MOANMORE LOWER GREEN ENERGY LIMITED

PROPOSED WIND FARM DEVELOPMENT AT MOANMORE LOWER, KILRUSH, CO. CLARE

RESPONSE REPORT FOR REQUEST FOR FURTHER INFORMATION (RFI)

SEPTEMBER 2026

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MOANMORE LOWER GREEN ENERGY LIMITED

MOANMORE LOWER WIND FARM,
KILRUSH, CO. CLARE

RESPONSE TO RFI FROM AN COMISIÚN PLEANÁLA

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INTRODUCTION

On behalf of our Client, Moanmore Lower Green Energy Limited, we hereby submit information in response to An Coimisiún Pleanála to their Request for Further Information (RFI) issued on 06th May 2026. The RFI consisted of a total of 6 No. Items, the responses to which are outlined in this report.

A planning application was submitted to Clare County Council on 8th May 2025 (Clare County Council Ref: P25/60257) for a three turbine wind farm, 38kV substation and all associated infrastructure, located in the townlands of Moanmore Lower, Moanmore South, Tullabrack, Tullabrack East and Gower South, Co. Clare. Clare County Council issued a decision to refuse planning permission on 02nd July 2025. A first party appeal was made on behalf of our client on 28th July 2025 to An Coimisiún Pleanála (ACP). We received a RFI dated 06th May 2026 from ACP.

Planning permission is being sought for:

- Erection of 3 no. wind turbines with an overall ground to blade tip height of 150 m, with a rotor diameter of 136 m and a hub height of 82 m and a total generating capacity of 15MW,
- Construction of turbine hardstand areas and turbine foundations,
- Construction of new internal site access tracks and upgrade of existing site track, to include all associated site drainage,
- Construction of 1. no new site entrance along the turbine delivery route with access onto the adjoining local road network (L6132),
- Construction of 1 no. temporary construction compound with associated temporary site offices, parking areas and security fencing,
- Development of a site drainage network,
- Construction of 1 no. 38kV electrical substation with all associated electrical plant and equipment, security fencing, lightening protection, security cameras and gates, and all ancillary structures and works,
- 1 no. permanent spoil storage area,
- All wind farm internal cabling connecting the wind turbines to the electrical substation,
- All works associated with the permanent connection of the wind farm to the national electricity grid comprising a 38kV underground cable in permanent cable ducts from the proposed, permanent, on-site substation and to the existing Tullabrack 110kV ESBN Substation,
- 2 no. flood compensation areas,
- Vertical realignment of an existing crest curve on the L6132 local road in order to prevent grounding of abnormal load vehicles during delivery of turbine components,
- Ancillary forestry felling to facilitate construction and operation of the development,
- Construction of a blade transfer area off the L6132,

- Provision of 2 no. biodiversity enhancement areas,
- Upgrade of an existing site entrance onto the adjoining local road network (L2034) including the demolition of an existing wall and removal of hedgerow at the site entrance to facilitate abnormal load vehicles during delivery of turbine components and reconstruction of same wall and replanting of hedgerow,
- Landscaping and all associated ancillary works.

Item 1 – Biodiversity (Ornithology)

Item 1 states:

"It is fundamental that biodiversity baseline data and survey work provided is robust, up to date and in accoradance with recognised guidelines. You are required to provide up to date information or justification on the sufficiency of the information provided. Therefore, the following is requested:

a) As per the Scottish Natural Heritage (SNH) guidelines 'Recommended bird survey methods to inform impact assessment of onshore wind farms (2017)' and subsequent revision in March 2025 (NatureScot), recommends survey work for a minimum of two years to allow for variation in bird use between years. The Commission notes that the transect (summer), raptor, hen harrier (summer), wader and woodcock breeding and barn owl survey were carried out for one year only (2023) contrary to the guidance contained in the guidelines. You are required to review the ornithological assessment contained in the EIAR and submitted additional survey data in order to comply with the aforementioned guidelines."

Response

In response to the request in Item No.1, the following additional survey reports are provided in Appendix I:

"Moanmore Lower Bird Activity Summary Report, Breeding Season 2024" (see **Appendix I**). This report includes the following surveys:

- Transect survey
- Breeding raptor survey
- Hen harrier survey
- Woodcock survey

"Moanmore Lower Bird Activity Summary Report, Breeding Season 2025" (see **Appendix I**). This report includes the following surveys:

- Transect survey
- Breeding raptor survey
- Hen harrier survey
- Wader survey
- Woodcock survey
- Peregrine survey

In addition to above, a "Barn Owl Survey" was carried out in Breeding Season 2025 (see **Appendix I**).

As required in Item 1, a review of the ornithological assessment contained in the EIAR and the submitted additional survey data has been carried out. The baseline bird surveys at and surrounding the proposed project have been undertaken in full accordance with the guidance document '*Recommended bird survey methods to inform impact assessment of onshore wind farms*' (SNH 2017), revised in NatureScot 2025a, and is considered best practice in Ireland.

Transect surveys – Breeding Season

As in the 2023 surveys (EIAR section 6.3.6.2.3), the 2024 and 2025 transect surveys recorded a range of passerine species which are representative of the habitats present within the study area. Most of these are widespread species of the countryside and include typical bog species such as meadow pipit and skylark.

In the 2024 transect survey, six target species were recorded, namely grey heron, mallard, hen harrier, kestrel, herring gull and lesser black-backed gull. Two of these had not been recorded in 2023 (when 4 target species recorded), namely grey heron and hen harrier. The addition of grey heron, a widespread species, is not considered significant. The hen harrier was an adult male observed from Transect A hunting over bog on 8th May 2024. The timing and sex of the hen harrier observation (male in early May) would suggest the bird may have been from the recently established breeding population to the south (c.4.5 km). There were two kestrel observations in both 2023 and 2024 (with one of the observations in 2024 involving two birds).

In the 2025 transect survey, six target species were also recorded but the species composition was somewhat different from the previous two years. Three species, mallard, herring gull and lesser black-backed gull, were also recorded in each of the 2023 and 2024 surveys, with grey heron also recorded in 2024. While kestrel was not recorded in 2024, buzzard (1 record from transect C) and sparrowhawk (2 records from transect B) were recorded in 2025 only.

Generally, the results of the transect surveys over the now three years of survey were fairly similar, with a group of three target species recorded in all years (mallard, herring gull, lesser black-backed gull), as well as a wide range of passerine species. Kestrel was recorded in two of the years (2023 & 2024), while hen harrier was recorded in 2024 only and buzzard and sparrowhawk in 2025 only.

Variations in the diversity of species between years are to be expected and would generally reflect such factors as natural differences in local distribution of species in any one day, local weather conditions, time of surveys, and/or natural populations changes (i.e. populations of some species may be higher after a good breeding season or perhaps lower after a severe winter).

Breeding raptor surveys

In the 2023 breeding raptor survey (EIAR section 6.3.6.2.6), three species of raptor were recorded, namely hen harrier (2 records of single birds), kestrel (2 records) and buzzard (2 records), though breeding was not recorded for any species within a 2 km distance of the site.

In the 2024 breeding raptor survey, two species of raptor were recorded, namely kestrel (3 records) and buzzard (1 record). Again, there was no evidence of breeding by any species within a 2 km distance of the site.

In the 2025 breeding raptor survey, five species of raptor were recorded, as follows:

- hen harrier - 6 records of adult male birds hunting / commuting, including one bird carrying a prey item
- kestrel - 7 records of individual birds hunting and/or commuting
- peregrine – one record of a bird flying
- buzzard – 5 records of single birds hinting and/or soaring; potential nest site in forest c.1.5 km from wind farm
- sparrowhawk – 4 records of birds hunting and/or commuting

While the number of hen harrier observations in 2025 is notable (see flightlines in Appendix 2 of 2025 Breeding Season Report, **Appendix I**), there was no evidence of breeding within 1 - 2 km distance of the site. However, as one record was of a bird carrying a prey item and flying southwards (see Appendix 3 – Confidential Data in 2025 Breeding Season Report, **Appendix I**), this suggests that the activity is associated with the breeding site c.4.5 km to the south of the proposed wind farm site.

Hen harrier survey, summer

In the 2023 hen harrier breeding survey (EIAR section 6.3.6.2.5), there was one sighting of a bird approximately 4 km northeast of the site on 25th May.

In the 2024 hen harrier breeding survey, there was also one sighting – this was of a female bird hunting over bog and grassland approximately 3.5 km northwest of the site on 6th July 2024. There was no sign of any breeding behaviour.

In the 2025 hen harrier breeding survey, there were three observations, all involving male birds. Single birds were recorded in the area of the wind farm site on 14th May and 18th June 2025. Both were hunting over bog. In addition, a bird was observed on 5th June 2025 flying north from the known breeding site (c.4.5 km south of wind farm site) and heading towards the Moanmore / Poulnasherry Bay area.

As with the Breeding Raptor Survey, the higher frequency of hen harrier sightings in 2025 is likely to reflect foraging activity by the recently established population c.4.5 km to the south of the proposed wind farm site.

Wader breeding survey

In the 2023 wader breeding survey (Chapter 6, Section 6.3.6.2.7 of the EIAR as submitted), there were no observations of breeding waders on site. Similarly, a wader breeding survey was carried out within the site in 2025 and there were no observations of breeding waders.

Woodcock breeding survey

In the 2023 woodcock breeding survey (Chapter 6, Section 6.3.6.2.8), there were no observations of breeding woodcock within the study area (i.e. c.500 m buffer zone around site).

A woodcock breeding survey was carried out in 2024 and there were no observations of breeding woodcock within the study area (i.e. c.500 m buffer zone around site).

In the 2025 woodcock breeding survey, there were two observations of woodcock, both on 2nd April 2025. These were to the northwest of the site and just outside the 500 m buffer zone. One of the birds was displaying (roding) and was observed dropping into an area of conifers (likely breeding habitat).

Barn Owl survey

In the 2023 barn owl survey (Chapter 6, Section 6.3.6.2.10), it was concluded that a nearby stone barn was used as a winter roost and that breeding by barn owl was not occurring within the site.

A repeat barn owl survey was carried out in April and June 2025. This also concluded that the stone barn was being used as a winter roost but not presently as a breeding site. Since 2023, a nearby derelict cottage had lost some roof tiles and its status was now being 'upgraded' as a possible nest site, though no evidence of nesting was found in the surveys.

The 2025 barn owl survey report recommended the following:

> *"Although no further survey visits would be necessary in summer 2025, it would be recommended to further survey the site before and during any future construction, renovation or other disturbance in the immediate vicinity of the stone shed and adjacent cottage."*

From the review presented above, and with full survey details in the accompanying seasonal reports, it is apparent that there have been no significant changes in bird diversity and populations within or surrounding the proposed project since the 2023 / 2024 survey period.

It is considered that the conclusion in the EIAR as submitted that “For birds, the predicted adverse effects of the Project with mitigation in place are reduced to the level of Slight, or at most Moderate (in case of collision risk to kestrel), of Short- to Medium-term duration. All are at a local level of importance, other than a Slight effect on hen harrier (from collision risk), which is considered at the national level of importance” still stands with the additional survey data taken into account.

Item 2 – Biodiversity (Ornithology)

Item 2 states:

"The Commission shares the concerns of the Department of Housing Local Government and Heritage, Development Applications Unit in their submission on 13th June 2025, relating to the Kestrel and hen harrier. It is noted the predicted collision risk for the BoCCI red listed Kestrel would result in 44 collisions and 1 collision for hen harrier (Annex I) over the 30-year lifespan of the wind farm as set out in the Collision Risk Modelling Report. Adequate cumulative impact or in combination data has not been provided regarding potential collision effects on the local/ regional population of the hen harrier or kestrel regarding other windfarms (existing and permitted) in the area.

Furthermore, the foraging area loss/displacement impacts for the hen harrier in combination with other wind farms in the area has not been adequately considered, and mitigation measures have not been proposed (if required). You are required to address these concerns."

Response

The structure of this response is that survey results for each of 17 identified cumulative projects are first presented (Section 2.1 below).

Section 2.2 provides a summary of the 17 sites and highlights those sites which have survey data that can be used for a cumulative evaluation.

Three sections then follow on the specific Items raised in Item 2, namely:

1. Section 2.3 Collision Risk Modelling Cumulative Assessment for Kestrel and Hen Harrier
2. Section 2.4 Habitat Loss Impact on Hen Harrier: Cumulative Assessment
3. Section 2.5 Habitat Displacement Impact on Hen Harrier: Cumulative Assessment

Finally, Section 2.6 Mitigation Measures provides comment on the issue raised on mitigation measures.

2.1 Review of Wind Farms within a 20 km radius of the proposed Moanmore Lower project

In response to the above, a critical review of the files held by the planning agencies relating to wind farms (existing and permitted) within a 20 km radius of the Moanmore Lower Site has been carried out. The Clare County Council Planning Portal, Kerry County Council Planning Portal and An Coimisiún Pleanála website were accessed between 06/07/2026 and 05/08/2026.

As shown in the as submitted Chapter 2, Table 2.1, Figure 2.1 and Appendix 1.2 of the Moanmore Lower EIAR, there were 16 such projects at the time of submission. This has been updated to 17

projects as Cahermurphy West Wind Farm was submitted in March 2026. The updated list of cumulative wind farms within 20 km of the proposed project are listed in **Appendix II** of this response, with outline information on planning ref., co-ordinates, number of turbines etc. Ten of these wind farm projects are in west Clare and seven in north Kerry.

While birds associated with the West Clare Uplands regional breeding population, which is located approximately 15 km to the northeast of Moanmore Lower, would not likely commute to north Kerry for foraging, birds associated with a new area colonised in west Clare away from the uplands could conceivably cross the Shannon estuary to north Kerry for foraging purposes (though this is unlikely to occur on a regular basis as there is c. 3 km of open water to cross).

The results of the review of the other wind farm projects (starting in order as per Chapter 2, Table 2.1 of the EIAR as submitted which is replicated again within **Appendix II** of this document including any additional projects submitted to planning in the intervening period follows, with focus on reference to:

(i) Collision Risk Modelling for Hen Harrier and Kestrel
(ii) Impacts on Hen Harrier by loss of foraging habitats
(iii) Impacts on Hen Harrier by displacement from foraging habitats

A discussion of the Items raised in Item no. 2 is then presented.

Site no. 1: Ballykett Wind Farm, Co. Clare - Consented

Chapter 6 of EIAR (Biodiversity) details the bird assessment that was carried out for the project.
Bird activity surveys were undertaken over 24 months from October 2020 to September 2022.
Hen harrier was recorded within the survey area on one date (6th April 2021) during activity surveys.
Kestrel was recorded fairly regularly during the activity surveys, with 21 flightlines in total.

CRM results

CRM was carried out for both species, as follows (extract from EIAR, section 6.4.7.6):

Table 6.16: Summary of estimated number of collisions for key ornithological receptors over the lifetime of the project.

Species	Estimated Collisions over the Lifetime of Wind Farm	Estimated Collisions per Year	One Bird Collision every 'x' years
Hen harrier	0.005 birds	0.00017	>1,000 years
Kestrel	1.68 birds	0.0559	17.9 years

Habitat loss effects on hen harrier

Section 6.4.7.1 of EIAR notes that the permanent loss of habitat to facilitate the construction of the proposed Development is approximately 3.93 ha. The majority of habitat loss is conifer plantation, but includes 0.54 ha of cutover bog. The EIAR notes that the loss of cutover bog will be off-set through the provision of a Biodiversity Enhancement and Management Plan (Appendix 6.6 of EIAR), which will restore 3.16 ha of planted bog.

As hen harrier was not recorded foraging within the wind farm site, there was no assessment of effects on this species by loss of habitat.

Habitat displacement effects on hen harrier

Section 6.4.7.3 of the EIAR notes that as Hen Harrier is at most an occasional visitor to the Site for the proposed wind farm, it is expected that birds would still pass through the area when the turbines are in operation and that the potential for disturbance to foraging birds is low – this effect is rated as Not Significant.

Site no. 2: Moanmore Wind Farm, Co. Clare – Operational

The potential for the proposed project to result in significant cumulative effects when assessed alongside the operational Moanmore Wind Farm was considered. The planning file (Pl. ref. 00/952) was reviewed on the Clare County Council Planning website and no information regarding potential effects on birds was available. However, applying the precautionary approach, there is potential for Kestrel and Hen Harrier to occur at the operational Moanmore Wind Farm.

As stated in the Moanmore Lower EIAR, regards effects on Kestrel “The predicted adverse effects of the proposed Moanmore Lower project with mitigation in place are reduced to the level of Slight, or at most Moderate (in case of collision risk to kestrel), of Short- to Medium-term duration at a local level of importance” and for Hen Harrier it states “the significance of collision risk at a population level is rated as a Long-term Slight Adverse effect at a national level”.

Mitigation and enhancement measures are proposed in Chapter 6, Section 6.5.6 of the EIAR to limit significant effects on the local bird population and include the proposed implementation of the Moanmore Lower Biodiversity Enhancement and Management Plan (BEMP). The proposed BEMP measures include enhancement of 4.04ha of cutover bog that has been used for grazing and is largely dominated by rushes. This will offset the loss of the relatively small area of cutover (c.0.8 ha) as a result of the Proposed Development and will provide in the long term increased availability of foraging habitat over the lifespan of the wind farm for both Kestrel and Hen Harrier.

Given the lack of significant residual impacts on Hen Harrier and Kestrel associated with the proposed Moanmore Lower project when considered on its own, significant cumulative or in-combination effects on hen harrier or kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 3: Tullabrack Wind Farm, Co. Clare - Operational

Chapter 5 of EIAR (Flora and Fauna) details the bird assessment that was carried out for the project. Vantage Item surveys were carried out in summer 2009 (May-August) and winter 2009/2010 (November to March).

Hen harrier was recorded foraging within the site on one date in December 2009.

Kestrel was recorded regularly within the survey area. The EIAR notes "Kestrel was observed hunting over the site frequently during field visits though no evidence of a nest site was found."

A 'Habitat Management Plan: Tullabrack Wind Farm Planning Compliance', was prepared by Malachy Walsh and Partners in February 2015. However, this does not provide any additional survey information on birds and does not recommend any additional baseline surveys.

CRM was not carried out as part of the assessment (section 5.5.2). Section 5.9 Conclusion notes "hen harrier and merlin occasionally forage over site in winter. No impacts are anticipated on either species from the operation of the proposed wind farm as both are low flying raptors and utilisation of the site appears to be sporadic."

Effect on foraging hen harriers by habitat loss is not referred to in EIAR (section 5.5.1).

Effect on foraging hen harriers by displacement is not referred to in EIAR (section 5.5.1).

Applying the precautionary approach, and based on the limited information on the planning file, there is potential for Kestrel and Hen Harrier to occur at the operational Tullabrack Wind Farm.

As stated in the Moanmore Lower EIAR, regards effects on Kestrel "*The predicted adverse effects of the proposed Moanmore Lower project with mitigation in place are reduced to the level of Slight, or at most Moderate (in case of collision risk to kestrel), of Short- to Medium-term duration at a local level of importance*" and for Hen Harrier it states "*the significance of collision risk at a population level is rated as a Long-term Slight Adverse effect at a national level*".

Mitigation and enhancement measures are proposed in Chapter 6, Section 6.5.6 of the EIAR to limit significant effects on the local bird population and include the proposed implementation of the Moanmore Lower Biodiversity Enhancement and Management Plan (BEMP). The proposed BEMP measures include enhancement of 4.04ha of cutover bog that has been used for grazing and is largely dominated by rushes. This will offset the loss of the relatively small area of cutover (c.0.8 ha) as a result of the Proposed Development and will provide in the long term increased availability of foraging habitat over the lifespan of the wind farm for both Kestrel and Hen Harrier.

No significant effects on Hen Harrier or Kestrel were noted for the Tullabrack Wind Farm. Given the lack of significant residual impacts on Hen Harrier and Kestrel associated with the proposed Moanmore Lower project when considered on its own, significant cumulative or in-combination effects on hen harrier or kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 4: Beale Hill, Co. Kerry

The potential for the proposed project to result in significant cumulative or in-combination effects when assessed alongside the Beale Hill operational Wind Farm was considered. The planning file (Pl ref. 04/1065) was reviewed on the Kerry County Council Planning Register and no information regarding ecology was available. Some information (but not ecological) is given on an application for 2 additional turbines within the Beale Hill site (dated March 2004).

However, given the location of the wind farm (almost 13 km) and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 5: Cahermurphy Wind Farm, Co. Clare – operational

Chapter 5 of EIAR (Flora and Fauna) details the bird assessment that was carried out for the project. Bird activity surveys were undertaken over 16 months from April 2013 to July 2014 (54 hours total coverage).

Hen harrier was recorded within the survey area in both years of survey during activity surveys.

Kestrel was not recorded within the survey area during the activity surveys.

CRM results

CRM was carried out for Hen Harrier and the following is given (section 5.4.1.1.4 of EIAR):

"For a 99% avoidance factor (and assuming no preferential avoidance of the site) the calculated mean (average) figure for both seasons is 0.0195 collisions per year (equivalent to approximately one collision every 51.3 years, or 0.49 collisions during a nominal 25 year wind farm lifespan)".

Habitat loss effects on hen harrier

Effect on foraging hen harriers by habitat loss is not discussed in the impact section of the EIAR (section 5.5.2).

Habitat displacement effects on hen harrier

Section 5.5.2.2 of the Cahermurphy Wind Farm EIAR (Impacts During Operational Phase) notes the following:

> **"Long-term Slight Negative Impact**
>
> In addition to potential negative impacts caused by direct habitat loss, disturbance during construction and turbine maintenance and by the collision of birds and bats with turbines, it is often stated that some species (especially birds) are likely to avoid wind turbines when they are present, thus giving rise to an indirect habitat loss. This could result in a loss of available habitat for the affected species and could have negative effects on both its local and national ranges. A restriction of available habitat for any particular species in an area will limit the size of its potential population.
>
> While it is unclear to what extent (if any) this impact will occur (and it is likely to be slight at most), it will not be mitigable if it does. However, if displacement of foraging occurred so that there was none within 100 m of the four individual turbines (i.e. 100% avoidance), then the maximum loss of foraging habitat (i.e. secondary habitat loss) would be equal to approximately 12.6 hectares, or approximately 18% of the 69.96 ha study area. This worst case scenario does not seem too serious, given the large areas of alternative Hen Harrier habitat in the mid Clare uplands."

Site no. 6: Carrownaweelaun Wind Farm, Co. Clare – Operational

From the search undertaken, it appears that the EIAR for this planning application is not contained within the County Council file.

Two post construction monitoring reports for the site (Planning Compliance Reports for Condition 5) have been reviewed. These are:

- Carrownaweelaun Wind Farm, Co. Clare: Year 1 Winter and Breeding Bird Surveys
- Carrownaweelaun Wind Farm, Co. Clare: Year 2 Winter and Breeding Bird Surveys

The site, comprising two turbines, is located on the Loop Head Peninsula. The emphasis of monitoring appears to have been on wintering Barnacle Goose and breeding Cormorants.

There was one hen harrier record in February 2015, and this was considered a bird on passage.

Kestrel was recorded on six survey visits in winter 2014/2015 and on one survey in winter 2015/16.

Given the location and distance (c.14.1 km) of the Carrownaweelaun wind farm from the proposed development and the focus on Barnacle Goose and Cormorant in monitoring reports, and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 7: Crossmore Wind Farm, Co. Clare - Consented

Chapter 10 of EIAR (Ornithology) details the bird assessment that was carried out for the project.
Bird activity surveys were undertaken in October and November 2008.
Hen harrier was not recorded within the survey area during the surveys
Kestrel was not recorded within the survey area during the surveys

CRM results

CRM was not carried out for Hen Harrier or Kestrel.

However, section 10.4.2 of EIAR considers Collision Risk. For hen harrier, the following is stated:

> "Hen harrier collision rates are much lower than that recorded for raptors in general (Percival 2003a). Collision with turbine towers or blades is not considered to constitute a significant danger to these birds during normal foraging behaviour because of "the vast majority of flight activity occurs within 10 or 20 m of the ground" (Whitford & Madders 2006a).
>
> The baseline data recorded no breeding or nesting activity within close proximity to the site. Therefore, the magnitude and significance of this impact is negligible."

Habitat loss and displacement effects on hen harrier

Section 10.4.1 of EIAR considers Permanent Habitat Loss & Long Term Displacement. The following is noted:

> "The Crossmore Wind Farm comprises of seven turbines. It is expected that approximately 2.67 ha will be permanently lost to the development.

> In addition, longer term indirect effects may result from disturbance caused by the operating wind turbines and human activities during maintenance visits. This could cause displacement or exclusion of birds from foraging or nesting in the area around the operating turbines and reduce breeding success. However, this is unlikely to impact hunting hen harrier as there are no recordings of territorial pairs in the area and there is consensus that hen harriers are not known to forage over a 5 km radius from the nest."

It was concluded (EIAR pg. 115, bullet Item no.1) that "On this basis, the magnitude of the impact is low and the overall significance is low."

Given the location of the Crossmore Wind Farm (c.15.2 km) from the proposed development and the absence of any hen harrier or kestrel observations, and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 8: Curraghgerrig Wind Farm, Co. Kerry – Operational

The potential for the proposed project to result in significant cumulative or in-combination effects when assessed alongside the Curraghgerrig operational Wind Farm was considered. The planning file (Pl ref. 06/93997) was reviewed on the Kerry County Council Planning Register and no information regarding ecology was available.

However, given the location of the wind farm (c.12.7 km) from the proposed development and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 9: Glenmore Wind Farm, Co. Clare – Operational

Chapter 5 of EIAR (Flora and Fauna) details the bird assessment that was carried out for the project. Bird activity surveys were undertaken in summer 2012 (April – July), winter 2013/14 (Oct – March) and summer 2014 (April – July).

Hen harrier was recorded within the survey area as follows:

- summer 2012: 5 sightings
- winter 2013/14: 8 sightings
- summer 2014: 31 sightings.

Kestrel was recorded within the survey area during the summer activity surveys (Table 5.16). Details of occurrences are not given.

CRM results

CRM was carried out for Hen Harrier and the following is given (section 5.4.1.1.4 of EIAR):

"Using a 99% avoidance factor (and assuming no preferential avoidance of the site) the average figure is 0.041 collisions per year (equivalent to approximately one collision every 24.4 years, or 1.02 collisions during a nominal 25 year wind farm lifespan)".

Habitat loss effects on hen harrier

Effect on foraging hen harriers by habitat loss is not discussed in the impact section of the EIAR (section 5.5.2).

Habitat displacement effects on hen harrier

Section 5.6.2.2 of the EIAR (Impacts During Operational Phase) notes the following:

> **"Long-term Slight Negative Impact of Avoidance of Turbines by Birds (secondary habitat loss)**
>
> In addition to potential negative impacts caused by direct habitat loss, disturbance during construction and turbine maintenance and by the collision of birds and bats with turbines, it is often stated that some species (especially birds) are likely to avoid wind turbines when they are present, thus giving rise to an indirect habitat loss. This could result in a loss of available habitat for the affected species and could have negative effects on both its local and national ranges. A restriction of available habitat for any particular species in an area will limit the size of its potential population.
>
> While it is unclear to what extent (if any) this impact will occur (and it is likely to be slight at most), it will not be mitigable if it does. However, if displacement of foraging occurred so that there was none within 100 m of the four individual turbines (i.e. 100% avoidance), then the maximum loss of foraging habitat (i.e. secondary habitat loss) would be equal to approximately 38 hectares (mostly within forestry, rather than in open areas), or approximately 5.4% of the 698.9 ha study area. This worse case scenario does not seem too serious, given the level of Hen Harrier activity indicated at the site of the proposed development."

Site no. 10: Kiltumper Wind Farm, Co. Clare - Operational

Chapter 6.3 of EIAR (Ecological Assessment) details the bird assessment that was carried out for this two turbine project.

Bird activity surveys were undertaken monthly from April to July 2007.

Hen harrier was recorded within the survey area on seven occasions during the surveys

Kestrel was not recorded within the survey area during the surveys

CRM results

CRM was not carried out for Hen Harrier.

However, section 6.3.4.3 of EIAR considers Collision Risk. For hen harrier, the following is stated:

> "Available studies generally indicate that the likelihood of collision between birds and wind turbines is low (Percival 2005), though problems can arise at sites with high density raptor populations, such as in parts of California. For hen harriers, the greatest risk of collision would be expected when adult birds are engaged in aerial display (which usually occurs close to the nest site), or when juvenile birds are practicing flights (again, this would be close to the nest site). At Kiltumper, where there are no nest sites within the site or within at least 1 km of it, the presence of two turbines is unlikely to pose a significant collision risk."

Habitat loss effects on hen harrier

Effect on foraging hen harriers by habitat loss is not discussed in the impact section of the EIAR (section 6.3.4.3).

Habitat displacement effects on hen harrier

The following is given in the EIAR (section 6.3.4.3) in relation of effects of potential displacement:

"From the present study, it is concluded that the site provides limited foraging opportunities for hen harriers that nest in the wider district. It is considered that the presence of two turbines, in this already highly disturbed area, would make little or no difference to the foraging behaviour of hen harriers which may be in the vicinity of the site."

Site no. 11: Lahra Wind Farm, Co. Kerry

Chapter 5 of EIAR (Flora, Fauna and Fisheries) details the bird assessment that was carried out for the project.

Ecological surveys were carried out on 16th July 2008.

Hen harrier was not recorded within the survey area during the survey.

Kestrel was not recorded within the survey area during the survey.

CRM results

CRM was not carried out for Hen Harrier or Kestrel.

Habitat loss effects on hen harrier

As hen harrier was not recorded, the effect on foraging hen harriers by habitat loss is not discussed in the impact section of the EIAR (section 5.4).

Habitat displacement effects on hen harrier

As hen harrier was not recorded, the effect on foraging hen harriers by habitat displacement is not discussed in the impact section of the EIAR (section 5.4).

Given the location of the Lahra Wind Farm (c.14.2 km) from the proposed development and the absence of any hen harrier or kestrel observations, and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 12: Leanamore Wind Farm, Co. Kerry – Operational

From the search undertaken, it appears that the full EIS for this planning application is not contained within the County Council file. A Non-Technical Summary was present.

CRM does not appear to have been carried out, and the NTS notes the following:

> "There is a potential risk of birds colliding with turbines at wind farms. However, based on hen harrier flight activity at the Leanamore site in 2009 and 2010, the risk of hen harrier colliding with turbines is considered to be low."

While no mention is made in the NTS to effects on hen harrier by loss of habitat, the following is noted in relation to effects by displacement:

> "Based on observations of foraging hen harrier within the Leanamore Wind Farm, it is anticipated that hen harriers will continue to forage within the proposed site following the construction of the wind farm, although it is possible that there will be some degree of avoidance of turbines by foraging birds."

Two post construction monitoring reports for the site (Planning Compliance Reports for Condition 5) have been reviewed. These are:

- Leanamore Wind Farm Bird Survey, Annual Report: Year 3 (2018-2019)
- Leanamore Wind Farm Bird Survey, Annual Report: Year 5 (2020-2021)

There were seven observations of hen harrier in the Year 3 monitoring, and one in Year 5 (surveys in Year 5 subject to COVID-19 restrictions).

There were 20 observations of kestrel in the Year 3 monitoring, and six in Year 5.

Site no. 13: MoneyItem Wind Farm, Co. Clare – Operational

The potential for the proposed project to result in significant cumulative or in-combination effects when assessed alongside the MoneyItem operational Wind Farm was considered. The planning file (Pl ref. 01/1538) was reviewed on the Clare County Council Planning Register and no information regarding ecology was available.

However, given the location and distance of the wind farm (c.7.4 km) and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 14: Shronowen Wind Farm, Co. Kerry

Chapter 7 of EIAR (Ornithology) details the bird assessment that was carried out for the project.
Bird activity surveys were undertaken in summers 2019 and 2020, and in winters 2018/19 and 2019/20.
Hen harrier was recorded within the survey area on 14 occasions over the 24 months of activity surveys (see section 7.3.3.1 of EIAR).
Kestrel was recorded within the survey area on 30 occasions over the 24 months of activity surveys (see section 7.3.3.2 of EIAR).

CRM results

CRM was carried out for Hen Harrier and Kestrel (see section 7.4.2.2 of EIAR):

For hen harrier, the following is given:

> "Hen harrier was recorded within the Potential Collision Height (PCH) (rotor blade sweep is 14 m – 150 m from ground level) for 11.3 minutes (677 seconds) or 0.2 hours of a total of 432 hours of surveying over the 2-year survey period, which involved surveying for 25,920 minutes. Hen harrier have an avoidance rate of 99% (Whitfield & Madders, 2006). A Collision Risk Model (CRM) was carried out for hen harrier in accordance with SNH (2000) and Band (2007), which predicted that the mean number of predicted collisions per the 30 year lifetime of the wind farm would be 0.25 birds, which equates to one bird every 121 years. Thus, the collision risk for hen harrier is low."

On basis of the potential loss of 0.25 birds over the lifetime of the wind farm, Table 7-23 rates the collision effect on hen harrier as Long-term Slight Negative.

For kestrel, the following is given:

> "Kestrel was recorded at PCH for a total of 2,249 seconds or 37.5 minutes. Kestrel also display a hovering behaviour during hunting which contributes to the time spent at collision height and over-estimates the collision risk. Kestrel have an avoidance rate of 95% (SNH, 2018) and are considered relatively more vulnerable to collision risk than other birds of prey (Whitfield and Madders, 2006). Although kestrel are widespread in Ireland with a population estimate of 12,000 to 21,000 with highest densities in the southwest of Ireland (IRSG, 2018), it is amber listed for its breeding population because the global population is concentrated in Europe (Colhoun and Cummins, 2013). A CRM was carried out for kestrel, which predicted that the mean number of predicted collisions per the 30 year lifetime of the wind farm would be 4 bird s, which equates to one bird every 7 years, a tiny fraction of the national population. Thus, the collision risk for kestrel is low in the context of the population. Given the level of use of the site by kestrel and the high national population estimate with densities greatest in the southwest and the collision risk estimate, it is not considered that the risk of collision with turbines will be significant for kestrel."

On basis of the potential loss of 4 birds over the lifetime of the wind farm, Table 7-23 rates the collision effect on kestrel as Long-term Slight Negative.

Habitat loss effects on hen harrier

Section 7.4.1.2 of the EIAR notes that the total area of the wind farm site is 364ha while the footprint occupied by the wind farm infrastructure within the site is 27.5ha, thus the project occupies 7.5% of the site on which it will have a direct impact. There will be a loss of 26ha of cutover bog, the main habitat type within the site.

The effect on hen harrier by the loss of habitat is rated as "Long-term Slight Negative" (see Table 7-15 of EIAR), with the following noted:

> "This species utilises habitat within the site boundary for commuting and hunting. The development footprint is dominated by cutover bog, which will result in habitat loss for hunting birds. Most of this habitat within this site is outside of the wind farm development footprint and will remain intact.
>
> The loss of foraging habitat as a result of the construction of the new roads, road widening, turbines and hardstands and substation will be less than 10% with respect to the substantial areas of suitable habitat that will remain."

Habitat displacement effects on hen harrier

Section 7.4.2.2 of the EIAR discussed the Displacement Effect.

After review, the frequency of occurrence of hen harrier at the site, and also the available literature on the displacement effect, the following evaluation is given:

> "Based on these observations, and studies from elsewhere (Whitfield & Madders 2006, Madden & Porter 2007, Wilson et al, 2015), it is anticipated hen harriers will continue to use the Shronowen Wind Farm site, with some slight degree of turbine avoidance shown by hunting birds. Given the intervening distance between turbines of 0.46 km (distance between T11 and T12) up to 0.74 km (distance between T3 and T5), overall low densities of birds using the site, it is not considered that the wind farm will result in a significant displacement or barrier effect during the expected 30 year operational phase for bird species identified as IEF."

Table 7-23 of the EIAR concludes that "Some slight displacement may occur in the vicinity of the turbines, however, it is considered that hen harrier will continue to use the site during the lifetime of the wind farm." The effects of potential displacement on hen harrier is rated as Long-term Slight Negative.

Site no. 15: Tullahennel South Wind Farm, Co. Kerry

Chapter 6 of EIAR (Environmental Appraisal) details the bird assessment that was carried out for the project.

As part of an ecological survey, bird species were recorded during a site visit on 14th August 2009.

Hen harrier was not recorded within the survey area during the survey.

Kestrel was not recorded within the survey area during the survey.

CRM results

CRM was not carried out for Hen Harrier or Kestrel (neither species was recorded on site).

Habitat loss effects on hen harrier

As hen harrier was not recorded, the effect on foraging hen harriers by habitat loss is not discussed in the impact section of the EIAR.

Habitat displacement effects on hen harrier

As hen harrier was not recorded, the effect on foraging hen harriers by habitat displacement is not discussed in the impact section of the EIAR.

Given the location of the Tullahennel South Wind Farm (c.14.1 km) from the proposed development and the absence of any hen harrier or kestrel observations, and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 16: Tullahennel North Wind Farm, Co. Kerry

Chapter 9 of EIAR (Flora and Faunal) details the bird assessment that was carried out for the project.

As part of an ecological survey, bird species were recorded during a site visit in August 2008.

Hen harrier was not recorded within the survey area during the survey.

Kestrel was not recorded within the survey area during the survey.

CRM results

CRM was not carried out for Hen Harrier or Kestrel (neither species was recorded on site).

Habitat loss effects on hen harrier

As hen harrier was not recorded, the effect on foraging hen harriers by habitat loss is not discussed in the impact section of the EIAR.

Habitat displacement effects on hen harrier

As hen harrier was not recorded, the effect on foraging hen harriers by habitat displacement is not discussed in the impact section of the EIAR.

Given the location of the Tullahennel North Wind Farm (c.14.3 km) from the proposed development and the absence of any hen harrier or kestrel observations, and the lack of significant residual impacts on bird species associated with the proposed project when considered on its own, significant cumulative or in-combination effects on hen harrier and kestrel with regard to collision mortality, habitat loss or displacement are not anticipated.

Site no. 17: Cahermurphy West Wind Farm, Co. Clare

Chapter 7 of EIAR (Birds) details the bird assessment that was carried out for the project.

Bird activity surveys were undertaken over 24 months from April 2023 to March 2025.

Hen harrier was recorded within the survey area on 19 occasions during the activity surveys.

Kestrel was recorded within the survey area on 111 occasions during the activity surveys.

CRM results

CRM was carried out for Hen Harrier and Kestrel, and the following is given (section 7.5.2.1 of EIAR):

“The collision risk for hen harrier was calculated at a rate of 0.002 collisions per year, or one bird every 500 years. This predicted collision risk was considered insignificant over the 35-year lifetime of the Proposed Wind Farm.

The collision risk for kestrel was calculated at a rate of 2.1 collisions per year. This predicted collision risk was considered negligible and it was concluded that no significant effects are anticipated.”

Habitat loss effects on hen harrier

Effect on foraging hen harriers by habitat loss is discussed in section 7.5.2.1 EIAR.

It was noted that the Proposed Wind Farm is predominantly a large conifer plantation, with areas of upland blanket bog and wet grassland around its margins. The area surrounding the Proposed Wind Farm is predominately bog and wet grassland habitats. This mosaic of habitats includes suitable breeding, roosting and foraging habitat.

There were breeding and roosting sites identified within the Study Area during surveys, however they do not overlap with the development infrastructure.

The Significance of habitat loss was rated as "Likely long-term slight negative effect", which is "**Not Significant**."

Habitat displacement effects on hen harrier

Section 7.5.2.1 of the Cahermurphy West Wind Farm EIAR notes that hen harriers will be displaced from 62 ha of suitable foraging habitat within 250 m of turbines. This equates to 6.8% of the total foraging habitat available within a 2 km radius of the wind farm site. This loss is rated as a Likely long-term **Significant** negative effect.

To offset this loss, an enhancement strategy was proposed (see section 7.7 of EIAR). With this implemented, the residual effect is given as Slight, which is **Not Significant**.

2.2 Summary of Review of Other Wind Farms

Of the 17 identified wind farm projects, no relevant planning information was located within the files for four sites, as follows:

Site 2: Moanmore, Co Clare
Site 4: Beale Hill, Co Kerry
Site 8: Curraghgerrig, Co. Kerry
Site 13 MoneyItem, Co. Clare

For a further two sites, the EIAR (which is essential in addressing the Items raised by the Commission in Item no. 2) was not located within the planning file though post-construction ornithological monitoring reports were present, as follows:

Site 6: Carrownaweelaun, Co. Clare (two post-construction monitoring reports were located)
Site 12: Leanamore, Co. Kerry (two post-construction monitoring reports were located)

Of the remaining 11 sites, four of the baseline ecology surveys (as described in the relevant EIARs) did not record Hen Harrier or Kestrel during the surveys and thus did not carry out CRM for hen harrier and/or kestrel, and made no comment on effects on hen harrier by loss of habitat and/or displacement of foraging birds. These are:

Site 7: Crossmore, Co. Clare (bird surveys confined to October and November 2008)
Site 11: Lahra, Co. Kerry (bird survey carried out on one date, 16th July 2008)
Site 15: Tullahennel South, Co. Kerry (bird survey carried out on one date, 14th August 2009)
Site 16: Tullahennel North, Co. Kerry (bird survey carried out on one date in August 2008)

Five sites recorded hen harrier and/or kestrel in the baseline surveys (as described in the relevant EIARs) and contain some information that can be analysedItem. These are:

Site 1: Ballykett, Co. Clare
Site 5: Cahermurphy, Co. Clare
Site 9: Glenmore, Co. Clare
Site 14: Shronowen, Co. Kerry
Site 17: Cahermurphy West, Co. Clare

The files for these five sites are used in the following to address the issues raised by the Commission in Item no. 2.

2.3 Collision Risk Modelling Cumulative Assessment

Collision Risk Modelling Cumulative Assessment - Hen Harrier

CRM for the **Moanmore Lower** project gave the following estimated number of collisions for hen harrier:

Collisions per year: 0.036
Collisions over 30 years: 1.07

CRM for the **Ballykett** project gave the following estimated number of collisions for hen harrier:

Collisions per year: 0.00017
Collisions over 30 years: 0.005

CRM for the **Cahermurphy** project gave the following estimated number of collisions for hen harrier:

Collisions per year: 0.0195
Collisions over 25 years: 0.49
[for a comparative 30 year period, figure is 0.59]

CRM for the **Glenmore** project gave the following estimated number of collisions for hen harrier:

Collisions per year: 0.041

Collisions over 25 years: 1.02

[for a comparative 30 year period, figure is 1.23]

CRM for the **Shronowen** project gave the following estimated number of collisions for hen harrier:

Collisions per year: 0.008

Collisions over 30 years: 0.25

CRM for the **Cahermurphy West** project gave the following estimated number of collisions for hen harrier:

Collisions per year: 0.002

Collisions over 35 years: 0.07

[for a comparative 30 year period, figure is 0.06]

When the Moanmore Lower estimated collision rate of 1.07 birds over a 30 year period is combined with the relevant 30 year figures from the other five projects (i.e. 2.135 collisions), the cumulative total is 3.205 collisions or 0.107 birds per year. For the six projects, the total number of turbines is 42.

In the Moanmore Lower EIAR (section 6.4.7.6), it was considered that the calculated rate of 1.07 collisions over 30 years) was negligible in the context of the estimated national population of 85-106 breeding pairs (Ruddock *et al*. 2024) though it was noted that any loss of an Annex I listed species is of some significance. The significance of collision risk at a population level was rated as a Long-term Slight Adverse effect at a national level.

