FEHILY TIMONEY
30 YEARS

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 5.1

Scoping Reponses

Bonneagar Iompair Éireann

Mr. Trevor Byrne
Fehily Timoney & Company
Core House
Pouladuff Road
Co. Cork
T12 D773

Dáta | Date	Ár dTag | Our Ref.	Bhur dTag | Your Ref.
9 January 2020	**TII19-108417**	**P1913/Lett/TB/MG**

RE: EIAR Scoping Request: Proposed Croaghaun Windfarm (7 no. turbins with atip height of up to 185m) at Croaghaun, Myshall, Co. Carlow with grid connection on behalf of Coillte.

Dear Mr. Byrne,

Transport Infrastructure Ireland (TII) acknowledges receipt of your EIAR Scoping request in respect of the above proposed project, received 20 December 2019. TI notes previous correspondence issued on 18 August 2019 to your office in relation to the windfarm aspect of this project; TII ref. TII19-106822.

National Strategic Outcome 2 of the National Planning Framework includes the objective to maintain the strategic capacity and safety of the national roads network. It is also an investment priority of the National Development Plan, 2018 – 2027, to ensure that the extensive transport networks which have been greatly enhanced over the last two decades, are maintained to a high level to ensure quality levels of service, accessibility and connectivity to transport users.

The issuing of this correspondence is provided as best practice guidance only and does not prejudice TII's statutory right to make any observations, requests for further information, objections or appeals following the examination of any valid application referred.

The approach to be adopted by TII in making such submissions or comments will seek to uphold official policy and guidance as outlined in the Spatial Planning and National Roads Guidelines for Planning Authorities (2012). Regard should also be had to other relevant guidance available at www.TII.ie.

TII notes that the consultation documentation identifies a windfarm Study Area at this time and proposed grid connection route that, in part, indicates following and crossing the N80, a national secondary route at Kilnock Cross. With respect to EIAR Scoping issues, the recommendations indicated below provide only general guidance for the preparation of EIAR, which may affect the national road network. The developer should have regard, *inter alia*, to the following;

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Sráid Gheata na Páirce
Baile Átha Cliath 8
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Transport Infrastructure Ireland
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1. As outlined in the Spatial Planning and National Roads Guidelines, it is in the public interest that, in so far as is reasonably practicable, that the national road network continues to serve its intended strategic purpose. The EIAR should identify the methods/techniques proposed for any works traversing/in proximity to the national road network in order to demonstrate that the development can proceed complementary to safeguarding the capacity, safety and operational efficiency of that network.

2. In relation to the proposed development site, cabling and potential connection routing, the scheme promoter should note locations of existing and future national road schemes and develop proposals to safeguard proposed road schemes. Consultations should be had with the relevant Local Authority/National Roads Design Office with regard to locations of existing and future national road schemes.

3. Proposals should be developed to safeguard proposed road schemes as TII will not be responsible for costs associated with future relocation of cable routing where proposals are catered for in an area of a proposed national road scheme. In that regard, consideration should be given to routing options, use of existing crossings, depth of cable laying, etc.

   In the context of existing national roads, alternatives to the provision of cabling along the national road network, such as alternative routing or the laying of cabling in private lands adjoining the national road, should be considered in the interests of safeguarding the investment in and the potential for future upgrade works to the national road network. The cable routing should avoid all impacts to existing TII infrastructure such as traffic counters, weather stations, etc. and works required to such infrastructure shall only be undertaken in consultation with and subject to the agreement of TII, any costs attributable shall be borne by the applicant/developer. The developer should also be aware that separate approvals may be required for works traversing the national road network.

4. Clearly identify haul routes proposed and fully assess the network to be traversed. Separate structure approvals/permits and other licences may be required in connection with the proposed haul route. Consultation with relevant PPP Companies and MMaRC Contractors may also be required. All structures on the haul route should be checked by the applicant/developer to confirm their capacity to accommodate any abnormal load proposed.

5. Where appropriate, subject to meeting the appropriate thresholds and criteria and having regard to best practice, a Traffic and Transport Assessment be carried out in accordance with relevant guidelines, noting traffic volume attending the site and traffic routes to/from the site with reference to impacts on the national road network and junctions of lower category roads with national roads. The Authority's Traffic and Transport Assessment Guidelines (2014) should be referred to in relation to proposed development with potential impacts on the national road network. The scheme promoter is also advised to have regard to Section 2.2 of the TII TTA Guidelines which addresses requirements for sub-threshold TTA.

6. TII Standards should be consulted to determine the requirement for Road Safety Audit (RSA) and Road Safety Impact Assessment (RSIA).

7. Assessments and design and construction and maintenance standards and guidance are available at TII Publications that replaced the NRA Design Manual for Roads and Bridges (DMRB) and the NRA Manual of Contract Documents for Road Works (MCDRW).

8. The developer, in conducting Environmental Impact Assessment, should have regard to TII Environment Guidelines that deal with assessment and mitigation measures for varied environmental factors and occurrences. In particular;

a. TII's Environmental Assessment and Construction Guidelines, including the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2006),
b. The EIAR should consider the Environmental Noise Regulations 2006 (SI 140 of 2006) and, in particular, how the development will affect future action plans by the relevant competent authority. The developer may need to consider the incorporation of noise barriers to reduce noise impacts (see *Guidelines for the Treatment of Noise and Vibration in National Road Schemes* (1st Rev., National Roads Authority, 2004)).

Notwithstanding any of the above, the developer should be aware that this list is non-exhaustive, thus site and development specific issues should be addressed in accordance with best practice.

I trust that the above comments are of use in your EIAR preparation.

Yours sincerely,

pp Mark Byrne

Michael McCormack
Senior Land Use Planner

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

FEHILY TIMONEY & Co.

Distribution

09 JAN 2020

Job No

Correspondence No

Comment

IASCACH INTIRE EIREANN
INLAND FISHERIES IRELAND

Trevor Byrne
Fehily Timoney and Company
Core House
Pouladuff Road
Cork
T12 D773

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

06 January 2020

Croghaun Wind Farm – Scoping and Consultation

Dear Mr. Byrne,

I refer to your previous correspondence relating to the above proposed development.

Inland Fisheries Ireland (IFI) is a Statutory Body established on 1st July 2010. The Inland Fisheries Act 2010 (No. 10 of 2010) provided for the restructuring of the inland fisheries sector through the creation of a national inland fisheries organisation which replaced the Central Fisheries Board and Regional Fisheries Boards. The principal function of IFI is the protection, management and conservation of the inland fisheries resource. IFI policy is aimed at maintaining a sustainable fisheries resource through preserving the productive capacity of fish habitat by avoiding habitat loss, or mitigating harmful alteration to habitat. Projects such as this have the potential to impact on downstream fisheries resources if they are not carried out in an environmentally sensitive manner. The potential impacts of the proposed development on fisheries relate largely to the construction of the turbines and access roads and the laying of cables, etc.

The site of this proposed wind-farm is primarily located in the upper reaches of the Clashavey & Clody Rivers which drain to the Slaney, while a section of the site drains to the Burren River, which flows to the Barrow. The Clody, Clashavey and Burren are all important salmon spawning systems. The entire main Slaney River and many tributaries (including the Clody and lower reaches of the Clashavey) are candidate Special Area for Conservation (SAC site code 000781) under the European Habitats Directive. The Slaney system supports several species listed in Annex II of the Directive including Salmon, River Lamprey, Brook Lamprey, Sea Lamprey, Fresh water Pearl Mussel and Otter. The Barrow and its tributaries represent an important salmonid system, supporting excellent stocks of Atlantic salmon, Brown trout and Sea trout, River Lamprey and Brook Lamprey.

Of concern to IFI is the potential that peat soils/subsoils throughout this area are extremely sensitive to erosion and that excavations associated with the construction of turbine bases may result in soil erosion in the vicinity of these excavations, with potential for the mobilisation of significant quantities of suspended solids and associated nutrients to downstream waters. IFI request clarification on the extent of soil clearance and depth/extent of excavation for the turbine bases proposed. IFI request that the applicant detail the mitigation measures to prevent soil disturbance erosion adjacent to the excavation area. We also request that the applicant address storage/use of materials excavated at the turbine bases sites, and how this material will not contribute to suspended solids pollution of surface waters.

IFI would stress the importance of ensuring that no soil erosion occurs rather than the employment of measures to mitigate against suspended solids pollution/soil erosion that has already occurred.

IFI request that a detailed overview the drainage of the entire site be undertaken, mapping all drainage channels (temporary and permanent) and where these drainage channels transect the existing forest road network. We also request that the applicant demonstrates how the movement of heavy machinery on this sensitive site can take place without resulting in soil erosion and nutrient losses.

IFI request clarification regarding the route of the cable system from the individual turbines to the proposed substation compound. We ask if this will follow the internal forest road network. Of concern to IFI is the potential for significant soil erosion and interference in the natural drainage systems of the site if more direct routes across the afforested sections of the site are undertaken.

IFI noted several references to borrow pits in the scoping document. IFI have serious concerns that the use of borrow pits on-site may contribute to soil erosion/nutrient loss from soils in the vicinity of the proposed borrow pits. We request clarification be provided on the number/location and scale of any proposed borrow pits on-site. Given the potential for soil erosion/suspended solids pollution and the extreme sensitivities of waters down gradient we have serious reservations regarding the use of borrow pits at this location.

IFI question the value of grab sampling of watercourses that could potentially be impacted by construction as such sampling is only likely to capture a pollution event if that event is underway during sampling. IFI would recommend biological sampling of these watercourses be undertaken as this is more likely to capture intermittent discharges/pollution events.

The following observations and comments are of necessity of a general nature, as the project is at pre-planning stage and construction proposals and method statements are not available to us. The sites for which details have been received have potential to impact on fisheries waters including angling waters, adult holding areas, nursery and spawning waters, etc. forming parts of the Clashavey, Clody and Burren Rivers, watercourses which act primarily as contributories to downstream habitat for juvenile salmonids, lampreys and other species as well as macrophytes, algae and macroinvertebrates which as drift form a significant part of the food supply to the downstream fisheries.
All of the waters referred to have, in the context of the proposed development, the potential to convey deleterious matter from those works such as concrete, silt, fuel, paints, thinners and nutrients as well as lubricating and hydraulic oils from construction plant and equipment downstream unless proper safeguards are in place.

In terms of stability both during the construction and operational phases, it is essential that you assess and critically review the soil type and structure at the proposed turbine locations, and along the route of any proposed access track(s)/road(s) including areas where temporary or permanent stock piling of excavated material takes place. This is particularly important if the areas concerned contain peat soils.

One of the potential impacts of the proposed development is the discharge of silt-laden waters to fisheries streams from newly developed sites at which earth moving and excavation works are on-going. Silt can clog salmonid spawning beds, and juvenile salmonids are particularly sensitive to siltation of gill structures. Similarly, plant and macroinvertebrate communities can literally be blanketed over, and this can lead to loss or degradation of valuable habitat. It is important to incorporate best practices into construction methods and strategies to minimise discharges of silt/suspended solids to waters.

The potential for soil erosion / suspended solids generation is higher, during / after periods of prolonged rainfall. Systems should be put in place to ensure that there shall be no discharge of suspended solids or any other deleterious matter to watercourses during the construction / operational phase and during any landscaping works. Stockpiles of sand/stone and other materials to be used in the works should be covered with sheeting when not in use to prevent washout of fines during rainfall. Stockpiles of topsoil/peat/stone

and associated materials arising during site development such as turbine base excavations and installation of site road networks should be similarly protected.

During the construction process and operational phase, natural flow paths should not be interrupted or diverted so as to give rise to or create potential for erosion. Where imported materials are used in road construction, these should not to be liable to become crushed by vehicular movement, and lead to discharge of fine particulates to downstream receiving waters.

Uncured concrete can kill fish and macroinvertebrates by altering the pH of the water. Pre-cast concrete should be used whenever possible, to eliminate the risk to all forms of aquatic life. When cast-in-place concrete is required, all work must be done in the dry and effectively isolated from any water that may enter the drainage network for a period sufficient to cure the concrete. Concrete delivery vehicles should be precluded from washing out at locations which would result in a discharge to surface waters. If cement is stored on site during construction work, it should be held in a dry secure area when not in use.

All oils and fuels should be stored in secure bunded areas, and particular care and attention should be taken during refuelling and maintenance operations on plant and equipment. Bunding should be to a volume not less than the greater of the following; 110% of the capacity of the largest tank or drum within the bunded area, or 25% of the total volume of substance that could be stored within the bunded area. All plant and equipment should carry oil/fuel spill kits. Where temporary diesel or petrol driven pumps are required, they should be sited within portable temporary bunded units. Where site works involve the discharges of drainage water to receiving rivers and streams, temporary oil interceptor facilities should be installed and maintained. Waste oils, empty oil containers and other hazardous wastes should be disposed of in accordance with the requirements of the Waste Management Act, 1996.

At all times the precautionary principle should be applied throughout for the entire development. Particular attention should be paid to the various environmental directives including the Water Framework Directive, the Habitat and Birds Directives, the Fisheries Acts in particular and the Local Government (Water Pollution) Acts. Other environmental legislation should be considered as appropriate.

Yours sincerely,

Donnachadh Byrne
Senior Fisheries Environmental Officer

Please note that any further correspondence regarding this matter should be addressed to Mr. Donnachadh Byrne, Senior Fisheries Environmental Officer, Inland Fisheries Ireland, 3044 Lake Drive, Citywest Business Campus, Dublin 24

From: Brigid Deenihan
To: Croaghaun Wind Farm
Cc: Anita Sweeney; Fiona O"Neill
Subject: Croaghaun Windfarm - Scoping and Consultation
Date: Wednesday 5 February 2020 16:46:42

Dear Mr. Byrne,

I refer to correspondence dated 12th December 2019 in relation to the above.

Please see below comments from Carlow County Council.

-

Grid Connection and Cumulative Impacts

You are advised to have regard to relevant case law stemming from the decision of the High Court in the judgement delivered for O'Grianna v. An Bord Pleanala (2014), namely the requirement for EIA to consider the cumulative impacts of the proposed turbines with the proposed grid connection. This follows that the proposed grid connection is an integral part of an entire wind farm project and therefore must be included in the EIAR when examining cumulative impacts. The aforesaid may have implications for the scope of the planning application and the extent of the proposed development for which permission will be sought. The *'Draft Revised Wind Energy Development Guidelines December 2019'*, recently issued by the Department of Housing Planning and Local Government are further noted in this regard, which address the matter of grid connections in Section 2.7.4:

Under EU EIA guidance10, challenges in the EIA process are recognised for projects comprised of different elements which may be permitted at different stages, implemented by different parties and developed over a period of time.

Case law on this issue acknowledges that the requirements of the EIA Directive may be satisfied by multiple consents necessitated by the different stages in delivering a project. It should be noted that the EU courts have also stressed that the purpose of the Directive cannot be circumvented by the splitting of projects.

The Irish Courts have determined the need to assess such projects comprising both the wind energy development element and the subsequent grid connection element, as a single project for EIA purposes11, and in particular their cumulative effects. This approach is reflected in Recital (22) and Annex II.A, Annex III and Annex IV to the 2011 EIA Directive as revised by the 2014 Directive12. In addition, Recital (2), of the 2011 EIA Directive13 also emphasises that the importance of the effects on the environment should be taken into account at the earliest possible stage in all the technical planning and decision-making process.

In the context of EIA, best practice is that an integrated planning application is made for the whole project (i.e. the wind energy development and the grid connection and any other works which are ancillary to the development of the wind energy development) and that the EIAR submitted with the planning application addresses the cumulative impacts of the whole project.

It is acknowledged that an integrated application is not always possible, because of the

distinction between power generation and transmission infrastructure from an energy regulatory framework perspective.

However, in order to ensure that the environmental issues arising in the overall project have been considered in an EIAR, and that neither project splitting nor its perception arises, wind energy development proposals must demonstrate that the effects on the environment of the whole project have been taken into account at the earliest possible stage in the technical planning and decision-making process and that issues arising from cumulative effects have been properly assessed.

The EIAR and planning application(s) for the wind energy development and the grid connection must address the direct effects and any short, medium and long term, permanent and temporary, positive and negative, indirect, secondary cumulative and transboundary effects of the whole project, i.e. the wind energy development and the grid connection.

County Planning Policy

- The Carlow County Development Plan 2012-2018 includes policies and related requirements and provisions for wind energy developments. Section 6.3.1 of the Plan seeks to achieve a reasonable balance between responding to overall positive Government policy on renewable energy and enabling the wind energy resources within County Carlow to be harnessed in a manner that is consistent with proper planning and sustainable development. The section further states that *"Site suitability is an important factor in determining the suitability of wind farms (turbines), having regard to possible adverse impacts associated with for example, residential amenities, landscape, including views or prospects, wildlife, habitats, designated sites, protected structures or bird migration paths, public rights of way and compatibility with adjoining land uses".*

- It is the policy of the Council under Energy – Policy 5 in Section 6.3.1 to *"Promote and facilitate wind energy development in accordance with current Wind Energy Development Guidelines by the DoECLG and best international practices and standards and subject to compliance with normal planning and environmental criteria and the development management standards".*

- Section 11.16 of the Plan requires the following to be taken into account in the assessment of wind energy developments:

  All planning applications for wind energy turbines or windfarms shall be assessed against the DoEHLG's publication Wind Energy Development Guidelines, 2006 (and any subsequent guidelines) and Carlow County Council's Wind Strategy (see Appendix 5) and the following:

  - *The Landscape Character Assessment for the County (Appendix 6)*
  - *Whether an area has significant wind energy potential on the basis of the nature and extent of the wind resources in the area*
  - *The suitability/strength of the grid and accessibility to it*
  - *Road access to the site during the construction phase*
  - *The suitability of the site, having regard to other land use policies, including the need to protect areas of important built and natural heritage from inappropriate development*
  - *Any other planning considerations, including measures to minimise the impact of*

proposed wind farms in the local environment

- *Distances to national primary and secondary roads*
- *Zone of visual influence and visual impact of the structures*
- *Noise Impact*
- *Potential Shadow flicker*
- *Density of residential development in the area*

Wind Energy Strategy

- The siting, layout and design of the proposed development should be informed by the Wind Energy Strategy for County Carlow, which is contained in Appendix 5 to the Carlow County Development Plan 2015-2021. The 'preferred locations' for wind energy developments are dealt with in Section 3.0 of the Strategy and are identified at the western end of the county i.e. in the Killeshin Hills and the Ballymoon Esker.

- The proposed site is located in an area in which a number of locations are detailed as 'open for consideration'. However, it is important to note that the proposed site also comprises land located outside of these open for consideration areas. The proposed site development area should be cross referenced in detail with the mapping for these open for consideration areas, to ensure that full compliance with the Wind Strategy is demonstrated. The extent of the proposed development area may need to be amended in this regard.

- The Mount Leinster/Blackstairs area are not included as preferred locations because of their value for tourism and the high quality of the scenery, a fact which needs to be taken into account and examined in detail in landscape and visual impact assessments.

- An application for planning permission in an area open for consideration for a wind energy development will be considered on its merits.

Landscape and Visual Impact Assessment

- The assessment of landscape and visual impacts should take account of Carlow County Landscape Character Assessment and Schedule of Protected Views, included as Appendix 6 to the Carlow County Development Plan 2015-2021. On the basis of the landscape character assessment and associated mapping, the site is located in the Blackstairs and Mount Leinster Upland character area. The landscape type in which the site is located is identified as Uplands, where a high level of visibility can occur, and for which a landscape sensitivity of 5 (from 1 to 5) is listed. The proposed site includes elevated hill points at Croaghaun and Kilbrannish.

- The Blackstairs and Mount Leinster Uplands, in terms of natural attributes and scenery, is the most important in the County and is highly sensitive to change.

- There is low capacity in the area to absorb wind turbines, overhead cables and masts, particularly in the upland areas where they would detract from the scenery and visitors' experience of 'wilderness'.

- The Carlow County Landscape Character Assessment also identifies a number of designated scenic views and routes in the rural area in which the proposed site is located. These scenic views and routes should also inform the examination and assessment of visual impacts, as the

proposed development has the potential to negatively impact on designated scenic views and routes.

- In addition to the foregoing, the Blackstairs and Mount Leinster Uplands offer panoramic vistas across the county from a range of upland vantage points which must be protected from inappropriate development. The potential for the proposed development to impact negatively on these panoramic vistas needs to be assessed in detail. Combined visual impacts with existing wind farm developments in the area will also need to form part of this assessment.

- There are a number public roads proximate to the site, meaning that the proposed development will be visible at closer distances, which can lead to the amplification of visual impacts.

- Figure 6.1 included with the submitted scoping report identifies indicative turbine locations close to the public road to the south of the site, the L2026. The L2026 is a designated scenic route (no. 10 – Mt. leinster Drive). Potential to impact on the scenic value of this route must be carefully considered.

- Views from individual residential properties in the area should be taken into account.

- The wide angle views used in proposed photomontages tends to make images of turbines in the landscape appear smaller as they occupy less of the area of the image. The use of photomontages should therefore be cognisant of what a member of the public would likely see and perceive in terms of what a photograph from a normal camera would show.

- The assessment of landscape and visual impacts should consider cumulative effects with regard to existing wind farm/turbine developments in the area.

- Photomontages should detail existing and permitted wind farm developments in the study area.

- Consideration should be given to landscaping and replanting proposals to mitigate potential visual impacts.

- The proposed siting and design must be able to demonstrate that the integrity of the landscape character will be maintained.

Natural Heritage

The assessment of the existing and proposed development, in respect of the content of both EIA and Appropriate Assessment, needs to consider the following:

- The close proximity of the Blackstairs Mountains SAC to the proposed site. The SAC appears to border the southwest corner of the proposed site.

- Existing watercourses that traverse the proposed site, which drain to the Clashavey River, and which are hydrologically connected to the Slaney River Valley SAC.

- Field studies should be carried out at optimal survey times and be supported by an Ecological Report.

- Fields studies should examine the potential for biodiversity within the proposed site, including habitats for protected species.

- The extent of clearfelling to facilitate the proposed development should be clearly detailed.

- Information should be provided regarding the protection of retained ecological features, in particular the protection of trees and hedgerows during on-site construction activities.

- Consideration should be given to a tree replanting proposal to compensate for the loss of trees and to mitigate ecological impacts.

In relation to the Appropriate Assessment, you are advised to have regard to the following:

- Must clearly identify the European Sites potentially impacted by the proposed development and explain the basis on which these have been identified in a way that makes it clear that there is no scientific doubt that there could be adverse effects on the integrity of any other European sites (ecological or hydrological corridors).

- Must clearly explain why each of the identified European sites have been designated.

- Must clearly identify the conservation objectives for each European site (by reference to NPWS published data).

- Must clearly set out all relevant and available data in relation to each qualifying interest including all documentary sources available.

- Must set out all investigations and examinations that have been carried out.

- Must be apparent that regard has been had to the best scientific knowledge.

- Must contain a detailed analysis and evaluation of all available data with no lacunae or gaps.

- Must identify and analyse, in the light of the best scientific knowledge in the field, all aspects of the proposed development which can, by itself or in combination with other projects or plans, affect the European Sites in the light of its conservation objectives. That analysis should distinguish between temporary and permanent impacts and has to address the impacts on the flora, fauna and habitats for which the site was designated and the impacts on the conservation objectives for the site.

- Must identify mitigation measures which will reduce impacts on the European Site and specify precisely how they will be implemented and why they will be effective. There cannot be any scientific doubt about the effectiveness of the mitigation measures and it will not be acceptable to say that these will be developed post-consent.

- Must contain clear, precise and definitive findings as to what the residual impacts will be on

the European Site.

- Complete project details including a construction environmental management plans (CEMP) needs to be provided in order to allow an adequate appropriate assessment to be undertaken. It should be demonstrated that the CEMP and other such plans are adequate and effective mitigation, supported by scientific information and analysis, and that they are feasible within the physical constraints of the proposed site. The CEMP should also include methods to ensure invasive alien species are not introduced or spread.

- The positions, locations and sizes of construction infrastructure and mitigation, such as settlement ponds, disposal sites and construction compounds, may significantly affect European sites, designated sites, habitats, and species in their own right and could have an effect for example on drainage, water quality, habitat loss, and disturbance. If these are undetermined at time of the assessment, all potential effects of the development on the site are not being considered. If applicants are not in a position to decide the exact location and details of these at time of application, then they need to consider the range of options that may be used in their assessment so that all issues are covered.

Archaeological Heritage

- There are a number of recorded monuments in the area, including CW020-028 (Standing Stone) on the proposed site and in the townland of Rossacurra. Therefore, an archaeological impact assessment should be carried out for the proposed development and in accordance with the requirements of the Department of Culture Heritage and the Gaeltacht.

Impacts on Residential Amenity and Adjoining Land Uses

- Potential impacts on residential properties and on existing adjoining land uses should be examined and assessed. Proximity to (inter alia) proposed turbines, site entrance(s), access roads, grid connection route, and other site infrastructure should be considered in detail.

- The assessment of impacts on residential amenity and other sensitive land uses in the area should be accompanied by accurate mapping of all such properties.

- Consideration should be given to the mapping of shadow flicker results and overlapping this with mapping for dwellings. This would be beneficial to clarify potential impacts as identified and assessed in text.

Noise, Vibration and Dust

- Suitably scaled mapping should be provided which accurately identifies existing and proposed noise and dust monitoring stations relative to sensitive receptors.
- The assessment of noise impacts needs to consider noise generated from construction activities and operational noise e.g. rotating turbine noise and blade swish noise.
- Noise associated with the construction of access roads and cable routes should be assessed, and should include restrictions on the hours of operation to prevent noise nuisance at dwellings and other adjoining land uses/sensitive locations.

Flora and Fauna

The existing site and proposed site should be surveyed for invasive species and recommendations for control measures made as part of EIAR, and in an invasive species management plan.

Water Quality

Geological Survey and EPA mapping should be referred to regarding potential surface water and groundwater vulnerability in the area.

Surface Water Drainage

- A detailed survey of all existing and proposed on site drainage should be provided, clearly identifying where all on site water drains will discharge to and how drainage will be maintained.

- Detailed drainage design must be shown on the submitted plans.

Traffic and Transportation

The assessment of traffic and transportation issues should take account of the following:

- The provision of a traffic impact assessment for the construction phase.

- Details of the anticipated traffic types and volumes for the development should be provided and assessed, and broken down in daily, weekly and monthly figures. Details should also include expected peak site traffic, day to day hours and duration.

- Proposed access route(s) for turbine delivery should be clearly identified on suitably scaled maps. Access routes should seek to predominantly utilise main roads, and therefore minimise the use of and impacts on county and local roads.

- Potential traffic impacts from HGVs negotiating built up areas should be considered, as well as the feasibility of avoiding routing HGV traffic through such locations.

- Full design details for the entrance(s) to the site should be provided to demonstrate adequate turning movements for HGVs and sightlines. Accommodation works on third party lands must have written agreement of third party landowners.

- A swept path analysis should be carried for the proposed turbine delivery route(s).

- Estimated load of turbine components should be provided.

- All structures on the proposed access route(s) to the site should be evaluated for ability to carry respective weights of transportation vehicles and turbines i.e. including width and structural capacity of proposed access routes.

- A condition survey of the public roads from which the site is proposed to be accessed should be carried out, including a survey of the road from Carrickduff to Kilbrannish.

- Proposals to upgrade a road or structure where it is shown to be structurally insufficient should be provided.

If you require any further information please do not hesitate to email planningdevman@carlowcoco.ie or contact the undersigned.

Kind regards,

Brigid Deenihan
Planning Department

Bríd Uí Dhuineacháin
An Rionn Pleanála

Tel No. 059 9136229
Fax No. 059 9141503

From: EIAPlanning
To: croaghunwindfarm@ftco.ie
Cc: Marie Geary; Trevor Byrne
Subject: FW: Croaghaun Windfarm - Scoping and Consultation EPA016524
Date: Friday 10 January 2020 11:56:14
Attachments: Letter and Scoping Report.pdf
RE Croaghaun Windfarm - Scoping and Consultation.eml

Dear Sir/Madam,

Further to your email dated 18 December 2019 and our subsequent telephone call, from which we note that this proposed development does not form part of an EPA licensed facility, the Agency has no comment to make in relation to this.

Regards,

Environmental Licensing Programme
Environmental Protection Agency
053 9160600

From: Croaghaun Wind Farm <croaghaunwindfarm@ftco.ie>
Sent: 18 December 2019 17:23
To: Trevor Byrne <trevor.byrne@ftco.ie>
Cc: Marie Geary <marie.geary@ftco.ie>
Subject: Croaghaun Windfarm - Scoping and Consultation

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie

From: John Bagnall
To: Trevor Byrne; Marie Geary
Cc: Mobile Networks TXN
Subject: Re: Croaghaun Windfarm - Scoping and Consultation
Date: Monday 23 December 2019 10:04:48
Attachments: image.png

Hi Marie,

We have no transmission services that will be affected by these works. Best of luck with your proposal.

Please keep sending future windfarm development analysis and large infrastructure project request to MobileNetworksTXN@eir.ie for Eir Mobile (formerly Meteor) network analysis.

Kind regards,

John Bagnall
Transmission Design & Engineering

M: +353 85 1053746
E: john.bagnall@eir.ie
Address: EirCode - D24 HX03

On Wed, 18 Dec 2019 at 17:23, Croaghaun Wind Farm <croaghaunwindfarm@[illegible].ie> wrote:

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,

Marie Geary

for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie

Please consider the environment - do you really need to print this email?

From: Skelly Graham
To: Trevor Byrne; Marie Geary
Cc: West Nick
Subject: FW: Croaghaun Windfarm - Scoping and Consultation
Date: Friday 20 December 2019 11:37:13
Attachments: Letter and Scoping Report.pdf

Hi Trevor,

Your email has been passed to me by one of my colleagues. Whilst the letter mentions a number of townlands, you might please let me know if your proposal involves any interface with the railway.

Regards and thanks,

Graham

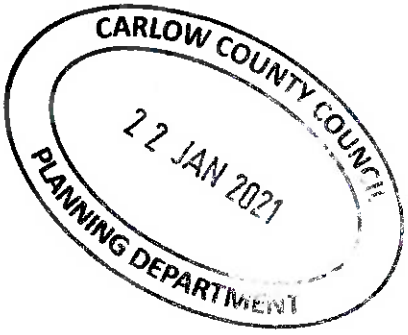
Graham Skelly MRICS MSCSI | C.I.É. Group Property Management | Curzon House | 35 Lower Abbey Street | Dublin 1 |
: (01) 7033178 | : (01) 7032930
: graham.skelly@cie.ie

From: Connaire Gerry <Gerry.Connaire@cie.ie>
Sent: Thursday 19 December 2019 10:36
To: West Nick <Nick.West@irishrail.ie>; Skelly Graham <Graham.Skelly@cie.ie>
Subject: FW: Croaghaun Windfarm - Scoping and Consultation

Nick, Graham,

For your information, see attached letter dated the12 December 19 from Croaghaun Windfarm regarding a planning application they intend submitting for a wind farm in Co Carlow and as it affects the townlands mentioned. I am not sure if this is something you are already aware of or whether there is a standard letter issued as it might affect the railway. Please note that I have not acknowledged their letter.

Regards
Gerry.



From: Croaghaun Wind Farm <croaghaunwindfarm@ftco.ie>
Sent: Wednesday 18 December 2019 17:23
To: Trevor Byrne <trevor.byrne@ftco.ie>
Cc: Marie Geary <marie.geary@ftco.ie>
Subject: Croaghaun Windfarm - Scoping and Consultation

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie

From: planning applications
To: Marie Geary
Subject: RE: Croaghaun Windfarm Scoping Report and Consultation
Date: Thursday 13 February 2020 11:32:37
Attachments: image002.png
image003.png
image004.png
image005.png
Fáilte Ireland EIAR Guidelines.pdf

Hello Marie,

Thank you for your e-mail and Scoping Letter and apologies for the delay in replying to you.

Please see attached a copy of Fáilte Ireland's Guidelines for the Treatment of Tourism in an EIS, 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 Support-Environment & Planning Unit | Fáilte Ireland
Áras Fáilte, 88/95 Amiens Street, Dublin 1. D01WR86
T +353 (0)1 884 7224 | **www.failteireland.ie**

Fáilte Ireland
National Tourism Development Authority

From: Marie Geary <marie.geary@ftco.ie>
Sent: 15 January 2020 10:51 AM
To: planning applications <planning.applications@failteireland.ie>
Subject: Croaghaun Windfarm Scoping Report and Consultation

Dear Sir/Madam

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560

www.fehilytimoney.ie

Please consider the environment - do you really need to print this email?

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Fehily Timoney and Company
Core House
Pouladuff Road
Cork
Ireland
T12 D773

30 January 2020

Re: Croaghaun Windfarm Co Carlow - Scoping and Consultation

Your Ref:
Our Ref: 20/24

Trevor Byrne, A chara,

With reference to your email received on 18 December 2019, concerning the Croaghaun Windfarm Co Carlow - Scoping and Consultation report, Geological Survey Ireland (a division of Department of Communications, Climate Action and Environment) would like to make the following comments:

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our website for data availability and we recommend using these various data sets, when undergoing the EIAR, planning and scoping processes. Geological Survey Ireland should be referenced to as such and should any data or geological maps be used, they should be attributed correctly to Geological Survey Ireland.

Geoheritage

Geological Survey Ireland (GSI) is in partnership with the National Parks and Wildlife Service (NPWS, Department of Arts, Heritage, Regional, Rural and Gaeltacht Affairs) to identify and select important geological and geomorphological sites throughout the country for designation as geological NHAs (Natural Heritage Areas). This is addressed by the Irish Geoheritage Programme (IGH) of GSI, under 16 different geological themes, in which the minimum number of scientifically significant sites that best represent the theme are rigorously selected by a panel of theme experts.

