APPENDIX 7.2

Baseline Ornithology Report Year 2

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

BALLINLA WIND FARM

Baseline Ornithological Report Year 2

Prepared for:
Statkraft

Statkraft

Date: **August 2025**

Core House, Pouladuff Road, Cork, T12 D773, Ireland
T: +353 21 496 4133 | E: info@ftco.ie
CORK | DUBLIN | CARLOW
www.fehilytimoney.ie

TABLE OF CONTENTS

LIST OF APPENDICES

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Fehily Timoney and Company (FT) was appointed by Statkraft to undertake ornithological surveys at the proposed Ballinla wind farm over summer 2022 and winter 2022/23. This report presents the results of the second year of ornithological surveys and summarises the activity of bird species during survey periods in 2022/2023. The study area of Ballinla Wind Farm is located south-west of Edenderry Co. Offaly.

This ornithological assessment for surveys includes the assessment of bird species occurring within the proposed site boundary, and surveys of surrounding habitats of value to birds. Surveys adhered to Scottish Natural Heritage guidance (SNH, 2017). The following surveys were carried out: Vantage point, breeding transects, winter transects, breeding wader surveys and hinterland surveys.

1.1 Study Area

The proposed Ballinla wind farm is approx. 418 hectares in size and is located approx. 5km west of Edenderry, Co. Offaly. Examination of orthophotography indicates that the proposed site is dominated by agricultural land and woodland with areas of peatland to the south of the study area. Habitats and land uses are described by Corine 2018 as: Coniferous forest (code: 312), Pastures (code: 231), Non-irrigated arable land (code: 211), Mixed Forests (code: 313) and Peat Bogs (code: 412).

The Grand Canal runs along the north of the of the proposed site. The northern part of the site is hydrologically connected to the River Boyne with a tributary flowing through the northern section of the developable area. The remainder of the proposed site is hydrologically linked to the River Barrow via the River Daingean and River Figile. Areas of flooded cutover bog are present in the surrounding hinterland, and two small artificial lakes and a flooded quarry are present c. 2 km the south-east of the proposed site.

Special Protection Areas within a 25 km radius of the proposed project are detailed in Table 1-1. Natural Heritage Areas (NHAs) and proposed Natural Heritage Areas (pNHAs) with potential for ornithological interest within 15 km of the proposed site are detailed in Table 1-2.

Table 1-1: SPAs within 25 km of the Proposed Ballinla Wind Farm

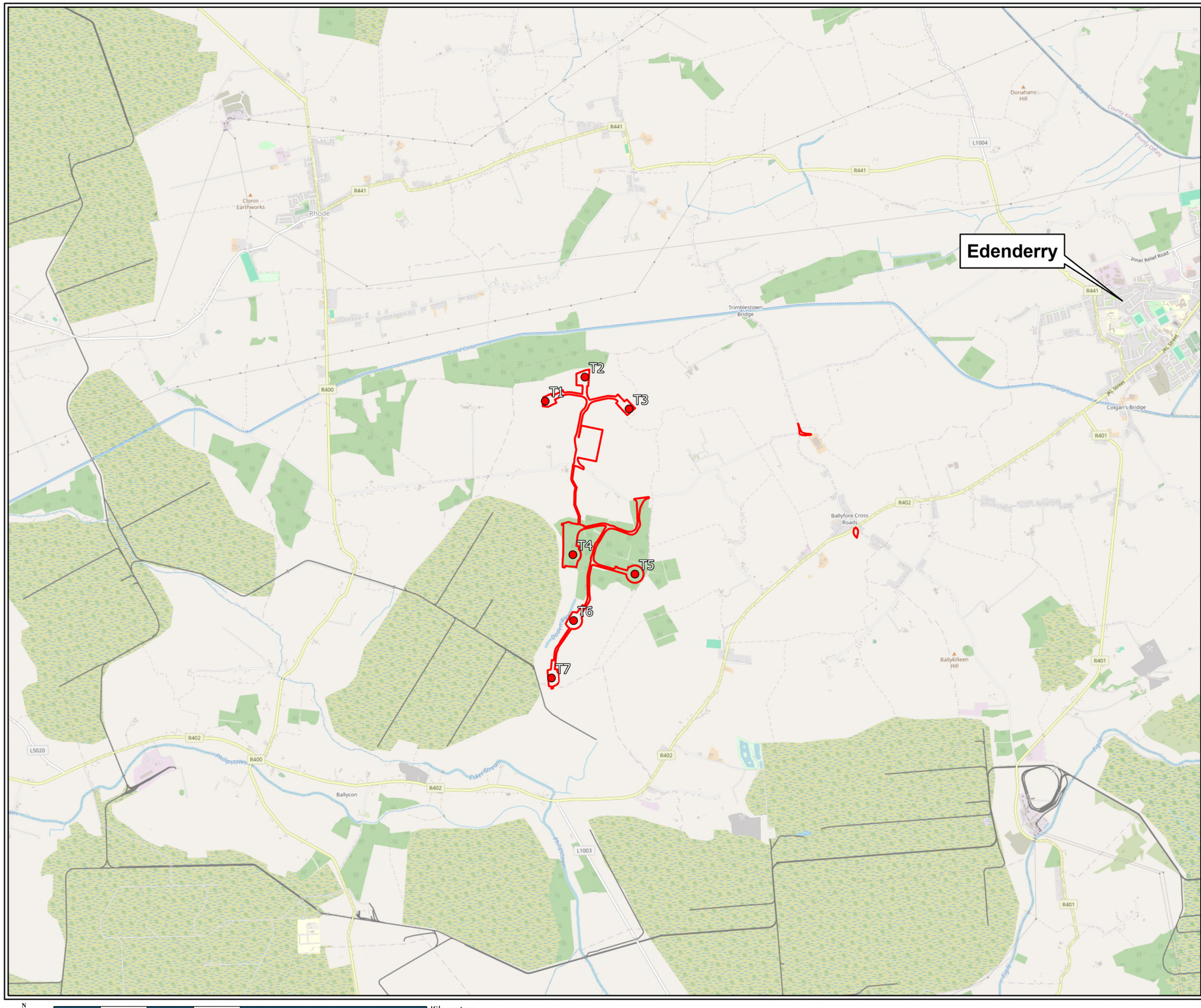
Site Code	Site Name	Distance	Qualifying Features
004232	River Boyne and River Blackwater SPA	17.05km NW	Kingfisher (*Alcedo atthis*) [A229]
004044	Lough Ennell SPA	19.00km NW	Tufted Duck (*Aythya fuligula*) [A061], Coot (*Fulica atra*) [A125], Pochard (*Aythya ferina*) [A059], Wetland and Waterbirds [A999]

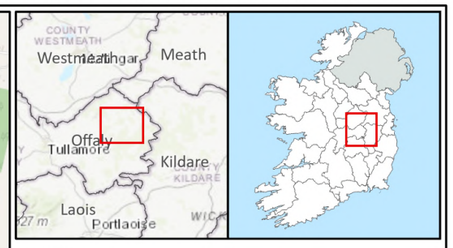
Note: *SPA = Special Protected Area (European site), (p)NHA = (proposed) Natural Heritage Area

Table 1-2: NHAs and pNHAs within 15 km of the Proposed Ballinla Wind Farm

Site Code	Site Name	Distance	Qualifying Features
002104	Grand Canal pNHA	0km	hedgerow, calcareous grassland, reed fringe, open water, scrub and woodland
00570	Black Castle Bog NHA	2.21km N	Peatlands [4]
000925	The Long Derries, Edenderry pNHA	7.81km E	Bird species include sand martin, whinchat, whitethroat and cuckoo have been recorded here during summer seasons. Red-listed partridge and breeding Annex I nightjars
002033	Daingean Bog NHA	9.67km SW	Peatlands [4]
000582	Raheenmore Bog pNHA	9.84km W	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150] Within breeding territory of Annex I merlin. Other species include red grouse and snipe.
001388	Carbury Bog NHA	10.91km NE	Peatlands [4]
002323	Milltownpass Bog NHA	12.97km NW	Peatlands [4]
000917	Raheen Lough pNHA	13.46km SW	Wet pasture and marshland vegetation supports variety of wildfowl and waders.
000918	Rahugh Ridge pNHA (Kiltober Esker)	14.13km W	Woodland providing potential habitat for raptor species.
000390	Ballina Bog pNHA	14.59km NE	Raised bog
000677	Cloncrow Bog (New Forest) NHA	14.80km NW	Peatlands [4]

Path: R:\Map Production\2021\P21-094\Workspace\P21_094_Year_1_Figures\P21_094_Year_1_Figures.aprx





Legend

- Site Boundary
- Turbine Locations

TITLE:	Windfarm Site Location		
PROJECT:	Ballinla Wind Farm, Co. Offaly		
FIGURE NO:	1.1		
CLIENT:	Statkraft		
SCALE:	1:40,000	**REVISION:**	0
DATE:	11/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

0 1 2 4 Kilometers

2. SURVEY METHODOLOGY

The following surveys were carried out: Vantage point, breeding transects, winter transects, breeding wader surveys and hinterland surveys. Methodologies for these surveys are detailed below:

2.1 Target Species

The following criteria have been utilised to select target species for the current study. SNH guidance (SNH, 2017) on the assessment of the effects of wind farms on ornithological interests suggests that there are four important lists from which target species be drawn, as follows:

- Species listed on Annex 1 of the Birds Directive;
- Red-listed birds of Conservation Concern;
- Schedule 1 of the Wildlife and Countryside Act 1981 (not applicable in Ireland); and
- Regularly occurring migratory species.

In the Irish context, it has been suggested that target species should be taken from species of conservation concern in Ireland (Gilbert et al., 2021), those likely to occur within the vicinity of the proposed wind farm, and those most at risk from particular impacts such as disturbance and displacement (Nairn and Partridge, 2013).

'Birds of Conservation Concern in Ireland' (BoCCI) are classified into three separate lists; red, amber and green. Red-listed species are of high conservation concern, amber-listed species are of medium conservation concern and green-listed species are not considered to be of conservation concern (Gilbert et al., 2021).

Additionally, a review of the bird species listed on Annex I on the EU Birds Directive (2009/147/EC) was undertaken in assessing the conservation status of birds. Annex I species are often afforded additional protection through the designation of Special Protection Areas (SPAs) throughout EU countries in addition to existing national legislation.

The primary target species for these surveys were: all raptors and owls, all wild goose, swan and duck species, all waders, and all gull species.

In addition to the above, consideration was given to species identified as being of local or regional conservation concern, those particularly susceptible to impact from wind farm development. Note that not all species on the above lists are categorised as target species, e.g., most passerine species and general lowland farmland birds are not considered to be particularly susceptible to impacts from wind farms (SNH, 2017).

2.2 Vantage Point Surveys

Vantage Point (VP) surveys were carried out at the proposed Ballinla Wind Farm site during the breeding (April to September 2022 inclusive) and non-breeding (October 2022 - March 2023) seasons, in accordance with Scottish Natural Heritage (SNH) methodology for onshore Wind Farms (SNH, 2017). Additional migration VP watches were also completed in Spring and Autumn. 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 and this criterion is fulfilled by ensuring the viewsheds cover the 500m buffer around the developable area. This buffer is referred to as the 'SNH Buffer' and constitutes the flight activity study area.

The combined viewshed coverage of the SNH buffer is 98.8%, which exceeds the required minimum of 97%.

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 et al. 2007), 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. We note the following from SNH guidance in respect of priority areas for viewshed analysis (emphasis added):

> *"Where the key purpose is to estimate the risk of collision with turbines, it is the visibility of the airspace to be occupied by the turbine rotors (the collision risk volume) that is of prime importance. Therefore, it is recommended that visibility be calculated using the least visible part of this airspace, i.e. an imaginary layer suspended at the lowermost height passed through by the rotor blade tips (typically about 20-30m above ground level). Predicting visibility at this level is a simple task using GIS, however it should be noted that the baseline should take account of any forestry or other features that will potentially obstruct the view. For example, forestry may be 10-30m high and if viewshed height is taken as 20-30m ground level the visible area could be overestimated if there is forestry within the viewshed. Being able to view all or most of the site to ground level can be helpful in gauging overall bird activity and usage of the site but is not as important as being able to view the collision risk volume"*

Following SNH guidance (2017), watches were conducted to sample diurnal and crepuscular activity of target species and exceeding the required effort from SNH.

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.

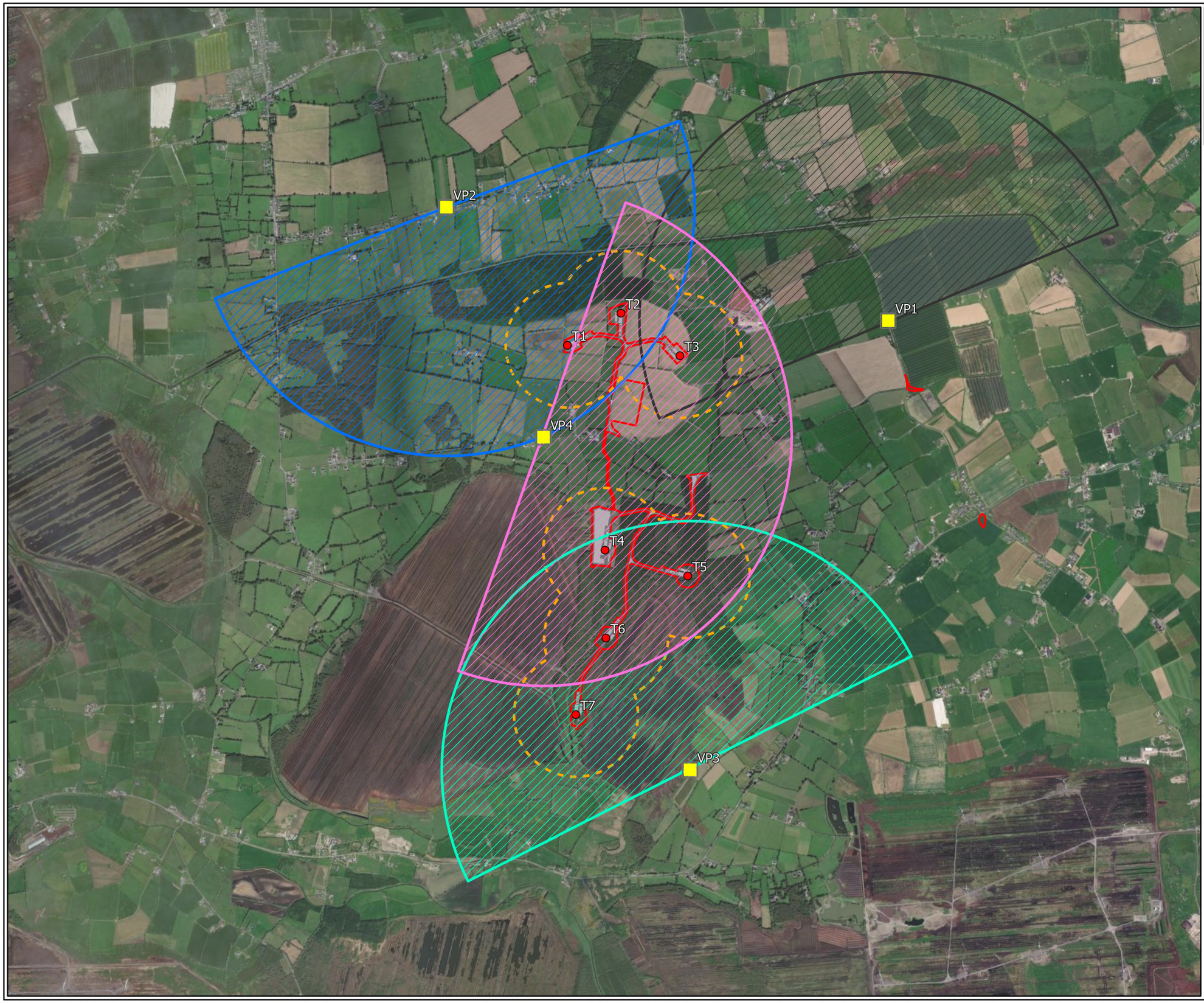
Flight heights are estimated visually as allowed for in SNH (2017) guidance. Flight height estimation using a clinometer or rangefinder is accepted as an alternative means of determining flight height however this is often not practicable (equipment may be clumsy and birds may be lost from view whilst trying to focus additional equipment on a target species rapidly moving out of sight); it should be noted that in practice many flocks of swans do not fly close enough to a surveyor for a rangefinder to be used, resulting in most flights heights being estimated in any case. As is often the case an experienced observer will be able to record accurate observations at a higher frequency.

VP surveys involved carrying out 2 x 3-hour VPs at each VP every month. As per SNH guidance (2017), 36 hours of vantage point effort was carried out at each vantage point during the breeding period, and 36 hours during the wintering period. Additional VP survey rounds (6 hours per VP) were conducted in April and September/October 2022 to cover the spring and autumn migration periods, exceeding SNH (2017) requirements. 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

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



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		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	11/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

2.3 Breeding Bird Surveys

For general breeding birds the method utilised was based on the existing British Trust for Ornithology (BTO) Breeding Bird Survey (BBS or CBS; Bibby et al. 2000). The study area for this survey comprised four [c. 1 km] transects which were selected and centred on different habitats present within the subject sites (see Figure 2-2).

Birds were counted over two visits, each timed to coincide with the early part of the breeding season (April-mid-May 2022) and later part of the season (mid-May to June 2022). Surveyors recorded all birds seen or heard as they walked methodically along the transect routes.

Birds were noted in three distance categories, measured at right angles to the transect line (within 25 m, between 25 m-100 m and over 100 m from the transect line) and those seen in flight only. Recording birds in distance bands gives a measure of bird detectability and allows relative population densities to be estimated if required (BTO, 2018).

The summer breeding bird transect schedule is detailed in Table 2-2, with further details including weather and survey times indicated:

Table 2-2: Breeding bird summer transect survey details

Date	Cloud (Oktas)	Precipitation	Visibility	Wind Speed (Beaufort)	Wind Direction	Transect	Start	End
24/04/2022	4	Dry	Good	2	NE	1	07:00	08:40
24/04/2022	3	Dry	Good	3	NE	3	09:00	10:00
24/04/2022	3	Dry	Good	3	NE	2	10:30	11:20
26/04/2022	1	Dry	Good	1	E	4	07:45	09:15
17/06/2022	8	Dry	Good	1	SW	4	07:30	08:30
17/06/2022	8	Dry	Good	1	SW	2	09:45	10:30
20/06/2022	0	Dry	Good	2	NW	1	09:00	10:15
23/06/2022	8	Dry	Good	1	SW	3	09:00	10:15

Path: R:\Map Production\2021\P21-094\Workspace\P21_094_Year_1_Figures\P21_094_Year_1_Figures.aprx

Legend

- Site Boundary
- Transects

TITLE:	Breeding and Wintering Bird Transects		
PROJECT:	Ballinla Wind Farm, Co. Offaly		
FIGURE NO:	2.2		
CLIENT:	Statkraft		
SCALE:	1:20,000	**REVISION:**	0
DATE:	14/07/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

0 1 2 4 Kilometers

2.4 Transect Surveys during Winter Months

For general wintering bird transects the method utilised was the same as for the breeding bird transects, except it was undertaken in the winter season and three survey rounds were undertaken between December 2022 and March 2023.

The wintering bird transect schedule is available in Table 2-3:

Table 2-3: Wintering bird transect survey details

Date	Transect	Cloud (Oktas)	Visibility	Precipitation	Wind Speed (Beaufort)	Wind Direction	Start	End
03/12/2022	3	8	Good	Dry	0	No Wind	09:00	10:15
03/12/2022	2	8	Good	Dry	0	No Wind	10:30	11:30
18/12/2022	1	8	Good	Dry	0	No Wind	09:00	11:00
20/12/2022	4	2	Good	Dry	2	SW	09:30	11:45
05/01/2023	4	8	Good	Dry	3	SSW	09:15	11:00
19/01/2023	1	0	Good	Dry	0	No Wind	11:30	13:00
24/01/2023	3	7	Good	Dry	0	No Wind	11:00	12:00
24/01/2023	2	8	Good	Dry	0	No Wind	12:30	13:15
09/02/2023	1	1	Good	Dry	2	SW	10:30	12:00
10/02/2023	3	8	Good	Dry	2	WSW	09:00	10:00
10/02/2023	2	8	Good	Dry	3	WSW	10:15	11:00
20/02/2023	4	8	Good	Dry	3	WSW	09:25	11:00

2.5 Breeding Wader Surveys

Survey transects to assess the presence of breeding wader populations were completed during April - June 2022. A number of methods were combined from published literature including Bibby et al, (2000), Gilbert et al, (1998), O'Brien & Wilson (2011) and SNH (2017) to estimate numbers of target species breeding within this envelope.

Methods utilised were grouped into two categories; those for breeding lapwing *Vanellus vanellus* and those for other species such as curlew *Numenius arquata*, common snipe *Gallinago gallinago*, redshank *Tringa totanus*, woodcock *Scolopax rusticola*, common sandpiper *Actitis hypoleucos* and ringed plover *Charadrius hiaticula*. For each species, a pre-defined matrix of suitable habitats was created and used to select target habitats for survey (Table 2-4):

Table 2-4: Target Species and associated suitable breeding habitat

Target Species	Suitable Breeding Habitat
Lapwing	Lowland wet grassland, arable farmland, cutover bog with pools and wet grassland
Snipe	Wet pastures, marsh, bogs (intact and cutover) and fens
Redshank	Bog
Curlew	Bog
Common Sandpiper	Streams/rivers in bog
Woodcock	Woodland, bog woodland
Ringed Plover	Cutover bog, milled peat with exposed gravel

Survey methods for lapwing followed those in Bibby et al. (2000) where the primary count unit for breeding birds is defined as an incubating female. In addition, displaying birds, birds standing guard near nests or distraction displays were also recorded as indications of occupied territories. Extensive areas of open ground were covered from roads, farm tracks or roadsides (where possible); larger areas of open ground not visible from easily accessible vantage points were walked using transects.

Surveys were carried out during the time periods recommended in Bibby et al. (2000) although territorial behaviour noted outside these periods was also utilised in the assessment. For all additional species of wader the employed method was the same and utilised transects walked through suitable habitat within three hours of dawn or dusk. Count units were predefined for each target species and included in the method statement provided to surveyors.

Table 2-5: Count units for each Wading Species

Species	Unit
Lapwing	Incubating Bird
Common Snipe	Drumming or Chipping Bird
Redshank	Alarming Bird
Woodcock	Displaying Male
Ringed Plover	Presence or Absence/ Fledged Young late in season
Common Sandpiper	Presence or Absence/ Fledged young late in season
Curlew	Territorial Activity

All suitable habitats for waders were visited and observations were made along three transects (Figure 2-3), during the months of April and June 2022. Breeding wader summary sheets were compiled at the end of the breeding season, indicating in each case the minimum number of breeding pairs/occupied territories known to occur.

All species encountered (seen or heard) were recorded and their abundance, behaviour, sex/age and breeding status noted. Any species occurring more than 100 m from the observer, or flying over the site and not using it, were recorded as 'additional' species to further inform the baseline survey. Table 2-6 details survey dates and weather conditions.

Table 2-6: Breeding Waders survey details

Date	ID	Cloud (Oktas)	Precipitation	Visibility	Wind Speed (Beaufort)	Wind Direction	Start	End
24/04/2022	W2	3	Dry	Good	3	NE	15:00	16:00
26/04/2022	W3	1	Dry	Good	1	E	07:45	08:30
08/05/2022	W1	0	Dry	Good	2	NNE	07:00	10:00
09/06/2022	W2	4	Dry	Good	2	SW	21:15	22:50
17/06/2022	W3	8	Dry	Good	1	WSW	08:30	09:30
20/06/2022	W1	0	Dry	Good	1	NW	10:30	11:45

Path: R:\Map Production\2021\P21-094\Workspace\P21_094_Year_1_Figures\P21_094_Year_1_Figures.aprx

Legend

- Wader Transect
- Site Boundary

TITLE:	Wader Transect		
PROJECT:	Ballinla Wind Farm, Co. Offaly		
FIGURE NO:	2.3		
CLIENT:	Statkraft		
SCALE:	1:20,000	**REVISION:**	0
DATE:	14/07/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

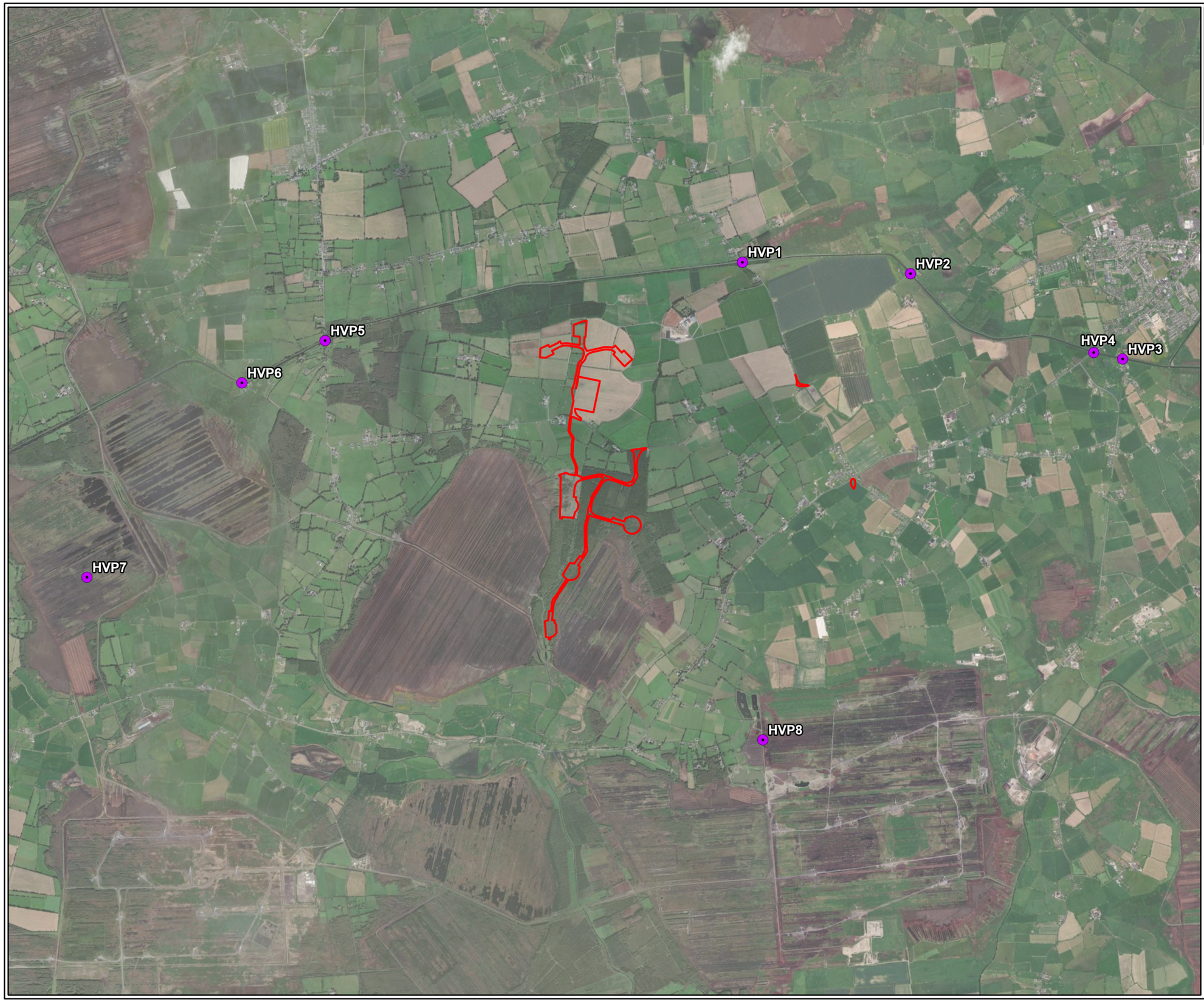
0 1 2 4 Kilometers

3.5 Hinterland Surveys

The methodology used for wetland sites during winter 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 conducted 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 and breeding periods in the greater surroundings. The hinterland survey also encompassed searches for hen harrier breeding and roosting sites within 2km of the proposed wind farm, fulfilling the requirement set out in SNH Guidance (2017). The surveys were carried out in suitable habitats for birds (woodland, wetland, peatland, farmland) in the area surrounding the proposed wind farm site.

The survey was focused on eight sites within c. 5 km of the proposed Ballinla Wind Farm site (see Figure 2-4). Surveys were carried out between April 2022 and March 2023. The sites detailed in Appendix 5 were checked regularly across this period. These sites were chosen as they had suitable habitat for the following target species: raptors, waders, waterfowl, barn owl, geese and swans.

