MWP

Chapter 14 Material Assets

Ballinla Wind Farm

Ballinla Wind Farm Limited

July 2025

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14. Material Assets

14.1 14.1 Introduction

This chapter considers the potential effects on relevant material assets arising from the Proposed Development. A full description of the Proposed Development, development lands and all associated project elements is provided in Chapter 2 of this EIAR. This assessment comprises:

- A review of the existing receiving environment.
- Prediction and characterisation of likely effects.
- Evaluation of effects significance.
- Consideration of mitigation measures, where appropriate.

14.1.1 Competency of Assessor

This chapter was prepared by Claire Boylan BBS, BSc (Env Mgt), DipSci and Adv Dip Planning & Environmental Law. Claire is an experienced Environmental Scientist at Malachy Walsh and Partners (MWP), having worked for 6 years in the environmental sector. Claire has worked on a variety of infrastructure projects, environmental licensing applications, conducted environmental assessments and supported the delivery of a number of environmental deliverables including Environmental Impact Assessment (EIA) Screening Reports, Appropriate Assessment (AA), Natura Impact Statements (NIS) and Environmental Impact Assessment Reports (EIAR).

This assessment has been reviewed by Graeme Thornton. Graeme is a senior environmental scientist. He has 20 years' experience working on environmental projects ranging from emergency hazardous waste spills to the project management of environmental impact assessment reports. Environmental site assessment is a speciality on both greenfield and brownfield sites. He has managed the design, planning and preparation of EIA's on a number of large-scale projects.

14.2 Methodology

The methodology of the assessment comprises:

- Identifying baseline conditions of the site and its environs, i.e. the project study area which is a larger assessment area than presented in the planning application boundary. It is dependent on the zone of influence and sensitive receptors being assessed.
- Identifying the sensitivity of receptors that had potential to be affected by changes in the baseline conditions.
- Predicting the magnitude of likely changes to the baseline receiving environment.
- Assessing the significance of effect taking into account sensitivity of receptors and magnitude of effect.
- Identifying and assessing appropriate mitigation measures, including alternatives.
- Assessing the significance of residual effects, taking account of any mitigation measures.

The study including desk-based research was carried out during the EIA process, starting September 2024, with a final search in January 2025 of published information and site visits to assemble the information on the local receiving environment and the Proposed Development.

The desk study included the following activities:

- Review of Ordnance Survey Mapping and aerial photography to establish existing land use and settlement patterns within the study area.
- Review of the Offaly County Development Plan 2021-2027 in order to identify future development and planning applications within the area of the Proposed Development and surrounding locations.
- Review of Offaly County Council's Planning Register to identify relevant development proposals.
- Review of the following sources for information regarding existing utilities:
    - Gas Networks Ireland Dial Before You Dig Maps (DBYD).
    - ESB Dial Before You Dig Maps (DBYD).
    - EIR eMaps Open Eir Civil Engineering Infrastructure Service.
    - Uisce Eireann Utility Mapping.

14.2.1 Legislation, Policy and Guidance

The legislation, policy and guidance applicable to the assessment is as follows:

- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Planning and Local Government, 2018).
- Environmental Impact Assessment of Projects, Guidance on the preparation of the Environmental Impact Assessment Report (EU,2017).
- A Waste Action Plan for a Circular Plan for a Circular Economy: Ireland's National Waste Policy 2020-2025 (Government of Ireland).
- Landfill Directive (2018/850) (EU, 2018a).
- The European Union Waste Framework Directive (2018/851) (EU, 2018b).
- The European Commission's 'Circular Economy Action Plan' (EC, 2020).
- Circular Economy and Miscellaneous Provisions Act 2022.
- Waste Management (Collection Permit) Regulations 2007 (as amended.
- European Union (Waste Licensing) (Amendment) Regulations 2019.
- European Union (Packaging) Regulations 2014-2022).
- Waste Management (Planning) Regulations 1997 (as amended) (S.I No. 137/1997).
- Waste Management (Landfill Levy) Regulations 2015 (as amended).

- Waste Management (Food Waste) Regulations 2009 – 2015 (as amended).
- Waste Management (Food Waste) (Amendment) Regulations 2024
- Waste Management (Hazardous Waste) Regulations 1998 to 2000.
- Waste Management (Shipments of Waste) Regulations 2007 (as amended) (S.I. No. 419/2007).
- Waste Management Act 1996 (as amended) (Act No. 10/1996).
- Environmental Protection Agency Acts 1992 – 2011 (as amended).
- Protection of the Environment Act 2003 (as amended) (Act No 27/2003).
- Litter Pollution Acts 1997 to 2009 (as amended).
- Planning and Development Act 2000-2023 (as amended) (Act No. 30/2000).

The legislation, policy and guidance applicable to the Traffic Infrastructure assessment included the following:

- Offaly CDP 2021-2027.
- Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections.
- The TII Traffic and Transport Assessment (TTA) Guidelines PE PDV 02045 May 2014.

14.2.2 Study Area

The Proposed Development is located in a rural area of east Co. Offaly. The site is approximately 4km west of the Edenderry town boundary and 24km east of Tullamore. Figure 14-1 outlines the location of the Proposed Development and the proposed main wind farm development site boundary included in the planning application. The area within this boundary is 42ha.

The proposed Ballinla Wind Farm is within the townland of Leitrim in the municipal district of Edenderry, Co. Offaly. The turbine delivery route will include development in the townlands of Leitrim, Ballyfore Big, Ballyleakin and Ballinla (Geashill By). The Proposed Grid Connection will be a linear development within the townlands of Leitrim, Lumville, Ballinla, Clarkeville, Ballyfore Big, Ballyfore Little, Ballyleakin and Ballykilleen, Edenderry, Co. Offaly. The grid connection route is 8km along the public roads from the proposed wind farm southeast to the existing Philipstown 110kV substation adjacent to the Edenderry Power Station.

Existing land cover at the site consists of agricultural land in the northern section and coniferous forest in the southern section. The northern and southern sections of the Proposed Development are split by the L5010 going east west going through the location. The Grand Canal is located to the north of the Proposed Development. The surrounding land includes agricultural fields, forestry and cutover peatlands.