County Geological Sites (CGS), as adopted under the National Heritage Plan are now included in County Development Plans and in the GIS of planning departments, to ensure the recognition and appropriate protection of geological heritage within the planning system. CGSs can be viewed online under the Geological Heritage tab on the online Map Viewer. The audit for Co. Carlow was carried out in 2004. The full report details can be found here . **Our records show that there is one CGS in the vicinity of the proposed windfarm and grid connection route scheme.**

Aclare House, Co. Carlow (GR 284688 159925 ITM), under IGH theme 6 (Mineralogy) & 15 (Economic Geology

*"Extensive drilling at Aclare House has **revealed the presence of the largest lithium-bearing pegmatite deposit in the Leinster region.** Pegmatites are very coarse-grained igneous rocks of granitic composition. They usually occur in association with intrusive igneous rocks, most commonly felsic intrusions (e.g. granite). Most economically important pegmatites, although in close proximity to intrusions, actually occur in the surrounding metamorphic aureole. Aclare, for example, lies approximately 1km from the granite contact. The main lithium-bearing mineral present is spodumene, a white mineral up to 0.3m in length at this locality. Other accessory minerals include Bertrandite, Cassiterite, Columbite-Tantalite, uranium-bearing Microlite, lithian Muscovite and Phosphosiderite. There is still some controversy as to the formation of the Li-pegmatites in this area. The pegmatite at Aclare is one of a series of Li-bearing pegmatites flanking the Leinster Granite between Borris and Shillelagh. Despite numerous boulders there are no natural outcrops of these spodumene pegmatites. Drilling has proved an invaluable source of information. The lithium deposits only occur in the Lower Ordovician metasediments and metavolcanics of the Ribband Group and within the East Carlow Deformation Zone. Whilst*

the development of the lithium deposits is associated with the intrusion of the Leinster Granite it is not clear to what extent. Some researchers believe that the lithium-enriched pegmatites formed from later stage lithium-enriched magma associated with the emplacement of the granite. Others attribute the enrichment to the melting of surrounding lithium-rich sediments. Movement of the East Carlow Deformation Zone also played an important part in their formation. Whatever the origin it seems as though the geology of the Carlow area was just right to accommodate the lithium pegmatites. Other significant bedrock spodumene pegmatites occurrences in Carlow are known from Orchard, Coolasnaghta and Seskinnamadra". The Site Report from the Carlow County Audit is attached).

Therefore, with the current plan, there are no envisaged direct impacts on the integrity of current CGSs by the proposed development. However, there are potential future economic impacts to the area should the current proposal impact future development of the extractive industries in the general area. The extraction of Lithium is important for power storage and may be a critical element required for further decarbonising society in the future.

If the proposed development plan is altered, please contact Clare Glanville (Clare.Glanville@gsi.ie) for further information and possible mitigation measures if applicable.

Groundwater

Groundwater is important as a source of drinking water, and it supports river flows, lake levels and ecosystems. It contains natural substances dissolved from the soils and rocks that it flows through, and can also be contaminated by human actions on the land surface. As a clean, but vulnerable, resource, groundwater needs to be understood, managed and protected. Through our Groundwater Programme, Geological Survey Ireland provides advice and maps to members of the public, consultancies and public bodies about groundwater quality, quantity and distribution. Geological Survey Ireland monitors groundwater nationwide by characterising aquifers, investigating karst landscapes and landforms and by helping to protect public and group scheme water supplies. With regard to Flood Risk Management, there is a need to identify areas for integrated constructed wetlands. The area of the site is characterized by a Locally Important Bedrock Aquifer which is moderately productive only in local zones and has a vulnerability rating of extreme. We recommend using the GSI's National Aquifer and Recharge maps on our Map viewer to this end.

Geohazards

Geohazards can cause widespread damage to landscapes, wildlife, human property and human life. In Ireland, landslides are the most prevalent of these hazards. **Landslides are common in areas of peat or steep slopes, areas which are found within the proposed development.** Geological Survey Ireland has information available on past landslides for viewing as a layer on our Map Viewer. Geological Survey Ireland also engages in national projects such as Landslide Susceptibility Mapping and GWFlood Groundwater Flooding, and in international projects, such as the Tsunami Warning System, coordinated by the Intergovernmental Oceanographic Commission of UNESCO. While there are no documented landslide events within the proposed area they are common in high ground to the northeast of the site (e.g. Tinahely area, Co. Wicklow). We recommend that geohazards be taken into consideration, especially when developing areas where these risks are prevalent, and we encourage the use of our data when doing so.

Geothermal Energy

Geothermal energy harnesses the heat beneath the surface of the Earth for heating applications and electricity generation, and has proven to be secure, environmentally sustainable and cost effective over long time periods. Geothermal applications can range in depth from a few metres below the surface to several kilometres. Ireland has widespread shallow geothermal resources for small and medium-scale heating applications, which can be explored online through Geological Survey Ireland's Geothermal Suitability maps for both domestic and commercial use. We recommend use of our Geothermal Suitability maps to determine the most suitable type of ground source heat collector for use with heat pump technologies. Ireland also has recognised potential for deep geothermal resources. Geological Survey Ireland currently supports and funds research into this national energy resource.

Roinn Cumarsáide, Gníomhaithe ar son na hAeráide & Comhshaoil
Department of Communications, Climate Action & Environment

Geological Survey
Suirbhéireacht Gheolaíochta
Ireland | Éireann

Natural Resources (Minerals/Aggregates)

Geological Survey Ireland is of the view that the sustainable development of our natural resources should be an integral part of all development plans from a national to regional to local level to ensure that the materials required for our society are available when required. Geological Survey Ireland highlights the consideration of mineral resources and potential resources as a material asset which should be explicitly recognised within the environmental assessment process. Aggregates are an essential natural resource for the construction industry and with the Government of Ireland "Building Ireland 2040" plan, understanding of aggregate source and supply will be important. Geological Survey Ireland provides data, maps, interpretations and advice on matters related to minerals, their use and their development in our Minerals section of the website. The Active Quarries, Mineral Localities and the Aggregate Potential maps are available on our Map Viewer.

Other Comments

Geological Survey Ireland is the national earth science agency and has datasets on Bedrock Geology, Quaternary Geology, Geological Heritage Sites, Mineral deposits, Groundwater Resources and the Irish Seabed. These comprise maps, reports and extensive databases that include mineral occurrences, bedrock/mineral exploration groundwater/site investigation boreholes, karst features, wells and springs. Please see our website for data availability.

I hope that these comments are of assistance, and if we can be of any further help, please do not hesitate to contact me, or my colleague Clare Glanville (Clare.Glanville@dccae.ie).

Le meas,

Dr. Clare Glanville
Senior Geologist, Geoheritage Programme

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

Geological Survey Ireland, Beggars Bush, Haddington Road, Dublin D04 K7X4, Ireland.
Suirbhéireacht Gheolaíochta Éireann, Tor an Bhacaigh, Bóthar Haddington, Baile Átha Claith D04 K7X4, Éire.
T +353 (0)1 678 2000 **LoCall** / LóGhlao 1890 44 99 00 **www.gsi.ie** *Fáiltítear roimh comhfhreagras i nGaeilge*

CARLOW - COUNTY GEOLOGICAL SITE REPORT

NAME OF SITE	**Aclare**		
Other names used for site			
TOWNLAND(S)	Aclare		
NEAREST TOWN	Myshall		
SIX INCH MAP NUMBER	17		
NATIONAL GRID REFERENCE	284700 160000, = S 847 600		
1:50,000 O.S. SHEET NUMBER	61,68	**1/2 inch Sheet No.**	19

Outline Site Description
A number of fields with surface boulders at their margins, overlying the proven deposit below ground.

Geological System/Age and Primary Rock Type
The pegmatites are associated with the intrusion of the Leinster Granite approximately 400 million years ago.

Main Geological or Geomorphological Interest
Extensive drilling at Aclare House has revealed the presence of the largest lithium-bearing pegmatite deposit in the Leinster region. Pegmatites are very coarse-grained igneous rocks of granitic composition. They usually occur in association with intrusive igneous rocks, most commonly felsic intrusions (e.g. granite). Most economically important pegmatites, although in close proximity to intrusions, actually occur in the surrounding metamorphic aureole. Aclare, for example, lies approximately 1km from the granite contact. The main lithium-bearing mineral present is spodumene, a white mineral up to 0.3m in length at this locality. Other accessory minerals include Bertrandite, Cassiterite, Columbite-Tantalite, uranium-bearing Microlite, lithian Muscovite and Phosphosiderite. There is still some controversy as to the formation of the Li-pegmatites in this area. The pegmatite at Aclare is one of a series of Li-bearing pegmatites flanking the Leinster Granite between Borris and Shillelagh. Despite numerous boulders there are no natural outcrops of these spodumene pegmatites. Drilling has proved an invaluable source of information. The lithium deposits only occur in the Lower Ordovician metasediments and metavolcanics of the Ribband Group and within the East Carlow Deformation Zone. Whilst the development of the lithium deposits is associated with the intrusion of the Leinster Granite it is not clear to what extent. Some researchers believe that the lithium-enriched pegmatites formed from later stage lithium-enriched magma associated with the emplacement of the granite. Others attribute the enrichment to the melting of surrounding lithium-rich sediments. Movement of the East Carlow Deformation Zone also played an important part in their formation. Whatever the origin it seems as though the geology of the Carlow area was just right to accommodate the lithium pegmatites.

Other significant bedrock spodumene pegmatites occurrences in Carlow are known from Orchard, Coolasnaghta and Seskinnamadra.

Site Importance
The site is of National importance and is likely to be proposed for NHA designation under the IGH6 Mineralogy theme, and the IGH15 Economic Geology theme of the GSI's IGH Programme.

Management/promotion issues
Although the deposit has been extensively explored, and is of uneconomic extent for mining purposes, it still provides a geological topic of debate, concerning the origin and emplacement of the pegmatites. Although there are numerous boulders around the field margins showing pegmatites, there is little to show a non specialist. This and the fact that the site is on private farmland indicates it is not suitable for significant promotion.

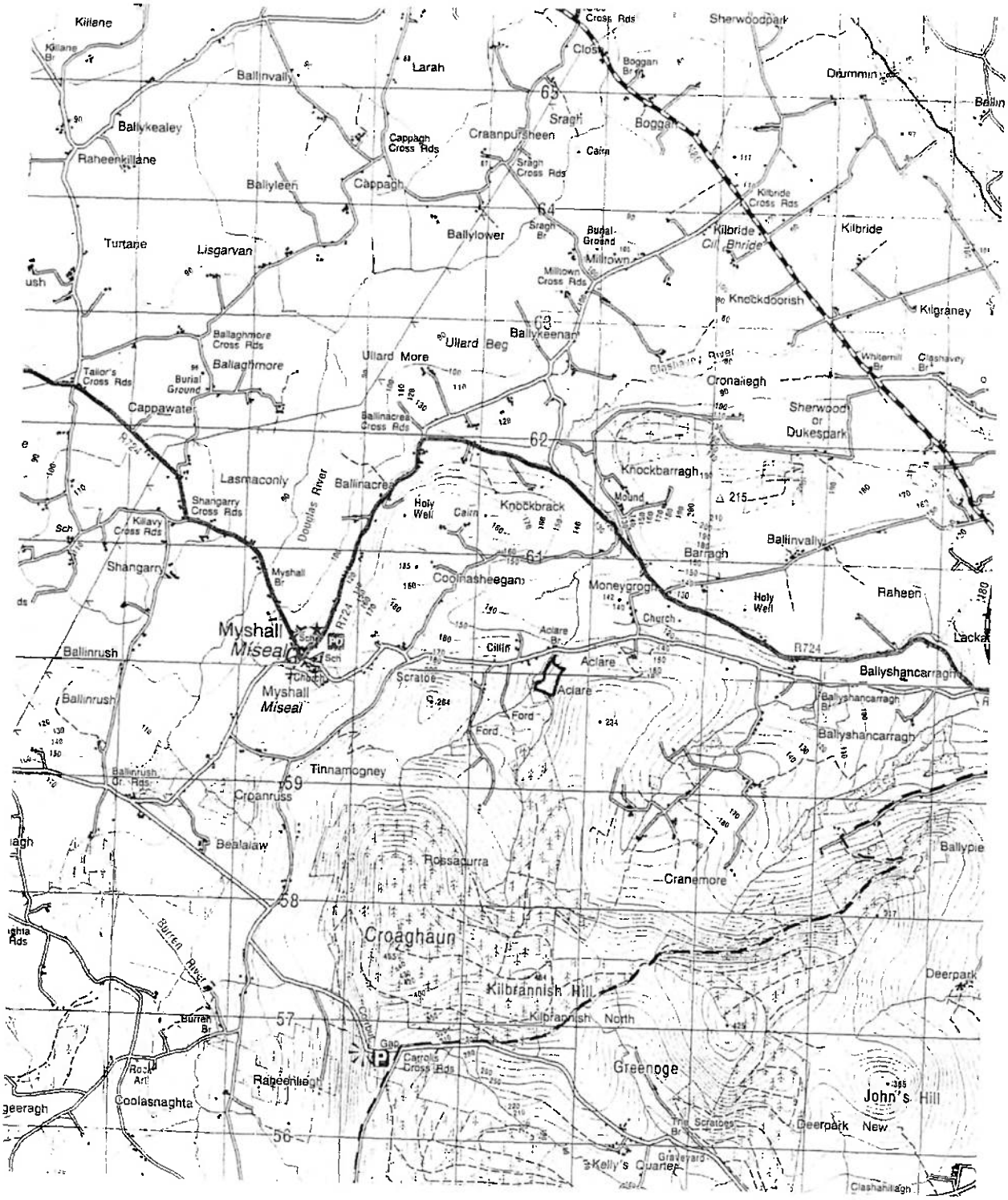
A view over the site, the two main fields in the middle distance.

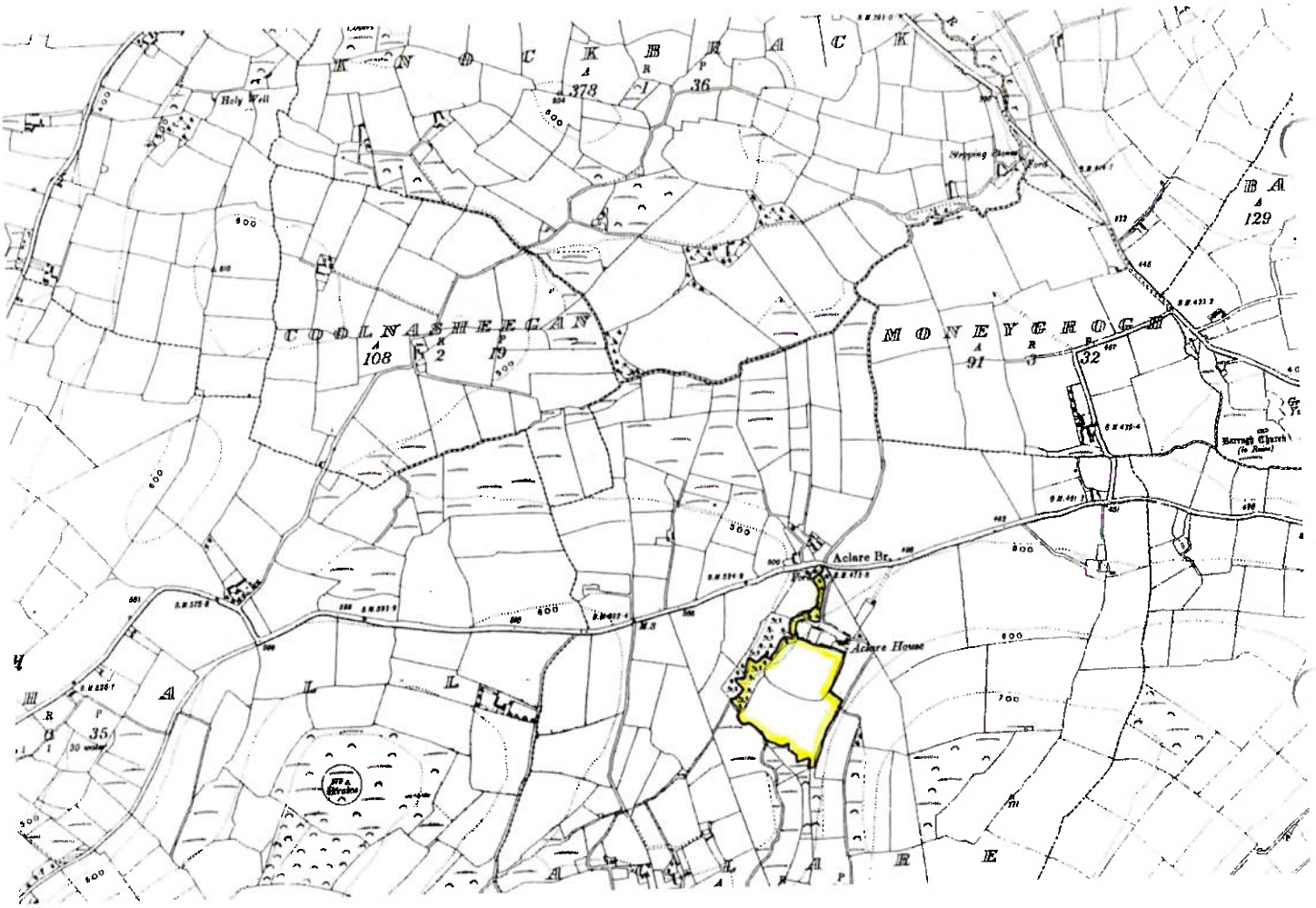
A typical collection of boulders at the edge of the fields.

A close up of a pegmatite boulder showing the very large crystals of feldspar.

A spodumene sample (the purple mineral), actually from one of the other main localities in the district.

ACLARE





From: Gerry Callan
To: Gary Locke; Trevor Byrne; Conor Hughes; Croaghaun Wind Farm
Cc: DL Estates ROI; Alan Hutchinson; Damien Ford
Subject: RE: Croaghaun Windfarm - Scoping and Consultation
Date: Thursday 20 February 2020 08:05:29

Hi Gary,

I've reviewed this proposed windfarm (both turbine layouts submitted) on behalf of the Three Transmission Network and can confirm that we have no links traversing the development area.

I've consulted with our regional engineer to ensure that no new links are planned that might be compromised by this development. He's confirmed that none are planned.

As such we have no concerns that this development will impact upon our network.

Good luck with the development.

Best wishes,

Gerry Callan
Transmission Engineer

086 3884246
gerry.callan@three.ie

Make it count.

Three Ireland
28/29 Sir John Rogerson's Quay, Dublin 2, Ireland.

www.three.ie

From: Pearse Cafferky
To: Croaghaun Wind Farm; Trevor Byrne; Marie Geary
Subject: Croaghaun Windfarm - Scoping and Consultation
Date: Wednesday 8 January 2020 12:36:54

Dear Fehily

I'd like to confirm on the 18th December 2019 the Irish Hang Gliding and Paragliding Association (IHPA) received the EIAR Scoping Report for the Croaghan Wind Farm from Fehily Timoney.

Section 1.4 states that "Scoping will be carried out through the issue of this report or a detailed letter with co-ordinates". With a footnote stating that a letter with co-ordinates has been sent to companies or bodies relating to telecommunications or aviation.

The IHPA is the National Association for the sports of Hang Gliding and Paragliding in Ireland, and as such a body relating to aviation, and would request that the co-ordinate locations of turbines also be provided to the IHPA.

Kind regards...

Pearse Cafferky
Chairman IHPA

From: Peter Byrne
To: Croaghaun Wind Farm; Trevor Byrne
Cc: Marie Geary
Subject: RE: Croaghaun Windfarm - Scoping and Consultation
Date: Thursday 2 January 2020 11:16:39
Attachments: image001.png
ATT00001.txt
ATT00002.htm

Hi:

Analysis was carried out by ESB Network telecoms, currently they have no microwave or polling radio links that would be impacted by this proposed windfarm development.

Regards,

Peter Byrne | Operations | ESB Telecoms Ltd | T: +353 702 7658 / +353 87 618 1359| www.esbi.ie

From: Croaghaun Wind Farm <croaghaunwindfarm@ftco.ie>
Sent: Wednesday 18 December 2019 17:23
To: Trevor Byrne <trevor.byrne@ftco.ie>
Cc: Marie Geary <marie.geary@ftco.ie>
Subject: Croaghaun Windfarm - Scoping and Consultation

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie

From: Roger Woods
To: Croaghaun Wind Farm
Subject: RE: Croaghaun Windfarm - Scoping and Consultation
Date: Friday 20 December 2019 11:44:42

Hello

The BAI does not perform an in-depth analysis of the effect of wind turbines on FM networks. However, we are not aware of any issues from existing windfarms into existing FM networks. Also, the proposed windfarms are not located close to any existing or planned FM transmission sites.

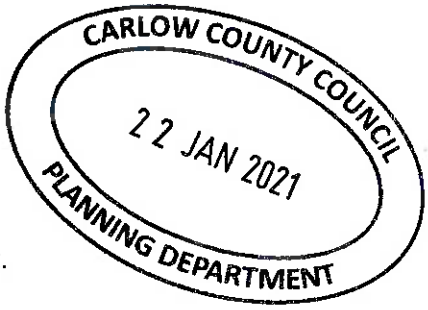
Regards

Roger

Senior Executive Engineer
Broadcasting Authority of Ireland
2-5 Warrington Place
Dublin D02 XP29

Tel: 01 6441200
Fax: 01 6441299

From: Croaghaun Wind Farm <croaghaunwindfarm@ftco.ie>
Sent: Wednesday 18 December 2019 17:23
To: Trevor Byrne <trevor.byrne@ftco.ie>
Cc: Marie Geary <marie.geary@ftco.ie>
Subject: Croaghaun Windfarm - Scoping and Consultation



Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773

Tel: +353 21 4969560
www.fehilytimoney.ie

From: Manager DAU
To: Trevor Byrne
Subject: RE: Croaghaun Windfarm - Scoping and Consultation
Date: Thursday 19 December 2019 15:05:06

Our Ref: G Pre00327/2019 (Please quote in all related correspondence)

A Chara

On behalf of the Department of Culture, Heritage and the Gaeltacht, I acknowledge receipt of your recent consultation.

In the event of observations, you will receive a co-ordinated heritage-related response by email from Development Applications Unit (DAU) on behalf of the Department.

The normal target turnaround for pre-planning and other general consultations is six weeks from date of receipt. In relation to general consultations from public bodies under the European Communities (Environmental Assessment of Certain Plans and Programmes) Regulations 2004 to 2011, the Department endeavours to meet deadline dates, where requested.

If you have not heard from DAU and wish to receive an update, please telephone the direct line number below or email manager.dau@chg.gov.ie .

Connor Rooney
Executive Officer

—

An Roinn Cultúir, Oidhreachta agus Gaeltachta
Department of Culture, Heritage and the Gaeltacht

Aonad na nIarratas ar Fhorbairt
Development Applications Unit

Bóthar an Bhaile Nua, Loch Garman, Contae Loch Garman, Y35 AP90
Newtown Road, Wexford, County Wexford, Y35 AP90

—

T +353 (0)53 911 7464
manager.dau@chg.gov.ie
www.chg.gov.ie

—

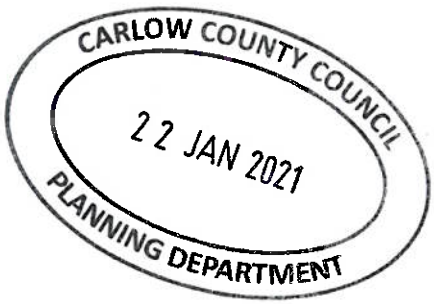
From: Croaghaun Wind Farm [mailto:croaghaunwindfarm@ftco.ie]
Sent: Wednesday 18 December 2019 17:23
To: Trevor Byrne <trevor.byrne@ftco.ie>
Cc: Marie Geary <marie.geary@ftco.ie>
Subject: Croaghaun Windfarm - Scoping and Consultation

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie



IRISH **HANG GLIDING** AND **PARAGLIDING** ASSOCIATION
Chairman: Pearse Cafferky, The Warehouse, 26A Mount Eden Road, Donnybrook, Dublin 4.
Telephone: 086 829 0894. Email: chairman@ihpa.ie

Fehily Timoney and Company,
Trevor Byrne,
Core House,
Pouladuff Road,
Cork,
T12 D773

7th February 2020

RE: Croaghaun Wind Farm – Scoping and Consultation

Dear Trevor,

The Irish Hang Gliding and Paragliding Association (IHPA) received the Croaghaun Wind Farm Environmental Impact Assessment Report Scoping Report and make the below comments on the items to be included in the EIA Report.

ABOUT THE IHPA

The IHPA is the National Association for the sports of Hang Gliding and Paragliding, in Ireland. The IHPA was founded in 1974 as the Irish Hang Gliding Association and later expanded to include the newer sport of paragliding. The IHPA works to promote the sports in Ireland, and to develop training and operating guidelines in consultation with landowners and regulators.

CURRENT USE OF THE SITE

The proposed wind farm is located adjacent to a flying site which has been in continuous use by hang gliders and paragliders since the early 1970s. The site is in constant use by IHPA members and the wider hang gliding and paragliding community whenever the prevailing wind is blowing from a westerly direction.

After taking off site from the slope in front of the car park at Corobut Gap and gaining height, pilots then fly along the front of the westerly facing slope. When conditions allow pilots catch thermals and fly through the proposed wind farm site, gaining height before often proceeding to complete cross country flights.

ITEMS TO INCLUDE IN EIA

The proposed structure of the EIA intends to assess the impact on Aviation and Telecommunications in chapter 5.16.

Chapter 15.6 of the scoping report currently seeks to assess the impact on Aviation Radar, ATC, AILS and other communications systems. It does not consider the impact of the wind farm development on hang gliding and paragliding, both forms of aviation.

The IHPA request that Chapter 5.16 of the EIA report assesses how the development will impact on both hang gliding and paragliding, and that a specific Aviation Impact Assessment (AIA) with regard to the impact the development will have on hang gliding and paragliding be completed as part of the EIA report.

Chapter 5.7 Population and Human Health – should also consider the loss of recreation amenity if the site was unable to be used for hang gliding and paragliding.

IMPACT PROPOSED DEVELOPMENT WILL HAVE ON HANG GLIDING AND PARAGLIDING

From the current information available it would appear that the proposed development would have a significant impact on the continued use of the site for hang gliding and paragliding. The proposed development would prevent the use of the site for hang gliding and paragliding for ridge soaring and cross-country flights.

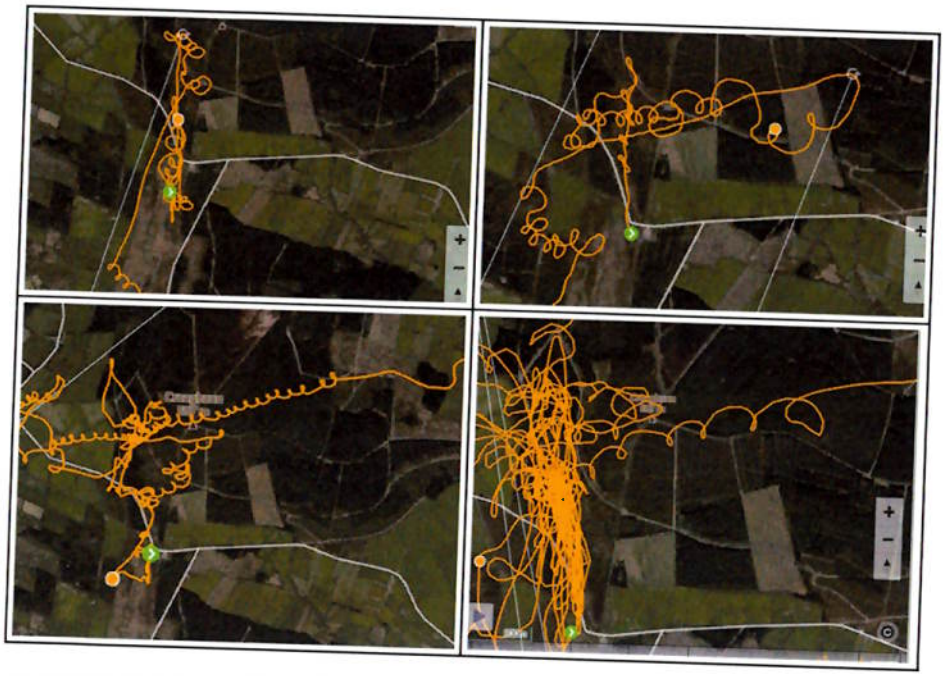
NOTE: Ridge soaring is a means of exploiting rising air created by the prevailing wind blowing onto and up over a ridge or other elevated terrain. Hang glider and paraglider pilots can also exploit the energy in a thermal, which is a defined column of rising air that is warmer than the surrounding ambient air. Thermals are usually generated originate from the relatively flat land and rise up in a column or bubble. Thermals rarely rise vertically from the ground as they are affected by the prevailing wind and generally tilt or slope at an angle. A hang glider or paraglider flying in a thermal will climb up in the rising air, but will also be blown back with the wind. This can result in pilots finding themselves above and behind the front of a ridge (i.e. in the area of the proposed wind farm). If the pilot looses the thermal and can not reach cloud base, they could find themselves in significant danger of the wind turbines if they sink back to the ground behind the hill.

The reason the proposed development would impact on hang gliding and paragliding is that:

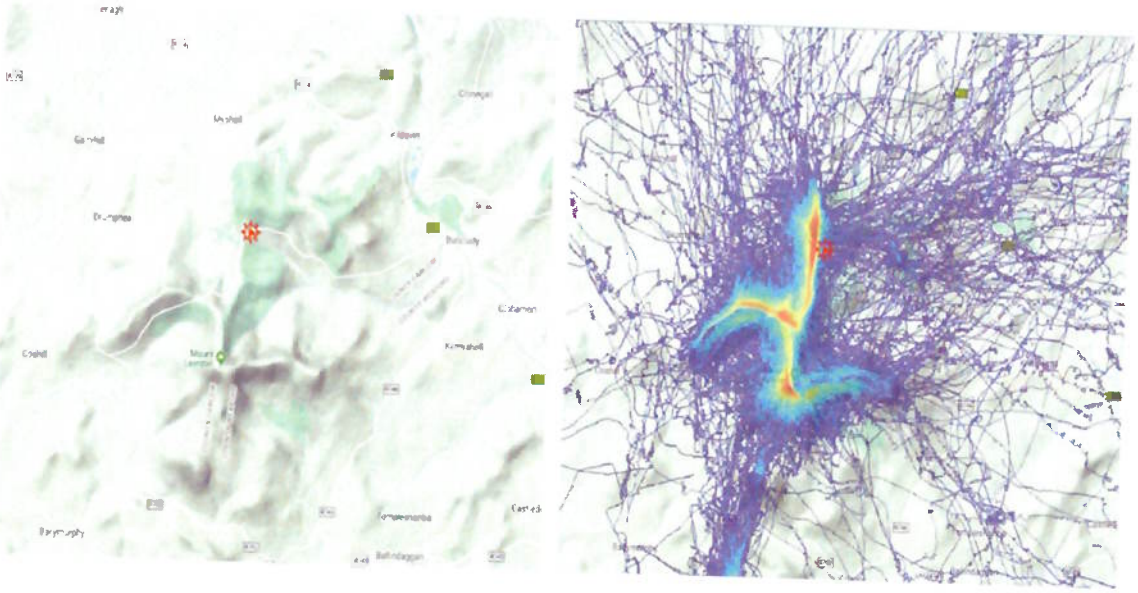
1. Ridge Soaring Flights

For ridge soaring turbine T3 is located c. 250.0 m from the ridge that pilots fly whilst ridge soaring. While the EIAR does not specify blade length, only tip height of up to 185 m. If a blade length of 70.0 m was assumed it would leave a separation distance between pilots and rotating wind turbine blades tip of c. 180.0 m. With a blade tip speed of c. 70 m. per second or 250 kph, it would not be safe to fly with this proximity to the turbine blades. The distance between the ridge and the turbines would not allow any margin for error if a pilot was blown back from the ridge during a soaring flight and would severely restrict pilots' ability to manoeuvre in front of the turbine when trying to keep their glider within the narrow band of rising air at the front and top of the ridge at this location and would severely restrict pilots' ability to manoeuvre in front of the turbine when trying to keep their glider within the narrow band of rising air at the front and top of the ridge at this location.

2. Cross Country Flights



The track logs above show pilots path through the proposed site, the clearance distances to the turbines and the turbulence generated by the turbines would prevent pilots from flying this site. Whilst many pilots would be above the turbines, hang gliders and paragliders frequently drop out of the thermal they are flying in and loose height and would end up in an area of severe turbulence. The map below should give you some indication of how well used this site is as a jumping off point for cross-country flights (NB – the red star indicates the launch site for hang gliders and paragliders for this part of Mt. Leinster / Croaghaun, and the blue lines represent the track logs of paragliders and hang gliders flying cross country.)



MITIGATION

The removal of turbine T3 from the planned development, or if it was moved c. 250 m in an easterly

direction, would allow pilots to safely continue using this important flying for soaring flights only.. The remaining turbines would still cause a hazard for cross-country flights.

Alternatively, the IHPA has proposed to the developer (Coillte) that a mitigation that would enable the proposed development and hang gliding and paragliding being able to co-exist would be an agreement between the IHPA and Coillte that would enable IHPA members who want to fly the site being able to request the wind turbines stop operating, this would only occur when the site would be suitable for hang gliding and paragliding.

To use the hang gliding and paragliding site at Croaghaun all of the below conditions need to be available:

1. It is daylight.
2. When it is not raining, foggy, snowing.
3. Wind is in a westerly direction.
4. Wind, approx. 4 - 10 m/s, in a westerly direction.