When Moanmore Lower is considered with the other five wind farm projects, a rating of 'Long-term Slight Adverse effect' is still considered appropriate at a national level. At a regional level, Ruddock et al. (2024) gave a population of 4-7 pairs for North & west Clare in 2022. While the cumulative total for the six projects (including that of the proposed Moanmore Lower project), i.e. 3.205 collisions over 30 years or 0.107 birds per year, is still low at a regional level, because the regional population is in decline (-22% between 2015 and 2022), the significance of collision risk is rated as a Long-term Moderate Adverse effect.

Collision Risk Modelling Cumulative Assessment - Kestrel

CRM for the **Moanmore Lower** project gave the following estimated number of collisions for kestrel:

Collisions per year: 1.5

Collisions over 30 years: 44

CRM for the **Ballykett** project gave the following estimated number of collisions for kestrel:
Collisions per year: 0.0559
Collisions over 30 years: 1.68

CRM for kestrel not carried out for the **Cahermurphy** project (species not recorded).

CRM for kestrel not carried out for the **Glenmore** project (species recorded in summer).

CRM for the **Shronowen** project gave the following estimated number of collisions for kestrel:
Collisions per year: 0.136
Collisions over 30 years: 4.1

CRM for the **Cahermurphy West** project gave the following estimated number of collisions for kestrel:
Collisions per year: 2.1
Collisions over 35 years: 73.5
[for a comparative 30 year period, figure is 60]

When the Moanmore Lower estimated collision rate of 44 birds over a 30 year period is combined with the relevant 30 year figures from the other three projects (i.e. 65.78 collisions), the cumulative total is 109.78 collisions or 3.66 birds per year. For the three projects, the number of turbines is 27.

In the Moanmore Lower EIAR (section 6.4.7.6), it was considered that the calculated rate of 44 collisions over the lifetime of the Development (i.e. 30 years) was negligible in the context of the estimated national population of 13,500 birds (Lewis *et al*. 2019) though it was noted that any loss of a Red-list species is of some significance in a local context. For kestrel, the significance of collision risk at a population level was rated as a Long-term Slight Adverse effect at a local level.

Taking into account (i) the small sample size for cumulative assessment (i.e. 3 other projects), and (ii) the absence of a quantitative estimate of the local/regional kestrel population, when Moanmore Lower is considered with the other three wind farm projects, a cumulative rating of 'Long-term Slight Adverse effect' is still considered appropriate at a local level.

2.4 Habitat Loss Impact on Hen Harrier: Cumulative Assessment

Section 6.4.7.1 of the EIAR for the **Moanmore Lower** project notes that the permanent loss of habitat to facilitate the construction of the proposed Development is approximately 3.99 ha. The majority of habitat loss is wet grassland. While wet grassland provides foraging habitat for hen harrier, the effect

by the loss was considered Not Significant on the basis that (i) the amount being lost is relatively small and (ii) wet grassland is an abundant habitat in the wider area of the project.

Section 6.4.7.1 also notes that the construction of Moanmore Lower turbine T02 will result in the loss of an estimated 0.8 ha of cutover bog. The cutover bog is used as foraging habitat by hen harrier. The effect by the loss of cutover bog to facilitate the proposed Development is considered an Adverse effect of Slight significance and Permanent duration. It is noted that the loss of cutover bog will be off-set through the provision of a Biodiversity Enhancement and Management Plan, which will enhance an area (4.04 ha) of former cutover bog now dominated by rushy wet grassland. The successful implementation of the BEMP is likely to result in a Positive effect in the long-term, as a larger area of cutover bog will be available for breeding, wintering and hunting bird species.

At **Ballykett Wind Farm**, Section 6.4.7.1 of EIAR notes that the permanent loss of habitat to facilitate the construction of the proposed Development is approximately 3.93 ha. The majority of habitat loss is conifer plantation, but includes 0.54 ha of cutover bog. The EIAR notes that the loss of cutover bog will be off-set through the provision of a Biodiversity Enhancement and Management Plan, which will restore 3.16 ha of planted bog. As hen harrier was not recorded foraging within the wind farm site, there was no assessment of effects on this.

For **Cahermurphy Wind Farm**, the potential effect on hen harrier is not discussed in the impact section of the EIAR (section 5.5.2).

For **Glenmore Wind Farm**, the potential effect on hen harrier is not discussed in the impact section of the EIAR (section 5.5.2).

For **Shronowen Wind Farm**, the potential effect on hen harrier from habitat loss (estimated at 27.5 ha) is rated as “Long-term Slight Negative”, with the following noted:

> “This species utilises habitat within the site boundary for commuting and hunting. The development footprint is dominated by cutover bog, which will result in habitat loss for hunting birds. Most of this habitat within this site is outside of the wind farm development footprint and will remain intact.
>
> The loss of foraging habitat as a result of the construction of the new roads, road widening, turbines and hardstands and substation will be less than 10% with respect to the substantial areas of suitable habitat that will remain.”

For **Cahermurphy West Wind Farm**, the potential effect on hen harrier is rated as “Likely long-term slight negative effect”, which was considered Not Significant (EIAR section 7.5.2.1).

From the present review, it is apparent that few projects have considered the effect on foraging hen harriers by habitat loss (in some projects, a general comment is made that because habitat loss in wind farm construction is typically low, effects on birds and other fauna is not significant). Apart from Moanmore Lower, the Shronowen and Cahermurphy West wind farms are the only projects to have rated the effect of habitat loss. Both projects rate this effect as Adverse/Negative of Slight Significance. Despite the small sample size, it is likely that for most sites the loss of habitat as a result of wind farm construction is of low significance, and that the Moanmore Lower project will not contribute to a significant cumulative effect on foraging hen harriers at a local or regional population level.

2.5 Habitat Displacement Impact on Hen Harrier: Cumulative Assessment

Section 6.4.7.3 of the EIAR for the **Moanmore Lower** project notes the following:

> "As part of the site of the proposed development is considered to be within the range of both breeding and wintering hen harriers, and accepting that the evidence for avoidance of turbines by foraging birds is somewhat contradictory, it is expected that the species could show some signs of displacement around the turbines at the proposed development site. It is likely that any displacement effect would be highest in the early period of operation, with some degree of habituation occurring over time. Significance of potential effect is rated as Slight to Moderate and of short-term duration (1-7 years)."

At **Ballykett Wind Farm**, Section 6.4.7.3 of EIAR notes that as Hen Harrier is at most an occasional visitor to the Site for the proposed wind farm, it is expected that birds would still pass through the area when the turbines are in operation and that the potential for disturbance to foraging birds is low – this effect is rated as Not Significant.

For **Cahermurphy Wind Farm**, the potential effect of displacement of foraging hen harriers is rated as a "Long-term Slight Negative Impact". The following is noted:

> "While it is unclear to what extent (if any) this impact will occur (and it is likely to be slight at most), it will not be mitigable if it does. However, if displacement of foraging occurred so that there was none within 100 m of the four individual turbines (i.e. 100% avoidance), then the maximum loss of foraging habitat (i.e. secondary habitat loss) would be equal to approximately 12.6 hectares, or approximately 18% of the 69.96 ha study area. This worse case scenario does not seem too serious, given the large areas of alternative Hen Harrier habitat in the mid Clare uplands."

For **Glenmore Wind Farm**, the potential effect of displacement by foraging hen harriers is rated as a "Long-term Slight Negative Impact". The following is noted:

> "While it is unclear to what extent (if any) this impact will occur (and it is likely to be slight at most), it will not be mitigable if it does. However, if displacement of foraging occurred so that there was none within 100 m of the four individual turbines (i.e. 100% avoidance), then the maximum loss of foraging habitat (i.e. secondary habitat loss) would be equal to approximately 38 hectares (mostly within forestry, rather than in open areas), or approximately 5.4% of the 698.9 ha study area. This worse case scenario does not seem too serious, given the level of Hen Harrier activity indicated at the site of the proposed development."

For **Shronowen Wind Farm**, the potential effect of displacement by foraging hen harriers is rated as "Long-term Slight Negative". The following is noted: on hen harrier from habitat loss (estimated at 27.5 ha) is rated as "Long-term Slight Negative", with the following noted:

After review of the frequency of occurrence of hen harrier at the site, and also the available literature on the displacement effect, the following evaluation is given:

> "Based on these observations, and studies from elsewhere (Whitfield & Madders 2006, Madden & Porter 2007, Wilson et al, 2015), it is anticipated hen harriers will continue to use the Shronowen Wind Farm site, with some slight degree of turbine avoidance shown by hunting birds. Given the intervening distance between turbines of 0.46 km (distance between T11 and T12) up to 0.74 km (distance between T3 and T5), overall low densities of birds using the site, it is not considered that the wind farm will result in a significant displacement or barrier effect during the expected 30 year operational phase for bird species identified as IEF."

For **Cahermurphy West Wind Farm**, the potential effect of displacement by foraging hen harriers, the estimated loss (62 ha) is rated as a "Likely long-term **Significant** negative effect". With mitigation by way of a Habitat Enhancement Plan, the residual effect is given as Slight, which is **Not Significant**.
From the review, it is noted that three projects have rated the effect of displacement on foraging hen harriers as Long-term Slight Negative, while the Cahermurphy West project rated the loss as a likely long-term **Significant** negative effect (in absence of mitigation). The Moanmore Lower project rated the effects as Slight to Moderate of Short-term duration (1-7 years) (the short-term rating reflects the likelihood that birds will habituate to some extent to the presence of the turbines).

Two of the projects, Cahermurphy and Glenmore, quantified losses of 12.6 ha and 38 ha respectively assuming total displacement by foraging birds from a 100 m zone around each turbine. However, these figures include all habitats (some of which may be unsuitable or of low value for foraging) and do not allow for some habituation to the presence of turbines over time. The Cahermurphy West project quantified the loss of suitable foraging habitat at 62 ha within a 250 m radius of the turbines.

While there are relatively few available evaluations of effects of habitat loss by displacement on hen harrier, and with varying opinions of the potential displacement distances at the sites, it is considered that the cumulative effect from habitat loss by displacement on the local/regional hen harrier population at Moanmore Lower is still within the Slight to Moderate level of significance.

2.6 Mitigation Measures

A Biodiversity Enhancement and Management Plan (BEMP) was submitted with the EIAR for the proposed Moanmore Lower project. The primary objective of the BEMP is to offset the loss of an estimated 0.8 ha of cutover bog by the enhancement of an area (4.04 ha) of former cutover bog now dominated by rushy wet grassland. This will provide a net gain in the amount of cutover bog foraging habitat available for hen harrier and will offset the loss of cutover bog foraging habitat (estimated at 0.8 ha) through the construction of the wind farm. It will also offset to some extent the potential loss of foraging habitat through displacement.

Most of the comparable wind farms in the study area did not identify the loss of foraging habitat or displacement of foraging habitat as significant issues (where considered, these impacts were mostly rated at the level of Slight Negative) and, apart from Cahermurphy West, none of the projects considered it necessary to provide mitigation to offset any losses.

Item 3 – Biodiversity (Otter)

Item 3 states:

"The Commission is not satisfied that it has received sufficient detailed information to show the precise impact of the proposed development on the otter (Lutra lutra) a qualifying interest of the nearby Lower River Shannon Special Area of Conservation. The baseline and walkover survey details stated in the EIAR to have been carried out in 2022, 2023 and 2024 have not been submitted with the planning application or the appeal documentation. The only survey report (Aquatic Survey Report – Appendix 7.1) submitted with the application referencing otter was carried out in 2022 and exceeds the recommended survey lifespan set out in the CIEEM Advice Note 'Lifespan of Ecological Reports and Surveys' (2019). It is therefore considered that an otter survey of the areas along Moyasta River as shown in plate 6.1 of the EIAR and all proposed water crossings by an otter specialist is required in order to establish more securely whether or not the proposed development might adversely affect otter commuting, breeding or resting place. Update the EIAR, NIS (by way of Addendum) and CEMP accordingly."

Response

An updated otter survey was carried out along the Moyasta River in August 2026 by Triturus Environmental Ltd (specialists in otter survey). The full report of the survey is presented in **Appendix III.**

Briefly, the survey area comprised 3.5 km of contiguous habitat along the Moyasta River, including at the proposed watercourse crossing of the grid connection route (GCR) and the tidal section of the river at Poulnasherry Bay. The survey was completed during suitable weather conditions and low water levels which ensured that a good representation of habitat marked by otter could be recorded in the field, including territorial marking or marking of feeding areas.

Otter signs by way of spraint sites, latrines and prints, were scattered throughout the survey area, however the survey did not record any otter breeding (holts) or resting areas (couches). Holting suitability was generally poor in the survey area due to historically modified, steep compacted banks not conducive to holt excavation. The narrow riparian buffer zones along much of the survey area (adjoining farmland) further reduced the potential for otter holts above flood levels.

The Moyasta River flows freely to the Shannon Estuary at Poulnasherry Bay (i.e. no instream barriers) and supports migratory salmonids, as well as resident brown trout. Transitional fish species such as flounder and thick-lipped mullet are present in the lower tidal reaches and provide additional foraging

opportunities for otter. The close proximity of the survey area to the coast also provides otter with alternative prey resources such as marine crustaceans.

The survey report concludes that given the absence of legally protected otter breeding and resting areas within 150 m of the proposed development, there are no requirements for a derogation to disturb breeding/resting otter under Article 16 of the Habitats Directive and Regulation 54 of the European Communities (Birds and Natural Habitats) Regulations, 2011-2021.

The August 2026 survey confirms the findings of the baseline surveys carried out for the EIAR (section 6.5.3), i.e. otter occurs along the Moyasta River, as well as in Poulnasherry Bay, but that there was no evidence of breeding sites in the survey area. On this basis the impact assessment carried out for otter (EIAR section 6.4.5) is still valid, as is the proposed mitigation for otter (EIAR section 6.5.3), which is focused on maintaining water quality in the aquatic zones (as detailed in **Chapter 7: Aquatic Ecology, Chapter 9: Hydrology and Hydrogeology**, and summarised in the **CEMP**) to ensure that the food supplies for otters within local watercourses are not affected by contaminants generated by the proposed Development.

As otter is a qualifying interest of the Lower River Shannon SAC, potential impacts and effects on the species is considered in sections 3.2 and 3.3 of the NIS. As the Proposed Development could potentially have a significant adverse effect on the water quality of the Moyasta River and Poulnasherry Bay, and hence the food supplies of otter, detailed mitigation is given (section 3.4) to avoid, minimise and control contaminated run-off entering drains and local watercourses.

While Item 3 (final line) states "*Update the EIAR, NIS (by way of Addendum) and CEMP accordingly",* it is considered that such updates are not necessary as the August 2026 survey confirmed the status of otter as given in the EIAR and did not introduce new distribution information (such as presence of breeding holts) that would require a re-assessment of impacts and possibly additional mitigation measures.

Item 4 – Biodiversity (Habitats)

Item 4 states:

"You are required to submit revised proposals for the proposed blade transfer area to allow for the rehabilitation/restoration of the underlaying peat habitat once the conifer plantation is clear felled and site works have ceased. The revised proposals should be included in an updated Biodiversity Enhancement and Management Plan."

Response

A proposal for the rehabilitation of the blade transfer area is presented in the following, and this has been incorporated into an updated Biodiversity Enhancement and Management Plan (attached as **Appendix IV**).

Prior to commercial planting, the area had been part of a western raised bog though much of this was likely already disturbed from local peat cutting.

The objective of the proposal is to promote the re-establishment of bog vegetation. This objective will be developed and implemented in accordance with the procedures set out in the Best Practice in Raised Bog Restoration (Mackin et al. 2017)[1].
The area of the blade transfer area is 0.382 ha, as shown on Figures 4.1 and 4.2.

The bog here was drained and prepared for commercial afforestation in the early to mid-1990s (as shown on OS Geohive aerial imagery). The peat here is deep, ranging from 3.9 m to 5 m (EIAR Appendix 8.1). Despite the peat depth, the trees have grown fairly well, with a complete closed canopy.

After removal of trees, the main prerequisite of bog restoration is the raising of the water table so as to rewet the original peat and encourage peat-forming vegetation and especially the growth of Sphagnum mosses. This usually requires the blocking of forest drains. A site inspection by an ecologist and hydrologist will take place to determine which drains are still functioning and should be blocked. Identified drains will be blocked by hand using either wooden or recycled plastic dams which are hammered into place with a mallet. Alternatively, peat plugs may be suitable. Procedure for drain blocking in raised bogs is described in detail in Mackin *et al*. (2017).

[1] Mackin, F., Barr, A., Rath, P., Eakin, M., Ryan, J., Jeffrey, R. & Fernandez Valverde, F. (2017) *Best practice in raised bog restoration in Ireland.* Irish Wildlife Manuals, No. 99. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht, Ireland.

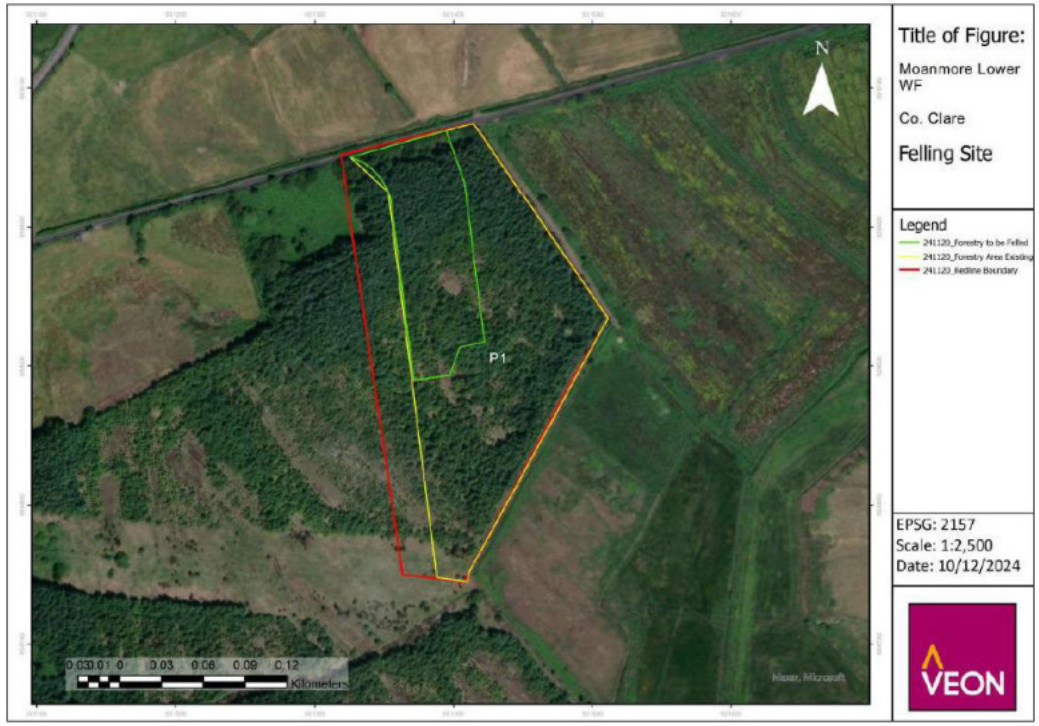

Figure 4.1 Intrastructural felling for proposed Blade Transfer Area

(Ref: EIAR Appendix 15.3 Forestry Report – Figure 2.2)

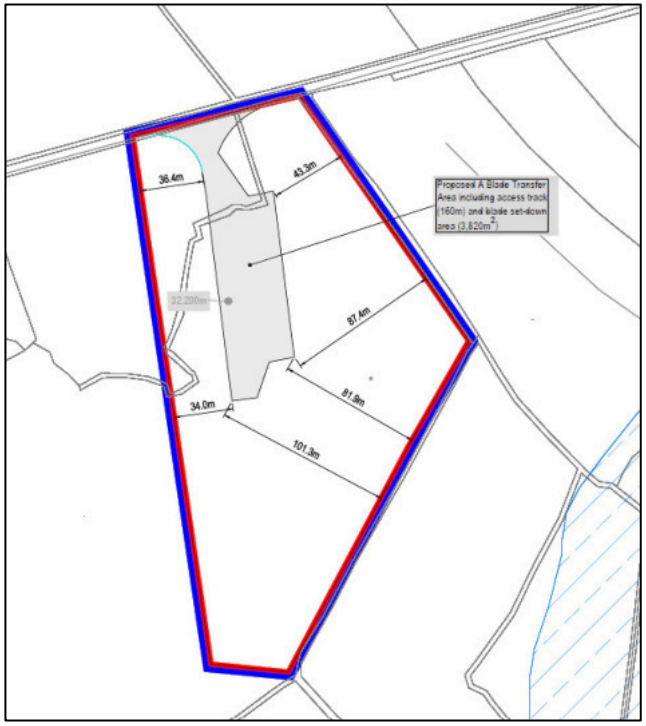

Figure 4.2 Blade Transfer Area

(Ref: Snip of Planning Drawing 6778-JOD-MM-XX-DR-C-01)

After the trees are removed and drains blocked (as required), a series of permanent quadrats will be set up for the purpose of monitoring of vegetation change over time. The location of these quadrats will be marked using wooden pegs and the grid reference will be recorded using GPS. The number of quadrats will be determined by the ecologist but as the plot is small the number is unlikely to exceed five. The quadrats are likely be 2 m x 2 m in size to take into account the scale of the plan area. The occurrence and cover of vascular plant and moss species will be recorded in these quadrats along with a number of other important parameters such as the height of vegetation, cover of bare peat, peat depth, flowering of plant species etc. Photographs of the quadrats will also be taken on deployment and subsequently during the following years of monitoring.

During the site visits for vegetation monitoring, a walk-over survey will take place to check for the presence of self-seeded conifers that may become established or which may have been missed at time of initial tree clearing. Seedings up to approximately 20 cm in height can be easily plucked out by hand, while larger saplings may need to be taken out by hand-saw at some stage later in the year.

The walk-over survey will also observe if any of the inserted dams have failed and are in need of repair or re-instatement. The survey will also check for any additional drains which should be blocked to minimise water loss from the bog. Should remediation or further works be required, the works will be undertaken by the wind farm operating company.

Monitoring will take place during the wind farm Operational Years 1, 2, 3 & 5 of the Plan implementation, with Year 1 being the base year at the time the works are carried out. After Year 5, a review of the progress will be conducted in light of the Plan objectives, and a programme will be developed for the next 5-Year period of the Plan (and so on for the lifetime of the project) in conjunction with Clare County Council.

Item 5 – Traffic & Transport

Item 5 states:

"You are required to submit revised site plans (1:200 scale) to demonstrate unobstructed forward visibility stopping sightlines and visibility splays in accordance with relevant standards set out in TII documents DN-GEO-03031 & DN-GEO-03060, at the proposed site entrances to the turbine location site (L2034), permanent spoil storage area (L2034) and the blade transfer area (L6132). The nearest road edge shall be visible over the entire sight distance. The works required to provide the unobstructed sightlines shall be included within the red line boundary. Where works are required to achieve unobstructed sightlines, on lands outside the ownership of the applicant. Written consent of the landowner should be submitted."

Response

Revised site plans (6778-JOD-MM-XX-DR-C-F05-200 - 6778-JOD-MM-XX-DR-C-F05-203) are attached as **Appendix V** to demonstrate unobstructed forward visibility stopping sightlines and visibility splays in accordance with relevant standards set out in TII documents DN-GEO-03031 & DN-GEO-03060, at the proposed site entrances to the turbine location site (L2034), permanent spoil storage area (L2034) and the blade transfer are (L6132). No works are required to achieve unobstructed sightlines, on lands outside the ownership of the applicant.

Item 6 – Traffic & Transport

Item 6 states:

"You are required to submit appropriately scaled auto track drawings to clearly illustrate the turning movements of abnormal load turbine delivery vehicles at the proposed junction modifications and road widening locations.

Response

Auto track drawings illustrating the turning movements of abnormal load turbine delivery vehicles at the proposed junction modifications and road widening locations are attached as **Appendix VI**.

Appendix I:

Moanmore Lower Bird Activity Summary Report, Breeding Season 2024 & 2025



Moanmore Lower
Bird Activity Summary Report
Summer 2024

Produced November 2024

Irish Ornithological Survey Group

Providing ornithological Services

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APPENDIX 1 - SURVEY DATA

1 Introduction

This report has been prepared to provide information in response to a request for further information issued by An Coimisiún Pleanála in relation to the Proposed Moanmore Wind Farm.

Irish Ornithological Survey Group (IOSG) were commissioned by the client to complete bird surveys at the Moanmore Lower Site for the Summer 2024 survey period.

This report is a compilation of the bird activity recorded at the Moanmore Lower site during the months of April 2024 to September 2024, inclusive. It describes the methods used and data collected at Moanmore Lower during this study period.

This report is supported by Appendix 1, which provides a breakdown of survey results.

Appendix 1 Sections 1-6 contain details on survey effort for hen harrier surveys, breeding woodcock surveys, waterbird distribution and abundance surveys, transect surveys and breeding raptor surveys carried out during the Summer 2024 season.

Appendix 1 Sections 7-11 contain results for all surveys carried with detailed maps of all observations included for accuracy and context, these maps were drafted using QGIS 3.22 software and were cross referenced with all relevant raw data collected in the field by surveyors.

1.1 Statement of Authority

The reliability of survey work is dependent on the use of appropriately skilled and experienced observers. As such, surveys were carried out by the following members of Irish Ornithological Survey Group (IOSG):

- Austin Cooney (Experienced Ecological Field Surveyor)
- Stan Nugent (Experienced Ecological Field Surveyor)
- Sean Dundon (Field Ecologist/ Ornithologist & BSc (Hon) Wildlife Biology)
- Padraig Cullinan (Experienced Ecological Field Surveyor)
- John N Murphy Environmental Manager and Lead Ornithologist

All surveyors are competent experts in bird surveying and experienced Ornithologists in their own right.

This Report was prepared by Tom Ryan (BSc. (Hons.) PgDip. Environmental and Natural Resource Management, an experienced Ornithologist, and was reviewed/approved by John N Murphy (Environmental Manager & Lead Ornithologist) of IOSG.

1.2 Survey Justification

A comprehensive suite of surveys was employed at this site. They have provided a detailed set of data which describes bird flight activity and bird behaviour observed within the Site and surrounding areas during this survey period. During the suite of surveys, all species heard or seen were recorded, with emphasis being given to species of higher conservation concern e.g., Amber/Red listed species (Birdwatch Ireland, 2020), or those protected under the EU Birds Directive (2009/147/EC) (EC, 2023) e.g., Annex I species.

The results of which can be combined with subsequent surveys at this Site so as to provide a detailed overview and assessment of bird activity/usage at the site, and the surrounding area. SNH (2017) recommends a minimum survey effort of 2-years in order to draw robust conclusions regarding bird activity at the Site.

1.3 Survey Limitations

No limitations were encountered during the survey period which prevented completion of the bird surveys scheduled at this Site during the Summer 2024 period.

2 FIELD SURVEY METHODOLOGIES

Surveys were carried out in accordance with the guidance outlined in 'Recommended bird survey methods to inform impact assessment of onshore wind farms' (SNH, 2017).

Survey methodologies carried out on Site during this survey period comprised vantage point survey methodology, and distribution & abundance surveys.

Distribution & abundance surveys carried out on site during this survey period included:

- Breeding Woodcock Surveys
- Waterbirds Surveys,
- Transect Surveys,
- Hinterland Surveys,
- Hen Harrier Surveys; and
- Breeding Raptor Surveys.

2.1 Survey Details & Data Recording

Survey work reliability is dependent on the expertise of the surveyor and the quality of the data captured in the field. As such, the bird surveys have been designed to capture all relevant information pertaining to observations of bird activity on site, wherein the following standardised information is captured during site visits:

- The date the survey is completed;

- The start time of the survey;
- The finish time of the survey;
- The weather conditions on the date of the survey, and;
- The degree of visibility during the survey.

Weather conditions recorded during the surveys comprise a range of features and
units of measurement, which, when combined, provide an overview of environmental conditions on Site, at the time of the survey. These include: cloud cover (oktas scale), wind direction, wind speed (Beaufort scale), precipitation (detailed, if any), temperature (Degrees Celsius), and visibility. However, some variation may be present between surveyors, due to the subjective nature of some of the scales that are used. Survey effort is included in Appendix 1 below.

Additional information such as disturbance (e.g., by animals, walkers, traffic or machinery) was also noted, should it occur.

At the time of each species observation, the following information is captured:

- Species name/species BTO code (BTO, 2018);
- Species total count (i.e., the total number of each species observed during the survey);
- Species activity of note (e.g., displaying, singing, flying/passing through, etc.,); and
- Any evidence of nesting/roosting, marking the locations of same on the survey sheet map.

All surveys are scheduled per Best Practice Guidelines at the time of the survey at appropriate times when species are expected to be active within the respective summering/breeding seasons.

2.2 Distribution & Abundance Surveys

2.2.1 Hen Harrier Surveys

Hen Harrier Surveys were carried out to monitor the suitable breeding habitat within 5km of the site boundary. Methods followed were those described in Hardey et al (2013). Survey effort for Hen Harrier surveys is included in Appendix 1.

Figure 1 below shows the areas surveyed for Hen harrier during the Summer 2024 survey period.

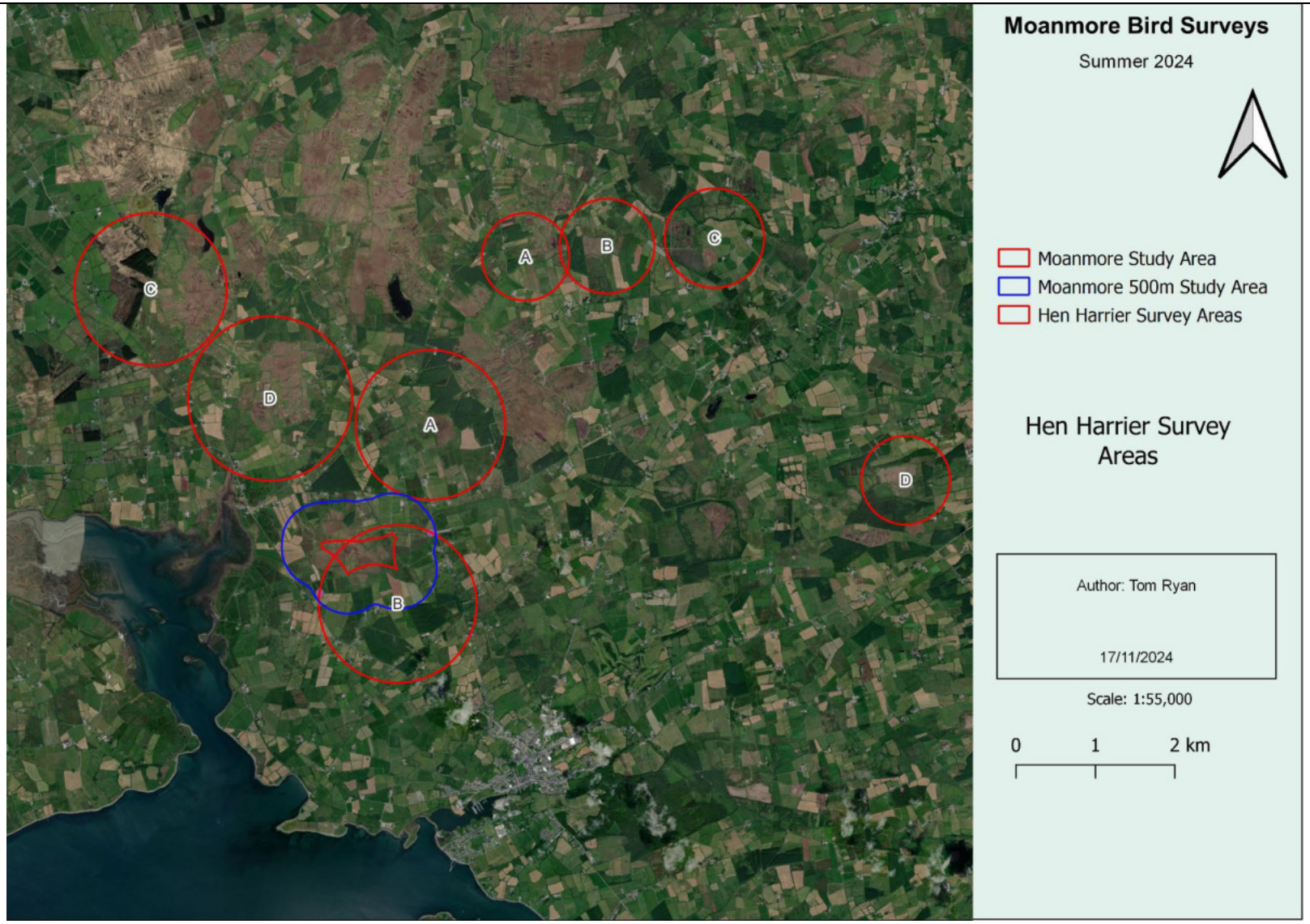

Figure 1. Hen Harrier Survey Areas Summer 2024

2.2.2 Breeding Woodcock Surveys

Woodcock surveys were carried out in May and June 2024. Figure 2 below shows the area surveyed for breeding woodcock. Survey effort for woodcock surveys is included in Appendix 1. These surveys were carried out to assess the distribution and abundance of breeding woodcock in the areas surrounding the core Site area.

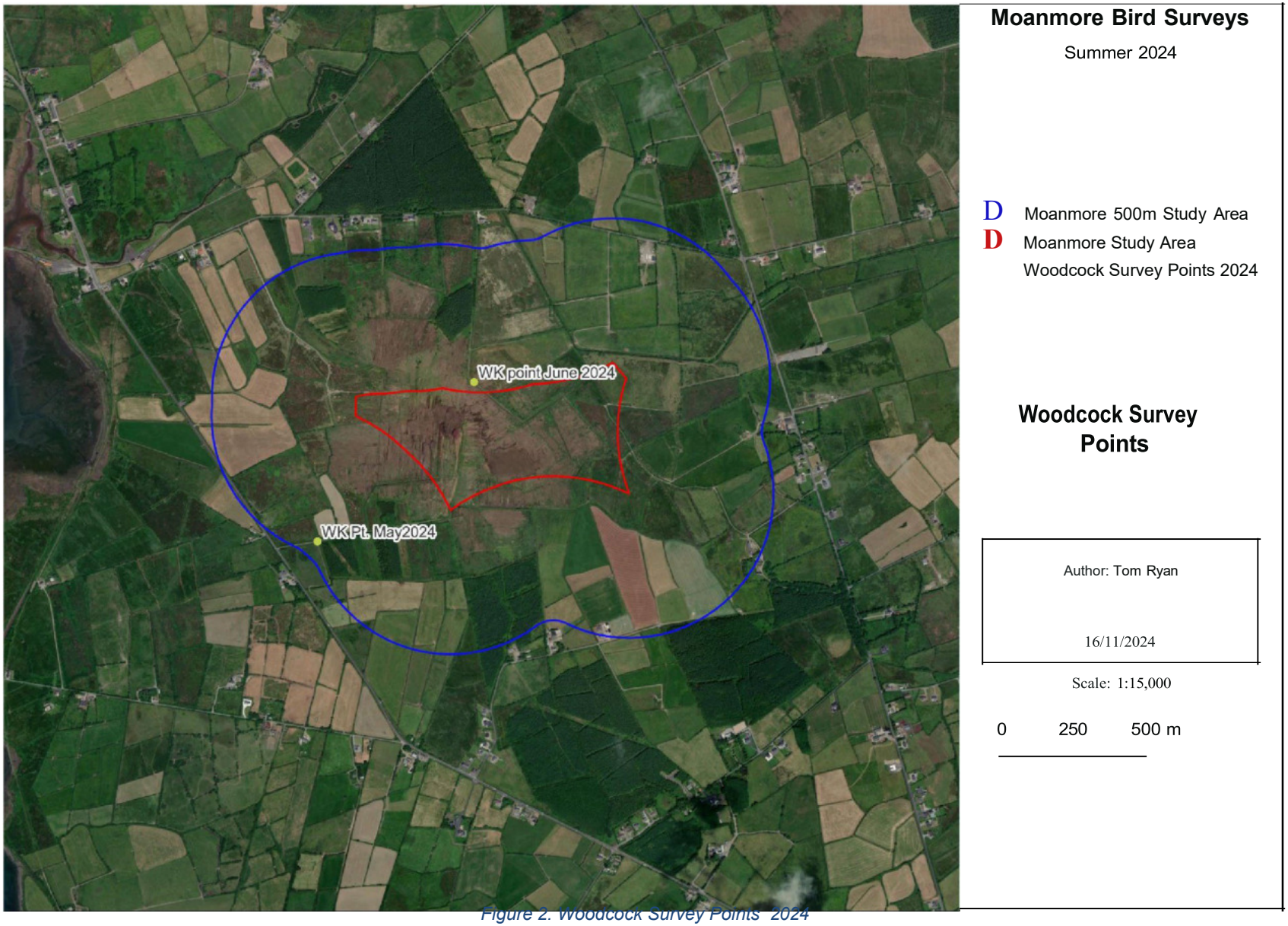

Figure 2. Woodcock Survey Points 2024

2.2.3 Waterbird Distribution and Abundance Surveys

The nearby Poulnasherry Bay and sections of the estuary between Knock and Kilrush were surveyed during April and September to monitor the distribution and abundance of wildfowl populations within the surrounding environs of the proposed development area. The survey methodology was based on birdwatch Irelands IWEBS methodology (Bibby et al, 2000). Seven sections were created and each one surveyed where all target species were recorded and counted in each section. Habitats surveyed include all suitable foraging and roosting areas for wintering waterbirds. Survey effort for waterbird surveys is included in Appendix 1. The areas surveyed are displayed in Figure 3 below.

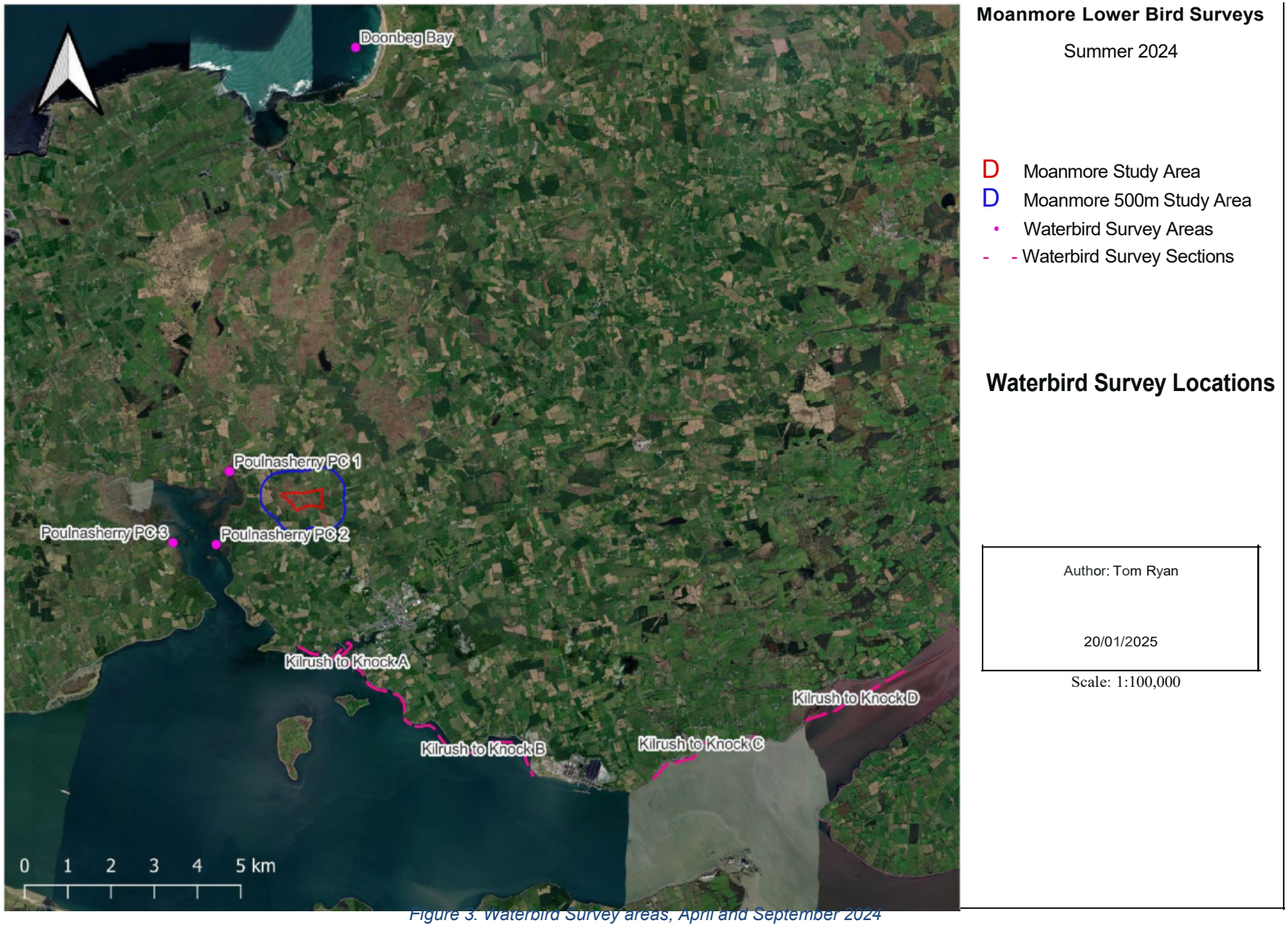

Figure 3. Waterbird Survey areas, April and September 2024

2.2.4 Transect Surveys

Transect surveys were carried out having regard for CBS methodology as used by Birdwatch Ireland for ongoing countryside bird monitoring (Birdwatch Ireland, 2012). This method involves the recording of all species encountered along a set transect route as well as the number of individuals of each species. Breeding behaviour for each species was recorded where relevant. Three fixed transects were surveyed, labelled A-C, as shown in Figure 4 below. Two visits were made to each transect during the summer survey period. Survey effort for transect surveys is included in Appendix 1. Transect routes surveyed are displayed in Figure 4 below.



Moanmore Lower Bird Surveys

Summer 2024

D Moanmore Study Area
D Moanmore 500m Study Area
- • Transects

Transects

Author: Tom Ryan

20/01/2025

Scale: 1:20,000

Figure 4. Transect Locations Summer 2024

2.2.5 Hinterland Surveys

A hinterland survey was carried out in the surrounding areas of the Site, out to 5 kilometres in April 2024. A set route was followed with set viewing points over areas of interest. All target species were recorded and mapped to give context to the wider surroundings of the site area and any potential links or habitat corridors to the site.
Hinterland surveys aim to identify areas within the surrounding landscape which may be utilized by over-wintering birds, in particular species of geese, swans and waders that may use agricultural grassland or other habitats for roosting and foraging during the winter months, including lakes, ponds and wetland habitats, where present.
Figure 5 below shows the hinterland survey route and overall 5km hinterland area.