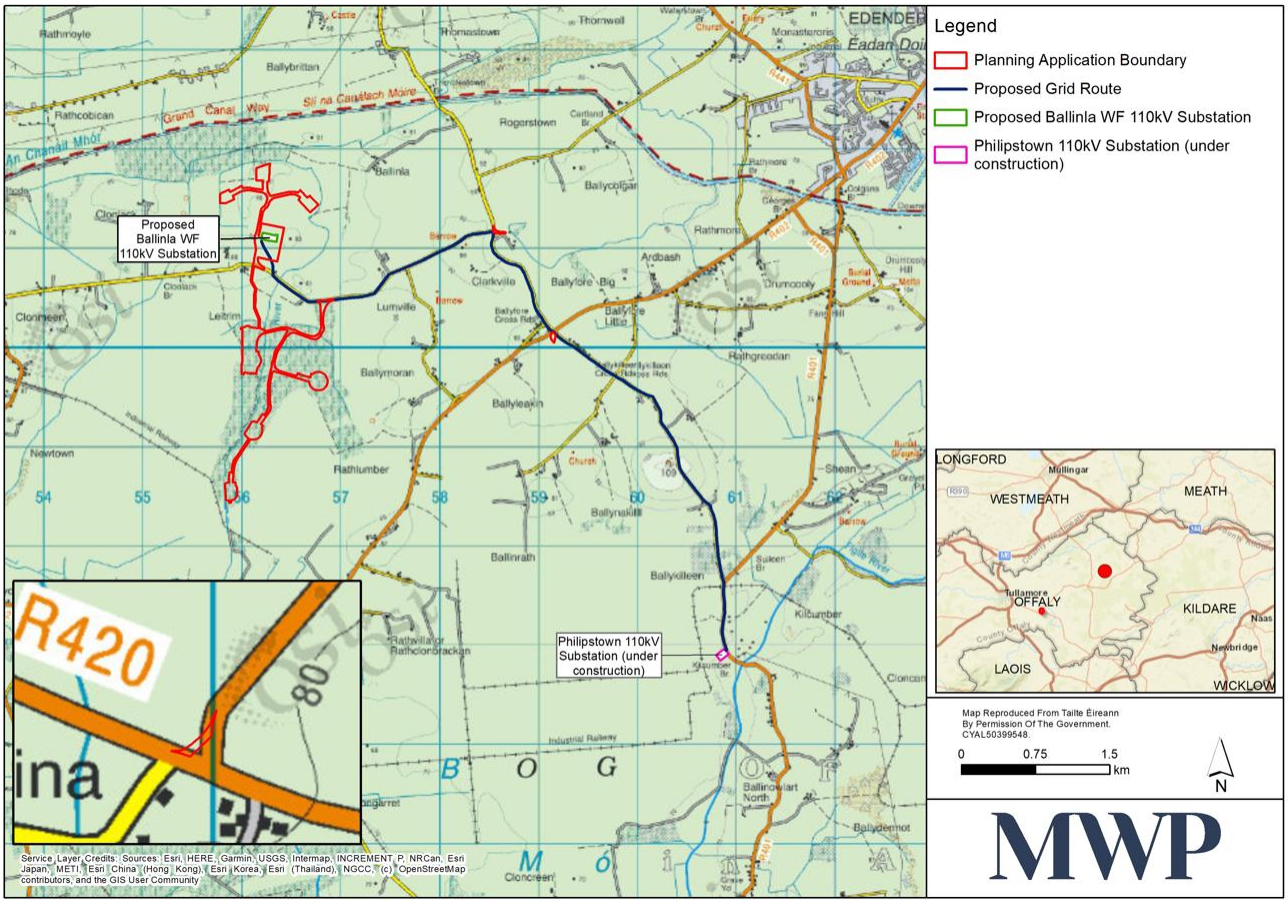

Figure 14-1: Site Location of the Proposed Development

14.2.3 Scope of Assessment

This assessment considers the entirety of the Proposed Development including the wind turbines, associated infrastructure, the substation, Lidar station, underground grid connection and connection to offsite substation and upgrades where required. The aim of this assessment is to consider whether the Proposed Development including all these elements would be likely to result in significant effects on material assets. The cumulative effect of the Proposed Development in combination with neighboring existing and permitted developments is then assessed to determine any likely cumulative significant material asset effects.

The potential effects of the decommissioning phase will be of similar magnitude, if not slightly less, than the construction phase. When the site is to be decommissioned, cranes of similar size to those used for construction will disassemble each turbine. The towers, blades, and all components will then be removed. The turbines, cabin and monitoring masts will also be removed from the site. It is likely that any turbine component will be reused as they have a life well in excess of the wind farm proposal, i.e. greater than 35 years. Wind farm components may also be recycled. Underground cables will likely be cut back and left underground as removal may do more harm than leaving them in situ. Therefore, the outcome of the construction phase assessment should be taken as representative of the decommissioning phase effects.

The EPA's 'Guidelines on the information to be contained in an Environmental Impact Assessment Report' (EPA, 2022) were consulted as part of the preparation of this assessment. The EPA Guidelines describes material assets to be taken to mean 'built services (i.e. utilities networks including electricity, telecommunications, gas, water supply and sewerage),

'waste management' and 'infrastructure' (e.g. roads and traffic).

Table 14-1 outlines the issues which the EPA guidance documents suggest may be examined as part of the material assets impact assessment. Traffic and Transport is considered in a separate chapter, Chapter 15.

Table 14-1: Material Assets and Topics to be Included.

Material Asset	Topics to be Covered
Built Services	Grid Capacity and Electrical Infrastructure Forest Resources Telecommunications Aviation Gas Water & Wastewater Supply Infrastructure
Waste Management	Construction Phase Operational Phase

Other topic areas which are closely related are considered in other sections of this EIAR and therefore reference should be made to the associated chapters as follows:

- Water resources are considered in the assessment on the surface water and groundwater resource provided in Chapter 8 Water. No further assessment is included in this chapter.
- The assessment on the land and geological resource is presented in Chapter 9 Land and Soils. No further assessment on this topic is included in this chapter.
- Assimilative capacity of the air resource is considered in the assessment provided in Chapter 13 Air and Climate. No further assessment on this topic is included in this chapter.
- Traffic and Transport is assessed in Chapter 15. The Traffic Management Plan is included in EIAR Volume 3, Appendix 15 Traffic Management Plan.

13.2.3.1 Assessment Criteria

Determination of the significance of an effect will be made in accordance with the criteria and terminology outlined in the Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

14.2.4 Scoped out from Further Assessment

All relevant built services/waste management within the Proposed Development area and surrounds were considered during the assessment.

14.2.5 Statement on Limitations and Difficulties Encountered

There were no difficulties or limitations encountered during the production of the material assets chapter of this EIAR.

14.3 Baseline Environment

The existing receiving environment (baseline environment) is described in Sections 14.3.1 to 14.3.6 below.

14.3.1 Forest Resources

Forests are an important renewable resource with a role to play in sustainable rural economic development. The County's forestry resources are also recognized as having a role to play in recreation in rural areas and have the potential to make an important contribution to tourism in the County. Trees, forestry and hedgerows make a valuable contribution to the landscape and visual amenity of County Offaly and provide wider environmental benefits that include carbon storage. OCC aims to protect individual trees and groups of woodland trees, which are of environmental and/or amenity value. The Offaly CDP includes a map of trees preserved and groups of trees that contribute to amenity.

