GDG
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GEOSOLUTIONS

Illaunbaun Wind Farm - Environmental Impact Assessment Report

Appendix A08-04: Bat Ecology Baseline

This report considers the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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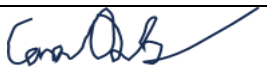
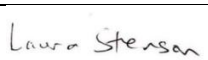
Quality Assurance

The findings outlined within this report and the data we have provided are to our knowledge true and express our bona fide professional opinions. This report has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) good practice guidelines. Where pertinent CIEEM Guidelines used in the preparation of this report include the *Guidelines for Ecological Report Writing* (CIEEM, 2017a), *Guidelines for Preliminary Ecological Appraisals* (CIEEM, 2017b) and *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine*, (CIEEM, 2024). CIEEM Guidelines include model formats for Preliminary Ecological Appraisal and Ecological Impact Assessment. Also, where pertinent, evaluations presented herein take cognisance of recommended Guidance from the EPA such as *Guidelines on the information to be contained in Environmental Impact Assessment Reports* (EPA, 2022), and in respect of European sites, *Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (European Commission, 2018).

Due cognisance has been given at all times to the provisions of the *Wildlife Act, 1976-2021,* the *European Union (Natural Habitats) Regulations*, the *European Communities (Birds and Natural Habitats) Regulations 2011-2021,* EU Regulation on Invasive Alien Species under *EU Regulation 1143/2014*, the EU Birds *Directive 2009/147/EC* and *Habitats Directive 92/43/EEC*.

No method of assessment can completely remove the possibility of obtaining partially imprecise or incomplete information. Any limitation to the methods applied or constraints however are clearly identified within the main body of this document.

Version	Date		Name	Signature
1	04/01/2024	**Report prepared by:**	Conor Daly MSc BSc ACIEEM	
1	14/03/2024	**Report checked by:**	Dr Alex Copland BSc PhD MIEnvSc MCIEEM	
2	29/04/2025	**Report Amended by:**	Laura Stenson BSc	
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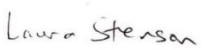
3	22/07/2025	**Report Amended by:**	Laura Stenson BSc	
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Project Reference	2216L	**Title**	Bat Ecology Baseline Technical Appendix	

Notice

This report was produced by INIS Environmental Consultants Ltd. (INIS) on behalf of GDG, for the specific purpose of assessing a bat baseline at the Illaunbaun Wind Farm, Co. Clare, with all reasonable skill, care and due diligence within the terms of the contract with the client, incorporating our terms and conditions and taking account of the resources devoted to it by agreement with the client.

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1 INTRODUCTION

1.1 Purpose of Technical Appendix

This appendix presents the bat ecological baseline information for the proposed Illaunbaun Wind Farm Project (from here on referred to as 'the Proposed Development') and the associated Zone of Influence (ZoI) defined to reflect potential impacts of wind energy developments on bats, including collision risk, habitat loss, displacement and barrier effects, which will inform the biodiversity chapter of the Environmental Impact Assessment (EIA). The Proposed Development comprises all the land within the Proposed Development under consideration at the time of surveys that falls within the "Site Layout" of the Wind Farm site and is provided in the Description of Development in the Main EIA Document.

1.1.1 Statement of Authority

This report has been prepared by experienced Inis Environmental Consultants Ltd (INIS) ecologists, based on field data collected by skilled INIS ecologists who are experienced in undertaking field surveys in relevant habitats and for relevant species. The contributors to this chapter are listed below:

Dr Alex Copland PhD BSc MIEnvSc MCIEEM is Technical Director with INIS and checked this report. Alex has over 30 years of professional experience working in both statutory and private companies, in third-level research institutions and with environmental NGOs. He is a full member of the Institute of Environmental Sciences (IES) and the Chartered Institute of Ecology and Environmental Management (CIEEM). He is proficient in experimental design and data analysis and has managed several large-scale, multi-disciplinary ecological projects, managing staff and resources to meet budgetary constraints and the successful delivery of projects on time. These have included research and targeted management work for species of conservation concern, ecological assessments (including fieldwork and reporting) for large-scale infrastructure projects (including Strategic Infrastructure Developments) and delivering successful planning outcomes, the design and delivery of practical conservation actions with a range of stakeholders and end-users, education and interpretation on the interface between people and the environment and the development of coordinated, strategic plans for birds and biodiversity. He has written numerous scientific papers, developed and contributed to evidence-based position papers, visions and strategies on birds and habitats in Ireland. He has supervised the successful completion of research theses for several post-graduate students, including doctoral candidates and is a collaborative researcher with both UCD and UCC. He also sits on the Editorial Panel of the scientific journal, Irish Birds, which publishes original ornithological research relevant to Ireland's avifauna, and CIEEM'S Irish Policy Group.

Mr Conor Daly MSc BSc (Hons.) ACIEEM: Conor is the Report Team Lead with Inis Environmental. Authored this report as part of the Inis report writing team baseline technical reports submissions. Conor was awarded an MSc in Biodiversity and Conservation from Trinity College Dublin in 2017 and an Honours BSc in Zoology for the University of Galway in 2016. Conor has been conducting ornithological surveys for projects since 2021 for a variety of projects including industrial estates and Wind Farms (Small-Large). Conor has experience in Raptor conservation with ample experience with bird of prey pressures and threats to protected species including bats, mammals and pollinators, and has provided reports for EIAR and NIS reports while working with Inis Environmental Ltd. Conor is an Associate member of CIEEM.

Ms Laura Stenson BSc is an Ecologist with Inis Environmental Consultants Ltd. who amended this report. Laura has an honours BSc in Earth and Ocean Sciences from University of Galway and has three years' experience working in consultancy. Laura has extensive report writing experience, which includes the production, review and editing of Appropriate Assessment Screening Reports (AA), Natura Impact Statements (NIS) and Ecological Impact Assessments (EcIA). She has three years experience in multi-disciplinary surveys, including habitat classification, mammal surveys, various bird surveys (e.g. Wintering and Breeding birds, I-WeBS, Adapted Brown & Shepherd), invasive species surveys, pre-construction mammal surveys, and bat surveys. She is a Qualifying member of CIEEM.

Mr Peter O Connor MSc BA is GIS Manager with INIS and is experienced in overseeing the completion of mapping for multiple Wind Farm projects. Peter has five years experience in conducting Viewshed Analysis in support of selected Vantage Points for ornithological surveys, involving the use of Digital Terrain Models and Digital Elevation Models in addition to bespoke Viewshed Analysis plugins for QGIS. Peter also has experience with field data capture and integration into project mapping (e.g. for habitats and species), including for figures supporting EIAR chapters and associated reports. Peter led the production of figures, calculations and all other GIS inputs to this EIAR chapter.

Ms Molly O'Hare MSc BSc carried out emergence/re-entry, transect and static detector activity surveys for this project. She is a Bat Ecologist with Inis Environmental Consultants Ltd, has a BSc in Ecology and Environmental Biology and an MSc in Marine Biology from University College Cork. She was the lead surveyor for bat surveys for this project with 3 years experience conducting general mammal surveys. Molly also has experience in the preparation and writing of reports, including Ecology Reports and screening for Appropriate Assessment.

Ms Megan Lee MSc BSc (Hons) is a mammal and bat specialist in Inis Environmental Consultants Ltd., who conducted emergence surveys and conducted the species identification analysis for the static detector data. Megan was awarded a BSc (Hons) in Environmental Science from National University of Ireland Galway in 2018 and a MSc (Hons) in Biodiversity and Land-use Planning from University of Ireland Galway in 2020. Megan is a Qualifying member of the Chartered Institute of Ecology and Environmental Management. She has a wide range of experience in report writing in addition to surveying, with particular focus on bird, bat, and mammal surveys over 4 years.

Ms Emer Hannon BSc conducted some of the emergence surveys for the bat baseline surveys and has a BSc in Ecology and Environmental Biology. She has bat surveying experience including Preliminary Roost Assessments and bat activity surveys such as Emergence/Re-entry. She has also worked with Bat Conservation Ireland as a volunteer for the All-Ireland Daubenton's Bat Waterways Surveys. She is two years experienced in Ecological Bird Survey techniques, both in the field and with data management. She has taken part in CIEEM led report writing training. She is a Qualifying member of CIEEM.

Ms Emma Condron conducted bat activity surveys for this project. She was awarded an honours BSc degree in Wildlife Biology from the Institute Technology Tralee. This course provided her with the knowledge and understanding of Irish Wildlife and the environment. She had 3 years experience in bat emergence and re-entry surveys for various construction projects across Ireland. Ms Emma Condron has received training on bat ecology and bat call analysis and is a Qualifying member of CIEEM.

Ms Julie O'Hare MSc BSc (Agr) conducted the PRA survey in 2024. Julie was employed at Inis Environmental Consultants Ltd. from January 2023 – January 2025 as an Assistant Ecologist. Julie received an honours in BSc in Zoology in 2018 and MSc (Agr) in Environmental Resource Management in 2021, both from University College Dublin. She has a special interest in waders and her BSc (Agr) research project involved reviewing the Curlew Conservation Programme's (CCP) data furthermore proposing methodology for more effective surveying. During her employment with Inis, Julie has conducted a variety of survey types for birds, bats, invertebrates and small mammals for various renewable energy projects across Ireland since 2022. Such ornithological surveys include Vantage Point counts, hen harrier roost surveys, kestrel/peregrine/barn owl/hen harrier/merlin Breeding surveys, I-WeBS, habitat surveys, etc. all in alignment with Best Practice Guidelines.

1.1.2 Structure of Appendix

This technical appendix has been set out as follows:

- **Section 2** details the approach and methodology used for obtaining and reviewing the desk-study and survey data. The desk-study methodology is presented in **Section 2.2**, whilst the field study methodology is presented in **Section 2.3**. Constraints and limitations relevant to the bat surveys undertaken are also presented in this section.
- **Section 3** details the results of the desk-based studies and field surveys and summarizes the ecological features of potential value to bats within the relevant Zone of Influence of the Proposed Development.
- **Section 4** provides a brief description of the overall diversity of bat species within the receiving environment. **Section 4.1** summarizes the key bat species, or Important Ecological Features (IEFs), scoped in for subsequent impact assessment.
- **Section 6** provides photographs taken of the identified structured assessed during the Preliminary Roost Assessment.
- **Annex A** details the baseline data obtained through the deployment of static detectors and raw species counts.
- **Annex B** details the static detector deployment locations according to the different survey seasons in 2022.

1.2 Relevant Legislation

The following legislation has been used and considered when developing the baseline for the Proposed Development:

- EU Habitats Directive (1992) Council Directive 92/43/EEC ; and
- Protected Wildlife Acts 1976 to 2023 (Wildlife Acts).

1.3 Relevant Policy and Guidance

- 4th National Biodiversity Action Plan (2023-2030);
- Clare County Development Plan 2023-2029; and
- Clare Biodiversity Action Plan 2017-2023.

1.4 Guidance, Best Practice and Policy Documents Considered

The following guidance was used and considered when determining the baseline for the Proposed Development:

- Bat Conservation Ireland (2013). Irish Bats in Flight. Department of Environment, Heritage and Local Government. (This document was used for general species identification and flight pattern reference).
- Bat Conservation Ireland (2012). Wind Turbine/Wind Farm Development Bat Survey Guidelines. Version 2.8, December 2012. Bat Conservation Ireland, www.batconservationireland.org.
- CIEEM (2017a). Guidelines For Ecological Report Writing. Chartered Institute of Ecology and Environmental Management.
- CIEEM (2017b). Guidelines for Preliminary Ecological Appraisal: Vol. 2nd ed. Chartered Institute of Ecology and Environmental Management.
- CIEEM (2024). Guidelines for Ecological Impact Assessment (EcIA) in the UK and Ireland: Terrestrial, Freshwater and Coastal.
- Collins, J. ed. (2016). Bat surveys for professional ecologists: good practice guidelines. 3rd Ed. Bat Conservation Trust.
- Collins, J. ed. (2023). Bat surveys for professional ecologists: good practice guidelines. 4th Ed. Bat Conservation Trust.
- Kelleher C., Marnell F. and Mullen E. (2022). Bat Mitigation Guidelines for Ireland V2. Irish Wildlife Manuals, No. 134. National Parks and Wildlife Service, Department of Environment, Heritage and Local Government, Dublin, Ireland.
- NatureScot (2021). Bats and onshore wind turbines - survey, assessment and mitigation.
- NPWS & VWT (2022). Lesser horseshoe bat Species Action Plan 2022-2026. National Parks and Wildlife Service, Department of Housing, Local Government and Heritage, Ireland.
- Practice Note PN02: Environmental Impact Assessment Screening Screening for Development Management. OPR (2021).
- Russ, J. (2012). British Bat Calls: A Guide to Species Identification. If used for call analysis.