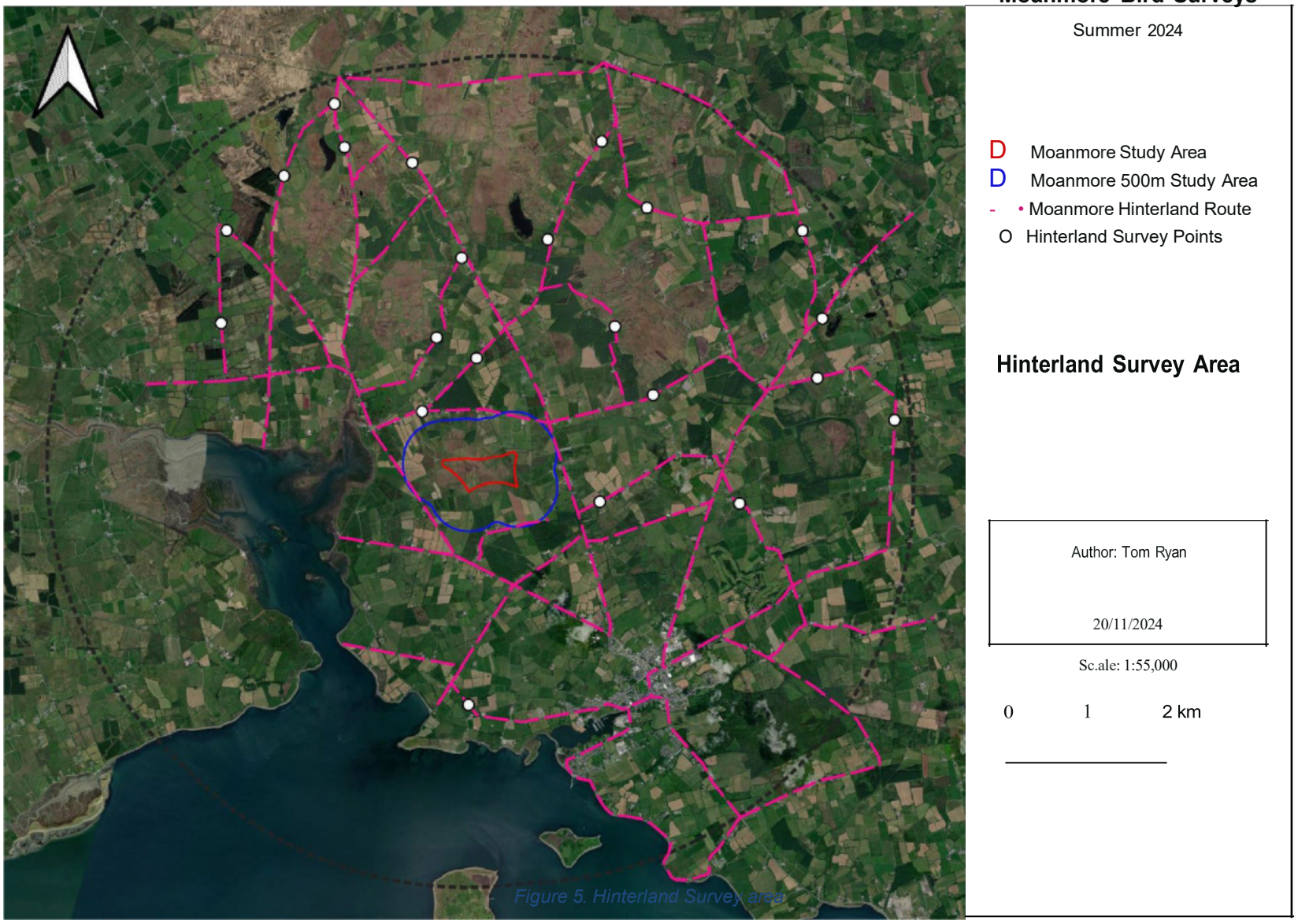

Figure 5. Hinterland Survey area

2.2.6 Breeding Raptor Surveys

Breeding raptor surveys were carried out in May, June and July 2024. Surveys comprised driven transects and vantage points overlooking suitable breeding habitat within 2km of the site boundary. Methods followed were those described in Hardey et al (2013). Survey effort for Breeding Raptor Surveys is included in Appendix 1.

3 RESULTS

3.1 Dedicated Breeding Hen Harrier Survey Results

During the dedicated breeding Hen Harrier surveys there was only one record on one occasion during breeding season surveys. A female bird was seen hunting for 2 seconds, c.3.5km northwest of the Site boundary in July, over an area of cutover bog and rough grassland. No sign of any behaviour associated with breeding was recorded. Observations of Hen Harrier recorded during the dedicated breeding Hen Harrier surveys are displayed in Appendix 8, Figure 7.

3.2 Breeding Woodcock Survey Results

Woodcock surveys were carried out close to the Site boundary in May and June (Figure 3), and showed no signs of the species on either visit. Survey effort details including weather conditions are detailed in Appendix 3.

3.3 Waterbird Distribution and Abundance Survey Results

A wide range of waterbird species were recorded during surveys at Doonbeg Bay, Poulnasherry Bay and the four sections of the Shannon Estuary between Kilrush and Knock Co. Clare. Full tables of all results are included in Appendix 9, Tables 12-16.

3.4 Transect Survey Results

A Hen Harrier male was recorded hunting, and a single Curlew was recorded in flight during transect surveys in December at transect A.
Other target species recorded on site are listed below:

- Black-headed Gull
- Herring Gull
- Grey Heron.

Full tables of all results are included in Appendix 6.

3.5 Breeding Raptor Survey Results

Breeding raptor surveys were carried out in May and June 2024 and no records of breeding activity was recorded during surveys. Kestrel was observed hunting to the east, south and west of the development area, within 500m, including records of both male and female birds individually. Buzzard was also present within the 500m study area with no evidence of breeding recorded.

Breeding raptor survey records are detailed in Appendix 12.

3.6 Hinterland Survey Results

Hinterland surveys recorded Sparrowhawk, Kestrel and Buzzard within 5km of the Site boundary, hunting. See details and mapped records in Appendix 14.

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APPENDIX 1 – SURVEY DATA

Section 1 – Hen Harrier Survey Effort
Section 2 – Woodcock Survey Effort
Section 3 – Waterbird Distribution and Abundance Survey Effort
Section 4 – Transect Survey Effort
Section 5 – Breeding Raptor Survey Effort
Section 6 – Hinterland Survey Effort
Section 7 – Transect Survey Results
Section 8 – Hen Harrier Survey Results
Section 9 – Waterbird Distribution and Abundance Survey Results
Section 10 – Breeding Raptor Survey Effort
Section 11 – Hinterland Survey Effort

Section 1 Hen Harrier Survey Effort

Table A1. Hen Harrier Survey Effort at Moanmore Lower for the Summer 2024 survey period

Hen Harrier Survey Effort at Moanmore Lower for the Summer 2024 survey period												
Date	**Survey Location**	**Start Time**	**Finish Time**	**Survey Duration**	**Visibility**	**Cloud Cover (Oktas)**	**Rain**	**Wind Speed (Beaufort)**	**Wind Direction**	**Temperature °C**	**Notes on Disturbance**	**Observer**
06/07/2024	5km Hinterland	09:30	13:30	04:00	Poor - Moderate	8	Drizzle	4	W	13	None	SN

Section 2 Woodcock Survey Effort

Table A2. Woodcock Survey Effort at Moanmore Lower for the Summer 2024 survey period

Woodcock Survey Effort at Moanmore Lower for the Summer 2024 survey period												
Date	**Survey Location**	**Start Time**	**Finish Time**	**Survey Duration**	**Visibility**	**Cloud Cover (Oktas)**	**Precipitation**	**Wind Speed (Beaufort)**	**Wind Direction**	**Temperature °C**	**Notes on Disturbance**	**Observer**
02/05/2024	150m SE of VP2	19:00	22:00	03:00	Moderate	8	Light Showers	4	W	11	None	SN
05/06/2024	Northern Site Boundary	19:50	22:30	02:40	Good	8	Dry	4	NW	11	None	SN

Section 3 Waterbird Distribution and Abundance Survey Effort

Table A3. Waterbird Survey Effort at Moanmore Lower for the Summer 2024 survey period

Waterbird Survey Effort at Moanmore Lower for the Summer 2024 survey period												
Date	**Survey Type**	**Start Time**	**Finish Time**	**Survey Duration**	**Visibility**	**Cloud Cover (Oktas)**	**Precipitation**	**Wind Speed (Beaufort)**	**Wind Direction**	**Temperature °C**	**Notes on Disturbance**	**Observer**
03/04/2024	Doonbeg Bay	Not Specified	Not Specified	NA	Not Specified	Not Specified	Dry	3	N	11	None	JNM
26/09/2024	Kilrush to Knock. Zone A-D	15:30	17:30	02:00	Moderate	6	Light Showers	4	N	10	None	JNM
05/04/2024	Kilrush to Knock. Zone A-D	12:00	14:30	02:30	Moderate	Not Specified	Light Showers	Not specified	Not specified	10	None	JNM
15/04/2024	Poulnasherry Bay - PC1	14:15	17:15	03:00	Moderate	6	Heavy Showers	5	Not specified	9	None	JNM
27/09/2024	Poulnasherry Bay - PC1	10:00	12:30	02:30	Good	1	Dry	4	NW	11	None	SN
15/04/2024	Poulnasherry Bay - PC2	14:15	17:15	03:00	Moderate	6	Heavy Showers	5	NW	8	None	PC
27/09/2024	Poulnasherry Bay - PC2	10:00	12:00	02:00	Good	1	Dry	4	NW	11	None	SD
15/04/2024	Poulnasherry Bay - PC3	14:30	17:30	03:00	Moderate	6	Heavy Showers	5	NW	8	None	AC
27/09/2024	Poulnasherry Bay - PC3	10:00	13:00	03:00	Good	1	Dry	4	NW	11	None	PC

Section 4 Transect Survey Effort

Table A4. Transect Survey Effort at Moanmore Lower for the Summer 2024 survey period

Transect Survey Effort at Moanmore Lower for the Summer 2024 survey period												
Date	**Transect**	**Start Time**	**Finish Time**	**Survey Duration**	**Visibility**	**Cloud Cover (Oktas)**	**Precipitation**	**Wind Speed (Beaufort)**	**Wind Direction**	**Temperature °C**	**Notes on Disturbance**	**Observer**
08/05/2024	A-C	08:00	12:00	04:00	Good	4	Dry	2	S	11	None	SN
12/07/2024	A-C	08:55	10:45	01:50	Good	8	Dry	3	W	11	None	SD

Section 5 Breeding Raptor Survey Effort

Table A45. Breeding Raptor Survey Effort

Breeding Raptor Survey Effort at Moanmore Lower for the Summer 2024 survey period												
Date	**Survey Location**	**Start Time**	**Finish Time**	**Survey Duration**	**Visibility**	**Cloud Cover (Oktas)**	**Precipitation**	**Wind Speed (Beaufort)**	**Wind Direction**	**Temperature °C**	**Notes on Disturbance**	**Observer**
07/05/2024	2km Hinterland	09:00	13:00	04:00	Good	8	Dry	1	E	13	None	SN
06/06/2024	2km Hinterland	08:30	12:30	04:00	Good	8	Light Showers	4	NW	11	None	SN
05/07/2024	2km Hinterland	09:30	14:30	05:00	Good	8	Light Showers	5	W	13	None	SN

Section 6 Hinterland Survey Effort

Table A6 Hinterland Survey Effort

Hinterland Survey Effort at Moanmore Lower for the Summer 2024 survey period												
Date	**Survey Location**	**Start Time**	**Finish Time**	**Survey Duration**	**Visibility**	**Cloud Cover (Oktas)**	**Rain**	**Wind Speed (Beaufort)**	**Wind Direction**	**Temperature °C**	**Notes on Disturbance**	**Observer**
04/04/2024	5km hinterland	10:00	15:00	NA	Good	2	Dry	3	N	12	None	JNM

Section 7 Transect Survey Results

Table A7. Survey Results for Summer 2024 at Transect A

Survey Results for Summer 2024 at Transect A									
Transect A	**Moanmore Lower Transect A Species Count**		**08/05/2024**				**12/07/2024**		
			0-25m	**25-100m**	**>100m**	**Notes**	**0-25m**	**25-100m**	**>100m**
BTO Code	**Species**	**Scientific**	**No.**	**No.**	**No.**		**No.**	**No.**	**No.**
Target Species									
H.	Grey Heron	*Ardea cinerea*						1	
HH	Hen Harrier	*Circus cyaneus*			1	Adult male hunting over bog			
HG	Herring Gull	*Larus argentatus*						1	1
K.	Kestrel	*Falco tinnunculus*							1
LB	Lesser Black-backed Gull	*Larus fuscus*						1	1
Non-target Species									
B	Blackbird	*Turdus merula*	4	1				1	
BC	Blackcap	*Sylvia atricapilla*	3						

Survey Results for Summer 2024 at Transect A									
Transect A	Moanmore Lower Transect A Species Count		08/05/2024				12/07/2024		
			0-25m	25-100m	>100m	Notes	0-25m	25-100m	>100m
BTO Code	Species	Scientific	No.	No.	No.		No.	No.	No.
BT	Blue Tit	*Cyanistes caeruleus*					4		
BF	Bullfinch	*Pyrrhula pyrrhula*	2						
CH	Chaffinch	*Fringilla coelebs*	2				1		
CC	Chiffchaff	*Phylloscopus collybita*					5		
D	Dunnock	*Prunella modularis*	2						
GC	Goldcrest	*Regulus regulus*					3		
GO	Goldfinch	*Carduelis carduelis*	2						
GT	Great Tit	*Parus major*					1		
HC	Hooded Crow	*Corvus cornix*					1		
MP	Meadow pipit	*Anthus pratensis*	6						
M	Mistle Thrush	*Turdus viscivorus*					2	4	
PH	Phesant	*Phasianus colchicus*					1		
R	Robin	*Erithacus rubecula*	2				1		
SW	Sedge Warbler	*Acrocephalus schoenobaenus*	3						
S	Skylark	*Alauda arvensis*	1						
ST	Song Thrush	*Turdus philomelos*	2	1					
SC	Stonechat	*Saxicola rubicola*	4						
SL	Swallow	*Hirundo rustica*	1						

Survey Results for Summer 2024 at Transect A									
Transect A	**Moanmore Lower Transect A Species Count**		**08/05/2024**				**12/07/2024**		
			0-25m	**25-100m**	**>100m**	**Notes**	**0-25m**	**25-100m**	**>100m**
BTO Code	**Species**	**Scientific**	**No.**	**No.**	**No.**		**No.**	**No.**	**No.**
WH	Whitethroat (Common)	*Sylvia communis*	1						
WW	Willow Warbler	*Phylloscopus trochilus*	6				2		
WP	Woodpigeon	*Columba palumbus*						6	
WR	Wren	*Troglodytes troglodytes*	8				5	2	

Table A8. Survey Results for Summer 2024 at Transect B

Survey Results for Summer 2024 at Transect B									
Transect B	**Moanmore Lower Transect B Species Count**		**08/05/2024**				**12/07/2024**		
			0-25m	**25-100m**	**>100m**	**Notes**	**0-25m**	**25-100m**	**>100m**
BTO Code	**Species**	**Scientific**	**No.**	**No.**	**No.**		**No.**	**No.**	**No.**
Target Species									
H.	Grey Heron	*Ardea cinerea*		1				1	
HG	Herring Gull	*Larus argentatus*			1				1
K.	Kestrel	*Falco tinnunculus*						2	
MA	Mallard	*Anas platyrhynchos*		1					
Non-target Species									
B	Blackbird	*Turdus merula*	1	1			1		
BC	Blackcap	*Sylvia atricapilla*	2	1					
BT	Blue Tit	*Cyanistes caeruleus*					1		
CH	Chaffinch	*Fringilla coelebs*	3						
CC	Chiffchaff	*Phylloscopus collybita*	1				2	1	
CT	Coal Tit	*Periparus ater*	1						
CK	Cuckoo	*Cuculus canorus*	1						
D	Dunnock	*Prunella modularis*	1						
GC	Goldcrest	*Regulus regulus*					2		
GW	Grasshopper Warbler	*Locustella naevia*					1		
GT	Great Tit	*Parus major*	2				3		
HC	Hooded Crow	*Corvus cornix*	1						

Survey Results for Summer 2024 at Transect B									
Transect B	Moanmore Lower Transect B Species Count		08/05/2024				12/07/2024		
			0-25m	25-100m	>100m	Notes	0-25m	25-100m	>100m
BTO Code	Species	Scientific	No.	No.	No.		No.	No.	No.
J	Jay (Eurasian)	*Garrulus glandarius*	1						
LI	Linnet (Common)	*Carduelis cannabina*		1					
LT	Long-tailed Tit	*Aegithalos caudatus*	2					5	
MG	Magpie	*Pica pica*		2					
MP	Meadow pipit	*Anthus pratensis*	6	2					
RB	Reed Bunting	*Emberiza schoeniclus*	2						
R	Robin	*Erithacus rubecula*	2					1	
RO	Rook	*Corvus frugilegus*		2					
SW	Sedge Warbler	*Acrocephalus schoenobaenus*	2						
SK	Siskin	*Carduelis spinus*	2						
S	Skylark	*Alauda arvensis*	2	2					
ST	Song Thrush	*Turdus philomelos*	1						
SC	Stonechat	*Saxicola rubicola*	2				2		
SL	Swallow	*Hirundo rustica*					4		
WW	Willow Warbler	*Phylloscopus trochilus*	9	2			1	3	
WP	Woodpigeon	*Columba palumbus*							2
WR	Wren	*Troglodytes troglodytes*	6	1			1		

Table A9. Survey Results for Summer 2024 at Transect C

Survey Results for Summer 2024 at Transect C									
Transect C	**Moanmore Lower Transect C Species Count**		**08/05/2024**				**12/07/2024**		
			0-25m	**25-100m**	**>100m**	**Notes**	**0-25m**	**25-100m**	**>100m**
BTO Code	**Species**	**Scientific**	**No.**	**No.**	**No.**		**No.**	**No.**	**No.**
Target Species									
HG	Herring Gull	*Larus argentatus*	1						
LB	Lesser Black-backed Gull	*Larus fuscus*						1	
Non-target Species									
B	Blackbird	Turdus merula	4	2			1		
CH	Chaffinch	Fringilla coelebs	2						
D	Dunnock	Prunella modularis	1	1					
GO	Goldfinch	Carduelis carduelis					2		
GT	Great Tit	Parus major	1						
HC	Hooded Crow	Corvus cornix		2				2	
JD	Jackdaw	Corvus monedula	2	3					
LI	Linnet (Common)	Carduelis cannabina	3						
MG	Magpie	Pica pica		4					
MP	Meadow pipit	Anthus pratensis	2	4				2	
PH	Phesant	Phasianus colchicus	1	1					
R	Robin	Erithacus rubecula	2				1		
RO	Rook	Corvus frugilegus	12	8					1

Survey Results for Summer 2024 at Transect C									
Transect C	**Moanmore Lower Transect C Species Count**		**08/05/2024**				**12/07/2024**		
			0-25m	**25-100m**	**>100m**	**Notes**	**0-25m**	**25-100m**	**>100m**
BTO Code	**Species**	**Scientific**	**No.**	**No.**	**No.**		**No.**	**No.**	**No.**
SW	Sedge Warbler	Acrocephalus schoenobaenus	4						
S	Skylark	Alauda arvensis		2					
SF	Spotted Flycatcher	Musciapa striata	1	2					
SG	Starling (Common)	Sturnus vulgaris	22						
SL	Swallow	Hirundo rustica		2					
SI	Swift (Common)	Apus apus					3		
WW	Willow Warbler	Phylloscopus trochilus	4	2					
WP	Woodpigeon	Columba palumbus		8				1	
WR	Wren	Troglodytes troglodytes	8	2			3	2	

Section 8 Hen Harrier Survey Results

Table A10. Hen Harrier Survey Results with Map Codes

Species Reference Number **GIS Maps**	Date	Time	Species	No. of Birds	Age	Sex	Activity	Habitat	Flight Path Notes	Surveyor
HH 001	06/07/24	11:06	Hen Harrier	1	Adult	Adult	Hunting	Bog	Female seen hunting for 2 seconds. No sign of any behaviour associated with breeding.	SN



Figure 6. Hen Harrier Survey Results Map

Section 9 Waterbird Survey Results

Table A11. Waterbird Survey Results - Doonbeg Bay

Doonbeg Bay		03/04/2024
Species BTO	Species	No.
BH	Black-headed Gull	15
BA	Bar-tailed Godwit	6
CM	Common Gull	8
CU	Curlew	10
GB	Great B-B Gull	4
GN	Great Northern Diver	2
H.	Grey Heron	1
GK	Greenshank	2
HG	Herring Gull	24
LB	Lesser B-B Gull	6
ET	Little Egret	1
MA	Mallard	2
MS	Mute Swan	2
OC	Oystercatcher	9
RK	Redshank	28
RP	Ringed Plover	2
SA	Shag	2
TT	Turnstone	28

Table A12. Waterbird Survey Results - Kilrush to Knock 05/04/2024

Kilrush to Knock		05/04/2024			
		Section A	Section B	Section C	Section D
Species BTO	Species	No.	No.	No.	No.
BA	Bar - tailed Godwit			120	
BH	Black-headed Gull	4	3		60
CM	Common Gull	1			
CA	Cormorant	1		1	
CU	Curlew				10
GB	Great Black-backed Gull		1		
ND	Green Sandpiper		1		
GK	Greenshank		5		
H.	Grey Heron		2		
HG	Herring Gull	1			
ET	Little Egret		2		2
MA	Mallard	2	4		
OC	Oystercatcher				4
RK	Redshank	1			
SU	Shelduck		2		2
SN	Snipe		13		
T.	Teal		8	2	

Table A13. Waterbird Survey Results - Kilrush to Knock 26/09/2024

Kilrush to Knock		26/09/2024			
		Section A	Section B	Section C	Section D
Species BTO	Species	No.	No.	No.	No.
AC	Arctic Skua		2		
BA	Bar - tailed Godwit			3	
BH	Black-headed Gull	15	180	15	20
BW	Black- tailed Godwit			4	
CM	Common Gull	6	17	12	
CA	Cormorant	8		3	7
GX	Gannet		6		
GB	Great Black-backed Gull	4			1
GG	Great Crested Grebe				4
GK	Greenshank				3
LB	Lesser Black-backed Gull		2	4	2
MA	Mallard			50	6
MU	Mediterranean Gull		2	1	
OC	Oystercatcher	9	8		2
RK	Redshank	2	5	28	18

Table A14. Waterbird Survey Results – Poulnasherry Bay 15/04/2024

Poulnasherry Bay		15/04/2024		
		PC1	PC2	PC3
Species BTO	Species	No.	No.	No.
BA	Bar - tailed Godwit			28
TY	Black Guillemot			1
BO	Barn Owl			
BH	Black-headed Gull			
	Black - necked Grebe			
BW	Black- tailed Godwit			
	Brent Goose	41	119	102
CM	Common Gull			2
BZ	Buzzard			
	Coot			
CM	Common Gull			
CA	Cormorant			3
CU	Curlew	5	4	12
DN	Dunlin			31
GB	Great Black-backed Gull	1		3
GG	Great Crested Grebe			
ND	Great Northern Diver		1	2
	Greenshank	1		
H.	Grey Heron	1		
	Grey Plover			
HG	Herring Gull	5	19	4
	Knot			26
LB	Lesser Black-backed Gull	3		1

Poulnasherry Bay		15/04/2024		
		PC1	PC2	PC3
Species BTO	Species	No.	No.	No.
ET	Little Egret	6	1	2
RK	Redshank		2	1
	Shelduck	10	2	14

Table A15. Waterbird Survey Results – Poulnasherry Bay 27/09/2024

Poulnasherry Bay		27/09/2024		
		PC1	PC2	PC3
Species BTO	Species	No.	No.	No.
BA	Bar - tailed Godwit			28
TY	Black Guillemot			1
BH	Black-headed Gull	2	10	18
PB	Brent Goose		9	19
CM	Common Gull	1		6
CA	Cormorant		9	6
CU	Curlew	79	22	76
DN	Dunlin		43	45
GP	Golden Plover	8		
GB	Great Black-backed Gull	1	1	1
GG	Great Crested Grebe		1	2
	Greenshank			2
H.	Grey Heron		1	2
HG	Herring Gull	5	10	38
	Knot		8	
L.	Lapwing	18		
LB	Lesser Black-backed Gull		6	1
ET	Little Egret	33	4	9
MA	Mallard	45		24
	Oystercatcher		51	8
RG	Red Grouse	49		
RK	Redshank		28	61
RP	Ringed Plover	51		38
SN	Snipe			2
T	Teal	5		
TT	Turnstone		14	7
WM	Whimbrel		1	
WS	Whooper Swan		18	
WN	Wigeon	202		36

Section 10 Breeding Raptor Survey Results

Table A16. Breeding Raptor Survey Results

Species Reference Number **GIS Maps**	Date	Time	Species	No. of Birds	Age	Sex	Flight Path Notes	Observer
K 001	07/05/2024	10:10:00	Kestrel	1			Hunting at 20m, 10.10am	SN
BZ 001	07/05/2024	11:10:00	Buzzard	1			Flying at 20m, 12.20am	SN
K 002	06/06/2024	09:45:00	Kestrel	1	Adult	M	Hunting over bog near roadway, dropped for prey strike	SN
K 003	06/06/2024	09:45:00	Kestrel	1			Hunting	SN

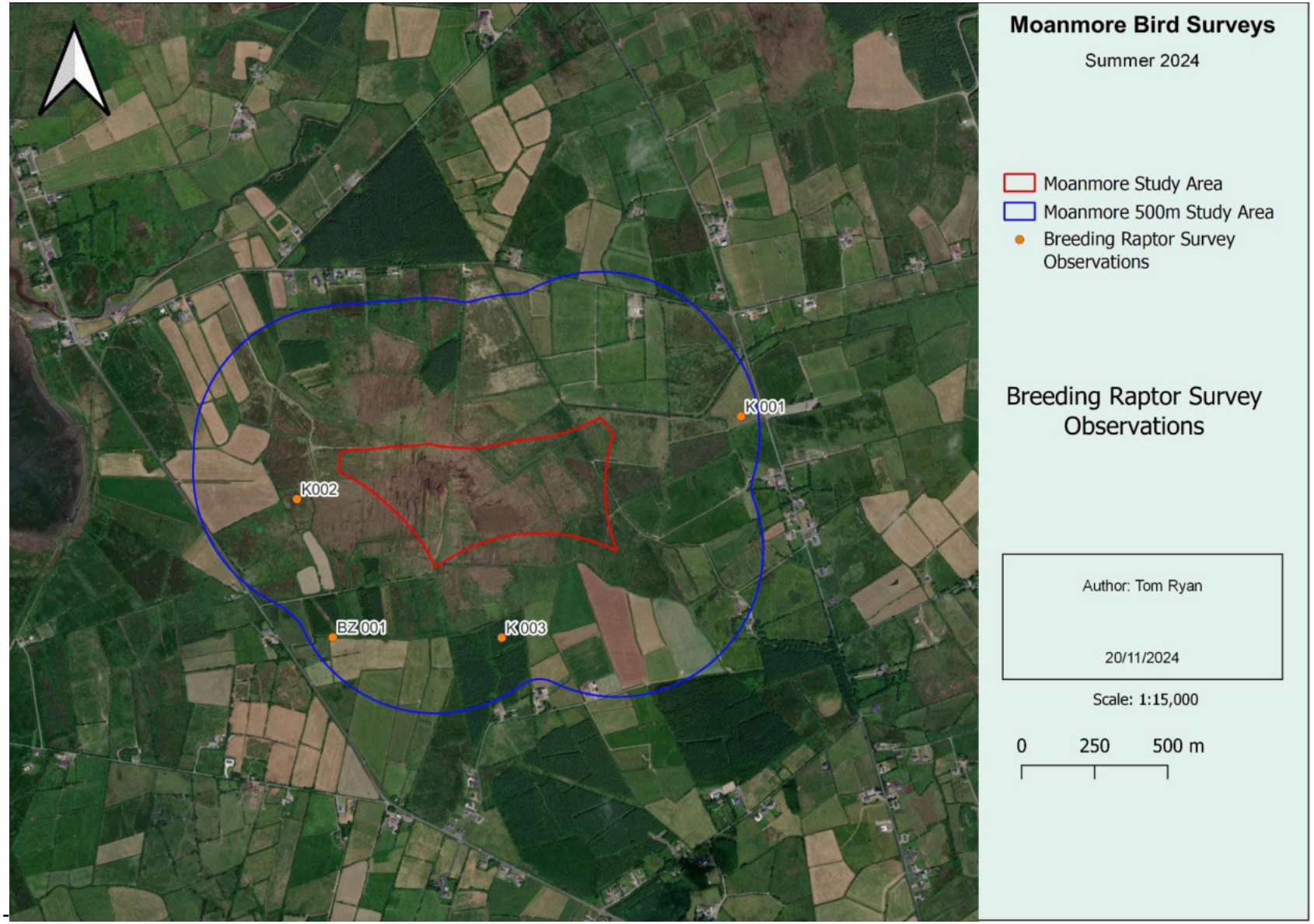

Figure 7. Breeding Raptor Survey Observations

Section 11 Hinterland Survey Results

Table A17. Hinterland Survey Results

Species Reference Number **GIS Maps**	Date	Species	No. of Birds	Activity	Observer
BZ 001	04/04/24	Buzzard	1	Hunting at 20m, 10.10am	SN
K 002	04/04/24	Kestrel	1	Flying at 20m, 12.20am	SN
K 003	04/04/24	Kestrel	1	Hunting over bog near roadway, dropped for prey strike	SN
SH 001	04/04/24	Sparrowhawk	1	Hunting	SN

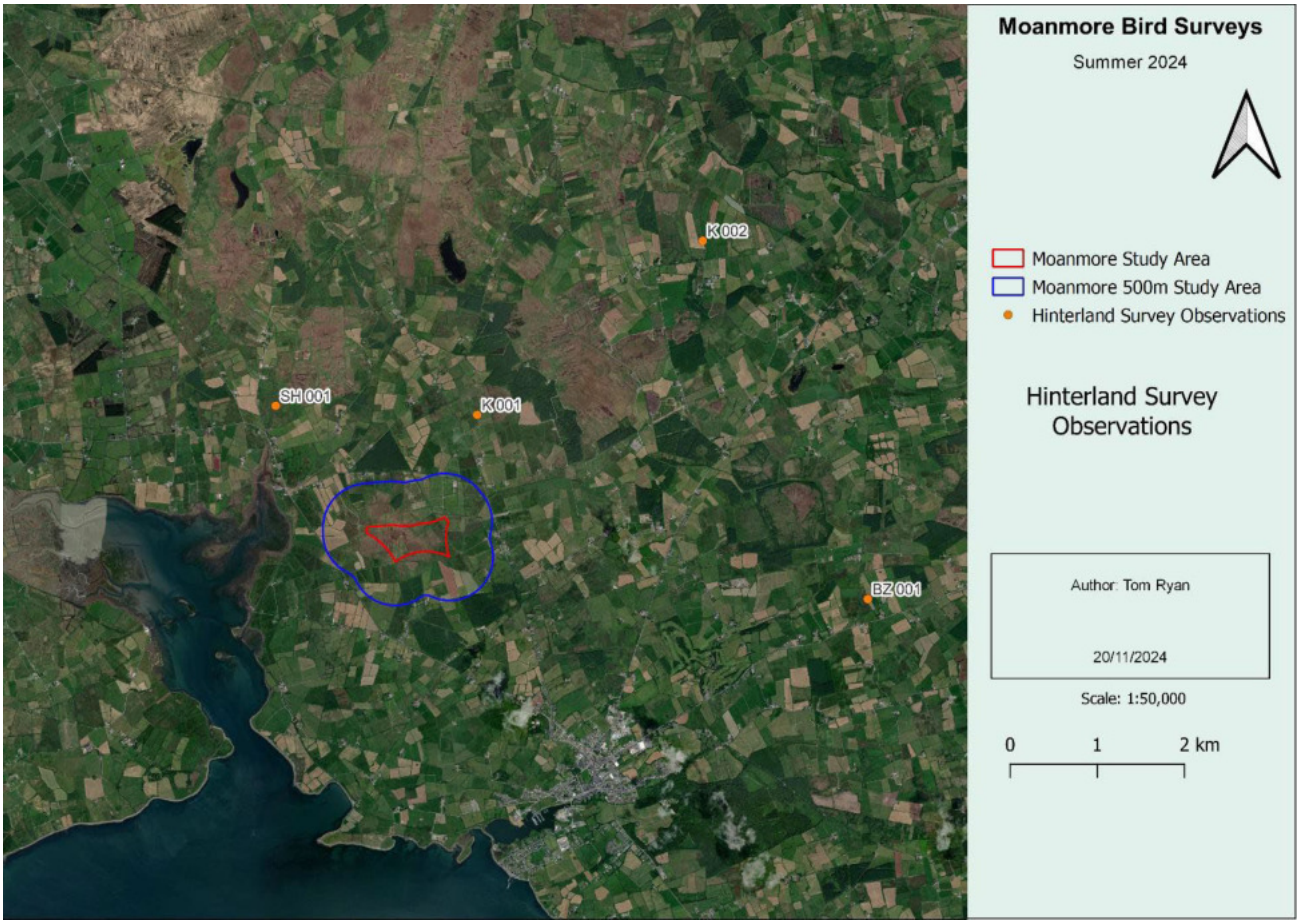

Figure 8. Hinterland Survey Observations

Irish Ornithological Survey Group
Providing Ornithological Services

Bird Activity Summary Report Breeding Season 2025

Proposed Moanmore Wind Farm, Co. Clare

September 2026



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Document Control Sheet

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22001	**F**	2025.12.10	Final	DW	JNM	-
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1 INTRODUCTION

1.1 Overview

This report has been prepared to provide information in response to a request for further information issued by An Coimisiún Pleanála in relation to the Proposed Moanmore Wind Farm.

Irish Ornithological Survey Group (IOSG) were commissioned by Greensource to complete bird surveys at the Proposed Moanmore Wind Farm site (hereafter referred to as 'the Site') for the breeding season 2025 survey period.

This report provides information relating to bird distribution and abundance surveys carried out at the Site during the breeding season 2025, comprising the months of April 2025 to September 2025 inclusive. It describes the methods used and data collected at the Site during this study period.

This report is supported by Appendices 1 – 3.

- Appendix 1 contains information on survey effort including survey times, weather conditions, surveyor information, and any other additional relevant information;
- Appendix 2 contains the raw survey data including maps of all relevant observations; and
- Appendix 3 contains sensitive information relating to breeding locations of protected species.

1.2 Statement of Authority

The reliability of survey work is dependent on the use of appropriately skilled and experienced observers. As such, surveys were carried out by the following members of Irish Ornithological Survey Group (IOSG):

- John N Murphy (Environmental Manager & Lead Ornithologist);
- Séan Dundon B.Sc., Ecologist & Field Ornithologist;
- Stan Nugent B.Sc., Field Ornithologist; and
- Paidi Cullinan, Field Ornithologist.

The surveyors are experienced ornithologists and competent experts in bird surveying. The survey scope was designed by John N Murphy (Environmental Manager & Lead Ornithologist) of IOSG.

This report has been prepared by Donnacha Woods B.Sc. M.Sc., an experienced ornithologist, and was reviewed/approved by John N Murphy (Environmental Manager & Lead Ornithologist).

1.3 Survey Justification

A comprehensive suite of surveys was employed at the Site. These surveys have provided a detailed set of data which describes bird flight activity and bird behavior observed within the Site and surrounding areas during this survey period. During the suite of surveys, all species heard or seen were recorded, with emphasis being given to species of higher conservation concern e.g., Amber/Red listed species from *Birds of Conservation Concern in Ireland* (Gilbert, G. *et al*, 2021), or those protected under the EU Birds Directive (2009/147/EC) (EC, 2023) e.g., Annex I species.

The results of which can be combined with previous and subsequent surveys at this Site to provide a detailed overview and assessment of bird activity/usage at the Site and the surrounding area. NatureScot (SNH, 2017) recommends a minimum survey effort of two years (two winter seasons and two breeding seasons) to draw robust conclusions regarding bird activity at a proposed wind farm site.

1.4 Survey Limitations

No limitations were encountered during the survey period which prevented completion of bird surveys scheduled at this Site over the 2025 breeding season.

2 FIELD SURVEY METHODOLOGY

2.1 Specifying Target Species

'Target species' as defined in this report were considered to be those listed on Annex I of the EU Birds Directive (2009/147/EC), species listed on the Red List of Birds of Conservation Concern in Ireland (Gilbert *et al*., 2021), species listed on Schedule 4 of the Wildlife Acts 1976-2018 (39/1976) and species that are listed as a Special Conservation Interest (SCI) within the Irish network of Special Protection Areas (SPA) designated under the EU Habitats Directive (92/43/EEC). A select number of species which fall outside these categories and are deemed noteworthy from an ecological perspective are also included as target species in this report (e.g. raptor species). Passerines are not included as target species as they are not considered to be adversely affected by wind energy developments (SNH, 2017).

2.2 Survey Details & Data Recording

Surveys were carried out in accordance with the guidance outlined in '*Recommended bird survey methods to inform impact assessment of onshore wind farms*' (SNH, 2017).

Survey work reliability is dependent on the expertise of the surveyor and the quality of the data captured in the field. As such, the bird surveys have been designed to capture all relevant information pertaining to observations of bird activity on-site, wherein the following standardised information is captured during site visits:

- The date the survey is completed
- The start time of the survey
- The finish time of the survey
- The weather conditions on the date of the survey
- The degree of visibility during the survey

Weather conditions recorded during the surveys comprise a range of features and units of measurement, which, when combined, provide an overview of environmental conditions on site at the time of the survey. These include cloud cover (okta scale), wind direction, wind speed (Beaufort scale), precipitation (detailed, if any), temperature (Degrees Celsius), and visibility. However, some variation may be present between surveyors, due to the subjective nature of some of the scales that are used. Survey effort is included in Appendix 1.

Additional information such as disturbance (e.g., by animals, walkers, traffic or machinery) was also noted, if observed.

At the time of each species observation, the following information is captured:

- Species name/species BTO code (BTO, 2018);
- Species total count (i.e., the total number of each species observed during the survey);
- Species activity of note (e.g., displaying, singing, flying/passing through, etc.); and
- Any evidence of nesting/roosting, marking the locations of same on the survey sheet map.

All surveys are scheduled per Best Practice Guidelines at the time of the survey at appropriate times when species are expected to be active within the respective wintering/breeding seasons.

2.3 Distribution & Abundance Surveys

2.3.1 Transects Surveys

Transect surveys were carried out having regard for CBS methodology as used by Birdwatch Ireland for ongoing countryside bird monitoring (Birdwatch Ireland, 2012). This method involves the recording the number of all individuals of all species encountered (seen and heard) into three distance bands (0-25m, 25-100m and > 100m) along a set transect route.

Three fixed transects (A, B & C) were surveyed during breeding season 2025 survey period. A total of four visits were made to each transect between April and August 2025.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort. Transect routes are shown in Figure 2-2.

2.3.2 Breeding Wader Surveys

Breeding wader surveys were carried out in accordance with O'Brien & Smith (1992). A combination of fixed observation points and transects routes were surveyed over two visits between April and May 2025. Surveys commenced at dawn and concluded before noon, as per O'Brien & Smith (1992).

Survey locations are shown in Figure 2-3. Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.3 Breeding Woodcock Surveys

Breeding woodcock surveys were carried out in accordance with Gilbert *et al* (1998). The surveys aimed to identify breeding territories through observations of displaying (roding) males. Surveys comprised transects in areas of suitable breeding habitat within a 500m radius of the Site. Surveys were carried out over three visits between April and June 2025, commencing one hour before sunset.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.4 Bird of Prey Surveys

Bird of Prey surveys were carried out in accordance with Hardey *et al* (2014). Surveys were carried out once per month during core breeding season period April to July 2025. Surveys comprised transects and observation points overlooking suitable raptor breeding habitat within a 5km radius of the Site.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.5 Breeding Hen Harrier Surveys

Breeding hen harrier surveys were carried out in accordance with Hardey *et al* (2014). Suitable breeding habitat within a minimum 2km radius of the Site was visited over two days each month from April to June 2025. Areas visited were Tullagher Bog and surrounds, Doonbeg, the Runaway near Moyasta, Einagh Bog, Moanmore, Shragh Bog and Scattery Island (from mainland). Watches were carried out from observation points covering areas of suitable breeding habitat.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.6 Breeding Peregrine Surveys

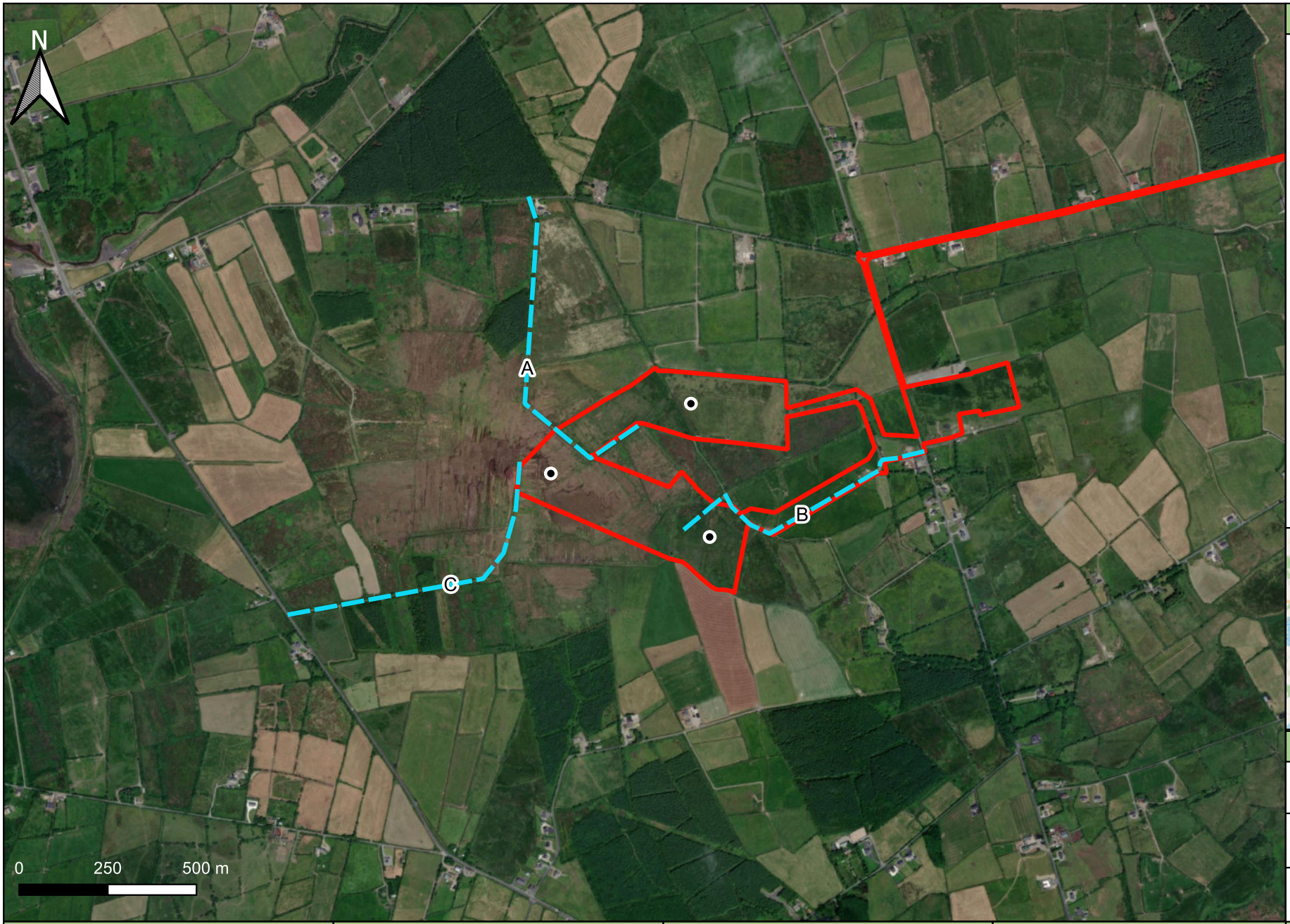
Breeding peregrine surveys were carried out in accordance with Hardey et al (2014). Suitable breeding habitat features (i.e. cliff faces, suitable buildings etc.) were visited within a minimum 5km radius of the Site over two visits in April and May 2025.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.7 Shorebird Count Surveys

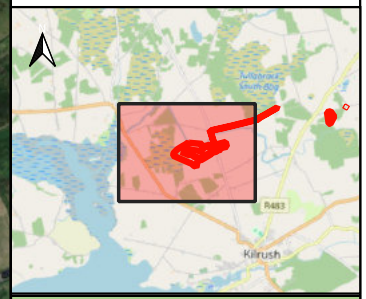
Shorebird count surveys were carried out in three areas during the months of April, May, August and September 2025 to monitor the distribution and abundance of wintering/passage waterbird populations: Poulnasherry Bay, Doonbeg Bay and sections of the River Shannon and Fergus estuary between the areas of Kilrush and Knock. The survey methodology was undertaken in accordance with Birdwatch Ireland's I-WeBS methodology (Bibby *et al*, 2000). The two survey areas were divided into sections and surveyed from fixed vantage points during each survey visit, where all target species were recorded and counted in each section. The areas surveyed include all suitable foraging and roosting habitat for wintering waterbirds within the survey areas.

