]Hötker, H., Thomsen, K.-M. & H. Jeromin (2006): Impacts on biodiversity of exploitation of renewable energy sources: the example of birds and bats - facts, gaps in knowledge, demands for further research, and ornithological guidelines for the development of renewable energy exploitation. Available at: Impacts on biodiversity of exploitation of renewable energy sources: the example

[55] NatureScot (2022): Disturbance Distances in selected Scottish Bird Species. Available at: Disturbance Distances in selected Scottish Bird Species – NatureScot Guidance | NatureScot

[56] McBride, LM (2024) Biodiversity Management Plan. Cadamstown Solar Farm. Neo-Environmental.

[57] Copping, J.P. et al. (2025) Solar farm management influences breeding bird responses in an arable-dominated landscape

[58] Solar Habitat 2025 (Solar Energy UK, Lancaster University, Wychwood Biodiversity and Clarkson & Woods)

4.125. The majority of the other bird species are common generalist species which will adapt to change in the landscape and are seen within grasslands, hedgerows, woodlands and gardens. General good management of hedgerow will benefit all species as the infilling of hedgerow with native species planting and the creation of wildflower rich grassland will improve sheltering and foraging opportunities.

4.126. There is potential for short-term disturbance to ground nesting species such as Skylark, Meadow Pipit, Snipe and Lapwing. Best-practice construction safeguards will be implemented to ensure disturbance is kept to a minimum.

4.127. With the implementation of habitat enhancement measures it is considered that the Proposed Development will benefit local populations of birds.

5. CONCLUSION

5.1. The results of the six non-breeding bird surveys and six breeding bird surveys undertaken between June 2025 and May 2026 indicate that the proposed site predominantly supports common and widespread bird species typical of farmland habitats present.

5.2. Results from the bird surveys also conclude that the site supports wintering Common Snipe which were found using improved grassland and wet grassland habitat within the Application Site. The Application Site was also recorded to support opportunistic foraging Lapwing, and additional ground-nesting species including Skylark and Meadow Pipit. Birds of prey in addition to a number of red- and amber-listed passerine species were recorded calling, singing and foraging within the Application Site boundary. Some of these species are likely to be breeding within the Application Site.

5.3. Only one Kingfisher was observed on site, in July 2025, and the species is not considered to be breeding within or near to the Application Site. The lack of impacts to watercourses arising as a result of the Proposed Development, in addition to the relatively limited potential and recorded use of the site to support Kingfisher foraging and commuting, effectively rules out any potential effects upon the local Kingfisher population.

5.4. Best-practice construction safeguards will be implemented to ensure disturbance is kept to a minimum. Pre-commencement breeding bird ground-nest checks will be undertaken by a dedicated ECoW or suitably qualified ornithologist before any construction takes place if works are being carried out during breeding season (March-August inclusive). In the event of ground-nesting breeding birds or other protected and notable birds being recorded within the Application Site during these surveys, appropriate disturbance distance buffers will be implemented and will remain in place until the birds have vacated.

5.5. Pre-commencement vegetation removal checks for wintering species, in particular Snipe, will be carried out by a dedicated ECoW or a suitably qualified ornithologist where vegetation removal is planned, if works are to take place within the winter period (September to February inclusive). In the event that Snipe, or any notable or protected species, are identified on-site, species-specific buffers will be applied. The dedicated ECoW shall determine the species-specific buffers following the relevant guidance.

5.6. With the implementation of habitat enhancement measures for locally important bird species, it is considered that the Proposed Development is unlikely to give rise to a significant negative effect on local bird species' populations. As the Proposed Development will include habitat enhancement measures, such as species-rich grasslands and hedgerow planting, for local birds including red- and amber-listed passerine species and raptors, there will likely be a positive effect on these species as a result of the Proposed Development.

