19.0 SCHEDULE OF MITIGATION MEASURES

19.1 INTRODUCTION

This chapter of the EIAR provides a summary of the findings of this EIAR, based on the design and mitigation measures identified within the technical assessments of this report. The schedule below details the measures upon which the findings of this EIAR have been based and are an integral part of the proposed project.

During the construction, operational and decommissioning phases of the project, all personnel working on the project will be required to be responsible for the environmental control of their own work and to perform their duties in accordance with the requirements and procedures of the CEMP (See Appendix 2-8).

All works associated with the construction of the proposed project will be undertaken with due regard to the guidance contained within CIRIA Document C741 'Environmental Good Practice on Site' (CIRIA, 2015).

19.2 SCHEDULE OF EIAR MITIGATION MEASURES

The following table provides a summary of the mitigation measures proposed within this EIAR. In addition, the monitoring proposals have been included.

Table 19-1 Table of EIAR Mitigation Measures

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
Pre-construction Phase				
Description of Proposed Project				
MM1	Environmental Management – CEMP	EIAR Chapter 2	A CEMP has been prepared for the proposed project and is included in Appendix 2-8 of the EIAR. The CEMP will be updated prior to commencement of development to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the planning authority for written approval. The construction contractor will be responsible for implementing the mitigation measures specified in the EIAR and CEMP and for communicating the requirements with all staff on-site. Their implementation of the mitigation measures will be overseen by the supervising environmental manager, ecologists, archaeologists and/or geotechnical engineers, as appropriate.	As required through the Contractor's CEMP.
MM2	Health and Safety	EIAR Chapter 2	A Health and Safety Plan covering all aspects of the construction process will address the Health and Safety requirements in detail. This will be prepared prior to the construction stage. A Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) are required to be appointed in accordance with the provisions of the Safety, Health and Welfare at Work (Construction) Regulations.	As required through the Contractor's CEMP and the Health and Safety Plan.
MM3	Surface Water Drainage System	EIAR Chapter 2 and Chapter 9	The surface water drainage system will require weekly and daily inspections depending on the construction phase works to ensure that it is working optimally. Settlement ponds will require regular inspection and cleaning where sediment collects. The drainage and treatment system for the proposed wind farm monitored more frequently during/after heavy rainfall events during the construction phase. A programme of inspection and maintenance will be designed and dedicated construction personnel assigned to manage the inspection programme. This is discussed further in the CEMP (Appendix 2-8 of the EIAR).	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
MM4	Traffic Management	EIAR Chapter 2 and Chapter 16	A Traffic Management Plan (TMP) has been prepared for the proposed project and is included as Appendix 2-4 of the EIAR. This is a living document and will be updated ahead of construction to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned by An Bord Pleanála, in the event planning permission/approval is granted. Also, a confirmatory survey of road condition, including the condition of all road water crossings on the route, will be carried out along the proposed grid connection route (GCR) in advance of any works.	As required through the Contractor's CEMP and TMP.
Biodiversity				
MM5	Biodiversity: Otter	EIAR Chapter 6 / NIS	A Pre-construction Otter survey will be undertaken no more than 10—12 months in advance of the construction works as per the advice in the NRA (2008) guidelines, particularly at the directional drilling and clear-span bridge locations. In the event that a new holt (established within the interim period) is identified within the footprint of the works during the pre-construction survey, a method statement will be prepared detailing survey / monitoring methods, if required, and any mitigation will be applied. The method statement will also be used to support a licence application to the NPWS licensing unit if a licence to disturb is required. The survey works and any mitigation required will be implemented prior to starting site clearance and any construction works.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM6	Biodiversity: Badger	EIAR Chapter 6 / NIS	A pre-construction badger survey will be carried out prior to site clearance or works commencing. In the event that a new sett is discovered within the footprint of the construction works appropriate measures such as exclusion zones or sett exclusions will be carried out following industry methods. A method statement will be prepared detailing survey / monitoring methods, if required, and any mitigation to be applied. The survey works and any mitigation required will be implemented prior to starting site clearance and any construction works.	As required through the Contractor's CEMP and Biodiversity Management Plan.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
MM7	Biodiversity: Common Frog	EIAR Chapter 6 / NIS	Common Frog will be surveyed during the appropriate season in advance of any works at drainage ditches, slow flowing streams and ponds where the Common Frog may spawn. Suitable breeding habitat such as pools, ponds and drainage ditches within the project site were noted during the baseline surveys and will inform the pre-construction survey. A method statement will be prepared to detail specific measures to translocate the frogs and spawn, by hand or net, to suitable nearby habitat (to be identified prior to carrying out the survey) that will not be impacted by the proposed project. The method statement will be used to inform the application to NPWS for a licence to capture and relocate spawn and Frogs.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM8	Biodiversity: Common Lizard	EIAR Chapter 6 / NIS	Common Lizard will be surveyed during the appropriate season (March to October) in advance of any works at suitable habitat for the species. The survey work will focus on the peatland habitats at Knocknanask and Knocknasheega as these are suitable for use by the species. A method statement will be prepared to detail specific measures to translocate Common Lizard within the footprint of the works to similar habitat a sufficient distance away from the works. The method statement will be used to inform the application to NPWS for a licence to capture and relocate Common Lizard.	As required through the Contractor's CEMP and Biodiversity Management Plan.
Ornithology				
MM9	Construction Disturbance Mitigation	EIAR Chapter 7	Breeding bird surveys will be carried out in the breeding season preceding the start of construction, and in every subsequent breeding season across the duration of the construction period. These surveys will include Hen Harrier surveys and Snipe surveys. The survey methods will follow those used for the breeding raptor and breeding distribution surveys in 2023 and 2024 (see Appendices 7-4 and 7-5 of the EIAR). If nesting Hen Harriers are found, an assessment will be carried out by a suitably experienced ornithologist to determine the restrictions to construction work that will be required. This will start from the basis a potential 1 km disturbance distance (Goodship and Furness, 2022). However, depending on the location of the nest site, some lower	The pre-construction breeding bird surveys will be carried out in the breeding season preceding the start of construction, and in every subsequent breeding season across the duration of the construction period.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			magnitude construction work may be possible within 1 km without causing any disturbance.	
			If breeding Snipe are found, no construction work will take place within 500 m of the nest site, or the centre of the territory if the nest site is not found.	
			If other sensitive breeding species are found, appropriate mitigation will be implemented based on evidence about their disturbance distances.	
Material Assets				
MM10	Underground Services	EIAR Chapter 11	A confirmatory survey of all existing services (electrical/ESB, water/Uisce Éireann, gas/Gas Networks Ireland (GNI)) will be carried out prior to construction to verify the assumptions in this report and identify the precise locations of any services. The Applicant will liaise with the service provider where such services are identified. Digging around existing services, if present, will be carried out as per best practice/guidance by hand to minimise the potential for accidental damage.	As required through the Contractor's CEMP.
MM11	Telecommunications	EIAR Chapter 11	In order to ensure there are no issues at construction, all telecom operators will be contacted in advance of construction to check that they have no new links in operation at that time.	As required through the Contractor's CEMP.
Archaeology				
MM12	Archaeological Investigations: Test Trenching / Metal Detection	EIAR Chapter 15	The proposed TDR, where it passes through 220 m of greenfield, will be subject to a programme of archaeological test trenching and metal detection, prior to the commencement of construction. These investigations will be carried out under licence to the National Monuments Service of the DoHLGH. Dependant on the results of the assessment and if archaeological remains are identified, further mitigation may be required, such as preservation in-situ or by record. Any further mitigation will require agreement from the National Monuments Service of the DoHLGH.	As required by archaeological test trenching and metal detection.
Traffic and Transport				
MM13	Traffic: Pre-Construction Condition Survey	EIAR Chapter 16	A pre-condition survey of roads on approach to the site will be carried out prior to construction commencement to record the condition of the road.	As required through the Contractor's CEMP and TMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
Construction Phase				
Description of Proposed Project				
MM14	Forestry Felling	EIAR Chapter 2	With the exception of commercial forestry felling, vegetation clearance will commence outside the breeding birds season, which runs from the 1st of March to the 31st of August. If any minor clearance or trimming is required within those dates, or if the initial vegetation clearance extends past the 1st of March due to unsuitable weather conditions, the works will be preceded by an ecological survey (from a qualified and suitably experienced ecologist) to ensure there are no sensitivities associated with the action.	As required through the Contractor's CEMP.
MM15	Construction Hours	EIAR Chapter 2	The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations will generally be restricted to between 7:00hrs and 19:00hrs Monday to Friday (excluding public holidays) and between 07:00hrs and 14:00hrs on Saturdays. However, during the following critical periods longer hours will be required: • Concrete pours for turbine foundations; • During turbine installation when the weather is suitable (i.e. light winds); • Delivery of oversized loads; • In the unlikely event of an emergency (this is unlikely - see Chapter 17 of the EIAR (Major Accidents and Natural Disasters)). Any such out of hours working will be agreed in advance with Waterford City and County Council apart from in the case of an emergency and in line with the Schedule of Mitigation requirements of this EIAR (Chapter 19). .	As required through the Contractor's CEMP.
MM16	Surface Water Drainage / Silt Control	EIAR Chapter 2	A Surface Water Management Plan (SWMP) has been prepared (Appendix 2-11 of the EIAR). The purpose of this plan is to ensure that all works are conducted in an environmentally responsible manner so as to minimise any potential adverse impacts from the proposed project on surface water quality. The plan incorporates the following specific objectives: • Provide overall surface water management principles and guidelines for all phases of the proposed project;	As required through the Contractor's CEMP and SWMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			• Address erosion, sedimentation and other water quality issues; and • Present measures and management practices for the prevention and/or mitigation of potential downstream impacts.	
MM17	Concrete Deliveries & Pouring	EIAR Chapter 2	Primarily ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks. Localised mixing will be used for small tasks such as blockwork for building the substation. The use of ready-mixed concrete deliveries will eliminate any potential environmental risks from large scale on-site batching. When concrete is delivered to site, only the chute of the delivery truck will be cleaned, using the smallest volume of water necessary, before leaving the site. Concrete trucks will be washed out fully at the batching plant, where facilities are already in place. The small volume of water that will be generated from washing of the concrete lorry's chute will be directed into a temporary lined impermeable containment area. These residual liquids and solids will be collected by an appropriately licensed waste collector. Where temporary lined impermeable containment areas are used, such containment areas are excavated and lined with an impermeable membrane. This washout will be located near the site entrance and also at any significant concrete pour locations (e.g. at turbine hardstand during a foundation pour) so that it is easily accessed when departing. An example of a concrete washout is shown in Figure 2-11 OF Chapter 2 of the EIAR. Although unlikely to happen any disposal of surplus concrete after completion of a pour will be off-site at the concrete production facility. Localised mixing of concrete for blockwork, etc. will only be carried out as needed, but any small volume of surplus will be disposed of in the concrete washout area. The CEMP (Appendix 2-8 of the EIAR) provides further details of best practice and environmental considerations in relation to concrete deliveries and concrete pouring.	As required through the Contractor's CEMP.
MM18	Refuelling	EIAR Chapter 2	Any easily manoeuvrable road-going vehicles (i.e. cars, jeeps, lorries etc) will be refuelled off-site. For any vehicles which are slow moving	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			or tracked or those for whom regular trips off-site to refuel will not be practical, on-site fuelling will be required.	
			A limited amount of fuel will need to be stored on the site within the construction compounds for this purpose, and this will be within a double skinned and bunded mobile tank which can be moved around the site using a 4x4 vehicle to refuel. This will be stored in the construction compound when not in use.	
			A spill kit in the form of a supply of fuel absorbent material and mats and a drip tray will be kept with the tank at all times. The drip tray and fuel absorbent mats will be used at all times during refuelling. Similar spill kits will be stored in each construction compound, and at the on-site substation in case of emergency.	
			No refuelling will be carried out within 50m of a stream. Only designated trained and competent operatives will be authorised to refuel plant on site.	
			In the event of an accidental fuel spill, the source of the spill will be fixed, fuel will be contained and cleaned as quickly as possible using the fuel absorbent material in the spill kits. The incident will be reported to the site manager and Environmental Clerk of Works, and appropriate remediation will be carried out (i.e. soil removal for safe disposal at a licensed waste facility by licensed waste collectors. The CEMP (Appendix 2-8 of the EIAR) provides further details of best practice and environmental considerations in relation to refuelling.	
MM19	Dust Suppression	EIAR Chapter 2	In periods of extended dry weather, dust suppression will be necessary along haul roads and along the site roads to ensure dust does not cause a nuisance to any residential properties long the route. If necessary during a period of extended dry weather, water will be taken from settling ponds in the site's drainage system and will be pumped into a bowser or water spreader to dampen down haul roads and site compounds to prevent the generation of dust. Silty or oily water will not be used for dust suppression, because this will transfer the pollutants to the haul roads and generate polluted runoff or more dust. Water bowser movements will be carefully monitored, as the application of too much water would lead to increased risk of runoff.	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			The CEMP (Appendix 2-8 of the EIAR) provides further details of best practice and environmental considerations in relation to this.	
MM20	Waste Management	EIAR Chapter 2	The CEMP (Appendix 2-8 of the EIAR) provides an overview of the best practice in waste management during all phases of the proposed project, with a view to reducing, reusing, recycling and recovering waste produced, in that order of preference. Waste disposal will be avoided where possible. The Waste Management Plan and waste management practices associated with the proposed project are provided in the CEMP (Appendix 2-8) and will be in accordance with relevant provisions of the Waste Framework Directive (Directive 2008/98/EC on waste), the Waste Management Act 1996 as well as all other Irish and EU legislation. The main site contractor will appoint a Environmental Clerk of Works who will ensure that all waste contractors have the correct permits for any waste streams they are removing from site, and that they are taking it to the appropriately licensed/permitted waste facilities. They will also ensure that all parts of the Waste Management Plan will be implemented onsite.	As required through the Contractor's CEMP.
MM21	Vehicle Management	EIAR Chapter 2	Vehicles will be kept on site access roads for the vast majority of the construction phase, however in the initial construction phases, there will be some requirement for off-road vehicle movements (for forestry felling, ground works, etc.). For forestry felling, standard practices and equipment/vehicles will be used (as described in the Forestry Report – see Appendix 2-7 of the EIAR).	As required through the Contractor's CEMP.
			For ground works and other off-road activity, the use of specialist vehicles that are tracked or use large low ground pressure tyres or bog mats which distribute their weight evenly across a large surface area will be used. These will minimise ground disturbance, particularly where there is a presence of peat (albeit very shallow on this site) and therefore minimise the risk of sediment entering downstream watercourses.	
			All vehicles will be restricted to the areas where works are required, and unnecessary off-road movements around the wider site will be avoided. Where there are any sensitive habitats present around a	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			proposed work area, these areas will be marked out so that vehicles will not enter and damage them.	
MM22	Vehicle Washing	EIAR Chapter 2	Wheels or vehicle underbodies are often washed before leaving sites to prevent the build-up of mud on public (and site) roads. Site roads will be already formed using on-site materials before other road-going trucks begin to make regular or frequent deliveries to the site (e.g. with steel or concrete). The site roads will be well finished with compacted hardcore, and so the public road-going vehicles will not be travelling over soft or muddy ground where they might pick up mud or dirt. However, in the interest of best practice and to avoid the potential for the transfer of alien invasive plant species into the site, it is proposed to install a self-contained wheel-wash system near the project site entrance. The drawings in Appendix 1-1 include details and proposed location of a proposed self-contained wheel-wash system which will be installed as part of the construction phase of works. Water will be supplied for this using a water bowser. A road sweeper will be available if any section of the surrounding public roads becomes soiled by vehicles associated with the proposed project. The CEMP (Appendix 2-8) provides further details of best practice and environmental considerations in relation to this..	As required through the Contractor's CEMP.
MM23	Spoil Management	EIAR Chapter 2	The use of the borrow pits will be phased. This will allow materials to be permanently placed in the first borrow pit while the second is in use, thereby minimizing the volume of soils requiring temporary storage. In order to further reduce temporary storage requirements, soils and turves will be reinstated around infrastructure as part of restoration and landscaping works. This will be carried out during the construction phase, as soon as is practical after the completion of the works in any one area of the site.	As required through the Contractor's CEMP.
			Where the proposed project footprint is located on any mineral-based soil, this material will be side-cast and profiled as close to the excavation areas as practical. In the case of peat, or where other adjacent infrastructure or constraint features might prevent side-casting, it will be used to reinstate the borrow pits. The sides of the excavated areas will be battered/sloped sufficiently to ensure that	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			slippage does not occur (2:1 for mineral soil). The excavated sidecast material will be smoothed with the back of an excavator bucket and surrounded by silt fences to minimise the potential for sediment-laden run-off occurrence. Side-casting will not occur within 50m of a watercourse. The side-cast material will be used later in backfilling the working area around the turbine foundations, or for landscaping locally or reinstatement elsewhere on site (such as the borrow pits). Further and more detailed information on the spoil management is provided in Appendix 2-3 of the EIAR (Spoil & Peat Management Plan).	
			Where side-casting is not possible, topsoil and sub-soil are to be stockpiled separately. Turves will be stored turf side up and will not be allowed to dry out. Stockpiles are to be isolated from any surface drains and a minimum of 50m away from watercourses, and will be located at points with easy access to internal roads within the proposed borrow pit areas which have not yet been extracted. Measures that will be employed will include interceptor ditches around these areas (with sediment traps within these (see Drainage Drawings 11303-2040 to 2046 in Appendix 1-1 of the EIAR) deployment of double silt curtains and seeding of the piles will be incorporated to prevent runoff of suspended solids and soil erosion. No permanent spoil or stockpiles will be left on site. No stockpiles will be located on peat areas. Peat material (from Knocknanask in particular) will be used to reinstate the borrow pits (see Section 2.8.8 and Appendix 2-3 for information on sequencing of work).	
			Where available, vegetative sods/turves or other topsoil in keeping with the surrounding vegetation type will be used to provide a dressing for the final surface. Where sods/turves are not available, some seeding with native species will be carried out. This method for restoration of excavated or disturbed areas is to encourage stabilisation and early establishment of vegetation cover.	
			To prevent erosion and run-off and to facilitate vegetation reinstatement, any sloped soil embankment will be graded such that the slope angle is not too steep (i.e. 1:3) and that embankments match	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			the surrounding ground profile. See Section 2.8.9. for further information on sequencing and spoil management.	
			Management of spoil for the turbine delivery accommodation works and the GCR are discussed in sections 2.8.2 and 2.8.5 OF Chapter 2 of the EIAR respectively.	
MM24	Health and Safety	EIAR Chapter 2 and Chapter 5	The proposed project will be constructed in accordance with all relevant Health and Safety Legislation as described in the CEMP (Appendix 2-8 of the EIAR).	As required through the Contractor's CEMP.
			The scale and scope of the project requires that a Project Supervisor Design Process (PSDP) and Project Supervisor Construction Stage (PSCS) are required to be appointed in accordance with the provisions of the Safety, Health and Welfare at Work (Construction) Regulations.	
			The PSDP and PSCS appointed for the project will be required to perform his/her duties as prescribed in the Safety, Health and Welfare at Work (Construction) Regulations as described in the CEMP (Appendix 2-8 of the EIAR).	
Population and Human Health				
MM25	Health and Safety	EIAR Chapter 5	All activities carried out by the appointed Contractor on the proposed project will be in accordance with the requirements of the Safety, Health and Welfare at Work Act 2005 as amended and Regulations made under this Act. The CEMP sets out the Health and Safety requirements for the project including the erection of fencing, signage and notification of commencement of works to the Health and Safety Authority (HSA). This will apply to whatever final turbine dimensions are chosen from the entire proposed range of turbine dimensions.	As required through the Contractor's CEMP.
			The proposed TDR to allow for the transport of the turbines to the proposed wind farm site will involve some works as discussed in Chapter 2 of the EIAR (Description of the Proposed Project). These works will be carried out to the relevant construction and road safety guidelines. When the turbine components are being transported, they will have a Garda escort, and will be carried out at night when there is less traffic on the road. The proposed turbine delivery works allow for the entire range of proposed turbine dimensions.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			The project will employ all of the latest and relevant guidelines and legislation (See CEMP in Appendix 2-8 of the EIAR in terms of health and safety both for works within the proposed wind farm site as well as for works outside the main wind farm such as those on the proposed TDR). The required levels of safety (e.g. during road works) will be maintained for all road users as well as pedestrians. The proposed wind farm site itself will not be open to the public. Public access will be restricted to works areas outside the proposed wind farm site such as the proposed TDR works areas and the proposed GCR while work is underway. Appropriate health and safety measures as described in the CEMP (Appendix 2-8 of the EIAR) will be taken for all works areas during the construction phase in the interest of worker and public safety also. Should any public health advice be in place during the construction phase (such as the recent Covid-19 public restrictions) these will be implemented on site.	
Biodiversity / Ecology				
MM26	European Sites	EIAR Chapter 6 / NIS	Mitigation measures protecting surface water quality will ensure the protection of the Blackwater River (Cork/Waterford) SAC, Dungarvan Harbour SPA and the Blackwater Estuary SPA during the construction phase are outlined in Chapter 9 – Hydrology and Hydrogeology, Section 9.5 and Section 7 of the NIS which is contained in the Planning Application.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM27	Proposed Natural Heritage Areas	EIAR Chapter 6 / NIS	Mitigation measures protecting surface water quality which will ensure the protection of the Blackwater River and Estuary pNHA and Dungarvan Harbour pNHA during the construction phase are outlined in Section 9.5 of Chapter 9 – Hydrology & Hydrogeology and Section 7 of the NIS which is contained in the Planning Application.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM28	Biodiversity: Habitats	EIAR Chapter 6 / NIS	All mitigation measures associated with the protection of water quality are outlined in Chapter 9 – Hydrology and Hydrogeology Section 9.5 and within the SWMP will be implemented, which will ensure the protection of the eroding/ upland river habitats located within or hydrologically connected to the proposed project. Sediment runoff at clear span bridge and directional drilling sites:	As required through the Contractor's CEMP and Biodiversity Management Plan.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			• No instream works will take place during all phases of the proposed project. • Silt fences will be erected along all areas where the construction works are within 20m of a stream or river and 10m around stockpiled material. All silt fences will be erected outside of flood zones. The silt fencing will remain in position during the full construction phase of the project. • Silt fences (woven, high tensile strength heavy porous filter fabric) will be used. No mesh type silt fences will be permitted. Silt fencing will be installed as per the manufacturer's guidelines (the bottom section buried at least 10cm deep) prior to any ground disturbance works. • The excavated subsoil will be utilised on site and used to create bunds around the proposed facilities to create surface water runoff barriers. • Excavation works will not be carried out during or following heavy rainfall (i.e. if there is a yellow weather warning or higher in place or 5-mm in a 1-hour period). • A minimum 10m untouched vegetated buffer zone will be retained between the silt fence and the watercourse. • No permanent storage of excavated material will be permitted within 50m of the any watercourse within the proposed project or within 10m from drainage ditches; Construction pollution control at clear span bridge and directional drilling sites: • Spill-kits and hydrocarbon absorbent mats will be stored in the cabin of all construction vehicles. All machine operators and site staff must be fully trained in the use of this equipment. • All machinery will be regularly maintained and checked for fuel, oil or hydraulic fluid leaks. Servicing of machinery will only be undertaken within the construction compound or offsite.	
			A total of 0.33ha of Annex I dry heath will be lost to the development on Knocknanask and Knocknasheega. To compensate for this loss,	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			restoration and enhancement measures will be implemented as detailed in the Biodiversity Management Plan (BMP) which is included in Appendix 2-1 of the EIAR.	
			Vegetation clearance will be kept to a minimum to prevent unnecessary habitat loss where works are to be carried out within dry heath habitat, especially in areas of Annex I habitat.	
			The proposed construction work areas will be demarcated prior to the construction works commencing, to minimise the footprint of the works within dry heath habitat. No clearance of vegetation will be undertaken outside of the demarcated areas within the proposed project.	
			Suitably sized access / bog mats will be used where appropriate to mitigate rutting on soft or wet ground and reduce soil erosion.	
			All plant vehicles will be restricted to designated areas and access tracks to avoid impacting adjacent habitats and to ensure that soil compaction is restricted to these tracks.	
			No access will be permitted to the areas of blanket bog habitat, especially the small area of intact priority Blanket Bog located 100m to the southeast of Turbine no. 5. Suitably sized drainage pipes will be perpendicularly placed under the road to ensure the hydrological link between blanket bog habitat on the upper and lower mountain side is maintained. Measures that will benefit the enhancement of the degraded blanket bog in the upland areas of Knocknanask are further described in the BMP, Appendix 2-1 of the EIAR.	
			A Dust Management Plan has been prepared and in included as an Appendix 14.1 of the EIAR (Air Quality & Climate). The Plan outlines dust suppression measures which will be implemented during the construction phase which will ensure the protection of habitats.	
			Areas to be cleared / felled will be demarcated prior to the works commencing, to ensure vegetation clearance is kept to a minimum. If vegetation / hedgerows are to be cleared / trees to be felled within the bird nesting season, it is recommended that the trees are first surveyed for the presence of bird nests. Where a nest is found, and if feasible, the	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			tree will be cornered off until the chicks have fledged or until nesting has failed. Following the removal of the proposed TDR turning bay (which will result in the loss of 70m of hedgerow) new hedgerow, comprising a mix of native species will be replanted at the same location.	
MM29	Biodiversity: Otter	EIAR Chapter 6 / NIS	The following mitigation measures will be implemented to minimise water quality impacts on Otter: • Water quality will be protected in all watercourses hydrologically connected to the proposed project following the mitigation measures detailed in sections 6.7.1.3.1 of Chapter 6 of the EIAR. In order to prevent barrier effects to Otter commuting along the Glenshalane River the following mitigation measures will be implemented: • Temporary fencing will be erected, allowing a 3m buffer from the riverbanks and the construction works area, creating an exclusion zone. The exclusion zone will protect the riverbanks and maintain safe passage of otter along the banks during the construction phase. All construction lighting will be directed away from the river to maintain a dark corridor.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM30	Biodiversity: Badger	EIAR Chapter 6 / NIS	The following mitigation measures will be implemented to minimise the impacts on Badger: • Any temporary construction lighting used during the construction works will be cowled away from potential foraging/commuting sites to prevent disturbance to Badger within the area. To protect individual Badgers during the construction phase of the proposed project, all open excavations on site will be backfilled as soon as possible. Any deep excavations will have egress ramps in place, where feasible, to allow badger to safely exit the excavations.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM31	Biodiversity: Bats	EIAR Chapter 6 / NIS	Bats typically use woodland edge habitats for commuting and feeding purposes. Where turbines occur in close proximity to conifer plantation, the areas of conifer will be felled in order to discourage bat species from flying close to turbines.	As required through the Contractor's CEMP and Biodiversity Management Plan.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			The turbines blade tip height range from 179.5m to 185m, a rotor diameter range from 149m to 163m, a hub height range from 102.5m to 110.5m inclusive. Thus, all turbines within the proposed wind farm site will have a buffer between 97m to 100m.	
MM32	Biodiversity: Other mammal species	EIAR Chapter 6 / NIS	The following mitigation measures will be implemented to minimise the impacts on other mammal species: • Any temporary construction lighting used during the construction works will be cowled away from potential foraging sites. To protect other mammal species during the construction phase of the proposed project, all open excavations on site will be backfilled as soon as possible. Any deep excavations will have egress ramps in place to allow mammals to safely exit the excavations.	As required through the Contractor's CEMP and Biodiversity Management Plan.
MM33	Biodiversity: Common Frog and Common Lizard	EIAR Chapter 6 / NIS	All open excavations on site will be backfilled as soon as possible.	
MM34	Biodiversity: Aquatic Species (Atlantic salmon, Lamprey and Eel)	EIAR Chapter 6 / NIS	All mitigation measures associated with sediment and pollution control outlined in Chapter 9 (Hydrology and Hydrogeology) of the EIAR, this CEMP, and within the surface water management plan (SWMP) will be implemented, which will ensure the protection of aquatic habitat located within or hydrologically connected to the proposed project. Mitigation measures for all aquatic species identified as KER (Atlantic Salmon, Lamprey sp. and European Eel) will also follow the specific measures as set out in Section 6.8.1.3.1 of Chapter 6 of the EIAR.	As required through the Contractor's CEMP, SWMP and Biodiversity Management Plan.
Ornithology				
MM35	Ornithology: General Mitigation	EIAR Chapter 7	An Ecological Clerk of Works (ECoW) will be appointed by the contractor carrying out the construction of the wind farm and will be responsible for monitoring compliance with the mitigation measures and construction phase monitoring requirements relating to ecology / biodiversity. This will include toolbox talks, supervision of vegetation clearance, protection of nesting birds and minimising disturbance from site vehicles. See Section 6.9.2 of Chapter 6 of the EIAR for further details.	A post-construction monitoring programme will be carried out. This will include carcass searches to monitor collision mortality, vantage point surveys to help interpret the results of the carcass searches, and various surveys to assess displacement impacts to breeding Hen Harrier, Red Grouse, Woodcock and Snipe. The design of the monitoring programme will be based on the SNH's