Survey areas are shown in Figure 2-4. Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.



Legend:

- Redline Boundary
- Turbine Locations
- Transects



Details:

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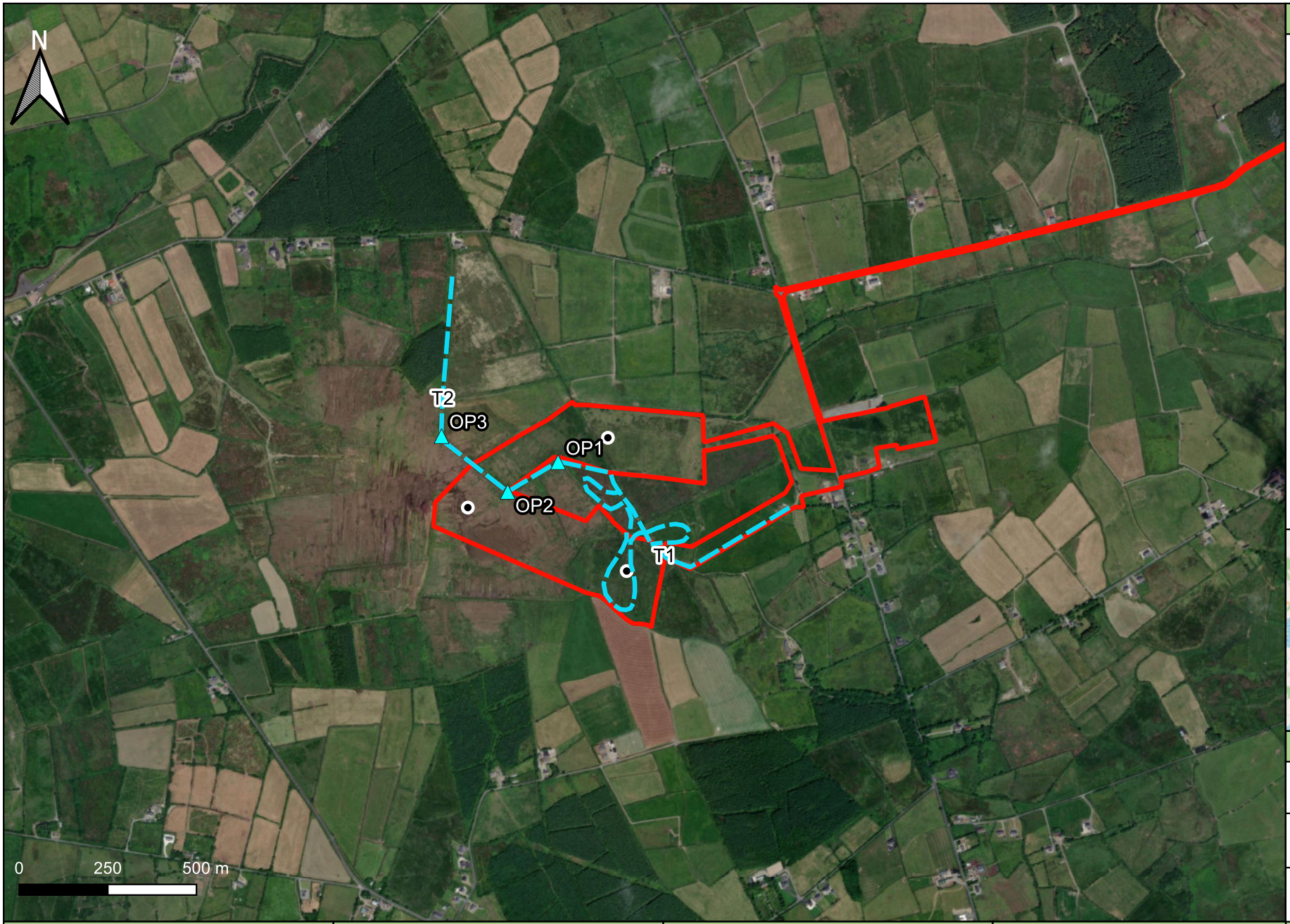
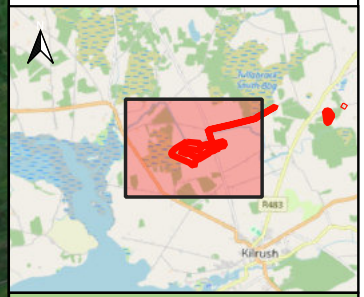
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Fig. 2-1. Transect Survey Transect Routes.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Transects
- Observation Points



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Checked by: J. Murphy	**Basemap:** Bing Aerial
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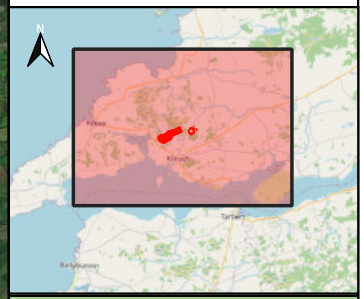
Project Title:	**Season:**	**Figure Title:**	**Produced By:**	**Notes:**
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Fig. 2-2. Breeding Wader Survey Locations.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Shore Count Observation Points
- Shore Count Approximate Zone Areas



Details:

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Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 24/11/2025	**Scale:** 1:120,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Fig. 2-3. Shorebird Count Survey Locations.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

3 RESULTS

3.1 Transect Survey Results Summary

A summary of observations of target species recorded during transect surveys is provided in Table 3-2 below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 2.

Table 3-1. Summary of transect survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Buzzard	1	1	1	Single observation of individual bird travelling.
Grey Heron	1	1	1	Single observation of individual bird travelling.
Herring Gull	3	3	1	All observations comprised single birds travelling / circling.
Lesser Black-backed Gull	1	1	1	Single observation of individual bird travelling.
Mallard	1	1	2	Single observation comprising two birds flying up from drain.
Sparrowhawk	2	1	1	One observation of adult female hunting in April 2025 and second observation of adult male perching in August 2025.

3.2 Breeding Wader Survey Results Summary

There were no observations of target species during breeding wader surveys.

3.3 Breeding Woodcock Survey Results Summary

A summary of observations of woodcock recorded during the dedicated breeding woodcock surveys is provided in Table 3-3 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 4.

Table 3-2. Summary of woodcock survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Woodcock	2	0	1	Both observations were during the survey carried out in April 2025. One observation comprised a single bird travelling and the second observation comprised a single bird displaying (roding) and dropping down into an area of forestry situated beyond 500m from proposed turbine locations. This indicates probable breeding in the wider vicinity of the Site.

3.4 Bird of Prey Survey Results Summary

A summary of observations of raptor species recorded during the bird of prey surveys is provided in Table 3-4 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 5. Confidential data is provided in Appendix 3.

Table 3-3. Summary of bird of prey survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Buzzard	5	1	1	The majority of observations comprised single birds hunting / soaring. There were two observations of birds flying into a forestry plantation, indicating potential breeding at this location, situated approximately 1.5km from the nearest proposed turbine location.
Hen Harrier	6	4	1	All observations comprised adult male birds hunting / travelling. There was an observation of a bird carrying prey during survey in May 2025 (see Appendix 3 – Confidential Data). This bird was initially observed within the 500m radius of the proposed turbines and travelling with prey away from the Site out to 2km, when lost from view. travelling in the direction of a known breeding area, situated over 4km from the Site.
Kestrel	7	4	1	All observations comprised individual birds hunting and travelling.
Peregrine	1	0	1	Single observation of individual bird travelling approximately 3km distant from the Site in June 2025.
Sparrowhawk	4	1	1	All observations comprised individual birds hunting and travelling.

3.5 Breeding Hen Harrier Survey Results Summary

A summary of observations of hen harrier recorded during the dedicated breeding hen harrier surveys is provided in Table 3-5 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 6. Confidential data is provided in Appendix 3.

Table 3-4. Summary of breeding hen harrier survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Hen Harrier	3	1	1	All observations comprised adult male birds hunting / travelling. There was an observation of a male in June 2025 travelling from a known breeding area, situated over 4km from the Site, and observed travelling in the approximate direction of the Site.

3.6 Breeding Peregrine Survey Results Summary

A summary of observations of peregrine recorded during the dedicated breeding peregrine surveys is provided in Table 3-6 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 7. Confidential data is provided in Appendix 3.

Table 3-5. Summary of breeding hen harrier survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Peregrine	3	0	1 - 2	A male was recorded perching in an area of suitable breeding habitat in April 2025, at a location approximately 10km from the Site. A pair was recorded at this location during survey in May 2025. There was a further observation of an adult female during survey in May 2025 at a location approximately 4km from the Site.

3.7 Shore Bird Count Survey Results Summary

A summary of observations of target species recorded during shorebird count surveys is provided in Table 3-7 below. Raw survey data is provided in Appendix 2 - Section 8.

Table 3-6. Summary of shorebird count survey results.

Species	Kilrush to Knock Zones A-D		Poulnasherry Bay		Doonbeg Bay	
	Number of Observations	Flock size range	Number of Observations	Flock size range	Number of Observations	Flock size range
Arctic Tern	-	-	-	-	1	4
Bar-tailed Godwit	1	1	3	1 – 9	1	4
Black-headed Gull	10	1 – 265	6	15 – 92	2	8 – 18
Black-tailed Godwit	1	38	1	1	1	17
Brent Goose	1	2	4	2 – 33	-	-
Common Gull	8	2 – 14	6	1 – 26	5	2 – 12
Cormorant	14	1 – 14	8	1 – 8	5	1 – 6
Curlew	8	1 – 75	10	1 – 133	4	1 – 17
Dunlin	1	64	2	30 – 74	2	4
Great Black-backed Gull	7	1 – 3	6	1 – 2	3	1 – 2
Great-crested Grebe	3	2 – 12	3	1 – 5	-	-
Great Northern Diver	-	-	2	1	3	1 – 2
Green Sandpiper	-	-	2	1 – 2	-	-
Greenshank	2	1 – 4	3	4 – 8	2	1 – 2
Grey Heron	9	1 – 7	9	1 – 4	4	1 – 2
Herring Gull	16	1 – 27	11	2 – 32	6	10 – 74
Knot	-	-	3	2 – 18	1	5
Lapwing	1	3	1	12	1	3
Lesser Black-backed Gull	7	1 – 4	2	1	6	2 – 7
Little Egret	10	1 – 11	11	2 – 18	6	1 – 3
Mallard	14	2 – 57	10	2 – 57	6	4 – 47
Mediterranean Gull	2	2 – 5	1	1	-	-

Species	Kilrush to Knock Zones A-D		Poulnasherry Bay		Doonbeg Bay	
	Number of Observations	Flock size range	Number of Observations	Flock size range	Number of Observations	Flock size range
Mute Swan	-	-	-	-	4	2 – 3
Oystercatcher	5	2 – 12	9	2 – 24	6	5 – 26
Red-breasted Merganser	-	-	1	1	-	-
Redshank	5	1 – 51	5	22 – 93	3	3 – 15
Ringed Plover	1	1	3	2 – 137	4	6 – 70
Ruff	5	1 – 2	1	2	-	-
Sandwich Tern	-	-	1	1	4	2 – 5
Shag	-	-	-	-	3	1 – 2
Shelduck	8	2 – 22	4	2 -19	2	2 – 4
Snipe	-	-	2	1 – 2	2	3
Teal	3	2 – 60	3	2 – 34	2	1 – 26
Turnstone	-	-	1	2	1	6
Whimbrel	8	5 – 40	5	2 – 61	4	5 – 80
Wigeon	1	5	1	1	-	-

3.8 Incidental Records Summary

A summary of incidental records of target species recorded during surveys is provided in Table 3-8 below. Raw survey data is provided in Appendix 2 - Section 9.

Table 3-7. Incidental records summary.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Black-headed Gull	2	1	1 – 2	Both observations comprised birds travelling.
Buzzard	3	1	1	All observations comprised individual birds hunting / travelling.
Common Gull	1	1	1	Single observation of individual bird travelling.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Cormorant	3	1	1	All observations comprised individual birds travelling.
Grey Heron	3	1	1	All observations comprised individual birds travelling.
Hen Harrier	3	2	1	One observation comprised a ringtail bird travelling during Shorebird Count Survey at Poulnasherry Bay in April 2025. There were two observations of males carrying prey away from the Site during a woodcock survey in June 2025. Both these birds were recorded within a 500m radius of the proposed turbine locations and observed to be travelling away from the Site, in the direction of a known breeding area situated over 4km from the Site.
Herring Gull	9	1	1 – 4	All observations comprised birds travelling.
Kestrel	5	1	1	All observations comprised individual birds hunting / travelling.
Lesser Black-backed Gull	12	2	1 – 3	All observations comprised birds travelling.
Little Egret	3	1	1 – 2	All observations comprised birds travelling.
Mallard	3	1	1 – 3	All observations comprised birds travelling.
Merlin	2	2	1	Both observations comprised individual adult female birds hunting within a 500m radius of the proposed turbine locations during woodcock survey in April 2025.
Sparrowhawk	2	2	1	Both observations comprised adult female birds, one of bird hunting and travelling into forestry in April 2024, and second of bird carrying prey in the direction of same forestry block in June 2025, indicating likely breeding at this location within a 500m radius of the proposed turbine layout.
Whimbrel	5	0	1 – 24	The majority of observations comprised birds travelling. There was one observation of a flock of eight birds foraging in a field approximately 1.5km distant from the Site in May 2025.

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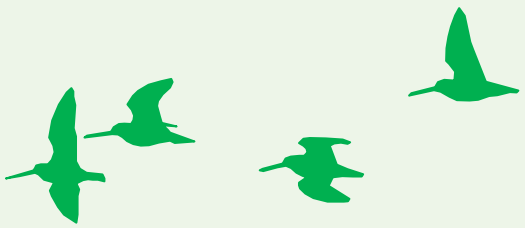

Irish Ornithological Survey Group

Providing Ornithological Services

irishornithologicalsurveygroup@gmail.com

Appendix 1 – Survey Effort

Bird Activity Summary Report
Breeding Season 2025

Proposed Moanmore Wind Farm,
Co. Clare

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Glossary

Field	Code	Description
Wind Speed (Beaufort)	0	Calm
	1	Light Air
	2	Light Breeze
	3	Gentle Breeze
	4	Moderate Breeze
	5	Fresh Breeze
	6	Strong Breeze
	7	Moderate Gale
	8	Fresh Gale
	9	Strong Gale
Cloud Cover (Oktas)	1-8	Scale between 0/8 (0% cloud cover) to 8/8 (100% cloud cover)
Visibility	0	No visibility
	1	Limited ((<500m)
	2	Poor (<1km)
	3	Moderate (1-2km)
	4	Good (>2km)
Precipitation	0	None / Dry
	1	Drizzle
	2	Light Showers
	3	Heavy Showers
	4	Heavy Rain
Surveyor	SN	Stan Nugent
	PC	Paidi Cullinan
	JNM	John N Murphy
	SD	Séan Dundon
	JH	John Hehir

1 Transect Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
04/04/2025	Transect Survey	A	07:45	08:50	SE	4	6	4	0	11		SN
04/04/2025	Transect Survey	B	09:00	09:40	SE	4	6	4	0	11		SN
04/04/2025	Transect Survey	C	09:50	10:35	SE	4	6	4	0	11		SN
05/05/2025	Transect Survey	A	07:30	08:30	SE	2	3	4	0	7		SN
05/05/2025	Transect Survey	B	08:40	09:40	SE	2	3	4	0	7		SN
05/05/2025	Transect Survey	C	09:50	10:30	SE	2	3	4	0	7		SN
02/07/2025	Transect Survey	A	08:10	09:20	W	3	6	3	3	13		SN
02/07/2025	Transect Survey	B	09:25	10:25	W	3	6	3	3	14		SN
02/07/2025	Transect Survey	C	10:30	11:10	W	3	6	3	3	15		SN
02/08/2025	Transect Survey	A	08:30	09:30	S	2	2	4	0	11		SN
02/08/2025	Transect Survey	B	09:35	10:30	S	2	3	4	0	13		SN
02/08/2025	Transect Survey	C	10:35	11:25	S	2	4	4	0	15		SN

2 Breeding Wader Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
15/04/2025	Breeding Wader Survey	T1, OP1	06:50	09:30	N	4	4	4	0	7	No waders seen or heard.	SN
09/05/2025	Breeding Wader Survey	T2, OP2, OP3	06:30	09:20	S	1	1	4	0	10	No sight or sound of breeding wader display or activity. No snipe observed at all.	SN

3 Breeding Woodcock Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
02/04/2025	Breeding Woodcock Survey	500m Radius	19:15	21:15	NE	2	1	4	0	11	Sunset: 20:15	PC
02/05/2025	Breeding Woodcock Survey	500m Radius	20:10	22:10	-	-	2	4	0	12	Sunset: 21:07	PC
04/06/2025	Breeding Woodcock Survey	500m Radius	20:00	22:30	W	3	8	4	3	14		SN

4 Bird of Prey Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
22/04/2025	Bird of Prey Survey	5km Radius	06:30	10:30	SE	3	8	3	2	5	Dull with sporadic light rain	PC
07/05/2025	Bird of Prey Survey	5km Radius	06:40	11:40	SE	1	1	4	0	7	Dry, bright	PC
04/06/2025	Bird of Prey Survey	5km Radius	06:30	11:30	SW	1	3	4	0	11	Dry, sunny	PC
09/07/2025	Bird of Prey Survey	VP1, VP2	08:00	14:00	NW	4	8	4	0	18	A dry warm day with some sunny periods. Prolonged sunshine in early afternoon.	JNM

5 Breeding Hen Harrier Survey Effort

Date	Survey	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
01/04/2025	Breeding Hen Harrier Survey	10:00	14:00	SSE	4	4	4	0	13	No birds located. Much of the habitat north of the site in bog was burnt out over previous days and still smouldering.	JNM
04/04/2025	Breeding Hen Harrier Survey	10:00	14:00	E	5	5	4	0	14	No hen harrier found. A fine dry day with good periods of sunshine.	JNM
14/05/2025	Breeding Hen Harrier Survey	08:00	14:00	ESE	2	5	4	0	18-23	Areas checked: Moanmore, Runaway, Tullagher area,	JNM

Date	Survey	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
										Moanmore Upper, Eiragh Bog, Moanmore North, Shragh Bog, Mountrivers area east Bog.	
19/05/2025	Breeding Hen Harrier Survey	08:00	14:00	E	3	0	4	0	21	No birds located. Areas covered: Moanmore North, Moyasta, Tullagher Bog, Einagh Bog, Shragh Bog and the Runaway north of Moanmore site.	JNM
05/06/2025	Breeding Hen Harrier Survey	10:00	15:00	-		4	4	0	15	Areas covered: Tullagher Bog and surrounds, Doonbeg south, the Runaway near Moyasta, Einagh Bog, Moanmore North, Shragh Bog, Scattery Island from Kilrush shoreline.	JNM
18/06/2025	Breeding Hen Harrier Survey	09:00	15:30	SSW	1-3	4	4	0	18-20		JNM

6 Breeding Peregrine Survey Effort

Date	Survey	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
07/04/2025	Breeding Peregrine Survey	10:00	15:00	S	3	3	4	0	16	A fine warm dry sunny day	JNM
20/05/2025	Breeding Peregrine Survey	15:30	19:30	W	2	7	3	0	14	A dull morning cleared to a sunny bright afternoon and evening	JNM

7 Shorebird Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
02/04/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	15:00	17:00	E	2-5	3	4	0	16-18	High tide: 09:02 (16.2'), Low tide: 15:07 (2.4')	JNM
03/04/2025	Shorebird Count Survey	Doonbeg Bay	15:00	17:00	E	4	-	-	0	17-18	High tide: 09:49 (14.9'), Low tide: 15:51 (3.9')	JNM

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
24/04/2025	Shorebird Count Survey	Poulnasherry Bay PC2	07:45	10:00	SE	2	8	4	0	10	High tide: 03:21 (4.17m), Low tide: 09:39 (0.92m)	JH
24/04/2025	Shorebird Count Survey	Poulnasherry Bay PC3	07:45	10:00	SE	1	8	4	0	8	High tide: 03:21 (4.17m), Low tide: 09:39 (0.92m)	PC
24/04/2025	Shorebird Count Survey	Poulnasherry Bay PC1	08:00	10:00	E	2	8	4	0	9	High tide: 03:21 (4.17m), Low tide: 09:39 (0.92m)	SD
01/05/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	13:00	15:00	SW	1-2	8	3	0	15-18	High tide: 08:49 (15.5'), Low tide: 14:50 (2.7')	JNM
02/05/2025	Shorebird Count Survey	Doonbeg Bay	14:30	16:30	NE	3	-	-	0	14-18	High tide: 09:38 (14.2'), Low tide: 15:37 (3.9')	JNM
11/05/2025	Shorebird Count Survey	Doonbeg Bay	12:00	14:00	NNE	3	-	-	0	14-15	Low tide: 11:45 (0.85'), High tide: 17:57 (4.61')	JNM
13/05/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	13:30	15:30	E	2-4	4	4	0	24	Low tide: 12:48 (3.1'), High tide: 18:59 (15.4')	JNM
26/05/2025	Shorebird Count Survey	Poulnasherry Bay PC1	09:00	11:00	SW	4	8	3	4	11	Low tide: 11:34 (0.4m)	SN
26/05/2025	Shorebird Count Survey	Poulnasherry Bay PC2	09:00	11:00	S	5	8	2	4	9	Low tide: 11:34 (0.4m)	SD
26/05/2025	Shorebird Count Survey	Poulnasherry Bay PC3	09:00	11:00	SW	3-4	8	4	4	11	Low tide: 11:34 (0.4m)	PC
27/05/2025	Shorebird Count Survey	Doonbeg Bay	15:30	17:30	WNW	5	-	-	0	15	Low tide: 12:21 (1.3'), High tide: 18:36 (16.7')	JNM
01/06/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	15:00	17:00	WNW	4-6	4	4	0	17-18	High tide: 10:18 (13.2'), Low tide: 16:12 (4.4')	JNM
07/08/2025	Shorebird Count Survey	Doonbeg Bay	11:30	13:00	WNW	5	-	-	0	17	Low tide: 11:06 (4.5'), High tide: 17:18 (14.3')	JNM
08/08/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	10:00	12:00	SW	4-5	4	4	2	16	Low tide: 11:48 (3.6'), High tide: 17:58 (15.1')	JNM
25/08/2025	Shorebird Count Survey	Poulnasherry Bay PC1	12:00	14:20	S	2-4	8	3	4	18	High tide: 07:30 (4.8m), Low tide: 13:38 (0.71m)	SN
25/08/2025	Shorebird Count Survey	Poulnasherry Bay PC3	12:00	15:00	S	2-4	8	3	4	18	High tide: 07:30 (4.8m), Low tide: 13:38 (0.71m)	PC
25/08/2025	Shorebird Count Survey	Poulnasherry Bay PC2	12:00	14:00	SW	4	8	2	4	12	High tide: 07:30 (4.8m), Low tide: 13:38 (0.71m)	SD
03/09/2025	Shorebird Count Survey	Doonbeg Bay	09:00	10:30	NNW	5	-	-	0	14	Low tide: 09:01 (6.7'), High tide: 15:20 (12.3')	JNM
04/09/2025	Shorebird Count Survey	Kilrush to Knock: Zones	11:30	14:30	NW	4-5	5	3	2	16	Low tide: 09:59 (5.6'), High tide: 16:12 (13.3')	JNM

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
		A-D										
23/09/2025	Shorebird Count Survey	Poulnasherry Bay PC1	11:30	14:00	SE	2	1	4	0	13-14	High tide: 07:00 (4.85m), Low tide: 13:08 (0.67m)	SN
23/09/2025	Shorebird Count Survey	Poulnasherry Bay PC3	11:30	14:00	S	1	0	4	0	14	High tide: 07:00 (4.85m), Low tide: 13:08 (0.67m)	PC

Appendix 2 – Survey Data

Bird Activity Summary Report
Breeding Season 2025

Proposed Moanmore Wind Farm,
Co. Clare

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Glossary

Field	Code	Description
Wind Speed (Beaufort)	0	Calm
	1	Light Air
	2	Light Breeze
	3	Gentle Breeze
	4	Moderate Breeze
	5	Fresh Breeze
	6	Strong Breeze
	7	Moderate Gale
	8	Fresh Gale
	9	Strong Gale
Cloud Cover (Oktas)	1-8	Scale between 0/8 (0% cloud cover) to 8/8 (100% cloud cover)
Visibility	0	No visibility
	1	Limited ((<500m)
	2	Poor (<1km)
	3	Moderate (1-2km)
	4	Good (>2km)
Precipitation	0	None / Dry
	1	Drizzle
	2	Light Showers
	3	Heavy Showers
	4	Heavy Rain
Surveyor	SN	Stan Nugent
	PC	Paidi Cullinan
	JNM	John N Murphy
	SD	Séan Dundon
	JH	John Hehir
Age	A	Adult
	J	Juvenile
Sex	M	Male
	F	Female
Activity	F	Flying
	H	Hunting
	S	Soaring
	C	Circling
	P	Perched
	G	On Ground
	M	Mobbing
	D	Display
Habitat	IG	Improved Grassland
	RG	Rough Grassland
	G	Grassland Moorland
	S	Scrub
	B	Bog
	1F	First Rotation Forestry
	2F	Second Rotation Forestry
	T	Thicket / Pole Stage Forestry
	CF	Clear-fell
	H	Heather Moorland
	L	Lake
	P	Pond
	TSW	Temporary Standing Water
	O	Other

1 Transect Survey Data

Table 1-1. Transect Survey Target Species Data.

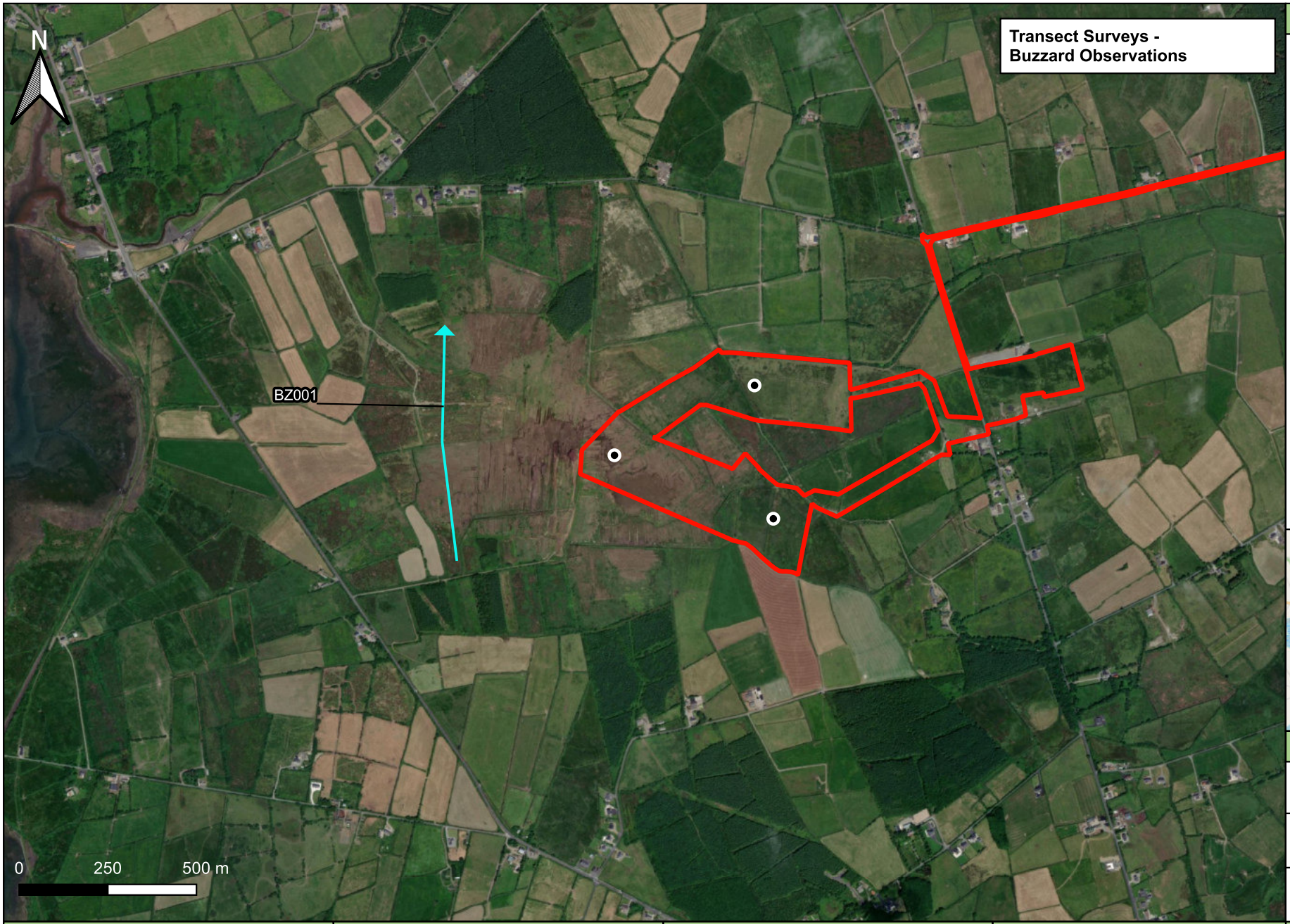
Ref.	Date	Time	Transect	Species	Num.	Age	Sex	Activity	Habitat	Notes
BZ001	02/07/2025	11:00	C	Buzzard	1			F	B	Flew north
H.001	04/04/2025	08:20	B	Grey Heron	1			F		Flew southeast
HG001	04/04/2025	08:20	B	Herring Gull	1			C		
HG002	05/05/2025	09:10	A	Herring Gull	1			F	B	Flew south overhead
HG003	02/07/2025	09:00	B	Herring Gull	1	A		F	B	Flew southeast
LB001	02/08/2025	09:00	B	Lesser Black-backed Gull	1			F		Flew westwards
MA001	05/05/2025	10:20	C	Mallard	2			F	B, RG	Flew up from drain by lane
SH001	05/05/2025	08:00	B	Sparrowhawk	1	A	F	H	RG	Hunting west on lane
SH002	02/08/2025	08:30	B	Sparrowhawk	1	A	M	P	IG	Perched beside farmyard

Table 1-2. Transect Survey Target Non-Target Species Data.

Key: A = Transect A; B = Transect B; C = Transect C. 1 = 0-25m; 2 = 25-100m; 3 = >100m.

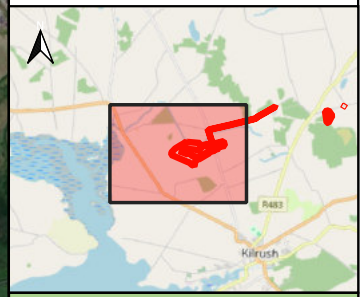
Species	04/04/2025									05/05/2025									01/07/2025								
	A			B			C			A			B			C			A			B			C		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Blackbird	2			8						2			4	7		3			8			5	3		3	1	
Blackcap										1						2										1	
Blue Tit	2			1												2						4					
Bullfinch																						2					
Chaffinch	2			2			5			2						2						4				1	
Chiffchaff				1						1			3	1						1							
Coal Tit				1															1								
Cuckoo											1			1			1										
Dunnock	2			3						1	1								2			1			1		
Grasshopper Warbler																1							1				
Great Tit				2			4							1					2						2		
Goldfinch																	4					6					
Hooded Crow											2			2		1						1					
House Sparrow													1														
Jackdaw	4																					2				1	
Linnet														2								2					
Magpie										2										2		2					
Meadow Pipit	4			4						5	2		4			6			21	2		4	7			2	
Mistle Thrush																						1	11				
Pheasant	1	2		1	2						1														1		
Pied Wagtail																				1		2					
Raven											2												2				
Redpoll																			2						2		
Reed Bunting				2									1										2			1	
Robin				3			4			5			2			2			1			7					
Rook			1					1					1	2	5		3			3	3	2	4				
Sand Martin																									1		
Sedge Warbler										1			2	2		6							1			1	
Skylark	2	2			6		6			1	1			3								2					
Song Thrush		3		3						4				3		2			2	1		2	2		3		
Starling	26			6									14										5				
Stonechat	2			2						2			`2			4			4			2	2				
Swallow										2												2			1		
Treecreeper																			1								
Willow Warbler	3			5						3	2		2	2		5											
Woodpigeon				1									8	3		1							1				

Species	04/04/2025									05/05/2025									01/07/2025								
	A			B			C			A			B			C			A			B			C		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Wren	9						10			6	2					6			9			10	3		5	1	



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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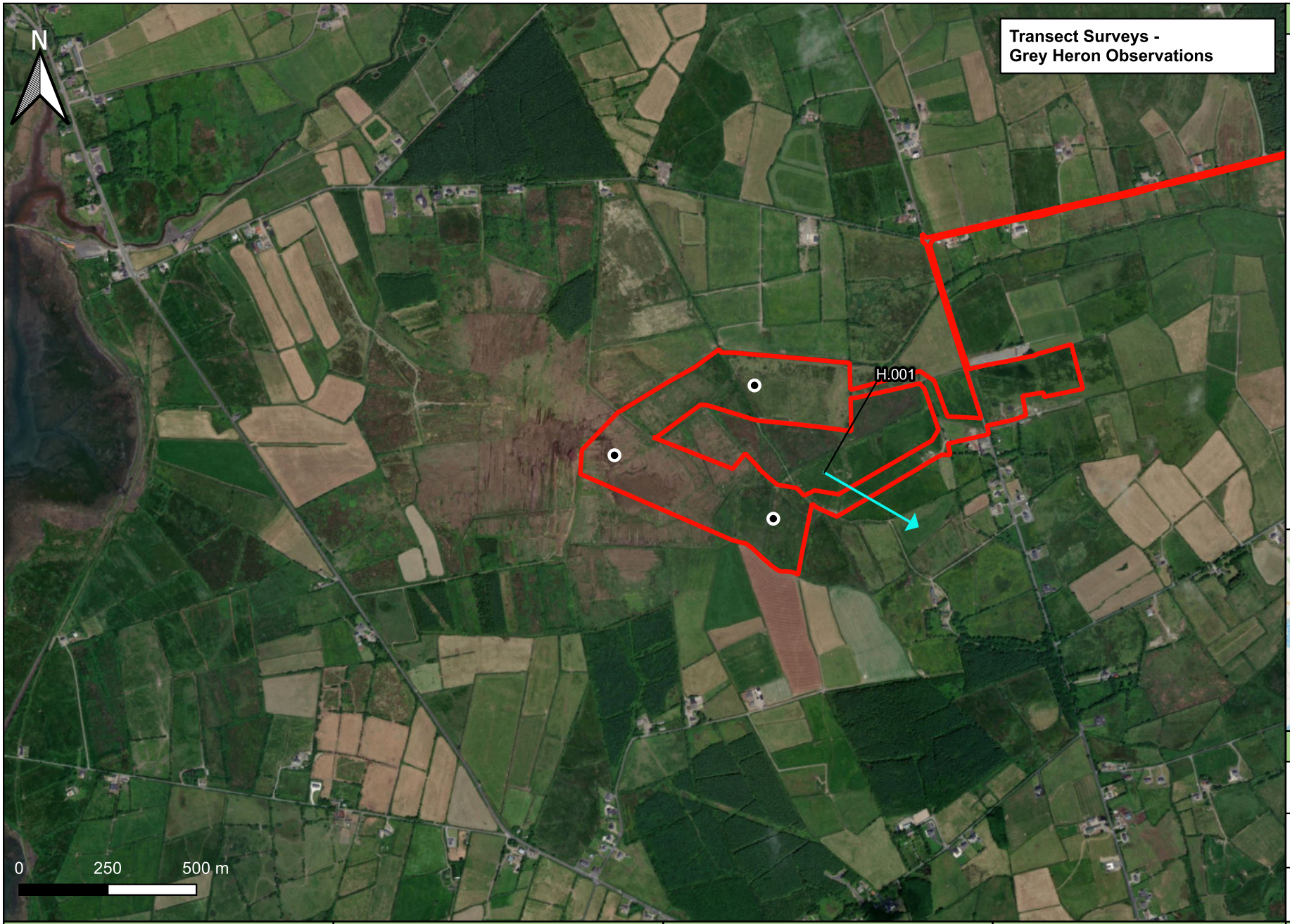
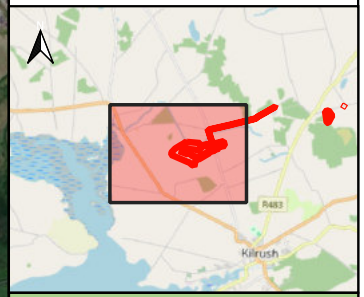
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-1. Transect Survey Buzzard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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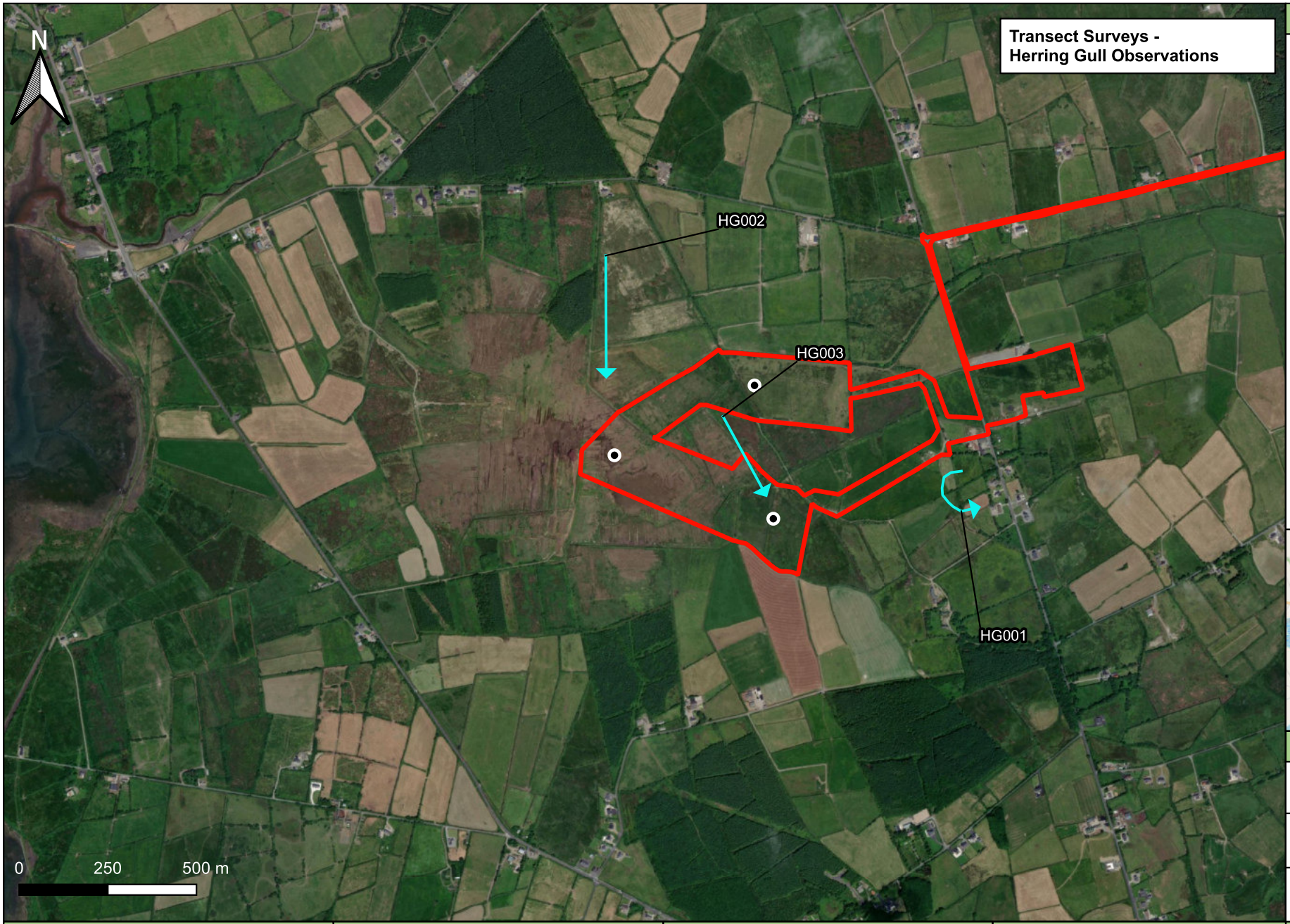
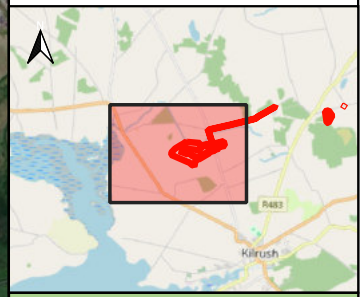
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-2. Transect Survey Grey Heron Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

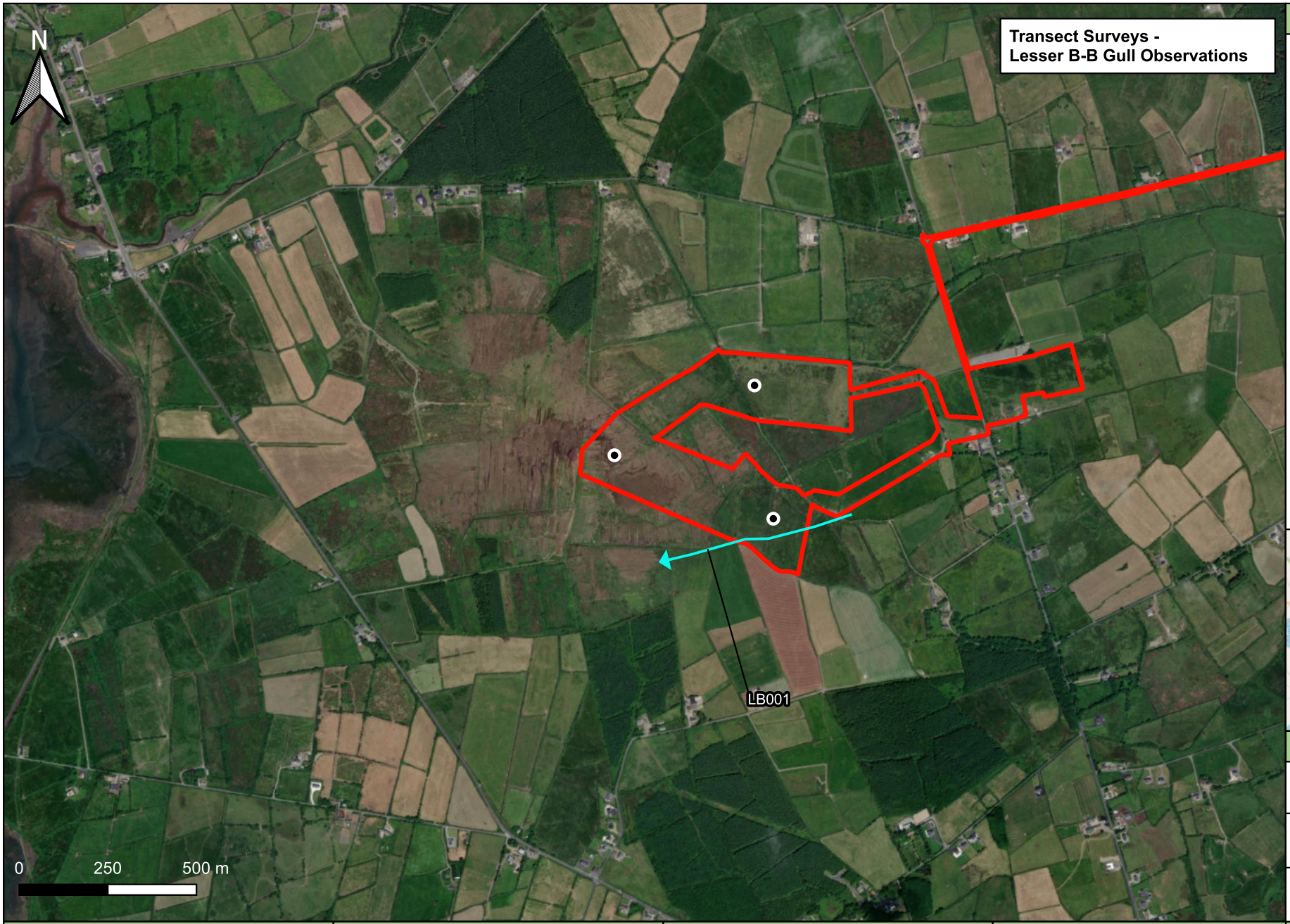
- Redline Boundary
- Turbine Locations
- Observation



