12 MATERIAL ASSETS AND OTHER ISSUES

12.1 INTRODUCTION

This chapter of the EIAR assesses the impacts of the Project on material assets. The Project refers to all elements of the Gortloughra Wind Farm (**Chapter 2: Project Description**). The assessment will consider the potential effects during the following phases of the Project:

- Construction of the Project
- Operation of the Project
- Decommissioning of the Project

This chapter of the EIAR is supported by Figures provided in **Volume III**.

Table 12.1: Common Acronyms

Glossary of Common Acronyms	
EIAR	Environmental Impact Assessment Report
AOD	Above Ordanance Datum
BSc	Bachelor of Science
EMC	Electromagnetic Compatibility
EMF	Electromagnetic Fields
EWC	European Waste Catalogue
GIS	Geographical Information Systems
ha	Hectares
IAA	Irish Aviation Authority
km	Kilometre(s)
km2	Squared kilometre(s)
kV	KiloVolt(s)
L	Litre(s)
m	Metre(s)

Glossary of Common Acronyms	
m3	Cubic metre(s)
mm	Milimetre
MSc	Master of Science
nm	Nanometres
TDR	Transport Delivery Route

12.1.1 Statement of Authority

This chapter has been prepared by Jennings O'Donovan & Partners Limited. It was prepared by Shirley Holton with the assistance of Kathlyn Feeney and it was reviewed by Andrew O'Grady.

Andrew O'Grady is a Senior Environmental Consultant and holds a Bachelor (Hons.) Degree in Geography from University of Coventry and a MSc. in Environmental Resources Management from the Free University, Amsterdam. He has worked in environmental consultancy for over seventeen years and has prepared various Environmental Reports and EIARs. Andrew is the Project Manager and lead coordinator in the preparation of this EIAR. Andrew was the technical reviewer of this chapter.

Shirley Holton is an Environmental Scientist with over 3 years' experience in Environmental Consultancy. She graduated with a First-Class Honours Degree (BSc. Hons) in Environmental Science from the Institute of Technology, Sligo. She was also awarded with the Governing Body award for a BSc in Environmental Protection. Shirley's key capabilities include project management; using software such as WindPRO 4.1 and ArcGIS Pro; and the preparation of planning applications, Environmental Impact Assessment Reports, Feasibility Studies, Construction & Environmental Management Plans and management plans relating to surface water, peat, spoil and waste.

Kathlyn Feeney is a Graduate Environmental Scientist with a First-Class Honours Degree (BSc. Hons) in Environmental Science from Atlantic Technological University, Sligo. She forms part of the Environmental team responsible for preparing the EIAR Chapters. Kathlyn has experience writing EIARs, GIS, Feasibility Studies and Shadow Flicker analysis.

12.2 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

Chapter 1: Introduction, Section 1.9.2 outlines in detail, the assessment methodology and significance criteria undertaken during assessments for the EIAR. Section 1.6.1 outlines the national legislation and requirements and approach of an EIA, while **Chapter 4: Planning Policy Context** outlines the planning and legislative context to the Application. Under the specification and guidance of these outlining chapters, assessments have been undertaken on material assets.

Following preliminary consultations with key consultees during the scoping process, field surveys and desk-based assessments were undertaken. In line with the EIA Directive 2011/92/EU as amended by EIA Directive 2014/52/EU and current EPA Guidelines, this EIAR aims to focus the assessment solely on those elements likely to have a significant effect on the environment. Where a topic / factor identified has been addressed over more than one chapter, findings are briefly summarised. Other topics deemed unlikely to have a significant effect are outlined very briefly and 'closed out' with a summary of reasoning. Where negative effects on other topics/factors are predicted, the chapter identifies appropriate mitigation strategies therein. Economic assets of natural heritage include non-renewable resources such as minerals or soils, and renewable resources such as wind and water. These assets are addressed in **Chapter 8: Soils and Geology**, **Chapter 9: Hydrology and Hydrogeology**, and **Chapter 15: Air and Climate**. Tourism and amenity resources are addressed in **Chapter 5: Population and Human Health**. The cultural assets of Archaeology and Cultural Heritage are addressed in **Chapter 13: Cultural Heritage**. The transport network assets are addressed in **Chapter 14: Traffic and Transport.**

The material assets considered in this chapter include:

- Land Use
- Telecommunications
- Grid connection and Grid Network
- Air Navigation
- Quarries
- Utilities (gas, water, waste)
- Road and Rail Networks
- Recreational facilities and amenities

12.3 LAND USE

12.3.1 Baseline Environment

The Site is located 9.7 km north-west of Dunmanway, Co. Cork and 19 km south-east of the county boundary between Cork and Kerry. The Site is located on relatively high ground, at elevations ranging from 243 m AOD on the northern side of the site at the entrance 326 m, to 510 m AOD towards the middle of the Site and 306 m AOD on the southern side of the Site. A Site Location Map showing the Redline Boundary is detailed in **Figure 1.1**. The Project boundary, which comprises of all elements of the Project is outlined as **Figure 1.2.**

The Site is located within the townlands of an tSeithe Bheag (Shehy Beg), (Muscraí Gaeltacht), Gortloughra, Cloghboola and Inchinroe.

The townlands along which the two grid connection options transverse include:

- **Option A (Dunmanway):** an tSeithe Bheag (Shehy Beg), Gortloughra, Inchinroe, Cloghboola, Cornery, Garraí na Tórnóra (Garryantornora), Tuairín na Lobhar (Tooreenalour), Gort na Carraige (Gortnacarriga), Moneylea, Coolcaum, Coolmountain, Tullagh, Moneyreague, Togher, Cooranig, Keelaraheen, Neaskin, Ardcahan, Knockduff, Gurteennasowna and Ballyhalwick.
- **Option B (Carrigdangan):** an tSeithe Bheag (Shehy Beg), Gortloughra, Inchinroe, Cloghboola, Cornery, Garraí na Tórnóra (Garryantornora), Tuairín na Lobhar (Tooreenalour), Gort na Carraige (Gortnacarriga), Cooragreenane, Coolroe West, Gortnahoughtee, Derryleigh, Gortatanavally, Carrigdangan and Johnstown.

Temporary works will be required to accommodate the delivery of the turbine components. These temporary works are subject to a separate planning application but are assessed as part of this EIAR and are located in the townlands of Lackanashinnagh, Shanacashel, Mallow, Glan, Curradrinagh, Seanlárach (Shanlaragh), Kilnadur, Inchincurka, Carrigdangan, Johnstown, Commons, Derrygortnacloghy, Gortneadin, Carrignacurra, Cappanclare, Curraheen, Coolroe West, Cooragreenane, Gortaknockane, Gortnacarriga, Tooreenalour, Garraí na Tórnóra (Garryantornora), Cornery, Cloghboola, and Inchinroe.

The Site extends to 117.21 ha. The lands are under the ownership of third parties and the principal land use in the general area is comprised of agricultural sheep grazing, farmland and open mountain heath. Much of the lands are in private, third-party ownership. Land cover at the Site is mapped by Corine (2018) as wetlands/ peat bogs, with areas of pastures and very small areas of transitional woodland (www.epa.ie). No significant land use

changes have been recorded by historic Corine mapping (1990-2018). No forestry land use exists within the Site.

The pre-planning site investigations show that there are vast areas of shallow peat of less than 0.5 m with some isolated and deep pockets of up to 3.8 m. The presence of peat on site and other constraints (section 2.7.1 of **Chapter 2: Project Description**) have influenced the project design. This is further detailed and assessed in **Chapter 8: Soils and Geology**.