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			A Bird Protection Plan will be implemented as part of the construction programme. This will incorporate all the measures discussed below that are designed to mitigate impacts to bird populations during the construction phase.	Guidance on Methods for Monitoring Bird Populations at Onshore Wind Farms (SNH, 2009). The carcass searches will be carried out using detection dogs and will include trials of searcher efficiency and scavenger removal. The frequency of the searches, and the duration of the monitoring, will be designed to collect sufficient data to generate a robust assessment of the collision mortality impacts to Kestrel. The vantage point surveys will take place in tandem with the carcass searches. The other surveys will take place at suitable intervals to cover the construction and operational periods (e.g., Years 1, 2, 3, 5, 10 and 15). The Hen Harrier surveys will be designed to assess occupancy by breeding Hen Harriers of the 2 km buffer around the proposed wind farm site. A suitable survey method would be the methods of Hardey et al. (2013). The Red Grouse surveys will be designed to assess occupancy by breeding Red Grouse of the bog/heath habitats on Knockanask Hill. A suitable survey method would be the methods used in the 2023 and 2024 breeding distribution surveys (see Appendices 7-4 and 7-6 of the EIAR). The Woodcock surveys will be designed to sample representative habitat at various distances from the turbines (e.g., 0-250 m, 250-500 m and > 500 m from turbines). A suitable survey method would be that of Heward et al. (2015), which involve surveys from point locations. Repeat of the transect surveys carried out for this report would also help assess changes in Woodcock activity patterns. The Snipe surveys will be designed to assess occupancy by breeding Snipe of potential breeding Snipe habitat within 500 m of the turbines. A suitable survey method would be the methods used in the 2023 and 2024 breeding
			A Hen Harrier Protection Plan will be implemented throughout the construction, operational and decommissioning phases of the wind farm. This will incorporate all the measures that discussed below that are designed to mitigate impacts to Hen Harriers.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
				distribution surveys (see Appendices 7-4 and 7-6 of the EIAR).
MM36	Habitat / land use of the Biodiversity Management Plan lands	EIAR Chapter 7	The habitat / land use of the Biodiversity Management Plan lands are summarised in Table 7.21 of Chapter 7 of the EIAR. The section within the wind farm site and part of one section adjacent to the site were covered by the habitat survey for the proposed project. The land use of the remaining sections was assessed using CORINE data. Based on these data sources, around 25 ha of the lands are occupied by forestry and another 30 ha are occupied by improved grassland. The remaining area is mapped as heath or peat bogs. However, a lot of the area mapped as peat bogs in the CORINE dataset may be degraded bog / heath or acid grassland.	As required by the Biodiversity Management Plan.
			The conifer plantations currently provide potential Hen Harrier foraging habitat for around a third of the forestry rotation. Successful implementation of the Biodiversity Management Plan will make the area currently occupied by these plantations permanently available as Hen Harrier foraging habitat and will improve the quality of the habitat	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			(bog/heath generally provides higher quality foraging habitat than pre-thicket forestry).	
			The areas mapped as heath or peat bogs are considered to be in degraded condition (based on assessments carried out by Future Energy Ireland). However, they may have some degree of suitability for foraging Hen Harriers. Successful implementation of the Biodiversity Management Plan will significantly increase the quality of these habitats and their potential contribution to the foraging resources available to the local Hen Harrier population.	
			The areas mapped as pastures are likely to have negligible current value for Hen Harriers. Successful implementation of the Biodiversity Management Plan will create new foraging habitat for the local Hen Harrier population.	
MM37	Mitigation of disturbance impacts to Kingfisher and Grey Wagtail	EIAR Chapter 7	Construction work on the grid connection route crossing of the Colligan River will only take place during the Kingfisher and Grey Wagtail breeding seasons if appropriate surveys have shown that there are no Kingfishers or Grey Wagtails breeding in the vicinity of the crossing.	As required by the Biodiversity Management Plan.
MM38	Ornithology: Other mitigation measures	EIAR Chapter 7	Construction-phase mitigation measures to protect retained habitats within the proposed wind farm site, and to protect wetlands and watercourses, are described in Chapter 6 (Biodiversity) and Chapter 9 (Hydrology & Hydrogeology).	As required by the Biodiversity Management Plan.
			Where possible, tree felling, and scrub clearance will not be carried out during the bird breeding season (1st March – 31st of August).	
Land, Soils and Earthworks				
MM39	Land Use	EIAR Chapter 8	Vegetation clearance will be kept to a minimum.	As required by the Contractor's CEMP.
			The proposed construction work areas will be demarcated prior to the construction works commencing. No clearance of vegetation will be undertaken outside of the demarcated areas.	
			Construction vehicles will be restricted to designated areas and access tracks in order to avoid impacting adjacent habitats and to ensure that soil compaction is restricted to these areas.	
			All disturbed ground outside of the permanent footprint will be fully reinstated following the completion of the works.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Biodiversity enhancement measures will be undertaken to improve ecological habitats as detailed in Appendix 2-1 of the EIAR.	
MM40	Contaminated Sites/Potential for contamination - Materials and Fuel Management	EIAR Chapter 8	Dedicated, bunded storage areas will be used for all fuels or hazardous substances. The earthworks will not be scheduled to be carried out during severe weather conditions. Good site practice will be applied to ensure that no fuels, oils, wastes or any other substances are stored in a manner on site in which they may spill and enter the ground.	As required by the Contractor's CEMP.
			Fuel storage and fuelling facilities will be required at several fixed locations and at mobile locations around the proposed project, given the size of the it is impractical to track large plant to a single fixed facility. Fuel storage and any oil storage will be carried out in accordance with the Enterprise Ireland Best Practice Guide BPGCS005 Oil Storage Guidelines.	
			Fuel and oil storage at fixed locations will be in a fixed tank, undercover and within a steel or concrete bund.	
			A dedicated impermeable bunded refuelling area will be constructed adjacent to the fixed fuel storage areas.	
			Double skinned plastic tanks will not be acceptable for any purpose unless they are placed within fixed concrete or steel bunds.	
			Each fixed fuel and oil storage bunds will be sized to hold 110 % of the volume of the largest tank therein. The rainwater pumped from each bund will be discharged to the surface water drainage system via an oil interceptor.	
			In the event of a spill, the liquid contained in the bund will be removed by a liquid waste tanker, as will the contents of the surface water drainage system and oil interceptor. Where refuelling is required on site away from fixed storage locations, this will only be carried out utilising intrinsically bunded mobile steel fuel bowsers. At site refuelling locations, refuelling will take place within mobile bunds, but at a minimum the fuel line from the bowser to the plant being fuelled will be contained by drip trays.	
			Generators and associated fuel tanks to be used will either be placed within bunds as per fuel storage tanks or will be integrated units (i.e., fuel tank and generator in one unit) that are intrinsically bunded. No	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			external tanks and associated fuel lines will be permitted on site unless these are housed within a fixed bund with the generator.	
			The contractor's yard/maintenance yard will incorporate a bund for the storage of small items of plant and oil filled equipment, such as hand portable generators, pumps, etc. Storage of small volume oils or chemicals, in barrels, IBCs, etc, will be confined to a covered bunded area. Where barrels or other containers are required at work locations these will be stored in enclosed bunded cabinets, and drip trays will be used where distribution of the material is required.	
			The main storage areas for oil filled equipment, vehicles, plant, etc, will be on an impermeable surface and the discharge of surface water from these areas will be via oil interceptors. An oil spill response plan will be developed for the construction works and appropriate containment equipment will be available at work locations in the event of a spillage. Oil spill response will form part the induction and training of site personnel.	
			All wastes generated on site will be segregated and appropriate materials are re-used on site. Residual materials will be collected by licensed waste hauliers for appropriate sorting, recycling and disposal.	
MM41	Contaminated Sites/Potential for contamination - Concrete/cement management	EIAR Chapter 8	Contractors will be required to provide a designated bin for washing down the chutes of concrete lorries on site.	As required by the Contractor's CEMP.
			Wash down and washout of concrete transporting vehicles will not take place on site. It is proposed to washout at the (offsite) source concrete batching site to prevent cementitious material and water entering the surface water network.	
			Waste material will be removed from site to an appropriate waste permit facility.	
			Disposal of excess concrete on any part of the construction site will be prohibited.	
MM42	Soil Compaction and Erosion	EIAR Chapter 8	Landscaping areas will be sealed and levelled using the back of an excavator bucket to minimise the potential for erosion. The upper vegetative layer will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			at the surface. These measures will prevent the erosion of any peat in the short and long term.	
			Peat, overburden, and rock will be reused on site to reinstate borrow pits and other excavations. Peat soils are limited and will be placed in the borrow pit deposition areas, completely below the existing ground profile on all sides thereby containing the peat/peaty soils and eliminating any possibility of a peat stability-related slope failure. The borrow pit deposition areas are located between T13 and T15 and provide an opportunity for landscaping and restoration to match the natural surroundings.	
			On completion, the borrow pit deposition area surfaces will be stabilised by the establishment of natural vegetation. The detailed design, construction, and operation and maintenance of the borrow pit backfill operation will be documented in the design stage Peat Stability Risk Assessment, the Peat Stability Risk Register, and the Site Geotechnical Folder which is to be handed over for operation and maintenance.	
			A key project goal is to incorporate sustainability into the design and construction of the project where practical. Where mineral soils are encountered in the excavation and construction of site roads, bases, etc, this material will be stockpiled for assessment and subsequent re-use. Where mineral soil is not directly suitable for construction it will be used for reinstatement works and will be geo-engineered as necessary.	
			As part of the proposed works two borrow pits are proposed to provide materials suitable for construction, the purpose of which is to minimise the need to import of aggregates from elsewhere, reducing the project's environmental footprint. It is not intended that the borrow pits be fully reinstated, although it is proposed that the borrow pits will be partially reinstated using suitable excess materials. The remaining borrow pit areas, post reinstatement, will be established to enhance biodiversity.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			The construction traffic will utilise the permanent access track network for access and egress, and this access will be constructed in advance of other ground works in a sequential manner.	
			A Spoil Management Plan (SMP) was developed as part of the planning application – See Appendix 2-3. This plan documents how spoil will be managed on site for re-use of materials, the design for on-site re-use and disposal options, and a scheme for the tracking and recording of soil movements. These measures will prevent the erosion of soil in the short and long term. Soils, overburden, and rock will be reused on site to reinstate any excavations where appropriate.	
			Access tracks will be constructed first to allow for access within the proposed project. Vehicular movements will be restricted to the footprint of the proposed project, particularly with respect to the newly constructed access tracks. This means that machinery must be kept to the tracks and aside from advancing excavations not move onto areas that are not permitted for the development, such as areas which have not been designated for access or infrastructure.	
			Construction of internal electricity transmission cables will present similar, but lower-level risks, to the construction risks outlined above, and the same mitigation measures will be adopted as above. Surplus material from the onsite roads will be reused on site in the borrow pits or on road upgrades.	
MM43	Proposed GCR and works areas of the proposed TDR	EIAR Chapter 8	The majority of the proposed GCR cabling will be laid in the public road. Construction method statements and templates will be implemented to ensure that the proposed GCR infrastructure is installed in accordance with the correct requirements, materials, and specifications of ESBN and EirGrid. The ducts will be installed and the trenches will be reinstated in accordance with ESBN/EirGrid, private third-party landowners and County Council specifications. Once all are satisfied, then the cables are pulled through the installed ducts in approximately 500 to 700 m sections.	As required by the Contractor's CEMP.
			Excavated mineral material will be temporarily stockpiled onsite for re-use during reinstatement. Stockpiles will be restricted to less than 2 m in height. Stockpiles will be located a minimum of 50 m from surface	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			water features and all stockpiling locations will be subject to approval by the Site Manager and Project Ecological Clerk of Works (ECoW).	
			For concrete and asphalt/bitmac road sections, it is proposed to carry out immediate permanent reinstatement in accordance with the specification and to the approval of the local authority and/or private landowners, unless otherwise agreed with the local authority. Surplus excavated bitmac material will be brought to a recycling facility for processing in accordance with the circular economy approach.	
			For offroad i.e. access tracks/grass sections, the cable section will be laid within an existing access track. Silt fences will be utilised along the offroad sections. Short sections (<50m) will be excavated and reinstated on a phased basis with suitable excavated material to ground level and finish in a gravel track as per the EirGrid/ESBN specification. By limiting the excavated sections, the potential for compact or erosion is limited.	
MM44	Geohazard / Peat and Soil Stability	EIAR Chapter 8	Peat or peaty soils on the proposed wind farm are shallow. Given the scale of the project, a major consideration for its development is the management of the materials excavated as part of the construction works. To this end and in order to further mitigate against any risk of peat instability, it is proposed to use any excavated peat to backfill the extant borrow pit areas. A Spoil and Peat Management Plan is provided in Appendix 2-3. A full material management plan for the various phases of the development will be designed and maintained over the course of the project.	As required by the Contractor's CEMP.
			Mitigation measures include stepping or battering back of excavations to a safe angle to support the peat and soft clays during construction. To ensure slope stability, excavations will be battered back (sloped) to between 1:1.5 and 1:2 depending on the depth and type of material. Permanent slopes will generally be less than 1:3. The works programme for the construction stage of the proposed project will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of subsoil or vegetation stripping will be suspended or scaled back if heavy rain is forecast. Works will be	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			suspended if the forecast suggests any of the following is likely to occur: • >10 mm/hr rainfall (i.e., high intensity local rainfall events); • >25 mm rainfall in a 24-hour period (heavy frontal rainfall lasting most of the day); or • >Half the monthly average rainfall in any 7 days.	
			Prior to works being suspended the following control measures will be completed: • All open excavations to be secured; • Temporary or emergency drainage to be provided to prevent back-up of surface runoff; and • Work during heavy rainfall and for up to 24 hours after heavy rainfall events to be suspended to ensure that drainage systems are not overloaded.	
			The management of peat stability will be ongoing throughout the construction and operational stages of the project and will be managed through the use of a geotechnical risk register.	
			A physical barrier will be implemented between the excavations and the potentially unstable material at unstable conditions, in the form of a granular berm or sheet piles. The long-term stability of the area around the wind turbine foundations will be achieved by filling the area back up to existing ground level following installation of the foundation.	
			A suitably qualified and experienced geotechnical engineer or engineering geologist will monitor excavation works. The earthworks will not be carried out during severe weather conditions.	
Hydrology and Hydrogeology (Water Quality Management)				
MM45	Surface Water Drainage	EIAR Chapter 9	The design of the proposed project includes a range of best practice measures including the use of bunding and Sustainable Drainage Systems (SuDS), and the implementation of a construction environmental management plan (CEMP) and a surface water management plan (SWMP) (Appendix 2.8 and 2-10 of the EIAR). Approaches to manage surface water that take account of water	As required through the Contractor's CEMP and the SWMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			quantity, water quality, biodiversity and amenity are collectively referred to as SuDS. The principal behind SuDS devices is to reduce the quantity of discharge from developments such as the proposed project to predevelopment flows and to improve the quality of run-off. The SuDS devices as part of the proposed project design mimic existing greenfield runoff in terms of volume, rate of runoff and quality of runoff. For the proposed project the quantity of run-off will be decreased to greenfield rates by providing SuDs methods such as surface water settlement ponds.	
MM46	Surface Water Quality	EIAR Chapter 9	The SWMP will be implemented by the appointed contractor and will be regularly audited throughout the construction phase. The Environmental Manager will be required to stop works on site if he/she is of the opinion that a mitigation measure or corrective action is not being appropriately or effectively implemented. No instream works are proposed on the Glenshelane River crossing. The proposed bridge span is 19 m and there are no works with 3.5 m from the banks of the Glenshelane River. The proposed bridge flow capacity is >20 m^3/s which is greater than the 1:100 year flow. Further details of the bridge crossing are provided on Drawing 10303-2024 of the EIAR.	It is recommended that local surface water features at the proposed wind farm site boundary are monitored pre-construction and during construction to take account of any variations in the quality of the local surface water environment as a result of activities related to the proposed wind farm site. A surface water management plan (SWMP) is included in Appendix 2-9 of the EIAR. The main water parameters in terms of their potential to cause damage to aquatic life, ecosystems, human health, and water quality in the receiving waters are outlined in the proposed surface water monitoring schedule. Inspections of silt traps are critical after prolonged or intense rainfall while maintenance will ensure maximum effectiveness of the proposed measures. Stockpiles will be evaluated and monitored and kept stable for safety and to minimise erosion. Turbidity monitors/alarms will be strategically placed upgradient on the Glenshelane River and downgradient of the works to assess the effects, if any, of the main construction works including bridge crossings and turbine base construction. Elevated turbidity could result from a number of on-site construction activities or from off-site sources i.e. erosion, forestry or agricultural activities. Where elevated turbidity is noted both upstream and downstream, visual checks will be undertaken. All
			Near-stream construction work will only be carried out during the period permitted by the IFI (2016) guidance document "Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites", that is, May to September inclusive. This time period coincides with the period of lowest expected rainfall and, therefore, minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses.	
			For the Glenshelane River crossing, any water in excavations will be pumped to lands that are >10 metres from any watercourse and discharged via a silt bag and overland flow to a discharge point. Silt fencing will be erected at the location of stream crossings. It is proposed to use triple silt fences (woven, high tensile strength heavy porous filter fabric) near the stream. The first silt fence will be installed by hand. Installing silt fencing requires proper placement based on the	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			contours, fencing without long runs, heavy porous filter fabric i.e. Terrastop™, posts with proper depth and spacing, and tight soil compaction on both sides of the silt fence.	monitoring equipment will be calibrated regularly to ensure that results are accurately measured. Corrective Actions would include: • Investigate whether channels used to convey water are protected with vegetation, erosion control blankets, or a similar erosion control measure. If not, implement appropriate erosion control measures. • Check all outlets and locations of turbidity monitors • Stop dewatering if the downgradient area shows elevated turbidity or erosion. . • Check outlet protection or a velocity dissipation device. • Ensure a stable, erosion-resistant surface (e.g., well-vegetated grassy areas, clean filter stone, geotextile underlay) in place at outlets. • Check for leaking pumps, hoses, and pipe connections and fix same if identified. A programme of inspection and maintenance will be designed, and dedicated construction personnel assigned to manage this programme. A checklist of the inspection and maintenance control measures will be developed, and records kept. During the construction phase, field testing, sampling and laboratory analysis of a range of parameters will be undertaken at adjacent watercourses, specifically following heavy rainfall events (i.e., weekly, monthly and event-based as appropriate). Monitoring and maintenance as required throughout the construction stage.
MM47	Forestry: Felling	EIAR Chapter 9	The Standards for Felling and Reforestation describe the universal standards that apply to all felling (thinning, clear felling) and reforestation projects on all sites. The standards will be implemented under a felling licence issued by the Department of Agriculture, Food & the Marine.	