Details:

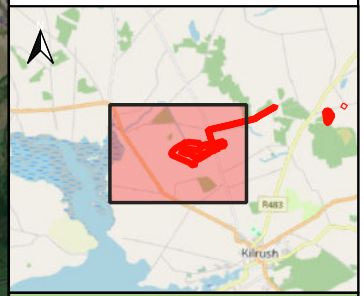
Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-3. Transect Survey Herring Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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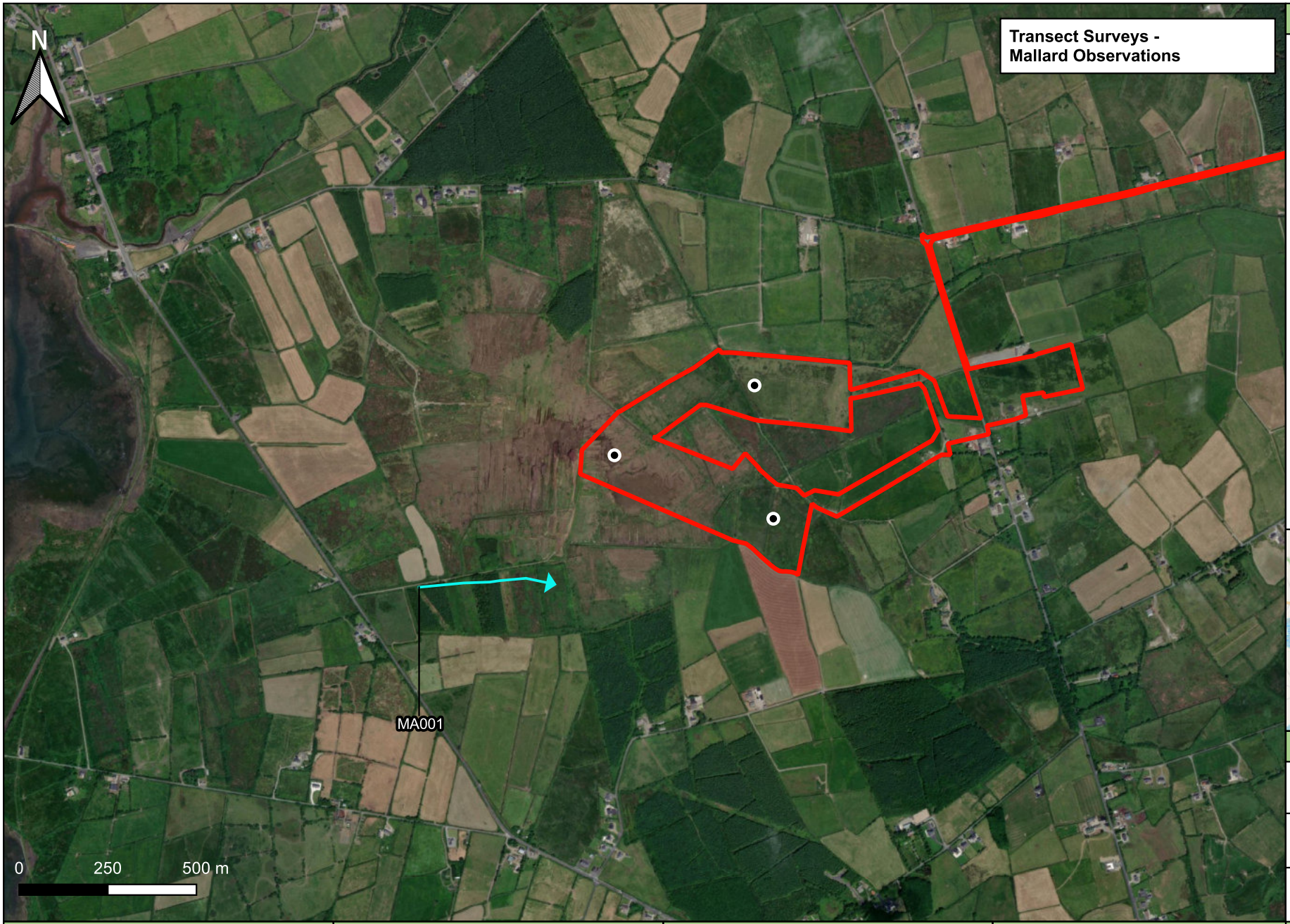
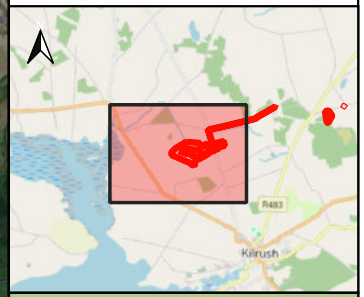
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-4. Transect Survey Lesser Black-backed Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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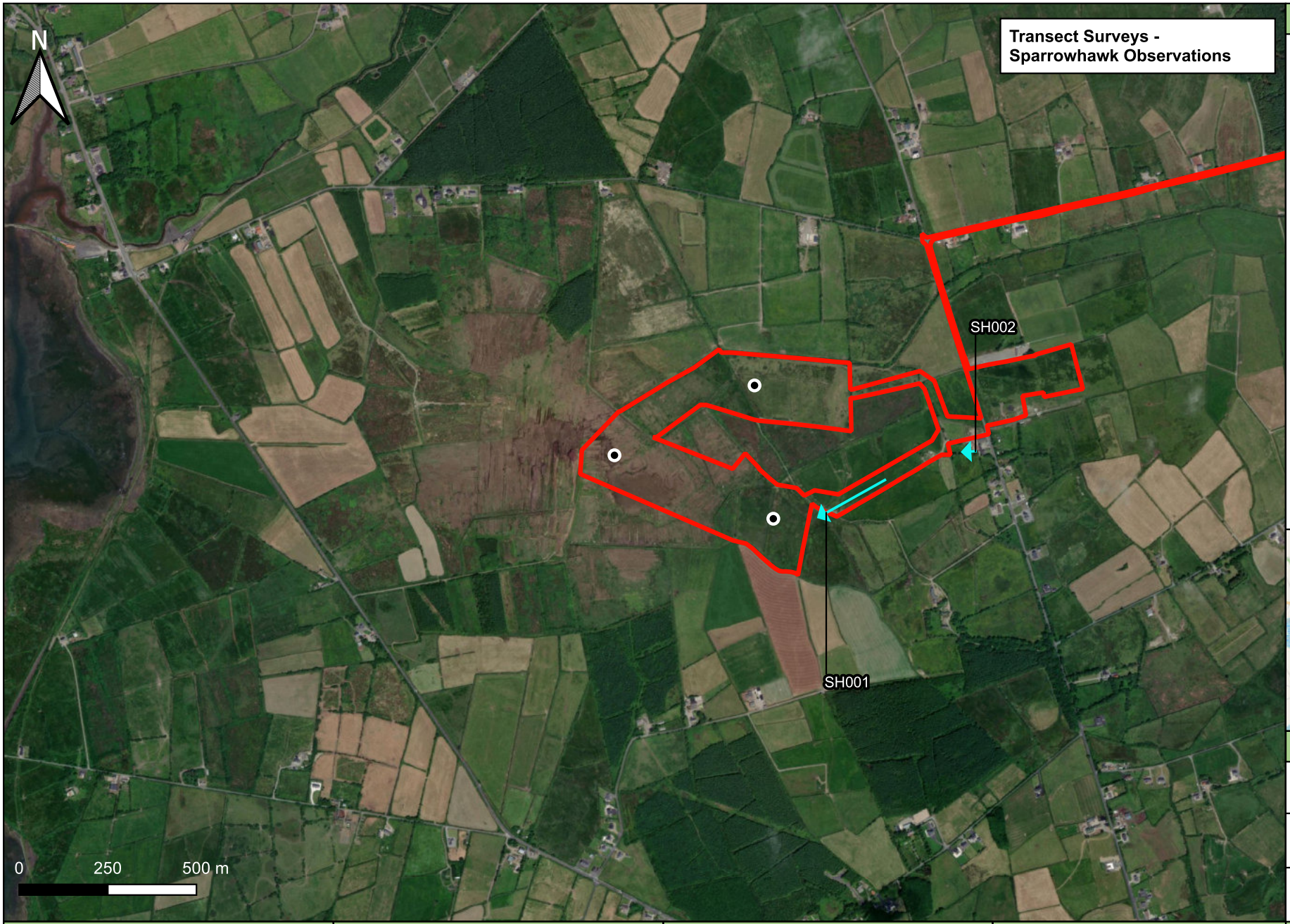
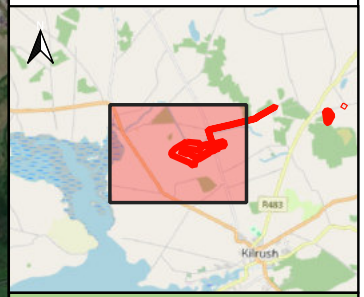
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-5. Transect Survey Mallard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-6. Transect Survey Sparrowhawk Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

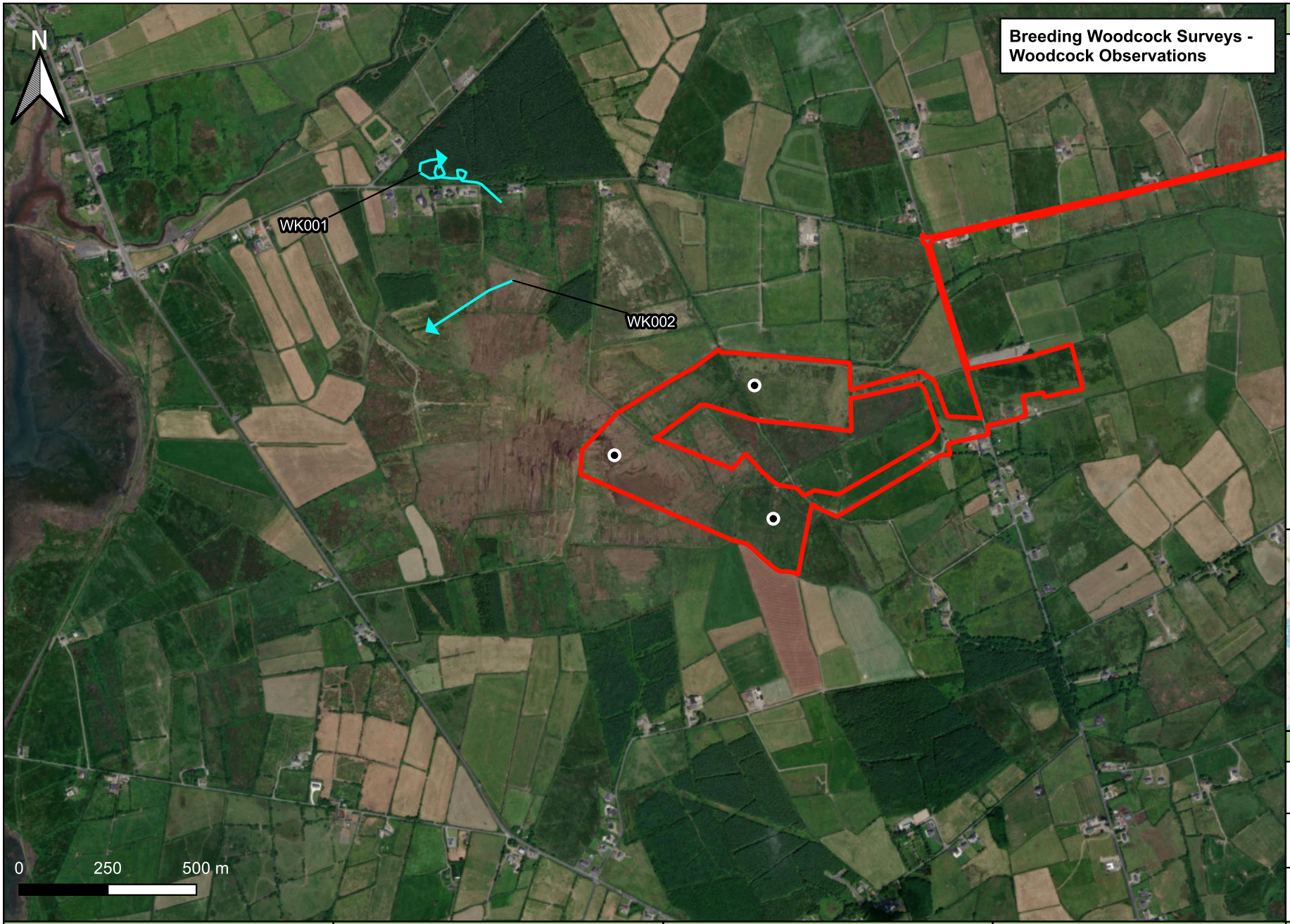
2 BREEDING WADER SURVEY DATA

No target species recorded.

3 BREEDING WOODCOCK SURVEY DATA

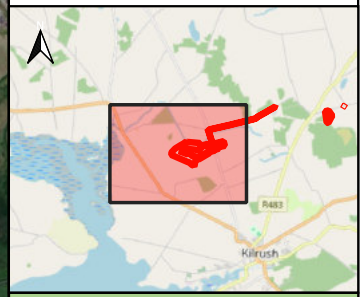
Table 3-1. Breeding Woodcock Survey Data.

Ref.	Date	Time	Location	Species	Number	Age	Sex	Activity	Habitat	Notes
WK001	02/04/2025	20:33	Moanmore	Woodcock	1	-	-	D	IG, 1F	Dropped into plantation
WK002	02/04/2025	20:44	Moanmore	Woodcock	1	-	-	F	B	



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

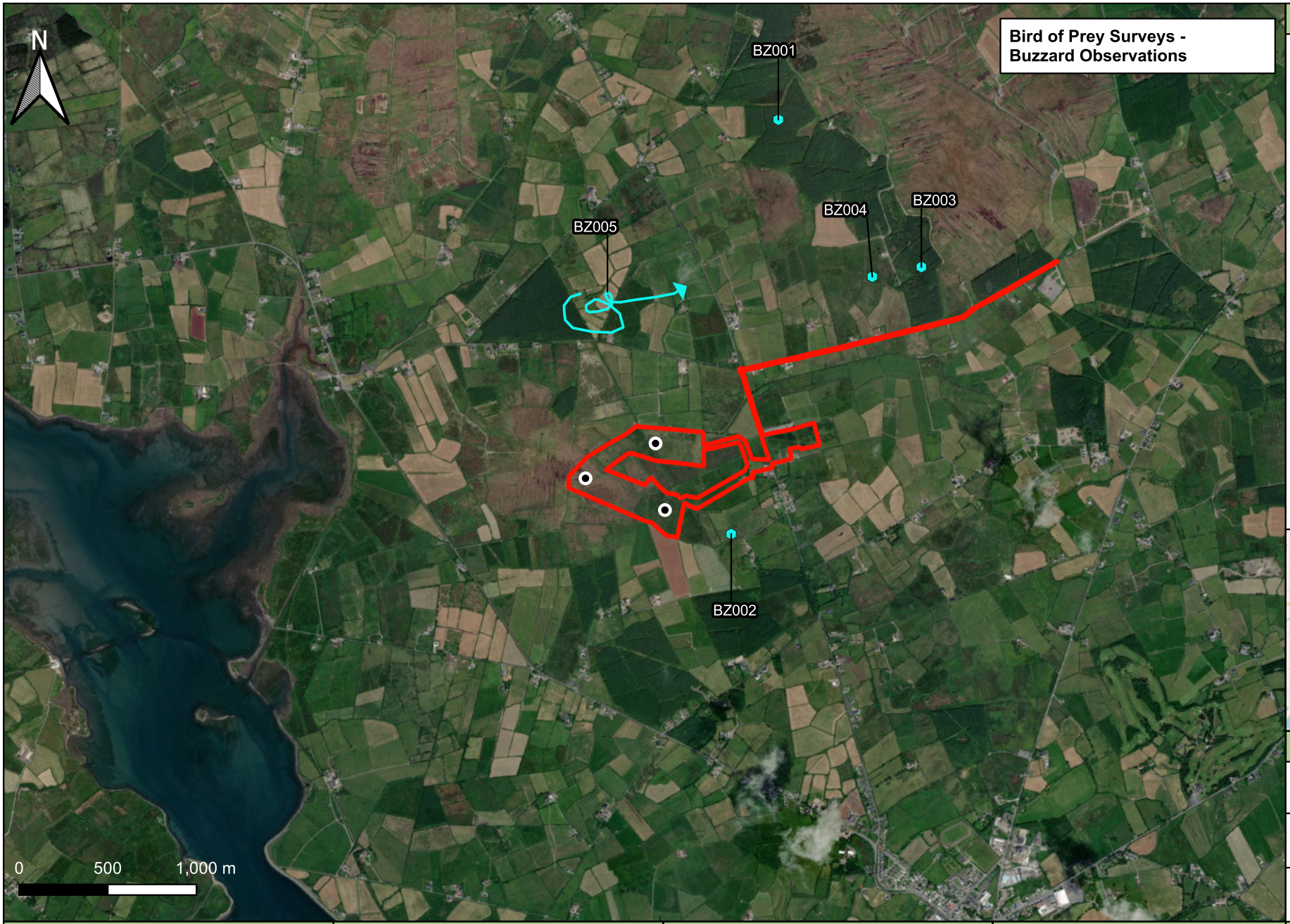
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 4-1. Breeding Woodcock Survey Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

4 Bird of Prey Survey Data

Observations containing sensitive information relating to breeding sites have been omitted from this Appendix and are presented in a separate confidential appendix – Appendix 3 Confidential Data.

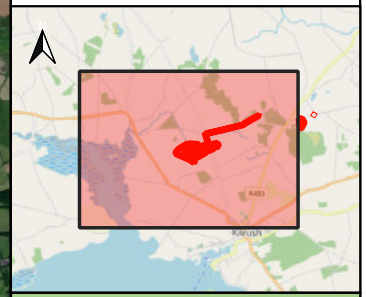
Table 4-1. Bird of Prey Survey Data.

Ref.	Date	Time	Transect	Species	Num.	Age	Sex	Actvity	Habitat	Notes
BZ001	09/07/2025	09:30	Moanmore	Buzzard	1			S		
BZ002	22/04/2025	07:10	Moanmore	Buzzard	1			S	1F	Soaring over plantation
BZ003	22/04/2025	10:00	Moanmore	Buzzard	1			S		South
BZ004	07/05/2025	11:08	Moanmore	Buzzard	1			F	1F	Flying east into plantation
BZ005	04/06/2025	10:17	Moanmore	Buzzard	1			H, F		Hunting, hovering then flew into plantation
HH001	22/04/2025	07:53	Moanmore	Hen Harrier	1	A	M	H		Hunting low 1-2m S/SE
HH002	22/04/2025	09:44	Moanmore	Hen Harrier	1	A	M	H		Hunting south
HH003	07/05/2025	08:57	Moanmore	Hen Harrier	1	A	M	H		Hunting across middle of site
HH004	07/05/2025	09:37	Moanmore	Hen Harrier	1	A	M	F		
HH006	07/05/2025	11:24	Moanmore	Hen Harrier	1	A	M	H		1m NW/W hunting
K.001	09/07/2025	09:15		Kestrel	1	A	M	F, H		
K.002	07/05/2025	10:00	Moyasta	Kestrel	1			F		
K.003	07/05/2025	11:24	Moanmore	Kestrel	1			H, S		
K.004	07/05/2025	10:49	Moanmore	Kestrel	1	A	M	H	B	Hovering 0-20m hunting bog
K.005	04/06/2025	07:56	Moanmore	Kestrel	1			A		
K.006	04/06/2025	08:32	Moanmore	Kestrel	1	A	M	H	B	Hunting low over bog
K.007	04/06/2025	10:46	Carrowncalla North	Kestrel	1	A	M	H		
PE001	04/06/2025	09:04	Einagh	Peregrine Falcon	1	A	M	F		
SH001	09/07/2025	13:50	Moanmore	Sparrowhawk	1	A	F	C, H	B	Circling, hunting over bog, harassed by swallows
SH002	07/01/2025	10:45	Moanmore	Sparrowhawk	1			H		North 15m height
SH003	07/05/2025	11:20	Moanmore	Sparrowhawk	1			S		Soaring 80m height
SH004	04/06/2025	11:12	Moanmore	Sparrowhawk	1	A	M	F		



Legend:

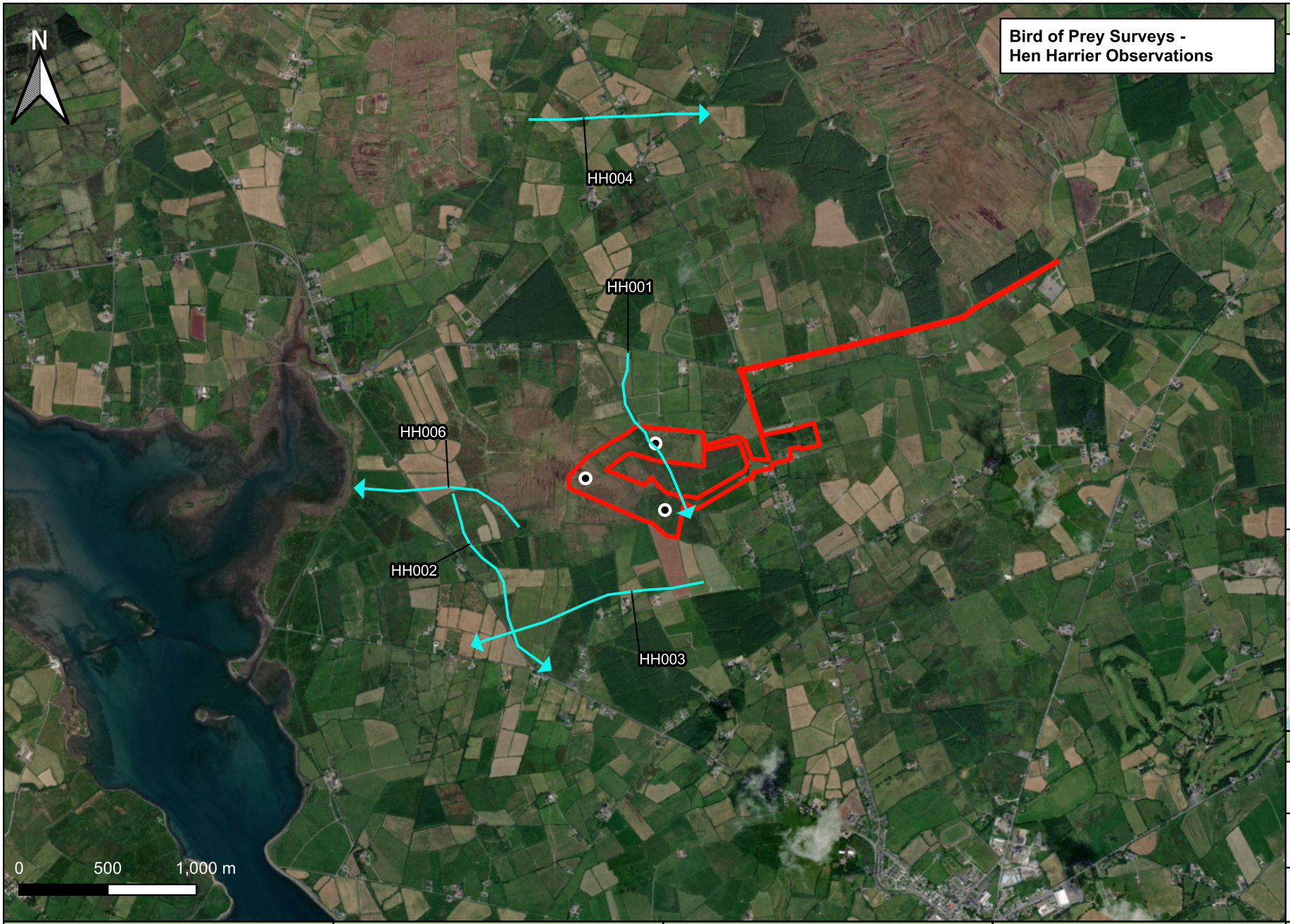
- Redline Boundary
- Turbine Locations
- Observation
- Observation



Details:

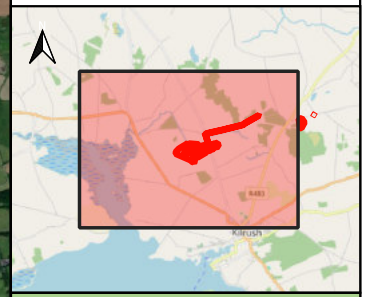
Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 5-1. Bird of Prey Survey Buzzard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

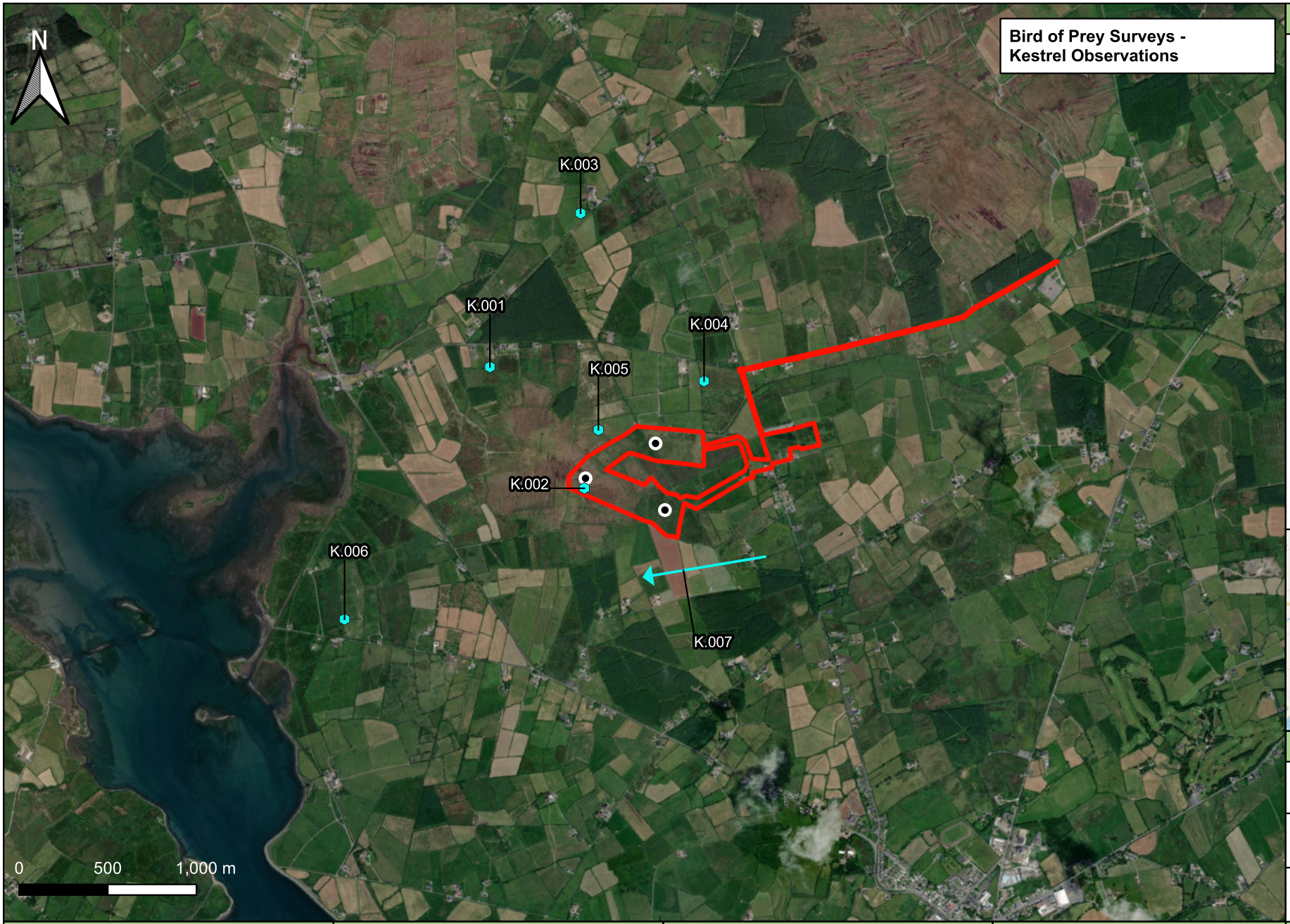
- Redline Boundary
- Turbine Locations
- Observation



Details:

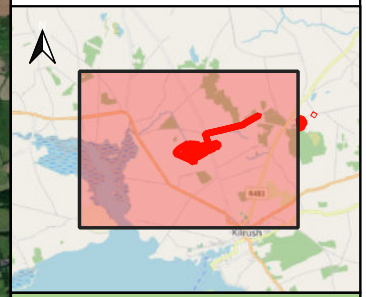
Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 5-2. Bird of Prey Survey Hen Harrier Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation
- Observation



Details:

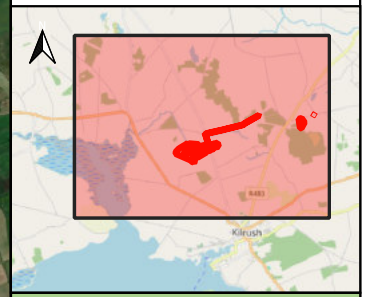
Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 5-3. Bird of Prey Survey Kestrel Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

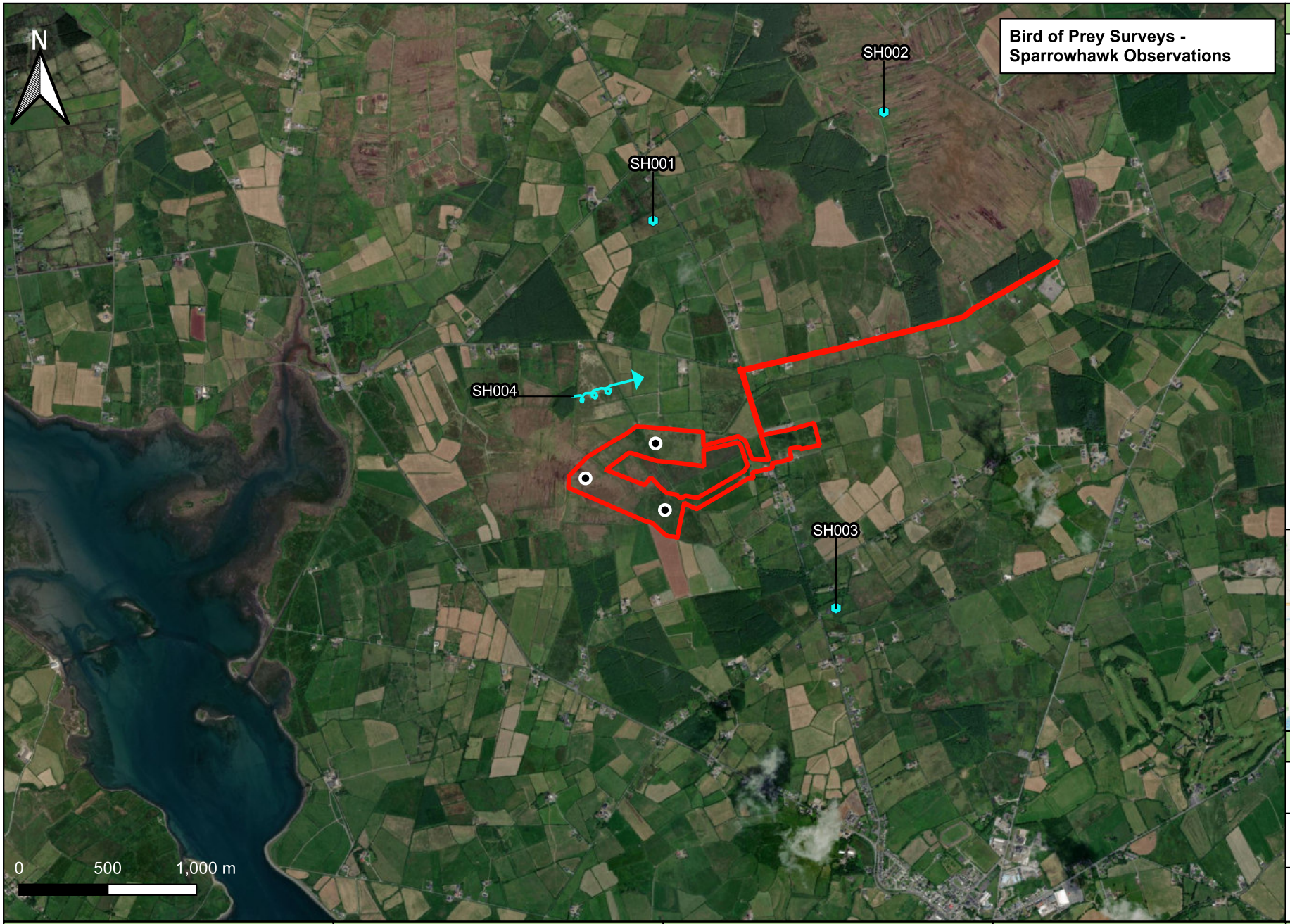
- Redline Boundary
- Turbine Locations
- Observation



Details:

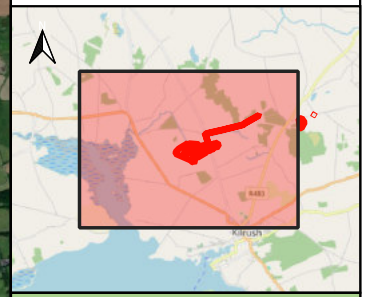
Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 5-4. Bird of Prey Survey Peregrine Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation
- Observation



Details:

Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

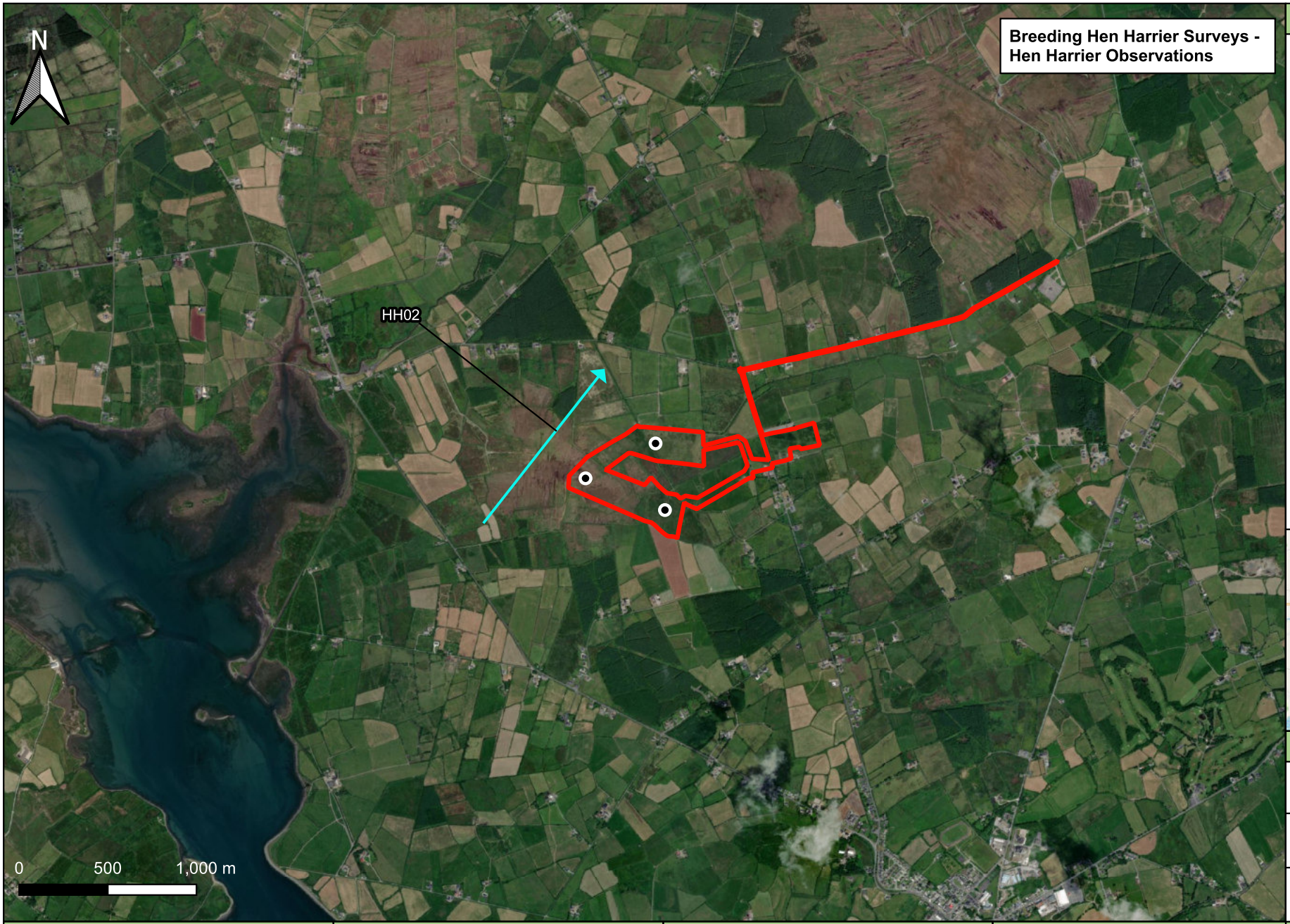
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 5-5. Bird of Prey Survey Sparrowhawk Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

5 BREEDING HEN HARRIER SURVEY DATA

Observations containing sensitive information relating to breeding sites have been omitted from this Appendix and are presented in a separate confidential appendix – Appendix 3 Confidential Data.

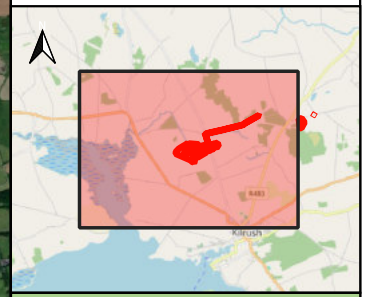
Table 5-1. Breeding Hen Harrier Survey Data.

Ref.	Date	Time	Location	Species	Number	Age	Sex	Activity	Habitat	Notes
HH001	18/06/2025	15:23	Moanmore	Hen Harrier	1	A	M	H, F	B	Hunting from S-N on the north side of the bog near the site of Moanmore. This male was hunting about 1-2m off the ground and eventually landed near a pile of soil mounds on the road that runs into the bog near Moanmore Lower. Not Mapped.
HH002	14/05/2025	10:10	Moanmore	Hen Harrier	1	A	M	F, H	B	Flew east over bog from Moyasta Rd heading into the site hunting low over the bog off to the NE of main site for 1-2 mins.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 6-1. Breeding Hen Harrier Survey Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

6 BREEDING PEREGRINE SURVEY DATA

Observations containing sensitive information relating to breeding sites have been omitted from this Appendix and are presented in a separate confidential appendix – Appendix 3 Confidential Data.

7 SHOREBIRD COUNT SURVEY DATA

Table 7-1. Shorebird Count Survey Data – Kilrush to Knock.

Species	02/04/2025				01/05/2025				13/05/2025				01/06/2025				08/08/2025				04/09/2025			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Bar-tailed Godwit																						1		
Black-headed Gull	1							82									9	6	20	265	10	11	26	110
Black-tailed Godwit																38								
Brent Goose		2																						
Common Gull					4			2									5	7		4	14	5	11	
Cormorant	1		2				1	1	1		2		4		3	2	1	1		6	2			14
Curlew				4	1												34			75	6	7	8	22
Dunlin												64												
Great Black-backed Gull				3			1						1			1						2	3	2
Great-crested Grebe				2																12				6
Great Northern Diver		2			1	1																		
Greenshank																	4				1			
Grey Heron				1				3	1				2							7	4	1	1	2
Herring Gull	7			4	6		2	6				2	4	1		4	24		5	17	27	12	7	15
Lapwing																						3		
Lesser Black-backed Gull	1		2				1							1	1			4					4	
Little Egret					1		1		1	1	1				11				1	2			2	2
Mallard			8		4		4	4	10	2	6		14		9	28			5	57	4		17	
Mediterranean Gull																							5	2
Oystercatcher									2								8	2			12	2		
Redshank	1																20		35		8		5	51
Red-throated Diver	1																							
Ringed Plover														1										
Shag		1											1				1				2	1		
Shelduck					2		2	22	2		2	2				6				2				
Teal			30	60																	2			
Whimbrel					40	5	8	30	8	16	7	25												
Wigeon			5																					
American Golden Plover																						1		

Table 7-2. Shorebird Count Survey Data – Poulnasherry Bay.

Species	24/04/2025			26/05/2025			25/08/2025			23/09/2025		
	PC1	PC2	PC3	PC1	PC2	PC3	PC1	PC2	PC3	PC1	PC2	PC3
Bar-tailed Godwit						5			9	1		
Black-headed Gull			15				18	34	62	16		92
Black-tailed Godwit							1					
Brent Goose	33	8	28			2						
Common Gull			10		1			5	26	15		5
Cormorant			1	1	1	3	1	1	3	2		8
Curlew	4	3	5	4		1	46	35	133	30		102
Dunlin									74			30
Great Black-backed Gull	1		1				1		2	2		1
Great-crested Grebe			2							5		1
Great Northern Diver		1	1									
Green Sandpiper							2		1			
Greenshank							8		4			4
Grey Heron	1	2	3		1	2		4	2	3		1
Herring Gull	3	6	12	4	9	20	2	8	8	5		32
Knot									6	18		2
Lapwing							12					
Lesser Black-backed Gull	1					1						
Little Egret	4	5	6	2	3	3	6	5	9	18		15
Mallard	8	2	5	9		4	32	2	57	2		4
Mediterranean Gull									1			
Oystercatcher		8	4		3	2	8	6	24	10		5
Red-breasted Merganser		1										
Redshank							22	22	93	32		25
Ringed Plover							2		137			22
Ruff							2					
Sandwich Tern									1			
Shelduck	2	3	19			4						
Snipe							1			2		
Teal							18		34			2
Turnstone						2						24
Whimbrel	2	22	61	4		4						
Wigeon							1					

Table 7-3. Shorebird Count Survey Data – Doonbeg Bay.