The IHPA believe that if the times when the above conditions are present are calculated it will show that the impact of stopping the turbines to allow hang gliding and paragliding will be very minimal. On many wind farms turbines are already stopped for: shadow flicker, noise, birds, bats, icing, mechanical loads and wind conditions, so there is no reason why this cannot be done to retain the recreational amenity of hang gliding and paragliding.

The agreement would allow IHPA members to request that the all the turbines are switched off to allow hang gliding and paragliding. This has been done by other hang gliding and paragliding associations to allow wind farms and hang gliding and paragliding to co-exist. The agreement would include a switch off and a switch on protocol, to minimise lost production from the wind farm.

The agreement would allow the wind farm development to proceed without affecting hang gliding and paragliding with only a very minimal output on production of the wind farm. Without the mitigation it will result in the loss of the recreational amenity and prevent the use of the site by paragliders and hang gliders.

The IHPA are available to discuss the development with Fehily Timony and the developer to establish an outcome where the IHPA can support the proposed development.

Yours Sincerely,

Pearse Cafferky,
IHPA Chairmain
chairman@ihpa.ie

From: Dept of Transport Tourism and Sport
To: Croaghaun Wind Farm
Subject: FW: Croaghaun Windfarm - Scoping and Consultation
Date: Thursday 19 December 2019 12:50:56
Attachments: Letter and Scoping Report.pdf

Hi,

Thank you for contacting the Department of Transport and Sport.

Your query falls under the remit of the Department of Communications. Climate Change and the Environment and they can be contacted at info@dccae.gov.ie.

Regards,

Margaret Ruddy
Customer Service

An Roinn Iompair, Turasóireachta agus Spóirt
Department of Transport, Tourism and Sport

Lána Liosain, Baile Átha Cliath, D02 TR60
Leeson Lane, Dublin, D02 TR60

T +353 (0)1 604 1140
Margaretruddy@dttas.gov.ie www.dttas.gov.ie

From: Croaghaun Wind Farm [mailto:croaghaunwindfarm@ftco.ie]
Sent: 18 December 2019 17:23
To: Trevor Byrne
Cc: Marie Geary
Subject: Croaghaun Windfarm - Scoping and Consultation

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie

From: FOI
To: Croaghaun Wind Farm
Subject: RE: Croaghaun Windfarm - Scoping and Consultation
Date: Thursday 19 December 2019 10:08:04

Dear Ms. Geary,

Thank you for your enquiry.

I wish to advise that this Office is established to process requests received under Part 1(n) of Schedule 1 of the Freedom of Information Act 2014 which states that An Garda Síochána is listed as a partially included agency "insofar as it relates to administrative records relating to human resources, or finance or procurement matters". Therefore, only administrative records that relate to human resources, finance or procurement shall be considered. HR records refer to personal records of staff working within An Garda Síochána. They also relate to statistical information in respect of the organisation, e.g sick leave, discipline, retirements, etc. Financial records relate to the financial expenditure of the organisation and procurement records relate to the contracting of services and the tendering process associated with same.

Therefore, this office will not be in a position to assist you with your enquiry.

Sent on behalf of Acting Assistant Principal, Maria Brodigan, Freedom of Information Officer.

Kind Regards,

Olivia Clarke,
Clerical Officer,
Freedom of Information Office,
An Garda Síochána,
Athlumney House,
Navan,
Co. Meath.

Tel: 046 9036350
Email: foi@garda.ie
Website: www.garda.ie

From: Croaghaun Wind Farm <croaghaunwindfarm@ftco.ie>
Sent: Wednesday 18 December 2019 17:23
To: Trevor Byrne <trevor.byrne@ftco.ie>
Cc: Marie Geary <marie.geary@ftco.ie>
Subject: Croaghaun Windfarm - Scoping and Consultation

Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary

for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie

From: Billing Support
To: Croaghaun Wind Farm
Subject: Croaghaun Windfarm - Scoping and Consultation [Incident: 191218-000087]
Date: Wednesday 18 December 2019 17:24:10

Response

Your query has been received; we endeavour to respond to all queries within 5 working days , Monday to Friday, during normal working times.

To help us track your email query we have assigned you this unique email reference number **191218-000087**

For immediate assistance, please call **1800 924 925, option 1**.

This is an automated response and there is no need to reply to this email

Kind regards,
Billing Support.

Subject

Croaghaun Windfarm - Scoping and Consultation

Customer By CSS Email (Croaghaun Wind Farm) (18/12/2019 17:24)
Dear Sir/Madam,

Please find attached Scoping letter and Report for the above named project.

Yours sincerely,
Marie Geary
for Trevor Byrne

Fehily Timoney and Company
Core House Pouladuff Road Cork Ireland T12 D773
Tel: +353 21 4969560
www.fehilytimoney.ie<http://www.fehilytimoney.ie%20/>

checking procedure. Fehily Timoney is registered in Ireland as a private company limited by shares. Registration No. 180497. Registered office: Core House, Pouladuff Road, Cork, Ireland

========== application File Attachment ==========
Letter and Scoping Report.pdf, 6633704 bytes, Added to incident

From: donotreply@comreg.ie
To: Croaghaun Wind Farm
Subject: Thank you for your email to ComReg Consumer Care
Date: Wednesday 18 December 2019 17:26:01

Dear Consumer,

I would like to acknowledge receipt of your email.

We endeavour to respond directly to all emails received within 24 hours.

Should you have any other queries or require any other assistance from ComReg please call our Consumer Care Team on 01 8049668.

Please do not respond to this email as the inbox is not monitored.

Kind Regards
ComReg Consumer Care Team

A Thomhaltóir,

Ba mhaith linn a admháil go bhfuarthas do ríomhphost.

Déanfaimid ár ndícheall teagmháil a dhéanamh leat istigh de 24 uair an chloig.

Má tá aon cheist agat nó má tá cabhair ag teastáil uait, is féidir leat glao a chur ar ár bhfoireann chúram tomhaltóra ar 01 8049668.

Mar eolas duit, ní dhéantar monatóireacht ar an mbosca isteach seo.

Le meas,

Foireann Chúram Tomhaltóra ComReg

From: hse-live@hse.ie
To: Croaghaun Wind Farm
Subject: Re: Croaghaun Windfarm - Scoping and Consultation
Date: Wednesday 18 December 2019 17:26:12

Is freaga uathoibríoch é seo chun a admháil go bhfuarthas do ríomhphost a seoladh chuig HSELive. Is seirbhís eolais ginearálta don phobal é seo a mhíníonn conas rochtain a fháil ar Scéimeanna agus Seirbhísí FnaSS.

Déanfaimid gach iarracht freagra a thabhairt ar do cheist laistigh de lá oibre amháin. Déantar monatóireacht ar an tseirbhís ríomhphoist ón Luan go Satharn taobh amuigh de laethanta saoire Bainc.

This is an automated response to acknowledge receipt of your email to HSELive. We are a general information service for members of the public on how to access HSE Schemes and Services.

We will endeavour to answer your email query in 1 working day. This email service is monitored Monday to Saturday excluding Bank Holidays.

FEHILY TIMONEY

30 YEARS

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 5.2

Scoping Report

FEHILY TIMONEY
30 YEARS

TO WHOM IT MAY CONCERN

Our Ref: P1913/Lett/TB/MG

12 December 2019

Re: Croaghaun Windfarm - Scoping and Consultation

Dear Sir or Madam,

Coillte intends to apply for planning permission to construct a wind farm in Croaghaun, Myshall, Co. Carlow. The proposed wind farm site and grid connection includes lands in the townlands of Aclare, Ardbearn, Ballaghmore, Ballinrush, Ballycurragh, Ballynunnery, Ballyveal, Bealalaw, Bendinstown, Cappawater, Cranemore, Croanruss, Emlicon, Gilbertstown, Kellistown East, Kellistown West, Killane, Kilbrannish North, Kilknock, Kilmaglush, Lasmaconly, Myshall, Raheenkillane, Raheenliegh, Rathtoe, Rossacurra, Rosslee, Shangarry, and Turtane.

This letter and enclosed scoping report are being issued to you as part of the consultation process for the Environmental Impact Assessment Report (EIAR). We would be interested in receiving any comments or observations you may have on the proposed development, relevant to your area of expertise.

Comments can be submitted by email to croaghaunwindfarm@ftco.ie by the 07th of February 2020. If you have no comments to make, I would be grateful if you would please acknowledge receipt of this letter.

Yours faithfully,

Trevor Byrne
for and on behalf of **Fehily Timoney and Company**

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

Encl.

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

FEHILY TIMONEY
30 YEARS

Appendix 1: EIAR Scoping Report

COILLTE

CROAGHAUN WIND FARM ENVIRONMENTAL IMPACT ASSESSMENT REPORT SCOPING REPORT

DECEMBER 2019

coillte

FEHILY TIMONEY
30 YEARS

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1 INTRODUCTION

1.1 General

1.1.1 Introduction

Coillte intends to apply for planning permission to construct a wind farm in Croaghaun, Myshall, Co. Carlow. The proposed wind farm site and grid connection includes lands in the townlands of Aclare, Ardbearn, Ballaghmore, Ballinrush, Ballycurragh, Ballynunnery, Ballyveal, Bealalaw, Bendinstown, Cappawater, Cranemore, Croanruss, Emlicon, Gilbertstown, Kellistown East, Kellistown West, Killane, Kilbrannish North, Kilknock, Kilmaglush, Lasmaconly, Myshall, Raheenkillane, Raheenliegh, Rathtoe, Rossacurra, Rosslee, Shangarry, and Turtane

A site location map is presented in Figure 1.1. The proposed windfarm site is covered by managed coniferous forestry and agricultural land. The site also has a walking trail and associated car park at the southern extent.

1.1.2 The Proposed Development

The proposed development will comprise of up to 7 no. wind turbines with a tip height of up to 185m, turbine foundations and hardstanding areas, new access tracks and upgrading of existing access tracks, 1 no. on-site substation including control buildings, underground electrical and communications cabling, borrow pits, drainage and sediment controls, temporary site compound, tree felling and associated works and a potential expansion of the existing Kellistown substation should this be selected point of connection to the National Grid. Further details on the proposed development including turbine delivery route and grid connection route are provided in Section 2.

At present there are currently two proposed layouts for the development which are being assessed. These are referred to as 'Option 1' and 'Option 2'. Option 1 contains 7 no. turbines and is shown in Figure 1.2 while Option 2 contains 6 no. turbines and is shown in Figure 1.3. The final layout will be confirmed through consultation.

1.1.3 The Applicant

The applicant for the proposed project will be Coillte. Coillte has been at the forefront of Irelands effort in meeting its binding national commitments on combatting climate change and de-carbonising the economy since 1990. Coillte intends to support this effort by making suitable lands available for renewable energy. Land which is owned by Coillte has supplied nearly one third of all wind farms in Ireland

Experience by Coillte directly include the development of the following wind farms with the megawatt (MW) output listed in brackets:

- Castlepook Wind Farm, Co. Cork (33.1 MW)
- Cullenagh Wind Farm, Co. Laois (45 MW
- Bunkimalta Wind Farm, Co. Tipperary (46.5 MW)
- Galway Wind Park, Co. Galway (169 MW)
- Raheenleagh Wind Farm, Co. Wicklow (35.2 MW)
- Sliabh Bawn Wind Farm, Co. Roscommon (58 MW)

1.2 Planning Process for the Proposed Development

The proposed development will be submitted for planning under the Planning and Development Regulations to the relevant local authority, Carlow County Council. We are currently assessing a proposed grid route which is entirely within County Carlow. If the grid route changes and passes through land outside of county Carlow an application will be made to the relevant Planning Authority, however this is unlikely to occur.

1.3 Environmental Impact Assessment and the Function of the EIAR

Pursuant to Section 172 of the Planning and Development Act, as amended, a planning application for a development which comes within a class of development specified under Schedule 2 of Part 5 of the Planning and Development Regulations must be accompanied by an Environmental Impact Assessment Report in accordance with the 2014 EIA Directive. Given that the project proposes more than 5 turbines and will have a generating capacity of greater than 5MW an Environmental Impact Assessment Report (EIAR) will be submitted with the planning application. An EIAR is a report or statement of the effects, if any, which the proposed project, if carried out, would have on the environment.

The purpose of the EIAR will be to provide a detailed description of the proposed development and outline potential impacts associated with the construction, operation and decommissioning of the wind farm. Where adverse impacts have been identified, mitigation measures are proposed.

1.4 Purpose of Scoping

The purpose of the EIAR scoping process is to identify the issues which are likely to be important during the environmental impact assessment and to eliminate those that are not. The scoping process will identify the sources or causes of potential environmental effects, the pathways by which the effects can happen, and the sensitive receptors, which are likely to be affected.

The issues identified in the scoping process will be examined in the EIAR, any potential impacts will be quantified, mitigation measures proposed as required, and residual impacts described. The scoping process will also identify the appropriate level of detail for the information to be provided in the EIAR. Scoping will be carried out through the issue of this report or a detailed letter with co-ordinates[1] to statutory and non-statutory consultees listed in Appendix 1. Consultees are invited to contribute to the EIAR by suggesting baseline data, survey methodologies and potential impacts that should be considered as part of the impact assessment process and in preparation of the EIAR.

Comments on the scope of the EIAR can be submitted by email to croaghaunwindfarm@ftco.ie by the 07th of February 2020.

1.5 Contributors to the EIAR

This Scoping Report has been prepared by Fehily Timoney and Company (FT) on behalf of Coillte. FT is a consultancy based in Cork, Dublin and Carlow specialising in civil and environmental engineering, environmental science and planning, and is well established as a leading consultancy in wind farm development in Ireland.

[1] Letter with co-ordinates sent to companies or bodies relating to telecommunications or aviation

FT will prepare a planning application and accompanying Environmental Impact Assessment Report for submission to the planning authority, Carlow County Council.

Key specialist contributors to the EIAR process include:

- Macroworks who will prepare the landscape and visual impact assessment; and
- John Cronin & Associates who will prepare the Cultural Heritage assessment;
- Gridconnect shall act as the project team electrical specialist.

1.6 Consultation

Public consultation on the project and engagement with the local community is ongoing in the form of door to door consultations with local residents by Coillte staff. Community consultation events in the form of walk-in information evenings and technical workshops have also been carried out and will continue throughout the project. .

The community liaison strategy will be based around engaging with the local community in an open, honest and transparent manner with the aim to not only provide clear and understandable information but also to gain feedback to understand the views of the local community and to use this information to inform the design process, thus allowing the local community an opportunity to have an influence on the final project design.

A Community Liaison Officer (CLO) has been appointed as the point of contact for the area.

At all stages of engagement there will be a flexible approach to facilitating the timing of calls/meetings. Feedback from the one-to-one meetings will be passed on to the project design team on an ongoing basis so as to allow the feedback from this engagement to inform the design process. Where areas of concern or interest are expressed, every effort will be made to not only provide accurate information but also to guide the individuals concerned towards sources of accurate information. As the design process progresses one-to-one meetings will be ongoing with update leaflets/newsletters distributed in the local area to provide clear information on the main aspects of the project as it evolves.

At all stages of the community engagement process, contact details in the form of a contact phone number and email address for enquiries are distributed.

A project website has been set up: https://croaghaunwindfarm.ie.

1.7 Pre-Planning Meetings

A pre-planning meeting will be held with Carlow County Council to discuss the project.

BALTINGLASS

AUGHRIM

CARLOW

CASTLECOMER-DONAGUILE

TULLOW

MUINEBEAG

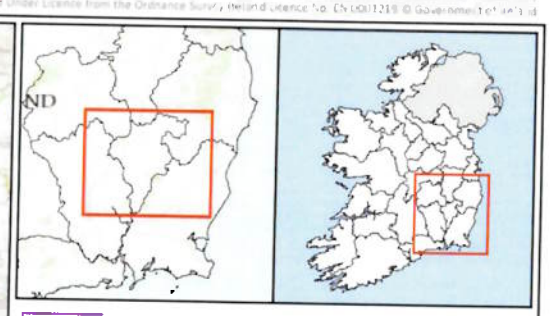
KILKENNY BOROUGH

KILKENNY

BUNCLODY-CARRICKDUFF

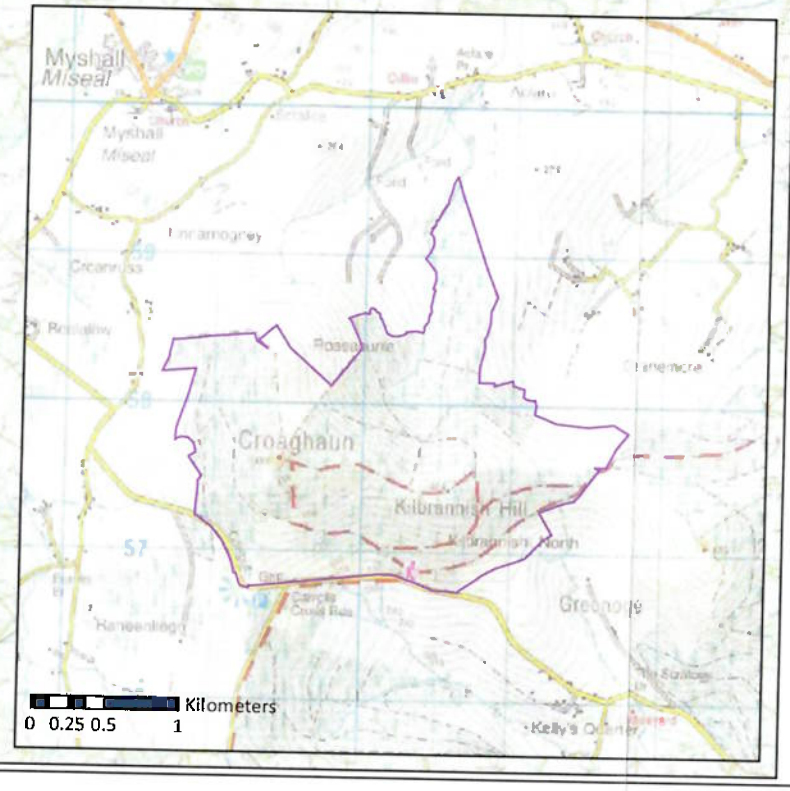
GRAIGUENAMANAGH-TINNAHINCH

THOMASTOWN



Study Area Boundary

County Carlow Boundary



Kilometers
0 1 2 4

TITLE:	Site Location		
PROJECT:	Croaghaun Wind Farm		
FIGURE NO:	1.1		
CLIENT:	Coillte		
SCALE:	1:200000	REVISION:	0
DATE:	17/10/2019	PAGE SIZE:	A3

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

TITLE:	Site Layout
PROJECT:	Croaghaun Wind Farm
FIGURE NO:	1.2
CLIENT:	Coillte
SCALE: 1:12500	REVISION: 0
DATE: 17/10/2019	PAGE SIZE: A3

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

- Indicative Turbine Locations (Option 2)
- Indicative Access Tracks
- Study Area Boundary
- Proposed Substation Compound

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

TITLE:	Site Layout (Option 2)		
PROJECT:	Croaghaun Wind Farm		
FIGURE NO:	-		
CLIENT:	Coillte		
SCALE:	1:7500	**REVISION:**	0
DATE:	17/10/2019	**PAGE SIZE:**	A1

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

N
W E
S

0 0.25 0.5 1 Kilometers

2 PROJECT DESCRIPTION

2.1 Proposed Infrastructure

The proposed development will comprise of up to 7 no. wind turbines with a tip height of up to 185m, turbine foundations and hardstanding areas, new access tracks and upgrading of existing access tracks, 1 no. substation including control buildings, underground electrical and communications cabling, drainage and sediment controls, temporary site compound, tree felling and associated works.). A preliminary site layout is presented in Figure 1-2.

The wind farm will have a defined planning boundary which will include not only the turbines themselves but also the ancillary infrastructure listed above.

The electricity generated by the proposed wind farm will be transmitted by a collector system of underground cables to the proposed onsite substation. The proposed development will also comprise underground cables from the wind farm to the National Grid connection point as well as improvements to the public road network for the delivery of turbine components.

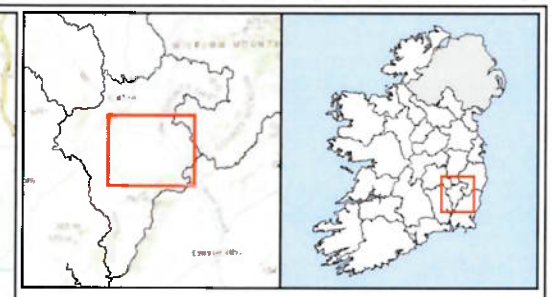
2.2 Grid Connection

Impacts associated with the proposed grid connection will be assessed as part of the project and the results presented in the EIAR.

Following studies carried out to date, the preferred point of connection substation is the existing 220/110kV substation at Kellistown via underground cable. The route to the Lodgewood 110kV substation which was also identified will not be considered for further assessment within the EIAR. As a result, the proposed grid connection route to the Kellistown 220/110kV substation will be assessed within the EIAR.

The proposed grid connection route will primarily follow the route of the existing public road between the proposed wind farm site and the 220/110kV substation at Kellistown. The proposed grid connection route is shown in Figure 2.1 with possible variants to the route. The proposed grid connection will pass through the following townlands:

Bealalaw, Turtane, Kellistown West, Rossacurra, Shangarry, Myshall, Croanruss, Ballinrush, Lasmaconly, Ballaghmore, Raheenkillane, Kilknock, Kilmaglush, Cappawater, Ballyveal, Killane, Rosslee, Ballynunnery, Rathtoe, Ardbearn, Ballycurragh, Kellistown East, Gilbertstown, Bendinstown, Emlicon, Aclare.



- Indicative Turbine Locations
- Kellistown Substation
- Study Area Boundary
- Proposed Substation Compound
- Proposed Grid Connection Route
- Variant along Grid Connection Route for Study

TITLE:	Proposed Grid Connection Route		
PROJECT:	Croaghaun Wind Farm		
FIGURE NO:	2.1		
CLIENT:	Coillte		
SCALE:	1:60000	**REVISION:**	0
DATE:	17/10/2019	**PAGE SIZE:**	A3

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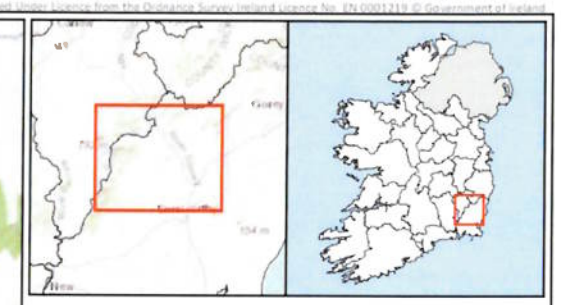
N W E S 0 0.5 1 2 Kilometers

2.3 Turbine Delivery

A number of components will enter the country through the ports including the blades, tower sections and the nacelles. The turbine components will be delivered to site by specialist transport vehicles and these components will then be assembled on site.

The turbine delivery route is to be decided in the assessment of the EIAR. A preliminary swept path analysis has been undertaken on a potential access route from the N80 to the site entrance at Kilbrannish. The delivery route from the chosen port into which the components are shipped, to the wind farm site will use motorway and the national primary route network as much as possible.

The proposed turbine delivery route is shown in Figure 2-2.



- Indicative Turbine Locations
- Proposed Site Entrance
- Proposed Turbine Delivery Route
- Proposed Substation Compound
- Study Area Boundary

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

TITLE:	Proposed Turbine Delivery Route		
PROJECT:	Croaghaun Wind Farm		
FIGURE NO:	2.2		
CLIENT:	Coillte		
SCALE:	1:75000	**REVISION:**	0
DATE:	17/10/2019	**PAGE SIZE:**	A3

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2.4 Site Location and Description

The proposed development is located in east County Carlow, within the townlands of Aclare, Bealalaw, Cranemore, Kilbrannish North, Raheenliegh and Rossacurra. The identified site is located at Croaghaun Mountain, the northern-most peak of the Blackstairs Mountains, located north of Mount Leinster, approximately 2km from the Wexford County Border. The site is covered by managed coniferous forestry, sections of peat bog and a small area of agricultural land at the south of the site. The site also has a series of walking trails and associated car park at the southern extent.

The site is located in a rural area with no major settlements nearby. The village of Myshall is the most proximate settlement located 1.5km north west of the site, the village of Kildavin is located approximately 4km north east of the site and the district town of Bunclody is located approximately 5.5km east of the site. The R724 regional route is located to the north of the site and the N80 national secondary route is located to the east of the site. The River Clody runs to the south of the site and drains into the River Slaney located east of the site. The most proximate substation to the site is located at Bunclody, a 38kV substation, approximately 8km east of the site.

Settlement in the area is made up of one-off rural housing and farm yards generally located along the road network of the area (Linear settlement pattern). Clusters of dwellings are focused on the local villages of Myshall and Kildavin, and the district town of Bunclody. According to the 2016 census, Myshall has a population of 284, Kildavin has a population of 184, and Bunclody has a population of 1,984. A house survey was carried out in July 2019 which recorded over 190 no. houses in the surrounding area of the proposed wind farm. This survey noted that houses are primarily placed in clusters and linear settlement patterns.

3 PLANNING AND POLICY CONTEXT

The Croaghaun Wind Farm has been proposed in response to European and Irish Government Policies in relation to renewable energy. The European, National, Regional and Local planning and policy context for the proposed Croaghaun Wind Farm will be addressed with reference to the Carlow County Development Plan 2015-2021 and other plans and policies, Regional Planning Guidelines and National Guidelines.

The EU Directive on the Promotion of the Use of Energy from Renewable Sources (2009/28/EC) sets a target of 20% of EU energy consumption from renewable sources by 2020 and a 20% cut in greenhouse gas emissions by 2020, the so-called 20:20:20 plan. As part of this Directive, Ireland's overall national target for the share of energy from renewable sources in gross final consumption of energy in 2020 is 16% (increased from 3.1% in 2005). The EU published revised targets which were introduced as a Directive (2018/2001/EU) under The Renewable Energy – Recast to 2030 Directive (RED II). The new and binding EU target is 32% renewable energy by 2030. This agreement will help the EU meet the Paris Agreement goals.

This means that Ireland has a legal obligation to diversify its energy sources by 2020 and 2030 requiring the development of renewable energy to avoid substantial fines. The Department of Public Expenditure and Reform (DPER) *'Future Expenditure Risks associated with Climate Change/Climate Finance'* (June 2014) estimate that the cost to Ireland for a shortfall in the range of 1% to 4% on the overall 2020 target could result in costs to the Exchequer of between €140m to €600m.

Recently the Irish Government published a Climate Action Plan (CAP) in June 2019. The CAP resulted from the Irish Government declaring a climate and biodiversity emergency on 9th May 2019. The CAP identifies how Ireland will achieve its 2030 targets for carbon emissions throughout various sectors with a number of actions. Key actions identified for electricity include:

- Increase reliance on renewables from **30% to 70%** adding 12GW of renewable energy capacity (with peat and coal plants closing).
- Put in place a coherent support scheme for micro-generation with a price for selling power to the grid.
- Open up opportunity for community participation in renewable generation as well as community gain arrangements.
- Streamline the consent system, the connection arrangements, and the funding supports for the new technologies on and off shore.

When planning for the development of renewable energy on a national scale it is important to be cognisant of hierarchical structure of plans within which Irish planning policy sits. At a national scale the National Planning Framework, demonstrates an approach that joins up ambition for improvement across the different areas, recognising the need for new energy systems and transmission grids in order to deliver a more distributed, renewable focused national energy system in order to harness the potential from wind, wave and solar energy sources.

In the context of the Southern region, RPO 95 acknowledges the potential to harness renewable energy across the region where:

> *"It is an objective to support the sustainable development of renewable wind energy (on shore and off shore) at appropriate locations and related grid infrastructure in the Southern Region in compliance with national Wind Energy Guidelines"*

A key planning policy document against which the proposed development is to be assessed is the Carlow County Development Plan, 2015 to 2021 (CCDP). The CCDP sets out an overall strategy for the proper planning and sustainable development of County Carlow over the period between 2015 and 2021. It provides a clear vision, strengthened by a series of policies and objectives which aim to guide the planning and development of the County.

The Carlow Wind Energy Strategy (WES) identifies part of the site as being in an area "Open to Consideration" for wind energy development. The Strategy states:

"The Mount Leinster/ Blackstairs area is not included as a Preferred Area because of its value for tourism and the high quality of the scenery. Likewise, elevated lands near Hacketstown-Eagle and Constable Hills are important scenic and landmark resources for the County".

Some key Development Management principles to support the scheme are set out in Section 1.6.3;

"Minimising the number of turbines by using the largest possible model (subject to the visual absorption capabilities and environmental considerations of the site) rather than numerous small ones.

Given the dispersed and low population density in the County, it is unlikely that noise will represent a problem or a source of local objection".

The WES provides a high-level summary of the receiving environment and specific sensitive receptors. The nearby settlements of Myshall and Kildavin are important to consider, and some of the most sensitive aspects in the Wind Energy Strategy are listed as the recognised scenic routes and views and prospects, particularly scenic routes 10, 11, 12, 16 and viewpoints 31-39 and 41, 42, 43. Due to the relatively low-lying nature of the landscape, and the elevated views from within the Blackstairs including Mount Leinster, many other areas experience views where the site ridgelines are a focal point and therefore appropriate turbine layout and scale will be critical to minimise impact.

The Landscape Character Type is defined as Uplands according to Map 16 of the Landscape Character Assessment, the site has a Landscape Sensitivity rating of 5 (Most) according to Figure 4 of the Landscape Character Assessment. This sensitivity rating is given to all uplands areas.

The WES identifies the landscape carrying capacity of the Mount-Leinster-Blackstairs landscape character area as being low due to its unique scenic and wilder area. However, as it is an extensive area, assimilating wind development would be influenced by site specific locations and degree to which visual and environmental impact could be mitigated.

Some key Development Management principles that will need to be addressed as set out in Section 1.6.3 include.

"Siting the wind farm, ancillary structures, access roads and transmission infrastructure to complement the natural landform, contours and landform boundaries including ridgelines.

Minimising the stripping of vegetation and using advanced tree planting where feasible as visual buffers."

There are four Nordex N60 turbines adjacent the site at Greenoge.

Permission was granted in 2008 (PL Ref. 08/527) for a two-turbine extension to the existing Greenoge Wind Farm this was subsequently superseded by consent (11/208) for a single Nordex N90 turbine which has been constructed with a hub height of 80m and a rotor diameter of 90m.

Permission was granted for a further single wind turbine 900m east of the site boundary (15/87) consisting of a hub height of up to 65m and a rotor diameter of up to 55m with overall tip height not exceeding 92.5m.

Permission was granted on the subject site for a 7-turbine development (Pl Ref. 03/180; ABP Ref. PL01.203283) in 2003. ABP Condition of planning restricted the overall tip height of the turbines to 87m.

4 STRUCTURE AND SCOPE OF THE EIAR

4.1 Contents of the EIAR - Statutory Requirements

The EIAR will be prepared in accordance with Schedule 6 of the Planning and Development Regulations 2001, as amended, which sets out the contents of an EIAR. In addition, the contents of Directive 2014/52/EU, which was adopted in the EU on 16 April 2014, amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment will also be incorporated in the preparation of this EIAR (the 2014 EIA Directive).

The purpose of the EIAR is to provide in particular:

a) a description of the project comprising information on the site, design, size and other relevant features of the project;
b) a description of the likely potential significant effects of the project on the environment;
c) a description of the features of the project and/or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;
d) a description of the reasonable alternatives studied by the developer, which are relevant to the project and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the project on the environment;
e) a non-technical summary of the information referred to in points (a) to (d); and
f) any additional information relevant to the specific characteristics of the wind farm project proposed.

Article 3 of the 2014 EIA Directive states that an "environmental impact assessment shall identify, describe and assess in an appropriate manner, in the light of each individual case, the direct and indirect significant effects of a project on the following factors:

(a) population and human health;
(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC and Directive 2009/147/EC;
(c) land, soil, water, air and climate;
(d) material assets, cultural heritage and the landscape;
(e) the interaction between the factors referred to in points (a) to (d)"

The 2014 Directive terminology for the report produced as part of EIA is an Environmental Impact Assessment Report (EIAR).

4.2 EIAR Methodology

4.2.1 General

The EPA has published guidelines on the preparation of environmental impact statements. These are contained in *'Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)'*[2], published in 2003 and *'Guidelines on the Information to be contained in Environmental Impact Statements'* [3]published originally in 2002, but revised in Draft format in 2015 and 2017. The EIAR team will have regard to these guidelines in the preparation of the EIAR. In addition, the EIAR will be completed in accordance with the guidance produced by the European Commission in 2017 – *Guidance on the Preparation of the Environmental Impact Assessment Report (Directive 2011/92/EU as amended by 2014/52/EU).* The team will also have regard to best practice guidance for individual environmental topics.

Regard will also be paid to the *'Best Practice Guidelines for the Irish Wind Energy Industry'* published by the Irish Wind Energy Association and the *'Wind Energy Development Guidelines'* published by the Department of Environment, Heritage and Local Government (2006) or the latest adopted revision at the time of application.

There are two different EIAR structures which are commonly used and which the EPA guidelines accept as equally valid. The structure, which the EIAR team proposes to use for the EIAR for the proposed Croaghaun Wind Farm, is the grouped format structure.

Using this structure there is a separate chapter for each topic, e.g. air quality, Biodiversity, hydrology. The description of the existing environment, the proposed development and the potential impacts, mitigation measures and residual impacts are grouped in the chapter. The grouped format makes it easy to investigate topics of interest and facilitates cross-reference to specialist studies.