			In accordance with the Forestry and Water Quality Guidelines (Forestry Service, 2000), buffer zones will be identified and marked out on the ground. These guidelines deal with sensitive areas, erosion, buffer zone guidelines for aquatic zones, ground preparation and drainage, chemicals, fuel and machine oils. Construction activities will be curtailed within the buffer zones in order to reduce erosion and sedimentation and, therefore, to protect surface water quality. Buffer zone widths vary from 10 m to 25 m, depending on slope and soil erosion classification. Details of buffer zones to be implemented during construction are included in Table 9-19 of the EIAR.	
			The slopes across the proposed wind farm site are predominantly moderate (<1:7) with steeper slopes to the southeast and northeast. As the soil type varies across the proposed wind farm site, in line with the Forestry Service Guidelines (2000) a 10 m to 20 m buffer zone is appropriate.	
			All associated tree felling will be undertaken using good working practices as outlined in the Forestry Report and the CEMP (Appendices 2-5 and 2-10 of this EIAR), the Forestry Harvesting and Environment Guidelines (Forestry Service, 2000) and the Forestry and Water Quality Guidelines (Forestry Service, 2000). Brash mats will be used to support harvesting and forwarding machinery. The brash mats reduce erosion of the surface and will be renewed as they become used and worn over time.	
MM48		EIAR Chapter 9	During any near stream construction work, silt traps and triple row silt fences will be placed immediately down-gradient of the construction	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
	Forestry: Silt fencing / sediment traps		area for the duration of the construction phase. Silt fencing is presented on Drawing 10303-2040 to 10303-2042 of the EIAR.	
			Typical sediment trap designs are illustrated in Section 9.5.1.1 of Chapter 9 of the EIAR and within the Forestry Schemes Manual, 2017. Sediment traps will require monitoring and maintenance throughout the construction stage. Sediment traps will be constructed and maintained in line with the requirements of the Forest Road Manual and Forest Drainage Engineering – A Design Manual (Forestry Schemes Manual, 2011).	
MM49	Forestry: Drainage	EIAR Chapter 9	With reference to the COFORD 2002 guidance , the following measures will be implemented in relation to the existing forest drainage: • Minimise the crossing of drains during felling and extraction and restrict machine activity to brashed extraction racks and forwarding routes; • Where a drain crossing is needed, based on the size of the forest drain one of the following methods will be selected that prevents the breakdown and erosion of drain sides, namely: o For larger drains, deploy a heavy-duty plastic culvert lengthways into the channel and cover with brash material. The culvert must be of a diameter approximating the depth of the drain, to avoid any unnecessary undulation along the extraction route. o Where required, a solution for smaller drains is to temporarily lay log sections lengthways into the channel and overlay with brash. Again, logs will be that approximate to the depth of the channel to be crossed.	
MM50	Forestry Aquatic Zones and Larger Relevant Watercourses	EIAR Chapter 9	Minimise the crossing of streams during felling and extraction by choosing alternative routes which avoid the watercourses/aquatic zones.	
			Direct crossing over the stream bed will not be permitted.	
			Water Features will be crossed at a right angle to the flow of water.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Any necessary crossing will be via an appropriate structure that spans proud of the flow of water and prevents the breakdown and erosion of the banks.	
MM51	Concrete Management	EIAR Chapter 9	Concrete is required for the construction of the turbine bases and foundations. Wash out of the main concrete mixing drum will not be permitted on site; wash out is restricted only to chute wash out. Wash down and washout of the concrete transporting vehicles will take place at an appropriate facility off-site. Cement and raw concrete will not be spilled into watercourses. Ready-mixed supply of wet concrete products and emplacement of pre-cast elements such as culverts and the clear span bridge across the Glenshelane River will take place. During the delivery of concrete on site, only the chute will be cleaned on-site. Chute cleaning will be undertaken at lined cement washout lagoons. The collected concrete washout water and solids will be emptied on a regular basis. Washout will be undertaken at the construction compounds. These lagoons will be cleaned out by a licensed waste contractor. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Weather forecasting will be used to plan dry days for pouring concrete. The pour site will be kept free of standing water and plastic covers will be ready in case of sudden rainfall event.	As required through the Contractor's CEMP.
MM52	Fuels & Chemicals	EIAR Chapter 9	With regards to on-site storage and handling of potentially pollutant materials: • All on-site refuelling will be carried out by a trained competent operative. • Mobile measures such as drip trays and fuel absorbent mats will be kept with all plant and bowsers and will be used as required during all refuelling operations; • A spill kit will be stored with the bowser and the person operating the bowser will be trained in its use; • All equipment and machinery will have regular checking for leakages and quality of performance and will carry spill kits;	As required through the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			• Any servicing of vehicles will be confined to designated and suitably protected areas such as construction compounds; and • Additional drip trays and spill kits will be kept available on site, to ensure that any spills from vehicles are contained and removed off site.	
MM53	Drainage Management	EIAR Chapter 9	Interceptor drains will be installed up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained.	As required through the Contractor's CEMP.
			Track edge drainage/swales will be implemented to control run-off from the running surface to lower water levels in the subgrade, to control surface water and to carry this flow to outlet points. Swales along access tracks will be installed in advance of the main construction phase.	
			Swales will provide additional storage of storm water, located along gradient. Given the steep longitudinal gradients on some sections of access track, regular check dams will be employed within the trackside swale on these sections to reduce the flow velocity and provide settlement opportunity. Swales will re-vegetated following excavation. Vegetation will reduce the flow velocity, treat potential pollutants, increase filtration and silt retention.	
			Settlement ponds will be located downstream of road swale sections and at hardstand locations, to manage/buffer volumes of runoff discharging from the drainage system during periods of high rainfall, thereby reducing the hydraulic loading to watercourses. Settlement ponds are designed in consideration of the greenfield runoff rates. The settlement pond design (Drawing 11303-2036 of the EIAR) is based on primary settling out of suspended solids from aqueous suspension. Settlement ponds will be installed alongside with the formation of the road and will be fenced off for safety. Only the proposed onsite access track will be used for project-related traffic.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
MM54	Borrow Pit reinstatement areas	EIAR Chapter 9	Excavated material will be reused on site. The stockpiling of materials will be carefully supervised as per the mitigation measures listed in Chapter 8 of the EIAR (Land, Soils and Geology). Surplus material and peaty soil/peat will be placed in the borrow areas.	As required by the Contractor's CEMP.
			The nature of the spoil deposition areas is an important measure in mitigating against suspended solids in run-off. The spoil deposition areas have the following characteristics; >50 m from rivers, no in situ peat, relatively flat (<3 degrees), and topographically constrained. This mitigates against potential stability issues. The drainage scheme for the spoil deposition area will be controlled through a series of proposed settlement ponds with the provision of an overflow.	
			Settlement ponds will be maintained over the course of the development and for a period until vegetation has stabilised.	
			The reinstated borrow pit will be allowed to naturalise and utilise the vegetative features to filter water on site. Revegetation of the spoil deposition areas will stabilise the surfaces. Based on the existing plant species, the vegetation will initially comprise predominantly rushes, grasses, sedges and bryophytes. These areas will reseed naturally utilising adjacent and local seed banks.	
MM55	Stream crossings / Proposed GCR and works areas on the proposed TDR	EIAR Chapter 9	Where stream crossings occur, it is proposed to use clear span bridges (i.e. Glenshelane River). For the Glenshelane River crossing, three lines of silt fence will be erected to provide a physical separation, which will trap suspended sediment from the works area (see Drawings 11303-2024, 11303-2040 to 11303-2042 of the EIAR). Silt fences will be inspected routinely and inspections will be increased after runoff events. A bottomless culvert/clear span bridge will be utilised on the smaller Boherawillin and Moneygorm east streams. Commercial forestry drains will be crossed using standard culverts.	As required by the Contractor's CEMP.
			Silt fencing will be erected at the location of stream crossings along the proposed GCR. Appropriate steps will be taken to prevent soil/dirt generated during the temporary upgrade works to the proposed TDR from being transported on the public road. Road sweeping vehicles will be used as required, to ensure that the public road network remains	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			free of soil/dirt from the location of the proposed TDR works when required. This will reduce the potential for sedimentation of surface watercourses locally.	
			Appropriate steps will be taken to prevent soil/dirt generated during the temporary upgrade works to the proposed TDR from being transported on the public road. Road sweeping vehicles will be used as required, to ensure that the public road network remains free of soil/dirt from the location of the proposed TDR works areas when required. This will reduce the potential for sedimentation of surface watercourses locally.	
			Further mitigation measures in relation to the proposed GCR route and road/junction accommodation works on the proposed TDR are outlined in the CEMP in Appendix 2.8 of the EIAR.	
MM56	Groundwater Quality	EIAR Chapter 9	During the construction phase, all works associated with the construction of the wind farm site will be undertaken in accordance with the guidance contained within CIRIA Document C741 'Environmental Good Practice on Site' (CIRIA, 2015). Groundwater pumped from excavations will be treated to remove silt by the use of silt bags. Water will discharge from the silt bags into settlement ponds and the SuDS network.	The dewatering operations will be inspected once each day when dewatering is taking place to ensure that dewatering treatment controls are working correctly and to evaluate whether there are observable indicators of sediment discharges. Where any issues are encountered, action will be undertaken to correct any problems at the proposed project or with the dewatering controls that may have contributed to the discharges. Regular monitoring of groundwater (levels and quality) will take place using existing monitoring boreholes during the construction phase. The existing groundwater well on site will be monitored on site during construction and for a period following cessation of construction activities (to be agreed with the relevant authorities).
			Groundwater encountered will be managed and treated in accordance with CIRIA C750, 'Groundwater control: design and practice' (CIRIA, 2016). Groundwater from the borrow pits will be treated in the settlement ponds, see Drawing 11303-2040 to 11303-2043 of the EIAR. An alternative supply to the onsite well will be provided in the event of a derogation of the water supply. A CEMP (Appendix 2.8 of the EIAR) was developed for the proposed project to ensure adequate protection of the water environment. All personnel working on the proposed project will be responsible for the environmental control of their work and will perform their duties in accordance with the requirements and procedures of the CEMP.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
Material Assets				
MM57	Telecommunications	EIAR Chapter 11	In the unlikely event that a communication underground cable or link is damaged or interfered with during construction, the operator will be contacted to agree a repair which will be carried out as soon as possible at the developers cost. In addition, the developer will sign an agreement with 2RN prior to construction to commit to restoring service to any end users that may have their service disrupted as a result of the proposed project. This is standard industry practice and will eliminate any potential effects in this regard.	As required by the Contractor's CEMP. As agreed with 2RN.
MM58	Waste Management (including wastewater)	EIAR Chapter 11	Segregation of waste will be carried out to maximise the potential for waste recycling and minimise potential effect on waste services. Suitably permitted commercial waste collectors will be employed to remove any waste arisings generated from construction to the nearest appropriately licensed waste management facilities within County Waterford.	As required by the Contractor's CEMP.
			Wastewater from the staff welfare facilities will be managed by means of a sealed storage tank, with all wastewater being tankered off-site occasionally (as required) by a permitted waste collector to a wastewater treatment plant. The permitted waste collector will also be responsible for ensuring clean water storage tanks are topped up. The proposed wastewater storage tank will be fitted with an automated alarm system that will provide sufficient notice that the tank requires emptying. It is proposed to use low volume flush toilets (such as those in commonly used port-a loos) and low volume sink faucets to significantly reduce the volume of waste water produced. In addition, the number of staff is likely to fluctuate rather than being constantly at 100 people per day, thereby reducing the volume of wastewater produced.	As required by the Contractor's CEMP.
Noise & Vibration				
MM59	Noise and Vibration	EIAR Chapter 12	The Contractor undertaking the construction works will be obliged to take specific noise abatement measures and comply with the recommendations of British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise and BS 5228-2:2009+A1:2014 Code of	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			practice for noise and vibration control on construction and open sites – Vibration. To ameliorate any potential noise impacts that may present during the construction phase, a schedule of noise and vibration control measures has been formulated in accordance with best practice guidance. These are outlined in the CEMP that has been prepared for the proposed project.	
MM60	Proposed GCR Construction Works	EIAR Chapter 12	In respect of the GCR construction, a temporary solid hoarding may be employed where there are NSL's within 25 m to the activity. This can be expected to reduce noise at the NSL by 5 - 10 dB. With this mitigation measure in place, noise levels at 20 m distance from construction activity are expected to be within the criterion for linear construction works in Section 12.2.2.1.1 of Chapter 12 of the EIAR. Additional or alternative mitigation measures include: • Monitoring typical levels of noise and vibration during critical periods and at sensitive locations; • Selection of plant with low inherent potential for generation of noise and/ or vibration, and; • Placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints. It is noted that the assessment presented in Section 12.5.2.5 of Chapter 12 of the EIAR is conservative, and the assessment has identified a potential exceedance of the noise criteria at two number NSL's with 25 m of the works. If the appointed contractor can demonstrate through onsite monitoring or other means that mitigation measures are not required to meet the relevant construction noise criteria, then works can proceed without specific mitigation measures in place.	As required by the Contractor's CEMP.
MM61	Blasting	EIAR Chapter 12	If blasting is undertaken as part of the proposed project, a detailed assessment will be undertaken by a specialist blast design engineer to determine the blast design parameters; all mitigation measures specified by the blast design engineer to keep vibration values within the criteria in Section 12.2.2.2 of Chapter 12 of the EIAR will be implemented.	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Air overpressure from a blast is difficult to control, however, because of its variability much can be done to reduce the effect. A reduction in the amount of primer cord used, together with the adequate burial of any that is above the ground, can give dramatic reduction to air overpressure intensities especially in the audible frequency range. Should complaints arise, they are likely to be received from an area downwind of the blast site, and therefore, blasting will be postponed during unfavourable weather conditions. Furthermore, as air blast intensity is a function of total charge weight, then a reduction in the total amount of explosives used can also reduce the air overpressure value.	
			Further guidance will be obtained from the recommendations contained within BS 5228: Part 1 and the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1988 in relation to blasting operations.	
			The methods used to minimise complaints could consist of some or all of the following: • Restriction of hours within which blasting can be conducted (e.g. 09:00 – 18:00 hrs). • Notification to nearby residents before blasting starts (e.g. 24-hour written notification). • The firing of blasts at similar times to reduce the 'startle' effect. • On-going circulars informing people of the progress of the works. • The implementation of an onsite documented complaints procedure. • The use of independent monitoring by external bodies for verification of results. • Trial blasts in less sensitive areas to assist in blast designs and identify potential zones of influence.	
Air Quality / Dust				
MM62	Dust Management Plan	EIAR Chapter 14	In order to minimise dust emissions during construction, a series of mitigation measures have been prepared in the form of an outline Dust Management Plan (Appendix 14.1 of the EIAR). The Dust Management	As required by the Dust Management Plan and the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Plan will be reviewed prior to the construction and decommissioning phase of the proposed project, it includes the following: • On-site access tracks and public roads in the vicinity of the site shall be regularly cleaned to remove mud, aggregates and debris and maintained when the daily inspections deem any trackout to public roads has occurred. All road sweepers shall be water assisted; • Any road that has the potential to give rise to fugitive dust shall be regularly watered, as appropriate, during dry and/or windy conditions; Public roads within 250 m of the site entrance/exit shall be regularly inspected for cleanliness and cleaned as necessary due to trackout from the proposed project; • In the event of dust nuisance occurring outside the site boundary, movement of materials will be immediately terminated, and satisfactory procedures implemented to rectify the problem before the resumption of operations; • During movement of materials both on and off-site, trucks carrying materials which have the potential to generate dust will be covered at all times. Before entrance onto public roads, trucks will be adequately inspected to ensure no potential for dust emissions; • Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods (as determined by the site environmental manager on site); and • The Dust Management Plan will be reviewed by the appointed contractor and client at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures. At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			satisfactory procedures implemented to rectify the problem before the resumption of construction operations.	
MM63	Climate Mitigation	EIAR Chapter 14	The IEMA GHG Management Hierarchy (IEMA 2020b) will be followed for impact minimisation. The Hierarchy is as follows: First eliminate: • Influence business decisions/use to prevent GHG emissions across the lifecycle; • Potential exists when organisations change, expand, rationalise or move business; • Transition to new business model, alternative operation or new product/service. Then reduce: • Real and relative (per unit) reductions in carbon and energy; • Efficiency in operations, processes, fleet and energy management; • Optimise approaches (e.g. technology) and digital as enablers. If you can't eliminate or reduce, then Substitute • Adopt renewables/low-carbon technologies (on site, transport etc.); • Reduce carbon (GHG) intensity of energy use and of energy purchased; • Purchase inputs and services with lower embodied/embedded emissions. The final option is to compensate: • Compensate 'unavoidable' residual emissions (removals, offsets etc.); • Investigate land management, value chain, asset sharing, carbon credits; • Support climate action and developing markets (beyond carbon neutral).	As required by the Contractor's CEMP.
MM64	Embodied carbon	EIAR Chapter 14	Embodied carbon of materials and construction activities will be the primary source of climate impacts during the construction phase. Measures to reduce the embodied carbon of the construction works will be implemented as follows:	As required by the Contractor's CEMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			• A construction programme will be created to allow for sufficient time to determine reuse and recycling opportunities; • Alignment with requirements under the Local and National Climate Action Plan; • The replacement, where feasible, of concrete containing Portland cement with a low carbon concrete as per the Climate Action Plan; • The IEMA mitigation hierarchy will be followed (see above); • A suitably competent contractor will be appointed who will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled; • Materials will be reused on site within the new build areas where possible; • Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods; • All plant and machinery will be well maintained and inspected regularly; • Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site; and • Sourcing materials locally where possible to reduce transport related CO2 emissions.	
MM65	Future climate change	EIAR Chapter 14	Measures (see Section 14.4.3.3 of Chapter 14 of the EIAR) have been incorporated into the design of the proposed project in order to mitigate against the impacts of future climate change. These measures have been considered when assessing the vulnerability of the proposed project to climate change but will be reviewed on a regular basis (every 5 years) to ensure they continue to be appropriate to mitigate the effects of climate change (see Section 14.4.3.3 of chapter 14 of the EIAR).	The vulnerability of the proposed project to climate change but will be reviewed on a regular basis (every 5 years) to ensure the measures incorporated in to the design continue to be appropriate to mitigate the effects of climate change (see Section 14.4.3.3 of chapter 14 of the EIAR).
Archaeology and Cultural Heritage				
MM66	Topsoil / Excavations	EIAR Chapter 15	All stripping of topsoil across the proposed project, including excavations as part of the proposed GCR within 40m of AH1 (ringfort) and AH2 and AH3 (church and graveyard), as part of watercourse crossings and road widening along the proposed TDR will be	A suitably qualified archaeologist will be appointed to monitor all stripping of topsoil across the proposed project, including excavations as part of the proposed GCR within 40m of AH1 (ringfort) and AH2 and AH3 (church

