




Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title
Golden Plover Incidental
Observations

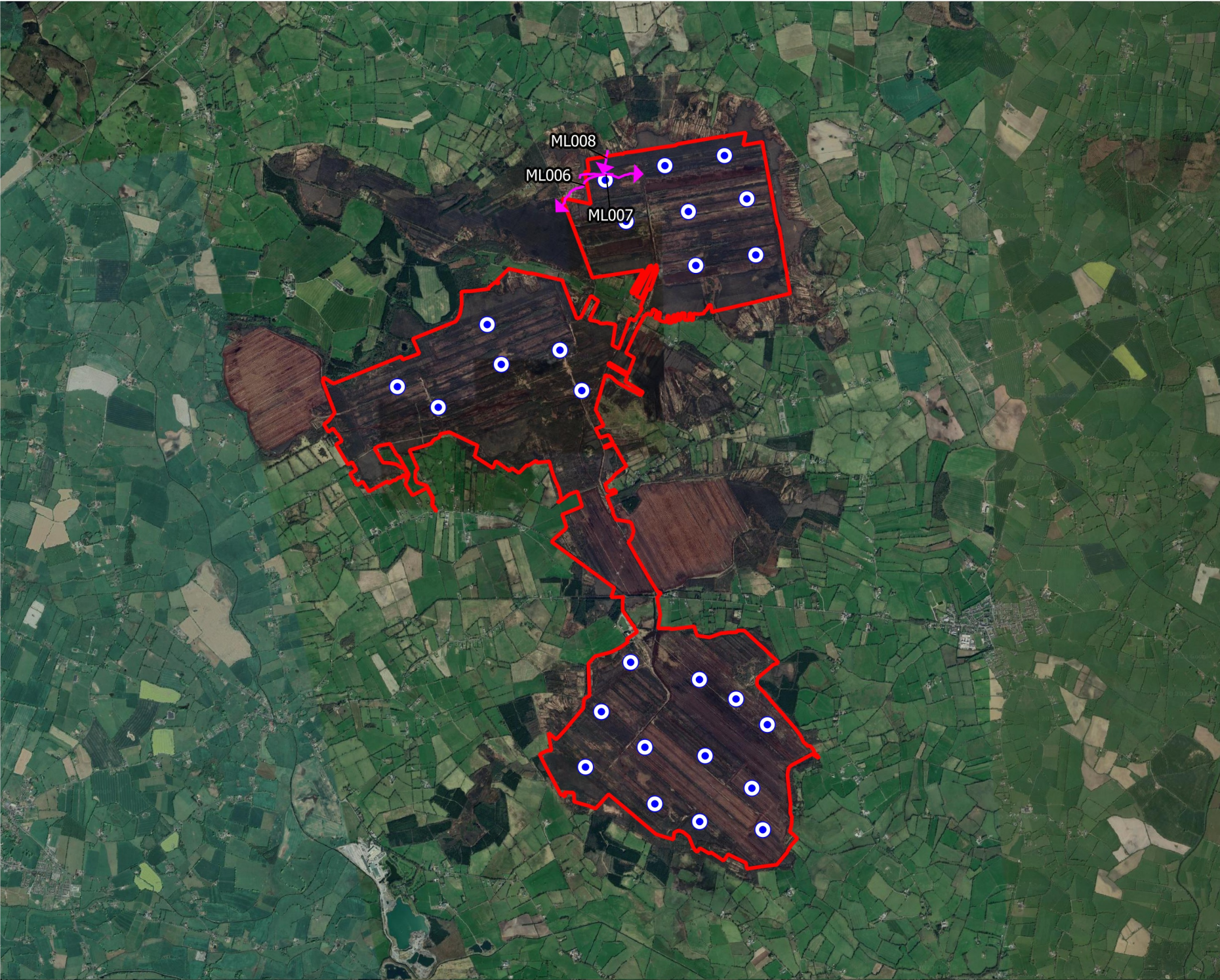
Project Title
Ballivor Wind Farm

Drawn By FOD	Checked By PM
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Project No. 191137-o	Drawing No. Fig 6..1
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Scale 1:60,000	Date 15.08.2023
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email: info@mkofireland.ie
Website: ww.mkofireland.ie



Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title
Merlin Incidental
Observations

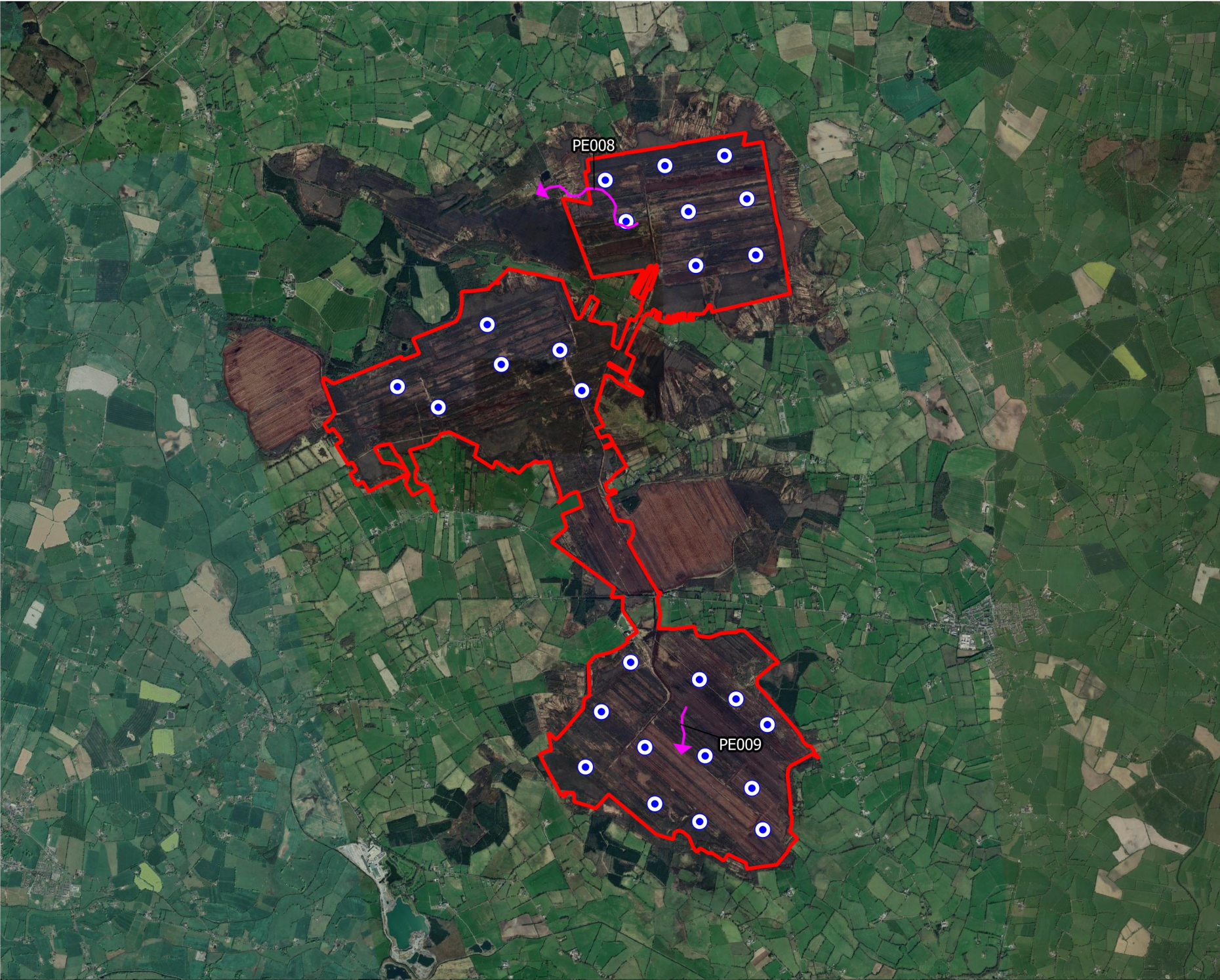
Project Title
Ballivor Wind Farm

Drawn By FOD Checked By PM




Project No. 191137-o Drawing No. Fig 6.2

Scale 1:60,000 Date 15.08.2023

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Website: ww.mkofireland.ie



Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline

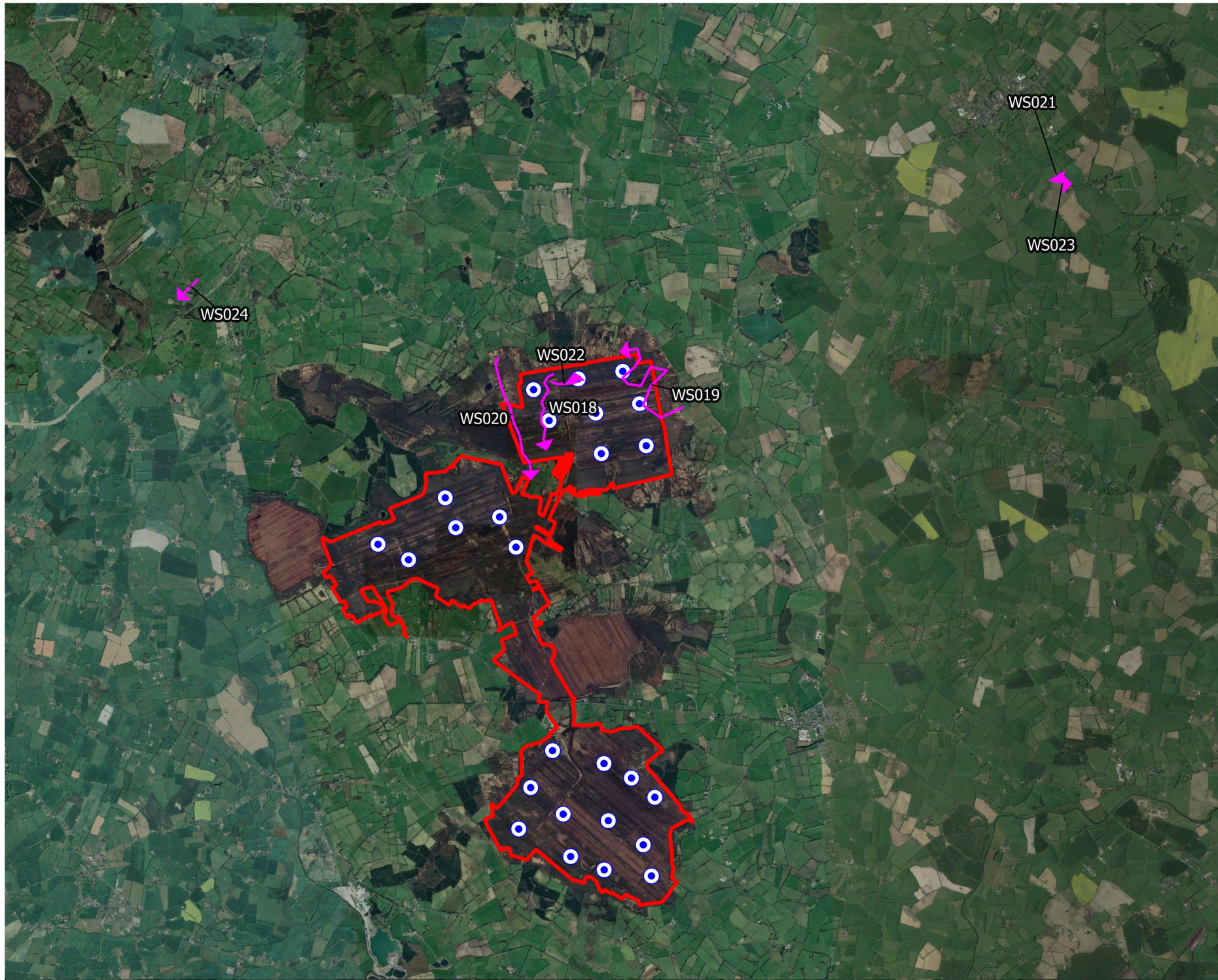


Drawing Title
Peregrine Falcon Incidental Observations




Project Title
Ballivor Wind Farm

Drawn By FOD	Checked By PM
Project No. 191137-o	Drawing No. Fig 6.3
Scale 1:60,000	Date 15.08.2023

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Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title

Whooper Swan Incidental Observations

Project Title

Ballivor Wind Farm

Drawn By

FOD

Checked By

PM

Project No.

191137-o

Drawing No.

Fig 6.4

Scale

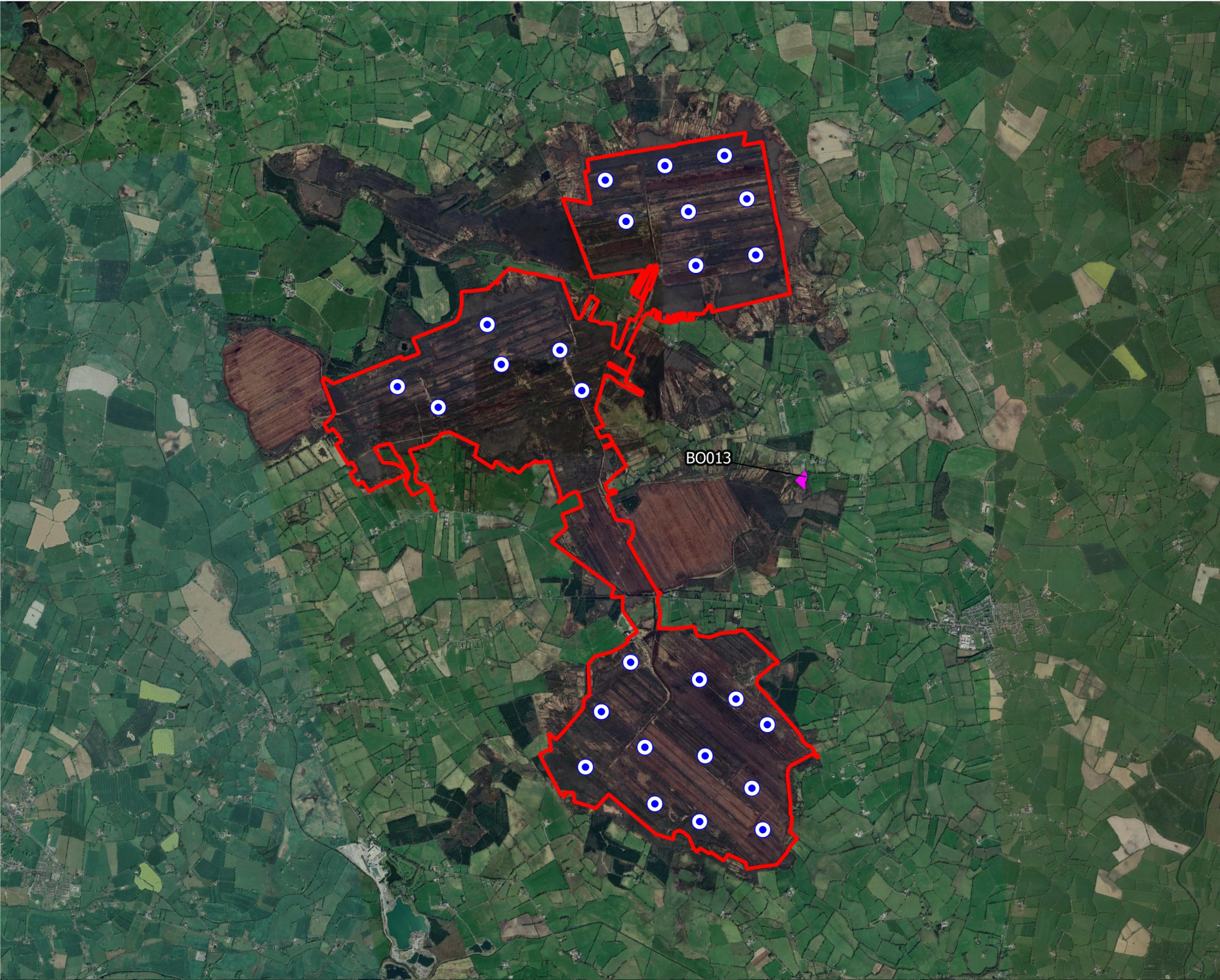
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Date