1.5 Zone of Influence

The typical maximum extent of the Zone of Influence (ZoI) considered in line with CIEEM (2024), ZoI is determined based on receptor-specific considerations, and for bats, species-specific ranges have been applied. However, bat species vary considerably in their commuting, migration, foraging and roosting ranges. As such, the ZoI considered for the bat species assessed in this report has been based on species-specific ranges (where evidence is available). The ZoI was primarily determined based on foraging ranges, as commuting distances can vary substantially depending on local habitat availability and landscape permeability.

Lesser horseshoe bat (*Rhinolophus hipposideros*) is considered to have a preferred commuting/foraging range of 2.5-5km from roosting locations (NPWS & VWT, 2022). Common pipistrelle (*Pipistrellus pipistrellus sensu lato)* has been documented having a foraging range of 5km (Avery, 1991; Collins, 2023). Leisler's bat (*Nyctalus leisleri*) has been documented commuting 13.4km

from their roost location to foraging sites (Shiel *et al.*, 1999). Brown long-eared bat (*Plecotus auritus*) has been documented travelling between 0.5km to 2.8km from roost locations for foraging (Entwistle *et al.*, 1996). Recommended core sustenance zones for *Myotis spp.* such as Daubenton's bat (*Myotis daubentonii*) and whiskered bat (*Myotis mystacinus*) has recommended 2km and 1km ZoI's respectively (Collins, 2023).

The maximum foraging and commuting ranges for all bat species native to Ireland is not fully understood, as such, the ZoI was based on the most relevant species with a known ZoI. For pipistrelle species, the ZoI was assigned at 5km from the Proposed Development. Leisler's was assigned at 14km from the Proposed Development. Brown long-eared bat and *myotis spp.* ZoI was set at 3km under the precautionary principle, based on the maximum core foraging range for these species as stated above and the nature of identifying these species in bat surveys. Any international, national or local designated sites that list lesser horseshoe bat as a Qualifying Interest or suitable bat habitat as a conservation objective were also considered within 15km of the Proposed Development, and were consequently scoped out based on the species specific ZoI (2.5-5km) with consideration of linear features providing pathways from the Proposed Development site boundary and the SAC's to ensure wider landscape population dynamics were considered.

1.6 Study Area and Survey Area

1.6.1.1 Desk study

The desk study area includes the two 10km grid squares R08 and R18 obtained from the National Biodiversity Data Centre (NBDC) online mapping resource. These two grid squares overlap the Proposed Development and were therefore considered in the study area (**Figure 1.1**). The species recorded within these grid squares, as held on the NBDC database in 2025, are presented in the **Table 3.1**.

1.6.1.2 Field Study

The baseline surveys were conducted in areas and habitats that were considered likely to support bat foraging activity and were also undertaken to determine if there were any roosts present within the ZoI. This included surveys of structures located in the vicinity of the Proposed Development with potential suitability to roosting bats (**Figure 2.1, Figure 2.2, Figure 2.3**).

Bat transect surveys were undertaken in April, June and September 2022 along the same routes as the bird transects to accommodate access constraints and considerations. These routes adequately sampled representative bat habitats within the ZoI, especially commuting routes and diverse foraging areas in the form of linear features such as hedgerows, treelines, vegetation along the lake waterbody and the edge of the conifer plantation within the Proposed Development.

Preliminary Roost Assessments (PRAs) were conducted within 500m of the Proposed Turbine locations. Roost emergence/re-entry surveys were conducted on all structures of potential suitability to roosting bats (e.g. buildings and trees).

Static detection surveys were also conducted across the Proposed Development, as close to the turbine locations as possible, where access allowed. All surveys and reporting were undertaken by Inis Environmental Consultants Ltd.

1.7 Scoping of Important Ecological Features (IEF)

Species of varying ecological importance are expected to be present on site and within the receiving environment of the Proposed Development. Following the desk study and field surveys, an ecological value was assigned to each species recorded as present on site, with consideration given to their conservation and/or protected status. Reasoning and conclusions are provided in **Section 4** with a summary table of IEFs scoped in for subsequent impact assessment provided in **Section 4.1**. **Table 1.1** provides a summary of reasoning for determining importance at the varying levels (**International, National, County, Local (High)** Or Local (Low)) as set by NRA (2009b) and in consideration of the more recent CIEEM guidance for Ecological Impact Assessment (EcIA) (CIEEM, 2024).

Table 1.1: Determining the importance of IEFs, as set out in NRA/CIEEM Guidance.

Resource Evaluation	NRA Criteria
International Importance	• 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. • Proposed Special Protection Area (SPA) or Important Bird Area (IBA). Site that fulfils the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). Features essential to maintaining the coherence of the Natura 2000 Network. • Resident or regularly occurring populations (assessed to be important at the national level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. • Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). • Biosphere Reserve (UNESCO Man & The Biosphere Programme). Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). • Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
National Importance	• Site designated or proposed as a Natural Heritage Area (NHA). • Statutory Nature Reserve. • Refuge for Fauna and Flora protected under the Wildlife Acts. • National Park. • Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA). • Resident or regularly occurring populations (assessed to be important at the national level) of the following: Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. Site containing 'viable areas' of the habitat types listed in Annex I of the Habitats Directive.
County Importance	• Area of High Amenity, or equivalent, designated under the County Development Plan.

Resource Evaluation	NRA Criteria
	• Resident or regularly occurring populations (assessed to be important at the County level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list. • County important populations of species, viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP, if this has been prepared. • Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.
Local Importance (Higher Value)	• Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared. • Resident or regularly occurring populations (assessed to be important at the Local level) of the following: Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; Species of animal and plants listed in Annex II and/or IV of the Habitats Directive; Species protected under the Wildlife Acts; and/or Species listed on the relevant Red Data list.
Local Importance (Lower Value)	• Sites or features containing non-native species that are of some importance in maintaining habitat links.

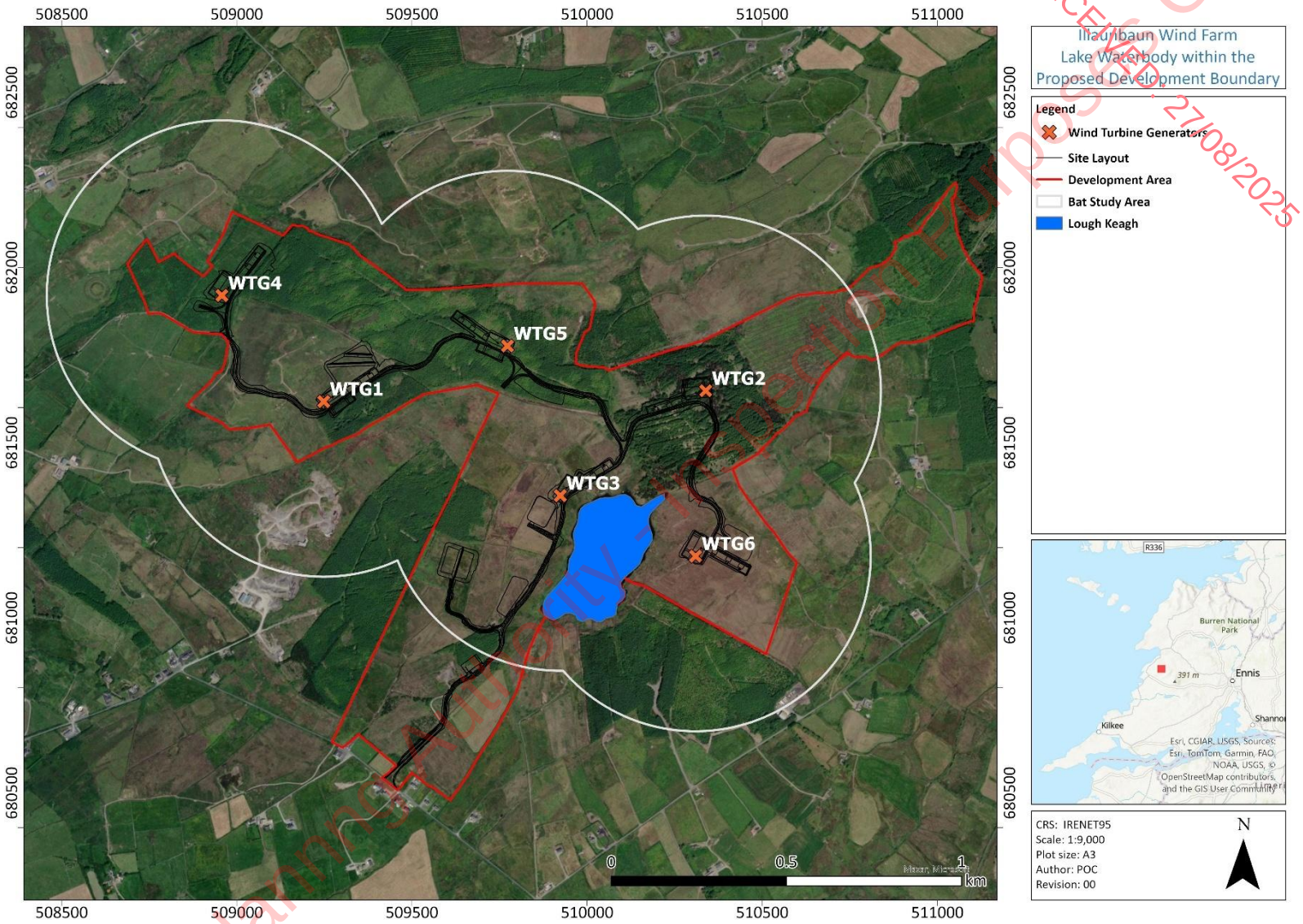

Figure 1.1: Lake waterbody (Lough Keagh) within the Proposed Development.

2 METHODOLOGY

2.1 Approach and Methodology

The landscape surrounding the Proposed Development is predominantly agricultural and commercial forestry plantation with limited hedgerows or tree lines along roadsides in addition to low-density residential housing and scattered farm buildings. There is one lake waterbody located immediately East of T3 (See **Annex B, Figure B.1.1**). These features within the Proposed Development influenced the distribution of potential bat foraging and commuting habitats considered during survey design.

The objectives of the bat surveys were to assess the suitability of habitats to support bat species where these could be directly or indirectly impacted, e.g. direct mortality, disruption of commuting routes through noise or lighting, and/or loss of roost habitat. In line with best practice guidance (Collins, 2023), surveys focused on the surveying of linear features potentially used by commuting bats (hedgerows and tree lines), potential foraging habitats, and potential roost features (trees, buildings & other structures). All bat species native to Ireland were targeted during the field survey programme. Records of bats were considered at the desk study stage to inform those species likely to be present on or around the site, but no species were ruled out as potentially present until completion of field surveys.

Best practice guidance for bat surveys and ecological report writing was followed in undertaking this assessment of the Proposed Development and its associated ZoI (**Section 1.3**).

2.2 Desk Study

The location of the Proposed Development encompasses two 10km grid squares: R08 and R18 as these grid squares overlapped the Proposed Development. Records of bats species from within these squares, held on the National Bat Database of Ireland, were obtained from the National Biodiversity Data Centre (NBDC) online mapping resource. The species recorded within these grid squares, as held on the NBDC database in 2025, are presented in the **Table 3.1**.

Designated sites within the ZoI of the Proposed Development were considered in terms of the habitats they contain which are of potential value to bats, or otherwise for bat species that they support, and which are listed as their Qualifying Interests. Bats in Ireland are protected nationally under the Wildlife Acts and under the Bern Convention II (Bern Convention, 1979).

Bat Conservation Ireland was contacted for consultation regarding potential considerations and insights relating to bat species within the receiving environment, although as of writing, no response has been received.

NBDC have introduced a Bat landscape suitability index tool to inform areas of high value for bats[1]. The value ratings are based on records of species and general habitat suitability to these species (Table 2.1).

[1] https://maps.biodiversityireland.ie/Map

Table 2.1: *NBDC bat landscape suitability.*

Bat Landscape Suitability Values Table	
Suitability value range	**Suitability rating**
0.000000 - 13.000000	Very low/negligible
13.000001 - 21.333300	Low
21.333301 - 28.111099	Moderate
28.111100 - 36.444401	High
36.444402 - 58.555599	Very High

The suitability values for the windfarm site location and the two grid connection routes were documented, with the results provided in **Section 3.1**.

2.3 Field Study

Multiple survey methodologies were implemented to record bat species present within the area and the relevant ZoI of the Proposed Development.

