APPENDIX 7.7

Whooper Swan Report

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

BALLINLA WIND FARM ORNITHOLOGICAL SURVEYS

Whooper Swan Survey Report

Prepared for:

Statkraft

Date: September 2025

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TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

LIST OF PLATES

1. INTRODUCTION

Ornithological surveys at the proposed Ballinla wind farm site in Co. Offaly were undertaken between summer 2021 to winter 2022-23 inclusive, comprising four seasons of vantage point (VP) surveys, hinterland surveys, breeding wader surveys, breeding and wintering bird transects. Surveys were undertaken in accordance with *'Recommended bird survey methods to inform impact assessment of onshore wind farms*' (SNH, 2017).

These surveys detected wintering whooper swan activity within the VP study area during both winter 2021-22 and winter 2022-23, including transitory use of improved agricultural grassland near the proposed turbine T3.

To further investigate the patterns of usage by migratory and wintering whooper swans at and in the vicinity of the proposed Ballinla wind farm site, dedicated surveys were undertaken in winter 2023-24, and autumn/winter 2024. These surveys encompassed dawn/dusk VP surveys, hinterland surveys and audio surveys for nocturnal migration, targeted to capture autumn and spring migration and also activity patterns of the local wintering population.

This report details the results of those surveys, and additionally draws information from other surveys including 2021-2023 VP surveys and additional surveys conducted to investigate whooper swan activity during winter 2023-24 and autumn/winter 2024 in order to provide a comprehensive assessment of whooper swan activity at the proposed site.

2. METHODOLOGY

The methodology used for whooper swan VP surveys adhered to SNH (2017) guidance for ornithological assessment of onshore wind farms, while hinterland surveys were conducted in accordance with Lewis et al. (2019).

2.1 Vantage Point Surveys

Additional vantage point (VP) surveys targeting whooper swan activity were carried out at the proposed Ballinla Wind Farm during the and non-breeding seasons of (October 2023 – March 2024 & October - December 2024) seasons, in accordance with Scottish Natural Heritage (SNH) methodology for onshore Wind Farms (SNH, 2017).

A total of four VP locations overlooking the Ballinla study area were used during the VP survey (see Figure 2-1). These were chosen to cover specific viewsheds of the proposed development site and to encompass the view of the developable area and a 500m buffer zone around the developable area (maximum possible turbine layout of the wind farm). SNH (2017) guidance states that viewsheds should cover a 500 m circular buffer drawn around each proposed turbine location. This buffer is referred to as the 'SNH Buffer' and constitutes the flight activity study area. Combined viewshed coverage of the SNH buffer for the finalised turbine layout was 100% .

The main purpose of VP survey watches is to collect data on target species that will enable estimates to be made of:

1. The time spent flying over the defined survey area;
2. The relative use of different parts of the defined survey area; and
3. The proportion of flying time spent within the upper and lower height limits as determined by the rotor diameter and rotor hub height.

VP locations were based on observations from walkover/reconnaissance surveys, viewshed analysis (using GIS) and collated information on known feeding and roosting sites from both desktop review and consultation. The number and location of vantage points was selected in order to achieve visibility of the entire study area and important features for birds in close proximity to the site (e.g., lakes, wetlands).

In line with recommended best practice (SNH, 2017 and Band, 2024), viewshed analysis was undertaken using ARCMAP 10.4.1, to calculate a theoretical zone of visibility from each vantage point. Visibility is calculated from each vantage point along an invisible layer suspended at the predicted lowermost height passed through by the rotor blade tips, using an observer height of 1.5 m.

Following SNH guidance (2017), watches were conducted to sample diurnal and crepuscular activity of target species, with surveys timed to start at dawn and finish at dusk in order to ensure periods with higher probability of whooper swan flight activity were covered. Survey effort was focused primarily on the autumn and spring migration periods.

Data recorded included flight activity of target species (flight height, duration, directionality) in addition to metrics such as flock size (per recorded transit) and time of observation. Detailed notes of each observation of a target bird species was recorded including behaviour, gender (where possible), numbers, flight height, associated habitat and the period of time spent within the study area. Successful foraging events were also noted if they arose. Other bird species seen or heard during the VP surveys were also recorded and were considered separately in the analysis as additional species. Flight activity was annotated onto field maps. Total numbers of birds present both on arrival at the vantage point and on departure is noted. Details of each flight-path observation are provided Appendix 3. Binoculars and telescopes are used to scan for target species. Dictaphones are utilised to dictate bird heights whilst tracking flight events.

VP surveys involved carrying out 2 x 3-hour VPs at each VP every month. The proportion of survey time that activity was recorded inside and outside the Wind Farm site boundary was used as part of the overall analysis and assessment of target species usage of the study area. Details of vantage point locations can be found in Table 2-1 below. All surveys were conducted during suitable weather conditions.

Table 2-1: Vantage Point Locations (ITM)

Site	Vantage Point	Eastings (ITM)	Northings (ITM)
Ballinla	VP 1	658330.038	731741.432
	VP 2	654774.031	732654.246
	VP 3	656737.120	732654.246
	VP 4	655554.116	730804.789

The locations of the VPs and viewsheds are shown in Figure 2-1.

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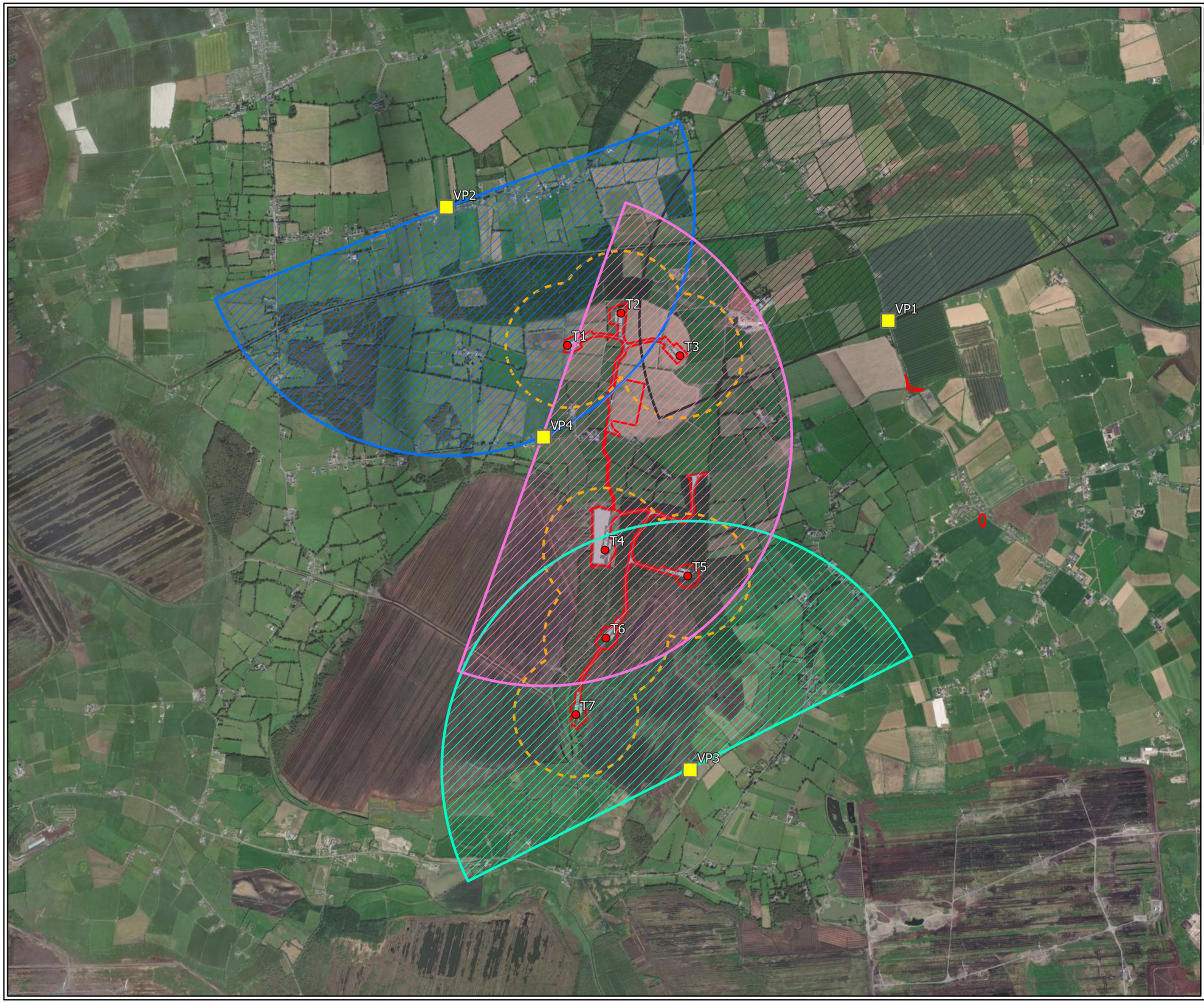

Legend

- Site Boundary
- SNH Buffer
- Site Layout
- Turbine Locations

Viewsheds

- VP1 Viewshed
- VP2 Viewshed
- VP3 Viewshed
- VP4 Viewshed
- Vantage Point (VP)

N W E S

Kilometers
0 0.25 0.5 1

TITLE: VP Locations and Viewshed Analysis			
PROJECT: Ballinla Wind Farm, Co. Offaly			
FIGURE NO:	2.1		
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2.2 Hinterland Surveys

The methodology used for wetland sites during the whooper swan hinterland surveys followed I-WeBS (Irish Wetland Bird Survey) methodology (Lewis et al., 2019), whereby each location was surveyed for the duration necessary to identify and obtain a count for all target species present. The same approach was adapted for non-wetland sites. A hinterland survey for raptors was also conducted in parallel, in accordance with Raptors: a field guide to survey and monitoring (Hardey et al. 2013) to assess hen harrier and other raptor activity over the winter period in the greater surroundings. The hinterland survey also encompassed searches for hen harrier roosting sites within 2km of the Proposed Development, fulfilling the requirement set out in SNH Guidance (2017).

The surveys were carried out in suitable habitats for birds (woodland, wetland, peatland, etc) in the area surrounding the proposed wind farm site.

A total of 12 hinterland VPs (HVPs) within c. 8 km of the Proposed Development site were surveyed during winter 2023-24 and autumn/winter 2024.

See Appendix 4 for a full list of hinterland sites and a detailed schedule of surveys and Figure 2-2 for the location of HVPs. These sites were chosen as they had suitable habitat for target species such as swans, geese, raptors, waterbirds and waders.

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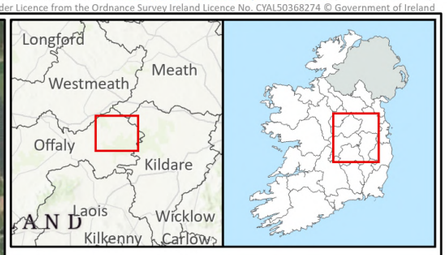

Legend

- Site Boundary
- Hinterland Sites 2022-2024

N W E S

0 1 2 4 Kilometers

TITLE: Hinterland Site and Transect Locations (2022-2024)

PROJECT: Ballinla Wind Farm, Co. Offaly

FIGURE NO:	2.2		
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2.3 Nocturnal Migration Audio Surveys

In parallel with visual surveys, acoustic monitoring via autonomous recording units (ARUs) and was carried out to monitor nocturnal whooper swan activity, including nocturnal migration. When used in conjunction with visual surveys, ARUs are useful in pinpointing the time of arrival or departure of migratory birds, which can contribute to more robust definition of key periods for migratory activity.

The recording devices used to complete NocMig surveys were Audiomoth passive recording devices. These devices were programmed to record continuously starting half an hour before sunset and finishing half an hour after dawn.