Given the need to ensure that the EIAR is readily accessible to the general public, as well as to the statutory authorities, the EIAR team has proposed to structure the EIAR as described below:

- Non-technical Summary
- Introduction
- Description of the Development
- Policy and Legislation
- EIAR Scoping and Consultation
- Air Quality and Climate
- Landscape and Visual
- Shadow Flicker
- Noise and Vibration
- Traffic and Transportation
- Biodiversity
- Land, Soils, Geology and Slope Stability
- Hydrology & Water Quality

[2] EPA (2003), *Advice Notes on Current Practice (in the preparation of Environmental Impact Statements)* Available at: https://www.epa.ie/pubs/advice/ea/guidelines/EPA_advice_on_EIS_2003.pdf

[3] EPA (2002) *Guidelines on the Information to be contained in Environmental Impact Statements*, available at: https://www.epa.ie/pubs/consultation/reviewofdrafteisguidelinesadvicenotes/Draft%20Guidelines%20on%20the%20Information%20to%20be%20contained%20in%20an%20EIS.pdf

- Population, Human Health & Material Assets
- Archaeology, Architecture and Cultural Heritage
- Telecommunications and Aviation
- Interactions of the Foregoing

4.2.2 EIAR Chapter Structure

The broad methodology framework used in each chapter will include the following:

- Introduction
- Methodology
- Existing Environment
- Potential Impacts
- Mitigation Measures
- Residual Impacts

Introduction
This section introduces the environmental topic to be assessed and the areas to be examined within the assessment.

Methodology
Specific topic related methodologies are outlined in this section. This will include the methodology used in describing the existing environment and undertaking the impact assessment. It is important that the methodology is documented so that the reader understands how the assessment was undertaken. This can also be used as a reference if future studies are required.

Existing Environment
An accurate description of the existing environment is necessary to predict the likely significant impacts of a new development. Existing baseline environmental monitoring data can also be used as a valuable reference for the assessment of actual impacts from a development once it is in operation.

To describe the existing environment, desktop reviews of existing data sources will be undertaken for each specialist area relying on published reference reports and datasets to ensure the objectivity of the assessment. Desktop studies are also supplemented by specialised field walkovers or studies in order to confirm the accuracy of the desktop study or to gather more baseline environmental information for incorporation into the EIAR.

The existing environment will be evaluated to highlight the character of the existing environment that is distinctive and what the significance of this is. The significance of a specific environment can be derived from legislation, national policies, local plans and policies, guidelines or professional judgements. The sensitivity of the environment will also be described.

Potential Impacts

In this section, individual specialists predict how the receiving environment will interact with the proposed development. The full extent of the proposed development's effects and emissions before the proposed mitigation measures are introduced is outlined. Impacts from both the construction and operation phases of the proposed development are outlined. Interactions and cumulative impacts with other environmental topics are also included in this evaluation.

The evaluation of the significance of the impact is also undertaken. Where possible, pre-existing standardised criteria for the significance of impacts will be used in accordance with the guidelines set out in the EPA (2015) Draft Guidelines on the Information to be contained in Environmental Impact Statements. However, until the 2014 Directive is implemented, the 2002 Guidelines and their criteria need to be used. Such criteria can include Irish legislation, international standards, European Commission and EPA guidelines or good practice guidelines. Where appropriate criteria do not exist the assessment methodology section states the criteria used to evaluate the significance.

Mitigation Measures

If significant impacts are anticipated mitigation measures will be devised to minimise impacts on the environment. Mitigation measures by avoidance, by reduction and by remedy can be outlined.

Residual Impacts

The assessment identifies the likely impact that will occur after the proposed mitigation measures have been put in place. These impacts are described in detail and assessment of their significance undertaken.

4.2.3 EIAR Report Structure

The structure proposed for the EIAR is as follows:

Volume 1 - Non-Technical summary (including figures)
Volume 2 - Main EIAR
Volume 2B – Figures
Volume 3 - Appendices for the EIAR
Volume 4 – Photomontages

4.2.4 EIAR Draft Table of Contents

The draft EIAR Table of Contents is attached in **Appendix A.**

5. ENVIRONMENTAL ISSUES TO BE ADDRESSED IN THE EIAR

5.1 Introduction

The EPA Advice Notes provide guidance on the topics which would usually be addressed when preparing an EIAR for different classes of development. The Advice Notes highlight typical issues, which would arise for each development class. Project Type 33 is 'installations for harnessing wind power for energy production (wind farms)'. The scope of the EIAR will have regard to the guidance provided on the issues to be addressed for a Project Type 33.

The EIAR will also have regard to any environmental impact assessments, which have been undertaken recently by Carlow County Council for wind farm projects which will be included within the Introduction to this project.

5.2 Background to the Project

The EIAR will summaries International, European, National and Local Energy and Planning Policy, the challenges associated with Climate Change and the related need for the proposed development.

5.3 Alternatives Considered

The alternatives, which were considered, when developing the overall configuration of the proposed Croaghaun Wind Farm, will be described and the technology options for the project will be outlined in Chapter 1 Introduction and Project Rationale.

The principle alternatives studied with respect to the wind farm will be outlined under the following headings:

- *Locations* – This will include a discussion of the overall site selection process for the wind farm on a national, regional and local scale. It will include a site selection report which will be included in the EIAR outlining details of the criteria used to determine site suitability for wind energy development including:
    - Wind resource;
    - Proximity to residential dwellings;
    - Land Zoning in County Development Plans;
    - Established and Future Land-Use;
    - Ecological Conservation Designations;
    - Landscape Designations; and
    - Ease of Access etc.

- *Access* – Details of the criteria used to select the network of access tracks that will provide access from the public road network to the site (and to each turbine within the site) in addition to those that will provide internal connections (as an alternative to using public roads) between turbines will be outlined. This will include information on the availability of existing track, suitable ground conditions, terrain, local road infrastructure etc.

- *Connection to the National Grid* – Details of the criteria used to select the proposed grid connection route to the Kellistown 110kV substation will be provided. This will include an assessment of alternative grid connection route options.

The reasons, including environmental and plan-led considerations will be explained.

5.4 Scheme Description

The EIAR will describe the baseline environment, potential impacts, mitigation measures and residual impacts for each specific environmental topic.

A description of the proposed grid connection route will be included in the EIAR, with information provided on trench-details and the construction methodology to be utilised.

In a judgement in 2014, O'Grianna v. An Bord Pleanála, Cork County Council and Framore Limited, it was ruled that all planning permission should not be granted for a wind farm project requiring a grid connection unless the grid connection details are provided in the Environmental Impact Assessment (EIA) process.

Arising from this it is essential that the details of this project and its proposed grid connection should be provided in the EIA process, this will be set out in the Description of Development in detail in Chapter 2, while Chapter 1 will provide a detailed assessment of alternatives considered in relation to the preferred grid connection route.

The operating procedures and hours, staffing, monitoring, maintenance requirements, and the provision for decommissioning of the proposed Croaghaun Wind Farm will also be outlined.

If planning permission is secured for the proposed development, tree felling, site preparation works, upgrading of existing access tracks and the provision of new access tracks will be commenced. Drainage infrastructure will be constructed in parallel with the track construction. This will be followed by the construction of the turbine foundations and the provision of the hardstanding areas, although some hardstanding areas will be constructed in parallel with the access tracks so that excavated stone can be used to construct the access tracks. In parallel with these works the on-site electrical works; sub-station and internal cable network; will be completed. The cable from the wind farm site to the proposed grid connection point at Kellistown substation will then be laid underground, primarily along public roads. Any works required to the public road network to facilitate turbine delivery will also be carried out.

5.5 Construction Activities

The wind farm site will have a defined planning boundary to include not only the turbines themselves but all ancillary infrastructure such as transformers and crane hardstanding areas at each turbine, borrow pits, new and upgraded site tracks, on-site underground cabling and an on-site substation with toilet facilities. Details on all of these elements will be provided within the EIAR.

Information will be provided on the following aspects of the construction of the wind farm:

- Construction programme
- Construction sequence and methodology
- Drainage control measures
- Temporary site facilities
- Site preparation works
- Access road construction and upgrade
- Borrow pits and reinstatement works
- Cable installation on site
- Turbine foundation and associated hardstanding area construction
- Turbine delivery and installation
- Commissioning

The control measures that will be implemented to manage the risk of soil and water pollution, emissions of dust and noise, construction waste management and traffic impacts will be explained.

5.6 Consultation Programme

Stakeholders, including national and local regulatory bodies, Government agencies, environmental NGOs and the general public will be provided with information on the project and asked for their comments and concerns. A list will be provided in the EIAR of the bodies consulted and a summary will be provided of the queries and concerns expressed and in what section of the EIAR these queries, and concerns are addressed.

5.7 Environmental Aspect: Population & Human Health (Human Beings)

5.7.1 Aspects to be addressed

Health and Safety
The potential impacts on health and safety from wind farms will be assessed.

Population
The impact on the local population and demographics will also be assessed.

Land Use and Recreation
The assessment will address the potential impacts of the proposed Croaghaun Wind Farm on land use, residential amenity and recreational facilities.

Socio-Economics
The potential impacts of the proposed Croaghaun Wind Farm on population trends, employment and the main economic activities of the region and property values will be addressed in this chapter.

Tourism
The assessment will address the potential impacts of the proposed wind farm on the tourism of the region.

Material Assets
The assessment will address the potential impact on physical infrastructure, such as roads, pipelines, railways and ports.

5.7.2 Assessment Methodology

Health and Safety
The assessment will contain a desk study review of the impacts of the operation of wind turbines on health and safety using published and verified sources of information.

Land Use and Recreation
The main land uses in the area, which could potentially be affected by the proposed Croaghaun Wind Farm, will be described using Corine 2006 & 2018 land cover data and this data will be verified by subsequent walkovers and drive-by surveys. All areas of scenic beauty in addition to heritage, culture and leisure facilities in the areas will be identified. A review of the main recreational activities in the area likely to be affected will be conducted. Residential amenities and recreational facilities, such as forestry in public ownership, walking paths, sports facilities, will be recorded and potential impacts assessed.

An assessment will then be conducted for each element of the proposed Croaghaun Wind Farm to ascertain any potential impacts that may arise which could directly or indirectly affect land use, a recreational activity or an amenity. This assessment will be prepared giving cognisance to other disciplines such as cultural heritage and archaeology, hydrology and ecology.

A review will be conducted of a number of published studies and surveys which have been conducted both in Ireland by Fáilte Ireland and in the UK on the attitude of tourists to wind farms.

Population
CSO data will be interrogated to establish population and demographic trends in the area with regard to local population. It will examine the impact on population densities, having regard to housing trends and housing settlement strategies for the area.

Socio-Economics
Data from the Central Statistics Office will be used to define the socio-economic baseline. The potential positive and negative impacts of the proposed Croaghaun Wind Farm on population, employment and economic activity both directly and indirectly, will be assessed.

Tourism
A study of the potential impacts of the wind farm may have on the tourism of the region will be carried out by reviewing Fáilte Ireland surveys, appraising the existing patterns of the tourism within the county and appraising the impacts that wind farms have on tourism in other counties and countries.

Material Assets
The physical infrastructure, which could potentially be affected by the proposed wind farm development, will be catalogued and capacities estimated. All utilities services will be identified and mapped for the proposed wind farm site and an assessment will be carried out to determine if any service needs to be diverted/ relocated. This process will be carried out in consultation with the service provider with the proposed mitigation measures to be agreed by both parties.

5.7.3 Receiving Environment

Health and Safety
Receptors within the vicinity of the proposed Wind Farm will be assessed relative to the location of the turbines. There are 11 no. receptors within 500m of the site boundary. The distance of these receptors from individual turbines will be assessed in greater detail in the EIAR.

Land Use and Recreation
The general receiving environment is rural in nature and is located at Croaghaun Mountain, the northernmost peak of the Blackstairs Mountains. The site is covered by managed coniferous forestry, sections of peat bog and a small area of agricultural land at the south of the site. The site also has a walking trail and associated car park at the southern extent.

Population
The site is located in a rural area with no major settlements nearby. The village of Myshall is the most proximate settlement located 1.5km north west of the site, the village of Kildavin is located approximately 4km north east of the site and the district town of Bunclody is located approximately 5.5km east of the site.

Socio-Economics
There are 61 no. receptors located within 1km of the proposed turbine locations. Receptors will also be assessed for properties within 2km of the proposed site boundary.

Material Assets
The site lies c. 16km south east of the motorway M8 at Carlow and 4km west t of the national road N80 linking Bunclody and Kildavin. Power lines at various voltages cross the area and water mains are present in the vicinity of towns and villages.

5.7.4 Potential Impacts

Health and Safety
It is anticipated that the proposed Croaghaun Wind Farm is not likely to have a potential significant impact on human health and safety.

Land Use and Recreation
The wind farm will require land take for the access tracks, wind turbines bases and adjacent hard-standings and sub-station footprints. The current land uses will continue other than within this land take.

Potential construction impacts from the grid connection cables include full or partial closure of roads used to access amenities, sports and recreational facilities within the area, while the cables are being installed. There may be disruption to access routes and walking paths, which are adjacent to the rivers and streams however any disruption will be mitigated where possible by maintaining access for people throughout, and where this is not possible, in minimising the impact, clearly communicating the timing and scope of works to the local community.

Population
It is unlikely that the proposed development will have a significant impact on the population of the area. It is an objective of national, regional and local policy to concentrate population increase into the existing built up settlements.

Socio-Economics
The proposed development will have significant long term and short-term benefits for the local economy including job creation, landowner payments, local authority commercial rate payments and a Community Benefit Scheme.

Material Assets
Utilities such as overhead power lines or telephone lines or underground services may require diversion or be temporarily disrupted during the construction of the wind farm or cable trench. This has the potential to impact on nearby dwellings and commercial / industrial activities.

5.8 Environmental Aspect: Shadow Flicker

5.8.1 Aspects to be addressed

This chapter will address the potential effects on human beings of shadow flicker, i.e. the moving shadows cast by the turbine blades in times of direct sunlight.

5.8.2 Assessment Methodology

A shadow flicker assessment will be carried out using ReSoft Wind farm software which will calculate times throughout the year when a turbine, viewed from the window of a house, is in line with the sun, and therefore the potential exists for shadow flicker to occur. All occupied and unoccupied dwellings and permitted houses (that are not yet constructed) within 10 rotor diameters of a proposed turbine will be included in the assessment.

The outputs of the modelling assessment will be used to identify the potential direct and indirect impacts of shadow flicker on dwellings. The results will be compared with relevant guidance including:

- Section 5.12 of the 2006 Department of Arts, Heritage and the Gaeltacht (DoEHLG) Planning Guidelines on Wind Energy Developments (2006)[4] or the latest revision adopted at the time of application.
- The Irish Wind Energy Association 'Best Practice Guidelines for the Irish Wind Energy Industry' (2012)[5].

Cumulative impacts of the proposed Croaghaun Wind Farm and other third-party schemes will be assessed. IWEA Best Practice Guidelines (2012, Section 6.3.4) states that *"any such wind farm developments within 2 km of the proposed development should be considered in a separate cumulative shadow flicker assessment.* There are no other known proposed, consented or existing wind farms within this distance of the proposed Croaghaun Wind Farm.

5.8.3 Receiving Environment

The general receiving environment is rural. The majority of buildings in the vicinity of the proposed development are residential or agricultural buildings. A total of 61 receptors have been identified as falling within 1km of the proposed study area boundary.

5.8.4 Potential Impacts

In times of direct sunshine, wind turbine blades could occasionally cast moving shadows on residences in close proximity to the turbines. At certain times of the year, the moving shadows of the turbine blades can periodically reduce light to a room causing the light to appear to flicker. Shadow flicker would not generally have any effect on health or safety but could on limited occasions present a brief nuisance effect.

5.9 Environmental Aspect: Noise and Vibration

5.9.1 Aspects to be addressed

The chapter will address noise and vibration impacts from the construction, operation and decommissioning of the proposed wind farm.

[4] Department of the Environment, Heritage and Local Government (2006) "Wind Energy Development Planning Guidelines", Oireachtas: Dublin 2.

[5] Irish Wind Energy Association "Best Practice Guidelines for the Irish Wind Energy Industry" (2012), http://www.iwea.com/contentFiles/Documents%20for%20Download/Publications/IWEA%20Policy%20Documents/IWEA%20best%20practise%20guidelines.pdf Accessed March 2016

5.9.2 Assessment Methodology

The noise assessment will be carried out on each phase of the wind farm:

- Construction phase
- Operational phase, including turbine and sub-station operations
- Decommissioning phase, including dismantling the turbines, and related traffic.

Construction and Decommissioning Noise Assessment Methodology

Construction and decommissioning noise impacts will be determined at the closest receivers. Prediction modelling will be undertaken to assess the construction impact from road building, use of borrow pits and movement of heavy goods vehicles. This modelling will be completed applying British Standard BS 5228:2009 +A1:2014 'Code of practice for noise and vibration control on construction and open sites Part 1 Noise' using the best available information at the time of preparing the assessment.

Construction noise limits from the following will be used:

- BS 5228 Part 1:2009 +A1:2014 Code of practice for noise and vibration control on construction and open sites Part 1 Noise (Applies to residential receptors)
- National Roads Authority Guidelines for the Treatment of Noise and Vibration in National Road Schemes

Operational Noise Assessment Methodology

At the time of preparing this report, the Department of the Environment, Community and Local Government is undertaking a targeted review of the 2006 Wind Energy Development Guidelines for noise and shadow flicker. The implications of this review and the subsequent adopted changes may affect how the operational noise assessment is undertaken and the limits on which compliance is determined. The developer will comply with any new guidelines as they are adopted.

For the purpose of this scoping document we propose the following methodology in line with the current guidelines including the Wind Energy Development Guidelines (2006) and the Best Practice Guidelines for the Irish Wind Energy Industry (2012) prepared by the Irish Wind Energy Association.

Scoping of Study Area/Preliminary Assessment - Prediction modelling will be undertaken on the preliminary turbine layouts to ascertain the potential operational noise emissions from the wind farm on noise sensitive receivers (defined in accordance with the DoEHLG Wind Energy Development Guidelines 2006).

In accordance with the Institute of Acoustics (IOA) good practice guide, a study area for the wind farm will be developed by generating a 35dB L_{A90} contour using the candidate turbine's rated sound power level.

Baseline Monitoring – Baseline noise data from field surveys at selected noise sensitive receivers and proxy locations will be used to determine prevailing background noise levels for daytime and night-time periods.

Data Analysis and Limit Derivation - The baseline sound level monitoring data will be correlated with the wind speed. Rainfall events, periods affected by rainfall, periods affected by dawn chorus and atypical data will be removed from further analysis. The filtered data will and then plotted to provide wind speed versus averaged background noise levels at each monitoring location. Each plot will determine the averaged prevailing background noise level for increasing wind speeds and allow derivation of daytime and night-time noise limits based on the DoEHLG guideline criteria (whichever is applicable to each wind speed):

- 35 - 40 dB L_{A90} for daytime periods of low background noise levels of less than 30 dB L_{A90}
- 45 dB L_{A90} for daytime periods of background noise exceeding 30 dB L_{A90}
- 43 dB L_{A90} for night-time periods, or 5 dB (A) above background noise levels for all periods where applicable.

Impact Analysis - Prediction modelling will be conducted modelling all wind speed sound power levels available for the candidate turbine type to provide noise prediction levels for each noise sensitive location within the study area. The prediction parameters will be those described in the Institute of Acoustics' ETSU A Good Practice Guide to the Assessment and Rating of Wind Turbine Noise[6]. Cumulative noise modelling will also be undertaken to determine sound pressure level contributions from any surrounding wind farms.

The predicted levels will be appraised against the derived daytime and night-time noise limits for compliance.

5.9.3 Receiving Environment

The closest occupied dwelling to the proposed layout of Option 1 is located c. 946m from the nearest proposed turbine location (Turbine 5) The closest occupied dwelling to the proposed layout of Option 2 is location c. 912m from the nearest proposed turbine location (Turbine 5). A minimum setback of 750m between turbines and occupied dwellings shall be implemented as part of the design process.

5.9.4 Potential Impacts

Potential impacts of noise nuisance will be addressed at the design stage by locating turbines at sufficient separation distances or by employing reduced turbine noise modes to comply with the noise limits in force at the time of application.

5.10 Environmental Aspect: Traffic and Transportation

5.10.1 Aspects to be addressed

The traffic impact assessment will address the traffic impacts on the road network from the construction and operation of the proposed Croaghaun Wind Farm. The assessment will include the supply of materials, plant and equipment, the turbine elements and the components of the sub-station. Traffic arising from the construction and operations workforce will also be addressed.

[6] A Good Practice Guide to the Application of ETSU-R-97 for the Assessment and Rating of Wind Turbine Noise, The Institute of Acoustics, May 2013

5.10.2 Assessment Methodology

A traffic impact assessment will be conducted in accordance with the Transport Infrastructure Ireland (TII) Traffic and Transport Assessment (TTA) Guidelines, May 2014. Data collected from road traffic surveys along the delivery route will be used in the assessment.

Auto Track vehicle swept path analysis will be conducted for all internal tracks to ensure that they are adequate to allow delivery of turbine components while also minimising the required land take where feasible.

The methodology for the traffic impact assessment will include a review of the traffic volumes and impacts which will be generated by the construction, operation and decommissioning of the wind farm. The traffic generated by the construction workforce, by the transport of materials and equipment as well as future maintenance-related activities will be predicted. The traffic distribution pattern on the local road network during construction will be examined and impacts determined. The potential disruption to the road network during the installation of the cables and the availability of alternative routes will be assessed, where required. Recommendations will be made to mitigate any potential traffic impacts on the road network.

5.10.3 Receiving Environment

The area in which proposed Croaghaun Wind Farm is proposed is served by a network of national primary, secondary and tertiary roads. This road network provides good connections to ports and sources of construction materials. It is likely that either Rosslare or Dublin Port will be used for the import of the turbines. Dublin Port is located some 128 km from the proposed development while Rosslare Port is located c. 70 km from the proposed development.

5.10.4 Potential Impacts

A Traffic Impact Assessment will address the traffic impacts on the road network for both the construction and operation of the proposed Croaghaun Wind Farm. The assessment will include the supply of materials, plant and equipment, the turbine elements and the components of the substation. Traffic arising from the construction and operations workforce will also be addressed.

The traffic impact assessment will be conducted in accordance with the Transport Infrastructure Ireland (TII) Traffic and Transport Assessment (TTA) Guidelines, May 2014. Data collected from road traffic surveys along the delivery route will be used in the assessment. The impact assessment will include a review of the traffic volumes and impacts which will be generated by the construction and operation of the proposed wind farm. The traffic generated by the construction workforce, by the transport of materials and equipment as well as future maintenance-related activities will be predicted. The traffic distribution pattern on the local road network during construction will be examined and impacts determined. The potential disruption to the road network during the installation of the cables and the availability of alternative routes will be assessed, where required. Recommendations will be made to mitigate any potential traffic impacts on the road network.

The greatest potential for traffic impact from the proposed Croaghaun Wind Farm is during the construction phase which will give rise to additional traffic on the road network.

The turbines will be delivered to the site in separate parts, typically comprising of loads for each of the towers, the rotor blades, the nacelle, the rotor hub, the turbine base and the electrical components.

The delivery route from the port into which the components are shipped, to the proposed wind farm site will use the national primary route network as much as possible. Modifications may be required to the existing local road network to cater for the delivery of the oversized loads.

Stone aggregate will be required for the upgrading of existing tracks and construction of new site road as well as the construction of turbine bases and hardstands. All of these activities have the potential to generate significant local traffic numbers.

The nature of the local road network in the vicinity of the proposed wind farm site is such that widening/improvement works may be required to accommodate construction traffic. There will be an increase in local traffic during the construction of the wind farm; staff, including plant operators, electricians, engineers and trades people, will be commuting to and from the site each morning and evening. In addition, there is likely to be an increase in local traffic due to onlookers as the turbines are erected.

There will also be temporary traffic impacts from cable laying works on the public roads. These impacts will be managed to reduce the nuisance being caused to local road users.

5.11 Environmental Aspect: Air Quality and Climate

5.11.1 Aspects to be addressed

The assessment will address the potential impacts on air quality due to construction equipment and activities and to emissions from traffic associated with the construction process. The potential impacts on air quality in the operational phase will also be addressed.

The climate in the immediate local area of a proposed development is known as the micro-climate whereas the climate of a large geographical area (global) is the macro-climate. The potential impacts of Croaghaun Wind Farm on micro-climate and macro-climate will be addressed. The project will also be assessed for compliance with the Climate Action Plan 2019.

5.11.2 Assessment Methodology

Air quality monitoring conducted by the EPA at a number of locations in the vicinity of the site will be reviewed and levels compared with the air quality standards. To assess the impacts of construction dust emissions, the approach and assessment criteria outline in the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (NRA, 2008) will be used.

For the purposes of assessing the impact on air quality of emissions generated by construction traffic, the methodology described in the Design Manual for Roads and Bridges 2007a (UK Highways Agency, May 2007) will be used. Parameters to be assessed will include oxides of nitrogen, particulates PM10 and PM2.5, carbon monoxide and benzene.

The potential micro-climatic impacts of Croaghaun Wind Farm will be assessed in relation to the micro-climatic baseline, the scale of the elements of the project and the nature of use of the surrounding environment. For the assessment of macro-climatic effects, the emissions of carbon dioxide (CO2) and other greenhouse gases from fossil fuel power generation, which will not be required should the Croaghaun Wind Farm become operational, will be quantified and assessed in terms of Ireland's commitments under EU and international climate change treaties and protocols.

5.11.3 Receiving Environment

In terms of micro-climate, the wind farm is located in a mainly rural area corresponding to air quality zone D, Rural Ireland, in the Air Quality Regulations SI 180 of 2011, as amended. The air quality is expected to be good.

The macro-climatic baseline is the future emission of CO_2 and other greenhouse gases, which would be produced by fossil fuel power generation in the country, in the absence of the proposed Croaghaun Wind Farm.

5.11.4 Potential Impacts

The assessment will address the potential impacts on air quality due to construction equipment and activities and to emissions from traffic associated with the construction process. The potential impacts on air quality in the operational phase will also be addressed.

The construction phase of the proposed Croaghaun Wind Farm has the potential to generate dust emissions, which could give rise to nuisance for local residents.

To assess the impacts of construction dust emissions, the approach and assessment criteria outlined in the *Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes* (National Roads Authority, 2008) will be used.

Construction plant and equipment, and the traffic generated by the construction process, have the potential to give rise to emissions of oxides of nitrogen, benzene and particulates, which could impact on local air quality. The operation of the proposed Croaghaun Wind Farm is not expected to have a negative impact on air quality.

The proposed Croaghaun Wind Farm is expected to have a positive impact on emissions of CO_2 and other greenhouse gases. For the assessment of macro-climatic effects, the emissions of CO_2 and other greenhouse gases from fossil fuel power generation, which would not be required when Croaghaun Farm is operational, will be quantified and assessed in terms of Ireland's commitments under EU and international climate change treaties and protocols.

It is expected that the proposed development will have a positive impact on Air Quality including NOx and SOx a calculation of same will be included in the EIAR.

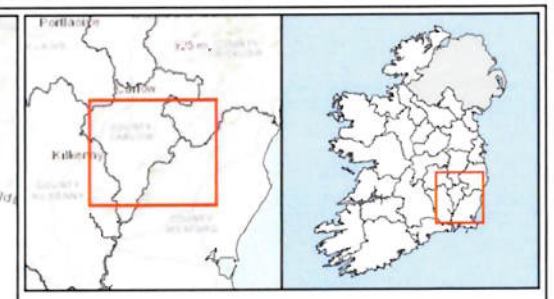
5.12 Environmental Aspect: Biodiversity

5.12.1 Aspects to be addressed

This chapter of the EIAR will address the terrestrial and freshwater aquatic habitats and species, including those of conservation concern within and in close proximity to the wind farm; including along and in close proximity to the on-site cable routes; on and in close proximity to the sub-station, tree felling and any required replanting. It will also address the potential impacts on ecology from the proposed underground cable between the wind farm and the grid connection as well as any proposed alterations to the public road network required for the delivery of turbine components.

In particular, the assessment will focus on:

- Natura 2000 sites i.e. Special Areas of Conservation designated under the EU Habitats Directive (Council Directive 92/43/EEC) and Special Protection Areas designated under the EU Birds Directive (Directive 2009/147 EC), within 15km of the proposed sites and routes.
- Other designated sites such as Natural Heritage Areas, proposed Natural Heritage Areas, Nature Reserves and Refuges for Fauna or Flora
- Habitats listed in Annex I of the Habitats Directive
- Birds listed in Annex I of the Birds Directive
- The impact on any flight paths of bird and bat species
- Species protected under the Wildlife Acts
- Protected flora under the Flora Protection Order (2015)
- Habitats that can be considered as corridors for the purposes of article 10 of the Habitats Directive
- Red data book species
- And biodiversity in general.



Study Area Boundary

15km from Indicative Development Boundary

Special Area of Conservation (SAC)

TITLE:	European Sites within 15km of the Proposed Development		
PROJECT:	Croaghaun Wind Farm		
FIGURE NO:	5.1		
CLIENT:	Coillte		
SCALE:	1:130000	**REVISION:**	0
DATE:	17/10/2019	**PAGE SIZE:**	A3

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N W E S
0 1 2 4 Kilometers

5.12.2 Assessment Methodology

Desk studies will be undertaken in which ecological databases, such as those of the National Parks and Wildlife Service (NPWS), EPA and NBDC will be consulted. The NPWS, Inland Fisheries Ireland and the main environmental non-governmental organisations have been or will be consulted.

Bird survey methods have been selected following a review of best practice guidelines, including guidance available from Scottish Natural Heritage (SNH), and following consultation with NPWS and other bodies such as BirdWatch Ireland. Bird surveys commenced in September 2017 and are ongoing at the site.

The scope of the bird survey includes vantage point surveys (from 6 locations around the site), transect surveys, point counts and hen harrier and roost surveys.

Habitats shall be appraised and evaluated according to their occurrence as protected habitats under Annex I of the EU Habitats Directive (92/43/EEC) and for their capacity to support rare, threatened and endangered species. The methodology used to assess the impact on habitats is based on NRA guidelines (2009[7]), CIEEM guidelines and EPA guidelines. The habitat mapping exercise had regard to the 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011[8]) published by the Heritage Council. In addition to habitat identification, each habitat will be assessed for its ecological significance, based on the National Roads Authority (NRA) Site Evaluation Scheme (NRA, 2009).

Given the project's location within the catchment area for both the Slaney River Valley SAC (000781) and the River Barrow and River Nore SAC (002162) aquatic surveys are required to establish the existing baseline and to examine the potential for protected aquatic species to utilise the watercourses draining the site. Surveys shall be required for aquatic Annex I Habitats, Freshwater Pearl Mussel, White-clawed Crayfish and fisheries.

Bat surveys will be undertaken in accordance with Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation (Scottish Natural Heritage, 2019[9]). Winter and breeding roost surveys will be required. Activity surveys will also be required during the bat activity season April to September as per Bat Conservation Ireland and Bat Conservation Trust Guidelines.

The proposed site will require surveying for terrestrial mammal species including inter alia Badger, Red Squirrel and Otter. A targeted Marsh Fritillary Survey is required due to the potential for habitat on-site and records within the study area. During the course of ecological surveys of the site, other species of fauna shall be noted and considered in the ecological appraisal.

5.12.3 Potential Impacts

This chapter of the EIAR will address the nationally designated sites, terrestrial and freshwater (aquatic) habitats and species, including those of conservation concern on and in close proximity to the wind farm and including along and in close proximity to the proposed cable route and proposed haul route.

[7] NRA (2009). Environmental Assessment and Construction Guidelines. Published by the National Roads Authority.

[8] Smith, G.F., O'Donoghue, P, O'Hora K., and Delaney, E. (2011). Best Practice Guidance for Habitat Survey and Mapping. Published by the Heritage Council.

[9] Scottish Natural Heritage, Natural England, Natural Resources Wales, Renewable UK, Scottish Power Renewables, Ecotricity Ltd, the University of Exeter and the Bat Conservation Trust (2019): Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation.

The ecological evaluation of the site and its' Biodiversity will be assessed according to NRA (2009). Once the value of the identified ecological receptors (features and resources) is determined, the next step will be to assess the potential impact and resulting effect of the proposed development on the identified key ecological receptors.

This will be carried out with regard to the criteria outlined in various impact assessment guidelines (NRA, 2009; CIEEM, 2016). The impacts will be assessed under a number of parameters such as magnitude, extent, timing, frequency, duration and reversibility. The impact significance criteria detailed in the EPA guidelines (EPA, 2002) will be used where applicable.

Potential impacts of the wind farm on Biodiversity include:

- Direct loss of habitat due to the footprint of the area;
- Damage to adjacent habitats during construction which could potentially be affected by construction activity;
- Impacts during construction on the hydrology of water dependant habitats
- Impacts on water quality both at a local level and regional level due to pollution run-off whether during or post construction;
- Impacts on aquatic species during construction or due to pollution events etc.;
- Disturbance to local wildlife, including loss of habitat, disturbance and displacement;
- The potential collision risk to birds and bats;
- Damage to or habitat loss of important wildlife corridors or stepping stones during construction. Fragmentation of same at a larger more regional level as a result of habitat loss;
- The introduction of alien invasive species during construction;
- Displacement of bird species from limited breeding areas;
- Displacement or disturbance to breeding waders from areas within the proposed wind turbine envelope;
- Barrier effect on migrating birds, whereby individual species' dispersal or migration routes are affected by the placement of turbines which effectively cause a barrier;
- Impacts on the conservation status or constituent parts of designated sites.
- Potential impacts associated with tree felling and any required replanting on designated sites, habitats, Biodiversity.

Potential impacts on European (Natura 2000) sites as a result of the proposed development will be assessed though the appropriate assessment process.