- Roost assessments
  - Preliminary Roost Assessment (PRA).
  - Ground Level Tree Assessment (GLTA).
  - Roost Emergence.
  - Roost Re-entry.
- Activity Surveys
  - Transect.
  - Static Detectors.

2.3.1 Roost Assessment

2.3.1.1 Preliminary Roost Assessment (PRA)

A general walkover was conducted on the 6th of April 2022 and on the 9th of May 2024 throughout the 500m study area, to include any forestry and suitable structure to identify any candidate roost features with low suitability or higher. Ground-level roost assessments were carried out for all trees and other structures within 500m of the proposed turbines, using binoculars (model: Steiner SkyHawk 3.0 10x42) to determine their suitability for bats. The aim of the ground-level inspections was to identify any Potential Roost Features (PRFs) (i.e. cavities or crevices on trunks or limbs) and evidence of bats (e.g. droppings, fur-oil stains at access points). Coniferous trees within plantations were not inspected in detail, based on them rarely supporting features large enough to be of potential suitability to bats, and because it is standard forestry practice to remove any trees that have obvious signs of damage and disease; as a result, trees within conifer plantations typically have negligible suitability

for bats. Trees of suitable age and size with possible features of potential value to roosting bats were checked for within the conifer plantation present within the Proposed Development (See **Section 3.2** for inspection results).

More specifically, the aims of undertaking PRAs of structures (buildings within the 500m of each turbine were to:

- Determine the potential roost entry and exit points within the structure.
- Determine the commuting corridors used by bats leading to and from their existing or potential roost(s), and to record associated vegetation, including linear habitat features, likely to be of importance to bats.
- Assess the potential suitability of structures on site and up to 500m from the Proposed site boundary to roosting bats.

The structures identified within the 500m buffer area were searched externally for bats or signs of their presence (**Figure 3.1**). Ground level areas of potential roost entrances were examined for the presence of droppings and feeding remains (e.g. moth wings, etc.). Structures were also examined for access/egress points, polishing or scratching, urine and oily residue stains, and for cavities suitable for roosting bats. Cavities and open areas were searched where safe and possible, and accessible internal areas were checked without disturbance with a high-powered torch. As bats sometimes do not leave visible signs of their presence, absence of evidence was not enough to reduce the suitability of a structure and was used only to inform a higher likelihood of any roost feature being an active roost.

Buildings, trees and other potential structures were subsequently categorised according to their potential to support roosting bats. Roosting potential for buildings is categorised as: negligible, low, moderate or high (Collins, 2016).

These categorisations informed the number of emergence and re-entry surveys required to confidently determine the presence or likely absence of roosting bats within structures subject to survey (Collins, 2016; see **Table 2.2**).

With adherence to Collins 2023, roosting potential for trees are categorised based on Ground-Level Tree Assessments (GLTAs): negligible, PRF-I or PRF-M and were considered in the 2024 visit. As stated in Collins 2023, PRF-I is defined as the PRF being only suitable for individual bats or very small numbers of bats, either due to size or lack of suitable surrounding habitats, i.e. this PRF has 'Low roost suitability. PRF-M is defined as a PRF that is suitable for multiple bats, and therefore may be suitable for a maternity colony, i.e. this PRF has a 'High roost suitability. See **Table 2.3**. The GLTA was not applied to any trees as none of the trees observed on the site in 2024 had above negligible suitability for bat roosting.

Table 2.2: Surveys for buildings recommended as a result of PRA (Collins, 2016; Collins, 2023).

Suitability (structures)	No. of surveys	Timing
Negligible	-	-
Low	1 Dusk Emergence Survey	May-August
Moderate	2 Dusk Emergence Survey and 1 Re-entry Survey	May-September (at least 1 between May-August)

Suitability (structures)	No. of surveys	Timing
High	3 Dusk Emergence Surveys and 1 Re-entry Survey	May-September (at least 2 between May-August)

Table 2.3: Surveys for trees recommended as a result of PRA (Collins, 2016; Collins, 2023).

Suitability (structures)	Description	No. of surveys & timing	Timing
Negligible		-	-
Low Roost Suitability/PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats	No further surveys required for trees	-
Moderate Roost suitability		One Dusk Emergence Survey	May-August
High Roost Suitability/PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony	At least 2 Dusk Emergence Surveys	May-September

2.3.1.2 Roost Emergence/Re-entry Surveys

Dusk emergence surveys initially consisted of presence/absence surveys involving dusk and visits to trees, buildings or other structures to complete emergence. Surveyors used acoustic bat detectors (Anabat Walkabout and Batbox Duets) to listen for bats exiting or re-entering roosts. If the presence of a bat roost was confirmed at any single feature, then this triggered further emergence/re-entry surveys to characterise the roost and determine the species and numbers of individuals occupying it (See **Table 2.2** and **Table 2.3** above).

In line with best practice guidance (Collins, 2016; Collins, 2023), bat roost presence/absence surveys are needed if:

- The PRAs of structure have not ruled out the reasonable likelihood of a roost being present (because there are locations with potential for bats to roost undetected in concealed cracks, crevices or voids), but no definitive evidence of the presence of bat roosts has been recorded;
- or, the PRA inspections of trees identified them as having low, moderate or high potential roost features for, bats but no definitive evidence of the presence of bat roosts has been recorded;
- A comprehensive inspection survey is not possible because of restricted access, but there are features with a reasonable likelihood of supporting bats; and/or
- There is a risk that evidence of bat use may have been removed by weather or human activities.

The aim of this survey is to determine the presence or absence of bats at the time of the survey and the need for further surveys, licensing and mitigation.

Dusk emergence surveys were carried out in suitable weather conditions (see **Table 2.3**). Surveys were carried out with an appropriate number of surveyors to visually cover all the potential roosting features of the structure or tree being surveyed.

Surveys were carried out 15 minutes before sunset and completed 1.5 – 2 hours after sunset, as per Best Practice Guidance (Collins, 2016; Collins, 2023). If a bat was observed emerging from a structure, its emergence location, time of emergence, and species (if possible) was also recorded. General bat activity directly around the buildings such as feeding and commuting, were also recorded. Locations and dates of emergence surveys conducted 2022 for BL1, BL2 and BL3 are provided in **Table 2.5** below and in **Section 3, Table 3.6**. Locations and dates of the two additional emergence surveys were conducted at BL4 in 2024 (**Table 2.5** below and in Section 3, **Table 3.6**).

Dawn re-entry surveys were carried out in suitable weather conditions (**Table 2.3**). Surveys were carried out with an appropriate number of surveyors to visually cover all the potential roosting features of the structure being surveyed. Surveys were carried out 1.5 – 2 hours before sunrise and completed 15 minutes after sunrise, as per Best Practice Guidance at the time of survey (Collins, 2016; Collins, 2023). If a bat was observed re-entering the building, its re-entry location, time of re-entry and species (if possible) was recorded. General bat activity directly around the building, such as feeding and commuting, were also recorded.

Bat activity surveys were conducted with handheld bat detectors. The Anabat Walkabout and BatBox Duets were used by experienced surveyors (**Section 1.1.1**) to identify bat species, based on their call frequencies. SD card recordings from duets and Anabat devices were stored for all surveys to allow

for quality control checks on species identification and for species that could not be determined during the survey efforts (e.g. *Myotis spp.*) (See **Section 2.4**).

Table 2.4: Survey timings and weather condition requirements (Collins, 2016; Collins, 2023).

Survey Type	**Start Time**	**End Time**
Dusk Emergence	15 minutes before sunset	1.5-2 hrs after sunset
Dawn re-entry	1.5-2 hrs before sunrise	15 minutes after sunrise
Area	**Temperature minimum**	**Wind speed maximum**
Lowland	10 degrees Celsius	18 km/hr
Upland	8 degrees Celsius	27 km/hr

Table 2.5: ***Roost Emergence survey efforts and weather data.***

Roost	Date	Surveyor	Survey	Rain	Cloud	Wind Speed	Wind Direction	Start Temp	End Temp	Sunset/ Sunrise	Start Time	End Time	Duration of survey
BL1	01/09/2022	EKL & OK	Emergence	Dry	7/8	F2	SSE	17	15	20:26	20:14	22:10	7200
BL2	16/08/2022	AP	Emergence	Dry	1/8	F1	N	13	12	21:01	20:45	22:30	4800
BL2	16/08/2022	ML	Re-entry	Dry	3/8	F2	NW	13	12	21:01	20:50	22:30	4800
BL3	16/08/2022	EH	Emergence	Dry	1/8	F1	W	13	12	21:02	20:45	23:02	8100
BL3	16/08/2022	MOH	Emergence	Dry	1/8	F2	SW	14	11	21:02	20:45	22:30	6300
BL3	14/09/2022	EH	Re-entry	Dry	1/8	F1	SW	10	9	7:09:	05:09	7:24	8100
BL3	14/09/2022	MOH	Re-entry	Dry	1/8	F2	SW	10	11	07:09	05:10	07:25	8100
BL4	10/07/2024	EH & RC	Emergence	None	0/8	F1	SE	13	11	22:00	21:50	23:30	6000
BL4	01/08/2024	None	Emergence	None	8/8	F2	SW	18	15	21:32	21:17	23:02	6300