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			monitored by a suitably qualified archaeologist. Should any features of archaeological potential be discovered during the course of the works the DoHLGH will be informed immediately and archaeological excavation (preservation by record) or in-situ will be required. Preservation by record or in-situ will require approval from the DoHLGH, with all archaeological excavation carried out under licence from the National Monuments Service of the DoHLGH.	and graveyard), as part of watercourse crossings and road widening along the proposed TDR.
Traffic Management				
MM67	Construction Traffic	EIAR Chapter 16	To mitigate the effect of the construction traffic, the proposed project will utilise all available resources within the existing site to reduce the requirement for importation of materials to site. Excavation of stone material from the borrow pits within the proposed wind farm site to provide construction material will reduce the HGV volumes required.	As required through the TMP.
			The greatest traffic volume effect is associated with the haulage of the materials for the site compounds, site roads and turbine hardstands from July to September 2027. Key deliveries during this period are aggregate and stone which may be sourced from the borrow pits onsite. The internal access tracks have been designed to utilise existing forestry access tracks where feasible, reducing the volume of materials required for importation to the site.	
			The second greatest volume of traffic effect is associated with the concrete pours for the turbine foundations. The works at other areas within the proposed wind farm site will continue during these concrete pours, but only essential deliveries will be scheduled to occur on the same day as the concrete pours, and local authorities and the community will be informed in advance of the foundation pours.	
MM68	Traffic Management Plan (TMP)	EIAR Chapter 16	The Traffic Management Plan (TMP) is a comprehensive set of mitigation measures that will be implemented by the Contractor before and during the construction phase of the proposed project to minimise its effects. The purpose of the TMP is to capture the mitigation measures in this EIAR as discussed with Waterford County Council and Kilkenny County Council during scoping and any future traffic mitigation as they may arise during the proposed project. The TMP proposed for the proposed project is included in Appendix 16-1	As required through the TMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			of the EIAR. The following mitigation has been incorporated into the TMP:	
			Traffic movements will be limited to 07:00 - 19:00 Monday to Friday and 07:00 – 14:00 Saturday, unless otherwise agreed in writing with Waterford County Council.	
			HGV movements will be restricted during peak road network hours (including school hours) from 08:30 – 09:30 and 16:30 – 17:30 Monday to Friday, unless otherwise agreed in writing with Waterford County Council.	
			HGV movements for the proposed project shall be directed away from sensitive areas (i.e., schools, urban centres).	
			No parking shall be permitted along the access route for unloading or activities that result in blockages of access routes. Such vehicles will be immediately requested to move to avoid impeding the works and traffic on the road network.	
			Measures to remove queuing of construction traffic on the adjoining road network, including turning space and queuing of convoy HGVs will be provided within the sites.	
			Wheel wash equipment will be used on site to prevent mud and stones from being transferred from the site to the public road network.	
			Activities generating dust will be minimised where practical during windy conditions. Loads will be covered on arrival and departure from the site, where required.	
			Clear construction warning signs will be placed on the public road network to provide advance warning to road users of the presence of the construction site and slower-moving vehicles making turning manoeuvres.	
			Access to the construction site will be controlled by onsite personnel and all visitors will be asked to sign in and out of the site by security/site personnel, and site visitors will all receive a suitable Health and Safety site induction.	
			Security gates will be sufficiently set back from the public road, so that vehicles entering the site will stop well clear of the public road.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
MM69	TMP: Construction Practice	EIAR Chapter 16	Traffic Management Co-ordinator – a competent traffic management co-ordinator will be appointed for the duration of the proposed project and this person will be the main point of contact for all matters relating to traffic management.	As required through the TMP.
			Delivery Programme – a programme of deliveries will be submitted to Waterford County Council in advance of the delivery of the turbine components to the site.	
			Information to locals – residents in the area will be informed of any upcoming traffic related matters, e.g., temporary lane/road closures or any night deliveries of turbine components, via posters in public places. Information will include the contact details of the Applicant's representative, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided.	
			Pre and Post Construction Condition Survey – a pre-condition survey of roads on approach to the site will be carried out prior to construction commencement to record the condition of the road. A post construction survey will be carried out after the works are completed. The timing of these surveys will be agreed with Waterford County Council.	
			Liaison with Local Authorities – liaison with Waterford County Council and Kilkenny County Council, including the roads and transport section, through which the delivery route traverses, and An Garda Siochána, during the delivery phase of the AILs, wherein an escort for all convoys may be required.	
			Temporary Alterations – implementation of temporary alterations to road network at critical junctions.	
			Travel plan for construction workers – a travel plan for construction staff and sub-contractor construction staff.	
			Temporary traffic signs – As part of the traffic management measures, temporary traffic signs will be put in place.	
			TMOs will be present at site access point during peak delivery times under supervision of Co-Ordinator.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Delivery Times of Large Turbine Components – TMP will include the option to deliver the large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage.	
MM70	Traffic Effect	EIAR Chapter 16	To mitigate the effect of the construction traffic, the Traffic Management Plan in Appendix 16-1 will be implemented in full by the appointed Contractor. During the construction phase, all available resources within the existing site will be utilised to reduce the requirement for the importation of materials to the site. Excavation of stone material from two borrow pits within the proposed wind farm site to provide capping material will reduce the HGV volumes required.	As required through the TMP.
			In addition to the borrow pits, the internal access tracks have been designed to utilise existing forestry access tracks where feasible, reducing the volume of materials required for importation to the site.	
			The largest traffic volume is associated with the concrete pours for the turbine foundations. The works at other areas within the proposed wind farm site will continue during these concrete pours, but only essential deliveries will be scheduled to occur on the same days as the concrete pours. To mitigate this effect, liaison with local authorities and the community in advance of the foundation pours will occur.	
MM71	Junction Visibility	EIAR Chapter 16	Adequate visibility is available from the site access onto the Local Road L5055, of 4.5 m 'x- distance' and 'y-distance' of 160 m and, in three points where internal route cross local roads (i.e., local roads L5054, L5055 and L1026). On these three crossing points, adequate visibility is available of 4.5 m 'x- distance' setback from road and 'y-distance' of 55 m. Visibility sightlines are in accordance with Waterford City and County Development Plan and TII DN-GEO-03060 (May 2023).	As required through the TMP.
			Maintenance of the hedgerows within the visibility splays will be undertaken to maintain the required visibility splays and mitigate the potential for overgrown vegetation which may result in inadequate visibility at the access and crossing points during the construction activities, see Drawings No. 11303-2020 to 11303-2023.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Adequate visibility at the site accesses will mitigate the potential increased likelihood for collisions between construction generated traffic and existing road network traffic.	
MM72	Junction Swept Past Analysis	EIAR Chapter 16	In accordance with the TII DN-GEO-03060 (May 2023) swept path analysis has been undertaken at the site access for a worst-case construction vehicle (i.e., articulated truck with 16.5m long), in addition to those undertaken for the AIL as outlined in Table 16-8 of Chapter 16 of the EIAR. The swept path of the maximum legal articulated vehicle accessing/departing the site are available in Drawing No. 11303-2020.	As required through the TMP.
			The swept path analysis of the longest AIL, the turbine blade, were undertaken following identification of potential pinch points in the route assessment report as presented in drawings in Appendix 16-2 of the EIAR. The swept path analysis used an 81.5 m blade length which is the maximum blade length to be used in the proposed project, thus the worse-case scenario for this analysis.	
			The proposed site access design has been developed to take cognisance of the swept path of all vehicles arriving to and departing from the site. The gate has been positioned to allow for a large vehicle to wait clear of passing traffic on the L5055, to avoid potential collision between a passing vehicle and one stopped to open the gates at the site access.	
			At the approach to the site access, the internal access tracks are proposed at a widened width of 7.0 m, to accommodate safe clearance width between two large construction vehicles passing.	
MM73	Haul Routes	EIAR Chapter 16	Mitigation measures on the proposed haul roads: • Selection of a viable route with the lowest impact on the road network. • Avoidance where possible of sensitive receptors and urban settings: ○ The site access route encourages the use of the existing infrastructure in the area while avoiding the local road and potential sensitive receptors.	As required through the TMP.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			○ Proposed TDR along national roads with largest capacity to accommodate the vehicles. ○ The typical construction materials (i.e., gravel, aggregates, concrete, etc.) are obtained from borrow pits onsite and from local quarries in the proximity of site. ○ Restricting HGV movements during peak sensitive times on the road networks (i.e., at school times) • To mitigate the effect of the AIL delivery on the road network, the advanced works will be undertaken (i.e., hardstanding, making signs demountable, utility diversions etc). The hardstanding works areas will be temporary in nature and removed once the final turbine is delivered to site.	
			To mitigate potential effects of the AIL deliveries, these deliveries will be undertaken under Garda and traffic management escort during off-peak (i.e., night-time) hours. The arrangement of the appropriate abnormal load licences will be obtained by the appointed contractor in a timely fashion on procurement of the AIL. The appointed contractor will liaise with the relevant road's authorities and, An Garda Síochána on the delivery schedule for the AILs.	
MM74	Post-Construction Pavement Surveys	EIAR Chapter 16	The client will undertake post-construction visual pavement surveys on the construction material haul routes and proposed TDR. Where the surveys conclude that damage on the roadway is attributable to the Construction Phase of the proposed project, the Applicant will fund the appropriate reinstatement works to bring the road back to pre-construction condition, details for which will be agreed with the Roads Authorities.	Post-construction visual pavement surveys on the construction material haul routes and proposed TDR will be undertaken.
MM75	Project Delays	EIAR Chapter 16	All required road opening licences, agreements with the Local Authorities, and An Garda Síochána to facilitate the movement of AILs will be sought by the appointed Contractor in a timely manner to avoid delays to the proposed project.	As required through the TMP.
			A delay to the project construction programme will have a negative effect by increasing the duration of construction vehicles on the road network and potentially extending traffic management timeframes.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
MM76	Grid Connection Route	EIAR Chapter 16	The proposed GCR is from the proposed wind farm site to the existing substation near Dungarvan. To mitigate the effect on the road network, at the time of the construction work and in advance of the required Road Closure, the appointed Contractor will consult and comply with the Roads Authority, An Garda Síochána and other Emergency services to agree a suitable diversion route prior to implementing a Road Closure.	As required through the TMP.
			To mitigate the effect of the cable laid within the public road, the reinstatement works will be backfilled and reinstated as soon as practicable. The reinstatement works will be undertaken in accordance with the Guidelines for Managing Openings in Public Roads from the Department of Transport, Tourism and Sport (2017), also known as the "Purple Book". The proposed reinstatement and construction details and phasing will be agreed with associated Local Authorities in advance of the works. The Contractor will be responsible for arranging for the required road opening licences.	As required through the relevant agreements / permits and licences.
Operational Phase				
Description of Proposed Project				
MM77	Operational Health and Safety	EIAR Chapter 2	Access to the turbines is through a door at the base of the structure, which will be locked at all times outside maintenance visits.	As required through the Operational Management Plan / Health and Safety Plan.
			Signs will be erected at suitable locations across the site as required for the ease and safety of operation of the wind farm. Further details are provided in the CEMP (Appendix 2-8 of the EIAR).	As required through the Contractor's CEMP.
			The components of a wind turbine are anticipated to have a useful lifespan of 35 years or more and are equipped with a number of safety devices to ensure safe operation during their lifetime. During the operation of the wind farm regular maintenance of the turbines will be carried out by the turbine manufacturer or appointed service company. A project or task specific Health and Safety Plan will be developed for these works in accordance with the site's health and safety requirements.	As required through the Operational Management Plan / Health and Safety Plan.
Biodiversity Flora and Fauna				
MM78	Bats	EIAR Chapter 6	Various measures will be implemented which lower the risk of bat fatalities throughout the lifespan of the wind farm. Buffer zones	The baseline Bat survey will be updated in the first year of operation of the proposed wind farm.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			surrounding each turbine will dissuade woodland bats that depend on landscape features for guidance from flying near turbines. Two further methods are proven to reduce bat fatalities; feathering (reduced rotation speed when turbines are idling) and curtailment (keeping turbines turned off when conditions are good for bat activity). All turbines in the proposed wind farm will be feathered, while turbines 9, 10, 11, 12, 13 and 14, deemed high risk during the entire bat active season will be curtailed from April to September inclusive and turbines 1, 2, 4, 6, 7 and 8 will be curtailed from July to September.	In addition, monitoring will take place for three years after turbines have become operational, providing sufficient data to detect any significant change in bat activity relative to pre-construction levels. It will assess changes in Bat activity patterns and the efficacy of mitigation to inform any changes to curtailment. During years one to three of operation (under blanket curtailment restrictions) bat activity will be measured at each turbine location (1 to 15), in combination with carcass surveys. Systematic searches for carcasses on the ground below wind turbines (focusing on the hard standing) will be undertaken. The searches will be undertaken by appropriately trained ecologist(s). In addition, wind speed and temperature data will be continuously recorded at the nacelle height of each turbine. Modern remotely-operated wind turbines as proposed here allow cut-in speeds to be controlled centrally/automatically, facilitating an operation regime designed to minimise harmful impacts to Bats.
MM79	Bats: Feathering of turbine blades	EIAR Chapter 6	Turbines will operate in a manner which restricts the rotation of the blades as far as is practicably possible below the manufacturer's specified cut-in speed. This is achieved by feathering the blades during low wind speeds; the angle of the blades is rotated to present the slimmest profile possible towards the wind, ensuring they do not rotate or 'idle' when not generating power. Automatic 'feathering' of idling blades will be implemented (through Supervisory Control and Data Acquisitions [SCADA]) to reduce rotation speed of blades to below 1 RPM while idling (as recommended in Mathews, [2016]). Turbine blades spinning in low wind can kill bats, however bats cannot be killed by feathered blades which are not spinning (Horn et al., 2008). The feathering of turbine blades combined with increased cut-in speeds have been shown to reduce bat fatalities from 30% to 90% (NIEA, 2021; SNH, 2021; Wellig S.D., 2018; Rydell J., 2010; Arnett, 2011 and	As required through the curtailment monitoring schedule.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			Baerwald, 2009). As such, the feathering of blades to prevent 'idling' during low wind speeds is a requirement for all turbines and will be implemented.	
MM80	Bats: Cut-in speeds/ Curtailment	EIAR Chapter 6	Increasing the cut-in speed above that set by the manufacturer can reduce the potential for bat/turbine collisions. A study by Arnett et al., (2011) showed a 50% decrease in bat fatality can be achieved by increasing the cut-in speed by 1.5m/s. The feathering of turbine blades combined with increased cut-in speeds has been shown to reduce bat fatalities from 30% to 90% (Adams et al., 2021, Arnett et al., 2008, 2011, 2013; Baerwald et al., 2009). The most recent of studies showed a 63% decrease in fatalities (Adams et al., 2021). Species with elevated risk of collision (Leisler's bat, Soprano and Common Pipistrelle) in particular would benefit from increasing the cut-in speed of turbines, as dictated on a case-by case basis depending on the activity levels recorded at each turbine (see Table 6 12). Increased cut-in speeds will be implemented from commencement of operation. Cut-in speeds will be increased during the bat activity season (April-September) where weather conditions are optimal for bat activity (see below) from 30 minutes prior to sunset and to 30 minutes after sunrise at turbines 9, 10, 11, 12, 13 and14. In addition, turbines 1, 2, 4, 6, 7 and 8 will be curtailed under the same parameters from July to September inclusive. No curtailment is currently necessary for turbines 3, 5 and 15. Cut-in speeds restrictions will be operated according to specific weather conditions: • When the air temperature is above a 10.0°C at nacelle height. • Wind speeds below 5.0m/s (at nacelle height).	If, following the initial three years of post-construction surveys, Bat activity increases above the baseline and/or remains consistently high and carcass searches indicate fatalities are occurring (refer below), increased cut-in speeds will continue. This will subsequently be monitored in years 5, 7, 10, 15, 20, 25 and 30 with further review after each monitoring period. Alternatively, if it is found that the results of Bat activity surveys and fatality searches confirm that the level of Bat activity at turbine locations is low then consent will be sought from Waterford County Council (in consultation with NPWS) for the cessation in the requirement for these cut-in speeds / curtailment measures, or a reduction on the timing restrictions for these measures. Where post construction acoustic surveys are undertaken, they will utilise full spectrum automatic detectors deployed, as a minimum, for one complete Bat activity season. An assessment of static data gathered during operational surveillance will be completed using the online analysis tool Ecobat as recommended by SNH (2021) as a minimum, or other equivalent guidance as dictated by up-to date standards and practices.
MM81	Bats: Alternative smart curtailment option	EIAR Chapter 6	Due to the considerable unnecessary down time resulting from the proposed 'blanket curtailment' (above) and the advances in smart curtailment a focused curtailment regime could replace the proposed blanket curtailment outlined above once case studies have been published demonstrating its effectiveness at avoiding bat collisions.	Although curtailment is a mitigation proven to lower bat fatalities it is recommended that the scheme be monitored for bat fatalities for the first three years of operation (post construction surveys) and subsequently in years 5, 7, 10, 15, 20, 25 and 30 as part of the additional curtailment monitoring schedule. A