The deployment periods covered/number of nights recorded are detailed in Table 2-2 and Table 2-3. Audio recorder locations are shown in Figure 2-4. Since the length of device operation is dictated by battery life and other factors, and regular download of data from devices is necessary, regular visits to change batteries, copy data and confirm continued functioning of devices were undertaken. Audio monitoring was not constant, with short intervals of downtime due to low battery levels and required card changes, in addition to scheduling constraints associated with normal working days. However; survey effort was high, covering the majority of key migration periods across multiple locations at the proposed wind farm site and therefore comprises robust sampling effort and baseline data.

Table 2-2: Audio device deployment schedule spring 2024

Location	B-1	B-2	B-3	B-4	B-5	B-6	B-7
Monitoring Period 1 (nights recorded)	05/03/2024 - 17/03/2024	05/03/2024 - 17/03/2024	05/03/2024 - 17/03/2024	05/03/2024 - 16/03/2024	05/03/2024 - 17/03/2024	05/03/2024 - 17/03/2024	05/03/2024 - 15/03/2024
Monitoring Period 2	19/03/2024 – 31/03/2024	19/03/2024 - 31/03/2024	19/03/2024 - 31/03/2024	19/03/2024 – 01/04/2024	19/03/2024 - 31/03/2024	19/03/2024 - 31/03/2024	19/03/2024 - 28/03/2024
Monitoring Period 3	01/04/2024 - 18/04/2024	02/04/2024 - 18/04/2024	02/04/2024 - 19/04/2024	No recordings (SD card malfunction)	02/04/2024 - 18/04/2024	02/04/2024 - 19/04/2024	02/04/2024 - 17/04/2024
Total No. Dates Monitored	46	43	44	26	43	44	37

Table 2-3: Audio device deployment schedule autumn/winter 2024

Location	B-1	B-2	B-3	B-4	B-5	B-6	B-7
Monitoring Period 4	07/10/2024 - 14/10/2024	Not Surveyed	07/10/2024 - 21/10/2024	07/10/2024 - 21/10/2024	No recordings (SD card damaged)	No recordings (SD card damaged)	Not Surveyed
Monitoring Period 5	18/10/2024 - 01/12/2024	Not Surveyed	22/10/2024 - 04/12/2024	22/10/2024 - 01/12/2024	22/10/2024 - 10/11/2024	22/10/2024 - 04/12/2024	Not Surveyed
Monitoring Period 6	05/12/2024 - 20/12/2024	Not Surveyed	05/12/2024 - 20/12/2024	05/12/2024 - 19/12/2024	22/11/2024 - 21/12/2024	05/12/2024 - 20/12/2024	Not Surveyed
Total No. Dates Monitored	69	0	75	71	50	60	0

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Legend

- Site Boundary
- Site Layout
- Audiomoth Locations
- Turbine Locations

TITLE: Audio Device Deployment Locations			
PROJECT: Ballinla Wind Farm, Co. Offaly			
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3. RESULTS - ADDITIONAL WINTER SURVEYS (2023-24 & 2024-25)

3.1 Dawn/Dusk Winter VP Surveys (winter 2023-24, autumn/winter 2024)

A total of three whooper swan observations were recorded during VP surveys in winter 2023-24, and a further two observations were recorded during autumn/winter 2024.

During winter 2023-24, the following observations were recorded. A group of six swans flying south-east while calling at 18:39 (32 minutes after sunset) on 27/10/2023. Flight activity was in the 15-100m height bands and this group was flying over agricultural land near VP1; all flight activity was outside the 500m turbine buffer. On 31/10/2023 at 10:18, a group of three swans was observed flying in the 30-100m height band, travelling west. This group was also flying over agricultural land near VP1 outside the 500m turbine buffer. On 02/11/2023 at 08:00 (32 minutes after sunrise), a pair of whooper swans was observed making a long flight south east, over woodland, agricultural land and Esker Bog. This pair circled over the northern part of Esker Bog before continuing south-east, with the last part of the recorded flight line entering the southern part of the 500m turbine buffer before the swans moved out of visual range. Flight activity extended across the 15-30m, 30-100m and 100-200m height bands.

During autumn/winter 2024, the following observations were recorded. On 15/11/2024 at 09:40, two separate flight lines were recorded. One was a group of three swans flying east in the 15-30m height band, while the other was an individual swan flying south-east into the Cloncreen wind farm site, also occupying the 15-30m height band. Both flight lines started in the southern section of the 500m turbine buffer, and continued east and south-east as described above.

3.2 Incidental Observations During Hen Harrier Roost Watch VPs (2023-24)

A total of ten whooper swan observations were recorded across three dates during winter 2023-24 hen harrier roost watches.

On 11/12/2023, a group of three swans was noted roosting near a flooded area on the north-western edge of Esker Bog at 13:50. This group subsequently left at 14:53, flying north and then west over agricultural land. On the same date, a different group of three swans was seen soon after (14:55), flying directly north near HHVP3 before turning east, with the surveyor noting these swans may have followed the Grand Canal westward. Flight activity for these observations extended over the 0-100m height bands.

On 19/12/2023, a total of six incidental whooper swan observations were recorded. The first observation, starting at 13:49, noted a herd of 35 swans roosting/feeding on a flooded patch on the north-western part of Esker Bog. These birds all remained in situ until 15:56, when 14 swans left to fly north/north-west over agricultural land. The remaining 21 swans left at 16:51, with one group of eight heading south and the other group of 13 flying north over agricultural land. All three observations of this roosting/grazing swan herd dispersing were noted as roost flights, indicative of these swans travelling to night roosts is the wider area. Sunset on 19/12/2023 in this location was around 16:10. In addition to these four observations on 19/12/2023, two more were also recorded; these included whooper swan calls (no birds seen) at 16:10, and an observation of 16 swans at 16:52 in direct flight north-east in the 15-100m height bands, flying near HHVP3. The timing of this flight was also indicative of swans heading back to a night roost to the north or north-west.

The final observation was on 08/01/2024 at 15:26, which involved a pair commuting very low (0-30m height bands), flying north-west before moving out of sight behind trees.

3.3 Hinterland Surveys

A total of 16 observations of whooper swan were made during winter 2023-24 and winter 2024-25 hinterland surveys. The majority of these (15) were observations swans roosting and/or grazing, with only one record of swans in flight (25/11/2024).

These records, which encompass groups ranging from four to 46 swans were distributed throughout the wider area around the proposed development site. The sites where whooper swans were most frequently observed were HVP16 (fields beside BnM ash recovery site at Cloncreen) (five records) and HVP9 (Esker Bog) (six records).

Table 3-1: Whooper swan records from hinterland surveys (winter 2023-24 and winter 2024-25)

Season	Code	Date	Quantity	Notes
Winter 23/24	HVP16	11/11/2023	9	In field beside BNM ash recovery plant, within 5km hinterland.
Winter 23/24	HVP16	22/12/2023	4	In field beside BNM ash recovery plant
Winter 23/24	HVP16	01/01/2024	13	Same site as 22/12/23, 11/11/23
Winter 23/24	HVP16	22/01/2024	14	Grazing
Winter 23/24	HVP9	29/01/2024	7	On bog pools in Esker Bog
Winter 24/25	HVP8	19/10/2024	10	Rathvilla Quarry Pond. On water, not seen flying
Winter 24/25	HVP9	21/10/2024	7	On northern edge of rewetted Esker Bog
Winter 24/25	HVP9	04/11/2024	7	Family group
Winter 24/25	HVP9	15/11/2024	2	Esker Bog
Winter 24/25	HVP9	18/11/2024	9	Esker Bog
Winter 24/25	HVP7	25/11/2024	6	Flying at 100m from 7:55 from Ballyhugh to Esker Bog
Winter 24/25	HVP17	01/01/2025	45	Derryarkin, near Yellow River wind farm
Winter 24/25	HVP9	15/01/2025	3	Roosting during afternoon
Winter 24/25	HVP16	15/01/2025	38	Grazing
Winter 24/25	HVP18	23/01/2025	24	Grazing
Winter 24/25	HVP17	23/01/2025	46	Grazing

3.4 Incidental Observations During Audio Device Deployment

One static observation of whooper swans on Esker Bog was noted during audio detector surveys, where a herd of 22 swans was seen on the central/northern part of Esker Bog on 24/10/2024.

In addition to the static record, three whooper swan flight lines were recorded during visits for audio surveys, as detailed in Table 3-2.

Table 3-2: Whooper swan flight activity observed during audio detector visits

Flight line ID	Date	Time	No. Birds	Notes
1073	22/10/2024	10:50	7	Flying east towards Esker bog, seen during audio detector deployment
1074	18/10/2024	09:10	11	Seen flying east/then north and calling while collecting audio detector
1075	30/10/2024	12:10	16	Commuting. Seen during audio detector visit

3.5 Whooper Swan Nocturnal Audio Records

This section details the results of audio surveys for nocturnal whooper swan activity based on nocturnal flight calls. The results are graphed below in Plate 3-1 to Plate 3-10 by season/location to show the temporal distribution of calls, which indicates the windows during which nocturnal migration occurred, and Figure 3-2 and Figure 3-3 showing the spatial distribution of whooper swan call registrations across the detector locations.

A registration is classified as a discrete detection of whooper swan flight call(s). An individual registration can range from a single swan calling to a group calling and as such it is not possible to give counts of individuals based on audio data. As such, a registration, while not definitive, nonetheless provides a useful index in that higher numbers of registrations equate to higher numbers and/or more groups of swans flying over, while lower numbers of registrations indicate the opposite.

3.5.1 Audio Survey Results Spring 2024 - Autumn 2024

There were no whooper swan registrations at location B-1 during spring 2024.

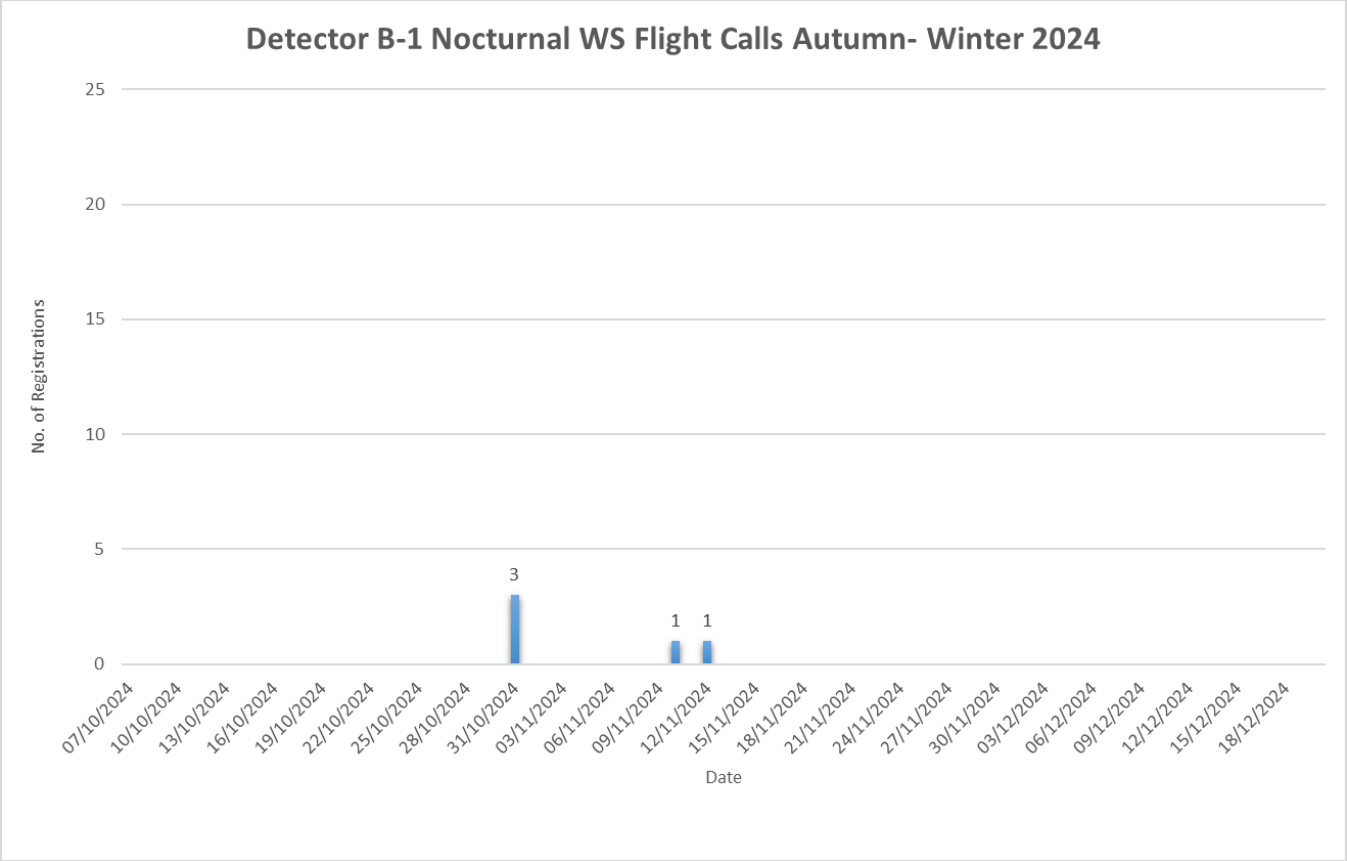


Plate 3-1: No. of whooper swan nocturnal flight call registrations recorded at B-1 during autumn/winter 2024

During autumn/winter 2024, the B-1 detector registered nocturnal whooper swan flight calls on 31/10/2024 (three registrations), 10/11/2024 (one registration) and 12/11/2024 (one registration).