5.12.4 Appropriate Assessment

An Appropriate Assessment Screening Report and if required a Natura Impact Statement will be prepared in respect of the proposed development, so as to enable the competent authorities to carry out an Appropriate Assessment as required by Article 6(3) of Council Directive 92/43/EEC ("the Habitats Directive") and section 177U of the Planning and Development Act 2000, as amended ("the 2000 Act"). The potential impact to European sites due to tree felling and any proposed replanting shall also be considered.

In compliance with the aforementioned provisions of Article 6(3) of the Habitats Directive and section 177U of the 2000 Act, a Screening Appropriate Assessment of an application for consent for proposed development shall be carried out by the competent authority or authorities to assess, in view of best scientific knowledge, if that proposed development, individually or in combination with another plan or project is likely to have a significant effect on a European site, in view of the site's conservation objectives.

Where negative impacts on a Natura 2000 site cannot be discounted during Stage 1 Screening for Appropriate Assessment, the Assessment must proceed to Stage 2 and a Natura Impact Statement prepared at which point a detailed, targeted assessment of the nature and potential significance of direct and indirect impacts arising from the proposed project must be completed and an assessment as to whether the integrity of the Natura 2000 site would be adversely affected.

European sites, as defined in the 2000 Act, comprise both Special Protection Areas (SPAs) for birds and candidate Special Areas of Conservation (cSACs) for habitats and other species, and are designated by Member States pursuant to the requirements of Council Directive 79/409/EEC, now Directive 2009/147/EU, on the conservation of wild birds ("the Birds Directive") and the Habitats Directive, respectively.

Article 6(3) of the Habitats Directive envisages a two-stage assessment process, which is implemented into Irish law (with some additional requirements) by the provisions of sections 177U and 177V of the 2000 Act. Screening for AA in accordance with section 177U is the first stage of the AA process ("Stage One"), in which the possibility of there being a significant effect on a European site is considered. Plans or projects that have no appreciable effect on a European site are thereby excluded, or "screened out", at this stage of the process. Where, however, the competent authority's screening assessment concludes that there is potential for significant effects, then it is necessary to carry out an Appropriate Assessment (AA) ("Stage Two") for the purposes of Article 6(3), and a Natura Impact Statement (NIS) is prepared and submitted to the competent authority.

The first step in the screening process is to develop a list of European sites which may have the potential to be affected by the proposed development. Each relevant European site is reviewed to establish whether or not the proposed development is likely to have a significant effect on the European site. The site is not located within a designated nature conservation site.

The site is located 0.5km from the Blackstairs Mountains SAC (000770) and is hydrologically connected to the Slaney River Valley SAC (000781), to the east, and the River Barrow and River Nore SAC (002162), to the west. The Blackstairs Mountains and Slaney River Valley are also designated proposed National Heritage Areas (pNHAs).

Among the qualifying interests protected under the Slaney River Valley SAC designation for this site are eight aquatic species (namely, Freshwater Pearl Mussel, Sea Lamprey, Brook Lamprey, River Lamprey, Twaite Shad, Salmon, Otter and Harbour Seal) and seven habitats. The River Barrow and River Nore SAC is designated for twelve species, of which 10 are aquatic, and twelve habitats including dry heath [4030].

For each European Site, the qualifying interests or special conservation interests of each European site will be identified, and the potential effects summarised under the following headings for the purposes of the screening process:

- Direct impacts refer to habitat loss or fragmentation arising from land-take requirements for development or agricultural purposes. Direct impacts can arise as a result of a change in land use or management, such as the elimination of agricultural practices that prevent scrub encroachment.

- Indirect and secondary may arise, for example, when a development alters the hydrology of a catchment area, which in turn affects the movement of groundwater to a site, and the qualifying interests that rely on the maintenance of water levels. Deterioration in water quality could occur as both an indirect and direct consequence of a particular development, which in turn changes the aquatic environment and reduces its capacity to support certain plants and animals. The introduction of invasive species can also be defined as an indirect impact, which results in increased movement of vectors (humans, fauna, surface water), and consequently the transfer of alien species from one area to another.
- Disturbance to fauna can arise directly through the loss of habitat (e.g. otter holts) or indirectly through noise, vibration and increased activity associated with construction and operation.

In the event that significant effects cannot be ruled out during the Stage 1 Screening for Appropriate Assessment, the process proceeds to Stage 2 Appropriate Assessment and a Natura Impact Statement is prepared. During Stage 2 AA, the effect of the project on the integrity of the European site(s), as defined by its structure and function, and its conservation objectives is appraised. Potential impacts on species or habitats will be evaluated with respect to the scale, extent and nature of the impact, for example the area of habitat affected, changes in hydrodynamics, the percentage reduction in species density, potential changes in species distribution. The duration of the impact will be determined in terms of the duration of the works and also the amount of time required for the species and / or habitat to be replaced or to recover from the impacts. Information on the main alternatives studied by the developer and why they were excluded will also be provided within the AA process.

During Stage 2 of the AA process, mitigation measures can be developed to minimise effects on European Sites.

Mitigation measures will follow the mitigation hierarchy:

- Avoidance
- Reduction
- Remedy

For each mitigation measure the following will be provided:

- Details of how the mitigation will be secured and implemented
- Evidence of the degree of confidence in their likely success
- A timescale of when they will be implemented
- Details of how the mitigation measures will be monitored and how any mitigation failure will be addressed.

5.13 Environmental Aspect: Land, Soils, Geology, Hydrogeology and Slope Stability

5.13.1 Aspects to be addressed

The assessment will address soils, bedrock and groundwater underlying the wind farm.

5.13.2 Assessment methodology

The methodology for the soils and geology assessment will be in accordance with the guidelines published by the Institute of Geologists of Ireland in 2013, 'Guidelines for the Preparation of Soils, Geology and Hydrogeology Chapters of Environmental Impact Statements'.

Site walkovers will be undertaken. Each site walkover will include peat probes and/or use of a hand vane/gouge cores at selected locations to confirm the presence and/or depth of peat (if present) across the sites. In addition, the following will also be conducted:

- A review of the characteristics of the entire site (ground conditions, topography, vegetation cover/condition and peat formation, if any, across the site)
- Identification of past and present land use on the site (grazing, forestry etc.) and their current impact on the existing ground conditions
- Identification of potential borrow pit site locations (if required)
- Identification of areas for possible storage/reinstatement of peat or other materials
- Identification of potential for peat landslide - With reference to slope stability issues in areas where peat is present, reference will be made to the Guidance Note for Peat Landslide Hazard and Risk Assessments Best Practice Guide for Proposed Electricity Generation Developments.

The data gathered will be used to inform the final location of all turbines and associated infrastructure.

An earthworks balance calculation will be prepared for the overall development to assess where excavated material can be beneficially re-used. In addition, an assessment of the volumes of raw material will be made which will in turn be used to determine the number and size of borrow pits required.

5.13.3 Receiving Environment

The quaternary deposits at the site are limited in extent, with till derived from Metamorphic rocks noted in the central to northern section of the site and a very limited deposit of blanket peat noted on the edge of forestry in the west of the site.

The bedrock at the site is varied across the proposed development area, with Maulin Formation (Dark blue-grey slate, phyllite & schist) across the majority of the site from the centre to the north-west and Ballybeg Member (Dark grey semi-pelitic, psammitic schist) to the south-east. A fault is located to the east of the site, and on the east side of this fault, the Maulin Formation is evident. A shear zone boundary is evident in the north-east of the site within the Grey Calp.

5.13.4 Potential Impacts

The potential impacts of the development of the wind farm on the geology, hydrogeology and slope stability are:

- The excavation and removal of soil and rock and interference with any existing site drainage is a potential direct permanent effect that, without mitigation, could alter the existing hydrogeological balance of the site;
- The construction of the turbines, hardstanding areas, access tracks, borrow pits and cable trenches has the potential to cause hydrogeological impacts by modifying the natural groundwater levels adjacent to the excavation. This in turn may deprive ditches and steams of their natural supply of water which may lead to reduced base flow and recharge to the bedrock aquifer;
- Areas which are underlain by peat deposits are susceptible to slope stability issues, including peat slides and bursts, when changes are made to topography, hydrogeology and hydrology of the site.
- The use of granular fill and other materials for the construction of the access tracks has the potential to have a permanent impact on the source quarries or borrow pits;
- Excavations have the potential to increase erosion and sediment release that could also have additional impacts on water quality due to sedimentation of water courses;
- Soil compaction may occur due to movement of construction and maintenance traffic;
- Removal of sub soils may result in the exposure of the underlying rock to sources of contamination and may increase the vulnerability of the aquifer, whether or not the rock is exposed;
- Chemical pollution may occur as a result of an accidental spillage or leakage of chemicals, runoff from vehicle washing facilities, unset concrete, storage of fuels or refuelling activities, etc. Chemical pollutants may enter the groundwater and have implications for ecology and any wells in the area, particularly those located down-gradient of the site.
- Sanitary waste arising from temporary construction compounds could lead to contamination of groundwater

At the substation and along the grid route, the potential impacts are the pollution of groundwater from an oil or fuel spillage during construction. The sub-station and the construction compound will have staff welfare facilities.

5.14 Environmental Aspect: Water Quality and Hydrology

5.14.1 Aspects to be addressed

The assessment will address impacts on hydrology and water quality. The aspects of the hydrological environment that could be affected by the activities associated with the proposed Croaghaun Wind Farm will also be addressed.

5.14.2 Assessment Methodology

The assessment will consist of a review of existing baseline data including water quality data from the EPA, River Basin Management Plans and flood risk data from the Office of Public Works (OPW). The objectives of the relevant River Basin Management Plans in relation to water quality will be considered. The review will include the Carlow County Development Plan 2015-2021 and consideration of the policies and objectives of the Plan in relation to surface water and flooding. The assessment will be prepared in accordance with the EPA and OPW guidance. Any concerns expressed by consultees such as Inland Fisheries Ireland and relevant local authorities, relating to hydrology and drainage, will be addressed.

The review will have regard to the baseline data and the studies undertaken for the assessment of impacts on terrestrial and fresh water ecology, geology and hydrogeology in relation to environmentally protected areas, receiving waters and soil conditions.

It is proposed to conduct grab sampling of water courses which could potentially be impacted by construction of the wind farm, where gaps are identified in the review of published data. The scope of this sampling will be agreed with Inland Fisheries Ireland and will also follow relevant guidance for determining baseline water quality.

Site visits consisting of a walkover of the wind farm site will be undertaken. These surveys will include noting the hydrological features and land use across the site. The information gained on these site visits will provide input into the final design layout with the aim of minimising river/stream crossings, providing a buffer to hydrological features and avoiding areas of significant flood risk.

The Hydrology Chapter will include a section on flood risk identification and assessment. This will include an assessment of the potential increase to flooding elsewhere and it will examine the potential flood risk to the proposed development. The type of development will be assessed in accordance with the Planning System and Flood Risk Management Guidelines for Planning Authorities, November 2009. Any increase in hard surfaces on the site will be quantified and the impact of this modelled in the downstream structures over watercourses where flood incidents have been recorded by the OPW. Cumulative impacts with neighbouring developments will also be tested in the model where appropriate.

A peat stability assessment will be carried out to determine potential peat stability issues.

Where parts of the development are located on areas encroaching on floodplains, this may require additional drainage measures and further measures required to mitigate flood risk. Mitigation, such as attenuation of surface water run-off from the site, will be proposed where increases in flood risk are deemed to be significant.

In the case of essential infrastructure such as a sub-station, these are not permitted to be located in a floodplain. The sub-station for the proposed Croaghaun Wind Farm is not located within a Flood Zone A area (AEP 1%).

For the access tracks, the stream crossings will be identified, and a preliminary design of the proposed stream crossings prepared. The accommodation of overland flow will be assessed and suitable locations for the treatment of discharges identified.

The following will also be included as part of the assessment for Hydrology:

- Identify potential impacts of the proposed development on hydrology (hydrodynamics and flooding).
- Identify potential cumulative hydrological impacts of the proposed development with any neighbouring wind farms.

- Consider potential drainage into sensitive catchments.
- Site drainage investigation will involve identification of drainage sub-catchments, studying the requirement(s) of cross-drainage works, if any, exploring the infiltration potential of the soils in the area, etc.
- Identification of mitigation measures for flooding and pollution of receiving waters.
- Identification of residual impacts.

5.14.3 Receiving Environment

The site covers two mountainous areas, Croaghaun and Greenoge with the majority of the site draining to the north, into the Clashavey River. The Clashavey River drains in a north easterly direction before entering the River Slaney to the north of Kildavin. The southern part of the site drains to the Kilbrannish South and the Kilbrannish North which both join the River Clody, which flows to the River Slaney joining at Bunclody. The Slaney River flows to the south east and into the sea at Wexford Town.

The south west and extreme west of the site drains into the Raheenleigh, which flows into the Burren River. The Burren River flows to the River Barrow joining in Carlow town. The River Barrow flows south, entering the sea at Waterford Harbour. The existing drainage at the site is through roadside drains on the existing tracks, and parallel forestry drainage within the forested areas

5.14.4 Potential Impacts

The assessment will address impacts on water quality in the receiving watercourses. The aspects of the hydrological environment that could be affected by the activities associated with the proposed Croaghaun Wind Farm will also be addressed.

The assessment will consist of a review of existing baseline data including water quality data from the EPA, River Basin Management Plans and flood risk data from the OPW.

The review will include the County Development Plan and consideration of the policies and objectives of the Plan in relation to surface water and flooding. The assessment will be prepared in accordance with the EPA and OPW guidance and will include a site walkover. Any concerns expressed by consultees such as Inland Fisheries Ireland and relevant local authorities, relating to hydrology and drainage, will be addressed.

The main potential impact from the construction of the wind farm is the sedimentation of watercourses. Rainfall run-off containing silt could potentially lead to siltation and consequent physical effects on Biodiversity in aquatic habitats.

Sediment has the potential to arise from:

- Temporary spoil heaps from the excavations for the turbine bases; if left exposed, the spoil heaps could lead to an increase in silt laden run-off draining off site.
- Haulage roads passing close to watercourses could allow the migration of silt-laden run-off into watercourses (crushable stone on site access roads could lead to heavy vehicles creating fines in the stone with a subsequent loss of sediment in the surface water run-off).
- Silt carried on the wheels of vehicles leaving the site could be carried onto the public road.

- Tree felling could lead to an increase in sediment in the surface water run-off.
- While the cable trench is open adjacent to a watercourse and at stream crossings, this could lead to an increase in the concentration of suspended solids in the watercourse.

In addition, possible impacts on water quality during construction activity include:

- Concrete operations could contaminate receiving waters.
- Runoff from vehicle washing facilities could lead to contamination of receiving waters.
- Refuelling activities could result in fuel spillages.

The potential impacts on hydrology and drainage that may arise from the proposed development of the wind farm site include impacts on localised flooding patterns and downstream structures as well as cumulative hydrological impacts with neighbouring developments including neighbouring wind farms.

At the temporary compound, the potential impacts are the pollution of surface water from an oil or fuel spillage during construction.

During the operational phase of the wind farm, potential impacts on water quality will primarily arise from the use of lubricants, coolants and hydrocarbons in the operations of the turbine transformers as well as routine maintenance of all plant and equipment.

5.15 Environmental Aspect: Archaeological, Architectural and Cultural Heritage

5.15.1 Aspects to be addressed

The assessment will address features and sites of archaeological, architectural and cultural heritage significance. The purpose of the study will be to assess the significance of the receiving cultural heritage environment and to identify and evaluate the magnitude of the impact of the proposed wind farm on the sensitivity of each cultural heritage feature within this environment and on the broader historic character of the landscape. Measures will be proposed to mitigate effects (where possible) so as to allow a fully informed decision to be made by the adjudicating authority.

5.15.2 Assessment Methodology

The assessment will comprise a desk study and field walkover survey.

Desk Study

A review of the following information will be carried out to inform the cultural heritage assessment report:

- A review and collation of information obtained from public and statutory consultees, for example nationwide surveys such as the Record of Monuments and Places (RMP) (including National Monuments in State Care, NIAH, RPS and landscape characterisation
- A review of designated archaeological landscapes
- A review of the Record of Protected Structures and Architectural Conservation Areas (ACA's) in the Carlow County Development Plan 2015-2021
- A review of the National Inventory of Architectural Heritage (NIAH) building survey sites, NIAH historic gardens and designed landscapes survey sites
- A review of artefactual material held in the National Museum of Ireland Archives National Museum of Ireland
- A literature review of published and key references appropriate to the wind farm including material from local interest groups and historical and archaeological societies
- Collation of information from similar or other infrastructure projects in proximity to the proposed wind farms, for example EIARs, SEAs, conservation plans, archaeological test assessments and excavations (including the Database of Irish Excavations) Cartographic sources
- A review of place names and Gaeltacht areas
- Other documentary sources
- A review and interpretation of aerial photographs to be used in combination with historic mapping to map potential cultural heritage assets.
- A review of existing guidelines and best practice approach will be undertaken.

Field survey

The assessment will include a field assessment of each of the turbine locations and associated infrastructure, the survey will confirm the location of recorded cultural heritage sites and will record their baseline condition; as well as the archaeological potential of all areas within the wind farm site and areas likely to be affected by the proposed development works. Fieldwork will also identify any unrecorded features of architectural or cultural heritage merit and will assess if they will be impacted by the development. All significant features will be recorded and photographed.

Field walkover surveys will also be undertaken where the access roads and cable routes pass close to recorded monuments and protected structures and where the routes diverge from the paved road and at the jointing bay sites.

Fieldwork along the cable routes will also seek to identify previously unrecorded roadside cultural heritage features (such as milestones, water pumps and stone bridges etc.) and structures.

Setting

Every landscape presents different topographical and environmental conditions, land cover and land usage and as such the location, scale and physical form of each element of wind farm projects and associated works are site specific. As a consequence, the range of potential impacts depends on the individual circumstances of each proposed turbine and the combined contribution of the overall setting of the wind farm.

Based on the Zone of Theoretical Visibility designated architectural, archaeological and cultural heritage features will be considered up to 5km of the development boundary. All undesignated cultural heritage features will be considered up to 500m of the development boundary. Selected highly sensitive heritage assets of national and international importance will be considered within 30km of the proposed development.

The reporting process ensures that all designations relating to heritage assets as well as cultural heritage features that are revealed through research, field assessment and consultation are clearly articulated. All relevant designated heritage assets will be mapped and lists all relevant cultural heritage constraints will be prepared.

Interactions and consultation

The scale, form and layout of the proposed wind farm development, requires a collaborative and iterative design development process with designers, archaeologists and landscape and visual specialists interactively engaged in the process from the outset. Consultation with statutory and non-statutory bodies will also take place throughout the process

5.15.3 Receiving Environment

There is one recorded archaeological site located within the Proposed Croaghaun Wind Farm site and this comprises an extant standing stone (CW020-028----) of likely Bronze Age date (c. 2400–500 BC) which has been described as follows by the Archaeological Survey of Ireland (ASI):

> *On the NE-facing slope of Croaghaun mountain, near the summit, in an area of mountain heather at the point where two forest tracks meet, forming a fork. View impeded upslope to E-S-SW, but extensive to W and N. A standing stone sub-rectangular in plan (0.43-0.5m x 0.3-0.36m; H 1.6m) recorded by Walter Skelton and Barry Lacey (pers. comm. 28 October 2018). The top of the stone slopes towards the N. The standing stone is quite weathered, with pronounced spalling on the lower E and S sides. It inclines to the W.*

There are also five recorded archaeological sites located within 1km of the Proposed Croaghaun Wind Farm site. These are located in lands to the north and include two ringforts, an enclosure, a children's burial ground and the site of a 19th century racecourse.

There are no National Monuments in State Ownership/Guardianship located within 5km of the Wind Farm site.

There are no designated architectural sites located within the Proposed Croaghaun Wind Farm or its immediate environs. Hollybrook House is located approx. 1.2km to the west and this late 18th century house is listed in the National Inventory of Architectural Heritage (ref 10302001). The landscaped demesne lands surrounding the house are depicted on historic OS maps and do not extend into the site.

5.15.4 Potential Impacts

Wind farms comprise large upright structures with moving elements. Their scale relative to features in close proximity such as monuments or historical structures can have a visual intrusion on the archaeological and historic landscape. While direct physical impacts can easily be assessed in quantitative terms, the assessment of setting can be subjective and as such is a matter of qualitative and professional judgement.

The assessment will include the implications of the proposed development on the direct physical impact of the wind farm and any indirect impacts on the setting of monuments, historic buildings and cultural heritage complexes.

The potential impacts are briefly described as follows:

- Direct impacts – Construction of wind turbines and access tracks has the potential to impact any underlying archaeological remains.
- The construction phase of the development will consist largely of earthmoving activities such as soil removal for access tracks, borrow pits (if required), turbine bases and hard stand areas. This may have a number of potential negative impacts on the recorded and sub-surface archaeological heritage features. The sites are generally located in greenfield agricultural farmland, forested or bogland landscapes. There is a potential for uncovering sub-surface archaeological and cultural heritage features, or features which have no above ground expression, during peat or topsoil removal associated with the construction of the wind farm. Existing farm tracks however will be used where possible.
- Indirect Impacts – Wind farms have the potential to detract from the historic character or adversely impact the setting and visual amenity of a heritage asset affecting the integrity, sense of place, tranquillity and remoteness of that feature.
- Cumulative Impacts – An assessment will be made on the cumulative impact where necessary, depending on the scale, density and proximity of the turbines within the wind farm and to other wind farms. This will include the consideration of the setting of heritage assets.
- Residual Impacts – these relate to the setting impacts from turbines and associated infrastructure during the lifetime of the wind farm development.

The main impact on cultural heritage features occurs during the construction phase once the wind farm is operational, the potential for any negative impact on archaeological, architectural and cultural heritage will be negligible.

5.16 Environmental Aspect: Aviation and Telecommunications

5.16.1 Aspects to be addressed

The rotating blades of a wind turbine can occasionally cause interference to electro-magnetically-propagated signals. Such interference could, in theory, affect all forms of electromagnetic communications including:

- Satellite communications
- RADAR

- Cellular radio communications
- Aircraft instrument landing systems
- Air traffic control
- Terrestrial microwave links
- Television broadcasts

In addition, it is possible that houses in the immediate vicinity of the turbines could require some remedial measures in relation to television reception.

The EIAR will include an assessment of any such potential impacts.

5.16.2 Assessment Methodology

An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links.

This evaluation will include the generation of GIS based telecommunications constraints mapping for the areas affected. The purpose of this mapping is to identify potential negative impacts on the telecommunications network and facilitate the selection of optimum sites and turbine locations by avoiding telecommunication links where possible, and thereby limiting any potential negative impacts on service providers in the area.

The proposed assessment methodology will include:

- Consultation with Irish Aviation Authority, Commission for Energy Regulation, emergency services
- Consultation with telecommunications operators to gather the necessary data
- Preparation of constraint mapping
- Analyses of the impact of the turbines on telecommunications operators' point-to-point microwave radio links and apply appropriate buffer distances around links and masts where required
- Discussions with telecommunications operators identifying potential clashes. Operators to provide feedback on initial assessment and to provide information on the importance of the links identified.
- Further specialist investigations will be carried out if the telecommunications operators identify potential impacts.
- Where necessary, mitigation measures to be agreed with operators including:
  - Turbine relocation
  - Telecommunications link relocation
  - Underground fibre optic cables to replace microwave link
  - Submission of final detailed layout to telecoms operators.
  - Agree any layout alterations following final detailed assessment by telecoms operators or agree suitable mitigation measures if necessary.

Impacts on aviation will be addressed following detailed discussions with the Irish Aviation Authority.

In relation to the cables, mapping of telecommunications cables, which could potentially be affected by the installation of the Croaghaun Wind Farm cables, will be obtained and potential impacts assessed.

5.16.3 Receiving Environment

In the context of wind farm development, electromagnetic interference is the impact of a wind farm on existing telecommunication services resulting in an unacceptable negative impact. The rotating blades of a wind turbine can occasionally cause interference to electro-magnetically-propagated signals. Such interference could, in theory, affect all forms of electromagnetic communications including:

- Satellite communications
- RADAR
- Cellular radio communications
- Aircraft instrument landing systems
- Air traffic control
- Terrestrial telecommunication links
- Television broadcasts

The Comreg site viewer[10] identifies a number of telecom masts in the surrounding proximities of the site. 4 no. masts are located 1.5 km north of Kildavin, 5 no. masts are located within the settlement of Bunclody and 6 no. masts are located on Mount Leinster.

Should an operator raise concerns, and the impact cannot be avoided by amending the layout of the wind farm, we will engage directly with the operator to quantify the interference impacts of the wind farm development and identify a likely telecommunications mitigation solution. This approach is proving successful on similar wind farm projects.

5.16.4 Potential Impacts

An evaluation of the possible effects that the proposed development could have on aviation and existing telecommunications networks will be conducted. A study will be undertaken to analyse the impact of the turbines on telecommunications operator's point-to-point microwave radio links.

This evaluation will include the generation of GIS based telecommunications constraints mapping for the areas affected. The purpose of this mapping is to identify potential negative impacts on the telecommunications network and facilitate the selection of optimum sites and turbine locations by avoiding telecommunication links where possible, and thereby limiting any potential negative impacts on service providers in the area.

The Irish Wind Energy Association 2012 guidelines, "*Best Practice Guidelines for the Irish Wind Energy Industry*", indicate that wind turbines within 20 km of a radio navigation aid have the potential to cause electro-magnetic interference with these signals. It is possible that houses in the immediate vicinity of the turbines could require some remedial measures in relation to television reception.

[10] http://siteviewer.comreg.ie/#explore

In practice, such measures are not difficult to implement, are relatively inexpensive and if necessary, will be undertaken by the developer in conjunction with RTÉ.

5.17 Environmental Aspect: Landscape and Visual Impact

5.17.1 Aspects to be addressed

The landscape and visual assessment report will appraise the existing landscape character of the site and its wider setting in order to assess the likely landscape, visual and residential amenity impacts arising from the proposed development. A Study Area of 30km is defined as set out in best practice guidance recently updated by Scottish Natural Heritage 2017. A suitable, bespoke study area will be proposed following further detailed analysis of the project. Potential mitigation measures are also included.
Aspects to be addressed in the report are:

- ✓ Receiving environment, covering details on:
  - wider landscape context
  - localised site context.
  - Landform, landcover, land use patterns and trends
  - key/unique landscape elements and features
  - defining attributes of the wider landscape

- ✓ Landscape character, covering details on:
  - Character as outlined in CDP
  - Associated landscape values
  - Sensitivity levels within the landscape
  - Statutory designations
  - Landscape designations
  - Scenic/amenity routes
  - Views and prospects
  - Features of natural and built heritage

- ✓ Landscape Policy Context
  - Relevant policy objectives within Carlow CDP and LAPs
  - Relevant policy objectives within neighbouring counties within the 30km Study Area (Objectives appendicised).

- ✓ Visual context
  - Zone of Theoretical Visibility
  - Viewshed Reference Points (Detailed findings appendicised).
  - Route Screening Assessment (Detailed findings appendicised).

Assessment of these aspects will ultimately inform potential landscape, visual and amenity aspects, residual impacts, and in turn appropriate mitigation measures to ensure impacts are not significant.

5.17.2 Assessment Methodology

The LVIA Methodology can be summarised as undertaking the following key tasks:

- Desktop study of the site in relation to its overall wider context;
- Visit to the site and its environs.
- Visit to assess residential amenity impacts
- Visit to assess route screening
- Defining the baseline general landscape character, setting, and condition in relation to the position of the proposed development.
- Engagement with relevant landscape and amenity planning designations with the study area as outlined in the Carlow County Development Plan 2015-2021 and any relevant policy within neighbouring counties within the study area including Wexford, Wicklow & Kilkenny.
- Identification of quality and types of views in the areas.
- Establishing the extent of the visual envelope, i.e. the potential area of visibility of the site in the surrounding landscape.
- Identification and evaluation of key components of the proposed development;
- Assessment of potential landscape and visual impacts, and residual impacts.
- Assessment of potential cumulative impacts with proposed/existing developments in the area.
- Preparation of Zone of Theoretical Visibility Maps (ZTVs) to a radial distance of c.30km from the site.
- Consideration of mitigation and enhancement measures.

The LVIA methodology is guided by the following guidance:

- Department of Environment, Heritage and Local Government 2006, *Wind Energy Development Guidelines for Planning Authorities.*
- Environmental Protection Agency, 2002, *Guidelines on the information to be contained in Environmental Impact Statements.*
- Environmental Protection Agency, 2003, *Advice Notes on current practice in the preparation of Environmental Impact Statements.*
- Environmental Protection Agency, 2015, *Draft Revised Guidelines on the information to be contained in Environmental Impact Statements.*
- *Environmental Protection Agency, 2017, Draft Revised Guidelines on the information to be contained in Environmental Impact Statements.*
- Environmental Protection Agency, 2015, *Draft Advice Notes on current practice in the preparation of Environmental Impact Statements.*
- Landscape Institute, and Institute of Environmental Management & Assessment, 2013, *Guidelines for Landscape and Visual Impact Assessment, 3rd Ed.*
- Scottish Natural Heritage, 2017, *Visual Representation of Wind Farms*, Version 2.2.

The impact significance criteria used in the assessment are based on the EPA Guidelines, 2002 and Advice Notes, 2003 with reference also to EPA's draft 2017 revised guidelines and the 2015 draft Advice Notes.

5.17.3 Receiving Environment

The general existing environment is rural and is concentrated in fringe areas around cutaway bogs and within pastoral farmland. The proposed wind farm development lies within the northern boglands landscape character area, as defined by the Carlow County Development Plan 2015-2021.

There are four Nordex N60 turbines adjacent the site at Greenoge.

Permission was granted in 2008 (PL Ref. 08/527) for a two-turbine extension to the existing Greenoge Wind Farm this was subsequently superseded by consent (11/208) for a single Nordex N90 turbine which has been constructed with a hub height of 80m and a rotor diameter of 90m.

Permission was granted for a further single wind turbine 900m east of the site boundary (15/87) consisting of a hub height of up to 65m and a rotor diameter of up to 55m with overall tip height not exceeding 92.5m.

5.17.4 Potential Impacts

In the European Landscape Convention, landscape is defined as 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. The term "landscape" is thus defined as a zone or area as perceived by local people or visitors, whose visual features and character are the result of the action of natural and/or cultural factors. Recognition is given to the fact that landscapes evolve through time and are the result natural and human activities.

Landscape and visual impact assessment has two separate but closely related aspects. The first is visual impact, i.e. the extent to which the wind turbines in the landscape can be seen. The second is landscape character impact, i.e. effects of the wind turbines on the fabric or structure of the landscape as perceived by people. Landscape character is derived from the appearance of the land and takes account of natural and man-made features such as topography, landform, vegetation, land use and built environment and their interaction to create specific patterns that are distinctive to particular localities.

The proposed wind turbines will be large structures with the potential to have significant landscape and visual impacts. The development of wind farms, including associated infrastructure such as tracks and ancillary buildings, may have a major impact on the surrounding landscape.

Key to the development of the project will be the need for clear communication of the scale and extent of the proposed project. Clear and concise mapping of the existing areas of landscape and visual sensitivity together with photomontages of the proposed wind turbines will be essential in demonstrating the nature and extent of the development.

Zone of Theoretical Visibility Mapping (ZTV's) will be prepared based on the Department of the Environment, Heritage and Local Government's *'Wind Farm Planning Guidelines'*. The ZTV's will illustrate the study area extending to 30km around the site and highlight the areas where the proposed turbines will theoretically be visible from, as well as the cumulative visual impact arising from the existing Mount Lucas Wind Farm and Yellow River Wind Farm. These ZTV's do not take into consideration vegetation cover, changing weather conditions or the mitigating effect of distance and therefore illustrate the worst-case scenario of visibility.

Estimation of the visual impact of the proposed scheme on the landscape will be based on the visual presence of the turbines, their aesthetic impact the landscape context and the significance of the impact. The assessment will examine potential landscape and visual impact of the 14 no. 169m high turbines on designated landscape, properties, roads, recreation and tourism areas, including;

- Direct effects on landscape features, views, routes and areas described in the County Development Plans and Landscape Character Assessments. The review of the landscape setting will account for a 30km study area from the site boundary, thereby including parts of Counties Wexford, Kilkenny, Wicklow and Laois. Assessments of and objectives for landscape character are looked at in each of the development plans for these counties to ensure a consistent and integrated appraisal of the area within this 30km area.
- Potential changes to landscape and townscape character referring to County landscape character assessments noting subtle effects that contribute to the experience of more intangible landscape characteristics. Landscape types, significance/value, sensitivity and capacity for change will be examined.
- Effects on designated landscapes, views, conservation sites and other special areas of interest.
- Effects during construction and decommissioning.

Viewshed reference points (VRP) from the surrounding landscape will be identified from the desktop studies outlined above and will be verified on site. Photomontages from these viewshed reference points will be prepared for the proposed wind turbines, together with a wireframe and photomontage views of the other planned/permitted wind turbines in the landscape, to assist in demonstrating the levels of visual impact.

6. CUMULATIVE IMPACTS, INDIRECT IMPACTS AND INTERACTION OF EFFECTS

6.1 Aspects to be Addressed

The cumulative impact of the proposed Croaghaun Wind Farm with other projects which are either existing, permitted or pending planning permission, or for which there is information in the public domain , at a sufficient level of detail to allow assessment, will be addressed. An example of a project within the public domain can be projects that are listed in the county Development Plan. Indirect effects and effects in different environmental media will be addressed.

The cumulative effects from the construction of the wind turbines, cabling and haul route alterations will also be assessed.

6.2 Cumulative Assessment Methodology

The assessment methodology will be based on the EPA guidance and the EU guidelines, 'Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions', published by the Office for Official Publications of the European Communities in May 1999.

