DESIGNING AND DELIVERING
A SUSTAINABLE FUTURE

ENVIRONMENTAL IMPACT ASSESSMENT REPORT (EIAR) FOR THE PROPOSED SHANCLOON WIND FARM, CO, GALWAY

VOLUME 2 - MAIN EIAR

CHAPTER 17 - MATERIAL ASSETS, TELECOMMUNICATIONS AND AVIATION

Prepared for:

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17 MATERIAL ASSETS, TELECOMMUNICATION AND AVIATION

17.1 Introduction

This Chapter describes material assets, telecommunications and aviation that might potentially be affected by the Proposed Development. The potential effects of the Proposed Development are initially considered without mitigation and the residual effects post mitigation are described. The assessment considers the potential effects during all phases of the development: construction, operation and decommissioning.

This Chapter of the EIAR is supported by the following Appendix documents provided in Volume III:

- Appendix 17.1: Aviation Review Statement
- Appendix 17.2: EMI Impact Assessment Report

Material assets, as defined in EPA (2022) '*Guidelines on the information to be contained in Environmental Impact Assessment Reports*' refer to built services, roads and traffic and waste management. This chapter assesses:

- Power (including gas) and Electrical Supply;
- Telecommunications;
- Aviation;
- Water supply; and
- Foul drainage infrastructure.

The potential for the Proposed Development to impact roads and traffic is addressed in Chapter 14 - Traffic & Transportation (and includes transport of waste). Potential for effects on land use is addressed in Chapter 6 - Population and Human Health. Material assets with respect to natural resources are considered in Chapter 11 - Lands, Soil and Geology. Assets of Archaeological, Architectural, and Cultural Heritage are considered in Chapter 15 of this EIAR.

A full description of the Proposed Development assessed in this EIAR is provided in Chapter 2 - Development Description and comprises the following elements:

- The wind farm site (referred to in this EIAR as the 'Site') which includes the turbine array and associated civil and electrical infrastructure and the on-site 110 kV substation and loop-in connection to the existing Cashla-Dalton overhead line;
- The turbine delivery route (referred to in this EIAR as the 'TDR').

The general layouts of the proposed wind farm site (Site) and turbine delivery route (TDR) are presented in Figures 2.2 to 2.3 in Volume IV.

On 13th June 2025, An Bord Pleanála provided an opinion under section 37CD of the Planning and Development Act 2000 (as amended) that the following details may be confirmed after the proposed application has been made and decided:

- Turbine Dimensions
  a) Turbine tip height
  b) Rotor diameter
  c) Hub height

The application for the Proposed Development is consistent with the opinion provided by the Board in accordance with section 37CD of the Act and the EIAR has been prepared to reflect the opinion provided by the Board.

The turbine model will be a conventional three-blade horizontal axis turbine. Schematic drawings of the design parameters accompany the planning application. Wind turbine components will include:

- Blades
- Tower sections
- Nacelles

The final choice of make and model of the turbine that will be developed at the Site will be dictated by a competitive tender process of the various turbines on the market at the time, but will be in accordance with the following design parameters/turbine specification:

- ground to blade tip height range of 179.25 m to 180 m
- rotor diameter ranging from 149.1 m to 155m
- hub height ranging from 102.5m to 105m

The turbine blades for the Proposed Development comprise fibreglass reinforced epoxy, carbon fibres and solid metal tip with the following design parameters/turbine specification:

- Blade length ranging from 72.4m to 76m (rotor length of 74.55m to 77.5m);
- Blade width (maximum chord length) ranging from 4.2m to 4.5m;
- Blade swept area of ranging from 17,460 m^2 to 18,869 m^2.

17.2 Statement of Authority

This chapter has been prepared by Anthony Ryan and reviewed by Jim Hughes of Fehily Timoney and Company.

Anthony Ryan is a Project Planner with a Masters in Planning and Sustainable Development (MPlan) from University College Cork. Anthony has experience working on various renewable energy projects preparing chapters of the EIAR for wind farms including traffic and transport, air and climate, telecommunications and aviation chapters.

