Table of Contents

TABLE OF TABLES

16. SCHEDULE OF MITIGATION

16.1 Introduction

All mitigation measures relating to the pre-commencement, construction and operational phases of the Proposed Development are set out in the relevant chapters of the EIAR submitted as part of the planning permission application.

It is intended that the CEMP will be updated where required prior to the commencement of the development, to include all mitigations measures, conditions and or alterations to the EIAR and application documents should they emerge during the course of the planning process and would be submitted to the Planning Authority for written approval.

All mitigation measures which will be implemented during the pre-commencement, construction and operational phases of the project are outlined in Table 16-1. The mitigation measures have been grouped together according to their environmental field/topic and are presented under the following headings:

- Construction Management
- Drainage Design and Maintenance
- Felling
- Peat, subsoils and bedrock
- Flora and Fauna
- Noise and Vibration
- Air Quality/Dust
- Landscape and Visual
- Cultural Heritage
- Traffic

The mitigation proposals in the below format provides an easy to audit list that can be reviewed and reported on during the future phases of the project. The proposal for site inspections and environmental audits are set out in the Construction and Environmental Management Plan (CEMP) which is included as Appendix 4-3 of this EIAR. The tabular format in which the below information is presented, can be further expanded upon during the course of future project phases to provide a reporting template for site compliance audits.

Table 16-1 All proposed Mitigation Measures for Curraglass Renewable Energy Development

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase					
MM1	Environmental Management	EIAR Section 4	All proposed site activities will be provided for in a Construction Environmental Management Plan (CEMP), prepared prior to the commencement of any operations onsite. The CEMP will set out all measures necessary to ensure works are carried out in accordance with the mitigation measures set out in the EIS/EIAR and will set out the monitoring and inspections procedures and frequencies.		
MM2	Environmental Management	EIAR Section 4	The Environmental Clerk of Works (ECoW) will maintain responsibility for monitoring the works and Contractors/Sub-contractors from an environmental perspective. In addition, a Project Ecologist, Project Hydrologist, Project Archaeologist, Project Geotechnical Engineer will visit the site regularly and report to the Site Environmental Office.		
MM3	Environmental Management	CEMP Section 4	A Site ECoW will oversee the site works and implementation of the Construction Environmental Management Plan (CEMP), and provide on-site advice on the mitigation measures necessary as necessary to ensure the project proceeds as intended. The level, detail and frequency of reporting expected from the ECoW for the Construction Manager, developer's project manager, and any Authorities or other Agencies, will be agreed by parties where required prior to commencement of construction, and may be further adjusted as required during the course of the project.		
MM4	Environmental Management	EIAR Section 7	A Project Ecologist will be appointed. Duties will include: › Undertake a pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided. › Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Proposed Development site. › Oversee management of ornithological and ecological issues during the construction period and advise on ornithological issues as they arise › Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. › Liaise with officers of consenting authorities and other relevant bodies where required with regular updates in relation to construction progress.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM5	Concrete Deliveries	EIAR Section 4	The arrangements for concrete deliveries to the site will be discussed with suppliers before work starts, agreeing routes, prohibiting on-site washout of trucks and discussing emergency procedures.		
MM6	Wastewater Management	CEMP Section 4	All wastewater from the staff welfare facilities in the control buildings will pass to a sealed storage tank. The wastewater will be transported off site by a waste management contractor holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007 (as amended)		
MM7	Site Drainage Plan	CEMP Section 4	The Project Hydrologist/Design Engineer will assist in preparing a site drainage plan before construction commences.		
MM8	Preparative Site Drainage Management,	CEMP Section 4	All materials and equipment necessary to implement the drainage mitigation measures will be brought on-site in advance of any works commencing. The drainage measures outlined in the EIAR will be installed prior to, or at the same time as the works they are intended to drain. An adequate amount of clean stone, silt fencing, stakes, etc. will be kept on site at all times to implement the drainage design measures as necessary.		
MM9	Pre-emptive site drainage management	CEMP Section 4	The works programme for the groundworks part of the construction phase of the project will also take account of weather forecasts and predicted rainfall in particular.		
MM10	Drainage Inspection	CEMP Section 3	Prior to commencement of works in sub-catchments across the site main drain inspections will be competed to ensure ditches and streams are free from debris and blockages that may impede drainage.		
MM11	Drainage Maintenance	CEMP Section 4	An inspection and maintenance plan for the drainage system on site will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be necessary, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water at parts of the systems where it is not intended. The inspection of the drainage system will be the responsibility of the site ECoW or the supervising hydrologist.		
