

## APPENDIX 7.1

### Baseline Ornithology Report Year 1

# BALLINLA WIND FARM

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## Baseline Ornithological Report Summer 2021 and Winter 2021/22

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Prepared for:

Statkraft



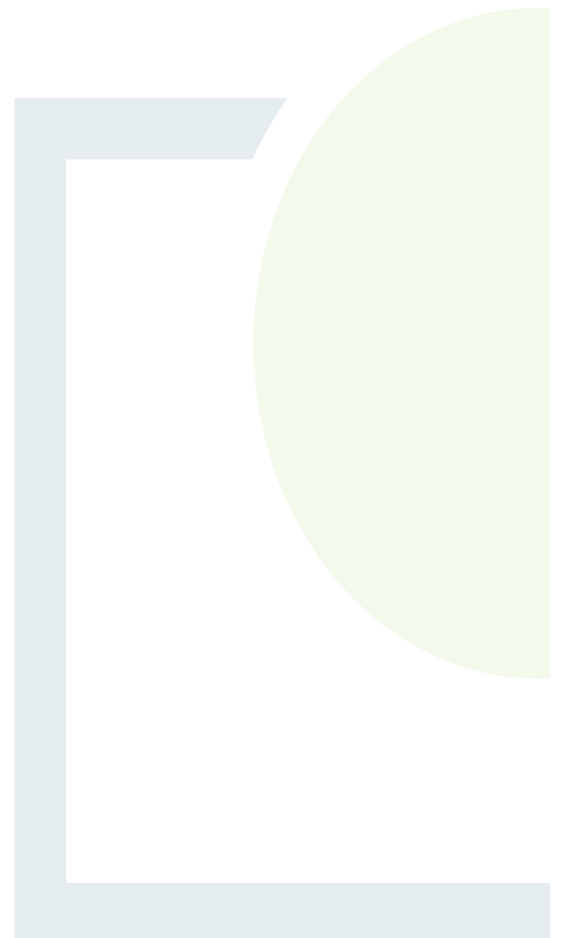
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## 1. INTRODUCTION

Fehily Timoney and Company (FT) was appointed by Statkraft to undertake ornithological surveys at the proposed Ballinla wind farm over summer 2021 and winter 2021/22. This report presents the results of the first year of ornithological surveys and summarises the activity of bird species during survey periods in 2021/2022. The study area of Ballinla Wind Farm is located in 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: The following surveys were carried out:

- Vantage Point (VP) surveys
- Hinterland surveys
- Breeding Bird Transect surveys
- Winter Bird Transect surveys
- Breeding Wader 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 some areas of bogland 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. Additionally, the area is hydrologically connected to the River Boyne with tributaries flowing through the northern section of the developable area. It is also hydrologically linked to the River Barrow via River Daingean and River Figile. There are two small lakes located to the south of the proposed site which lie between peat bogland.

There are no Special Protection Areas (SPAs) within 15km of the proposed wind farm site.

The following proposed National Heritage Sites (pNHAs) are located within 15km of the developable area.

- Raheenmore Bog pNHA (site code: 000582)
- Grand Canal pNHA (site code: 002104)
- Raheen Lough pNHA (site code: 000917)
- The Long Derries, Edenderry pNHA (site code: 000925)
- Ballina Bog pNHA (site code: 000390)
- Rahugh Ridge pNHA (Kiltobber Esker) (site code: 000918)



Raheenmore Bog pNHA is a raised bog that is also a designated Special Area of Conservation (SAC) under the EU Habitats Directive. This site, located c. 10 km west of the proposed site, is noted in the SAC site synopsis (NPWS, 2013) as being within the breeding territory of an Annex I merlin pair. Other wetland species including red grouse and snipe have also been recorded breeding within this site.

The Long Derries pNHA (c. 8.2 km east of proposed site) is part of a low esker ridge and comprises of glacial gravels with loam and peat soil. This is also an SAC that is designated to protect orchid rich calcareous grassland. Species including sand martin, whinchat, whitethroat and cuckoo have been recorded here during summer seasons. Red-listed partridge and breeding Annex I nightjars have also been found here.

Grand canal pNHA (adjacent to the north of the proposed site) includes multiple habitat types including hedgerow, calcareous grassland, reed fringe, open water, scrub and woodland and therefore supports a diverse range of species.

The open water, level wet pasture and marshland vegetation of Raheen Lough pNHA supports a variety of wildfowl and waders. This site is of local importance to a number of species including whooper swan, goldeneye, pochard, mallard, shoveler, pintail, greenshank, jack snipe, purple sandpiper, grey heron, kingfisher and grebes.

Ballinla Bog pNHA is of considerable scientific importance with relatively intact raised bog which may provide suitable habitat for wader species.

Rahugh Ridge (Kiltober Esker) pNHA is predominantly covered in woodland which could provide suitable habitat to raptor species.

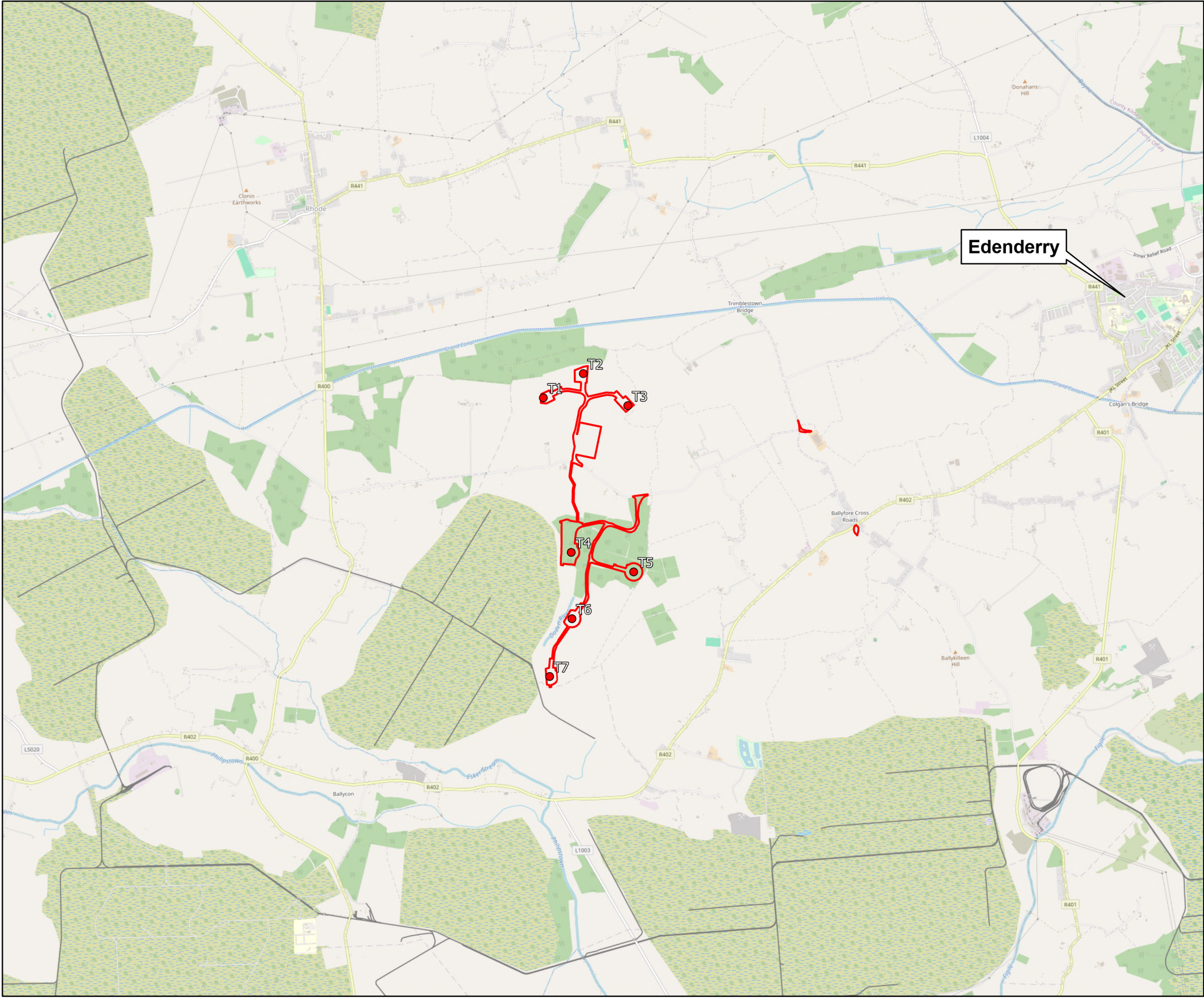
The following National Heritage Sites (NHAs) lie within 15km of the proposed wind farm site.

- Daingean Bog NHA (site code: 002033)
- Milltownpass Bog NHA (site code: 002323)
- Black Castle Bog NHA (site code: 00570)
- Carbury Bog NHA (site code: 001388)
- Cloncrow Bog (New Forest) NHA (site code: 000677)

All of these NHAs are of considerable conservation significance as they comprise of raised bog, a rare EU habitat which may support a diverse range of wetland wader species.

Site synopses for these pNHAs and NHAs can be accessed via the protected sites portal at <https://www.npws.ie/protected-sites/nha> (see link for pNHA site synopses archive at bottom of webpage).





- Legend**
- Site Boundary
  - Turbine Locations

TITLE:		Windfarm Site Location	
PROJECT:		Ballinla Wind Farm, Co. Offaly	
FIGURE NO:		1.1	
CLIENT:		Statkraft	
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## 2. SURVEY METHODOLOGY

The avian surveys carried out at the proposed wind farm adhered to Scottish Natural Heritage guidance (SNH, 2017) methodologies for the following survey types:

- Vantage Point (VP) surveys
- Hinterland surveys
- Breeding Bird Transect surveys
- Winter Bird Transect surveys
- Breeding Wader survey

### 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 2021 inclusive) and non-breeding (October 2021 - March 2022) seasons, in accordance with Scottish Natural Heritage (SNH) methodology for onshore Wind Farms (SNH, 2017). A total of 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 locations of VPs 3 and 4 changed between summer 2021 and winter 2021-22. Relocation of VP3 (from VP3a to VP3b to VP3) was required due an access dispute. Relocation of VP4 (from VP4a to VP4) was required due to rewetting of the cutover bog the VP was originally located on making it unsafe to access. Details of VP relocations are given in Table 2-1. It is noted that combined viewshed coverage of the SNH buffer for the original VPs was 99.9%. Combined viewshed coverage of the SNH buffer for the finalised VP locations is 98.8%, which exceeds the required minimum of 97%.

The main purposes of VP survey watches are 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 relative. 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.

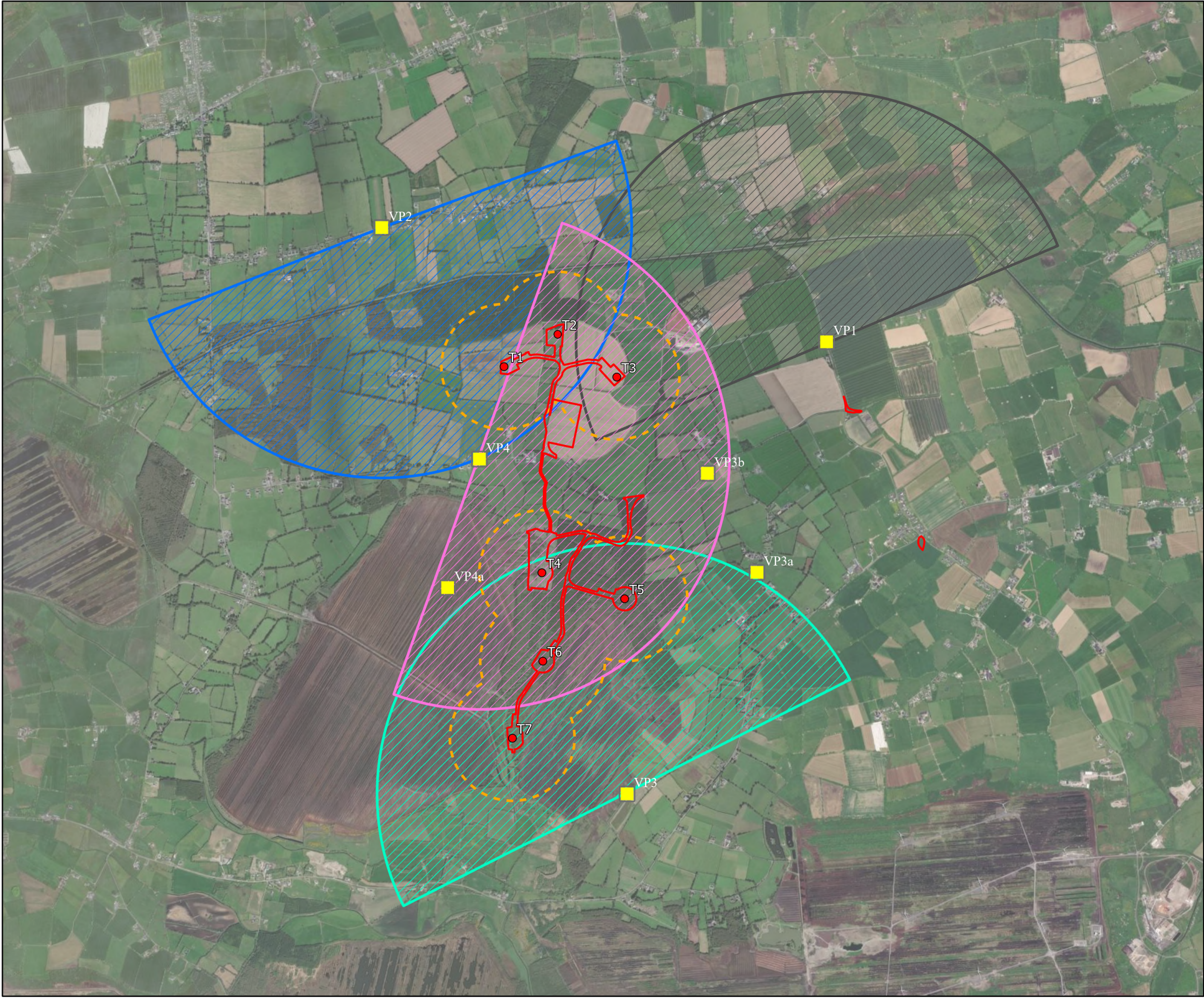
Flight heights are estimated visually as allowed for in SNH (2017) guidance. Flight height estimation using a clinometer or rangefinder is accepted as an alternative means of determining flight height however this is often not practicable (equipment may be clumsy and birds may be lost from view whilst 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 wintering period. 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 (coordinates in ITM)**

Site	Vantage Point	Eastings (ITM)	Northings (ITM)	Season
Ballinla	VP 1	658330.038	731741.432	All
	VP 2	654774.031	732654.246	All
	VP 3(a)	657774.0	729900.0	May - July 2021
	VP 3(b)	657366.0	730678.0	August-September 2021
	VP 3	656737.120	732654.246	Winter 2021/22
	VP 4(a)	655300.0	729778.0	Summer 2021
	VP 4	655554.116	730804.789	Winter 2021/22





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations
- Viewpoint (VP)
- VP1 Viewshed
- VP2 Viewshed
- VP3 Viewshed
- VP4 Viewshed

**TITLE:**  
Vantage Point Locations and Viewshed Analysis

**PROJECT:**  
Ballinla Wind Farm, Co. Offaly

**FIGURE NO:** 2.1

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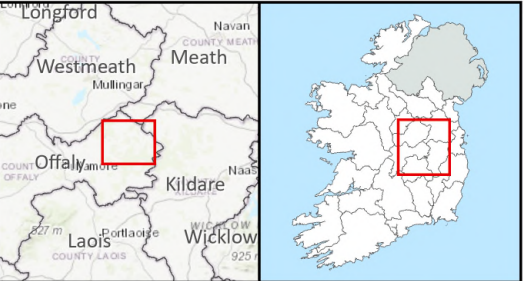


## 2.3 Hinterland Surveys

The methodology used for wetland sites during the 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, etc) in the area surrounding the proposed wind farm site.

A total of 12 hinterland VPs (HVPs) and 12 hinterland transects within 6 km from the proposed wind farm site across summer 2021 and winter 2021/22 were surveyed. Eight sites were surveyed across both seasons. There were ten sites surveyed only in the summer season and six in winter. See Appendix 2 for a full list of hinterland sites and a detailed schedule of surveys and Figure 2-2 for the location of HVPs and transects. These sites were chosen as they had suitable habitat for target species such as raptors, geese, swans, waterbirds and waders.





- Legend**
- Site Boundary
  - Hinterland Transects
  - Hinterland Sites

TITLE: Hinterland Site and Transect Locations	
PROJECT: Ballinla Wind Farm, Co. Offaly	
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## 2.4 Breeding Bird Transects

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 a total of three no. c. 1 km transects which were selected and centred on different habitats present within the developable area. Each transect was surveyed over two rounds during the survey period, with visits timed to cover the early (April to mid-May 2021) and later parts of the breeding season (mid-May to June 2021).

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, 2023).

The breeding bird transect schedule is available in Table 2-2. The results are presented in Table 3-3:

**Table 2-2: Breeding Bird Transect Survey Details**

Date	Transect	Time	Weather Conditions
18/05/2021	1	06:42 - 07:04	Cloud: 1/8 oktas; rain: none; wind: F1; visibility: good
18/05/2021	2	07:52 - 08:25	Cloud: 2/8 oktas; rain: none; wind: F1; visibility: good
18/05/2021	3	08:30 - 09:00	Cloud: 2/8 oktas; rain: none; wind: F1; visibility: good
05/06/2021	1	06:30 - 07:15	Cloud: 1/8 oktas; rain: none; wind: F1; visibility: good
05/06/2021	2	08:11 - 08:37	Cloud: 1/8 oktas; rain: none; wind: F1; visibility: good
05/06/2021	3	07:30 - 08:05	Cloud: 1/8 oktas; rain: none; wind: F1; visibility: good





**Legend**

Site Boundary

Transects

TITLE: Breeding and Wintering Bird Transects	
PROJECT: Ballinla Wind Farm, Co. Offaly	
FIGURE NO:	2.3
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## 2.5 Winter Bird Transects

Over the winter season, general bird transect surveys were carried out along the same three transects as the breeding bird surveys plus an additional fourth transect (Figure 2-3) over three rounds, with one visit to each transect per round.

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, 2023a). The winter transect survey details are available in Table 2-3 below. The results are presented in Table 3-4 and Table 3-5.



**Table 2-3: Winter Bird Transect Survey Details**

Round	Date	Transect	Time	Weather Conditions
1	02/12/2021	1	09:15 - 11:00	Cloud: 7/8 oktas; rain: none; wind: F0; visibility: good
1	02/12/2021	2	12:00 - 13:30	Cloud: 8/8 oktas; rain: none; wind: F0; visibility: good
1	04/12/2021	3	08:45 - 09:30	Cloud: 3/8 oktas; rain: none; wind: F2-3W; visibility: good
1	04/12/2021	4	13:45 - 15:15	Cloud: 7/8 oktas; rain: none; wind: F0; visibility: good
2	05/01/2022	1	09:15 - 10:45	Cloud: 7/8 oktas; rain: none; wind: F0; visibility: good
2	05/01/2022	2	14:15 - 15:15	Cloud: 7/8 oktas; rain: none; wind: F0; visibility: good
2	08/01/2022	3	10:00 - 11:30	Cloud: 4/8 oktas; rain: none; wind: F2-3W; visibility: good
2	18/01/2022	4	09:30 - 11:00	Cloud: 8/8 oktas; rain: none; wind: F1-2S; visibility: good
3	14/02/2022	1	11:30 - 13:00	Cloud: 0-6/8 oktas; rain: none; wind: F3-4NW; visibility: good
3	17/02/2022	2	10:00 - 11:30	Cloud: 7/8 oktas; rain: hail shower; wind: F1SW; visibility: good
3	06/02/2022	3	10:00 - 11:00	Cloud: 2/8 oktas; rain: none; wind: F3NW; visibility: good
3	14/02/2022	4	09:30 - 11:00	Cloud: 3-4/8 oktas; rain: none; wind: F3-4NW; visibility: good



## 2.6 Breeding Waders

A number of methods were combined from published literature including Bibby et al, (2000), Gilbert et al, (1998), Brown and Shepherd (1993), O'Brien and Smith (1992), O'Brien & Wilson (2011) and SNH (2017) to search for breeding wader activity within and surrounding the proposed site. Methods utilised were suitable to cover species such as curlew *Numenius arquata*, common snipe *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 as seen in Table 2-4 below.

**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

Eight watch points were surveyed to assess the presence of breeding wader populations during the months of May, June and July 2021. The surveyor also walked along a transect between sites 6 and 7 in the northwest of the study area (see Figure 2-4). Surveys were completed within three hours of dawn or dusk. Audio detectors (Olympus ls-p1 and Audiomoth) were also used to survey wader species. These were deployed overnight at site 8 (May 17<sup>th</sup> and June 5<sup>th</sup>), site 5 (July 25<sup>th</sup>), site 9 (July 25<sup>th</sup>) and site 6 (July 25<sup>th</sup> 21:20 - 22:30). Survey schedule and locations are detailed in Table 2-5.



**Table 2-5: Breeding Wader Survey Details**

Date	Site	Start	End	Dawn	Dusk	All or part of survey within 3 hours of dawn or dusk
17/05/2021	Transect	20:45	21:45	N/A	21:37	✓
17/05/2021	8	19:45	20:45	N/A	21:37	✓
17/05/2021	6	21:45	22:45	N/A	21:37	✓
18/05/2021	7	06:42	07:40	05:27	N/A	✓
17/05/2021	1	19:45	20:45	N/A	21:37	✓
17/05/2021	4	19:45	20:45	N/A	21:37	✓
05/06/2021	8	20:30	20:45	N/A	22:04	✓
05/06/2021	6	21:45	22:45	N/A	22:04	✓
05/06/2021	2	19:45	20:30	N/A	22:04	✓
05/06/2021	3	19:45	20:30	N/A	22:04	✓
05/06/2021	5	21:00	05:00	05:06	22:04	✓
25/07/2021	9	21:00	05:00	05:37	21:49	✓
25/07/2021	6	21:20	22:30	05:37	21:49	✓

Count units (see Table 2-6) were predefined for each target species and included in the method statement provided to surveyors. All waders encountered (seen or heard) were recorded and their abundance, behaviour, sex/age and breeding status noted. Any species occurring more than 100m from the observer, or flying over the site and not using it, were recorded as 'additional' species to further inform the baseline survey. The surveyor searched for wader activity along with general breeding bird activity. The surveyor was cognisant of the relevant count units for snipe, woodcock and other waders which could potentially be encountered.

**Table 2-6: Count Units for each Wading Species**

Species	Count 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





**Legend**

- Site Boundary
- Survey Locations
- Breeding Wader Transect 2021

TITLE: Breeding Wader Transect	
PROJECT: Ballinla Wind Farm, Co. Offaly	
FIGURE NO: 2.4	
CLIENT: Statkraft	
SCALE: 1:30,000	REVISION: 0
DATE: 14/07/2025	PAGE SIZE: A3







## 3. RESULTS

### 3.1 Avian usage of the Study Area - Vantage Point Surveys

In total, there were 360 records of 16 target species observed during the VP survey period across both seasons (see Appendix 3 for individual record details and Appendix 4 for flight line mapping). These records encompass mapped observations (flight lines, points, polygons), and also unmapped records (e.g. target species heard but not seen).

A total of 65 bird species were recorded during VP surveys (Table 3-1). Of these species, nine are red-listed under BoCCI (Gilbert et al., 2021): golden plover, kestrel, lapwing, meadow pipit, redwing, snipe, stock dove, swift and yellowhammer. A total of 19 amber-listed species and 37 green-listed species was recorded. Five species listed under Annex I of the EU Birds Directive were recorded; hen harrier, merlin, whooper swan, peregrine and golden plover.

#### Summary of Summer (April - September 2021)

During the breeding season, there were 196 observations of eleven target species recorded within the study area at Ballinla. The number of observations per species were: buzzard - 117, great black-backed gull - 5, grey heron - 5, kestrel - 14, lapwing - 2, lesser black-backed gull - 30, mallard - 6, mute swan - 2, peregrine - 2, sparrowhawk - 12 and snipe - 1. Buzzard was the most frequently observed bird species during the summer 2021 season at Ballinla.

#### Summary of Winter (October 2021 - March 2022)

Across the winter season, there were 164 individual observations of 14 target species recorded at Ballinla. The number of records per species were: buzzard - 43, cormorant - 1, golden plover - 38, grey heron - 4, hen harrier - 12, kestrel - 19, lapwing - 15, lesser black-backed gull - 1, mallard - 13, merlin - 2, peregrine - 1, sparrowhawk - 5, snipe - 8 and whooper swan - 2. Buzzard was the commonly recorded bird species during the winter 2021/22 season at Ballinla.

### 3.2 Target Species Observations

#### 3.2.1 Buzzard

##### Summer

There were a total of 117 observations of this green-listed species during the summer 2021 VP surveys. These occurred at very VP across all months of the breeding season. Flight activity was recorded in each of the height bands, with most flight time spent in the 100-200m band (4862 seconds). A high proportion of activity also occurred >200m (2838 seconds). Activity was distributed across the remaining height bands as follows: 0-15m (705 seconds), 15-30m (804 seconds) and 30-100m (2961 seconds). Flight activity was widely distributed across the entire study area.

Buzzards were predominantly observed alone but groups of up to five individuals were also recorded. There was one observation of displaying behaviour between two birds on June 6<sup>th</sup> from VP 4. There was also a record of two young buzzards on September 13<sup>th</sup> from VP 3b.



## Winter

During winter 2021/22 VP surveys, there were a total of 43 records of this green-listed raptor species. This included five unmapped static calling records and 38 recorded mapped observations. Observations were noted from all VPs and across every winter month. Flight activity was recorded in every height band with the majority occurring at low heights in the 0-15m band (2401 seconds). There was some activity >200m (100 seconds) and across the remaining height bands as follows: 15-30m (318 seconds), 30-100m (1093 seconds) and 100-200m (400 seconds). The behavioural patterns recorded were typical for this species with high levels of soaring (seven observations), low flying (four observations) and incidences of mobbing by hooded crows (six observations) observed. Flight activity was primarily concentrated to the northeast and in the mid-west of the study area.

Primarily, buzzards were recorded alone (35 observations) but a group of three were sighted on one occasion (March 12<sup>th</sup> from VP4). Additionally, two birds were sighted in the same observation on four occasions with one record of two individuals interacting and soaring together (February 4<sup>th</sup> from VP 1).