15.08.2023



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Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title
Barn Owl Incidental Observations

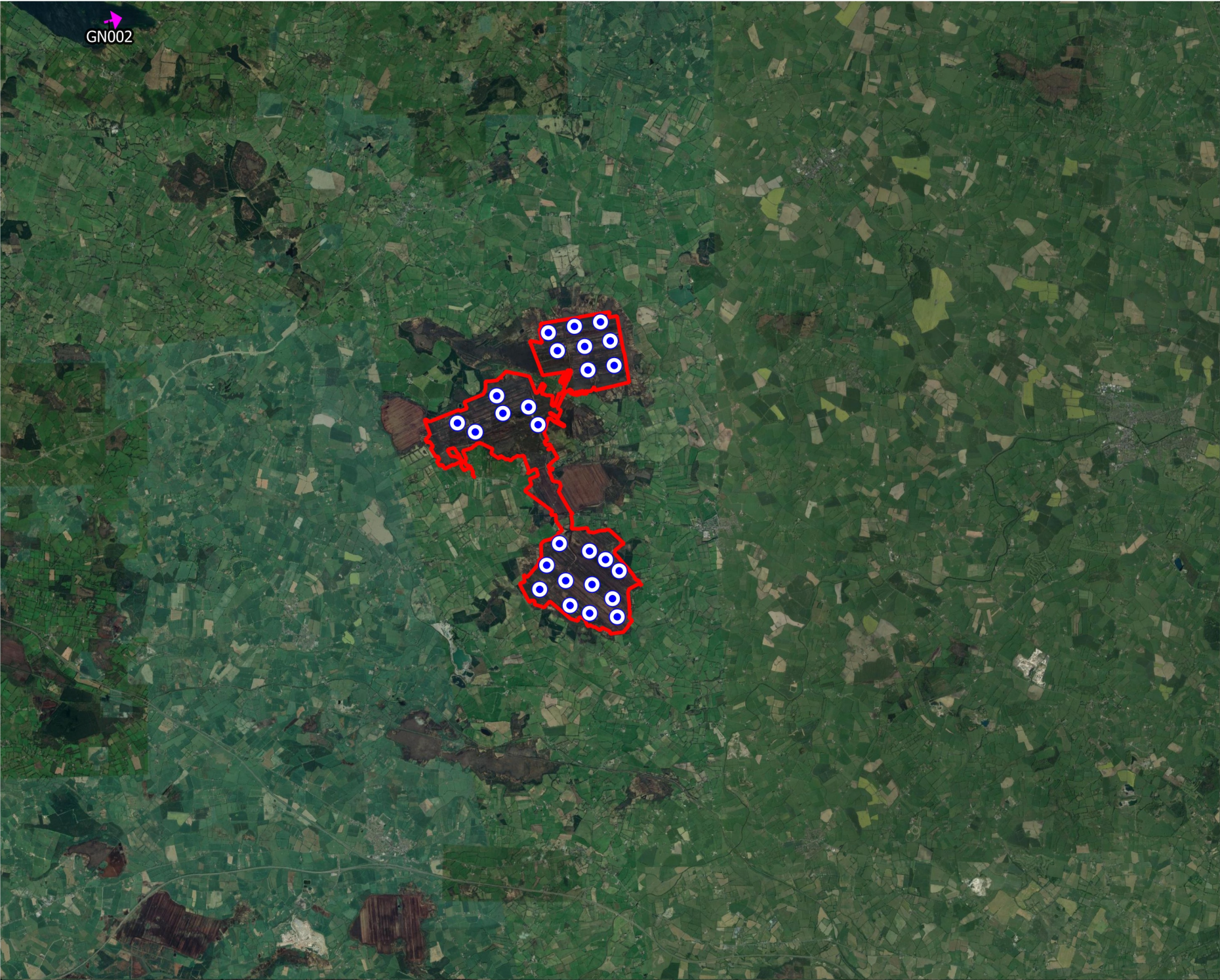
Project Title
Ballivor Wind Farm

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Project No. 191137-o	Drawing No. Fig 6.5
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Scale 1:60,000	Date 15.08.2023
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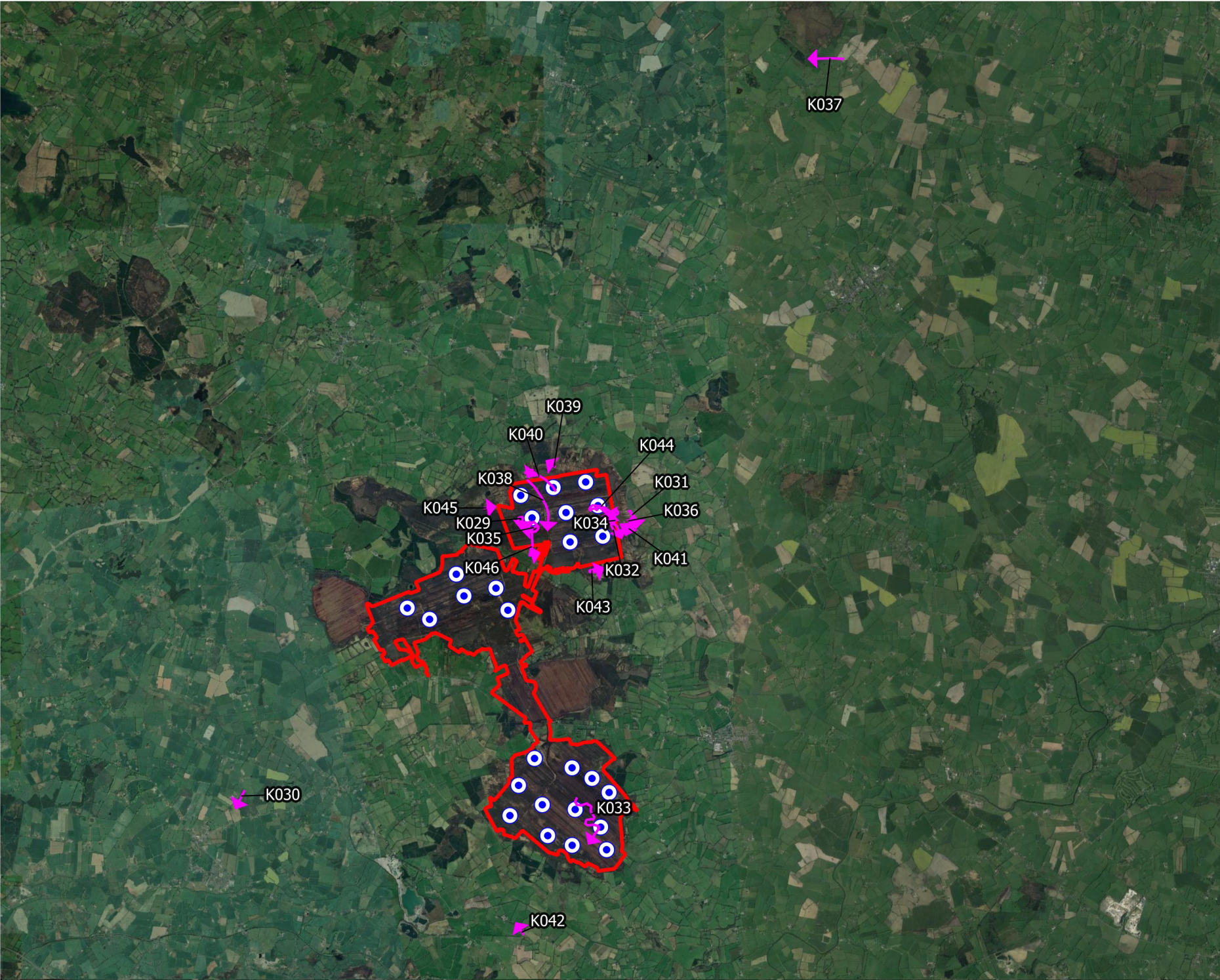


Map Legend




-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title	
Golden Eye Incidental Observation	
Project Title	
Ballivor Wind Farm	
Drawn By	Checked By
CC	PM
Project No.	Drawing No.
191137-o	Fig 6.6
Scale	Date
1:137,000	17.08.2023
 <div>MKO Planning and Environmental Consultants Tuam Road, Galway Ireland, H91 VV84 +353 (0) 91 735611 email: info@mkofireland.ie Website: ww.mkofireland.ie</div>	

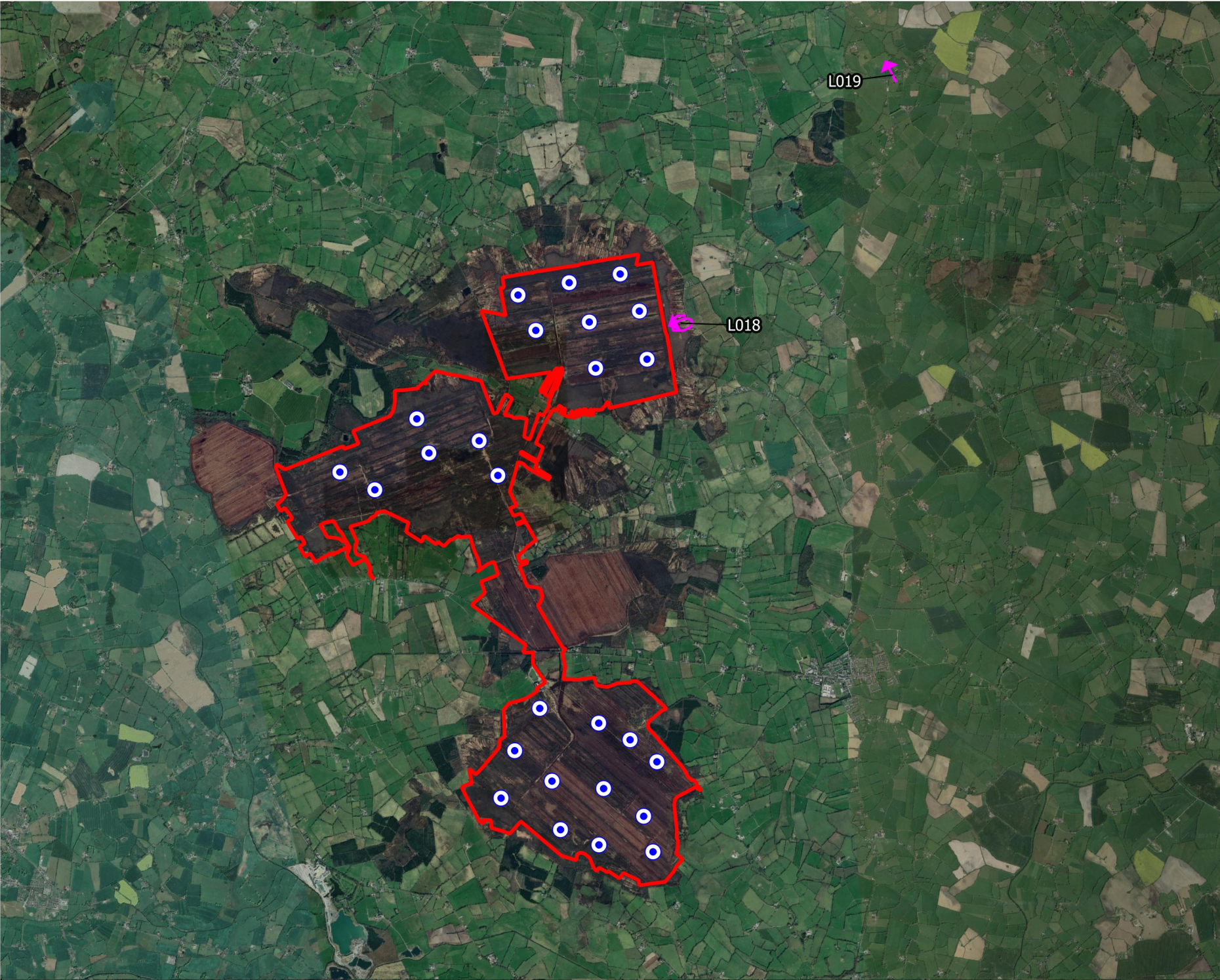


Map Legend




-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title	
Kestrel Incidental Observations	
Project Title	
Ballivor Wind Farm	
Drawn By	Checked By
FOD	PM
Project No.	Drawing No.
191137-o	Fig 6.7
Scale	Date
1:110,000	15.08.2023
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Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title

Lapwing Incidental
Observations

Project Title

Ballivor Wind Farm

Drawn By

FOD

Checked By

PM

Project No.

191137-o

Drawing No.