MM12	Earthworks	CEMP Section 3	Drainage and associated pollution control measures will be implemented onsite before the main construction works commence. Where possible drainage controls will be installed during seasonally dry ground conditions. This will reduce the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			possibility of impact on surface waters by suspended sediment released during construction and entrained in surface run-off.		
MM13	Earthworks	EIAR Section 9 NIS Section 5	A 50-metre buffer zone will be maintained around hydrological features and 10m to main drains during the windfarm construction. With the exception of road crossings of streams and associated culvert construction, no development infrastructure, vehicle or plant movement, construction activity or stock-piling of construction materials or construction waste will take place within this zone, and no vegetation will be removed from within this zone.		
MM14	Felling/Site Clearance	EIAR Section 6, 7	The removal of woody vegetation will be undertaken in full compliance with Section 40 of the Wildlife Act 1976 – 2018. Where sections of woody vegetation are removed for the purposes of the junction and road upgrades, these will be replaced with suitable hedge/tree species which are common in the local context		
MM15	Felling	EIAR Section 4	Construction will not commence during the Breeding Bird season from March to August inclusive. If breeding activity is identified, the nest site will be located, and no works shall be undertaken within a 500m buffer (Forestry Commission Scotland 2006; Ruddock & Whitfield 2007). No works shall be permitted within the buffer until it can be demonstrated that the nest is no longer occupied.		
MM16	Archaeology	EIAR Section 13	Establish a 30m Buffer Zone around recorded hut site east of Turbine no. 2 to be directed by an archaeologist prior to construction. Keep out fencing and signage should be utilised		
MM17	Mammal Survey	EIAR Section 6	A pre-construction mammal survey will be undertaken to identify any Otter holts or Badger setts within the works areas associated with the proposed development. The survey will be undertaken to ensure that Otter or Badger have not taken up residence within or close to the development footprint	As Required	Once
MM18	Archaeological Monitoring	EIAR Section 13	Archaeological monitoring (under licence from the National Monuments Service) of any further geotechnical / engineering trial pits or investigations and a report detailing the results of same.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Construction Phase					
Construction Management					
MM19	Health and Safety	CEMP Section 4	During construction of the proposed development, all staff will be made aware of and adhere to the Health & Safety Authority's *'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2006'*. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan.		
MM20	Health and Safety	EIAR Section 4	Stock-proof fencing will be erected around the borrow pit if deemed necessary to prevent uncontrolled access to this area. Appropriate health and safety signage will also be erected on this fencing and at locations around the site		
MM21	Refuelling,	EIAR Section 4 NIS Section 5 CEMP Section 3	On-site refuelling will be carried out using a mobile double skinned, bunded fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site and will be towed around the site by a 4x4 jeep to where machinery is located. It is not practical for all vehicles to travel back to a single refuelling point, given the size of the cranes, excavators, etc. that will be used during the construction of the proposed wind farm development. The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages. The fuel bowser will be parked on a level area in the construction when not in use. Refuelling operations will be carried out only by designated trained and competent operatives. Mobile anti-pollution measures such as drip trays and fuel absorbent mats will be used during all refuelling operations		
MM22	Plant and Equipment Inspections	CEMP Section 3	A programme for the regular inspection of plant and equipment for leaks and fitness for purpose will be developed at the outset of the construction phase.		
MM23	Temporary water supply and onsite sanitation	EIAR Section 9	Water supply for the site office and other sanitation will be brought to site and removed after use from the site to be discharged at a suitable off-site treatment location		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM24	Pre-emptive site drainage management	EIAR Section 9 CEMP Section 3	The works programme for the groundworks part of the construction phase of the project will also take account of weather forecasts and predicted rainfall in particular.		
MM25	Protection of Watercourses	EIAR Section 9	Silt traps will be strategically placed down-gradient within forestry drains near streams. The main purpose of the silt traps and drain blocking is to slow water flow, increase residence time, and allow settling of silt in a controlled manner.		