The closest receptor (H67) is located 486 m from the nearest turbine (T8) and is involved in the Project. The closest non-involved receptor, H10, is located 697 m from the nearest turbine (T5). There are 67 houses within 2 km of the proposed turbines. All houses located within 2 km of the proposed turbines are shown on **Figure 1.3**.

12.3.2 Assessment of Potential Effects

During the construction, operational and decommissioning phases, the total land-take of the Proposed Development, including the Site Access Tracks, Turbine Hardstands, turning heads, Onsite Substation and Control Building, Temporary Construction Compound and Met Mast is approximately 5.3 ha. The Site has an area of 117.21 ha therefore the total land take is 4.5% of the Site. There will be 8 no. turbines located on or partly on agricultural lands. This will result in the change of use from agricultural use to windfarm use. This will have a long-term slight, negative impact on agricultural land use due to the land use change for the duration of the Proposed Development during construction and operation phases.

The Grid Connection Route options will be mainly in or alongside the existing roads and will be reinstated upon installation of cables. This will not permanently change the use of the land. The Turbine Delivery Route will require some widening works which have identified in **Section 12.3.1**. The effects of these works will be negligible in terms of land use.

The proposed Site Access Tracks and upgrade to existing tracks will improve access for surrounding agricultural use.

12.3.3 The 'Do-Nothing' Impact

If the Proposed Development does not proceed, lands in the vicinity of the Site will continue to be used for agricultural purposes. This would have a neutral effect.

12.3.4 Cumulative Effects

Land management practices in the wider area which are considered to have potential for cumulative effects with the Project are agriculture and forestry. All existing and approved projects in **Appendix 1.2** were considered for their potential cumulative impact on land use. This includes both large-scale and small-to-medium-scale developments.

The nearest wind farm is located 0.26 km to the north of the Proposed Development (Shehy More Wind Farm). Surrounding agricultural activities can and will continue during the construction, operational and decommissioning phases of the Proposed Development when fencing around the Site has been fully established.

Other projects outside the Site do not have the potential to reduce or increase the magnitude of effects of the Project on land use within the Project area. Therefore, this will not contribute to any significant cumulative effects during the construction/decommissioning or operational phases.

Due to the localised nature of the proposed construction/decommissioning works along the GCR options and TDR, there is no potential for significant cumulative effects in-combination with other local developments on the land use as all effects are directly within the Site.

12.3.5 Statement of Significance

No significant impacts are predicted on land use.

12.4 TELECOMMUNICATIONS

Microwave links need an unobstructed line of sight from end to end because blocked links will perform inadequately. It is therefore necessary to ensure tall wind turbines will not interrupt links. Impacts can include reflection, diffraction, blocking and radio frequency interference.

During operation, wind turbines have the potential to interfere with electromagnetic signals passing above the ground due to the nature and size of the wind farm.

Ireland saw the roll out of Digital Terrestrial Television, locally known as Saorview TV, in October 2010, incorporating the switchover from analogue to digital television. According to Ofcom (a regulatory UK body) (2009), *digital television signals are much better at coping*

with signal reflections, and digital television pictures do not suffer from ghosting[1]. Ghosting is the replica of a transmitted image which is offset in position and is superimposed on top of the main image.

Since digital switchover, there have been very few reported cases of wind turbine interference with domestic analogue reception. Modern turbine blades are also typically made of synthetic materials which have a minimal impact on the transmission of electromagnetic radiation. Therefore, potential effects on television and radio signals from the Proposed Development will be negligible and are not considered further, given the advancements in technology.

12.4.1 Guidance

Potential telecommunication effects generated by the Project have been assessed with reference to the following documents:

- Cork County Development Plan, 2022 - 2028
- 'Best Practice Guidelines for the Irish Wind Energy Industry', published by the Irish Wind Energy Association (2012).
- Information about Electric & Magnetic Fields and the Electricity Transmission System in Ireland, EirGrid[2]
- Wind Energy Development Guidelines: Planning Guidelines, Department of Environment, Heritage and Local Government (DHPCLG) 2006[3].

12.4.2 Scoping and Consultation

Telecommunications providers were consulted about the Proposed Development. A summary of responses is outlined in **Table 12.2** and **Appendix 1.3** outlines full consultation responses.

Table 12.2: Summary of Consultations (Telecommunications)

Consultee	Response Date	Response
RTÉ (*2RN is the trading name of RTÉ*	7th January 2022 9th June 2023 5th April 2024	***Response received 7th January 2022:***

[1] Ofcom (2009) *Tall Structures and Their Impact on Broadcast and Other Wireless Services*, OFCOM, United Kingdom. Available online at: https://www.ofcom.org.uk/__data/assets/pdf_file/0026/63494/tall_structures.pdf [Accessed 17/05/2023]
[2] Eirgrid (2014) *Information on Electric and Magnetic Fields*. Available online at : http://www.eirgridgroup.com/site-files/library/EirGrid/Information%20on%20Electric%20and%20Magnetic%20Fields.pdf [Accessed on 17/05/2023]
[3] Department of Housing, Planning, Community and Local Government (2006) Planning Guidelines. Available online at: https://www.gov.ie/en/publication/f449e-wind-energy-development-guidelines-2006/ [Accessed 17/05/2023]

Consultee	Response Date	Response
Transmission Network DAC)		*The turbine locations have not changed since the initial scoping so Turbine 6 is sufficiently far away from our nearest path for it not to cause an issue.* *We would ask that a Protocol be signed between the Developer and 2rn should the site go ahead.* ***Response of 9th June 2023:*** *The new turbine locations make no difference to our earlier assessment, we have no fixed linking nearby but would request that a protocol be signed should the site go ahead.* ***Response received 5th April 2024:*** *If the turbine locations, particularly T6 have not changed, we have no objections to the proposed site.* *We would only ask that a protocol be signed between the developer and 2RN should the site go ahead.*
Virgin Media Television	22/12/2021 13/06/2023	***Response received 22nd December 2021:*** *I refer to your query of 22nd December about the above location. Virgin Media does not have any record of underground services at this location as indicated by your drawing.* ***Response of 13th June 2023:*** *Virgin Media does not have any record of underground services at this location as indicated by your drawing.*
Eir	25/02/2022 12/06/24 15/04/24	***Response received 25th February 2022:*** *We have no transmission services within the search area that will be affected.* ***Response received 12th June 2024:*** *We have no transmission links within the proposed area and it has no risk to the network.* ***Response 15/04/24:*** *We have no issue with these changes on the EirMobile and Eir fixed network.*
Vodafone Ireland	23/12/2021 09/06/2023	***Response received 23rd December 2021:*** *Based on the coordinates provided for the proposed turbines I can confirm there will be no impact to our Network.* ***Response received 9th June 2023:*** *Vodafone does not have any transmission in the area.*
Three Ireland	17/06/2021 09/06/2023 12/04/2024	***Response received 17th June 2021:***

Consultee	Response Date	Response
		I have reviewed the turbine locations at the proposed Gortloughra windfarm and 3Ireland have no microwave links that could potentially be affected. ***Response of 9th June 2023:*** *I've reviewed the new Turbine positions and they will have no impact on the Three Ireland Microwave Transmission network.* ***Response 12/04/24:*** *no additional comments on the proposed development*
Tetra Ireland	01/10/2021 20/06/2023 17/06/2024	***Response received on 1st October 2021:*** *"we anticipate no impact from the development in the area proposed, can you ensure the proposal is also reviewed by eir".* *Similar response received 20th June 2023 and 17th June 2024.*

12.4.3 Assessment Methodology

Consultation with telecommunications operators was initiated during the Scoping phase of this EIA to identify any potential microwave or telecommunication links that could be affected by the Proposed Development. Details of the Proposed Development were shared with link operators.