### 3.2.2 Cormorant

#### Summer

There were no records of this amber-listed species during summer 2021 VP surveys.

#### Winter

This amber-listed species was recorded on one occasion across the winter 2021/22 season. This observation occurred on the 2<sup>nd</sup> of November from VP 1 and involved one cormorant in direct flight along the Grand Canal bordering the northern part of the proposed site. Flight activity was recorded in the 0-15m height band (20 seconds) and in the 30-100m band (90 seconds).

### 3.2.3 Great Black-backed gull

#### Summer

During summer 2021 VP surveys and early in the breeding season, this green-listed species was recorded a total of five times (during April 27<sup>th</sup> and April 30<sup>th</sup>). A total of three observations were recorded from VP 1 and two were recorded from VP 2. Flight activity was predominantly recorded in the 30-100m height band (542 seconds) with less activity noted in the 0-15m (5 seconds) and 15-30m (15 seconds) height bands.

This species was recorded in low numbers with single gulls noted on four the occasions and two individuals sighted together on one occasion (from VP 2).

#### Winter

This amber-listed species was not recorded during winter 2021/22 VP surveys.

### 3.2.4 Golden Plover

#### Summer

There were no observations of this red-listed/Annex I species during summer 2021 surveys.



## Winter

A total of 38 observations of this red-listed/Annex I species were recorded during winter 2021/22 VP surveys. This included 33 visual sightings and five static call records. These records were made from every VP across every winter month. This includes one observation made during an autumn migration survey from VP 3. Flight activity was recorded across every height band with the majority occurring in the 30-100m band (3972 seconds). Time spent across the remaining height bands was distributed as follows: 0-15m (1236 seconds), 15-30m (800 seconds), 100-200m (2730 seconds) and >200m (968 seconds). Most of the observations were recorded in the north/northeast of the study area.

Flock size ranged from 8-750 individuals. Activity observed included high levels of circling search flight, direct and multidirectional flight. There was also evidence of foraging activity in the study area.

### 3.2.5 Grey Heron

## Summer

A total of five observations of this green-listed species were made during summer 2021 VP surveys. Three of these occurred from VP 1 (April 27<sup>th</sup> and 10<sup>th</sup> August) and two were recorded from VP 4a (18<sup>th</sup> May and 12<sup>th</sup> September). Grey herons were predominantly recorded individually with two birds sighted together from VP 4a on one occasion. Flight activity was noted in every height band, except for >200m. A total of 94 seconds were spent in 0-15m, 102 seconds in 15-30m and 214 seconds in 100-200m.

## Winter

During the winter VP surveys, grey heron individuals were recorded on four occasions (October 2021). This included one migration survey sighting. A total of three observations were noted from VP 2 and one from VP 1. Two observations recorded birds in direct flight with a total of 71 seconds spent in 0-15m and 78 seconds in 30-100m. Flight activity was also recorded between 100-200m band (79 seconds).

### 3.2.6 Hen Harrier

## Summer

There were no sightings of this amber-listed/ Annex I species during breeding season 2021 VP surveys.

## Winter

This amber-listed/Annex I species was recorded on 12 occasions throughout the winter 2021/22 season. All of these observations were recorded from VP 3 (January, February and March 2022). Hen harriers were always sighted alone and flight activity was consistently recorded at low heights, with the majority occurring in the 0-15m band (3010 seconds). An additional 90 second observation was recorded at 15-30m. The distribution of flight activity was concentrated around the southeast of the study area.

Birds were predominantly recorded hunting within the study area, which frequently occurred over bog and farmland. Eight of the observations identified a hunting female, five of which were considered to be the same individual on the 12<sup>th</sup> of March.



Two observations of females flying into the southern part of the study area during February 2022 are considered to be indicative of roosting due to the timing of the observations (17:05 and 16:25 respectively). These observations both recorded a female hen harrier flying low with the flight path terminating out of sight in trees in recolonising cutover bog south/east of the developable area.

### 3.2.7 Kestrel

#### Summer

A total of 14 observations of this red-listed species were recorded during summer 2021 VP surveys. These occurred at every VP throughout all the summer months except for June. Flight activity was recorded across every height band up to 200m. Time was primarily spent between 30-100m (210 seconds), while the least amount of time was spent in the 15-30m height band (92 seconds). Remaining flight time was distributed across height bands as follows: 0-15m (149 seconds) and 100-200m (172 seconds). Observations were predominantly recorded along the edge of the study area with some circling flight patterns in the southeast.

All of the observations recorded single birds with one confirmed male sighting (May 11<sup>th</sup> VP3a). There was also a record of a moulting juvenile on August 10<sup>th</sup> (VP1) within the developable area at Ballinla.

#### Winter

During the winter 2021/22 VP surveys, there was a total of 19 observations of this red-listed species. These were recorded from every VP and across every month of the winter season. Flight activity was highest at low levels with a total of 4210 seconds recorded in the 0-15m band. Activity was distributed across the remaining height bands as follows: 15-30m (196 seconds), 30-100m (759 seconds) and 100-200m (40 seconds). The majority of observations were recorded to the southeast of the study area on the outskirts of the SNH buffer but records were also distributed across the study area.

The flight activity observed followed typical patterns for this species with high levels of hovering and hunting in the study area. There were two observations of kestrels hunting finches. The majority of the records noted single birds with four confirmed male individuals. However, two kestrels were observed together on one occasion on January 19<sup>th</sup> from VP 3.

### 3.2.8 Lapwing

#### Summer

This red-listed species was recorded twice during summer 2021 VP surveys. These both occurred early in the breeding season (April 30<sup>th</sup>) from VP 2 and recorded single birds. Flight activity only occurred within the 30-100m height band for 308 seconds and noted individuals flying over conifer plantation in the north-west of the study area and then continuing over improved agricultural grassland and woodland in a westerly direction.



## Winter

A total of 15 observations of this red-listed species were recorded during winter 2021/22 VP surveys. These occurred at VPs 1, 3 and 4. Flight activity was recorded across all height bands with the majority of total time spent in 100-200m (899 seconds). Activity was distributed across the remaining height bands as follows: 0-15m (60 seconds), 15-80m (80 seconds), 30-100m (437 seconds) and >200m (175 seconds). Number of individuals per record ranged from single birds to flocks of up to 78 individuals. The flock of 78 was recorded circling over a plantation woodland. Other observations recorded lapwing flocks in direct flight. On two occasions, lapwings were flushed, once by a buzzard and once by a peregrine. Additionally, there were three records where lapwing were heard but not seen.

The majority of observations were noted in the southeast of the study area. Lapwing flight activity was concentrated in this area. Most flight activity occurred over recolonising cutover bog to the south of the developable area.

### 3.2.9 Lesser Black-backed Gull

#### Summer

A total of 30 observations of this amber-listed species were recorded during summer 2021 VP surveys. Sightings were recorded at every VP across all summer months. Flight activity was observed in each height band, with the majority recorded between 100-200m (2117 seconds). Activity was less at low levels with a total of 20 seconds noted in 0-15m. Time spent in the remaining height bands was distributed as follows: 15-20m (374 seconds), 30-100m (425 seconds) and >200m (608 seconds).

Gulls were commonly observed alone (eleven observations) but flocks of up to 48 individuals were also recorded. Flight activity was widely distributed across the study area with the main flight pattern observed being directional flight.

#### Winter

There was one observation of this amber-listed species throughout the winter 2021/22 VP survey season. This occurred from VP 1 on December 2<sup>nd</sup> 2021. Two gulls were observed flying at low levels with 20 seconds noted in 15-30m and 5 seconds in 0-15m.

### 3.2.10 Mallard

#### Summer

This amber-listed species was recorded a total of six times during summer 2021 VP surveys. These were noted from VPs 2, 3a and 4 (September 16<sup>th</sup>, May 5<sup>th</sup> and May 18<sup>th</sup> 2021). Flight activity was predominantly recorded in the 100-200m height band (202 seconds) with less time recorded in 15-20m (35 seconds) and 30-100m (66 seconds) bands.

Small groups of one to three individuals were recorded on four occasions. Additionally, there were two tight flocks recorded comprised of 28 and 66 individuals.



## Winter

A total of 13 records were noted of this amber-listed species during winter 2021/22 VP surveys. This included 12 mapped flightlines and one static calling record. These all occurred at VP 3 across every winter month except December. Flight activity was recorded at every height band except >200m. Total time spent in each height band was distributed as follows: 0-15m (45 seconds), 15-30m (200 seconds), 30-100m (110 seconds), 100-200m (205 seconds). Number of individuals per record ranged from single individuals to groups of up to 68. Two pairs were recorded in February 2022.

### 3.2.11 Merlin

#### Summer

There were no records of this amber-listed/Annex I species during breeding season VP surveys in 2021.

#### Winter

There was a total of two observations of amber-listed/ Annex I merlin. These were recorded at VPs 2 and 3 (November 3<sup>rd</sup> and January 5<sup>th</sup> respectively). One bird was sighted perched on a tree to the north west of the study area (outside buffer) before dropping out of sight behind houses. The other bird was recorded flying low over the bog in the south of the study area. A total of 13 seconds was spent in the 0-15m height band.

### 3.2.12 Mute Swan

#### Summer

This amber-listed species was recorded on two occasions throughout the 2021 breeding season from VPs 2 and 4a (April 30<sup>th</sup> and June 6<sup>th</sup> respectively). Flight activity was recorded exclusively in the 30-100m height band for a total of 111 seconds. One record was of an individual, the other was of a pair. Flight patterns displayed directional flight across the north and centre of the study area.

#### Winter

There were no records of this amber-listed species during winter 2021/22 VP surveys.

### 3.2.13 Peregrine

#### Summer

There were two observations of this green-listed/Annex I species throughout summer 2021 VP surveys. These were recorded from VP 4a (May 18<sup>th</sup> and 25<sup>th</sup> July). Flight activity recorded consisted of one record of a pair and another record of an individual, flying in the 30-100m height band (145 seconds). These records occurred over cutover bog within the study area, in the central western sector of the study area.



## Winter

This green-listed/Annex I species was recorded on one occasion during winter 2021/22 VP surveys. This occurred at VP 3 on November 8<sup>th</sup> and involved one bird flying for 180 seconds between 100-200m altitude. This individual was observed hunting lapwing within the southeast sector of the study area. It is noted this event occurred in an area with a high concentration of lapwing activity.

### 3.2.14 Snipe

## Summer

This red-listed species was observed on one occasion during summer 2021 VP surveys. This was recorded late in the breeding season (13<sup>th</sup> September 2021) from VP 3b and involved one bird flying in the 15-30m height band for 20 seconds before landing.

## Winter

During the winter 2021/22 season VP surveys, there were eight observations of red-listed snipe. These occurred at VP 3 (October 28<sup>th</sup>, November 8<sup>th</sup> and 10<sup>th</sup> and December 5<sup>th</sup>) and VP 1 (January 5<sup>th</sup>). Flight activity was recorded for 35 seconds between 15-30m. There was a long observation that recorded eight birds feeding in pools for 3600 seconds from VP3 (December 5<sup>th</sup>). Snipe were otherwise seen alone or in flocks of up to 26 individuals. There is suitable cutover bog habitat for snipe in the south of the study area where feeding activity has been observed from VP 3.

### 3.2.15 Sparrowhawk

## Summer

This green-listed species was observed on 12 occasions throughout summer 2021 VP surveys. Records were noted at every VP between May and August inclusive. Although flight activity was noted within every height band, the majority of flight time was spent in the 100-200m band (393 seconds). Activity across the remaining height bands was distributed as follows: 0-15m (25 seconds), 15-30m (68 seconds), 30-100m (179 seconds) and >200m (253 seconds). Sparrowhawks were primarily seen alone, however there was one group of three individuals sighted together. The majority of observations were recorded along the edge and on the outskirts of the study area.

## Winter

There was a total of five sightings of this green-listed raptor species during winter 2021/22 VP surveys. These occurred at every VP (October 28<sup>th</sup>, November 2<sup>nd</sup>, December 1<sup>st</sup>, February 4<sup>th</sup> and 6<sup>th</sup>). Flight activity was recorded at low height bands with a total of 172 seconds spent in the 0-15m band and 20 seconds in the 15-30m band. Activity patterns were typical of sparrowhawks with hunting flight by confirmed male individuals observed on three occasions. The majority of observations were recorded along the edge and on the outskirts of the study area.

### 3.2.16 Whooper Swan

## Summer

There were no records of this amber-listed/Annex I species during the 2021 breeding season.





## Winter

This amber-listed/Annex I species was recorded on two occasions during winter 2021/22 VP surveys. One record (26<sup>th</sup> October, VP3) flight activity was observed in the 0-15m height band for 25 seconds as three birds flew low between bog pools. The second record involved five birds flying north-east through the north-western part of the study area, spending total of 58 seconds in the 30-100m flight band.

Flight observations indicate directional flight across the northwest (away from area in a northerly direction) and southwest (into the southern part of study area in a north-westerly direction).

**Table 3-1: Status of Species Observed during Summer VP Surveys 2022**

Common name (BTO code)	Scientific name	*BoCCI status	**Annex I status
Blackbird	<i>Turdus merula</i>	Green	No
Blackcap	<i>Sylvia atricapilla</i>	Green	No
Blue Tit	<i>Cyanistes caeruleus</i>	Green	No
Brambling	<i>Fringilla montifringilla</i>	Amber	No
Bullfinch	<i>Pyrrhula pyrrhula</i>	Green	No
Buzzard	<i>Buteo buteo</i>	Green	No
Carrion Crow	<i>Corvus corone</i>	N/A <sup>1</sup>	No
Chaffinch	<i>Fringilla coelebs</i>	Green	No
Collared Dove	<i>Streptopelia decaocto</i>	Green	No
Coot	<i>Fulica atra</i>	Amber	No
Cormorant	<i>Phalacrocorax carbo</i>	Amber	No
Cuckoo	<i>Cuculus canorus</i>	Green	No
Dunnock	<i>Prunella modularis</i>	Green	No
Feral Pigeon	<i>Columba livia f. domestica</i>	Green	No
Fieldfare	<i>Turdus pilaris</i>	Green	No
Golden Plover	<i>Pluvialis apricaria</i>	Red	Yes
Goldfinch	<i>Carduelis carduelis</i>	Green	No
Great Black-backed Gull	<i>Larus marinus</i>	Green	No
Great Tit	<i>Parus major</i>	Green	No

<sup>1</sup> Vagrant species not assessed under BOCCI



Common name (BTO code)	Scientific name	*BoCCI status	**Annex I status
Greenfinch	<i>Chloris chloris</i>	Amber	No
Grey Heron	<i>Ardea cinerea</i>	Green	No
Hen Harrier	<i>Circus cyaneus</i>	Amber	Yes
Hooded Crow	<i>Corvus cornix</i>	Green	No
House Martin	<i>Delichon urbicum</i>	Amber	No
House Sparrow	<i>Passer domesticus</i>	Amber	No
Jackdaw	<i>Coloeus monedula</i>	Green	No
Jay	<i>Garrulus glandarius</i>	Green	No
Kestrel	<i>Falco tinnunculus</i>	Red	No
Lapwing	<i>Vanellus vanellus</i>	Red	No
Lesser Black-backed Gull	<i>Larus fuscus</i>	Amber	No
Lesser Redpoll	<i>Acanthis cabaret</i>	Green	No
Linnet	<i>Linaria cannabina</i>	Amber	No
Long-tailed Tit	<i>Aegithalus caudatus</i>	Green	No
Magpie	<i>Pica pica</i>	Green	No
Mallard	<i>Anas platyrhynchos</i>	Amber	No
Meadow Pipit	<i>Anthus pratensis</i>	Red	No
Merlin	<i>Falco columbarius</i>	Amber	Yes
Mistle Thrush	<i>Turdus viscivorus</i>	Green	No
Mute Swan	<i>Cygnus olor</i>	Amber	No
Peregrine	<i>Falco peregrinus</i>	Green	Yes
Pheasant	<i>Phasianus colchicus</i>	Green	No
Pied Wagtail	<i>Motacilla alba</i>	Green	No
Raven	<i>Corvus corax</i>	Green	No
Redwing	<i>Turdus iliacus</i>	Red	No
Reed Bunting	<i>Emberiza schoeniclus</i>	Green	No



Common name (BTO code)	Scientific name	*BoCCI status	**Annex I status
Robin	<i>Erithacus rubecula</i>	Green	No
Rook	<i>Corvus frugilegus</i>	Green	No
Sand Martin	<i>Riparia riparia</i>	Amber	No
Siskin	<i>Carduelis spinus</i>	Green	No
Skylark	<i>Alauda arvensis</i>	Amber	No
Snipe	<i>Gallinago gallinago</i>	Red	No
Song thrush	<i>Turdus philomelos</i>	Green	No
Sparrowhawk	<i>Accipiter nisus</i>	Green	No
Spotted Flycatcher	<i>Muscicapa striata</i>	Amber	No
Starling	<i>Sturnus vulgaris</i>	Amber	No
Stock Dove	<i>Columba oenas</i>	Red	No
Stonechat	<i>Saxicola torquatus</i>	Green	No
Swallow	<i>Hirundo rustica</i>	Amber	No
Swift	<i>Apus apus</i>	Red	No
Whitethroat	<i>Sylvia communis</i>	Green	No
Whooper Swan	<i>Cygnus cygnus</i>	Amber	Yes
Willow Warbler	<i>Phylloscopus trochilus</i>	Amber	No
Woodpigeon	<i>Columba palumbus</i>	Green	No
Wren	<i>Troglodytes troglodytes</i>	Green	No
Yellowhammer	<i>Emberiza citrinella</i>	Red	No

### 3.3 Hinterland Survey

A total of 23 species were recorded during hinterland surveys. Six of these were seen only during summer 2021 and five were recorded only during the winter season. There were 12 species recorded during both seasons. See Table 3-2 for the full list of species and seasons they were recorded in.

A total of four red-listed species were recorded across both seasons; kestrel, lapwing, snipe and woodcock. There were two amber-listed species; mallard and mute swan. The remaining six species recorded across both seasons were green-listed.



During summer 2021 hinterland surveys (exclusively), there was one red-listed species; grey wagtail. Four amber-listed species were noted; coot, cormorant, ringed plover and teal. Annex I / green-listed peregrine falcon was also recorded exclusively during the summer.

There was one red-listed species recorded exclusively during the winter 2021/22 period: golden plover. Three amber-listed species were recorded; kingfisher, shelduck and whooper swan. Kingfisher and whooper swan are also listed under Annex I of the EU Birds Directive. Green-listed great spotted woodpecker was also recorded exclusively during this period.

The full list of species recorded during hinterland surveys is included in Table 3-2, and details of individual records are tabulated in Appendix 5. Species of conservation concern that were recorded are discussed in more detail in this section. Species have been selected for detailed discussion on the basis of conservation status, vulnerability to wind farm developments and species sightings recorded on or near the proposed wind farm site, which will indicate potential links between species recorded at the proposed site and the surrounding environment.

### 3.3.1 Buzzard

This green-listed species was observed on 29 occasions during summer 2021 across every month at HVPs 1, 2, 3, 4, 9, 10, 11, 12 and 13. These were primarily observations of single birds.

There were 12 records during winter 2021/22 hinterland surveys in every month, excluding November, at HVPs 4, 7, 8 and 12 and along TRs 24 and 25. Display flight activity was noted in a group of five individuals at HVP 7 on February 2<sup>nd</sup> 2022. There was also an incidental record noted on February 4<sup>th</sup> 2022.

### 3.3.2 Cormorant

Amber-listed cormorant was recorded on three occasions during hinterland surveys, all of which occurred during summer 2021. These records were all of single birds at HVPs 9 (June 6<sup>th</sup>), 12 and 13 (May 26<sup>th</sup>).

### 3.3.3 Golden Plover

Red-listed/Annex I golden plover were recorded three times throughout winter 2021/22 hinterland surveys. The earliest record was made at TR 26 (December 5<sup>th</sup> 2021). Further records occurred at HVP 4 (January 5<sup>th</sup> 2022) and HVP 8 (March 10<sup>th</sup>). Flock size ranged from 40 -1500 individuals.

This species was not recorded during summer hinterland surveys.

### 3.3.4 Grey Heron

There were 24 observations of green-listed grey heron during the summer 2021 at HVPs 1, 2, 3, 4, 9, 11, 12, 13 and 19. This species was predominantly found singly or in groups of 2-5 individuals.

Grey heron was recorded on five occasions during winter 2021/22 all of which occurred on October 5<sup>th</sup>. These observations were made at HVPs 4, 9, 12 and 13 and were primarily of single birds, along with one record of two individuals together at HVP 9.



### 3.3.5 Grey Wagtail

There was a confirmed breeding observation of two individuals of this red-listed species at HVP 13 (Grand Canal Bridge) (6.13km east of study area) on June 6<sup>th</sup> 2021. This site is not hydrologically connected with the proposed wind farm. This was the only record of grey wagtail during hinterland surveys.

### 3.3.6 Kestrel

A total of five observations of this red-listed species were recorded. These occurred in June 2021 (9<sup>th</sup> and 30<sup>th</sup> June) from HVPs 9, 10 and 12. These were all of single birds. During winter 2021/22, this species was observed twice at TR 24, where hunting activity was recorded on one occasion (January 1<sup>st</sup> 2022).

### 3.3.7 Kingfisher

There was one incidental record of this amber-listed/Annex I species across hinterland surveys which occurred on December 5<sup>th</sup> 2021 to the north of TR18.

### 3.3.8 Lapwing

A total of seven observations of this red-listed species was recorded during summer 2021 hinterland surveys. These occurred at HVPs 12 and 9 and TRs 18, 19 and 23 in groups of 2- 4 individuals. This includes observations of two sets of pairs inhabiting flooded cutover bog viewed from TR 18 (May 18<sup>th</sup>) and TR 19 (June 6<sup>th</sup>).

This species was recorded twice during the winter season at HVP 7 (March 10<sup>th</sup> and 20<sup>th</sup>).

### 3.3.9 Mallard

There were 22 observations of this amber-listed species during summer 2021 hinterland surveys. These were records of single birds or groups of up to 10 individuals across HVPs 1, 3 , 4, 9, 11, 12, and groups of 10 and at TR 18 and TR 19. During the winter season, there were eight mallard records across HVP 1, 7, 8, 9, 11 and 12. These predominantly noted groups between 2-13 individuals.

### 3.3.10 Mute Swan

This amber-listed species was recorded five times during summer 2021 at HVP 12 and TRs 18, 19 and 20. The latter transects run through cutover bog. Breeding activity was recorded along TR 20 where there is extensive wet cutover and areas of open water, on May 18<sup>th</sup> . A group of ten individuals was recorded along TR 19 on June 5<sup>th</sup>.

During winter season hinterland surveys, there were eleven observations of mute swans at HVPs 1, 7 , 8 and 12. These consisted of single birds and groups of 2-4 individuals.

### 3.3.11 Peregrine

Annex I /green-listed peregrine falcon was observed on one occasion during hinterland surveys. This occurred on June 6<sup>th</sup> 2021 and recorded single bird at HVP 13.



### 3.3.12 Snipe

This red-listed species was recorded three times during summer 2021 surveys along TRs 19, 20 and 22. Confirmed breeding was noted at TR 20 on May 18<sup>th</sup>. A flock of approx. 20 individuals was observed at TR 19 (June 5<sup>th</sup>). The record noted along TR 22 was heard only.

There were also three observations of snipe during winter 2021/22 hinterland surveys. These were recorded at HVPs 7 and 8, and TR24.

### 3.3.13 Sparrowhawk

This green-listed species was recorded eight times during summer 2021 hinterland surveys. Observations were made at HVPs 2, 3, 4, 9, 12 and 13. Confirmed breeding of this species was noted at HVP 4 on July 26<sup>th</sup>. There were three records of this species during the winter season at HVPs 7, 11 and TR 24. Display flight activity was noted at HVP 7 on February 25<sup>th</sup>.

### 3.3.14 Whooper Swan

A group of 14 whooper swans (Annex I/amber-listed) was recorded once during the winter 2021/22 hinterland survey along TR 24.

### 3.3.15 Woodcock

Red-listed woodcock was recorded twice during summer 2021 hinterland surveys. One observation was noted at TR 17 on 17<sup>th</sup> May (note this record overlaps with the lapwing record at wader site 6 on the same date). Woodcock was also heard at TR 22 on June 6<sup>th</sup>. During winter 2021/22, there was one observation of a single woodcock at HVP 7 (February 25<sup>th</sup> 2022).



Table 3-2: Status of Species observed during summer 2022 winter 2021/22 hinterland surveys

Common Name	Scientific Name	Conservation Status		Season
		BoCCI*	Annex I**	
Buzzard	Buteo buteo	Green	No	Both
Coot	Fulica atra	Amber	No	Summer
Cormorant	Phalacrocorax carbo	Amber	No	Summer
Golden Plover	Pluvialis apricaria	Red	Yes	Winter
Great Spotted Woodpecker	Dendrocopos major	Green	No	Winter
Grey Heron	Ardea cinerea	Green	No	Both
Grey Wagtail	Motacilla cinerea	Red	No	Summer
Kestrel	Falco tinnunculus	Red	No	Both
Kingfisher	Alcedo atthis	Amber	Yes	Winter
Lapwing	Vanellus vanellus	Red	No	Both
Little Grebe	Tachybaptus ruficollis	Green	No	Both
Mallard	Anas platyrhynchos	Amber	No	Both
Moorhen	Gallinula chloropus	Green	No	Both
Mute Swan	Cygnus olor	Amber	No	Both
Peregrine Falcon	Falco peregrinus	Green	Yes	Summer



Common Name	Scientific Name	Conservation Status		Season
		BoCCI*	Annex I**	
Ringed Plover	Charadrius hiaticula	Amber	No	Summer
Shelduck	Tadorna tadorna	Amber	No	Winter
Snipe	Gallinago gallinago	Red	No	Both
Sparrowhawk	Accipiter nisus	Green	No	Both
Teal	Anas crecca	Amber	No	Summer
Water Rail	Rallus aquaticus	Green	No	Both
Whooper Swan	Cygnus cygnus	Amber	Yes	Winter
Woodcock	Scolopax rusticola	Red	No	Both

### 3.4 Breeding Bird Transects

The results of the 2021 breeding bird transect survey at Ballinla are shown in Table 3-3. A total of 48 species were recorded along the transects during the summer 2021 survey period.

Four red-listed species were recorded during surveys: grey wagtail, lapwing, meadow pipit and yellowhammer. There was a total of eleven amber-listed species: goldcrest, greenfinch, house martin, house sparrow, linnet, mallard, mute swan, skylark, starling, swallow and willow warbler. The remaining 33 species observed during summer 2021 breeding transect surveys were green-listed.