Fig 6.8

Scale

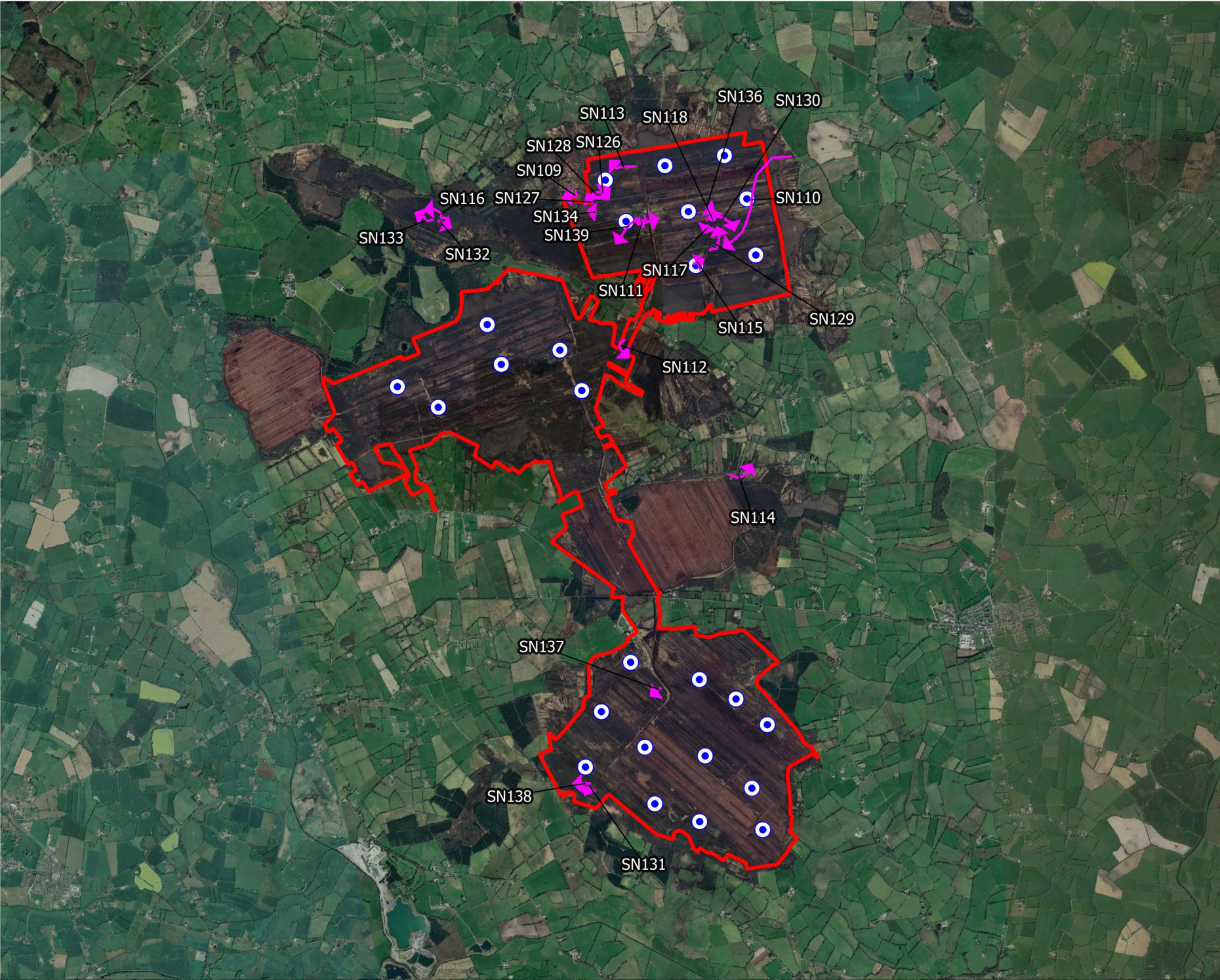
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Date




15.08.2023



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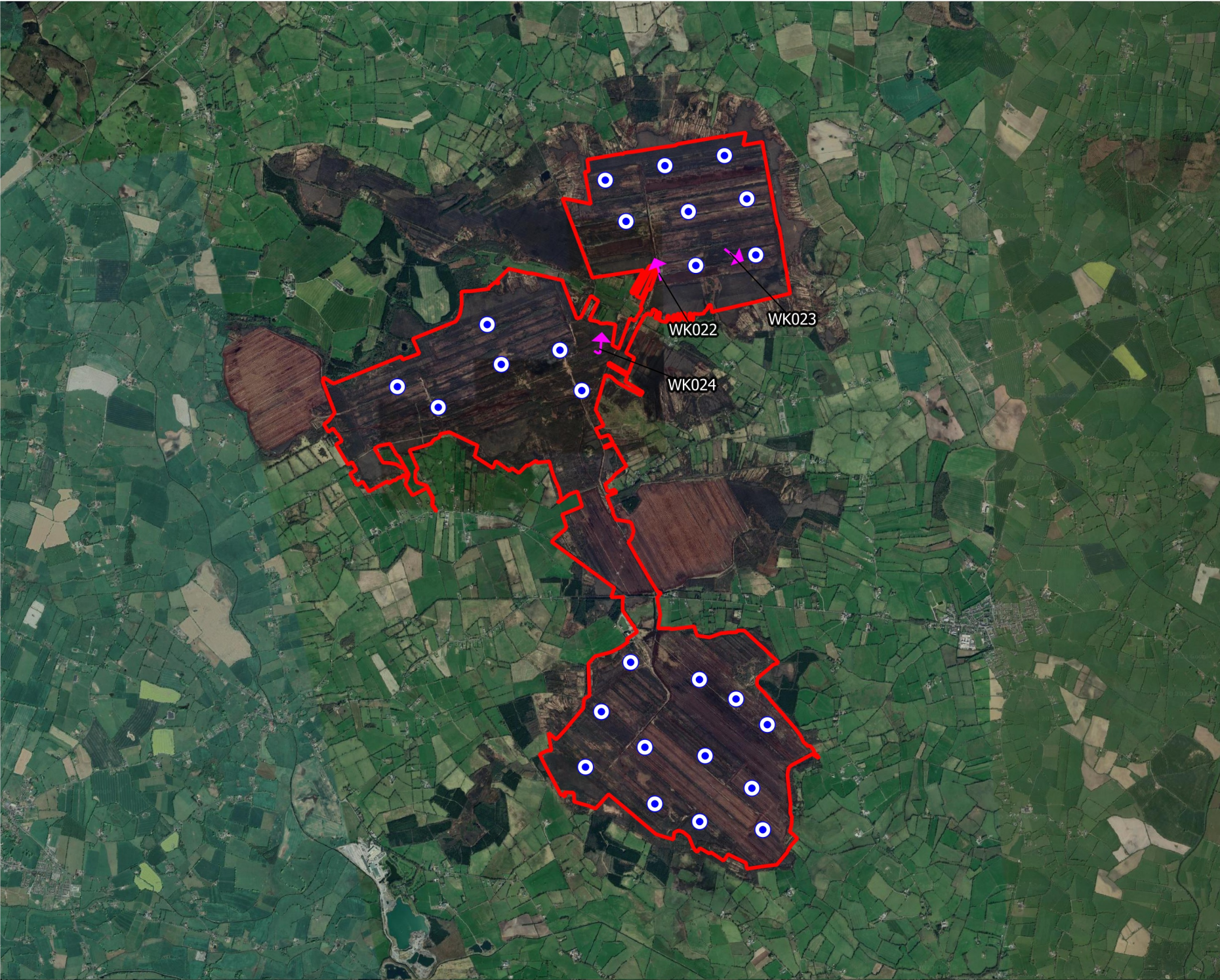


Map Legend




-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title	
Snipe Incidental Observations	
Project Title	
Ballivor Wind Farm	
Drawn By	Checked By
FOD	PM
Project No.	Drawing No.
191137-o	Fig 6.9
Scale	Date
1:60,000	15.08.2023
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Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title
Woodcock Incidental
Observations

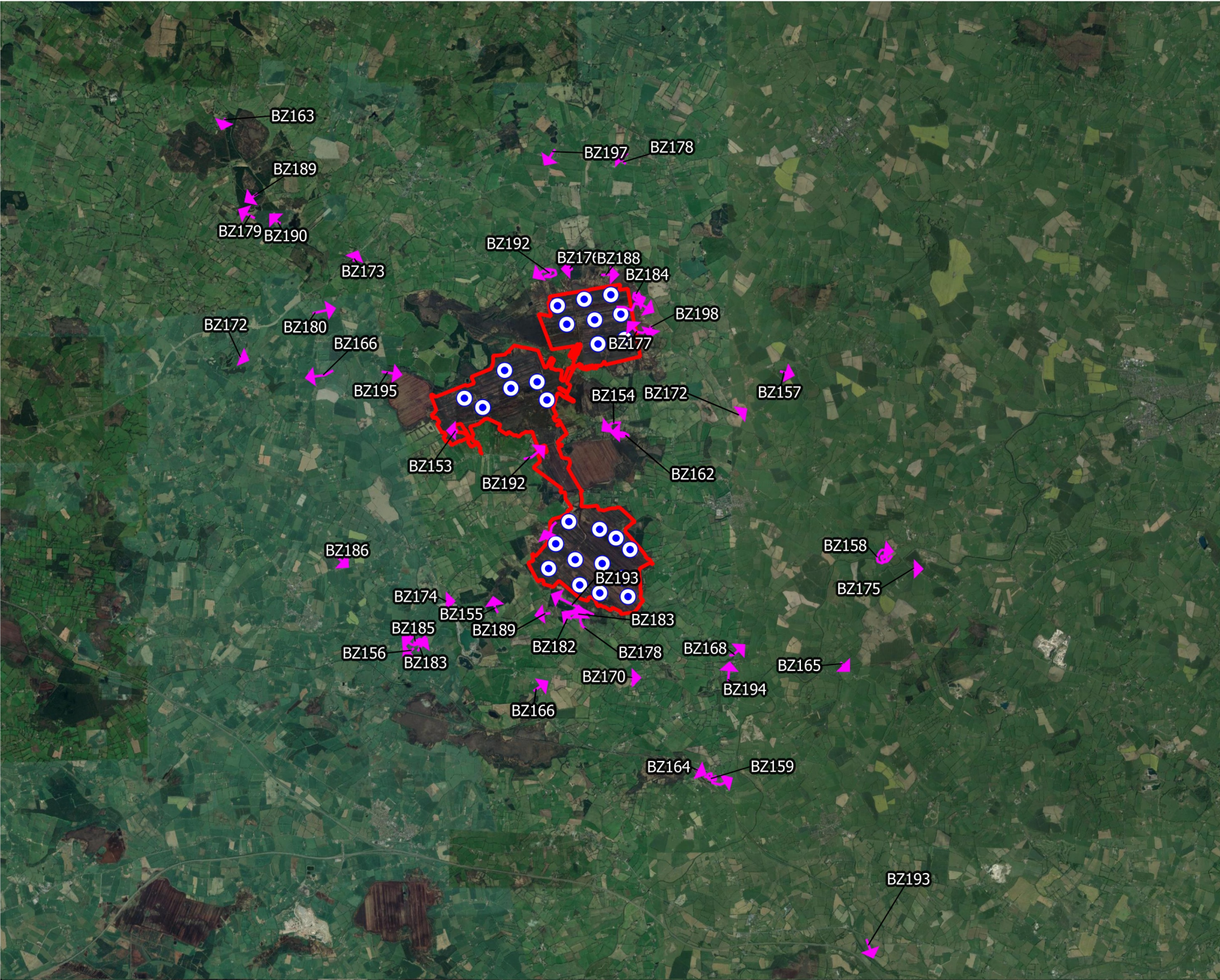
Project Title
Ballivor Wind Farm

Drawn By FOD	Checked By PM
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Project No. 191137-o	Drawing No. Fig 6.10
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Scale 1:60,000	Date 15.08.2023
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Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline

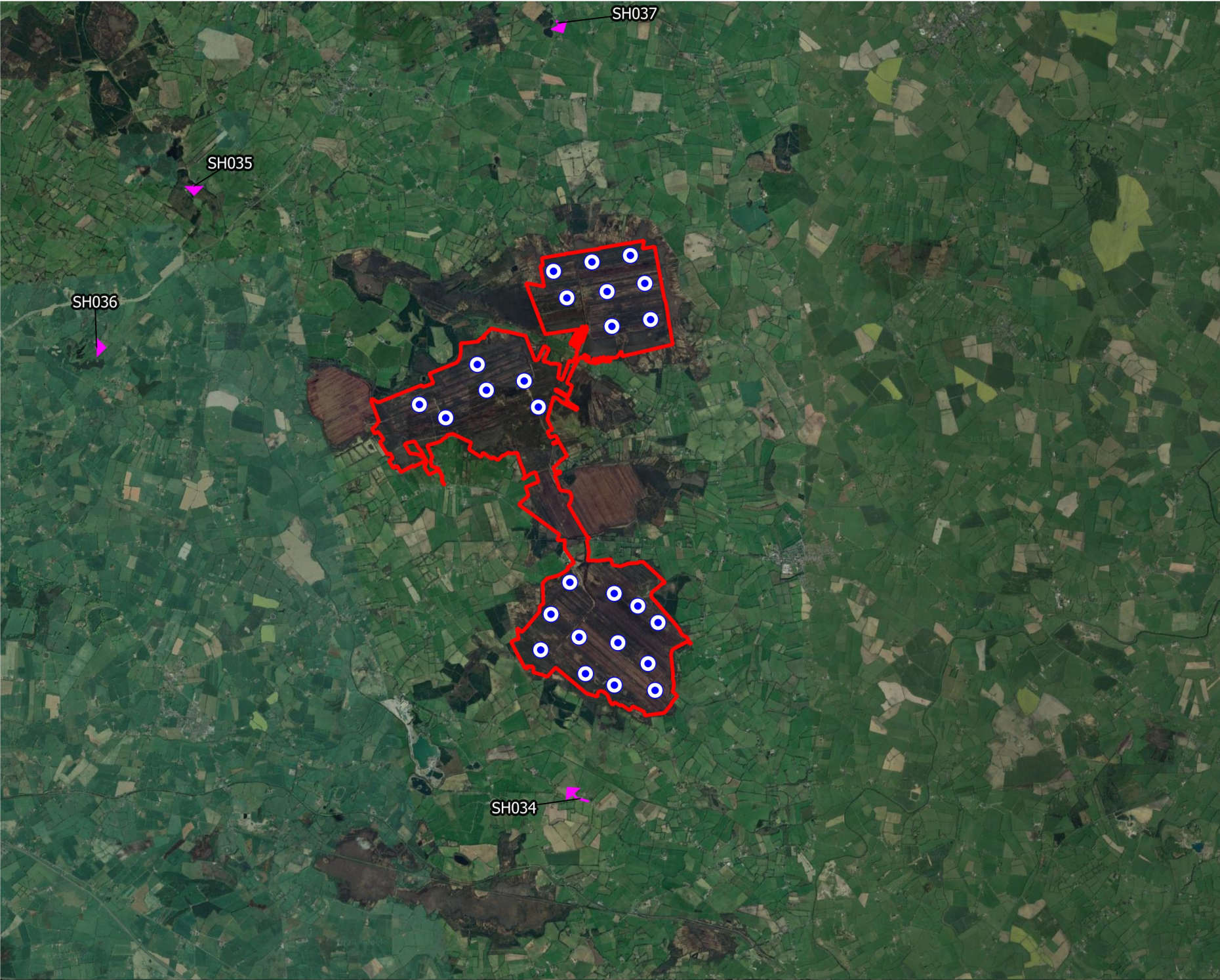


Drawing Title
Buzzard Incidental
Observations




Project Title
Ballivor Wind Farm

Drawn By CC	Checked By PM
Project No. 191137-o	Drawing No. Fig 6.11
Scale 1:134,000	Date 17.08.2023

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Map Legend

-  Wind Farm Site
-  Proposed Turbine Layout
-  Flightline



Drawing Title
Sparrowhawk Incidental
Observations

Project Title
Ballivor Wind Farm

Drawn By CC	Checked By PM
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Project No. 191137-o	Drawing No. Fig 6.12
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Scale 1:93,000	Date 17.08.2023
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APPENDIX 3

COLLISION RISK ASSESSMENT

Collision Risk Assessment

Ballivor Wind Farm





TABLE OF TABLES

Table 2-4 Model input values are largely unchanged, the key updates are to the recorded seconds at possible collision height (PCH), number of survey seconds and bird availability. Please refer to the ELAR Appendix 7-6 for further discussion on model inputs..... 2

Table 3-1 Results of CRM..... 3

Table 3-2 Comparison of Results..... 4

Table 1-1 Model input values are largely unchanged, the key updates are to the recorded seconds at possible collision height (PCH), number of survey seconds and bird availability. Please refer to the EIAR Appendix 7-6 for further discussion on model inputs.