Any potential effects, which are associated with the operational phase of the Proposed Development, are classified as long-term effects. In the event that significant effects do occur, appropriate mitigation measures can be implemented such that there will either be a negligible effect, or no effect, on infrastructure as a result of the Proposed Development.

12.4.4 Assessment of Potential Effects

All potential effects, which are associated with the operational phase of the Proposed Development, are classified as long-term effects.

12.4.4.1 Construction Phase

During the construction phase, there are likely to be several sources of temporary electromagnetic emissions. Chief among these will be the brief use of electrical power tools and the use of electrical generators which may be brought onsite before mains electricity is provided. These devices are required by Irish and European law to comply with the EMC

Directive 2014/30/EU. Compliance with this Directive will mean that the electromagnetic emissions from these devices will not cause interference to other equipment and therefore no significant effects are likely.

Other potential effects during the construction phase are likely to be as a result of tall cranes used for constructing the turbines. These cranes will be beside the proposed turbines on the Turbine Hardstands. There are no telecommunication towers within the proximity of the Proposed Development, thus the effect can be classed as not significant.

A number of telegraph poles will likely need to be temporarily removed along local and regional roads to facilitate the transport of turbine components to the Site. This will have temporary, short-term effects on telecommunications in the locality which can be described as not significant and is further discussed in **Chapter 14: Traffic and Transport**.

12.4.4.2 Operational Phase

No telecommunication links have been identified during the scoping and consultation process. All responses received from telecommunications consultees have stated that the Proposed Development will have no effect on their telecommunications services.

12.4.4.3 Decommissioning Phase

Similar or less significant effects to those of the construction phase are likely.

12.4.4.4 The 'Do-nothing Impact'

If the Proposed Development does not proceed, there will be neutral impacts on telecommunications. This 'do-nothing' scenario would result in no interference in electromagnetic signals subject to the continuation of current activities and practices.

12.4.5 Mitigation Measures

All electrical elements of the Proposed Development are designed to ensure compliance with electro-magnetic fields (EMF) standards for human safety. The effects on human health are assessed in **Chapter 5: Population and Human Health**.

Mitigation measures were undertaken in the design phase through mitigation by avoidance i.e., the known routes of the telecommunication links were plotted and a buffer was applied to them, outside of which the proposed turbines were located.

12.4.6 Cumulative Effects

All existing and approved projects in **Appendix 1.2** have been considered for potential cumulative effects. There are 29 No. proposed, permitted or operational wind farms within 20 km of the Proposed Development. The closest Wind Farm to the Proposed Development is the Shehy More Wind Farm, which is located approximately 0.26 km north of the Proposed Development. Each Developer is responsible for engaging with all relevant telecommunications operators to ensure their proposals will not interfere with television or radio signals by acting as a physical barrier. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact cannot arise.

There will be no cumulative impacts relating to the Proposed Development and surrounding projects in relation to telecommunications.

12.4.7 Statement of Significance

No significant effects are predicted on telecommunications or radio reception as a result of the Proposed Development.

12.5 ELECTRICITY NETWORKS

12.5.1 Introduction

This section describes the transmission network and the anticipated connection option. It is not proposed to utilise any elements of the distribution network.

The nationwide electricity transmission system allows for the transport of large volumes of electricity from generation stations, including wind farms, to bulk supply points near the main population centres where it interconnects with the distribution system.

There are 2 no. proposed Grid Connection Routes (GCRs) options. This element of the Project will be subject to a separate planning consent process but is assessed within this EIAR.

Grid Connection Route Option A measures 28 km in length while Grid Connection Route Option B measures 22 km in length and will be along public roads/verges and private lands.

It is proposed to construct a 110 kV Electrical Substation on the Site, as shown on **Figure 1.2**. This will provide a connection point between the proposed wind farm and the proposed grid connection point at either Dunmanway or Carrigdangan 110 kV substations. Electricity transmitted between the turbines and the Onsite Substation and Control Building on the Site will be at 33 kV.

Connection will be sought from the grid system operator by application to EirGrid. The Onsite Substation and Control Building will connect via underground 110 kV cables. At the existing Dunmanway or Carrigdangan 110 kV substation, the cable will connect into existing infrastructure within the confines of the Onsite Substation and Control Building and its compound. The Grid Connection will be constructed to the requirements and specifications of EirGrid and ESB Networks Limited.

12.5.2 Assessment Methodology

TLI Group were engaged to identify and analyse potential grid connection options for Gortloughra Wind Farm. This can be found in **Appendix 2.2.**

12.5.3 Assessment of Potential Effects

Due to the fact that all Wind Farm Internal Cabling will be underground as will the GCR from the Onsite Substation and Control Building to either Dunmanway or Carrigdangan, there will be no impact on the overhead electricity network.

The Project will contribute directly and in the long term to the electricity network by strengthening it through additional renewable energy generation.

There will be slight and short term effects on the electricity network during the connection of the Wind Farm to the national grid.

At either of the existing Dunmanway/ Carrigdangan 110 kV substations, the cable will connect into existing infrastructure within the confines of the Onsite Substation and Control Building and its compound. There is the potential that Eirgrid will consider future upgrades of the existing conductors associated with the 110 kV overhead lines leaving the either the Dunmanway or Carriqdangan 110kV substations.

12.5.4 The 'Do-nothing' Impact

If the Project does not proceed, there will be no offset to fossil fuel usage, and no provision of additional electricity in the local area.

12.5.5 Mitigation Measures

Mitigation by design and avoidance will minimise impacts on existing electricity networks.

- Confirmatory drawings for all existing services will be sought upon consultation with ESB Networks.
- Immediately prior to construction taking place, the area where excavation is planned will be surveyed by CAT scan (sub-surface survey technique to locate any below-ground utilities) and all existing services will be verified. Temporary warning signs will be erected.
- The as-built location of the installed ducts will be surveyed and recorded using a total station/GPS before the trench is backfilled to record the exact location of the ducts. The co-ordinates will be plotted on as-built record drawings for the grid connection cable operational phase.
- Clear and visible temporary safety signage will be erected all around the perimeter of the live work area to visibly warn members of the public of the hazards of ongoing construction works.

12.5.6 Cumulative Effects

All existing and approved projects in **Appendix 1.2** have been considered. There are 29 No. proposed, permitted or operational wind farms within 20 km of the Proposed Development. There will be no cumulative impacts relating to the Proposed Development and surrounding projects in relation to electricity networks during the construction phase.

Potential negative cumulative effects on electricity networks are unlikely during the operational and decommissioning phases. This will be achieved through adopting mitigation by design and avoidance as set out in **Section 12.5.5**.

12.5.7 Statement of Significance

No significant negative impacts on the grid connection or grid network are anticipated. There will be a long-term slight positive residual impact on transmission infrastructure in the area (due to the installation of new infrastructure and provisions of additional renewable electricity). The chosen 110 kV substation has capacity to connect and therefore will not be affecting the distribution network. There is no impact on the distribution network, as it is not proposed to utilise any elements of the distribution network.

12.6 AIR NAVIGATION

Operating wind farms have the potential to cause a variety of adverse effects on aviation. Rotating wind turbine blades may have an impact on certain aviation operations, particularly those involving radar. The physical height of turbines can cause obstruction to aviation and the overall performance of communications, navigation and surveillance equipment. All structures over 150 m in height are required to have lighting to warn aviation traffic. The Proposed Development's ground to blade tip height of the wind turbines stands at 175 m during operation. The installation of aviation warning lighting for Gortloughra Wind Farm will be undertaken in line with best practice.