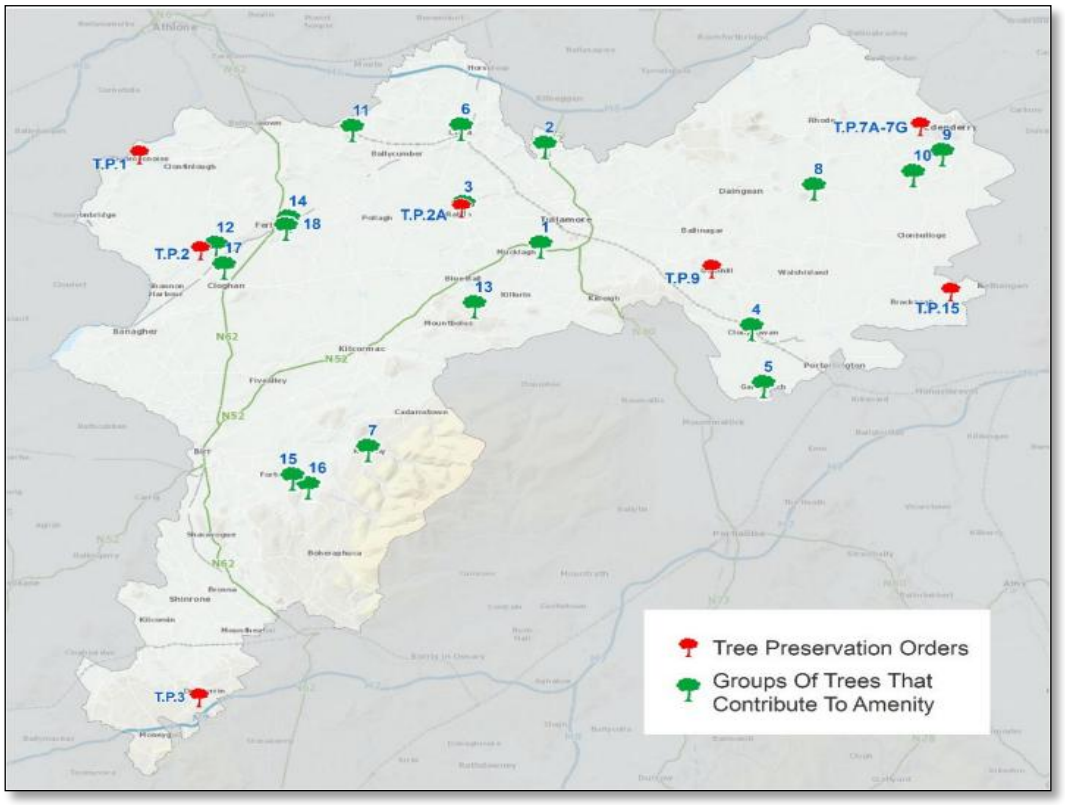

Figure 14-2: Location of Tree Preservation Orders and Groups of Trees that Contribute to Amenity

There are no preserved trees located within the project site. There is one group of trees, Trees at Ballykillen Hill (10) that contributes to amenity, which are located adjacent to the proposed grid route.

The Proposed Development site is located in Coillte's Midlands Business Area Unit (BAU). The BAU Strategic Plan sets out the economic, social and environmental strategies and priorities for the long and medium term. The Midlands BAU of Coillte Forest encompasses 10 Counties of Cavan, Longford, Louth, Meath, Monaghan, Offaly, Westmeath, Laois, Roscommon and a large area of County Leitrim. It is Coillte's largest BAU covering 1,675,019ha or nearly 25% of Ireland. Within this area Coillte owns 73,318ha of which just over 80% is forested with the remainder mostly moorland, marsh and lakes.

There are currently no defined recreational or tourism amenities within or associated with the plantation that is contained within the Proposed Development site. The nearest recreational forest is Killinthomas which is located 15km east of the Proposed Development.

Commercial forestry resources are present in the southern section of the Proposed Wind Farm. This area is made up of conifer and mixed broadleaf/conifer plantations.

14.3.2 Grid Capacity and Electrical Infrastructure

Eirgird is the national electricity Transmission Systems Operator (TSO) in Ireland. In its role as TSO, Eirgrid is responsible for the grid infrastructure required to support the development of Ireland's economy. EirGrid's Transmission Development Plan (TDP) 2018 – 2027 is the plan for the development of the Irish transmission network and interconnection over ten years from 2018. This ten-year plan presents projects that are needed for the operation of the transmission network. The grid developments have been planned to ensure that the intended grid reinforcements facilitate the connection of significant amounts of wind generation.

Offaly is included in the Midlands Planning Region along with Longform, Westmeath, Offaly and Laois in the Border, Midlands and West planning Area. This planning area has considerably more generation than demand. The existing transmission network is predominantly 110kV and 220kV. Development of this network is mainly required to connect a high level of renewable generation. The excess of generation in the area is set to increase significantly in the coming years. To cater for this, network reinforcement is necessary. This will enable the efficient export of generation from this area towards areas with high load, such as the eastern seaboard. The plan sets out a number of planned reinforcement projects for the Transmission Network. These include:

- Mount Lucas – Thornsberry 110kV New Circuit (CP01997) and
- Thornsberry 110kV Station – Busbar Uprate (CP0724).

14.3.3 Telecommunications

An assessment of the impacts of the Proposed Development on the existing telecommunications networks in the area was completed by Ai Bridges, and a copy of the full report is included in Vol 3 Appendix 14. Field and desktop surveys were undertaken to determine telecommunications network infrastructure that could be impacted by the Proposed Development. Consultations with telecom operators were also undertaken to assist in identifying network infrastructure that could be impacted by the proposed wind farm.

Telecommunications mast-sites with network infrastructure that could potentially be impacted by the development were identified. During the field surveys, radio antennas with bearings in the direction of the wind farm were recorded. The findings of the field surveys are provided in the Ai Bridges report appendices.

During the consultation process, nineteen telecom operators were contacted. Using the information obtained during the field survey assessments and consultation process, a desktop impact analysis was carried out and all the telecommunication operator networks were analysed using radio planning/modelling software. Results from the impact analysis indicated that there are five radio links that cross over the Proposed Development. Network analysis indicates that none of the radio links would be impacted by the proposed turbine layout. Further detail is provided in the Ai Bridges report.

14.3.4 Aviation

Airports are valuable transport, tourism, employment and business assets for the local and national economy. The development of large wind energy projects has the potential to impact air service and operations (airports, landing strips etc.) within a project area. Developments around airports and under flightpaths can constrain operations, either directly where they conflict with safety/operational requirements, or indirectly where they interfere with radar and other navigational aids.