Species	Model	Period	Updated PCH sec. (Total)
Golden Plover	random	September to April	3,172,367
Hen Harrier	random	September to March	185
Merlin	random	All	3,969
Peregrine	random	All	356
Whooper Swan	random	Winter	63,690
Kestrel	random	All	31,885
Lapwing	random	Breeding	265,129
Lapwing	random	Winter	3,200
Snipe	random	All	4,890
Buzzard	random	All	74,433
Sparrowhawk	random	All	3,072

1.

RESULTS

The predicted number of transits per year and the collision risk is presented in Table 1-1, along with the final predicted number of collisions per year. Note that for birds that both flap and glide, the average collision risk percentage between flapping and gliding is taken.

Table 1-1 Results of CRM

Species	Survey Period	Model	Transits	Collision Risk			Collision Rate			One Bird Collision
				flapping	gliding	overall	without avoidance	avoidance factor	with avoidance	
Golden Plover	September to April	random	212897.3	4.08%	no gliding flight	4.08%	8686.23	99.8 – 99.6% ¹	17.372 – 34.745	<1 year
Hen Harrier	September to March	random	5.5	5.65%	5.54%	5.6%	0.31	99%	0.003	324 years
Peregrine Falcon	All	random	275	4.41%	4.15%	4.28%	11.76	98%	0.235	4 years
Merlin	All	random	16.1	4.24%	4.18%	4.21%	0.68	98%	0.014	74 years
Whooper Swan	Winter	random	3799.4	7.42%	no gliding flight	7.42%	282.08	99.5%	1.41	1 year
Kestrel	All	random	1118.4	4.77%	4.68%	4.72%	52.83	95%	2.641	<1 year
Lapwing	Breeding	random	162.6	4.47%	no gliding flight	4.47%	7.26	98%	0.145	7 years
Lapwing	Winter	random	10662.1	4.47%	no gliding flight	4.47%	476.06	98%	9.521	<1 year
Snipe	All	random	361.6	3.93%	no gliding flight	3.93%	14.21	98%	0.284	4 years
Buzzard	All	random	3274.5	5.19%	5.03%	5.11%	167.39	98%	3.348	<1 year
Sparrowhawk	All	random	107.8	4.7%	4.64%	4.67%	5.04	98%	0.101	10 years

¹ Please refer to Appendix 7-6 of the EIAR for further discussion on the avoidance factor for golden plover.

Table 1-2 below provides a comparison of the collision risk model as outlined in the EIAR as lodged, compared to the updated collision risk model which includes the most up to date survey data (from October 2022 to March 2023). The impact assessment for each species listed in the table below is provided in Section 7.6.2 of the EIAR as lodged. The effect of the collision mortality from the Wind Farm Site was assessed in relation to the county population and the background mortality for each species. The percentage increase in background mortality as outlined in the EIAR, as lodged, and updated increase in background mortality are presented in Table 1-2 below. This change is then assessed to establish if there is a significant change in the collision risk impact for each species.

Table 1-2 Comparison of Results

Species	Survey Period	Collision Risk (Apr20 – Sep22) (birds per year)	Updated Collision Risk (Apr20 – Mar23) (birds per year)	Difference (birds per year)	Change in Background Mortality (Original → Updated Collision Risk)	Change to Impact Assessment
Golden Plover	September to April	15.527	17.372 – 34.745	+1.845 – +19.218	3.1% → 3.4 – 6.8%	No significant change (low (Percival, 2003)/long-term slight negative (EPA, 2022))
Hen Harrier	September to March	0.003	0.003	0	No change	No significant change (very low (Percival, 2003)/long-term imperceptible negative (EPA, 2022))
Merlin	All	0.014	0.014	0	No change	No significant change (very low (Percival, 2003)/long-term imperceptible negative (EPA, 2022))
Peregrine Falcon	All	0.224	0.235	+0.009	3.7% → 3.9%	No significant change (low (Percival, 2003)/long-term slight negative (EPA, 2022))
Whooper Swan	Winter	1.342	1.41	+0.068	1.22% → 1.28%	No significant change (low (Percival, 2003)/long-term slight negative (EPA, 2022))
Kestrel	All	2.206	2.641	+0.435	1.37% → 1.64%	No significant change (low (Percival, 2003)/long-term slight negative (EPA, 2022))
Lapwing	Breeding	0.145	0.145	0	No change	No significant change (low (Percival, 2003)/long-term slight negative (EPA, 2022))
Lapwing	Winter	2.636	9.521	+6.885	1.06% → 3.8%	No significant change (low (Percival, 2003)/long-term slight negative (EPA, 2022))
Snipe	All	0.237	0.284	+0.047	0.19% → 0.23%	No significant change (very low (Percival, 2003)/long-term imperceptible negative (EPA, 2022))
Buzzard	All	2.481	3.348	+0.867	16.65% → 22.47%	No significant change (very low (Percival, 2003)/long-term slight negative (EPA, 2022))
Sparrowhawk	All	0.097	0.101	+0.004	0.069% → 0.071%	No significant change (very low (Percival, 2003)/long-term imperceptible negative (EPA, 2022))





APPENDIX 4

MISSING SCOPING RESPONSES

Shaun Doolin

From: EIAPanning <eiapanning@epa.ie>
Sent: Thursday 27 August 2020 09:50
To: Karen Mulryan
Subject: Scoping Opinion under Article 5(2) of Directive 2011/92/EU as amended by Directive 2014/52/EU (EIA Directive)
Attachments: 191137 Ballivor EIA Scoping Document Final 2020.04.15.pdf; HSE Response.pdf; Department of Agriculture Food and Marine Response.pdf; Failte Ireland Response.pdf

Dear Sir /Madam,

I refer to the scoping request for a wind energy development by Bord na Móna Powergen Ltd. located on the Ballivor Bog Group - Ballivor, Carranstown, Bracklin, Lisclogher, and Lisclogher West received by the Agency on 08/05/2020. In accordance with the requirements of Article 5 (2) of Directive 2011/92/EU as amended by Directive 2014/52/EU *on the assessment of the effects of certain public and private projects on the environment* (EIA Directive), the Agency has consulted with the Planning Authorities Westmeath County Council and Meath County Council and relevant prescribed bodies. I attach copies of the responses received from the Health Services Executive, the Department of Agriculture, Food & the Marine & Failte Ireland.

The Scoping Document provided refers to the land-use/activities within the proposed site comprising a mix of active peat extraction (IPC Licence No. 506), bare cutaway peat, re-vegetation of bare peat, degraded blanket bog, and other landuse. It should be noted that Bord na Mona Energy Limited, Kilberry Group, c/o Ballivor Works, Ballivor, Navan, Co. Meath was issued an IPC Licence (Register No. P0506) on 28th April 2000 for Class 1.4 of the First Schedule of the EPA Act 1992 '*the extraction of peat in the course of business which involves an area exceeding 50 hectares*'. The IPC licence may need to be reviewed or amended to accommodate the proposed development.

Having regard to the specific characteristics of the project, including location and technical capacity, and likely impact on the environment, the Agency is of the opinion that the scope and level of detail to be included in the environmental impact assessment report should as a minimum:

- (i) identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of a project on each of the factors listed in Article 3 of the EIA Directive;
- (ii) address the matters raised in the responses received from the authorities detailed above;
- (iii) have regard to the requirements of the draft *Guidelines on the information to be contained in Environmental Impact Assessment Reports*, as appropriate;
- (iv) have regard to the relevant topics contained in the EPA's *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)* September 2003;
- (v) satisfy the requirements of the EIA Directive.

If you require any further information in relation to this matter, please contact the undersigned.

For all further queries and correspondence relating to planning and EIA matters, please contact eiapanning@epa.ie

Yours faithfully,

Environmental Licensing Programme
Office of Environmental Sustainability
Tel: 053-9160600

From: Karen Mulryan <kmulryan@mkoireland.ie>

Sent: 08 May 2020 09:44

To: EIAPlanning <eiaPlanning@epa.ie>

Subject: 191137 Proposed Bord na Móna Powergen Ltd Wind Farm Development at Ballivor, Meath/Westmeath.

Good morning,

MKO is preparing an Environmental Impact Assessment Report (EIAR) for a proposed Bórd na Móna Powergen Ltd wind energy development at Ballivor and the surrounding townlands located at the Meath-Westmeath border. The proposed development will be located on 5 bogs and will be referred to as the Ballivor Wind Farm. The site is located approximately 2.2km west of Ballivor Village, Co. Meath, and 3.7km east of Raharney and 2.5km south-southeast of Devlin, which are both located in Co. Westmeath.

The proposed project will likely encompass 25-35 turbines and will have an output of at least 50megawatts. Should the project be of this scale, an application will be made to An Bord Planeála seeking a determination in relation to the SID status, or otherwise, of the proposed wind energy development. If the board determine that the development is indeed SID, the planning application will be submitted directly to An Bord Planeála, under the provision of the Planning and Development (Strategic Infrastructure) Act 2006. Should the project be of a scale lower than the SID thresholds, an application for planning permission will be made to Meath and Westmeath County Councils.

As part of the EIA process, we would welcome any comments that you may have in relation to the proposed project, including baseline data, survey techniques or potential impacts that should be considered as part of the assessment process and in the preparation of the EIAR. In order to facilitate this, a Scoping Document providing details of the proposed project and the site of the proposed development is attached.

If you could return any comments or suggestions at your earliest convenience it would be much appreciated. If you require any further information, please do not hesitate to contact me.

Kind Regards,

Karen.



Karen Mulryan
Environmental Scientist
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Ireland, H91 VW84
+353 (0) 91 735611
www.mkoireland.ie



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Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Environmental Health Service
HSE Dublin North East
Co. Clinic
Navan

Co. Meath
Telephone: 046-9021595/9098729
Fax: 046 9022818

HSE EIS SCOPING REPORT

Environmental Health Service Consultation Report
(as a Statutory Consultee (Planning and Development Acts 2000,
& Regs made thereunder)).

<u>Date:</u>	26th May 2020
<u>Type of consultation:</u>	Scoping
<u>Planning Authority:</u>	An Bord Pleanála
<u>Reference Number:</u>	191137
<u>EHIS Reference:</u>	1174
<u>Applicant:</u>	Bord na Mona Powergen Limited
<u>Proposed Development:</u>	Proposed wind energy development at Ballivor and surrounding townlands on the border of County Meath and County Westmeath

This report only comments on Environmental Health impacts of the proposed development. I have made observations on the following specific areas:

Description of the Project:

The EIS must fully describe the characteristics and construction of the project and the reasons for proposing same. It should also describe the existing physical environment and detail any potential impacts on the existing environment both during the construction and operational phase of the project.

Later Consents Required:

Information on possible future monitoring requirements for the operation of the wind farm should be included in the EIS.

Consideration of Alternatives:

The EIS should fully describe and consider any alternatives to this project. The applicant should outline a rationale for site selection and proposed individual turbine location and design.

Public Consultation:

The scoping document should describe measures the applicant shall take to inform the public about the project. Details of feedback from the public regarding the proposal should be included within the EIS. Public consultation should be a two way process between the applicant and the public. The EIS should clearly demonstrate how the legitimate concerns of the public have been assessed and evaluated and how the outcome of consultation with the public influenced decision making within the EIA.

Noise:

A full and thorough noise survey must be carried out to assess the impact of noise from the proposed turbines on the residents living in the vicinity.

It is essential that up to date baseline monitoring is carried out to establish the existing noise environment. All noise sensitive receptors in the vicinity of the turbines shall be identified. The selection of noise monitoring locations for background noise is of critical importance in the noise survey, therefore the rationale for choosing the number and the positioning of these should be provided by the applicant.

Once the existing noise environment has been established, the predicted increase in noise from the proposed turbines should then be quantified and assessed. It is this department's opinion that adherence to specified noise limit values does not always protect sensitive receptors from noise nuisance therefore the significance of the predicted change in the noise environment should be fully assessed. It is requested that this information is outlined and displayed clearly in the EIS.

It is stated by the applicant that no other windfarms are within a 20km radius of the proposed development. The potential cumulative effects of other industry, quarrying etc in the vicinity of the development should be assessed as part of the noise survey. All mitigation measures for the control of noise shall be described.

Shadow Flicker:

A shadow flicker assessment shall be carried out. All possible impacted dwellings and sensitive receptors shall be identified. The assessment should include identification of the room use in properties potentially impacted by shadow flicker. If reduction factors are applied as part of the shadow flicker assessment, the rationale for applying same shall be clearly outlined. Any mitigation measures for the control of shadow flicker shall be described. If the turbine height or position has not been finalised at the EIS stage then potential differences in shadow flicker for different height options should be considered

Geological Impacts/Land Stability

It is noted that the proposed Wind Farm Development is to be located in a former bogland which has been utilised for peat extraction. A detailed assessment of the current ground stability of the site for the proposed wind farm development together with the necessary mitigation measures should be included in the EIS. The assessment should include the impact construction work will have on the future stability of ground conditions taking into account extreme weather events, site drainage, and the possibility for soil erosion.

Water:

All drinking water sources, both surface and groundwater (including individual private wells) shall be identified. Any potential impacts to these drinking water sources shall be assessed. Details of bedrock, overburden, vulnerability, groundwater flows and gradients, inner and outer zones of protection and catchment areas should all be considered when assessing potential impacts and possible mitigation measures. The EHS would recommend that all information is gathered by means of a site survey as desktop studies do not always accurately reflect the current use of water resources.

Dust:

The impact of dust generation from construction should be assessed and a dust minimisation plan or similar mitigation measure that meets current national standards for construction sites should be addressed.

Complaints procedure:

The EIS should include proposals for dealing with issues of nuisance from members of the public should they arise. It is stated that a construction management plan will be provided with the EIAR. This should comprehensively outline working procedures and any necessary mitigation measures that will be provided. Details of a complaints procedure along with specific contact details should also be included.

Ancillary Facilities

The EIS should provide location details of any site office, construction yard(s), fuel storage depot, sanitary accommodation, canteen, 1st Aid, disposal of waste water and the provision of potable drinking water supply.