Kerry Airport is c. 48 km to the north-west. Cork Airport is c.55 km to the east of the Proposed Development.

12.6.1 Consultation

Consultation with the relevant aviation organisations was initiated during the Scoping process, to identify any potential aviation issues that could be affected by the Proposed Development. The findings are summarised in **Table 12.3**.

Table 12.3: Summary of Consultations (Aviation)

Consultee	Response
Cork Airport	No response received from Cork Airport. Dublin Airport were contacted regarding Cork Airport on 8th June 2023. Response received from Dublin Airport: *Daa along with AirNav Ireland (formerly the Air Navigation Service Provider division of the IAA) are responsible for ensuring the flight surfaces around Cork Airport are safeguarded. This is carried out using (amongst other things) the safeguarding grid as depicted below which extends 30 nautical miles from the airport:* *I have indicated the approximate location of the proposed wind farm at Gortloughra on the screenshot above just inside the 30nm limit. At this location the gird indicates that an obstacle greater than 600m elevation AMSL will need a formal assessment.* *The obstacle elevation AMSL is the existing ground/site elevation and the proposed obstacle height combined. With an approximate land elevation of 270m*

Consultee	Response
	at the site location, the height of the proposed turbines in this instance will be approximately 445m (175m + 270m), which is well below the 600m safeguarding value and so an Instrument Flight Procedures Assessment will not be required. *Separately, there are regulatory requirements that any obstacles greater than 100m above the existing ground elevation:* • *Must be notified to airspace@iaa.ie, and* • *A navigation warning light will be required*
Irish Aviation Authority	**Response received 6th January 2022:** *The Irish Aviation Authority (IAA) Air Navigation Services Division (ANSD) does not get involved in the planning process. The IAA ANSD is to be notified as detailed hereafter:* *According to S.I. 215 of 2005, Irish Aviation Authority (Obstacles to Aircraft in Flight), the IAA ANSD requires any person who seeks to erect a manmade object to notify the aerodrome operator of the intended operation* ***at least thirty days*** *in advance if the structure is to be erected in the vicinity of the aerodrome or the areas around the aerodrome and other protected surfaces associated with the aerodrome. Aerodrome Operators can be contacted via IAA AIP AD 1.3 INDEX TO AERODROMES AND HELIPORTS, to evaluate the impact of the intended operation on the protected airspace established for the aerodrome.* *Additionally, any person who seeks to erect a manmade object in excess of 45 metres anywhere within the state above ground or water surface level must also notify the IAA ANSD of the intended crane erection* ***at least thirty days*** *in advance, as a crane operating at or above this height may constitute an obstacle to air navigation. The IAA ANSD can be contacted via airspace@iaa.ie.* *The State requires electronic terrain and obstacle data (eTOD) in accordance with International Civil Aviation Organisation (ICAO) Annex 15 requirements which shall be surveyed by Ordnance Survey Ireland (OSi). The cost of this OSi surveyed data is to be borne by the developer. Additionally, the following data is to be supplied once construction is planned or commenced or available to the airspace team via airspace@iaa.ie:*

<table>
<tr><th>Consultee</th><th>Response</th></tr>
<tr><td></td><td>

The WGS84 coordinates (In degrees, minutes and seconds) for each turbine?
Height above ground level (to blade tip) and elevation above mean sea level (to blade tip)?
Verification if it's a standalone wind farm or is merged with others. Does the wind farm have any alternative names?
Horizontal extent (rotor diameter) of turbines and blade length where applicable?
Lighting of the wind farm, which turbine(s) is/are lit, and what type of lighting?

<table>
<tr><th>ICAO Light Type</th><th>Colour</th></tr>
<tr><td>Low-intensity Type A (fixed obstacle)</td><td>Red</td></tr>
<tr><td>Low-intensity Type B (fixed obstacle)</td><td>Red</td></tr>
<tr><td>Low-intensity Type C (mobile obstacle)</td><td>Yellow/Blue</td></tr>
<tr><td>Low-intensity Type D (follow-me vehicle)</td><td>Yellow</td></tr>
<tr><td>Low-intensity Type E</td><td>Red</td></tr>
<tr><td>Medium-intensity Type A</td><td>White</td></tr>
<tr><td>Medium-intensity Type B</td><td>Red</td></tr>
<tr><td>Medium-intensity Type C</td><td>Red</td></tr>
<tr><td>High-intensity Type A</td><td>White</td></tr>
<tr><td>High-intensity Type B</td><td>White</td></tr>
</table>
Response of 17th January 2022:

The development appears to be approximately 50km West of Cork Airport and 48km South East of Kerry Airport, as such, it is likely that the following general observations would be proffered during a formal planning process: In the event of planning consent being granted, the applicant should be conditioned to contact the Irish Aviation Authority to: (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 and (3) notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection.

Response received 23rd December 2022:

It is understood that the proposal relates to 9 x Wind Turbines with a blade tip height of 175ms above ground level.
</td></tr>
</table>

Consultee	Response
	It is noted that the proposed wind farm is approximately 20kms North East of the nationally licenced Bantry *Aerodrome. We would recommend that you engage with the Licensee of the aerodrome to make them aware of your proposal:* *Contact details are as per Ireland's Aeronautical Information Publication:* *Post: ROWA Pharmaceuticals Ltd,* *Newtown,* *Bantry,* *Co. Cork* *Phone:+353 27 50077* *Phone: +353 86 8127336* *Fax: +353 27 50417* *Email: rowa@rowa-pharma.ie* **Response received 9th June 2023:** *The Authority has no specific requirements in relation to the completion of the EIAR.* *Based on the preliminary information provided, should a formal planning application be submitted, the Irish Aviation Authority will likely offer the following general observations:* *"In the event of planning consent being granted, the applicant should be conditioned to contact the Irish Aviation Authority to: (1) agree an aeronautical obstacle warning light scheme for the wind turbine development, (2) provide as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location and (3) notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection."* *Following the separation of the Irish Aviation Authority and Air Navigation Ireland (the IAA ANSP) from the 30th April 2023, Air Navigation Ireland has responsibility for the maintenance and safeguarding of en route communications and navigation*

Consultee	Response
	surveillance equipment in Ireland. Please forward the report for their review to: planning@airnav.ie *Please be advised that Paul Mullins has left the Authority. Audrey and Geraldine have transferred to the new entity – Air Nav Ireland.* **Response 05/04/24:** *The Authority has no observations on the proposed amendments or specific requirements for integration into the EIAR.* *Based on the preliminary information provided, should a formal planning application be submitted, the Irish Aviation Authority will likely offer the following general observations:* *"In the event of planning consent being granted, the applicant should be conditioned to contact the Irish Aviation Authority to: (1) agree an aeronautical obstacle warning light scheme for the wind turbine development, (2) provide as-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location and (3) notify the Authority of intention to commence crane operations with at least 30 days prior notification of their erection."*
Bantry Aerordrome	**Response received 3rd May 2022:** *I have contacted the IAA and I have no comment to make on the proposed wind farm project.*
Department of Defence	**Response received February 2022** *"Nothing in the above observations shall be taken as a binding response by the Minister for Defence in the event that a planning application is made. The Minister reserves the right to comment on an actual planning application as and when it is submitted in accordance with the provisions of the planning regulatory code."* **Response 17/04/24:** *"Based on the information supplied and following consultations with the subject matter in the Irish Air Corps, the Department of Defence wishes to make the following observations:* *All turbines should 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*

Consultee	Response
	azimuth and to be operational H24/7 days a week. Obstacle lighting should be incandescent or, if LED or other types are used, of a type visible to Night Vision equipment. Obstacle lighting used must emit light at the near InfraRed (IR) range of the electromagnetic spectrum, specifically at or near 850 nanometres (nm) of wavelength. Light intensity to be of similar value to that emitted in the visible spectrum of light. *Any Irish Air Corps (IAC) requirements for are separate to Irish Aviation Authority (IAA) require.* *We would appreciate if you could keep us informed on any progress relating to this proposed development."*

12.6.2 Assessment of Potential Effects

Consultation with the Irish Aviation Authority and Cork Airport Ireland revealed that the Proposed Development is not predicted to have any effect on the operations of Cork Airport as the Proposed Development is outside their associated 'Outer Horizontal Surface' (over 15 km away). The Proposed Development is over 45 km from Kerry Airport and over 55 km from Cork Airport. No potential effects are predicted. The civil aviation guidelines for wind turbines covers a 30 km radius[4]. Therefore, no potential effects to air navigation were identified.