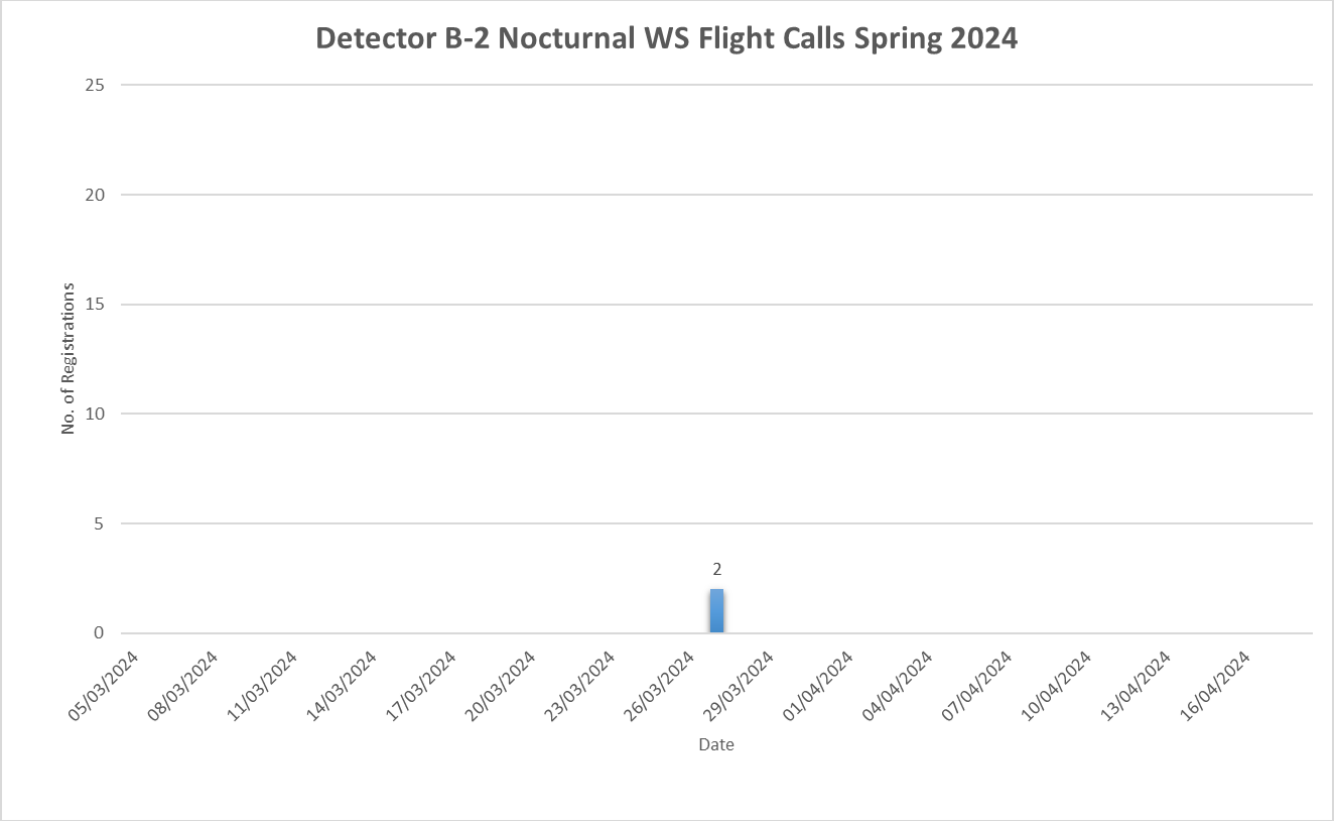


Plate 3-2: No. of whooper swan nocturnal flight call registrations recorded at B-2 during spring 2024

During spring 2024, the B-2 detector registered nocturnal whooper swan flight calls on one date: 27/03/2024. These occurred in quick succession at 20:24:12 and 20:24:28, with both registrations being single calls (qualitatively assessed as mid-distance).

The B-2 detector location was not re-surveyed in autumn/winter 2024.

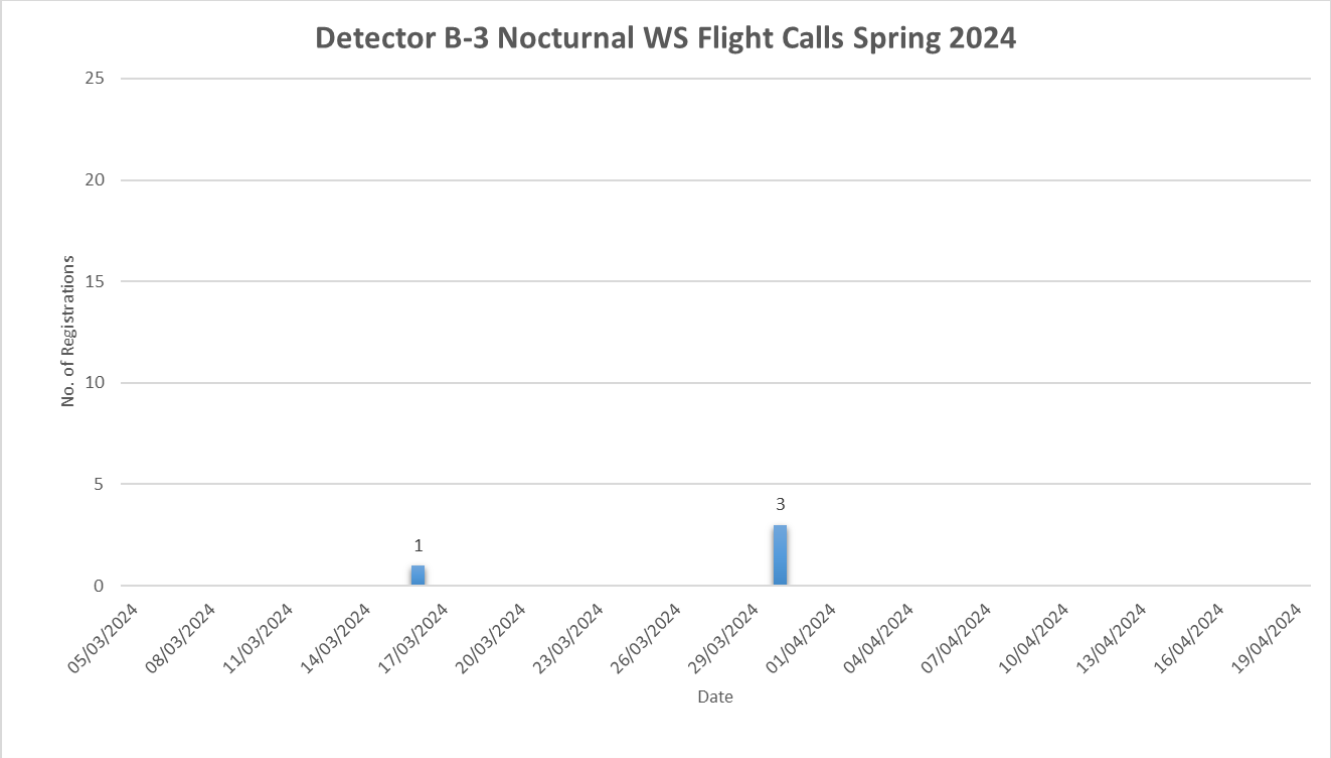


Plate 3-3: No. of whooper swan nocturnal flight call registrations recorded at B-3 during spring 2024

During spring 2024, the B-3 detector registered nocturnal whooper swan flight calls on 16/03/2024 (one registration) and 30/03/2024 (three registrations). The registration on 16/03/2024 comprised a short partial call from one bird.

The first two registrations on 30/03/2024 were at 01:41 and 02:46, while the third was at 21:05. As such, the first two were on a different night (29-30/03/2024) to the third (30-31/03/2024). All three registrations were qualitatively assessed as small groups at mid-distance from the detector.

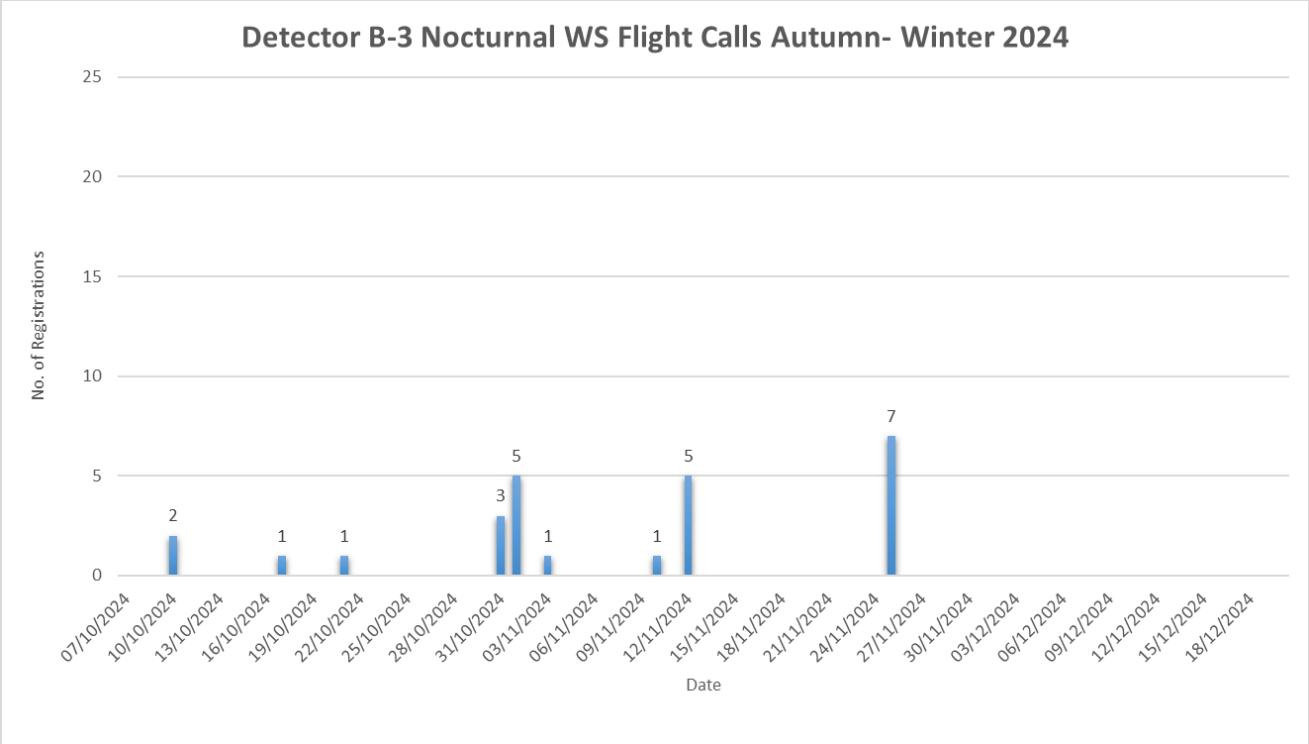


Plate 3-4: No. of whooper swan nocturnal flight call registrations recorded at B-3 during autumn/winter 2024

A total of 26 whooper swan nocturnal flight call registrations were recorded at B-3 during autumn/winter 2024 between 10/10/2024 and 25/11/2024, with the highest number of registrations (seven) occurring on 25/11/2024. This detector had the highest overall number of registrations during autumn/winter 2024, and the date range indicates a migration window spanning 10/10/2024 to 25/11/2024 at this location.