6. APPENDICES

Appendix 1 – Figures

- Figure 1 – June 2025 Breding Bird Survey (BBS) Map
- Figure 2 – July 2025 Breeding Bird Survey (BBS) Map
- Figure 3 – August 2025 Breeding Bird Survey (BBS) Map
- Figure 4 – September 2025 Non-Breeding Bird Survey (WBS) Map
- Figure 5 – October 2025 Non-Breeding Bird Survey (WBS) Map
- Figure 6 – November 2025 Non-Breeding Bird Survey (WBS) Map
- Figure 7 – December 2025 Non-Breeding Bird Survey (WBS) Map
- Figure 8 – January 2026 Non-Breeding Bird Survey (WBS) Map
- Figure 9 – February 2026 Non-Breeding Bird Survey (WBS) Map
- Figure 10 – March 2026 Breeding Bird Survey (BBS) Map
- Figure 11 – April 2026 Breeding Bird Survey (BBS) Map
- Figure 12 – May 2026 Breeding Bird Survey (BBS) Map

Appendix 1 - Figures



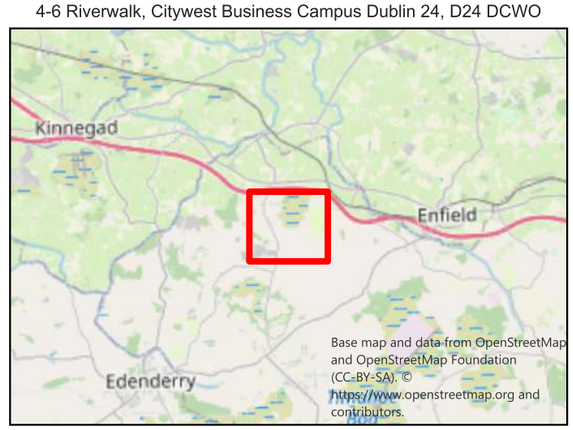
Cadamstown Solar Farm
Breeding Bird Survey Results
June 2025
Figure 1

BTO Code	Species
GC	Goldcrest
GR	Greenfinch
HG	Herring Gull
HS	House Sparrow
LI	Linnet
MP	Meadow Pipit
S.	Skylark
SG	Starling
SI	Swift
SL	Swallow
WW	Willow Warbler
Y.	Yellowhammer

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

0 0.3 0.6 0.9 1.2 1.5 Kilometers



Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO

Date: 28/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/095IA

neo ENVIRONMENTAL
An Origin Enterprises Company

Cadamstown Solar Farm
Breeding Bird Survey Results
July 2025
Figure 2

BTO Code	Species
GC	Goldcrest
HM	House Martin
HS	House Sparrow
KF	Kingfisher
LI	Linnet
MP	Meadow Pipit
S.	Skylark
SG	Starling
SL	Swallow
WW	Willow Warbler
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 28/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/096IA

neo ENVIRONMENTAL
An Origin Enterprises Company

Cadamstown Solar Farm
Breeding Bird Survey Results
August 2025
Figure 3

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

BTO Code	Species
GC	Goldcrest
HM	House Martin
L.	Lapwing
LI	Linnet
MP	Meadow Pipit
S.	Skylark
SF	Spotted Flycatcher
SG	Starling
SL	Swallow
TC	Treecreeper
WW	Willow Warbler

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 27/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/097IA

neo ENVIRONMENTAL
An Origin Enterprises Company

Cadamstown Solar Farm
Non-breeding Bird Survey Results
September 2025
Figure 4

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

BTO Code	Species
GC	Goldcrest
LI	Linnet
MP	Meadow Pipit
S.	Skylark
SG	Starling
SL	Swallow
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 27/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/098IA

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An Origin Enterprises Company

Cadamstown Solar Farm
Non-breeding Bird Survey Results
October 2025
Figure 5

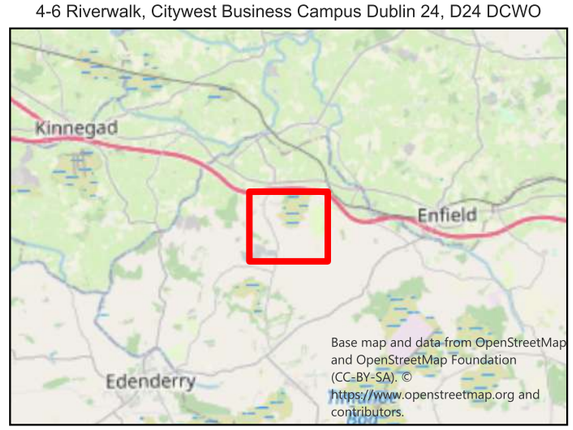
Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