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			This would focus on times and dates, corresponding with periods when the highest level of bat activity occurs within the site. This includes the use of the SCADA operating system (or equivalent) to only pause/feather the blades below a specified wind speed and above a specified temperature within specified time periods. Post-constructions surveys will be undertaken for three years of operation to confirm if blanket curtailment restrictions can be amended in line with post-construction activity levels. The post construction surveys will be used to update the current curtailment regime (blanket curtailment) designed around the values for the key weather parameters and other factors that are known to influence collision risk. This will include all of the following: • Wind speed in m/s (measured at nacelle height) • Time after sunset • Month of the year • Temperature (°C) • Precipitation (mm/hr)	comprehensive onsite fatality monitoring programme is to be undertaken following published best practice (e.g. SNH 2021 or equivalent at the time of operation). Turbines 10, 13 and 14 will be included in all searches (highest recorded Bat activity). a) Carcass removal trials to establish levels of predator removal of possible fatalities. This will be done following best recommended practice and with due cognisance of published effects such as predator swamping, whereby excessive placement of carcasses increases predator presence and consequently skews results. At the time of writing (2024), predation trials set using trail cameras following guidance set out in (Smallwood, 2010) provides the most accurate results; b) Turbine searches for fatalities will be undertaken with the use of conservation dogs following best practice in terms of search area (minimum radius hub height) and at intervals selected to effectively sample fatality rates as determined by carcass removal trials in. At the time of writing (2024), the typical search area surrounding the turbine bases follow (Edkins, 2014) Impacts Of Wind Energy Developments On Birds And Bats: Looking Into The Problem, who recommends the ''search width should be equal to the maximum rotor tip height'', e.g. turbines at proposed project have a max tip height of 185m thus the spread of searched area, as a rectangle, square or circle, should be 92.5 m in either direction form the turbine base; c) Search intervals will follow SNH (2021) guidance; d) Recorded fatalities will be calibrated against known predator removal rates to provide an estimate of overall fatality rates; e) Monitoring report to be submitted annually to Waterford County Council and the NPWS.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
MM82	Bats: Buffer zones	EIAR Chapter 6	The vegetation-free buffer zones around the identified turbines will be managed and maintained during the operational life of the development. Annual inspections of each buffer zone will be carried out and any regenerating trees or tall shrubs above 1m will be cut back. These buffer zones will be maintained as bog / heath type vegetation dominated by low-growing dwarf shrubs and grasses.	Annual inspections of each buffer zone will be carried out.
Ornithology				
MM83	Mitigation of replacement of turbine blades	EIAR Chapter 7	If replacement of turbine blades is required during the operational phase, the following mitigation protocol will be followed to prevent disturbance to sensitive species: 1) If the work will take place during the Hen Harrier breeding season (April-August), the proposed works will be reviewed by a competent ecologist to assess whether there is potential for disturbance impacts to occupied Hen Harrier nest sites. If the available information is inconclusive, Hen Harrier surveys will be carried out. 2) If the work will take place during the Snipe breeding season (April-July), surveys will be carried out of the 500 m buffer around the turbine location to locate any Snipe breeding territories. 3) If active Hen Harrier nest sites, or occupied Snipe breeding territories are present within the relevant buffer distances (1 km for Hen Harrier and 500 m for Snipe), no work will take place until the birds have completed breeding.	As required by the Operation Management Plan for the wind farm.
Lands Soils and Geology				
MM84	Contamination Management	EIAR Chapter 8	Oil containing components of the wind turbines will be periodically refurbished and replaced. Fuel and oil storage and handling requirements will be as detailed for construction, with permanent fuel and oil storage located within permanent covered bunds. Electrical apparatus, such as transformers, will be required within the substations. All such oil containing electrical apparatus will be placed within permanent concrete bunds that will have been constructed and tested to provide containment. Each bund will be sized to hold 110 % of the oil volume within the respective electrical	As required by the Operation Management Plan for the wind farm