Cumulative Impacts:

In line with the EPA Guidelines on the information to be contained in Environmental Impact Statements (2002) and their Advice Notes on Current Practice in the preparation of Environmental Impact Statements (2003) the EIA should include the assessment of cumulative impacts of any other industrial or energy developments in the area e.g. quarrying, heavy industry, composting facilities etc.

Health Gain:

The Developer should explore the possibility for recreational facilities to be provided on the Wind Energy Development. Any potential for health gain from the development should be exploited.



Lisa Maguire
Environmental Health Officer

All correspondence or any queries with regard to this report including acknowledgement of this report should be forwarded to:

**Elish O'Reilly
Principal Environmental Health Officer
Environmental Health Department
Co. Clinic
Navan
Co. Meath**

From: [planning applications](#)
To: [EIAPlanning](#)
Subject: RE: 191137 Proposed Bord na Móna Powergen Ltd Wind Farm Development at Ballivor, Meath/Westmeath.
Date: 07 July 2020 15:00:54
Attachments: [Fáilte Ireland EIAR Guidelines.pdf](#)

Dear Sir/ Madam,

Apologies for the delay in responding to your email.

Please see attached a copy of Fáilte Ireland's Guidelines for the Treatment of Tourism in an EIA, which we recommend should be taken into account in preparing the EIAR. The purpose of this report is to provide guidance for those conducting Environmental Impact Assessment and compiling an Environmental Impact Assessment Reports (EIAR), or those assessing EIARs, where the project involves tourism or may have an impact upon tourism. These guidelines are non-statutory and act as supplementary advice to the EPA EIAR Guidelines outlined in section 2.

Regards,

Yvonne

Yvonne Jackson

Product Development-Environment & Planning Support | Fáilte Ireland
Áras Fáilte, 88/95 Amiens Street, Dublin 1. D01WR86
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From: EIAPlanning <eiaplanning@epa.ie>

Sent: Friday 26 June 2020 14:14

To: An Bord Pleanála <bord@pleanala.ie>; An Taisce <planning@antaisce.org>; Commission for Energy Regulation <info@cer.ie>; Department of Agriculture Food and the Marine <environmentalco-ordination@agriculture.gov.ie>; Department of Arts, Heritage, Regional, Rural & Gaeltach Affairs <fem.dau@ahg.gov.ie>; Department of Environment – Northern Ireland <IPRI@daera-ni.gov.uk>; Dept of Communications, Climate Action & Environment <corporatesupport.unit@dcenr.gov.ie>; Dept of Communications, Climate Action and Environment <wppr@dcae.gov.ie>; Eir Grid <StatutoryNotifications@Eirgrid.com>; planning applications <planning.applications@failteireland.ie>; Health & Safety Authority <chemicals@hsa.ie>; Inland Fisheries Ireland <environlicensing@fisheriesireland.ie>; Irish Water <IWenvironmental@water.ie>; Loughs Agency <general@loughs-agency.org>; Minister for

Transport, Tourism and Sport <minister@dtas.ie>; Shannon Commercial Properties <EPA-Info@shannonproperties.ie>; Teagasc <John.Spink@teagasc.ie>; The Heritage Council <aharvey@heritagecouncil.ie>

Subject: FW: 191137 Proposed Bord na Móna Powergen Ltd Wind Farm Development at Ballivor, Meath/Westmeath.

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Re: **Scoping Consultation under Article 5(2) of Directive 2014/52/EU (EIA Directive)**

Dear Sir /Madam,

I refer to the attached scoping request received by the Agency 08/05/2020 in respect of the following.

Name of applicant: Bord na Mona Powergen Limited

Location of Activity: Ballivor Bog Group - Ballivor, Carranstown, Bracklin, Lisclogher and Lisclogher West

Nature of Activity: Windfarm Development

In order to satisfy the consultation requirements under Article 5(2) of Directive 2011/92/EU as amended by Directive 2014/52/EU (EIA Directive), please revert to the Agency with your comments on the scope and level of detail of the information to be included by the developer in the environmental impact assessment report within two weeks of the date of this email –

29/05/2020.

For all further queries and correspondence relating to planning and EIA matters, please contact eiaplanning@epa.ie

Yours faithfully,

Environmental Licensing Programme
Office of Environmental Sustainability
Tel: 053-9160600

From: Karen Mulryan <kmulryan@mkofireland.ie>

Sent: 08 May 2020 09:44

To: EIAPanning <eiaplanning@epa.ie>

Subject: 191137 Proposed Bord na Móna Powergen Ltd Wind Farm Development at Ballivor, Meath/Westmeath.

Good morning,

MKO is preparing an Environmental Impact Assessment Report (EIAR) for a proposed Bórd na Móna Powergen Ltd wind energy development at Ballivor and the surrounding townlands located at the Meath-Westmeath border. The proposed development will be located on 5 bogs and will be referred to as the Ballivor Wind Farm. The site is located approximately 2.2km west of Ballivor Village, Co. Meath, and 3.7km east of Raharney and 2.5km south-southeast of Devlin, which are both located in Co. Westmeath.

The proposed project will likely encompass 25-35 turbines and will have an output of at least 50megawatts. Should the project be of this scale, an application will be made to An Bord Planeála seeking a determination in relation to the SID status, or otherwise, of the proposed wind energy development. If the board determine that the development is indeed SID, the planning application will be submitted directly to An Bord Planeála, under the provision of the Planning and Development (Strategic Infrastructure) Act 2006. Should the project be of a scale lower than the SID thresholds, an application for planning permission will be made to Meath and Westmeath County Councils.

As part of the EIA process, we would welcome any comments that you may have in relation to the proposed project, including baseline data, survey techniques or potential impacts that should be considered as part of the assessment process and in the preparation of the EIAR. In order to facilitate this, a Scoping Document providing details of the proposed project and the site of the proposed development is attached.

If you could return any comments or suggestions at your earliest convenience it would be much appreciated. If you require any further information, please do not hesitate to contact me.

Kind Regards,

Karen.



Karen Mulryan
Environmental Scientist

MKO
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
www.mkoireland.ie



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From: [Environmental Co-ordination \(Inbox\)](#)
To: [EIAPlanning](#)
Subject: RE: 191137 Proposed Bord na Móna Powergen Ltd Wind Farm Development at Ballivor, Meath/Westmeath.
Date: 08 July 2020 09:26:12
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)

Dear Sir or Madam

The following are the comments from the Department of Agriculture, Food & the Marine in relation to the proposed development:

If the proposed development will involve the felling or removal of any trees, the developer must obtain a Felling Licence from this Department before trees are felled or removed. A Felling Licence application form can be obtained from **Felling Section, Department of Agriculture, Food and the Marine, Johnstown Castle Estate, Co. Wexford**. Tel: 076-1064459, Web <https://www.agriculture.gov.ie/forests-service/tree-felling/tree-felling/>

A Felling Licence granted by the Minister for Agriculture, Food and the Marine provides authority under the Forestry Act 2014 to fell or otherwise remove a tree or trees and/or to thin a forest for silvicultural reasons. The Act prescribes the functions of the Minister and details the requirements, rights and obligations in relation to felling licences. The principal set of regulations giving further effect to the Forestry Act 2014 are the Forestry Regulations 2017 (S.I. No. 191 of 2017).

The developer should take note of the contents of **Felling and Reforestation Policy** document which provide a consolidated source of information on the legal and regulatory framework relating to tree felling; <https://www.agriculture.gov.ie/media/migration/forestry/tree-felling/FellingReforestationPolicy240517.pdf>. As this development is within a forest lands, particular attention should be paid to deforestation, turbulence felling and the requirement to afforest alternative lands.

In order to ensure regulated forestry operations in Ireland accord with the principles of sustainable forest management (SFM), as well fulfilling the requirements of other relevant environmental protection laws, the Department (acting through its Forest Service division) must undertake particular consultations, and give certain matters full consideration during the assessment of individual Felling Licence applications. This includes consultation with relevant bodies, the application of various protocols and procedures (e.g. Forest Service Appropriate Assessment Procedure), and the requirement for applicants on occasion to provide further information (e.g. a Natura Impact Statement).

Consequently, when the Forest Service is considering an application to fell trees, the following applies:

1. The interaction of these proposed works with the environment locally and more widely, in addition to potential direct and indirect impacts on designated sites and water, is assessed. Consultation with relevant environmental and planning authorities may be required where specific sensitivities arise (e.g. local authorities, National Parks & Wildlife Service, Inland Fisheries Ireland, and the National Monuments Service);
2. Where a tree Felling Licence application is received, the Department will publish a notice of the application before making a decision on the matter. The notice shall state that any person may make a submission to the Department within 30 days from the date of the notice. The notices for 2020 are published online at: <https://www.agriculture.gov.ie/forests-service/public-consultation/environmental-impact-assessment-eia-public-consultation-for-a-forestation-forest-road-construction-and-felling-licences-2020/>
3. Third parties that make a submission or observation will be informed of the decision to grant or refuse the licence, and on request, details of the conditions attached to the licence, the main reasons and considerations on which the decision to grant or refuse the licence was based, and where conditions are attached to any licence, the reasons for the conditions. Both third parties and applicants will be also informed of their right to appeal any decision within 28 days to the Forestry Appeals Committee. Felling Licence decisions for 2020 are published online at: <https://www.agriculture.gov.ie/forests-service/public-consultation/environmental-impact-assessment-2020-register-of-decisions/>

It is important to note that when applying to a **Local Authority, or An Bord Pleanála**, for planning permission where developments are:

- a. subject to an EIA procedure (including screening in the case of a sub-threshold development) and any resulting requirement to produce an EIAR; and/or
 - b. subject to an Appropriate Assessment procedure (including screening) and any resulting requirement to a Natura Impact Statement (NIS); and
 - c. the proposed development in its construction or operational phases, or any works ancillary thereto, would directly or indirectly involve the felling and replanting of trees, deforestation for the purposes of conversion to another type of land use, or replacement of broadleaf high forest by conifer species,
1. that there is a requirement inter alia under the EIA Directive for an overall assessment of the effects of the project or the alteration thereof on the environment to be undertaken, including the direct and indirect environmental impact of the project;
- and
2. pursuant to Article 2(3) of the EIA Directive, the Department of Agriculture, Food and the Marine strongly recommends that, notwithstanding the fact that a parallel consent in the form of felling licence may also have to be applied for, any EIAR and/or NIS produced in connection with the application for planning permission to the Local Planning Authority or An Bord Pleanála, should include an assessment of the impact of and measures, as appropriate, to prevent, mitigate or compensate for any significant adverse effects, direct or indirect, identified on the environment arising from such felling and replanting of trees, deforestation for the purposes of conversion to another type of land use, or replacement of broadleaf high forest by conifer species.

Kind regards

Cathy Hewitt
Executive Officer
An tAonad um Chomhordú Timpéallachta, An Rannóg um Athrú Aeráide agus Beartas Bithfhuinneimh,
Environmental Co-ordination Unit | Climate Change & Bioenergy Policy Division |
An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
Paillíún A, Páirc Gnó Grattan, Bóthar Átha Cliath, Port Laoise, Co Laoise, R32 K857
Pavilion A, Grattan Business Park, Dublin Road, Portlaoise, Co Laois, R32 K857
T +353 (0)57 868 9915 environmentalco-ordination@agriculture.gov.ie
www.agriculture.gov.ie

From: EIAPlanning <eiaPlanning@epa.ie>

Sent: Friday 26 June 2020 14:16

To: EIAPlanning <eiaPlanning@epa.ie>; An Bord Pleanála <bord@pleanala.ie>; An Taisce <planning@antaisce.org>; Commission for Energy Regulation <info@cer.ie>; Environmental Co-ordination (Inbox) <Environmental_Co-ordination@agriculture.gov.ie>; Department of Arts, Heritage, Regional, Rural & Gaeltach Affairs <fem.dau@ahg.gov.ie>; Department of Environment – Northern Ireland <IPRI@daera-ni.gov.uk>; Dept of Communications, Climate Action & Environment <corporatesupport.unit@dcenr.gov.ie>; Dept of Communications, Climate Action and Environment

<wppr@dcae.gov.ie>; Eir Grid <StatutoryNotifications@Eirgrid.com>; Fáilte Ireland <planning.applications@failteireland.ie>; Health & Safety Authority <chemicals@hsa.ie>; Inland Fisheries Ireland <environmental@fisheriesireland.ie>; Irish Water <IWater@water.ie>; Loughs Agency <general@loughs-agency.org>; Minister for Transport, Tourism and Sport <minister@dtas.ie>; Shannon Commercial Properties <EPA-Info@shannonproperties.ie>; Teagasc <John.Spink@teagasc.ie>; The Heritage Council <aharvey@heritagecouncil.ie>
Subject: RE: 191137 Proposed Bord na Móna Powergen Ltd Wind Farm Development at Ballivor, Meath/Westmeath.

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Nature of Activity: Windfarm Development

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For all further queries and correspondence relating to planning and EIA matters, please contact eiaplanning@epa.ie

Yours faithfully,

Environmental Licensing Programme

Office of Environmental Sustainability

Tel: 053-9160600

From: Karen Mulryan <kmulryan@mkoireland.ie>

Sent: 08 May 2020 09:44

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Kind Regards,

Karen.



Karen Mulryan
Environmental Scientist
MKO
Tuam Road, Galway
Ireland, H91 VW84
+353 (0) 91 735611
www.mkoireland.ie



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Department of Agriculture, Food and the Marine

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An Roinn Talmhaíochta, Bia agus Mara

Tá an t-eolas san ríomhphost seo, agus in aon ceanglaí leis, faoi phribhléid agus faoi rún agus le h-aghaidh an seolaí amháin. D'fhéadfadh ábhar an seoladh seo bheith faoi phribhléid profisiúnta nó dlíthiúil. Mura tusa an seolaí a bhí beartaithe leis an ríomhphost seo a fháil, tá cosc air, nó aon chuid de, a úsáid, a chóipeál, nó a scaoileadh. Má tháinig sé chugat de bhar dearmad, téigh i dteagmháil leis an seoltóir agus scríos an t-ábhar ó do ríomhaire le do thoil.









APPENDIX 5

AMENITY SIGNAGE



Legend

-  Red Line Boundary
-  Indicative Signage Locations
-  Car Parking
-  Famine House
-  Amenity Paths Along Wind Farm Infrastructure
-  Dedicated Amenity Paths

Bord na Móna

Ballivor Wind Farm Indicative Signage Locations

DRWGNo:
BNM-PG-20-01-05

Scale:
NTS @ A3

Drawn by:
JG

Date:
30/08/2023



Ordnance Survey Ireland Permit No. EN 0035623
© Ordnance Survey Ireland Government of Ireland.