BTO Code	Species
GC	Goldcrest
GL	Grey Wagtail
GR	Greenfinch
HS	House Sparrow
LI	Linnet
MA	Mallard
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SG	Starling
SN	Common Snipe
WS	Whooper Swan
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 30/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/099IA

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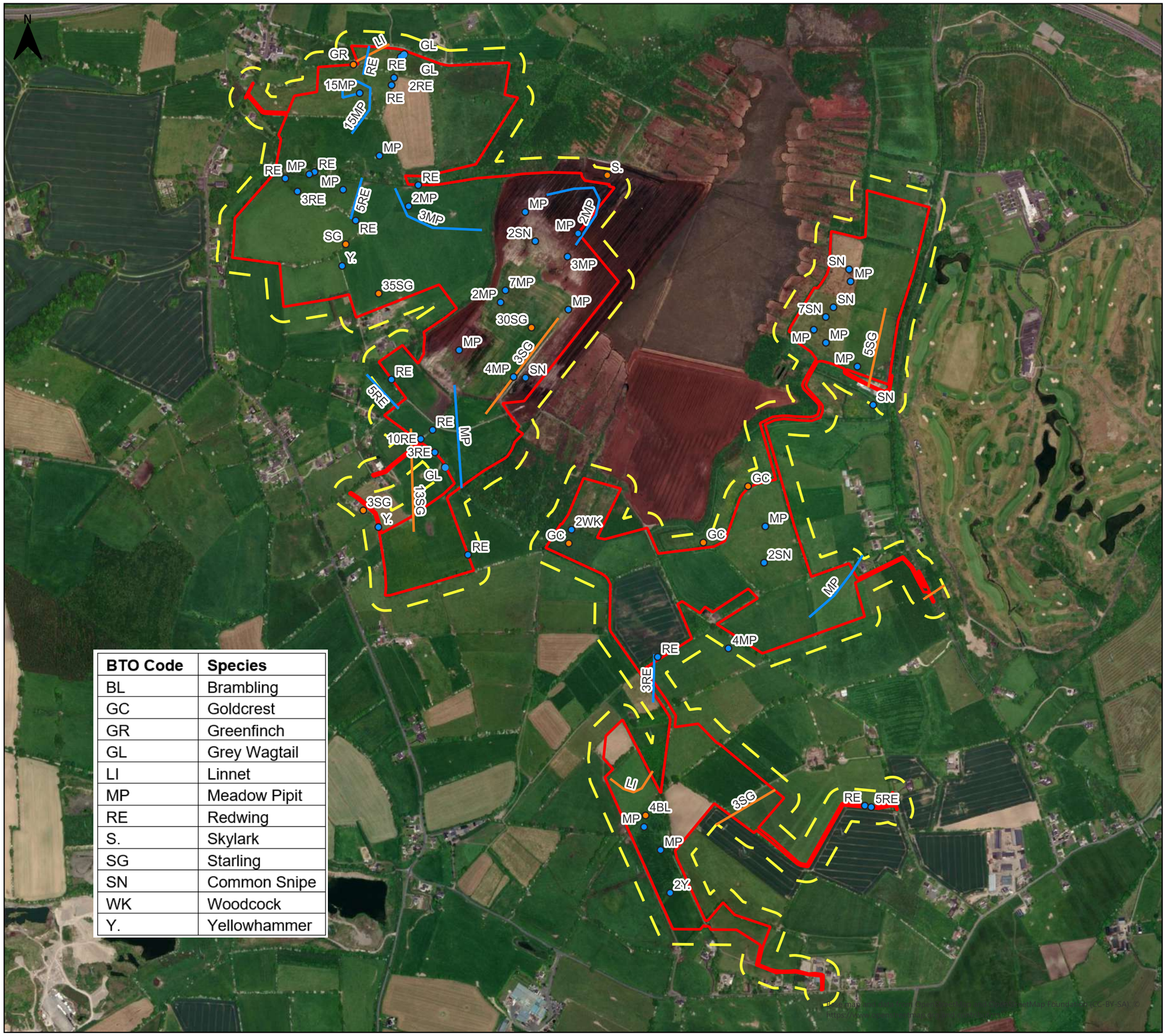
An Origin Enterprises Company