MM26	Protection of Watercourses	NIS Section 4	The Inland Fisheries Ireland (2016): Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters will be adopted and Inland Fisheries Ireland stipulated that measures should be in place with regard to protection of watercourses during construction of the Proposed Development, including: › There be no drainage or other physical interference with the bed or bank of any watercourse without prior consultation with IFI. › Suspended solids and or hydrocarbon contaminated site run-off waters are controlled adequately so that no pollution of surface waters can occur. More specifically IFI feels the following issues should be addressed › Identifying and zoning the project for environmental impact should a peat slip occur › Setting out contingency plan should a peat movement occur. › Setting out a plan for the control of silt in such a scenario, including measures to be put in place at the initial stages of construction. › In the event of any watercourse crossings being bridged or culverted the following general criteria should apply, › The free passage of fish must not be obstructed. › The original slope of the riverbed should be maintained with no sudden drops on the downstream side. › Bridges are preferable to culverts. › In the event of a crossing being in excess of 1ft in width IFI should be consulted prior to works commencing. › All instream works should be carried out only in the April-September period.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM27	Concrete Deliveries and Management	EIAR Section 4 NIS Section 9	Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks.		
MM28	Concrete Deliveries and Management	EIAR Section 4 NIS Section 5	No washing out of any plant used in concrete transport or concreting operations will be carried out onsite. 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 directed back to their batching plant for washout.		
MM29	Concrete Deliveries and Management	EIAR Section 4	No concrete will be transported around the site in open trailers or dumpers so as to avoid spillage while in transport.		
MM30	Concrete Deliveries and Management	EIAR Section 4	Clearly visible signs in prominent locations will be placed close to concrete pour areas specifically stating washout of concrete lorries is not permitted on the site		
MM31	Concrete Deliveries and Management	EIAR Section 4	Main pours will be planned days or weeks in advance. Large pours will be avoided when prolonged periods of heavy rain are forecast.		
MM32	Concrete Deliveries and Management	EIAR Section 4	Concrete pumps and machine buckets will be restricted from slewing over watercourses while placing concrete.		
MM33	Concrete Deliveries and Management	EIAR Section 4	Excavations will be sufficiently dewatered before concreting begins. Dewatering will continue while concrete sets.		
MM34	Concrete Deliveries and Management	EIAR Section 4	Covers will be available for freshly placed concrete to avoid the surface washing away in heavy rain.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM35	Concrete Deliveries and Management	EIAR Section 4 CEMP Section 3	Surplus concrete after completion of a pour will be returned to the concrete suppliers batching plant for recycling.		
MM36	Road Cleanliness	EIAR Section 4. CEMP Section 3	A road sweeper will be available if any section of the public roads were to be dirtied by trucks associated with the proposed development.		
MM37	Road Cleanliness	EIAR Section 4 CEMP Section 3	Where it is deemed necessary, wheel washes will be provided near all site entrances to the public road		
Drainage Design and Maintenance					
MM38	Watercourse Buffers	EIAR Section 4. CEMP Section 3	All discharges from the proposed works areas will be made over vegetation filters at a minimum of 50m from streams and lakes respectively.		
MM39	Water Discharge	EIAR Section 4	There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows.		
MM40	Wastewater Management	EIAR Section 4. CEMP Section 3	During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the service contractor as required and will be removed from the site on completion of the construction phase.		
MM41	Borrow Pit Drainage	EIAR Section 4	During the construction phase of the project, it will be necessary to keep the borrow pit area free of standing water while rock is still being extracted. This will be achieved by using a mobile pump, which will pump water into the same series of drains, settlement ponds with a level spreader, siltbuster or equivalent, which will receive the water from the single outlet		
MM42	Drainage Swales,	EIAR Section 4.	Swales will be used to intercept and collect run off from construction areas of the site during the construction phase, and channel it to settlement ponds for sediment attenuation as per the drainage design.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 3			
MM43	Interceptor Drains,	EIAR Section 9. CEMP Section 3	Interceptor drains will be installed up-gradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site. It will then be directed to areas where it can be re-distributed over the ground as sheet flow as per the drainage design.		
MM44	Check Dams	EIAR Section 4 CEMP Section 3	Check dams will not be used in any natural watercourses, only artificial drainage channels and interceptor drains. The check dams will be installed at regular intervals along interceptor drains to restrict flow velocity, minimise channel erosion and promote sedimentation behind the dam as per the drainage design.		
MM45	Level Spreaders,	EIAR Section 4. CEMP Section 3	A level spreader will be constructed at the end of each interceptor drain to convert concentrated flows in the drain into diffuse sheet flow on areas of vegetated ground. The levels spreaders will be located downgradient of any proposed works areas in locations where they are not likely to contribute further to water ingress to construction areas of the site.		
MM46	Piped Slope Drains	EIAR Section 4	Piped slope drains will be used to transfer water away from areas where slopes are too steep to use level spreaders and will only remain in place for the duration of the construction phase		
MM47	Vegetation Filters	EIAR Section 4, 9	Vegetation filters, that is areas of existing vegetation, accepting drainage water issuing from level spreaders as sheet flow, will remove any suspended sediment from water channelled via interceptor drains or any remaining sediment in waters channelled via swales and settlement ponds.		