The nearest airports with respect to the Proposed Development are listed in Table 14-2 below:

Table 14-2: Airports in the Region

Airfield	Location	Estimated Distance to nearest Turbine
Clonbulloge Airfield (Irish Parachute Club)	Co. Offaly	6.5km to the south
Allenwood Airstrip	Co. Kildare	22km to the southeast
O' Loughlin Airstrip	Co. Kildare	16.6km to the southeast
Taggarts Airstrip	Co. Meath	14.45km to the northeast
Millicent Airfield	Co. Kildare	30.6km to the east
Trim Aerodrome	Co. Meath	41.7km to the northeast
Casement Aerodrome	Co. Dublin	47.45km to the east
Weston Airport	Co. Dublin	44km to the east
Dublin Airport	Co. Dublin	61.5km to the east

Consultations were carried out with during the EIA process with the Irish Aviation Authority (IAA) and the Irish Parachute Club, Clonbulloge, Co. Offaly. The IAA recommended direct consultation with the Irish Parachute Club at Clonbullogue Airfield. The IAA had no other specific requirements to be included in the EIAR. The IAA did add that in the event of planning being granted the following should be conditioned:

(1) Agree an aeronautical obstacle warning light scheme for the wind farm development.

(2) Provide as-constructed coordinates in WGS84 format together with ground and blade tip height elevations at each wind turbine location.

(3) Notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection.

The above three recommended conditions are incorporated into the mitigations section of this chapter.

14.3.5 Gas

Natural gas is supplied via underground interconnecting pipelines throughout Ireland. The natural gas network in Ireland is run by Gas Networks Ireland.

Following consultation with Gas Networks Ireland, via a utilities search, it was found that there are no gas network utilities within or immediately adjacent to the Proposed Development. The nearest gas line is indicated in Figure 14-3.

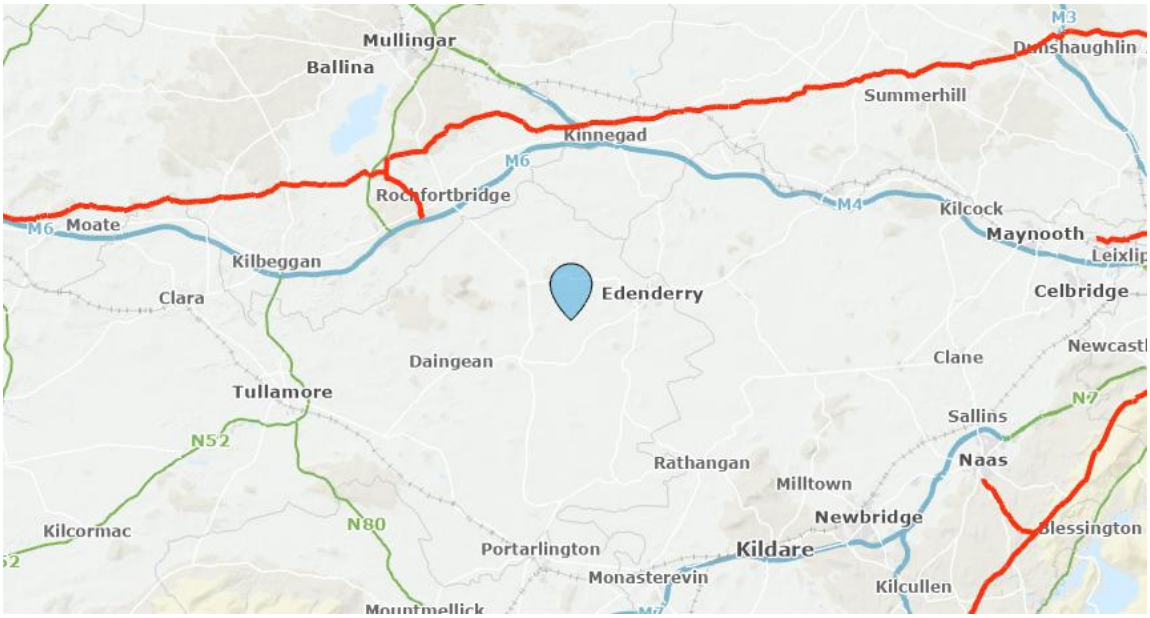

Figure 14-3: Site Location (blue pin) and Gas Line (red line)

14.3.6 Water and Wastewater Infrastructure

There is a water distribution main indicated along the L5010 which transects the middle of the Proposed Development site. In addition, there are several group water schemes in the vicinity of Edenderry, including Ballyfore/Ballykilleen GWS, Mountlucas GWS, Bracknagh GWS and Ballinagar GWS.

The nearest wastewater treatment plant (WWTP) is Edenderry WWTP. A review of the 2023 Annual Environmental Report (AER) for Edenderry WWTP (D0110-01) indicates that the plant is compliant with the emission limit values set out in the Wastewater Discharge Licence however ambient monitoring of the receiving waters has noted a deterioration in water quality however it is not known if this is caused by the treatment plant. The AER also states that the hydraulic capacity of the treatment plant will be exceeded in the next three years.

As part of the EIAR process, consultation was undertaken with Uisce Eireann. During the construction phase for the grid connection, surveys will be completed and any infrastructure along the route will be identified.

14.3.7 Waste Management & Resource Use

The primary natural resources required for the construction of this wind farm are as follows:

- Peat, subsoil, crushed and graded stones won on site from excavation for construction of turbines.
- Crushed and graded stone from local quarries.
- Ready mix concrete (manufactured from natural materials).
- Water for wash down of vehicles and at site compound.

Where possible, all material used in the project will be sourced locally from the nearest supplier to as to minimise traffic and transport. It is likely that all materials required will be sourced in the Kildare/Offaly area.

Resources including soils and stones removed during excavation, will be moved during the construction phase, however they are not lost from the site, merely redistributed over the development area. There are no existing sources of solid waste associated with the site.

A review of nearby Offaly Local Authority Waste Facility Register

Table 14-3: Offaly Waste Facility Register

Authorisation Reference	Name	Waste Type	Address
R01228-03	Edenderry Civic Amenity Site	N/a	Dublin Road Edenderry, Co. Offaly
WFP-11-OY-0191-02	Orla Canton & Damien Barry	16 01 06 end-of-life vehicles, containing neither liquids nor other hazardous components 16 01 04* end-of-life vehicles	Cloncreen Clonbullogue Co Offaly R45 CF10
WFP-OY-19-0204-01	Kilmurray Pre-Cast Concrete Ltd	17 01 01 Concrete 17 01 02 Bricks 17 01 03 Tiles and ceramics 17 01 07 mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06 17 03 02 bituminous mixtures containing other than those mentioned in 17 03 01 17 05 04 soil and stones other than those mentioned in 17 05 03 17 05 06 dredging spoil other than those mentioned 20 02 02 soil and stones	Derryarkin Rhode Co. Offaly
WFP-OY-16-0199-02	Anthony Cocoman	17 01 01 Concrete 17 05 04 Soil and Stones other than those mentioned in 17 05 03	Shean Edenderry Co. Offaly
WFP-OY-18-0202-02	John Mallen	17 01 01 Concrete 17 05 04 soil and stones other than those mentioned in 17 05 03 17 05 06 dredging spoil other than those mentioned in 17 05 5	Ballycon Mount Lucas Co Offaly

14.4 Potential Significant Effects of the Proposed Development

14.4.1 Forest Resources

Construction Phase

To prepare the Proposed Wind Farm for the construction of the internal access tracks, the turbines and hardstand areas, permanent felling of forestry is required in the southern section of the wind farm area. The area of clear felling required is approximately 21ha of commercial forestry. All felling will be undertaken with a felling licence to be issued from the Forestry Service.