Cadamstown Solar Farm
Non-breeding Bird Survey Results
November 2025
Figure 6



BTO Code	Species
BL	Brambling
GC	Goldcrest
GR	Greenfinch
GL	Grey Wagtail
LI	Linnet
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SG	Starling
SN	Common Snipe
WK	Woodcock
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 30/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/100IA

ENVIRONMENTAL
An Origin Enterprises Company

Cadamstown Solar Farm
Non-breeding Bird Survey Results
December 2025
Figure 7

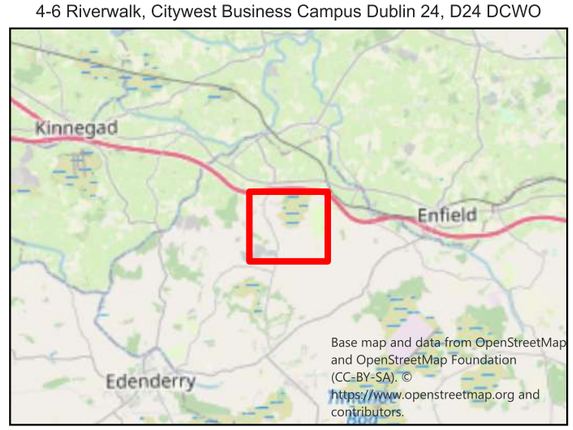
Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

BTO Code	Species
GC	Goldcrest
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SG	Starling
SN	Common Snipe

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 29/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/101IA

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Cadamstown Solar Farm
Non-breeding Bird Survey Results
January 2026
Figure 8

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

BTO Code	Species
GC	Goldcrest
GL	Grey Wagtail
GP	Golden Plover
HG	Herring Gull
LI	Linnet
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SG	Starling
SN	Common Snipe
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 27/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/102IA

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Cadamstown Solar Farm
Non-breeding Bird Survey Results
February 2026
Figure 9

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines
- Additional Annex I Species Flight Lines

BTO Code	Species
ET	Little Egret
GC	Goldcrest
HS	House Sparrow
K.	Kestrel
LI	Linnet
MA	Mallard
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SN	Common Snipe
TS	Tree Sparrow
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