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			apparatus enclosed. The bunds will be bunded and alarmed to allow for the regular removal of clean rainwater by means of a pump. In the event of a spill, the liquid contained in the bund will be removed by liquid waste tanker, as will be the contents of the surface water drainage system and oil interceptor.	
			Surface water discharges from permanent storage areas and substation bunds will be to surface water via an oil interceptor. The oil interceptors at the proposed project will be subject to a regular inspection and de-sludging to ensure that they retain full operational efficiency.	
			Site operatives will receive appropriate training and materials will be available on site to immediately respond to any fuel or oil spill.	
			Welfare facilities will be provided at the substation location. These welfare facilities will produce foul effluent and these effluents will be stored in a holding tank prior to removal to an approved treatment facility.	
MM85	Geohazard /Peat and Soil stability	EIAR Chapter 8	Communication of residual peat risk to appropriate site operatives. Ongoing monitoring of residual risks and maintenance if required.	As required by the Operation Management Plan for the wind farm. Monitoring will consist of regular inspection of drains to prevent blockages and inspections of specific areas after a significant rainfall events.
Hydrology and Hydrogeology – Water				
MM86	Alteration of Surface Water Quality	EIAR Chapter 9	No additional mitigation over and above that stated in Chapter 2 of the EIAR is required during the operational phase.	As required by the Operation Management Plan for the wind farm.
MM87	Alteration of Surface Water Flow	EIAR Chapter 9	Design measures outlined in Section 9.5.1 of Chapter 9 of the EIAR will be protective of surface water flow.	
MM88	Alteration of Groundwater Flow	EIAR Chapter 9	Design measures outlined in Section 9.5.1 of Chapter 9 of the EIAR will be protective of ground water flow.	
MM89	Alteration of Groundwater Quality	EIAR Chapter 9	Design measures outlined in Section 9.5.1 of Chapter 9 of the EIAR will be protective of ground water quality.	