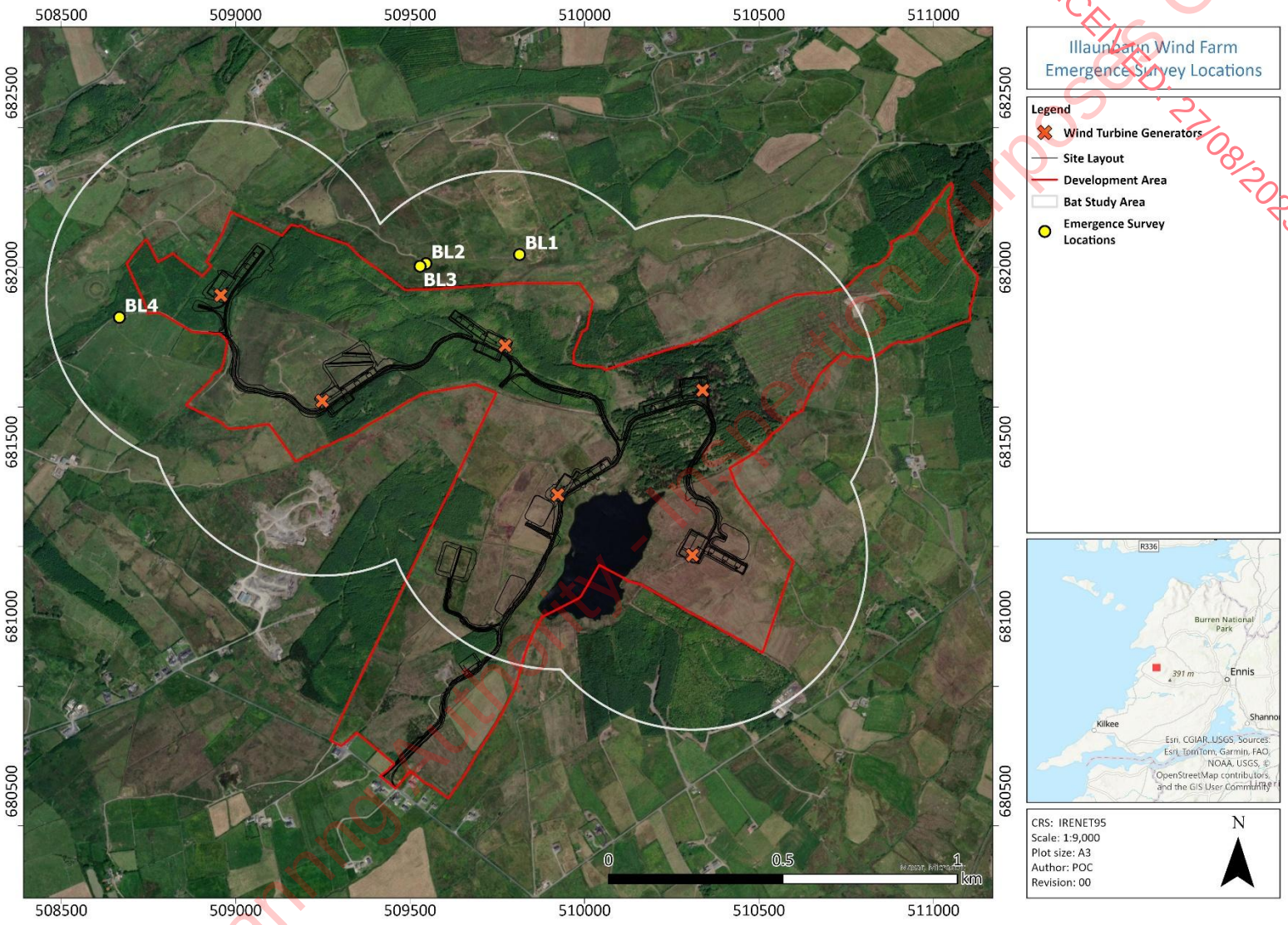

Figure 2.1: ***Bat Roost Emergence Survey Locations*.**

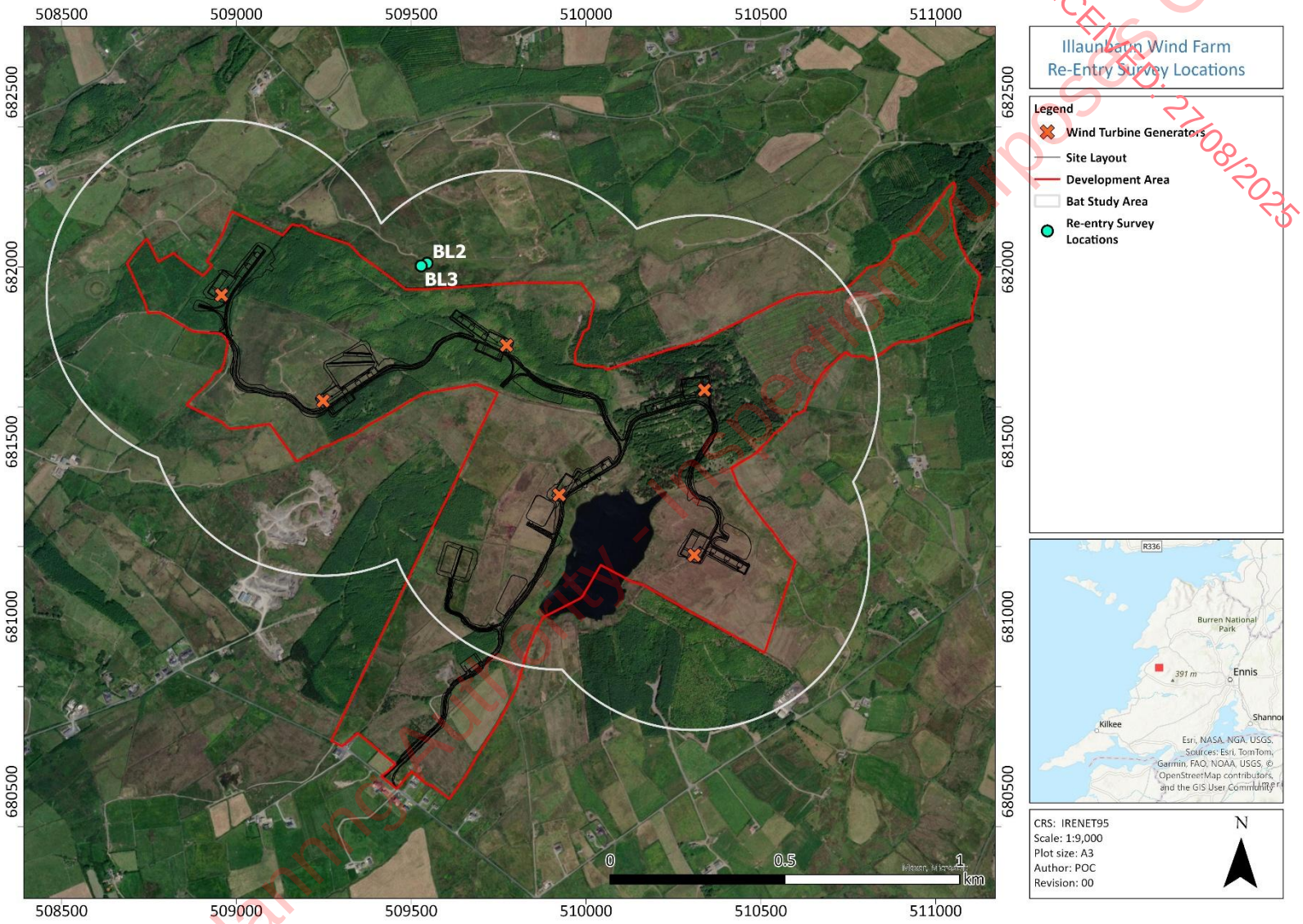

Figure 2.2: ***Bat Roost Re-entry Survey Locations.***

Figure 2.3: ***BL2 Emergence Survey – Surveyor Locations***

Figure 2.4: ***BL2 Re-Entry Survey – Surveyor Locations***

Figure 2.5: ***BL3 Re-Entry Survey - Surveyor Locations***

Figure 2.6: ***BL4 Emergence Survey - Surveyor Location***

2.3.2 Bat Activity (Transect) Surveys

Walked bat transects were carried out to gain an insight into bat activity in the areas surrounding the proposed turbine locations and determine flight lines and bat numbers present in line with Nature Scot guidance for windfarm impacts on bats (NatureScot, 2021). Two transect routes were planned which sampled the habitats and areas surrounding the proposed turbine locations in 2022 (**Figure 2.3**, **Table 2.4**). Spring transects were undertaken 7th April 2022, summer transects 13th June 2022 and the autumn transects on the 29th September 2022.

Table 2.6: ***Bat transects outlined for the survey area.***

Transect Number	Length (m)	Habitats present (as per Fossitt, 2000)
1	1005	GA1 Improved agricultural grassland WL1 Hedgerows ED2 Spoil and bare ground
2	1000	GA1 Improved agricultural grassland WL1 Hedgerows ED2 Spoil and bare ground

The transects were conducted with handheld bat detectors by a single surveyor. Anabat Walkabout and BatBox Duets were used by surveyors to identify bat species, based on their call frequencies. Surveyors followed Best Practice Guidance at the time (Collins, 2016) regarding transect surveys to complete these surveys and were appropriately experienced in bat species identification (**Section 1.1.1**). The number of bats recorded, the species, flightlines and direction were recorded. Transects were carried out at dusk, starting at sunset and continuing 2-3 hours after sunset (Collins, 2016).

Based on professional judgement, and with reference to relevant guidance (Collins, 2023), this survey effort was sufficient to provide a good representation of bat activity during their most active periods and was proportionate to the potential effects (as discussed in **Section 2.2.5** of Collins (2023)). Surveys were carried out during suitable weather conditions, i.e. minimum temperatures above 10℃, average winds of less than 17mph, and little to no rainfall. Where there was wet weather or high winds on some survey nights, the survey was extended until a comprehensive number of nights conducted under suitable weather-conditions was obtained.

Table 2.7: ***Bat Transect Survey Effort Data.***

Effort	Transect	Date	Observer	Rain	Cloud	Wind Speed	Wind Direction	Start Temp	End Temp	Time of Sunset/Sunrise	Start Time	End time	Duration of survey
Spring	1	07/04/2022	MOH	Dry	1/8	F2	S	8	6	20:19	20:10	20:50	2400
Spring	2	07/04/2022	MOH	Dry	1/8	F2	S	8	6	20:19	20:10	20:50	2400
Summer	1	13/06/2022	MOH	Dry	6/8	F2	WSW	12	10	22:01	22:30	23:37	4020
Summer	2	13/06/2022	EC	Dry	6/8	F2	WSW	12	10	22:01	22:30	11:37	4020
Autumn	1	29/09/2022	EC/OK	Dry	6/8	F2	W	13	12	19:19	19:20	20:10	3000
Autumn	2	29/02/2022	EC/OK	Dry	6/8	F2	W	13	12	19:19	19:20	20:10	3000

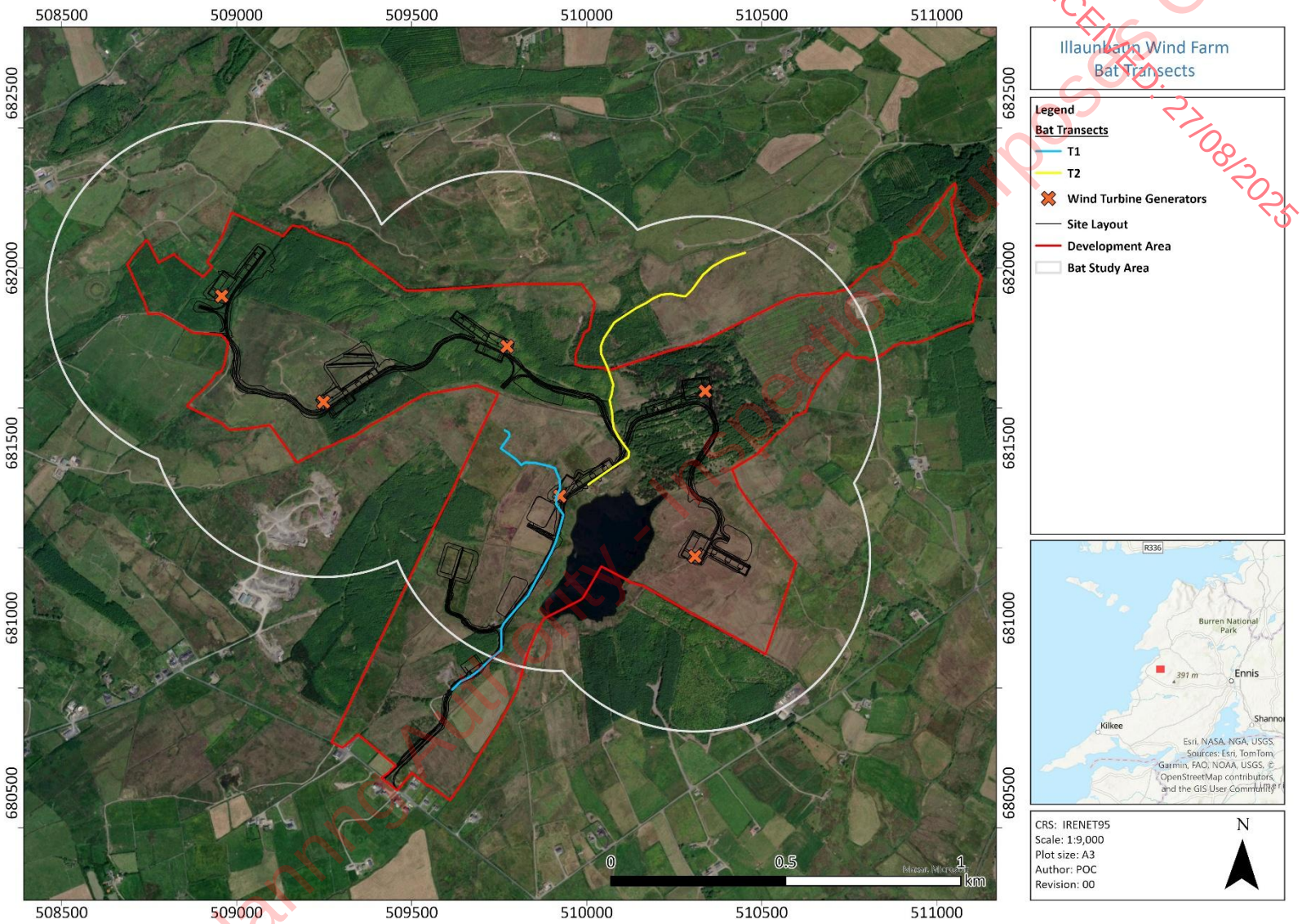

Figure 2.1: ***Bat Transect Locations.***

2.3.3 Bat Activity (Static Detector) Surveys

Static detector Bat Activity Surveys at the Proposed Development Site were undertaken in the spring, summer and autumn of 2022 using automated Anabat Express bat detectors (Titley Scientific). External microphones were mounted on poles at a height of 1m in order to obtain 'clean' recordings that were not affected by surrounding vegetation below 1m or persistent wind gusts above 1.5m. T1, T3, T4 and T6 locations were surveyed as close to the turbine hardstand location for all three seasons. T2 and T5 were surveyed at different locations for each survey period due to forestry and habitat obstacles. Where forestry or other obstacles prevented deployment near the proposed turbine location, detectors were deployed in a multipoint pattern over the different survey seasons (spring, summer, autumn). As such, it is believed that these efforts covered the 6 turbine locations and the habitats in the surrounding areas for bat activity. Location of deployment by season is provided in **Annex B** (**Figure B.1**, **Figure B.2**, **Figure B.3**). Spring effort was deployed between April 7th – April 17th, summer effort was deployed between June 16th – June 26th and autumn effort was deployed between Aug 26th – Sep 4th.