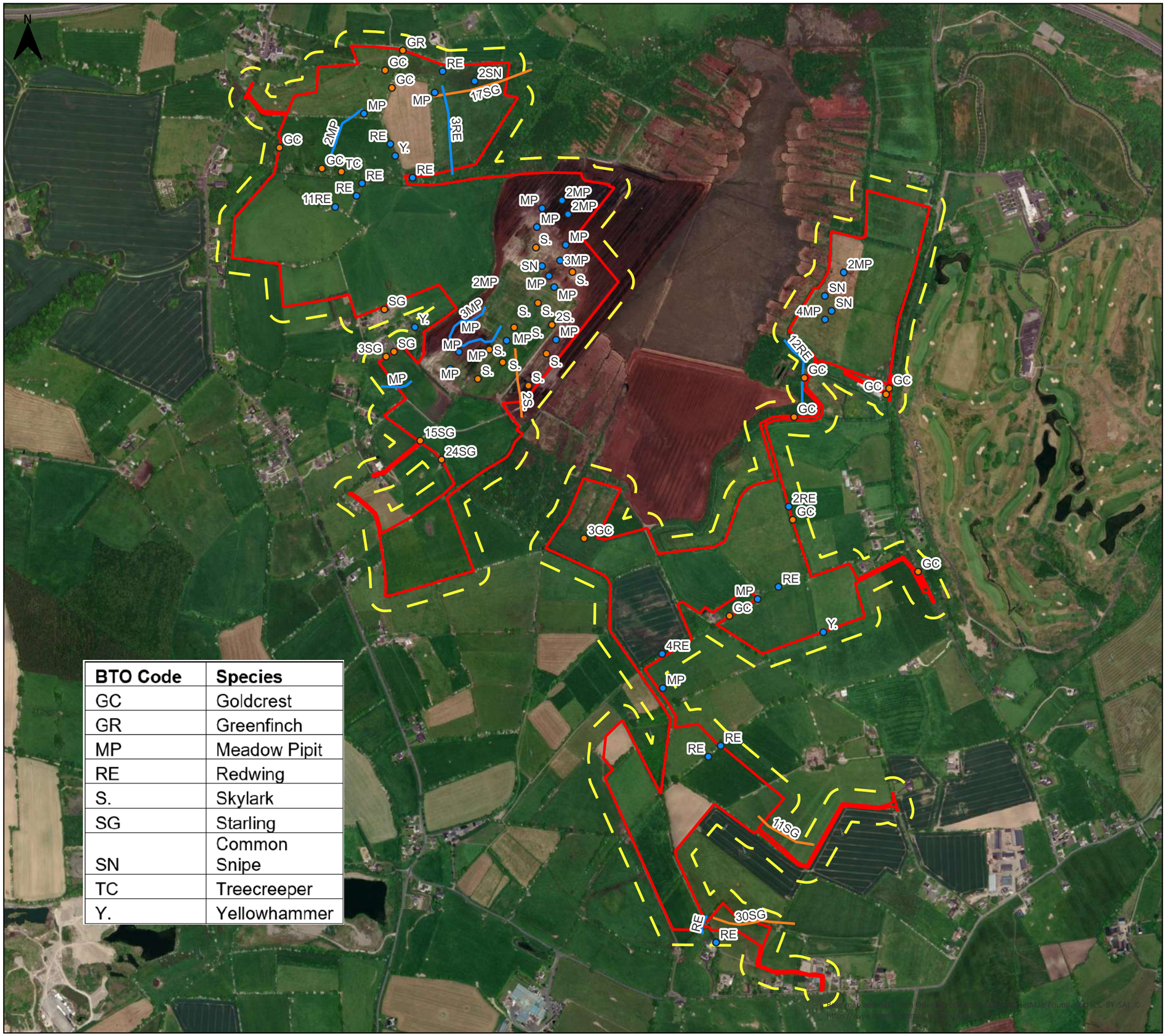


Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO

Date: 27/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/103IA

ENVIRONMENTAL
An Origin Enterprises Company

Cadamstown Solar Farm
Breeding Bird Survey Results
March 2026
Figure 10



BTO Code	Species
GC	Goldcrest
GR	Greenfinch
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SG	Starling
SN	Common Snipe
TC	Treecreeper
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