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
Shadow Flicker				
MM90	Turbine Shutdown	EIAR Chapter 10	The Applicant has committed to having near zero shadow flicker at any occupied dwelling house within 1.63km (ten rotor diameters) of the proposed turbine locations. There may be a very brief time where a shadow moves over a property in the time it takes for the proposed turbine rotor to come to a safe stop, between 1 and 2 minutes. This will depend on the reaction time of the shadow flicker control modules and the particular proposed turbine type, however this is considered a negligible effect as it would likely take at most 1-2 minutes to stop. In the interest of transparency, it has been called "near zero shadow flicker" in the EIAR to account for this fact that it will never be possible to entirely eliminate it.	A process will be established by the wind farm operator whereby local residents can highlight any concerns or complaints about the operation of the scheme. All concerns raised will be investigated by the wind farm operator and the turbine shutdown software adjusted accordingly, as required.
			Due to the potential for shadow flicker to affect receptors within the shadow flicker study area, it is proposed that a shadow control system will be installed on each of the wind turbines that have the potential to cause shadow flicker for sensitive receptors. The control system will detect and calculate, in real-time: • Whether shadow flicker has the potential to affect nearby properties, based on pre-programmed co-ordinates for the properties and turbines outlined in this assessment; • Wind speed (can effect how fast the proposed turbine will turn and how quickly the flicker will occur); • Wind direction; • The intensity of the sunlight. When the sunlight is strong enough to cast a shadow, and the shadow falls on a property or properties, then the proposed turbine will automatically shut down; and will restart when the potential for shadow flicker ceases at the affected properties.	Monitoring of shadow flicker will be undertaken by a shadow control system installed on each of the wind turbines.
			A Turbine Shutdown Scheme will be the primary mitigation measure for shadow flicker effect and will be implemented for the proposed project based on the predicted shadow flicker at each shadow flicker receptor. The Turbine Shutdown Scheme will be employed to ensure that shadow flicker does not occur at the affected property(s). A process will be established by the proposed	As required through the Turbine Shutdown Scheme.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			wind farm operator whereby local residents can highlight any concerns or complaints about the operation of the scheme. All concerns raised will be investigated by the proposed wind farm operator and the turbine shutdown software adjusted accordingly, to ensure that the turbines shut down at the appropriate time. After adjustments are made to the software, the flicker occurrence will be monitored where the residents still report flicker occurrence. This will determine any further adjustments that might be required to the shutdown times for any given turbine.	
			During the commissioning phase, there is potential for some shadow flicker to be experienced as the shadow flicker management software is installed and refined. However, the commissioning team will ensure that the maximum daily limit of 30 minutes per day is not exceeded during this temporary commissioning period, which will last approximately 12 weeks.	Monitoring of shadow flicker will be undertaken by a commissioning team during the temporary commissioning period, which will last approximately 12 weeks.
MM91	Screening Measures	EIAR Chapter 10	If there is sufficient existing screening at a shadow flicker receptor, the Turbine Shutdown Scheme may not be necessary for that receptor. The Applicant will engage with any affected residents to investigate options for new or additional screening measures (, such as planting vegetation to act as a screen or installation of suitable window blinds in the affected rooms of the residence) where appropriate and agreeable to the affected residents. If screening is not acceptable and/or will not be effective the Turbine Shutdown Scheme as set out in Section 10.5.1 of Chapter 10 of the EIAR will be implemented to ensure 'near zero shadow flicker'. Where agreed screening measures are implemented, the effectiveness of the measures will be monitored and if the measures are not functioning to the satisfaction of the property owner/occupant, they will be included in the Turbine Shutdown Scheme as set out in Section 10.5.1 of Chapter 10 of the EIAR.	As required through the Turbine Shutdown Scheme.
Material Assets				
MM92	Aviation	EIAR Chapter 11	The Applicant will, as requested by the IAA, agree an aeronautical warning light scheme, provide the as-constructed coordinates of the turbines and give 30 days' notice before any crane operations	To be agreed with the relevant stakeholders.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			commence as requested. This was described in a consultation response from the IAA in February 2023 (see Appendix 1-4 of the EIAR). The details for this lighting will be agreed with the IAA and will be applied to the appropriate turbines and met mast. This will ensure the required visibility of the proposed project to any local aircraft. The final locations and dimensions of each turbine will be mapped and provided to Waterford County Council and stakeholders (including the IAA, Waterford Airport and Cork Airport) prior to erection to ensure that maps and databases are up-to-date for flight navigation.	
MM93	Telecommunications	EIAR Chapter 11	The proposed project is not anticipated to have any effect on any telecommunication links in the region due to the distance between the existing links and the proposed turbine locations. The applicant will sign an agreement with 2RN (who run Ireland's principal digital terrestrial television and radio broadcast networks) prior to commencement of construction to commit to restoring service to any end users that may have their service disrupted as a result of the proposed project. This is standard industry practice and will eliminate any potential effects in this regard.	To be agreed with the relevant stakeholders.
MM94	Waste management	EIAR Chapter 11	Segregation of waste will be carried out during operation of the proposed wind farm site to maximise the potential for waste recycling and minimise any potential for effects on waste services. A licensed waste collector will be used to remove any waste that does occur as part of the operation of the proposed wind farm site. A low-flush cistern will be fitted to reduce the volume of wastewater produced and a rainwater harvesting system will be used as the source of water for this and hand-washing basin, with all potable water being brought onsite in bottles.	As required by the Operation Management Plan for the wind farm.
Noise and Vibration				
MM95	Noise and Vibration	EIAR Chapter 12	If alternative turbine models within the proposed specifications are considered for the proposed project, an updated noise assessment will be prepared to confirm that the noise emissions will comply with the noise criteria as per best practice guidance outlined in Section 12.4.2 of Chapter 12 of the EIAR and/or the relevant	Commissioning noise surveys will be undertaken to ensure compliance with any noise conditions applied to the development. It is common practice to commence surveys within six months of a proposed wind farm being commissioned. If an exceedance of the noise