12.6.3 The 'Do-Nothing Impact'

If the Proposed Development were not to proceed, there would be a neutral effect on aviation operations.

12.6.4 Mitigation Measures

Although no potential effects were identified, the following mitigation measures proposed by the Irish Aviation Authority (IAA) and Department of Defence will be implemented:

- An aeronautical lighting scheme for the Proposed Development will be agreed with the IAA and will be installed.
- As-constructed coordinates in WGS84 format together with ground and tip height elevations at each wind turbine location will be provided to the IAA.

[4] CAA Policy and Guidelines on Wind Turbines, UK Civil Aviation Authority, 2016. https://publicapps.caa.co.uk/modalapplication.aspx?catid=1&pagetype=65&appid=11&mode=detail&id=5609 [Accessed online: 18/05/2023]

- The IAA will be notified of intention to commence crane operations with at least 30 days prior notification of their erection.
- Single turbine, structures or turbines delineating the windfarm 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 will be operational H24/7days a week. Obstacle lighting will be incandescent or of a type visible to Night Vision equipment. Obstacle lighting must 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.

12.6.5 Cumulative Effects

All existing and approved projects in **Appendix 1.2** have been considered. There are 29 No. proposed, permitted or operational wind farms within 20 km of the Proposed Development. Each Developer is responsible for engaging with the aviation authority to ensure the proposals will not interfere with aviation radio signals by acting as a physical barrier. Therefore, as each project is designed and built to avoid impacts arising, a cumulative impact cannot arise. There will be no cumulative impacts relating to the Proposed Development and surrounding projects in relation to aviation during the construction phase.

Potential negative cumulative effects on aviation are unlikely during the construction, operational and decommissioning phases.

12.6.6 Statement of Significance

No significant impacts are predicted in terms of air navigation. In adherence to IAA Safety Regulations and ICAO Annex 15, aeronautical obstacle warning light schemes will be installed as requested by IAA. Co-ordinates of ground and tip height elevations at each wind turbine location as constructed will be provided to the IAA. IAA will be notified of the provision of the intention to commence crane operations within a minimum of 30 days prior to erection.

12.7 QUARRIES

Rock will be obtained on site from the on-site borrow pit. However, where the rock is found to be unsuitable for use in the construction of Turbine Hardstands and site access track, a local quarry will be used to source sub-base and base materials.

12.7.1 Introduction

Sub-base, and base materials for the Access Track and Turbine Hardstand construction will be sourced from nearby quarries, course crushed stone will also be imported for the final running layer. The crushed stone for construction of the Project will come from licenced quarries in the locality such as:

- Mid Cork Quarries
- Kilmichael Quarry
- McSweeney Bros
- Roadstone Castlemore
- Keohane Quarry
- Finbarr O'Neill Limited
- Roadstone Ballygarvan

These quarries will also be the source of crushed stone and concrete for widening works to the Turbine Delivery Route (**Chapter 14: Traffic and Transport**), Turbine Foundations and for Grid Connection works. The locations of these quarries in relation to the Proposed Development are shown in **Figure 14.1.**

12.7.2 Assessment of Potential Effects

Materials will be primarily sourced from the on-site borrow pit and site excavations. However, where this material is classed as unsuitable, quarries will be used. The construction of the Project will impact slightly on natural resources such as aggregates which will be sourced from a quarry in proximity to the Site (see list of potential quarries to be used in Section 12.7.1).

It is likely that a small amount of granular material may be required to periodically maintain access tracks during operation which could impact the source quarry. However, the decommissioning phase will have no impact on an offsite source quarry.

The use of imported material will have a slight, permanent negative impact on non-renewable resources of the area. This impact is considered to be imperceptible in the long-term.

12.7.3 The 'Do-Nothing Impact'

If the Project were not to proceed, there would be no impact on quarry operations in the area and quarrying activities would continue.

12.7.4 Mitigation Measures

- Existing tracks have been used where possible, and the layout was designed to minimise the length of new track required in order to reduce the requirement for such stone material.
- Local quarries have been identified to reduce impact on transportation (Please see **Chapter 14: Traffic and Transportation)**.
- The source quarry will be chosen based on stone which is chemically similar to that occurring at the Proposed Development. This will reduce hydrogeochemical impacts. (Please see **Chapter 8: Soils and Geology**)

12.7.5 Cumulative Effects

All existing and approved projects in **Appendix 1.2** have been considered.

The very nature of a quarry is that it will be subjected to cumulative effects as it is the source of stone for almost all developments in the area. Therefore, there will be cumulative impacts relating to the Project and surrounding projects in relation to quarries during the construction phase.

Potential negative cumulative effects on quarries are imperceptible/unlikely during the operational and decommissioning phases.

12.7.6 Statement of Significance

No significant negative impacts on local quarries are anticipated. There will be a slight, permanent negative residual impact on natural resources in the area.

This impact is considered to be imperceptible in the long-term.

12.8 UTILITIES

In order to assess the potential for significant effects on built services gas, water and waste in the vicinity of the Proposed Development, scoping requests were made to Irish Water and Cork County Council including Water Services and Environment departments. Refer to **Chapter 1: Introduction** and **Appendix 1.3** of this EIAR for details in relation to the EIA scoping exercise.

12.8.1 Assessment Methodology

A desk study of available information from the EPA did not identify any waste facilities, illegal waste activities, chemical monitoring points or industrial EPA licensed facilities within a 2 km radius of the Site. The nearest waste facility to the Proposed Development is the Macroom Civic Amenity Site (W0142) located approx. 20.5 km northeast of the Proposed Development.

12.8.2 Assessment of Potential Effects - Gas, Water Utilities

There are no gas mains located within the Site. There is therefore no potential for impact. Gas Networks Ireland website Dial Before you Dig[5] was consulted, which indicated that there are no existing gas services along either Grid Connection Routes.

In relation to water services within the Site, it has been assumed that there is the potential to encounter local water services.

The following water service features were identified along the Grid Connection Route Options:

- Air control valves
- Fitting
- Hydrant
- Mains Line
- Network Meter
- System Valve

Potential impacts arising from the Project relating to existing water services have been assessed and are detailed in **Chapter 9: Hydrology and Hydrogeology** and referred to in **Chapter 5: Population and Human Health** with accompanying mitigation measures.

[5] https://www.gasnetworks.ie/home/safety/dial-before-you-dig/dbyd/

12.8.3 Assessment of Potential Effects - Waste

Staff Facilities

During the construction, operational and decommissioning phases of the Proposed Development, there will be the typical waste generated in an office such as left-over food and sandwich wrappers. This is a non-hazardous waste. All such waste will be stored appropriately and safely from wind, rain and wild animals that often tear apart rubbish bags. The effects of this waste will be not significant.