Based on professional judgement, and with reference to relevant guidance at the time of the survey 2022 (Collins, 2016), this survey effort was sufficient to provide a good representation of bat activity during their most active periods and was proportionate to the potential effects (as discussed in **Section 2.2.5** of Collins (2023)). Surveys were carried out during suitable weather conditions, i.e. minimum temperatures above 10C, average winds of less than 26 kmph and little or no rainfall. Where there was wet weather or high winds on some survey nights, so the survey was extended until a suitable number of nights of suitable conditions were obtained.

Ground level static detectors were deployed for the spring, summer and autumn seasons. Data must be obtained for a minimum of 10 nights per season (see **Table 2.4**; NatureScot, 2021).

Table 2.8: ***Survey timings efforts for 2022 (Collins, 2016).***

Season	Timing	Deployment Length
Spring	April to May	10 days
Summer	June to Mid-August	10 days
Autumn	Mid-August to September	12 days

Detectors are placed as close as possible to the proposed turbine locations. Six detectors were deployed per season as there are six proposed turbines as part of the Proposed Development in habitats as close to the Turbine location as possible and in consideration of likely bat commuting paths (NatureScot, 2022). Reasonable time gaps (min. 30 days) were left between deployment periods for surveys in adjacent seasons to avoid continuous survey periods (NatureScot, 2021). The Anabat Express passive bat detector was used to collect data for the ground level static detector surveys. One turbine (T4) was moved in 2024 as part of design change, as such the static deployment for this location is where the Proposed Development Borrow pit is located. As such it is has been labelled for the element located at this location and in all results tables. Although T4 was moved, the habitat area for the changed location does no differ significantly from the area surveyed by the other static detector deployments.

2.3.3.1 Species identification and interpretation of data

Sonograms from Anabat Express detectors were obtained in the 'zero-crossing' format and viewed using AnalookW software and Kaleidoscope (Corben, 2014). Species were identified with reference to *British Bat Calls: A Guide to Species Identification* (Russ, 2012*)* based primarily on frequency and call shape, but also with reference to call slope for *Myotis spp*. Social calls were classified as unidentified bats unless they closely matched the examples provided in Russ (2012). Identification was conducted by members of the INIS Bat team with quality control conducted by the bat team lead.

It is acknowledged that *Myotis spp.* can have very similar calls, and that the classification of sonograms can be imprecise, so all Myotis records in this document should be considered as conferred records, i.e. *Myotis sp.*. There can also be overlaps in call frequency between *Pipistrellus spp*. - calls with a CF component at 50 kHz may be either soprano pipistrelle (*Pipistrellus pygmaeus*) or common pipistrelle, while calls at 40 kHz may be either common pipistrelle or Nathusius' pipistrelle (*Pipistrellus nathusii*) – but in most cases, it is possible to determine the species based on call characteristics and/or other calls immediately before or after the recording. If a bat pass could not be confidently identified to species level, it was recorded as an unidentified bat or identified only to genus level (e.g. *Myotis spp.*).

2.3.3.2 Use of a Frequency Scale for comparing bat activity

For the purposes of this assessment the 2022 data set is the most up to date and comprehensive data set and is the primary data source in this assessment. For the purposes of this report, we use a bespoke system to discuss and compare levels of bat activity within the Proposed Development and immediate surrounding area, as outlined in **Table 2.5** below based on both weather and activity (passes) per night. This system is based on the professional judgement of the surveyor, and the results of peer reviewed research (Mathews *et al.*, 2016). For ease of comparison, bat activity levels are classified into four categories based on a simple count of bat passes over the average of nights recorded with suitable weather, and cells are coloured using shades of orange. For the purposes of this assessment, any species that regularly has more than 50 bat passes per night (i.e. moderate to high activity) is considered to have a significant level of activity, which would warrant further consideration in an impact assessment. This corresponds with the threshold of 50 passes per night that was used in the Mathews *et al.* (2016) report.

Table 2.9: Categorisation of bat activity in relation to number of passes Mathews et al. (2016).

Category	Number of bat passes
Negligible	<9
Low	10-49
Moderate	50-99
High	>100

It is noted that activity levels can only be compared within a species and not between species, due to differences in the detection distances for each species and their flight characteristics (Marchant, 2020).

The minimum deployment period for static detectors during static detector surveys is ten consecutive nights for spring (April to May), summer (June to mid-August) and autumn (mid-August to October)

(NatureScot, 2021). Six static detectors were deployed each season, one for each of the six turbine locations. See **Annex B** for the static detector deployment locations over the spring, summer and autumn seasons.

2.4 Constraints and Limitations

The static detector monitoring at T6 was recorded during the summer effort but data is absent in this report due to SD card malfunction during data collection/transfer (**Table A.4**). Equipment malfunctions are an occasional risk in bat survey work despite best practice handling procedures in survey efforts for bats due to effects from weather, human interference and software crashing during data transfer. Despite this absence of data for T6, there are two full seasons of monitoring provided for the spring and autumn seasons. As activity levels for the summer deployment, which islikely to host the peal activity levels for bat species. Appropriate consideration for this limitation will be provided in the impact assessment in the **chapter 6 of EIAR** in regard to the magnitude of impact and appropriate worst-case scenario assessment for likely significance utilising the activity recorded in the other static detectors deployed.

Bat Conservation Ireland was contacted for consultation regarding potential considerations and insights relating to bat species within the receiving environment, although as of writing, no response has been received. This limited the scope of information available at the desk study stage. Follow-up contact will be made, and any updates will be included in subsequent reporting if received. All field work was conducted to inform the bat baseline for the Proposed Development.

Surveyor locations were not recorded for the BL1 and BL3 emergence survey. These surveys were conducted in 2022, which followed the Collins 2016 Guidance.

Bat Duet Bat Detectors were used during survey efforts. While surveyor experience can influence real-time acoustic identification, all calls were recorded and retained onto SD cards for post-survey analysis and verification, minimising potential for misidentification during emergence and transect surveys.

Additionally, all acoustic data, especially from zero-crossing detectors, have inherent limitations regarding species identification accuracy regardless of verification. The quality of recordings, environmental noise, and the difficulty of distinguishing certain bat calls mean that some level of identification uncertainty will always be present. As such, no significant constraint is present on the data recorded.

A design change in 2024 affected the layout of turbines with the Proposed Development. As a result, no detector was deployed at the updated T4 location. The nearest detector to this location is the T1 deployment location, which is 400m South-East of the updated T4 location and is considered acceptable under NatureScot (2021) and Collins (2023). Such changes to wind farm developments are an accepted reality and as such, static detectors are acceptable to represent the bat activity baseline, where deployed, amongst representative habitats of where turbines may be installed (NatureScot, 2021). As such, the design change does not constitute a constraint to the bat ecological baseline under best practice guidance.

PRA and roost emergence surveys conducted in 2022 were in line with guidance from Collins (2016). The 2024 visit followed the Collins (2023) guidance for assessing trees and buildings for their potential suitability to roosting bats. As such, both guidance documents are referenced in **Section 2**.

As per the CIEEM (2019) advice note on data validity, the bat activity and roosts assessment data is primarily from spring to autumn 2022. This places the data provided in **Section 3** being within 18 months to three years age range. As such, the data provided as part of the ecological baseline for bat species may be subject to changes from the 2022 survey period.

It should be noted that PRA and roost emergence/re-entry surveys conducted in 2022 were carried out following the best practice guidance available at the time (Collins, 2016). Related surveys carried out in 2024 followed the current best practice guidance (Collins, 2016; updated Collins, 2023).

In summary it is considered that no significant constraints occurred during the monitoring period for bats across the Proposed Development and its ZoI.

3 RESULTS

3.1 Desk Study

The record data for the 10km grid squares (NBDC, 2025) that overlap with the Proposed Development yielded eight bat species that were identified within the area of the Proposed Development: brown long-eared bat, Leisler's bat, Natterer's bat (*Myotis nattereri*), pipistrelle (*Pipistrellus pipistrellus sensu lato*), soprano pipistrelle, Daubenton's bat and whiskered bat. All records were within the two grid squares (R08, R18). See **Table 3.1** for species and corresponding grid square.

Table 3.1: Bat species records within 10km Grid Squares of the Proposed Development.

Grid Square	Species name	Record count	Date of last record	Designation
R08	Leisler's bat (*Nyctalus leisleri*)	1	08/07/2018	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R08	Common pipistrelle (*Pipistrellus pipistrellus sensu stricto*)	1	08/07/2018	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R08	Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	1	08/07/2018	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Brown long-eared bat (*Plecotus auritus*)	1	04/08/2022	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Common pipistrelle (*Pipistrellus pipistrellus sensu stricto*)	3	13/09/2016	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Daubenton's bat (*Myotis daubentonii*)	23	04/08/2022	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Leisler's bat (*Nyctalus leisleri*)	2	04/08/2022	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Natterer's bat (*Myotis nattereri*)	1	17/07/2008	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Pipistrelle (*Pipistrellus pipistrellus sensu lato*)	4	04/08/2022	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts

R18	Soprano pipistrelle (*Pipistrellus pygmaeus*)	9	04/08/2022	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
R18	Whiskered bat (*Myotis mystacinus*)	1	04/08/2022	Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts

The maximum range of potential impact to the bat species roosting within the receiving environment is between 2.5 and 5km distance. This is the recommended ZoI distance for potential impacts to consider for lesser horseshoe bat, which is an Annex II species under the EU Habitats Directive (92/43/EEC). Other bat species may have similar distances of potential impact but typically practice significantly smaller commuting ranges. No designated sites or known roosts are within the 5km ZoI list lesser horseshoe bat as a QI (**Appendix A08-01**). Additionally, lesser horseshoe bat was not recorded in either of the grid squares (R08, R18). As such, it is not expected that this species will be within the receiving environment.

3.2 Field Study

3.2.1 Bat Preliminary Roost Assessment

The PRA was carried out on the 6th April 2022 at the locations listed in **Table 3.2**. The locations that were surveyed within the 500m buffer zone can be seen in **Figure 2.2** and **Figure 2.3**. A total of four buildings were identified within 500m of the Proposed Development site boundary. Following the PRA, a ground-level tree assessment was not conducted as there were no trees identified to have any features or structures that could potentially be used by roosting bats.

Three structures were identified and surveyed to determine their roosting suitability in 2022. Two buildings were identified as having moderate roost potential while the other had low potential.

An additional PRA was undertaken on the 9th of May 2024 which identified one building as having moderate roosting potential.

The PRA identified four structures that were to be surveyed for bat roosting. No trees were surveyed as none were determined during the PRA to have suitability for bat roosts.

BL1 was classified as having low roosting suitability and, therefore, one emergence survey was carried out 1st September 2022 at BL1 (Collins, 2016).

BL2 was classified as having moderate roosting potential, therefore, one emergence survey and one re-entry survey was carried out.

BL3 was classified as having moderate roosting potential, therefore one emergence survey and one re-entry survey was carried out.

BL4 was classified as having moderate roosting potential, therefore two emergence surveys were carried out.

Table 3.2: ***PRA Results 2022 & 2024.***

Date	Structure Code	Bat Roosting Suitability	ITM	Structure Type
6th April 2022	BL1	Low	509814, 682037	Corrugated Iron roof supported by wooden beams, exposed rock face with crevices besides it
6th April 2022	BL2	Moderate	509545, 682010	Old stone cottage, multiple rooms, no roof, high chimney stack
6th April 2022	BL3	Moderate	509528, 682003	Old stone building, roof present, one story, low roof
9th May 2024	BL4	Moderate	508667, 681855	Old farm buildings, one hollowed out with no roof, the other fully intact with wooden rafters with several entry points

3.2.2 Bat Emergence/Re-entry Surveys

BL1 is an out of use, corrugated iron roof supported by wooden beams, adjacent to an exposed rock face with crevices. The survey results can be seen below in **Table 3.3.** A roost of common pipistrelle was confirmed at this location, with seven bats seen emerging from the southern side of the building.

Soprano pipistrelle and Leisler's bat were also detected, commuting and foraging. One Bat call which could not be verified was heard on the detector.