Red-listed grey wagtail was seen during the mid-late breeding season within 25m of transect 2. Lapwing was observed within 25m of transect 1 during the early part of the 2021 breeding season. A total of 13 meadow pipit were recorded along transect 1 (all flying over/>100m) and three meadow pipit recorded along transect 2 (25-100m). There were ten yellowhammer individuals recorded during these surveys across transects 1 and 2, with records during both rounds.





Table 3-3: Results of Breeding Bird Transect Surveys summer 2021

Common Name	Scientific Name	TR1						TR2						TR3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Blackbird	<i>Turdus merula</i>	5	3	10	12	6	5	9	7	4	1	3		4	7	11		35	
Blackcap	<i>Sylvia atricapilla</i>			2		3			1					6	1		12	7	
Blue Tit	<i>Cyanistes caeruleus</i>	1			1	1		4			2						4		
Bullfinch	<i>Pyrrhula pyrrhula</i>										2			2			3		
Chaffinch	<i>Fringilla coelebs</i>	9	1		10	1		5	4	1	5	6		7	4		3	19	
Chiffchaff	<i>Phylloscopus collybita</i>									1									
Coal Tit	<i>Periparus ater</i>													17		2	30	2	
Collared Dove	<i>Streptopelia decaocto</i>							2			2								
Cuckoo	<i>Cuculus canorus</i>												1						1
Dunnock	<i>Prunella modularis</i>	4			1														
Goldcrest	<i>Regulus regulus</i>	1						1						9			10		
Goldfinch	<i>Carduelis carduelis</i>	2						6											



Common Name	Scientific Name	TR1						TR2						TR3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Greenfinch	<i>Chloris chloris</i>							1											
Great Tit	<i>Parus major</i>	2			1														
Grey Heron	<i>Ardea cinerea</i>	5			1														
Grey Wagtail	<i>Motacilla cinerea</i>							1											
Hooded Crow	<i>Corvus cornix</i>	1			1		4			2			3						
House Martin	<i>Delichon urbicum</i>							2					5						
House Sparrow	<i>Passer domesticus</i>							5	3		5		5						
Jackdaw	<i>Corvus monedula</i>			2				3			5	2							
Jay	<i>Garrulus glandarius</i>																2		
Lapwing	<i>Vanellus vanellus</i>	1																	
Lesser Redpoll	<i>Carduelis cabaret</i>	4				2													
Linnet	<i>Linaria cannabina</i>										2								



Common Name	Scientific Name	TR1						TR2						TR3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Long-tailed Tit	<i>Aegithalus caudatus</i>				4														
Magpie	<i>Pica pica</i>				1							2						1	
Mallard	<i>Anas platyrhynchos</i>	2			2		2												
Mistle Thrush	<i>Turdus viscivorus</i>			1			1			1								2	
Meadow Pipit	<i>Anthus pratensis</i>			8			5		3										
Mute Swan	<i>Cygnus olor</i>	2																	
Pheasant	<i>Phasianus colchicus</i>			2		1				5			1						
Pied/White Wagtail	<i>Motacilla alba</i>																	1	
Raven	<i>Corvus corax</i>																		
Reed Bunting	<i>Emberiza schoeniclus</i>	2			10														
Robin	<i>Erithacus rubecula</i>	14	2		11	5		5						9	4		7	10	
Rook	<i>Corvus frugilegus</i>					2	20					3							



Common Name	Scientific Name	TR1						TR2						TR3					
		Early			Late			Early			Late			Early			Late		
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Sedge Warbler	<i>Acrocephalus schoenobaenus</i>	3			4							3	2						
Siskin	<i>Carduelis spinus</i>													3					
Skylark	<i>Alauda arvensis</i>			8			4			6			10						
Song Thrush	<i>Turdus philomelos</i>	1	1		8	3							1		2		1	4	
Starling	<i>Sturnus vulgaris</i>						6		5				3						
Swallow	<i>Hirundo rustica</i>	3	1	1	5			1	5				3						
Treecreeper	<i>Certhia familiaris</i>							1											
Whitethroat	<i>Sylvia communis</i>	1				1													
Willow Warbler	<i>Phylloscopus trochilus</i>	1	2	1		4													
Woodpigeon	<i>Columba palumbus</i>	4		25	15		12	3		10	1			22	32		2	30	
Wren	<i>Troglodytes troglodytes</i>	9			45	5		9	2		20			17	1		33	15	
Yellowhammer	<i>Emberiza citrinella</i>			1				3	1		3								



### 3.5 Winter Bird Transects

A total of 29 species were recorded in the Ballinla study area during winter 2021/22 bird transect surveys. This includes three red-listed species: golden plover, meadow pipit and kestrel. Four of the species recorded are amber-listed species: goldcrest, hen harrier, mute swan and starling. Hen harrier and mute swan are also listed under Annex I of The EU Birds Directive. The remaining 22 species are green-listed. Species recorded along transects 1 and 2 are shown in Table 3-4 and Table 3-5 shows species recorded along transects 3 and 4.

Annex I/ amber-listed hen harrier was recorded on one occasion when a single juvenile was noted at transect 4 within the 25-100m band (round 1). Similarly, amber-listed/Annex I mute swan was found once within 25m of transect 1 (round 3). There were two observations of red-listed golden plover flying over/>100m from transects. A large flock of over 1000 individuals was recorded during round 1 along transect 2. Ten birds were recorded along transect 1 during round 2. There was one observation of red-listed kestrel within the 25-100m band at transect 4 (round 1). There was one red-listed meadow pipit recorded along transect 1 (round 3) and seven birds along transect 4 (rounds 2 and 3) within the 0-25m band.

Green-listed buzzard was recorded four times during winter transect surveys. These were distributed along transect 1 (0-25m and 25-100m distance bands) and along transect 4 (0-25m and flying over/>100m).



Table 3-4: Results of wintering bird surveys 2021-22 at Transects 1 and 2

Common Name	Scientific Name	TR1								TR2									
		Round 1		Round 2			Round 3			Round 1		Round 2			Round 3				
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Blackbird	<i>Turdus merula</i>	4			5			1			2			1			2		
Blue Tit	<i>Cyanistes caeruleus</i>	1			1			1											
Buzzard	<i>Buteo buteo</i>		1					1											
Chaffinch	<i>Fringilla coelebs</i>							14										4	
Common Crossbill	<i>Loxia curvirostra</i>		6		2														
Dunnock	<i>Prunella modularis</i>	1												1					
Fieldfare	<i>Turdus pilaris</i>																20		
Goldcrest	<i>Regulus regulus</i>	4			1														
Golden Plover	<i>Pluvialis apricaria</i>						10						100 0+						
Great Tit	<i>Parus major</i>				1														
Hooded Crow	<i>Corvus cornix</i>	2																	



Common Name	Scientific Name	TR1								TR2									
		Round 1		Round 2			Round 3			Round 1		Round 2			Round 3				
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Jackdaw	<i>Corvus monedula</i>					20			20										
Jay	<i>Garrulus glandarius</i>	1																	
Lesser Redpoll	<i>Carduelis cabaret</i>	9			4														
Meadow Pipit	<i>Anthus pratensis</i>							1											
Mistle Thrush	<i>Turdus viscivorus</i>		2																
Mute Swan	<i>Cygnus olor</i>							1											
Reed Bunting	<i>Emberiza schoeniclus</i>	3																	
Robin	<i>Erithacus rubecula</i>	2			3			3			2			2			2		
Rook	<i>Corvus frugilegus</i>				1					20	24							36	
Song Thrush	<i>Turdus philomelos</i>	1			1												1		
Sparrowhawk	<i>Accipiter nisus</i>				1														
Starling	<i>Sturnus vulgaris</i>		80											1				1	



Common Name	Scientific Name	TR1								TR2									
		Round 1		Round 2			Round 3			Round 1		Round 2			Round 3				
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Woodpigeon	<i>Columba palumbus</i>								1	2		1			1		6		
Wren	<i>Troglodytes troglodytes</i>				1			2			1			1			2	1	





Table 3-5: Results of wintering bird surveys 2021/22 at transects 3 and 4

Common Name	Scientific Name	TR3									TR4								
		Round 1			Round 2			Round 3			Round 1			Round 2			Round 3		
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Blackbird	<i>Turdus merula</i>	2			2									1					
Blue Tit	<i>Cyanistes caeruleus</i>				1			1											
Buzzard	<i>Buteo buteo</i>														1	1			
Chaffinch	<i>Fringilla coelebs</i>				1						1								
Common Crossbill	<i>Loxia curvirostra</i>					2													
Coal Tit	<i>Periparus ater</i>							2											
Dunnock	<i>Prunella modularis</i>	2																	
Goldcrest	<i>Regulus regulus</i>	1			1														
Hen Harrier	<i>Circus cyaneus</i>											1							
Kestrel	<i>Falco tinnunculus</i>											1							
Meadow Pipit	<i>Anthus pratensis</i>													4			3		



Common Name	Scientific Name	TR3									TR4								
		Round 1			Round 2			Round 3			Round 1			Round 2			Round 3		
		0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO	0-25m	25-100m	100+/FO
Mistle Thrush	<i>Turdus viscivorus</i>													1					
Pied Wagtail	<i>Motacilla alba yarrelli</i>																1		
Reed Bunting	<i>Emberiza schoeniclus</i>												4				1		
Robin	<i>Erithacus rubecula</i>	1			1			1											
Rook	<i>Corvus frugilegus</i>																		
Song Thrush	<i>Turdus philomelos</i>	1												1					
Woodpigeon	<i>Columba palumbus</i>								5								2		
Wren	<i>Troglodytes troglodytes</i>	3									1			1					



### 3.6 Breeding Wader Survey

A total of four wader species were recorded during breeding wader surveys in 2021. This includes three red-listed species: woodcock, lapwing and snipe and amber-listed ringed plover (see Table 3-6 for a detailed list of species recorded and their associated behaviours).

#### 3.6.1 Lapwing

A total of four lapwing observations were recorded, including two sets of pairs at site 2 and 4 indicative of possible breeding at these locations. There was also a record of possible breeding noted at site 7. Audio recorders detected this species at site 5. See Figure 2-4 for breeding wader survey locations.

#### 3.6.2 Ringed Plover

Indications of ringed plover breeding were recorded at Site 2 as there were a minimum of six ringed plover pairs observed there. Audio recorders also detected this species at site 1.

#### 3.6.3 Snipe

Breeding snipe activity was recorded at sites 1 and 3 (minimum 20 birds) as indicated by drumming birds. This species was also detected through an audio recording at site 5.

#### 3.6.4 Woodcock

There were two records of roding woodcock at site 6 (May 17<sup>th</sup> and June 5<sup>th</sup>), confirming breeding activity in the study area.



**Table 3-6: Breeding Wader Results**

Date	Obs. Time	Site	Species	Quantity	Behvaiour
17/05/2021	May	Site 6	Woodcock	1	Roding
18/05/2021	May	Site 7	Lapwing	1	Possible breeding
17/05/2021	May	Site 1	Snipe	1	Drumming
17/05/2021	May	Site 4	Lapwing	4	2 pairs
05/06/2021	June	Site 6	Woodcock	1	Roding
05/06/2021	June	Site 2	Lapwing	4	2 pairs
05/06/2021	June	Site 3	Snipe	20	Drumming
05/06/2021	June	Site 2	Ringed plover	6	3 pairs
25/07/2021	July	Site 5	Mallard	4	Audio
25/07/2021	July	Site 5	Moorhen	2	Audio
25/07/2021	July	Site 5	Grey Heron	10	Audio
25/07/2021	July	Site 5	Snipe	1	Audio
25/07/2021	July	Site 5	Little Grebe	2	Audio
25/07/2021	July	Site 5	Ringed Plover	1	Audio
25/07/2021	July	Site 5	Lapwing	4	Audio
25/07/2021	July	Site 5	Water Rail	2	Audio
25/07/2021	July	Site 5	Mute Swan	1	Audio
25/07/2021	July	Site 9	Yellowhammer		Audio



## 4. DISCUSSION

The most frequently observed species across both seasons was green-listed buzzard, with a total of 117 observations during the summer and 43 in winter. The high activity levels across the entire study area, the presence of young birds and display behaviour observed at VP 4 and HVP7, in addition to the presence of this species across multiple hinterland sites indicates that the proposed Ballinla wind farm site and the surrounding hinterland provide suitable breeding habitat for this species.

The study area overlaps a wintering ground for red-listed/ Annex I golden plover, the second most frequently observed species during the survey period (38 winter season records). Large abundances and the high activity levels recorded during VP and hinterland surveys (TR 26 and HVP 4) indicate occupancy of the locality, particularly in the north/north-eastern sector of the study area, by wintering golden plover. The occurrence of observations during October 2021 also indicates the possibility that some of the activity recorded could relate to migratory transits through the study area.

Red-listed kestrel activity was detected during both seasons (14 summer 2021 records and 19 winter 2021/22 records) with observations widely distributed, primarily along the edge the study area, with some clustering in the south east, and across the surrounding hinterland (HVPs 9, 10 and 12). The activity recorded indicates that the proposed wind farm site and wider area provides suitable hunting grounds for this species with high levels of hovering and hunting activity recorded. Sightings of moulting juveniles and two individuals together indicate breeding in the region, however no evidence of nesting kestrel using the study area or surrounding areas was recorded.

The study area, particularly along the edges/ outskirts is used by green-listed sparrowhawk with 12 observations during summer VP surveys and five observations during the winter. The area provides suitable habitat for this species with observations of hunting recorded on several occasions. The surrounding hinterland is also utilised by this species and likely supports breeding grounds with display flight observed at HPV 7 (sparrowhawks have small breeding territories, usually with a maximum of c. 2 km between nests).

The area also supports the Annex I-listed peregrine falcon which was present during both survey seasons. There was no evidence of breeding activity and optimal breeding habitat for peregrine (cliffs or quarries) is absent but the study area provides suitable hunting habitat for this species, particularly in the southern section where an individual was observed hunting wintering lapwing. The wider surrounding area is also used by this species with another observation recorded at HVP 13.

Merlin (Annex I/amber-listed) was recorded on two occasions during winter, one of which observed an individual flying low over bog within the study area. This area and its surroundings are used occasionally by wintering merlin for hunting opportunities. This species was not detected during the breeding season, and the study area is low quality in terms of breeding habitat and lies outside the known breeding distribution for merlin (Bird Atlas 2007-2011). It is noted that the area c.10 km west in which Raheenmore Bog SAC is located (noted as being within the range of a breeding merlin pair in the 2013 SAC site synopsis) is identified as 'possible' in terms of merlin breeding distribution in the Bird Atlas 2007-2011.

The study area supports hunting hen harrier (amber-listed/Annex I) during the winter season. Potential transient roosting by females was observed in the southern part of the study area. However, there is no evidence of a habitual roost or groups of roosting hen harrier.

The amber-listed lesser black-backed gull was the second most common species during the summer season with a total of 30 records. The high levels of activity widely distributed across the site and winter presence indicate that this area provides suitable foraging habitats for this species.



The study area, predominantly in the southeast, supports a wintering population of red-listed lapwing with 15 observations recorded during the winter season and flocks of up to 78 individuals. The presence of this species during breeding bird transects (wader site 7) indicates potential for breeding within the study area, but no confirmed breeding was detected and no further observations of lapwing were recorded at wader site 7. However, the surrounding area does support breeding pairs of lapwing with records at wader survey sites 2 and 4.

Whooper swan (amber-listed/Annex I) was recorded on two occasions during winter VP surveys and once during winter hinterland surveys (TR24). The study area and surrounding hinterland provide suitable wintering/foraging grounds for this species (open farmland and inland wetlands). Flight activity indicated this species was traversing the study area.

The study area and surrounding hinterland support the amber-listed mute swan. This species was recorded traversing the study area and breeding in the wider area. Breeding activity was recorded along TR 20 south of the study area. This species habitually uses the surrounding area with observations recorded during summer and winter hinterland surveys (HVP 1, 7, 8 and 12 ; TR 18, 19 and 20).

Amber-listed mallard was observed within the study area across both seasons. Activity is indicative of habitual use of flooded cutover bog to the south of the proposed wind farm site with presence detected across both seasons. The surrounding hinterland also supports this species with flocks of up to 13 individuals recorded across both seasons at HVPs 1, 3, 4, 7, 8, 9, 11, 12 and 13 and at TR 18.

Another species of conservation concern recorded in the study area was red-listed snipe. This species was observed across both seasons which indicates habitual use of the area, particularly in the southern section of the study area which provides suitable habitat for feeding in the form of recolonising cutover bog. Breeding activity was recorded in the surrounding hinterland during breeding wader surveys at wader sites 1 and 3 (minimum of 20 birds drumming) and at HVP 20 during hinterland surveys. They were also recorded along TRs 19, 20, 22 and 24 and HVPs 7 and 8.

Breeding woodcock are present in the study area as indicated by records of roding woodcock in at wader site 6 in the north-western corner of the proposed site. The surrounding area also supports woodcock with a breeding season record at TR22 to the north-west of the proposed site and a wintering record at HVP7 to the south-west.

The hinterland also supports breeding amber-listed ringed plover with six pairs identified during breeding wader surveys at site 2 west of the survey area.

There were several other species of conservation concern recorded during VP surveys including red-listed swift, stock dove and redwing. Redwing were observed in small flocks foraging in areas north of VP2 and in close proximity to VP1. Amber-listed cormorant and green-listed great black-backed gull were also recorded during VP surveys along with green-listed grey heron. Cormorant and grey heron also occur in the surrounding area with records made during hinterland surveys.

Several other species of conservation concern were recorded during breeding bird surveys including red-listed meadow pipit, grey wagtail and yellowhammer. It is likely that grey wagtail and yellowhammer are breeding within the study area as these species were observed within the 0-25m band from transect 2. Grey Wagtail also utilises the wider area with observations recorded during hinterland surveys.

Hinterland surveys also recorded amber-listed/Annex I kingfisher. This was observed along TR18 (Toberdaly Stream River runs near sections of TR18). Other species recorded in the hinterland included amber-listed teal and shelduck and green-listed grey heron and water rail.



In conclusion, the Ballinla wind farm study area and surrounding hinterland is used by a variety of avian species including several breeding and foraging target species and Annex I species. There is potential for the proposed development to affect the species discussed throughout, both within the site and also in the wider area.





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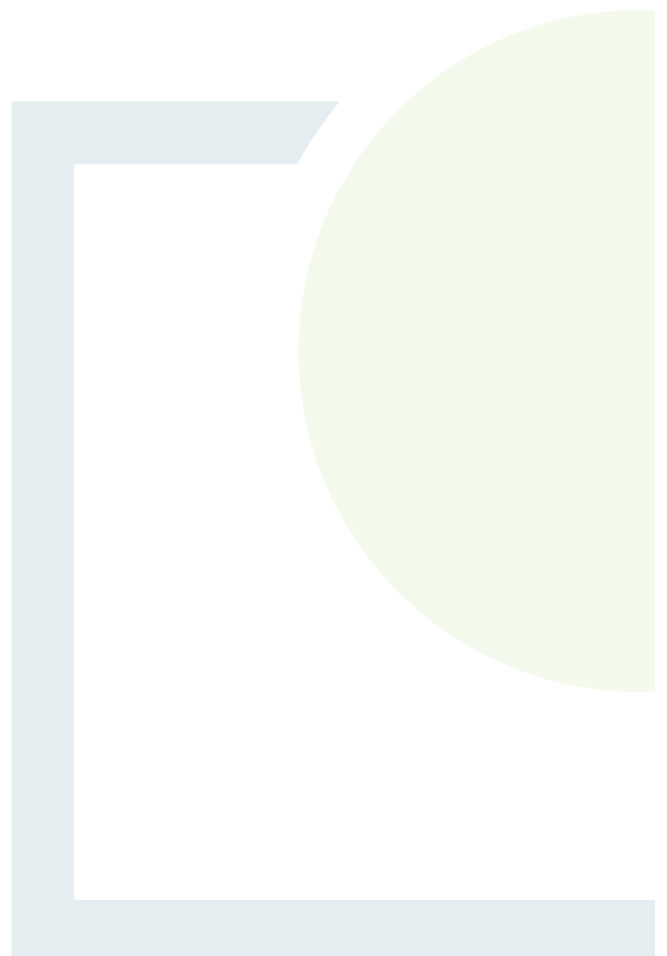
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DESIGNING AND DELIVERING  
A SUSTAINABLE FUTURE

## APPENDIX 1

Vantage Point Survey Details



VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
1	27/04/21	07:00	10:00	8	Yes	several light showers	2	N
1	27/04/21	10:30	13:30	8	Yes	one short heavy shower	2	N
2	30/04/21	07:00	10:00	0	Yes	Dry	2	N
2	30/04/21	10:30	13:30	6	Yes	several light showers	2	N
3	05/05/21	09:00	15:00	6	Yes	occasional shower	2	
1	25/05/21	10:33	13:33	5	Yes	Dry	1	NW
1	25/05/21	14:05	17:05	6	Yes	light showers	1	NW
2	25/05/21	17:40	20:40	6	Yes	light showers	1	NW
2	26/05/21	12:03	15:03	4	Yes	Dry	1	NW
3	11/05/21	08:55	14:55	4	Yes	Dry	3	
4	25/05/21	08:55	14:55	7	Yes	occasional showers	1	
1	29/06/21	10:00	13:00	1	Yes	Dry	1	NW
1	29/06/21	13:45	16:45	2	Yes	Dry	1	NW
2	30/06/21	10:20	13:20	4	Yes	Dry	1	N
2	30/06/21	14:05	17:05	4	Yes	Dry	1	N
3	05/06/21	09:45	15:45	6	Yes	occasional showers	3	

VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
4	06/06/21	07:45	13:45	4	Yes	Dry	1	
1	21/07/21	09:12	12:12	1	Yes	Dry	1	SE
1	21/07/21	13:05	16:05	1	Yes	Dry	1	SE
2	20/07/21	08:30	11:30	1	Yes	Dry	1	E
2	21/07/21	16:50	19:50	0	Yes	Dry	1	SE
3	26/07/21	08:30	14:30	8	Yes	Dry	1	
4	25/07/21	08:50	14:50	1	Yes	Dry	1	
1	10/08/21	08:33	11:33	7	Yes	Dry	2	S
1	10/08/21	13:05	16:05	8	Yes	Dry	2	S
2	09/08/21	08:15	11:15	8	Yes	light showers	3	SW
2	10/08/21	08:15	11:15	8	Yes	light showers	3	SW
3	03/08/21	07:00	10:00	8	Yes	Dry	1	
3	14/09/21	08:10	11:10	8	Yes	occasional showers	1	
4	02/08/21	09:00	15:00	8	Yes	Dry	1	
1	15/09/21	08:45	11:45	4	Yes	Dry	1	SW
1	15/09/21	12:20	15:20	4	Yes	Dry	1	SW
2	15/09/21	15:55	18:55	6	Yes	Dry	1	W
2	16/09/21	09:05	12:05	7	Yes	light showers	1	S
3	13/09/21	07:30	13:30	6	Yes	Dry	1	
4	12/09/21	09:30	15:30	8	Yes	Dry	2	

VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
1	01/11/21	07:30	10:30	7	Yes	showers	1	W
1	01/11/21	11:00	14:00	6	Yes	some showers	1	W
2	02/11/21	07:30	10:30	7	Yes	showers	1	NW
2	02/11/21	11:00	14:00	7	Yes	showers	1	NW
3	01/10/21	08:00	11:00	1	Yes	Dry	2	W
3	05/10/21	07:45	10:45	1	Yes	Dry	2	W
4	29/09/21	08:00	11:00	0	Yes	Dry	1	W
4	01/10/21	11:30	14:30	6	Yes	Dry	3	SW
1	30/10/21	08:42	11:42	6	Yes	Dry	1	SW
1	30/10/21	12:15	15:15	6	Yes	Dry	1	SW
2	06/11/21	08:00	11:00	8	Yes	showers	2	W
3	26/10/21	10:32	13:32	8	Yes	Dry	3	SW
3	28/10/21	15:15	18:15	7	Yes	rain	1	SW
4	26/10/21	14:00	17:00	8	Yes	Dry	4	SW
4	28/10/21	12:00	15:00	8	Yes	Dry	1	SW
1	02/11/21	10:40	13:40	3	Yes	Dry	2	NW
1	03/11/21	07:10	10:10	5	Yes	Dry	2	NW
2	02/11/21	07:10	10:10	2	Yes	Dry	2	SW
2	03/11/21	10:40	13:40	7	Yes	one shower	3	NW
3	08/11/21	10:30	13:30	4	Yes	Dry	1	SW
3	10/11/21	11:30	14:30	4	Yes	Dry	1	W
4	08/11/21	13:45	16:45		Yes	Dry	1	SW

VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
4	10/11/21	08:00	11:00	3	Yes	Mist	0	
1	01/12/21	11:05	14:05	8	Yes	occasional shower	5	NW
1	02/12/21	07:35	10:35	4	Yes	Dry	2	NW
2	02/12/21	11:05	14:05	7	Yes	Dry	2	W
3	04/12/21	13:00	16:00	8	Yes	some showers		
3	05/12/21	09:30	11:30	0	Yes	Dry	3	NW
4	04/12/21	09:45	12:45	3	Yes	one shower	3	NW
4	06/12/21	11:00	14:00	8	Yes	showers	3	SW
1	05/01/22	11:15	14:20	7	Yes	Dry	2	W
1	18/01/22	11:20	14:20	8	Yes	Dry	3	S
2	05/01/22	07:45	10:45	6	Yes	Dry	2	W
2	18/01/22	07:50	10:50	8	Yes	Dry	3	SE
3	05/01/22	11:00	14:00	7	Yes	Dry	0	
3	19/01/22	09:00	12:00	7	Yes	Dry	2	SW
4	08/01/22	11:45	14:45	4	Yes	one shower	3	W
4	18/01/22	11:15	14:15	8	Yes	light shower	2	S
1	04/02/22	11:10	14:10	4	Yes	Dry	4	SW
1	14/02/22	11:00	14:00	5	Yes	Dry	4	NW
2	04/02/22	07:40	10:40	4	Yes	some showers	3	W
2	14/02/22	07:30	10:30	3	Yes	Dry	3	W

VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
3	04/02/22	14:45	17:45	8	Yes	some showers	3	
3	06/02/22	14:45	17:45	8	Yes	some showers	4	NW
4	04/02/22	11:00	14:00	2	Yes	Dry	3	NW
4	06/02/22	11:30	14:30	2	Yes	hail showers	3	NW
1	08/03/22	10:40	13:40	6	Yes	some showers	4	SE
1	15/03/22	10:35	13:35	7	Yes	Dry	4	S
2	08/03/22	07:10	10:10	7	Yes	Dry	4	SE
2	15/03/22	07:05	10:05	7	Yes	Dry	3	S
3	08/03/22	13:00	16:00	6	Yes	hail shower	4	SE
3	12/03/22	08:30	11:30	0	Yes	Dry	1	SE
4	12/03/22	12:00	15:00	8	Yes	Dry	1	SE
1	27/04/21	07:00	10:00	8	Yes	several light showers	2	N
2	30/04/21	07:00	10:00	0	Yes	Dry	2	N
3	05/05/21	09:00	15:00	6	Yes	occasional shower	2	
1	25/05/21	10:33	13:33	5	Yes	Dry	1	NW
1	25/05/21	14:05	17:05	6	Yes	light showers	1	NW
2	25/05/21	17:40	20:40	6	Yes	light showers	1	NW
2	26/05/21	12:03	15:03	4	Yes	Dry	1	NW



VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
1	21/07/21	09:12	12:12	1	Yes	Dry	1	SE
2	20/07/21	08:30	11:30	1	Yes	Dry	1	E
2	21/07/21	16:50	19:50	0	Yes	Dry	1	SE
1	10/08/21	08:33	11:33	7	Yes	Dry	2	S
1	10/08/21	13:05	16:05	8	Yes	Dry	2	S
2	09/08/21	08:15	11:15	8	Yes	light showers	3	SW
2	10/08/21	08:15	11:15	8	Yes	light showers	3	SW
3	03/08/21	07:00	10:00	8	Yes	Dry	1	
4	02/08/21	09:00	15:00	8	Yes	Dry	1	
2	16/09/21	09:05	12:05	7	Yes	light showers	1	S
4	12/09/21	09:30	15:30	8	Yes	Dry	2	
1	30/10/21	08:42	11:42	6	Yes	Dry	1	SW
2	06/11/21	08:00	11:00	8	Yes	showers	2	W
3	26/10/21	10:32	13:32	8	Yes	Dry	3	SW
3	28/10/21	15:15	18:15	7	Yes	rain	1	SW
4	26/11/21	14:00	17:00	8	Yes	Dry	4	W
4	28/11/21	12:00	15:00	8	Yes	Dry	1	SW
3	01/10/21	08:00	11:00	1	Yes	Dry	2	W
3	05/10/21	07:45	10:45	1	Yes	Dry	2	W
4	29/09/21	08:00	11:00	0	Yes	Dry	1	W

VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
4	01/10/21	11:30	14:30	6	Yes	Dry	3	SW
1	28/11/21	10:40	13:40	3	Yes	None	2	
1	03/11/21	07:10	10:10	5	Yes	Dry	2	
2	02/11/21	07:10	10:10	2	Yes	Dry	2	
2	03/11/21	10:40	13:40	7	Yes	one shower	3	NW
3	08/11/21	10:30	13:30	4	Yes	Dry	1	SW
3	10/11/21	11:30	14:30	4	Yes	Dry	1	W
4	10/11/21	08:00	11:00	3	Yes	Mist	0	
4	08/11/21	13:45	16:45		Yes	Dry	1	SW
4	10/11/21	08:00	11:00	3	Yes	Mist	0	
1	01/12/21	11:05	14:05	8	Yes	occasional shower	5	NW
1	02/12/21	07:35	10:35	4	Yes	Dry	2	NW
2	01/12/21	07:35	10:35	5	Yes	occasional light rain	4	NW
2	02/12/21	11:05	14:05	6	Yes	Dry	2	W
3	04/12/21	13:00	16:00	7	Yes	some showers		
3	05/12/21	09:30	11:30	0	Yes	Dry	3	NW
4	04/12/21	09:45	12:45	3	Yes	one shower	3	NW
4	06/12/21	11:00	14:00	8	Yes	showers	3	SW
1	05/01/22	11:15	14:20	7	Yes	Dry	2	W
1	18/01/22	11:20	14:20	8	Yes	Dry	3	S

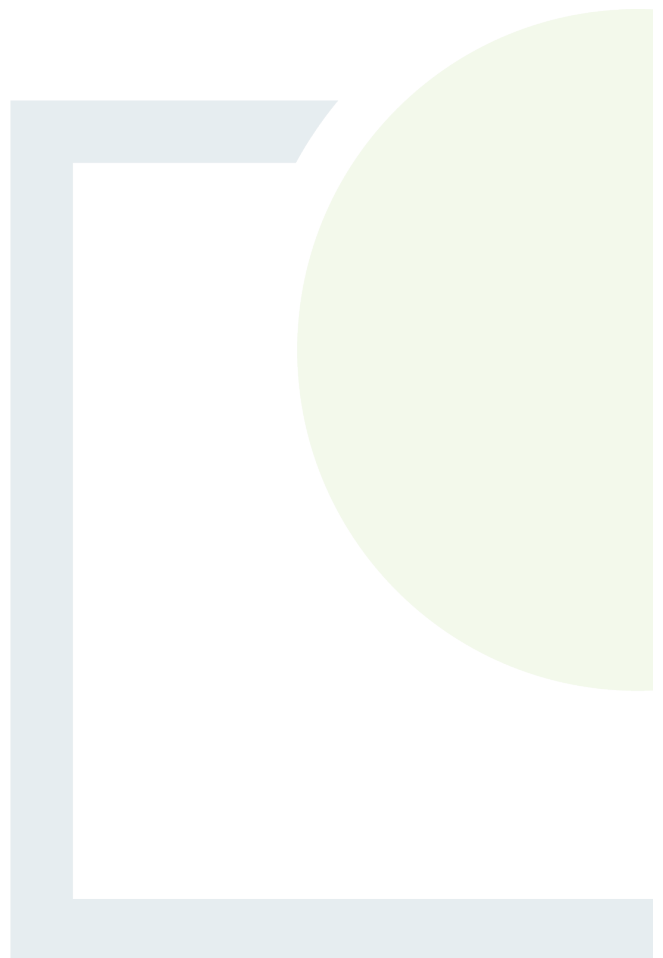
VP	Date	Start	End	Cloud /8	Is the viewshed fully Visible (if no VP should not be undertaken)	Precipitatio	Wind Speed (Beaufort)	Wind Direction
2	05/01/22	07:45	10:45	6	Yes	Dry	2	W
2	18/01/22	07:50	10:50	8	Yes	Dry	3	SE
2	05/01/22	11:00	14:00	7	Yes	Dry	0	
3	19/01/22	09:00	12:00	7	Yes	Dry	2	SW
4	08/01/22	11:45	14:45	4	Yes	one shower	3	W
4	18/01/22	11:15	14:15	8	Yes	light shower	2	S
1	04/02/22	11:10	14:10	4	Yes	Dry	4	SW
1	14/02/22	11:00	14:00	5	Yes	Dry	4	NW
2	04/02/22	07:40	10:40	4	Yes	some showers	3	W
2	14/02/22	07:30	10:30	3	Yes	Dry	3	NW
3	04/02/22	14:45	17:45	8	Yes	some showers	3	N
4	04/02/22	11:00	14:00	2	Yes	Dry	3	NW
4	06/02/22	11:30	14:30	2	Yes	hail showers	3	NW
1	08/03/22	10:40	13:40	8	Yes	some showers	4	SE
1	15/03/22	10:35	13:35	8	Yes	Dry	4	S
2	08/03/22	07:10	10:10	8	Yes	Dry	4	SE
2	15/03/22	07:05	10:05	8	Yes	Dry	3	S
3	08/03/22	13:00	16:00	6	Yes	hail shower	4	SE
3	12/03/22	08:30	11:30	0	Yes	Dry	1	SE
4	12/03/22	12:00	15:00	5	Yes	Dry	1	SE



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## APPENDIX 2

Hinterland Survey Schedule





Site Code	Location and Distance to Site Boundary	Eastings	Northings	Dates Visited
HVP 1	Trimblestown Bridge (0.03km)	657900	732509	26/05/2021 30/06/2021 05/10/2021 16/09/2021 09/08/2021
HVP 2	Cartland Bridge (1.56km)	659702	732386	26/05/2021 09/06/2021 30/06/2021
HVP 3	Colgan's Bridge (3.91km)	661977	731471	26/07/2021 05/10/2021 16/09/2021 09/08/2021 26/05/2021 09/06/2021 30/06/2021
HVP 4	Georges Bridge (3.59km)	661667	731540	05/10/2021 16/09/2021 09/08/2021 26/05/2021 09/06/2021 30/06/2021 26/07/2021
HVP 7	Ballyhugh (Flooded Cutover Bog) (4.63km)	650865	729129	25/02/2022 10/03/2022 20/03/2022
HVP 8	Rathvilla (Cutover Bog/ Flooded Quarries) (2.17km)	658119	727384	17/02/2022 25/02/2022 10/03/2022 20/03/2022
HVP 9	Cutover Bog 1 (3.33km)	652095	729672	09/06/2021 26/07/2021 09/08/2021 16/09/2021 05/10/2021

Site Code	Location and Distance to Site Boundary	Eastings	Northings	Dates Visited
HVP 10	Cutover Bog 2 (1.43km)	654333	729454	09/06/2021 30/06/2021 26/07/2021 09/08/2021 16/09/2021 05/10/2021
HVP 11	Along R400 (3.21km)	653687	725999	09/06/2021 26/07/2021 09/08/2021 16/09/2021 05/10/2021 01/01/2022
HVP 12	Edenderry (3.55km)	731770	661664	26/05/2021 09/06/2021 30/06/2021 26/07/2021 09/08/2021 16/09/2021 05/10/2021
HVP 13	Grand Canal Bridge (6.13km)	731328	664202	25/05/2021 09/06/2021 26/07/2021 09/08/2021 16/09/2021 05/10/2021
HVP 14	Cutover Bog 3 (2.65km)	652394	730429	05/12/2021
TR 15	Clonlack Cutover Bog (overlaps with study area)	Transect		05/06/2021
TR 16	Cutover Bog 4 (0.044km)	Transect		28/04/2021
TR 17	Ballinla (inside study area)	Transect		17/05/2021
TR 18	Cutover Bog 5 (2.49km)	Transect		18/05/2021
TR 19	Cutover Bog 6 (2.62km)	Transect		05/06/2021
TR 20	Road perpendicular to R400 (2.87km)	Transect		18/05/2021
TR 21	Fields adjacent to cutover bog (1.89km)	Transect		05/06/2021

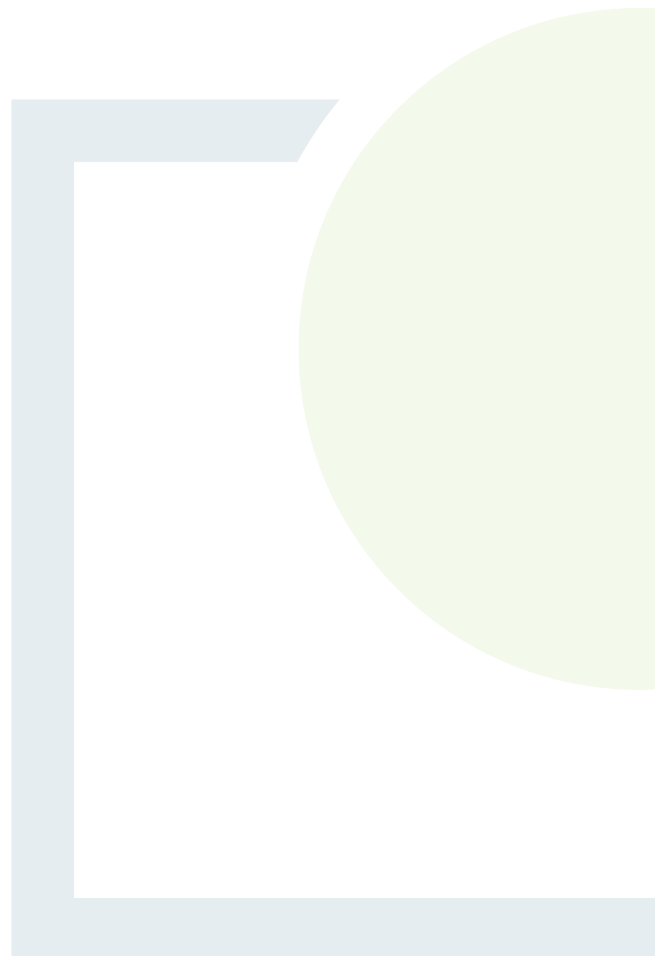
Site Code	Location and Distance to Site Boundary	Eastings	Northings	Dates Visited
TR 22	Cutover bog adjacent to Derryron (3.80km)	Transect		06/06/2021
TR 23	Derryarkin (6.18km)	Transect		06/06/2021
TR 24	Sandyhill (1.12km)	Transect		04/12/2021 06/12/2021 01/01/2022 05/01/2022
TR 25	R402 Ballyhugh (2.86km)	Transect		04/12/2021 19/01/2022
TR 26	R441 Ardbash/Ballynanum (2.27km)	Transect		05/12/2021 05/01/2022



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## APPENDIX 3

Vantage Point Survey Results





VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
2	30/04/2021	1	Buzzard	2		10:53	662		12	16	125	509	
2	30/04/2021	2	Buzzard	1		13:15	75				75		
3a	05/05/2021	3	Buzzard	1		11:30	125			25	100		over farmland
3a	05/05/2021	4	Buzzard	1		12:03	30				30		
3a	05/05/2021	5	Buzzard	1		12:17	65				65		
3a	05/05/2021	6	Buzzard	2		12:40	55		55				
3a	05/05/2021	7	Buzzard	1		13:19	30			30			
3a	05/05/2021	8	Buzzard	1		13:50	45	5	5	35			landed
3a	05/05/2021	9	Buzzard	2		13:56	30				30		
4a	18/05/2021	25	Buzzard	1		10:30	10	10					
4a	18/05/2021	26	Buzzard	1		11:16	185		25	160			over cutover bog
4a	18/05/2021	27	Buzzard	2		14:00	25		25				
4a	18/05/2021	28	Buzzard	1		14:05	40			40			
1	25/05/2021	31	Buzzard	1		10:55	194		12	162	20		
1	25/05/2021	33	Buzzard	5		11:21	263			26	22	215	
1	25/05/2021	34	Buzzard	1		11:44	17				17		
1	25/05/2021	36	Buzzard	2		12:17	185			20	33	132	
1	25/05/2021	38	Buzzard	1		12:48	64			64			
1	25/05/2021	40	Buzzard	2		14:23	184				184		
1	25/05/2021	43	Buzzard	2		15:44	25				25		
1	25/05/2021	44	Buzzard	1		15:59	43				43		
1	25/05/2021	45	Buzzard	1		16:40	120		12	50	58		
1	25/05/2021	46	Buzzard	1		17:00	86				86		
2	25/05/2021	47	Buzzard	1		17:56	44		6	38			
2	25/05/2021	48	Buzzard	2		18:08	205			15	190		
2	25/05/2021	49	Buzzard	1		18:20	23		23				
2	25/05/2021	50	Buzzard	1		18:59	427			18	53	356	
2	25/05/2021	51	Buzzard	1		19:45	32		32				
2	26/05/2021	52	Buzzard	1		12:45	324		9	51	53	211	
2	26/05/2021	53	Buzzard	1		13:33	187			24	60	103	
2	26/05/2021	54	Buzzard	2		14:06	66		6	12	48		dropped
2	26/05/2021	55	Buzzard	1		14:30	123			20	41	62	
2	26/05/2021	56	Buzzard	1		15:01	27			27			
3a	11/05/2021	10	Buzzard	1		09:41	10	10					land in tree

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3a	11/05/2021	11	Buzzard	1		10:08	35			5	20	10	
3a	11/05/2021	12	Buzzard			10:08	25			5	20		
3a	11/05/2021	13	Buzzard	1		10:24	15	5	10				land in tree
3a	11/05/2021	14	Buzzard	2		10:37	240	5	10	10	120	95	together
3a	11/05/2021	15	Buzzard	1		10:48	55				55		
3a	11/05/2021	16	Buzzard	1		11:10	30			30			
3a	11/05/2021	17	Buzzard	1		11:18	5		5				
3a	11/05/2021	18	Buzzard	2		12:09	230		30	30	170		
3a	11/05/2021	19	Buzzard	1		12:16	30			30			
3a	11/05/2021	20	Buzzard	1		12:27	20		20				
3a	11/05/2021	21	Buzzard	1		13:00	15		15				
3a	11/05/2021	22	Buzzard	1		13:30	10		10				
3a	11/05/2021	23	Buzzard	1		14:10	15				15		
3a	11/05/2021	24	Buzzard	1		14:44	10		10				
4a	25/05/2021	29	Buzzard	1		10:15	15		15				
4a	25/05/2021	30	Buzzard	1		10:35	30		30				
4a	25/05/2021	32	Buzzard	1		11:05	10		10				
4a	25/05/2021	35	Buzzard	1		12:15	55		55				
4a	25/05/2021	37	Buzzard	1		12:33	45			45			
4a	25/05/2021	39	Buzzard	1		13:40	25		25				
4a	25/05/2021	41	Buzzard	1		14:27	10			10			
4a	25/05/2021	42	Buzzard	1		14:45	15		15				
1	29/06/2021	75	Buzzard	2		10:42	212		5	52	155		
1	29/06/2021	76	Buzzard	1		11:44	49			49			
1	29/06/2021	77	Buzzard	1		12:39	73			73			
1	29/06/2021	78	Buzzard	1		14:07	194			44	150		
1	29/06/2021	79	Buzzard	1		14:46	47			47			
1	29/06/2021	80	Buzzard	2		16:11	211			25	186		
2	30/06/2021	81	Buzzard	1		11:15	325			52	223	50	
2	30/06/2021	82	Buzzard	1		12:06	27			27			
2	30/06/2021	83	Buzzard	1		12:48	179			64	115		
2	30/06/2021	84	Buzzard	1		14:23	106			28	78		
2	30/06/2021	85	Buzzard	1		14:55	316			20	151	145	
2	30/06/2021	86	Buzzard	1		16:05	222			20	202		
2	30/06/2021	87	Buzzard	1		16:42	73			10	63		

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3a	05/06/2021	57	Buzzard	1		11:25	140				140		
3a	05/06/2021	58	Buzzard	1		14:04	15		15				
3a	05/06/2021	59	Buzzard	1		15:00	20		20				
3a	05/06/2021	61	Buzzard	1		15:30	15	15					
3a	05/06/2021	60	Buzzard	1		15:12	10		10				
3a	05/06/2021	62	Buzzard	1		15:46	15		15				
4a	06/06/2021	63	Buzzard	1		08:21	250	10	10	230			landed
4a	06/06/2021	64	Buzzard	2		08:28	300					300	display
4a	06/06/2021	65	Buzzard	1		10:10	10		10				
4a	06/06/2021	66	Buzzard	2		10:12	189				189		
4a	06/06/2021	67	Buzzard	2		10:45	60				60		
4a	06/06/2021	68	Buzzard	1		11:05	45			45			
4a	06/06/2021	69	Buzzard	2		11:14	240			40	100	100	
4a	06/06/2021	70	Buzzard	2		11:46	56			55	1		
4a	06/06/2021	71	Buzzard	1		11:47	45				45		
4a	06/06/2021	72	Buzzard	1		12:10	30		30				
4a	06/06/2021	73	Buzzard	1		12:40	10			10			
4a	06/06/2021	74	Buzzard	1		13:20	60		30	30			
1	21/07/2021	89	Buzzard	2		10:17	285		8	12	25	240	
1	21/07/2021	90	Buzzard	1		10:55	71			19	52		
1	21/07/2021	91	Buzzard	1		13:57	45			45			
1	21/07/2021	92	Buzzard	1		14:15	208		6	67	135		
2	20/07/2021	88	Buzzard	1		09:50	110			9	101		
2	21/07/2021	93	Buzzard	1		17:49	66		4	62			
3a	26/07/2021	98	Buzzard	1		09:54	180		60	120			
3a	26/07/2021	99	Buzzard	1		11:45	300		20	180	100		
3a	26/07/2021	100	Buzzard	1		13:05	50	10	10	30			
4a	25/07/2021	94	Buzzard	1		11:25	20			20			
4a	25/07/2021	95	Buzzard	1		11:50	30			30			
4a	25/07/2021	96	Buzzard	1		13:45	25			25			
4a	25/07/2021	97	Buzzard	1		14:30	25			25			
1	10/08/2021	102	Buzzard	1		09:05	393			18	65	310	
1	10/08/2021	103	Buzzard	3		10:30	208		9	9	190		
1	10/08/2021	104	Buzzard	1		11:11	44		11	33			sat on pole before flying
1	10/08/2021	105	Buzzard	1		13:52	95		3	12	80		

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
1	10/08/2021	106	Buzzard	1		14:44	42			42			
2	09/08/2021	101	Buzzard	1		09:52	168			70	98		
3b	14/09/2021	114	Buzzard	1		10:35	120				120		
3b	14/09/2021	115	Buzzard	1		10:47	10		10				
1	15/09/2021	116	Buzzard	1		09:55	166		10	56	100		
1	15/09/2021	117	Buzzard	1		14:46	94		11	83			
3b	13/09/2021	112	Buzzard	2		08:02	600	600					two young Buzzard
3b	13/09/2021	113	Buzzard	2		08:58	10	10					
4a	12/09/2021	107	Buzzard	1		10:53	25	25					
4a	12/09/2021	108	Buzzard	1		11:50	15		15				
4a	12/09/2021	109	Buzzard	1		12:10	30			30			
4a	12/09/2021	110	Buzzard	1		12:20	45			45			
4a	12/09/2021	111	Buzzard	3		13:30	180				180		
1	01/11/2021	121	Buzzard	1		09:14	64		7	57			
3	05/10/2021	118	Buzzard	1-2		09:00	60	60					calling at intervals not seen
1	30/10/2021	119	Buzzard	1		09:34	106		18	88			
1	30/10/2021	120	Buzzard	1		13:44	125		10	14	101		
2	06/11/2021	130	Buzzard	1		09:36	96		15	60	21		
2	06/11/2021	131	Buzzard	1		13:09	46		14	32			
1	02/11/2021	122	Buzzard	1		11:16	26	26					low flight lands on ESB Pole
1	02/11/2021	123	Buzzard	1		11:35	43	30	13				Low flight East
1	02/11/2021	124	Buzzard	1		11:47	22	12	10				low flight into woods
1	02/11/2021	125	Buzzard	1		12:26	38		18	20			soaring, mobbed by HC. Drops behind woods
1	02/11/2021	126	Buzzard	1		12:29	160			130	30		soaring mobbed by HC
1	02/11/2021	127	Buzzard	1		12:35	53		13	40			soaring, mobbed by crow
2	03/11/2021	128	Buzzard	1		11:56	8	8					direct flight. Probably landed in tree out of sight
2	03/11/2021	129	Buzzard	1		12:36	37	17	20				soaring briefly then drops behind trees
3	10/11/2021	133	Buzzard	1		13:30	300	300					perched in hedge



VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
4	10/11/2021	132	Buzzard	1		10:50	40		40				calling for 1 hour intermittently then flew across edge of plantation
1	01/12/2021	134	Buzzard	1		12:01	75	75					low flying Bz mobbed by HC, land in hedges briefly
1	01/12/2021	135	Buzzard	1		12:07	18	18					BZ drops into field, then mobbed by HC flies over hedge
1	02/12/2021	136	Buzzard	1		08:02	18	18					direct low flight calling
3	05/12/2021	139	Buzzard	1		11:30	-						bird perched on fence post only spotted when leaving VP possibly there all morning!
4	04/12/2021	137	Buzzard	1		09:45	1hr						
4	04/12/2021	138	Buzzard	1		12:00	1865	1800	10	20	35		1 perched on fence post
1	05/01/2022	140	Buzzard	1		11:22	22	22					flies from pole
3	05/01/2022	141	Buzzard	1		11:55	5	5					flew from field to tree perch
4	18/01/2022	N/A	Buzzard	1		12:00	10	10					buzzard calling, not seen
1	04/02/2022	143	Buzzard	1		13:01	92			92			direct flight south
1	04/02/2022	145	Buzzard	2		13:23	108		30	50	28		two BZ soaring/interacting drop back to trees
1	14/02/2022	146	Buzzard	1		13:21	210		30	180			gliding flight east
1	14/02/2022	147	Buzzard	1		13:42	45				45		soaring
1	14/02/2022	148	Buzzard	1		13:51	41			41			soaring
1	14/02/2022	149	Buzzard	1		13:56	35			35			gliding west
4	04/02/2022	144	Buzzard	1		13:20	120			60	60		bird mobbed by corvids
1	08/03/2022	150	Buzzard	1		13:32	85		20	65			Circling drifted down wind
1	15/03/2022	156	Buzzard	1		11:58	64			64			circling soaring drifting North, lost sight behind tree
3	08/03/2022	151	Buzzard	1		14:55	30				30		

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3	12/03/2022	152	Buzzard	1		10:50	15	0	10	5			
4	12/03/2022	153	Buzzard	1		12:35	230		40	40	50	100	soaring on thermal
4	12/03/2022	154	Buzzard	1		12:40	0						second bird
4	12/03/2022	155	Buzzard	3		13:30	0						2+1
1	28/11/2021	N/A	Buzzard										Unmapped static record
2	02/11/2021	N/A	Buzzard										Unmapped static record
1	01/12/2021	N/A	Buzzard										Unmapped static record
2	02/12/2021	N/A	Buzzard										Unmapped static record
1	02/11/2021	1	Cormorant	1		12:01	110		20	90			direct flight (prob along canal)
3	05/10/2021	1	Golden Plover	135		09:50	300	10	40	50	200		Golden plover landed in stubble field - remained past end of watch
3	26/10/2021	2	Golden Plover	55		12:00	20	10	10				circled low and landed same site
1	02/11/2021	6	Golden Plover	220		12:42	130			100	30		circling before heading west
1	02/11/2021	7	Golden Plover	55		13:25	438	8	30	200	200		wheeling flight, then drop to field south of VP1
1	03/11/2021	8	Golden Plover	38		07:47	423				300	123	circling searching flight calls possibly landed in field
1	03/11/2021	9	Golden Plover	45		08:06	115			115			direct flight east
1	03/11/2021	10	Golden Plover	12		08:46	25			25			direct flight
1	03/11/2021	11	Golden Plover	55		08:57	85			85			direct flight
1	03/11/2021	12	Golden Plover	160		09:02	970		10	60	900		multi directional flight, drop behind woods
2	02/11/2021	3	Golden Plover	45		08:28	98			98			circling/ searching flight
2	02/11/2021	4	Golden Plover	25		08:50	15	15					circling possibly landed in field
2	02/11/2021	5	Golden Plover	14		08:53	115	15	100				circling searching flight calls possibly landed in field