As part of scoping the studies required to assess the impacts of the proposed Croaghaun Wind Farm in the different environmental media, the potential for significant cumulative and indirect impacts and interactions will be examined and any such potential impacts will be identified. Where the potential for significant cumulative and indirect impacts and interactions is identified, such impacts and interaction of impacts will be included in the scope and addressed in the baseline and impact assessment studies for each of the relevant environmental media and aspects of the project. The cumulative and indirect impacts and interaction of impacts will be presented in the chapters of the EIAR which address the most relevant environmental media.

The matrix and expert opinion approaches, as outlined in the EU Guidelines, will be used in the identification of the potential for significant cumulative and indirect impacts and interactions. A matrix of potential interactions will be prepared. Modelling and carrying capacity analyses will be used to evaluate impacts.

6.3 Receiving Environment

There are four Nordex N60 turbines adjacent the site at Greenoge.

Permission was granted in 2008 (PL Ref. 08/527) for a two-turbine extension to the existing Greenoge Wind Farm this was subsequently superseded by consent (11/208) for a single Nordex N90 turbine which has been constructed with a hub height of 80m and a rotor diameter of 90m.

Permission was granted for a further single wind turbine 900m east of the site boundary (15/87) consisting of a hub height of up to 65m and a rotor diameter of up to 55m with overall tip height not exceeding 92.5m.

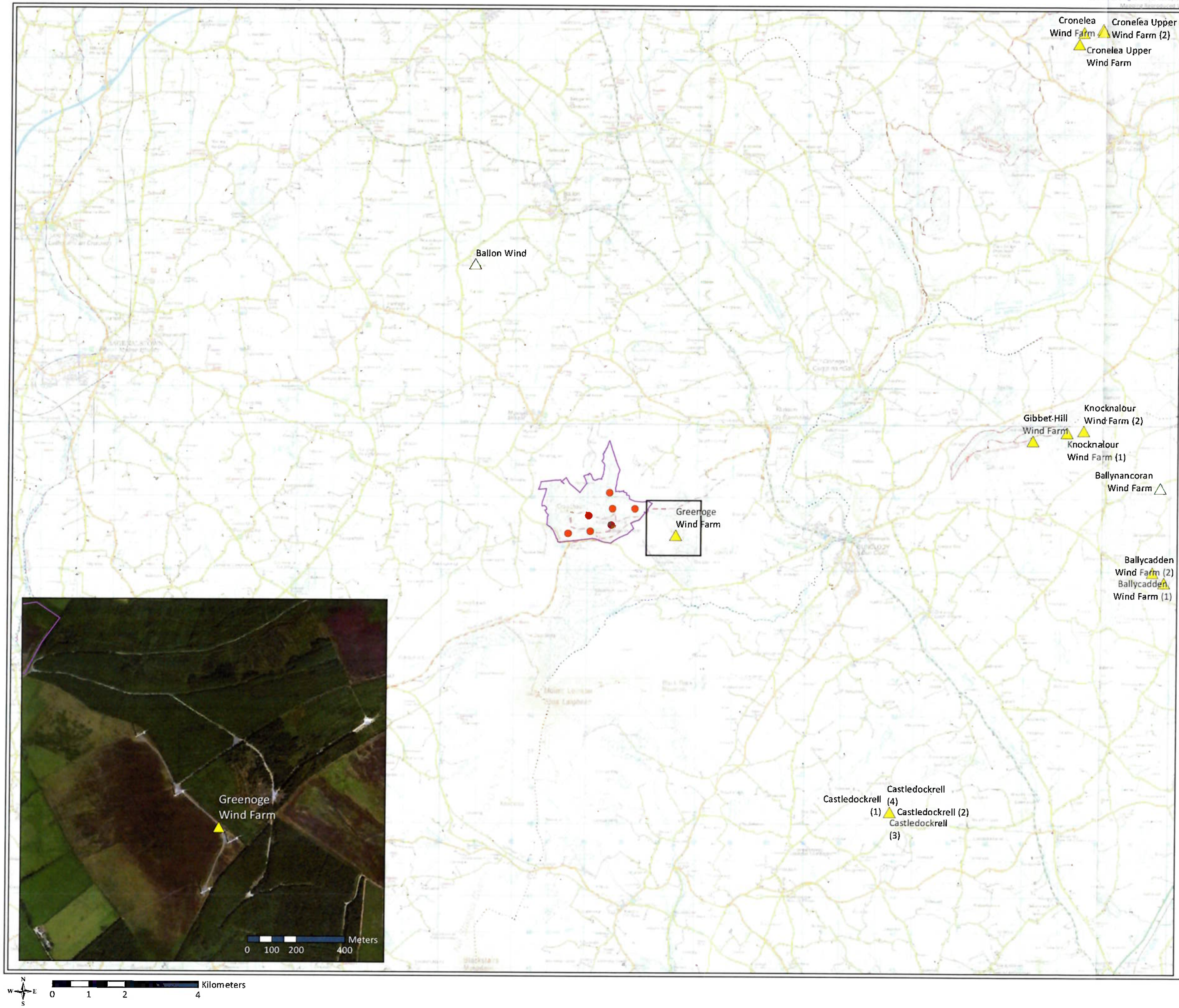
Other developments that have the potential to give rise to cumulative impacts will also be examined.

A key aspect of cumulative impact assessment with regard to Croaghaun Wind Farm shall be the interaction with the existing wind turbines at Greenoge. A number of other wind farms in the vicinity of the proposed development are shown in Figure 6-1.

6.4 Potential Impacts

The proposed Croaghaun Wind Farm has the potential to reduce Ireland's reliance on fossil fuel power generation and assist in it meeting its EU 2020 and 2030 targets for renewable energy generation.

If other projects of a similar scale and type are under construction at the same time as proposed Croaghaun Wind Farm, there would be a cumulative increased demand for construction materials and skills, and there would be potential for increased construction traffic.



CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

TITLE:	Cumulative Wind Renewable Energy Developments
PROJECT:	Croaghaun Wind Farm
FIGURE NO:	6.1
CLIENT:	Coillte
SCALE: 1:100000	REVISION: 0
DATE: 17/10/2019	PAGE SIZE: A3

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30 YEARS

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

Appendix A

LIST OF CONSULTEES

Telecommunications/ Aviation

Irish Aviation Authority
Telecommunications Section, An Garda Siochána
IT Department, Carlow County Council
Irish Broadband/Imagine
Munster Broadband
Digiweb Dublin Offices and Data Centre
Ripplecom
Magnet Networks
BT Communications Ireland Ltd
Dublin Airport Authority
Commission for Communications Regulation
RTE
Virgin Media Ireland
Eir
Broadcasting Authority of Ireland
Vodafone
Three
ESB Telecoms
TETRA Ireland Ltd.
Premier Broadband
Wireless Connect Ltd.
Irish Telecom
TowerCom Ltd.
Arra Communications
Wireless Connect Ltd.

Carlow County Council

Planning Department
Heritage Officer
Environment Department
Roads Department
Archaeologist

Kilkenny County Council

Planning Department
Heritage Officer
Environment Department
Roads Department
Archaeologist

Wexford County Council

Planning Department
Heritage Officer
Environment Department
Roads Department
Archaeologist

Wicklow County Council

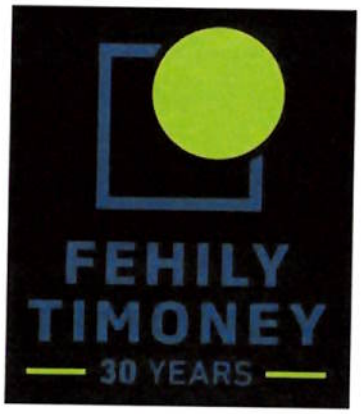
Planning Department
Heritage Officer
Environment Department
Roads Department
Archaeologist

Other Interested Bodies

An Taisce
Birdwatch Ireland
Carlow Branch of Birdwatch Ireland
Fáilte Ireland
Teagasc
EPA
Eastern and Midland Regional Assembly
Irish Farmers Association
The Blackstairs Farming Group
Irish Peatland Conservation Council
The Heritage Council
Sustainable Energy Authority of Ireland
Inland Fisheries Ireland
Irish Red Grouse Association
National Trails Office
South Eastern River Basin District
Irish Wildlife Trust
Irish Sports Council
Commission for Energy Regulation
Geological Survey of Ireland
Health Service Executive
Office of Public Works
Transport Infrastructure Ireland
Bat Conservation Ireland
Irish Raptor Study Group
Gas Networks Ireland
Iarnród Éireann
Irish Water
The Arts Council
Transport Infrastructure Ireland
Údarás na Gaeltachta
Waterways Ireland
The Irish Hang Gliding and Paragliding Association
Three Counties Energy Agency (3CEA)

Government Departments

Department of Communications, Climate Action and Environment
Department of Housing, Planning, Community and Local Government
Department of Agriculture, Food and the Marine
Department of Culture, Heritage and the Gaeltacht – Development Applications Unit (National Monuments Service)
Department of Culture, Heritage and the Gaeltacht – Development Applications Unit (Nature Conservation)
Department of Defence
Department of Transport, Tourism and Sport



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

Appendix B

DRAFT TABLE OF CONTENTS OF THE EIAR

COILLTE
GROW·TRANSFORM·SUSTAIN

Immediate next steps

Important

If we have missed something important to you, please let us know:
Phone: 1890 800 502
Email: croaghaun@coillte.ie
Post: Coillte Croaghaun, Block B, First Floor, Marlinstown Office Park, Mullingar, Co. Westmeath, N91 VW2D

Keep Me Informed

How would you like to be kept informed? Options include;

☐ Email ☐ Post ☐ SMS
☐ Regular Meetings

If at this stage you are happy to share your contact details with us, please do so below and return by post or email to the addresses above.

Name:

Phone:

Email:

Address:

We are currently studying the feasibility of a wind farm at this site. Part of the process is to obtain on-site wind data at a number of heights. The reason for this is that wind flows like water in a shallow stream. Wind passing over hills creates complex currents flowing at various speeds in different directions, just like water flowing over and around rocks. It is important to understand wind flow when it comes to deciding where to put the wind turbines. In order to gather this data, we will erect an 80m mast on site.

Additionally, our ecologists have commenced studying the site. Wildlife and bird surveys are underway to understand what species are in the area; identifying where they live and roost so that any design will ensure protection of their habitat.

We are currently advancing with the following actions:

i) to meet everyone within 1km of the site where the wind resource could be tapped so that we can start a conversation about the potential development of the resource,

ii) to ensure that everyone who would in any way be impacted by a wind project have access to all pertinent information,

iii) to erect a wind measuring mast to make sure we can share the facts about the wind with designers, investors and the local neighbours,

iv) to undertake assessments on all potential impacts.

COILLTE
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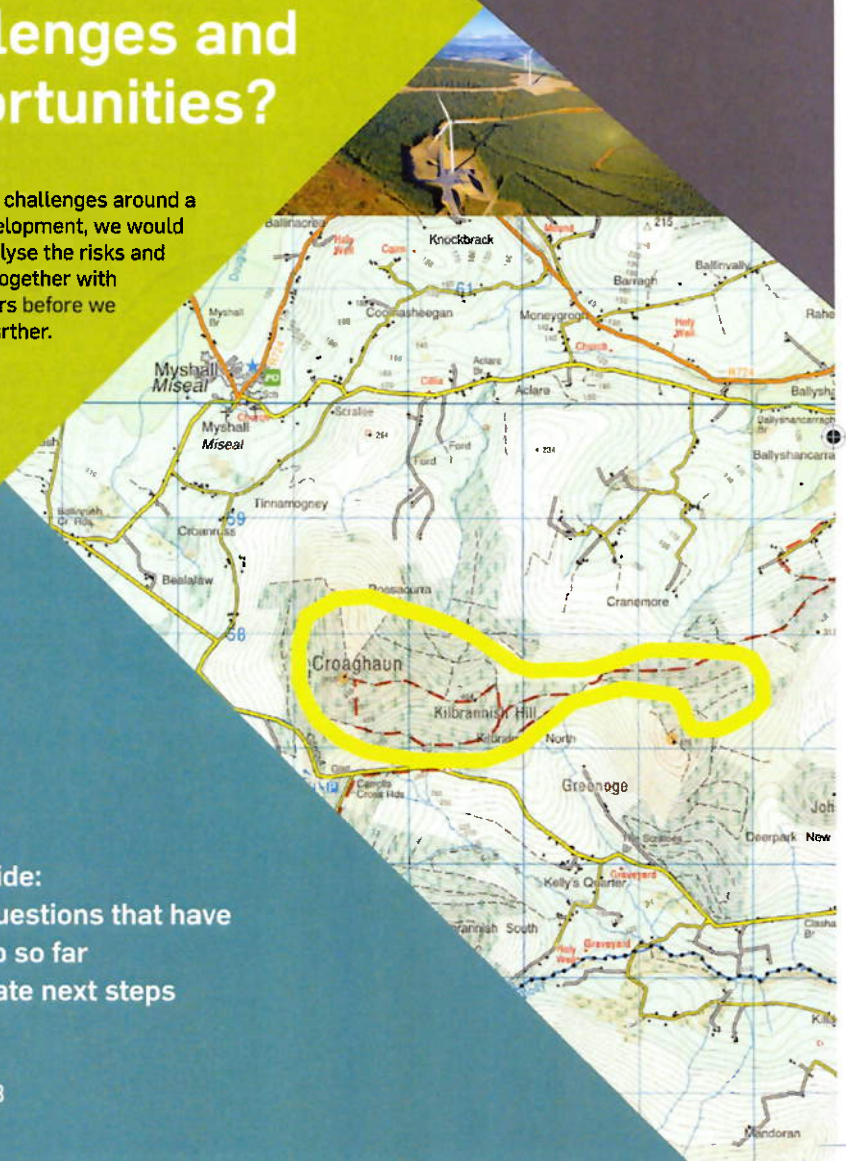
2.

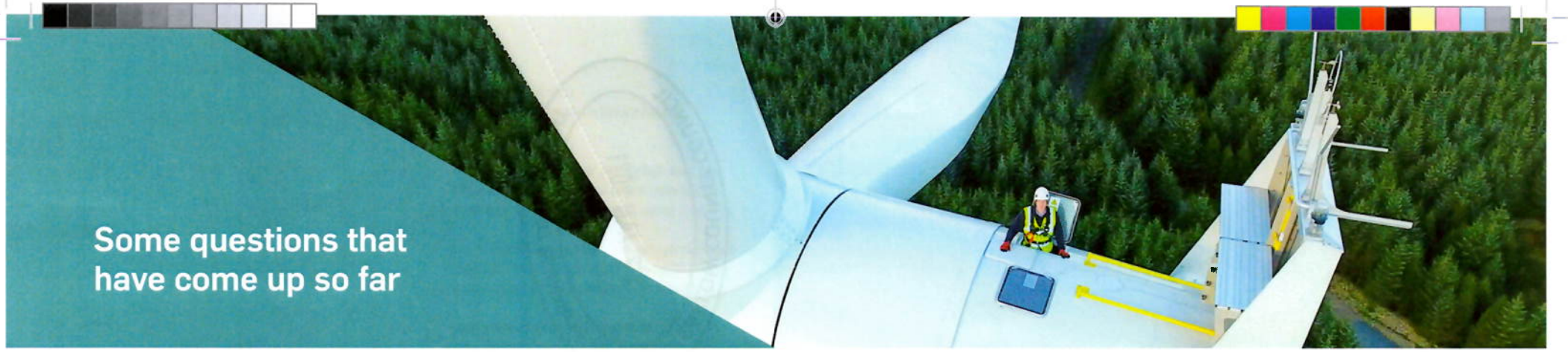
What are the Challenges and Opportunities?

To address the challenges around a wind farm development, we would like to first analyse the risks and opportunities together with local neighbours before we advance any further.



What's inside:
— Some questions that have come up so far
— Immediate next steps

Autumn 2018



Some questions that have come up so far

No matter how we look at it, having a wind turbine near your home will be a change. This change can include both negative and positive impacts.

Here are some of the questions we have heard when talking to people in the local area.

What about visual impact?

Turbines can be easily seen. As such, their placement needs to be considered from all views that they impact. A visual assessment will be undertaken and any resident who wishes to take part in this exercise will be welcomed to join in to make sure the views important to you are protected. Once all the information is collected then we will engage on the proposed layout before we go for planning.

Do wind turbines damage our health?

Health is a key concern and will need to be examined for each proposed turbine siting. People have concerns including noise, flicker and infrasound, and these will have to be transparently assessed and documented with local residents.

In reality, some people experience loss of sleep due to turbines being too close; and we know that lack of sleep takes a toll on health. Also, different people react differently to how close they feel comfortable having a turbine and often the legal limit is simply not enough. An important first step to fully appreciate this is to go close to existing turbines of similar design and to examine noises at distances that are relevant to you. Some of you will want to do this on your own and some together. We would be open to facilitating this. Please let us know if you are interested for us to organise a trip on a weekend or other time that suits you.

What about the noise from the wind turbines?

Most of you are familiar with the noise from the existing wind turbines at Kilbrannish and will understand that when you are up close to a wind turbine it is noisy enough. As you get farther away it is less so. Also, some makes and models of turbines are noisier than others. In addition weather conditions affect the noise to a large extent also. Even the legal limits imposed by law are not always sufficient to remove all annoyance. As such, it is very important to ensure that the placement of turbines around Croaghaun carefully considers all this. This exercise will be conducted openly with any resident who wishes to be involved.

What benefits exist through welcoming turbines within the neighbourhood of our homes?

There are at least six potential benefits to be considered:

(1) direct payment for land access;

(2) access to green energy at a significantly reduced rate as a benefit of being a close neighbour;

(3) the availability of a substantial fund to support sustainable development within the community - ideally overseen by a forum of local neighbours;

(4) the possibility of a representative community organisation becoming directly involved in the wind project and using revenue generated from this for local investments;

(5) local infrastructure improvements and economic activities linked to construction;

(6) an indirect benefit that may become very significant is the contribution we make towards cleaner air and cutting CO2 gas going into the atmosphere; a step that one day we might be very glad we took.

For these benefits to be well understood and negotiated, full transparency and genuine community and company representation are necessary.

All ideas and suggestions for how to make this happen are very welcome. Please send these to us by the end of November 2018 if at all possible. Suggestions after this date will still be welcomed.

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FEHILY TIMONEY
30 YEARS

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 5.3

Public Consultation Literature

Coillte Renewable Energy Track Record

The Coillte Renewable Energy team have extensive experience in the design, construction and operation of wind energy developments throughout Ireland, with projects currently operating in counties Wicklow, Galway, Roscommon and Cork. We are committed to mobilising all this experience with lessons learnt to ensure we meet our stated aim of creating wind projects good for Ireland, good for local neighbours and good for our company.

Coillte currently operates a portfolio of 4 wind farms with a capacity of 240 megawatts (MW) in conjunction with 3 joint venture partners and has an aspiration to build a further 1 gigawatt (GW) over the next ten years.

Keep Us Accountable to You

If you have questions or comments on any of the content of these leaflets or on any aspect linked to our focus, please feel free to mark these on the leaflets and send them back to us.

You can also use the back of Leaflet 2 to let us know how you would like to receive information.

Contact Us

We welcome any engagement and interaction with you on any aspect of what we are proposing to do.

You can contact us by email at **croaghaun@coillte.ie**, in person at the Coillte Office, Croaghaun, Mullingar, Co. Westmeath, or call Ashley our project manager on **1890 800 502** which will go directly to his phone.

For more information visit: www.coillte.ie

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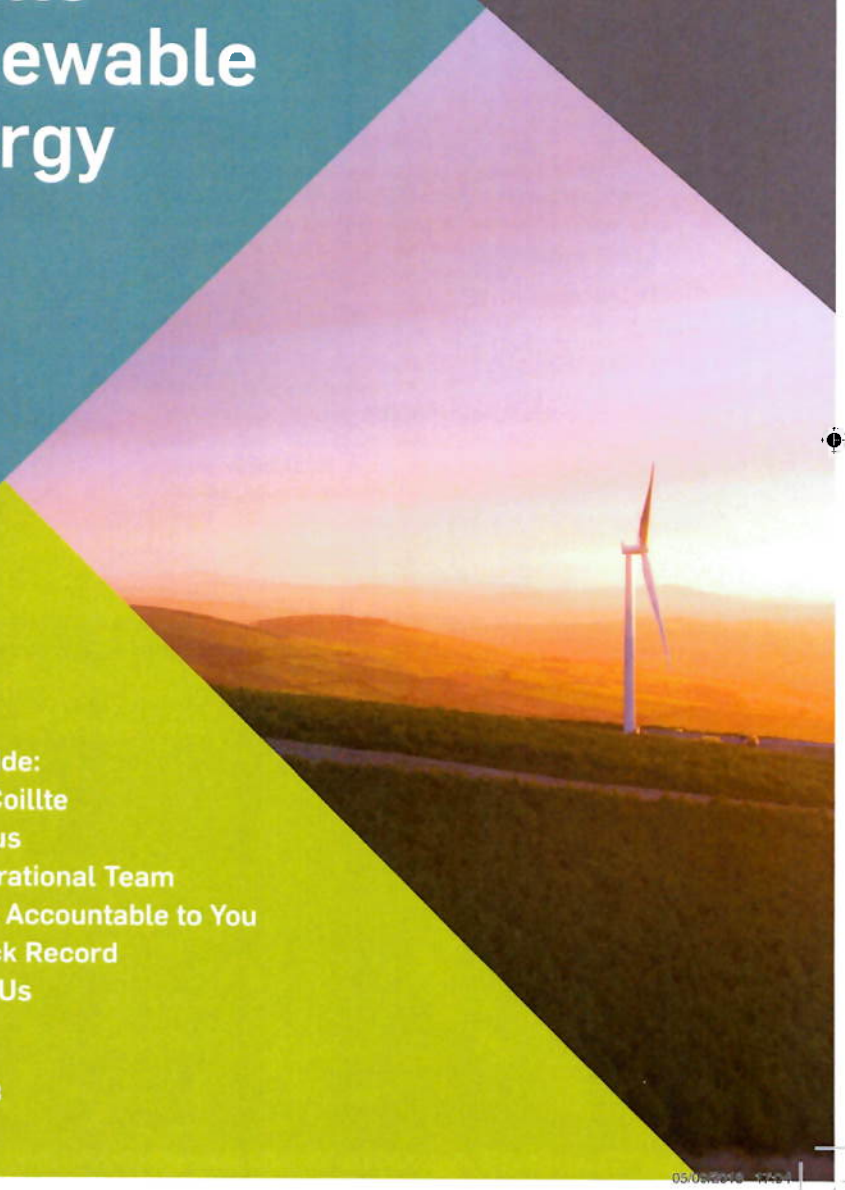
Coillte Renewable Energy

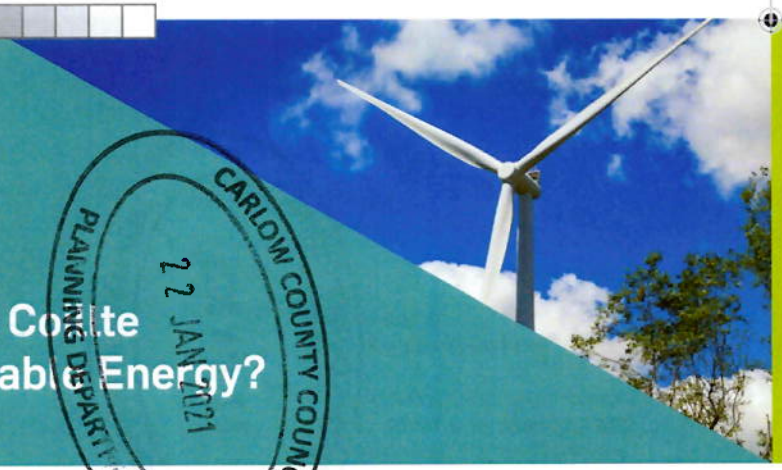
COILLTE
GROW · TRANSFORM · SUSTAIN



What's inside:

— Who is Coillte
— Our Focus
— Our Operational Team
— Keep Us Accountable to You
— Our Track Record
— Contact Us

Autumn 2018



Who is Coillte Renewable Energy?

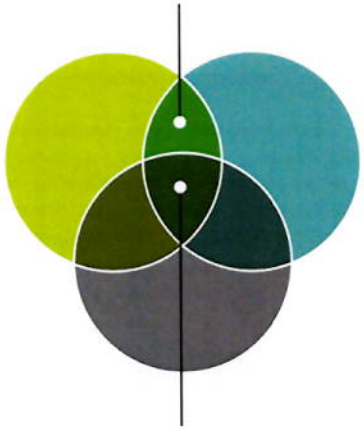
Coillte Renewable Energy are embarking on harnessing the wind energy above Coillte forests. We aim to build responsible projects in a way that is good for us, for society and our neighbours. We acknowledge this is a challenge. We have learnt a considerable amount over the past few years with regard to how we engage and are constantly striving to do better. We commit to managing the design and development of projects in collaboration with internal and external stakeholders for results supported by both.

Our Focus

For every project from now on, our commitment is to engage inclusively with our stakeholders on decisions that concern them. We will do this in time and systematically and we commit to cultivating a conversation that contributes to social cohesion, local sustainable development and ensures that risks to our neighbours quality of life are addressed. We aim to design and build projects that are socially supported. In reality this also makes better business sense.

INTRODUCING OUR 7 ZONES COMMITMENT

Decisions and activities that affect us both or that we can both affect.



Decisions and activities that also affect the authorities or that the authorities can affect.

- Coillte
- Community
- Authorities

Our Operational Team

From our team of over 20 peopled specialised in wind projects, three are empowered to focus on the design of a potential project on Coillte land in central Co Carlow.. They are:

Ashley Culbert, a native of Co. Laois, is our project manager. He is a mechanical engineer by profession and has been working in the wind industry for eleven years bringing projects from concept to preconstruction stage. He is from a farming background and has a keen interest in agriculture and rural communities.

Andy Fox is our Community Engagement Manager. Andy has spent the past 15 years working hand in hand with communities to drive towards sustainable local development. Originally from Kenya and the UK, Andy now lives in Co. Wicklow.

Paddy Murphy is our local liaison. Paddy is a forest technician by profession and has been working in the Coillte forests around Bunclody since 1985.

CROAGHAUN NEWSLETTER

COILLTE
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MAY 2019

Coillte are investigating the possibility of a potential wind farm at Croaghaun, Co Carlow. Our aim is to build responsible projects which are good for local communities, Ireland and Coillte.

Fehily Timoney and Company (FTC) have recently been appointed as environmental consultants to the project.

They are one of Ireland's largest, independently owned consultancies with extensive expertise across a wide range of scientific disciplines including, ecology, air, noise, hydrology, water quality, geology, hydrogeology and environmental data management.

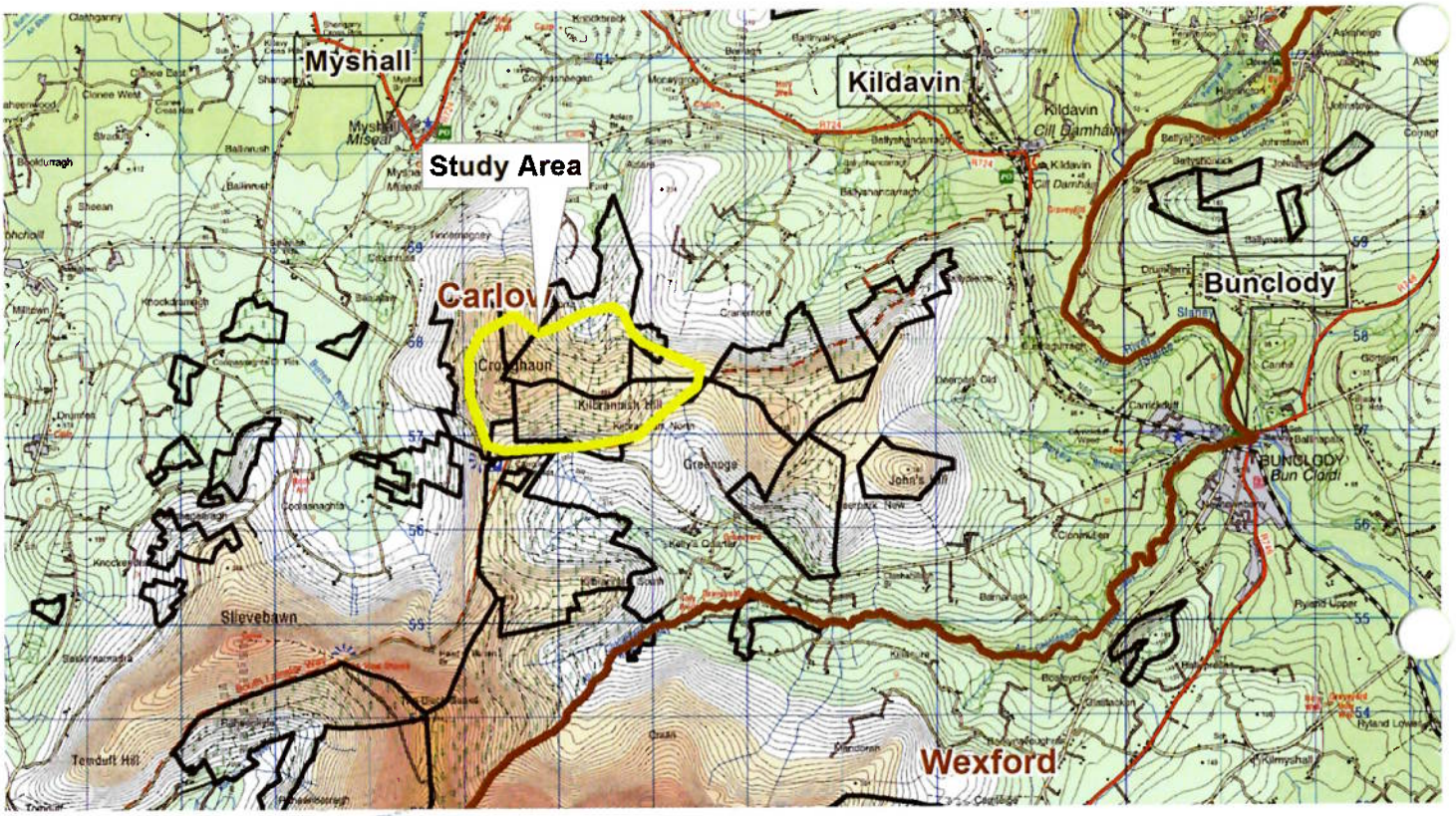
Their knowledge and expertise has been employed successfully in Ireland, UK and the Middle East through a broad range of projects such as motorway schemes, large industrial developments, renewable energy projects, major waste treatment facilities and environmental and social master planning.

FTC will begin ecology surveys shortly. Included in these survey areas are wildlife, aquatics, bats, habitual/botanical/invasive species, other fauna surveys and continuation of the existing bird survey. Results of these surveys will feed into the Environmental Impact Assessment Report which forms the basis of any design to ensure protection of the habitat.

Did you know:

- Ireland is home to nine bat species which are afforded strict protection under the Wildlife Act 1976 and EU Habitats Directive.
- There are 32 native terrestrial mammals and 425 species of bird, more than half of whom breed in Ireland.
- We also boast 815 flowering plants, about 80 native ferns, more than 700 mosses and liverworts, 3,500 fungi, over 1,000 lichens and 1,400 algae.

The proposed wind farm is situated on Croaghan Hill, south of Myshall and Kildavin in Co. Carlow.



Coillte Project Team

Ashley Culbert, a native of Co. Laois, is our Project Manager. He is a mechanical engineer by profession and has been working in the wind industry for eleven years bringing projects from concept to preconstruction stage. He is from a farming background and has a keen interest in agriculture and rural communities.

Andy Fox is our Community Engagement Manager. Andy has spent the past 15 years working hand in hand with communities to drive towards sustainable local development. Originally from Kenya and the UK, Andy now lives in Co. Wicklow.

Shane Lowry is our Community Liason Officer. Shane has lived in Myshall since 2006 with his family. He enjoys working with people and brings many years of experience across different business sectors. Shane is your local contact for the proposed project at Croaghaun.

Contact Us

We welcome any engagement and interaction with you on any aspect of what we are proposing to do. Phone Shane at **1890 800 502** or email **croaghaun@coillte.ie**

WWW.COILLTE.IE

Keep Me Informed

How would you like to be kept informed? Options include;

☐ Email ☐ Post ☐ SMS

☐ Regular Meetings

If at this stage you are happy to share your contact details with us, please do so below and return by email to **croaghaun@coillte.ie** or by post to:
Croaghaun Wind Farm,
Coillte, Block B, First Floor
Marlinstown Office Park, Mullingar,
Co Westmeath

Name:

Phone:

Address:

Signature:

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

We will never share your details with any third party. You can view our privacy policy at www.coillte.ie/privacy-policy

CROAGHAUN NEWSLETTER

COILLTE
GROW·TRANSFORM·SUSTAIN

October Newsletter 2019

Our aim is to build responsible projects which are good for local communities, Ireland and Coillte.

We have launched a dedicated Website www.croaghaunwindfarm.ie for this project. The website will provide all our project updates, ongoing activities, timelines, along with the option to ask us any questions you may have.

Visit www.croaghaunwindfarm.ie and have a look.

Since May we have extended household engagement from a 1Km to 2Km radius from the proposed Project location. Shane, your local community liaison officer, has been busy meeting people introducing himself and the project . Shane has been working hard to keep everyone up-to-date and is available at any time during business hours. You will find his contact details at the end of this newsletter. Where necessary, out of hours meetings and calls can be facilitated by prior request.

The team from Fehily Timony, our environmental consultants, have completed their background noise monitoring campaign. This entailed placing monitors near houses to measure ambient noise levels over a 3-4 week period. This is required in order to ensure that the project conforms to development guidelines for wind farms.