Path: R:\Map Production\2021\P21-094\Workspace\P21_094_Year_1_Figures\P21_094_Year_1_Figures.aprx



Legend

- Site Boundary
- Hinterland Sites

N
W E
S

0 1 2 4 Kilometers

TITLE: Hinterland Site and Transect Locations			
PROJECT: Ballinla Wind Farm, Co. Offaly			
FIGURE NO:	2.4		
CLIENT:	Statkraft		
SCALE:	1:40,000	**REVISION:**	0
DATE:	14/07/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

3. RESULTS

3.1 Vantage Point Results

A total of 68 species was recorded during VP surveys across both seasons. Of these species, ten species are red-listed under the BoCCI (Gilbert et al., 2021): golden plover, kestrel, lapwing, snipe, swift, yellowhammer, meadow pipit, stock dove, redshank, and redwing. A total of 17 are amber-listed and the remaining 41 are green-listed. Of the species noted, five are protected under Annex I of the EU Birds Directive: golden plover, peregrine, whooper swan, hen harrier, and little egret.

In total there were 332 records of 17 target species observed during the survey period.

3.2 Target Species

3.2.1 Black-headed Gull

Summer

There were two observations of this amber-listed species during summer 2022 VP surveys. These both occurred from VP 3 on July 12th 2022. The first record noted one gull flying for ten seconds in the 100-200m height band. Three individuals were recorded on the second occasion flying within the following height bands: 0-15m (30s), 15-30m (5s) and 30-100m (20s). The flight paths observed traversed the south of the study area over woodland and bog habitat.

Winter

A total of four observations of this amber-listed species were recorded during winter VP surveys, all from VP 1 on December 20th 2022. Flight activity was recorded predominantly in the 0-15m height band (315s) with a high proportion of time of time also spent between 30-100m (235s). The remaining flight time was distributed across the other height bands as follows: 30-100m (30s) and 100-200m (10s). These records were concentrated to the northeast of the study area over farmland. These observations recorded birds circling/searching and then dropping down to land in fields, indicating foraging.

3.2.2 Buzzard

Summer

A total of 55 records of this green-listed species were made during summer VP surveys (including two unmapped records, one of a perched buzzard and one heard calling only). These were noted from every VP and across all months between April - September 2022. Of these records, six occurred during spring migration watches from VPs 1-3 (April 4th and 9th 2022). Flight activity was recorded for four of these records and primarily occurred above 200m (400s) followed by 100-200m (200s) and 30-100m (193s). Less time was spent in the -15m (22s) and 15-30m (15s) height bands.

During the rest of the summer period (47 observations), flight activity occurred predominantly in the 100-200m (2803s), 30-100m (2366s) height bands and above 200m (2253s). There was less time spent in the 15-30m (254s) and 0-15m (121s) height bands. Most flight activity was concentrated in/adjacent to the northeast section of the study area. Flight activity was also observed in the northwest and south of the study area.

Buzzards were most commonly observed alone, however there were also multiple records of two or three individuals together. Behaviour observed was typical of buzzards as they were seen soaring, circling and hovering. Hooded crows were seen mobbing buzzards on five occasions from VPs 1 and 3 in April, May and June 2022. One observation from VP 2 on June 20th 2022 recorded a buzzard being mobbed by a peregrine while soaring. Displaying behaviour was observed from VP 1 on April 18th 2022.

Winter

A total of 57 observations of this green-listed species were recorded during winter VP surveys. Of these, seven were recorded during autumn migration watches, all seen from at VP 1. Flight activity was predominantly recorded in the 0-15m (124s) and 30-100m (75s) height bands. Less time was spent in the 15-30m (10s) height band.

The remainder of winter records were observed from VPs 1, 2 and 3 during every month between October 2022 and March 2023. Flight activity occurred in every height band but most frequently between 0-15m (668s). Time spent in the remaining height bands was distributed as follows: 15-30m (535s), 30-100m (549s), 100-200m (593s) and above 200m (180s). Flight activity was concentrated in/adjacent to the northeast section of the study area. Several records were made in/to the northwest and southern parts of the study area.

Buzzards were primarily observed alone, except for two instances where two individuals were recorded together from VP 1 (November 15th and December 6th 2022). Activity recorded was typical of buzzards with observations of circling, soaring, hunting, gliding and soaring. Buzzards were mobbed on four occasions by corvids.

3.2.3 Common Gull

Summer

There were no records of this amber-listed species during summer 2022 VP surveys.

Winter

Amber-listed common gull was observed on two occasions during winter VP surveys. Both were noted from VP 1 on December 20th. The first record noted four gulls which flew in from the east in the 0-15m (30s) and 15-30m (40s) height bands. The second observation recorded six individuals flying in a westerly direction in the 0-15m height band (90s). These flights occurred to the northeast of the study area over agricultural land.

3.2.4 Golden Plover

Summer

A total of five observations of this Annex I/ red-listed species were recorded during summer 2022. Of these, four were recorded during spring migration VP surveys from VP 1 (April 5th 2022). Flight activity of 12-15 birds (three observations) was recorded primarily within the 0-15m height band (137 seconds). Time spent in the remaining height bands was distributed as follows: 15-30m (32s) and 30-100m (86s). This species was observed in direct and circular flight predominantly concentrated in/adjacent to the northeast section of the study area. One unmapped static record noted 12 golden plovers in breeding plumage foraging in a field to the south of VP 1 on April 5th 2022.

The fifth and final summer season observation of this species occurred on August 19th 2022 from VP 2 , where a flock of 46 birds were seen in direct flight moving north-west and skirting the north-western edge of the study area for 40s in the 30-100m height band.

Winter

A total of 20 records of this Annex I/red-listed species were made during winter VP surveys from VPs 1 and 3. Flight paths were primarily recorded in and adjacent to the northeast of the study area. Flight activity was distributed across all height bands with most time spent in the 100-200m (3200s), 30-100m (1780s) and >200m (1180s) height bands. Less time was spent in the 15-30m (584s) and 0-15m (344s). One of these observations was noted during an autumn migration survey from VP 3 on October 1st 2022 and recorded 12 individuals flying in the 0-15m (60s) and 30-100m (120s) height bands.

The smallest number of birds observed together was three, while large flocks of up to 1000 birds were also recorded. The latter large flock of 1000 individuals was seen on three occasions from VP 1 on November 15th 2022. This flock was observed in searching/wheeling flight. Similarly, from VP 1 on November 4th 2022, a group of 500 birds was observed on three occasions. It was first seen rising in a field with lapwing and was later disturbed by a buzzard flying over. The flock returned to the field once the buzzard had departed. A static record of a flock of 55 foraging birds was made on December 20th 2022 (not mapped). This flock was outside the study area to the east of VP1

3.2.5 Grey Heron

Summer

This green-listed species was recorded on one occasion during summer VP surveys. This observation was recorded from VP 2 on June 6th 2022 when an individual was seen flying straight from the northwest corner of the study area moving in a northerly direction in the 30-100m height band (182s).

Winter

Green-listed grey heron was not recorded during the winter 2022/23 VP surveys.

3.2.6 Hen Harrier

Summer

This Annex I/ amber-listed species was not recorded during summer 2022 VP surveys.

Winter

There were three observations of hen harrier during winter VP surveys, all of which were seen from VP 3 on October 14th, 22nd and December 29th 2022. Flight activity occurred in the 0-15m (490s) and 15-30m (425s) height bands. This activity was concentrated to the south of the study area over recolonising cutover bog and remnant drained raised bog. All observations were of single birds, two of which were males. The first record (October 14th 2022) noted a male active in this area for almost one hour. During this period, this bird was observed quartering/hunting and preening. A hen harrier was briefly observed (10s) hunting among birch trees within the 15-30m height band in the same area on December 29th.

3.2.7 Kestrel

Summer

This red-listed species was observed on 14 occasions during summer VP surveys. Of these, two occurred during spring migration watches (both on April 9th 2022). Flight time occurred in the 15-30m (77s) and 30-100m (350s) height bands during these records. The remaining records were noted during every month between April - September 2022. Flight activity was predominantly recorded in the 30-100m height band (850s) followed by 100-200m (220s). Less time was spent in the 15-30m (75s) and 0-15m (63s) height bands. Flight paths were scattered across the study area with activity concentrated in pockets in/ adjacent to the northeast, south and northwest corners of the study area.

Kestrels were seen alone during all summer observations. Three were identified as males. Kestrels were seen hunting/ hovering during twelve observations across the whole summer season.

Winter

A total of 29 records of this red-listed species were made during winter VP surveys. Of these, two were noted during autumn migration watches from VP 3 and VP 4 (September 30th and October 1st 2022). Activity was primarily recorded in the 100-200m height band (210s) and 30-100m (110s). Less time was spent above 200m (50s). Observations of flight paths were primarily concentrated in pockets in/ adjacent to the northeast, northwest and south of the study area.

The remaining records between October 2022 and March 2023 were made at every VP. Flight activity occurred predominantly in the 15-30m (876s) height band followed by 0-15m (755s). A substantial amount of time was also spent in 100-200m (420s) and 30-100m (376s) height bands. All kestrels observed were alone and eleven were identified as male. Kestrels observed were mainly engaged in hunting, during both seasons. Mobbing by hooded crows (two records) and rooks (one record) was also observed.

3.2.8 Lapwing

Summer

This red-listed species was recorded a total of 30 times during summer VP surveys. Of these, seven were noted during spring migration watches, all of which were seen from VP 3 (April 1st and 5th 2022). During this period flight activity was observed in the 15-20m (930s) and 0-15m (300s) height bands. Display behaviour was seen during these spring migration surveys on three occasions on both dates, one of which involved a flock of 12 individuals (April 1st 2022).

The remaining summer observations were seen from VPs 3 and 4. Flight activity was primarily in the by 15-30m height band (1090s) , followed by 0-15m (975s). Time spent in the remaining height bands was distributed as follows: 100-200m (75s) and 30-100m (60s). Lapwing were commonly observed alone or in pairs. However, groups of 3-22 were also recorded. The largest flock of 22 birds, made up of juveniles only, was seen from VP 3 on June 20th.

This species was seen foraging, displaying and commuting on/over peatland, and also occasionally agricultural land. These records were primarily concentrated in the south of the study area. Display flights were recorded over peatland in the south of the study area on April 5th and May 8th 2022. Display flights over fields were recorded on April 1st and 5th.

Winter

A total of 26 records of this red-listed species were made during winter VP surveys. These were noted from every VP in October, November, December 2022, and January and March 2023. There was flight activity in every height band but primarily within the 30-100m (1455s) and 15-30m (911s) bands. Time spent in the remaining height bands was distributed as follows: 0-15m (345s), 100-200m (320s) and above 200m (10s). Flight paths were concentrated in two main pockets, one in/adjacent to the south and one in/adjacent to the northeast of the study area. A static record of a flock of four birds foraging with a flock of golden plover was made on December 20th 2022 (not mapped). This flock was outside the study area to the east of VP1.

Lapwing were seen alone or in pairs but more commonly in groups ranging between 3-120 individuals. The largest flocks of 90 and 120 birds were observed from VP 1 (November 15th and December 6th 2022). Another large flock of 58 individuals was recorded from VP 3 (October 22nd 2022). The size of other groups ranged from 3-50 birds.

There were observations of foraging behaviour, searching and circling flight patterns across the season. In March 2023 at VPs 3 and 4, display flights and calling birds were recorded (four records from March 17th and 21st).

3.2.9 Lesser Black-backed Gull

Summer

This amber-listed species was recorded on 19 occasions during summer VP surveys from VPs 1, 2 and 3 in April, May, July, August and September 2022. One static record (not mapped) was made from VP 1 on May 25th 2022. In this instance, three adults and two sub-adults were seen roosting in a field 30m north of VP 1 (inside the study area). For the remainder of records, flight activity occurred predominantly in the 30-100m (1160s) height band. Time spent in the remaining height bands was distributed as follows: 0-15m (162s), 15-30m (385) and 100-200m (100s). Primarily, this species was recorded to the northeast of the study area. Gulls were sometimes recorded foraging and mostly travelling over agricultural land in this area. There was also some activity to the northwest of the study area and one observation of flight across the south of the study area.

This species was observed alone and in pairs but more commonly in groups of 3-17 gulls, primarily moving in direct flight. Two observations on May 25th recorded groups of nine and seven gulls flying in to join gulls roosting north of VP 1.

Winter

Amber-listed listed lesser black-backed gull was observed on three occasions during winter VP surveys. The earliest observation occurred from VP 1 on November 4th 2022 and recorded two gulls in direct flight for 62 seconds in the 30-100m height band. This species wasn't seen again from VP1 until March 22nd 2023 (in 30-100m for 160s). A gull was seen from VP 4 on November 18th 2022 flying through for 20s in the 15-20m height band. Two of the records were observed in the northeast corner of the study area, while one noted a gull flying through the middle of the study area in a southeasterly direction.

3.2.10 Little Egret

Summer

This Annex I species was not recorded during summer 2022 VP surveys.

Winter

There were two observations of Annex I little egret during winter VP surveys. The first occurred on October 22nd 2022 from VP 3 and recorded a single bird flying for 10 seconds in the 15-30m height band. The second observation similarly recorded one bird from VP 3 for 10 seconds flying between 15-30m on December 20th 2022. This flight activity occurred in the south of the study area.

3.2.11 Little Grebe

Summer

There was one observation of this green-listed species during summer 2022 VP surveys. One bird was observed from VP 2 in the northwest of the study area, on August 18th 2022. This individual spent 15 seconds flying in the 30-100m height band in a north-westerly direction.

Winter

Green-listed little grebe was not observed during winter 2022/23 VP surveys.

3.2.12 Mallard

Summer

A total of 12 records of this amber-listed species were made during summer 2022 VP surveys. Of these, five were observed during spring migration watches (April 1st and 5th 2022). During this time, observations were recorded from VPs 3 and 4. Flight activity was primarily in the 0-15m height band (120s) while less time was spent in 15-30m (30s) and 100-200m (15s) bands. Flight paths were mainly concentrated in the south and middle/west of the study area.

The remaining records were made in April, May, July, August and September from VPs 1, 3 and 4. Flight activity was predominantly in the 15-30m height band (76s) while less time was spent in 30-100m (30s) and 0-15m (17s) bands. On one occasion from VP 1 (May 25th), three mallards were seen in chasing flight. This species was most commonly seen in small numbers between 1-5 birds. However, a larger flock of 22 individuals was recorded from VP 3 on September 6th 2022.

Winter

There were 15 observations of amber-listed mallard during winter VP surveys. Of these, three observations (including a flock of 23 individuals) were recorded during autumn migration watches from VP 3 over September 30th and October 1st 2022. Flight activity was recorded in the 15-30m (10s) and 30-100m (10s) height bands. Activity was predominantly recorded in the south and middle/west of the study area. The largest flock (23 birds) recorded during this season was seen at VP 3 on September 30th 2022 during an autumn migration watch.

The remaining observations were recorded in October 2022, February and March 2023 from all VPs. Flight activity was predominantly in the 30-100m (170s) and 15-30m (109s) height bands. During this period, mallards were observed in small numbers (between 1-5 individuals) and seen in either direct or chasing flight.

3.2.13 Mute Swan

Summer

Amber-listed mute swan was not observed during summer 2022 VP surveys.

Winter

There were four observations of this amber-listed species during winter VP surveys all, of which were recorded from VPs 1 and 2. One of these observations was made during autumn migration VP watches (September 27th 2022) and noted two individuals flying directly from the northeast of the study area to the northwest, in the 15-30m height band (45s) . Flight altitudes for the other three records were distributed between the height bands as follows: 30-100m (114s), 15-30m (43s) and 0-15m (22s). These observations noted between 2-4 birds fling together on December 16th 2022, January 18th 2023 and March 2nd 2023. Flight activity was observed in the northwest and northeast corners of the study area.

3.2.14 Peregrine

Summer

A total of eight observations of this Annex I species were made during summer 2022 VP surveys, all of which occurred at VP 2. Of these, one was recorded during spring migration watches on April 5th 2022. The remaining observations were noted on June 6th, 20th and July 7th 2022. Flight activity occurred predominantly in the 15-30m (158s) and 100-200m (110s) height bands. Time spent in the remaining height bands was distributed as follows: 0-15m (7s) and 30-100m (78s). Flight patterns most frequently consisted of soaring and circling. On June 20th, one peregrine was observed diving at a buzzard three times before heading south. Flight activity was concentrated in the northwest corner of the study area.

Peregrines were primarily seen alone. However, on July 7th two birds, a juvenile and an adult were seen together and later on the same date two juveniles and one adult were recorded.

Winter

Annex I peregrines were recorded on three occasions during the winter VP surveys, all of which were observed from VP 3. Most flight activity occurred in the 15-30m height band while less time was spent in 0-15m (5s) and 100-200m (5s). Two observations were recorded on October 22nd 2022 and the final record was noted on February 9th 2023. These birds were observed flying over the south of the study area.

Peregrine were observed alone for all winter records. The same female individual was recorded twice on October 22nd 2022 and was seen hunting low and landing on peat during the second observation.

3.2.15 Snipe

Summer

There were two observations of this red-listed species during summer VP surveys. The first of these occurred on April 17th 2022 at VP 4 when one bird was recorded flying for 5s in the 15-30m height band from the western edge towards the north/centre of the study area. The second observation was noted on June 22nd 2022 from VP 3 and recorded one bird drumming intermittently for 600s on in the 0-15m height band over farmland to the southeast of the study area.

Winter

A total of three records of red-listed snipe were made during winter VP surveys. One of these occurred during autumn migration (September 30th) from VP 3 and noted calls only from the peatland in the south of the study area. Another call was heard from the bog on November 4th from VP 3. On January 5th 2023 one bird was observed from VP 4 and spent 8 seconds in the 30-100m height band flying across the centre of the study area in an easterly direction.

3.2.16 Sparrowhawk

Summer

A total of four observations of this green-listed species were recorded during summer VP surveys. One of these occurred during spring migration watches from VP 4 and noted one bird soaring for 120 seconds above 200m. The other records were noted from VPs 1, 4 and 3 on April 18th 2022, July 11th 2022 and August 3rd 2022 respectively. During the second of these observations, a sparrowhawk was seen soaring close to five buzzards.

Flight activity occurred predominantly in the 30-100m (40s) and 15-30m (35s) with some time spent in 0-15m (5s) and predominantly in the southern section of the study area. There was one record (April 18th 2022) that was observed to the northeast of the study area.

Winter

Green-listed sparrowhawk was observed on two occasions during winter VP surveys. One of these was during autumn migration watches (October 1st 2022) from VP 4 and recorded one bird for 15 seconds in 30-100m towards the centre of the study area from the west. The second observation was noted on November 4th 2022 from VP 2 and involved one sparrowhawk was seen chasing two jackdaws for three seconds in the 0-15m height band to the northwest of study area.

3.2.17 Whooper Swan

Summer

Annex I whooper swan was not observed during summer VP surveys.

Winter

There were seven records of this Annex I species during winter VP surveys. One record was of swans calling but not seen. Whooper swans were observed from VPs 1, 3 and 4. Flight activity occurred primarily in the 15-30m (47s) and 30-100m (45s) height bands with less activity in the in the 0-15m height band (35s). Most activity occurred in the southern part of the study area over bog and woodland. This species was commonly seen in small numbers (single birds or groups of up to eight); however, larger flocks of 26 and 38 were also observed. These were both seen from VP 4 (November 16th and 18th 2022) and were both recorded grazing on agricultural land in the centre of the northern section of the study area. Both flocks were present throughout the entire watch period of three hours.

Table 3-1: Bird Species recorded during VP surveys

Common Name	Scientific Name	BoCCI	Annex I
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No
Blackbird	*Turdus merula*	Green	No
Blackcap	*Sylvia atricapilla*	Green	No
Blue Tit	*Cyanistes caeruleus*	Green	No
Bullfinch	*Pyrrhula pyrrhula*	Green	No
Buzzard	*Buteo buteo*	Green	No
Chaffinch	*Fringilla coelebs*	Green	No
Chiffchaff	*Phylloscopus collybita*	Green	No
Coal Tit	*Periparus ater*	Green	No
Collared Dove	*Streptopelia decaocto*	Green	No
Common Gull	*Larus canus*	Amber	No
Common Redpoll	*Carduelis flammea*	Green	No
Cuckoo	*Cuculus canorus*	Green	No
Dunnock	*Prunella modularis*	Green	No
Feral Pigeon	*Columba livia*	Green	No
Fieldfare	*Turdus pilaris*	Green	No
Goldcrest	*Regulus regulus*	Amber	No
Golden Plover	*Pluvialis apricaria*	Red	Yes
Goldfinch	*Carduelis carduelis*	Green	No
Great Spotted Woodpecker	*Dendrocopos major*	Green	No
Great Tit	*Parus major*	Green	No
Greenfinch	*Carduelis chloris*	Amber	No
Grey Heron	*Ardea cinerea*	Green	No
Hen Harrier	*Circus cyaneus*	Amber	Yes
Hooded Crow	*Corvus cornix*	Green	No
House Martin	*Delichon urbicum*	Amber	No

Common Name	Scientific Name	BoCCI	Annex I
House Sparrow	*Passer domesticus*	Amber	No
Jackdaw	*Corvus monedula*	Green	No
Jay	*Garrulus glandarius*	Green	No
Kestrel	*Falco tinnunculus*	Red	No
Lapwing	*Vanellus vanellus*	Red	No
Lesser Black-backed Gull	*Larus fuscus*	Amber	No
Lesser Redpoll	*Carduelis cabaret*	Green	No
Linnet	*Carduelis cannabina*	Amber	No
Little Egret	*Egretta garzetta*	Green	Yes
Little Grebe	*Tachybaptus ruficollis*	Green	No
Long-tailed Tit	*Aegithalos caudatus*	Green	No
Magpie	*Pica pica*	Green	No
Mallard	*Anas platyrhynchos*	Amber	No
Meadow Pipit	*Anthus pratensis*	Red	No
Mistle Thrush	*Turdus viscivorus*	Green	No
Mute Swan	*Cygnus olor*	Amber	No
Peregrine	*Falco peregrinus*	Green	Yes
Pheasant	*Phasianus colchicus*	Green	No
Pied/White Wagtail	*Motacilla alba*	Green	No
Raven	*Corvus corax*	Green	No
Redshank	*Tringa totanus*	Red	No
Redwing	*Turdus iliacus*	Red	No
Reed Bunting	*Emberiza schoeniclus*	Green	No
Robin	*Erithacus rubecula*	Green	No
Rook	*Corvus frugilegus*	Green	No
Sand Martin	*Riparia riparia*	Amber	No
Siskin	*Carduelis spinus*	Green	No
Skylark	*Alauda arvensis*	Amber	No

Common Name	Scientific Name	BoCCI	Annex I
Snipe	*Gallinago gallinago*	Red	No
Song Thrush	*Turdus philomelos*	Green	No
Sparrowhawk	*Accipiter nisus*	Green	No
Starling	*Sturnus vulgaris*	Amber	No
Stock Dove	*Columba oenas*	Red	No
Stonechat	*Saxicola rubicola*	Green	No
Swallow	*Hirundo rustica*	Amber	No
Swift	*Apus apus*	Red	No
Whitethroat	*Sylvia communis*	Green	No
Whooper Swan	*Cygnus cygnus*	Amber	Yes
Willow Warbler	*Phylloscopus trochilus*	Amber	No
Woodpigeon	*Columba palumbus*	Green	No
Wren	*Troglodytes troglodytes*	Green	No
Yellowhammer	*Emberiza citrinella*	Red	No

3.3 General Breeding Bird Survey

The results of the summer breeding bird transect surveys at Ballinla Wind Farm are shown in Table 3-2. A total of 30 species were observed. A total of three red-listed species were recorded: lapwing, meadow Pipit, and yellowhammer. No Annex I species were observed.

It noted that no observations were recorded in the >100m/Flyover category during summer 2022 breeding transects, and that records along TR2 and TR3 were limited to the 0-25m band. As such, bands which contained no records during 2022 breeding transect surveys are omitted from Table 3-2.

3.3.1 Lapwing

There were two observations of this red-listed species during breeding transect surveys, one in April and one in June. These both occurred within 25-100m of Transect 4. Lapwing was recorded in low numbers (one to two individuals).

3.3.2 Meadow Pipit

Red-listed meadow pipit was observed on four occasions during breeding transect surveys. The earliest record occurred at Transect 4 (25-100m from transect).There were more records during the mid-breeding season at transects 2 and 4, 25-100m from the transect. On one occasion in June 2022, three individuals were recorded within 25m of Transect 4.

3.3.3 Yellowhammer

This red-listed species was observed on one occasion during breeding transect surveys. This record was made in April when one bird was observed within 25m of Transect 2.

Table 3-2: Results of Breeding Bird Transect Surveys at Ballinla Wind Farm in summer 2022.

	Summer 2022													
	Round 1						Round 2							
	1		2	3	4		1		2		3		4	
	0-25m	25-100m	0-25m	0-25m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m
Blackbird			1	2			2			1	2			
Blackcap	2			2				1			1		1	
Blue Tit					1									
Chaffinch	5		1	5									1	
Chiffchaff											1			
Coal Tit				1										
Common Redpoll	4				2									
Dunnock									2		1			
Great Tit				1										
House Martin									1					
House Sparrow			3						7					
Jay	2													
Lapwing						2								1
Mallard					1									

	Summer 2022													
	Round 1						Round 2							
	1		2	3	4		1		2		3		4	
	0-25m	25-100m	0-25m	0-25m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m
Meadow Pipit						1				2			3	8
Mistle Thrush	2													
Pied/White Wagtail					2									1
Reed Bunting	1				1		1						1	
Robin		1	2	1										
Sedge Warbler	1						2							
Siskin				1										
Skylark						1				4				
Song Thrush													1	
Starling							1	1						
Swallow									7					
Whitethroat					2		2						4	
Willow Warbler	2				1		1							
Woodpigeon		1						2				1		

	Summer 2022													
	Round 1						Round 2							
	1		2	3	4		1		2		3		4	
	0-25m	25-100m	0-25m	0-25m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m
Wren		1	2	2			1				1			
Yellowhammer			1											

3.4 Transect Surveys during Winter Months

The results of the winter transect surveys at Ballinla Wind Farm are presented in Table 3-3. A total of 36 species were recorded during winter transects. Two Annex I species were recorded: peregrine and whooper swan. Of the species recorded, five were red-listed, namely meadow pipit, redwing, snipe, stock dove, and yellowhammer. A total of six amber-listed species were recorded (goldcrest, house sparrow, mallard, mute swan, starling, and whooper swan).

3.4.1 Peregrine

Annex I peregrine was observed on one occasion during winter transect surveys. This occurred on January 19th 2023 when one bird was observed within 25-100m of Transect 1.

3.4.2 Whooper Swan

There was one record of Annex I whooper swan during winter transect surveys. This occurred on December 12th 2022 when seven individuals were observed flying over Transect 4.

3.4.3 Meadow Pipit

There were four records of red-listed meadow pipit during winter transect surveys. These were at transects 1, 3 and 4 during December 2022 and February 2023. This species was recorded in numbers between 1-6 and found within 25m of transects 1 and 4. Two observations of meadow pipit were made along Transect 4 during round three (one record of a single bird and one of two birds).

3.4.4 Redwing

Red-listed redwing was recorded nine times during winter transect surveys. These were noted across December 2022 and February 2023 at transects 1, 2 and 4. Large flocks were recorded at each of these transects both within 0-25m and 25-100m. Two flocks of 50 redwing mixed with fieldfare were recorded at both transects 1 and 2 in December 2022. The largest flock recorded consisted of 100 redwing within 25m of Transect 4 in February 2023.

3.4.5 Other Red-listed Species

Red-listed snipe was observed on one occasion during winter transect surveys. This occurred on December 18th 2022 when two birds were noted within 25-100m of Transect 1. On this same date, there was also one record of red-listed stock dove that noted two birds within 25m of Transect 1. On February 9th 2023, there was a single record red-listed yellowhammer, with six individuals were observed within 25-100m of Transect 1.

Table 3-3: Bird Species recorded during Winter Bird Transects at Ballinla Wind Farm in winter 2022/23.