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
4	08/11/2021	N/A	Golden Plover			15:30	0						heard calling, not seen
1	01/12/2021	13	Golden Plover	8		13:26	23			23			direct flight down wind
1	02/12/2021	14	Golden Plover	150		08:38	53	3	10	40			circling then drop to out of sight
1	02/12/2021	15	Golden Plover	270		08:51	670			670			circling searching flight headed east
1	02/12/2021	16	Golden Plover	17		09:10	55			55			circling then went north
1	02/12/2021	17	Golden Plover	120		09:18	94			94			circling heading west
1	02/12/2021	18	Golden Plover	420		09:32	1110			630	480		circling, searching in flight
1	02/12/2021	19	Golden Plover	80		10:07	58			58			searching flight
1	02/12/2021	20	Golden Plover	400		10:22	569			569			searching flight
3	05/12/2021	21	Golden Plover	100+		11:10	20					20	
1	05/01/2022	22	Golden Plover	650		11:16	10	10					lift briefly from field foraging field 11:15-12:40
1	05/01/2022	23	Golden Plover	650		11:38	52	40	12				lift briefly from field drop back to forage
1	05/01/2022	24	Golden Plover	650		12:28	145	45	100				lift form field circle drop back to forage
1	05/01/2022	25	Golden Plover	650		12:40	205	40	100	65			lift from field circled then move west drop to forage
1	05/01/2022	26	Golden Plover	650		13:01	12	12					lift from field circle then drop back to forage
1	05/01/2022	27	Golden Plover	650		13:27	770	70	200	500			lift from field circle high drop back to forage
1	05/01/2022	28	Golden Plover	40		13:46	25	5	5	15			come in high from south drop into main flock of 650
1	05/01/2022	29	Golden Plover	650		13:48	629	29	100	200	300		lift from field circle fly back to field to east

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
1	05/01/2022	30	Golden Plover	650		14:06	664	24	40	200	200	200	lift from field circle drop back to west and land
3	19/01/2022	N/A	Golden Plover	?		09:30	900	900					birds not seen but calling for half hour
3	19/01/2022	31	Golden Plover	150		11:30	25					25	flying S/E over plantation
1	04/02/2022	32	Golden Plover	500-750		13:51	840			120	120	600	circling about rising and falling in height, lost in cloud
1	08/03/2022	33	Golden Plover	65		12:57	43		43				direct flight SW
1	28/11/2021	N/A	Golden Plover										Heard calling only
1	05/01/2022	N/A	Golden Plover										Heard calling only
1	08/03/2022	N/A	Golden Plover										Heard calling only
1	27/04/2021	2	Great Black-backed Gull	1		09:02	42	5	15	22			
1	27/04/2021	3	Great Black-backed Gull	1		09:30	119			119			
2	30/04/2021	4	Great Black-backed Gull	2		07:22	94			94			
2	30/04/2021	5	Great Black-backed Gull	1		08:36	103			103			
1	27/04/2021	1	Great Black-backed Gull	1		08:51	96			96			
1	27/04/2021	1	Grey Heron	1		11:16	142	56	82				
1	27/04/2021	2	Grey Heron	1		12:22	17	7	10				
4a	18/05/2021	3	Grey Heron	2		10:35	10	10					
1	10/08/2021	4	Grey Heron	1		15:24	214				214		
4a	12/09/2021	5	Grey Heron	1		14:10	10		10				
2	02/11/2021	7	Grey Heron	1		12:10	79				79		
2	06/11/2021	9	Grey Heron	1		10:16	53			53			
1	02/11/2021	6	Grey Heron	1		11:38	71	71					low flight, direct
2	03/11/2021	8	Grey Heron	1		13:14	25			25			direct flight
3	05/01/2022	1	Hen Harrier	1		13:25	10	10					flying low over bog
3	19/01/2022	2	Hen Harrier	1		10:35	600	600					hunting low over bog
3	19/01/2022	3	Hen Harrier	1		11:35	30	30					hunting over farmland



VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3	19/01/2022	4	Hen Harrier	1		12:00	20	20					second bird!
3	04/02/2022	5	Hen Harrier	1	female	16:05	600	600					hunting, then flew out of view at edge of plantation
3	04/02/2022	6	Hen Harrier	1	female	17:05	15	15					flew west
3	06/02/2022	7	Hen Harrier	1	female	16:25	100	10	90				Female, same as 04/02 bird. Same route to roost
3	12/03/2022	8	Hen Harrier	1	female	09:00	15	15					hunting, same bird
3	12/03/2022	9	Hen Harrier	1	female	09:40	5	5					hunting, same bird
3	12/03/2022	10	Hen Harrier	1	female	10:00	5	5					hunting, same bird
3	12/03/2022	11	Hen Harrier	1	female	10:05	5	5					hunting, same bird
3	12/03/2022	12	Hen Harrier	1	female	10:10	5	5					hunting, same bird
1	27/04/2021	1	Kestrel	1		11:03	43	23	20				landed on telegraph pole
2	30/04/2021	2	Kestrel	1		08:53	6	6					
4a	18/05/2021	4	Kestrel	1		12:15	25		25				
4a	18/05/2021	5	Kestrel	1		13:45	20	20					
3a	11/05/2021	3	Kestrel	1	male	12:07	15			15			
1	21/07/2021	6	Kestrel	1		13:33	194			22	172		
4a	25/07/2021	7	Kestrel	1		12:15	10		10				
4a	25/07/2021	8	Kestrel	1		14:05	15		15				
1	10/08/2021	9	Kestrel	1		13:10	195		22	173			juvenile on moult
3b	14/09/2021	14	Kestrel	1		08:46	10	10					landed 180s
3b	13/09/2021	10	Kestrel	1		08:35	20	20					
3b	13/09/2021	11	Kestrel	1		10:05	15	15					
3b	13/09/2021	12	Kestrel	1		10:56	10	10					
3b	13/09/2021	13	Kestrel	1		13:01	45	45					
1	30/10/2021	15	Kestrel	1		10:20	59			59			
2	03/11/2021	16	Kestrel	1		12:55	351		11	340			hunting, hovering
3	08/11/2021	17	Kestrel	1		13:30	30			30			hovering/hunting
3	10/11/2021	18	Kestrel	1		13:20	5			5			hunting finches
3	04/12/2021	19	Kestrel	1	male	13:30	300		100	200			hunting
3	04/12/2021	20	Kestrel	1	male	14:45	20			20			same bird
3	05/12/2021	21	Kestrel	1		10:50	1hr	1hr					kestrel perched for 40 minutes caught finch and plucked on ground

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3	19/01/2022	22	Kestrel	1		10:40	600	600					perched
3	19/01/2022	23	Kestrel	1		11:00	20		20				hovering
3	19/01/2022	24	Kestrel	1		11:05	70		10	20	40		two Kestrels flying
3	04/02/2022	25	Kestrel	1		14:40	25		25				10 in, 15 out
3	04/02/2022	26	Kestrel	1		16:20	40	5	5	30			same bird, hunting
3	04/02/2022	27	Kestrel	1		16:25	10			10			same bird, hunting
3	04/02/2022	28	Kestrel	1		16:40	15			15			same bird, hunting
3	04/02/2022	29	Kestrel	1	male	16:50	10			10			same bird, over plantation
3	04/02/2022	30	Kestrel	1		17:20	5		5				
3	06/02/2022	32	Kestrel	1	male	15:20	20			20			hovering
4	06/02/2022	31	Kestrel	1		13:20	10		10				
3	08/03/2022	33	Kestrel	1		15:35	15	5	10				hunting/hovering
2	30/04/2021	1	Lapwing	1		08:26	108			108			
2	30/04/2021	2	Lapwing	1		09:09	97			97			
1	03/11/2021	3	Lapwing	3		07:43	172				172		westerly direct flight
1	03/11/2021	4	Lapwing	4		08:23	37			37			direct flight
3	08/11/2021	5	Lapwing	16		11:50	60	30	20	10			landed on/beside bog pool
3	08/11/2021	6	Lapwing	63		13:20	180	5	5	100	70		flushed by peregrine falcon
3	10/11/2021	8	Lapwing	75		12:10	180				120		lapwing circled for 3mins and then flew s/w
3	10/11/2021	9	Lapwing	75		13:00	257	5	10	10	202	30	lapwing flock reappeared and landed on same pool, same flight path as 2
3	10/11/2021	10	Lapwing	75		13:15	240			200	40		same flight path as two
4	08/11/2021	7	Lapwing	78		16:00	300				240	60	circled over plantation
3	04/12/2021	11	Lapwing	65		13:05	75	5	10	10	25	25	flushed by buzzard
3	19/01/2022	12	Lapwing	40		10:50	30	10	10	10			landed on bog
3	08/03/2022	13	Lapwing	1		13:00	75	5	10	60			calling
3	08/03/2022	14	Lapwing	1		13:15	10				10		calling
3	08/03/2022	15	Lapwing	1		15:30	10				10		calling

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3	08/03/2022	16	Lapwing	12		15:45	15		15				
3	12/03/2022	17	Lapwing	1		10:55	10				10		
3a	05/05/2021	1	Lesser Black-backed Gull	1		09:35	120		30	90			over farmland
3a	05/05/2021	2	Lesser Black-backed Gull	3		10:54	90			30	60		
1	25/05/2021	4	Lesser Black-backed Gull	28		12:32	495				42	453	
1	25/05/2021	5	Lesser Black-backed Gull	17		14:38	57			57			
1	25/05/2021	6	Lesser Black-backed Gull	3		14:55	42		22	20			
1	25/05/2021	7	Lesser Black-backed Gull	48		16:53	144				144		
4a	25/05/2021	3	Lesser Black-backed Gull	5		09:46	30		30				
1	29/06/2021	8	Lesser Black-backed Gull	3		10:58	108				108		
1	29/06/2021	9	Lesser Black-backed Gull	4		12:09	152	20	32	78	22		landed out of sight
1	29/06/2021	10	Lesser Black-backed Gull	7		15:15	170				170		
1	29/06/2021	11	Lesser Black-backed Gull	1		15:39	114				114		
1	29/06/2021	12	Lesser Black-backed Gull	2		16:02	73			40	33		
1	21/07/2021	13	Lesser Black-backed Gull	1		09:40	177				177		
1	21/07/2021	14	Lesser Black-backed Gull	3		11:33	140				140		
1	21/07/2021	15	Lesser Black-backed Gull	1		15:02	118				118		
1	21/07/2021	16	Lesser Black-backed Gull	1		15:42	144				144		
2	21/07/2021	17	Lesser Black-backed Gull	1		19:01	110				110		
1	10/08/2021	21	Lesser Black-backed Gull	2		09:48	204				204		
1	10/08/2021	22	Lesser Black-backed Gull	1		10:53	155					155	
1	10/08/2021	23	Lesser Black-backed Gull	1		15:56	149				149		adult

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
2	09/08/2021	20	Lesser Black-backed Gull	1		10:44	162				162		adult
3b	14/09/2021	28	Lesser Black-backed Gull	10		09:05	165				165		directly east
3b	14/09/2021	29	Lesser Black-backed Gull	3		09:20	30				30		
3b	14/09/2021	30	Lesser Black-backed Gull	6		09:45	25				25		
4a	02/08/2021	18	Lesser Black-backed Gull	1		09:47	120		120				
4a	02/08/2021	19	Lesser Black-backed Gull	2		10:50	40			40			
3b	13/09/2021	24	Lesser Black-backed Gull	12		09:25	70			70			
3b	13/09/2021	25	Lesser Black-backed Gull	2		09:35	65		65				
3b	13/09/2021	26	Lesser Black-backed Gull	5		09:37	60		60				
3b	13/09/2021	27	Lesser Black-backed Gull	1		12:15	15		15				
1	02/12/2021	31	Lesser Black-backed Gull	2		08:31	25	5	20				circling then drop to out of sight
3a	05/05/2021	1	Mallard	3		13:19	5		5				
3a	05/05/2021	2	Mallard	1		13:27	10			10			
4a	18/05/2021	3	Mallard	3		12:30	30		30				
2	10/08/2021	4	Mallard	66		18:15	94				94		tight flock
2	10/08/2021	5	Mallard	28		18:18	108				108		followed previous flock
2	16/09/2021	6	Mallard	2		10:11	56			56			
3	26/10/2021	7	Mallard	28		11:10	200	5	20	30	145		birds circled and landed same site
3	26/10/2021	8	Mallard	3		11:15	10		10				circled low and landed same site
3	26/10/2021	9	Mallard	10		11:50	60	10	20	30			circled low and landed same site
3	26/10/2021	10	Mallard	1		13:00	15		15				single mallard flew across bog
3	08/11/2021	11	Mallard	68		12:30	115	5	20	30	60		took off from bog pool
3	10/11/2021	12	Mallard	8		13:15	40	5	35				same flight path as two

VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
3	10/11/2021	13	Mallard	8		13:20	70	10	60				same flight path as two
3	19/01/2022	N/A	Mallard	?		10:30	5	5					mallard calling, flight path not drawn
3	06/02/2022	14	Mallard	2		15:15	10			10			pair
3	06/02/2022	15	Mallard	3		16:20	10			10			pair +1
3	08/03/2022	16	Mallard	4		13:40	5		5				
3	08/03/2022	17	Mallard	2		14:30	10		10				
3	08/03/2022	18	Mallard	3		15:15	10	5	5				
2	03/11/2021	1	Merlin	1		12:17	3	3					Perched in tree top from 12.08 to 12.17. Drops from tree top out of sight behind houses
3	05/01/2022	2	Merlin	1		12:40	10	10					flying low over bog
2	30/04/2021	1	Mute Swan	2		10:35	46			46			
4a	06/06/2021	2	Mute Swan	1		09:20	65			65			
4a	18/05/2021	1	Peregrine	2		10:15	25			25			over cutover bog
4a	25/07/2021	2	Peregrine	1		11:05	120			120			
3	08/11/2021	3	Peregrine	1		13:20	180				180		hunting lapwing
3b	13/09/2021	1	Snipe	1		09:15	20		20				landed
3	28/10/2021	2	Snipe	1		15:20	5	5					single bird heard calling, habitat perfect for Snipe! Other small flocks possibly present and feeding
3	28/10/2021	3	Snipe	26		16:00	25	5	20				flock flying
3	28/10/2021	4	Snipe	21		16:25	10	5	5				flock flying
3	28/10/2021	5	Snipe	1		17:00	5	5					single bird
3	08/11/2021	6	Snipe	2		13:05	5	5					calling from bog at x and x
3	10/11/2021	7	Snipe	4		12:55	15	5	10				flew vp from pool, and landed same pool
3	05/12/2021	8	Snipe	8		09:35	1hr	1hr					feeding in pools
1	05/01/2022	9	Snipe	1		11:53	6	6					direct flight drops into field
1	25/05/2021	1	Sparrowhawk	1		13:12	225			42	183		



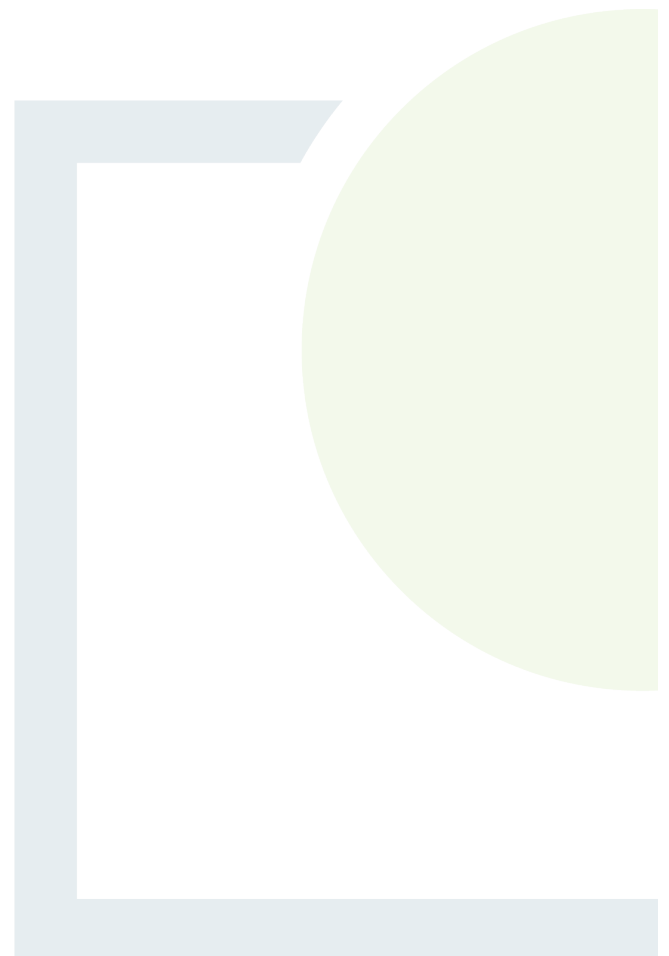
VP	Date	Bird ID	Species	Quantity	Sex	Start	Duration (s)	0-15m	15-30m	30-100m	100-200m	>200m	Notes
1	25/05/2021	2	Sparrowhawk	3		16:22	324			21	50	253	
2	26/05/2021	3	Sparrowhawk	1		14:44	54		7	44			
1	29/06/2021	6	Sparrowhawk	1		11:22	14		14				
1	29/06/2021	7	Sparrowhawk	1		16:28	31		4	27			
2	30/06/2021	8	Sparrowhawk	1		15:37	10			10			
3a	05/06/2021	4	Sparrowhawk	1		11:09	180	5	5	10	160		landed
3a	05/06/2021	5	Sparrowhawk	1		13:28	20	20					
2	20/07/2021	9	Sparrowhawk	1		11:02	24		24				
2	21/07/2021	10	Sparrowhawk	1		18:18	15			15			
4a	25/07/2021	11	Sparrowhawk	1		14:44	10			10			
2	10/08/2021	12	Sparrowhawk	1		19:09	14		14				
4	28/10/2021	13	Sparrowhawk	1		13:35	5	5					adult male hunting
2	02/11/2021	14	Sparrowhawk	1		09:34	5	5					fast hunting flight
1	01/12/2021	15	Sparrowhawk	1		13:43	12	12					HC mobbing land in woods
3	04/02/2022	16	Sparrowhawk	1	male	17:00	50	30	20				
3	06/02/2022	17	Sparrowhawk	1	male	15:35	120	120					hunting low
3	26/10/2021	1	Whooper Swan	3		12:35	25	25					flying low between bog pools
2	02/11/2021	2	Whooper Swan	5		08:19	58			58			direct flight (calls)



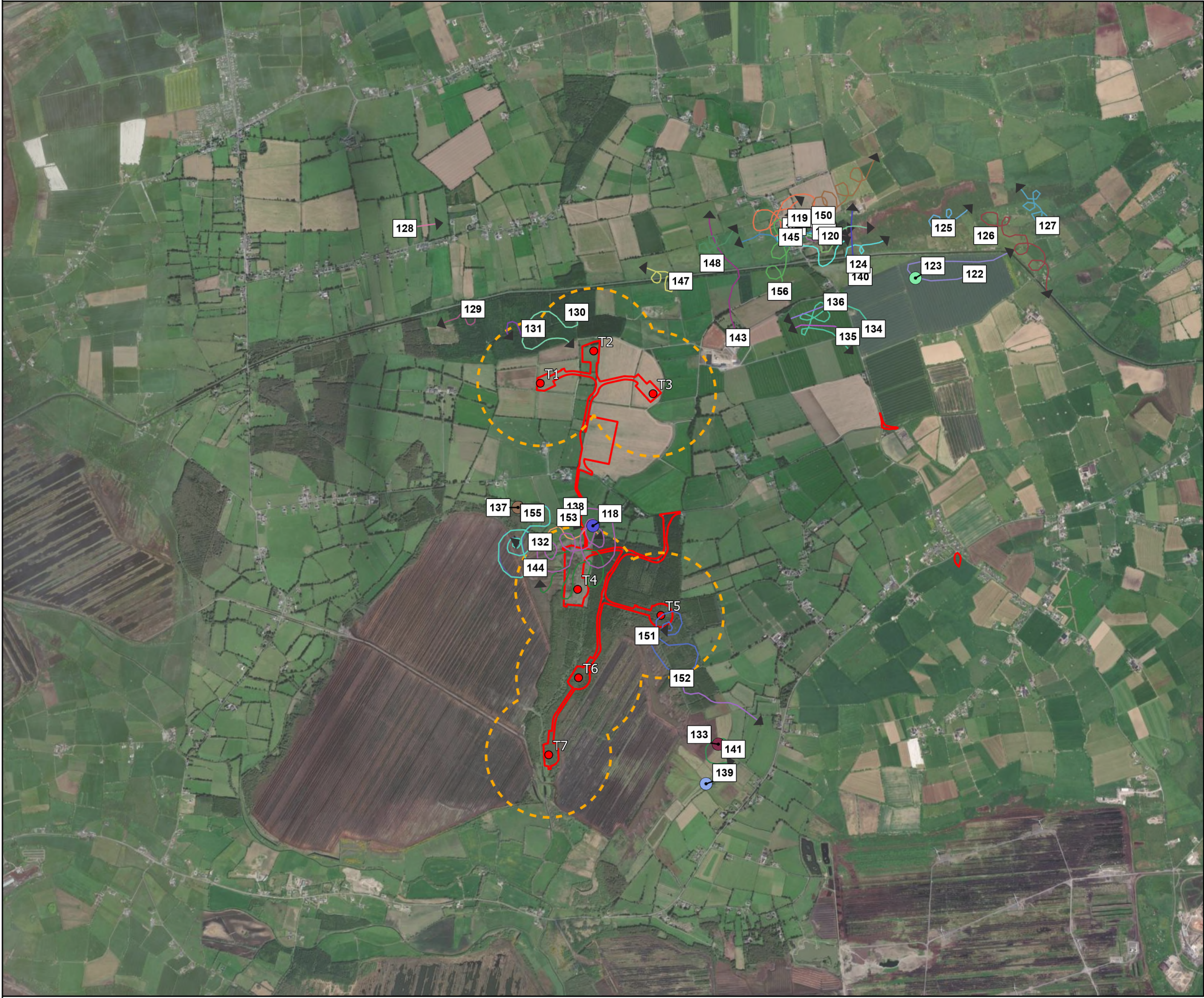
DESIGNING AND DELIVERING  
A SUSTAINABLE FUTURE

## APPENDIX 4

Flightline Figures







- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations

Bird ID, Date, Time

- 119,30/10/2021,09:34
- 120,30/10/2021,13:44
- 121,01/11/2021,09:14
- 122,02/11/2021,11:16
- 124,02/11/2021,11:47
- 125,02/11/2021,12:26
- 126,02/11/2021,12:29
- 127,02/11/2021,12:35
- 128,03/11/2021,11:56
- 129,03/11/2021,12:36
- 130,06/11/2021,09:36
- 131,06/11/2021,13:09
- 132,10/11/2021,10:50
- 134,01/12/2021,12:01
- 135,01/12/2021,12:07
- 136,02/12/2021,08:02
- 138,04/12/2021,12:00
- 140,05/01/2022,11:22
- 141,05/01/2022,11:55
- 143,04/02/2022,13:01
- 144,04/02/2022,13:20
- 145,04/02/2022,13:23
- 146,14/02/2022,13:21
- 147,14/02/2022,13:42
- 148,14/02/2022,13:51
- 149,14/02/2022,13:56
- 150,08/03/2022,13:32
- 151,08/03/2022,14:55
- 152,12/03/2022,10:50
- 153,12/03/2022,12:35
- 154,12/03/2022,12:40
- 155,12/03/2022,13:30
- 156,15/03/2022,11:58
- 118,05/10/2021,09:00
- 123,02/11/2021,11:35
- 133,10/11/2021,13:30
- 137,04/12/2021,09:45
- 139,05/12/2021,11:30

**TITLE:**  
Buzzard Winter 2021/22

**PROJECT:**  
Ballinla Wind Farm

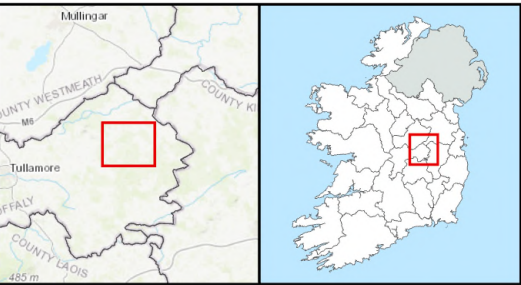
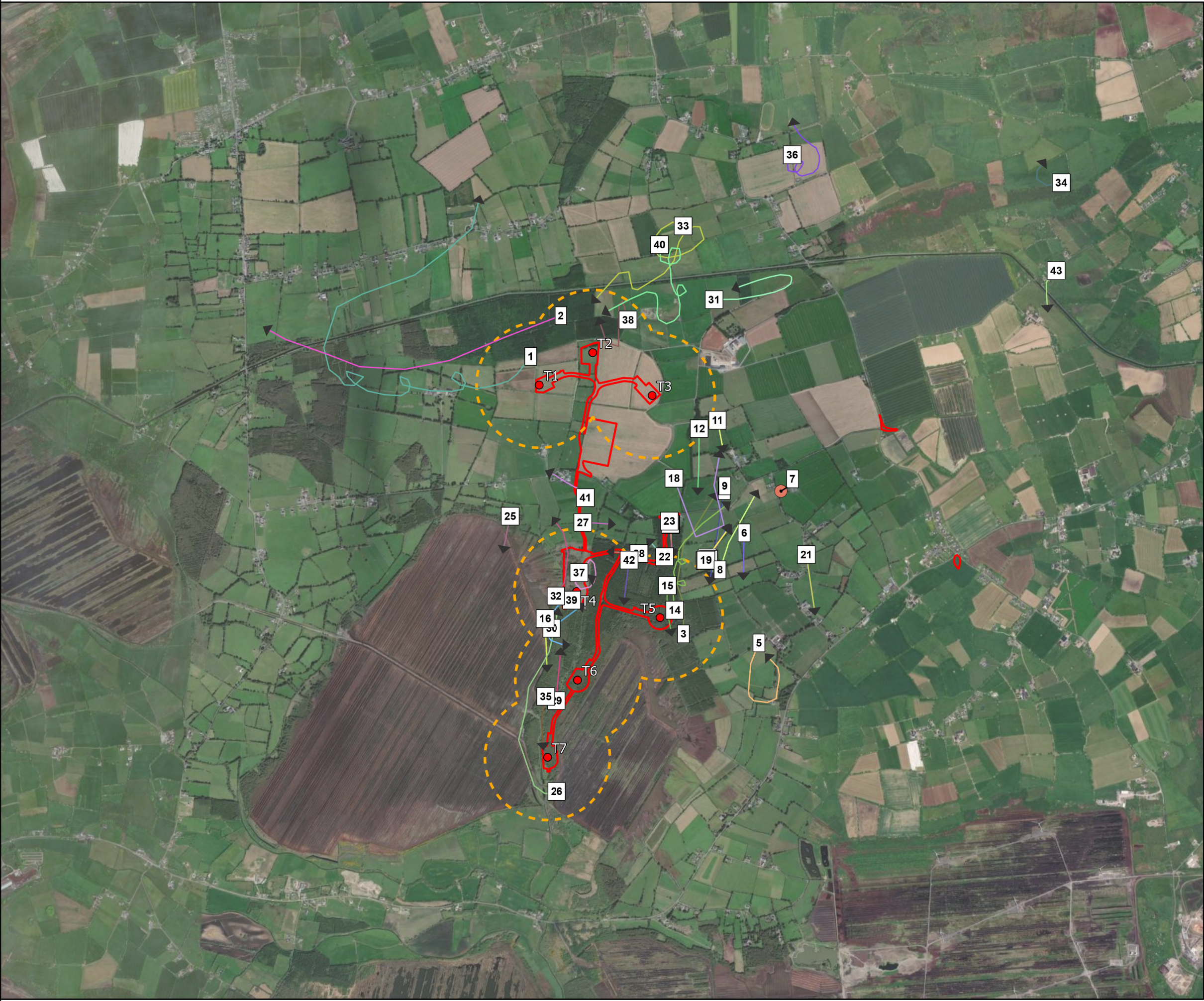
**FIGURE NO:** --