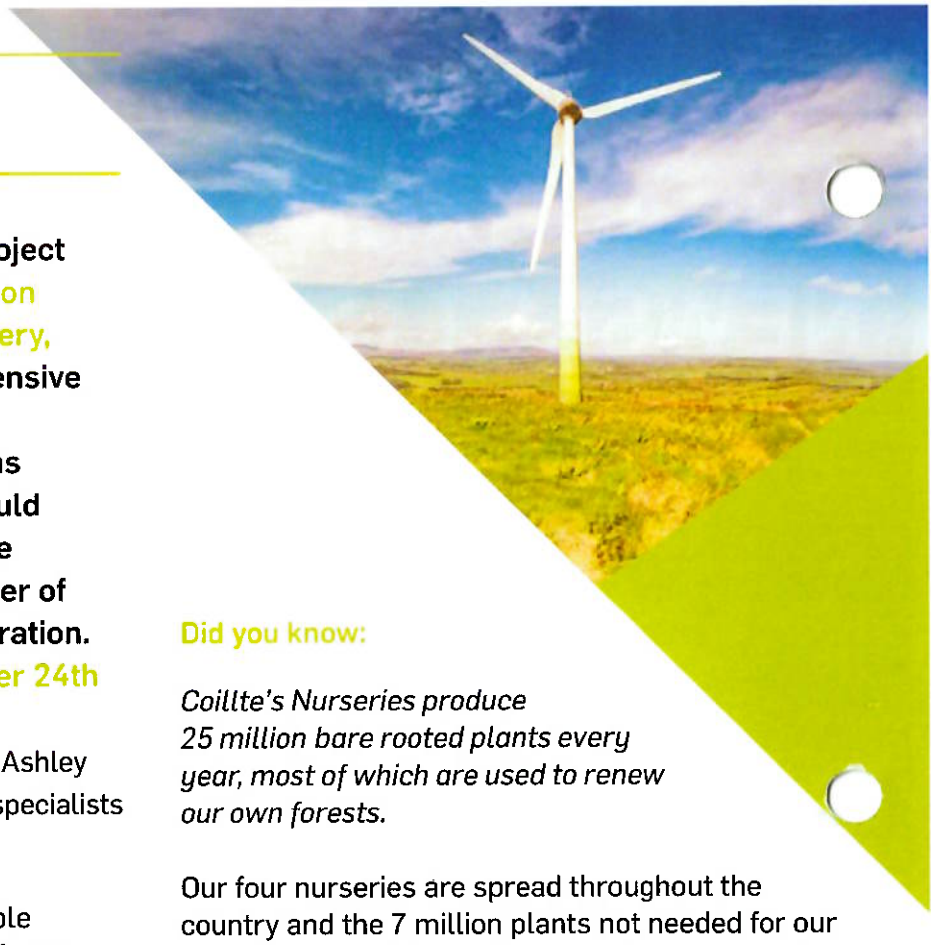
A total of nine monitors were installed at locations selected to best represent noise levels for the area.

We would like to thank all those people and and houses who have engaged in this part of the project to date.

Did you know: *The noise consultant has to discount the noise emitted by the existing turbines to establish the true back ground noise for the area. Wind farms are limited in the amount of noise they can emit above this lower background level.*

Other on-site activities include ongoing wind monitoring from the on site met mast, bat species identification and level of bat activity on site. Site walkovers are undertaken by Geologists, Ecologists and Landscape Architects who are all carrying out ongoing survey work for the project.

INVITATION TO NEAR NEIGHBOUR WORKSHOPS



As a near neighbour to the proposed project we would like to invite you to an exhibition in our Coillte offices, Ballintemple Nursery, Ardattin. There you will see a comprehensive range of mounted photomontages and panoramic views from different locations around the proposed project which should give you good understanding of what the development could look like for a number of project layouts currently under consideration. This will be open from Thursday, October 24th through to Saturday, October 26th.

Please drop in any time to meet Shane (CLO), Ashley (Project Manager) and some of our technical specialists who will answer any questions you may have.

Ample parking is available at our Ballintemple Nursery and please stay for refreshments after you have met the team.

THE DESIGN PROCESS

This three day exhibition serves to present two proposed turbine layout plans. We would be grateful for your feedback on the layouts and the scope of the Environmental Impact Assessment which is being carried out for this project.

Designing a wind farm is an iterative process. We are still in the very early stages of design and all layouts are subject to change following studies and community feedback.

Upcoming events:

There will be further workshops on other specialist topics such as ecology, geology and noise coming up over the next few months on request by our local community.

We will keep you updated on events, dates and times as they are confirmed. All our information will be posted on www.croaghaunwindfarm.ie

Did you know:

Coillte's Nurseries produce 25 million bare rooted plants every year, most of which are used to renew our own forests.

Our four nurseries are spread throughout the country and the 7 million plants not needed for our own planting and restocking are sold to other Irish forest companies, independent contractors or other agencies.

Coillte's Ballintemple Nursery, Ardattin:

Is a large provider of seasonal and sustainable local employment in Co Carlow.

Location: Coillte's Offices, Ballintemple Nursery, Ardattin, Co Carlow.

Thursday 24th October 4pm – 8pm | Friday 25th October 4pm – 8pm | Saturday 26th October 11am – 3pm

Directions: Drive straight through Ardattin and keep the "Ardattin Inn" on your left following the road for Clonegal. Continue out that road for 4.2Km and you will see a sign on the right at a gentle bend "Coillte Nurseries, Ballintemple. Take the turn into the nursery and follow the road around for about 1.5Km to the very end. The exhibition/workshop is located in the second building on the left.

Contact Details: Phone Shane at 1890 800 502 or email croaghaun@coillte.ie

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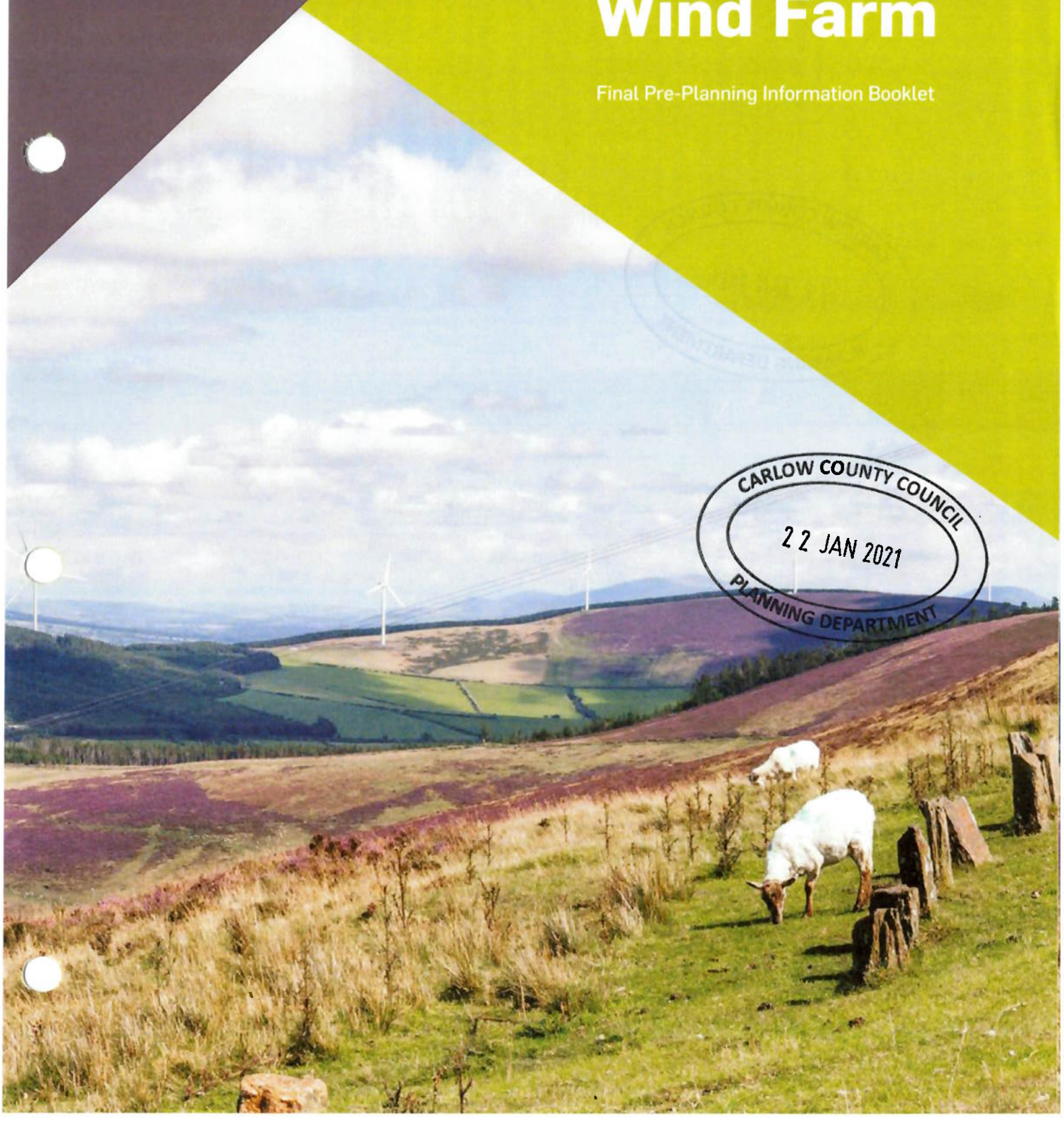
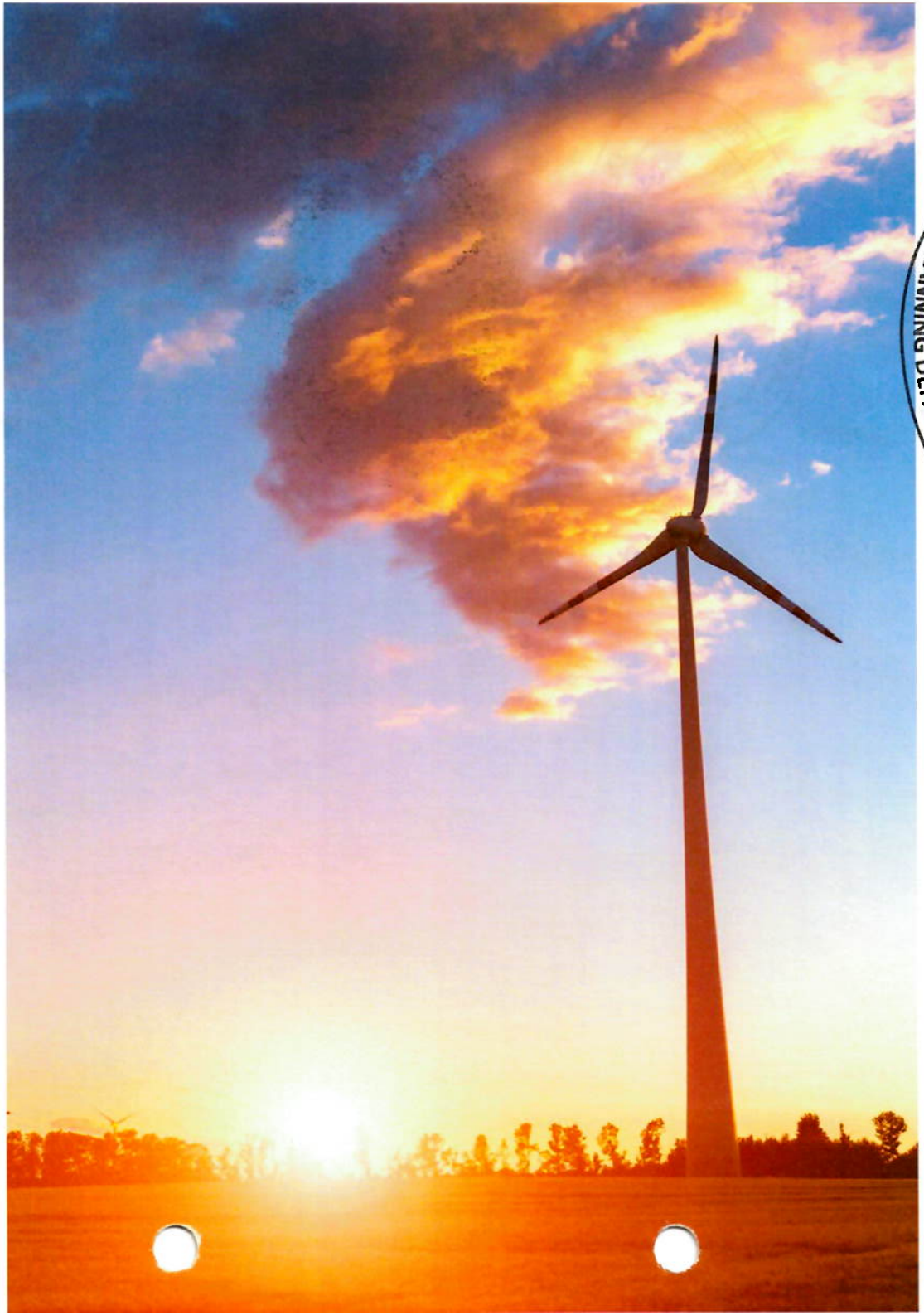
Croaghaun Wind Farm

Final Pre-Planning Information Booklet





Dear Homeowner,

First and foremost, we hope this finds you safe and well in these challenging times, and adjusting as best as possible to new ways of going about daily life.

As you may be aware, Coillte's Renewable Energy business has been actively exploring a wind farm development opportunity close to Myshall, Co. Carlow. The community engagement model which we use within our team has given us an opportunity to meet with a very high proportion of people residing within 2 km of the potential wind farm.

The proposed Croaghaun Wind Farm project is now at a stage where all the environmental assessment data has been gathered and collated to inform the final proposed layout. This brochure sets out a detailed overview of all aspects of the proposed Croaghaun Wind Farm project and we look forward to addressing any queries that may arise. We propose to address any queries by phone call or email as the current Covid-19 Government restrictions do not allow for in person meetings.

To supplement the detail in this brochure we have also put together an online virtual tour of the project with added detail on topics such as landscape and visuals, transport and delivery routes and maps with added functionality. This can be accessed on the home page of the project website (**www.croaghaunwindfarm.ie**).

Please be assured that we will continue to make every effort to ensure that we provide you with all the information you need in order to fully understand the details of this proposed project. We are also committed to making available the necessary resources within our team to support any engagement.

Once you have had a chance to read through this brochure and should you have any areas of the project you wish to discuss further, please make contact with any of the team in the coming weeks using the contact details at the back or on the project website (**www.croaghaunwindfarm.ie**).

Please stay safe and well in these difficult times.

Yours sincerely,

Ashley Culbert
Project Manager
Coillte

Shane Lowry
Community
Liaison Officer
Coillte

1. INTRODUCTION

This brochure has been prepared to:

- provide an update on the proposed Croaghaun Wind Farm project; outline a brief description of the infrastructure that is proposed
- describe the expected benefits of the proposed development and how it may positively impact local communities and initiatives
- describe the technical and environmental studies which have been completed as part of the design and environmental assessment process
- outline the steps to be taken prior, during and after the planning permission application has been submitted to the Planning Authority

Photomontage view of proposed project from the summit of Mt Leinster

Why Onshore Wind?

In May 2019, the Government declared that Ireland was in the midst of a climate and biodiversity emergency. The Environmental Protection Agency (EPA) has stated that mean annual temperatures in Ireland have risen by 0.7° Celsius (C) over the past century and are likely to rise by 1.4°C to 1.8°C by the 2050's and by more than 2°C by the end of the century due to climate change. Climate change refers to the change in climate that is attributable to human activity arising from the release of greenhouse gases in particular from the burning of fossil fuels (coal, oil, peat) for transport, electricity generation and agriculture. The Environmental Protection Agency states that future impacts associated with climate change include[1]:

- more intense storm and rainfall events
- increased likelihood and magnitude of river and coastal flooding
- water shortages in summer in the east
- adverse impacts on water quality
- changes in distribution of plant and animal species

As Ireland's largest landowner, Coillte has the capacity and with that the responsibility to contribute significantly to Ireland's efforts to combat climate change and reduce carbon emissions. Our forestry business sequesters 1.1m tonnes of carbon annually and our land asset, with its suitability for wind farm development, puts us at the forefront of being able to deliver on the Government's Climate Action Plan (June 2019) which announced a target of 70% of Ireland's electricity from renewable sources by 2030.

This commitment will form part of the forthcoming climate change legislation for publication in the near future.

- A target of net zero economy-wide greenhouse gas (GHG) emissions by 2050 which will include:
  - A target for the renewable share of electricity generation of 70% by 2030. Provision for five-yearly carbon budgets, consistent with the emissions reduction pathway to 2030 and 2050

More specifically, the Climate Action Plan 2019 states that:

'To meet the required level of emissions reduction, by 2030 we will:

Increase electricity generated from renewable sources to 70%, indicatively comprised of:

- *at least 3.5 GW of offshore renewable energy*
- *up to 1.5 GW of grid-scale solar energy*
- *up to 8.2 GW total of onshore wind capacity'*

The current capacity of installed onshore wind energy in Ireland is approximately 4,200 MW. The *'Project Ireland 2040: National Development Plan 2018 – 2027'* outlines the need for an additional 3,000-4,500 MW of renewable energy as an investment priority.

Wind energy makes sense for Ireland for many reasons. It is a clean fuel source which does not pollute the air like power plants that rely on combustion of fossil fuels, such as coal or natural gas. Wind turbines do not produce atmospheric emissions that cause acid rain or greenhouse gasses. Wind energy is a domestic natural resource available in abundance in Ireland and the resource is free. Domestic production of electricity from wind reduces reliance on imports of fossil fuels. Recent technology developments in onshore wind energy have resulted in significant improvements in the cost of energy and wind energy is the most economic form of renewable energy generation. Coillte's land asset is ideally suited to wind farm development due to the predominance of rural landholdings in areas of high wind resource and low environmental sensitivity. As a wind farm occupies such a small proportion of a site area, many other land uses can co-exist such as Coillte's forestry business, recreation offering and biodiversity management.

The further development of renewable energy sources is a vital component of Ireland's strategy to tackle the challenges of combating climate change and ensuring a secure supply of our future energy needs. The proposed project is being brought forward in response to these challenges.

Community Engagement

A Community Liaison Officer was appointed to the project in March 2019 and extensive community engagement has been undertaken with neighbours living close to the proposed site since then. This is part of Coillte's engagement approach for those who are most impacted by the proposed development and living within 2km of a proposed turbine. The Project Manager and Community Liaison Officer have undertaken a programme of work to ensure that accurate information is shared and that stakeholders have a forum where queries can be posed and addressed.

The format of this programme includes printed information, house visits, a website and discussions with community and recreation groups, businesses, schools, etc. This brochure forms part of this process and all the information within this brochure is intended to provide an understanding of the proposed wind farm, its design and its environmental credentials. There will also be an online virtual tour of the project to provide further information which can be found on the project website (www.croaghaunwindfarm.ie).

The Team

Coillte Renewable Energy is a division within Coillte responsible for generating recurring revenue by partnering, developing and adding value where Coillte-owned lands are suited to activity other than forestry, such as renewable energy. Coillte has been involved in the development of 4 operating wind farms including Raheenleagh (Wicklow), Sliabh Bawn (Roscommon), Cloosh (Galway) and Castlepook (Cork) which have a combined total capacity of over 300 megawatts (MW).

The team involved in this project includes a Project Manager, Community Liaison Officer and the support of a number of specialists in the areas of Grid development, Community Engagement, Planning and Policy and GIS and Wind Resource Management.

Fehily Timoney and Company (FT) is one of the largest independent employers of environmental engineers, planners and scientists in Ireland providing comprehensive services across a wide range of environmental scientific disciplines including air, noise, ecology, hydrology, water quality, geology, hydrogeology and environmental monitoring through its in-house environmental team for renewable energy projects. On behalf of Coillte, FT are preparing the planning application and environmental impact assessment including noise modelling, shadow flicker modelling, geology/ hydrogeology, hydrology and water quality, ecology. FT are also managing preliminary site investigations for the EIAR.

About The Site

The proposed Croaghaun Wind Farm is located in east Carlow approximately 1.5 km south east of Myshall, 4 km south west of Kildavin and 5.5 km west of Bunclody. The total land parcel of the site is approximately 419 ha. Landownership associated with the proposed development is a combination of Coillte and local private landowners. The wind farm site is covered by managed coniferous forestry, sections of peat bog and a small area of agricultural land at the south of the site. The River Clody runs to the south of the site and drains into the River Slaney located east of the site. The site ranges in elevation from 450 m OD to 175 m OD. The site is accessed by local roads. The R724 regional route is located nearby to the north and the N80 national secondary route is located nearby to the east. The proposed wind farm is not situated within any environmentally designated areas, however surface water running off the site drains into the Slaney River Valley SAC. The site is in a rural area with no major settlements nearby. Settlement in the area is made up of one-off rural housing and farmyards generally located along the road network of the area. There is one wind farm in the immediate vicinity of the site, Greenoge Wind Farm, which is located directly east of the proposed wind farm site.

1 https://www.epa.ie/climate/communicatingclimatescience/whatisclimatechange/whatimpactwillclimatechangehaveifi...

Photomontage of the proposed Wind Farm from the N80 northwest of Kildavin.

Why This Site?

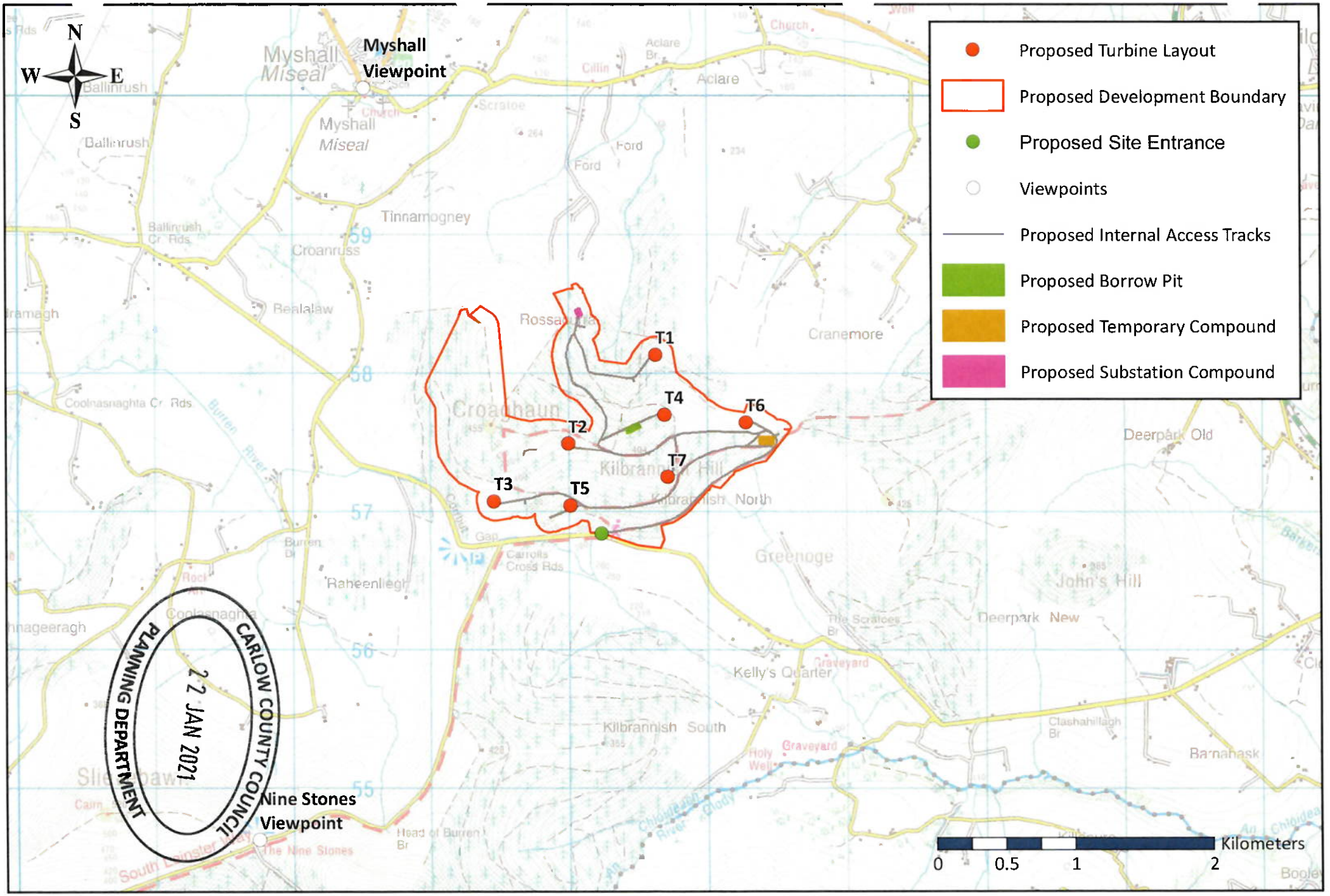
Identifying a site suitable for a wind farm encompasses several considerations. Suitability of the Croaghaun site can be attributed to the following characteristics:

- the proposed wind farm is not located within a Natura 2000 site (i.e. Special Area of Conservation (SAC) or a Special Protection Area (SPA)) nor a Natural Heritage Area (NHA)
- initial landscape and visual impact assessment indicates that proposed location is suitable for a project of this scale;
- the site has excellent annual average wind speeds;
- a significant setback from houses can be achieved. For Croaghaun, there is one dwelling located within 1km of the wind turbines at a distance of 984m.
- there is a network of existing forestry roads within the site that can be utilised.

2. PROPOSED DEVELOPMENT

The proposed wind farm project includes the following:

- 7 wind turbines up to a maximum tip height of 178 metres with all associated foundations and hardstanding areas;
- onsite 38kV substation with an underground grid connection to the existing 110kV substation in Kellistown;
- upgrading of existing site access tracks and construction of new site access tracks as required;
- 1 onsite borrow pit to source stone material on-site;
- 1 onsite met mast up to a height of 100m;
- provision of a recreational amenity trail to allow and encourage public access to the site for walking;
- a temporary construction compound;
- all underground cabling required to connect the on-site substation to each wind turbine;
- tree felling and all associated site development works;
- temporary road upgrade works at a number of locations to allow delivery of oversize loads to the wind farm.


N
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Myshall
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Viewpoint
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Proposed Turbine Layout
Proposed Development Boundary
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Proposed Internal Access Tracks
Proposed Borrow Pit
Proposed Temporary Compound
Proposed Substation Compound
Kilometers
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0.5
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2
PLANNING DEPARTMENT
CARLOW COUNTY COUNCIL
22 JAN 2021
Myshall
Miseal
Ballinrush
Tinnamogney
Croanruss
Bealalaw
Coolnasnaghta Cr. Rds
Rossacurra
Croachaun
Cranemore
Kilbrannish Hill
Kilbrannish North
Kilbrannish South
Deerpark Old
Deerpark New
Greenoge
John's Hill
Kelly's Quarter
Raheenlegh
Barnahask
Aclare
Ford
Carrolls Cross Rds
The Nine Stones

3. COMMUNITY BENEFIT AND INVESTMENT PROPOSAL

How will this project benefit the local community?

Croaghaun Wind Farm has the potential to bring significant positive benefits to local communities. The project will support sustainable local employment, it will contribute annual rates to the local authority and could provide opportunity for local community investment in the project in line with expected future Renewable Energy Support Scheme (RESS) design.

As with all wind farm projects which Coillte develop, a community benefit fund will be put in place to provide direct funding to those areas surrounding the project.

What will the community benefit fund look like?

Two important areas of Government policy are in development which will have a bearing on the establishment of future community benefit funds, the updated Wind Energy Guidelines and the Renewable Energy Support Scheme (RESS). Both sets of policy are expected to be finalised in 2020 which will provide the Government requirements on future community benefit funds for renewable energy projects. We will fully take into account these two important policies as we present the proposed project's approach to community benefit.

Coillte expects that for each megawatt hour (MWh) of electricity produced by the wind farm, the project will contribute €2 into a community fund for the RESS period i.e. first 15 years of operation and €1 per MWh for the remaining lifetime of the wind farm. If this commitment is improved upon in upcoming Government Policy we will adjust accordingly.

If this project is constructed as currently designed, this would mean that for the first 15 years of operation in excess of €200,000 per annum will be available in the local area to be split between a "Near Neighbour" Fund and a wider "Community Benefit Fund".

The above figure is indicative only and will be dependent on the generation capacity of the wind farm which is influenced by a number of factors including:

1. Number and type of wind turbines eventually permitted
2. Capacity and availability of energy production of the delivered turbines
3. Quantity of wind (dependent on wind conditions in any year)

How the fund will be used and administered?

The Community Benefit Fund belongs to the local communities surrounding the proposed wind farm. The premise of the fund is that it should be used to bring about significant, positive change in the local area.

Following the submission of the planning application, there will be workshops organised to facilitate consideration of the priorities for the local area. The output from these workshops and any other proposals from the community will inform the structure of the Community Benefit Fund.

Near Neighbour Scheme

It is acknowledged that the people living closest to a wind farm are the most important stakeholders and a proportion of the Community Benefit Fund will be set aside as a dedicated "Near Neighbour Fund".

The exact structure of this will be confirmed as part of the development of the overall Community Benefit Fund but would typically provide support of varying degrees for properties up to 2 km from turbines. This is supported by the requirements set out in the first RESS. These are set out in Section 7.2.6 of the RESS1 Terms and Conditions https://www.dccae.gov.ie/documents/RESS_1_Terms_and_Conditions.pdf as shown below – this could be adjusted in future RESS schemes that may relate to this project.

'The Generator or its agent will administer the funds contained in the Community Benefit Fund and shall distribute such funds for the duration of the relevant RESS 1 Project's RESS 1 Support as follows on an annual basis:

(a) in respect of Onshore Wind RESS 1 Projects, a minimum of €1,000 shall be paid to each household located within a distance of a 1 kilometre radius from the RESS 1 Project;

(b) a minimum of 40% of the funds shall be paid to not-for-profit community enterprises whose primary focus or aim is the promotion of initiatives towards the delivery of the UN Sustainable Development Goals, in particular Goals 4, 7, 11 and 13, including education, energy efficiency, sustainable energy and climate action initiatives;

(c) a maximum of 10% of the funds may be spent on administration. This is to ensure successful outcomes and good governance of the Community Benefit Fund. The Generator may supplement this spend on administration from its own funds should it be deemed necessary to do so; and

(d) the balance of the funds shall be spent on initiatives successful in the annual application process, as proposed by clubs and societies and similar not-for-profit entities, and in respect of Onshore Wind RESS 1 Projects, on "near neighbour payments" for households located outside a distance of 1 kilometre from the RESS 1 Project but within a distance of 2 kilometres from such RESS 1 Project.'

What is meant by Community Investment?

The proposed RESS sets out that future renewable energy project proposals enable the possibility for local communities to invest in projects in a meaningful way as a means to directly gain from the financial dividends that a project can provide should it be consented, built and operated. In response to this, Coillte have been working hard with external agencies to develop workable models of Community Investment. As with the benefit fund, we aim to take this work into the community in advance of participation in a relevant RESS auction, to continue to explore this exciting possibility and see how best to embed its design within the community.

Recreation Plan

Croaghaun mountain is located within Kilbrannish forest which is a popular upland area in easy reach of Bunclody and a number of surrounding villages. The forest is used mainly by local people for walking along the forestry roads which have been signposted as a series of 3 looped trails. The forest also hosts a significant part of the 'Kildavin to Nine Stones' section of the South Leinster Way and is also used semi-officially by local mountain bike clubs for enduro and downhill cycling.

It is evident from observation, local consultation and the examination of activity heat maps, that Kilbranish forest is used regularly by locals and visitors to the area. However, there is a significant gradient on some of the existing forest roads and trails, which makes the forest less suited to small children, prams, wheelchairs and individuals with an ambulatory disability. Based on a site visit and discussions with some stakeholders, the inclusion of the following outdoor recreation resources are proposed as part of the windfarm development stage:

- Walking: In addition to maintaining the existing sanctioned walking trails, an additional walking trail will be developed, named the Croaghaun wind farm trail. Associated map and direction signage will form part of this development.
- Heritage: a small number of interpretation signs will be provided on the trail system regarding the natural and social heritage of the site.
- A panorama viewing site including a simple seating area and a panorama labelled photograph stand at the crest of Croaghaun hill and interpretive information regarding wind generation at the site in the form of engaging pictorial graphics at three of the turbines and adjacent to the recreation car park area.
- Additional measures will be undertaken to prevent the unauthorised use of the site by motorised quads and scrambler bikes.
- The forest and wind-farm roads will continue to provide the majority of trail infrastructure for recreation walking. All walking trails will be finished to an appropriate surface for recreation walking as identified in the National Trails Office guidelines.

A redesign of the existing information panels will be undertaken to include any trail or wind-farm amendments at the site.

Additional Benefits

Additional benefits arising from the construction and operation of the proposed development include:

- up to 60 people directly employed at peak construction, 2 long term high quality technical jobs in operation and maintenance
- substantial annual rates paid to Carlow County Council. Rates paid to Carlow County Council for the proposed development will have a positive impact on local infrastructure and amenities such as roads, public lighting, street cleaning, libraries, fire services and public amenities
- indirect employment created through supply of a wide range of products and services

4. SITE DESIGN PROCESS

The design process for the proposed wind farm starts with a review of existing information to avoid or minimize potential impacts. This includes limiting the angle of slope of the ground where development can occur, including a setback distance from watercourses and residences, as well as a setback distance from any nearby European designated habitat sites.