The forestry resource lost within the site will be replaced as per the felling licence. Replanting offsite will be required for the equivalent area felled onsite. A suitable replanting area will be identified to ensure no net loss of forestry area.

There will be no impact on trees or forest resources during the construction phase of the grid connection.

During the turbine delivery, some trees will require trimming and removal (location ref: 12 TDR report **EIAR Vol 3 Appendix 2-2**). In other locations, the trees and vegetation will just require trimming and/or pruning. The locations are detailed in the Turbine Delivery Route report. The works will be temporary and only required during the delivery period.

The construction phase of the Proposed Development will likely have a **neutral**, **imperceptible** and **long term** effect on forest resources.

Operational Phase

There will be no impact on forest resources from the operational phase of the wind farm and grid connection.

Decommissioning Phase

There will be no impact on forest resources from the decommissioning phase of the wind farm and grid connection.

Table 14-4: Effect 1: Forestry Resources

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Proposed Wind Farm	Neutral	Imperceptible	Localised	Long term	Direct	Likely

14.4.2 Grid Capacity and Electrical Infrastructure

The Proposed Development will assist in meeting increases in electricity demand nationally by exporting electricity into the electricity market. It will contribute to ensuring that adequate electricity supplies are available to support economic activity and growth.

The main components of the Proposed Development assessed within this **EIAR** are seven wind turbines, an onsite substation and underground grid cabling to a nearby 110kV substation. The proposed infrastructure has been chosen to best integrate with the existing electrical infrastructure. The Proposed Grid Connection will be part of a future planning application.

13.4.2.1 Construction Phase

Proposed Wind Farm

There are no other existing electrical services within the main Proposed Wind Farm that would be affected by the proposed wind farm infrastructure or construction works.

Proposed Grid Connection

The Proposed Grid Connection is assessed within this **EIAR** and will be a part of a future planning application separate to the Proposed Wind Farm application. It is proposed to construct a 110kV grid connection cable within the public road between the proposed onsite substation and existing Philipstown 110kV substation. The underground cabling will be constructed in a trench within the public road corridor. Where existing electrical services are located in the public road, the cable will avoid these services by providing ducting above, below or on the other side of the road corridor. Prior to construction being undertaken, a survey of underground services along the grid route will be undertaken to identify their location and design the layout of the grid route cables to avoid any interference with or risk to the existing services and networks under the road. The relevant authorities will also be consulted during this phase and will approve the proposed

approach and methods prior to the initiation of construction. This will avoid any effects on existing electrical networks along the grid route.

During the process of connecting the Proposed Development to the national grid, some minor, **brief** disruption to electrical supply, at a **local level** are **likely**. However, during this process, EirGrid will balance the loading on the network to ensure that **no significant** disruption occurs, and significant effects do not arise.

Proposed TDR

The accommodation works for the TDR will require some brief disruption to electrical supplies due to movement of existing overhead lines and poles at three pinch points along this route (at locations ref: No. 7, 8 and 9 of the TDR report **EIAR Vol 3 Appendix 2-2**) when the turbine components are being delivered to site. The ESB and relevant local authorities will be consulted on these proposed temporary changes and will need to approve them and facilitate the dis-connection and reconnections of the affected lines and poles.

During construction there will **likely** be a **neutral, not significant, localised, brief and direct** effects on electrical infrastructure and supply associated with the grid route connection, TDR and the rerouting of the permitted 38kV overhead powerline through the Proposed Wind Farm.

13.4.2.2 Operational Phase

The electricity generated by the Proposed Development will assist to displace electricity produced from coal, oil and gas fired power plants, thus reducing emission from these power plants.

Once operational, there will be no direct emissions to the atmosphere from the Proposed Development. The CO_2 offset by the wind farm will further assist Irelands CO_2 reduction commitments under the Paris Agreement and Ireland's CAP 2025

The proposal will maximise a natural asset (wind) which is a renewable resource and therefore constitutes a positive effect. Therefore, the effects on grid capacity and electrical infrastructure are considered to be a **likely**, **direct**, **long term**, **regional**, **significant**, and **positive** effect during the operational phase.

There is a possibility that additional replacement turbine components may need to be delivered from time to time during the operational phase. This may require additional temporary accommodation works along the delivery route similar to those during the construction phase. This will **likely** be a **neutral, not significant localised, brief and direct** effect on electrical infrastructure and supply associated with the TDR.

13.4.2.3 Decommissioning Phase

The decommissioning of the Proposed Wind Farm will result in the removal of renewable electricity from the national grid. Decommissioning will involve removing the removal of above ground infrastructure at the Proposed Development with below ground infrastructure to remain in situ.

It is also likely the proposed onsite 110kV substation and the grid cabling will remain in place and will previously have been taken in charge by the system operator, after the proposed wind farm is connected to the national electricity grid. During decommissioning there will be a **negative, significant, regional, permanent, direct** and **likely** effect on power generation as a result of removal of electricity generating infrastructure and the loss of renewable electricity to the national grid. At the same time there will be a potential **direct permanent positive** effect associated with the installed

110kV substation and underground grid infrastructure which will continue to be used for electricity distribution in the locality and region and have a positive effect on grid capacity.

Table 14-5: Effect 2: Grid Capacity and Electrical Infrastructure

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Proposed Wind Farm	Neutral	Not significant	Localised	Brief	Direct	Likely
Proposed Grid Route	Neutral	Not significant	Localised	Brief	Direct	Likely
Proposed TDR	Neutral	Not significant	Localised	Brief	Direct	Likely
Operational Phase						
Power Generation & Storage for Grid	Positive	Significant	Regional	Long-term	direct	Likely
Proposed TDR	Neutral	Not significant	Localised	Brief	Direct	Likely
Decommissioning Phase						
Power Generation & Storage for Grid	Negative	Significant	Regional	Permanent	Direct	Likely
Additional Grid Capacity Freed Up	Positive	Significant	Regional	Permanent	Direct	Likely

14.4.3 Telecommunications

Radio, television and microwave transmissions can potentially be affected by either individual wind turbines or wind farm developments as follows:

- The steel turbine tower may obstruct, reflect or refract the electromagnetic waves used in the telecommunications systems for transmissions purposes.
- The turbine blades may have a similar intermittent effect as they rotate.
- If the blades are either of steel construction or have a steel core they can act as an aerial to relay the signal.