**CLIENT:** Statkraft

**SCALE:** 1:30,000 **REVISION:** 0

**DATE:** 11/08/2025 **PAGE SIZE:** A3





- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations

Bird ID, Date, Time

- 1,30/04/2021,10:53
- 2,30/04/2021,13:15
- 3,05/05/2021,11:30
- 4,05/05/2021,12:03
- 5,05/05/2021,12:17
- 6,05/05/2021,12:40
- 8,05/05/2021,13:50
- 9,05/05/2021,13:56
- 10,11/05/2021,09:41
- 11,11/05/2021,10:08
- 12,11/05/2021,10:08
- 13,11/05/2021,10:24
- 14,11/05/2021,10:37
- 15,11/05/2021,10:48
- 16,11/05/2021,11:10
- 17,11/05/2021,11:18
- 18,11/05/2021,12:09
- 19,11/05/2021,12:16
- 20,11/05/2021,12:27
- 21,11/05/2021,13:00
- 22,11/05/2021,13:30
- 23,11/05/2021,14:10
- 24,11/05/2021,14:44
- 25,18/05/2021,10:30
- 26,18/05/2021,11:16
- 27,18/05/2021,14:00
- 28,18/05/2021,14:05
- 29,25/05/2021,10:15
- 30,25/05/2021,10:35
- 31,25/05/2021,10:55
- 32,25/05/2021,11:05
- 33,25/05/2021,11:21
- 34,25/05/2021,11:44
- 35,25/05/2021,12:15
- 36,25/05/2021,12:17
- 37,25/05/2021,12:33
- 38,25/05/2021,12:48
- 39,25/05/2021,13:40
- 40,25/05/2021,14:23
- 41,25/05/2021,14:27
- 42,25/05/2021,14:45
- 43,25/05/2021,15:44
- 7,05/05/2021,13:19

**TITLE:** Buzzard 1

**PROJECT:** Ballinla Wind Farm

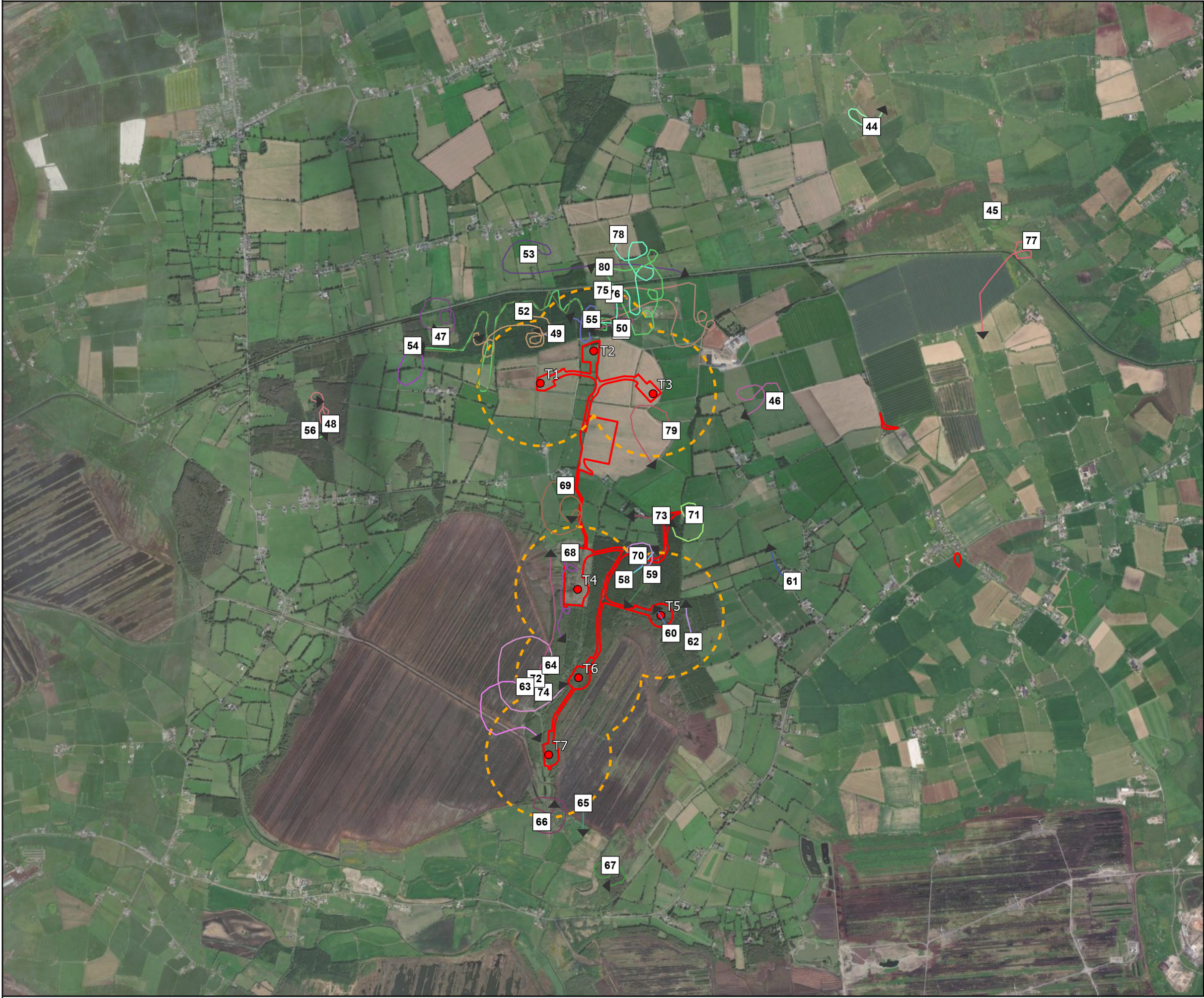
**FIGURE NO:** --

**CLIENT:** Statkraft

**SCALE:** 1:30,000 **REVISION:** 0

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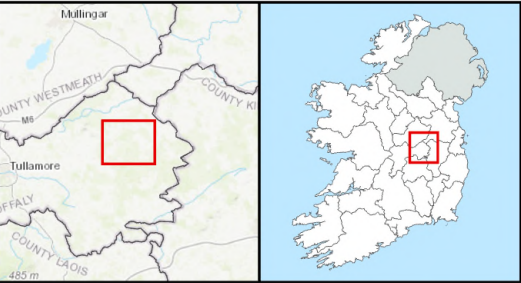
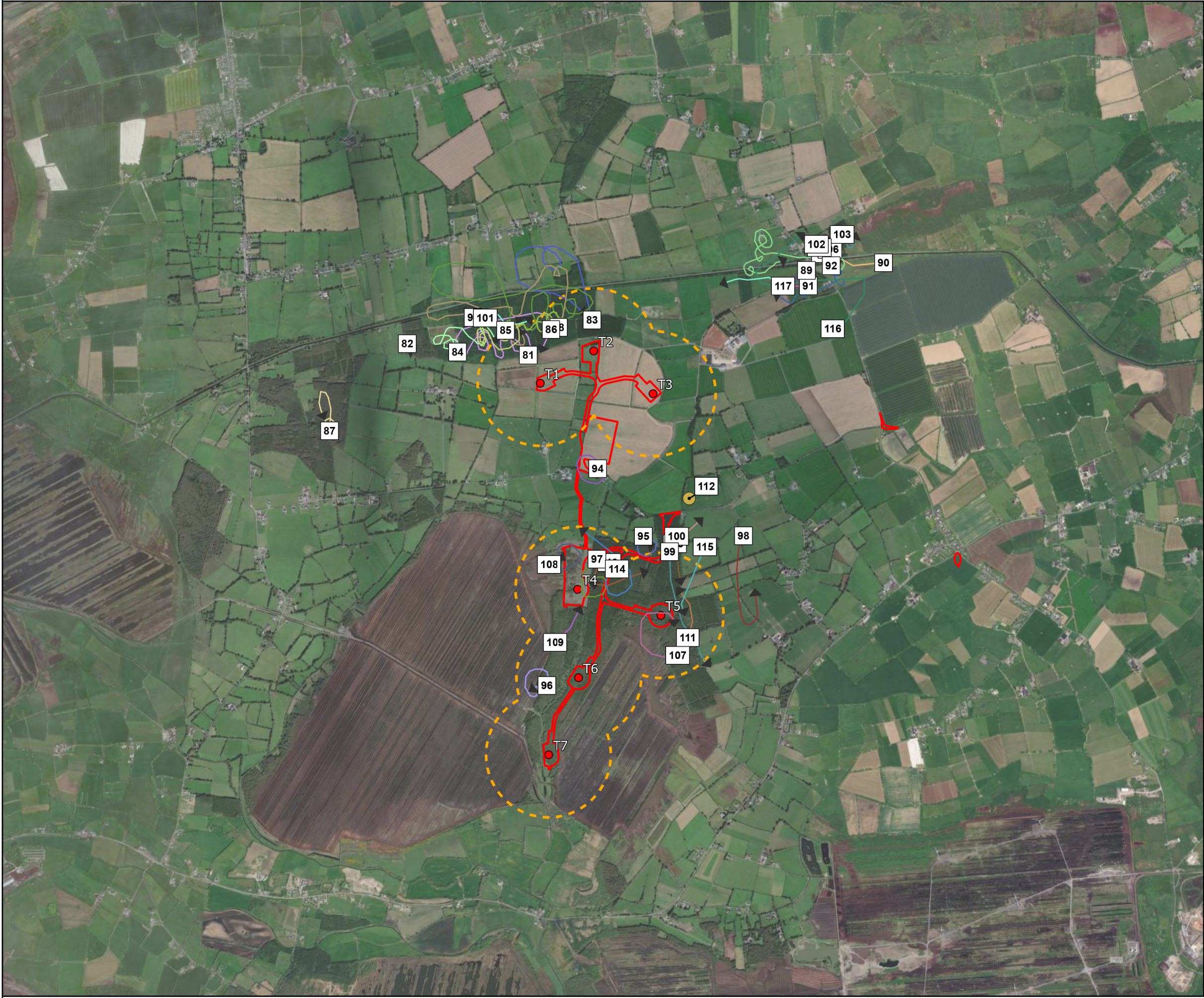




Legend	
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<span style="border: 1px dashed yellow; display: inline-block; width: 10px; height: 10px;"></span>	SNH Buffer
<span style="color: red;">●</span>	Turbine Locations
Bird ID, Date, Time	
<span style="color: green;">▶</span>	44,25/05/2021,15:59
<span style="color: green;">▶</span>	45,25/05/2021,16:40
<span style="color: purple;">▶</span>	46,25/05/2021,17:00
<span style="color: purple;">▶</span>	47,25/05/2021,17:56
<span style="color: red;">▶</span>	48,25/05/2021,18:08
<span style="color: blue;">▶</span>	49,25/05/2021,18:20
<span style="color: green;">▶</span>	50,25/05/2021,18:59
<span style="color: green;">▶</span>	51,25/05/2021,19:45
<span style="color: brown;">▶</span>	52,26/05/2021,12:45
<span style="color: purple;">▶</span>	53,26/05/2021,13:33
<span style="color: purple;">▶</span>	54,26/05/2021,14:06
<span style="color: blue;">▶</span>	55,26/05/2021,14:30
<span style="color: green;">▶</span>	56,26/05/2021,15:01
<span style="color: purple;">▶</span>	57,05/06/2021,11:25
<span style="color: teal;">▶</span>	58,05/06/2021,14:04
<span style="color: green;">▶</span>	59,05/06/2021,15:00
<span style="color: blue;">▶</span>	60,05/06/2021,15:12
<span style="color: blue;">▶</span>	61,05/06/2021,15:30
<span style="color: purple;">▶</span>	62,05/06/2021,15:46
<span style="color: purple;">▶</span>	63,06/06/2021,08:21
<span style="color: purple;">▶</span>	64,06/06/2021,08:28
<span style="color: teal;">▶</span>	65,06/06/2021,10:10
<span style="color: purple;">▶</span>	66,06/06/2021,10:12
<span style="color: green;">▶</span>	67,06/06/2021,10:45
<span style="color: purple;">▶</span>	68,06/06/2021,11:05
<span style="color: brown;">▶</span>	69,06/06/2021,11:14
<span style="color: purple;">▶</span>	70,06/06/2021,11:46
<span style="color: green;">▶</span>	71,06/06/2021,11:47
<span style="color: purple;">▶</span>	72,06/06/2021,12:10
<span style="color: purple;">▶</span>	73,06/06/2021,12:40
<span style="color: brown;">▶</span>	74,06/06/2021,13:20
<span style="color: brown;">▶</span>	75,29/06/2021,10:42
<span style="color: purple;">▶</span>	76,29/06/2021,11:44
<span style="color: red;">▶</span>	77,29/06/2021,12:39
<span style="color: teal;">▶</span>	78,29/06/2021,14:07
<span style="color: purple;">▶</span>	79,29/06/2021,14:46
<span style="color: green;">▶</span>	80,29/06/2021,16:11

TITLE:	Buzzard 2		
PROJECT:	Ballinla Wind Farm		
FIGURE NO:	--		
CLIENT:	Statkraft		
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DATE:	11/08/2025	PAGE SIZE:	A3



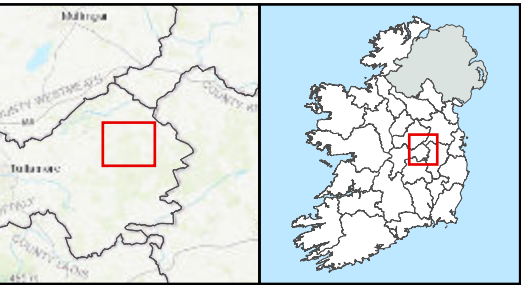


- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations

- Bird ID, Date, Time
- 81,30/06/2021,11:15
  - 82,30/06/2021,12:06
  - 83,30/06/2021,12:48
  - 84,30/06/2021,14:23
  - 85,30/06/2021,14:55
  - 86,30/06/2021,16:05
  - 87,30/06/2021,16:42
  - 88,20/07/2021,09:50
  - 89,21/07/2021,10:17
  - 90,21/07/2021,10:55
  - 91,21/07/2021,13:57
  - 92,21/07/2021,14:15
  - 93,21/07/2021,17:49
  - 94,25/07/2021,11:25
  - 95,25/07/2021,11:50
  - 96,25/07/2021,13:45
  - 97,25/07/2021,14:30
  - 98,26/07/2021,09:54
  - 99,26/07/2021,11:45
  - 100,26/07/2021,13:05
  - 101,09/08/2021,09:52
  - 102,10/08/2021,09:05
  - 103,10/08/2021,10:30
  - 104,10/08/2021,11:11
  - 105,10/08/2021,13:52
  - 106,10/08/2021,14:44
  - 107,12/09/2021,10:53
  - 108,12/09/2021,11:50
  - 109,12/09/2021,12:10
  - 110,12/09/2021,12:20
  - 111,12/09/2021,13:30
  - 113,13/09/2021,08:58
  - 114,14/09/2021,10:35
  - 115,14/09/2021,10:47
  - 116,15/09/2021,09:55
  - 117,15/09/2021,14:46
  - 112,13/09/2021,08:02

TITLE:		Buzzard 3	
PROJECT:		Ballinla Wind Farm	
FIGURE NO:		--	
CLIENT:		Statkraft	
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DATE:	11/08/2025	PAGE SIZE:	A3

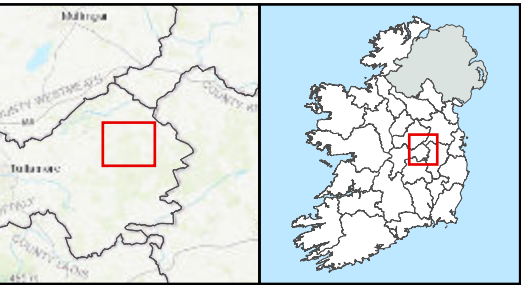
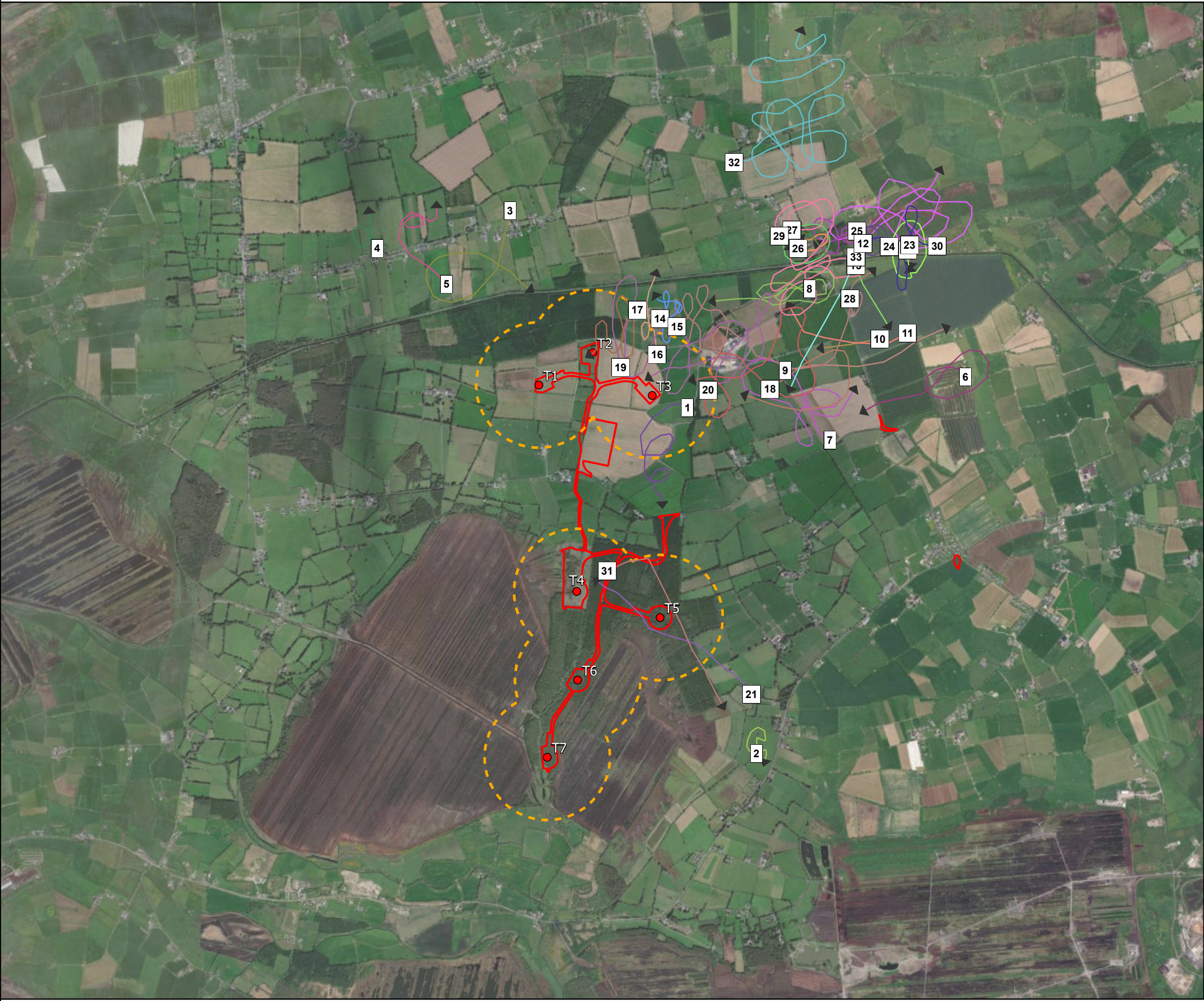




- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations
- Bird ID, Date, Time
- 1,02/11/2021,12:01

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

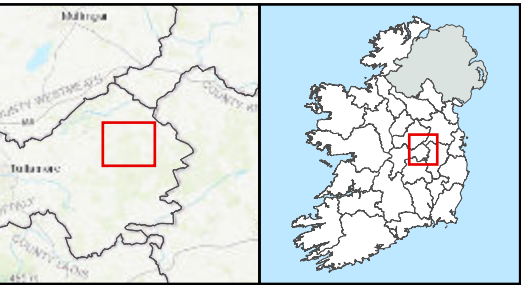




- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations
- Bird ID, Date, Time
- 1,05/10/2021,09:50
  - 2,26/10/2021,12:00
  - 3,02/11/2021,08:28
  - 4,02/11/2021,08:50
  - 5,02/11/2021,08:53
  - 6,02/11/2021,12:42
  - 7,02/11/2021,13:25
  - 8,03/11/2021,07:47
  - 9,03/11/2021,08:06
  - 10,03/11/2021,08:46
  - 11,03/11/2021,08:57
  - 12,03/11/2021,09:02
  - 13,01/12/2021,13:26
  - 14,02/12/2021,08:38
  - 15,02/12/2021,08:51
  - 16,02/12/2021,09:10
  - 17,02/12/2021,09:18
  - 18,02/12/2021,09:32
  - 19,02/12/2021,10:07
  - 20,02/12/2021,10:22
  - 21,05/12/2021,11:10
  - 22,05/01/2022,11:16
  - 23,05/01/2022,11:38
  - 24,05/01/2022,12:28
  - 25,05/01/2022,12:40
  - 26,05/01/2022,13:01
  - 27,05/01/2022,13:27
  - 28,05/01/2022,13:46
  - 29,05/01/2022,13:48
  - 30,05/01/2022,14:06
  - 31,19/01/2022,11:30
  - 32,04/02/2022,13:51
  - 33,08/03/2022,12:57

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





**Legend**

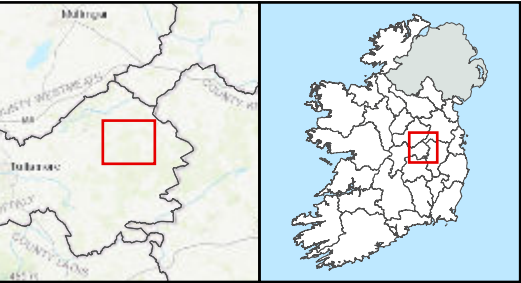
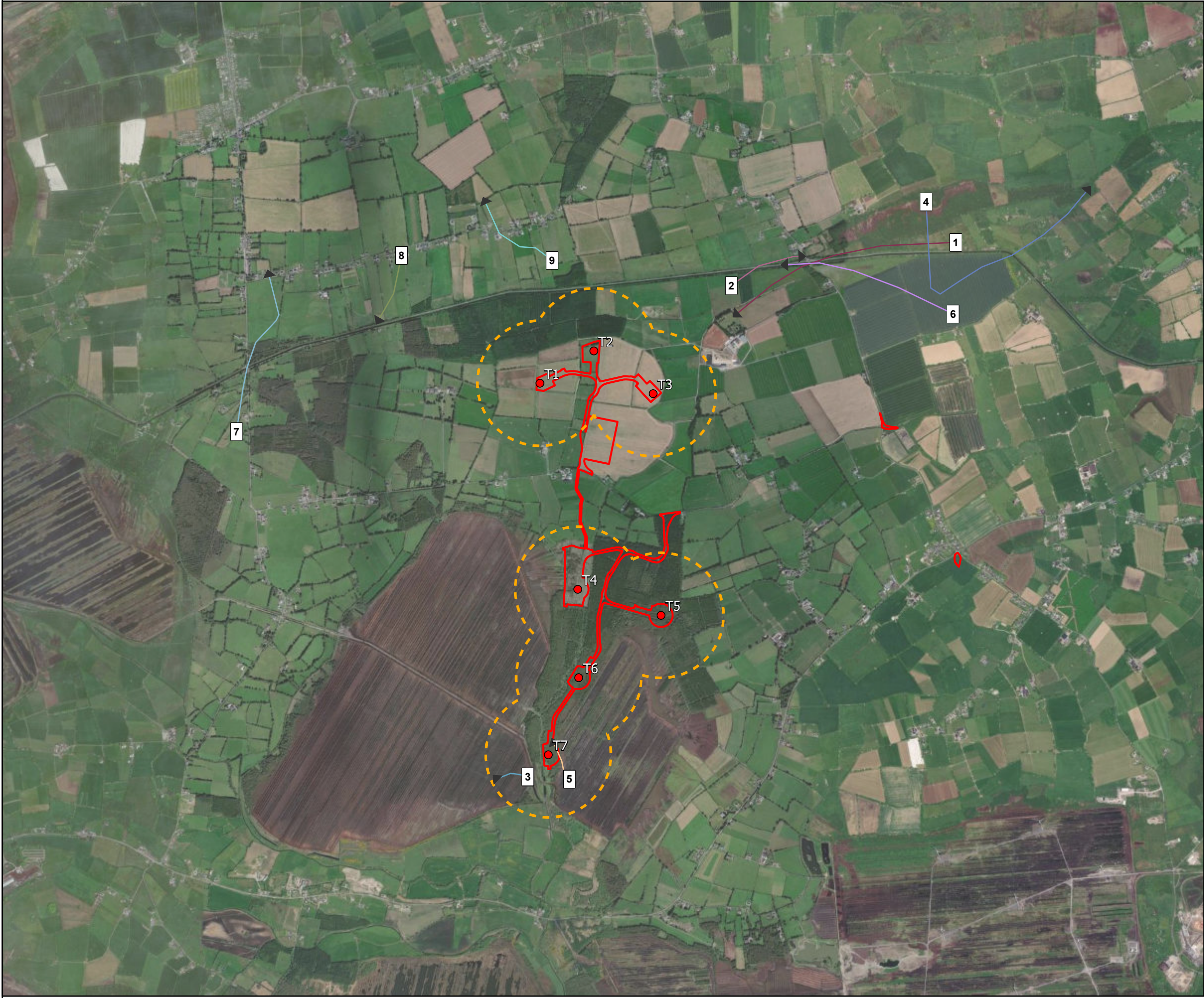
- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