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			operational criteria associated with the grant of planning for existing/permitted developments. A suitable curtailment strategy will be designed and implemented for alternative technologies to ensure compliance with the relevant noise criteria, should detailed assessment conclude that this is necessary.	criteria is identified as part of the commissioning assessment, the guidance outlined in the IOA GPG and Supplementary Guidance Note 5: Post Completion Measurements (July 2014) will be followed, and relevant corrective actions taken. For example, implementation of noise reduced operational modes resulting in curtailment of turbine operation can be implemented for specific turbines in specific wind conditions to ensure turbine noise levels are within the relevant noise criterion curves/planning conditions limits. Such curtailment can be applied using the wind farm SCADA system without undue effect on the wind turbine performance. Following implementation of these measures, noise surveys will be repeated to confirm compliance with the noise criteria.
MM96	Amplitude Modulation	EIAR Chapter 12	In the event of a complaint that indicates potential amplitude modulation (AM) associated with turbine operation, the operator will employ a qualified acoustic consultant to assess the level of AM in accordance with the methods outlined in the Institute of Acoustics (IOA) Noise working Group (Wind Turbine Noise) Amplitude Modulation Working Group (AMWG) namely, Institute of Acoustics IOA Noise Working Group (Wind Turbine Noise) Amplitude Modulation Working Group Final Report: A Method for Rating Amplitude Modulation in Wind Turbine Noise (9 August 2016) or subsequent revisions. The measurement method outlined in the IOA AMWG document, known as the 'Reference Method', will provide a robust and reliable indicator of AM and yield important information on the frequency and duration of occurrence, which can be used to evaluate different operational conditions including mitigation. These mitigation measures, if required, will consist of the implementation of operational controls for the relevant turbine type, which may include curtailment of turbines under specific operational conditions.	
Traffic and Transport				
MM97	Operational Traffic	EIAR Chapter 16	In the event that a turbine requires replacing in the future, the proposed TDR at the construction phase will be considered, and the swept path analysis will take into account any road improvements and changes to the network.	As required by the Operation Management Plan for the wind farm.
Decommissioning Phase				
Description of Proposed Project				
MM98	Decommissioning Plan	EIAR Chapter 2	A detailed decommissioning plan will be agreed in advance of works taking place with Waterford City and County Council. A	As required by the agreed Decommissioning Plan.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			decommissioning plan is contained within the CEMP (Appendix 2-8 of the EIAR).	
MM99	Protection of water quality / Prevention of pollution	EIAR Chapter 2	The protection of water quality and prevention of pollution events requires a sustained and concentrated input from the Contractor with regard to the provision and maintenance of sediment control structures. The drainage system is described in further detail in Chapter 9 of this EIAR (Hydrology & Hydrogeology) and the SWMP.	As required by the agreed Decommissioning Plan.
Population and Human Health				
MM100	Decommissioning Activities		The same mitigation as the construction phase is proposed for the decommissioning phase in respect of effects on land use, population, sensitive receptors and residential amenity property value, employment/economy, tourism and human health, (for information regarding decommissioning refer to Chapter 2, Section 2.) This is because many of the same effects will occur during this phase, but to a much lesser extent.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Biodiversity Flora and Fauna				
MM101	Decommissioning activities	EIAR Chapter 6	The same mitigation measures implemented during the construction phase (see Section 6.8.1 of Chapter 6 of the EIAR), will be applied during the decommissioning works.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Lands Soils and Geology				
MM102	Fuel management	EIAR Chapter 8	A fuel management plan to avoid contamination by fuel leakage during decommissioning works will be implemented as per the construction phase mitigation measures.	As required by the fuel management plan agreed at the time of decommissioning.
MM103	Decommissioning activities	EIAR Chapter 8	Mitigation measures for decommissioning would conform to those given for construction (section 8.6.1 of Chapter 8 of the EIAR) and would be anticipated to be fully protective of the environment.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Hydrology and Hydrogeology – Water				
MM104	Decommissioning activities	EIAR Chapter 9	The mitigation measures for the construction phase (section 9.5.1 of Chapter 9 of the EIAR) will also be implemented during decommissioning.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
MM105	Alteration of Surface Water Quality	EIAR Chapter 9	Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant. Some of the significant potential effects will be avoided by leaving elements of the proposed wind farm site in place.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			The hydrocarbon interceptor will be in place at the proposed substation site with regular inspection and maintenance, to ensure optimal performance. Given the requirement for sanitary facilities during decommissioning works, wastewater effluent will continue to be directed to the on-site holding tank, from where it will be tankered off-site to a suitably licensed wastewater treatment plant. The decommissioning phase will not require any significant works that will potentially affect the drainage network. A fuel management plan to avoid contamination by fuel leakage during decommissioning works will be implemented as per the construction phase mitigation measures. Mitigation measures to avoid contamination by accidental fuel leakage and compaction of soil by on-site plant will be implemented as per the construction phase mitigation measures in Section 9.5.2 of Chapter 9 of the EIAR.	
MM106	Alteration of Surface Water Flow	EIAR Chapter 9	Measures outlined in Section 9.5.1 of Chapter 9 of the EIAR will be protective of surface water flow. SuDS measures will remain in place during the decommissioning period.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
MM107	Alteration of Groundwater Quality	EIAR Chapter 9	Measures outlined in Section 9.5.1 of Chapter 9 of the EIAR will be protective of ground water quality.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Material Assets				
MM108	Waste management	EIAR Chapter 11	Segregation of waste will be carried out during operation of the proposed wind farm site to maximise the potential for waste recycling and minimise potential effects on waste management infrastructure. Appropriately permitted waste collectors will be employed to remove any municipal waste, wastewater, or demolition waste generated within the wind farm site. The majority of wastes from decommissioned infrastructure will be recyclable, and the large items (turbines, met mast) will be collected and processed by	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			appropriately licensed specialist companies with the capability to process these items correctly.	
Noise and Vibration				
MM109	Noise and Vibration	EIAR Chapter 12	In relation to the decommissioning phase, similar overall noise levels as those calculated for the construction phase would be expected, as similar tools and equipment will be used. The noise and vibration impacts associated with any decommissioning of the proposed project can be considered to be comparable to those outlined in relation to the construction phase (as per Section 12.5.2 of Chapter 12 of the EIAR), albeit less works will be required as only above ground structures will be removed. Turbine and mast foundations would remain underground and cable ducting will remain in situ. The GCR, underground cabling and on-site substation will remain in place. Refer to Chapter 2 of the EIAR for full details.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Air Quality and Climate				
MM110	Air Quality: Decommissioning activities	EIAR Chapter 14	Mitigation measures as per Section 14.5.1.1 will be put in place for the decommissioning phase. At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of decommissioning operations.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
MM111	Climate: Decommissioning activities	EIAR Chapter 14	A detailed decommissioning plan will be agreed in advance of works taking place with Waterford City and County Council. This plan will include mitigation measures as per Section 14.5.1.1 and 14.5.1.2 of Chapter 14 of the EIAR, including the IEMA GHG Management Hierarchy (IEMA 2020b) will be followed for impact minimisation for the decommissioning phase.	As required by the agreed decommissioning plan / mitigation measures agreed at the time of decommissioning.
Traffic and Transport				
MM112	Decommissioning Activities and Traffic	EIAR Chapter 16	Before the decommissioning of the proposed project, a detailed decommissioning plan will be prepared and implemented to minimise the effects during this phase. The decommissioning phase will employ similar mitigation measures as the construction phase.	As required by the agreed decommissioning plan and TMP / mitigation measures agreed at the time of decommissioning.

Ref No.	Related to	Location	Mitigation Measure	Monitoring Requirements
			As the decommissioning phase is envisaged to be over 35 years from now, a detailed TMP will be undertaken and will consider any road improvements and changes to the network. The plan will also consider the future baseline traffic in order to minimise the decommissioning phase effects in the vicinity. The turbine components will be separated and removed in manageable sizes. The reduced blade section lengths, tower sections, and nacelle will be transported by HGVs. This will reduce the impact on third-party lands and existing road infrastructure. As previously mentioned, the large volume of aggregate and concrete imported will remain onsite. The principal expected volumes of traffic will be primarily associated with the transportation off-site of turbine components and a significantly reduced volume of materials.	

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