Species	03/04/2025	02/05/2025	11/05/2025	27/05/2025	07/08/2025	03/09/2025
Black-headed Gull					18	8
Black-tailed Godwit						17
Bar-tailed Godwit	1					4
Common Gull	4		6	2	12	12
Cormorant		1	1	1	6	6
Curlew	2			1	12	17
Dunlin		4	4			15
Great Black-Backed Gull			1	2	2	
Great Northern Diver	1	1	2			
Grey Heron			2	1	1	2
Greenshank	1				2	
Herring Gull	23	10	32	74	22	36
Knot						5
Lapwing					3	
Lesser Black-Backed Gull	2	2	4	7	2	4
Little Egret	1	3	3	2	2	1
Little Grebe						
Mallard	15	4	34	47	16	10
Mute Swan	2		2		3	3
Oystercatcher	14	10	14	26	8	5
Redshank	3				15	12
Ringed Plover	8	14	6			70
Sandwich Tern		2	5	2		5
Shag	2		2	1	2	
Snipe					3	3
Shelduck	2	4				
Teal	26					1
Arctic Tern						4
Turnstone						6
Whimbrel		62	80	3		5

8 INCIDENTAL RECORDS

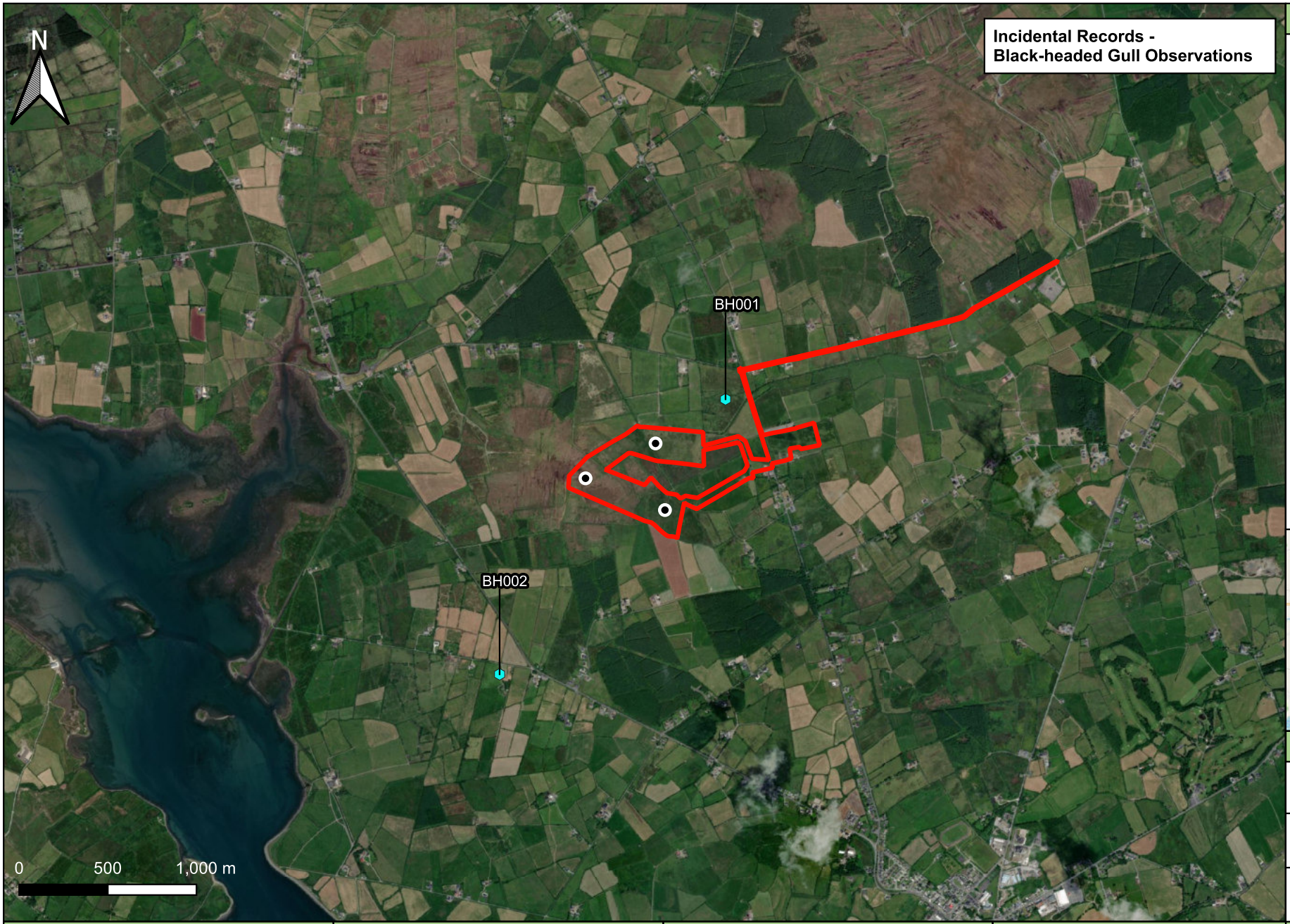
Observations containing sensitive information relating to breeding sites have been omitted from this Appendix and are presented in a separate confidential appendix – Appendix 3 Confidential Data.

Table 8-1. Incidental Record Data.

Ref.	Date	Time	Survey	Species	Num.	Age	Sex	Activity	Habitat	Notes
BH001	22/04/2025	07:31	Bird of Prey Survey	Black-headed Gull	2			F		Travelling south
BH002	04/06/2025	11:00	Bird of Prey Survey	Black-headed Gull	1			F		
BZ001	04/04/2025	11:00	Breeding Hen Harrier Survey	Buzzard	1			F	B	
BZ002	06/06/2025	08:10	Breeding Wader Survey	Buzzard	1	A		H		
BZ003	18/06/2025	12:46	Breeding Hen Harrier Survey	Buzzard	1			H		In a field near Moyasta chasing pheasant chicks on a freshly cut over field.
CM001	04/06/2025	10:32	Bird of Prey Survey	Common Gull	1			F		
CA001	22/04/2025	06:15	Bird of Prey Survey	Cormorant	1			-		
CA002	22/04/2025	07:21	Bird of Prey Survey	Cormorant	1			F		Travelling east
CA003	04/06/2025	09:16	Bird of Prey Survey	Cormorant	1			F		
H.001	22/04/2025	06:15	Bird of Prey Survey	Grey Heron	1			-		
H.002	22/04/2025	10:10	Bird of Prey Survey	Grey Heron	1	A		F		North-west
H.003	06/06/2025	08:46	Breeding Wader Survey	Grey Heron	1	A		F		
HH001	24/04/2025	08:30	Shore Bird Survey	Hen Harrier	1	A/J	M/F	F		Ringtail
HG001	22/04/2025	09:15	Bird of Prey Survey	Herring Gull	1			F		SW
HG002	07/05/2025	06:49	Bird of Prey Survey	Herring Gull	1			F		South-east
HG003	07/05/2025	10:10	Bird of Prey Survey	Herring Gull	1			F		
HG004	04/06/2025	06:36	Bird of Prey Survey	Herring Gull	1			F		
HG005	04/06/2025	07:49	Bird of Prey Survey	Herring Gull	1			F		
HG006	04/06/2025	09:04	Bird of Prey Survey	Herring Gull	4			F		
HG007	04/06/2025	09:33	Bird of Prey Survey	Herring Gull	1			F		
HG008	04/06/2025	11:24	Bird of Prey Survey	Herring Gull	1			F		
HG009	06/06/2025	08:07	Breeding Wader	Herring Gull	1	A		F		

Ref.	Date	Time	Survey	Species	Num.	Age	Sex	Activity	Habitat	Notes
			Survey							
K.001	02/05/2025	20:18	Breeding Woodcock Survey	Kestrel	1	A	F	H	B	Hunting bog
K.002	02/05/2025	21:24	Breeding Woodcock Survey	Kestrel	1	A		F		Flying into plantation
K.003	06/06/2025	06:22	Breeding Wader Survey	Kestrel	1	A	M	H	B	
K.004	18/06/2025	12:52	Breeding Hen Harrier Survey	Kestrel	1			H		Hunting near Moyasta
K.005	18/06/2025	15:30	Breeding Hen Harrier Survey	Kestrel	1			H		Near Moanmore lake hunting
LB001	02/04/2025	20:20	Breeding Woodcock Survey	Lesser Black-backed Gull	2	A		F	B	
LB002	22/04/2025	07:53	Bird of Prey Survey	Lesser Black-backed Gull	1			F		Flying north
LB003	22/04/2025	08:09	Bird of Prey Survey	Lesser Black-backed Gull	3	A		F		South
LB004	22/04/2025	09:32	Bird of Prey Survey	Lesser Black-backed Gull	2			F		South
LB005	22/04/2025	09:37	Bird of Prey Survey	Lesser Black-backed Gull	3			F		South
LB006	07/05/2025	07:16	Bird of Prey Survey	Lesser Black-backed Gull	2			F		East
LB007	07/05/2025	09:21	Bird of Prey Survey	Lesser Black-backed Gull	1	A		F		
LB008	07/05/2025	11:32	Bird of Prey Survey	Lesser Black-backed Gull	1			F		
LB009	04/06/2025	07:02	Bird of Prey Survey	Lesser Black-backed Gull	1			F		
LB010	04/06/2025	07:25	Bird of Prey Survey	Lesser Black-backed Gull	1			F		
LB011	04/06/2025	10:10	Bird of Prey Survey	Lesser Black-backed Gull	1			F		
LB012	06/06/2025	07:42	Breeding Wader Survey	Lesser Black-backed Gull	1			F	B	
ET001	22/04/2025	09:01	Bird of Prey Survey	Little Egret	2			-		
ET002	04/06/2025	10:50	Bird of Prey Survey	Little Egret	1			F		
ET003	06/06/2025	08:40	Breeding Wader Survey	Little Egret	1	A		F		
MA001	22/04/2025	07:02	Bird of Prey Survey	Mallard	1	A	M	F		
MA002	22/04/2025	09:01	Bird of Prey Survey	Mallard	3			-		
MA003	07/05/2025	08:31	Bird of Prey Survey	Mallard	2			F		Flying north-west
ML001	02/04/2025	19:57	Breeding Woodcock Survey	Merlin	1	A	F	H		Flew across bog low
ML002	02/04/2025	20:18	Breeding Woodcock Survey	Merlin	1	A	F	H	B	Same bird flew west

Ref.	Date	Time	Survey	Species	Num.	Age	Sex	Activity	Habitat	Notes
SN001	02/04/2025	20:44	Breeding Woodcock Survey	Snipe	1			F	B	
SN002	04/06/2025	09:10	Bird of Prey Survey	Snipe	1			D		Chipping display, no visual
SH001	04/06/2025	20:51	Breeding Woodcock Survey	Sparrowhawk	1	A	F	F	B, 1F	Flew north with prey
SH002	02/04/2025	20:25	Breeding Woodcock Survey	Sparrowhawk	1	A	F	H		North-east into plantation
WM001	07/05/2025	08:17	Bird of Prey Survey	Whimbrel	8			G		Feeding in field
WM002	22/04/2025	09:01	Bird of Prey Survey	Whimbrel	1			-		
WM003	02/05/2025	21:12	Breeding Woodcock Survey	Whimbrel	24	A		F		
WM004	02/05/2025	21:51	Breeding Woodcock Survey	Whimbrel	2			F		
WM005	07/05/2025	10:22	Bird of Prey Survey	Whimbrel	2			F		



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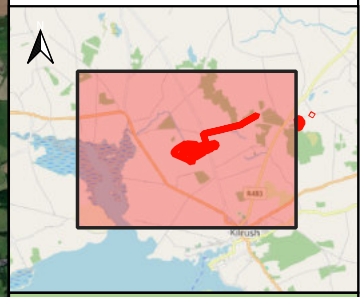
- Redline Boundary
- Turbine Locations
- Observation



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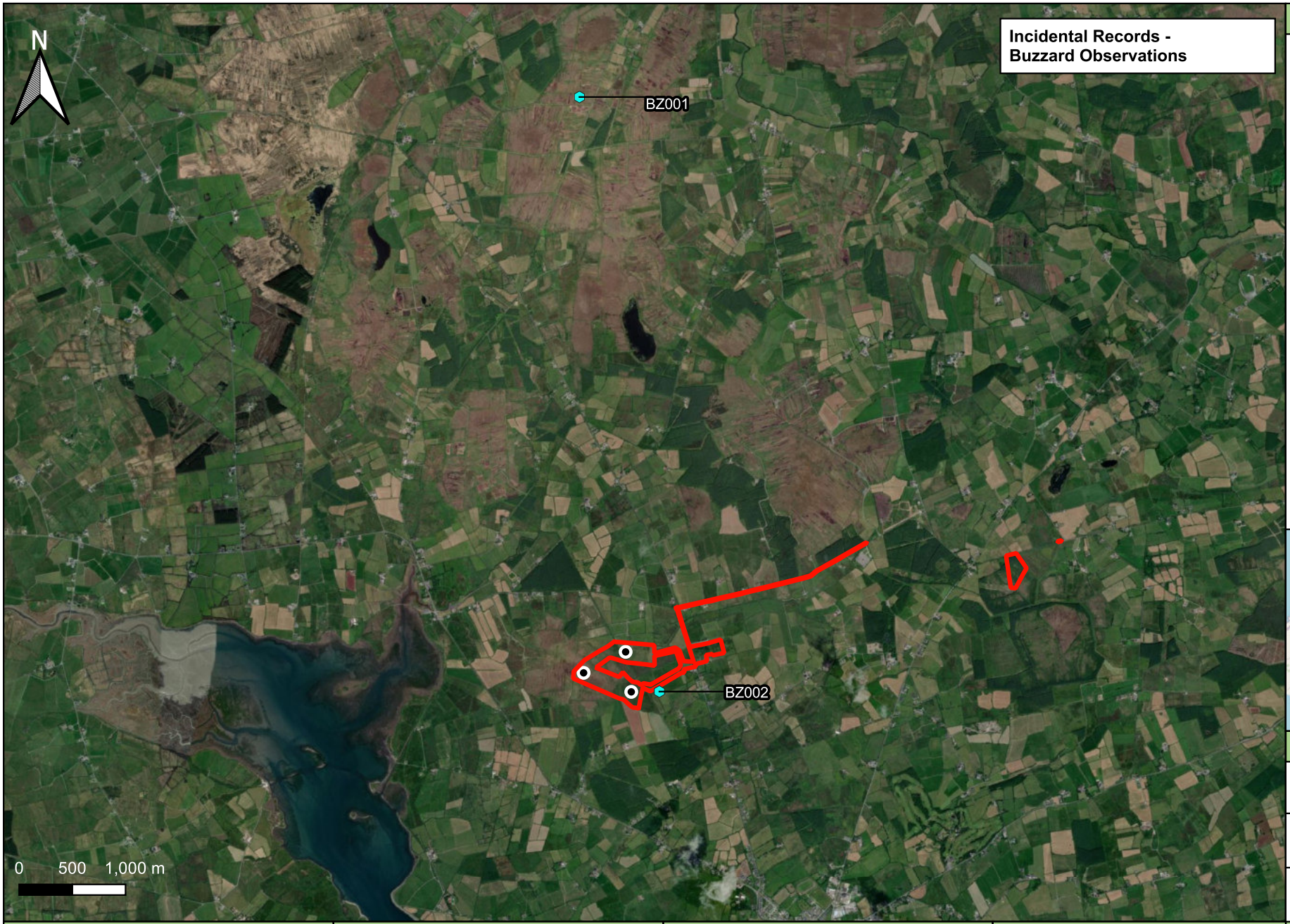
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-1. Incidental Records Black-headed Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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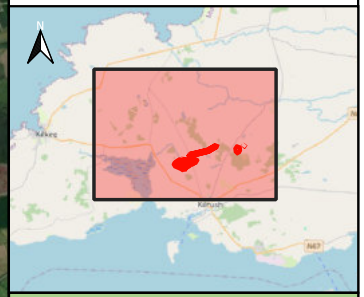

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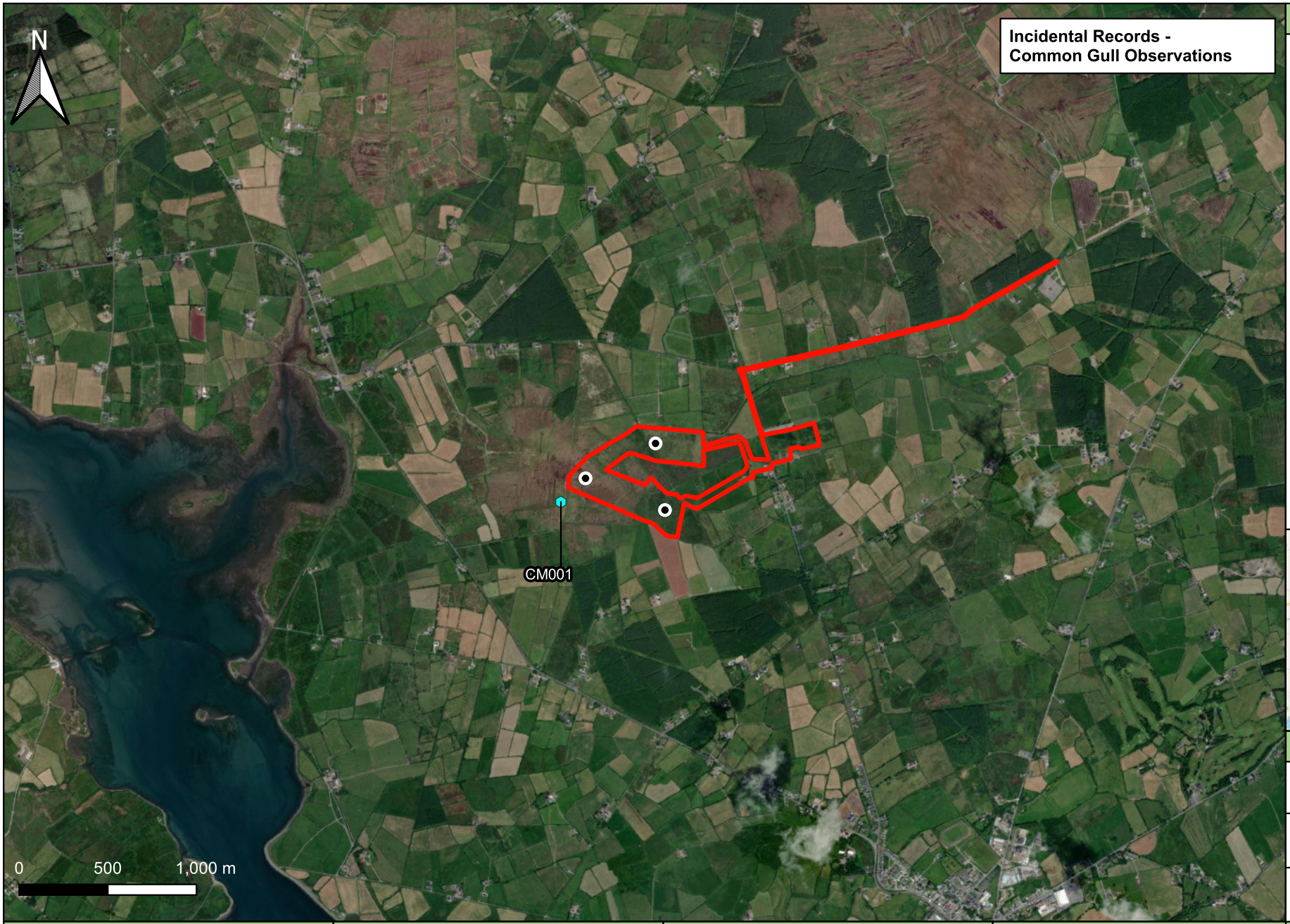
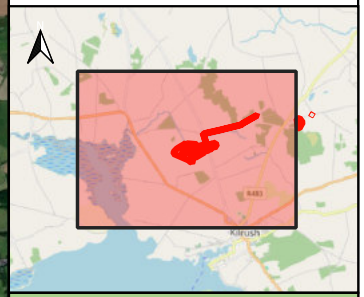
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-2. Incidental Records Buzzard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



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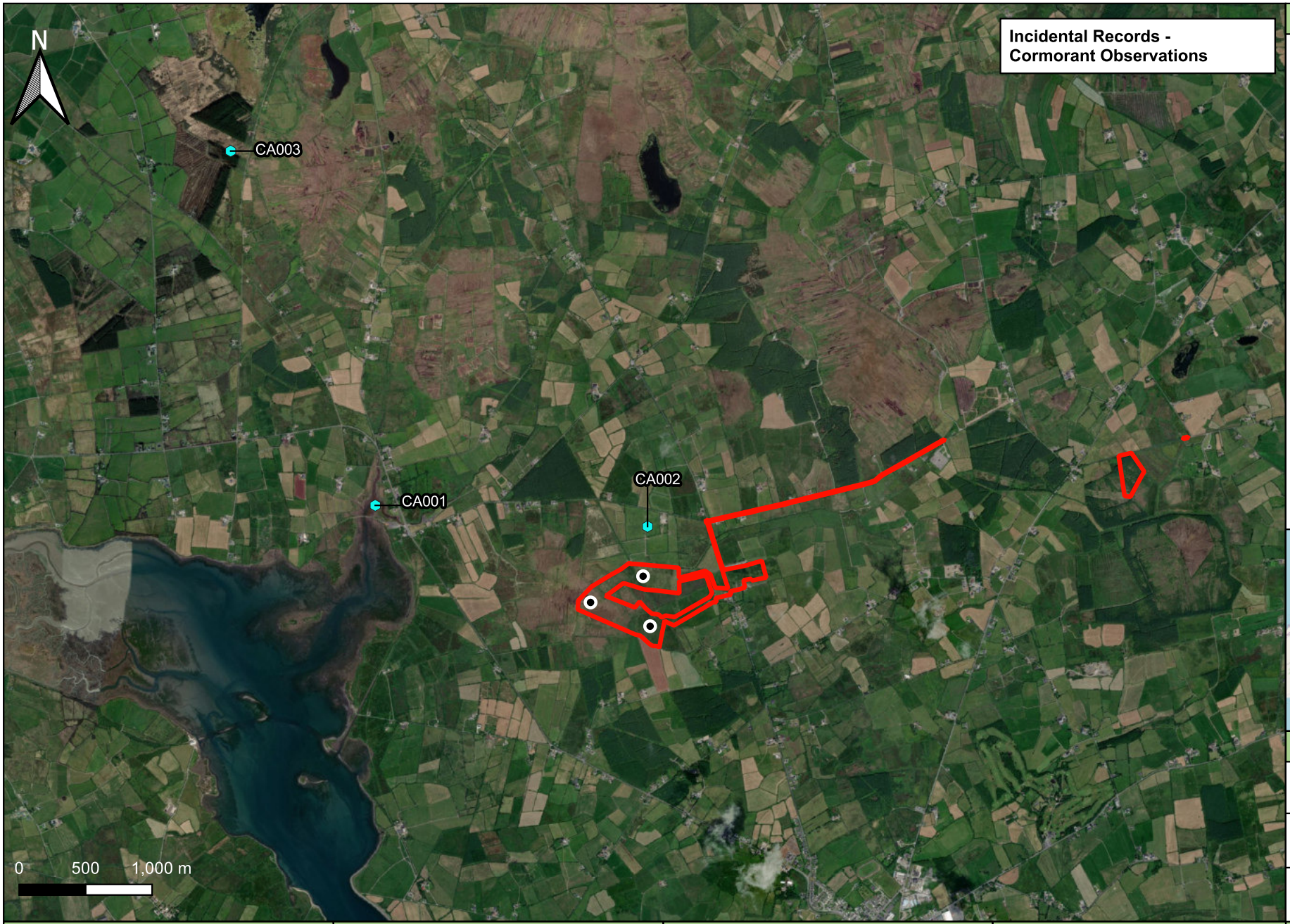
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-3. Incidental Records Common Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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- Redline Boundary
- Turbine Locations
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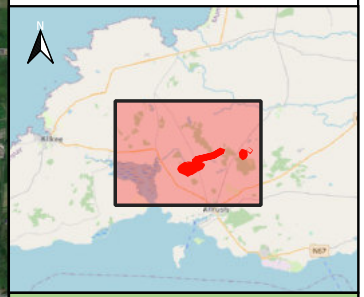

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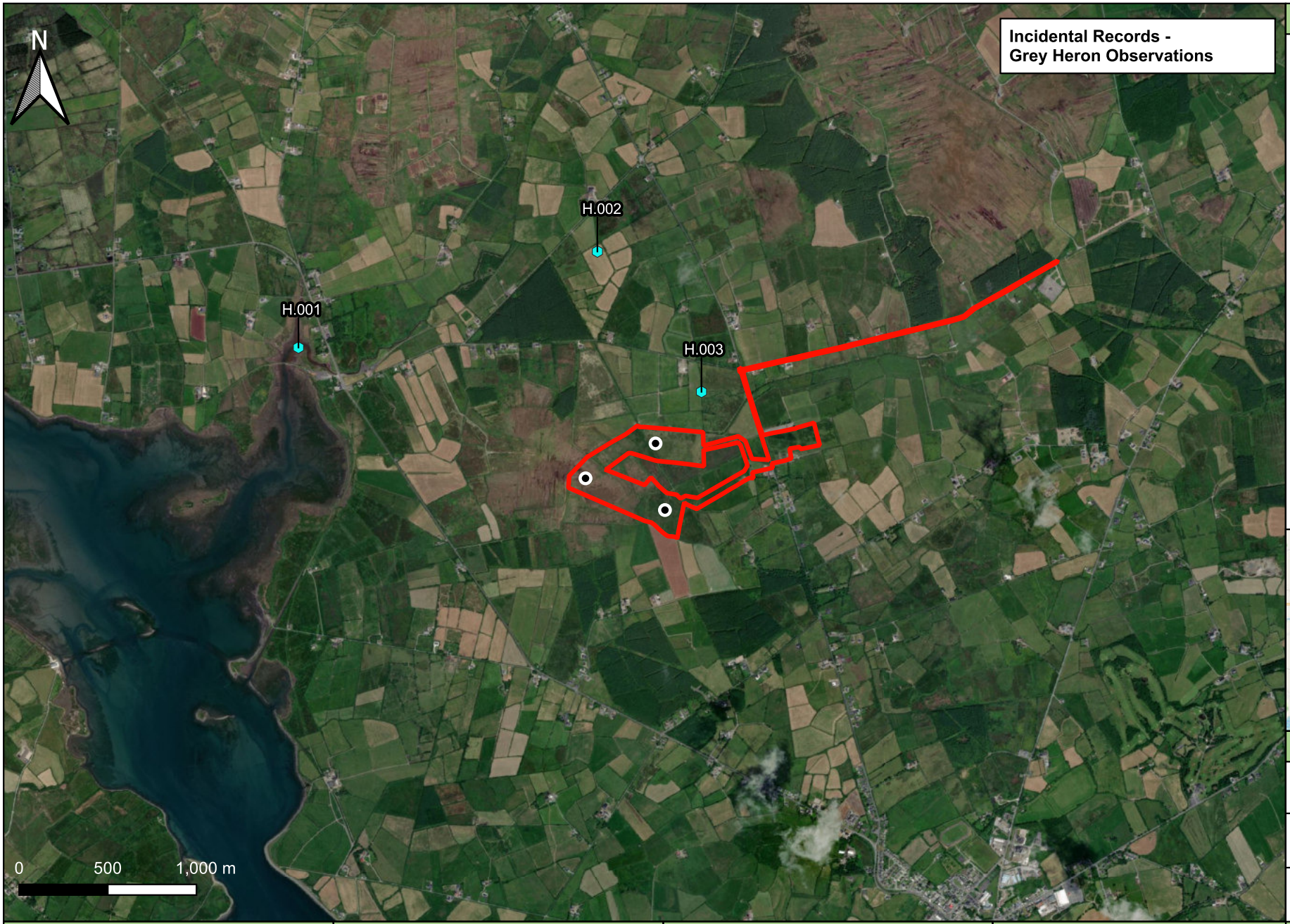
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-4. Incidental Records Cormorant Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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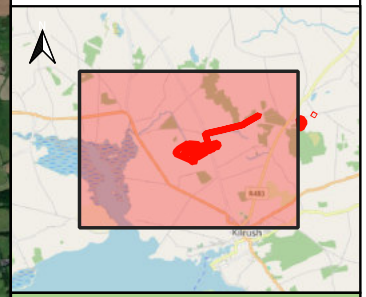

Details:

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Checked by: J. Murphy	**Basemap:** Bing Aerial
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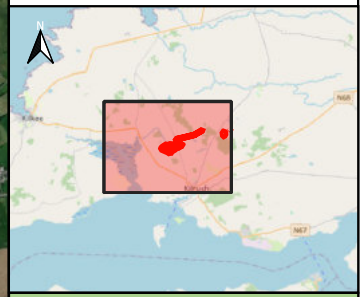
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-5. Incidental Records Grey Heron Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



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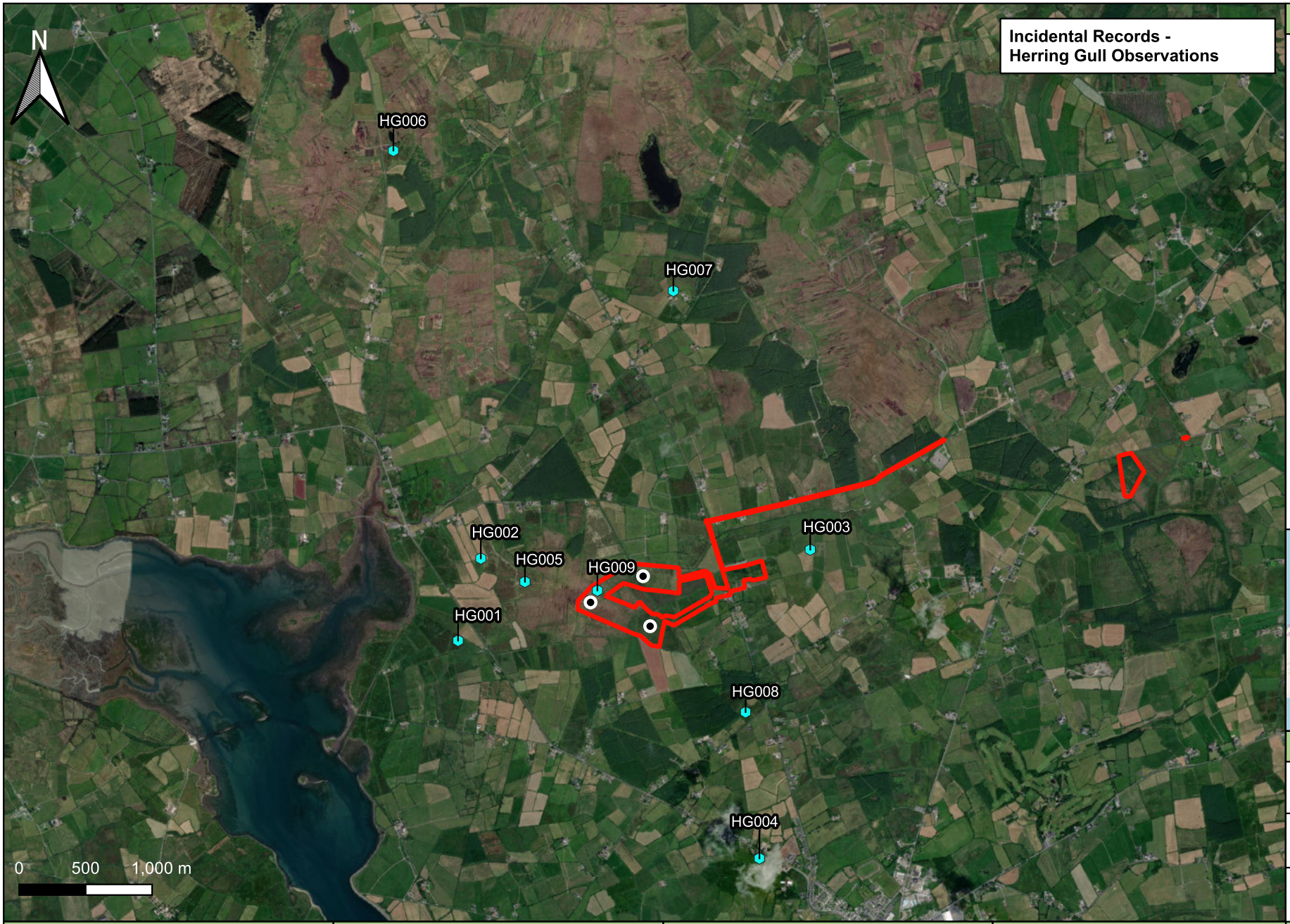
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-6. Incidental Records Hen Harrier Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

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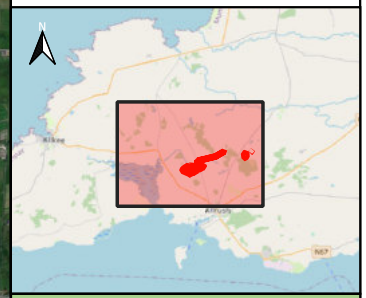

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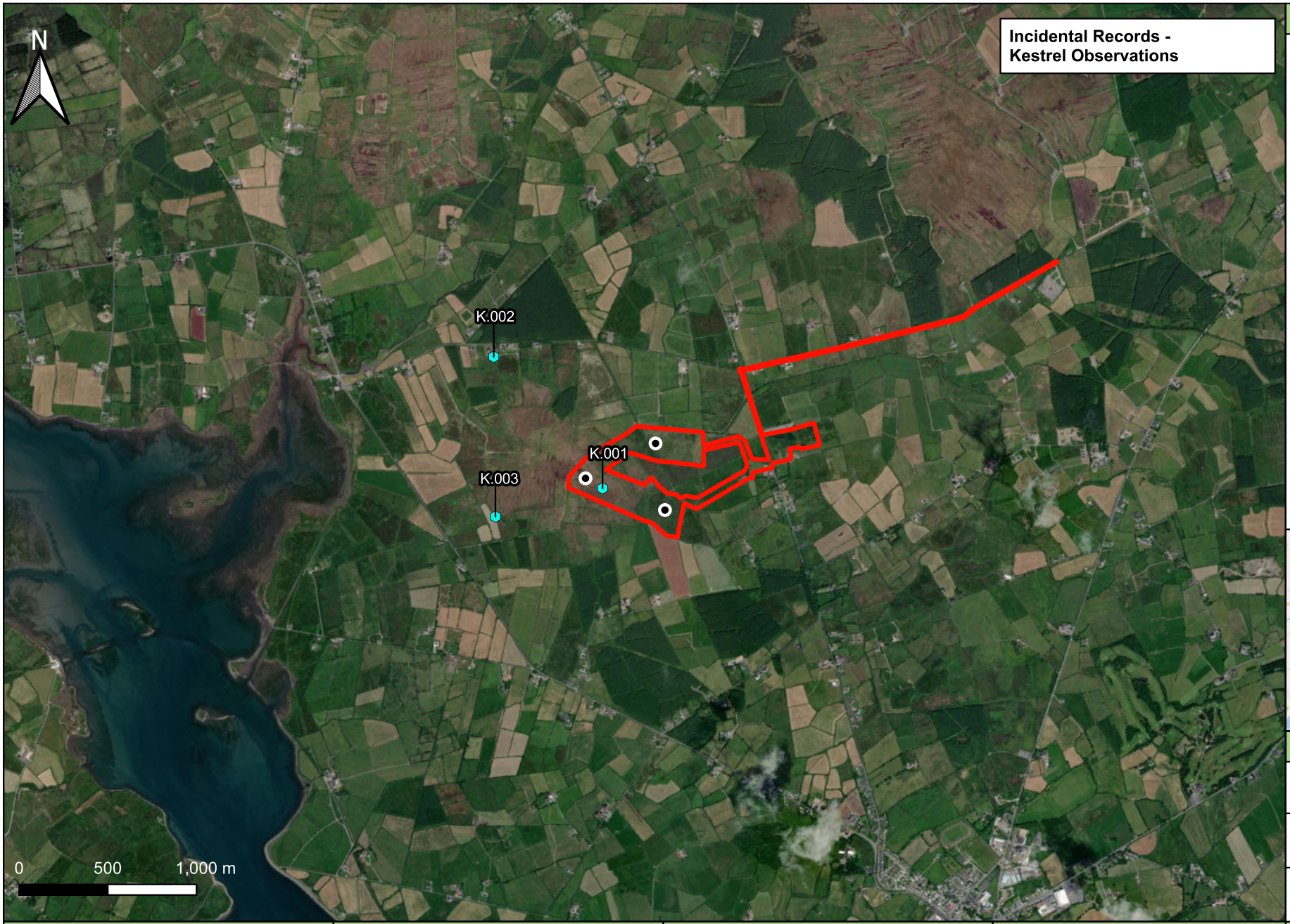
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-7. Incidental Records Herring Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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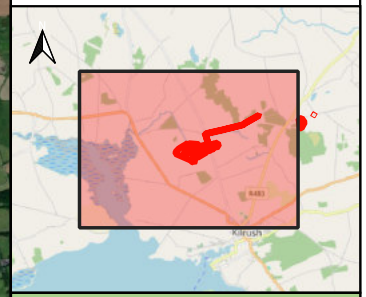

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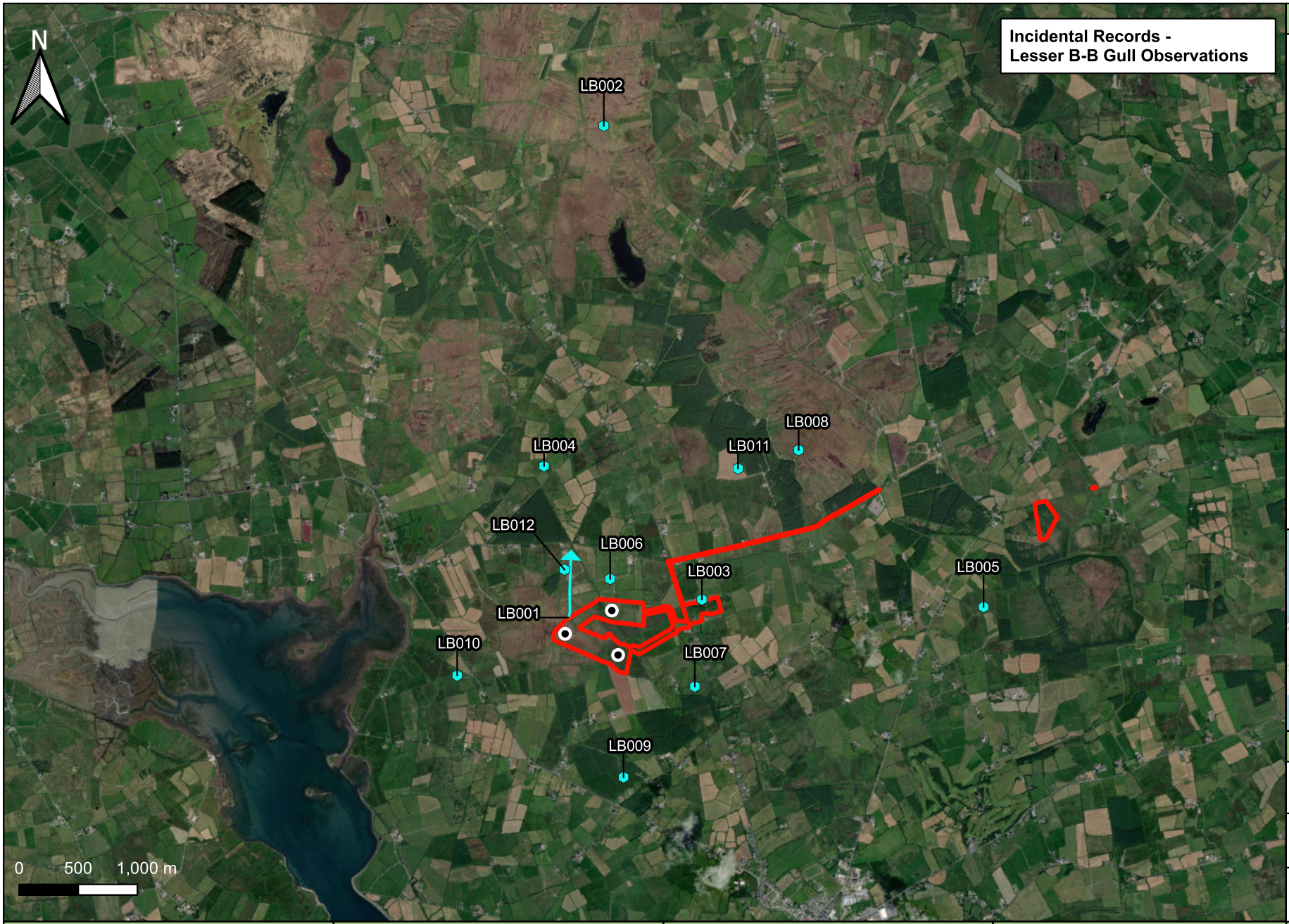
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-8. Incidental Records Kestrel bservations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

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- Observation
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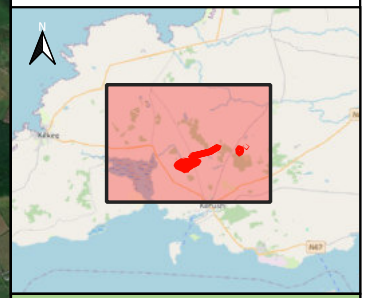

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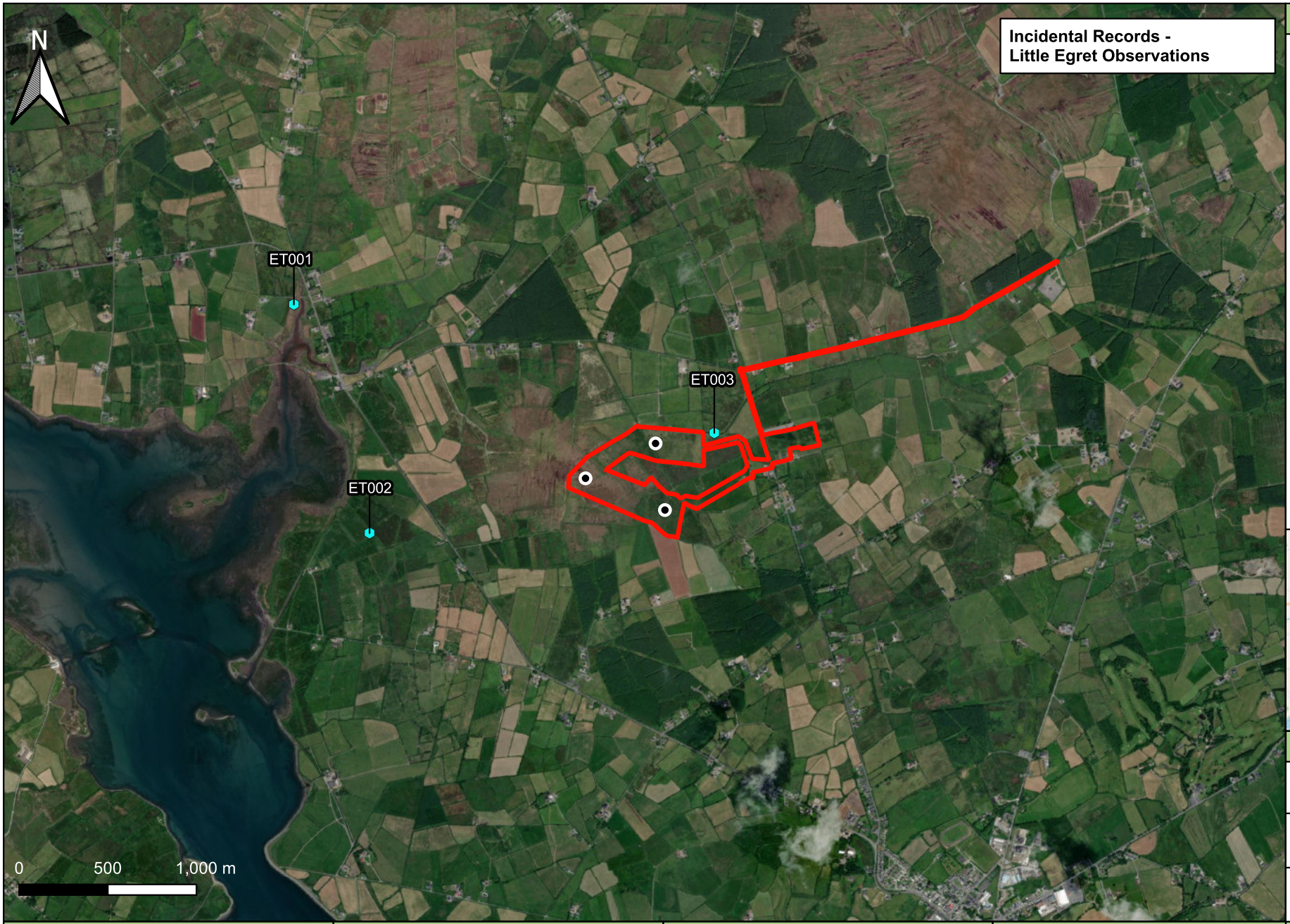
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-9. Incidental Records Lesser Black-backed Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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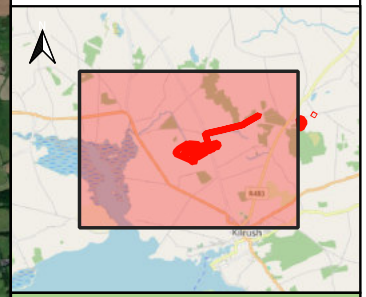