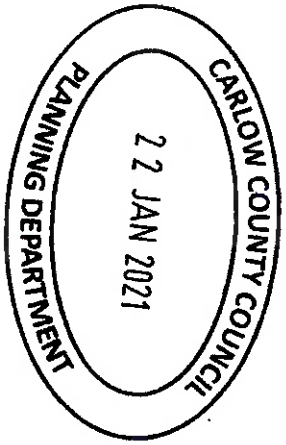
A turbine layout was developed to take into account design considerations and the separation distance required between the turbines. The location and alignment of the associated infrastructure, such as roads, crane hard stands and substation, was then developed following confirmation of the proposed turbine layout. The locations of the proposed wind turbines and all other proposed infrastructure locations have been informed by rigorous site investigations and assessments carried out over a three-year period including:

- Ecological Surveys
- Ornithological Surveys
- Geotechnical, Hydrological and Geotechnical Site Investigations
- Shadow Flicker Modelling
- Noise Modelling
- Archaeological Surveys
- Landscape and Visual Assessment

The constraints map has been continuously updated throughout the development design process based on the findings of each of the site investigations and assessments that have been completed. The constraints map will be available to view on the project website.

Scoping and Consultation

Development projects such as wind farms require a detailed Environmental Impact Assessment Report (EIAR). In order to ensure that the EIA process was appropriate to the project and locality, an information document was prepared and circulated to a list of statutory consultees to ensure that the EIAR was addressing all relevant topics.



5. THE PLANNING PROCESS

Environmental Impact Assessment Report

The EIAR will focus on the areas outlined here and will accompany the planning permission application.

Fehily Timoney and Company (FT) are compiling the EIAR with the input of a small number of expert specialist consultants.

The content of the EIAR is set out as follows:

Chapter 1	**Introduction**
Chapter 2	**Site Selection and Alternatives**
Chapter 3	**Description of Proposed Development**
Chapter 4	**Policy**
Chapter 5	**EIA Scoping, Consultation and Key Issues**
Chapter 6	**Air and Climate Change**
Chapter 7	**Noise and Vibration**
Chapter 8	**Biodiversity**
Chapter 9	**Land, Soils and Geology**
Chapter 10	**Hydrology and Water Quality**
Chapter 11	**Human Beings, Population and Human Health and Material Assets**
Chapter 12	**Shadow Flicker**
Chapter 13	**Traffic and Transportation**
Chapter 14	**Archaeology, Architectural and Cultural Heritage**
Chapter 15	**Landscape and Visual Impact**
Chapter 16	**Telecommunications and Aviation**
Chapter 17	**Interactions of the Foregoing**

Planning Application

An application for planning permission for the proposed Croaghuan Wind Farm will be submitted to Carlow County Council. During the project design and environmental assessment, consultation was carried out with Carlow County Council along with a number of other statutory consultees, to discuss the project. The planning application will be supported by an Environmental Impact Assessment Report (EIAR) and a Natura Impact Statement (NIS).

6. AIR AND CLIMATE

This chapter identifies, describes and assesses the potential significant direct, indirect and cumulative effects on air quality and climate arising from the construction, operation and decommissioning of the proposed Croaghaun Wind Farm.

While there may be an imperceptible temporary negative impact to local air quality in the immediate vicinity of the development arising from vehicle exhausts and dust generation during the construction phase, the overriding long term impact will be positive.

In total, it is estimated that **2,961,750** tonnes of CO2 will be displaced over the lifetime of the wind farm i.e. **98,725** tonnes of CO2 per annum, which assists in realising the ambitious goals of Ireland's Climate Action Plan 2019. From an operational perspective, the proposed wind farm project will displace the emission of CO2 from other less clean forms of energy generation and will assist Ireland in meeting its renewable energy targets and obligations. The burning of fossil fuels for energy creates greenhouse gases, which contributes significantly to climate change. These and other emissions also create acid rain and air pollution.

7. NOISE AND VIBRATION

Noise is generated by wind turbines as they rotate to generate power. This only occurs above the 'cut-in' wind speed and below the 'cut-out' wind speed. Below the cut-in wind speed there is insufficient strength in the wind to generate efficiently and above the cut-out wind speed the turbine is automatically shut down to prevent any malfunctions from occurring. The cut-in speed at the turbine hub-height is approximately 3 m/s and the cut-out wind speed is approximately 25 m/s.

The principal sources of noise are from the blades rotating in the air (aerodynamic noise) and from internal machinery, normally the gearbox and, to a lesser extent, the generator (mechanical noise). The blades are carefully designed to minimize noise whilst optimising power transfer from the wind.

Vibration is generated by construction activities such as rock breaking and passing heavy goods vehicles.

Construction noise will occur during excavation and earth moving, laying of roads and hard standings, transportation of materials and erection of the wind turbines. The construction phase will be phased and temporary.

Noise and vibration assessments were undertaken for the operational, the construction and decommission phases of the proposed development. The cumulative impact with the nearby Greenoge Wind Farm was also considered.

Baseline noise monitoring was undertaken at ten receptor locations surrounding the proposed Croaghaun Wind Farm to establish the existing background noise levels in the vicinity of the proposed development. These are some of the closest locations to the proposed development as well as representing different noise environments in the vicinity of the proposed development.

Following the establishment of the existing noise levels prior to development, appropriate noise level limits were then determined in line with Government policy and guidance. The noise limits seek to strike a balance between the noise restrictions placed on a wind farm, the protection of amenity and the national and global benefits of renewable energy development. The predicted noise emissions from the wind farm are then compared against these limits. The wind farm will be designed and operated in a manner that ensures the prescribed limits won't be exceeded and will be validated with post construction noise monitoring.

8. BIODIVERSITY

In addition to desktop studies and assessments carried out as part of the EIAR, extensive field surveys have been carried out over several years at Croaghaun recording habitats, mammals, bats, birds as well as aquatic ecology throughout the site and associated grid connection and turbine delivery route.

The wind farm site encompasses a mixture of habitat types, with conifer plantation dominating. Access tracks categorised mainly as buildings and artificial surfaces and to a lesser extent spoil and bare ground provide access throughout the site. Dry meadows and grassy verges are present along several lengths of access tracks.

Pockets of recently felled conifer woodland, dry calcareous heath, scrub and improved agricultural grassland are also present. The site also has a series of walking trails and associated car park at the southern extent.

The site is used by badger rabbit, hare, red fox, pygmy shrew, pine marten and hedgehog and eight species of bats, including Whiskered bat. The birds on site are typical of conifer plantation and habitats and include Sparrowhawk, Kestrel and Woodcock. The closest nature conservation area to the site is the Blackstairs Mountain Special Area of Conservation (SAC) which is 400m from the nearest turbine.

9. LAND, SOILS AND GEOLOGY

The geology of the site is made up of till derived from metamorphic rocks, bedrock outcrop or sub-crop and there is also a limited extent of blanket peat. Detailed site investigations including site walkovers, peat stability assessments, trial pit excavations and bore holes were undertaken to access the geology of the site for construction purposes.

Construction of the wind farm infrastructure will require the removal of subsoils and possibly rock to create solid foundations. Excavation of bedrock from proposed on-site borrow pits and suitable off-site aggregate sources will provide appropriate construction material for access roads, turbine bases and general hard-standing foundations. Removal and reuse of subsoils and bedrock does not represent a significant impact on the geology of the site.

No significant impacts or cumulative impacts on the soil and geological environment are anticipated as a result of the proposed wind farm and its grid connection.

10. WATER

Croaghaun Wind Farm is located within Hydrometric Area No. HA 12, Slaney & Wexford Harbour, of the Irish River Network System. The site is situated within five sub basins as defined by the Water Framework Directive. These are River Clashavey, Kildavin Stream, River Clody, River Burren and Douglas (Ballon) River. These all discharge into the River Slaney and Wexford Harbour except the River Burren which discharges into the River Barrow. Water quality in waterbodies at the northern side of the wind farm is classified as moderate and water quality in waterbodies at the southern side of the windfarm is classified as high.

The proposed wind farm is not situated within any environmentally designated areas.

Groundwater within the proposed development boundary can be classified as being of high sensitivity due to the presence of shallow soils and exposed rock. The bedrock is classified as a poor aquifer. Contamination of the groundwater shall be mitigated against and no public water schemes or Group Water Schemes are located within 4km of the site.

Drainage management will be employed to control drainage water within the site during construction, ensuring that surface runoff from the developed areas of the site will continue to be of good quality and no flood risk to the downgradient setting. Impacts on water during the construction phase of the wind farm will be imperceptible to none. A surface water monitoring programme will be put in place during the construction phase of the wind farm site. Based on proposed mitigation measures, there is no potential for significant impacts on the hydrology and groundwater as a result of the proposed wind farm development.

11. HUMAN BEINGS, POPULATION AND HUMAN HEALTH

The assessment examines the potential impacts of the project (both beneficial and adverse) on the local and regional community. The key issues examined include:

- Population Trends;
- Socio-Economics, Employment and Economic Activity;
- Land Use;
- Recreation, Amenity and Tourism;
- Human Health and Safety;
- Renewable, Non-Renewable Resources and Utilities Infrastructure

Regarding the proposed wind farm development, the potential significant wellbeing and nuisance effects of the proposed scheme on the local human environment have been identified as follows:

- dust emissions from construction activities
- noise emissions during construction activities and operation
- public safety
- visual impacts during operation
- shadow flicker during operation
- traffic nuisance during construction
- tourism and recreational impacts

Each of these issues has been fully assessed and are being documented as part of the EIAR.

Noise and vibration assessments were undertaken for the operational, the construction and decommission phases of the proposed development. The cumulative impact with other wind farms was also considered.

Vibration, low frequency noise and infrasound are also addressed in the study.

To inform the noise impact assessment, baseline noise monitoring of the existing noise environment was carried out over a 4–6 week period in early Autumn 2019.

Following the establishment of the existing noise levels prior to development, appropriate noise level limits were then determined in line with Government policy and guidance. The noise limits seek to strike a balance between the noise restrictions placed on a wind farm, the protection of amenity and the national and global benefits of renewable energy development. The predicted noise emissions from the wind farm are then compared against these limits. The wind farm will be designed and operated in a manner that ensures the prescribed limits won't be exceeded and will be validated with post construction noise monitoring.

12. ARCHAEOLOGY, ARCHITECHTURAL AND CULTURAL HERITAGE

There are eight recorded archaeological sites located within the 2km study area around the wind farm site and only one of these is located within 1km of a proposed turbine location, which comprises a standing stone (CW020-028----) sited c.560m to the west of the proposed location of Turbine 2. None of the known archaeological sites within the study area are designated as National Monuments or have been assigned Preservation Orders.

Sites of architectural significance in the surroundings of the proposed wind farm include those listed on The County Carlow Development Plan, which includes a list of Record of Protected Structures (RPS). Within the proposed wind farm area there are no RPS sites. Hollybrook House and its former garden area is the closest one to the site. It is located c.2.1km to the northwest of the nearest proposed turbine location (Turbine 3). This five-bay, two-storey, gable-ended house dates to c.1765 and is listed as a Protected Structure (ref. CW35) in the current Carlow Development Plan 2015-2021.

As a result of the archaeological and cultural heritage assessment, mitigation measures are recommended to ensure the identification, protection and recording of any sites that may be impacted by the proposed wind farm. Archaeological testing and monitoring will be proposed to identify any previously unrecorded sites and appropriate management measures will be developed for both recorded and unrecorded cultural heritage sites.

13. LANDSCAPE AND VISUAL

The assessment of Landscape and Visual Effects assesses the effects of the development on the landscape as a resource and on the fabric and character of the landscape. Assessment of visual effects relates to the change in views and visual amenity experienced by groups of people.

A Landscape Character Assessment has been incorporated in the Carlow County Development Plan. This separates the county into four specific landscape character types (LCTs).The proposed wind farm is situated in the 'Blackstairs and Mount Leinster Uplands' principal landscape character area which is further subdivided into 'generic landscape types', of which, the proposed wind farm is situated in the 'Uplands'. The entire 'Uplands' landscape is categorised with a high sensitivity rating.

The LCA 'Mount Leinster Uplands' is described as *"the most important in the County and is as such highly sensitive to change".*

The landscape character assessment also identified this LCA as having a *"low capacity to absorb wind turbines, overhead cables and masts, particularly in the upland areas where they would detract from the scenery and visitors' experience of 'wilderness'".*

Nevertheless, the Carlow wind energy strategy states that as the 'Mount Leinster/Blackstairs' LCA is *"on extensive area"* and *"its capacity to assimilate wind farms would be very much influenced by the conditions obtaining in specific locations and the degree to which mitigation measures could minimise visual and environmental intrusion".* Landscape and Visual Impact has been mitigated as much as possible. The wind farm is located in an area Carlow County Council classified as 'open for Consideration' in relation to the development of wind farms, mainly due to the need for adequate wind speeds.

Photomontage of proposed project from local road L3049 at Fenagh.

Photomontage of proposed project from R745 west of Ferns.

14. MATERIAL ASSETS

FT undertook scoping consultation with the Irish Aviation Authority and the Dublin Airport Authority and no impacts to aviation are anticipated.

A traffic study has also been carried out to consider the additional traffic associated with the construction of the wind farm and the delivery of the turbine components. Separately a delivery route assessment has been carried out which has considered turbine delivery from Dublin Port.

A scoping exercise was carried out with telecommunications providers, and the proposed wind farm has been designed to avoid any significant impacts to telecommunications links.

Potential impacts associated with the delivery of large wind turbine components on existing overhead utilities through Bunclody has been assessed as part of the EIAR.

The proposed grid connection will consist of underground cables which will connect to an existing 110kV substation at Kellistown. The impacts associated with temporary road works associated with cable trenching in public roads have been assessed in the EIAR.

15. ENVIRONMENTAL BENEFITS

The development of the Croaghaun Wind Farm will support the Government's Climate Action Plan (2019) which details a strategy for the decarbonisation of the Irish economy and reduction in CO2 emissions. The Climate Action Plan includes a target to increase electricity generated from renewable sources to 70% (Currently at 33%). The aim is to make Ireland a leader in responding to climate disruption.

The proposed development could generate approximately 38.5 MW of renewable, clean electricity. Over the thirty-year lifetime of the project, 2.9 million tonnes of carbon dioxide are expected to be offset compared to traditional electricity generation. During construction and turbine manufacture, some carbon is lost to the atmosphere, but this is anticipated to be offset by the wind farm itself within a relatively short period of operation. These details are provided in the EIAR.

Wind farms emit no toxic substances or air pollutants, unlike coal or gas power stations. The energy generated by the proposed development, will offset associated emission of greenhouse gases from electricity-generating stations dependent on fossil fuels, thereby having a positive effect on climate. It will have the capacity to provide enough electricity to power approximately 25,500 homes, which means the windfarm could produce electricity for every household in Co. Carlow. The EIAR provides further information on this.

The proposed wind farm will take up only a small portion of the total site area; the existing land-use of mainly commercial forestry with some agriculture will continue in conjunction with the proposed development.

Nine Stones Viewpoint

Existing View

Nine Stones Viewpoint

Montage View

The wind turbines depicted in these photomontages represent the largest turbine design envelope dimensions assessed in the environmental impact assessment with a maximum dimension to blade tip of 178m and a maximum rotor diameter of 136m. Should the development be granted planning permission, the dimensions of final turbines selected shall not exceed those shown here.

Myshall Viewpoint

Existing View

Myshall Viewpoint

Montage View

The wind turbines depicted in these photomontages represent the largest turbine design envelope dimensions assessed in the environmental impact assessment with a maximum dimension to blade tip of 178m and a maximum rotor diameter of 138m. Should the development be granted planning permission, the dimensions of final turbines selected shall not exceed those shown here.

16. NEXT STEPS

Engagement with local residents and other consultees will be ongoing. Under the current Covid-19 Government restrictions we are unable to hold a face to face public event prior to submitting the Planning Application. In lieu of this we have developed an **Online virtual tour** of the project with further information about the project. This can be accessed through the link on the home page of the project website (**www.croaghaunwindfarm.ie**).

Once the EIAR is complete, Coillte will be ready to submit a planning application to Carlow County Council for the proposed Croaghaun Wind Farm. It is anticipated that the planning application will be submitted in late 2020 / early 2021.

The planning application will include the following;

- Cover Letter to Carlow County Council
- Planning Application Form
- Letter(s) of Consent
- Site Notice
- Newspaper Notices
- Pre-Application Consultation
- Planning drawings and drawing schedule
- EIA Portal Confirmation Notice
- Natura Impact Statement

Notification of the intention to submit an application supported by an EIAR will also be sent to the Department of Housing, Planning and Local Government's EIAR portal and the confirmation will be included with the planning pack.

All documents and drawings will be uploaded to the project website (**www.croaghaunwindfarm.ie**).

CARLOW COUNTY COUNCIL
PLANNING DEPARTMENT
22 JAN 2021

17. CONTACT US

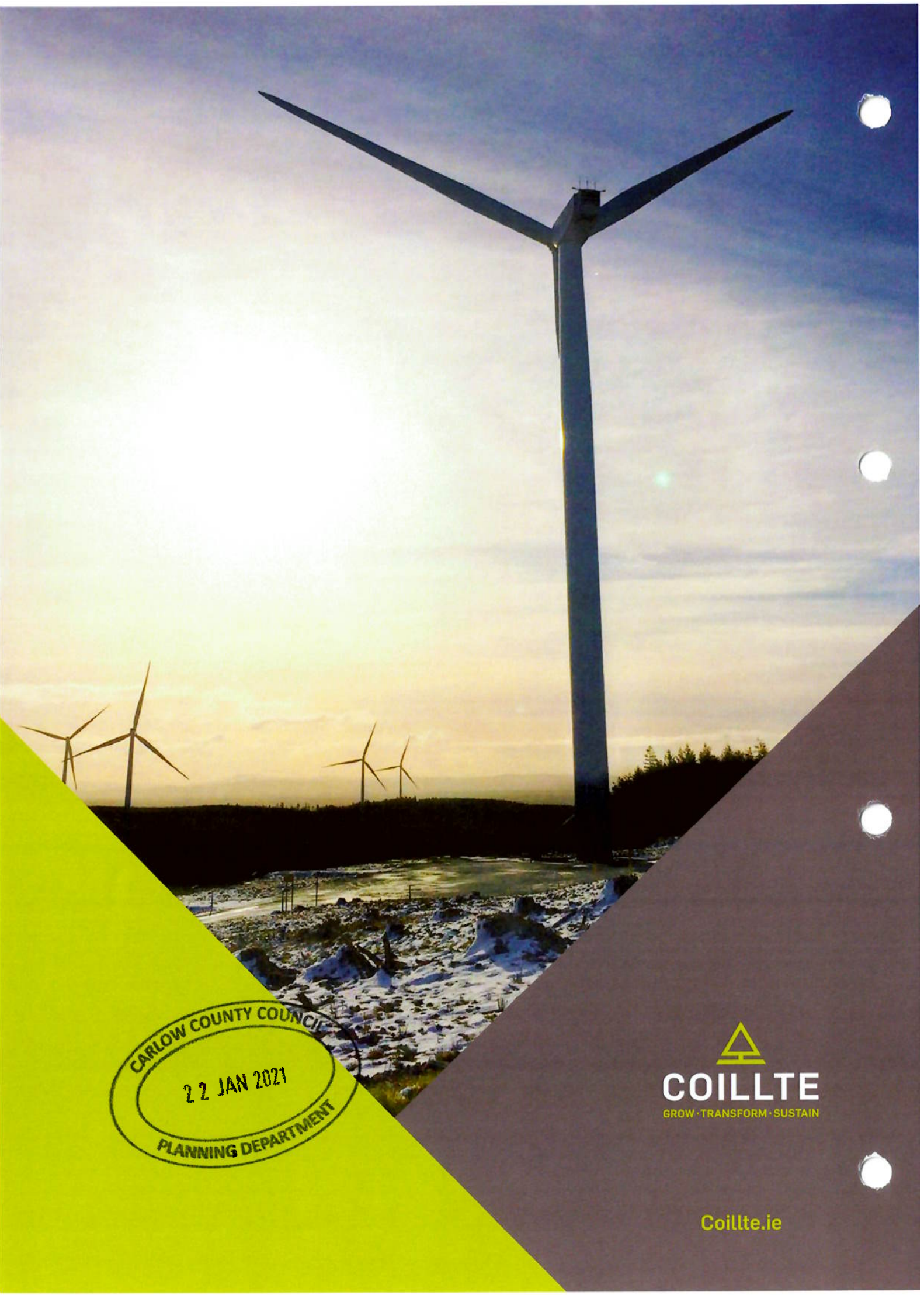
Phone: **1890 800 502**

Email: **croaghaun@coillte.ie**

Address: **Attention: Ashley Culbert,**
Coillte Renewable EnergyBlock B, First Floor,
Marlinstown Office Park,
Mullingar, Co Westmeath.

Website: **www.croaghaunwindfarm.ie**

* Note that email, website comment or phone contact is preferable at this time as there is limited access to the Coillte offices



COILLTE

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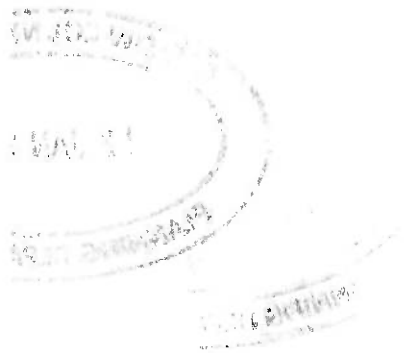
FEHILY TIMONEY
30 YEARS

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

Appendix 5.4

Community Engagement Advertisements



Planning application for Croaghaun Wind Farm set to be finalised

Coillte Renewable Energy is uniquely positioned to make a significant contribution to the decarbonisation of Ireland's economy as it finalises a planning application for the proposed Croaghaun Wind Farm development

ADVERTORIAL

Coillte Renewable Energy Division of Coillte, the state-owned commercial forestry company, is preparing a planning application to submit to Carlow County Council in the coming weeks for the proposed Croaghaun Wind Farm in Co. Carlow.

The application follows an extensive 20 month community engagement programme in parallel with the design and EIA process, which has actively sought input from the local community and particularly those living closest to the proposed wind farm site.

The project's aim is to develop a renewable energy project responsibly in a way that will bring benefit locally, regionally and nationally. It is uniquely positioned to make a significant contribution to the decarbonisation of Ireland's economy and to achieving the goals outlined in Ireland's Climate Action Plan. The proposed Croaghaun Wind Farm project forms part of that contribution by helping both the State and County Carlow meet emissions reduction targets and play a role in preserving and sustaining a cleaner, more healthier environment for our children and future generations.

The proposed development is comprised of:

- up to 7 wind turbines with a proposed blade tip height of up to 175 metres;
- onsite 38kV substation with an underground grid connection to the existing 110kV substation in Kellistown;
- 1 onsite borrow pit to source some material on-site;
- 1 permanent anemometer mast up to a height of 100 metres;
- provision of a recreational amenity trail to access and encourage public access to the site for walking;
- a temporary construction compound.

The project team has adopted a best in class and conservative approach to determining a proposed project layout for consideration in the planning submission. Following the applicant's submission to Carlow County Council, the team plans to maintain a strong and constructive working relationship with the local community as the project progresses.

Should the project receive planning permission and enter construction, there will be a Community Benefit Fund put in place for the project, estimated at approximately €200,000 per annum. This will be divided into two components, a Near Neighbour Fund and a Wider Community Fund to provide direct project funding to those areas surrounding the project. The project will also actively explore the potential for direct community investment for those seeking to financially invest and participate in the wind farm when clear guidance is provided by the Department of Environment, Climate and Communications. During the construction phase up to 60 people will be directly employed by the project, drawing upon service providers based locally and regionally.

This project has the potential to generate approximately 38.5 megawatts of clean, renewable electricity capable of powering approximately 19,500 Irish homes and would make a substantial contribution towards Ireland's stated goal of producing 70% of its electricity from renewable sources by 2030.

Due to Covid-19 restrictions currently in place, Coillte are unable to facilitate public information sessions. Therefore, the team has developed an online virtual tour experience to help provide an extensive presentation of the project for members of the public to view. This presentation can be accessed from the project website (www.Croaghaunwindfarm.ie).

PLEASE KEEP SAFE AND FOLLOW THE LATEST HSE ADVICE.

The full Planning Application will be available to view online on the project website (www.Croaghaunwindfarm.ie) once the final submission has been made to Carlow County Council.

FEHILY TIMONEY
30 YEARS

CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE & PLANNING

APPENDIX 5.5

Pre-Planning Meeting Minutes

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

CARLOW COUNTY COUNCIL
PLANNING CLINIC

In accordance with S247 of the Planning and Development Act 2000 (as amended).

Record of Pre-Planning Consultation

Date Received	21/08/2020	**Date of Consultation**	03/11/2020
Pre-Planning Reference No.	PP.20.91		
Name	Coillte CGA		
Agent	Trevor Byrne, Fehily Timoney and Company		
Form of Consultation	Video Consultation on Microsoft Teams		
Location of Development	See below		
Proposal	Proposed wind farm near Croaghaun Hill in the townlands of Kilbrannish North, Bealalaw, Raheenliegh, Rossacurra, Aclare, Cranemore, Co. Carlow		
Planning History	02/320 – Granted Appealed to An Bord Pleanála – Granted		
Site Details to include Zoning	Area not zoned. Rural location.		
Advice to proposed applicant/agent	Preplanning consultation held via video call on 3rd November 2020. Attended by Padraig O'Shea (S.E.P, Carlow County Council) Applicant/agent: Trevor Byrne (Fehily Timoney), Jim Hughes (Fehily Timoney), Ashley Culbert (Coillte), Sinead O'Malley (Coillte), Richard Barker (Macroworks)		
(This is advice only, comments made will not prejudice any	This was a follow up preplanning meeting with the Planning Authority following earlier consultation on 2nd March 2020 for the proposed Croaghaun Wind Farm (Preplanning Ref		

future decisions made.) PP20.16) .

The applicants agent Trevor Byrne and Jim Hughes (Fehily Timoney) presented the proposed new wind farm development which includes the following;

- Erection of up to 7 no. wind turbines with a tip height of up to 178m;
- Construction of turbine foundations and crane pad hardstanding areas;
- Construction of new site tracks and associated drainage infrastructure;
- Upgrading of existing tracks and associated drainage infrastructure where necessary;
- Construction of 1 no. onsite 38kV electrical substation to ESBN specifications and associated compounds
- Construction of 1 no. off-site electrical substation to ESBN specifications and associated compounds at Kellistown substation
- 1 no. Temporary construction site compound and associated ancillary infrastructure including parking;
- Tree felling and associated replanting to facilitate construction and operation of the proposed development;
- Installation of medium voltage (20/33kV) and communication underground cabling between the proposed turbines and the proposed on-site substation and associated ancillary works;
- Installation of approximately medium voltage (up to 38kV) underground cabling between the proposed on-site substation and the existing Kellistown substation and associated ancillary works.
- Upgrade of existing forest tracks and paths that shall be re-purposed as recreational amenity trails for community use.
- Temporary accommodation works associated with the Turbine Delivery Route to facilitate the delivery of turbine components;

The proposed grid connection to the national grid at Kellistown substation and the associated new off-site substation is considered as part of the project's assessment in the EIAR but does not form part of the application for consent. Equally an environmental assessment has been carried out for replant lands at Crag, Co. Limerick and Sroove Co. Sligo and is also not included in the application for consent.

Richard Barker (Macroworks) also gave a presentation on the preparation work to date of the Landscape Visual Impact Assessment and the methodology behind same.

Ashley Culbert (Coillte Project Manager) also outlined the timeline for preparing this proposed application which commenced work in 2017. The proposed wind farm is viewed as a key site by Coillte.

Sinead O'Malley (Coillte) gave an outline of community engagement held to date which included a three day event held locally outlining different options that were being

considered for the project.

Planning Authority comments

Applicant was advised that this proposed development was the subject of previous preplanning consultation advice (PP Ref 20.16 refers) which gave a comprehensive outline of the issues that will need to be considered in any application. In addition, an EIAR Scoping document was also provided to the applicant in February 2020 that should inform the content to be covered in the EIAR report associated with this proposed development. In terms of additional advice, the applicant was informed that the visual sensitivities of the proposed development at this location needs to be carefully considered. The proposed site is situated in the Blackstairs and Mount Leinster Uplands Character Area. This has a sensitivity rating of 5 in the County Carlow Landscape Character Assessment (Appendix 6 of the Carlow County Development Plan 2015-2021). The LVIA to be submitted with the application needs to be detailed and satisfactorily demonstrate the visual impact of the proposed development from numerous viewpoints, in particular from scenic routes and protected views as identified in the County Development Plan in addition to local and longer range views. The visual assessment should include the cumulative impact with existing wind farm development in the area.

The proposed development should clearly demonstrate how it complies with the Wind Energy Strategy contained in Appendix 5 of the Carlow County Development Plan 2015-2020 where there is an area identified as 'open for consideration' for wind farm development in the area of this site. A comprehensive case needs to be made as to why this site is preferred over other locations.

The applicant was also advised that the proposed development should have regard to the current Wind Energy Development Guidelines, 2006 and the most recent draft Revised Wind Energy Development Guidelines published in December 2019.

The extent of local community involvement in the preparation of this project should be fully set out and explained including any community benefit that will arise.

Additional Comments

Environment Section (Carlow Co Co)

It is advised the application include a Natura Impact Statement.

Transportation Section (Carlow Co Co)

- Main issue of concern will relate to the construction phase and the impact on the local road network.
- Area is served by a network of narrow county roads and CCC will be insisting on a before and after condition survey with a bond held to ensure remediation of defects arising.
- Survey to include survey of all structures that will be impacted on the non-national road network on the access routes for the construction phase.
- Impact, if any, on surface water run-off will have to be assessed and mitigation works provided to ensure no impact.
- Main concern is the statement to the effect that a U/G cable route to Kellistown along the public road network is to be provided. The impact of this will be significant during the construction phase and could also impact on future road maintenance and improvement.
- Further detail of proposed route is required with an off road option preferred.

Signed: _____ Date: 17/11/20

Planner

CARLOW COUNTY COUNCIL
22 JAN 2021
PLANNING DEPARTMENT

CARLOW COUNTY COUNCIL

CARLOW COUNTY COUNCIL
PLANNING CLINIC

In accordance with S247 of the
Planning and Development Act 2000 (as amended).

Record of Pre-Planning Consultation

Date	2nd March 2020
Pre-Planning Reference No.	PP 20.16
Name	Coillte CGA – Croaghaun Windfarm
Agent	Jim Hughes, Fehily Timoney & Co
Location of Development	Kilbrannish North, Raheenliegh, Rossacurra, Aclare, Cranemore, Co. Carlow.
Proposal	Wind farm with 7 no. wind turbines, permanent met mast, temporary borrow pit, on site substation, site roads and ancillary services. An underground grid connection is also proposed to connect the wind farm to the national grid at Kellistown, Co. Carlow.
Planning History	PL 02/320 – Grante Appealed to An Bord Pleanala – Granted
Site Details to include Zoning	

• **Advice to proposed** • **applicant/agent** • **(This is advice only, comments made will not prejudice any future decisions made.)**	Overview given in relation to site suitability. Community engagement and feedback. Strong case needs to be made with a robust planning application. This area has high scenic appeal. Previously granted planning application referenced. Council still looking at new approaches to this type of development. Planner advised that County Development Plan has changed since last planning application. This proposal has the possibility to be quite contentious. • It will be highly important to get the contextual focus on the known view points, especially the most sensitive views, views of the wider area, local as well as distance views. Important to include views for individual residential properties. • Comprehensive detail/reports need to be complied as to why this site is preferred over other locations. • Impact on the character of the area. Landscape character assessment should be cross referenced. • A combined Visual Aspect Assessment required. Turbines should not overlap visually. Local and distant views, and views from individual residential properties, as well as the overall aesthetic, also taking into consideration the established wind farm. Inclusion of photomontages. • Recreational aspect – incorporating enhanced benefits, ie environmental, educational, tourism. • Proximity to a number of public roads, especially L2026 – Mount Leinster Drive – development has the potential to negatively impact this scenic route. • Drainage survey of all existing and proposed on site drainage, identifying where all on site water drains will discharge to and how drainage will be maintained. Drainage design must be submitted on plans. • Comprehensive infrastructure planning regarding operational routes to site, anticipated traffic types and volumes, traffic impact from HGVs negotiating built up areas. Details on peak site traffic, day to day hours and duration. Load of turbine Land landowners written agreement for accommodations works. Timelines and how to minimise disruption. Condition survey of proposed access routes, ability to carry extra weights, proposals to upgrade road structures where it is shown to be structurally unsuitable. Sweep paths analysis for proposed wind turbine delivery routes.

	• Requirement to meet the proposed new guidelines on noise. • Shadow studies – mapping of shadow flickering required. • Consideration of archaeological sites. • Important to get local groups and amenity users feedback on the proposals. Public advertisement. • Flora and Fauna – existing and proposed site should be surveyed for invasive species and recommendations for control measures as part of EIAR. • Water Quality – geological survey and EPA mapping regarding potential surface water and groundwater vulnerability. • <u>Consideration needs to be given to:-</u> 1. Grid Connection and Cumulative Impacts - Draft Revised Wind Energy Development Guidelines December 2019; 2. County Carlow Development Plan 2012-2018 (Section 6.3.1) Policy 5 and Section 11.16 3. Wind Energy Strategy for Co Carlow and the preferred locations for wind energy; 4. Carlow County Landscape Character Assessment and Schedule of Protected Views (Appendix 6 to Carlow County Development Plan 2015-2021) 5. Landscape and Visual Impact Assessment 6. Natural heritage – the Blackstairs Mountains SAC, existing watercourses, field studies, extent of clear-felling necessary, protection of ecological features and tree replanting. as outlined in scoping report provided by planner. • LEO office and Carlow Tourism office are main contacts for tourism.

Signed: _____ **Planner**

Signed: _____ **Administration**

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