MM48	Settlement Ponds	EIAR Section 4, 9. CEMP Section 3	Settlement ponds, placed either singly or a pair in series, will buffer volumes of run-off discharging from the drainage system during periods of high rainfall, by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to water courses as per the drainage design.		
MM49	Dewatering Silt Bag	EIAR Section 4, 9. CEMP Section 3	Dewatering silt bags will be used which allow the flow of water through while trapping any silt or sediment suspended in the water. The silt bags provide a passive non-mechanical method of removing any remaining silt contained in the potentially silt-laden water collected from works areas within the site.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM50	Siltbuster	EIAR Section 4.	A "siltbuster" or similar equivalent piece of equipment will be available to filter any water pumped out of excavation areas if necessary, prior to its discharge to stilling ponds or swales. Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit.		
MM51	Culvert Upgrades	EIAR Section 4, 9	The following mitigation is proposed for completion of windfarm culvert upgrades: › Where possible pre-cast elements for culverts and concrete works will be used; › All new proposed culverts and proposed culvert upgrades will be suitably sized for the expected peak flows in the watercourse; › In all cases, culverts will be oversized to allow mammals to pass through the culvert. › Culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. › All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance		
MM52	Silt Fences,	EIAR Section 4, 9.	› Silt fences will be emplaced within drains down-gradient of all construction areas. › They will remain in place throughout the entire construction phase. › Silt fences will be installed as single, double or a series of triple silt fences, depending on the space available and the anticipated sediment loading. › The silt fence designs follow the technical guidance document 'Control of Water Pollution from Linear Construction Projects' published by CIRIA (Ciria, No. C648, 1996). Up to three silt fences may be deployed in series. › All silt fencing will be formed using Terrastop Premium or equivalent silt fence product.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Silt fences will be inspected regularly to ensure water is continuing to flow through the fabric, and the fence is not coming under strain from water backing up behind it		
MM53	Sediment disposal	EIAR Section 4	Sediment that is removed from settlement ponds, check dams, silt bags etc. as part of routine maintenance will be carefully disposed of away from all aquatic zones or will be transported off-site for disposal.		
MM54	Excavation seepages and treatment	EIAR Section 4, 9	› Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place; › If required, pumping of excavation inflows will prevent build-up of water in the excavation; › The interceptor drainage will be discharged to the site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters; › The pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, along with use of more specialist treatment systems such as a Siltbags; › There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur;	›	›
Felling					
MM55	Felling Licence	EIAR Section 4	Felling will be carried out under the terms of a licence application to the Forest Service, as per the Forest Service's policy on granting felling licenses for wind farm developments		
MM56	Clear felling of Coniferous Plantation	EIAR Section 9	Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods (from the guidance listed above) which are set out as follows: › Machine combinations (i.e. hand-held or mechanical) will be chosen which are most suitable for ground conditions at the time of felling, and which will minimise soils disturbance; › Trees will be cut manually inside the 50m buffer and using machinery to extract whole trees only;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Checking and maintenance of roads and culverts will be on-going through any felling operation. No tracking of vehicle through watercourses will occur, as vehicles will use road infrastructure and existing watercourse crossing points. Where possible, existing drains will not be disturbed during felling works; › Ditches which drain from the proposed area to be felled towards existing surface watercourses will be blocked, and temporary silt traps will be constructed. No direct discharge of such ditches to watercourses will occur. Drains and sediment traps will be installed during ground preparation. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and should avoid being placed at right angles to the contour; › Sediment traps will be sited in drains downstream of felling areas. Machine access will be maintained to enable the accumulated sediment to be excavated. Sediment will be carefully disposed of in an area within the borrow pit where all rock has been excavated . Where possible, all new silt traps will be constructed on even ground and not on sloping ground; › In areas particularly sensitive to erosion or where felling inside the 50 metre buffer is required, it will be necessary to install double or triple sediment traps; › Double silt fencing will also be put down slope of felling areas which are located inside the 50 metre buffer zone; › All drainage channels will taper out before entering the aquatic buffer zone. This ensures that discharged water gently fans out over the buffer zone before entering the aquatic zone, with sediment filtered out from the flow by ground vegetation within the zone. On erodible soils, silt traps will be installed at the end of the drainage channels, to the outside of the buffer