	Winter 22/23																										
	1									2										3							
	1		2		3			4		1		2		3		4				1		2		3		4		
	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	100m+/FO	0-25m	100m+/FO	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	100m+/FO	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	100m+/FO
Blackbird			2		4			2		2				1		2			1								
Blue Tit					1							1														1		
Bullfinch										1																		
Buzzard		1						1		1								3								1		
Chaffinch								2						1					2	2			1	1	2			
Coal Tit														1									6					
Dunnock			1		1					1		1		2														
Fieldfare	100			100				2								80						1						
Goldcrest					2			1																				
Goldfinch																							1					
Great Tit														2									1		1			
Grey Heron								1																				
House Sparrow												1																
Jackdaw																1												
Jay															1													
Lesser Redpoll										1																		
Magpie			1																									
Mallard									8																			
Meadow Pipit						1													6						3			
Mistle Thrush							1																					
Mute Swan										3									2									
Peregrine											1																	
Pied/White Wagtail			2																									
Redwing	100			100				2											20			1			100			
Reed Bunting																									1			
Robin	1		1		2			1		1				2					1									

	Winter 22/23																										
	1									2										3							
	1		2		3			4		1		2		3		4				1		2		3		4		
	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	100m+/FO	0-25m	100m+/FO	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	100m+/FO	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	0-25m	25-100m	100m+/FO
Rook	1												1			1				10							
Siskin										1																	
Snipe		2																									
Song Thrush																									1		
Starling	20		20									1					1				1	2					
Stock Dove	2																										
Whooper Swan									7																		
Woodpigeon														1	14	1	3										1
Wren					3										1				3				2				
Yellowhammer																				6							

3.5 Breeding Wader Surveys

A total of three wader species were recorded during breeding wader surveys in 2022. These were all red-listed species, namely lapwing, snipe and woodcock. Details of breeding wader survey results can be seen in Table 3-4.

3.5.1 Lapwing

This red-listed species was recorded on three occasions during breeding wader surveys The earliest was at wader transect W3 in April 2022 and noted adults in display flight over cutover bog for ten minutes. This was recorded as an occupied territory. The second observation noted two adult birds flying to roost at TR2 on June 9th 2022. During the third and final observation at TR3, two adult birds flushed and flew up after being disturbed. This observation was recorded as an occupied territory.

3.5.2 Snipe

There was a single observation of this red-listed species during breeding wader surveys. This was on June 17th 2022 at TR3 when one adult was flushed. This observation was recorded as an occupied territory.

3.5.3 Woodcock

There were four observations of red-listed woodcock, all of which were recorded on June 9th 2022 at T2. Woodcock were noted as occupying territory in this area and were recorded calling on three occasions and roding once.

Table 3-4: Breeding Wader Results

Date	Transect	Species	Obs.Time	Quantity	Habitat	Age	Status	Notes
26/04/2022	W3	Lapwing	08:30	2	Cutover bog	Adult	Occupied territory	Display flight. Birds observed for 10 minutes over site
09/06/2022	W2	Lapwing	21:40	2	Bog	Adult	Unknown	Flying to roost
09/06/2022	W2	Woodcock	22:25	1	Bog woodland/Bog margin	Adult	Occupied territory	Calling
09/06/2022	W2	Woodcock	22:30	1	Bog woodland/Bog margin	Adult	Occupied territory	Calling
09/06/2022	W2	Woodcock	22:35	1	Bog woodland/Bog margin	Adult	Occupied territory	Calling
09/06/2022	W2	Woodcock	22:40	1	Bog woodland/Bog margin	Adult	Occupied territory	Roding
17/06/2022	W3	Lapwing	08:30	2	Bog	Adult	Occupied territory	Flushed. Flew up due to tractor disturbance.
17/06/2022	W3	Snipe	08:35	1	Bog	Adult	Occupied territory	Flushed.

3.6 Hinterland Survey

Hinterland surveys to establish breeding occupancy and census wetland sites within a 5km radius of the site were carried between Aprill 2022 and March 2023 inclusive. The survey schedule and locations of the hinterland watches are detailed in Appendix 5; Figure 2-4 provides mapping of hinterland survey locations. During hinterland surveys, a total of 20 species were observed.

For site-specific Hinterland survey results see Appendix 4 of this report.

In total, three Annex I species were recorded during hinterland surveys: golden plover, little egret, and whooper swan. A total of five red-listed species were observed: golden plover, kestrel, lapwing, meadow pipit, and snipe. A total of eight amber-listed species were observed. The remaining seven species were green-listed. All species observed are listed in Table 3-5.

Species of conservation concern that are known to be potentially vulnerable to wind farm developments are discussed in more detail in this section. Species have been selected for detailed discussion based on conservation status, vulnerability to wind farm developments and where species were recorded on or near the proposed wind farm site, which will indicate potential links between species recorded at the proposed site and in the surrounding environment.

3.6.1 Buzzard

Green-listed buzzard was observed seven times during summer hinterland surveys in April, June, July, August and September 2022. These records were noted at HVPs 7 (4.63 km west of study area) and 8 (2.17 km south-east of study area) and observed single birds. A juvenile was recorded on one occasion at HVP 8 on September 16th 2022.

A total of six records of this species were made during winter hinterland surveys. These occurred at HVPs 7 and 8 during October/November 2022 and in January, February and March 2023. Four of these observations recorded single birds, while two buzzards were seen together on two occasions (at HVP 7 on November 9th and February 3rd).

3.6.2 Golden Plover

This Annex I/red-listed species was observed on one occasion across all hinterland surveys. This occurred on October 14th 2022 at HVP 8 (2.17 km south-east of study area). A flock of 20 individuals was observed on peat hidden among heather.

There were no summer 2022 records of golden plover during hinterland surveys.

3.6.3 Kestrel

Red-listed kestrel was observed on one occasion during summer 2022 hinterland surveys. This occurred from HVP 7 (4.63 km west of study area) on July 12th 2022.

There was one observation of an individual kestrel during winter hinterland surveys, recorded from HVP 7 on December 18th 2022.

3.6.4 Lapwing

A total of three observations of this red-listed species were recorded during summer 2022 hinterland surveys. These all occurred at HVP 7 (4.63 km west of study area) on May 8th 2022, June 22nd 2022 and August 1st 2022. On the first occasion, two pairs were observed defending their nests. The second observation recorded one bird, and five individuals were seen during the final observation.

There was one record of this red-listed species during winter hinterland surveys. A total of 39 individuals were observed from HVP 7 on March 2nd 2023.

3.6.5 Lesser Black-backed gull

This amber-listed species was recorded once across all hinterland surveys. This occurred on August 1st 2022 from HVP 7 (4.63 km west of study area) where two individuals were observed.

There were no winter records of this amber-listed species during hinterland surveys.

3.6.6 Little Egret

This Annex I species was recorded twice during summer 2022 hinterland surveys. These both occurred at HVP 7 (4.63 km west of study area), on August 1st and September 10th 2022. On both occasions one bird was observed.

This species was not observed during winter hinterland surveys.

3.6.7 Mallard

A total of four observations of this amber-listed species were recorded during hinterland surveys. These were recorded from HVP 7 (4.63 km west of study area) and 8 (2.17 km south-east of study area) on April 27th, May 8th, July 11th and August 1st 2022. These observations recorded mallard groups in numbers between 2-12 birds. The latter largest group was recorded at HVP 7 on August 1st 2022.

Mallard was recorded three times during winter hinterland surveys. These occurred at HVP 8 and HVP 7 on December 18th 2022, February 10th and March 2nd 2023. The largest flock recorded was 26 birds at HVP 8 on December 19th 2022.

3.6.8 Meadow Pipit

Red-listed meadow pipit was observed on one occasion during winter hinterland surveys. This record was made at HVP 7 (4.63 km west of study area) on October 14th 2022, when 12 individuals were noted.

This species was not recorded during summer surveys.

3.6.9 Mute Swan

Amber-listed mute swan was observed six times during summer hinterland surveys. These were recorded from HVPs 7 (4.63 km west of study area) and 8 (2.17 km south-east of study area) in April, May, June, July and September 2022. Most of the observations recorded two individuals together. This included a pair nesting at HVP 8 on May 8th 2022. A group of five individuals consisting of two adults and three cygnets was observed at HVP 8 on September 16th 2022.

A total of 12 observations of this amber-listed species were recorded during winter hinterland surveys. These occurred at HVPs 7 and 8 in every month of the winter 2022/23 season. These observations recorded mute swan in numbers of 1-7 individuals. On October 14th 2022, two adults and five cygnets were recorded at HVP 8. At this same location on November 9th 2022, two adults and four juveniles were observed. On March 17th 2023, there were two pairs observed at HVP 8.

3.6.10 Snipe

This red-listed species was recorded four times during summer 2022 hinterland surveys. The records were made at HVPs 7 (4.63 km west of study area) and 8 (2.17 km southeast of study area) in August, July and September 2022. These were primarily individuals, but a group of four birds was also recorded at HVP 7 on September 10th 2022.

Red-listed snipe was observed on three occasions during winter hinterland surveys. These were recorded from HVPs 7 and 8 on October 14th, November 9th and January 5th 2023. During the first observation, two birds were recorded together. A group of five individuals was seen on the second occasion and the final observation recorded three birds.

3.6.11 Sparrowhawk

During summer 2022 hinterland surveys, there were two records of this green-listed species. The first occurred at HVP 7 (4.63 km west of study area) on May 8th 2022 and recorded one individual. The second observation was recorded at HVP 8 (2.17 km south-east of study area) on June 22nd 2022 and noted a single bird.

There was one observation of this green-listed species during winter hinterland surveys. This was recorded from HVP 7 on February 3rd 2023.

3.6.12 Whooper Swan

This Annex I species was recorded four times during winter hinterland surveys. Observations were recorded from HVPs 7 (4.63km west of study area) and 8 (2.17 km south-east of study area) in October, November 2022, January and February 2023. Whooper swans were observed in numbers between 2-15 birds. On October 14th 2022 at HVP 7, a group of three adults and four juveniles was recorded. The largest flock of 15 individuals was observed at HVP 7 on February 3rd 2023.

There were no whooper swan records during summer 2022.

Table 3-5: Bird species recorded during Hinterland surveys

Species	Scientific Name	BoCCI	Annex I
Black-headed Gull	*Chroicocephalus ridibundus*	Amber	No
Buzzard	*Buteo buteo*	Green	No
Common Sandpiper	*Actitis hypoleucos*	Amber	No
Cuckoo	*Cuculus canorus*	Green	No
Golden Plover	*Pluvialis apricaria*	Red	Yes
Kestrel	*Falco tinnunculus*	Red	No
Lapwing	*Vanellus vanellus*	Red	No
Lesser Black-backed Gull	*Larus fuscus*	Amber	No
Little Egret	*Egretta garzetta*	Green	Yes
Little Grebe	*Tachybaptus ruficollis*	Green	No
Long-eared Owl	*Asio otus*	Green	No
Mallard	*Anas platyrhynchos*	Amber	No
Meadow Pipit	*Anthus pratensis*	Red	No
Moorhen	*Gallinula chloropus*	Green	No
Mute Swan	*Cygnus olor*	Amber	No
Ringed Plover	*Charadrius hiaticula*	Amber	No
Snipe	*Gallinago gallinago*	Red	No
Sparrowhawk	*Accipiter nisus*	Green	No
Wheatear	*Oenanthe oenanthe*	Amber	No
Whooper Swan	*Cygnus cygnus*	Amber	Yes

4. DISCUSSION

The most frequently observed species within the study area was green-listed buzzard (112 records). This species was observed across both seasons indicating a resident population that were observed hunting within the study area. Buzzard observations were dispersed across the study area with summer records concentrated in the northeast and winter records in the northwest and southern sections. It is possible that buzzards are breeding within the study area, as indicated by display behaviour at the beginning of the breeding season (April 18th 2022 from VP 1). Similar records of display activity were recorded at VP 4 during the previous breeding season. Buzzards are also active in the surrounding hinterland. Therefore, the study area and surrounding hinterland provide suitable breeding habitat for this species.

Another frequently observed raptor within the study area was red-listed kestrel. A total of 43 records were made across both seasons suggesting regular use of the study area which is consistent with the previous years' results. Observations were widespread across the study area with clusters in the northeast, northwest and south. This species was also recorded in the surrounding hinterland with observations at HVP 7 (4.63 km west of the study area). The activity recorded indicates the proposed development area and surrounding wider area provide suitable hunting habitat for this species with hovering and other hunting activity frequently recorded. No evidence of breeding was recorded in summer 2022, in contrast to the previous season (evidence of breeding was noted in summer 2021, but no breeding was recorded within the study area). It is considered likely that a breeding kestrel population is present in the region but there is no evidence of breeding at the proposed site.

Annex I peregrine was observed during both seasons, indicating occupancy of the locality. Although juveniles and adults were recorded in the study area, there was no evidence of breeding activity in the study area or surrounding hinterland. The presence of a breeding pair known to use an artificial nesting structure at Edenderry power plant c. 4.3 km south-east of the proposed site is noted. The core foraging range of peregrine during the breeding season is 2 km (SNH, 2016). The habitat mosaics in the study area and across the wider region provide suitable hunting grounds for this species. A peregrine was recorded hunting in recolonising cutover bog in the southern part of the study area in October 2022. Similar behaviour in this area was noted during the previous winter (2021-22) when a peregrine was observed hunting wintering lapwing. This species was also recorded during winter transect surveys on one occasion (January 19th TR1) but there were no observations in the surrounding hinterland.

The study area is occasionally used by Annex I hen harrier during winter; two individual males and a ringtail were observed hunting in the south of the study area across three records during winter VP surveys. No evidence of roosting was recorded during winter 2022-23, and all observations occurred between 9:30 am and 14:45 pm. Hunting hen harrier and transient roosting were recorded during the previous winter (2021-22), with records also clustered in the southern part of the study area. Hen harrier winter roost surveys are recommended to confirm whether use of the site by this species is limited to hunting and isolated instances of transient/opportunistic roosting in winter.

Green-listed sparrowhawk was recorded in the study area during summer and winter VP surveys. This species is likely to be resident in the area and can be considered likely to breed in the locality due to it's typically limited territorial extent (sparrowhawks have small breeding territories, usually with a maximum of c. 2 km between nests). No nest sites were recorded within the study area.

Red-listed lapwing was the second most frequently recorded species within the study area (64 records). A total of 35 observations were recorded during the summer season, with the maximum flock size being 22 juveniles (the next largest flock, a group of adults engaged in display flight, was 12). The average number in lapwing groups during summer 2022 was c. 3, demonstrating the tendency to form large flocks during breeding season is low. The field ornithologist noted the flock of juveniles observed were likely to be recruits from outside the study area. While breeding behaviour was noted in the recolonising cutover bog to the south of the site (two occupied territories were recorded in this area during wader surveys), the field ornithologist noted that foxes, hooded crows and magpies were regularly present in the area and that mink and pine marten are also likely to be present there. The pressure exerted on breeding lapwing (a ground nesting species) by these predators means successful breeding in this area is unlikely in the absence of predator control measures. Lapwing activity was focused in the southern part of the study area. Lapwing breeding season observations during the previous summer (2021) were limited to one record in the northern part of the study area, and the surrounding hinterland outside the study area. The surrounding hinterland provides suitable breeding habitat for lapwing, as demonstrated by two pairs defending nests at HVP 7 (4.63 km west of the study area).

During the winter season, flocks of up to 120 individuals were observed in the study area across 29 observations, which is an increase on the previous winter both in number of records and maximum flock size recorded. The average flock size during winter 2022-23 was c. 26 birds. Activity was primarily concentrated in the southern part of the study area, but some activity was also recorded in the north-eastern sector near VP1.

Annex I/red-listed golden plover was recorded across both seasons (total of 25 records) with a substantial number of records during the winter (20 records). Large flocks of up to 1000 individuals were recorded in the study area and were observed in searching/wheeling flight, predominantly in the northeast of the study area. Similarly to the previous year's findings, this indicates a wintering population of golden plover is present in the area. A flock of golden plover was also recorded in the wider area at HVP 8 (2.17 km south-east from the study area). The study area and surrounding hinterland provide suitable habitat for wintering golden plover. While the majority of records are wintering birds, a high proportion of birds present in spring or autumn are likely to be passage migrants.

The study area is used by Annex I whooper swan. On two occasions, flocks (containing 26 and 38 individuals) were observed grazing on agricultural land in the north of the study area (see whooper swan activity map in Appendix 3). No other flocks were observed during the remainder of the season, indicating transient/opportunistic rather than habitual use of the proposed site. Most flight activity (total of four flight paths) occurred in the southern part of the study area, while one flight was recorded heading east away from the northern part of the study area. Esker bog to the east of the proposed site is likely to be an area of interest for whooper swan. Whooper swans were also observed flying over Transect 4 in the southern part of the study area during December 2022. This species was also recorded during winter hinterland surveys at HVPs 7 (4.63 km west of study area) and 8 (2.17 km south-east of study area). The study area and surrounding lands provide suitable wintering/foraging grounds for this species, with slightly more activity recorded in winter 2022-23 than during the previous winter. Dedicated winter surveys to further elucidate whooper swan activity and distribution across the study area are recommended.

Woodcock was recorded during breeding wader surveys were noted occupying territory in wooded habitat at wader transect W2 in the southern section of the study area. Breeding woodcock activity (roding) was recorded in the north-west of the study area near the Grand Canal during summer 2021.

There were records of snipe during VP surveys across both seasons. A bird was flushed from bog near transect W3 in June 2022, indicating an occupied territory. While snipe was recorded occupying territory here, similarly to lapwing as discussed above, high predator pressure in this area would make successful breeding for ground-nesting snipe difficult. A drumming bird was also recorded to the southeast of the study area in June 2022. This red-listed species was also recorded in the surrounding area at HVPs 7 (4.63km W from the study area) & 8 (2.17km SE from the study area); potentially suitable breeding habitat for snipe is present across the large tracts of peatland present in the region.

Other red-listed species recorded within the study area include swift, meadow pipit, stock dove, yellowhammer and redwing.

Red-listed swift was seen foraging to the northeast of the study area during VP surveys (near VP1). This species was seen alone or in pairs and observed in direct flight or foraging. Swift were also recorded at VP4 and VP2.

It is likely that red-listed meadow pipit is breeding within the study area as this species was recorded during breeding transect surveys (within 25m of transect 4). There is also evidence to suggest red-listed yellowhammer is breeding within the study area as it was recorded within 25m of transect 2 during breeding surveys. Arable fields are present in this area. The study area also supports flocks of wintering redwing with numbers of 50 - 100 individuals recorded.

Other notable species found within the development area include amber-listed lesser black-backed gull, black-headed gull, mallard and mute swan. Lesser black-backed gull were observed roosting near VP1 in small flocks (5-7 individuals). This species was also seen in direct flight to the northwest and across the south of the study area, in flocks of up to 17 gulls.

There is an indication of amber-listed mallard breeding in the locality as chasing flights were observed to the northeast and northwest corners of the study area. The flooded expanses of cutover peatland in the region provide suitable habitat for both breeding and wintering mallard and this species is present in the year-round, with higher numbers of wintering birds.

A pair of amber-listed mute swan were observed nesting at HVP 8 (2.17 km south-east of study area) on May 8th 2022, and adults and cygnets were also recorded at the same location later on September 16th 2022. These observations of cygnets and juveniles continued throughout the winter season and two pairs were observed at HVP 8 in March 2023. Mute swan were seen flying in the northwest and northeast of the study area.

Redshank (Red-listed) was heard calling from VP 3 during the autumn migration watch (October 10th) but was not seen. The absence of redshank records across all other surveys indicates this was a record of migratory activity.

There were also records of the Annex I species little egret in the south of the study area during winter VP surveys and summer hinterland surveys at HVP 7 (4.63 km west of study area).

Hinterland sites considered of high value are HVPs 7 (4.63 km west of study area) and 8 (2.17 km south-east of study area), with the highest number of target species and species of conservation interest. Both sites have cutover bog in various stages of recolonisation and areas of open water. There were a total of 14 species recorded at HVP 7 and 12 at HVP 8.

5. REFERENCES

Band, W., Madders, M., Whitfield, D.P. 2007. Developing Field and Analytical Methods to Assess Avian Collision Risk at Wind Farms. Janss, G.F.E., Ferrer, M. (Editors) De Lucas. Birds and Wind Farms: Risk Assessment and Mitigation. Madrid: Quercus, 2007.

Bibby, C. J., Burgess, N. D., Hill, D. A. & Mustoe, S. H. 2000. Bird census techniques (second edition). Academic Press, London.

British Trust for Ornithology (2023). http://www.bto.org/volunteer-surveys/bbs/research-conservation/methodology www.bto.org [Online] Accessed 29th May 2023.

Brown, A.F and Shepherd, K.B. (1993). A method for censuring upland breeding waders: Bird Study. Vol. 40, pp. 189-185.

Colhoun, K., & Cummins, S. (2013). Birds of Conservation Concern in Ireland 2014 – 2019. Irish Birds. 9: 523–544.

Corine Land Cover (CLC) 2018, Version 2020_20u1.

Environmental Protection Agency (EPA). https://gis.epa.ie/EPAMaps/ [Online] Accessed 29th of May 2023.

Fossitt, J. 2000. A Guide to Habitats in Ireland. The Heritage Council. Dublin.

Gilbert, G., Gibbons, D.W. & Evans, J., 1998. Bird Monitoring Methods – a manual of techniques for key UK species. RSPB, Sandy.

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

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

Lewis, L. J., Burke, B., Fitzgerald, N., Tierney, T. D. & Kelly, S. (2019) Irish Wetland Bird Survey: Waterbird Status and Distribution 2009/10-2015/16. Irish Wildlife Manuals, No. 106. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

Nairn, R. & Partridge, K. (2013). Assessing wind energy impacts on birds - towards best practice. CIEEM 2013 Irish Section Conference: Presentations.

Nelson, B., Cummins, S., Fay, L., Jeffrey, R., Kelly, S., Kingston, N., Lockhart, N., Marnell, F., Tierney, D. and Wyse Jackson, M. (2019) Checklists of protected and threatened species in Ireland. Irish Wildlife Manuals, No. 116. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland

O'Brien, M., & Wilson, J.D. (2011). Population changes of breeding waders on farmland in relation to agri-environment management. Bird Study, Vol. 58, pp. 399-408.

Scottish Natural Heritage. 2017. Recommended bird survey methods to inform impact assessment of onshore wind farms. Scottish Natural Heritage.

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 1

Vantage Point Survey Details

VP	Date	Start	End	Cloud (Oktas)	Viewshed Fully Visible	Precipitation	Wind Speed (Beaufort)	Wind Direction
3	01/04/2022	17:00:00	20:00:00	8	Yes	Dry	2	NW
4	01/04/2022	13:30:00	16:30:00	7	Yes	Dry	2	NW
1	05/04/2022	17:40:00	20:40:00	7	Yes	Drizzle & showers	4	SW
2	05/04/2022	14:10:00	17:10:00	8	Yes	Dry	4	NW
3	05/04/2022	07:00:00	10:00:00	8	Yes	Mist-Drizzle	2	W
4	05/04/2022	10:30:00	13:30:00	8	Yes	Dry	3	W
1	09/04/2022	09:35:00	12:35:00	6	Yes	Dry	2	NW
2	09/04/2022	06:05:00	09:05:00	2	Yes	Dry	2	W
3	14/04/2022	16:00:00	19:00:00	8	Yes	Dry	1	E
4	17/04/2022	16:00:00	19:00:00	8	Yes	Shower	2	SW
1	18/04/2022	10:00:00	13:00:00	7	Yes	Dry	2	SW
2	18/04/2022	06:30:00	09:30:00	4	Yes	Dry	2	SW
1	19/04/2022	10:00:00	13:00:00	6	Yes	Dry	2	W
2	19/04/2022	06:30:00	09:30:00	1	Yes	Light fog at ground level	1	SW
3	26/04/2022	10:00:00	13:00:00	3	Yes	Dry	1	E
4	26/04/2022	11:30:00	14:30:00	3	Yes	Dry	2	E
3	07/05/2022	14:00:00	17:00:00	6	Yes	Dry	1	E
4	07/05/2022	10:30:00	13:30:00	6	Yes	Dry	0	N/A
3	08/05/2022	10:15:00	13:15:00	0	Yes	Dry	2	NE
4	08/05/2022	13:30:00	16:30:00	0	Yes	Dry	2	NE
1	25/05/2022	10:30:00	13:30:00	6	Yes	Dry	4	W
2	25/05/2022	07:00:00	10:00:00	6	Yes	Light showers	4	SW
1	30/05/2022	10:25:00	13:25:00	8	Yes	Showers	3	NW
2	30/05/2022	06:55:00	09:55:00	5	Yes	Dry	2	NW
1	06/06/2022	10:30:00	13:30:00	8	Yes	Dry	2	E
2	06/06/2022	07:00:00	10:00:00	7	Yes	Dry	2	NE
4	09/06/2022	18:00:00	21:00:00	4	Yes	Dry	3	SW
4	17/06/2022	10:45:00	13:45:00	8	Yes	Light showers	1	SW
1	20/06/2022	10:30:00	13:30:00	2	Yes	Dry	1	NW
2	20/06/2022	07:00:00	10:00:00	2	Yes	Dry	2	NW
3	20/06/2022	12:30:00	15:30:00	0	Yes	Dry	2	NW
3	22/06/2022	15:30:00	18:30:00	8	Yes	Dry	1	NW

VP	Date	Start	End	Cloud (Oktas)	Viewshed Fully Visible	Precipitation	Wind Speed (Beaufort)	Wind Direction
1	07/07/2022	10:25:00	13:25:00	8	Yes	Dry	3	NW
2	07/07/2022	06:55:00	09:55:00	8	Yes	Showers	3	NW
3	11/07/2022	11:00:00	14:00:00	7	Yes	Dry	2	S
4	11/07/2022	14:30:00	17:30:00	7	Yes	Dry	3	S
3	12/07/2022	14:30:00	17:30:00	8	Yes	Dry	2	SW
4	13/07/2022	08:00:00	11:00:00	5	Yes	Dry	1	NW
1	20/07/2022	10:25:00	13:25:00	6	Yes	Dry	3	NW
2	20/07/2022	06:55:00	09:55:00	8	Yes	Dry	3	NW
3	02/08/2022	11:00:00	14:00:00	7	Yes	Dry	2	SW
4	02/08/2022	14:30:00	17:30:00	5	Yes	Dry	3	SW
3	03/08/2022	14:30:00	17:30:00	8	Yes	Dry	2	W
4	03/08/2022	11:00:00	14:00:00	6	Yes	Dry	2	W
1	04/08/2022	10:20:00	13:20:00	4	Yes	Dry	3	NW
2	04/08/2022	06:50:00	09:50:00	1	Yes	Dry	2	W
1	11/08/2022	10:25:00	13:25:00	0	Yes	Dry	0	N/A
2	11/08/2022	06:55:00	09:55:00	0	Yes	Dry	0	N/A
1	19/08/2022	10:25:00	13:25:00	8	Yes	Showers	3	SW
2	19/08/2022	06:55:00	09:55:00	6	Yes	Dry	3	SW
1	24/08/2022	10:30:00	13:30:00	6	Yes	Dry	2	SW
2	24/08/2022	07:00:00	10:00:00	4	Yes	Dry	2	SW
3	06/09/2022	08:00:00	11:00:00	7	Yes	Shower	2	SE
4	06/09/2022	11:30:00	14:30:00	7	Yes	Shower	2	SE
3	10/09/2022	15:00:00	18:00:00	2	Yes	Dry	2	SE
4	10/09/2022	13:30:00	16:30:00	4	Yes	Dry	1	NW
1	27/09/2022	17:00:00	20:00:00	8	Yes	Light Showers	2	W
2	27/09/2022	13:35:00	16:35:00	8	Yes	Showers	3	W
2	27/09/2022	06:55:00	09:55:00	8	Yes	Showers	2	SW
3	30/09/2022	16:00:00	19:00:00	6	Yes	Dry	2	W
4	30/09/2022	12:30:00	15:30:00	4	Yes	Showers	3	W
3	01/10/2022	12:30:00	15:30:00	4	Yes	Dry	2	W
4	01/10/2022	16:00:00	19:00:00	8	Yes	Dry	2	W
1	05/10/2022	10:25:00	13:25:00	8	Yes	Showers	3	SW