Jim Hughes (BA Public Administration, EIA/SEA Dip, MSc Town Planning), is Director of the Energy and Planning department at Fehily Timoney and Company. Jim is a professional Town Planner with almost 20 years' experience in managing large complex infrastructure projects. Jim has extensive Strategic Infrastructure Development experience having being Project Director / Project Manager for the submission of numerous SID Wind Farm Projects and the submission of multiple no. SID applications for onshore electrical infrastructure under Section 182 of the P&D Act.

17.3 Methodology

This section of the assessment describes the methodology used in assessing the potential effects from the Proposed Development on material assets, telecommunications and aviation. The potential effects from wind farm developments on telecommunications and aviation which are considered in this Chapter are set out hereunder.

Electromagnetic Interference

In the context of wind farm development, electromagnetic interference from the wind farm on existing telecommunication services can result in an unacceptable negative effect. The rotating blades of a wind turbine can occasionally cause interference to electro-magnetically propagated signals.

Not all signals are affected in the same way and some signals are more robust than others, however, 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.

For the purposes of the telecommunications impact assessment, point-to-point and point-to-multipoint signals are considered. Both are used extensively throughout Ireland.

Point to point (or line of sight) is a wireless telecommunications transmission link between two nodes located at specified fixed points.

The term telecommunications link relates to the wireless transmission of data via radio frequencies between two fixed points. Telecommunications towers are generally used to transmit and receive signals over large distances. Radio frequency bands above 1 GHz are referred to as microwave radio links and are commonly used by telecommunications operators. These 'links are used mainly by mobile phone operators, broadcasters and utilities or emergency service providers, to provide transmission networks that are flexible and cost effective.

Point to multipoint refers to the situation where a central node transmits to, and receives from, a number of independent locations. This includes television and radio broadcasting and reception, mobile phones (to the mobile phone mast) and land mobile systems. It is possible that houses in the immediate vicinity of turbines could require some remedial measures in relation to television reception.

Broadcast Communications

Wind turbines as with any other large structure, have the potential to interfere with broadcast signals by acting as a physical barrier or causing a degree of interference to microwave links. The most significant effect at a domestic level relates to a possible flicker effect caused by the moving rotor, affecting, for example, radio signals. The most significant potential effect occurs where the wind farm is directly in line with the transmitter radio path. Interferences to mobile radio services is usually negligible, especially with increased distance between turbines and receivers.

Domestic Receivers

Depending on local topography, a domestic receiver may receive broadcast signals from more than one location. The strength of the signals varies with distance from the transmitter, and the receiver's antenna is generally always directed towards the most local, and usually strongest, broadcasting station.

There are two types of potential electromagnetic interference to domestic receivers, depending on the location of the receiver in relation to a wind farm. 'Shadowed' houses are located directly behind a wind farm, relative to the location from where the signal is being received. In this case, the main signal passes through the wind farm and the rotating blades can create a degree of signal scattering. In the case of viewers located beside the wind farm (relative to the broadcast signal direction), the effects are likely to be due to periodic reflections from the blade, giving rise to a delayed signal.

In both cases, i.e. shadowed houses located behind the wind farm and those located to the side of it, the effects of electromagnetic interference may depend to some degree on the wind direction, since the plane of rotation of the rotor will affect both the line-of-sight blockage to viewers located behind the wind farm and the degree of reflection to receivers located to the side.

Other Signal Types

Wind turbines have the potential to affect other signal types used for communication and navigational systems, for example tower-to-tower microwave communication links, and airborne and ground radar systems. Interference with radar systems occurs when wind turbines are located close to an airport or directly in line with the instrument landing approach. The nearest such operational airport to the Proposed Development is Ireland West Airport, which is located c. 42.2km north east of the Site. Galway Airport is located c. 25.4km to the south, but this airport is no longer operational.

Potential effects on broadcast communications are generally easily dealt with by detailed micro-siting of turbines in order to avoid alignment with signal paths or by the use of repeater relay link, (i.e. reflective and or refractive panels).