zone; › Drains and silt traps will be maintained throughout all felling works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimized and controlled; › Brash mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place when they		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			become heavily used and worn. Provision will be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. Where there is risk of severe erosion occurring, extraction will be suspended during periods of high rainfall; › Timber will be stacked in dry areas, and outside a local 50 metre watercourse buffer. Straw bales and check dams to be emplaced on the down gradient side of timber storage/processing sites; › Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water run-off; › No crossing of streams by machinery will be permitted and only travel perpendicular to and away from stream will be allowed; › Checking and maintenance of roads and culverts will be on-going through the felling operation; › Refuelling or maintenance of machinery will not occur within 100m of a watercourse. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required; › A permit to refuel system will be adopted at the site; and, › Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but care will be taken to avoid removing natural debris deflectors		
MM57	Clear Felling of Coniferous Plantation	EIAR Section 9	Silt traps will be strategically placed down-gradient within forestry drains near streams. The main purpose of the silt traps and drain blocking is to slow water flow, increase residence time, and allow settling of silt in a controlled manner. The following items shall be carried out during pre-felling inspections and after: › Communication with tree felling operatives in advance to determine whether any areas have been reported where there is unusual water logging or bogging of machines; › Inspection of all areas reported as having unusual ground conditions; › Inspection of main drainage ditches and outfalls. During pre-felling inspections the main drainage ditches shall be identified. Ideally the pre-felling inspection shall be carried out during rainfall; › Following tree felling all main drains shall be inspected to ensure that they are functioning;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Extraction tracks nears drains need to be broken up and diversion channels created to ensure that water in the tracks spreads out over the adjoining ground; › Culverts on drains exiting the site will be unblocked; and, › All accumulated silt will be removed from drains and culverts, and silt traps, and this removed material will be deposited away from watercourses to ensure that it will not be carried back into the trap or stream during subsequent rainfall		
Peat, Subsoils and Bedrock					
MM58	Erosion of Exposed Subsoils and Peat	EIAR Section 9	The works programme for the construction stage of the development will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of peat/subsoil or peat stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.		
MM59	Peat Management	EIAR Section 4	Peat removed from turbine locations and access roads will be used for landscaping, side-cast at appropriate locations and placed within the proposed borrow pit. Where possible, the upper vegetative layer will be placed with the vegetation of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the re-instated borrow pits.		
MM60	Peat Management	EIAR Section 4	› Care shall be taken during peat excavation to ensure it is segregated from other soil types, therefore particular care should be taken to review recorded peat depths. › Peat shall be separated and stored by type, namely the acrotelmic and catotelmic layers. › Acrotelm (top about 0.3 to 0.4m of peat) is generally required for landscaping and shall be stripped and temporarily stockpiled for re-use as required. Acrotelm stripping shall be undertaken before the main excavations. › Where possible, the acrotelm shall be placed with the vegetation part of the sod facing the right way up to encourage the growth of plants and vegetation. › All catotelm peat (peat below about 0.3 to 0.4m depth) shall be transported immediately on excavation to the designated areas.	›	›

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Construction sequence planning shall minimise the time that peat is stockpiled before reuse. › Peat stockpiles shall not be allowed to substantially erode or become dry. › Material stockpiles shall be located at least 50m away from watercourses, including site ditches/shucks, to reduce the potential for sediment to be transferred into the wider hydrological system. › Peat shall be stored in areas where the water table is high, or consideration shall be made for keeping the water table high where reasonably practical. › Peat stockpile locations should be selected to limit re-handling as far as reasonably possible. › Excavated peat shall be stored and reused within that immediate area to ensure peat is used to restore peatland habitat. › The Contractor shall consult the Project Ecologist to agree on locations for material stockpiles and consider minimising impacting sensitive ecological receptors. › The Contractor shall consult the site Geotechnical Engineer and review and take into account the Peat Stability Risk Assessment 19162-001 by GDG (2020), to avoid the risk of peat instability in peat excavations, peat stockpiling and all material stockpiling in areas underlain by peat. › Run-off from stockpiles shall be directed through the site drainage system that shall include silt fences, settlement ponds and other drainage measures as appropriate. This shall be detailed in the Contractor's Construction and Environmental Management Plan.		
