

Proposed Gathabawn Windfarm

Environmental Impact Assessment Report

Chapter 20: Mitigation Measures & Monitoring Arrangements for the Proposed Gathabawn Windfarm

September 2026

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EIAR 20 Mitigation & Monitoring Arrangements

EIAR 20.1 Introduction

Mitigation measures which are envisaged to avoid, prevent, reduce or offset adverse effects of the Gathabawn Windfarm to the environment are set out in the sections below. The mitigation measures and monitoring arrangements have been developed by the EIA Topic competent experts in collaboration with the Project Design Team and the EIA Co-ordinators.

The primary mitigation for the Gathabawn Windfarm is mitigation by avoidance i.e. the design of the proposed development through the consideration of alternative locations, layouts, size and scale, as set out in Chapter 4: Alternatives Considered.

For effects that cannot be avoided through consideration of alternatives, then mitigation by prevention, reduction or offsetting are proposed. These are listed in Section 20.2 below. The expected effectiveness of the mitigation measures is provided within the topic chapters. The potential for mitigation measures to cause indirect effects has been considered in Chapter 20 Interaction of the Foregoing.

Monitoring is also proposed to take place after consent is granted, in order to check that proposed processes and measures are operating as intended and that the Project in practice conforms to the predictions made during the EIA process and to record any unforeseen effects or non-compliance with consent conditions in order to undertake appropriate remedial actions.

Note: For ease of reference within the Environmental topic chapters, the mitigation measures and monitoring arrangements are identified with a Windfarm Measures (WM) ID code, as outlined in the tables below.

EIAR 20.2 Construction Phase Mitigation Measures & Monitoring Arrangements

The following Environmental Protection Measures will apply during the construction phase of the Gathabawn Windfarm:

EIAR 20.2.1 Construction Phase Surveying, Monitoring, Inspection & Supervision

WM No.	Surveying & Monitoring Measure (SM)
	Preconstruction Surveying & Monitoring
WM01	<u>Engineering Review</u> : A suitably qualified engineer will review and approve the civil contractor's method statements and final detailed design prior to the commencement of construction works.
WM02	<u>Water Quality Monitoring</u> : Confirmatory surface water quality monitoring will be carried out prior to the commencement of construction works at the water quality monitoring locations to determine the pre-construction status of surface water quality in downstream watercourses. This monitoring will include laboratory analysis of water samples which will be carried out by an independent and appropriately certified laboratory. The monitoring of water quality parameters and collection of samples will be undertaken by the Environmental Clerk of Works, who will be appropriately trained on the required monitoring methods and the use, calibration and maintenance of all monitoring equipment used. Records will be kept of biological and chemical monitoring undertaken carried out prior to the commencement of construction works.
WM03	<u>Pre-construction surveys for invasive species</u> will be carried out to determine if any new infestations of invasive species have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys for invasive species will be carried out at the construction works areas plus 7m, by the Project Ecologist, to accurately determine the extent of new invasive species infestations. Mapping, showing the most up to date distribution and extent of each infestation, will be distributed to the Environmental Clerk of Works and to the Project Engineer.
WM04	<u>Pre-construction surveys for Otter holts</u> will be carried out by an experienced Ecologist to determine if any new Otter holts have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys for Otter holts and activity (particularly holts at which breeding females or cubs are present) will be carried along the Ballyring Upper Stream, 150m upstream and downstream of facilitating works near the road bridge at Garrydague.
WM05	<u>Pre-construction surveys for Kingfisher nests</u> will be carried out to determine if any new Kingfisher nests have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys will be carried out by a suitably qualified Ornithologist along the Ballyring Upper Stream, 300m upstream and downstream of facilitating works near the road bridge in Coolcashin/Garrydague and will be undertaken between March and April (early visit) and again between May and June (late visit).
WM06	<u>Pre-construction surveys for Badger setts</u> will be carried out to determine if any new Badger setts have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys will be carried out by the Project Ecologist within the construction works area boundary and within 50m of the construction works areas and carried out no more than 10-12 months in advance of proposed construction activities.
WM07	<u>Pre-construction surveys for Bat roosts</u> will be carried out at all trees and buildings identified as having bat roost potential during initial pre-planning surveys. Surveys will be carried out by the Project Ecologist at a time of year that is appropriate to the type of roost e.g. June to August for maternity roosts, or November to