VP	Date	Start	End	Cloud (Oktas)	Viewshed Fully Visible	Precipitation	Wind Speed (Beaufort)	Wind Direction
1	11/10/2022	10:40:00	13:40:00	8	Yes	Dry	2	S
2	11/10/2022	07:10:00	10:10:00	7	Yes	Dry	2	S
3	14/10/2022	14:00:00	17:00:00	1	Yes	Dry	1	WSW
3	22/10/2022	09:30:00	12:30:00	Not Recorded	Yes	Dry	2	SW
4	22/10/2022	13:00:00	16:00:00	2	Yes	Dry	3	SW
1	24/10/2022	11:45:00	14:45:00	4	Yes	Dry	3	SW
2	24/10/2022	08:15:00	11:15:00	8	Yes	Dry	2	SW
4	24/10/2022	10:00:00	13:00:00	7	Yes	Dry	2	WSW
1	04/11/2022	10:40:00	13:40:00	7	Yes	Dry	2	WSW
2	04/11/2022	07:07:00	10:07:00	2	Yes	Dry	2	W
3	04/11/2022	12:00:00	15:00:00	4	Yes	Dry	2	W
1	15/11/2022	11:00:00	14:00:00	3	Yes	Dry	2	S
2	15/11/2022	07:30:00	10:30:00	4	Yes	Dry	2	S
4	16/11/2022	12:30:00	15:30:00	0	Yes	Dry	0	N/A
3	18/11/2022	08:30:00	11:30:00	0	Yes	Dry	1	WNW
4	18/11/2022	12:00:00	15:00:00	0	Yes	Dry	2	WNW
4	03/12/2022	11:40:00	14:40:00	8	Yes	Dry	0	N/A
1	06/12/2022	11:15:00	14:15:00	7	Yes	Dry	3	NNW
2	06/12/2022	07:45:00	10:45:00	3	Yes	Dry	3	NNE
1	20/12/2022	11:30:00	14:30:00	4	Yes	Dry	4	SW
2	20/12/2022	08:00:00	11:00:00	2	Yes	Dry	4	SW
3	20/12/2022	12:00:00	15:00:00	4	Yes	Dry	2	SW
3	29/12/2022	08:30:00	11:30:00	3	Yes	Dry	2	WSW
4	29/12/2022	12:00:00	15:00:00	2	Yes	Shower	3	WSW
1	05/01/2023	11:40:00	14:40:00	8	Yes	Drizzle	4	SSW
2	05/01/2023	08:10:00	11:10:00	8	Yes	Dry	4	S
4	05/01/2023	11:30:00	14:30:00	8	Yes	Light rain	3	SSW
3	06/01/2023	12:00:00	15:00:00	6	Yes	Dry	2	SSW
1	18/01/2023	11:30:00	14:30:00	6	Yes	Dry	4	WNW
2	18/01/2023	08:00:00	11:00:00	5	Yes	Shower	3	WNW
3	19/01/2023	14:30:00	17:30:00	0	Yes	Dry	0	N/A

VP	Date	Start	End	Cloud (Oktas)	Viewshed Fully Visible	Precipitation	Wind Speed (Beaufort)	Wind Direction
4	24/01/2023	13:30:00	16:30:00	8	Yes	Dry	0	N/A
1	02/02/2023	11:27:00	14:27:00	8	Yes	Drizzle	4	WSW
2	02/02/2023	07:53:00	10:53:00	8	Yes	Drizzle	4	WSW
4	03/02/2023	12:00:00	15:00:00	6	Yes	Dry	2	SW
3	09/02/2023	12:30:00	15:30:00	2	Yes	Dry	2	SW
4	10/02/2023	14:30:00	17:30:00	8	Yes	Dry	2	WSW
1	20/02/2023	10:45:00	13:45:00	8	Yes	Drizzle	4	SW
2	20/02/2023	07:15:00	10:15:00	8	Yes	Drizzle	4	SW
3	20/02/2023	11:30:00	14:30:00	8	Yes	Light mist	3	WSW
1	02/03/2023	10:35:00	13:35:00	8	Yes	Showers	3	NE
2	02/03/2023	07:05:00	10:05:00	7	Yes	Dry	2	NNE
3	02/03/2023	11:11:00	14:00:00	8	Yes	Showers	1	E
4	17/03/2023	10:30:00	13:30:00	8	Yes	Showers	2	SSE
3	21/03/2023	08:30:00	11:30:00	8	Yes	Drizzle	2	SW
4	21/03/2023	12:00:00	15:00:00	8	Yes	Drizzle	3	SW
1	22/03/2023	10:15:00	13:15:00	3	Yes	Showers	4	SSW
2	22/03/2023	07:24:00	09:16:00	0	Yes	Dry	4	SW

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 2

Vantage Point Observations

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	3	12/07/2022	1	Black-headed Gull	1	14:55:00	10	0	0	0	10	0
Summer 2022	3	12/07/2022	2	Black-headed Gull	3	16:05:00	55	30	5	20	0	0
Winter 2022/23	1	20/12/2022	3	Black-headed Gull	1	11:40:00	110	40	60	10	0	0
Winter 2022/23	1	20/12/2022	4	Black-headed Gull	2	12:48:00	90	90	0	0	0	0
Winter 2022/23	1	20/12/2022	5	Black-headed Gull	3	12:57:00	170	100	70	0	0	0
Winter 2022/23	1	20/12/2022	6	Black-headed Gull	3	13:10:00	155	55	100	0	0	0
Summer 2022	1	09/04/2022	5	Buzzard	1	11:50:00	510	0	10	100	200	200
Summer 2022	3	05/04/2022	1	Buzzard	1	08:20:00	10	10	0	0	0	0
Summer 2022	2	05/04/2022	2	Buzzard	1	14:22:00	155	0	15	140	0	0
Summer 2022	2	05/04/2022	3	Buzzard	1	16:46:00	12	12	0	0	0	0
Summer 2022	1	09/04/2022	4	Buzzard	2	11:12:00	653	0	0	53	200	400
Summer 2022	1	18/04/2022	6	Buzzard	2	11:14:00	210	0	0	50	160	0
Summer 2022	1	18/04/2022	7	Buzzard	1	11:20:00	670	0	20	150	400	100
Summer 2022	1	18/04/2022	8	Buzzard	2	11:37:00	240	0	0	100	140	0
Summer 2022	1	18/04/2022	9	Buzzard	1	12:39:00	27	0	7	20	0	0
Summer 2022	1	18/04/2022	10	Buzzard	1	12:42:00	860	0	0	260	200	400
Summer 2022	1	19/04/2022	11	Buzzard	1	10:51:00	100	0	0	0	0	100
Summer 2022	1	19/04/2022	12	Buzzard	1	11:00:00	255	0	0	0	55	200
Summer 2022	1	19/04/2022	13	Buzzard	1	11:30:00	151	0	0	11	140	0
Summer 2022	1	19/04/2022	14	Buzzard	1	11:37:00	320	0	0	20	100	200
Summer 2022	1	19/04/2022	15	Buzzard	3	12:02:00	236	0	0	0	36	200

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	1	19/04/2022	16	Buzzard	1	12:47:00	96	0	0	0	6	90
Summer 2022	3	26/04/2022	17	Buzzard	1	10:50:00	50	50	0	0	0	0
Summer 2022	3	07/05/2022	18	Buzzard	1	16:05:00	5	5	0	0	0	0
Summer 2022	2	25/05/2022	19	Buzzard	1	09:21:00	310	0	0	310	0	0
Summer 2022	1	25/05/2022	20	Buzzard	1	12:32:00	85	0	0	40	45	0
Summer 2022	1	25/05/2022	21	Buzzard	3	12:45:00	160	0	0	60	100	0
Summer 2022	1	25/05/2022	22	Buzzard	2	13:18:00	52	0	0	52	0	0
Summer 2022	1	25/05/2022	23	Buzzard	1	13:26:00	240	0	0	40	200	0
Summer 2022	1	30/05/2022	24	Buzzard	1	11:58:00	23	0	0	23	0	0
Summer 2022	1	06/06/2022	25	Buzzard	2	11:05:00	337	0	0	37	100	200
Summer 2022	1	06/06/2022	26	Buzzard	1	11:15:00	254	0	0	254	0	0
Summer 2022	1	06/06/2022	27	Buzzard	1	12:55:00	225	0	0	0	100	125
Summer 2022	1	06/06/2022	28	Buzzard	1	13:08:00	35	0	5	30	0	0
Summer 2022	1	06/06/2022	29	Buzzard	1	13:17:00	380	0	0	0	0	0
Summer 2022	4	17/06/2022	30	Buzzard	1	11:20:00	310	0	0	0	180	130
Summer 2022	2	20/06/2022	31	Buzzard	1	08:43:00	185	0	0	25	100	60
Summer 2022	1	20/06/2022	32	Buzzard	1	10:33:00	190	0	0	40	80	70
Summer 2022	1	20/06/2022	33	Buzzard	1	11:06:00	24	0	24	0	0	0
Summer 2022	1	20/06/2022	34	Buzzard	1	12:04:00	110	0	0	20	90	0
Summer 2022	1	20/06/2022	35	Buzzard	1	13:18:00	95	0	0	95	0	0
Summer 2022	1	07/07/2022	36	Buzzard	1	13:14:00	65	0	0	65	0	0
Summer 2022	1	07/07/2022	37	Buzzard	1	13:17:00	128	0	0	50	50	28
Summer 2022	4	13/07/2022	38	Buzzard	1	10:10:00	55	0	0	55	0	0
Summer 2022	1	20/07/2022	39	Buzzard	1	13:17:00	58	0	0	58	0	0
Summer 2022	3	02/08/2022	40	Buzzard	1	13:30:00	25	5	5	5	10	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	1	04/08/2022	41	Buzzard	2	10:56:00	270	0	0	0	70	200
Summer 2022	1	04/08/2022	42	Buzzard	1	11:25:00	130	0	20	110	0	0
Summer 2022	1	04/08/2022	43	Buzzard	1	11:56:00	40	0	10	30	0	0
Summer 2022	1	04/08/2022	44	Buzzard	1	12:44:00	145	0	0	0	45	100
Summer 2022	1	04/08/2022	45	Buzzard	1	13:10:00	56	0	0	6	50	0
Summer 2022	1	11/08/2022	46	Buzzard	1	11:28:00	38	8	30	0	0	0
Summer 2022	1	11/08/2022	47	Buzzard	1	12:30:00	220	0	20	50	100	50
Summer 2022	1	24/08/2022	48	Buzzard	1	11:43:00	18	18	0	0	0	0
Summer 2022	1	24/08/2022	49	Buzzard	2	11:50:00	85	25	60	0	0	0
Summer 2022	1	24/08/2022	50	Buzzard	1	12:46:00	42	10	32	0	0	0
Summer 2022	1	24/08/2022	51	Buzzard	1	12:51:00	186	0	0	100	86	0
Summer 2022	1	24/08/2022	52	Buzzard	1	13:02:00	366	0	6	200	160	0
Summer 2022	3	10/09/2022	53	Buzzard	1	17:05:00	15	0	15	0	0	0
Summer 2022	1	09/04/2022	Static Bird	Buzzard	Not recorded	Not recorded	NA	NA	NA	NA	NA	NA
Summer 2022	3	11/07/2022	Heard, not seen	Buzzard	Not recorded	Not recorded	NA	NA	NA	NA	NA	NA
Winter 2022/23	1	27/09/2022	54	Buzzard	1	17:33:00	25	36	0	0	0	0
Winter 2022/23	1	27/09/2022	55	Buzzard	1	18:35:00	12	23	0	0	0	0
Winter 2022/23	1	27/09/2022	56	Buzzard	1	18:38:00	8	9	0	0	0	0
Winter 2022/23	1	27/09/2022	57	Buzzard	1	19:02:00	12	12	0	0	0	0
Winter 2022/23	1	27/09/2022	58	Buzzard	1	19:28:00	32	32	0	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	05/10/2022	59	Buzzard	1	10:31:00	12	12	0	0	0	0
Winter 2022/23	1	05/10/2022	60	Buzzard	1	12:23:00	85	0	10	75	0	0
Winter 2022/23	1	11/10/2022	61	Buzzard	1	10:46:00	5	5	0	0	0	0
Winter 2022/23	1	11/10/2022	62	Buzzard	1	10:48:00	12	12	0	0	0	0
Winter 2022/23	1	11/10/2022	63	Buzzard	1	11:43:00	46	0	46	0	0	0
Winter 2022/23	1	11/10/2022	64	Buzzard	1	13:12:00	140	20	40	80	0	0
Winter 2022/23	1	11/10/2022	65	Buzzard	1	13:23:00	89	0	40	49	0	0
Winter 2022/23	3	14/10/2022	66	Buzzard	1	15:10:00	90	90	0	0	0	0
Winter 2022/23	2	24/10/2022	67	Buzzard	1	09:42:00	8	8	0	0	0	0
Winter 2022/23	1	24/10/2022	68	Buzzard	1	12:38:00	5	5	0	0	0	0
Winter 2022/23	1	24/10/2022	69	Buzzard	1	12:42:00	7	7	0	0	0	0
Winter 2022/23	1	24/10/2022	70	Buzzard	1	12:48:00	65	10	45	10	0	0
Winter 2022/23	1	24/10/2022	71	Buzzard	1	13:50:00	50	50	0	0	0	0
Winter 2022/23	1	24/10/2022	72	Buzzard	1	14:10:00	75	20	35	0	0	0
Winter 2022/23	1	04/11/2022	73	Buzzard	1	11:15:00	12	12	0	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	04/11/2022	74	Buzzard	1	11:53:00	35	35	0	0	0	0
Winter 2022/23	1	04/11/2022	75	Buzzard	1	12:20:00	6	6	0	0	0	0
Winter 2022/23	1	04/11/2022	76	Buzzard	1	12:48:00	12	12	0	0	0	0
Winter 2022/23	1	04/11/2022	77	Buzzard	1	13:15:00	75	0	0	75	0	0
Winter 2022/23	1	15/11/2022	78	Buzzard	2	12:01:00	45	45	0	0	0	0
Winter 2022/23	3	18/11/2022	79	Buzzard	1	11:10:00	5	0	5	0	0	0
Winter 2022/23	1	06/12/2022	80	Buzzard	1	12:00:00	49	9	40	0	0	0
Winter 2022/23	1	06/12/2022	81	Buzzard	2	12:03:00	82	12	70	0	0	0
Winter 2022/23	1	06/12/2022	82	Buzzard	1	12:06:00	12	12	0	0	0	0
Winter 2022/23	1	06/12/2022	83	Buzzard	1	12:16:00	46	46	0	0	0	0
Winter 2022/23	1	06/12/2022	84	Buzzard	1	13:36:00	88	8	50	30	0	0
Winter 2022/23	2	20/12/2022	85	Buzzard	1	08:15:00	42	42	0	0	0	0
Winter 2022/23	2	20/12/2022	86	Buzzard	1	08:48:00	25	25	0	0	0	0
Winter 2022/23	2	20/12/2022	87	Buzzard	1	10:44:00	40	40	0	0	0	0
Winter 2022/23	2	20/12/2022	88	Buzzard	1	10:50:00	50	0	0	50	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	20/12/2022	89	Buzzard	1	12:27:00	36	0	36	0	0	0
Winter 2022/23	1	20/12/2022	90	Buzzard	1	13:22:00	23	23	0	0	0	0
Winter 2022/23	3	20/12/2022	91	Buzzard	1	13:55:00	20	0	10	10	0	0
Winter 2022/23	3	29/12/2022	92	Buzzard	1	08:45:00	15	0	15	0	0	0
Winter 2022/23	3	29/12/2022	93	Buzzard	1	09:20:00	5	0	0	5	0	0
Winter 2022/23	2	05/01/2023	94	Buzzard	1	08:46:00	6	6	0	0	0	0
Winter 2022/23	3	06/01/2023	95	Buzzard	1	12:55:00	10	0	10	0	0	0
Winter 2022/23	1	18/01/2023	96	Buzzard	1	11:32:00	22	22	0	0	0	0
Winter 2022/23	2	18/01/2023	97	Buzzard	1	Not recorded	2	2	0	0	0	0
Winter 2022/23	2	18/01/2023	98	Buzzard	1	Not recorded	15	15	0	0	0	0
Winter 2022/23	1	02/02/2023	99	Buzzard	1	12:10:00	16	0	16	0	0	0
Winter 2022/23	3	09/02/2023	100	Buzzard	1	13:40:00	180	0	0	0	80	100
Winter 2022/23	1	20/02/2023	101	Buzzard	1	11:10:00	5	5	0	0	0	0
Winter 2022/23	3	02/03/2023	102	Buzzard	1	11:00:00	1800	0	0	0	0	0
Winter 2022/23	1	02/03/2023	103	Buzzard	1	12:53:00	18	18	0	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	02/03/2023	104	Buzzard	1	13:02:00	23	23	0	0	0	0
Winter 2022/23	1	22/03/2023	105	Buzzard	1	10:53:00	280	0	0	0	200	80
Winter 2022/23	1	22/03/2023	106	Buzzard	1	11:09:00	68	0	10	58	0	0
Winter 2022/23	1	22/03/2023	107	Buzzard	1	11:10:00	113	23	40	50	0	0
Winter 2022/23	1	22/03/2023	108	Buzzard	1	11:43:00	97	0	27	77	0	0
Winter 2022/23	1	22/03/2023	109	Buzzard	1	11:48:00	185	0	0	35	150	0
Winter 2022/23	1	22/03/2023	110	Buzzard	1	11:57:00	183	0	0	20	163	0
Winter 2022/23	1	20/12/2022	1	Common Gull	4	11:47:00	70	30	40	0	0	0
Winter 2022/23	1	20/12/2022	2	Common Gull	6	12:48:00	90	90	0	0	0	0
Summer 2022	1	05/04/2022	1	Golden Plover	15	17:56:00	32	0	32	0	0	0
Summer 2022	1	05/04/2022	2	Golden Plover	12	19:40:00	46	0	0	46	0	0
Summer 2022	1	05/04/2022	3	Golden Plover	12	20:08:00	137	137	0	0	0	0
Summer 2022	2	19/08/2022	4	Golden Plover	46	08:09:00	40	0	0	40	0	0
Summer 2022	1	05/04/2022	Terminal point of 3	Golden Plover	12	20:10:00	NA	NA	NA	NA	NA	NA
Winter 2022/23	3	01/10/2022	5	Golden Plover	12	14:10:00	180	0	60	120	0	0
Winter 2022/23	1	11/10/2022	6	Golden Plover	65	13:32:00	180	0	0	0	150	30

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	24/10/2022	7	Golden Plover	25	14:25:00	210	20	40	150	0	0
Winter 2022/23	1	04/11/2022	8	Golden Plover	60	11:10:00	130	20	50	60	0	0
Winter 2022/23	1	04/11/2022	9	Golden Plover	500	11:38:00	280	20	60	200	0	0
Winter 2022/23	1	04/11/2022	10	Golden Plover	500	13:05:00	1320	20	100	200	500	500
Winter 2022/23	1	04/11/2022	11	Golden Plover	500	13:23:00	1080	20	100	280	680	0
Winter 2022/23	1	15/11/2022	12	Golden Plover	1000	11:45:00	1140	0	0	0	1140	0
Winter 2022/23	1	15/11/2022	13	Golden Plover	1000	12:54:00	390	0	0	0	190	200
Winter 2022/23	1	15/11/2022	14	Golden Plover	1000	13:35:00	1550	100	100	500	450	450
Winter 2022/23	3	18/11/2022	15	Golden Plover	12	08:45:00	10	0	0	0	10	0
Winter 2022/23	1	20/12/2022	16	Golden Plover	95	11:32:00	165	25	40	100	0	0
Winter 2022/23	1	20/12/2022	17	Golden Plover	3	12:14:00	25	25	0	0	0	0
Winter 2022/23	1	20/12/2022	18	Golden Plover	3	13:01:00	32	32	0	0	0	0
Winter 2022/23	1	20/12/2022	Static record	Golden Plover	55	11:15:00	1020	NA	NA	NA	NA	NA
Winter 2022/23	1	18/01/2023	19	Golden Plover	35	12:06:00	40	20	20	0	0	0
Winter 2022/23	1	18/01/2023	21	Golden Plover	35	11:15:00	11700	NA	NA	NA	NA	NA