17.3.1 Consultation and Methodology

Section 5.10 of the DoEHLG Planning Guidelines on Wind Energy Developments (2006) states that:

> *"wind turbines, like all electrical equipment, produce electromagnetic radiation, and this can interfere with broadcast communications. The interference with broadcast communication can be overcome by the installation of deflectors or repeaters. Planning authorities should advise the developer to contact the individual broadcasters, both national and local, and inform them of the proposals. A list of the licensed operators is available on the ComReg website at www.comreg.ie. Mobile phone operators should also be advised of the proposed development."*

Section 7.15 of DoEHLG Planning Guidelines on Wind Energy Developments (2006) state:

> *"Conditions regarding measures to be taken to minimise interference with the transmission of radio and television signals, air and sea transport communications and other transmissions systems in the area may be necessary. Where electromagnetic interference is difficult to predict, conditions may require the developer to consult with the service provider concerned and undertake remedial works to rectify any interference caused."*

Telecommunications operators (as well as aviation and utility providers) that could potentially be affected by the Proposed Development were identified through field and desktop surveys and consultation with national operators. Initially, a desktop examination of resources and infrastructure was conducted in the area of the Site and TDR. This desktop study provided initial constraints for analysis and also identified potential stakeholders for consultation.

As part of the EIAR scoping and consultation exercise relevant utility, resource and telecommunication operators and aviation authorities were consulted. Scoping was carried out in accordance with the EPA Guidelines[1] and the 'Best Practice Guidelines for the Irish Wind Energy Industry' 2012[2] which provides a recommended list of stakeholders for consultation, in addition to updated lists of stakeholders provided by the Commission for Communications Regulation and the Irish Aviation Authority through consultation.

The following assessment methodology was applied:

- Wide ranging consultation with all known utility and telecommunications operators that could potentially be affected by the Proposed Development (see Chapter 5 EIA Scoping and Consultation);
- Consultation with the Irish Aviation Authority, Air Navigation Ireland and Airport Authorities for Ireland West Airport and Galway Airport;
- Comprehensive data gathering exercise to establish all known telecommunications links and utility infrastructure in the area;
- Preparation of constraint mapping using data collected from the operators, to identify separation distance of elements of the Proposed Development from existing infrastructure and if necessary, identify mitigation measures;
- Identification of aerodromes and airports in proximity to the Proposed Development, and any associated infrastructure;
- Review of turbine delivery route in the context of overhead power and telecommunication lines;
- Review in relation to underground utility infrastructure.

This assessment has considered the turbine arrangements and dimensions as described in Chapter 2 Development Description of this EIAR.

[1] EPA, (2022) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'

[2] IWEA. (2012). Best Practice Guidelines for the Irish Wind Energy Industry.

17.3.2 Relevant Policy and Guidance

A review of relevant policy and guidance documents was undertaken to identify relevant objectives relating to utility services, telecommunication, broadcasting and aviation and included:

- 'Wind Energy Development Planning Guidelines' (WEG2006), published by the Department of the Environment, Heritage and Local Government (2006).
- 'Best Practice Guidelines for the Irish Wind Energy Industry', published by the Irish Wind Energy Association (2012).
- EPA, (2022) 'Guidelines on the Information to be Contained in Environmental Impact Assessment Reports'
- 'Tall structures and their impact on broadcast and other wireless services', published by Ofcom, a regulatory body independent from UK Government (2009).
- 'RF Measurement Assessment of Potential Wind Farm Interference to Fixed Links and Scanning Telemetry Devices', published by ERA Technology Ltd on behalf of Ofcom (2009).
- Galway County Development 2022 – 2028.
- Mayo County Development 2022 – 2028.

17.4 Limitations

No limitations were encountered in the assessment of the potential effect on material assets, telecommunications and aviation from the Proposed Development.

17.5 Baseline Environment

This section provides a comprehensive overview of the material assets of the receiving environment in order to provide an understanding of the potential effects of the Proposed Development.

As part of the scoping and consultation process for the Proposed Development, searches of existing utility services were carried out using a network analysis tool, stakeholder consultation and fieldwork, to identify areas where major assets exist such as high voltage electricity cables or gas mains. Private / State utility companies such as Uisce Éireann (formerly Irish Water) and Gas Networks Ireland (GNI) were also consulted during this period. Consultations were also carried out with telecommunication stakeholders including authorities with associated telecommunication infrastructure, wireless broadcasters, cellular network providers, broadband suppliers and wireless internet service providers (WISP). Material responses received are detailed in Chapter 5: Scoping and Consultation of this EIAR.