0 0.5 1 2 Kilometres



APPENDIX 6

EPA LETTERS

MEMO – Lisclogher Bog Watercourse Alignments

Site:	Ballivor Wind Farm, Co. Meath/Co. Westmeath
Date of Test:	17/07/2023
Works Phase:	Planning Phase
Memo Prepared by:	Michael Gill
EPA Contact:	Mr Anthony Mannix and Mr Darragh Cunningham

1.1. BACKGROUND

Hydro-Environmental Services (HES) have been working on the Ballivor Wind Farm project in conjunction with MKO (Galway), and on behalf of Bord Na Mona Powergen Ltd.

A SID (Strategic Infrastructure Development) application has been made to ABP (An Bord Pleanála Ref: 316212-23). Arising from submissions made by 3rd parties, and also by Meath and Westmeath local authorities on the proposed development, we wish to seek clarification from the EPA regarding mapped watercourse pathways and drainage, specifically relating to the northern area of the proposed development centred around Lisclogher Bog. The area in question is located at ITM 664122, 758946. A location map illustrating the area in question is attached in **Figure A**.

Within this document, we present collated information that clearly sets out what we believe to be the drainage patterns surrounding Lisclogher Bog, and in particular, the alignment of the Cartenstown Stream (Segment codes 07_1572 and 07/1570) and the Stonestown Stream (Segment codes 07_1484 and 07/78).

We start with the mapped information used on www.catchment.ie, and thereafter we present what we believe actually exists on the ground.

1.2. CURRENTLY MAPPED WATERCOURSES

The watercourses currently mapped around Lisclogher bog, and used on EPA mapping (<https://gis.epa.ie/EPAMaps/>) are illustrated in **Figure B**. Similar alignments of local watercourses are also used on OPW flood mapping.

1.3. WATERCOURSES ON THE GROUND

Site walkover surveys and BnM drainage mapping have shown that the mapped watercourse that is shown to cross Lisclogher bog does not exist.

There are several pieces of data that support this assertion:

- Review of historical mapping (www.geoive.ie)
- Review of available aerial imagery (www.geohive.ie)
- Field mapping of the area
- Review of available Lidar survey data for the area completed by BnM in 2020

The true drainage regime and flow directions in this area of the proposed site are shown in **Figure C**. This drainage map has been produced following walkover surveys and drainage mapping of Lisclogher Bog. The on-site inspections were supplemented with the analysis of available lidar data.

To illustrate this point further, a cross-section along the (original) mapped watercourse has been produced (from the Lidar data) and shows topographic variations along the course of the Cartenstown stream from Point A in the northwest, to Point D in the south of Lisclogher Bog (**Figure D¹**). The cross-section profile does not indicate the presence of any channel that may be associated with a surface watercourse. Indeed there are several topographic highs located along the cross-section, meaning that it would be impossible for surface water to flow unimpeded from Point A to D. This lidar analysis supports the on-site observations and drainage mapping, meaning that there is a local error in the watercourse

¹ Please note that the corresponding locations of points A-B-C-D are also shown on **Figure B** and **Figure C**.

mapping at Lisclogher Bog. We understand that such small local errors are infrequent in available mapping. However, they can occur where manmade drainage has been imposed upon the natural drainage regime.

1.4. CLOSURE

We would be grateful if you could review the outlined information, and if possible, provide feedback on our observations. While we acknowledge it will not be possible to correct online mapping, we would greatly appreciate a response indicating that our observations are correct, which would be most helpful to us in the successful delivery of our project.

Yours sincerely,



Michael Gill PGeo
Civil Engineer and Hydrogeologist
B.A., B.A.I., M.Sc., Dip Geol, MIEI, MCIWEM

FIGURES

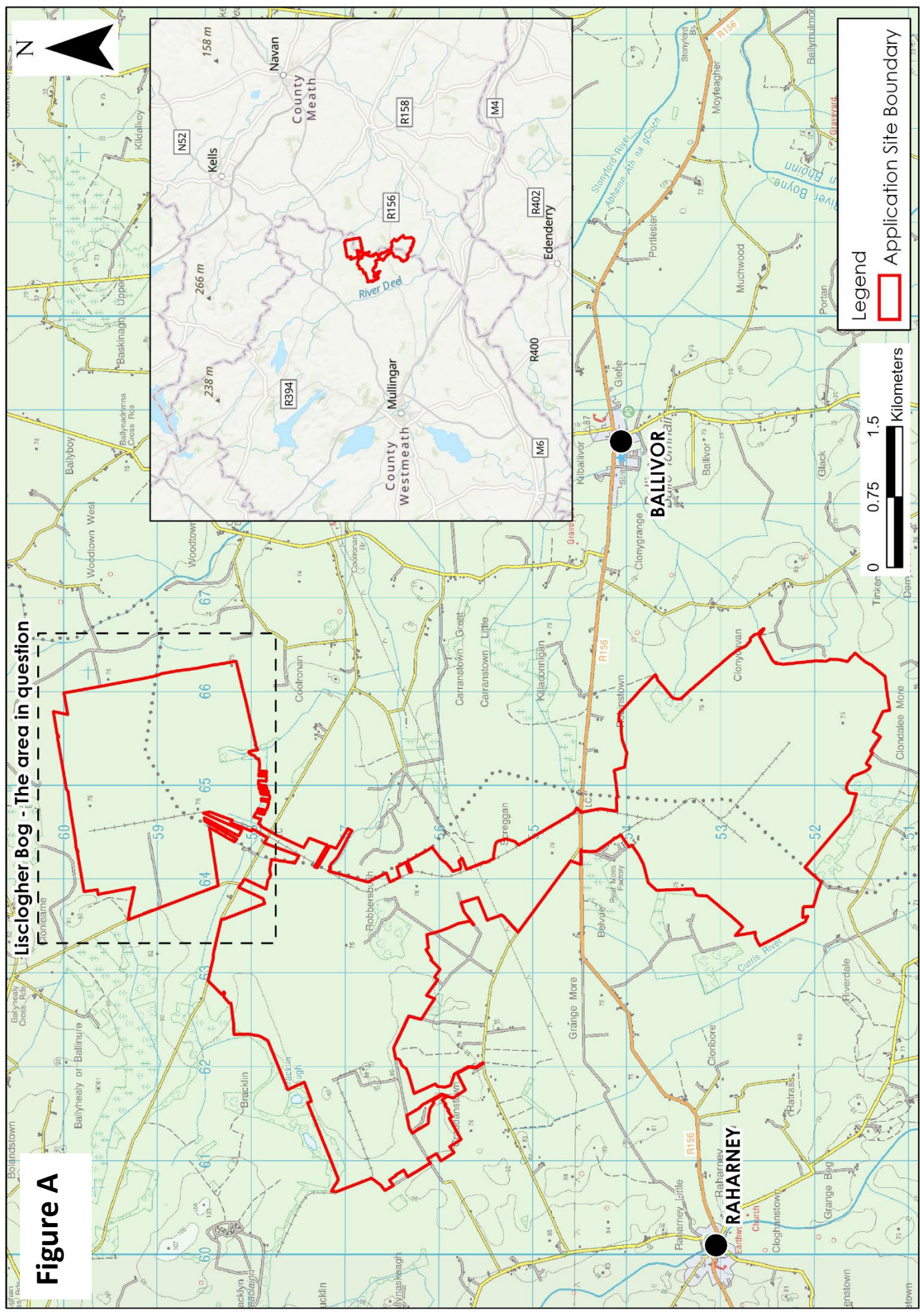
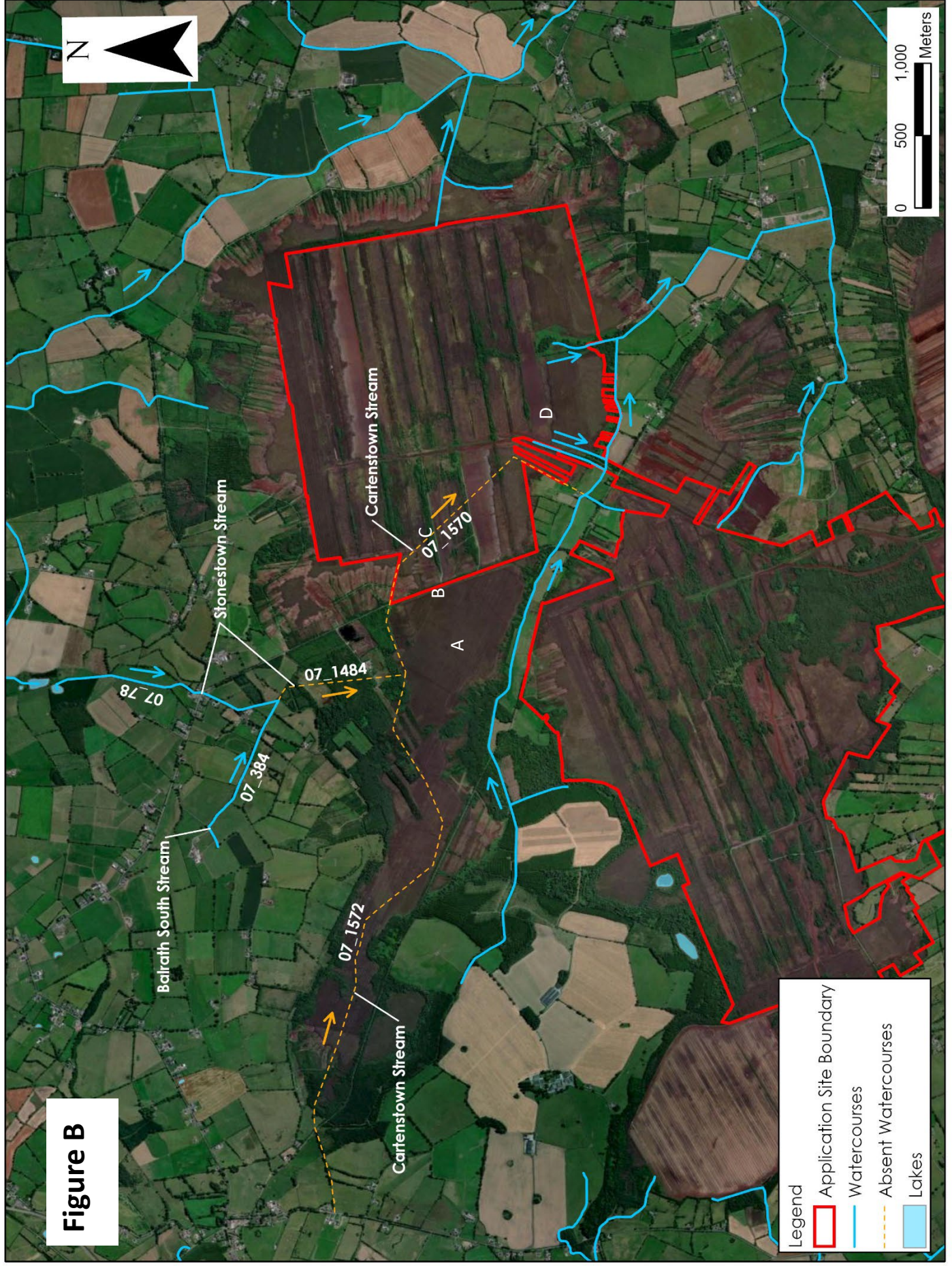
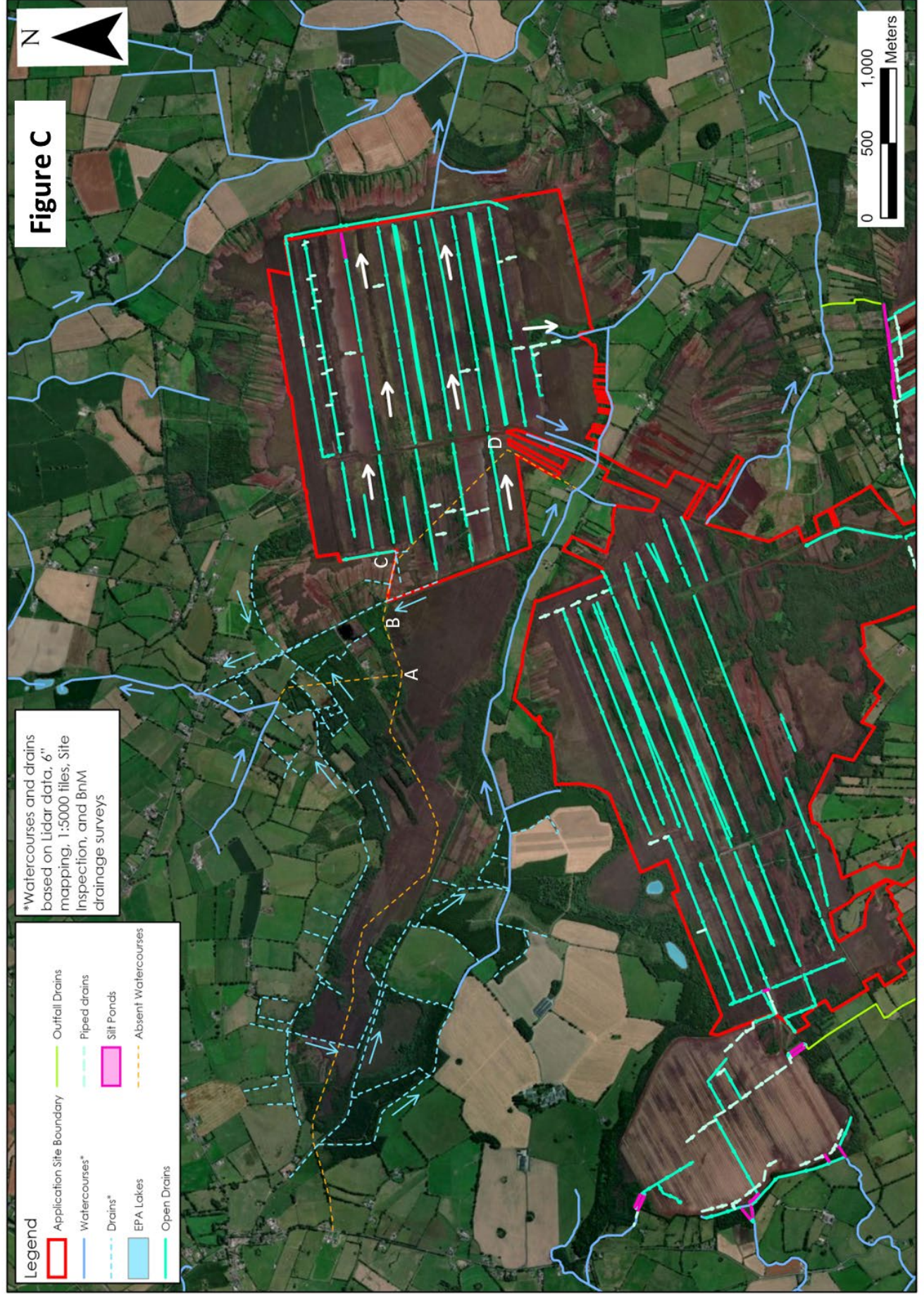
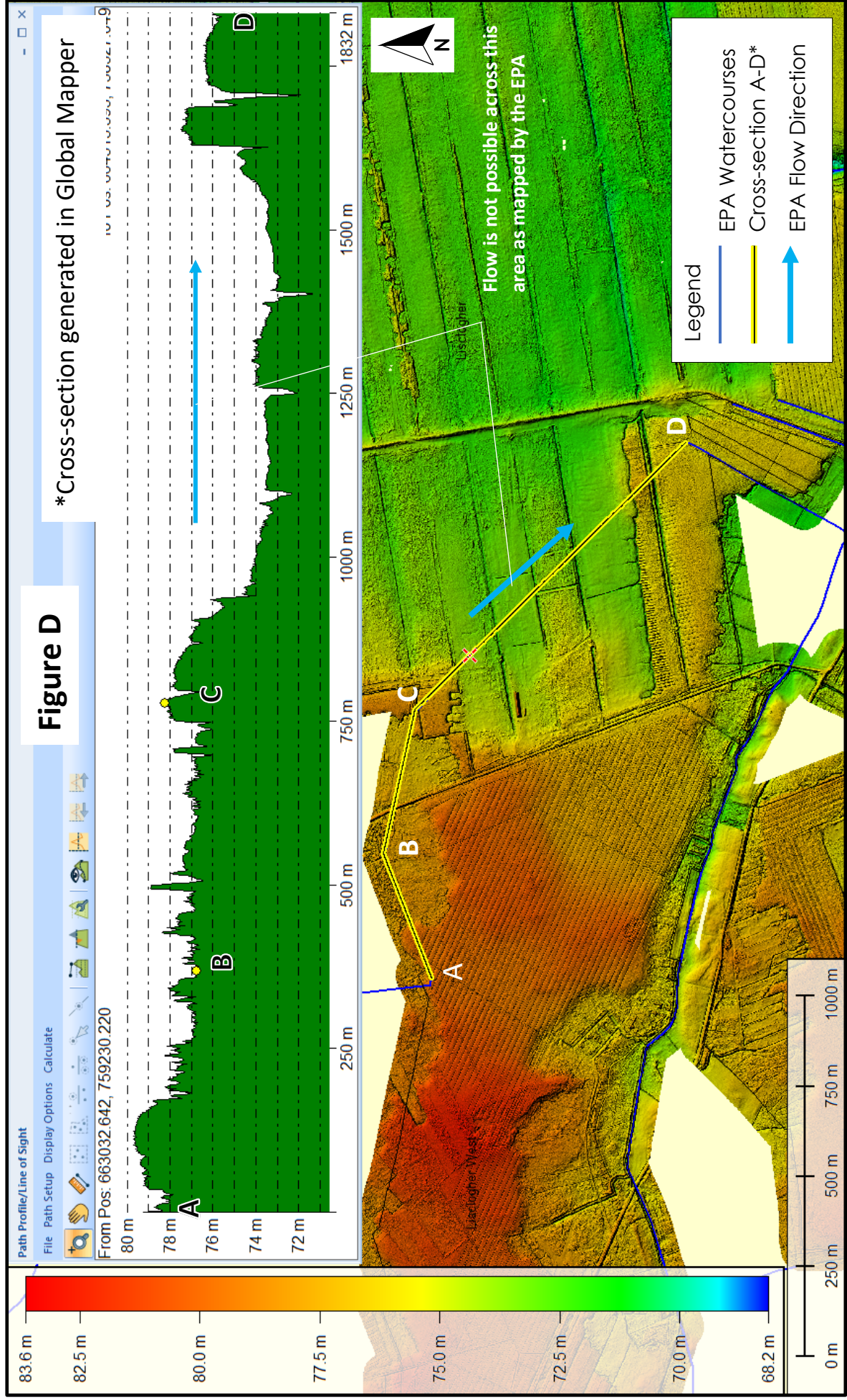