Table 3.3: ***BL1 Emergence Survey Results 2022.***

Species	Behaviour	Occurrence (no. of flight passes)
Common pipistrelle	Commuting	1
	Foraging	0
	Emerging	7
Soprano pipistrelle	Commuting	0
	Foraging	3
	Emerging	0
Leisler's bat	Commuting	3
	Foraging	0
	Emerging	0
Unknown Species	Unknown – Heard on Detector	1

BL2 is an old stone cottage consisting of multiple rooms, with a high chimney stack, no roof and is out of use. Emergence surveys were undertaken 16th August 2022 and 14th September 2022, respectively. The re-entry survey had no detections of bats, while the emergence survey identified soprano pipistrelle and Leisler's bat travelling through the area. No evidence of roosting activity was observed during the surveys this location. Results are displayed in **Table 3.4.**

Table 3.4: ***BL2 Emergence Survey Results 2022.***

Species	Behaviour	Occurrence (no. of flight passes)
Soprano pipistrelle	Commuting	3
	Foraging	0
	Emerging	0
	Unknown	1
Leisler's bat	Commuting	1
	Foraging	0
	Emerging	0

BL3 is a one story, stone building with an intact, low roof, but derelict. Emergence Survey was completed 16th August 2022 and with a Re-Entry survey completed on 14th September 2022, respectively. Both the re-entry and emergence surveys identified soprano pipistrelle through the detector. No roost was identified at BL3. Results are shown below in **Table 3.5**.

Table 3.5: ***BL3 Re-entry and Emergence Survey Results 2022.***

Date	Survey Type	Species	Behaviour	Occurrence (no. of flight passes)
16th of August 2022	Emergence	Soprano pipistrelle	Commuting	0
			Foraging	0
			Emerging	0

			Heard on Detector	2
14th of September 2022	Re-entry	Soprano pipistrelle	Commuting	1
			Foraging	0
			Emerging	0
			Heard on Detector	0

BL4 is a series of old farm buildings, one hollowed out with no roof, the other fully intact with wooden rafters with several entry points. Emergence Survey was were completed the 10th of July 2024 and Re-Entry survey was completed on 14th of September 2024, respectively. Both of emergence surveys identified soprano pipistrelle and Common Pipistrelle through the detector. No roost was identified at BL4 as no emergence behaviour was observed during either visit. Results are shown below in **Table 3.6**.

Table 3.6: ***BL4 Emergence Survey Results 2024.***

Date	Survey Type	Species	Behaviour	Occurrence (no. of flight passes)
10th July 2024	Emergence	Common pipistrelle	Commuting	2
			Foraging	0
			Emerging	0
			Heard on Detector	2
		Soprano pipistrelle	Commuting	0
			Foraging	1
			Emerging	0
			Heard on Detector	4
14th September 2024	Emergence	Common pipistrelle	Commuting	1
			Foraging	0
			Emerging	0
			Heard on Detector	0
		Soprano pipistrelle	Commuting	3
			Foraging	0
			Emerging	0
			Heard on Detector	2

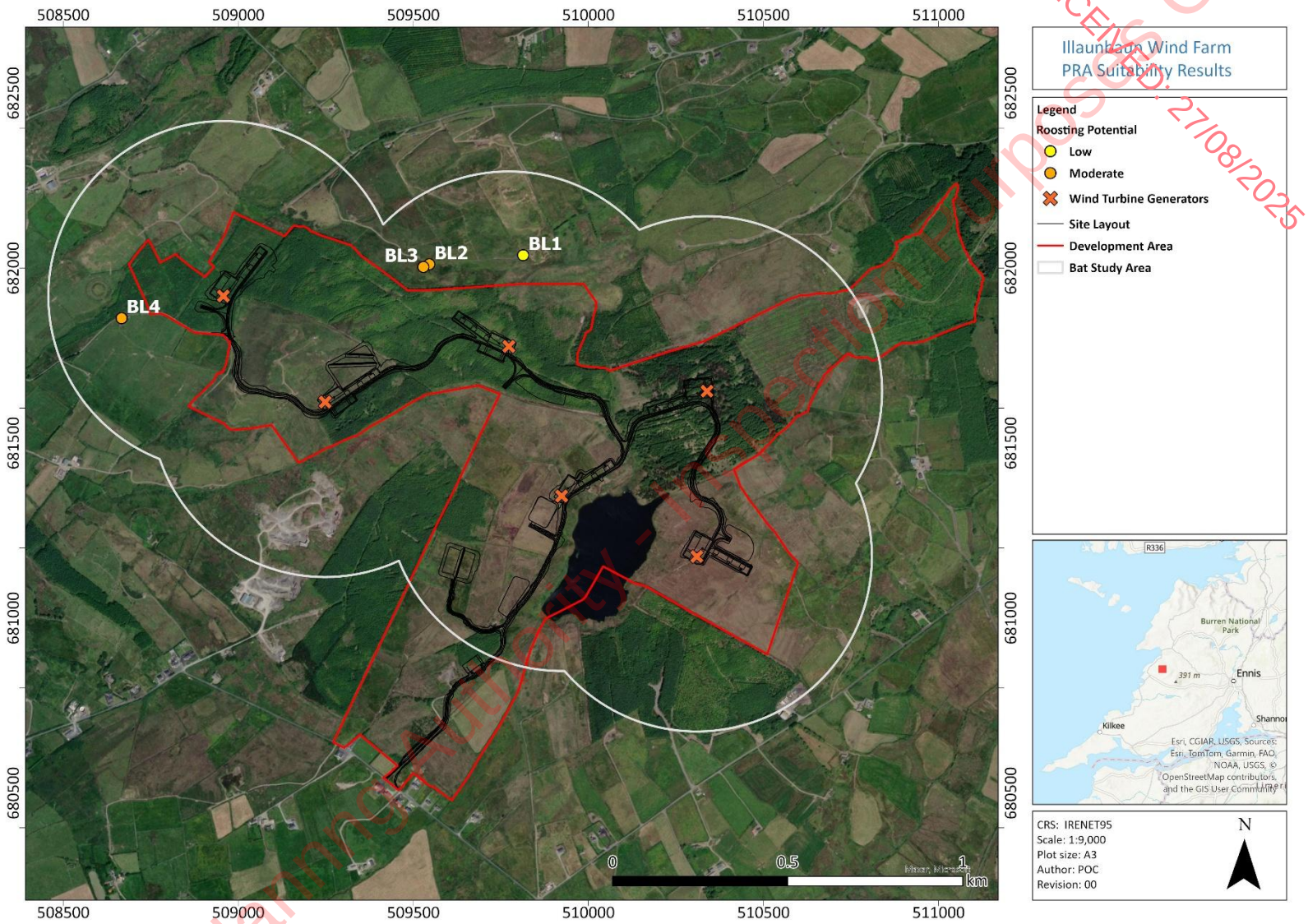

Figure 3.1: ***PRA locations within 500m of Turbines.***

3.2.3 Bat Activity (Transect) Surveys

Two transects were walked for the spring, summer and autumn periods to detect bat activity across the site. Both the spring and autumn efforts had no detections for any bat species. The summer effort detected common pipistrelle on both Transect 1 and Transect 2. Both detections involved bats foraging. These surveys were conducted under suitable weather conditions aligned with Collins (2023) (See **Table 2.7** above for survey efforts and weather conditions).

The results are shown below in **Table 3.7**.

Table 3.7: ***Summer 2022 Bat Transects Results.***

Transect Number	Date	Species	Behaviour	Occurrence (no. of flight passes)
1	13th June 2022	Common pipistrelle	Foraging	5
2	13th June 2022	Common pipistrelle	Foraging	7

3.2.4 Static detector results

The number of bat passes recorded by static detectors recorded at each survey location was used to determine the bat activity level (See **Annex A**).

Only three species were recorded to have moderate or higher activity (*Myotis sp.*, soprano pipistrelle and common pipistrelle). All other bat species were recorded at low or negligible levels at least once (Nathusius' pipistrelle, Leisler's bat, brown long-eared bat and lesser horseshoe bat).

Lesser horseshoe bat was recorded on one occasion near T6 in the autumn survey season (See **Table A.1, Table A.4.**). This record was along commuting suitable habitat for lesser horseshoe bats.

Soprano pipistrelle was recorded over 2,200 times over the three survey periods. Common pipistrelle was recorded over 1,500 times over the three survey periods. Both species only exceeded 50 passes per night at three locations (T2, BP, T5) the remainder were low activity (10-49 passes per night).

Full details of activity by turbine and season are provided in **Annex A (Table A.1, Table A.2, Table A.3, Table A.4**).

4 DESCRIPTION OF BAT BASELINE

Evidence from bat activity surveys within the Illaunbaun Wind Farm Proposed Development indicates that several species meet the criteria for consideration as Important Ecological Features (IEFs) under CIEEM 2024 guidelines. Each species is evaluated for its presence on site and their respective conservation status.

Lesser horseshoe bat

Lesser horseshoe bat is an Annex II species under the EU Habitats Directive and the Wildlife Acts. No designated sites within 5km ZoI list this species as a QI. However, one record of this species was recorded in the autumn season (see **Table A.4**). Despite its scarce presence on site and absence of any confirmed roost site within the 5km ZoI of the Proposed Development for this species, lesser horseshoe bat is considered an IEF of **County Importance** due to its sensitivity to Wind Farm projects, conservation status, verified call recorded on site and suitable commuting and foraging habitat within the ecological baseline.

Common pipistrelle

This species population has been observed as steadily increasing on the island of Ireland. It is listed under the Wildlife Acts and Annex V of the EU Habitats Directive. Common pipistrelle was the only bat species recorded during transects efforts. Roost surveys showed one location that recorded this species emerging (BL1, **Table 3.3**). Due to the high activity of this species on site it is considered an IEF of **Local Importance (Higher Value)**.

Soprano pipistrelle

This species population has been observed as steadily increasing on the island of Ireland. It is listed under the Wildlife Acts and Annex V of the EU Habitats Directive. Soprano pipistrelle was recorded during roost surveys but no clear observation of emergence or re-entry was made. Due to the high activity of this species on site it is considered an IEF of **Local Importance (Higher Value)**.

Nathusius' pipistrelle

This species population has been observed as steadily increasing on the island of Ireland as better survey methods improve. It is listed under Wildlife Acts and Annex IV of the EU Habitats Directive. The extent of residency and roost habitat within Ireland is limited (Boston *et al.*, 2016). As such, its overall trend is unknown. Due to the low activity of this species on site it is not considered an IEF.

Leisler's bat

This species population has been observed as stable on the island of Ireland as better survey methods improve. It is listed under the Wildlife Acts and Annex IV of the EU Habitats Directive. The extent of residency and roost habitat within Ireland is considered vulnerable (Bat Conservation Ireland (BCI), 2016). This species has one of the higher sensitivities to Wind Farm turbines compared to the other native bat species. It was recorded commuting during roost surveys and of low levels at several turbines. Due to the low activity of this species on site it is not considered an IEF.

Myotis species & brown long-eared bat

Due to the overlapping frequencies for this group, species specific trends cannot be determined. Myotis was recorded at moderate levels during static detector surveys. Due to this activity, *Myotis sp.*

are considered as IEF of **Local Importance (Higher Value)** under the precautionary principle and their sensitivity to Wind Farm projects.

Brown long-eared bat was recorded at low levels during static detector deployments. As such, although only low and negligible were recorded. Due to this activity, brown long-eared bat are considered as an IEF of **Local Importance (Higher Value)** under the precautionary principle and based on their sensitivity to Wind Farm projects.

Due to the nature of the bat survey methodology and the elusive nature of their roost locations. The determination of species to be scoped in as IEFs is based on their conservation status and the levels of activity recorded during surveys, in line with CIEEM (2024) guidance (**Table 2.5**). See **Section 4.1** for Summary of IEFs.