All relevant stakeholders such as Uisce Éireann and Gas Networks Ireland (GNI) have been consulted regarding the Proposed Development and will be contacted to verify the existence of services prior to any construction works taking place.

17.5.1 Utility Infrastructure

Power (including gas) and Electrical Supply

A section of the internal access track and 33 kV electrical cable to be constructed as part of the Proposed Development will cross an existing High Pressure Gas Transmission Main near the L-22204 local road. This is the Gas Networks Ireland (GNI) Mayo - Galway natural gas distribution main which is connected to the nearby Beaghmore Transmission Above Ground Installation (AGI). Consultation with GNI has confirmed that the gas main comprises a heavy walled pipe at this location (ITM X: 532528.770 ITM: Y 753639.059) and as such is of appropriate engineering to accommodate the traversing of the proposed access track. GNI has instructed that the cables need to have at least 600mm separation from the red indicator tape for all transmission pipelines (whether high pressure or low pressure) and that open cut trenching is preferred with all works supervised. The cable crossing over the gas main will have a flattened layout with a trench width of 2390 mm (see Planning Drawing 051021-DR-113) and will be a minimum 600mm separation from the red indicator tape.

The delivery of turbine components to the Site will require temporary accommodation works along the TDR (as set out in Chapter 2: Development Description) which will include the requirement to remove utility poles. Such works will be agreed and carried out by the service provider in advance of turbine delivery and will result in localised disruption to service.

The 110kV grid connection from the Proposed Development will consist of new standard EirGrid loop in substation connected to the existing Cashla - Dalton 110kV overhead line via two new loop-in masts. In order to accommodate the loop-in connection from the Proposed Development, the existing Cashla - Dalton 110kV overhead line will be de-energised by ESB and as such will result in disruption to service. Foul and Potable Water.

The cable route crossing of the L-2220-21 local road will cross an existing 250 mm diameter uPVC potable water trunk main (which is under gravity flow). At this location the crossing will comprise two cable circuits and will have a flattened crossing with a trench width of 2390 mm. In this regard, the Applicant has applied to the Uisce Éireann Diversions Team for a Confirmation of Feasibility to building over or near Uisce Éireann assets (ref. DIV24312), received on 18th December 2024 (extract from letter below):

Based upon the details you have provided with your enquiry and as assessed by Uisce Eireann, we wish to advise you that, subject to valid agreement/s being put in place, the proposed build over can be facilitated.

1. Uisce Eireann must be provided with a detailed method statement and risk assessment for working in the vicinity of Uisce Eireann assets as part of the build-over or near agreement process.
2. RWE Renewables Ireland Limited will submit project specific drawings as part of the Build over/ near Agreement application following grant of planning permission and completion of site investigations and detailed design. The specific clearance requirements will be agreed with Uisce Éireann during this process and 500 mm vertical separation provided if deemed necessary.
3. Uisce Éireann will require all crossings of the existing water main to be constructed below the pipe.

You are advised that this correspondence does not constitute an agreement in whole or in part to provide a diversion or to build near any Uisce Éireann infrastructure and is provided subject to build over agreement being executed at a later date. You are advised to make contact with the diversions team at diversions@water.ie once planning permission has been granted and prior to any works commencing on site in order to enter into a build over agreement with Uisce Éireann Water.

If you have any further questions, please contact Stephen O'Beirne from the diversions team on 083 087 8337 or email sobeirne@water.ie. For further information, visit www.water.ie/connections.

Yours sincerely,

There is no other potable water infrastructure with which the Proposed Development will interact (note private wells are discussed in Chapter 11).The nearest sewerage infrastructure to the Proposed Development is the Shrule wastewater treatment plant and associated network (operated by Uisce Éireann under EPA licence D0359-01), located 1.6 km to the west, with a population equivalent of 600. The properties surrounding (and within) the Proposed Development boundary are not connected to this network/treatment plant, rather they are served by individual treatment systems (septic tanks). There will be no interaction between the Proposed Development and the Shrule sewerage scheme.

17.5.2 Telecommunications and Broadcasting

A project-specific EMI Impact Assessment Report (see Appendix 17.2) has been prepared for the Proposed Development and was informed by desktop assessment, consultation with telecommunication operators and flied survey. The study concluded that there are no microwave transmission links or Point to Point Radio networks which might be affected by the Proposed Development.