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	18/01/2023	20	Golden Plover	35	12:16:00	38	38	0	0	0	0
Winter 2022/23	1	02/03/2023	22	Golden Plover	8	12:04:00	190	0	10	100	80	0
Winter 2022/23	1	22/03/2023	23	Golden Plover	27	11:18:00	78	4	4	70	0	0
Summer 2022	2	06/06/2022	1	Grey Heron	1	07:32:00	182	0	0	182	0	0
Winter 2022/23	3	14/10/2022	1	Hen Harrier	1	14:45:00	725	480	245	0	0	0
Winter 2022/23	3	22/10/2022	2	Hen Harrier	1	10:10:00	180	0	180	0	0	0
Winter 2022/23	3	29/12/2022	3	Hen Harrier	1	09:30:00	10	10	0	0	0	0
Summer 2022	1	09/04/2022	1	Kestrel	1	11:13:00	214	0	64	150	0	0
Summer 2022	1	09/04/2022	2	Kestrel	1	12:03:00	213	0	13	200	0	0
Summer 2022	2	19/04/2022	3	Kestrel	1	07:17:00	18	18	0	0	0	0
Summer 2022	2	30/05/2022	4	Kestrel	1	09:40:00	15	15	0	0	0	0
Summer 2022	1	20/06/2022	5	Kestrel	1	12:09:00	135	0	25	110	0	0
Summer 2022	3	20/06/2022	6	Kestrel	1	14:30:00	80	0	0	0	80	0
Summer 2022	3	11/07/2022	7	Kestrel	1	12:50:00	190	20	30	70	70	0
Summer 2022	3	12/07/2022	8	Kestrel	1	15:30:00	45	5	0	40	0	0
Summer 2022	3	12/07/2022	9	Kestrel	1	16:30:00	80	0	0	80	0	0
Summer 2022	3	03/08/2022	10	Kestrel	1	16:30:00	70	5	20	45	0	0
Summer 2022	1	04/08/2022	11	Kestrel	1	12:48:00	290	0	0	290	0	0
Summer 2022	2	24/08/2022	12	Kestrel	1	07:54:00	55	0	0	55	0	0
Summer 2022	3	06/09/2022	13	Kestrel	1	10:30:00	120	0	0	120	0	0
Summer 2022	3	10/09/2022	14	Kestrel	1	16:20:00	110	0	0	40	70	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	4	30/09/2022	15	Kestrel	1	15:20:00	130	0	0	60	70	0
Winter 2022/23	3	01/10/2022	16	Kestrel	1	15:25:00	240	0	0	50	140	50
Winter 2022/23	2	11/10/2022	17	Kestrel	1	08:43:00	38	0	38	0	0	0
Winter 2022/23	2	11/10/2022	18	Kestrel	1	08:47:00	26	0	26	0	0	0
Winter 2022/23	1	11/10/2022	19	Kestrel	1	13:30:00	163	0	0	163	0	0
Winter 2022/23	3	14/10/2022	20	Kestrel	1	15:10:00	20	0	0	20	0	0
Winter 2022/23	3	22/10/2022	21	Kestrel	1	09:40:00	120	5	5	10	100	0
Winter 2022/23	3	22/10/2022	22	Kestrel	1	12:25:00	10	0	10	0	0	0
Winter 2022/23	2	04/11/2022	23	Kestrel	1	07:41:00	34	14	10	10	0	0
Winter 2022/23	2	04/11/2022	24	Kestrel	1	07:52:00	25	0	0	25	0	0
Winter 2022/23	2	04/11/2022	25	Kestrel	1	09:27:00	90	20	40	30	0	0
Winter 2022/23	3	04/11/2022	26	Kestrel	1	12:30:00	0	600	600	0	0	0
Winter 2022/23	2	15/11/2022	27	Kestrel	1	07:54:00	25	0	25	0	0	0
Winter 2022/23	2	15/11/2022	28	Kestrel	1	08:29:00	15	15	0	0	0	0
Winter 2022/23	2	15/11/2022	29	Kestrel	1	08:45:00	0	0	22	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	2	15/11/2022	30	Kestrel	1	09:35:00	5	0	0	0	0	0
Winter 2022/23	3	18/11/2022	31	Kestrel	1	11:15:00	5	0	0	5	0	0
Winter 2022/23	3	20/12/2022	32	Kestrel	1	12:50:00	25	0	25	0	0	0
Winter 2022/23	3	20/12/2022	33	Kestrel	1	14:10:00	5	5	0	0	0	0
Winter 2022/23	3	29/12/2022	34	Kestrel	1	11:05:00	70	15	15	40	0	0
Winter 2022/23	2	18/01/2023	35	Kestrel	1	Not recorded	38	5	20	13	0	0
Winter 2022/23	3	19/01/2023	36	Kestrel	1	15:25:00	10	0	0	10	0	0
Winter 2022/23	1	02/02/2023	37	Kestrel	1	12:21:00	12	12	0	0	0	0
Winter 2022/23	1	02/02/2023	38	Kestrel	1	13:03:00	79	29	40	0	0	0
Winter 2022/23	4	03/02/2023	39	Kestrel	1	14:20:00	300	0	0	50	250	0
Winter 2022/23	3	09/02/2023	40	Kestrel	1	14:35:00	10	0	0	0	10	0
Winter 2022/23	4	10/02/2023	41	Kestrel	1	14:50:00	60	0	0	0	60	0
Winter 2022/23	1	02/03/2023	42	Kestrel	1	11:37:00	23	23	0	0	0	0
Winter 2022/23	1	02/03/2023	43	Kestrel	1	11:45:00	12	12	0	0	0	0
Summer 2022	3	01/04/2022	1	Lapwing	12	17:05:00	10	0	10	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	3	01/04/2022	2	Lapwing	1	17:50:00	10	0	10	0	0	0
Summer 2022	3	01/04/2022	3	Lapwing	1	18:15:00	300	300	0	0	0	0
Summer 2022	3	01/04/2022	4	Lapwing	5	18:50:00	5	0	5	0	0	0
Summer 2022	3	01/04/2022	5	Lapwing	1	19:10:00	5	0	5	0	0	0
Summer 2022	3	05/04/2022	6	Lapwing	4	08:10:00	300	0	300	0	0	0
Summer 2022	3	05/04/2022	7	Lapwing	4	09:40:00	600	0	600	0	0	0
Summer 2022	3	14/04/2022	8	Lapwing	4	16:30:00	120	10	110	0	0	0
Summer 2022	3	14/04/2022	9	Lapwing	1	17:50:00	15	10	5	0	0	0
Summer 2022	3	14/04/2022	10	Lapwing	4	17:55:00	10	0	10	0	0	0
Summer 2022	3	26/04/2022	11	Lapwing	3	10:05:00	1800	900	900	0	0	0
Summer 2022	3	26/04/2022	12	Lapwing	1	11:20:00	5	5	0	0	0	0
Summer 2022	3	26/04/2022	13	Lapwing	4	11:30:00	300	300	0	0	0	0
Summer 2022	3	26/04/2022	14	Lapwing	2	11:50:00	1800	1800	0	0	0	0
Summer 2022	3	26/04/2022	15	Lapwing	1	11:55:00	5	5	0	0	0	0
Summer 2022	3	26/04/2022	16	Lapwing	1	12:00:00	5	5	0	0	0	0
Summer 2022	3	07/05/2022	17	Lapwing	1	14:00:00	7200	7200	0	0	0	0
Summer 2022	3	07/05/2022	18	Lapwing	2	14:55:00	5	5	0	0	0	0
Summer 2022	3	08/05/2022	19	Lapwing	2	11:35:00	15	5	5	5	0	0
Summer 2022	3	08/05/2022	20	Lapwing	1	12:20:00	5	0	5	0	0	0
Summer 2022	4	09/06/2022	21	Lapwing	1	20:30:00	65	0	0	20	45	0
Summer 2022	4	09/06/2022	22	Lapwing	1	20:50:00	40	0	0	10	30	0
Summer 2022	4	09/06/2022	23	Lapwing	1	20:55:00	30	0	5	25	0	0
Summer 2022	3	20/06/2022	24	Lapwing	1	14:00:00	15	5	10	0	0	0
Summer 2022	3	20/06/2022	25	Lapwing	22	14:05:00	10	5	5	0	0	0
Summer 2022	3	20/06/2022	26	Lapwing	4	14:35:00	15	0	15	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	3	22/06/2022	27	Lapwing	1	15:30:00	3600	3600	0	0	0	0
Summer 2022	3	22/06/2022	28	Lapwing	1	17:20:00	10	5	5	0	0	0
Summer 2022	3	22/06/2022	29	Lapwing	2	18:05:00	10	5	5	0	0	0
Summer 2022	3	11/07/2022	30	Lapwing	2	12:30:00	20	10	10	0	0	0
Winter 2022/23	2	11/10/2022	31	Lapwing	19	09:57:00	186	0	6	180	0	0
Winter 2022/23	3	14/10/2022	32	Lapwing	8	14:00:00	10800	0	0	0	0	0
Winter 2022/23	3	22/10/2022	33	Lapwing	58	11:00:00	300	5	10	265	120	0
Winter 2022/23	1	24/10/2022	34	Lapwing	30	13:12:00	20	20	0	0	0	0
Winter 2022/23	1	24/10/2022	35	Lapwing	41	14:10:00	45	10	35	0	0	0
Winter 2022/23	1	04/11/2022	36	Lapwing	12	10:50:00	320	50	50	220	0	0
Winter 2022/23	1	04/11/2022	37	Lapwing	8	11:38:00	140	10	30	100	0	0
Winter 2022/23	1	15/11/2022	38	Lapwing	1	11:01:00	20	20	0	0	0	0
Winter 2022/23	1	15/11/2022	39	Lapwing	90	13:02:00	50	5	15	30	0	0
Winter 2022/23	1	15/11/2022	40	Lapwing	90	13:25:00	25	10	15	0	0	0
Winter 2022/23	1	06/12/2022	41	Lapwing	120	12:55:00	125	15	40	65	0	0
Winter 2022/23	1	20/12/2022	42	Lapwing	50	11:32:00	50	15	35	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	1	20/12/2022	Static record	Lapwing	4	11:15:00	1020	NA	NA	NA	NA	NA
Winter 2022/23	1	18/01/2023	43	Lapwing	12	12:42:00	70	20	20	40	0	0
Winter 2022/23	1	18/01/2023	44	Lapwing	3	11:15:00	11700	NA	NA	NA	NA	NA
Winter 2022/23	3	02/03/2023	45	Lapwing	11	11:25:00	10	5	5	0	0	0
Winter 2022/23	3	02/03/2023	46	Lapwing	26	12:45:00	140	30	50	60	0	0
Winter 2022/23	3	02/03/2023	47	Lapwing	26	13:10:00	180	60	120	0	0	0
Winter 2022/23	3	02/03/2023	48	Lapwing	26	13:15:00	250	60	60	60	70	0
Winter 2022/23	3	02/03/2023	49	Lapwing	26	13:20:00	300	0	40	200	60	0
Winter 2022/23	3	02/03/2023	50	Lapwing	6	13:50:00	15	0	10	5	0	0
Winter 2022/23	4	17/03/2023	51	Lapwing	2	12:35:00	300	0	150	15	0	0
Winter 2022/23	3	21/03/2023	52	Lapwing	3	09:40:00	300	0	175	125	0	0
Winter 2022/23	3	21/03/2023	53	Lapwing	2	11:15:00	160	5	5	90	50	10
Winter 2022/23	3	21/03/2023	54	Lapwing	2	11:20:00	45	5	40	0	0	0
Winter 2022/23	3	21/03/2023	55	Lapwing	1	11:20:00	20	0	0	0	20	0
Summer 2022	3	14/04/2022	1	Lesser Black-backed Gull	2	17:55:00	25	0	10	15	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	1	25/05/2022	2	Lesser Black-backed Gull	9	11:16:00	145	5	40	100	0	0
Summer 2022	1	25/05/2022	3	Lesser Black-backed Gull	7	11:22:00	130	10	40	80	0	0
Summer 2022	1	25/05/2022	4	Lesser Black-backed Gull	17	11:55:00	15	15	0	0	0	0
Summer 2022	1	25/05/2022	5	Lesser Black-backed Gull	7	12:40:00	17	17	0	0	0	0
Summer 2022	1	25/05/2022	6	Lesser Black-backed Gull	2	13:12:00	42	12	30	0	0	0
Summer 2022	2	30/05/2022	7	Lesser Black-backed Gull	3	07:15:00	74	0	74	0	0	0
Summer 2022	2	30/05/2022	8	Lesser Black-backed Gull	2	08:56:00	28	0	28	0	0	0
Summer 2022	2	07/07/2022	9	Lesser Black-backed Gull	1	07:51:00	42	42	0	0	0	0
Summer 2022	2	07/07/2022	10	Lesser Black-backed Gull	8	09:46:00	40	0	40	0	0	0
Summer 2022	1	04/08/2022	11	Lesser Black-backed Gull	4	12:18:00	340	0	0	340	0	0
Summer 2022	1	11/08/2022	12	Lesser Black-backed Gull	2	10:33:00	310	0	0	210	100	0
Summer 2022	1	11/08/2022	13	Lesser Black-backed Gull	6	12:38:00	193	0	13	180	0	0
Summer 2022	1	11/08/2022	14	Lesser Black-backed Gull	2	12:49:00	35	0	0	35	0	0
Summer 2022	1	11/08/2022	15	Lesser Black-backed Gull	1	12:58:00	15	0	15	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	1	19/08/2022	16	Lesser Black-backed Gull	1	12:35:00	68	50	18	0	0	0
Summer 2022	2	24/08/2022	17	Lesser Black-backed Gull	1	07:43:00	47	0	47	0	0	0
Summer 2022	2	24/08/2022	18	Lesser Black-backed Gull	9	09:35:00	241	11	30	200	0	0
Winter 2022/23	1	04/11/2022	19	Lesser Black-backed Gull	2	12:29:00	62	0	0	62	0	0
Winter 2022/23	4	18/11/2022	20	Lesser Black-backed Gull	1	13:00:00	20	0	20	0	0	0
Winter 2022/23	1	22/03/2023	21	Lesser Black-backed Gull	1	10:27:00	160	0	0	160	0	0
Winter 2022/23	3	22/10/2022	1	Little Egret	1	09:45:00	10	0	10	0	0	0
Winter 2022/23	3	20/12/2022	2	Little Egret	1	13:45:00	10	0	10	0	0	0
Summer 2022	2	19/08/2022	1	Little Grebe	1	09:15:00	15	0	0	15	0	0
Summer 2022	3	01/04/2022	1	Mallard	1	18:00:00	5	0	5	0	0	0
Summer 2022	3	05/04/2022	2	Mallard	2	09:10:00	130	120	10	0	0	0
Summer 2022	3	05/04/2022	3	Mallard	5	09:35:00	15	0	0	15	0	0
Summer 2022	4	05/04/2022	4	Mallard	2	11:15:00	10	0	10	0	0	0
Summer 2022	4	05/04/2022	5	Mallard	1	11:40:00	5	0	5	0	0	0
Summer 2022	3	14/04/2022	6	Mallard	3	16:55:00	20	0	10	10	0	0
Summer 2022	4	17/04/2022	7	Mallard	4	16:40:00	10	0	10	0	0	0
Summer 2022	1	25/05/2022	8	Mallard	1	11:10:00	12	12	0	0	0	0
Summer 2022	1	25/05/2022	9	Mallard	3	13:06:00	36	0	36	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Summer 2022	1	07/07/2022	10	Mallard	3	13:05:00	20	0	20	0	0	0
Summer 2022	3	02/08/2022	11	Mallard	1	13:30:00	5	5	0	0	0	0
Summer 2022	3	06/09/2022	12	Mallard	22	08:40:00	20	0	0	20	0	0
Winter 2022/23	3	30/09/2022	13	Mallard	23	18:30:00	10	0	0	10	0	0
Winter 2022/23	3	30/09/2022	14	Mallard	4	18:40:00	5	0	5	0	0	0
Winter 2022/23	3	01/10/2022	15	Mallard	6	13:40:00	5	0	5	0	0	0
Winter 2022/23	3	22/10/2022	16	Mallard	5	11:00:00	10	0	10	0	0	0
Winter 2022/23	4	24/10/2022	17	Mallard	1	11:10:00	130	0	0	130	0	0
Winter 2022/23	1	02/02/2023	18	Mallard	2	14:20:00	35	5	30	0	0	0
Winter 2022/23	2	02/03/2023	19	Mallard	2	07:24:00	14	0	14	0	0	0
Winter 2022/23	3	02/03/2023	20	Mallard	4	12:10:00	30	5	5	20	0	0
Winter 2022/23	3	02/03/2023	21	Mallard	1	12:35:00	10	0	10	0	0	0
Winter 2022/23	3	02/03/2023	22	Mallard	1	12:40:00	10	0	0	0	10	0
Winter 2022/23	3	02/03/2023	23	Mallard	2	13:25:00	20	0	10	10	0	0
Winter 2022/23	3	02/03/2023	24	Mallard	2	13:30:00	20	0	10	10	0	0
Winter 2022/23	3	02/03/2023	25	Mallard	1	13:35:00	10	0	10	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	3	02/03/2023	26	Mallard	1	13:40:00	10	0	10	0	0	0
Winter 2022/23	4	21/03/2023	27	Mallard	2	14:35:00	10	0	0	10	0	0
Winter 2022/23	1	27/09/2022	1	Mute Swan	2	18:46:00	45	0	45	0	0	0
Winter 2022/23	2	06/12/2022	2	Mute Swan	4	08:22:00	53	0	43	0	0	0
Winter 2022/23	1	18/01/2023	3	Mute Swan	2	12:03:00	114	0	0	114	0	0
Winter 2022/23	2	02/03/2023	4	Mute Swan	2	09:16:00	22	22	0	0	0	0
Summer 2022	2	05/04/2022	1	Peregrine	1	15:54:00	23	0	5	18	0	0
Summer 2022	2	06/06/2022	2	Peregrine	1	08:25:00	27	7	20	0	0	0
Summer 2022	2	06/06/2022	3	Peregrine	1	09:02:00	45	0	45	0	0	0
Summer 2022	2	06/06/2022	4	Peregrine	1	09:06:00	12	0	12	0	0	0
Summer 2022	2	20/06/2022	5	Peregrine	1	08:45:00	110	0	0	0	110	0
Summer 2022	2	07/07/2022	6	Peregrine	2	08:31:00	25	0	25	0	0	0
Summer 2022	2	07/07/2022	7	Peregrine	3	08:44:00	15	0	15	0	0	0
Summer 2022	2	07/07/2022	8	Peregrine	1	09:50:00	96	0	36	60	0	0
Winter 2022/23	3	22/10/2022	9	Peregrine	1	12:10:00	5	5	0	0	0	0
Winter 2022/23	3	22/10/2022	10	Peregrine	1	12:20:00	15	0	15	0	0	0
Winter 2022/23	3	09/02/2023	11	Peregrine	1	14:10:00	5	0	0	0	5	0
Summer 2022	4	17/04/2022	1	Snipe	1	18:25:00	5	0	5	0	0	0
Summer 2022	3	22/06/2022	2	Snipe	1	17:05:00	600	600	0	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	3	30/09/2022	3	Snipe	1	18:45:00	2	0	0	0	0	0
Winter 2022/23	3	04/11/2022	Heard callling	Snipe	1	13:20:00	5	5	0	0	0	0
Winter 2022/23	4	05/01/2023	4	Snipe	1	11:40:00	8	0	0	8	0	0
Summer 2022	4	01/04/2022	1	Sparrowhawk	1	15:15:00	120	0	0	0	0	120
Summer 2022	1	18/04/2022	2	Sparrowhawk	1	12:55:00	40	0	0	40	0	0
Summer 2022	4	11/07/2022	3	Sparrowhawk	1	15:35:00	5	5	0	0	0	0
Summer 2022	3	03/08/2022	4	Sparrowhawk	1	16:35:00	35	0	35	0	0	0
Winter 2022/23	4	01/10/2022	5	Sparrowhawk	1	16:50:00	15	0	0	15	0	0
Winter 2022/23	2	04/11/2022	6	Sparrowhawk	1	08:33:00	3	3	0	0	0	0
Winter 2022/23	1	24/10/2022	1	Whooper Swan	2	12:11:00	42	0	42	0	0	0
Winter 2022/23	4	16/11/2022	2	Whooper Swan	38	12:30:00	10800	10800	0	0	0	0
Winter 2022/23	3	18/11/2022	3	Whooper Swan	8	09:20:00	20	0	0	20	0	0
Winter 2022/23	3	18/11/2022	4	Whooper Swan	4	10:30:00	30	0	5	25	0	0
Winter 2022/23	4	18/11/2022	5	Whooper Swan	26	12:00:00	10800	10800	0	0	0	0
Winter 2022/23	3	29/12/2022	Heard callling	Whooper Swan	1	10:30:00	10	0	0	0	0	0

Season	VP	Date	Bird ID	Species	Quantity	Time	Duration	0-15 m	15-30m	30-100m	100-200m	>200 m
Winter 2022/23	4	10/02/2023	6	Whooper Swan	1	16:05:00	10	10	0	0	0	0

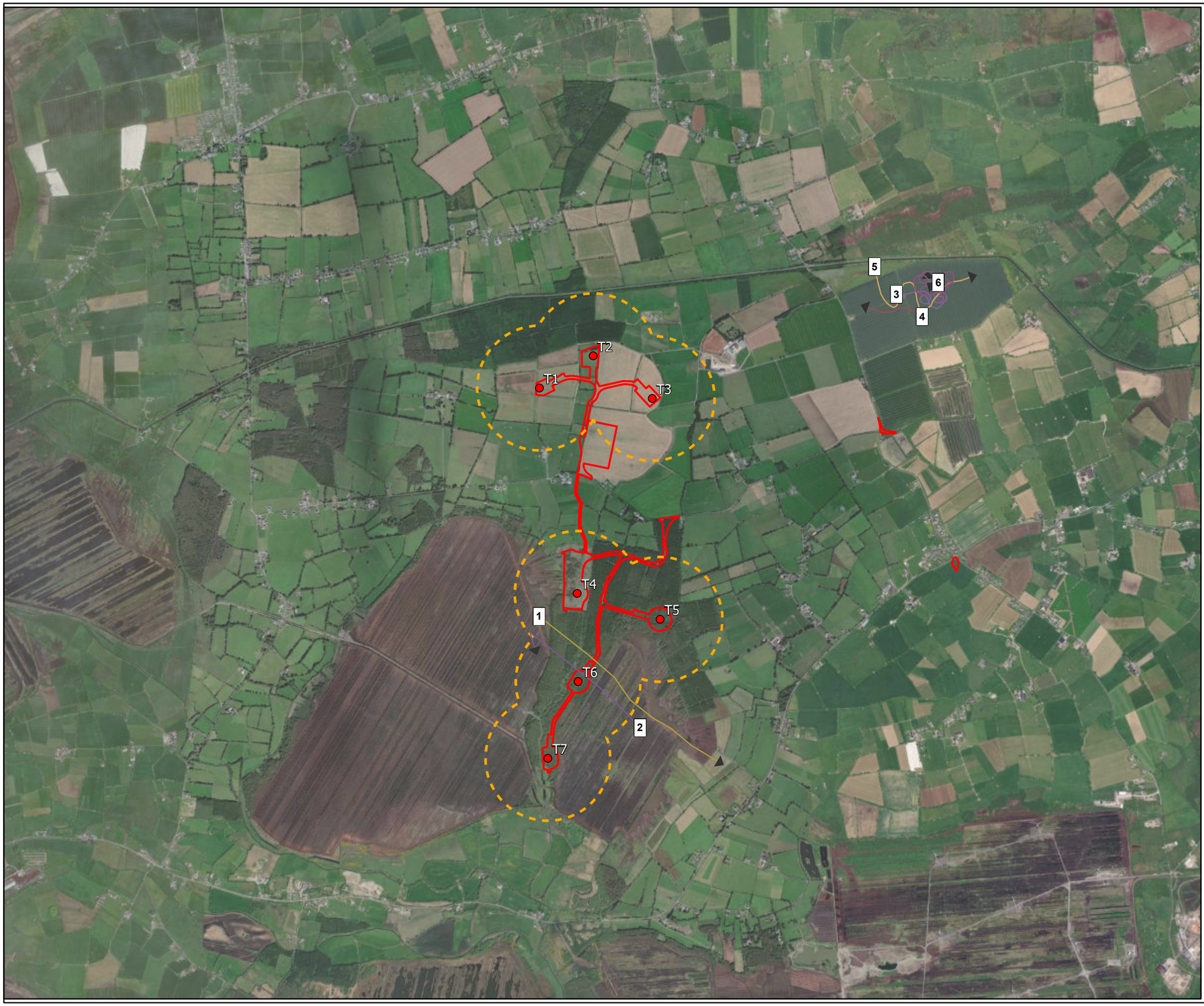
FEHILY TIMONEY

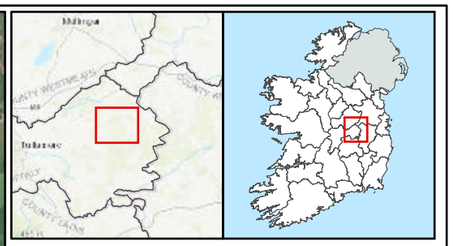
DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 3

Target Species Flightline Figures

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

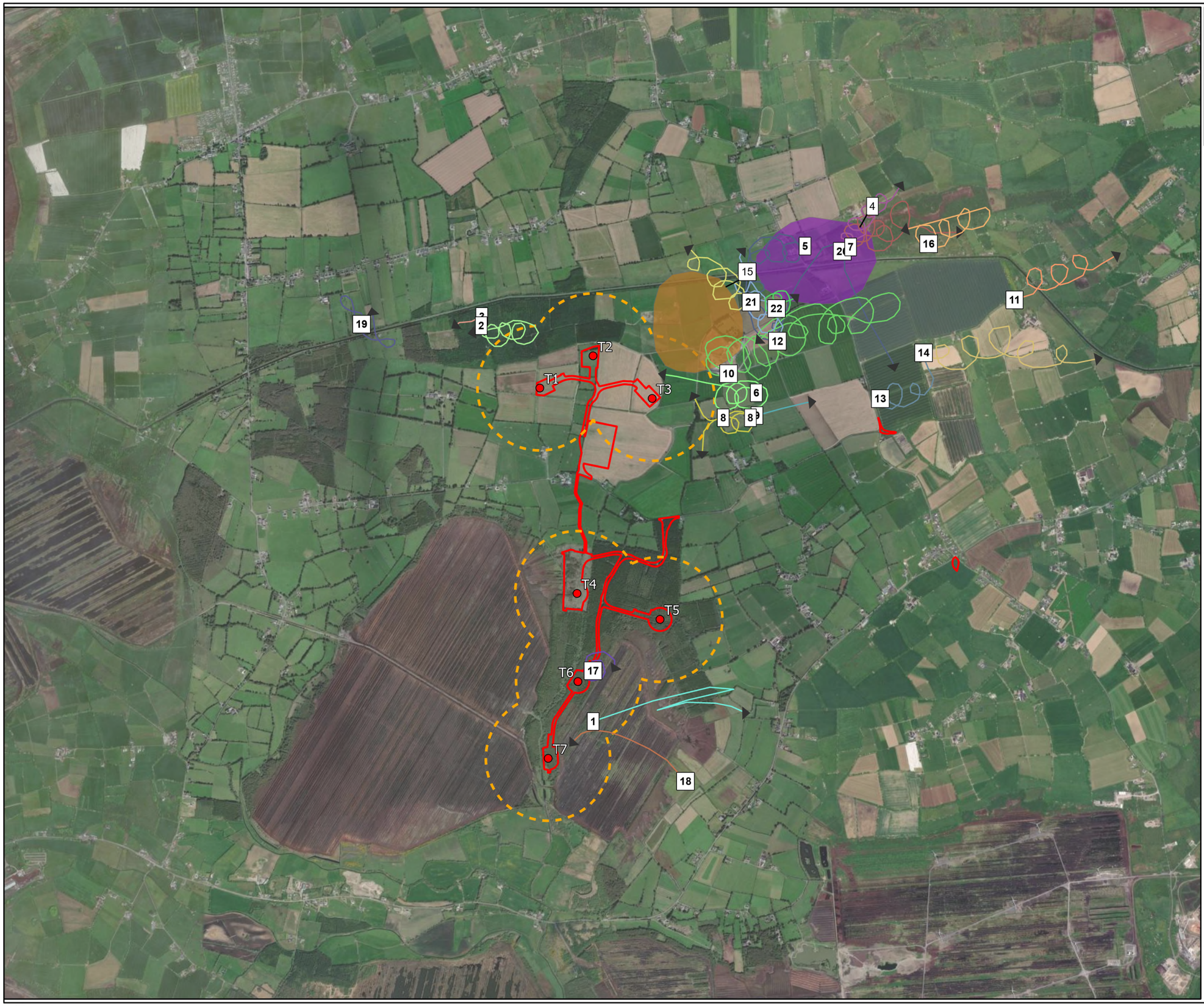
- 1,12/07/2022,14:55
- 2,12/07/2022,16:05
- 3,20/12/2022,11:40
- 4,20/12/2022,12:48
- 5,20/12/2022,12:57
- 6,20/12/2022,13:10

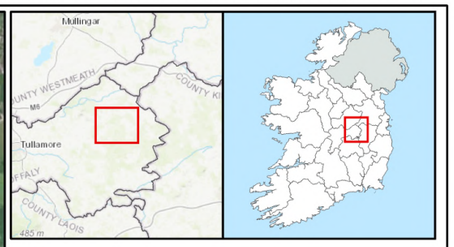
N W E S

0 0.5 1 Kilometers

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

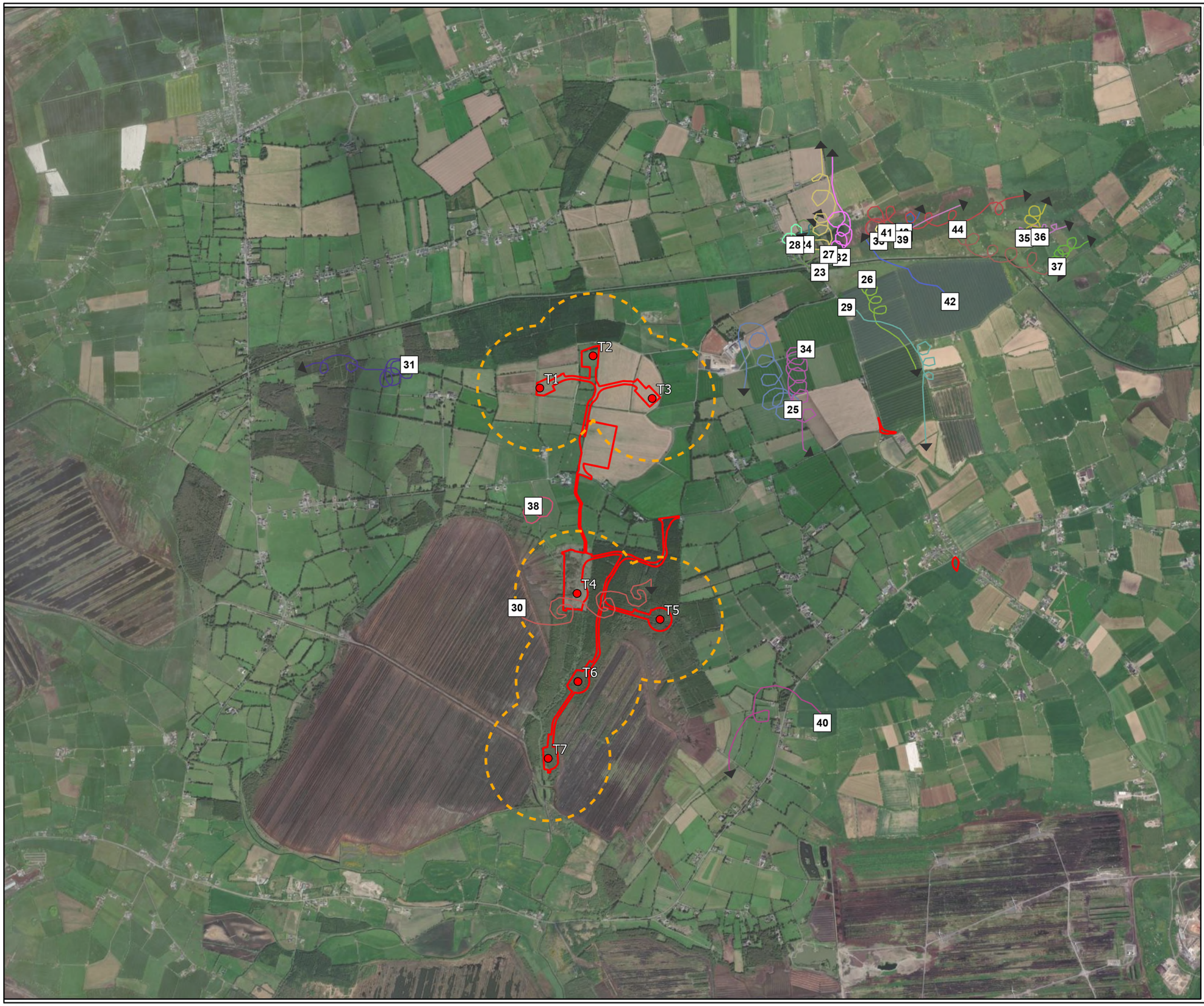
- 1,05/04/2022,08:20
- 2,05/04/2022,14:22
- 3,05/04/2022,16:46
- 5,09/04/2022,11:50
- 6,18/04/2022,11:14
- 7,18/04/2022,11:20
- 8,18/04/2022,11:37
- 9,18/04/2022,12:39
- 10,18/04/2022,12:42
- 11,19/04/2022,10:51
- 12,19/04/2022,11:00
- 13,19/04/2022,11:30
- 14,19/04/2022,11:37
- 16,19/04/2022,12:47
- 17,26/04/2022,10:50
- 18,07/05/2022,16:05
- 19,25/05/2022,09:21
- 20,25/05/2022,12:32
- 21,25/05/2022,12:45
- 22,25/05/2022,13:18
- 15,19/04/2022,12:02
- 4,09/04/2022,11:12

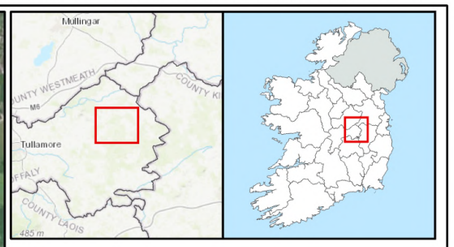
TITLE:	Buzzard 1		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

0 0.5 1 Kilometers





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

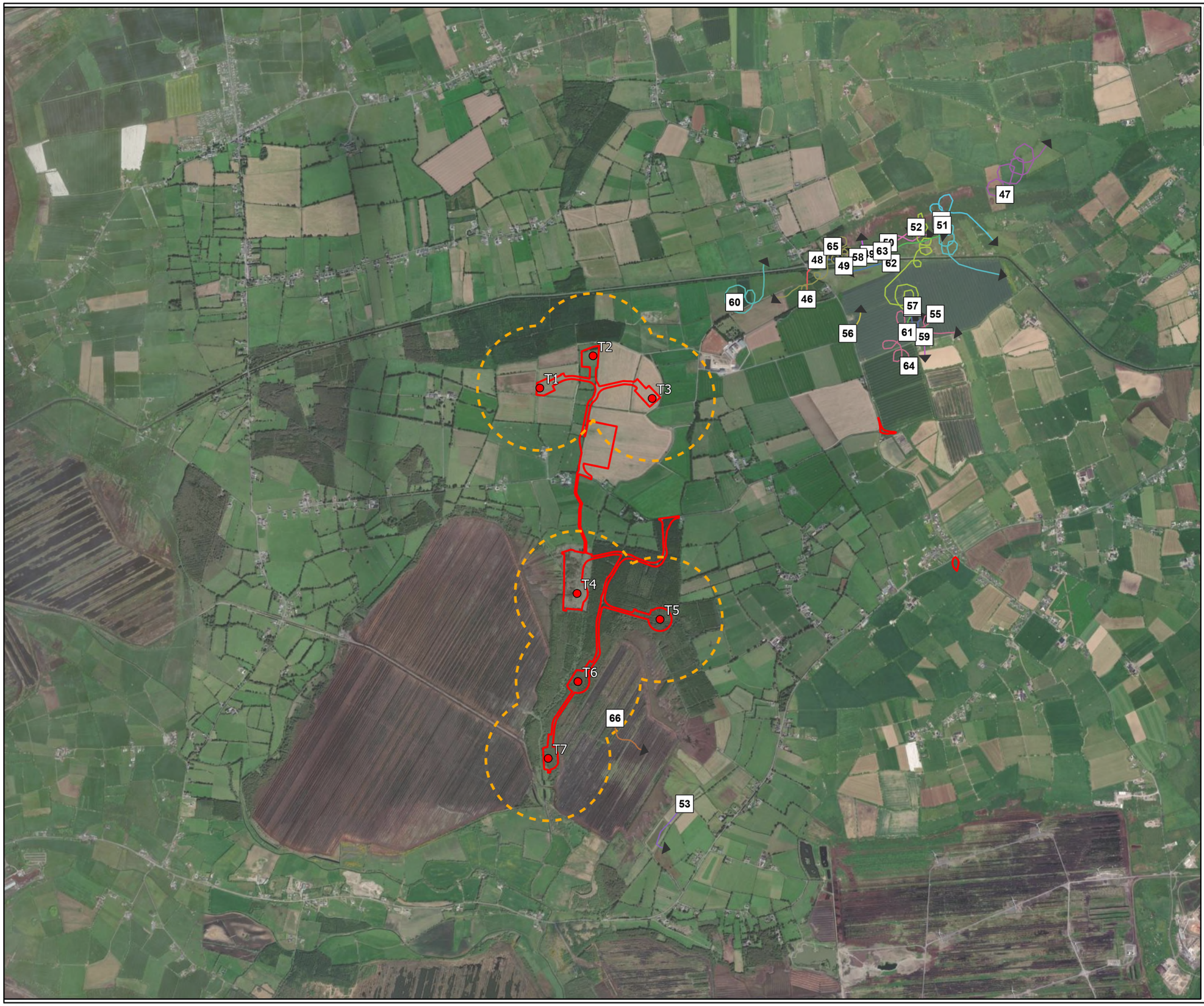
Bird ID, Date, Time

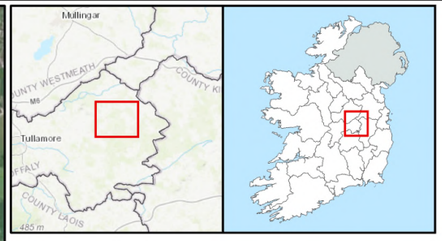
- 23,25/05/2022,13:26
- 24,30/05/2022,11:58
- 25,06/06/2022,11:05
- 26,06/06/2022,11:15
- 27,06/06/2022,12:55
- 28,06/06/2022,13:08
- 29,06/06/2022,13:17
- 30,17/06/2022,11:20
- 31,20/06/2022,08:43
- 32,20/06/2022,10:33
- 33,20/06/2022,11:06
- 34,20/06/2022,12:04
- 35,20/06/2022,13:18
- 36,07/07/2022,13:14
- 37,07/07/2022,13:17
- 38,13/07/2022,10:10
- 39,20/07/2022,13:17
- 40,02/08/2022,13:30
- 41,04/08/2022,10:56
- 42,04/08/2022,11:25
- 43,04/08/2022,11:56
- 44,04/08/2022,12:44