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- 2,27/04/2021,09:02
- 3,27/04/2021,09:30
- 4,30/04/2021,07:22
- 5,30/04/2021,08:36

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





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,27/04/2021,11:16
- 2,27/04/2021,12:22
- 3,18/05/2021,10:35
- 4,10/08/2021,15:24
- 5,12/09/2021,14:10
- 6,02/11/2021,11:38
- 7,02/11/2021,12:10
- 8,03/11/2021,13:14
- 9,06/11/2021,10:16

TITLE: Grey Heron

PROJECT: Ballinla Wind Farm

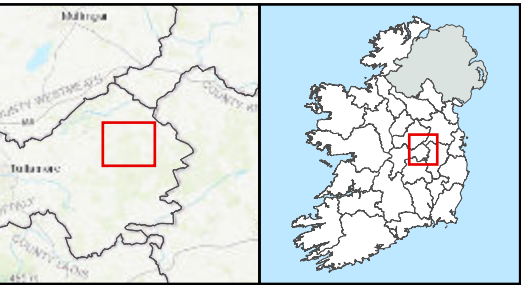
FIGURE NO: --

CLIENT: Statkraft

SCALE: 1:30,000 REVISION: 0

DATE: 08/08/2025 PAGE SIZE: A3





**Legend**

Site Boundary

SNH Buffer

Turbine Locations

**Bird ID, Date, Time**

1,05/01/2022,13:25

2,19/01/2022,10:35

3,19/01/2022,11:35

4,19/01/2022,12:00

5,04/02/2022,16:05

6,04/02/2022,17:05

7,06/02/2022,16:25

8,12/03/2022,09:00

9,12/03/2022,09:40

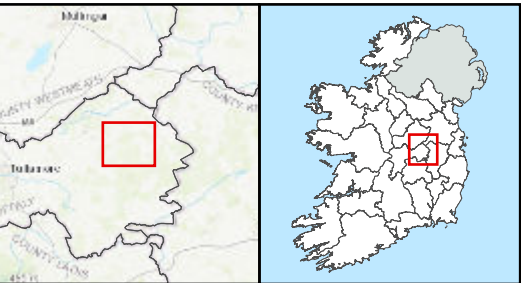
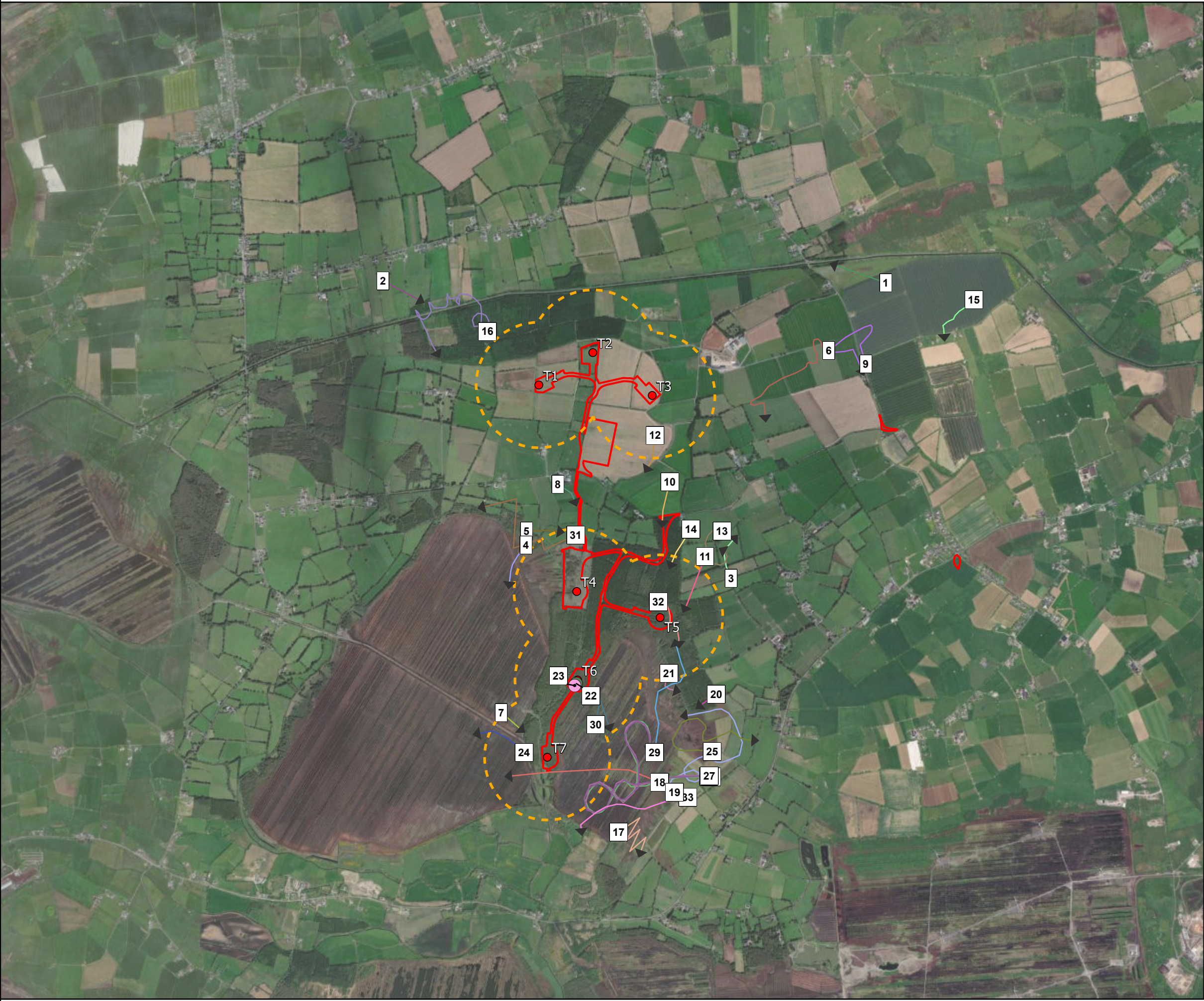
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11,12/03/2022,10:05

12,12/03/2022,10:10

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

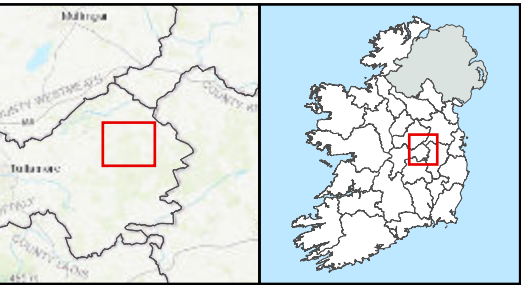
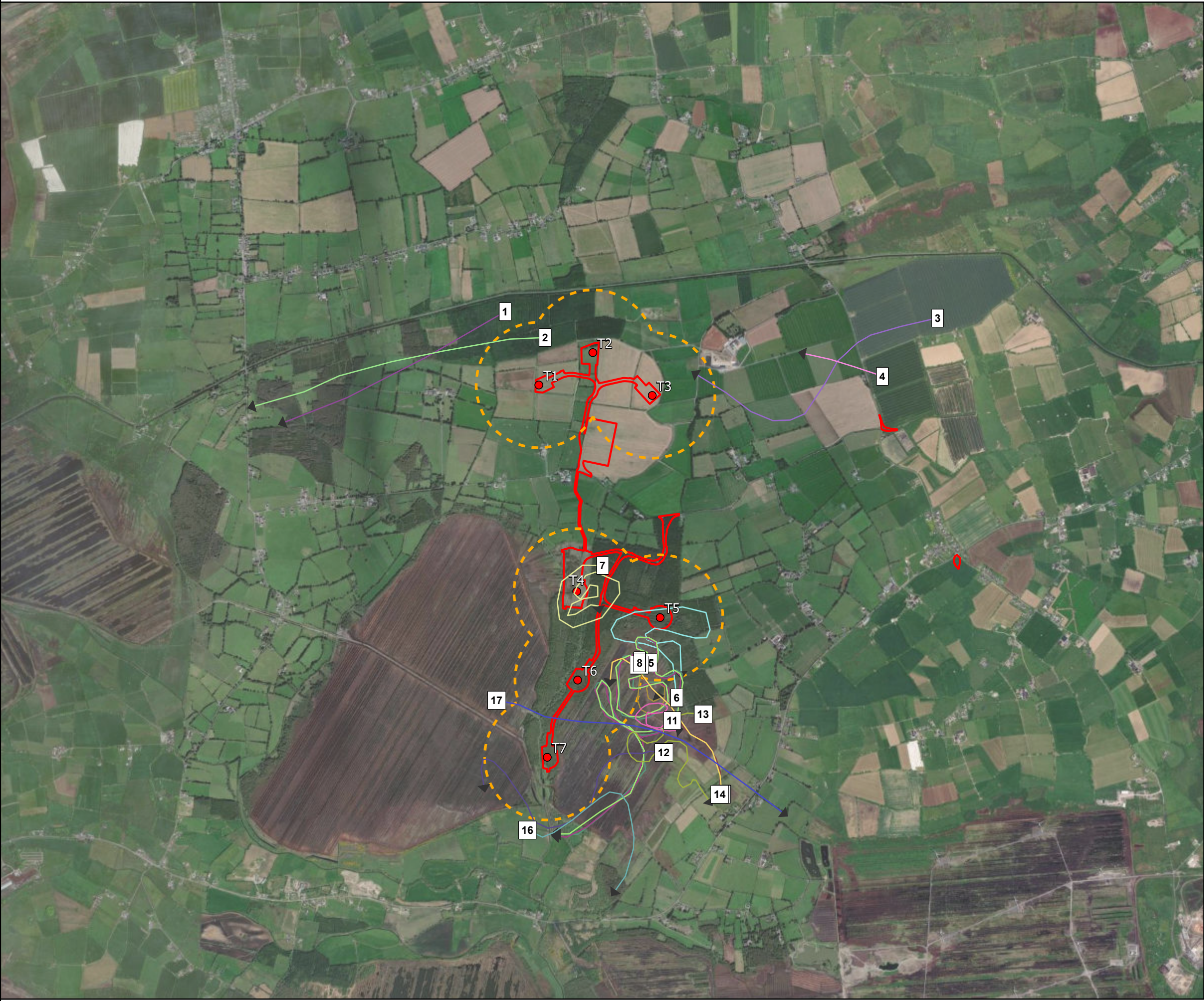




- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations
- Bird ID, Date, Time
- 1,27/04/2021,11:03
  - 2,30/04/2021,08:53
  - 3,11/05/2021,12:07
  - 4,18/05/2021,12:15
  - 5,18/05/2021,13:45
  - 6,21/07/2021,13:33
  - 7,25/07/2021,12:15
  - 8,25/07/2021,14:05
  - 9,10/08/2021,13:10
  - 10,13/09/2021,08:35
  - 11,13/09/2021,10:05
  - 12,13/09/2021,10:56
  - 13,13/09/2021,13:01
  - 14,14/09/2021,08:46
  - 15,30/10/2021,10:20
  - 16,03/11/2021,12:55
  - 17,08/11/2021,13:30
  - 18,10/11/2021,13:20
  - 19,04/12/2021,13:30
  - 20,04/12/2021,14:45
  - 21,05/12/2021,10:50
  - 24,19/01/2022,11:05
  - 25,04/02/2022,14:40
  - 26,04/02/2022,16:20
  - 27,04/02/2022,16:25
  - 28,04/02/2022,16:40
  - 29,04/02/2022,16:50
  - 30,04/02/2022,17:20
  - 31,06/02/2022,13:20
  - 32,06/02/2022,15:20
  - 33,08/03/2022,15:35
  - 22,19/01/2022,10:40
  - 23,19/01/2022,11:00

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





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,30/04/2021,08:26
- 2,30/04/2021,09:09
- 3,03/11/2021,07:43
- 4,03/11/2021,08:23
- 5,08/11/2021,11:50
- 6,08/11/2021,13:20
- 7,08/11/2021,16:00
- 8,10/11/2021,12:10
- 9,10/11/2021,13:00
- 10,10/11/2021,13:15
- 11,04/12/2021,13:05
- 12,19/01/2022,10:50
- 13,08/03/2022,13:00
- 14,08/03/2022,13:15
- 15,08/03/2022,15:30
- 16,08/03/2022,15:45
- 17,12/03/2022,10:55

TITLE:  
Lapwing

PROJECT:  
Ballinla Wind Farm

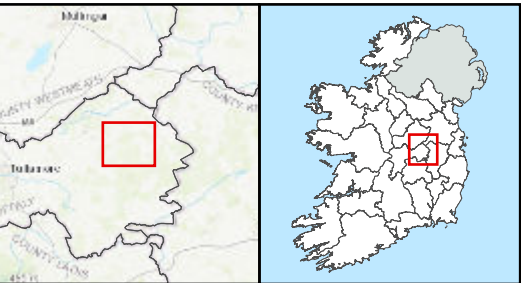
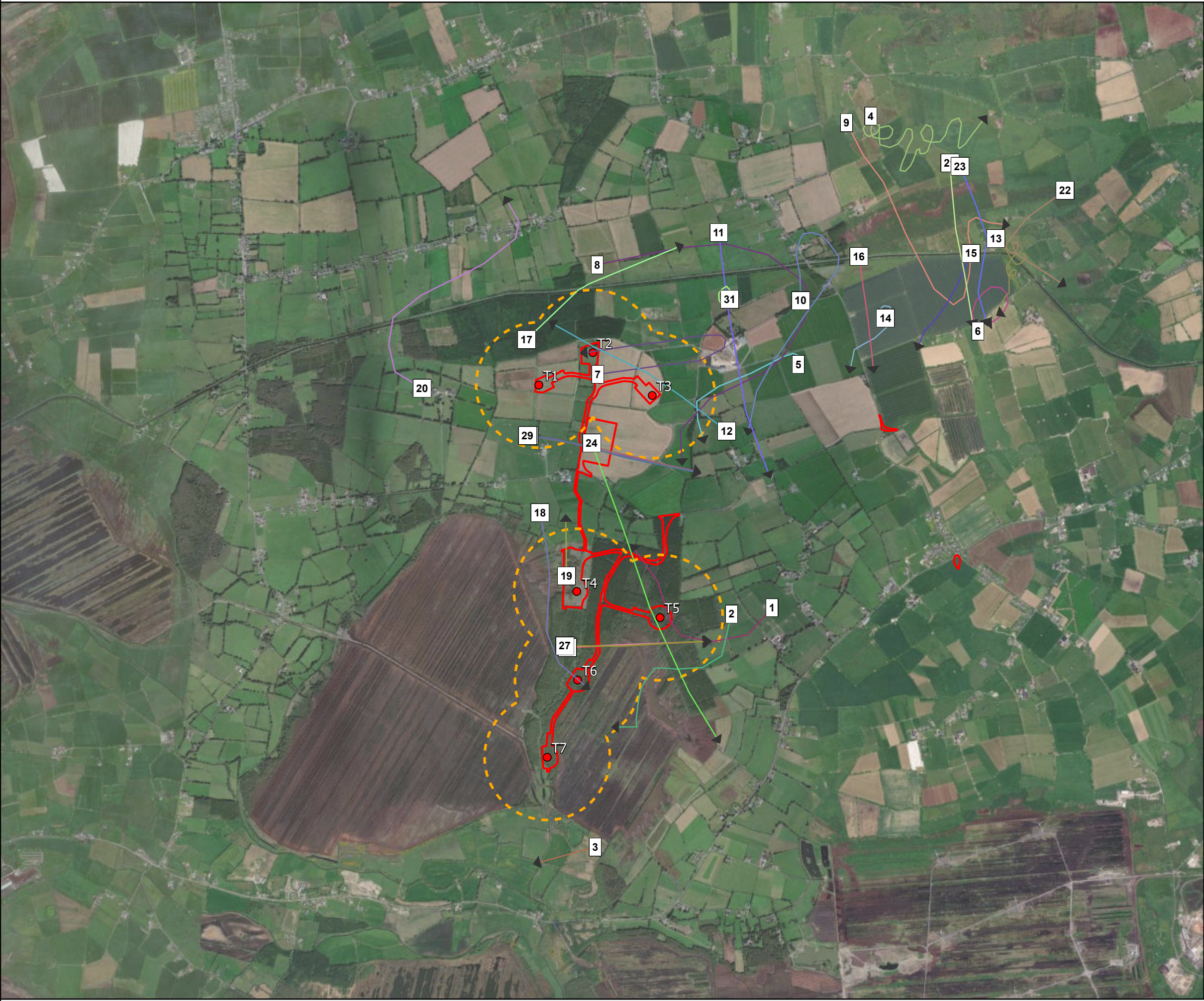
FIGURE NO: --

CLIENT: Statkraft

SCALE: 1:30,000 REVISION: 0

DATE: 08/08/2025 PAGE SIZE: A3



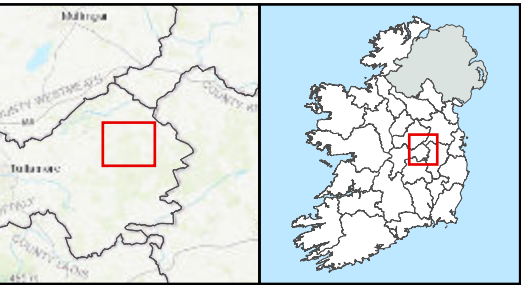
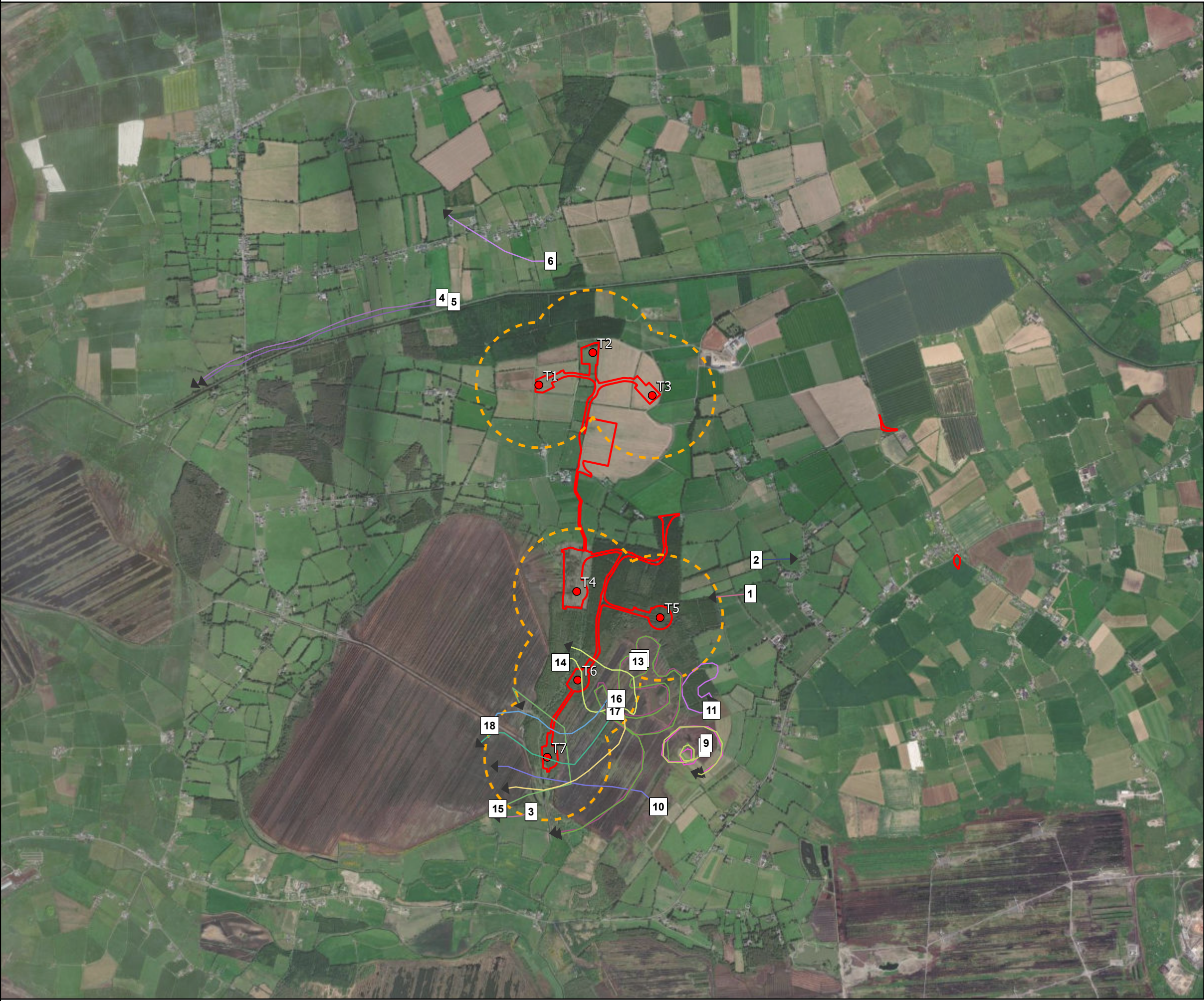


- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations

- Bird ID, Date, Time
- 1,05/05/2021,09:35
  - 2,05/05/2021,10:54
  - 3,25/05/2021,09:46
  - 4,25/05/2021,12:32
  - 5,25/05/2021,14:38
  - 6,25/05/2021,14:55
  - 7,25/05/2021,16:53
  - 8,29/06/2021,10:58
  - 9,29/06/2021,12:09
  - 10,29/06/2021,15:15
  - 11,29/06/2021,15:39
  - 12,29/06/2021,16:02
  - 13,21/07/2021,09:40
  - 14,21/07/2021,11:33
  - 15,21/07/2021,15:02
  - 16,21/07/2021,15:42
  - 17,21/07/2021,19:01
  - 18,02/08/2021,09:47
  - 19,02/08/2021,10:50
  - 20,09/08/2021,10:44
  - 21,10/08/2021,09:48
  - 22,10/08/2021,10:53
  - 23,10/08/2021,15:56
  - 24,13/09/2021,09:25
  - 25,13/09/2021,09:35
  - 26,13/09/2021,09:37
  - 27,13/09/2021,12:15
  - 28,14/09/2021,09:05
  - 29,14/09/2021,09:20
  - 30,14/09/2021,09:45
  - 31,02/12/2021,08:31

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





**Legend**

Site Boundary

SNH Buffer

Turbine Locations

Bird ID, Date, Time

➔ 1,05/05/2021,13:19

➔ 2,05/05/2021,13:27

➔ 3,18/05/2021,12:30

➔ 4,10/08/2021,18:15

➔ 5,10/08/2021,18:18

➔ 6,16/09/2021,10:11

➔ 7,26/10/2021,11:10

➔ 8,26/10/2021,11:15

➔ 9,26/10/2021,11:50

➔ 10,26/10/2021,13:00

➔ 11,08/11/2021,12:30

➔ 12,10/11/2021,13:15

➔ 13,10/11/2021,13:20

➔ 14,06/02/2022,15:15

➔ 15,06/02/2022,16:20

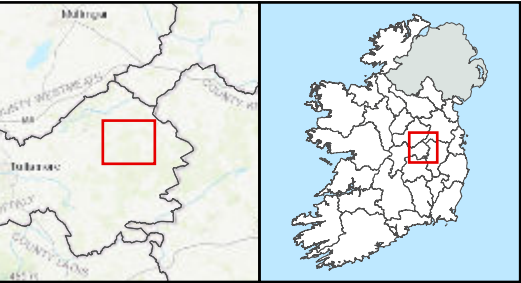
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➔ 17,08/03/2022,14:30

➔ 18,08/03/2022,15:15

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





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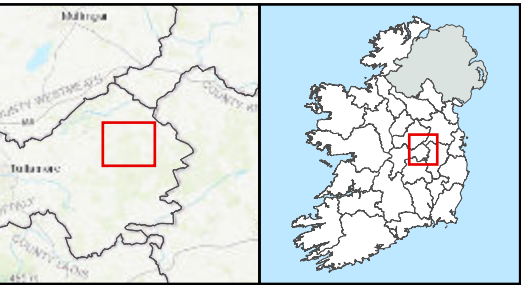
- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,03/11/2021,12:17
- 2,05/01/2022,12:40