MM61	Peat instability and failure	EIAR Section 4. CEMP Section 3	The Contractor shall consult the site Geotechnical Engineer and review and take into account the Peat Stability Risk Assessment 19162-001 by GDG (2020), to avoid the risk of peat instability in peat excavations, peat stockpiling and all material stockpiling in areas underlain by peat		
Flora and Fauna					
MM62	Kerry Slug	EIAR Section 6	A pre-commencement survey and trapping exercise, immediately before construction works commence, will be conducted within the development footprint. Metric trapping and hand searches of the footprint will be conducted by a qualified ecologist. Any Kerry slug encountered within the development footprint will be translocated to an alternative area of suitable habitat outside the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			development footprint. The trapping and translocation will be conducted under a derogation licence from the NPWS Following trapping, the extent of the development footprint will be clearly marked to prevent any encroachment on Kerry slug habitat located outside the works area and to ensure that no Kerry slug re-enter the works area.		
MM63	Flora and Fauna – Natural Woodland	EIAR Section 9	To avoid potential effects on Oak-Birch-Holly Woodland (WN1) the footprint of the Proposed Development will be clearly marked out and fenced off prior to works commencing by a qualitied ecologist. There will be no access to the wider woodland area. All machinery will work from the existing access road corridor. Vegetation removal will be conducted in line with the provisions of the Wildlife Act.		
MM64	Flora and Fauna – Bats	EIAR Section 6	Best practice including measures in relation to noise restrictions, lighting restrictions and buffering are provided in the Bat Report (Appendix 6-3 of the EIAR), to include: › During the construction phase, plant machinery will be turned off when not in use and all plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (SI 359/1996). › Where lighting is required, directional lighting will be used to prevent overspill on to woodland/forestry edges. This will be achieved using lighting accessories, such as hoods, cowls, louvers and shields, to direct the light to the intended area only. › A 50m buffer from the blade tip to the nearest woodland, as recommended by the Natural England (2014) and SNH (2019) guidelines, shall be implemented. These vegetation-free areas will be maintained during the operational life of the development.		
MM65	Invasive Species	EIAR Section 6 CEMP Section 3	No invasive species were recorded within the study area. However, legislative requirements should be considered to control the spread of noxious weeds and non-native invasive plant species, it is important that any activities associated with the planning, construction and operation of wind farm developments comply with the requirements of the Wildlife Acts, 1976-2012.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Noise and Vibration					
MM66	Construction Phase Noise Control,	EIAR Section 11 CEMP Section 3	The below practices be adopted during construction, including: › Managing the hours according to the CEMP during which site activities likely to create high levels of noise or vibration are permitted; › Establishing channels of communication between the contractor/developer, Local Authority and residents; › Appointing a site representative responsible for matters relating to noise and vibration; › Monitoring typical levels of noise and vibration during critical periods and at sensitive locations; › Keeping site access roads even to mitigate the potential for vibration from lorries. › Furthermore, a variety of practicable noise control measures will be employed. These include: › Selection of plant with low inherent potential for generation of noise and/ or vibration; › Placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints, and; › regular maintenance and servicing of plant items.		
MM67	Construction Phase Noise Control,	EIAR Section 11	Operation of plant: all construction operations shall comply with guidelines set out in British Standard documents *'BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise'.*		
MM68	Construction Phase Noise Control,	EIAR Section 11 CEMP Section 3	The following list of measures will be considered, where necessary, to ensure compliance with the relevant construction noise criteria: › No plant used on site will be permitted to cause an on-going public nuisance due to noise. › The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. › Any plant, such as generators or pumps, which is required to operate before 07:00hrs or after 19:00hrs will be surrounded by an acoustic enclosure or portable screen. › During the course of the construction programme, supervision of the works will include ensuring compliance with the limits detailed in Table 11-18 of the EIAR using methods outlined in British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise. › The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 7:00hrs and 19:00hrs Monday to Saturday. However, to ensure that optimal use is made of good weather period or at critical periods within the programme it could occasionally be necessary to work out with these hours. It may also be necessary to commence turbine base concrete pours earlier due to time constraints incurred by the concrete curing process. Any such out of hours working would be agreed in advance with the local planning authority. If rock breaking is employed in relation to site activities the following are examples of measures that will be considered as necessary in order to mitigate noise emissions from these activities: › Fit suitably designed muffler or sound reduction equipment to the rock breaking tool to reduce noise without impairing machine efficiency. › Ensure all leaks in air line are sealed. › Use a dampened bit to eliminate ringing. › Erect acoustic screen between compressor or generator and noise sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured. › Enclose breaker or rock drill in portable or fixed acoustic enclosure with suitable ventilation.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM69	Vibration	EIAR Section 11	The following mitigation measures will be employed to control the vibration impact during blasts: › Trial blasts will be undertaken to obtain scaled distance analysis; › Ensuring appropriate burden to avoid over or under confinement of the charge; › Accurate setting out and drilling; › Appropriate charging; › Appropriate stemming with appropriate material such as sized gravel or stone chipping; › Delay detonation to ensure small maximum instantaneous charges; › Decked charges and in-hole delays; › Blast monitoring to enable adjustment of subsequent charges; › Good blast design to maximise efficiency and reduce vibration; › Avoid using exposed detonating cord on the surface		
Air Quality/Dust					
MM70	Construction Phase Dust Control	EIAR Section 4. CEMP Section 3	Truck wheels or vehicle underbodies will be washed to remove mud and dirt before leaving the site where appropriate.		