TITLE:	Buzzard 2		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S
0 0.5 1 Kilometers





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 45,04/08/2022,13:10
- 46,11/08/2022,11:28
- 47,11/08/2022,12:30
- 48,24/08/2022,11:43
- 49,24/08/2022,11:50
- 50,24/08/2022,12:46
- 51,24/08/2022,12:51
- 52,24/08/2022,13:02
- 53,10/09/2022,17:05
- 54,27/09/2022,17:33
- 55,27/09/2022,18:35
- 56,27/09/2022,18:38
- 57,27/09/2022,19:02
- 58,27/09/2022,19:28
- 59,05/10/2022,10:31
- 60,05/10/2022,12:23
- 61,11/10/2022,10:46
- 62,11/10/2022,10:48
- 63,11/10/2022,11:43
- 64,11/10/2022,13:12
- 65,11/10/2022,13:23
- 66,14/10/2022,15:10

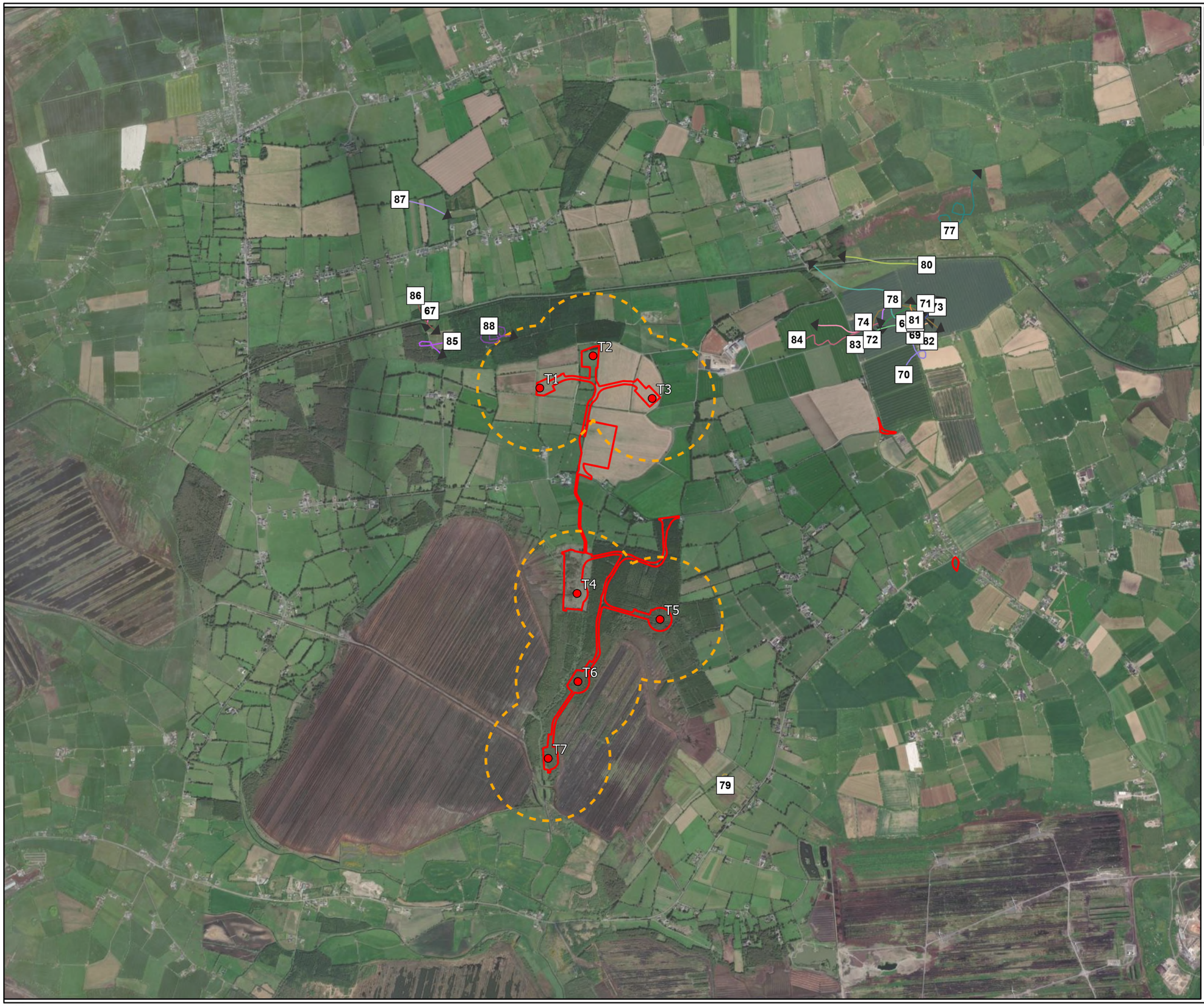
TITLE:	Buzzard 3		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1

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

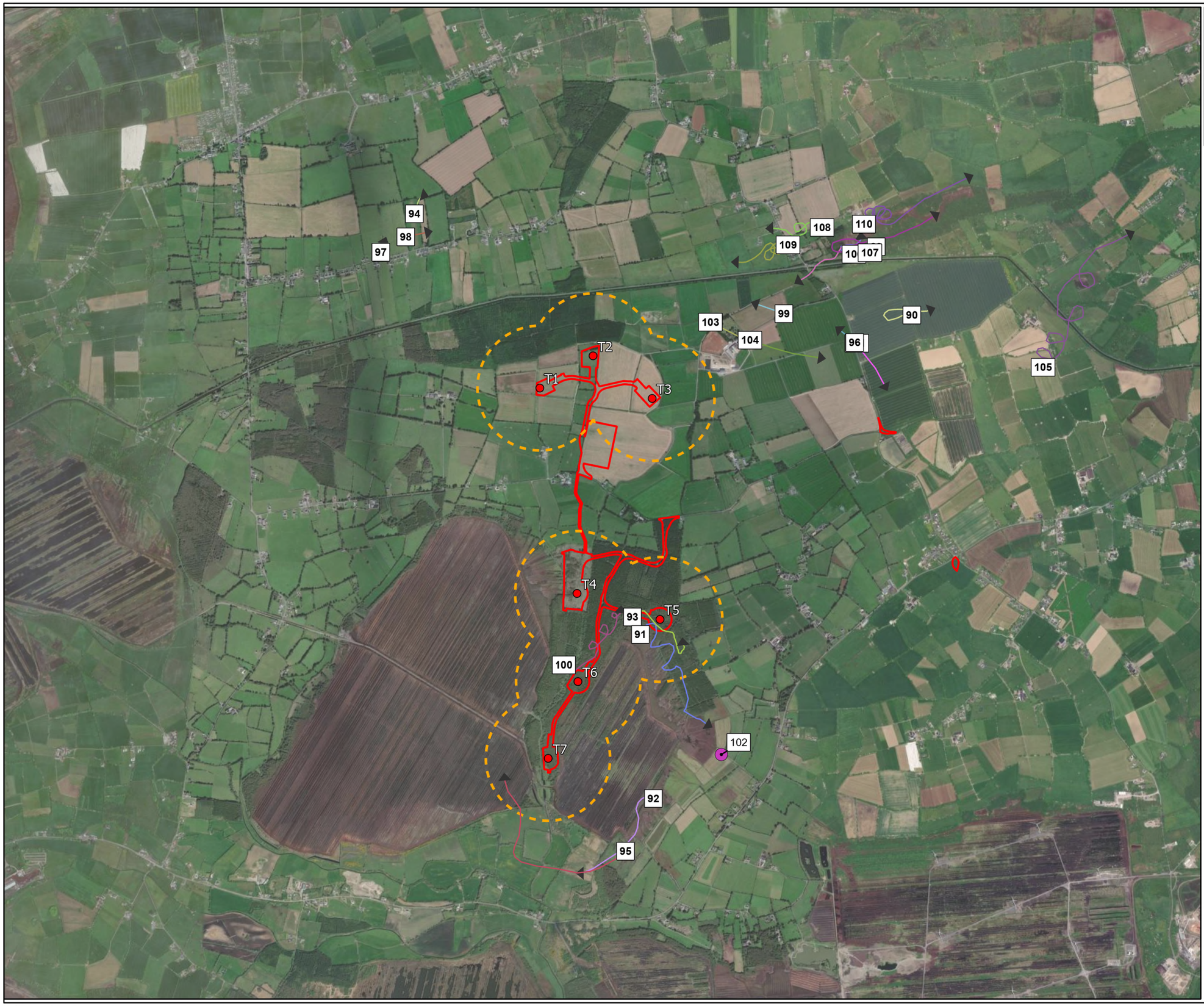
- 67,24/10/2022,09:42
- 68,24/10/2022,12:38
- 69,24/10/2022,12:42
- 70,24/10/2022,12:48
- 71,24/10/2022,13:50
- 72,24/10/2022,14:10
- 73,04/11/2022,11:15
- 74,04/11/2022,11:53
- 75,04/11/2022,12:20
- 76,04/11/2022,12:48
- 77,04/11/2022,13:15
- 78,15/11/2022,12:01
- 79,18/11/2022,11:10
- 80,06/12/2022,12:00
- 81,06/12/2022,12:03
- 82,06/12/2022,12:06
- 83,06/12/2022,12:16
- 84,06/12/2022,13:36
- 85,20/12/2022,08:15
- 86,20/12/2022,08:48
- 87,20/12/2022,10:44
- 88,20/12/2022,10:50

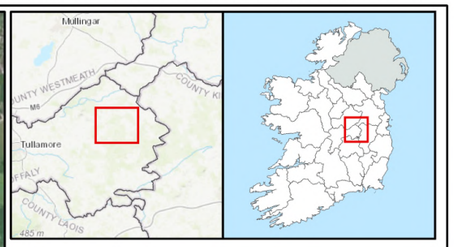
TITLE:	Buzzard 4		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

0 0.5 1 Kilometers





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

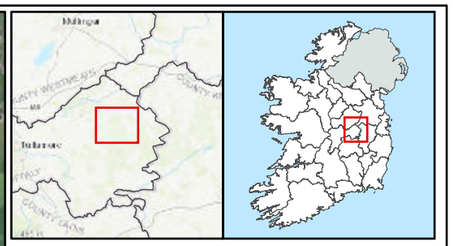
- 89,20/12/2022,12:27
- 90,20/12/2022,13:22
- 91,20/12/2022,13:55
- 92,29/12/2022,08:45
- 93,29/12/2022,09:20
- 94,05/01/2023,08:46
- 95,06/01/2023,12:55
- 96,18/01/2023,11:32
- 97,18/01/2023,Not Recorded
- 98,18/01/2023,Not Recorded
- 99,02/02/2023,12:10
- 100,09/02/2023,13:40
- 101,20/02/2023,11:10
- 103,02/03/2023,12:53
- 104,02/03/2023,13:02
- 105,22/03/2023,10:53
- 106,22/03/2023,11:09
- 107,22/03/2023,11:10
- 108,22/03/2023,11:43
- 109,22/03/2023,11:48
- 110,22/03/2023,11:57
- 102,02/03/2023,11:00

TITLE:	Buzzard 5		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S
0 0.5 1 Kilometers

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

- 1,20/12/2022,11:47
- 2,20/12/2022,12:48

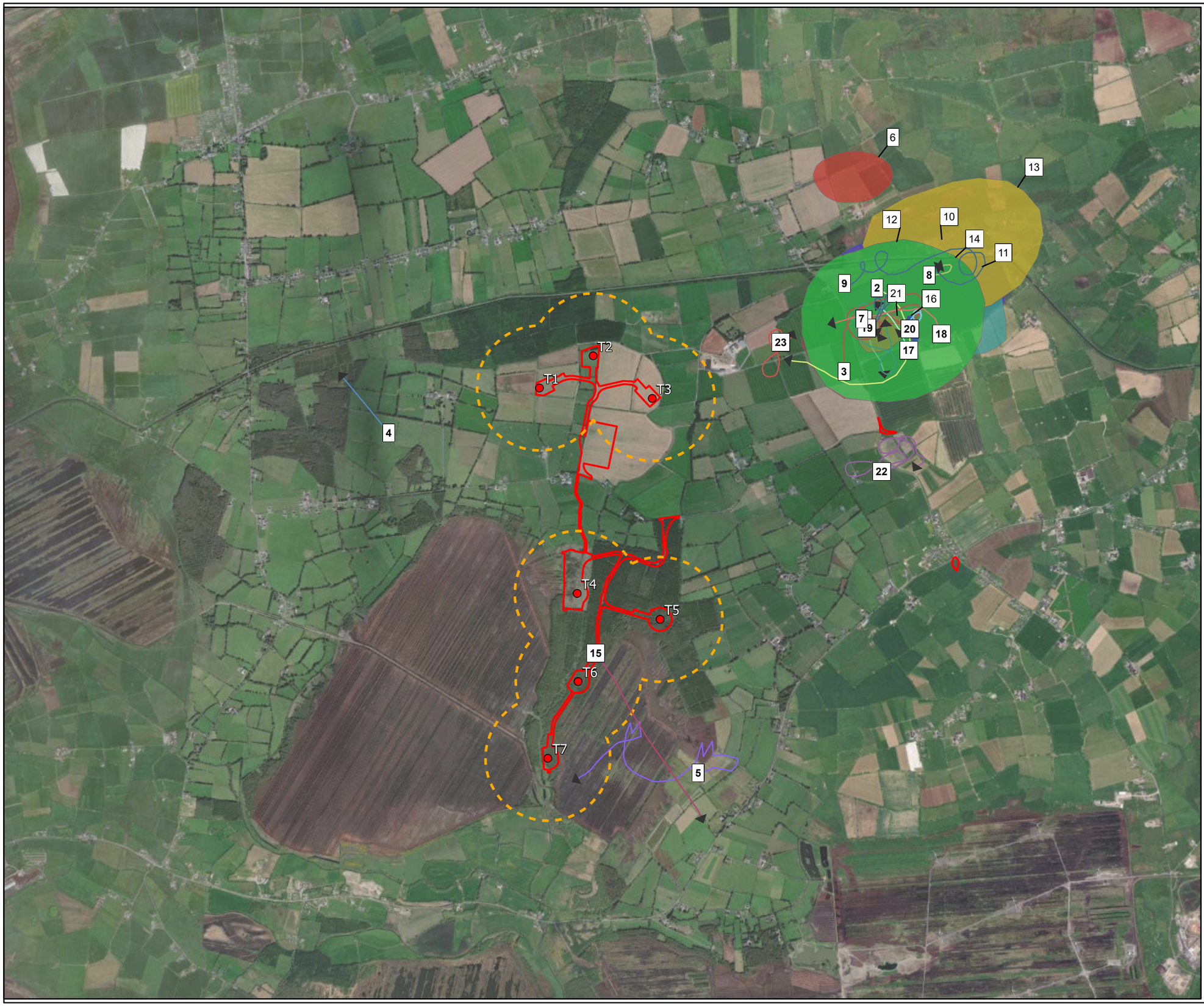
N
W E
S

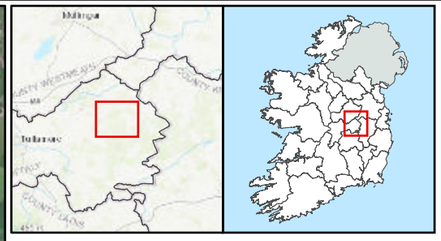
0 0.5 1 Kilometers

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,05/04/2022,17:56
- 2,05/04/2022,19:40
- 3,05/04/2022,20:08
- 4,19/08/2022,08:09
- 5,01/10/2022,14:10
- 7,24/10/2022,14:25
- 8,04/11/2022,11:10
- 9,04/11/2022,11:38
- 15,18/11/2022,08:45
- 17,20/12/2022,12:14
- 18,20/12/2022,13:01
- 19,18/01/2023,12:06
- 20,18/01/2023,12:16
- 22,02/03/2023,12:04
- 23,22/03/2023,11:18
- 10,04/11/2022,13:05
- 11,04/11/2022,13:23
- 12,15/11/2022,11:45
- 13,15/11/2022,12:54
- 14,15/11/2022,13:35
- 16,20/12/2022,11:32
- 21,18/01/2023,NA
- 6,11/10/2022,13:32

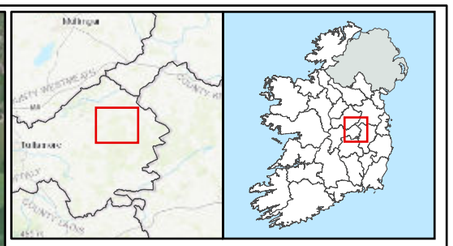
TITLE:	Golden Plover		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1

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

1,06/06/2022,07:32

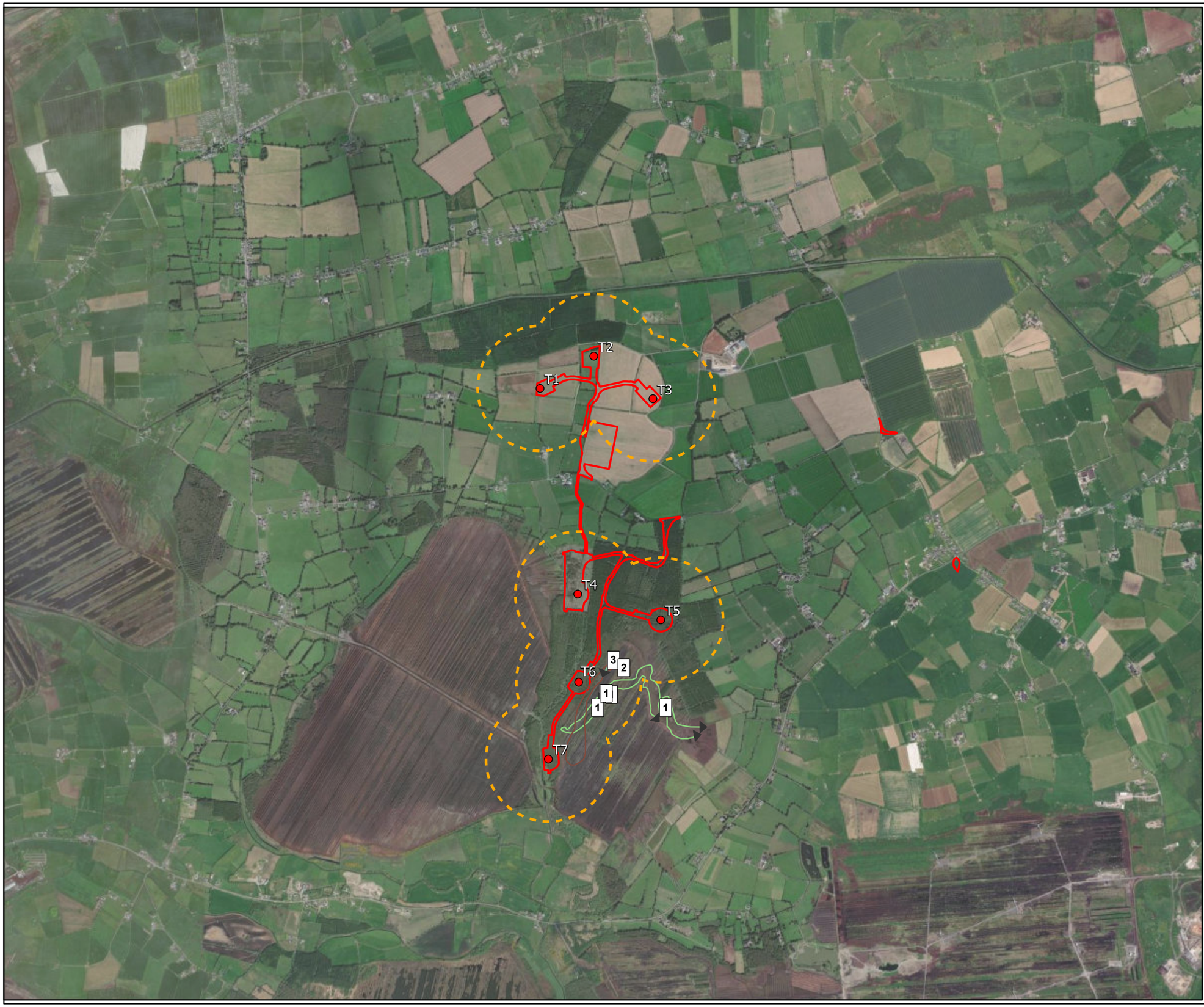
N W E S

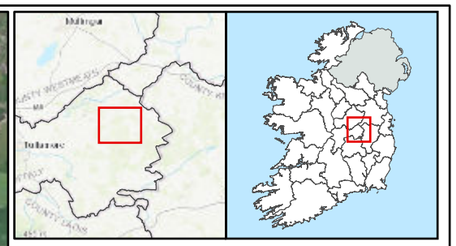
0 0.5 1 Kilometers

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,14/10/2022,14:45
- 2,22/10/2022,10:10
- 3,29/12/2022,09:30

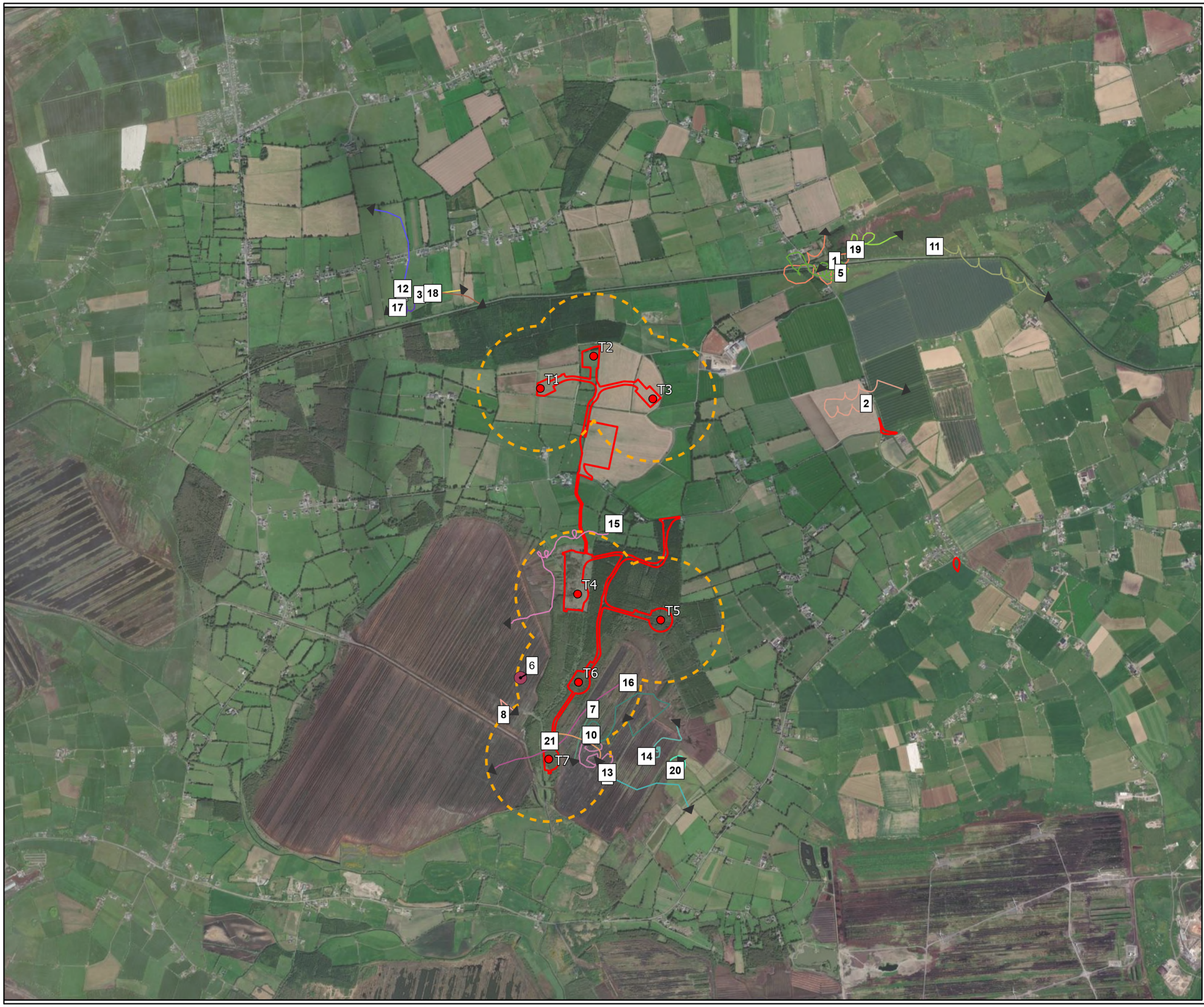
N W E S

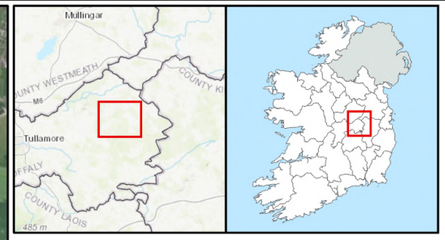
Kilometers
0 0.5 1

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,09/04/2022,11:13
- 2,09/04/2022,12:03
- 3,19/04/2022,07:17
- 4,30/05/2022,09:40
- 5,20/06/2022,12:09
- 7,11/07/2022,12:50
- 8,12/07/2022,15:30
- 9,12/07/2022,16:30
- 10,03/08/2022,16:30
- 11,04/08/2022,12:48
- 12,24/08/2022,07:54
- 13,06/09/2022,10:30
- 14,10/09/2022,16:20
- 15,30/09/2022,15:20
- 16,01/10/2022,15:25
- 17,11/10/2022,08:43
- 18,11/10/2022,08:47
- 19,11/10/2022,13:30
- 20,14/10/2022,15:10
- 21,22/10/2022,09:40
- 6,20/06/2022,14:30