The report from Ai Bridges concluded that there would be no impact on the links from the Proposed Development. The links are summarized in Table 14-5.

Table 14-6: Microwave Radio Links that Cross Over the Proposed Wind Farm

Operator	Link Description	Nearest Turbine	Fresnel Zone (F2) Clearance Distance to Balde-Tip of Turbine	Impact of Wind Farm
Eir	PTP microwave radio link from Ballykilleen to Togher	T06	>200m	No impacts
Three Ireland	PTP microwave radio link from Edenderry to Mount Lucas	T04	>100m	No impacts
Virgin Media	PTP microwave radio link from Rochfortbridge Convent to Dunmurry Hill	T01	19.5m	No impacts
Vodafone	PTP microwave radio link from Ballinla to Ballykilleen	T03	>700m	No impacts
Vodafone	PTP microwave radio link from Edenderry Garda Station to Ballinla	T03	>700m	No impacts

14.4.4 Aviation

The potential aviation effects are only relevant to the turbines and construction cranes on the Proposed Wind Farm. The potential effects will only happen during all phases

The closet airport to the Wind Farm development is Clonbullogue Airport (over 6.5km southwest of the nearest wind turbine) where the Irish Parachute Club is based.

Obstructions located within 15km of Stage or Regional Airports, or within 4km of other licensed airports are referred to as ''obstructions in the vicinity of airports''. Obstructions located in all other areas are referred to as ''enroute obstructions'. This is referred from 'Guidance Material on Specification for Obstruction Surveys' (ISS, 2015). The Clonbullogue Airfield is not a state or regional airfield. The Proposed Wind Farm is over 6.5km away from the airfield, this means the Proposed Wind Farm is not an obstruction in the vicinity of the airfield. The wind farm is an enroute obstruction. Mitigation measures are outlined in Section 14.5.3.

As an enroute obstruction, the effects on existing aviation during the construction, operational and decommissioning phases are described as a **temporary-long term, negative, slight, localised, direct,** and **likely** effect.

14.4.5 Gas

Following consultation with Gas Networks Ireland, there are no gas network utilities within the Proposed Development site boundary or along the grid route as discussed in section 14.3.5. There are no gas network infrastructure requirements for the Proposed Development. Therefore, there are no effects to gas infrastructure anticipated during the construction, operational or decommissioning phases.

14.4.6 Water and Wastewater

13.4.6.1 Construction Phase

Proposed Wind Farm

During construction works, there will be one temporary compound at the Proposed Wind Farm. The temporary compound will be set up upon commencement of the construction phase. It will be used as a secure storage area for construction materials, waste materials and also contain temporary site accommodation units to provide welfare facilities and enclosed wastewater management system. Sanitary wastewater will be collected in portable toilets. Disposal of sanitary wastes will be managed through a contract with a licensed waste contractor. The existing environment, both the local water supply and wastewater treatment plant has good capacity, therefore the supply of water and treatment of waste is unlikely to burden the existing infrastructure.

As discussed in Chapter 2 Project Description, water needs for construction activities will be limited to concrete truck chute washing, wheel wash, dust suppression and sanitary facilities.

It is estimated that up to approximately 3,000 litres per day of potable water will be required during peak construction for construction employees. It is proposed that this water requirement will be imported in bulk water tanks.

During the construction phase, a 110kV underground cable will be installed in the public road. Where the cable meets existing water infrastructure, the ducting will be placed over, under or on the opposite side of the road from existing water mains.

The effects on existing water and wastewater infrastructure during the construction phase are described as a **short-term, neutral, imperceptible, localised, direct,** and **likely effect**.

Proposed Grid Connection

Where existing water supply or wastewater networks are located in the public road, the grid cable will avoid these services by providing ducting above, below or on the other side of the road corridor. Prior to construction being undertaken, a survey of underground services along the grid route will be undertaken to identify their location and design the layout of the grid cabling to avoid any interference with or risk to the existing services and networks under the road. The relevant authorities will also be consulted during this phase and will approve the proposed approach and methods prior to the initiation of construction. This will avoid any effects on existing water infrastructure along the grid route. Pre-mitigation construction effects are described as **neutral, imperceptible, localised, direct, likely,** and **temporary**.

Proposed TDR

The Proposed TDR accommodation works are limited to ground level and above ground works. Consequently, there are expected to be no effects on underground water supply or wastewater networks along the TDR.

13.4.6.2 Operational Phase

During the operational phase, maintenance personnel will visit on a semi-regular basis. The daily average wastewater production during the operational phase is estimated from the average number of workers on site, which is expected to be two workers, resulting in a typical wastewater production rate of 100 litres per day, on days where workers are present onsite. The wastewater generated during the operational phase at the onsite substation will be managed by a holding tank which is fitted with an alarm to indicate levels and when it is due to be emptied. The holding tank will be emptied by a permitted contractor and brought to a licenced wastewater treatment plant. Potable water required during the operational phase is estimated to be approximately 20 litres per day. This water will be supplied as bottled water. Welfare facilities during the operational phase will utilise rainwater harvesting at the substation. The volumes of both potable water and wastewater associated with the operational phase are considered slight and would result in a **neutral, imperceptible, localised, long-term, direct** and **likely** effect on the water supply and wastewater utilities.

13.4.6.3 Decommissioning Phase

During decommissioning works, temporary compounds will be set up and used as a secure storage area for materials, waste materials and contain temporary site accommodation units to provide welfare facilities and enclosed wastewater management system. Sanitary wastewater will be collected in portable toilets and **potable water will be brought to site by tanker**. Disposal of sanitary wastes will be managed through a contract with a licensed waste contractor to a wastewater treatment plant. During decommissioning, there will be no impact on in-road water infrastructure as the cables will be left in-situ. The effects on existing water and wastewater infrastructure during the decommissioning phase are described as a **temporary, neutral, imperceptible, localised, direct** and **unlikely effect.**

Table 14-7: Effect 3: Water supply and wastewater facilities

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
Construction Phase						
Proposed Wind Farm	Neutral	Imperceptible	Localised	Short-Term	Direct	likely
Proposed Grid Connection	Neutral	Imperceptible	Localised	Temporary	Direct	likely
Proposed TDR	No effect					
Operational Phase						
Proposed Wind Farm	Neutral	Imperceptible	Localised	Long-term	Direct	Likely
Decommissioning Phase						
Proposed Wind Farm	Neutral	Imperceptible	Localised	Temporary	Direct	likely

14.4.7 Waste Management

During the course of the project, a certain amount of waste will be produced, this will be mainly during the construction phase. Table 14-8: Anticipated Waste Arising Onsite below outlines the anticipated types of major waste streams that will be generated by the project.