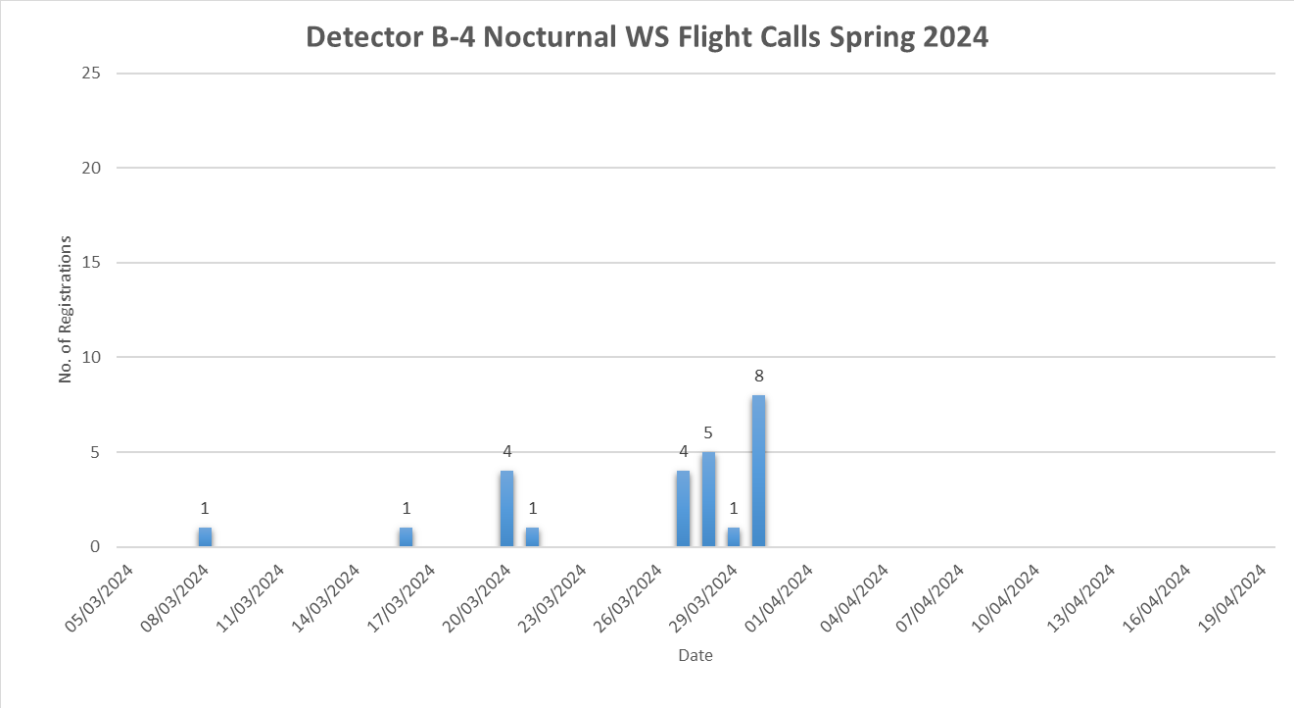


Plate 3-5: No. of whooper swan nocturnal flight call registrations recorded at B-4 during spring 2024

A total of 25 whooper swan nocturnal flight call registrations were recorded at B-4 during spring 2024 between 08/03/2024 and 30/03/2024, with the highest number of registrations (eight) occurring on 30/03/2024. This detector had the highest overall number of registrations during spring 2024, and the date range indicates a migration window spanning 08/03/2024 to 30/03/2024 at this location.

The highest number of registrations during a discreet period was seven, occurring between 02:47 and 04:12 on 30/03/2024. The majority of registrations occurred between 20/03/2024 and 30/03/2024.

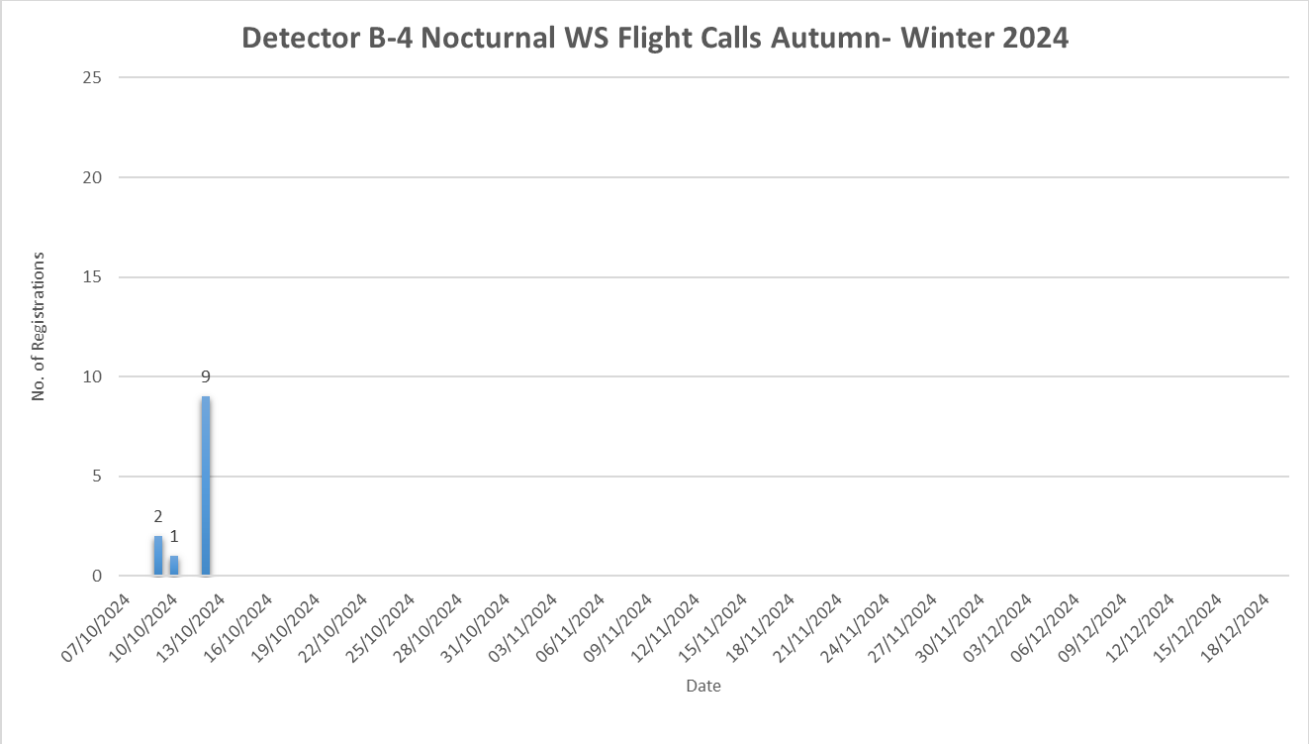


Plate 3-6: No. of whooper swan nocturnal flight call registrations recorded at B-4 during autumn/winter 2024

A total of 12 whooper swan nocturnal flight call registrations were recorded at B-4 during autumn/winter 2024 over a relatively short window between 09/10/2024 and 12/10/2024, with the highest number of registrations (nine) occurring on 12/10/2024. As such, his detector had the second highest number of registrations during spring 2024 (after B-3), meaning that the highest number of registrations were recorded around the centre of the Proposed Development near T4 and T8.

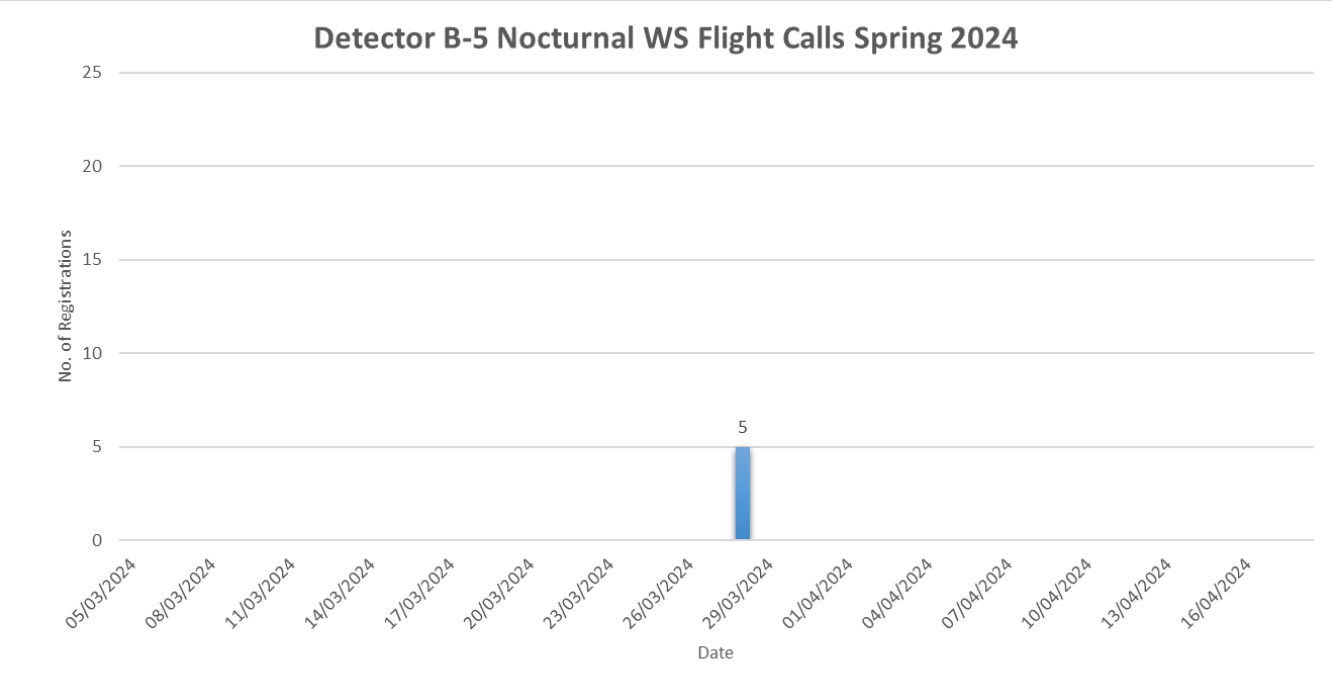


Plate 3-7: No. of whooper swan nocturnal flight call registrations recorded at B-5 during spring 2024

A total of 5 whooper swan nocturnal flight call registrations were recorded at B-5 during spring 2024, all on 28/03/2024 between 21.04 and 21.05.