4.1 Summary of Ecological Features

A total of six bat species are deemed IEFs in relation to the Proposed Development. The full list of bat receptors and the scoping of IEFs are provided below in **Table 4.1**:

Table 4.1: ***Scoping of Important Ecological Features.***

Species	Legislation	Importance	Scoped In/Out as Important Ecological Features
Lesser horseshoe bat	EU Habitats Directive Annex II; Wildlife Acts; Bern Convention I & II	**County Importance**	In
Common pipistrelle	EU Habitats Directive Annex IV; Wildlife Acts; Bern Convention II	**Local Importance (High Value)**	In
Soprano pipistrelle	EU Habitats Directive Annex IV; Wildlife Acts; Bern Convention II	**Local Importance (High Value)**	In
Nathusius' pipistrelle	EU Habitats Directive Annex IV; Wildlife Acts; Bern Convention II	**Local Importance (High Value)**	Out
Leisler's bat	EU Habitats Directive Annex IV; Wildlife Acts; Bern Convention II	**Local Importance (High Value)**	Yes
Myotis species	EU Habitats Directive Annex IV; Wildlife Acts; Bern Convention II	**Local Importance (High Value)**	Yes
Brown long-eared bat	EU Habitats Directive Annex IV; Wildlife Acts; Bern Convention II	**Local Importance (High Value)**	Yes

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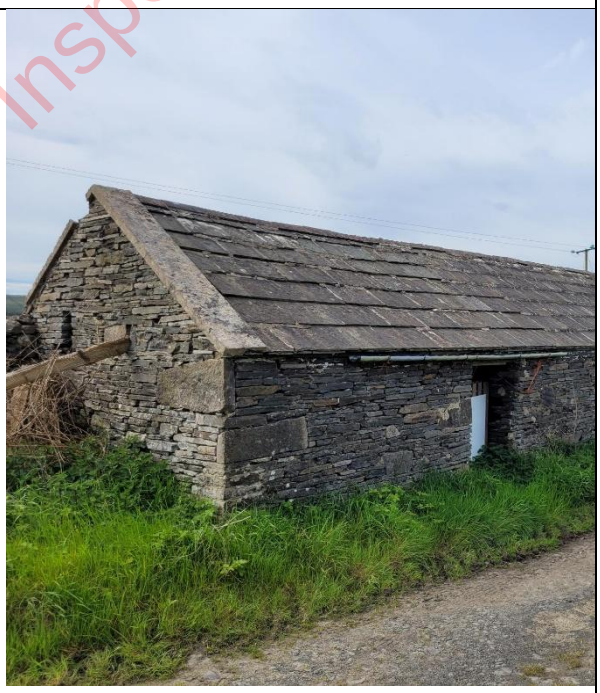
6 PRA IMAGES

Table 6.1: ***Image Results of PRA.***

	
BL1	BL2
	
BL3	BL4

ANNEX A

Table A.2: *Static Detector Bat Activity Results.*

Season	Turbine Location	Bat Species	Average Bat activity levels
Spring Deployment	T1	Common pipistrelle	Negligible
		Soprano pipistrelle	Nil
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Nil
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T2	Common pipistrelle	Negligible
		Soprano pipistrelle	Negligible
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Nil
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T3	Common pipistrelle	Negligible
		Soprano pipistrelle	Negligible
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Negligible
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	Borrow Pit	Common pipistrelle	Low
		Soprano pipistrelle	Low
		Nathusius' pipistrelle	Negligible
		Leisler's bat	Negligible
		Myotis spp.	Negligible
		Brown long-eared bat	Negligible
		Lesser horseshoe bat	Nil
	T5	Common pipistrelle	Low
		Soprano pipistrelle	Negligible
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Low
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T6	Common pipistrelle	Nil
		Soprano pipistrelle	Nil
		Nathusius' pipistrelle	Nil
		Leisler's bat	Nil
		Myotis spp.	Nil
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T1	Common pipistrelle	High

Season	Turbine Location	Bat Species	Average Bat activity levels
Summer Deployment		Soprano pipistrelle	Moderate
		Nathusius' pipistrelle	Low
		Leisler's bat	Negligible
		Myotis spp.	Negligible
		Brown long-eared bat	Negligible
		Lesser horseshoe bat	Nil
	T2	Common pipistrelle	Low
		Soprano pipistrelle	Low
		Nathusius' pipistrelle	Nil
		Leisler's bat	Low
		Myotis spp.	Low
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T3	Common pipistrelle	Low
		Soprano pipistrelle	Negligible
		Nathusius' pipistrelle	Negligible
		Leisler's bat	Nil
		Myotis spp.	Low
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	Borrow Pit	Common pipistrelle	High
		Soprano pipistrelle	High
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Negligible
		Brown long-eared bat	Negligible
		Lesser horseshoe bat	Nil
	T5	Common pipistrelle	High
		Soprano pipistrelle	Moderate
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Negligible
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T6	Common pipistrelle	Nil
		Soprano pipistrelle	Nil
		Nathusius' pipistrelle	Nil
		Leisler's bat	Nil
		Myotis spp.	Nil
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T1	Common pipistrelle	Low
		Soprano pipistrelle	Negligible
		Nathusius' pipistrelle	Nil

Season	Turbine Location	Bat Species	Average Bat activity levels
Autumn Deployment		Leisler's bat	Nil
		Myotis spp.	Nil
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	T2	Common pipistrelle	High
		Soprano pipistrelle	High
		Nathusius' pipistrelle	Negligible
		Leisler's bat	Low
		Myotis spp.	Low
		Brown long-eared bat	Negligible
		Lesser horseshoe bat	Nil
	T3	Common pipistrelle	Low
		Soprano pipistrelle	Negligible
		Nathusius' pipistrelle	Nil
		Leisler's bat	Negligible
		Myotis spp.	Negligible
		Brown long-eared bat	Nil
		Lesser horseshoe bat	Nil
	Borrow Pit	Common pipistrelle	Moderate
		Soprano pipistrelle	Moderate
		Nathusius' pipistrelle	Negligible
		Leisler's bat	Low
		Myotis spp.	Moderate
		Brown long-eared bat	Low
		Lesser horseshoe bat	Nil
	T5	Common pipistrelle	Moderate
		Soprano pipistrelle	High
		Nathusius' pipistrelle	Nil
		Leisler's bat	Low
		Myotis spp.	Low
		Brown long-eared bat	Negligible
		Lesser horseshoe bat	Nil
	T6	Common pipistrelle	Low
		Soprano pipistrelle	Moderate
		Nathusius' pipistrelle	Negligible
		Leisler's bat	Negligible
		Myotis spp.	Low
		Brown long-eared bat	Negligible
		Lesser horseshoe bat	Negligible

Category	Number of bat passes per night
Negligible	less 9
Low	10-49
Moderate	50-99
High	over 100

Table A.3: ***Spring Static Detector Bat Counts***

Spring (April) Survey Period	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**Total Bat Records**
Turbine 1												
Common pipistrelle	0	0	0	0	0	3	0	0	0	0	0	3
Soprano pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	0	1	0	0	0	0	1
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	0	0	0	0	0	0	0	0	0	0	0	0
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 2												
Common pipistrelle	0	0	1	0	0	2	0	0	0	0	0	3
Soprano pipistrelle	0	0	1	0	0	0	0	0	0	0	0	1
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	1	0	0	0	0	0	1
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	0	0	0	0	0	0	0	0	0	0	0	0
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 3												
Common pipistrelle	0	0	0	0	0	0	4	0	5	0	0	9
Soprano pipistrelle	0	0	0	0	0	0	2	1	1	0	0	4

Spring (April) Survey Period	7	8	9	10	11	12	13	14	15	16	17	Total Bat Records
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	0	2	0	3	0	0	5
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	1	0	0	0	0	0	0	0	0	0	0	1
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Burrow Pit												
Common pipistrelle	0	0	0	0	0	0	12	0	13	0	1	26
Soprano pipistrelle	0	0	0	0	0	0	2	0	17	0	0	19
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	0	2	0	3	0	0	5
Brown long-eared bat	0	0	0	0	0	0	0	0	1	0	0	1
Myotis spp.	0	0	0	0	0	0	1	0	1	0	0	2
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 5												
Common pipistrelle	0	0	0	0	2	0	4	1	6	0	0	13
Soprano pipistrelle	0	0	0	0	1	0	2	0	1	0	0	4
Nathusius' pipistrelle	0	0	0	0	0	0	0	0		0	0	0
Leisler's bat	0	0	0	0	0	0	0	0	1	0	0	1
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	2	0	0	0	3	0	6	1	3	0	0	15

Spring (April) Survey Period	7	8	9	10	11	12	13	14	15	16	17	Total Bat Records
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 6												
Common pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Soprano pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	0	0	0	0	0	0	0
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	0	0	0	0	0	0	0	0	0	0	0	0
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0

Table A.4: *Summer Static Detector Bat Counts*

Summer (June) Survey Period	16	17	18	19	20	21	22	23	24	25	26	Total Bat Records
Turbine 1												
Common pipistrelle	249	5	0	1	0	1	8	11	0	0	0	275
Soprano pipistrelle	45	8	0	2	0	0	5	2	0	0	0	62
Nathusius' pipistrelle	11	0	0	0	0	0	0	4	0	0	0	15
Leisler's bat	0	0	0	0	0	1	1	0	0	0	0	2
Brown long-eared bat	2	0	0	0	0	0	0	0	0	0	0	2
Myotis spp.	2	2	2	3	0	0	0	1	0	0	0	10
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 2												
Common pipistrelle	0	8	7	1	2	9	19	2	0	0	0	48
Soprano pipistrelle	2	5	0	1	0	4	4	2	0	0	0	18
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	12	2	2	0	0	0	16
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	2	1	0	2	0	3	4	1	0	0	0	13
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 3												
Common pipistrelle	0	3	1	0	0	3	3	2	0	0	0	12
Soprano pipistrelle	0	1	0	0	0	2	1	1	0	0	0	5

Summer (June) Survey Period	16	17	18	19	20	21	22	23	24	25	26	Total Bat Records
Nathusius' pipistrelle	0	1	0	0	0	0	0	0	0	0	0	1
Leisler's bat	0	0	0	0	0	0	0	0	0	0	0	0
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	5	11	3	14	1	8	2	0	0	0	0	44
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Burrow pit												
Common pipistrelle	79	259	50	2	0	36	125	1	0	0	0	552
Soprano pipistrelle	43	105	51	111	11	19	110	13	0	0	0	463
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	2	1	0	0	3	0	0	0	0	0	6
Brown long-eared bat	0	0	0	0	0	0	1	0	0	0	0	1
Myotis spp.	0	1	0	0	0	10	1	0	0	0	0	12
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 5												
Common pipistrelle	2	23	94	6	9	2	28	5	0	0	0	169
Soprano pipistrelle	5	15	2	3	3	3	16	7	0	0	0	54
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	2	0	0	0	0	0	2
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	2	0	0	1	1	1	0	2	0	0	0	7

Summer (June) Survey Period	16	17	18	19	20	21	22	23	24	25	26	Total Bat Records
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 6 - No recordings												
Common pipistrelle	-	-	-	-	-	-	-	-	-	-	-	-
Soprano pipistrelle	-	-	-	-	-	-	-	-	-	-	-	-
Nathusius' pipistrelle	-	-	-	-	-	-	-	-	-	-	-	-
Leisler's bat	-	-	-	-	-	-	-	-	-	-	-	-
Brown long-eared bat	-	-	-	-	-	-	-	-	-	-	-	-
Myotis spp.	-	-	-	-	-	-	-	-	-	-	-	-
Lesser horseshoe bat	-	-	-	-	-	-	-	-	-	-	-	-

Table A.5: *Autumn Static Detector Bat Counts*

Autumn (August/September) Survey Period	23	24	25	26	27	28	29	30	31	1	2	3	4	Total Bat Records
Turbine 1														
Common pipistrelle	12	1	0	7	0	0	0	0	0	0	0	0	0	20
Soprano pipistrelle	1	2	1	2	0	0	0	0	0	0	0	0	0	6
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 2														
Common pipistrelle	8	6	0	128	9	8	16	5	1	61	0	1	0	243
Soprano pipistrelle	189	34	0	551	156	180	128	47	10	39	0	2	0	1336
Nathusius' pipistrelle	0	0	0	0	1	0	0	0	0	0	0	0	0	1
Leisler's bat	3	0	0	0	2	1	2	2	0	8	0	0	1	19
Brown long-eared bat	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Myotis spp.	0	0	0	1	1	4	0	2	4	1	0	0	0	13
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 3														
Common pipistrelle	1	0	0	11	4	0	0	0	0	0	0	0	0	16
Soprano pipistrelle	0	0	0	7	2	0	0	0	0	0	0	0	0	9

Autumn (August/September) Survey Period	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**1**	**2**	**3**	**4**	**Total Bat Records**
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	1	0	0	0	1	0	0	0	0	0	0	0	0	2
Brown long-eared bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Myotis spp.	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Burrow Pit														
Common pipistrelle	3	1	0	23	9	1	3	2	1	33	0	3	0	79
Soprano pipistrelle	1	2	1	16	27	16	9	7	5	8	0	1	1	94
Nathusius' pipistrelle	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Leisler's bat	1	0	0	7	7	0	1	0	1	6	0	2	0	25
Brown long-eared bat	1	0	0	1	3	3	1	1	1	0	0	0	0	13
Myotis spp.	4	0	0	11	12	6	2	12	8	14	0	0	0	69
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 5														
Common pipistrelle	0	0	0	3	2	31	3	1	1	6	16	0	2	65
Soprano pipistrelle	0	0	1	2	5	9	1	1	0	10	80	0	3	112
Nathusius' pipistrelle	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Leisler's bat	0	0	0	1	3	2	1	1	2	2	0	0	1	13
Brown long-eared bat	1	0	0	0	0	0	1	0	0	1	4	0	0	7
Myotis spp.	0	0	0	2	1	1	1	0	1	0	14	0	0	20