Waste generated onsite is estimated to range between 0.005 kg and 0.189 kg per person per day.[6]

Sewage

It is proposed to install a rainwater harvesting system as the source of water for toilet facilities for the operational phase. Wastewater from the staff welfare facilities in the control building will be collected in a sealed storage tank which will then be collected by a licensed waste disposal contractor.

Change of use is sought for the existing agricultural site to a Temporary Construction Compound. This will involve the installation of temporary office buildings, providing meeting rooms and welfare facilities for the construction and maintenance staff.

The maximum wastewater production during construction is estimated to be the same as the maximum water consumption (2,000 litres per person, per day)[7].
Wastewater generated at the site Temporary Construction Compound and at the Onsite Substation and Control Building welfare facilities will be tankered off-site by a licensed waste collector to the nearest wastewater treatment plant, likely to be the Ballingeary Water Treatment Plant (D0431-01) which is located 5.7 km north of the Site. There will be no on-site treatment of wastewater and effects will be not significant during the construction, operational and decommissioning phases.

Concrete

[6] Based on 1 hour a day within communal facilities. Worldwide, waste generated per person per day averages 0.74 kilogram but ranges widely, from 0.11 to 4.54 kilograms. (World Bank) Available Online: https://datatopics.worldbank.org/what-a-waste/trends_in_solid_waste_management.html [Accessed 08/01/2024]

[7]Table 3 of the EPA WW treatment Manual (Treatment systems for Small Communities, Business, Leisure Centres and Hotels), Environmental Protection Agency, 1999. Quarry (Excluding Canteen) best reflects a construction site. [Available online: https://www.epa.ie/publications/compliance--enforcement/wastewater/EPA_water_treatment_manual_-small-comm_business.pdf]

Concrete will be used during the construction phase for the construction of Turbine Foundations, Onsite Substation and Control Building and Met Mast. There is no waste concrete expected from this construction work, therefore there will be no concrete waste impact during construction phase.
There will be no need for the use of concrete during the operational phase and effects are imperceptible.

Concrete structures will be left in place during decommissioning and allowed to naturally revegetate over time. This is the least impactful process of decommissioning. Leaving the turbine foundations in-situ is considered a more environmentally prudent option, as to remove that volume of reinforced concrete from the ground could result in significant environmental nuisances such as noise, dust and/or vibration. As the Site will have already been altered, the impacts are imperceptible and permanent.

It is expected that 20 L – 30 L of concrete washout will be produced during the construction phase, which will be collected in designated skip(s) in a bunded area located in the designated concrete washout facility at the Temporary Construction Compound, located just south of the site entrance, between T1 and T2. This concrete waste (waste code 10 13 14; waste concrete and concrete sludge) will be disposed of at a licenced facility, as outlined in the CEMP, **Appendix 2.1** (Waste management plan no. 5).

Chemicals, Fuels and Oils

Oil waste and diesel are classified as hazardous waste/dangerous substance. There is no expected chemical/fuel/oil waste other than from rags and residual amounts in containers. Without mitigation, the effects would be slight and medium-term in duration. This would be in the form of leaching of chemical or fossil fuel contaminants into the soil, groundwater and/or surface waters onsite. However, through the implementation of the mitigation measures set out in **Chapter 8: Soils and Geology** and **Chapter 9: Hydrology and Hydrogeology**, the residual effects will be not significant in the construction/decommissioning phase. The storage/use of such liquids is not seen necessary on site during the operational phase; thus, the effects are imperceptible.

Refuelling

Vehicles will be refuelled off-site where possible. For vehicles that require being refuelled on-site, where possible all refuelling on site will be within the re-fuelling area within the Temporary Construction Compound. Only essential refuelling (e.g., cranes) will be carried

out outside of this area, and has been mitigated by design as outlined in section 12.8.6. Some refuelling of cranes may be required (to a lesser extent) during the decommissioning. As such, the residual effects are **not significant negative and temporary** during the construction phase and **not significant** during the decommissioning phase. There will be no need for refuelling during the operational phase and effects are **imperceptible**.
The storage/use of such liquids is not seen as necessary on site during the operational phase; thus, the effects are **imperceptible**.

Packaging

Packaging will be brought onsite during the construction, operational and decommissioning phases and can include cardboard, wood and plastics used to package turbine components. Packaging waste will be dealt with in accordance with the European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014[8]).

'A producer who supplies to another producer packaging material, packaging or packaged products shall comply with any reasonable request from the latter producer for data on the weight of the material or packaging concerned sufficient to enable the latter producer to comply with these Regulations.'

The occurrence of 10 kg of plastic per turbine blade, between 40 and 50 pallets and 50 to 60 cable drums are expected. This will be removed from Site for re-use by the contractor. Cable drums will be returned to the cable manufacturer for re-use.

This waste is non-hazardous, and the effects of this waste are not significant. This is on account of the fact the packaging waste will be removed from the Site and recycled and/or disposed of at licensed waste facility.

Metals

During Decommissioning, it is expected that some steel will be removed from surface level concreted plinths supporting the turbine sections. Steel can be reclaimed for re-use in future steel making production where required. However, steel enclosed in the reinforced concrete Turbine Foundation bases will remain in-situ. This waste is non-hazardous, and effects of leaching into soil and water table are considered not significant due to the differential placing of steel set within concrete foundation formations as well as the gradual nature of any

[8] https://www.irishstatutebook.ie/eli/2014/si/282

natural breakdown products. There will not be a requirement for additional drainage measures to be implemented during the Decommissioning phase of the Project. This has been assessed separately in **Chapter 9: Hydrology and Hydrogeology.**

Metal waste is non-hazardous, much of which can be reclaimed and re-used. The effects of this waste on re-cycling facilities will be **imperceptible** during construction, **imperceptible** during operational phase and **moderate negative and temporary** during the decommissioning phase.

Excavated Materials

Excavated materials, such as spoil and rock, will be required for habitat and ecological restoration, reprofiling and backfilling in accordance with the **Appendix 2.1 CEMP**. As such, excavated materials will not be classified as waste except along both Grid Connection Routes and at locations within the Site boundary where the widening of public roads occurs. Road surface material will be stored in slabs for reuse/recycling where appropriate. Material excavated from trenches in public roads not suitable for recycling will be disposed of to a licenced facility while in-situ excavated road surfacing material will be recycled.

General spoil waste will be transported to one of licensed facilities identified in **Appendix 2.1, Management Plan 5: Waste Management Plan**.

An estimated 10,775 m^3 of material will be excavated along Grid Connection Option A or 10,812 m^3 for Grid Connection Option B. Where excavated material from trenches in public roads does not meet the criteria set for recycling, it will be disposed of to a licenced facility. The top 100 mm layer of both Grid Route options, 17.96 km (Option A) or 18.02 km (Option B) x 600 mm wide grid route excavation area is potentially hazardous (containing Bitumen), this equates to 1,077.6 m^3 or 1,081.2 m^3 of potentially hazardous material respectively. This material falls under the European Waste Catalogue (EWC) code 17 05 03* (soil and stones containing hazardous substances[9]). This material will be transported by an authorised waste permit holder to a licensed facility. The closest licences facility accepting EWC 17 05 03* waste is the Heating Equipment & Thermal System Waste facility, located in Macroom, Co. Cork.

[9] EPA, 2018. 'Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous' Accessed on: 16/01/2025. Available at: chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.epa.ie/publications/monitoring--assessment/waste/EPA_WasteClassificationGuidanceReport2019.pdf

The effect of this will be not significant however there will be slight to moderate effect in terms of waste material volume generated and the need to send this material for suitable disposal at a waste reception facility licenced for disposal of hazardous bituminous materials.