Table 14-8: Anticipated Waste Arising Onsite

Waste Item
Waste from Welfare Facilities
Waste Chemicals, Fuels and Oils
Packaging
Concrete
Waste Metals
Domestic Waste

In accordance with the waste hierarchy in Council Directive 98/2008/EC on waste and Section 21A of the Waste Management Act 1996, as amended, waste management will be undertaken in order of priority, as follows:

1. Prevention.
2. Re-use.
3. Recycling.
4. Other recovery (including energy recovery).
5. Disposal.

Waste generation is principally avoided through planning and management of activities and good housekeeping. The procurement of material inputs are generally in bulk. By bulk procurement, the generation of small-sized containers and packaging is largely avoided and thus minimises the generation of unnecessary waste requiring recycling or disposal.

Ireland's Circular Economy Programme (2021 to 2027) is the driving force for Ireland's move to a circular economy. The vision for the Programme, which is led by the EPA, is an Ireland where the circular economy ensures that everyone uses less resources and prevents waste to achieve sustainable economic growth. In line with the Waste Hierarchy, wherever possible, packaging will be returned to originator for reuse ahead of recycling or disposal. Otherwise, waste packaging will be segregated and stored on site in appropriate skips within the construction compound and disposed of in accordance with waste management regulations. Skips will be clearly labelled for plastics, timber, steel and other waste materials to ensure segregation. Materials will be placed in these and can be reused as required during construction. Hazardous materials, such as gear and hydraulic oils used in the operation of the wind turbines and mineral oils used in transformers, will be disposed of in accordance with all applicable laws and regulations. A list of nearby waste facilities is included in Table 14-3.

13.4.7.1 Construction Phase

Construction phase waste may consist of hardcore, concrete, spare steel reinforcement, cable wires, shuttering timber and building materials. The waste from all components of the project will be stored in the demarcated areas within the construction compound and collected during and at the end of the construction phase and taken offsite to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility. Plastic waste will be taken

for recycling by an approved contractor and disposed or recycled at an approved facility. Hazardous materials, such as fuels and lubricant oils, used during construction that require disposal will be disposed of in accordance with all applicable laws and regulations. Domestic type waste generated by contractors will be collected onsite, stored in an enclosed skip at the construction compounds and disposed of at an appropriately authorised facility. The types of wastes to be generated will be similar to established construction waste streams and will not require unusual or new treatment options. Waste volumes will not be significant as to require new permitted treatment, storage and disposal facilities as there is sufficient capacity at licensed disposal or recycling facilities in proximity to the Proposed Development. Waste Management procedures have been included in the **CEMP** in **EIAR Volume 3 Appendix 2-1.** During the construction phase the effects of waste and effects on the capacity of waste management facilities will be **slight, negative, localised, indirect and short term** and **likely** due to the implementation of the **CEMP**.

13.4.7.2 Operational Phase

During the operational phase, minimal amounts of solid waste will be generated, which will be collected onsite and transported to a licensed disposal facility, or recycling facility by a waste hauling contractor. Hazardous materials, such as gear and hydraulic oils used in the operation of the wind turbines and mineral oils used in transformers, will be disposed of in accordance with all applicable laws and regulations. The effects of waste and effects on the capacity of waste management facilities will be **slight, negative, localised, indirect, likely** and **long term**.

13.4.7.3 Decommissioning Phase

During the decommissioning phase, waste will be kept to a minimum. The majority of materials onsite will be recycled.

Domestic type waste generated by contractors will be collected onsite, stored in an enclosed skip at the temporary compounds and disposed of at an appropriately authorised facility. Tracks, hardstanding areas and foundations will be left in situ with hardstands and foundations covered over and revegetated. All non-recyclable or reusable materials will be disposed of in a licenced waste facility.

At present, between 85% and 95% of turbine components can be recycled. Wind turbine blades remain the most difficult item to recycle. Technology has developed to allow for the breakdown of polymer composites to reuse them as new products that can substitute materials such as virgin plastics, steel, and concrete. Other existing uses for blades include artificial reefs, materials to build playgrounds and street furniture, and use as domestic building materials.

During the decommissioning phase the effects of waste and effects on the capacity of waste management facilities will be **negative, slight, localised, short term, indirect** and **likely.**

Table 14-9 Effect 4: Waste Management

Impact	Quality of Effect	Significance	Spatial Extent	Duration	Other Relevant Criteria	Probability
			Construction Phase			
Waste	Negative	Slight	Localised	Short-term	Indirect	Likely
			Operational Phase			
Waste	Negative	Not significant	Localised	Long-term	Indirect	Likely
			Decommissioning Phase			
Waste	Negative	Slight	Localised	Short-term	Indirect	Likely

14.4.4 Cumulative Effects

Significant planning applications in the region are listed in **Section 2.3.19 of Chapter 2** of this **EIAR.**

Wind farm projects within 25km of the Proposed Development include:

- Cushaling Wind Farm (9- turbine) (Permitted and under construction).
- Cloncreen Wind Farm (21-turbine) (existing).
- Mountlucas Wind Farm (28-turbine) (existing).
- Yellow River Wind Farm (29 – turbine) (Permitted and under construction).
- Moanvane Wind Farm (12 – turbine) (Permitted and under construction).
- Dernacart Wind Farm, Co. Laois (8 – turbine) (Permitted).
- Drehid Wind Farm, Co. Kildare (11 turbines) (Planned for submission)

The nearest proposed solar farms are Kilcush Solar Farm (c.7km south) and Obton Limited Oldcourt Solar Farm (c.10km east).

There is potential for cumulative effects to occur at existing waste management facilities if the construction of the proposed wind farm overlaps with any of these projects. Capacity of local waste management facilities may be affected. This has potential to cause a slight, negative, short-term and localised effect on local waste management facilities.

The energy produced by the proposed Ballinla wind farm development would positively cumulate with other wind farm developments in the region to advance in delivering local, regional, and national Green Energy targets. Overall, the cumulative effect would be positive, moderate and long-term.

The Proposed Development is not likely to result in any significant cumulative effects on resources or utility infrastructure, either individually or in combination with other existing permitted or Proposed Developments.

14.5 Mitigation Measures

Mitigation measures have been outlined below to reduce or eliminate potential effects on the receiving environment.

14.5.1 Grid Capacity and Electrical Infrastructure

Mitigation by design has been adopted whereby the grid connection methodology at the Proposed Development has been selected to utilise existing built infrastructure as discussed in Chapter 4 Alternatives. Ecological, field and desktop assessments have been applied to determine project development infrastructure locations and mitigation by avoidance of any constraints. All electrical and other services within the public road will be identified prior to construction of the 110kV underground grid route cable.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with ESB Networks.

All works in the vicinity of ESB Networks infrastructure will be carried out in ongoing consultation with ESB networks and will be in compliance with any requirements or guidelines they may have including procedures to ensure safe working practices are implemented when working near live overhead/underground electrical lines.