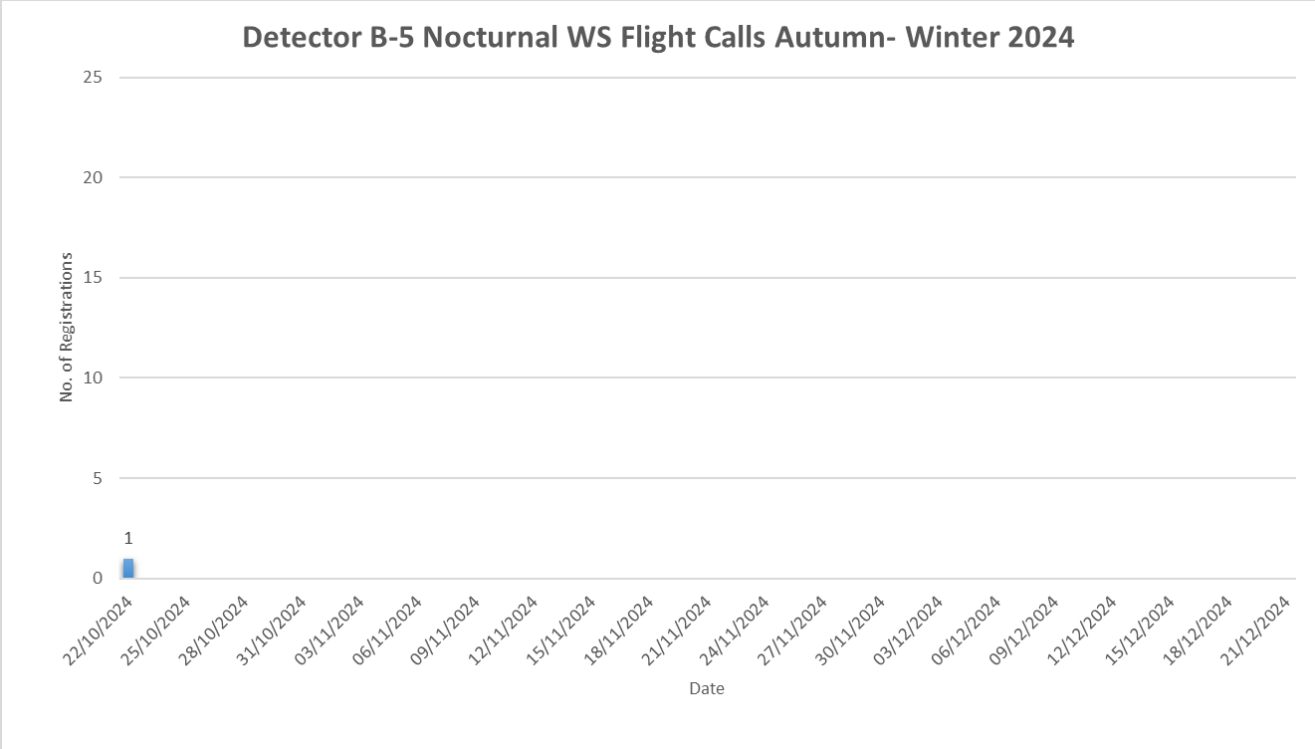


Plate 3-8: No. of whooper swan nocturnal flight call registrations recorded at B-5 during autumn/winter 2024

There was only one nocturnal whooper swan call registration at B-5 during autumn/winter 2024, occurring on 22/10/2024.

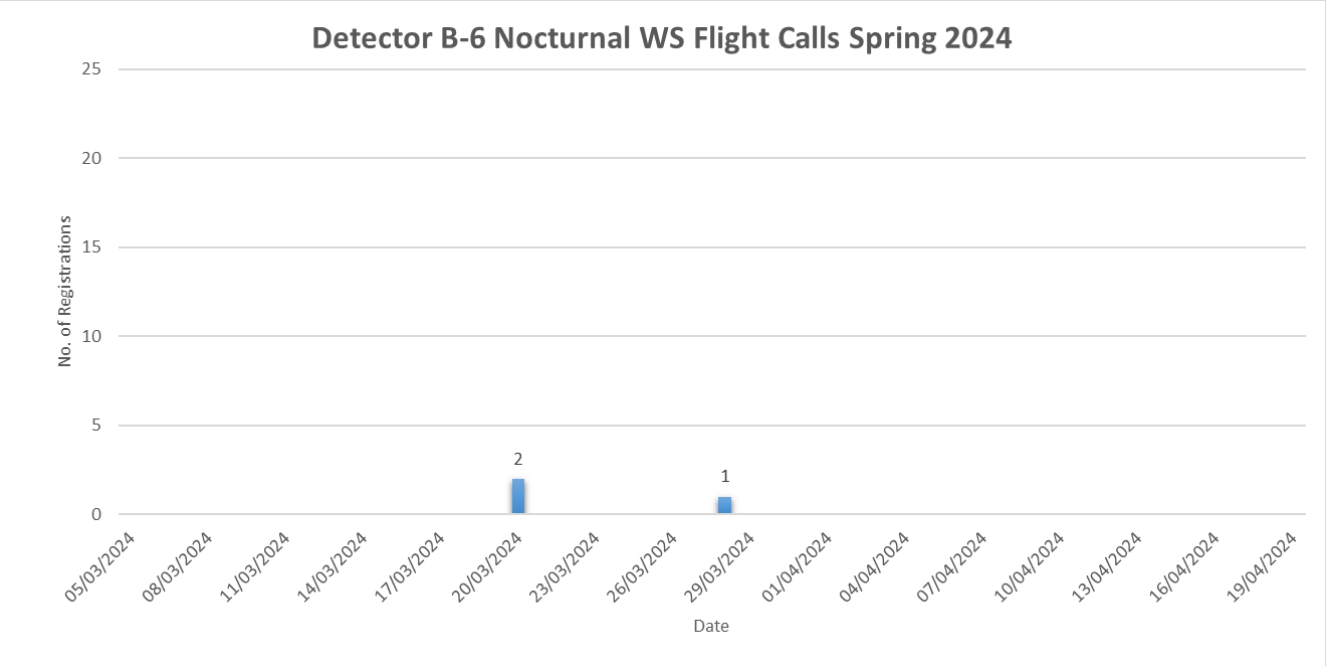


Plate 3-9: No. of whooper swan nocturnal flight call registrations recorded at B-5 during spring 2024

There were only three nocturnal whooper swan call registrations at B-6 during spring 2024, with two occurring in close succession around 21:04-21:05 on 20/03/2024, and a single registration on 28/03/2024.

There were no whooper swan call registrations at B-6 during autumn/winter 2024

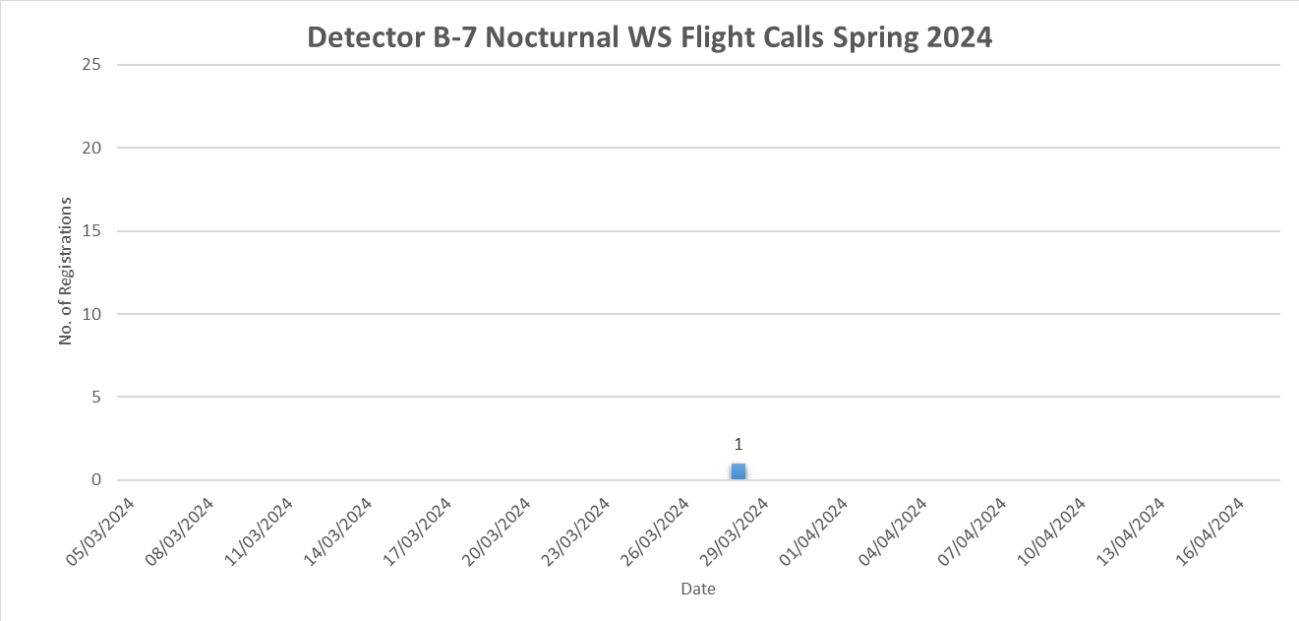
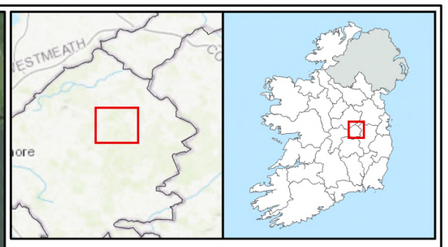


Plate 3-10: No. of whooper swan nocturnal flight call registrations recorded at B-7 during spring 2024

There was only one nocturnal whooper swan call registration at B-7 during spring 2024, occurring on 28/03/2024 at 21:03.

The B-7 detector location was not re-surveyed in autumn/winter 2024.

Path: R:\Map Production\2021\P21-094\Workspace\P21-094_Ornithology_Chapter\P21-094_Ornithology_Chapter.aprx



Legend

- Site Boundary
- Site Layout
- Turbine Locations
- Total Whooper Swan Registrations

N
W E
S

Kilometers
0 0.25 0.5 1

TITLE: Total Whooper Swan Registrations: Spring 2024			
PROJECT: Ballinla Wind Farm, Co. Offaly			
FIGURE NO:	3.2		
CLIENT:	Statkraft		
SCALE:	1:20,000	**REVISION:**	0
DATE:	13/08/2025	**PAGE SIZE:**	A3

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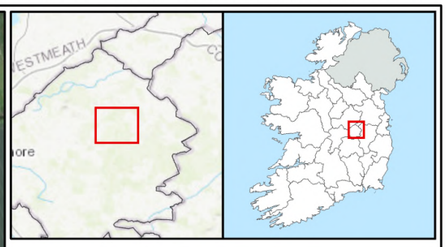
Path: R:\Map Production\2021\P21-094\Workspace\P21-094_Ornithology_Chapter\P21-094_Ornithology_Chapter.aprx



Legend

- Site Boundary
- Site Layout
- Turbine Locations
- Total Whooper Swan Registrations

N
W E
S

0 0.25 0.5 1 Kilometers

TITLE:	Total Whooper Swan Registrations: Autumn 2024		
PROJECT:	Ballinla Wind Farm, Co. Offaly		
FIGURE NO:	3.3		
CLIENT:	Statkraft		
SCALE:	1:20,000	**REVISION:**	0
DATE:	13/08/2025	**PAGE SIZE:**	A3

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4. OVERVIEW OF WHOOPER SWAN ACTIVITY ACROSS ALL SURVEYS

In order to provide a comprehensive overview of whooper swan activity across all survey periods, previous survey results are summarised here alongside the results for dedicated whooper swan surveys detailed above in Section 3.

Table 4-1 details the whooper swan observations recorded across all VP surveys, and each record is linked to flight line mapping by the Flightline ID/Bird ID in column 1. Flight activity and distribution mapping is included in Appendix 2. Table 4-2 details whooper swan observations recorded during hinterland surveys.