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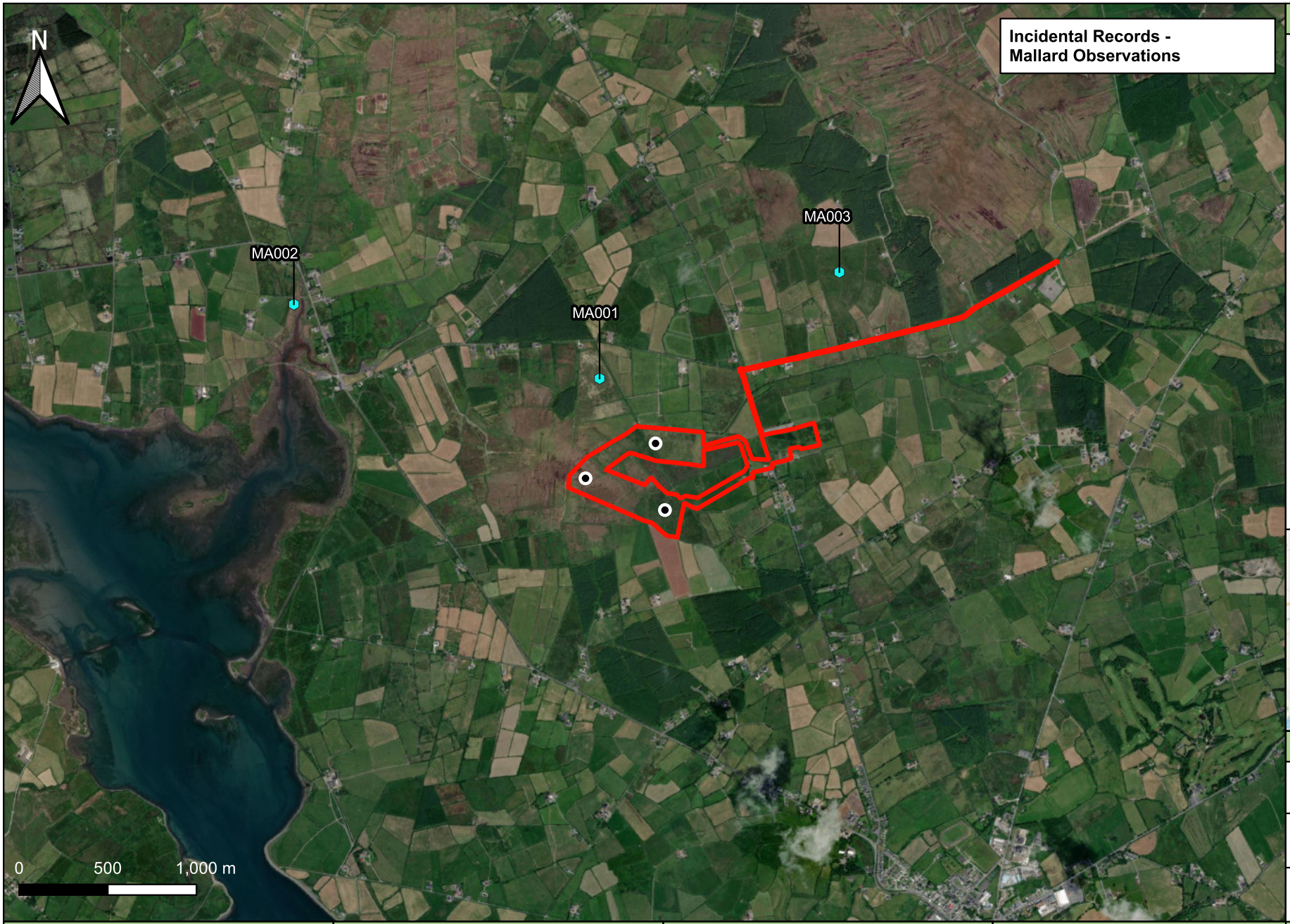
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-10. Incidental Records Little Egret Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

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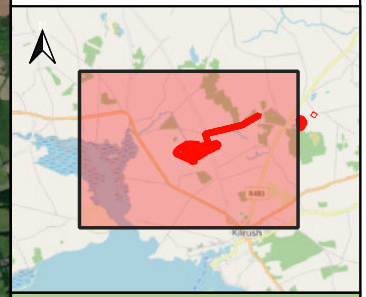
- Observation



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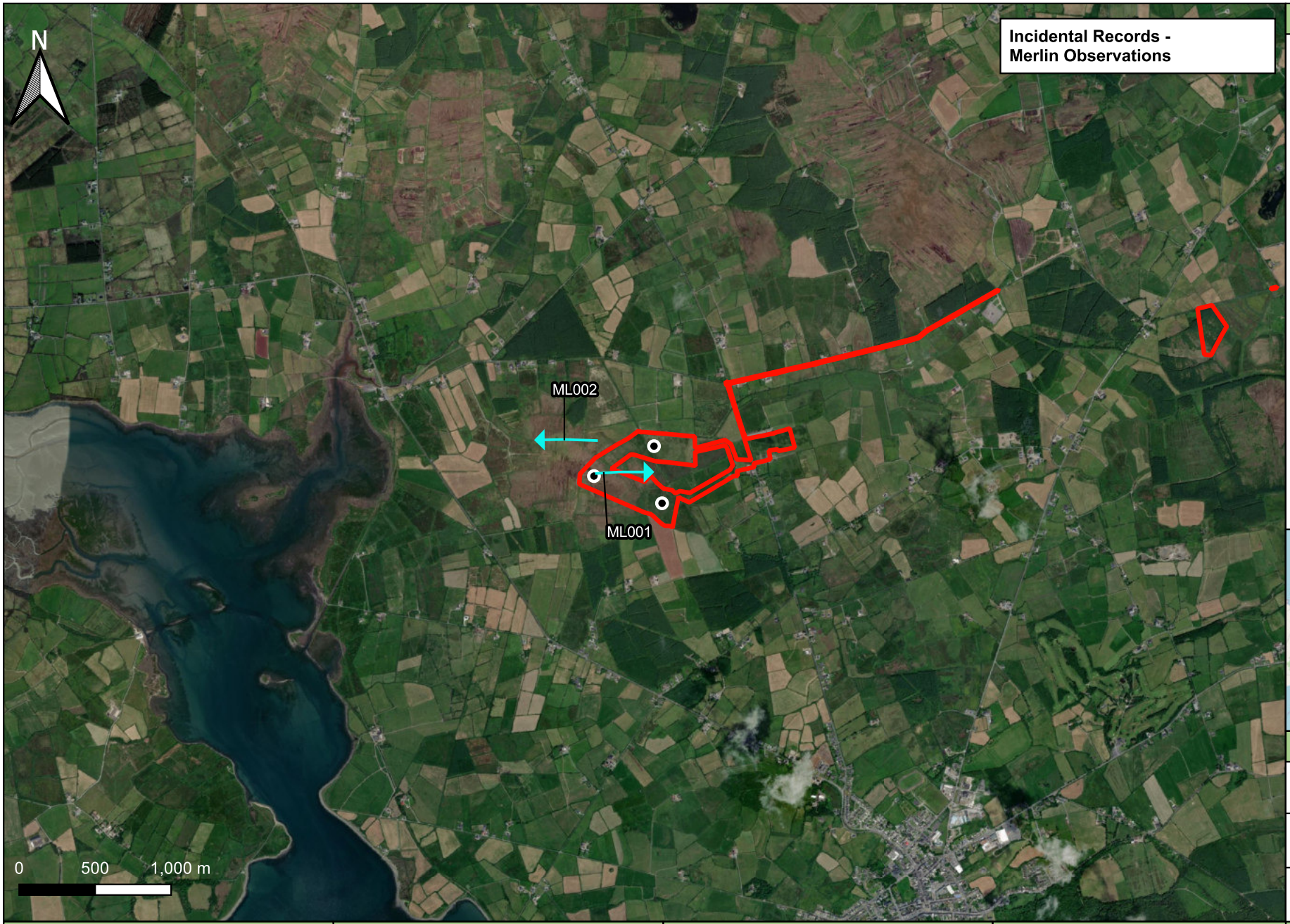
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-11. Incidental Records Mallard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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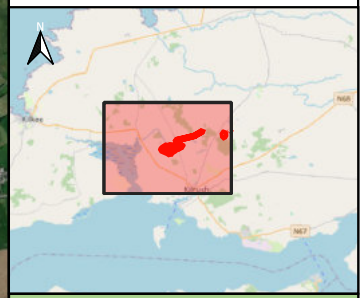

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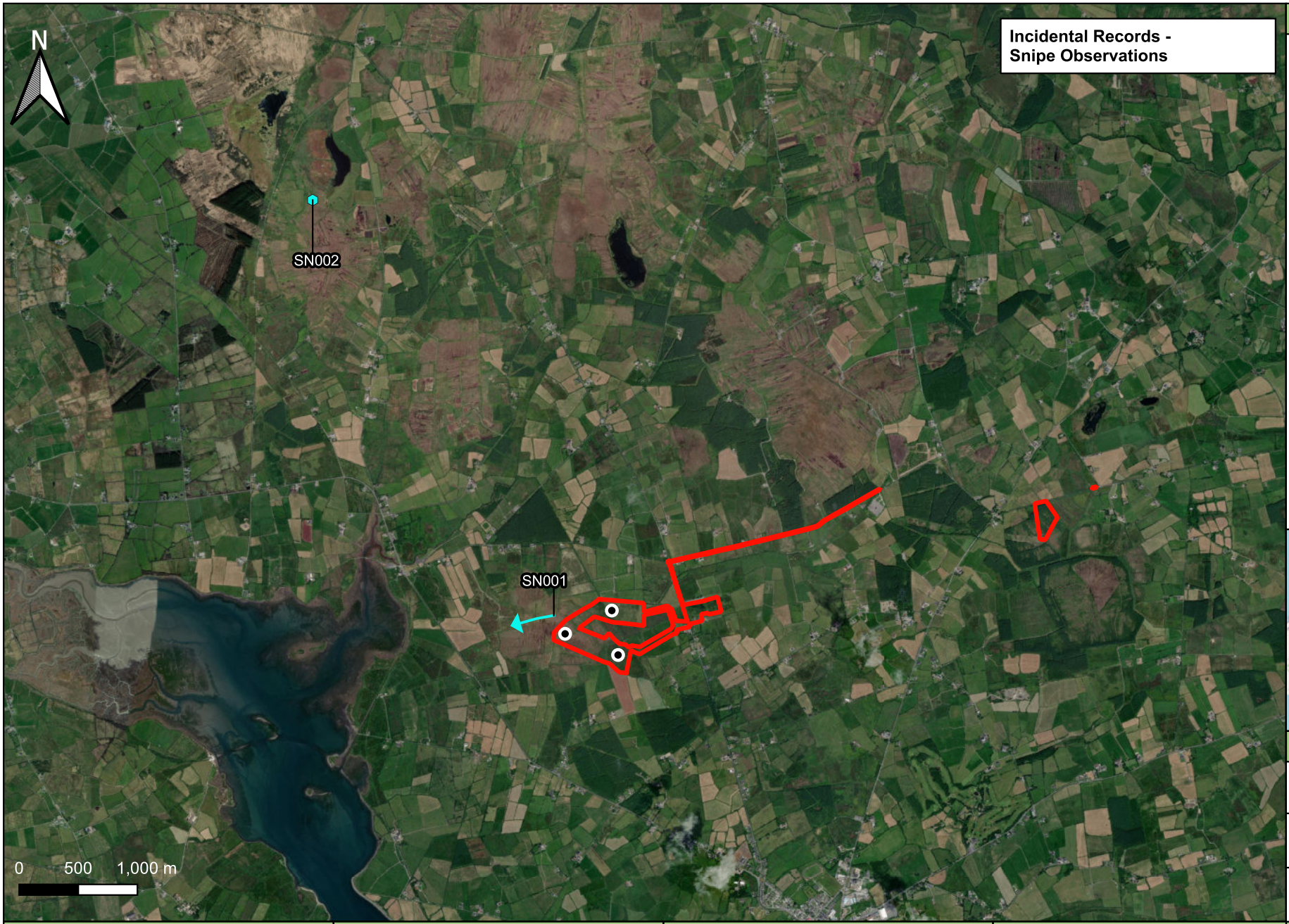
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-12. Incidental Records Merlin Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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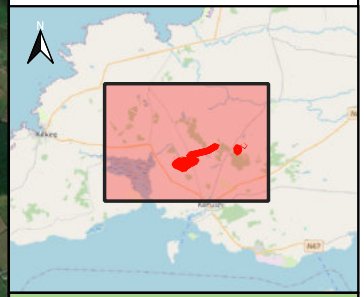

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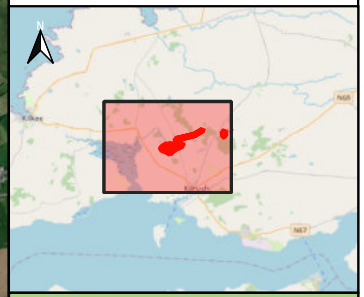
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-13. Incidental Records Snipe Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



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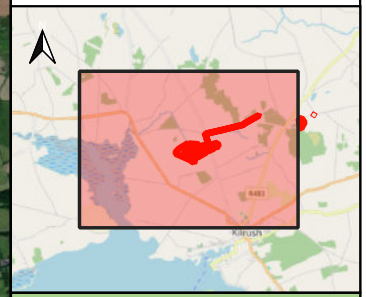
Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-14. Incidental Records Sparrowhawk Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



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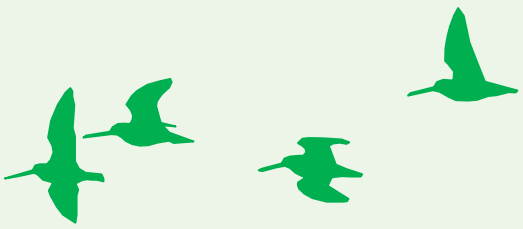
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 9-15. Incidental Records Whimbrel Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



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Bird Activity Summary Report Breeding Season 2025

Proposed Moanmore Wind Farm, Co. Clare

September 2026



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The work described in this Report is based on the conditions encountered and the information available during the stated period of time (i.e., the relevant bird survey season). The scope of this Report and the services are accordingly factually limited by these circumstances. Should any limitations be encountered during the survey season, or in completing this Report, it will be clearly stated in this Report.

All methodology employed including sources of said information used by IOSG is provided in this Report.

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Document Control Sheet

Project No.	Revision	Date	Status	Prepared By	Reviewed & Approved By	Notes
22001	**F**	2025.12.10	Final	DW	JNM	-
22001	**F1**	2026.09.29	Final	DW	JNM	For ACP FI Request

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1 INTRODUCTION

1.1 Overview

This report has been prepared to provide information in response to a request for further information issued by An Coimisiún Pleanála in relation to the Proposed Moanmore Wind Farm.

Irish Ornithological Survey Group (IOSG) were commissioned by Greensource to complete bird surveys at the Proposed Moanmore Wind Farm site (hereafter referred to as 'the Site') for the breeding season 2025 survey period.

This report provides information relating to bird distribution and abundance surveys carried out at the Site during the breeding season 2025, comprising the months of April 2025 to September 2025 inclusive. It describes the methods used and data collected at the Site during this study period.

This report is supported by Appendices 1 – 3.

- Appendix 1 contains information on survey effort including survey times, weather conditions, surveyor information, and any other additional relevant information;
- Appendix 2 contains the raw survey data including maps of all relevant observations; and
- Appendix 3 contains sensitive information relating to breeding locations of protected species.

1.2 Statement of Authority

The reliability of survey work is dependent on the use of appropriately skilled and experienced observers. As such, surveys were carried out by the following members of Irish Ornithological Survey Group (IOSG):

- John N Murphy (Environmental Manager & Lead Ornithologist);
- Séan Dundon B.Sc., Ecologist & Field Ornithologist;
- Stan Nugent B.Sc., Field Ornithologist; and
- Paidi Cullinan, Field Ornithologist.

The surveyors are experienced ornithologists and competent experts in bird surveying. The survey scope was designed by John N Murphy (Environmental Manager & Lead Ornithologist) of IOSG.

This report has been prepared by Donnacha Woods B.Sc. M.Sc., an experienced ornithologist, and was reviewed/approved by John N Murphy (Environmental Manager & Lead Ornithologist).

1.3 Survey Justification

A comprehensive suite of surveys was employed at the Site. These surveys have provided a detailed set of data which describes bird flight activity and bird behavior observed within the Site and surrounding areas during this survey period. During the suite of surveys, all species heard or seen were recorded, with emphasis being given to species of higher conservation concern e.g., Amber/Red listed species from *Birds of Conservation Concern in Ireland* (Gilbert, G. *et al*, 2021), or those protected under the EU Birds Directive (2009/147/EC) (EC, 2023) e.g., Annex I species.

The results of which can be combined with previous and subsequent surveys at this Site to provide a detailed overview and assessment of bird activity/usage at the Site and the surrounding area. NatureScot (SNH, 2017) recommends a minimum survey effort of two years (two winter seasons and two breeding seasons) to draw robust conclusions regarding bird activity at a proposed wind farm site.

1.4 Survey Limitations

No limitations were encountered during the survey period which prevented completion of bird surveys scheduled at this Site over the 2025 breeding season.

2 FIELD SURVEY METHODOLOGY

2.1 Specifying Target Species

'Target species' as defined in this report were considered to be those listed on Annex I of the EU Birds Directive (2009/147/EC), species listed on the Red List of Birds of Conservation Concern in Ireland (Gilbert *et al*., 2021), species listed on Schedule 4 of the Wildlife Acts 1976-2018 (39/1976) and species that are listed as a Special Conservation Interest (SCI) within the Irish network of Special Protection Areas (SPA) designated under the EU Habitats Directive (92/43/EEC). A select number of species which fall outside these categories and are deemed noteworthy from an ecological perspective are also included as target species in this report (e.g. raptor species). Passerines are not included as target species as they are not considered to be adversely affected by wind energy developments (SNH, 2017).

2.2 Survey Details & Data Recording

Surveys were carried out in accordance with the guidance outlined in '*Recommended bird survey methods to inform impact assessment of onshore wind farms*' (SNH, 2017).

Survey work reliability is dependent on the expertise of the surveyor and the quality of the data captured in the field. As such, the bird surveys have been designed to capture all relevant information pertaining to observations of bird activity on-site, wherein the following standardised information is captured during site visits:

- The date the survey is completed
- The start time of the survey
- The finish time of the survey
- The weather conditions on the date of the survey
- The degree of visibility during the survey

Weather conditions recorded during the surveys comprise a range of features and units of measurement, which, when combined, provide an overview of environmental conditions on site at the time of the survey. These include cloud cover (okta scale), wind direction, wind speed (Beaufort scale), precipitation (detailed, if any), temperature (Degrees Celsius), and visibility. However, some variation may be present between surveyors, due to the subjective nature of some of the scales that are used. Survey effort is included in Appendix 1.

Additional information such as disturbance (e.g., by animals, walkers, traffic or machinery) was also noted, if observed.

At the time of each species observation, the following information is captured:

- Species name/species BTO code (BTO, 2018);
- Species total count (i.e., the total number of each species observed during the survey);
- Species activity of note (e.g., displaying, singing, flying/passing through, etc.); and
- Any evidence of nesting/roosting, marking the locations of same on the survey sheet map.

All surveys are scheduled per Best Practice Guidelines at the time of the survey at appropriate times when species are expected to be active within the respective wintering/breeding seasons.

2.3 Distribution & Abundance Surveys

2.3.1 Transects Surveys

Transect surveys were carried out having regard for CBS methodology as used by Birdwatch Ireland for ongoing countryside bird monitoring (Birdwatch Ireland, 2012). This method involves the recording the number of all individuals of all species encountered (seen and heard) into three distance bands (0-25m, 25-100m and > 100m) along a set transect route.

Three fixed transects (A, B & C) were surveyed during breeding season 2025 survey period. A total of four visits were made to each transect between April and August 2025.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort. Transect routes are shown in Figure 2-2.

2.3.2 Breeding Wader Surveys

Breeding wader surveys were carried out in accordance with O'Brien & Smith (1992). A combination of fixed observation points and transects routes were surveyed over two visits between April and May 2025. Surveys commenced at dawn and concluded before noon, as per O'Brien & Smith (1992).

Survey locations are shown in Figure 2-3. Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.3 Breeding Woodcock Surveys

Breeding woodcock surveys were carried out in accordance with Gilbert *et al* (1998). The surveys aimed to identify breeding territories through observations of displaying (roding) males. Surveys comprised transects in areas of suitable breeding habitat within a 500m radius of the Site. Surveys were carried out over three visits between April and June 2025, commencing one hour before sunset.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.4 Bird of Prey Surveys

Bird of Prey surveys were carried out in accordance with Hardey *et al* (2014). Surveys were carried out once per month during core breeding season period April to July 2025. Surveys comprised transects and observation points overlooking suitable raptor breeding habitat within a 5km radius of the Site.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.5 Breeding Hen Harrier Surveys

Breeding hen harrier surveys were carried out in accordance with Hardey *et al* (2014). Suitable breeding habitat within a minimum 2km radius of the Site was visited over two days each month from April to June 2025. Areas visited were Tullagher Bog and surrounds, Doonbeg, the Runaway near Moyasta, Einagh Bog, Moanmore, Shragh Bog and Scattery Island (from mainland). Watches were carried out from observation points covering areas of suitable breeding habitat.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.6 Breeding Peregrine Surveys

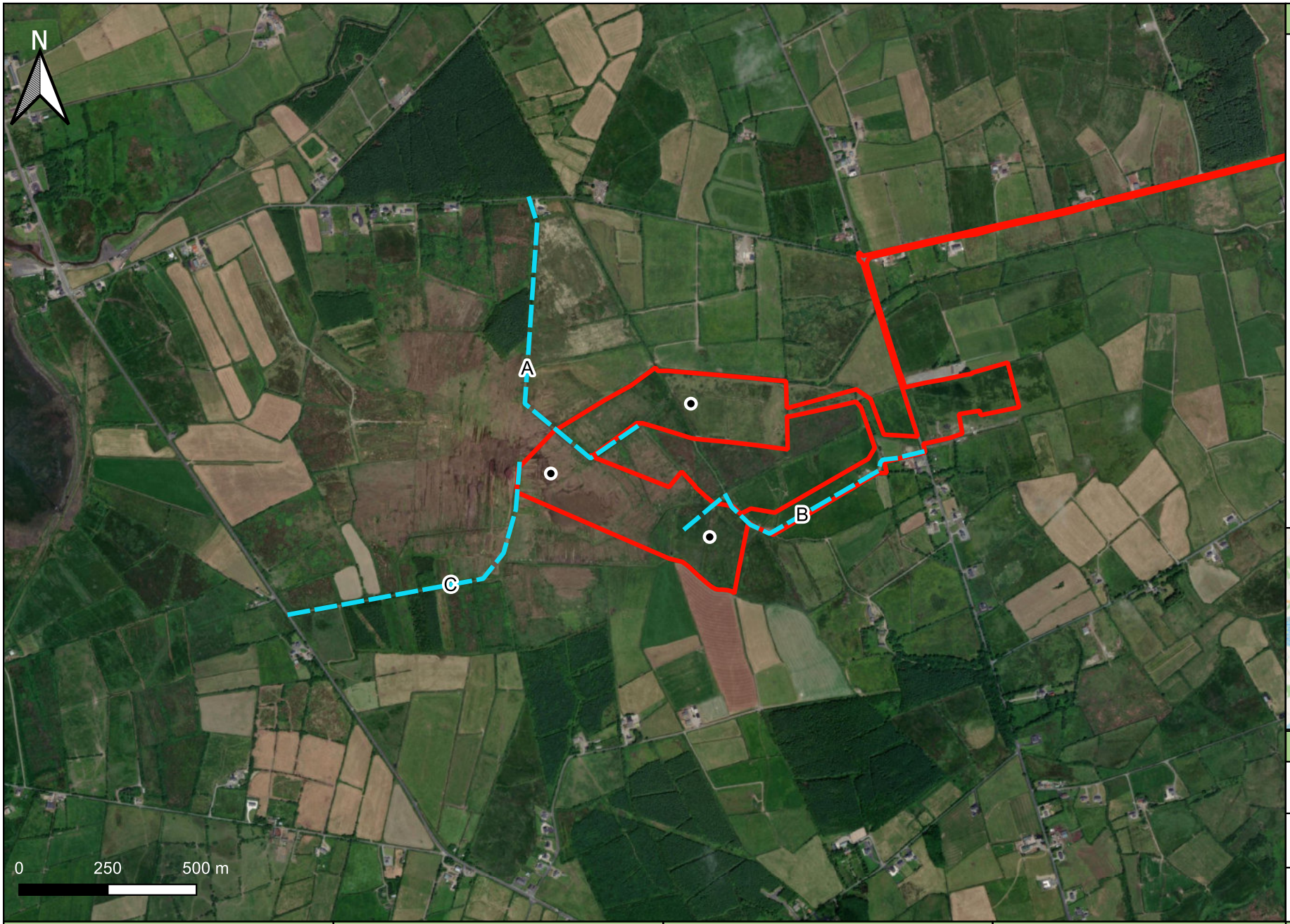
Breeding peregrine surveys were carried out in accordance with Hardey et al (2014). Suitable breeding habitat features (i.e. cliff faces, suitable buildings etc.) were visited within a minimum 5km radius of the Site over two visits in April and May 2025.

Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.

2.3.7 Shorebird Count Surveys

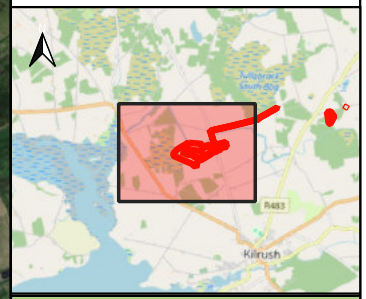
Shorebird count surveys were carried out in three areas during the months of April, May, August and September 2025 to monitor the distribution and abundance of wintering/passage waterbird populations: Poulnasherry Bay, Doonbeg Bay and sections of the River Shannon and Fergus estuary between the areas of Kilrush and Knock. The survey methodology was undertaken in accordance with Birdwatch Ireland's I-WeBS methodology (Bibby *et al*, 2000). The two survey areas were divided into sections and surveyed from fixed vantage points during each survey visit, where all target species were recorded and counted in each section. The areas surveyed include all suitable foraging and roosting habitat for wintering waterbirds within the survey areas.

Survey areas are shown in Figure 2-4. Full details of survey dates, times and weather conditions are provided in Appendix 1 - Survey Effort.



Legend:

- Redline Boundary
- Turbine Locations
- Transects



Details:

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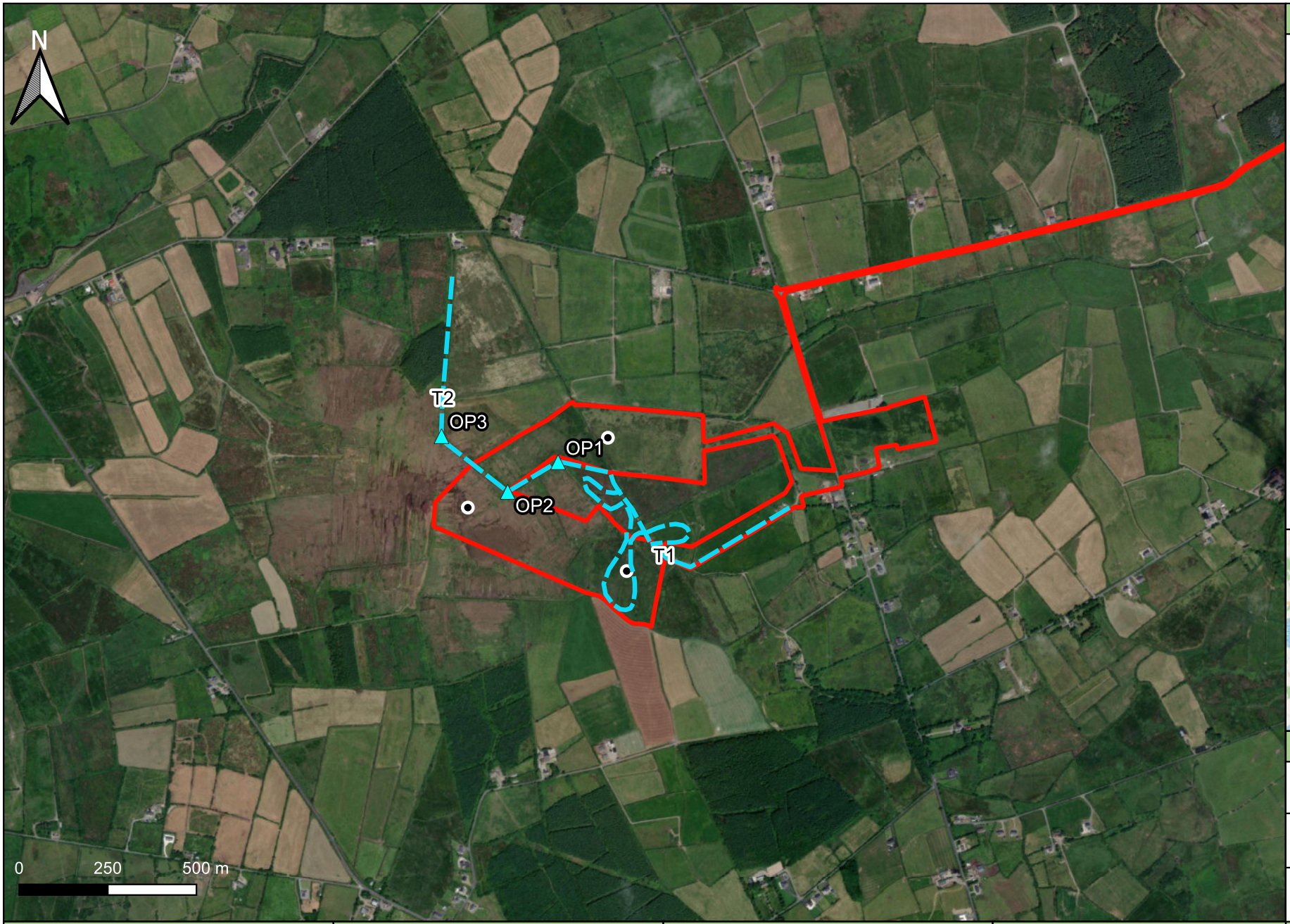
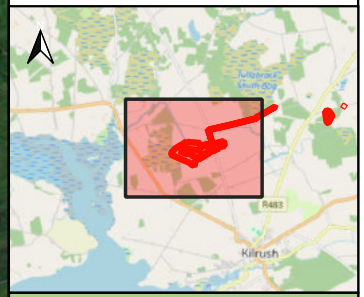
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Fig. 2-1. Transect Survey Transect Routes.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Transects
- Observation Points



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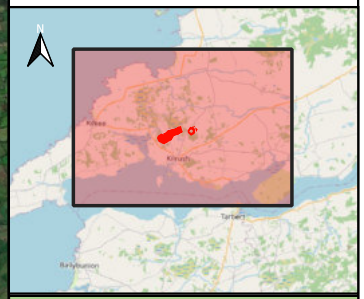
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	**Season:**	**Figure Title:**	**Produced By:**	**Notes:**
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Fig. 2-2. Breeding Wader Survey Locations.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Shore Count Observation Points
- Shore Count Approximate Zone Areas



Details:

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Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 24/11/2025	**Scale:** 1:120,000 @A4

Project Title:	**Season:**	**Figure Title:**	**Produced By:**	**Notes:**
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Fig. 2-3. Shorebird Count Survey Locations.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

3 RESULTS

3.1 Transect Survey Results Summary

A summary of observations of target species recorded during transect surveys is provided in Table 3-2 below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 2.

Table 3-1. Summary of transect survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Buzzard	1	1	1	Single observation of individual bird travelling.
Grey Heron	1	1	1	Single observation of individual bird travelling.
Herring Gull	3	3	1	All observations comprised single birds travelling / circling.
Lesser Black-backed Gull	1	1	1	Single observation of individual bird travelling.
Mallard	1	1	2	Single observation comprising two birds flying up from drain.
Sparrowhawk	2	1	1	One observation of adult female hunting in April 2025 and second observation of adult male perching in August 2025.

3.2 Breeding Wader Survey Results Summary

There were no observations of target species during breeding wader surveys.

3.3 Breeding Woodcock Survey Results Summary

A summary of observations of woodcock recorded during the dedicated breeding woodcock surveys is provided in Table 3-3 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 4.

Table 3-2. Summary of woodcock survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Woodcock	2	0	1	Both observations were during the survey carried out in April 2025. One observation comprised a single bird travelling and the second observation comprised a single bird displaying (roding) and dropping down into an area of forestry situated beyond 500m from proposed turbine locations. This indicates probable breeding in the wider vicinity of the Site.

3.4 Bird of Prey Survey Results Summary

A summary of observations of raptor species recorded during the bird of prey surveys is provided in Table 3-4 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 5. Confidential data is provided in Appendix 3.

Table 3-3. Summary of bird of prey survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Buzzard	5	1	1	The majority of observations comprised single birds hunting / soaring. There were two observations of birds flying into a forestry plantation, indicating potential breeding at this location, situated approximately 1.5km from the nearest proposed turbine location.
Hen Harrier	6	4	1	All observations comprised adult male birds hunting / travelling. There was an observation of a bird carrying prey during survey in May 2025 (see Appendix 3 – Confidential Data). This bird was initially observed within the 500m radius of the proposed turbines and travelling with prey away from the Site out to 2km, when lost from view. travelling in the direction of a known breeding area, situated over 4km from the Site.
Kestrel	7	4	1	All observations comprised individual birds hunting and travelling.
Peregrine	1	0	1	Single observation of individual bird travelling approximately 3km distant from the Site in June 2025.
Sparrowhawk	4	1	1	All observations comprised individual birds hunting and travelling.

3.5 Breeding Hen Harrier Survey Results Summary

A summary of observations of hen harrier recorded during the dedicated breeding hen harrier surveys is provided in Table 3-5 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 6. Confidential data is provided in Appendix 3.

Table 3-4. Summary of breeding hen harrier survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Hen Harrier	3	1	1	All observations comprised adult male birds hunting / travelling. There was an observation of a male in June 2025 travelling from a known breeding area, situated over 4km from the Site, and observed travelling in the approximate direction of the Site.

3.6 Breeding Peregrine Survey Results Summary

A summary of observations of peregrine recorded during the dedicated breeding peregrine surveys is provided in Table 3-6 below. Incidental observations of other target species recorded during these surveys are presented in Section 3.10 further below. Raw survey data, including maps of all observations, is provided in Appendix 2 - Section 7. Confidential data is provided in Appendix 3.

Table 3-5. Summary of breeding hen harrier survey results.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Peregrine	3	0	1 - 2	A male was recorded perching in an area of suitable breeding habitat in April 2025, at a location approximately 10km from the Site. A pair was recorded at this location during survey in May 2025. There was a further observation of an adult female during survey in May 2025 at a location approximately 4km from the Site.

3.7 Shore Bird Count Survey Results Summary

A summary of observations of target species recorded during shorebird count surveys is provided in Table 3-7 below. Raw survey data is provided in Appendix 2 - Section 8.

Table 3-6. Summary of shorebird count survey results.

Species	Kilrush to Knock Zones A-D		Poulnasherry Bay		Doonbeg Bay	
	Number of Observations	Flock size range	Number of Observations	Flock size range	Number of Observations	Flock size range
Arctic Tern	-	-	-	-	1	4
Bar-tailed Godwit	1	1	3	1 – 9	1	4
Black-headed Gull	10	1 – 265	6	15 – 92	2	8 – 18
Black-tailed Godwit	1	38	1	1	1	17
Brent Goose	1	2	4	2 – 33	-	-
Common Gull	8	2 – 14	6	1 – 26	5	2 – 12
Cormorant	14	1 – 14	8	1 – 8	5	1 – 6
Curlew	8	1 – 75	10	1 – 133	4	1 – 17
Dunlin	1	64	2	30 – 74	2	4
Great Black-backed Gull	7	1 – 3	6	1 – 2	3	1 – 2
Great-crested Grebe	3	2 – 12	3	1 – 5	-	-
Great Northern Diver	-	-	2	1	3	1 – 2
Green Sandpiper	-	-	2	1 – 2	-	-
Greenshank	2	1 – 4	3	4 – 8	2	1 – 2
Grey Heron	9	1 – 7	9	1 – 4	4	1 – 2
Herring Gull	16	1 – 27	11	2 – 32	6	10 – 74
Knot	-	-	3	2 – 18	1	5
Lapwing	1	3	1	12	1	3
Lesser Black-backed Gull	7	1 – 4	2	1	6	2 – 7
Little Egret	10	1 – 11	11	2 – 18	6	1 – 3
Mallard	14	2 – 57	10	2 – 57	6	4 – 47
Mediterranean Gull	2	2 – 5	1	1	-	-

Species	Kilrush to Knock Zones A-D		Poulnasherry Bay		Doonbeg Bay	
	Number of Observations	Flock size range	Number of Observations	Flock size range	Number of Observations	Flock size range
Mute Swan	-	-	-	-	4	2 – 3
Oystercatcher	5	2 – 12	9	2 – 24	6	5 – 26
Red-breasted Merganser	-	-	1	1	-	-
Redshank	5	1 – 51	5	22 – 93	3	3 – 15
Ringed Plover	1	1	3	2 – 137	4	6 – 70
Ruff	5	1 – 2	1	2	-	-
Sandwich Tern	-	-	1	1	4	2 – 5
Shag	-	-	-	-	3	1 – 2
Shelduck	8	2 – 22	4	2 -19	2	2 – 4
Snipe	-	-	2	1 – 2	2	3
Teal	3	2 – 60	3	2 – 34	2	1 – 26
Turnstone	-	-	1	2	1	6
Whimbrel	8	5 – 40	5	2 – 61	4	5 – 80
Wigeon	1	5	1	1	-	-

3.8 Incidental Records Summary

A summary of incidental records of target species recorded during surveys is provided in Table 3-8 below. Raw survey data is provided in Appendix 2 - Section 9.

Table 3-7. Incidental records summary.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Black-headed Gull	2	1	1 – 2	Both observations comprised birds travelling.
Buzzard	3	1	1	All observations comprised individual birds hunting / travelling.
Common Gull	1	1	1	Single observation of individual bird travelling.

Species	Total number of observations	Total number of observations within 500m radius of turbines	Flock size range	Summary of activity
Cormorant	3	1	1	All observations comprised individual birds travelling.
Grey Heron	3	1	1	All observations comprised individual birds travelling.
Hen Harrier	3	2	1	One observation comprised a ringtail bird travelling during Shorebird Count Survey at Poulnasherry Bay in April 2025. There were two observations of males carrying prey away from the Site during a woodcock survey in June 2025. Both these birds were recorded within a 500m radius of the proposed turbine locations and observed to be travelling away from the Site, in the direction of a known breeding area situated over 4km from the Site.
Herring Gull	9	1	1 – 4	All observations comprised birds travelling.
Kestrel	5	1	1	All observations comprised individual birds hunting / travelling.
Lesser Black-backed Gull	12	2	1 – 3	All observations comprised birds travelling.
Little Egret	3	1	1 – 2	All observations comprised birds travelling.
Mallard	3	1	1 – 3	All observations comprised birds travelling.
Merlin	2	2	1	Both observations comprised individual adult female birds hunting within a 500m radius of the proposed turbine locations during woodcock survey in April 2025.
Sparrowhawk	2	2	1	Both observations comprised adult female birds, one of bird hunting and travelling into forestry in April 2024, and second of bird carrying prey in the direction of same forestry block in June 2025, indicating likely breeding at this location within a 500m radius of the proposed turbine layout.
Whimbrel	5	0	1 – 24	The majority of observations comprised birds travelling. There was one observation of a flock of eight birds foraging in a field approximately 1.5km distant from the Site in May 2025.