MM71	Construction Phase Dust Control	EIAR Section 4 CEMP Section 3	In periods of extended dry weather, dust suppression may be necessary along haul roads to ensure dust does not cause a nuisance. If necessary, water will be taken from stilling 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.		
MM72	Construction Phase Air Quality	EIAR Section 10	› All construction vehicles and plant will be maintained in good operational order while onsite, thereby minimising any emissions that arise. › Turbines and construction materials will be transported to the site on specified routes only unless otherwise agreed with the Planning Authority. › The majority of aggregate materials for the construction of the Proposed Development will be obtained from the two proposed borrow pits on the site. This will significantly reduce the number of delivery vehicles accessing the site, thereby reducing the amount of emissions associated with vehicle movements. ›		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Landscape and Visual					
MM73	Construction Compound	EIAR Section 4 CEMP Section 2	One main construction compound will be used for the storage of all construction materials and turbines. The use of one main compound as opposed to several smaller compounds interspersed throughout the site will result in a reduced visual impact arising from this stage of the development.		
Cultural Heritage					
MM74	Buffer Zones	EIAR Section 13	Buffers will be maintained around recorded monuments as outlined in the Cultural Heritage section of the EIAR.		
MM75	Turbine Delivery	EIAR Section 13	Impacts on Carriganass Castle Bawn wall will be avoided during the delivery of the turbines to the Proposed Development site and where there is a requirement, a super wing carrier can be used to lift the blade so it avoids structures within the surrounding area		
MM76	Archaeological Monitoring	EIAR Section 13	Archaeological monitoring of ground works during construction (in areas of previously undisturbed ground). The National Monuments Service will be informed of such findings to discuss how best to proceed. If archaeological finds, features or deposits are uncovered during archaeological monitoring, the developer will be prepared to provide resources for the resolution of such features whether by preservation by record (excavation) or preservation in situ (avoidance).Once the project is completed, a report on the results of the monitoring will be compiled and submitted to the relevant authorities.	Ongoing	As required
Traffic					
MM77	Management of Large Deliveries	EIAR Section 14	All deliveries comprising abnormally large loads will be made at night in order to minimise disruption to general traffic during the construction stage.		
MM78	Construction Phase Traffic and Transport - Mitigation	EIAR Section 14	A detailed **Traffic Management Plan (TMP)**, will be provided specifying details relating to traffic management and included in the CEMP prior to the commencement of the construction phase of the Proposed Development. The TMP will be agreed with the local authority and An Garda Síochána prior to		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			construction works commencing on site. The detailed TMP will include the following: › **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management. › **Delivery Programme** – a programme of deliveries will be submitted to the County Council in advance of deliveries of turbine components to site. Liaison with the relevant local authorities and Transport Infrastructure Ireland (TII) will be carried out where required regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the site. › **Information to locals** – Locals in the area will be informed of any upcoming traffic related matters e.g. temporary lane/road closures (where required) or delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Project Co-ordinator, 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. › **A Pre and Post Construction Condition Survey** – Where required by the local authority, a pre-condition survey of roads associated with the Proposed Development can be carried out immediately prior to construction commencement to record an accurate condition of the road at the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. Where required the timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. › **Liaison with the relevant local authority** - Liaison with the County Council and An Garda Síochána, will be carried out during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required. Once the surveys have been carried out and "prior to commencement" status of the relevant roads established, (in compliance with the provisions of the CEMP),		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			the Roads section will be informed of the relevant names and contact numbers for the Project Developer/Contractor Site Manager as well as the Site Environmental Manager. › **Implementation of temporary alterations to road network at critical junctions** – at locations highlighted in section 14.1.8. In addition, in order to minimise the impact on the existing environment during turbine component deliveries the option of blade adaptor trailers will also be used where deemed practicable. › **Identification of delivery routes** – These routes will be agreed with the County Council and adhered to by all contractors. › **Delivery times of large turbine components** - The management plan 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. › Travel plan for construction workers – While the assessment above has assumed the worst case in that construction workers will drive to the site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking. › **Additional measures** - Various additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network including wheel washing facilities on site and sweeping / cleaning of local roads as required. › **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.		