17.5.3 Aviation

A detailed aviation review statement is included in Appendix 17.1: Aviation Review Statement, which concludes that the Proposed Development is remote from all IAA licensed aerodromes and radar installations, and from Irish Air Corps (IAC) Aviation Exclusion Zones and Garda Air Support Unit and Emergency Aeromedical Services.

- The nearest of the Air Corps restricted areas to the proposed wind farm is the 5 NM restricted Zone around the Army Barracks at Renmore, Co Galway. The proposed wind farm site is 19 km from the restricted area around Renmore Barracks. As the proposed wind farm is located outside the restricted area, there will be no impacts on Irish Air Corps activities.
- The Proposed Development is located outside of any Building Restricted Area in the airspace surrounding an aviation facility, the nearest being the Ireland West Airport located 35 km away.

There are 2 no. private unlicensed airfields of note. These are Kilconly Airfield and Castlehacket Airfield (both within 5 km of the wind farm), which are not licensed by the IAA, and operate in un-controlled Class G airspace (locations relative to the wind farm are shown in Appendix 17.1).

17.6 Assessment of Likely Significant Effects

17.6.1 Do- Nothing Scenario

If the Proposed Development were not to proceed, there would be no change to the existing telecommunications, broadcasting and aviation operations in the area. Furthermore, there would be no impacts on material assets.

17.6.2 Construction Phase Effects

17.6.2.1 Utility Infrastructure

There is a Gas Networks Ireland (GNI) gas transmission line and Uisce Éireann (formally Irish Water) mains water line utility within the Site boundary.

Uisce Éireann require developers to engage in pre-planning consultation with them where there is a potential for proposed infrastructure to be constructed close to their assets. The Proposed Development includes one location where the 33kV cables will need to cross Uisce Éireann services on the L-2220 road. Fehily Timoney commenced engagement in relation to *'Building-over or Near an Irish Water Asset*' with Uisce Éireann's Diversions Team in April 2024, and a Confirmation of Feasibility letter was received in December 2024. In accordance with same, the crossing of the potable water main will be below pipe and as such will negate the need for direct interaction with the water main. Notwithstanding, the cable construction method, there is a likely need to briefly interrupt the potable water supply to accommodate the cable crossing. Effects will be brief and not significant.

Consultation was carried out with GNI between May and June 2024 in relation to the construction methodology required for the wind farm access road and 33kV cable crossing of the underground High Pressure Transmission Gas Pipe. GNI confirmed that the alignment of the wind farm infrastructure coincides with a section of gas main comprising heavy wall pipe and as such no specialist load bearing reinforcement is required here. The standard requirements for 600mm separation from the red high pressure transmission pipeline, open cut cable trenching, and supervision of the works by GNI will be implemented. As such there will be no requirement to interact with the gas mains, with no significant effects likely.

The Proposed Development includes the on-site 110 kV substation and loop-in connection to the existing Cashla-Dalton overhead line. This line will need to be de-energised by ESB for between 1 to 5 days to allow for loop-in tower construction and connection, resulting in slight temporary negative effects to this utility service.

Appendix 2.2 of Volume III of this EIAR includes the Turbine Delivery Route Survey Report, contained within the '*Abnormal Indivisible Load Route Survey'* (Pell Frishman, June 2024). This report details where elements such as overhead utilities, poles and lighting columns etc. will require temporary removal by the service operators to accommodate the delivery of wind turbine components. Accommodation works for the delivery of turbine components will be brief to temporary non-significant negative effects on dwellings and commercial/industrial activities within the catchment of the services.

17.6.2.2 Telecommunications and Broadcasting

The potential for electromagnetic interference from wind turbines occurs only during the commissioning and operational phase of the Proposed Development. There are no potential electromagnetic interference effects associated with the construction phase or decommissioning phase of the Proposed Development on telecommunications and broadcasting in the area.

As the Proposed Development will be constructed within the site which contains no telecommunications and broadcasting infrastructure, there are no potential construction related effects for electromagnetic interference and broadcasting interests in the area associated with the Site or the TDR. No significant effects are likely.