Autumn (August/September) Survey Period	23	24	25	26	27	28	29	30	31	1	2	3	4	Total Bat Records
Lesser horseshoe bat	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turbine 6														
Common pipistrelle	0	0	6	10	7	2	5	3	8	0	0	0	0	41
Soprano Pipistrelle	3	2	15	26	13	9	7	5	8	0	0	3	0	91
Nathusius' pipistrelle	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Leisler's bat	0	0	0	0	2	2	2	1	0	0	0	0	1	8
Brown long-eared bat	0	0	1	0	0	0	1	1	1	0	0	1	1	6
Myotis spp.	2	2	3	6	3	0	4	3	4	0	0	0	1	28
Lesser horseshoe bat	0	0	0	1	0	0	0	0	0	0	0	0	0	1

ANNEX B

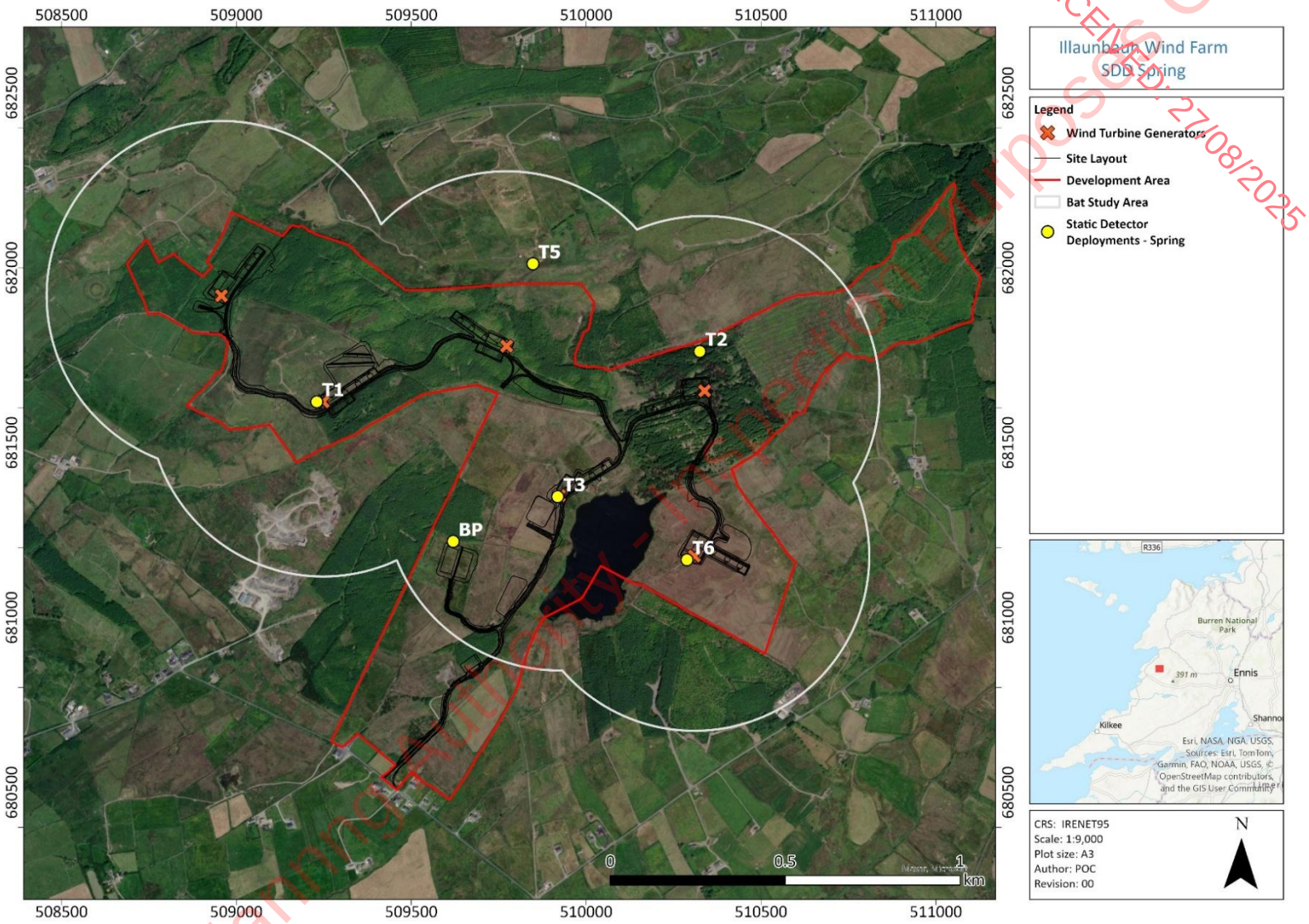


Figure B.1: ***Static Detector Deployment Map (spring).***

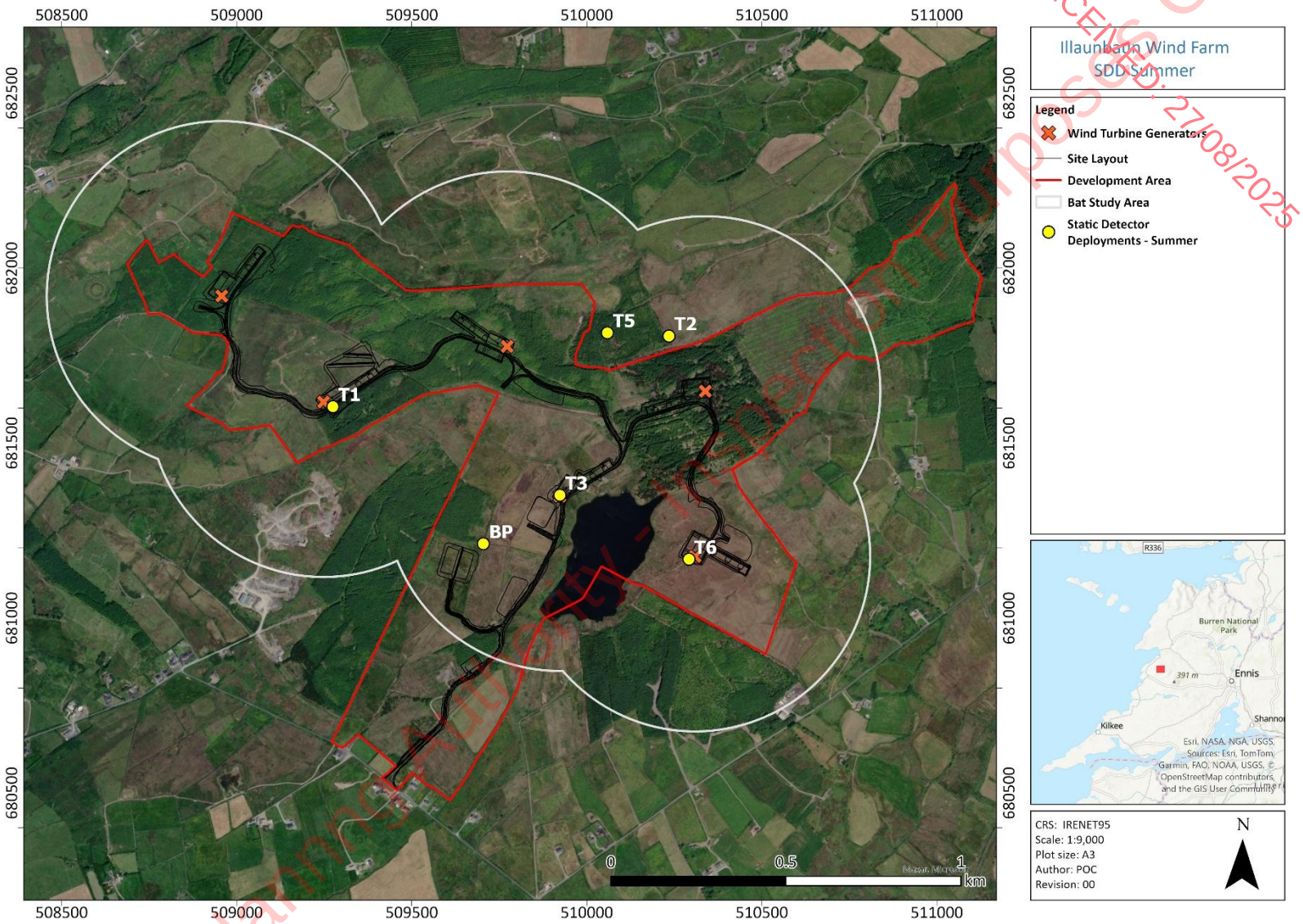


Figure B.2: ***Static Detector Deployment Map (summer).***

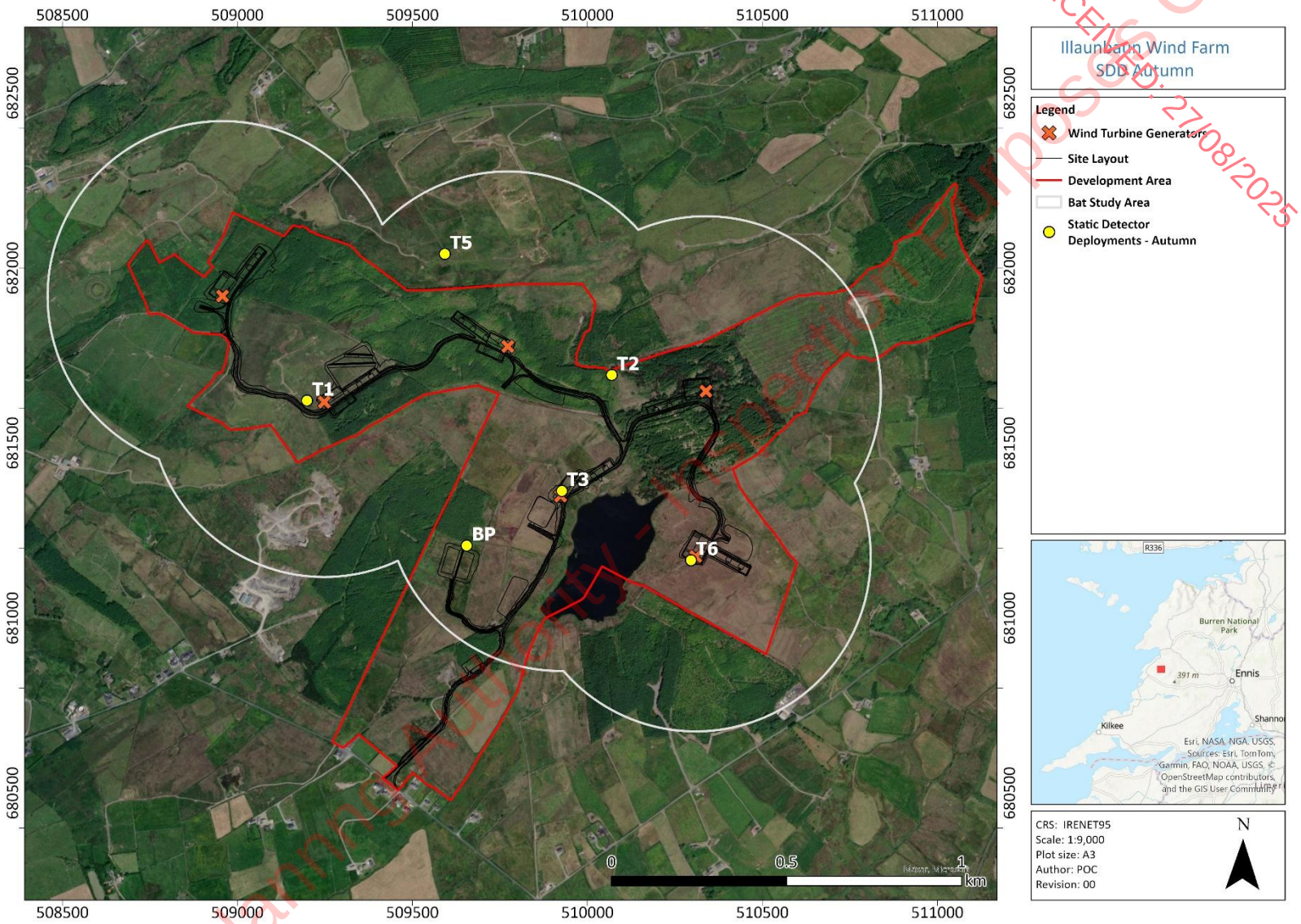


Figure B.3: ***Static Detector Deployment Map (autumn).***