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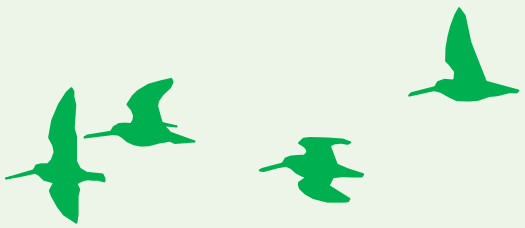

Irish Ornithological Survey Group

Providing Ornithological Services

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Appendix 1 – Survey Effort

Bird Activity Summary Report
Breeding Season 2025

Proposed Moanmore Wind Farm,
Co. Clare

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Glossary

Field	Code	Description
Wind Speed (Beaufort)	0	Calm
	1	Light Air
	2	Light Breeze
	3	Gentle Breeze
	4	Moderate Breeze
	5	Fresh Breeze
	6	Strong Breeze
	7	Moderate Gale
	8	Fresh Gale
	9	Strong Gale
Cloud Cover (Oktas)	1-8	Scale between 0/8 (0% cloud cover) to 8/8 (100% cloud cover)
Visibility	0	No visibility
	1	Limited ((<500m)
	2	Poor (<1km)
	3	Moderate (1-2km)
	4	Good (>2km)
Precipitation	0	None / Dry
	1	Drizzle
	2	Light Showers
	3	Heavy Showers
	4	Heavy Rain
Surveyor	SN	Stan Nugent
	PC	Paidi Cullinan
	JNM	John N Murphy
	SD	Séan Dundon
	JH	John Hehir

1 Transect Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
04/04/2025	Transect Survey	A	07:45	08:50	SE	4	6	4	0	11		SN
04/04/2025	Transect Survey	B	09:00	09:40	SE	4	6	4	0	11		SN
04/04/2025	Transect Survey	C	09:50	10:35	SE	4	6	4	0	11		SN
05/05/2025	Transect Survey	A	07:30	08:30	SE	2	3	4	0	7		SN
05/05/2025	Transect Survey	B	08:40	09:40	SE	2	3	4	0	7		SN
05/05/2025	Transect Survey	C	09:50	10:30	SE	2	3	4	0	7		SN
02/07/2025	Transect Survey	A	08:10	09:20	W	3	6	3	3	13		SN
02/07/2025	Transect Survey	B	09:25	10:25	W	3	6	3	3	14		SN
02/07/2025	Transect Survey	C	10:30	11:10	W	3	6	3	3	15		SN
02/08/2025	Transect Survey	A	08:30	09:30	S	2	2	4	0	11		SN
02/08/2025	Transect Survey	B	09:35	10:30	S	2	3	4	0	13		SN
02/08/2025	Transect Survey	C	10:35	11:25	S	2	4	4	0	15		SN

2 Breeding Wader Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
15/04/2025	Breeding Wader Survey	T1, OP1	06:50	09:30	N	4	4	4	0	7	No waders seen or heard.	SN
09/05/2025	Breeding Wader Survey	T2, OP2, OP3	06:30	09:20	S	1	1	4	0	10	No sight or sound of breeding wader display or activity. No snipe observed at all.	SN

3 Breeding Woodcock Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
02/04/2025	Breeding Woodcock Survey	500m Radius	19:15	21:15	NE	2	1	4	0	11	Sunset: 20:15	PC
02/05/2025	Breeding Woodcock Survey	500m Radius	20:10	22:10	-	-	2	4	0	12	Sunset: 21:07	PC
04/06/2025	Breeding Woodcock Survey	500m Radius	20:00	22:30	W	3	8	4	3	14		SN

4 Bird of Prey Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
22/04/2025	Bird of Prey Survey	5km Radius	06:30	10:30	SE	3	8	3	2	5	Dull with sporadic light rain	PC
07/05/2025	Bird of Prey Survey	5km Radius	06:40	11:40	SE	1	1	4	0	7	Dry, bright	PC
04/06/2025	Bird of Prey Survey	5km Radius	06:30	11:30	SW	1	3	4	0	11	Dry, sunny	PC
09/07/2025	Bird of Prey Survey	VP1, VP2	08:00	14:00	NW	4	8	4	0	18	A dry warm day with some sunny periods. Prolonged sunshine in early afternoon.	JNM

5 Breeding Hen Harrier Survey Effort

Date	Survey	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
01/04/2025	Breeding Hen Harrier Survey	10:00	14:00	SSE	4	4	4	0	13	No birds located. Much of the habitat north of the site in bog was burnt out over previous days and still smouldering.	JNM
04/04/2025	Breeding Hen Harrier Survey	10:00	14:00	E	5	5	4	0	14	No hen harrier found. A fine dry day with good periods of sunshine.	JNM
14/05/2025	Breeding Hen Harrier Survey	08:00	14:00	ESE	2	5	4	0	18-23	Areas checked: Moanmore, Runaway, Tullagher area,	JNM

Date	Survey	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
										Moanmore Upper, Eiragh Bog, Moanmore North, Shragh Bog, Mountrivers area east Bog.	
19/05/2025	Breeding Hen Harrier Survey	08:00	14:00	E	3	0	4	0	21	No birds located. Areas covered: Moanmore North, Moyasta, Tullagher Bog, Einagh Bog, Shragh Bog and the Runaway north of Moanmore site.	JNM
05/06/2025	Breeding Hen Harrier Survey	10:00	15:00	-		4	4	0	15	Areas covered: Tullagher Bog and surrounds, Doonbeg south, the Runaway near Moyasta, Einagh Bog, Moanmore North, Shragh Bog, Scattery Island from Kilrush shoreline.	JNM
18/06/2025	Breeding Hen Harrier Survey	09:00	15:30	SSW	1-3	4	4	0	18-20		JNM

6 Breeding Peregrine Survey Effort

Date	Survey	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
07/04/2025	Breeding Peregrine Survey	10:00	15:00	S	3	3	4	0	16	A fine warm dry sunny day	JNM
20/05/2025	Breeding Peregrine Survey	15:30	19:30	W	2	7	3	0	14	A dull morning cleared to a sunny bright afternoon and evening	JNM

7 Shorebird Survey Effort

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
02/04/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	15:00	17:00	E	2-5	3	4	0	16-18	High tide: 09:02 (16.2'), Low tide: 15:07 (2.4')	JNM
03/04/2025	Shorebird Count Survey	Doonbeg Bay	15:00	17:00	E	4	-	-	0	17-18	High tide: 09:49 (14.9'), Low tide: 15:51 (3.9')	JNM

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
24/04/2025	Shorebird Count Survey	Poulnasherry Bay PC2	07:45	10:00	SE	2	8	4	0	10	High tide: 03:21 (4.17m), Low tide: 09:39 (0.92m)	JH
24/04/2025	Shorebird Count Survey	Poulnasherry Bay PC3	07:45	10:00	SE	1	8	4	0	8	High tide: 03:21 (4.17m), Low tide: 09:39 (0.92m)	PC
24/04/2025	Shorebird Count Survey	Poulnasherry Bay PC1	08:00	10:00	E	2	8	4	0	9	High tide: 03:21 (4.17m), Low tide: 09:39 (0.92m)	SD
01/05/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	13:00	15:00	SW	1-2	8	3	0	15-18	High tide: 08:49 (15.5'), Low tide: 14:50 (2.7')	JNM
02/05/2025	Shorebird Count Survey	Doonbeg Bay	14:30	16:30	NE	3	-	-	0	14-18	High tide: 09:38 (14.2'), Low tide: 15:37 (3.9')	JNM
11/05/2025	Shorebird Count Survey	Doonbeg Bay	12:00	14:00	NNE	3	-	-	0	14-15	Low tide: 11:45 (0.85'), High tide: 17:57 (4.61')	JNM
13/05/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	13:30	15:30	E	2-4	4	4	0	24	Low tide: 12:48 (3.1'), High tide: 18:59 (15.4')	JNM
26/05/2025	Shorebird Count Survey	Poulnasherry Bay PC1	09:00	11:00	SW	4	8	3	4	11	Low tide: 11:34 (0.4m)	SN
26/05/2025	Shorebird Count Survey	Poulnasherry Bay PC2	09:00	11:00	S	5	8	2	4	9	Low tide: 11:34 (0.4m)	SD
26/05/2025	Shorebird Count Survey	Poulnasherry Bay PC3	09:00	11:00	SW	3-4	8	4	4	11	Low tide: 11:34 (0.4m)	PC
27/05/2025	Shorebird Count Survey	Doonbeg Bay	15:30	17:30	WNW	5	-	-	0	15	Low tide: 12:21 (1.3'), High tide: 18:36 (16.7')	JNM
01/06/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	15:00	17:00	WNW	4-6	4	4	0	17-18	High tide: 10:18 (13.2'), Low tide: 16:12 (4.4')	JNM
07/08/2025	Shorebird Count Survey	Doonbeg Bay	11:30	13:00	WNW	5	-	-	0	17	Low tide: 11:06 (4.5'), High tide: 17:18 (14.3')	JNM
08/08/2025	Shorebird Count Survey	Kilrush to Knock: Zones A-D	10:00	12:00	SW	4-5	4	4	2	16	Low tide: 11:48 (3.6'), High tide: 17:58 (15.1')	JNM
25/08/2025	Shorebird Count Survey	Poulnasherry Bay PC1	12:00	14:20	S	2-4	8	3	4	18	High tide: 07:30 (4.8m), Low tide: 13:38 (0.71m)	SN
25/08/2025	Shorebird Count Survey	Poulnasherry Bay PC3	12:00	15:00	S	2-4	8	3	4	18	High tide: 07:30 (4.8m), Low tide: 13:38 (0.71m)	PC
25/08/2025	Shorebird Count Survey	Poulnasherry Bay PC2	12:00	14:00	SW	4	8	2	4	12	High tide: 07:30 (4.8m), Low tide: 13:38 (0.71m)	SD
03/09/2025	Shorebird Count Survey	Doonbeg Bay	09:00	10:30	NNW	5	-	-	0	14	Low tide: 09:01 (6.7'), High tide: 15:20 (12.3')	JNM
04/09/2025	Shorebird Count Survey	Kilrush to Knock: Zones	11:30	14:30	NW	4-5	5	3	2	16	Low tide: 09:59 (5.6'), High tide: 16:12 (13.3')	JNM

Date	Survey	Location	Start Time	End Time	Wind Direction	Wind Speed	Cloud Cover	Vis.	Precip.	Temp.	Comments	Surveyor
		A-D										
23/09/2025	Shorebird Count Survey	Poulnasherry Bay PC1	11:30	14:00	SE	2	1	4	0	13-14	High tide: 07:00 (4.85m), Low tide: 13:08 (0.67m)	SN
23/09/2025	Shorebird Count Survey	Poulnasherry Bay PC3	11:30	14:00	S	1	0	4	0	14	High tide: 07:00 (4.85m), Low tide: 13:08 (0.67m)	PC

Appendix 2 – Survey Data

Bird Activity Summary Report
Breeding Season 2025

Proposed Moanmore Wind Farm,
Co. Clare

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Glossary

Field	Code	Description
Wind Speed (Beaufort)	0	Calm
	1	Light Air
	2	Light Breeze
	3	Gentle Breeze
	4	Moderate Breeze
	5	Fresh Breeze
	6	Strong Breeze
	7	Moderate Gale
	8	Fresh Gale
	9	Strong Gale
Cloud Cover (Oktas)	1-8	Scale between 0/8 (0% cloud cover) to 8/8 (100% cloud cover)
Visibility	0	No visibility
	1	Limited ((<500m)
	2	Poor (<1km)
	3	Moderate (1-2km)
	4	Good (>2km)
Precipitation	0	None / Dry
	1	Drizzle
	2	Light Showers
	3	Heavy Showers
	4	Heavy Rain
Surveyor	SN	Stan Nugent
	PC	Paidi Cullinan
	JNM	John N Murphy
	SD	Séan Dundon
	JH	John Hehir
Age	A	Adult
	J	Juvenile
Sex	M	Male
	F	Female
Activity	F	Flying
	H	Hunting
	S	Soaring
	C	Circling
	P	Perched
	G	On Ground
	M	Mobbing
	D	Display
Habitat	IG	Improved Grassland
	RG	Rough Grassland
	G	Grassland Moorland
	S	Scrub
	B	Bog
	1F	First Rotation Forestry
	2F	Second Rotation Forestry
	T	Thicket / Pole Stage Forestry
	CF	Clear-fell
	H	Heather Moorland
	L	Lake
	P	Pond
	TSW	Temporary Standing Water
	O	Other

1 Transect Survey Data

Table 1-1. Transect Survey Target Species Data.

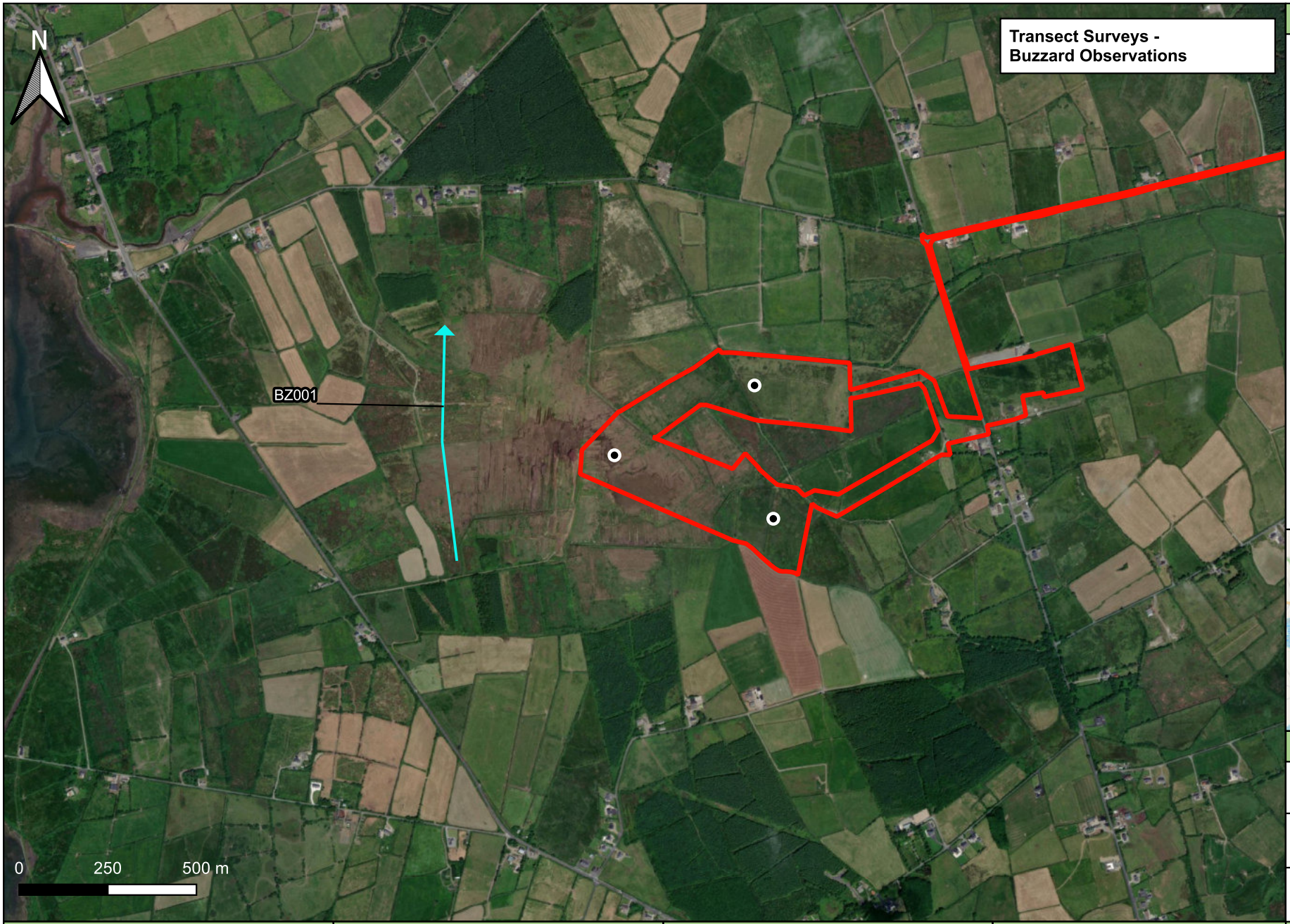
Ref.	Date	Time	Transect	Species	Num.	Age	Sex	Activity	Habitat	Notes
BZ001	02/07/2025	11:00	C	Buzzard	1			F	B	Flew north
H.001	04/04/2025	08:20	B	Grey Heron	1			F		Flew southeast
HG001	04/04/2025	08:20	B	Herring Gull	1			C		
HG002	05/05/2025	09:10	A	Herring Gull	1			F	B	Flew south overhead
HG003	02/07/2025	09:00	B	Herring Gull	1	A		F	B	Flew southeast
LB001	02/08/2025	09:00	B	Lesser Black-backed Gull	1			F		Flew westwards
MA001	05/05/2025	10:20	C	Mallard	2			F	B, RG	Flew up from drain by lane
SH001	05/05/2025	08:00	B	Sparrowhawk	1	A	F	H	RG	Hunting west on lane
SH002	02/08/2025	08:30	B	Sparrowhawk	1	A	M	P	IG	Perched beside farmyard

Table 1-2. Transect Survey Target Non-Target Species Data.

Key: A = Transect A; B = Transect B; C = Transect C. 1 = 0-25m; 2 = 25-100m; 3 = >100m.

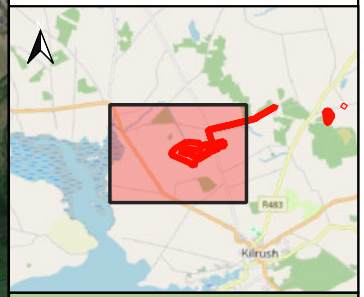
Species	04/04/2025									05/05/2025									01/07/2025								
	A			B			C			A			B			C			A			B			C		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Blackbird	2			8						2			4	7		3			8			5	3		3	1	
Blackcap										1						2										1	
Blue Tit	2			1												2						4					
Bullfinch																						2					
Chaffinch	2			2			5			2						2						4				1	
Chiffchaff				1						1			3	1						1							
Coal Tit				1															1								
Cuckoo											1			1			1										
Dunnock	2			3						1	1								2			1			1		
Grasshopper Warbler																1							1				
Great Tit				2			4							1					2						2		
Goldfinch																	4					6					
Hooded Crow											2			2		1						1					
House Sparrow													1														
Jackdaw	4																					2				1	
Linnet														2								2					
Magpie										2										2		2					
Meadow Pipit	4			4						5	2		4			6			21	2		4	7			2	
Mistle Thrush																						1	11				
Pheasant	1	2		1	2						1														1		
Pied Wagtail																				1		2					
Raven											2												2				
Redpoll																			2						2		
Reed Bunting				2									1										2			1	
Robin				3			4			5			2			2			1			7					
Rook			1					1					1	2	5		3			3	3	2	4				
Sand Martin																									1		
Sedge Warbler										1			2	2		6							1			1	
Skylark	2	2			6		6			1	1			3								2					
Song Thrush		3		3						4				3		2			2	1		2	2		3		
Starling	26			6									14										5				
Stonechat	2			2						2			`2			4			4			2	2				
Swallow										2												2			1		
Treecreeper																			1								
Willow Warbler	3			5						3	2		2	2		5											
Woodpigeon				1									8	3		1							1				

Species	04/04/2025									05/05/2025									01/07/2025								
	A			B			C			A			B			C			A			B			C		
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3
Wren	9						10			6	2					6			9			10	3		5	1	



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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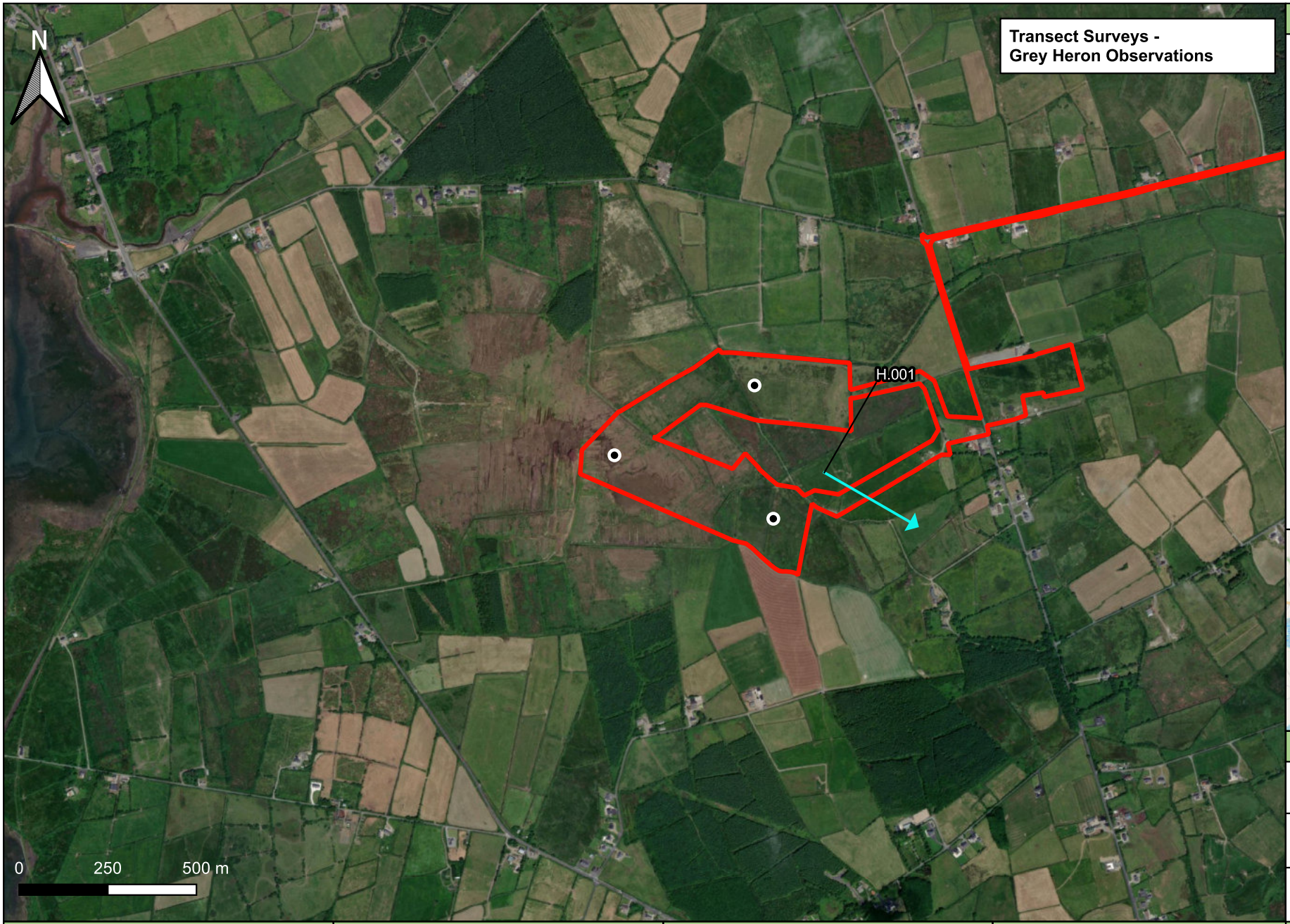
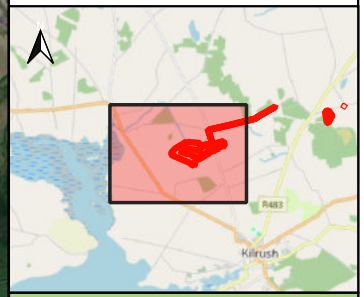
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-1. Transect Survey Buzzard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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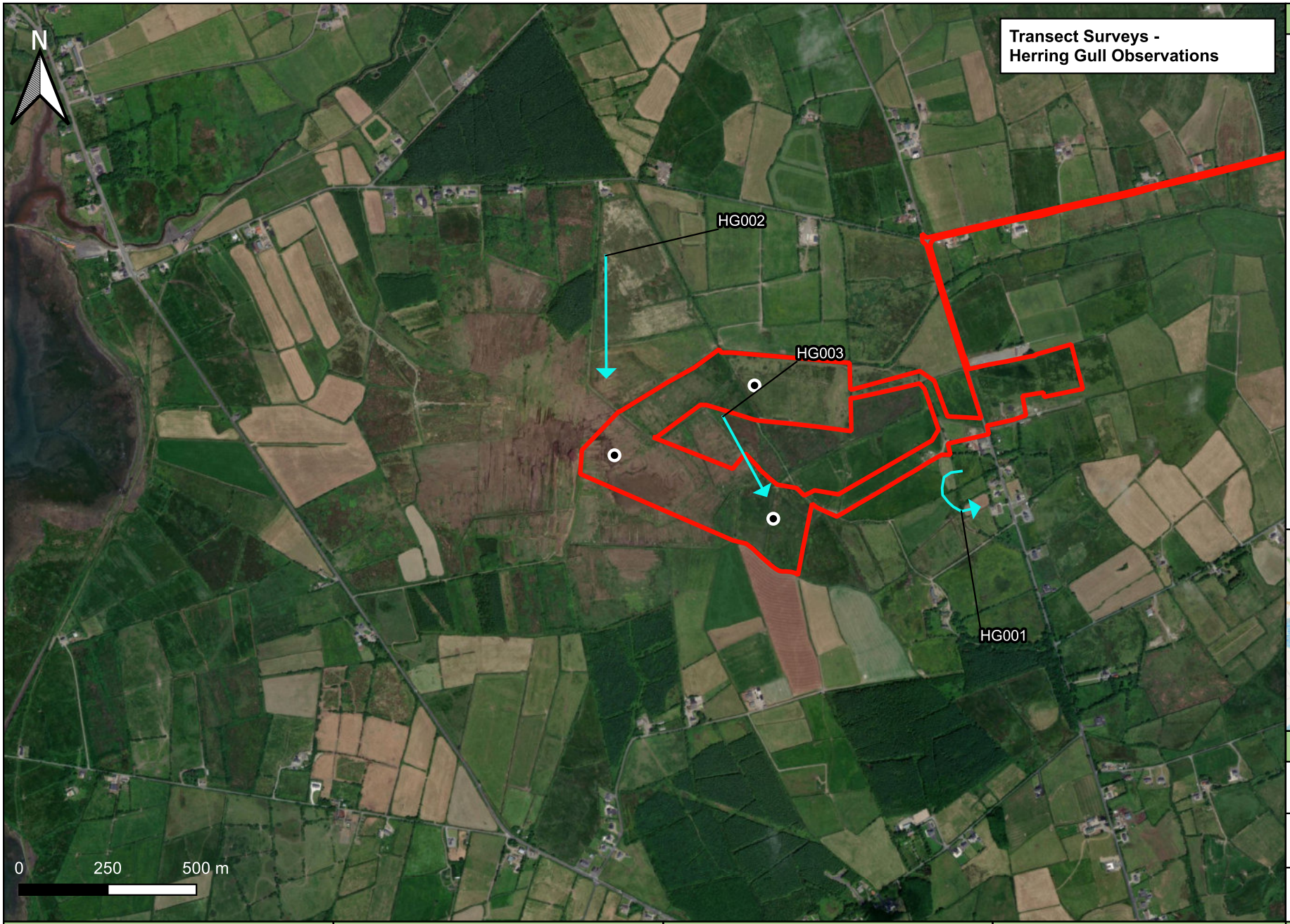
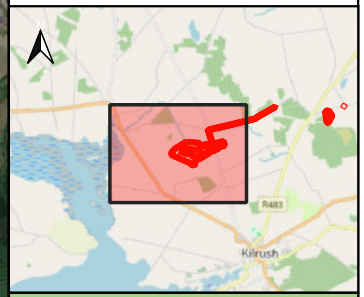
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-2. Transect Survey Grey Heron Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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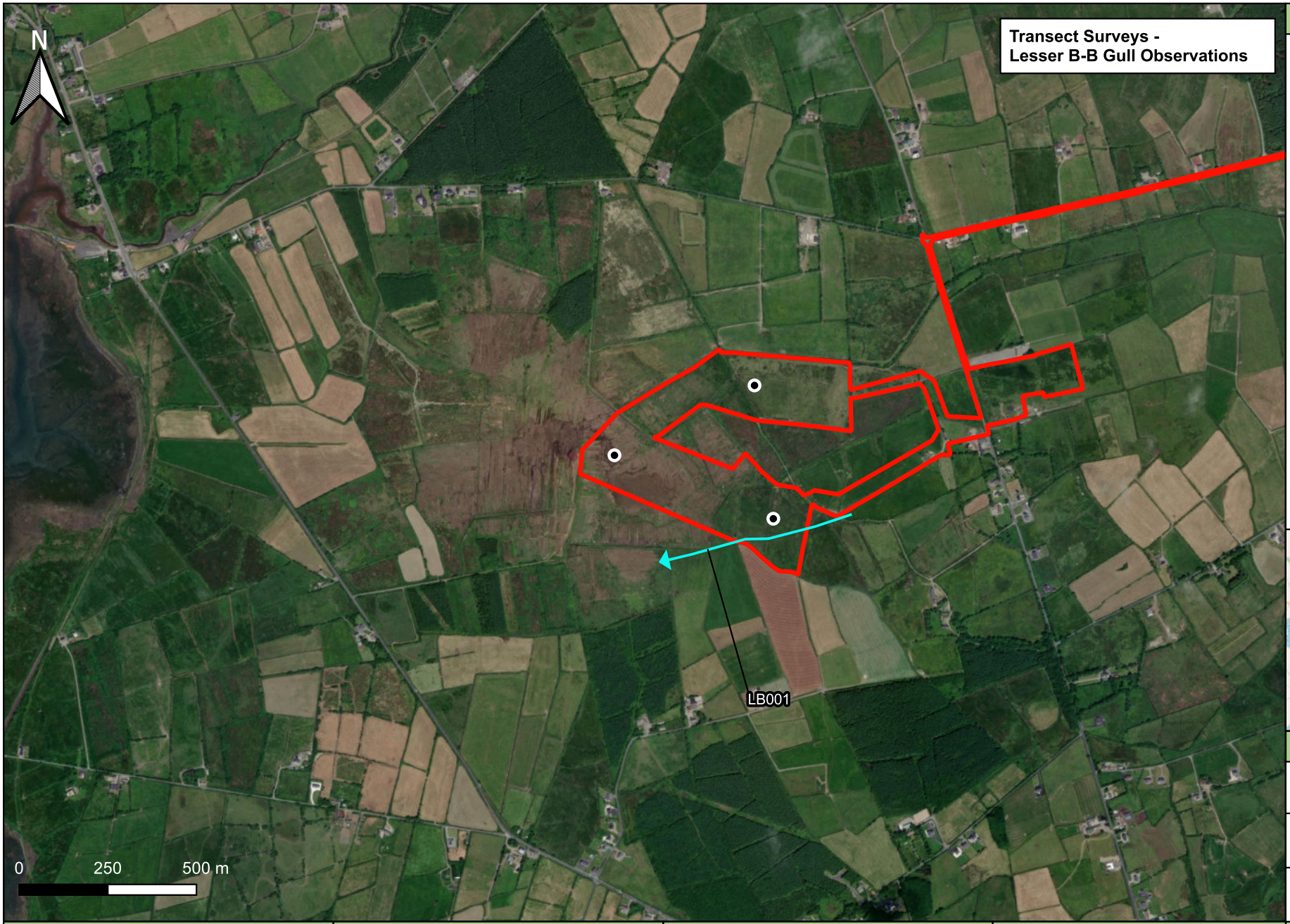
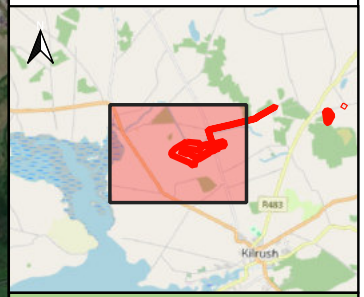
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-3. Transect Survey Herring Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

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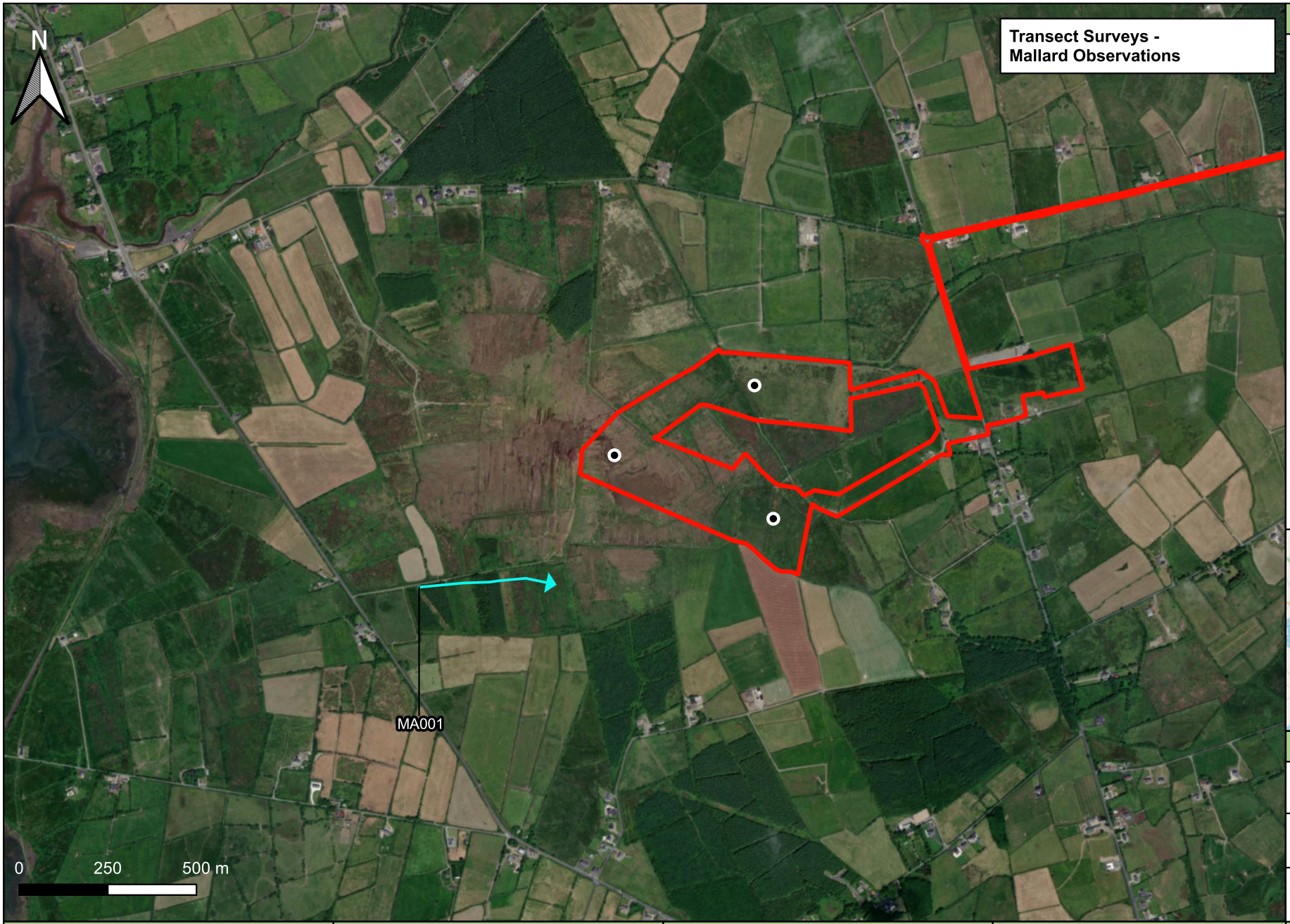
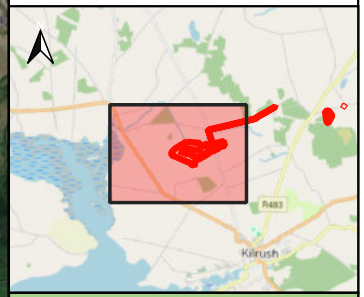
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-4. Transect Survey Lesser Black-backed Gull Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



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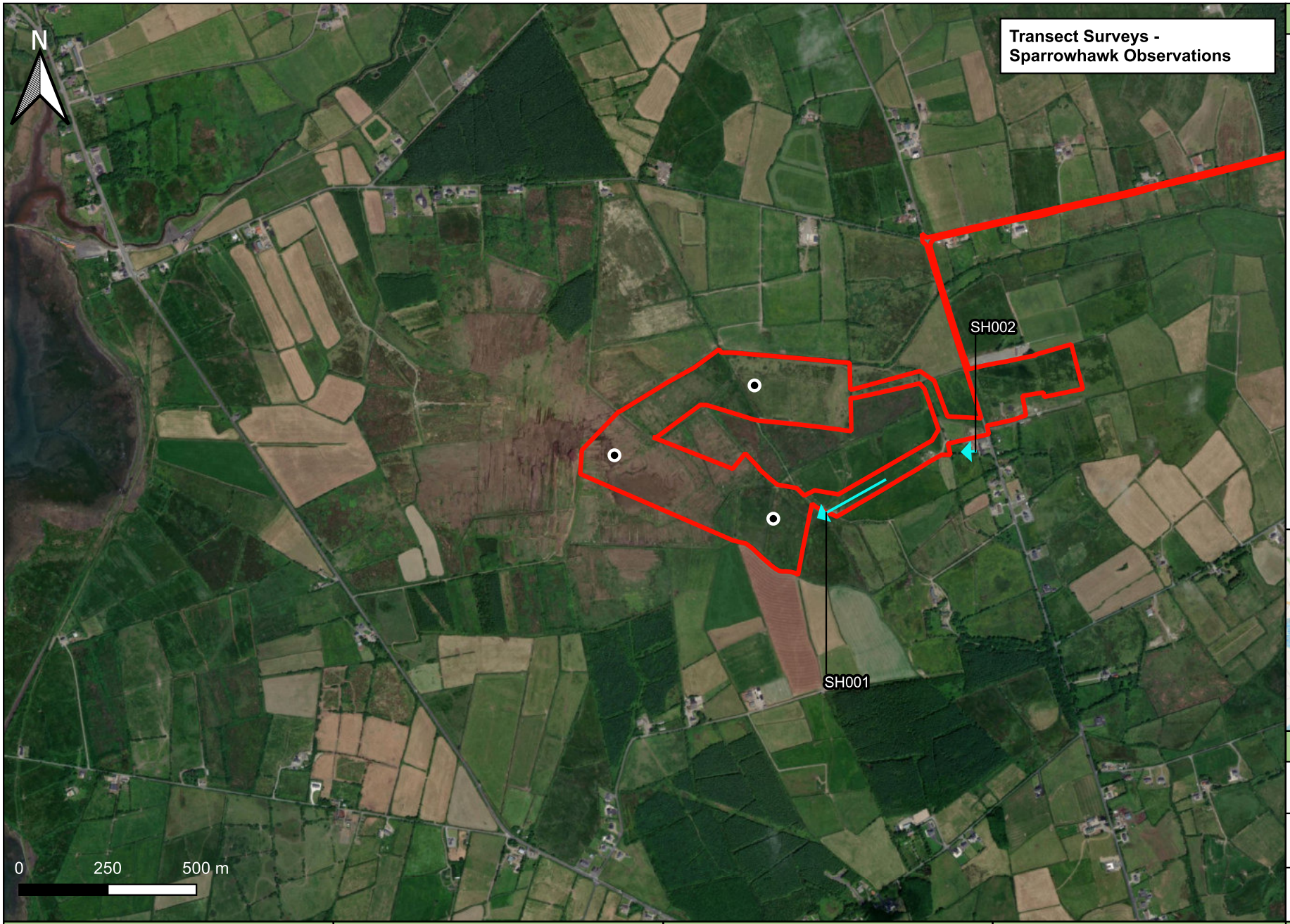
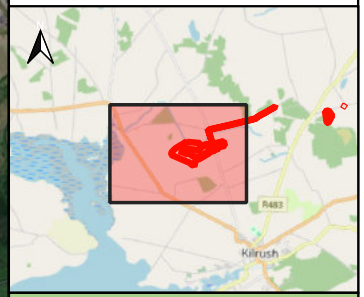
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-5. Transect Survey Mallard Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 2-6. Transect Survey Sparrowhawk Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.

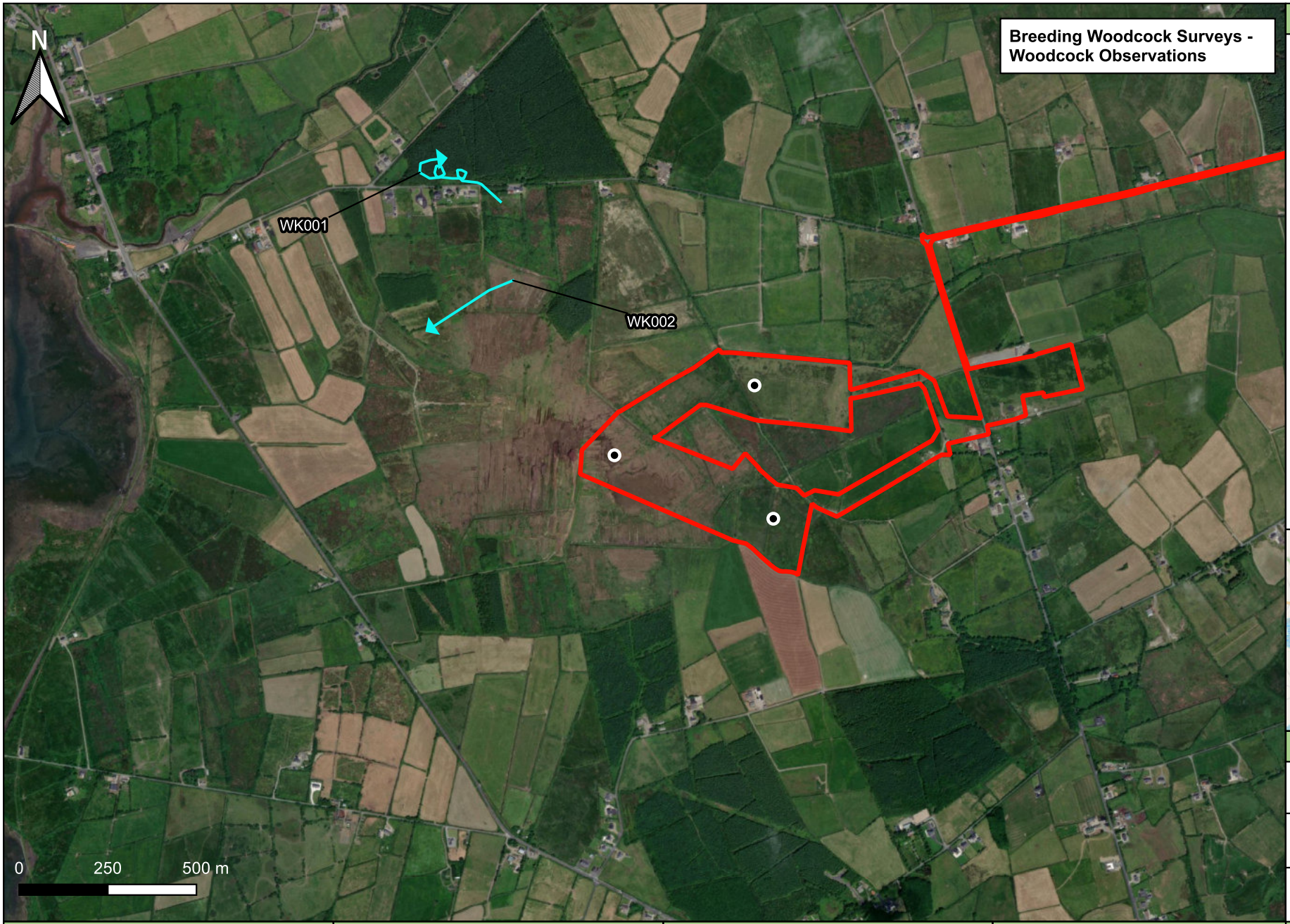
2 BREEDING WADER SURVEY DATA

No target species recorded.

3 BREEDING WOODCOCK SURVEY DATA

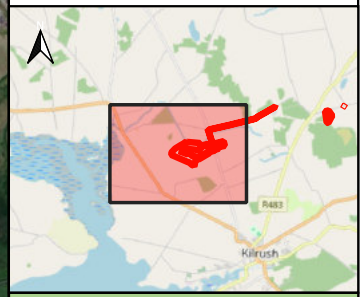
Table 3-1. Breeding Woodcock Survey Data.

Ref.	Date	Time	Location	Species	Number	Age	Sex	Activity	Habitat	Notes
WK001	02/04/2025	20:33	Moanmore	Woodcock	1	-	-	D	IG, 1F	Dropped into plantation
WK002	02/04/2025	20:44	Moanmore	Woodcock	1	-	-	F	B	



Legend:

- Redline Boundary
- Turbine Locations
- Observation



Details:

Drawn by: D. Woods	**Projection:** ITM
Checked by: J. Murphy	**Basemap:** Bing Aerial
Date: 11/11/2025	**Scale:** 1:15,000 @A4

Project Title:	Season:	Figure Title:	Produced By:	Notes:
Proposed Moanmore Wind Farm, Co. Clare Bird Activity Summary Report	Breeding Season 2025	**Appendix 2 - Survey Data** **Fig. 4-1. Breeding Woodcock Survey Observations Map.**		Site boundaries are for demonstrative purposes and do not represent exact legal or planning boundaries.