17.6.2.3 Aviation

The proposed turbines and cranes required for their installation can be an obstacle to low flying craft. No significant effects on licenced aviation activity will occur due to the construction stage of the Proposed Development given the remote location of the development relative to aviation activities (ref Appendix 17.1: Aviation Review Statement for further details).

As both the Kilconly and Castlehacket airfields are in *Class G airspace,* any pilots flying to/from these airfields are obliged to fly by *Visual Flight Rules* (VFR), and in accordance with the IAA *Rules of The Air*. As the *Rules of the Air* state, it is the pilot's legal responsibility to be aware of and avoid any obstacles in his/her flight path, and therefore, he/she would be required to be aware of wind turbines if flying to/from the airfield in question, which is achieved by prudent flight planning by the VFR pilot prior to flight.

Should the Proposed Development at Shancloon be permitted, in advance of their construction, the turbine locations, met mast and loop-in towers would be added to aviation flight charts and clearly marked as en-route obstacles. This would enable VFR pilots to plan their flight routes accordingly to avoid cranes and wind farm infrastructure during construction. As such effects on aviation during construction would be short-term but not significant.

The temporary accommodation works associated with the TDR will not affect aviation interests in the area.

17.6.3 Operational Phase Effect

17.6.3.1 Utility Infrastructure

Once the Shancloon Wind Farm is operational, the potential for negative effects on material assets is minimal. Maintenance of access tracks and infrastructure may require small amounts of imported fill, however, the impact of this is likely to be slight/imperceptible.

No impact on existing water or gas utility infrastructure will occur as a result of the Proposed development during the operational phase.

There is potential that overhead lines may require brief disruption in the unlikely event that a turbine component requires replacement - in this case the turbine delivery route is required to be used during the operational phase. The effects on overhead electricity infrastructure would be similar to those described in Section 17.6.2. This would result in a brief slight negative impact to electricity power services along the TDR.

The direct effect of electricity generated by the proposed development will give rise to a reduction in the quantity of fossil fuels required for electricity generation across the State. This will give rise to a long-term slight positive impact on renewable energy resource and will contribute to reducing Ireland's dependency on imported fuel resources.

17.6.3.2 Telecommunications and Broadcasting

Consultation regarding the potential for electromagnetic interference from the Proposed Development was carried out with the relevant national and regional broadcasters, fixed line and mobile telephone operators and other operators. A desktop study and EMI assessment was carried out and is included as an Appendix of Chapter 5 – Scoping and Consultation of this EIAR titled: "*Shancloon Wind Farm EMI Impact Assessment Report*".

As described in the EMI assessment and contact by FT during the scoping and consultation process, no telecommunication operators contacted during the consultation process raised any concerns regarding telecommunications networks operating in the licence-exempt frequency bands. Furthermore, there were no impacts reported by any of the telecommunications operators operating GSM Radio Access, Mobile Broadband Data Access, Tetra, Telemetry or TV/Radio Transmission networks. Network analysis carried out as part of the EMI Impact Assessment indicates that no radio network would be impacted by the proposed turbine layout.

The findings of the consultation, desk-based study and field assessment confirms there will be no electromagnetic interference effects caused by the Proposed Development.

There is potential that overhead lines may require brief disruption in the unlikely event that a turbine component requires replacement - in this case the turbine delivery route is required to be used during the operational phase. The effects on overhead telecommunications services would be similar to those described in Section 17.6.2. This would result in a brief slight negative impact to telecommunications services along the TDR.

17.6.3.3 Aviation

Shancloon Wind farm will be located 41.5 km southwest of the Ireland West Airport and as such is outside of the Obstacles Limitation Surfaces (OLS) and Building Restricted Area (BRA) of the airport (i.e. the airspace around the airport which must be maintained free from obstacles). Additionally, the wind turbines are below the Minimum Sector Altitudes (MSA) (i.e. obstacle clearance requirements) associated with Ireland West Airport and will not interfere with any Instrument and Visual Flight Procedures of the airport. Effects on licensed aviation activities will be neutral as a result of the operation of the Proposed Development.