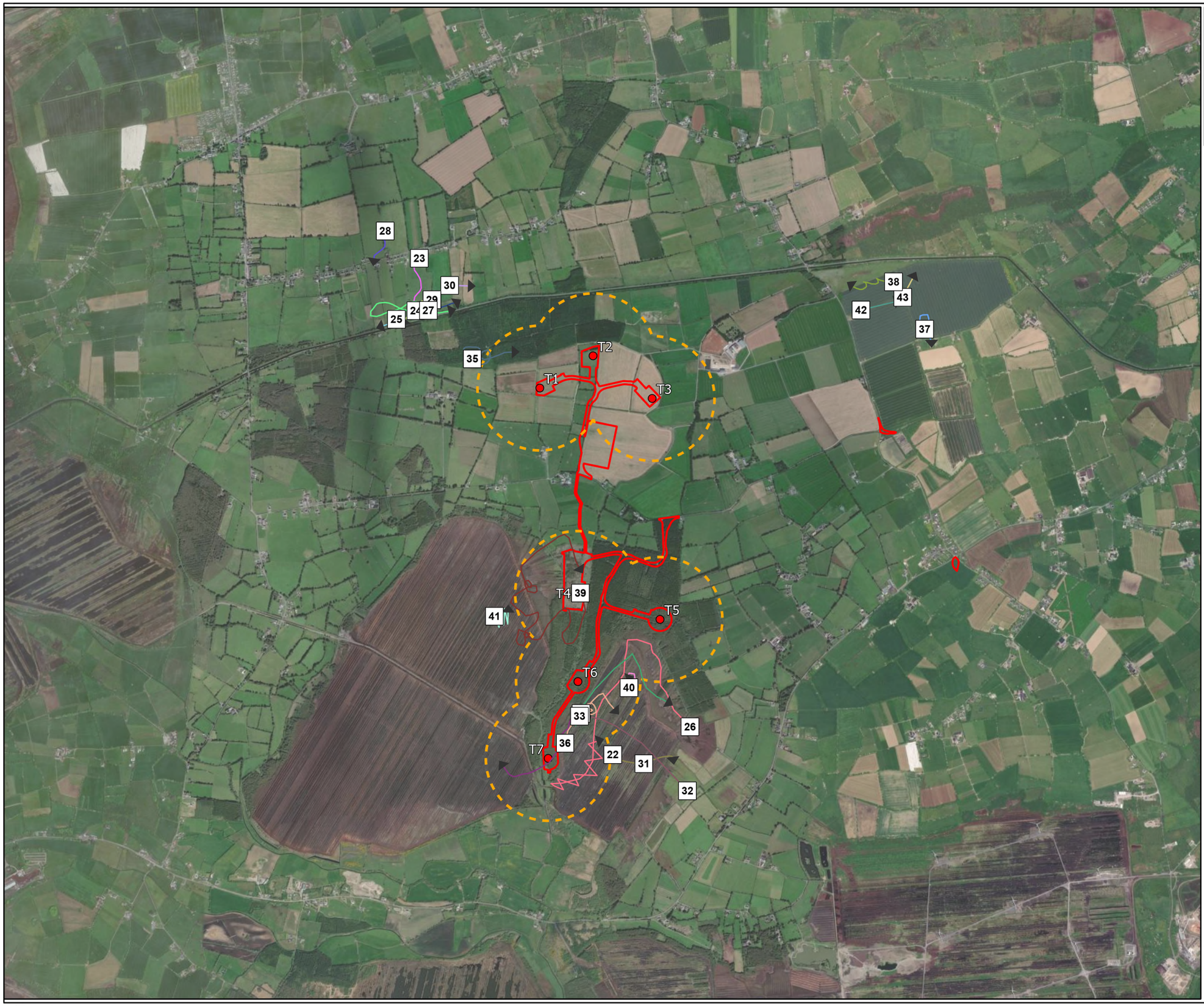
TITLE:	Kestrel 1		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

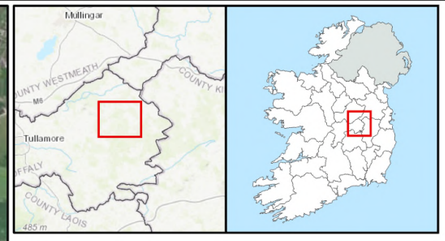
FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1

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

- 22,22/10/2022,12:25
- 23,04/11/2022,07:41
- 24,04/11/2022,07:52
- 25,04/11/2022,09:27
- 26,04/11/2022,12:30
- 27,15/11/2022,07:54
- 28,15/11/2022,08:29
- 29,15/11/2022,08:45
- 30,15/11/2022,09:35
- 31,18/11/2022,11:15
- 32,20/12/2022,12:50
- 33,20/12/2022,14:10
- 34,29/12/2022,11:05
- 35,18/01/2023,Not Recorded
- 36,19/01/2023,15:25
- 37,02/02/2023,12:21
- 38,02/02/2023,13:03
- 39,03/02/2023,14:20
- 40,09/02/2023,14:35
- 41,10/02/2023,14:50
- 42,02/03/2023,11:37
- 43,02/03/2023,11:45

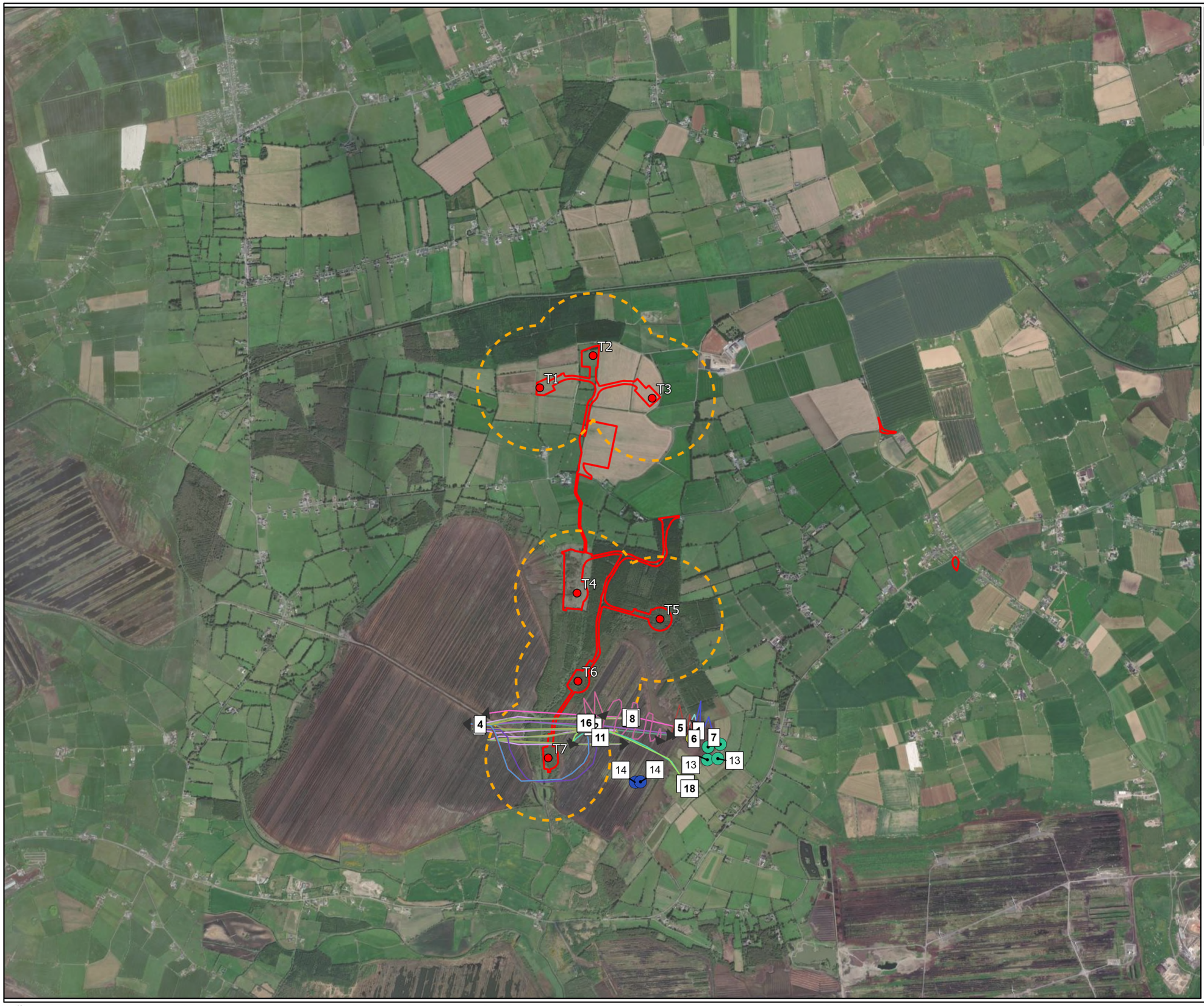
TITLE:	Kestrel 2		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	11/08/2025	**PAGE SIZE:**	A3

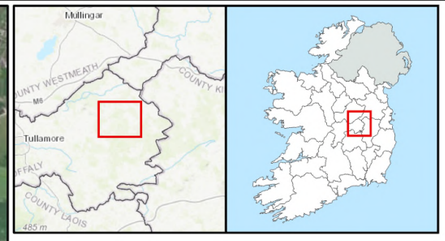
FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1

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

- 1,01/04/2022,17:05
- 2,01/04/2022,17:50
- 4,01/04/2022,18:50
- 5,01/04/2022,19:10
- 6,05/04/2022,08:10
- 7,05/04/2022,09:40
- 8,14/04/2022,16:30
- 9,14/04/2022,17:50
- 10,14/04/2022,17:55
- 11,26/04/2022,10:05
- 12,26/04/2022,11:20
- 15,26/04/2022,11:55
- 16,26/04/2022,12:00
- 17,07/05/2022,14:00
- 18,07/05/2022,14:55
- 19,08/05/2022,11:35
- 13,26/04/2022,11:30
- 14,26/04/2022,11:50
- 3,01/04/2022,18:15

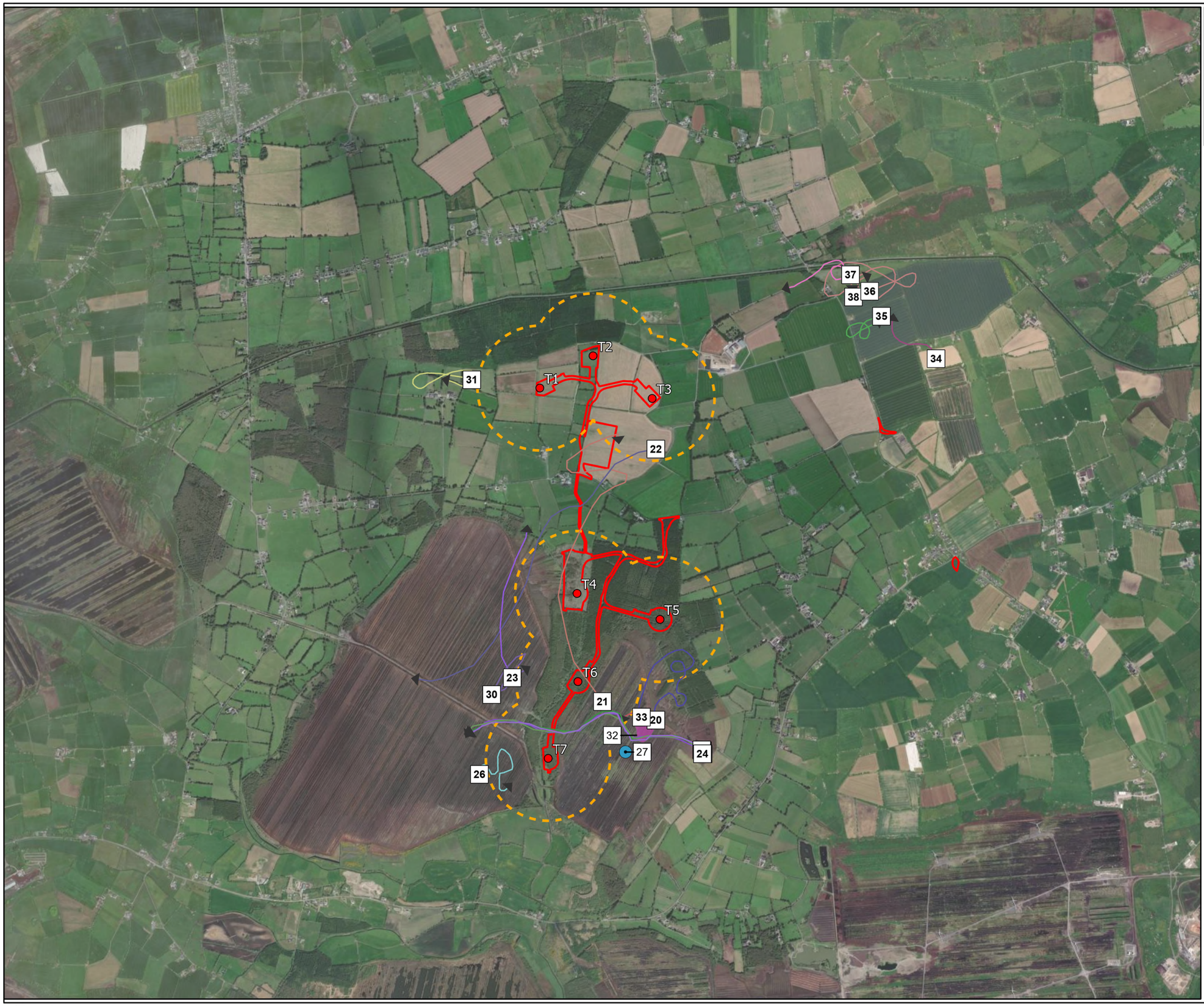
TITLE:	Lapwing 1		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

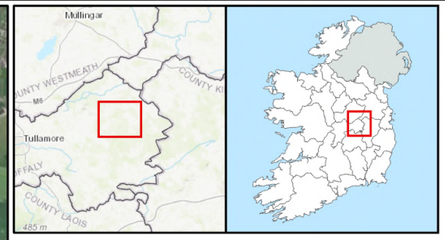
FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1

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

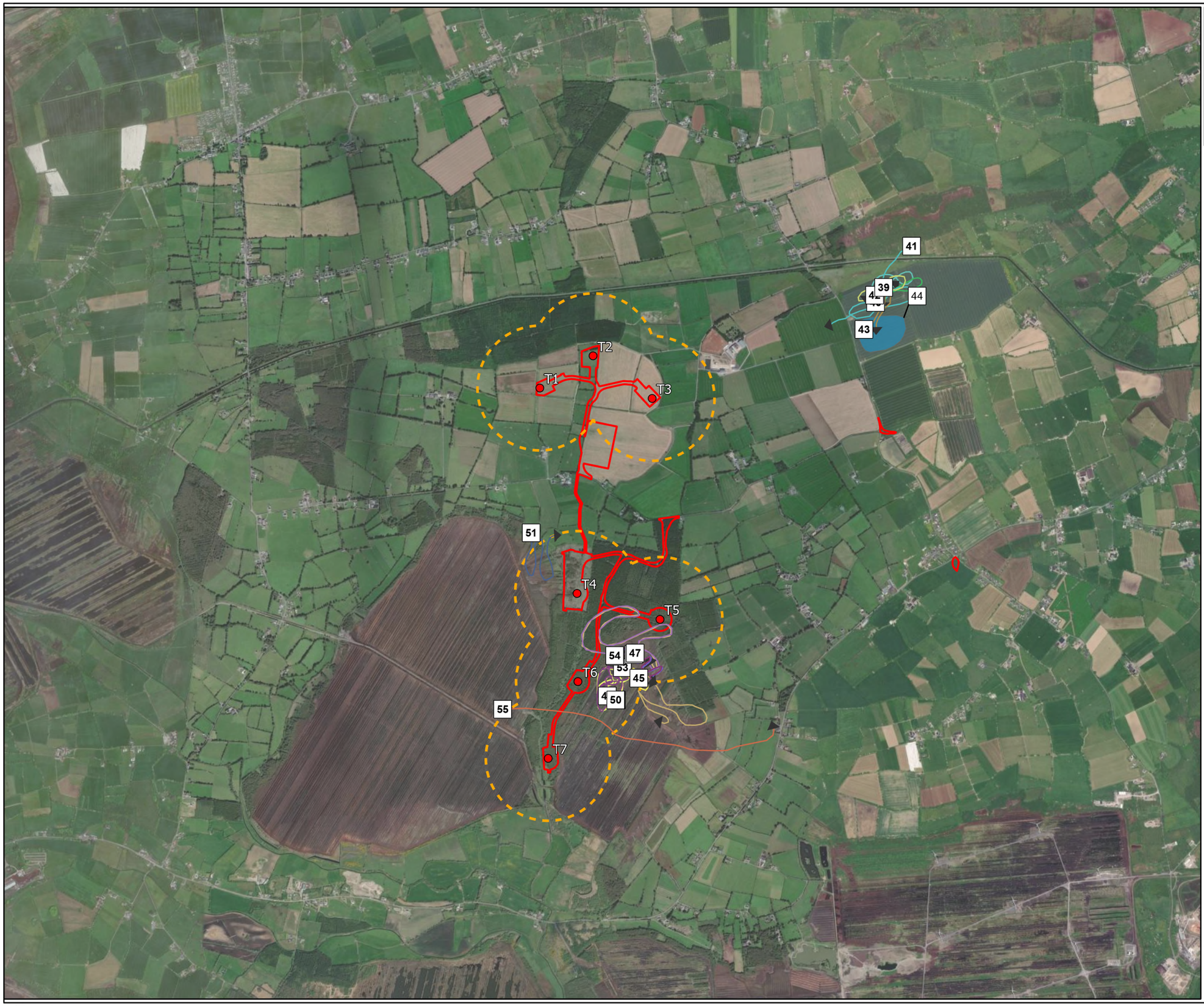
- 20,08/05/2022,12:20
- 21,09/06/2022,20:30
- 22,09/06/2022,20:50
- 23,09/06/2022,20:55
- 24,20/06/2022,14:00
- 25,20/06/2022,14:05
- 26,20/06/2022,14:35
- 28,22/06/2022,17:20
- 29,22/06/2022,18:05
- 30,11/07/2022,12:30
- 31,11/10/2022,09:57
- 33,22/10/2022,11:00
- 34,24/10/2022,13:12
- 35,24/10/2022,14:10
- 36,04/11/2022,10:50
- 37,04/11/2022,11:38
- 38,15/11/2022,11:01
- 27,22/06/2022,15:30
- 32,14/10/2022,14:00

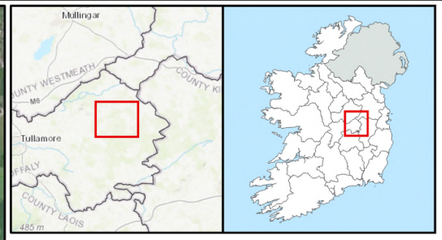
TITLE:	Lapwing 2		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 39,15/11/2022,13:02
- 40,15/11/2022,13:25
- 41,06/12/2022,12:55
- 42,20/12/2022,11:32
- 43,18/01/2023,12:42
- 45,02/03/2023,11:25
- 46,02/03/2023,12:45
- 47,02/03/2023,13:10
- 48,02/03/2023,13:15
- 49,02/03/2023,13:20
- 50,02/03/2023,13:50
- 51,17/03/2023,12:35
- 52,21/03/2023,09:40
- 53,21/03/2023,11:15
- 54,21/03/2023,11:20
- 55,21/03/2023,11:20
- 44,18/01/2023,NA

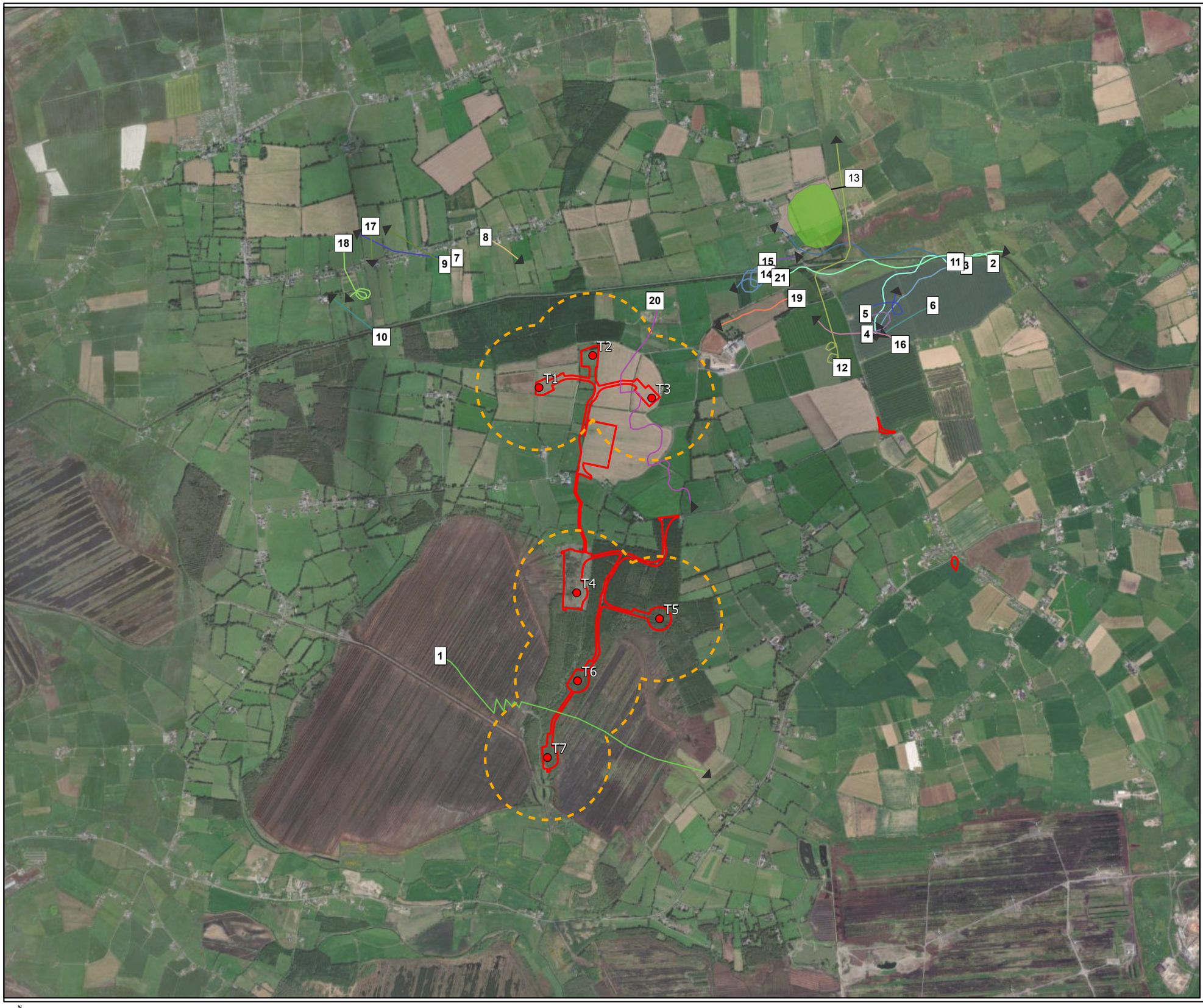
TITLE:	Lapwing 3		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

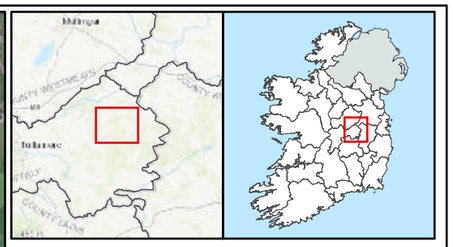
FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

Kilometers
0 0.5 1

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

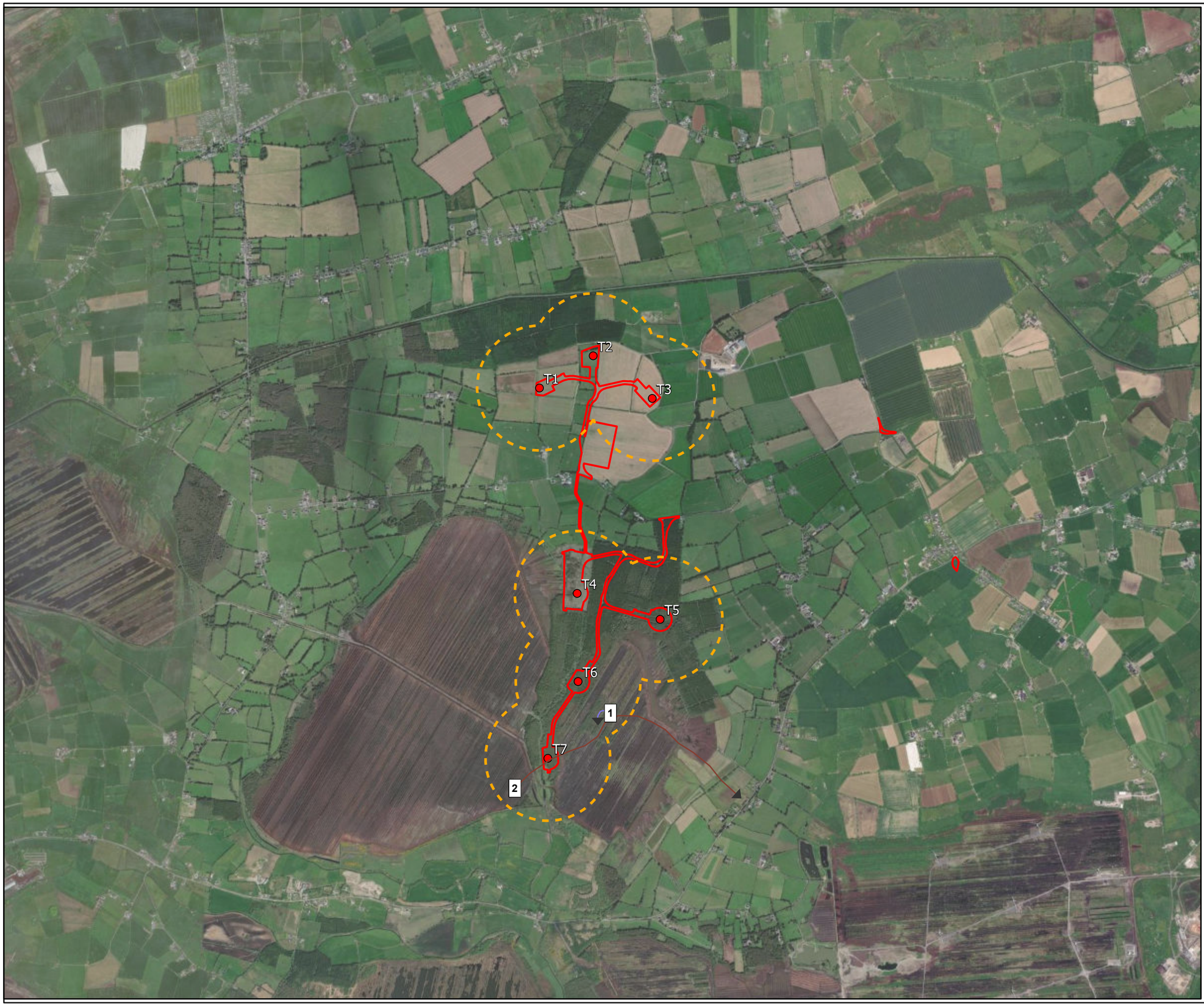
- 1,14/04/2022,17:55
- 2,25/05/2022,11:16
- 3,25/05/2022,11:22
- 4,25/05/2022,11:55
- 5,25/05/2022,12:40
- 6,25/05/2022,13:12
- 7,30/05/2022,07:15
- 8,30/05/2022,08:56
- 9,07/07/2022,07:51
- 10,07/07/2022,09:46
- 11,04/08/2022,12:18
- 12,11/08/2022,10:33
- 14,11/08/2022,12:49
- 15,11/08/2022,12:58
- 16,19/08/2022,12:35
- 17,24/08/2022,07:43
- 18,24/08/2022,09:35
- 19,04/11/2022,12:29
- 20,18/11/2022,13:00
- 21,22/03/2023,10:27
- 13,11/08/2022,12:38

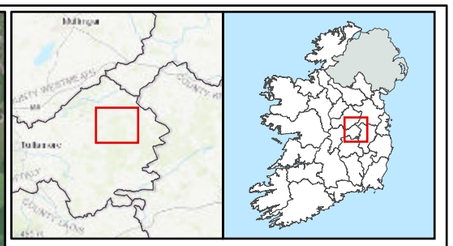
TITLE:	Lesser Black-backed Gull		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S
0 0.5 1 Kilometers

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

- 1,22/10/2022,09:45
- 2,20/12/2022,13:45

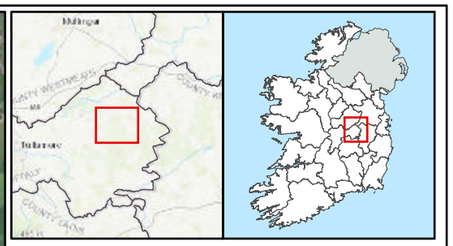
N W E S

0 0.5 1 Kilometers

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

3,19/08/2022,09:15

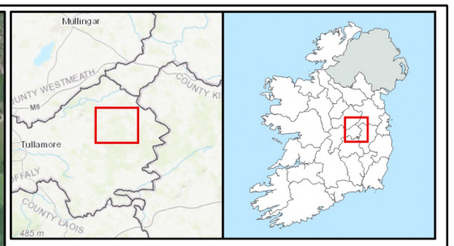
N W E S

0 0.5 1 Kilometers

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,01/04/2022,18:00
- 2,05/04/2022,09:10
- 3,05/04/2022,09:35
- 4,05/04/2022,11:15
- 5,05/04/2022,11:40
- 6,14/04/2022,16:55
- 7,17/04/2022,16:40
- 8,25/05/2022,11:10
- 9,25/05/2022,13:06
- 10,07/07/2022,13:05
- 11,02/08/2022,13:30
- 12,06/09/2022,08:40
- 13,30/09/2022,18:30
- 14,30/09/2022,18:40