Some whooper swan flight activity occurred around both the northern and southern turbine clusters and surrounding lands; however, the highest concentration of flight activity was focused around Esker Bog to the west of the proposed development site. Flight activity predominantly occupied the 0-100m hight bands; only one observation recorded swans flying higher than this (2 adult swans flying south-east at 08:00 on 02/11/2023 spent 200 seconds flying in the 100-200m hight band were the only exception to this).

There were isolated records of whooper swans grazing and/or roosting during surveys at the proposed development site. Groups of 38 and 26 swans were seen grazing in agricultural land near T3 throughout the VP watch period respectively on 16/11/2022 and 18/11/2022. These observations occurred over a short window, and no other observations of whooper swans grazing at this location, or any other location near the proposed development occurred during the rest of the survey period.

Two records of ground-based whooper swan activity occurred on the north-western part of Esker Bog. On 11/12/2023, three swans were observed roosting during the afternoon on the edge of a flooded patch along the north-western margin of the bog. The other observations involved a herd of 35 swans, which were seen roosting and grazing in the same area on 19/12/2023. This herd later dispersed around dusk to fly north and south to night roosts in the wider area (as described above in Section 3.2). One further observation of whooper swans on esker Bog was noted during audio detector surveys, where a herd of 22 swans was seen on the central/northern part of Esker Bog on 24/10/2024.

Hinterland surveys returned numerous records of ground-based whooper swan activity in the wider area around the proposed development site (see Table 4-2).

These records, which encompass groups ranging from two to 46 swans were distributed throughout the wider area around the proposed development site. The sites where whooper swans were most frequently observed were HVP16 (fields beside BnM ash recovery site at Cloncreen) (five records, ranging from 4 - 38 swans), HVP9 (Esker Bog) (six records, ranging from 2 - 9 swans) and HVP7 (four records, ranging from 2 - 15 swans). HVP17, located near Yellow River wind farm to the north-west is also notable due to the high numbers of whooper swans recorded (45 and 46) during the two occasions it was surveyed. HVP8 at Rathvilla Quarry Ponds had 10 and 13 swans on two occasions (Winter 2022/23 and Winter 2024/25). HVP18 and TR24 are located in the same area; a total of 14 swans were observed at TR24 on 06/12/2021, and 24 swans were observed grazing at HVP18 on 23/01/2025.

Table 4-1: Summary of whooper swan activity across all VP surveys

Flightline ID/Bird ID	Date	Time	No. of Birds	Activity/Notes
1	26/10/2021	12:35	3	Flying low between bog pools
2	02/11/2021	08:19	5	Direct flight (calls)
1	24/10/2022	12:11	2	Direct flight over trees; flying south-east over agricultural land
2	16/11/2022	12:30	38	Grazing in agricultural land for duration of watch
3	18/11/2022	09:20	8	Fly through. Group traversing southern part of flight activity study area
4	18/11/2022	10:30	4	Flew in from east and landed on rewetted bog (Esker Bog)
5	18/11/2022	12:00	26	Grazing in agricultural land for duration of watch (same location as 16/11/2022)
N/A	29/12/2022	10:30	1	Heard only
6	10/02/2023	16:05	1	Landed on bog pool
876	27/10/2023	18:39	6	Direct flight south-east calling
877	31/10/2023	10:18	3	Direct flight west; calls out of sight behind trees
957	02/11/2023	08:00	2	2 adults flying through south-east
787	11/12/2023	13:50	3	Birds roosting on edge of flooded patch
789	11/12/2023	14:53	3	Flew over trees, lost over treeline
783	11/12/2023	14:55	3	Direct flight north then turn east -possibly following canal west
796	19/12/2023	13:49	35	Roosting/ feeding on flooded patch
799	19/12/2023	15:56	14	Left for roost, flew low over trees
N/A	19/12/2023	16:10	N/A	Heard calling not seen
802	19/12/2023	16:51	8	Left for roost at same time as Flight line 803
803	19/12/2023	16:51	13	Left for roost - lost in darkness although could still hear
807	19/12/2023	16:52	16	Direct flight NE
823	08/01/2024	15:26	2	Commuting very low, lost sight through trees
1051	15/11/2024	09:40	3	Flying east through southern part of flight activity study area
1052	15/11/2024	09:40	1	Flew into Cloncreen wind farm site
1073	22/10/2024	10:50	7	Flying east towards Esker bog, seen during audio detector deployment

Flightline ID/Bird ID	Date	Time	No. of Birds	Activity/Notes
1074	18/10/2024	09:10	11	Seen flying and calling while collecting audio detector
1075	30/10/2024	12:10	16	Commuting. Seen during audio detector visit
1076	24/10/2024	12:39	22	Flock of 22 swans observed on rewetted bog. Seen during audio detector visit

Table 4-2: Whooper swan records from hinterland surveys (all survey periods)

Season	Code	Date	Quantity	Notes
Winter 2021/22	TR24	06/12/2021	14	Observed from R402
Winter 2022/23	HVP7	14/10/2022	7	3 adults, 4 juveniles seen on Cavemount Bog West
Winter 2022/23	HVP7	09/11/2022	2	Cavemount Bog West
Winter 2022/23	HVP8	04/01/2023	13	Rathvilla Quarry Pond
Winter 2022/23	HVP7	03/02/2023	15	Cavemount Bog West
Winter 23/24	HVP16	11/11/2023	9	In field beside BNM ash recovery plant, within 5km hinterland.
Winter 23/24	HVP16	22/12/2023	4	In field beside BNM ash recovery plant
Winter 23/24	HVP16	01/01/2024	13	Same site as 22/12/23, 11/11/23
Winter 23/24	HVP16	22/01/2024	14	Grazing
Winter 23/24	HVP9	29/01/2024	7	On bog pools in Esker Bog
Winter 24/25	HVP8	19/10/2024	10	Rathvilla Quarry Pond. On water, not seen flying
Winter 24/25	HVP9	21/10/2024	7	On northern edge of rewetted Esker Bog
Winter 24/25	HVP9	04/11/2024	7	Family group
Winter 24/25	HVP9	15/11/2024	2	Esker Bog
Winter 24/25	HVP9	18/11/2024	9	Esker Bog
Winter 24/25	HVP7	25/11/2024	6	Flying at 100m from 7:55 from Ballyhugh to Esker Bog
Winter 24/25	HVP17	01/01/2025	45	Derryarkin, near Yellow River wind farm
Winter 24/25	HVP9	15/01/2025	3	Roosting during afternoon
Winter 24/25	HVP16	15/01/2025	38	Grazing
Winter 24/25	HVP18	23/01/2025	24	Grazing
Winter 24/25	HVP17	23/01/2025	46	Grazing

5. WHOOPER SWAN COLLISION RISK

Some whooper swan flight paths traversed the 500m turbine buffer; however, the majority of flight activity observed occurred outside the 500m buffer.

Whooper swans generally fly at low altitude when commuting between roosting and grazing sites within their wintering territories, reducing the potential risk of collision. Recommended avoidance rates from SNH are 99.5% (SNH, 2010; NatureScot, 2025), based on literature reviews of recorded fatalities. This suggests a high micro-avoidance of turbines.

The predicted number of collisions assuming a 99.5% avoidance rate is 0.01 per year, less than one collision over the entire operational lifespan of the windfarm (0.35 collisions over 35 years).

The flight habits, established flight characteristics and published avoidance rate, in addition to the low collision probability as indicated by the CRM support the conclusion that collision risk for whooper swan is *Negligible*, resulting in a *Long-term Not Significant* effect.

6. DISCUSSION

Considering the patterns of activity recorded across all surveys, it is assessed that no night roosts are present within or in the vicinity of the proposed development. Occasional day roosting and grazing was observed on Esker Bog to the West of the proposed development. Audio surveys indicated that nocturnal whooper swan migration activity occurs during autumn and spring. Combined assessment of visual and audio survey results indicates the migratory activity detected is not focused on any defined site in the vicinity of the proposed development and as such is likely to indicate migration to and from wintering sites further south.

6.1 Migratory Activity

Table 6-1 below indicates an autumn migration window extending from 09/10/2024 to 25/11/2024, based on the timing of first and last audio registrations during this period. The first visual record occurred after the first audio registration. As noted in Section 3.5, peaks in nocturnal call registrations occurred around early October and from late October to late November. The scattered distribution of registrations, in addition to absence of a habitual roost site in the vicinity of the proposed development, indicates the activity recorded is likely to be dispersed migration of smaller groups, with no convergence on a roost site near the proposed development.

For spring 2024, a migration window extending from 08/03/2024 to 30/03/2024 is indicated by audio survey results. The last visual observation recorded (10/02/2023) is considered too early to be indicative of migration. The concentration of most registrations around late March (27-30/03/2024) indicates a build-up in outward migration during this period. It is possible that groups from the region coalesce to migrate together, and/or leave from various roosts distributed around the region.

These patterns of a longer and more dispersed inward migration window and buildup to a concentrated outward migration window are well-known and established patterns; however, the data obtained from audio surveys make these assumptions more robust and allows both spatial and temporal patterns to be defined with higher certainty.

The audio registrations from these surveys cannot be interpreted empirically in terms of numbers or exact locations of flight paths since there are no visual records associated with this type of survey. However, it can confidently be assessed based on the recorded data that whooper swans migrate through the wider area in which the Proposed Development is located and as such may traverse the Proposed Development site at times.

No habitual night roost was identified in the vicinity of the proposed development; as such, the audio registrations recorded during surveys are likely to be indicative of dispersed migration to and from roost/wintering sites further south outside the hinterland survey area.

Table 6-1: Timing of records indicating whooper swan migration windows

Autumn	
Audio (first) (2024)	09/10/2024
Visual (first) (all years)	14/10/2022 (HVP7)
Audio (last) (2024)	25/11/2024
Spring	
Audio (first)	08/03/2024
Visual (last) (all years)	10/02/2023 (VP4)
Audio (last)	30/03/2024

6.2 Roosting Sites

The dawn/dusk VP surveys confirmed the absence of whooper swan roosting in the locality of the proposed development. Occasional use of Esker Bog for day roosting and grazing was observed, however surveys indicated no evidence of night roosting. Based on hinterland survey results, observed flight patterns, and desktop information, the primary night roost in the hinterland is assessed to be at Derryarkin adjacent to the Yellow River wind farm (HVP 17). Wintering whooper swans often roost at the same sites; however, they can also vary which night roost they use. Based on observed swan numbers and frequency of observations, there is also potential the for sites such as the Bord Na Móna ash repository site (HVP 16) and Rathvilla Quarry Pond (VP 8) to be used by roosting whooper swans. An observation of six whooper swans in flight at 7:55 (25 minutes after dawn) on 25/11/2024 flying from the direction of the cutover bogs to the west near Ballyhugh (HVP 7) towards Esker Bog is also potentially indicative of night roosting on the bogs to the west, which provide suitable roosting habitat.

The landscape characteristics of the wider region contain abundant habitats for roosting and grazing whooper swan. As such, while some patterns can be inferred for the locality of the proposed development and surrounding hinterland, the opportunities for wintering whooper swans to avail of numerous suitable areas in the region give considerable scope for variation in use of roosting/grazing sites and also provides abundant opportunities for dispersed smaller groups to occupy the landscape.

It is noted that larger wintering whooper swan populations occur elsewhere in County Offaly, particularly along the Little Brosna and Shannon Callows in the west of the county which have mean populations of 100-300 wintering whooper swan. High numbers (240 swans) have also been recorded at Cloghanhill in the west of the county. The closest I-WeBS site (Raheen Lough, located 13.6km southwest of T7) has also previously been noted to hold up to 58 wintering whooper swans. Recent counts are not available for Cloghanhill and Raheen Lough.

6.3 Potential Effects

A limited amount of potential grazing habitat will be lost during construction, resulting in a ***Short-term, Slight*** effect. Whooper swan flocks were observed grazing in improved agricultural grassland near T3 on two occasions in winter 2022-23; however, this pattern was not repeated, indicating casual and opportunistic use of these fields.