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

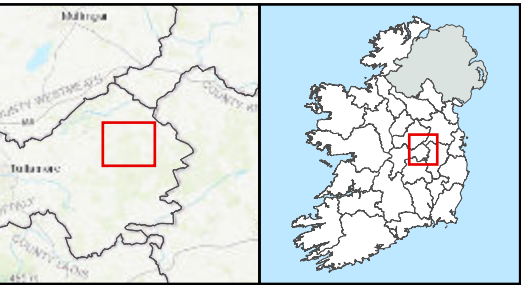
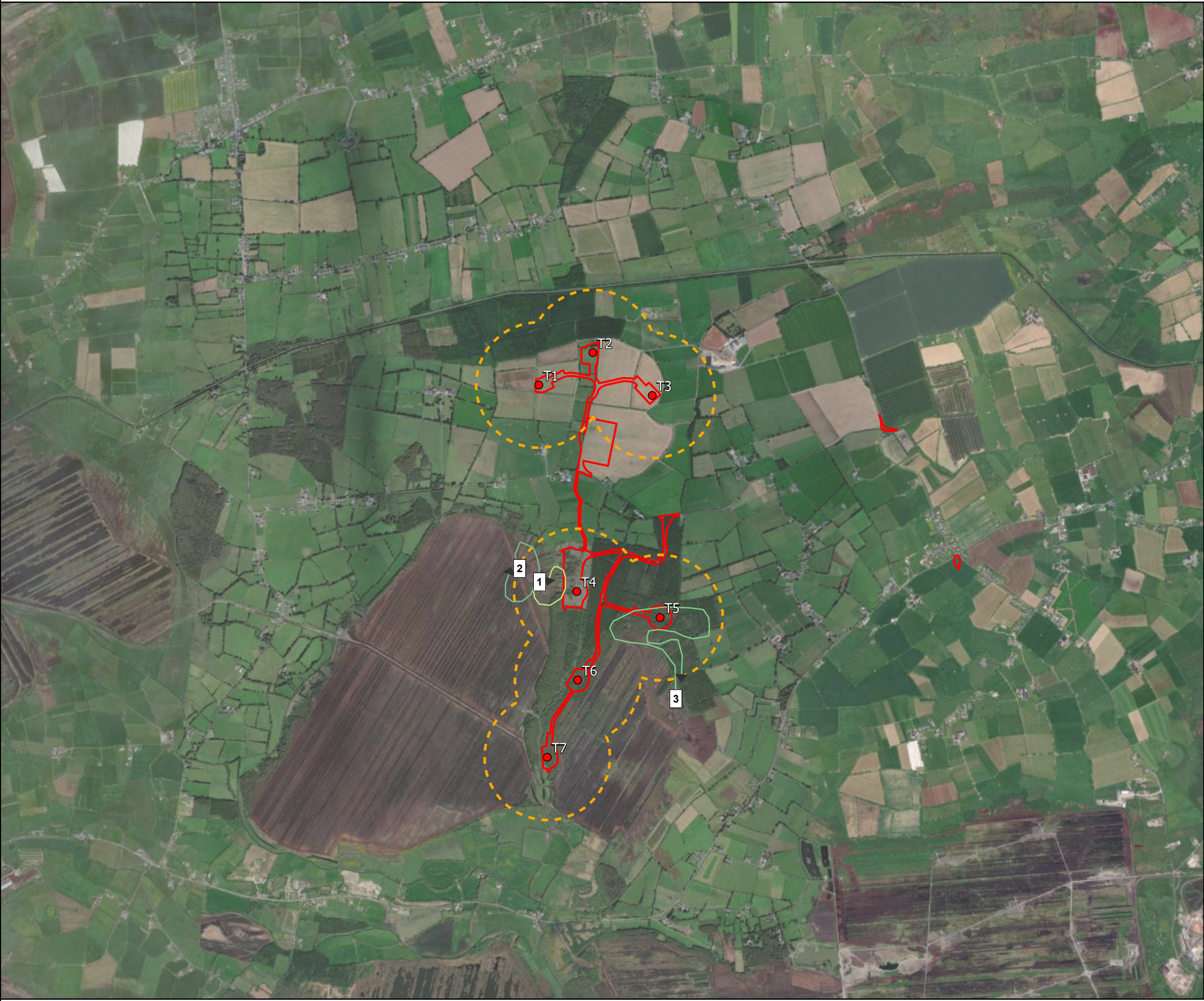




- Legend**
- Site Boundary
  - SNH Buffer
  - Turbine Locations
- Bird ID, Date, Time
- 1,30/04/2021,10:35
  - 2,06/06/2021,09:20

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





Legend

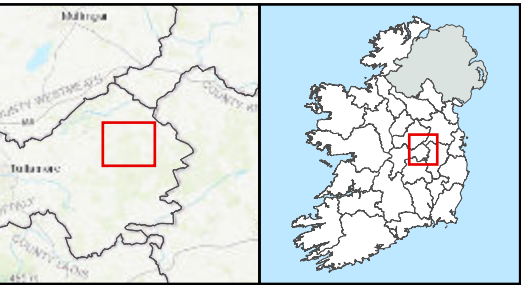
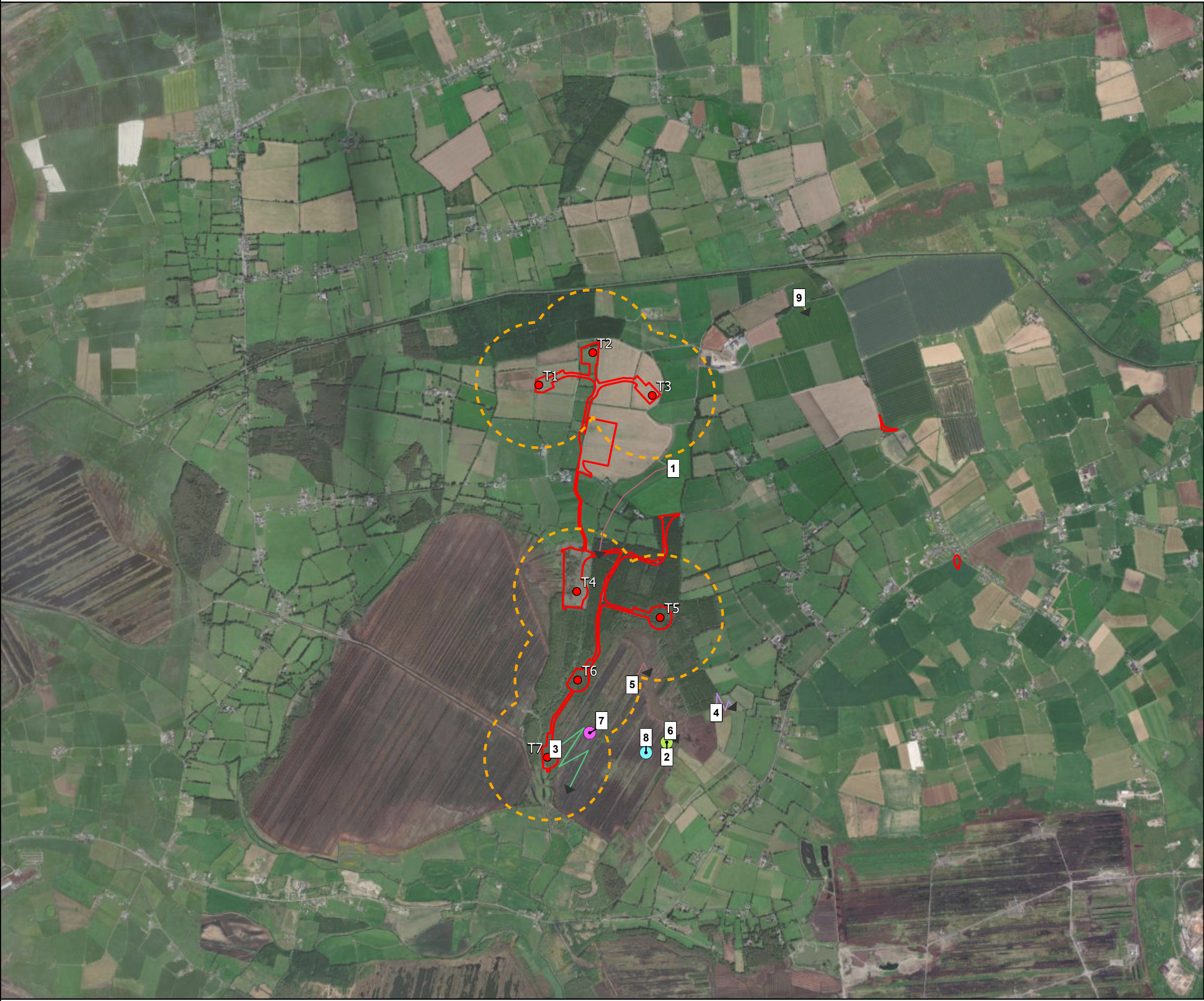
- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,18/05/2021,10:15
- 2,25/07/2021,11:05
- 3,08/11/2021,13:20

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





Legend

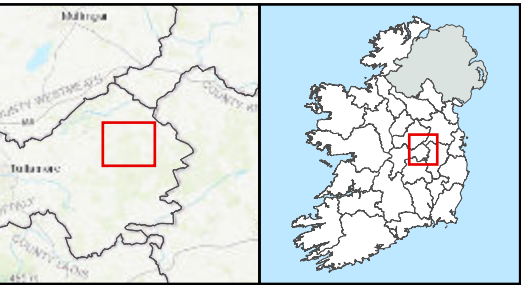
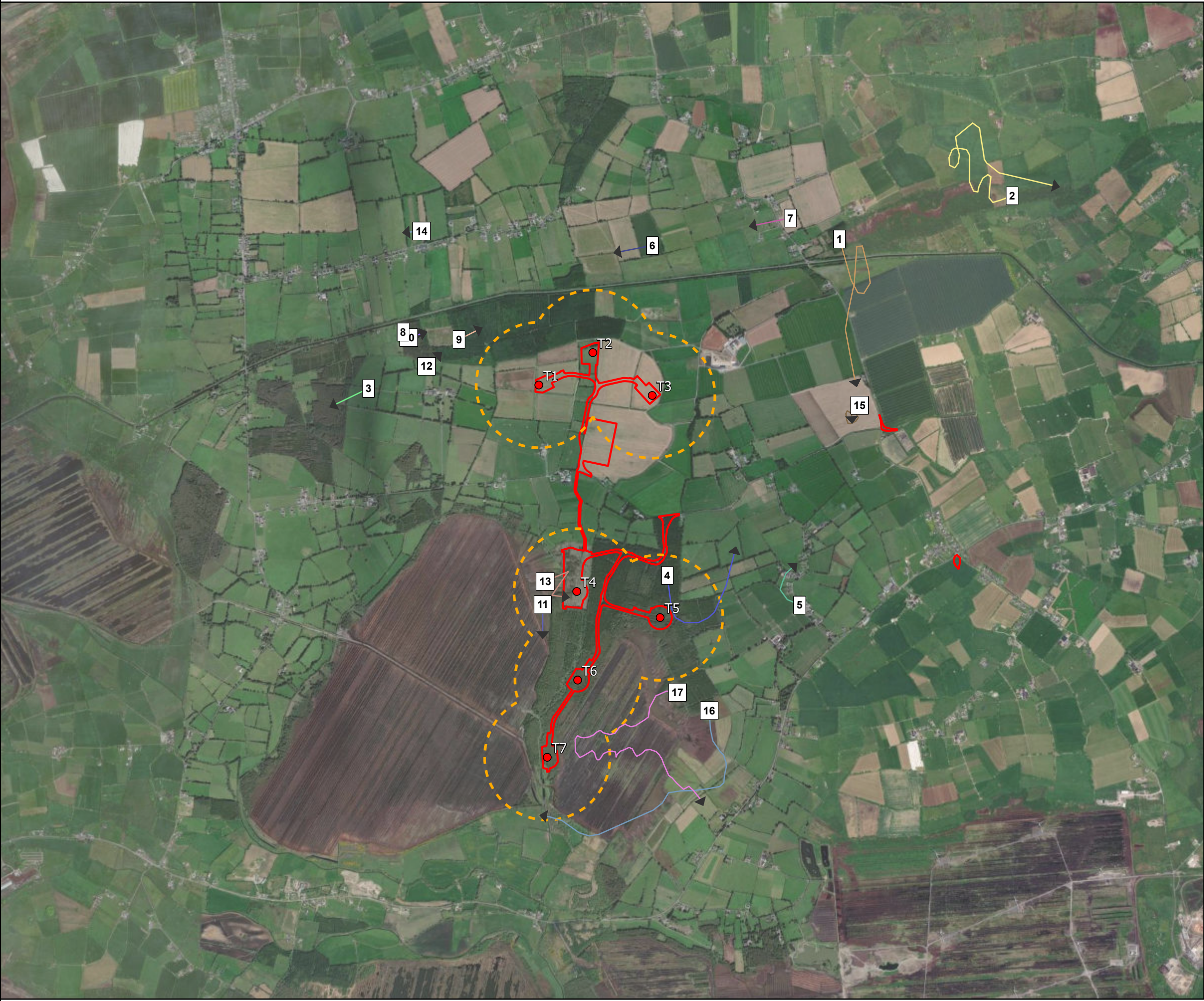
- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

- 1,13/09/2021,09:15
- 3,28/10/2021,16:00
- 4,28/10/2021,16:25
- 5,28/10/2021,17:00
- 6,08/11/2021,13:05
- 9,05/01/2022,11:53
- 2,28/10/2021,15:20
- 7,10/11/2021,12:55
- 8,05/12/2021,09:35

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





**Legend**

Site Boundary

SNH Buffer

Turbine Locations

Bird ID, Date, Time

1,25/05/2021,13:12

2,25/05/2021,16:22

3,26/05/2021,14:44

4,05/06/2021,11:09

5,05/06/2021,13:28

6,29/06/2021,11:22

7,29/06/2021,16:28

8,30/06/2021,15:37

9,20/07/2021,11:02

10,21/07/2021,18:18

11,25/07/2021,14:44

12,10/08/2021,19:09

13,28/10/2021,13:35

14,02/11/2021,09:34

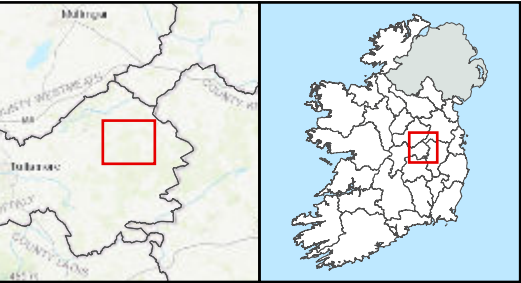
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16,04/02/2022,17:00

17,06/02/2022,15:35

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





Legend

- Site Boundary
- SNH Buffer
- Turbine Locations

Bird ID, Date, Time

1,26/10/2021,12:35

2,02/11/2021,08:19

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

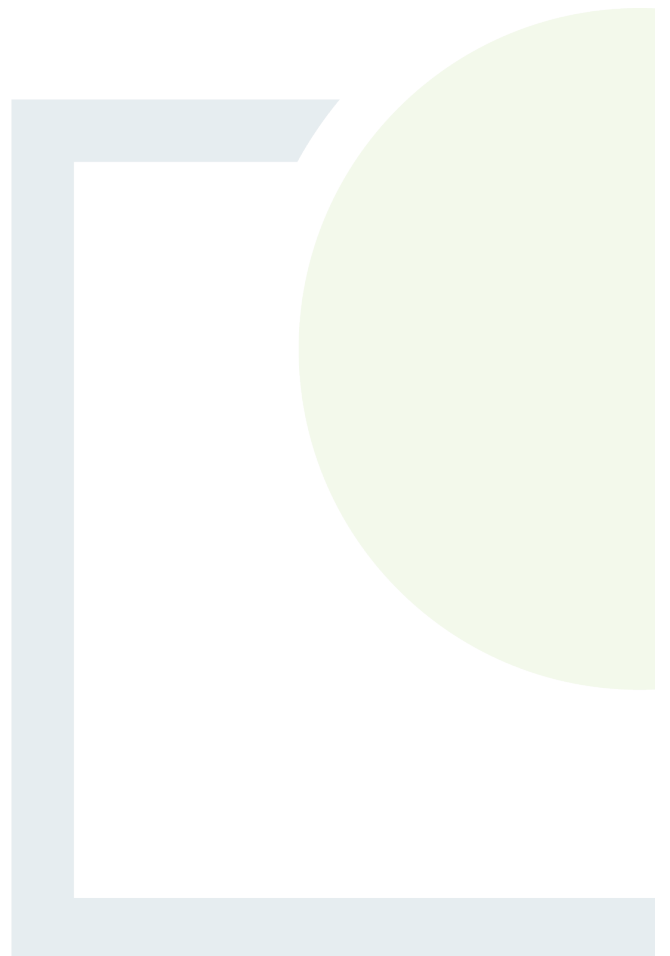




DESIGNING AND DELIVERING  
A SUSTAINABLE FUTURE

## APPENDIX 5

### Hinterland Survey Schedule





Site Code	Date	Species	Quantity	General notes
HVP12	26/05/2021	Buzzard	1	
HVP13	26/05/2021	Buzzard	1	
HVP2	09/06/2021	Buzzard	1	
HVP12	09/06/2021	Buzzard	1	
HVP13	09/06/2021	Buzzard	2	
HVP9	09/06/2021	Buzzard	1	
HVP11	09/06/2021	Buzzard	1	
HVP13	09/06/2021	Buzzard	1	
HVP9	09/06/2021	Buzzard	1	
HVP12	09/06/2021	Buzzard	1	
HVP10	09/06/2021	Buzzard	2	
HVP3	30/06/2021	Buzzard	1	
HVP4	30/06/2021	Buzzard	1	
HVP12	30/06/2021	Buzzard	1	
HVP1	26/07/2021	Buzzard	1	
HVP3	26/07/2021	Buzzard	1	
HVP3	26/07/2021	Buzzard	1	
HVP13	26/07/2021	Buzzard	1	
HVP9	26/07/2021	Buzzard	1	
HVP13	26/07/2021	Buzzard	1	
HVP9	26/07/2021	Buzzard	1	
HVP12	26/07/2021	Buzzard	1	
HVP4	26/07/2021	Buzzard	1	
HVP1	09/08/2021	Buzzard	1	
HVP4	09/08/2021	Buzzard	1	
HVP9	09/08/2021	Buzzard	1	
HVP13	09/08/2021	Buzzard	1	
HVP4	09/08/2021	Buzzard	1	
HVP9	16/09/2021	Buzzard	1	
HVP4	05/10/2021	Buzzard	1	
HVP12	05/10/2021	Buzzard	1	
TR24	04/12/2021	Buzzard	1	
TR24	04/12/2021	Buzzard	1	
TR24	04/12/2021	Buzzard	1	

Site Code	Date	Species	Quantity	General notes
TR25	04/12/2021	Buzzard	1	
TR24	05/01/2022	Buzzard	1	
TR25	19/01/2022	Buzzard	1	
incidental record	04/02/2022	Buzzard	1	
HVP8	06/02/2022	Buzzard	1	
HVP7	25/02/2022	Buzzard	5	display flight
HVP7	10/03/2022	Buzzard	2	
TR19	05/06/2021	Coot	1	
HVP12	26/05/2021	Cormorant	1	
HVP13	26/05/2021	Cormorant	1	
HVP9	09/06/2021	Cormorant	1	
TR26	05/12/2021	Golden Plover	600	
HVP4	05/01/2022	Golden Plover	40	
HVP8	10/03/2022	Golden Plover	1500	
HVP14	05/12/2021	Great Spotted Woodpecker	1	
HVP1	26/05/2021	Grey Heron	1	
HVP2	26/05/2021	Grey Heron	1	
HVP3	26/05/2021	Grey Heron	1	
HVP13	26/05/2021	Grey Heron	1	
TR19	05/06/2021	Grey Heron	5	
HVP13	09/06/2021	Grey Heron	1	
HVP12	09/06/2021	Grey Heron	1	
HVP9	09/06/2021	Grey Heron	3	
HVP11	09/06/2021	Grey Heron	1	
HVP13	09/06/2021	Grey Heron	1	
HVP9	09/06/2021	Grey Heron	3	
HVP12	09/06/2021	Grey Heron	2	
HVP2	30/06/2021	Grey Heron	1	
HVP12	30/06/2021	Grey Heron	1	
HVP13	26/07/2021	Grey Heron	1	
HVP9	26/07/2021	Grey Heron	1	
HVP11	26/07/2021	Grey Heron	1	
HVP12	26/07/2021	Grey Heron	1	
HVP9	09/08/2021	Grey Heron	1	



Site Code	Date	Species	Quantity	General notes
HVP3	16/09/2021	Grey Heron	1	
HVP4	16/09/2021	Grey Heron	1	
HVP9	16/09/2021	Grey Heron	1	
HVP11	16/09/2021	Grey Heron	2	
HVP12	16/09/2021	Grey Heron	1	
HVP4	05/10/2021	Grey Heron	1	
HVP13	05/10/2021	Grey Heron	1	
HVP9	05/10/2021	Grey Heron	2	
HVP9	05/10/2021	Grey Heron	1	
HVP12	05/10/2021	Grey Heron	1	
HVP13	09/06/2021	Grey Wagtail	2	confirmed breeding
HVP9	09/06/2021	Kestrel	1	
HVP12	09/06/2021	Kestrel	1	
HVP10	09/06/2021	Kestrel	1	
HVP10	30/06/2021	Kestrel	1	
HVP12	30/06/2021	Kestrel	1	
TR24	04/12/2021	Kestrel	1	
TR24	01/01/2022	Kestrel	1	hunting
incidental record	05/12/2021	Kingfisher	1	
TR18	18/05/2021	Lapwing	4 (2 pairs)	
HVP12	26/05/2021	Lapwing	3	
TR19	05/06/2021	Lapwing	4 (2 pairs)	According to Alec Copland (BNM) this site holds Whooper Swans in winter. Potentially a site that could hold breeding Crane
TR23	06/06/2021	Lapwing	1	
HVP9	09/06/2021	Lapwing	2	
HVP12	09/06/2021	Lapwing	6	
HVP12	30/06/2021	Lapwing	4	
HVP7	10/03/2022	Lapwing	1	
HVP7	20/03/2022	Lapwing	1	
HVP12	09/06/2021	Little Grebe	2	
HVP12	30/06/2021	Little Grebe	1	
HVP9	26/07/2021	Little Grebe	2	
HVP9	26/07/2021	Little Grebe	2	

Site Code	Date	Species	Quantity	General notes
HVP12	26/07/2021	Little Grebe	1	
HVP9	09/08/2021	Little Grebe	3	
HVP9	16/09/2021	Little Grebe	3	
HVP9	05/10/2021	Little Grebe	1	
HVP8	17/02/2022	Little Grebe	2	
HVP8	25/02/2022	Little Grebe	2	
HVP8	10/03/2022	Little Grebe	2	
HVP7	20/03/2022	Little Grebe	2	
HVP8	20/03/2022	Little Grebe	4	
TR18	18/05/2021	Mallard	10	
HVP3	26/05/2021	Mallard	2	
HVP12	26/05/2021	Mallard	1	
TR19	05/06/2021	Mallard	10	
HVP4	09/06/2021	Mallard	1	
HVP13	09/06/2021	Mallard	3	
HVP9	09/06/2021	Mallard	1	
HVP12	09/06/2021	Mallard	2	
HVP3	30/06/2021	Mallard	1	
HVP3	30/06/2021	Mallard	1	
HVP12	30/06/2021	Mallard	3	
HVP3	26/07/2021	Mallard	1	
HVP9	26/07/2021	Mallard	1	
HVP12	26/07/2021	Mallard	2	
HVP1	09/08/2021	Mallard	1	
HVP13	09/08/2021	Mallard	1	
HVP9	09/08/2021	Mallard	3	
HVP12	09/08/2021	Mallard	2	
HVP1	16/09/2021	Mallard	3	
HVP11	16/09/2021	Mallard	1	
HVP9	16/09/2021	Mallard	2	
HVP12	16/09/2021	Mallard	2	
HVP1	05/10/2021	Mallard	1	
HVP11	05/10/2021	Mallard	2	
HVP9	05/10/2021	Mallard	3	



Site Code	Date	Species	Quantity	General notes
HVP12	05/10/2021	Mallard	4	
HVP8	17/02/2022	Mallard	7	
HVP8	25/02/2022	Mallard	13	
HVP8	10/03/2022	Mallard	4	
HVP7	20/03/2022	Mallard	7	
TR18	18/05/2021	Moorhen	2	
HVP13	26/07/2021	Moorhen	2	
HVP13	09/08/2021	Moorhen	2	
HVP12	09/08/2021	Moorhen	1	
HVP1	16/09/2021	Moorhen	1	
HVP13	16/09/2021	Moorhen	2	
HVP12	16/09/2021	Moorhen	1	
HVP13	05/10/2021	Moorhen	1	
HVP9	05/10/2021	Moorhen	1	
HVP7	10/03/2022	Moorhen	1	
HVP7	20/03/2022	Moorhen	2	
TR18	18/05/2021	Mute Swan	4	
TR20	18/05/2021	Mute Swan	1	Breeding , extensive wet cutover with areas of open water, possibly holding whooper swan in winter.
TR19	05/06/2021	Mute Swan	10	
HVP12	09/08/2021	Mute Swan	1	
HVP12	16/09/2021	Mute Swan	2	
HVP12	05/10/2021	Mute Swan	1	
HVP8	17/02/2022	Mute Swan	2	
HVP7	25/02/2022	Mute Swan	4	2 on field, 2 on bog pool
HVP1	25/02/2022	Mute Swan	1	
HVP8	25/02/2022	Mute Swan	2	
HVP7	10/03/2022	Mute Swan	4	
HVP1	10/03/2022	Mute Swan	1	
HVP8	10/03/2022	Mute Swan	2	
HVP1	20/03/2022	Mute Swan	1	
HVP7	20/03/2022	Mute Swan	4	
HVP8	20/03/2022	Mute Swan	2	
HVP13	09/06/2021	Peregrine	1	

Site Code	Date	Species	Quantity	General notes
HVP12	26/05/2021	Ringed Plover	1	
TR19	05/06/2021	Ringed Plover	4 (2 pairs)	
TR23	06/06/2021	Ringed Plover	1	
HVP12	09/06/2021	Ringed Plover	1	
HVP12	30/06/2021	Ringed Plover	2	
HVP7	10/03/2022	Shelduck	1	
TR20	18/05/2021	Snipe	1	breeding
TR19	05/06/2021	Snipe	20 (minimum)	
TR22	06/06/2021	Snipe	heard	
TR24	05/01/2022	Snipe	1	
HVP8	17/02/2022	Snipe	1	
HVP7	20/03/2022	Snipe	2	chipping
HVP2	26/05/2021	Sparrowhawk	1	
HVP4	30/06/2021	Sparrowhawk	1	
HVP12	30/06/2021	Sparrowhawk	1	
HVP4	26/07/2021	Sparrowhawk	1	confirmed breeding
HVP13	26/07/2021	Sparrowhawk	1	
HVP13	26/07/2021	Sparrowhawk	2	
HVP3	09/08/2021	Sparrowhawk	1	
HVP9	09/08/2021	Sparrowhawk	1	
HVP11	05/10/2021	Sparrowhawk	1	
TR24	05/01/2022	Sparrowhawk	1	
HVP7	25/02/2022	Sparrowhawk	1	display flight
HVP9	09/08/2021	Teal	1	
TR20	18/05/2021	Water Rail	1	breeding
TR19	05/06/2021	Water Rail	1	
HVP7	10/03/2022	Water Rail	1	
HVP7	20/03/2022	Water Rail	1	
TR24	06/12/2021	Whooper Swan	14	
TR17	17/05/2021	Woodcock	1	
TR22	06/06/2021	Woodcock	heard	
HVP7	25/02/2022	Woodcock	1	flushed





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