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WM No.	Surveying & Monitoring Measure (SM)
	February for hibernation roosts. If the location or status of roosts has changed, then the use of lighting at nearby construction works locations will be adapted accordingly by the Project Ecologist.
WM08	<u>Pre-construction licenced archaeology surveys</u> and investigations will be carried out in advance of construction works taking place, at identified locations within the construction works area boundary. These surveys will include photographic surveys, townland/civil parish boundary surveys, wade and detection surveys, geophysical surveys and/or archaeological test trenching as required. The nature and scope of these surveys will be agreed with the National Monuments Service (NMS). The archaeologists will also provide a toolbox talk to construction teams. This will aim to outline the importance of archaeology, the legal implications of destroying it without appropriate reporting and recording, how to identify potential archaeology, outline a protocol and who to report it to when potential archaeology is found,
WM09	<u>Confirmatory road condition surveys</u> involving pre-construction and post-construction inspections, high-definition video surveys and FWD surveys will be undertaken along road widening locations on the L18062, and L58141, and along the routes of concentrated construction traffic between the R639 / N77 and the windfarm Site Entrances – i.e. the L58141, L1803, L5818, L1804, L1806, L18062 and L1807.
WM10	<u>Confirmatory consultations with service operators</u> (i.e. Uisce Eireann, Eir, ESB Networks, and Gas Networks Ireland) and confirmatory ground surveys at service locations will be carried out ahead of, and throughout, excavation works or use of machinery in close proximity to existing overhead and underground services.
WM11	The <u>construction Method Statements</u> to be developed by the construction contractors will take full account of the EMP including the mitigation and monitoring measures and will be reviewed by the Project Engineer and the Environmental Manager prior to the commencement of construction works.
	During Construction Surveying & Monitoring
WM12	The <u>Environmental Management Team will monitor construction works</u> for compliance with the Environmental Management Plan. The project Environmental Management Team which includes an Environmental Clerk of Works, the Project Ecologist and specialists as required such as archaeologists, invasive species specialists and hydrologists, who are independent of the site contractors. The Environmental Management Team will report to the owner's Project Manager.
WM13	A <u>Landowner Liaison Officer</u> (LLO) will be appointed and will monitor the erection and maintenance of the construction works area boundary fences and will liaise with the landowners regarding the location of access gateways along the fence, and of livestock water supply pipes and livestock water supply sources. The LLO will keep the landowners up to date with relevant construction work schedules.
WM14	<u>Engineer Supervision</u> : a suitably qualified <u>engineer will supervise</u> all excavations and construction works.
WM15	<u>Drainage Network Inspections</u>: The windfarm drainage network will be inspected regularly during the construction phase under the following schedule: Daily visual inspections by the Contractor; weekly inspections by the Environmental Management team; Event based inspections by the Contractor as follows: >10 mm/hr (i.e. high intensity localised rainfall event); or >25 mm in a 24 hour period (heavy frontal rainfall lasting most of the day); or, rainfall depth greater than monthly average in 7 days (prolonged heavy rainfall over a week). All inspections will include all elements of the drainage systems to ensure that the systems are operating correctly. Inspections will examine the functioning of the various elements of the drainage system, and if evidence of sedimentation or scouring and any changes in the drainage water including discolouration, odour, oily sheen or the presence of litter, then the required corrective maintenance or actions will be identified and will be implemented immediately the Contractor.