Operational Phase					
MM79	Wastewater Management	EIAR Section 4	The removal and disposal of wastewater from the site will be carried out by a fully permitted waste collector holding valid Waste Collection Permits as issued under the Waste Management (Collection Permit) Regulations, 2007.		
MM80	Site Drainage	CEMP Section 4	The project hydrologist will inspect and review the drainage system after construction has been completed to provide guidance on the requirements of an operational phase drainage system. This operational phase drainage system will		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			have been installed during the construction phase in conjunction with the road and hardstanding.		
MM81	Site Drainage	EIAR Section 9 NIS Section 5	The operational phase drainage system will be installed and constructed in conjunction with the existing bog drainage network and will include the following: › 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. It will then be directed to areas where it can be re-distributed into downstream field drains; › Collectors drains will be used to gather runoff from access roads and turbine hardstanding areas of the site, likely to have entrained suspended sediment, and channel it to new local settlement ponds for sediment settling; › On sections of access road transverse drains ('grips') will be constructed in the surface layer of the road to divert any runoff off the road into swales/roadside drains; › Check dams will be used along sections of access road drains to intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock; › Settlement ponds, emplaced downstream of access road sections and at turbine locations, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall, by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to existing drains; › Settlement ponds will be designed in consideration of the greenfield runoff rate; and Finally, all surface water runoff from the development will have to pass through the settlement ponds at the existing bog outfall locations		
MM82	Site Drainage	EIAR Section 4	Drainage swales and silting ponds will remain in place to collect runoff from roads and hardstanding areas of the Proposed Development during the operational phase.		
MM83	Fuel Control	EIAR Section 9	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		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM84	Land on Decommissioning	EIAR Section 9	During decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during construction by rehabilitating construction areas such as turbine bases and hard standing areas. This will be done by covering with peatland vegetation/scraw or poorly humified peat to encourage vegetation growth and reduce run-off and sedimentation.		
MM85	Telecoms and other service interference	EIAR Section 14	It is standard practice of 2RN to produce a Protocol Document for wind farm developments, which will be signed by the developer. The Protocol Document ensures that in the event of any interference occurring to television or radio reception due to operation of the wind farm, the required measures, as set out in the document, will be carried out by the developer to rectify this. The Protocol Document ensures that the appropriate mitigation is carried out in the event of unanticipated broadcast interference arising to television or radio reception as a result of the Proposed Development. In the event of interference occurring to telecommunications, the Department of the Environment, Heritage and Local Government Wind Farm Planning Guidelines (2006) state that these effects are generally easily dealt with by the use of divertor relay links out of line with the proposed wind turbines.		
MM86	Site rehabilitation during decommissioning	EIAR Section 7	During decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during construction by rehabilitating construction areas such as turbine bases and hard standing areas. This will be done by covering with peatland vegetation/scraw or poorly humified peat to encourage vegetation growth and reduce run-off and sedimentation.		
MM87	Flora and Fauna	EIAR Section 6	In order to reduce the value of the habitat for bat species in the areas surrounding the turbines, a buffer of at least 50m between the tip of the blade and any trees or other tall vegetation that could provide high quality foraging habitat for bat species will be implemented. Details of this mitigation and how it is calculated is detailed in Appendix 6-3 of the EIAR.		
MM88	Wintering Birds Survey	EIAR Section 6	A detailed post-construction Bird Monitoring Programme has been prepared for the operational phase of the Proposed Development. The programme of works will involve vantage point surveys and targeted bird collision surveys during the lifetime of the project. Surveys will be scheduled to coincide with Years 1, 2, 3, 5, 10 & 15 of the life-time of the wind farm. Monitoring measures are broadly based	Monthly or as required	Years 1, 2, 3, 5, 10 and 15 of the life of a wind farm

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			on guidelines issued by the Scottish Natural Heritage (SNH, 2009). The following individual components are proposed: › Flight activity surveys: breeding season vantage point surveys › Targeted bird collision surveys (corpse searches) will be undertaken with trained training dogs. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust		
MM89	Operational Phase Noise	EIAR Section 11	Once the site is operational a Noise Compliance Monitoring Programme will be carried out by a suitable qualified noise consultant/engineer	Once	On completion of Programme