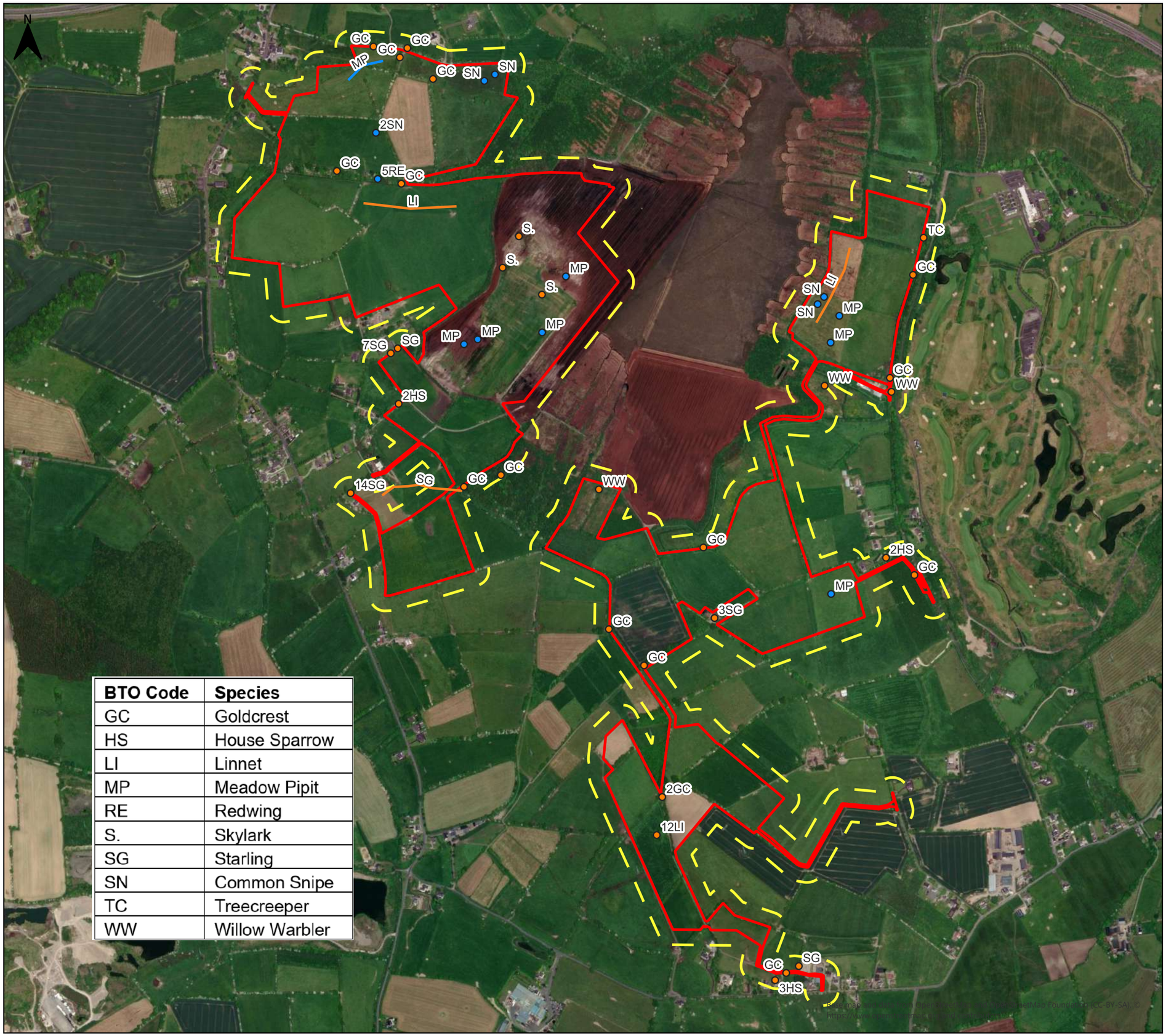
Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 28/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/104IA

ENVIRONMENTAL
An Origin Enterprises Company

Cadamstown Solar Farm
Breeding Bird Survey Results
April 2026
Figure 11



BTO Code	Species
GC	Goldcrest
HS	House Sparrow
LI	Linnet
MP	Meadow Pipit
RE	Redwing
S.	Skylark
SG	Starling
SN	Common Snipe
TC	Treecreeper
WW	Willow Warbler

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 28/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/105IA

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Cadamstown Solar Farm
Breeding Bird Survey Results
May 2026
Figure 12

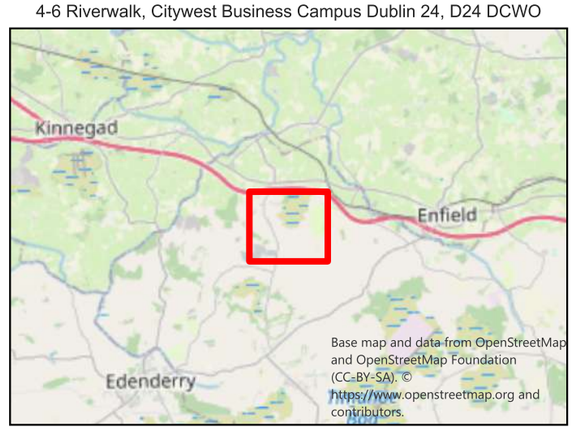
Key

- Development Boundary
- 50m ESA
- BOCCI Red-listed Species
- BOCCI Amber-listed Species
- BOCCI Red-listed Species Flight Lines
- BOCCI Amber-listed Species Flight Lines

BTO Code	Species
GC	Goldcrest
HS	House Sparrow
LI	Linnet
MP	Meadow Pipit
S.	Skylark
SG	Starling
SL	Swallow
WW	Willow Warbler
Y.	Yellowhammer

0 0.3 0.6 0.9 1.2 1.5 Kilometers

Neo Office Address:
4-6 Riverwalk, Citywest Business Campus Dublin 24, D24 DCWO



Date: 28/07/2026
Drawn By: Catriona Graham
Scale (A3): 1:12,500
Drawing No: NEO01214/106IA

neo ENVIRONMENTAL



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