In a scenario where grazing or roosting whooper swan occurred within 600m of construction activities, disturbance could result in a ***Short-term, Slight*** to ***Moderate*** effect prior to mitigation.

As noted previously, the predicted number of collisions for whooper swan is 0.01 per year, equal to less than one collision over the entire operational lifespan of the windfarm (0.35 collisions over 35 years). Collision risk for whooper swan is assessed as ***Long-term Not Significant***.

Due to the absence of habitual grazing sites within or near the proposed development, operational disturbance/displacement is assessed as ***Long-term Not Significant*** to ***Slight.*** The availability of abundant displacement habitat for grazing, in addition to known tendency of whooper swans to habituate to operational turbines means that no significant effects in this regard are predicted.

Barrier effect is assessed as ***Long-term Not Significant*** to ***Slight*** based on observed flight patterns and large distances separating proposed turbines.

6.4 Recommended Mitigation

Preconstruction surveys for whooper swan should be undertaken during the winter months. In the event that grazing whooper swans are recorded within 600m of the Proposed Development prior to construction, targeted monitoring should be undertaken to assess potential disturbance or displacement. If significant disturbance is observed, or if regular use of the area by wintering swans is confirmed, a 600m exclusion zone should be implemented until the birds have departed in spring.

Collision monitoring, flight activity, wildfowl and nocturnal audio surveys should be undertaken during the operational phase.

Curtailment measures are recommended as a contingency for whooper swan. If post-construction monitoring detects collision fatalities or increased migratory activity, a night-time (dusk to dawn) curtailment regime will be implemented during peak migration periods (15 September–15 December and 21 February–15 April). This approach reflects a conservative and responsive mitigation strategy, consistent with international best practice for high-sensitivity species. All monitoring results should be reviewed annually, and any necessary adjustments to the mitigation strategy agreed with NPWS.

7. REFERENCES

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APPENDIX 1

Whooper Swan VP Survey
Details
Winter 2023-24
Autumn/Winter 2024

Table A: VP SURVEY DETAILS: WHOOPER SWAN VPS WINTER 2023-24

VP	Date	Start	End	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction
3	02/10/2023	11:00:00	14:00:00	5	Dry	2	W
1	27/10/2023	15:45:00	18:50:00	6	Dry	3	SE
2	27/10/2023	12:15:00	15:15:00	4	Dry	3	NW
1	31/10/2023	10:10:00	13:10:00	8	Dry	2	S
2	31/10/2023	06:40:00	09:40:00	8	Dry	2	SW
3	31/10/2023	14:30:00	17:30:00	7	Dry	1	SE
4	02/11/2023	07:30:00	10:30:00	6	Dry	0	Not Recorded
4	11/11/2023	14:30:00	17:30:00	6	Dry	1	E
1	17/11/2023	07:05:00	10:05:00	1	Dry	2	SW
2	17/11/2023	10:35:00	13:35:00	1	Dry	2	SW
3	18/11/2023	13:30:00	16:30:00	8	Dry	0	Not Recorded
1	28/11/2023	10:00:00	13:00:00	8	Dry	2	W
2	28/11/2023	13:30:00	16:57:00	8	Dry	2	W
4	28/11/2023	07:45:00	10:45:00	7	Dry	0	Not Recorded
1	15/12/2023	11:05:00	14:05:00	8	Dry	3	SW
2	15/12/2023	07:35:00	10:35:00	6	Dry	3	SW
3	22/12/2023	08:15:00	11:15:00	8	Dry	8	Not Recorded
4	22/12/2023	11:45:00	14:45:00	8	Showers	2	NW
1	29/12/2023	13:00:00	17:00:00	6	Dry	3	SW
2	29/12/2023	09:30:00	12:30:00	8	Dry	4	SW
1	18/01/2024	11:00:00	14:00:00	0	Dry	3	SW
2	18/01/2024	14:30:00	17:30:00	4	Dry	4	SW
4	22/01/2024	14:15:00	17:15:00	7	Showers	4	SW
1	27/01/2024	07:35:00	10:35:00	6	Dry	3	SW
2	27/01/2024	11:05:00	14:05:00	8	Dry	3	S
3	27/01/2024	14:30:00	17:30:00	8	Dry	8	Not Recorded
4	29/01/2024	07:45:00	10:45:00	8	Rain	1	NE
3	30/01/2024	08:15:00	11:15:00	4	Dry	0	Not Recorded

VP	Date	Start	End	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction
1	04/03/2024	10:15:00	13:15:00	6	Dry	5	SE
2	04/03/2024	06:45:00	09:45:00	6	Dry	6	SW
3	04/03/2024	10:30:00	13:30:00	7	Dry	4	SE
4	05/03/2024	13:00:00	16:00:00	6	Dry	2	SW
1	11/03/2024	15:00:00	19:00:00	8	Dry	3	SW
2	11/03/2024	11:12:00	14:12:00	8	Dry	2	SW
3	11/03/2024	15:30:00	18:30:00	8	Dry	0	Not Recorded
4	14/03/2024	13:00:00	16:00:00	8	Dry	2	SW
1	22/03/2024	09:25:00	12:25:00	1	Dry	3	W
2	22/03/2024	05:55:00	08:55:00	2	Dry	3	W

Table B: VP SURVEY DETAILS: WHOOPER SWAN VPS WINTER 2024

VP	Date	Start	End	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction
1	10/10/2024	07:15	10:15	0	Dry	1	NW
1	11/10/2024	16:15	19:15	0	Dry	1	SW
2	07/10/2024	16:20	19:20	6	light showers	2	SE
2	08/10/2024	07:10	10:10	8	light mist clearing	0	N/A
3	19/10/2024	15:50	18:50	8	Dry	2	S
3	21/10/2024	07:45	10:45	0	Dry	1	SW
4	17/10/2024	07:30	10:30	8	Dry	2	SSW
4	15/10/2024	16:00	19:00	8	Dry	2	SSE
1	08/11/2024	14:00	17:00	8	light drizzle	1	SE
1	29/11/2024	08:00	11:00	8	Dry	3	SSE
2	25/11/2024	08:05	11:05	1	Dry	0	W
2	06/11/2024	14:00	17:00	8	Dry	0	SSE
3	04/11/2024	14:15	17:15	8	Dry	0	N/A
3	15/11/2024	07:40	10:40	8	drizzle	0	N/A
4	18/11/2024	07:45	10:45	8	light rain	1	-
4	05/11/2024	14:20	17:20	8	Dry	1	SSE
1	19/12/2024	10:00	11:30	0	Dry	2	NW
1	10/12/2024	13:00	16:00	8	Dry	1	NE
2	16/12/2024	08:30	11:30	6	Dry	1	SW
2	09/12/2024	13:15	16:15	0	Dry	0	N/A
3	15/12/2024	08:30	11:30	8	light mist clearing	2	SW
3	03/12/2024	13:15	16:15	8	Dry	1	S
4	02/12/2024	13:15	16:15	1	Dry	2	NW
4	27/12/2024	08:30	11:30	8	light mist clearing	0	N/A

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APPENDIX 2

Whooper Swan Records
Winter 2021-22
Winter 2022-23
Winter 2023-24
Autumn/Winter 2024

VP	Date	Bird ID/Flight line ID	Species	Quantity	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3	26/10/2021	1	Whooper Swan	3	12:35	25	25					Flying low between bog pools
2	02/11/2021	2	Whooper Swan	5	08:19	58			58			Direct flight (calls)
1	24/10/2022	1	Whooper Swan	2	12:11	42	0	42	0	0	0	Direct flight over trees; flying south-east over agricultural land
4	16/11/2022	2	Whooper Swan	38	12:30	10800	10800	0	0	0	0	Grazing in agricultural land for duration of watch
3	18/11/2022	3	Whooper Swan	8	09:20	20	0	0	20	0	0	Fly through. Group traversing southern part of flight activity study area
3	18/11/2022	4	Whooper Swan	4	10:30	30	0	5	25	0	0	Flew in from east and landed on rewetted bog (Esker Bog)
4	18/11/2022	5	Whooper Swan	26	12:00	10800	10800	0	0	0	0	Grazing in agricultural land for duration of watch
3	29/12/2022	N/A	Whooper Swan	1	10:30	10	0	0	0	0	0	Heard only
4	10/02/2023	6	Whooper Swan	1	16:05	10	10	0	0	0	0	Landed on bog pool
1	27/10/2023	876	Whooper Swan	6	18:39	95	0	25	70	0	0	Direct flight SE calling

VP	Date	Bird ID/Flight line ID	Species	Quantity	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
1	31/10/2023	877	Whooper Swan	3	10:18	70	0	0	70	0	0	Direct flight west calls out of sight behind trees
4	02/11/2023	957	Whooper Swan	2	08:00	240	0	20	20	200	0	2 adults flying through SE
HHVP 3	11/12/2023	787	Whooper Swan	3	13:50	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Birds roosting on edge of flooded patch
HHVP 3	11/12/2023	789	Whooper Swan	3	14:53	175	10	45	120	0	0	Flew over trees, lost over treeline
HHVP 4	11/12/2023	783	Whooper Swan	3	14:55	180	10	40	130	0	0	Direct flight north then turn east -possibly following canal east
HHVP 3	19/12/2023	796	Whooper Swan	35	13:49	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Roosting/ feeding on flooded patch
HHVP 3	19/12/2023	799	Whooper Swan	14	15:56	85	50	35	0	0	0	Left for roost, flew low over trees
HHVP 4	19/12/2023	N/A	Whooper Swan	N/A	16:10	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Heard calling not seen
HHVP 3	19/12/2023	802	Whooper Swan	8	16:51	10	10	0	0	0	0	Left for roost at same time as Flight line 803
HHVP 3	19/12/2023	803	Whooper Swan	13	16:51	65	10	55	0	0	0	Left for roost - lost in darkness although could still hear
HHVP 4	19/12/2023	807	Whooper Swan	16	16:52	185	0	50	130	0	0	Direct flight NE

VP	Date	Bird ID/Flight line ID	Species	Quantity	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
HHVP 3	08/01/2024	823	Whooper Swan	2	15:26	80	60	20	0	0	0	Commuting very low, lost sight through trees
3	15/11/2024	1051	Whooper Swan	3	09:40	15	0	0	15	0	0	Flying east through southern part of flight activity study area
3	15/11/2024	1052	Whooper Swan	1	09:40	15	0	0	15	0	0	Flew into Clongreen WF
N/A	22/10/2024	1073	Whooper Swan	7	10:50	20	0	0	20	0	0	Flying east towards Esker bog, seen during audio detector deployment
N/A	18/10/2024	1074	Whooper Swan	11	09:10	60	0	0	60	0	0	Seen flying and calling while collecting audio detector
N/A	30/10/2024	1075	Whooper Swan	16	12:10	140	0	0	140	0	0	Commuting. Seen during audio detector visit
N/A	24/10/2024	1076	Whooper Swan	22	12:39	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Flock of 22 swans observed on rewetted bog. Seen during audio detector visit

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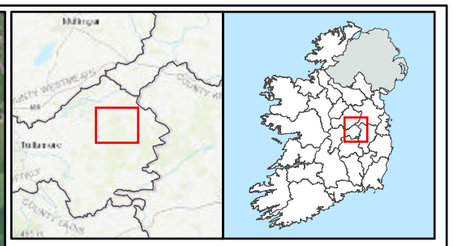
APPENDIX 3

Whooper Swan Activity Maps
Winter 2021-22
Winter 2022-23
Winter 2023-24

Path: R:\Map Production\2021\P21-094\Workspace\P21_094_Flightlines_Year_1.aprx



Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,26/10/2021,12:35
- 2,02/11/2021,08:19

N W E S

0 0.5 1 Kilometers

TITLE:	Whooper Swan		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

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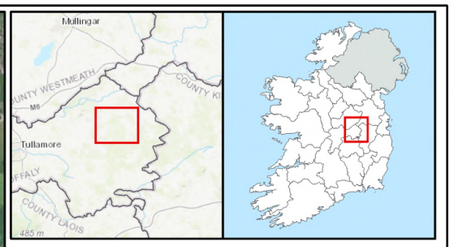
Path: R:\Map Production\2021\P21-094\Workspace\P21_094_Flightlines_Year_1.aprx



Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,24/10/2022,12:11
- 3,18/11/2022,09:20
- 4,18/11/2022,10:30
- 6,10/02/2023,16:05
- 2,16/11/2022,12:30
- 5,18/11/2022,12:00

N W E S

Kilometers
0 0.5 1

TITLE:	Whooper Swan		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	11/08/2025	**PAGE SIZE:**	A3

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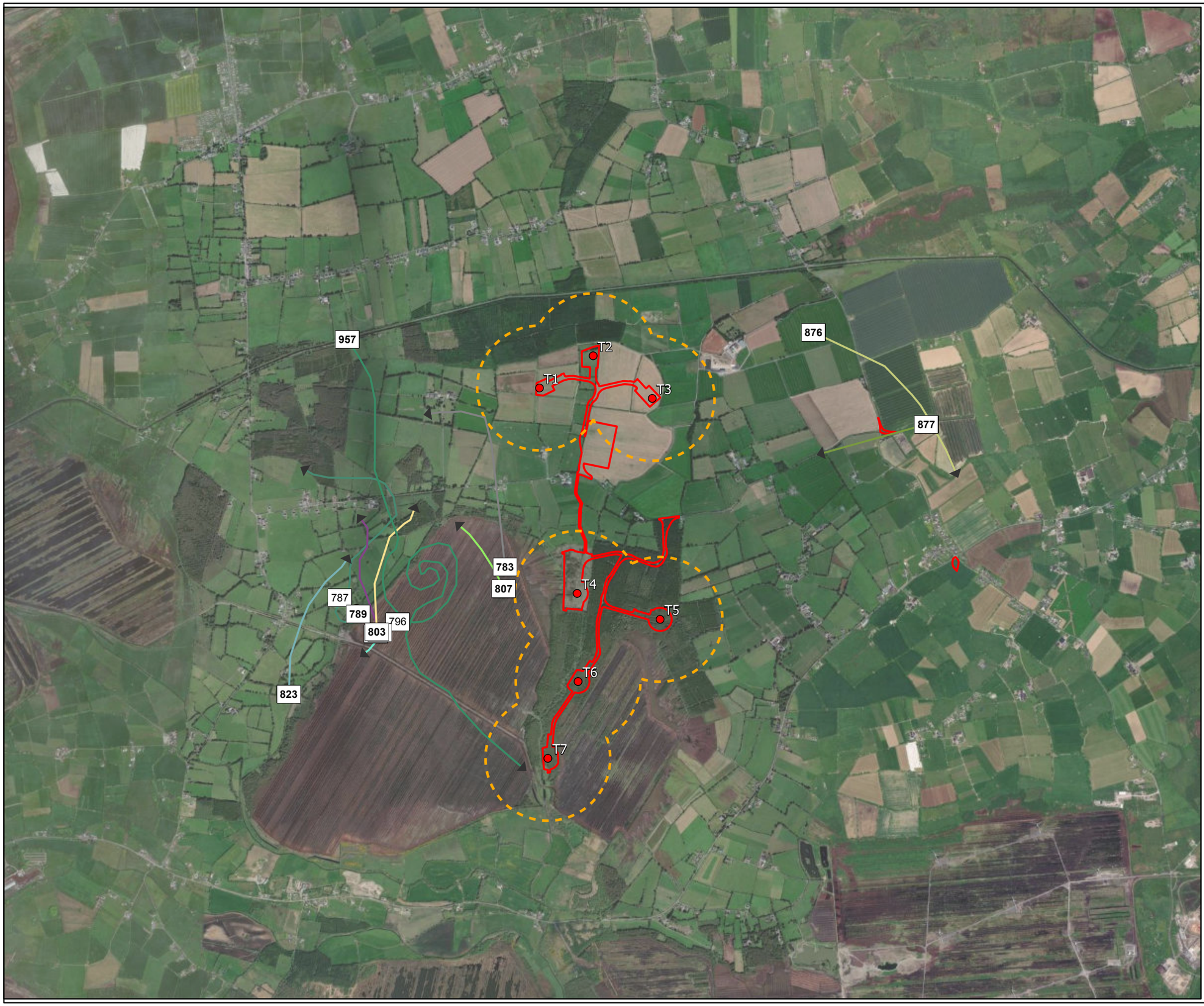

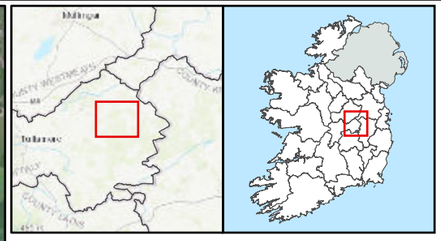

Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

ID, Date, Time

- 783, 11/12/2023, 14:55
- 789, 11/12/2023, 14:53
- 799, 19/12/2023, 15:56
- 802, 19/12/2023, 16:51
- 803, 19/12/2023, 16:51
- 807, 19/12/2023, 16:52
- 823, 08/01/2024, 15:26
- 876, 27/10/2023, 18:39
- 877, 31/10/2023, 10:18
- 957, 02/11/2023, 08:00
- 787, 11/12/2023, 13:50
- 796, 19/12/2023, 13:49

N W E S

0 0.5 1 Kilometers

TITLE:	Whooper Swan		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

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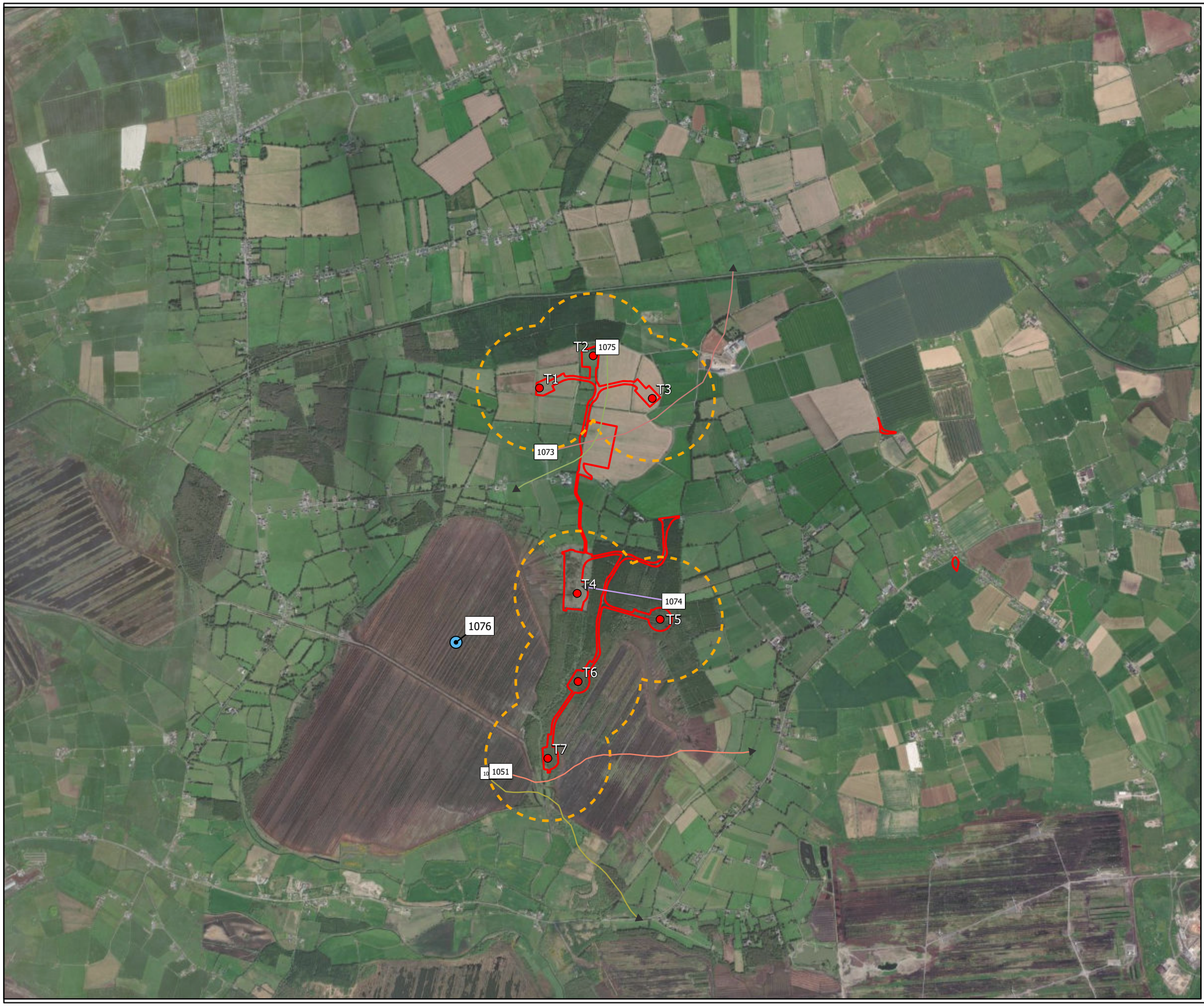

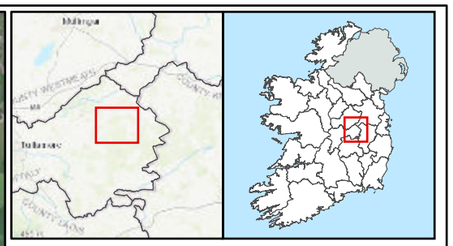

Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

ID, Date, Time

- 1051, 15/11/2024, 09:40
- 1052, 15/11/2024, 09:40
- 1073, 18/10/2024, 09:10
- 1074, 22/10/2024, 10:50
- 1075, 30/10/2024, 12:10
- 1076, 24/10/2024, 12:39

N W E S

Kilometers
0 0.5 1

TITLE:	Whooper Swan		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

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APPENDIX 4

Hinterland Survey Schedule
Winter 2023-24
Winter 2024-25

Site Code	Location	Dates Visited
HVP 1	Trimblestown Bridge	30/01/2024
HVP 2	Cartland Bridge	31/10/2023 01/01/2024 30/01/2024 04/03/2024
HVP 3	Colgan's Bridge	31/10/2023 01/01/2024 30/01/2024 04/03/2024
HVP 4	Georges Bridge	31/10/2023 01/01/2024 30/01/2024 04/03/2024
HVP 5	Rhode Bridge	31/10/2023 29/01/2024 04/03/2024
HVP 6	Toberdaly	31/10/2023 18/11/2023 29/01/2024 04/03/2024
HVP 7	Ballyhugh (Flooded Cutover Bog)	31/10/2023 18/11/2023 29/01/2024 04/03/2024 04/03/2024 04/03/2024 11/10/2024 11/10/2024 11/10/2024 25/11/2024
HVP 8	Rathvilla (Cutover Bog/ Flooded Quarries)	11/01/2023 11/01/2023 11/01/2023 11/11/2023 11/11/2023 11/11/2023 11/11/2023 01/01/2024

Site Code	Location	Dates Visited
		29/01/2024 11/03/2024 11/03/2024 19/10/2024 19/10/2024 21/10/2024 08/11/2024 02/01/2025 02/01/2025 02/01/2025
HVP 9/HVP 15	Esker Bog	18/11/2023 29/01/2024 30/01/2024 04/03/2024 05/03/2024 21/10/2024 04/11/2024 15/11/2024 18/11/2024 18/11/2024 15/01/2025
HVP 16	Fields Beside BnM Ash Repository	04/11/2024 11/11/2023 22/12/2023 01/01/2024 22/01/2024 15/01/2025
HVP 17	Derryarkin/Yellow River	01/01/2025 23/01/2025
HVP 18	Fields South of R402	23/01/2025

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