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WM No.	Surveying & Monitoring Measure (SM)
	Weekly site inspections of the drainage network will be carried out by members of the Environmental Management Team during construction phase and for a period of 6 months following construction. If monitoring identifies sediment or contaminant polluted waters, then the Environmental Clerk of Works will establish the cause of the pollution, and if caused by the Project, then the Environmental Clerk of Works will have a 'stop-works' authority to temporarily stop construction works at the Project site and the Contractor will implement the necessary actions and measures to resolve the cause of the pollution.
WM16	<u>Surface water quality monitoring</u> of watercourses downstream of the works will be carried out at regular intervals by the Environmental Management team during the construction phase. Laboratory analysis of water samples will also be undertaken as part of the monitoring programme by an independent and appropriately certified laboratory. The surface water monitoring locations and sampling programme are defined in the Surface Water Management Plan which forms part of the Gathabawn Windfarm Project Environmental Management Plan. Surface water quality monitoring will include Total Suspended Solids [TSS] monitoring, with readings above 25mg per litre (as specified in the Salmonid Waters Regulations, SI 293 of 1988) triggering a non-compliance issue, and resultant remedial action by the construction Contractor, in line with the EMP. Records will be kept of biological and chemical monitoring undertaken before, during and after the works, and will be made available upon request to any authorised person as defined under the Local Government (Water Pollution) Acts.
WM17	<u>Additional WQ Monitoring at D2:</u> At Drain D2, monitoring of Q values and sediment build up will be carried out immediately downstream of the diversion works on this farm drainage channel. This monitoring will also be conducted as part of surface water monitoring before and after the crossing works in order to confirm that the Q values and sediment levels return to baseline levels. Prior to dam being removed at D2, where sediment build up poses significant downstream effects on the watercourse, this sediment will be removed.
WM18	<u>Fit for Purpose:</u> All plant and machinery which will be used during construction will be fit for purpose and in good working order prior to mobilisation to works areas. The plant and machinery will be regularly inspected by the Contractor for leaks and maintained in good working order for the duration of the works.
WM19	<u>Fuel, oil and chemical stores</u> including tanks and drums will be regularly inspected for leaks and signs of damage.
WM20	<u>Liaison with Contractor:</u> The Project Ecologist will liaise with the Contractors on a weekly basis regarding the upcoming schedule of works and will advise the Contractors of any particular ecological protection requirements at specific locations on site.
WM21	<u>Treatment of the existing stand of Japanese Knotweed</u> at the Ballyring Area has commenced pre-application and will continue during the planning and pre-construction phase. Treatment of the existing Japanese Knotweed will be carried out an invasive species specialist consultant in accordance with best practice.
WM22	Any excavation <u>works in close proximity (7m) to an invasive species infestation</u> location will be carried out under the direct supervision of an invasive species specialist ecologist.
WM23	<u>Invasive Species Control:</u> Visual inspections will be carried out by the Contractor on all machinery and equipment (particularly for machinery and equipment which has come into contact with water or soils) for evidence of attached plant or animal material, or adherent mud or debris. Any attached or adherent material will be removed before entering or leaving the site, securely stored away from traffic for removal to a contaminated waste storage bin at the temporary constructions.
WM24	<u>Monitoring – Dust:</u> During working hours, the construction contractor will monitor dust control methods and weather forecasts for dry and windy conditions and will carry out weekly on-site and off-site inspections to monitor dust caused by the construction works. Public roads will be regularly inspected for cleanliness and regular dust soiling checks of surfaces along public roads and within 100m of site access points will also be

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WM No.	Surveying & Monitoring Measure (SM)
	carried out. The frequency of monitoring will be increased when construction activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
WM25	<u>Monitoring of construction noise</u> will be carried out at a number of nearby residences during critical periods of the wind farm construction works.
WM26	<u>Archaeological Monitoring of all initial groundworks</u> will be carried out by the Project Archaeologist under licence during construction works. Test trenching is proposed in areas where geophysical features of an archaeological nature will be truncated by substantial groundworks, such as construction foundations, to first validate the presence of, or lack thereof, archaeological features. Strip, map and sampling can be undertaken in areas of soil stripping. The nature/scope of the groundworks monitoring will be agreed with the National Monuments Service (NMS).
WM27	<u>Ecological Monitoring</u> of initial groundworks and road construction works within 50m of the boundary of the Cullahill Mountain SAC. This monitoring will be conducted by the Ecological Clerk of Works, who will have a 'stop-works' authority to temporarily stop construction works and the Contractor will implement the necessary actions and measures to the satisfaction of the Ecological Clerk of Works, before construction works can once again commence.
WM28	<u>Marsh Fritillary</u> : A pre-construction survey of construction works plus 100m in all directions to determine the distribution of the Marsh Fritillary's food plant Devil's Bit Scabious (DBS) will be carried out by an ecologist during the last available August/September prior to commencement of construction works. Any areas of DBS that are located within construction works boundary during the Aug/September survey will be strimmed/cut to ground level in the last available April/early May period prior to commencement of construction.