As both the Kilconly and Castlehacket airfields are in *Class G airspace,* any pilots flying to/from these airfields are obliged to fly by *Visual Flight Rules* (VFR), and in accordance with the IAA *Rules of The Air*. As the *Rules of the Air* state, it is the pilot's legal responsibility to be aware of and avoid any obstacles in his/her flight path, and therefore, he/she would be required to be aware of wind turbines if flying to/from the airfield in question, which is achieved by prudent flight planning by the VFR pilot prior to flight.

Should the Proposed Development at Shancloon be permitted, in advance of their construction, the turbine locations, met mast and loop-in towers, would be added to aviation flight charts and clearly marked as en-route obstacles. This would enable VFR pilots to plan their flight routes accordingly. As such effects on aviation would be long-term but not significant.

Decommissioning Phase

17.6.3.4 Utility Infrastructure

Decommissioning works will include removal of above ground structures including the turbines and met masts. The 110 kV substation and loop-in connection to the existing 110 kV overhead line will remain in place as it will be taken in charge of by Eirgrid / ESB which will have a long-term slight positive efect on electricity infrastructure provision in the area.

There will be no likely negative impacts on utility infrastructure during the decommissioning phase.

Telecommunications and Broadcasting

The potential for electromagnetic interference from wind turbines occurs only during the commissioning and operational phase of the Proposed Development. There are no electromagnetic interference impacts associated with the decommissioning phases of the Proposed Development, and therefore no mitigation is required.

There is potential for brief disconnection of overhead lines during the decommissioning phase as large turbine components are required to be removed from the wind farm site (noting however that larger components can generally be broken down on site before off-site transfer). This has potential to cause a brief slight negative effect to telecommunication services where overhead lines require disconnection.

The proposed on-site substation and grid connection will be left in situ. There are no decommissioning related impacts on telecommunications and broadcasting interests in the area.

17.6.3.5 Aviation

During the decommissioning phase, the turbines will be dismantled and removed from the site, thereby removing all potential obstacles to future aviation interests. There will be no likely effects on aviation during the decommissioning phase.

17.7 Mitigation Measures

17.7.1 Utility Infrastructure

Electrical Infrastructure

Existing services which may be impacted along the proposed TDR have been predicted through an '*Abnormal Indivisible Load Route Survey*' (Pell Frishman, June 2024) and will be re-confirmed through consultation with service providers pre-construction. Communication with service providers will be maintained for the duration of the construction works.

Where services are required to be interrupted to accommodate turbine delivery and loop-in connection to the existing 110 kV overhead line, residents and business that will be affected will be informed by the service providers through the existing notification system i.e. https://www.esbnetworks.ie/power-outages.

Gas Infrastructure

Crossing of the GNI underground High Pressure Transmission Gas Pipe by the proposed wind farm access road and 33kV cable will be carried out under the and supervision of GNI.

Potable Water Infrastructure

The crossing of the Uisce Éireann potable water main by the proposed 33kV cables on the L-2220 road will be carried out in accordance with the requirements of Uisce Éireann's Diversions Team as per the *'Building-over or Near an Irish Water Asset*' protocol and will be a below-pipe crossing. Uisce Éireann will notify the public of any interruption to service or changes in water pressure, as is current practice via https://www.water.ie/help/supply/no-water-or-low-pressure/?map=supply-and-service-updates.

17.7.2 Telecommunications and Broadcasting

Mitigation measures consist of mitigation by design to avoid impacts on telecommunication links. As there is no potential for electromagnetic interference from the Proposed Development on telecommunications, there are no mitigation measures proposed for the construction, operation, or decommissioning phase of the Proposed Development.

Overhead telecommunication lines along the TDR will be briefly disconnected during turbine delivery during the construction phase. Any interference to service will be brief (lasting less than 1 day) and potential effects to service will be communicated in advance to those affected. Notice will be provided to all stakeholders affected prior to works commencing.

17.7.2.1 Aviation

In line with standard practice for wind farm developments, the coordinates and elevations for turbines will be supplied to the IAA at the end of the construction phase. An aeronautical obstacle lighting scheme will be agreed with IAA in line with IAA's consultation response and applied to the proposed turbines.

- All turbines will be illuminated by Type C, Medium intensity, Fixed Red obstacle lighting with a minimum output of 2,000 candela to be visible in all directions of azimuth and to be operational 24 hours 7 days a week.
- Obstacle lighting will be incandescent and of a type visible to Night Vision equipment. Obstacle lighting will emit light at the near Infra-Red (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength.
- Light intensity will be of similar value to that emitted in the visible spectrum of light.