12.8.4 The 'Do-Nothing Impact'

If the Proposed Development were not to proceed, there would be no impact on the utilities or waste in the area.

12.8.5 Mitigation Measures – Gas, Water Utilities

Mitigation measures relating to existing water services have been assessed and are detailed in **Chapter 9: Hydrology and Hydrogeology** and referred to in **Chapter 5: Population and Human Health**.

12.8.6 Mitigation Measures – Waste

Staff Facilities

Provision for separation of waste streams will be provided so that e.g., paper, and cardboard waste and bottles may be recycled.

Sewage

It is proposed to install a rainwater harvesting system as the source of water for toilet facilities for the operational phase. Wastewater from the staff welfare facilities in the control building will be collected in a sealed storage tank.

All wastewaters will be tankered off-site (subject to agreement with Uisce Éieann) by a licensed waste collector to the nearest wastewater treatment plant namely, the Balllingeary Water Treatment Plant, which is located approximately 7.3 km north of the Proposed Development. There will be no on-site treatment of wastewater and effects will be not significant.

Concrete

During the construction phase:

Precast concrete will be used wherever possible i.e., formed offsite. Elements of the Project where precast concrete will be used have been identified and are indicated in the CEMP (**Appendix 2.1**). Elements of the Project where the use of precast concrete will be used include structural elements of watercourse crossings (single span / closed culverts) as well as Cable

Joint Bays. The below mitigation measures will apply where it is not possible to use precast concrete, e.g., the turbine foundations and joint bay pit:

- The acquisition, transport and use of any cement or concrete onsite will be planned fully in advance and supervised at all times by the Site Manager, Ecological Clerk of Works (ECoW) and/or Environmental Manager.
- Vehicles transporting such material will be relatively clean upon arrival onsite, that is; vehicle wheels will be washed/rinsed, removing cementitious material leaving the source location of the material. There will be no excess cementitious material on vehicles which could be deposited on trackways or anywhere else onsite. To this end, vehicles will undergo a visual inspection prior to entering or exiting the Site or progress beyond the contractor's yard. Vehicles will also be in good working order.
- Any shuttering installed to contain the concrete during pouring will be installed to a high standard with minimal potential for leaks. Additional measures will be taken to ensure this, for example the use of plastic sheeting or other sealing products at joints.
- Concrete will be poured during meteorological dry periods/seasons. This will reduce the potential for surface water run off being significantly affected by freshly poured concrete. This will require limiting these works to dry meteorological conditions i.e. avoid foreseen sustained rainfall (any foreseen rainfall event longer than 4-hour duration) and/or any foreseen intense rainfall event (>3 mm/hour, yellow on Met Eireann rain forecast maps). Work should not proceed during any yellow (or worse) rainfall warning issued by Met Eireann. This also will avoid such conditions while concrete is curing, in so far as practical.
- Ground crew will have a spill kit readily available, and any spillages/leaks of fuels or oils, or deposits will be cleaned/removed as soon as possible and disposed of appropriately.
- Pouring of concrete into standing water within excavations will be avoided. Excavations will be prepared before pouring of concrete by pumping standing water out of excavations to the buffered surface water discharge systems in place.
- Temporary storage of cement bound sand (if required) will be on hardstand areas only where there is no direct drainage to surface waters and where the area has been bunded e.g., using sand-bags and geotextile sheeting or silt fencing to contain any solids in run-off.
- No surplus concrete will be stored or deposited anywhere onsite. Such material will be returned to the source location or disposed of off-site appropriately. A temporary concrete washings area will be located at the egress from the Site.

Upon implementation of the above mitigation measures, the effects of the construction of the Proposed Development are considered to be not significant.

Chemicals, Fuels and Oils

A **Chemical and Waste Inventory will be kept**. This inventory will include:

- List of all substances stored onsite (volume and description)
- Procedures and location details for storage of all materials listed
- Waste disposal records, including copies of all Waste Transfer Notes detailing disposal routes and waste carriers used
- Any tap or valve permanently fixed to the mobile unit through which oil can be discharged to the open or when delivered through a flexible pipe which is fitted permanently to the mobile unit, will be fitted with a lock and locked shut when not in use
- Sight gauges will be fitted with a valve or tap, which will be shut when not in use sight gauge tubes, if used will be well supported and fitted with a valve
- Mobile units must have secondary containment when in use/out onsite

Under the EU Directive 95/55/EC all such dangerous substances will be conveyed in a container that compiles with the Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR). As such the manufacturer of each bowser will provide certification to contractors that the following:

- A leak-proof test certificate
- A copy of the Intermediate Bulk Container (IBC) approval certificate
- An identification plate attached to the container

Where mobile bowsers are used onsite, guidelines will be followed so that:

- Any flexible pipe, tap or valve will be fitted with a lock where it leaves the container and be locked shut when not in use;
- Flexible delivery pipes will be fitted with manually operated pumps or a valve at the delivery end that closes automatically when not in use. Where possible, a nozzle designed to dispense oil is used;
- The pump or valve will have a lock and be locked shut when not in use.

For loads in excess of 1000 litres (220 gallons), the bowser vehicle driver will have undergone training and hold a special license (Carriage of Dangerous Goods by Road regulations).

Refuelling

For vehicles that require being refuelled on-site during construction/decommissioning, where possible all refuelling onsite will be within the Temporary Construction Compound

within the re-fuelling area. Only essential refuelling (e.g., cranes) will be carried out, outside of this area, but not within 50 m of any watercourse. In such cases a non-permeable High-density Polyethylene (HDPE) membrane will be provided beneath connection points to catch any residual oil during filling and disconnection. This membrane will be inspected and if there is any sign of oil contamination, it will be removed from site by a specialist licensed waste contractor. All vehicles will be well maintained and free from oil or hydraulic fuel leaks.

Packaging

In accordance with the waste hierarchy, packaging will be returned to the originator ahead of re-use or recycling. Where this is not possible, waste will be separated as appropriate and safely stored on Site prior to being removed from Site by a licenced waste contractor.

Metals

Waste metals from concrete reinforcing during construction and removal of metals during decommissioning etc. will have commercial value and will be re-used or recycled with the appropriate licensed waste contractor.

12.8.7 Statement of Significance

There are no gas mains located within the Site. There is therefore no potential for impact.

It has been assumed that there is the potential to encounter local water services during excavation works of the Project. Potential impacts arising from the Project relating to existing water services have been assessed and are detailed in **Chapter 9: Hydrology and Hydrogeology**.

There are no EPA-licensed or local authority-authorised waste facilities or activities located within the Site. The closest, authorised municipal waste facility is located approximately 19 km northeast of the Proposed Development in the townland of Macroom, County Cork.

The residual effects of waste produced as a result of the construction, operational and decommissioning phases of the Project are considered to be not significant.

12.9 ROAD AND RAIL NETWORK

There are no direct public services within the vicinity of the Site. The nearest public transportation is provided along R585, approximately 1.2 km south of the Proposed Development. The bus service no. 231 travels from Cork City to the Village of Ardgroom. Busses are available from Togher Village to a number of destinations including Galway and Limerick. Irish Rail provides services from Cork City to Dublin Heuston.

12.9.1 Assessment of Potential Effects

12.9.1.1 Construction Phase Impacts

Traffic on the road network generated by the construction phase, including the Turbine Delivery Route and Construction Haul Routes, of the Project will primarily consist of traffic related to either delivery of construction materials, or removal of excavated material from the Site for disposal. Construction Phase staff will also generate trips to and from the construction sites. The traffic impact on the road network during the construction phase will have slight negative temporary effects, this is discussed further in **Chapter 14: Traffic and Transport**.