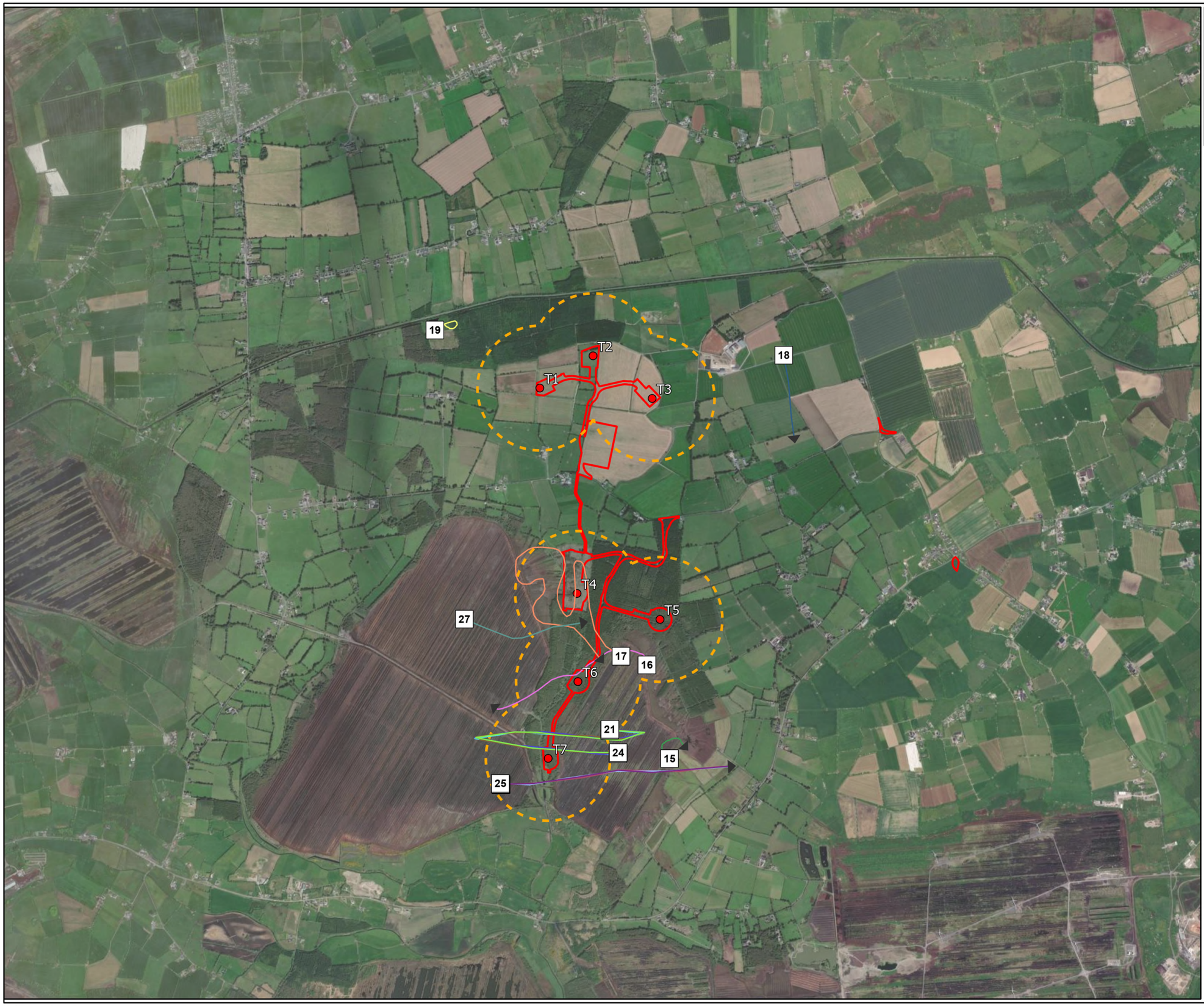
TITLE:	Mallard 1		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

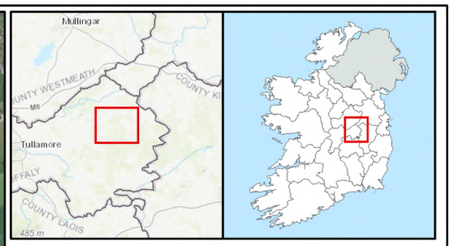
FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S

0 0.5 1 Kilometers

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

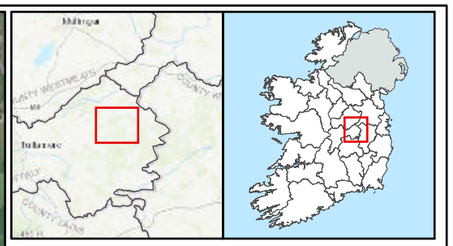
- 15,01/10/2022,13:40
- 16,22/10/2022,11:00
- 17,24/10/2022,11:10
- 18,02/02/2023,14:20
- 19,02/03/2023,07:24
- 20,02/03/2023,12:10
- 21,02/03/2023,12:35
- 22,02/03/2023,12:40
- 23,02/03/2023,13:25
- 24,02/03/2023,13:30
- 25,02/03/2023,13:35
- 26,02/03/2023,13:40
- 27,21/03/2023,14:35

TITLE:	Mallard 2		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
SCALE:	1:30,000	**REVISION:**	0
DATE:	08/08/2025	**PAGE SIZE:**	A3

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

N W E S
Kilometers
0 0.5 1

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

- 1,27/09/2022,18:46
- 2,06/12/2022,08:22
- 3,18/01/2023,12:03
- 4,02/03/2023,09:16

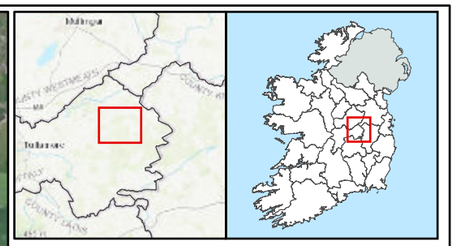
N W E S

0 0.5 1 Kilometers

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,05/04/2022,15:54
- 2,06/06/2022,08:25
- 3,06/06/2022,09:02
- 4,06/06/2022,09:06
- 5,20/06/2022,08:45
- 6,07/07/2022,08:31
- 7,07/07/2022,08:44
- 8,07/07/2022,09:50
- 9,22/10/2022,12:10
- 10,22/10/2022,12:20
- 11,09/02/2023,14:10

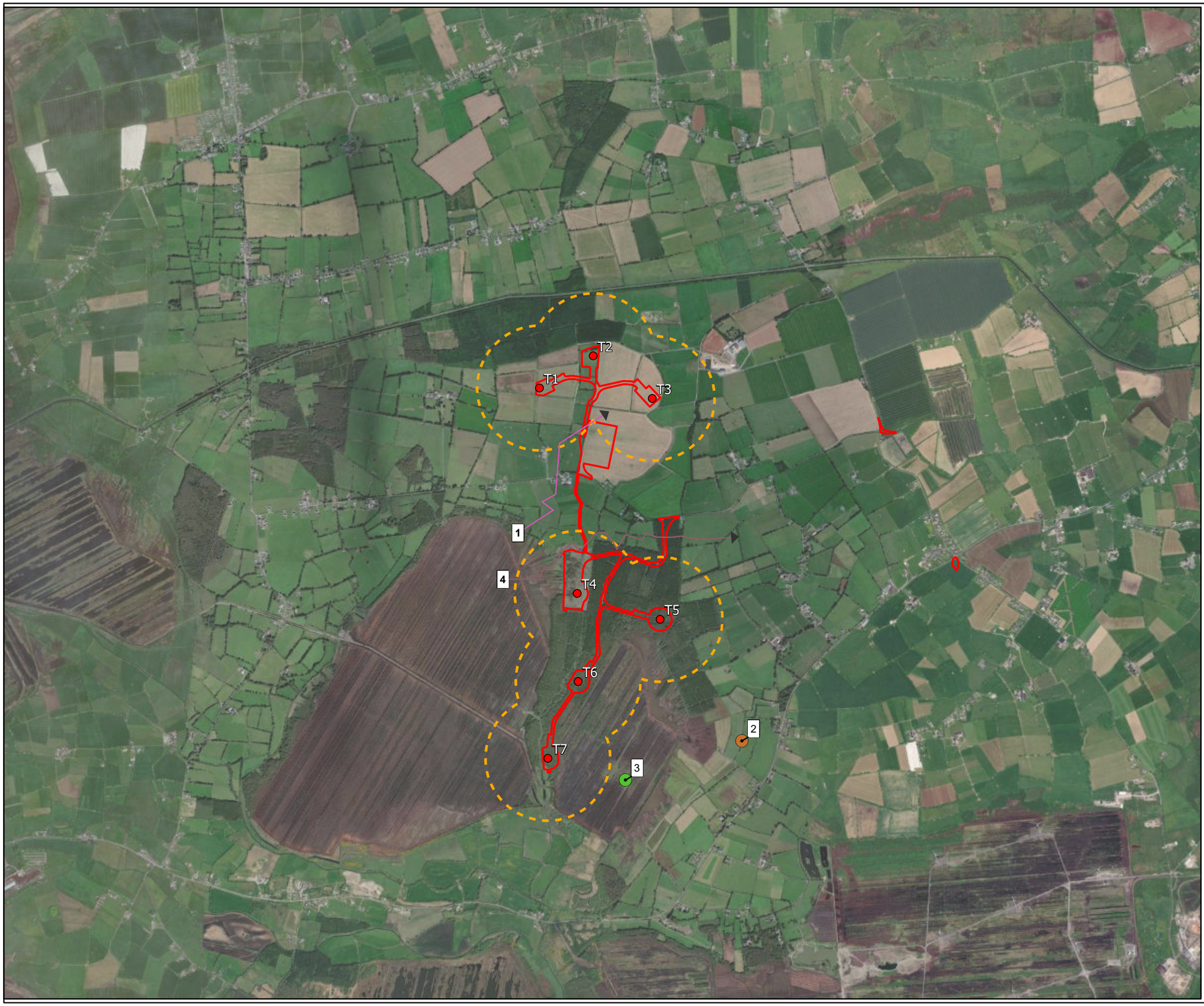
N W E S

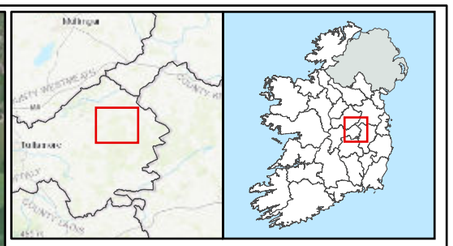
Kilometers
0 0.5 1

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,17/04/2022,18:25
- 4,05/01/2023,11:40
- 2,22/06/2022,17:05
- 3,30/09/2022,18:45

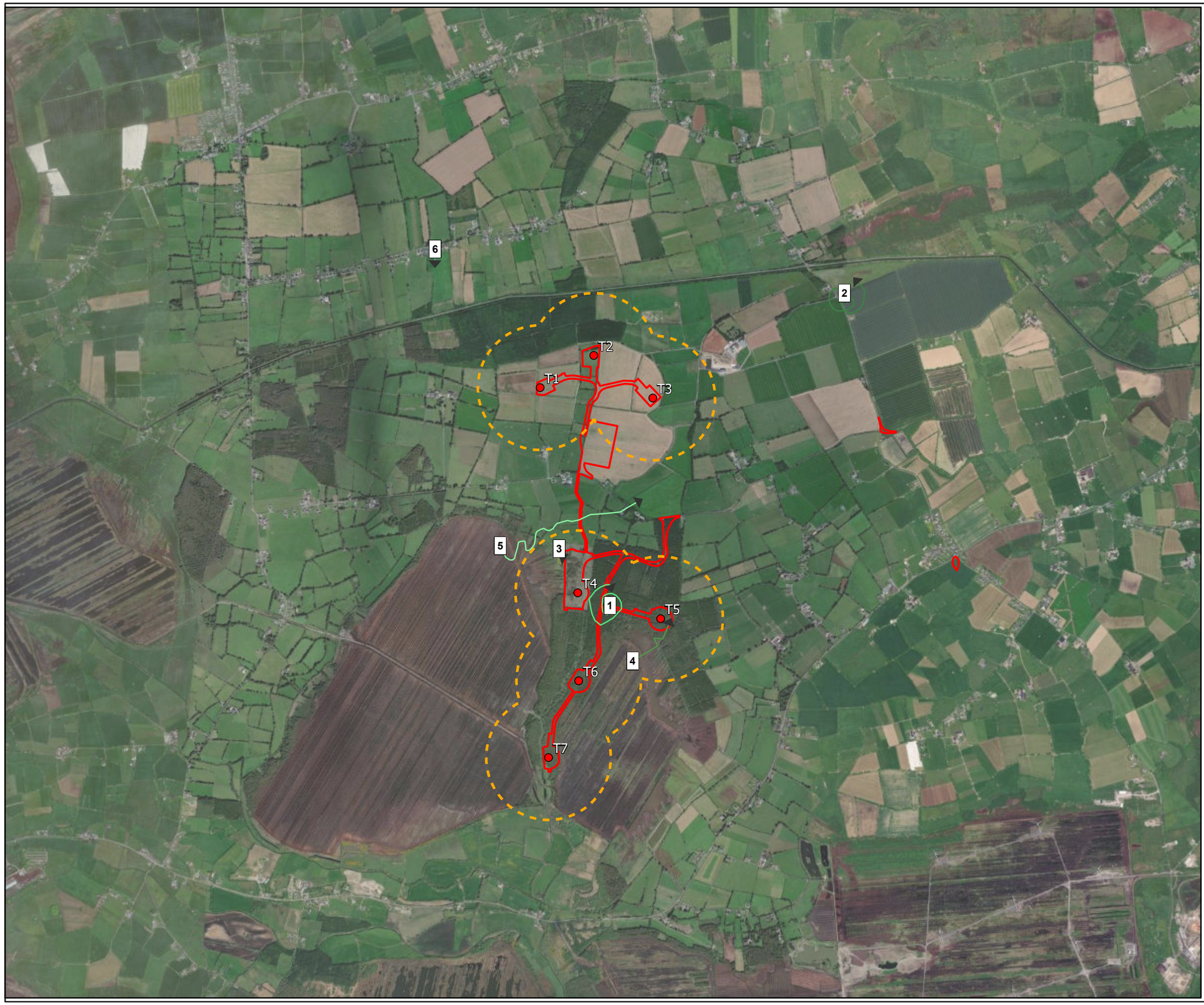
N
W E
S

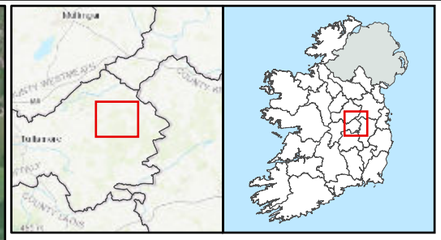
Kilometers
0 0.5 1

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

- 1,01/04/2022,15:15
- 2,18/04/2022,12:55
- 3,11/07/2022,15:35
- 4,03/08/2022,16:35
- 5,01/10/2022,16:50
- 6,04/11/2022,08:33

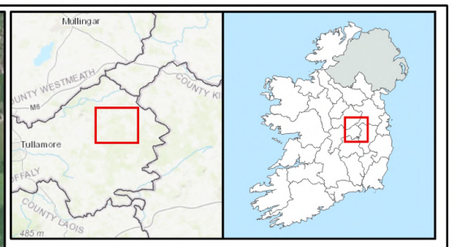
N
W E
S

Kilometers
0 0.5 1

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

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

FEHILY TIMONEY
Cork | Dublin | Carlow
www.fehilytimoney.ie

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 4

Hinterland Survey Results

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Summer 2022	HVP1	27/04/2022	4	Dry	2	E	No Target Species
Summer 2022	HVP2	27/04/2022	4	Dry	2	E	No Target Species
Summer 2022	HVP3	27/04/2022	4	Dry	2	E	No Target Species
Summer 2022	HVP4	27/04/2022	4	Dry	2	E	No Target Species
Summer 2022	HVP5	27/04/2022	4	Dry	2	E	No Target Species
Summer 2022	HVP6	27/04/2022	4	Dry	2	E	Common Sandpiper
Summer 2022	HVP7	27/04/2022	4	Dry	2	E	Buzzard
Summer 2022	HVP7	27/04/2022	4	Dry	2	E	Mute Swan
Summer 2022	HVP8	27/04/2022	4	Dry	2	E	Mute Swan
Summer 2022	HVP8	27/04/2022	4	Dry	2	E	Mallard
Summer 2022	HVP8	27/04/2022	4	Dry	2	E	Little Grebe
Summer 2022	HVP8	27/04/2022	4	Dry	2	E	Common Sandpiper
Summer 2022	HVP1	08/05/2022	6	Dry	0	0	No Target Species
Summer 2022	HVP2	08/05/2022	6	Dry	0	0	No Target Species
Summer 2022	HVP3	08/05/2022	6	Dry	0	0	No Target Species
Summer 2022	HVP4	08/05/2022	6	Dry	0	0	No Target Species
Summer 2022	HVP5	08/05/2022	6	Dry	0	0	No Target Species
Summer 2022	HVP6	08/05/2022	6	Dry	0	0	No Target Species
Summer 2022	HVP7	08/05/2022	6	Dry	0	0	Lapwing
Summer 2022	HVP7	08/05/2022	6	Dry	0	0	Mallard
Summer 2022	HVP7	08/05/2022	6	Dry	0	0	Sparrowhawk
Summer 2022	HVP8	08/05/2022	6	Dry	0	0	Mute Swan

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Summer 2022	HVP8	08/05/2022	6	Dry	0	0	Little Grebe
Summer 2022	HVP1	22/06/2022	8	Dry	1	NW	No Target Species
Summer 2022	HVP2	22/06/2022	8	Dry	1	NW	No Target Species
Summer 2022	HVP3	22/06/2022	8	Dry	1	NW	No Target Species
Summer 2022	HVP4	22/06/2022	8	Dry	1	NW	No Target Species
Summer 2022	HVP5	22/06/2022	8	Dry	1	NW	No Target Species
Summer 2022	HVP6	22/06/2022	8	Dry	1	NW	No Target Species
Summer 2022	HVP7	22/06/2022	8	Dry	1	NW	Lapwing
Summer 2022	HVP7	22/06/2022	8	Dry	1	NW	Mute Swan
Summer 2022	HVP7	22/06/2022	8	Dry	1	NW	Buzzard
Summer 2022	HVP8	22/06/2022	8	Dry	1	NW	Cuckoo
Summer 2022	HVP8	22/06/2022	8	Dry	1	NW	Little Grebe
Summer 2022	HVP8	22/06/2022	8	Dry	1	NW	Moorhen
Summer 2022	HVP8	22/06/2022	8	Dry	1	NW	Buzzard
Summer 2022	HVP8	22/06/2022	8	Dry	1	NW	Sparrowhawk
Summer 2022	HVP2	11/07/2022	Not Recorded	Dry	2	S	No Target Species
Summer 2022	HVP3	11/07/2022	Not Recorded	Dry	2	S	No Target Species
Summer 2022	HVP4	11/07/2022	Not Recorded	Dry	2	S	No Target Species
Summer 2022	HVP8	11/07/2022	Not Recorded	Dry	2	S	Buzzard
Summer 2022	HVP8	11/07/2022	Not Recorded	Dry	2	S	Snipe
Summer 2022	HVP8	11/07/2022	Not Recorded	Dry	2	S	Moorhen
Summer 2022	HVP8	11/07/2022	Not Recorded	Dry	2	S	Mallard

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Summer 2022	HVP7	12/07/2022	8	Dry	2	SW	Ringed Plover
Summer 2022	HVP7	12/07/2022	8	Dry	2	SW	Black-headed Gull
Summer 2022	HVP7	12/07/2022	8	Dry	2	SW	Mute Swan
Summer 2022	HVP7	12/07/2022	8	Dry	2	SW	Kestrel
Summer 2022	HVP7	12/07/2022	8	Dry	2	SW	Snipe
Summer 2022	HVP1	13/07/2022	4	Dry	1	NW	No Target Species
Summer 2022	HVP5	13/07/2022	4	Dry	1	NW	No Target Species
Summer 2022	HVP6	13/07/2022	4	Dry	1	NW	No Target Species
Summer 2022	HVP1	01/08/2022	04-Aug	Dry	2	S	No Target Species
Summer 2022	HVP2	01/08/2022	04-Aug	Dry	2	S	No Target Species
Summer 2022	HVP3	01/08/2022	04-Aug	Dry	2	S	No Target Species
Summer 2022	HVP4	01/08/2022	04-Aug	Dry	2	S	No Target Species
Summer 2022	HVP5	01/08/2022	04-Aug	Dry	2	S	No Target Species
Summer 2022	HVP6	01/08/2022	04-Aug	Dry	2	S	No Target Species
Summer 2022	HVP7	01/08/2022	04-Aug	Dry	2	S	Long-eared Owl
Summer 2022	HVP7	01/08/2022	04-Aug	Dry	2	S	Mallard
Summer 2022	HVP7	01/08/2022	04-Aug	Dry	2	S	Snipe
Summer 2022	HVP7	01/08/2022	04-Aug	Dry	2	S	Lapwing
Summer 2022	HVP7	01/08/2022	04-Aug	Dry	2	S	Lesser Black-backed Gull
Summer 2022	HVP7	01/08/2022	04-Aug	Dry	2	S	Little Egret
Summer 2022	HVP8	03/08/2022	Not Recorded	Not Recorded	Not Recorded	S	Buzzard
Summer 2022	HVP5	10/09/2022	2	Dry	2	SE	No Target Species

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Summer 2022	HVP6	10/09/2022	2	Dry	2	SE	No Target Species
Summer 2022	HVP7	10/09/2022	2	Dry	2	SE	Buzzard
Summer 2022	HVP7	10/09/2022	2	Dry	2	SE	Little Egret
Summer 2022	HVP7	10/09/2022	2	Dry	2	SE	Snipe
Summer 2022	HVP1	16/09/2022	4	Dry	1	SE	No Target Species
Summer 2022	HVP2	16/09/2022	4	Dry	1	SE	No Target Species
Summer 2022	HVP3	16/09/2022	4	Dry	1	SE	No Target Species
Summer 2022	HVP4	16/09/2022	4	Dry	1	SE	No Target Species
Summer 2022	HVP8	16/09/2022	4	Dry	1	SE	Mute Swan
Summer 2022	HVP8	16/09/2022	4	Dry	1	SE	Wheatear
Summer 2022	HVP8	16/09/2022	4	Dry	1	SE	Buzzard
Winter 2022/23	HVP1	14/10/2022	4	Dry	1	WSW	No Target Species
Winter 2022/23	HVP2	14/10/2022	4	Dry	1	WSW	No Target Species
Winter 2022/23	HVP3	14/10/2022	4	Dry	1	WSW	No Target Species
Winter 2022/23	HVP4	14/10/2022	4	Dry	1	WSW	No Target Species
Winter 2022/23	HVP5	14/10/2022	4	Dry	1	WSW	No Target Species
Winter 2022/23	HVP6	14/10/2022	4	Dry	1	WSW	No Target Species
Winter 2022/23	HVP7	14/10/2022	4	Dry	1	WSW	Whooper Swan
Winter 2022/23	HVP7	14/10/2022	4	Dry	1	WSW	Snipe
Winter 2022/23	HVP7	14/10/2022	4	Dry	1	WSW	Meadow Pipit
Winter 2022/23	HVP8	14/10/2022	4	Dry	1	WSW	Little Grebe
Winter 2022/23	HVP8	14/10/2022	4	Dry	1	WSW	Moorhen

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Winter 2022/23	HVP8	14/10/2022	4	Dry	1	WSW	Mute Swan
Winter 2022/23	HVP8	14/10/2022	4	Dry	1	WSW	Buzzard
Winter 2022/23	HVP8	14/10/2022	4	Dry	1	WSW	Golden Plover
Winter 2022/23	HVP1	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP2	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP3	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP4	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP5	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP6	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP7	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Buzzard
Winter 2022/23	HVP7	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP7	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Whooper Swan
Winter 2022/23	HVP8	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP8	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Moorhen
Winter 2022/23	HVP8	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Snipe
Winter 2022/23	HVP8	09/11/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Buzzard
Winter 2022/23	HVP1	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP2	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP3	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP4	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP5	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP6	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Winter 2022/23	HVP7	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Kestrel
Winter 2022/23	HVP8	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP8	18/12/2022	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mallard
Winter 2022/23	HVP2	01/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP3	02/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP8	03/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP8	04/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Whooper Swan
Winter 2022/23	HVP8	05/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Snipe
Winter 2022/23	HVP7	06/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP7	07/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Buzzard
Winter 2022/23	HVP5	08/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP6	09/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP1	10/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP4	11/01/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP1	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP4	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP5	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP6	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP7	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Whooper Swan
Winter 2022/23	HVP7	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP7	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Buzzard
Winter 2022/23	HVP7	03/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Sparrowhawk

Season	Code	Date	Cloud (Oktas)	Precipitation	Wind Speed (Beaufort)	Wind Direction	Species
Winter 2022/23	HVP2	10/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP3	10/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP8	10/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP8	10/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mallard
Winter 2022/23	HVP8	10/02/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Moorhen
Winter 2022/23	HVP1	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP4	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP5	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP6	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP7	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Lapwing
Winter 2022/23	HVP7	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan
Winter 2022/23	HVP7	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Buzzard
Winter 2022/23	HVP7	02/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mallard
Winter 2022/23	HVP2	17/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP3	17/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	No Target Species
Winter 2022/23	HVP8	17/03/2023	Not Recorded	Not Recorded	Not Recorded	Not Recorded	Mute Swan

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

APPENDIX 5

Hinterland Site Locations and Survey Details

Site Code	Location and Distance to Site Boundary	Eastings	Northings	Dates Visited
HVP 1	Trimblestown Bridge (0.03km)	657900	732509	27/04/2022 08/05/2022 22/06/2022 13/07/2022 01/08/2022 16/09/2022 14/10/2022 09/11/2022 18/12/2022 10/01/2023 03/02/2023 02/03/2023
HVP 2	Cartland Bridge (1.56km)	659702	732386	08/05/2022 11/07/2022 01/08/2022 27/04/2022 16/09/2022 22/06/2022 14/10/2022 09/11/2022 18/12/2022 01/01/2023 10/02/2023 17/03/2023
HVP 3	Colgan's Bridge (3.91km)	661977	731471	08/05/2022 11/07/2022 01/08/2022 27/04/2022 16/09/2022 22/06/2022 14/10/2022 09/11/2022 18/12/2022 02/01/2023 10/02/2023 17/03/2023

Site Code	Location and Distance to Site Boundary	Eastings	Northings	Dates Visited
HVP 4	Georges Bridge (3.59km)	661667	731540	08/05/2022 11/07/2022 01/08/2022 27/04/2022 16/09/2022 22/06/2022 14/10/2022 09/11/2022 18/12/2022 11/01/2023 03/02/2023 02/03/2023
HVP 5	Rhode Bridge (1.25km)	653419	731667	08/05/2022 11/07/2022 01/08/2022 27/04/2022 16/09/2022 22/06/2022 14/10/2022 09/11/2022 18/12/2022 02/01/2023 10/02/2023 17/03/2023
HVP 6	Toberdaly (2.22km)	652527	731215	08/05/2022 11/07/2022 01/08/2022 27/04/2022 16/09/2022 22/06/2022 14/10/2022 09/11/2022 18/12/2022 02/01/2023 10/02/2023 17/03/2023

Site Code	Location and Distance to Site Boundary	Eastings	Northings	Dates Visited
HVP 7	Ballyhugh (Flooded Cutover Bog) (4.63km)	650865	729129	08/05/2022 01/08/2022 12/07/2022 22/06/2022 10/09/2022 14/10/2022 09/11/2022 18/12/2022 06/01/2023 07/01/2023 03/02/2023 02/03/2022
HVP 8	Rathvilla (Cutover Bog/ Flooded Quarries) (2.17km)	658119	727384	08/05/2022 11/07/2022 27/04/2022 03/08/2022 16/09/2022 22/06/2022 14/10/2022 09/11/2022 18/12/2022 03/01/2023 04/01/2023 05/01/2023 10/02/2023 17/03/2023

FEHILY TIMONEY

DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

www.fehilytimoney.ie