Figure B







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T: +353-(0)58-441 22 F: +353-(0)58-442 44 E: info@hydroenvironmental.ie

www.hydroenvironmental.ie



APPENDIX 7

BIOS FOR NIS

Below set out the qualifications and expertise of all those who contributed to the production of the submitted NIS. They are grouped as per the survey requirements.

NIS Authors

Sarah Mullen

Sarah is Project Director for Ecologist with MKO with over 7 years of experience in ecological consultancy. Sarah holds a B.Sc. (Hons) in Botany, an M.Sc. in Biodiversity and Conservation and a Ph.D. in Botany, in which she investigated the role of biodiversity in the functioning of plant-pollinator interactions in semi-natural grassland habitats. Prior to taking up her position with MKO in September 2018, Sarah worked as an Ecologist with Ryan Hanley Ltd. where she gained experience in multidisciplinary ecological surveys, ecological impact assessment and appropriate assessment. Since joining MKO Sarah has been responsible for the management, co-ordination and undertaking of flora, fauna and habitat surveys for a range of projects including large-scale energy infrastructure projects, residential and commercial developments, tourism projects and biodiversity monitoring and restoration projects. She has overseen the preparation of ecological reports to accompany planning applications including Ecological Impact Assessments, Stage 1 and Stage 2 Appropriate Assessment reports, Invasive Species Management Plans and Biodiversity/Habitat Management Plans. Sarah's key strengths and areas of expertise are in terrestrial flora and fauna ecology, including vegetation surveys, habitat mapping, invasive species surveys, mammal surveys, Appropriate Assessment and Ecological Impact Assessment. She holds membership with the Chartered Institute of Ecology and Environmental Management.

Pat Roberts

Pat Roberts is a Principal Ecologist with MKO with over 17 years post graduate experience of providing ecological services in relation to a wide range of developments at the planning, construction and monitoring stages. Pat holds B.Sc.(Hons) in Environmental Science. Pat has extensive experience of providing ecological consultancy on large scale industrial and civil engineering projects. He is highly experienced in the completion of ecological baseline surveys and impact assessment at the planning stage. He has worked closely with construction personnel at the set-up stage of numerous construction sites to implement and monitor any prescribed best practice measures. He has designed numerous Environmental Operating Plans and prepared many environmental method statements in close conjunction with project teams and contractors. He has worked extensively on the identification, control and management of invasive species on numerous construction sites. Prior to taking up his position with MKO in June 2005, Pat worked in Ireland, USA and UK as a Tree Surgeon and as a nature conservation warden with the National Trust (UK) and the US National Park Service. Pat's key strengths include his depth of knowledge and experience of a wide range of ecological and biodiversity topics and also in his ability to understand the requirements of the client in a wide range of situations. He is currently responsible for staff development, training and ensuring that the outputs from the ecology team are of a very high standard and meet the requirements of the clients and relevant legislation and guidelines. He is a full member of the Chartered Institute of Ecologists and Environmental Managers (CIEEM).

Multi-disciplinary Walkover Surveys, Badger Survey, Otter Survey

Sarah Mullen (Biopic above)

Pat Roberts (Biopic above)

John Hynes

John Hynes is a Senior Ecologist with MKO with over 10 years of experience in both private practice and local authorities. John holds a B.Sc in Environmental Science and a M.Sc. in Applied Ecology. Prior to taking up his position with MKO in March 2014, John worked as an Ecologist with Ryan Hanley Consulting Ltd. and Galway County Council. John has specialist knowledge in Flora and Fauna field surveys. Geographic Information Systems, data analysis, Appropriate Assessment, Ecological Impact Assessment and Environmental Impact Assessment. John's key strengths and areas of expertise are in project management. GIS and impact assessment. Since joining MKO John has been involved as a Senior Ecologist on a significant range of energy infrastructure, commercial, national roads and private/public development projects. Within MKO John plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-

disciplinary team to produce EIS Reports. John has project managed a range of strategy and development projects across the Ireland and holds CIEEM membership.

Julie O'Sullivan

Julie is an Ecologist with MKO. She holds a BSc (Hons) in Biology from University College London and a Masters in Ecological Assessment from University College Cork. Prior to taking up her position with us, Julie gained experience in practical habitat management and developed a range of field skills in plant, habitat, bird and bat surveying through working with several conservation organisations in the UK and Ireland including the RSPB, Cumbria Wildlife Trust and Bat Conservation Trust. Julie has experience surveying birds through her involvement with the RSPB in Northern Ireland. Julie is trained in bat survey, terrestrial invertebrate and freshwater macroinvertebrate sampling and in taking vegetation relevés of vascular plants and bryophytes. She also has experience in habitat identification, habitat mapping, Annex I habitat quality assessment and Phase 1 habitat survey. Julie has worked within our Ornithology Team on several renewable energy developments, utilising a broad range of bird survey methodologies including vantage point surveys, breeding raptor, adapted brown & shepherd and waterfowl distribution surveys. Julie was part of a team of bird usage surveyors working on the Shannon/Fergus Estuary. Within MKO Julie is responsible for independently carrying out and planning Ornithological field surveys in accordance with required Scottish Natural Heritage standards as part of the ornithology team, and for carrying out bat surveys, habitat surveys, and Appropriate Assessment screenings as part of the ecology team.

Rachel Walsh

Rachel is an ecologist with MKO since June 2020, with over 1 years' experience in professional ecological consultancy. Rachel holds a BSc (Hons) in Environmental Science from National University of Ireland, Galway. Rachel's key strengths are in terrestrial flora and fauna ecology, including vegetation surveys, habitat mapping, invasive species surveys, mammal surveys, bat surveys and roost site potential assessment, Appropriate Assessment Screening reporting and Ecological Impact Assessment. Since joining MKO, Rachel has worked widely on energy infrastructure, commercial, recreational and residential projects, and plays a role in preparing Ecological Impact Assessment reports and Appropriate Assessment reports. Rachel is trained in carrying out bat surveys, non-volant mammal surveys and in recording vegetation relevées. She also has experience in habitat identification and habitat mapping. Within MKO, Rachel is responsible for independently carrying out and planning ecological field surveys in accordance with NRA Guidelines, carrying out bat surveys in accordance with Scottish Natural Heritage 2019 Guideline standards, habitat surveys, and Appropriate Assessment screenings as part of the ecology team. Rachel is a member of CIEEM and holds a current Bat Roost Disturbance licence.

Dedicated Habitat and Vegetation Composition Surveys

Sarah Mullen (Biopic above)

Julie O'Sullivan (Biopic above)

Rachel Walsh (Biopic above)

Inga Reich

Inga Reich is a Project Ecologist with MKO since October 2020. She holds a German Diplom in Biology and a PhD in Applied Ecology focused on e.g., the impact of forestry operations on the Kerry slug. Prior to taking up her position with MKO, Inga has worked as a postdoctoral researcher investigating the biological control potential of ground beetles for slugs and other invertebrate pests in Oregon and Ireland and as a sampling technician for Complete Laboratory Solutions. She has previously worked for MKO in a temporary matter, aiding to prepare a UNESCO report and has conducted Kerry slug surveys and written accompanying reports on a freelance basis for Feehily, Timoney & Co and RPS Consulting Engineers. Inga's key strengths and areas of expertise are in Kerry slug and terrestrial invertebrate surveys, data analysis and report writing. Within MKO, Inga has been involved in conducting multi-disciplinary ecological surveys and in preparing Stage 1 and Stage 2 Appropriate Assessment reports and Ecological Impact Assessments.

Patrick Ellison

Patrick is a Project Ecologist with MKO having joined the company in January 2021. Patrick holds a B.Sc. (Hons) in Applied Marine Biology and an M.Sc. in Wildlife Biology and Conservation. Patrick has over 6 years' experience as a professional ecological consultant, and prior to joining MKO worked as an Ecologist for a dedicated Ecological Consultancy based in the UK, where he undertook a wide range of habitat and protected species survey work and delivered a large variety of ecological projects. Prior to that he worked as a wildlife consultant for a small consultancy based in Greater London. He has also worked for and with a number of other wildlife conservation organisations and charities including the Wildwood Trust, The Fox Project, American Conservation Experience, Hessilhead Wildlife Rescue and the Scottish Wildlife Trust. Patrick's key strengths and areas of expertise are in terrestrial flora and fauna ecology, including habitat mapping, protected species sign surveys, with a particular focus on terrestrial mammals, and bat surveys, including specialist licensed tree climbing inspections and assessment for bats. Since joining MKO Patrick has been overseeing project management of a suite of our renewable energy projects, as well as carrying out a variety of habitat and protected species survey work. Within MKO Patrick plays a large role in carrying out Stage 1 and Stage 2 Appropriate Assessment Reports and contributing to Environmental Impact Statements. Patrick is an Associate member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Marsh Fritillary Surveys

Laoise Kelly

Laoise is a Project Ecologist with MKO with over 6 years of experience in both private practice and local authorities. Laoise holds a B. Sc. (Hons) in Environmental Science. Prior to taking up her position with MKO in September 2014, Laoise worked as a freshwater field and lab technician with Waterford County Council. She also has experience working with a number of conservation organisations including the Great Basin Institute, Nevada, the Wildlife Rehabilitation Trust, Bat Conservation Ireland and BirdWatch Ireland. Laoise's key strengths and areas of expertise are in terrestrial flora and fauna ecology including habitat mapping and bat surveys as well as freshwater macroinvertebrate surveys. Since joining MKO Laoise has been overseeing project management of invasive species surveys and management plans as well as carrying out site supervision of large scale projects in the form of Ecological Clerk of Works. Within MKO Laoise plays a large role in carrying out Stage 1 and Stage 2 Appropriate Assessment Reports and contributing to Environmental Impact Assessment Reports. Laoise has been involved with a number of projects nationwide and holds membership with the Chartered Institute of Ecology and Environmental Management as well as Bat Conservation Ireland and the Irish Wildlife Trust.

Patrick O'Boyle

Patrick O'Boyle (B.Sc., M.Sc.) is an Ecologist with MKO with over one year of experience in ecological consultancy. Patrick holds an M.Sc. in Conservation Behaviour from Atlantic Technological University (ATU) and a B.Sc. in Undenominated Science (Zoology) from University of Galway (UG). Patrick's key strengths and areas of expertise are in technical reporting (AASR, NIS, EcIA, etc.), habitat and species identification, GIS, terrestrial ecology, mammal surveys, invasive species surveys, and mammalian social organisation. Since joining MKO, Patrick has worked extensively in completing the technical reporting required as part the forestry license application process, as well as coordinating a range of additional work for projects including residential developments, healthcare facilities, schools, roads, meteorological masts, etc. Patrick is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

Rudraksh Gupta

Rudraksh has worked as an ecologist with MKO since 2021. He has worked on the Coillte Eco Services 2020-2024 Project since July 2022 preparing high quality Appropriate Assessment Screening Reports (AASR) and Natura Impact Statements (NIS) for a wide variety of forestry operations, including clearfell and reforestation, thinning, continuous cover forestry (CCF), forest road construction, and clearfelling fire-damaged sites.