Additionally, the developer will notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection.

The private airfields at Kilconly and Castlehacket are not licensed or registered with the IAA. As both airfields are in Class G airspace any pilots flying to/from these airfields are obliged to fly by Visual Flight Rules (VFR) and in accordance with the IAA Rules of The Air. In the event that planning permission is granted for the proposed wind farm development, the wind turbine locations will be added to aviation flight charts and clearly marked as en-route obstacles. The wind turbines will also be fitted suitable aviation obstacle lighting, as approved by the IAA. This will ensure that, in the event that Kilconly and/or Castlehacket airfields are operational, any VRF pilots using these airfields will be able to plan their flight routes to avoid the turbines. This will ensure that there are no impacts on Kilconly or Castlehacket airfield as a result of the proposed windfarm.

17.8 Residual Effects

17.8.1 Utility Infrastructure

The proposed on-site substation and loop-in cable will be taken in charge of by Eirgrid or ESB following decommissioning, providing a long-term slight positive residual impact on electricity infrastructure in the area.

17.8.2 Telecommunications and Broadcasting

Following the implementation of mitigation measures, no significant residual effects are expected on telecommunications and broadcasting as a result of the Proposed Development of Shancloon Wind Farm.

17.8.2.1 Aviation

Following the implementation of mitigation measures, no significant residual effects are expected on aviation as a result of the proposed Shancloon Wind Farm.

17.9 Cumulative Impacts

As part of the assessment of cumulative impacts, planning searches were undertaken to search for large-scale developments within 20km of the Proposed Development and smaller scale developments within 500m of the Proposed Development. A description of each project, including current status, and is set out in Chapter 3 – Development Description.

The permitted and proposed wind farm developments in the environs are set out in Table 17-2 hereunder. As the Proposed Development is not predicted to have any potential effect on existing telecommunications or aviation services, there is no potential for in-combination effects with other wind farms located nearby. Therefore, there will be no cumulative effects relating to the Proposed Project and surrounding projects in relation to telecommunications or aviation. Consideration of potential for cumulative effects on utility infrastructure with other wind farms is set out hereunder.

Table 17-1: Permitted and Proposed Wind developments located within 20 km

Energy Development Name	Number of Turbines	Distance and Direction from Project site	Status	Potential for cumulative effects on Utilities
Laurclavagh Renewable Energy Development (An Bord Pleanála Pl. Ref: PA07.319307)	8 Turbines. Turbine tip height of 185m	10.5 Km South-West	Currently lodged as a SID development with An Bord Pleanála.	There are no known existing underground electricity cables present within the zone of influence of the Laurclavagh Renewable Energy Development. The grid connection works will result in brief interference with electricity services. Which will not be a significant effect. No impacts are likely to occur on Gas Networks Ireland underground gas pipline or on Uisce Éireann potable water main as groundworks needed in order to construct the Laurclavagh Renewable Energy Development will not interfere with the existing gas pipeline. There is therefore no potential for cumulative effects.
Cloonascragh (Pl. Ref. 221175)	1 Turbine, 97m in height	12.2 Km South-East	Granted Nov. 2023.	There are no impacts from the Cloonascragh Turbine on any utility infrastructure. There is therefore no potential for cumulative effects.
Cloonlusk Wind Farm (Pl. Ref. 082407)	2 Turbines	15.16 Km South-East	Granted Nov. 2009. Constructed 2017. Currently operational.	There are no impacts from the Cloonlusk Wind Farm on any utility infrastructure. There is therefore no potential for cumulative effects.

Energy Development Name	Number of Turbines	Distance and Direction from Project site	Status	Potential for cumulative effects on Utilities
Clonberne Wind Farm (An Bord Pleanála Pl. ref: PA07.320089).	11 Turbines. Turbine tip height of 180m	18 km East	Currently lodged as a SID development with An Bord Pleanála.	There are no gas mains located within the Clonberne Wind Farm. There are no known existing water services within the site boundary. The grid connection works will result in brief interference with electricity services. Which will not be a significant effect.

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