Where roads are opened for the installation of electrical cables for the chosen Grid Connection route, moderate negative temporary effects are likely to arise on these roads during construction.

12.9.1.2 Operational Phase Impacts

During its operations phase, traffic generated by the Proposed Development will be related to the operation of the plant by employees and personnel, planned and periodic maintenance works. There will be slight negative effect, brief effects on the road network during the operational phase.

During the operational phase, there will be no potential impact on the TDR or GCR Options.

12.9.2 The 'Do-Nothing' Impact

If the Project were not to proceed, there would be no impact on the road and rail network in the area.

12.9.3 Mitigation Measures

12.9.3.1 Construction Phase

Mitigation measures relating to road and rail properties outside the Proposed Development

footprint may be required. **Chapter 14: Traffic and Transport** details specific mitigation measures to be undertaken during the construction phase to eliminate and reduce any impact.

12.9.4 Cumulative Effects

A desktop study shows that there are no planned developments in the vicinity of the Project which will generate a significant number of new trips on the public road network. The Project is located close to the regional road network with links to the N22. National primary road. The results of the traffic analysis in **Appendix 14.1** show that the road and junction network will continue to operate with reserve capacity during construction, operation and decommissioning of the Proposed Development. An additional analysis was carried out to test the capacity of the junctions with the forecast growth on the public road network increased by an additional 10% to test the capacity of the L4067 / L4068 junction with additional development traffic which may arise in the future. The results of the analysis show that the road network will continue to operate with reserve capacity with additional development traffic during construction in 2035 and decommissioning in 2075. The results of the traffic analysis are included in **Appendix 14.1**

12.9.5 Statement of Significance

No significant negative impacts on local road and rail networks are anticipated.

12.10 RECREATIONAL FACILITIES AND AMENITIES

12.10.1 Introduction

The Site is located approx. 3 km northwest of the Bandon River Valley and 5 km south of the Lee River Valley. Both these areas are recognised as nationally significant tourism assets within the Cork CDP[10]. Both valleys are important for recreational amenity, heritage and as fishery areas. The Site is also located over 5 km north of the Mealagh River which terminates at Bantry Bay. The effects on the river network are further discussed in **Chapter 6: Biodiversity** and **Chapter 9: Hydrology and Hydrogeology**.

Sections of the Beara Gougane Barra Cycling Route traverse the northwestern side of the Site. It is a 318-kilometre-long route which commences in Cork City and finishes at the Beara Peninsula (Inchigeelagh) via Gougane Barra. It is a moderate 8-day (318 km) cycling route which can be broken up into ideal smaller half day (40 km) stages. This route is joined by the Pass of Keimaneigh to the west of the Site and the Beara to Breifne Way to the north.

The Beara to Breifne Way, Ireland's longest national waymarked walking/cycling trail runs 7 km north of the site. The Way runs almost the length of the country and takes the walker and cyclist to some of its most beautiful and least explored areas; along the coast of the Beara Peninsula, across six mountain ranges, along the banks of the River Shannon and through the lake regions of Roscommon and Leitrim. The Shehy Mountains are also located to the north of the Site, which are popular for adventure related tourist activities, with trails for walking and cycling.

The Site and a section (3.1 km in length) of both potential grid connection routes are located in An Gaeltacht Mhúscraí (the Múscraí Gaeltacht), which is 262 km^2 in size. The area has a rich history of traditional Irish music, poetry and dance. Known for its landscape, there are many nature walking trails within this area, offering picturesque views of the numerous lakes and mountainous areas within the landscape. The area is of significant cultural heritage value and is frequently visited by tourists.

Cork County provides angling tourism attractions, notably the Ballyhass lakes and River Lee. Each of these areas provide good trout fishing.

[10] https://www.corkcoco.ie/sites/default/files/2022-06/volume-1-main-policy-material.pdf

12.10.2 Assessment of Potential Effects

12.10.2.1 Construction Phase Impacts

The grid connection cabling will run from the onsite 110 kV Substation across a combination of private lands and public roads generating land disturbance and associated movement of machinery and stockpiling of materials for both Grid Connection options A and B. The proposed Grid Connection routes will include for directional drilling at up to 22 no. locations on Option A and 18 no. locations on Option B. No overhead lines are required for the connection. Connection works will involve the installation of ducting, joint bays, drainage and ancillary infrastructure. This will require delivery of plant and construction materials, followed by ground excavation laying of cables and subsequent reinstatement of trenches, and will result in minor and very localised construction stage landscape effects.

There will be some construction stage effects on landscape character generated by the intensity of construction activities (workers and heavy machinery) as well as areas of bare-ground and stockpiling of materials as identified in the Construction and Environmental Management Plan (**CEMP- Appendix 2.1**). The hill- walking routes at Shehy Mountain will be closed temporarily during the construction phase of the Proposed Development to allow for upgrade works and the erection of Cultural Heritage notice boards. Such effects will be temporary/short term in duration and are, therefore, not considered to be significant. Overall, construction stage landscape effects are considered to be of a High-medium magnitude.

12.10.2.2 Operational Phase Impacts

There will be physical impacts on the land cover of the Site and cable route as a result of the Project during the operational phase, but these will be relatively minor in the context of this working rural landscape that comprises pockets of existing wind energy development and areas of commercial conifer forest. The scale of the Project will be well assimilated within its landscape context without undue conflicts of scale with underlying landform and land use patterns. For these reasons the magnitude of the landscape impact is deemed to be High-medium within the site and its immediate environs (c.1 km) reducing to Medium for the remainder of the central Study Area. The quality of the landscape effects is deemed Negative. Beyond 5 km from the Site, the magnitude of landscape impact is deemed to reduce to Low and Negligible at increasing distances as the wind farm becomes a proportionately smaller and integrated component of the overall landscape fabric.

Existing trails will be open to the public during the operational phase and will have a positive effect.

12.10.3 Decommissioning Phase

The Decommissioning phase will see a similar nature of effects to the construction stage due to the movement of heavy machinery within the site and to and from the Site removing turbine components. However, such effects will be temporary in duration and decreasing in scale as turbines are removed from view and the landscape is substantially reinstated to former uses. As with construction stage impacts, Decommissioning stage effects are not considered to be significant.

12.10.4 The 'Do-Nothing' Impact

If the Proposed Development were not to proceed, there would be no upgrade of the existing recreational trails in the area. The cultural heritage notice boards would not be erected. There would be no positive effect on the recreational facilities and amenities of the area.

12.10.5 Mitigation Measures

Mitigation measures to reduce the visual impact of the Wind Farm were incorporated at the design stage. The Vestas V150 turbine was chosen due to its compact size and minimal tip height. The overall turbine blade tip height is 175 m. The sitting of turbines on prominent ridgeline was avoided where possible.

Works on the TDR for abnormal loads between Port of Cork and Crookstown will be relatively minor in nature, for example temporary removal of street furniture and signage.

The road widening and upgrade works from the R585 to the Site, including upgrades to bridges on the route will be a slight, positive, permanent benefit at the local level due to the improvements to the route for local residents and other road users in the area.

12.10.6 Cumulative Effects

All existing and approved projects in **Appendix 1.2** have been considered. There are 29 no. proposed, permitted or operational wind farms within 20 km of the Proposed Development.

Potential negative cumulative effects on recreational facilities and amenities are unlikely during the operational and decommissioning phases.

12.10.7 Statement of Significance

No significant negative impacts on recreational facilities and amenities are anticipated.