There is a slight chance of potential electricity outage during rerouting of the 38kV overhead line. Any outage will be kept to a minimum and any customers affected by a potential outage will be contacted prior to works commencing.

The Proposed Development will not result in any significant effects on grid capacity but will provide a potentially positive effect of the electricity supply infrastructure. No specific mitigation measures are proposed beyond good construction practices.

14.5.2 Gas

The Proposed Development will result in no effects on gas infrastructure no specific mitigation measures are proposed.

14.5.3 Aviation

Whilst the Proposed Development will not impede aircraft, IAA Electronic Air Navigation Obstacle Data sets has identified obstacles as objects whose height above ground level is 90m or higher, affecting air navigation. IWEA Guidelines have set out the following measures to ensure that pilots of aircraft are fully aware of the presence of wind turbines.

- All turbines and meteorological masts having a height of 90m, or more are promulgated in the Irish Air Navigation Obstacle database.
- Wind turbines or any structure exceeding 90m in height may require appropriate aviation warning lighting as agreed with IAA.
- The IAA should be informed 30 days in advance of the erection of any structure exceeding 45m in height.

Having regard to the above:

- The developer will agree an aeronautical obstacle warning light scheme for the wind farm development with the IAA.
- The developer will provide the IAA with as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location.
- The developer will notify the IAA of intention to commence crane operations with a minimum of 30 days prior notification of turbine erection.

14.5.4 Telecommunications

No mitigations are required for the telecoms at the Proposed Development.

14.5.5 Water and Wastewater Infrastructure

There are no existing watermains within the footprint of the Proposed Wind Farm however there is distribution watermains which exists along a section of road where the grid connection route passes. Pre-construction surveys will be completed to avoid disturbance to existing watermains.

All water and wastewater networks potentially affected by the Proposed grid Connection will be identified prior to construction.

The Contractor will be obliged to put measures in place to ensure that there are no interruptions to existing services and all services and utilities are maintained unless this has been agreed in advance with Uisce Eireann or other relevant authorities.

All works affecting the water and wastewater infrastructure will be carried out in ongoing consultation with the local authorities and service providers and will be in compliance with any requirements or guidelines they may have.

All construction phase and operation phase wastewater will be taken offsite by an authorised waste contractor and brought to an authorised waste facility.

14.5.6 Waste Management

Mitigation measures for waste management are based on best practice construction methods. Waste will be managed in accordance with the waste hierarchy in Council Directive 98/2008/EC on waste and Section 21A of the Waste Management Act 1996, as amended, as follows:

1. Prevention.
2. Re-use.
3. Recycling.
4. Other recovery (including energy recovery).
5. Disposal.

All waste for offsite treatment/disposal is to be stored temporarily in appropriate dedicated storage areas. The areas in which wastes are stored on site are segregated to prevent material and contaminated surface water runoff entering local surface water drains.

All chemical, hydrocarbon or other controlled wastes will be stored in designated areas in appropriate approved containers within bunds or on spill pallets, as required.

All waste to be removed from site will be undertaken by authorised waste contractors and transported to an authorised facility in accordance with best practice and the site waste management plan as discussed in the CEMP as included in EIAR Volume 3 Appendix 2-1. All personnel working on site will be trained in pollution incident control response, and an emergency response plan will be prepared as part of the CEMP.

14.6 Residual Effects

The residual effects section outlines the degree of environmental change that will occur after the proposed mitigation measures have taken effect. The residual effects are summarised in Table 14-9.

Table 14-10 Residual Effects

Impact	Effect (Pre-Mitigation)	Mitigation Measures	Residual Effect (Post-Mitigation)
CONSTRUCTION PHASE			
Forestry resources	Neutral, imperceptible, localised, long term, direct and likely	No specific mitigation measures proposed	Neutral, imperceptible, localised, long term, direct and likely
Electricity-Grid Connection Route	Neutral, not significant, localised, brief, direct and likely	Refer to Section 14.5.1	Neutral, imperceptible, localised, brief, direct, and likely
Electricity-Turbine delivery	Neutral, not significant, localised, brief, direct and likely	Refer to Section 14.5.1	
Gas – All project components	No effects	No specific mitigation measures proposed	No effects
Aviation – Proposed Wind Farm	Negative, slight, localised, temporary, direct, and likely	Refer to Section 14.5.3	Negative, negligible, localised, temporary, direct, and likely
Water & Wastewater Infrastructure – Proposed Wind Farm	Neutral, slight, localised, temporary, direct, and likely	Refer to Section 14.5.5	Neutral, not significant, localised, temporary, direct, and likely
Waste Management	Negative, slight, localised, short-term, indirect, and likely	Refer to Section 14.5.6	Negative, not significant, localised, short-term, indirect, and likely
OPERATIONAL PHASE			
Electrical Infrastructure-Wind Farm-Power generation for grid	Positive, significant, regional, long-term, indirect, and likely	Refer to Section 14.5.1	Positive, significant, localised, long-term, indirect, and likely
Electrical Infrastructure – Turbine Delivery Route	Neutral, not significant, localised, brief, direct and likely	Refer to Section 14.5.1	Neutral, imperceptible, localised, occasional and brief, direct and likely
Gas	No effects	No Mitigation Measures Required	No effects

Impact	Effect (Pre-Mitigation)	Mitigation Measures	Residual Effect (Post-Mitigation)
Aviation	Negative, Slight, localised, long-term, direct, and likely	Refer to Section 14.5.3	Negative, negligible, localised, long-term, direct, and likely
Water & Wastewater Infrastructure – Proposed Wind Farm	Neutral, imperceptible, localised, long-term, direct, and likely	Refer to Section 14.5.5	Neutral, imperceptible, localised, long-term, direct, and likely
Waste Management	Negative, slight, localised, long-term, indirect, and likely	Refer to Section 14.5.6	Negative imperceptible, localised, long-term, indirect, and likely
DECOMMISSIONING PHASE			
Wind Farm-Grid Capacity and Electrical Infrastructure – Power generation and storage	Negative, significant, regional permanent, direct, and likely	No specific mitigation measures proposed	Negative, significant, regional, permanent, direct and likely
Additional Electrical Grid Capacity freed up	Positive, Significant, Regional, Permanent, direct and likely	No specific mitigation measures proposed	Positive, Significant, Regional, Permanent, direct and likely
Water & wastewater Infrastructure – Proposed Wind Farm.	Neutral, imperceptible, localised, temporary, direct, and likely	Refer to Section 14.5.5	No effects
Waste Management	Negative, slight, localised, short-term, indirect, and likely	Refer to Section 14.5.6	Negative, not significant, localised, short-term, indirect, and likely
Aviation	Negative, Slight, localised, long-term, direct, and likely	Refer to Section 14.5.3	Negative, negligible, localised, temporary, direct, and likely

14.7 References

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