Rudraksh has a broad knowledge of forestry operations carried out in Ireland and has conducted ecological surveys for upland, grassland, woodland and peatland habitats. In addition to this, Rudraksh has specialised in fern and bryophyte identification, by attending Bryophyte and Botanical training courses, compiling bryophyte

identification manuals for the company's Ecology Team, and conducting bryophyte-specific surveys as a member of the MKO ecological survey team.

Rudraksh is proficient in using QGIS and navigating the Geohub Coillte Environmental Assessment Viewer and utilises this system on a regular basis throughout the Coillte Eco Services 2020-2024 Project.

Kailan Mitchell

Kailan holds a Bachelor's degree in Environmental Science from the University of Galway and has over one year's experience in Ecological consultancy as an Ecologist at MKO since joining in June 2022. As part of his studies and employment at MKO, Kailan has extensive experience working on Appropriate Assessments and Ecological Impact Assessments for developments and has conducted a wide range of ecological surveys including bat, bird, freshwater invertebrate and marsh fritillary surveys across a variety of habitat types including grassland, woodland, peatland and freshwater habitats. Kailan is a Qualifying member of CIEEM.

Bat Surveys

Aoife Joyce

Aoife Joyce is a Project Director (Ecology) with MKO Planning and Environmental Consultants with experience in research, consultancy and drilling contractors. Aoife is a graduate of Environmental Science (Hons.) at NUI Galway, complemented by a first-class honours MSc in Agribioscience. Prior to taking up her position with MKO in May, 2019, Aoife worked as an Environmental Scientist with Irish Drilling Ltd. and held previous posts with Inland Fisheries Ireland and Treemetrics Ltd. She has a wide range of experience from bat roost identification, acoustic sampling, sound analysis, soil and water sampling, Waste Acceptability Criteria testing, electrofishing, mammal and habitat surveying to GIS, Environmental Impact Assessments (EIAs) and mapping techniques. Since joining MKO, Aoife has been involved in managing bat survey requirements for a variety of wind farm planning applications, as well as commercial, residential and infrastructure projects. This includes scope development, roost assessments, deploying static bat detectors and weather stations nationwide, dawn and dusk bat detection surveys, sonogram analysis, mapping, impact assessment, mitigation and report writing. Within MKO, she oversees the bat team and works as part of a wider multidisciplinary team to help in the production of ecological reports and assessments. Aoife is a member of Bat Conservation Ireland and CIEEM and holds a current Bat Roost Disturbance license and bat photography license.

Luke Dodebier

Luke Dodebier is a Graduate Ecologist at MKO with over 1 year of experience in consultancy. Luke is a graduate of Wildlife Biology [Hons.] IT Tralee. Prior to taking up his position at MKO in May 2019, Luke worked as a student ecologist with MKO in 2018.

Since joining MKO Luke has been involved in managing bat survey requirements for a variety of windfarm applications as well as commercial residential and infrastructure projects. Including, scoping, transect survey, roost assessment, static detector surveys, sonogram analysis and report writing .

Luke has further experience in multidisciplinary survey techniques including floral and faunal identification, habitat assessment, GIS Mapping, Ecological Impact Assessment and Appropriate Assessment.

Luke works with an expert bat team focused on surveying bats, identifying ecological constraints producing ECIA, Appropriate Assessment Screening reports and Natura impact statements.

Luke is a member of Galway Bat Group, Bat Conservation Ireland and CIEEM and holds a current Bat Roost Disturbance license.

Cathal Bergin

Cathal is a Project Ecologist with MKO having joined the company in June 2020. Cathal holds a Diploma in Canine Behaviour and a BSc (Hons) in Wildlife Biology where he focused his studies on ecology and mammal surveys. Cathal's key strengths and expertise are in mammal surveys (bats, badgers and otters), invasive species surveys, QGIS mapping and report compiling. Since joining MKO, Cathal has been involved in a range of windfarm, solar farm and SHD projects.

Neil Campbell

Neil Campbell is an ecologist with MKO with over 2.5 years of experience, working on large projects in the renewable energy sector, in addition to smaller projects in the civil, social and leisure sectors. Neil holds a B.Sc. and an M.Sc. in Botany and Plant Sciences from the National University of Ireland, Galway. Neil's expertise in MKO has been as a terrestrial ecologist, specialising in monitoring Ireland's native bat species. Neil has experience in providing ecological assessments for large and small scale projects, on-site supervision of works, invasive species management, data analysis and report writing. Neil's main achievements in, and contributions to MKO include assisting in the completion of reports and bat surveys for wind farm projects and assisting in the management of Rhododendron in Killarney National Park. Regarding the latter, Neil was responsible for the mapping of Rhododendron throughout Killarney National Park on behalf of the National Parks and Wildlife Service and was vital in the creation of the new management plans to combat the spread of invasives. Neil also has experience in conducting habitat assessments, terrestrial mammal surveys, freshwater ecology, water quality testing and ornithological surveys.

Aquatic surveys

Aquatic surveys of the watercourses draining the Proposed Development Site were conducted by Ross Macklin of Triturus Environmental Ltd.

Hydrological assessments

Michael Gill

Michael Gill is an Environmental Engineer with over 12 years' environmental consultancy experience in Ireland. Michael has completed numerous hydrological and hydrogeological impact assessments of wind farms in Ireland. He has also managed EIA/EIS assessments for infrastructure projects and private residential and commercial developments. In addition, he has substantial experience in wastewater engineering and site suitability assessments, contaminated land investigation and assessment, wetland hydrology/hydrogeology, water resource assessments, surface water drainage design and SUDs design, and surface water/groundwater interactions.

David Broderick

David Broderick is a hydrogeologist with over seven years' experience in both the public and private sectors. Having spent two years working in the Geological Survey of Ireland working mainly on groundwater and source protection studies. David moved into the private sector. David has a strong background in groundwater resource assessment and hydrogeological/hydrological investigations in relation to developments such as quarries and wind farms. David has completed numerous geology and water sections for input into EIAs for a range of commercial developments.

Adam Keegan

Adam Keegan is a hydrogeologist with two years of experience in the environmental sector in Ireland. Adam has been involved in Environmental Impact Assessment Reports (EIARs) for numerous projects including wind farms, grid connections, quarries and small housing developments. Adam holds an MSc in Hydrogeology and Water Resource Management. Adam has worked on several wind farm EIAR projects, including Croagh WF, Lyrenacarriga WF (SID), Cleanrath WF, Carrownagowan WF (SID), and Fossy WF.

Bird Surveys

Padraig Cregg

Padraig Cregg is a Principal Ornithologist with MKO with over 7 years of experience in both private practice and NGOs. Padraig holds a BSc (Hons) in Zoology and Masters in Evolutionary and Behavioural Ecology. Prior to taking up his position with MKO in December 2018, Padraig worked as a Senior Ornithologist and held previous posts with TOBIN Consulting Engineers, Energised Environments Ltd in Scotland, WSP Environment and Energy Ltd in Scotland and BirdWatch Ireland. Padraig has specialist knowledge in designing, executing and project

managing ornithological assessments, primarily in the renewable industry. Pádraig's key strengths and areas of expertise are in ornithology and ecology surveying and in writing Natura Impact Statements (NIS) and the Biodiversity chapter of Environmental Impact Assessment Reports (EIAR) to accompany planning applications. Since joining MKO Pádraig has been involved in designing, executing and project managing the ornithological assessment on over 20 proposed wind farm developments. He has played a key role in project managing these planning applications through the statutory planning system, with more projects in the pipeline. Within MKO Pádraig plays a large role in the management and confidence building of junior members of staff and works as part of a large multi-disciplinary team to produce EIAR and NIS Reports.

Conor Rowlands

Conor Rowlands is an Ornithologist with MKO having joined the company in June 2021. Conor holds a BSc (Hons) degree in Field Biology and Wildlife Tourism from the Institute of Technology Tralee. Conor's key strengths and expertise are bird identification, GIS, data collection, organisation and report writing. Since joining MKO, Conor has been involved in a range of wind farm projects. In his role as a graduate ornithologist, Conor works with MKO's Ornithological department as well as sub-contractors from various fields in the preparation and production of flight line data and Environmental Impact Assessment Reports.

Donnacha Woods

Donnacha Woods is a Project Ornithologist with MKO having joined the company in August 2020. He holds a BSc (Hons) in Zoology, and a MSc (Hons) in Biodiversity and Conservation where he focused his studies on feather morphology and its implications on bird flight. Donnacha's key strengths and expertise are bird surveying and identification, survey design, data analysis and report writing. Since joining MKO, Donnacha has been involved in a range of wind energy projects, in addition to projects in the education and housing sectors. In his role as a project manager, Donnacha works with and co-ordinates a team within MKO's Ornithological department, as well as sub-contractor ornithologists, in the collection and analysis of data for the production of EIAR Bird chapters, Natura Impact Statements and other reports as required.

Éilis Hogan

Éilis Hogan has been an Ornithologist with MKO since April 2021. Éilis holds a BSc (Hons) Applied Freshwater and Marine Biology, and a MSc (Hons) in Environmental Leadership where she focused her studies on the age structure of Little Terns in Kilcoole, Co. Wicklow. Éilis's key strengths and expertise are bird ID, survey techniques, GIS, report writing. Since joining MKO, Éilis has been involved in a range of Wind Farm projects. In her role as an ornithologist, Éilis worked on a number of different projects and Wind Farm sites completing bird surveys, mapping and report writing along with supporting other ornithologists within MKO.

Ian Hynes

Ian Hynes has worked as an Ornithologist with MKO since December of 2017. Ian holds a B.Sc. (Hons) in Environmental Science from National University of Ireland, Galway. Ian has a broad knowledge of ecology including SNH bird surveys and identification, invertebrate surveys and identification, vegetation surveys, mammal surveys and habitat identification. Ian also has over 6 years of experience using GIS software systems including ArcGIS and QGIS and MapInfo to present ecological data.

As part of his final year thesis Ian gained valuable experience in report writing, data input, invertebrate and plant identification. Ian also liaised with members of the AranLIFE project and local landowners on Inis Oírr, Aran Islands in the summer of 2016 while completing his thesis.

Ian's key strengths are in Data management and GIS/MapInfo software. Since joining the Ornithology team at MKO, he has been involved in a number of windfarm projects, utilizing his skills to undertake bird surveys, compile data, write reports and create maps for surveys and figures.

Jack Kennedy

Jack Kennedy has worked as a Field Ornithologist with MKO since September 2018, after graduating with a BSc (Hons) Zoology from University College Cork. Jack has experience in ornithological fieldwork skills, including urban, upland, and offshore surveying.

Through this practical experience Jack has a broad knowledge and skill set, including habitat mapping, vegetation surveys, small mammal surveying with Larsson traps, camera trap use, seabird ecology and overall strong bird identification skills, as well as marine ecology and megafauna monitoring. He also has strong skills in IT with Microsoft packages, data handling in Excel, SPSS and R/R Studio statistical softwares and use of QGIS for ecological data visualization. Within the Ornithology Team at MKO, he has collected, compiled, mapped and analyzed data for several windfarm projects in the northwest and midlands, and has also been project manager for a windfarm site feasibility project near Galway city.

Jack is qualified as a JNCC Marine Mammal Observer and attended European Seabirds At Sea (ESAS) offshore surveying course.

Kathryn Sheridan

Kathryn is a Project Ornithologist with MKO having joined the company in November 2020. Kathryn holds a BA (Hons) Zoology, and a MSc (Hons) in Wildlife Conservation and Management where she focused her studies on breeding Hen Harrier. Kathryn's key strengths and expertise are bird identification, GIS, data collation and report writing. Since joining MKO, Kathryn has been involved in a range of windfarm and terrestrial grassland projects. In her role as an ornithologist, Kathryn works with members from MKO's Ornithological department as well as sub-contractors from various fields in the preparation and production of interim reports and winter bird survey reports.

Niall McHugh

Niall is an Ornithologist with MKO having joined the company in January 2020. Niall holds a BSc (Hons) Applied Freshwater and Marine Biology, where he focused his studies on applied aquatic biology, zoology and wetland ecology. Since joining MKO, Niall has been involved in a range of infrastructure and alternative energy projects. In his role as an ornithologist, Niall carries out extensive bird surveys at various sites in the North and North West of the country.

Pádraig Webb

Pádraig is a Graduate Ornithologist with MKO who completed 4 months' work experience with the ornithology team at MKO prior to taking up his current position in June 2020. Pádraig graduated with a first-class B.Sc. Honours Degree in Wildlife Biology from the Institute of Technology Tralee in 2020. His undergraduate thesis focused on waterbird and boat interactions and involved extensive use of GIS software including home range estimations. Pádraig has a wide range of volunteer experience with a number of NGO's in Ireland involved in habitat management, conservation and public engagement. He also has previous experience bird surveying as part of the Countryside Bird Survey and the Irish Wetlands Birds Survey. As part of the ornithology team at MKO, Pádraig has gained experience in a wide range of bird surveys for windfarm developments.

Patrick Manley

Patrick Manley is an Project Ornithologist at MKO. He attended University College Dublin where he completed a BSc (Hons) in Geology. Prior to joining the company in September 2016 Patrick worked as part of the conservation team in BirdWatch Ireland, on projects such as the Dublin Bay birds project, Kilcoole Little Tern conservation project and the results based agri-environmental scheme for breeding waders. He has extensive experience surveying birds through other projects such as the Irish wetlands bird survey, the Inishmurray all-island breeding birds survey, the national Hen Harrier survey and the countryside bird survey. Patrick's key strengths and areas of expertise are in bird surveying and data management. Since joining MKO Patrick has been involved in a wide variety of bird surveys for wind farms, solar farms and the NPWS.

Peter Capsey

Peter is an Ornithologist with MKO having joined the company in September 2020. Peter holds a BA in Modern Languages and Information Systems. Peter's key strengths and expertise are bird identification and the completion of ornithological surveys. Peter also has extensive project management experience from previous employment in the IT sector. Since joining MKO, Peter has been involved in a range of windfarm projects. In his role as an ornithologist, Peter works mostly in the field on ornithological surveys, and then compiles monthly reports summarising the findings from these surveys.

Tom Rea

Tom Rea is an ornithologist with MKO having joined the company in May 2021. Tom holds a BSc in Freshwater and Marine Biology, where he focused his studies on marine ecology and has 6 years' experience in environmental consultancy. Tom's key strengths and expertise are in bird identification. Since joining MKO, Tom has been involved in a range of wind energy development projects. In his role as an ornithologist, Tom has experience across various bird survey methodologies including breeding raptor, adapted brown and shepard and waterfowl distribution.




APPENDIX 8

ALKALINE FEN MAP



Map Legend

- Wind Farm Boundary
- Alkaline Fens [7230]
- WFD Watercourses



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Drawing Title	
Article 17 Mapping: Alkaline Fen [7230]	
Project Title	
Proposed Ballivor Wind Farm	
Drawn By	Checked By
PD	PR
Project No.	Drawing No.
191137	Figure 4-1
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