EIAR 20.2.2 Construction Phase Mitigation Measures

MM No.	Mitigation Measure (MM)
WM29	<u>Environmental Management Plan</u>: The construction of the Gathabawn Windfarm Project will be carried out in accordance with the Environmental Management Plan (EMP). The EMP will include all of the mitigation measures and monitoring arrangements for the Project. An Environmental Clerk of Works will be appointed, independent of the main construction Contractor, and will carry out weekly audits on EMP compliance. If non-compliance is detected, then, prompt corrective action will be agreed and committed to by the Contractor, with a view to the swift and effective resolution of any deviations from the EMP requirements. The EMP will be an important contract document for the main construction contractor (Contractor) who will be contractually obliged to comply with the EMP and the requirements of the Environmental Clerk of Works. Furthermore, if a significant unforeseen environmental effect takes place, then, the Environmental Clerk of Works will have a '<u>stop-works</u>' authority to temporarily stop works until the issue is resolved.
WM30	<u>Fencing of works areas</u> : The boundaries of construction works areas in agricultural lands will be fenced to prevent the encroachment of construction phase personnel, machinery or materials beyond this boundary. Livestock proof fencing will be used, with landowner access maintained through the provision of openings along the boundary fences.
WM31	<u>Control of Movement of Machinery/Vehicles</u> : Construction traffic, personnel and materials will be restricted to the hardcore surfaces, particularly with respect to the newly constructed access roads. This means that machinery will be kept on the windfarm site roads and hardstanding areas, and, aside from advancing excavations, will avoid moving onto areas not delineated on the site drawings.

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MM No.	Mitigation Measure (MM)
WM32	<u>Land reinstatement</u> will not be carried out during very wet weather or when the soil is waterlogged. If any compaction has occurred along the construction works area, these areas will be ploughed with a sub-soiler to loosen the subsoil layer.
WM33	<u>Excavation of Materials</u> : The excavation of earth materials during the construction stage will be kept to a minimum. The excavation of materials will be completed in accordance with best practices for the management and treatment of such materials. (i.e. British Standards BS6031:2009 Code of Practice for Earthworks, and MAFF (2000) Good Practice for Handling Soils).
WM34	<u>Storage of Overburden</u> : During construction works, excavated material will be removed for temporary or permanent storage at designated berms. All storage berms will be placed more than 50m away from any watercourse or wet drainage channel. Temporary silt control methods such as silt fencing or curtains will be placed around all overburden storage areas and/or installed between the berms and local watercourses or wet drainage channel, depending on the location, and the existing vegetative between the berms and watercourse / drainage features will be left in place.
WM35	<u>Protection of Soils in Berms</u> : All storage berms will be graded and sealed following emplacement. Topsoil and subsoil will be stockpiled separately. Where possible, the upper vegetative layer (where still present) of excavated soil will be stored with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation at the surface of the stored spoil within the storage areas. Re-seeding will also be carried out in these areas. Measures such as interceptor ditches around the bases of these areas, and silt curtains will also be incorporated where required to prevent runoff of suspended solids, dust and soil erosion.
WM36	<u>Protection of Karst</u> : A suitably qualified geotechnical engineer who is experienced with limestone and karst conditions will review the results of the pre-construction detailed geotechnical investigations, and will design the turbine foundations taking into account the results of the detailed investigations. The geotechnical engineer will inspect each turbine foundation excavation for evidence of a fracture network and will set out the required methods and mitigation measures to prevent cementitious material leaching into the bedrock.
WM37	<u>No storage of excavated material on the public road</u> along road widening sections of the L58141 or L18062. All excavations from public roads will be removed to licensed waste facilities in accordance with the Waste Management Plan.
WM38	<u>Waste Management</u> : waste arising during construction works will be carried out according to a Waste Management Plan. The main contractor will engage an appropriately licensed waste company to deal with all its wastes during construction. The Waste Management Plan is included in the Construction Environmental Management Plan. The Construction Contractor will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.
WM39	<u>Reduction in Embodied Carbon</u> : Where feasible, standard concrete containing Portland cement will be replaced with an alternative concrete mix with lower associated embodied carbon, as per the Climate Action Plan. This will be a minimum of 30% GGBS replacement, or concrete with equivalent or lower associated embodied carbon.
WM40	<u>Reduction in Embodied Carbon</u> : Procurement contracts will ensure that material choices with lower associated embodied carbon relative to standard construction materials are considered favourably during the tender process for the wind farm.
WM41	<u>Protection of watercourses and existing drains</u> : Additional mitigation measures will be deployed within 50m of watercourses or wet drainage features, including the placement of silt trapping arrangements along preferential surface water flowpaths, and temporary drain blocking in existing drains. Works will not take place within this 50m zone during prolonged heavy or exceptional rainfall events.

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MM No.	Mitigation Measure (MM)
WM42	<u>Weather forecasts</u> will be consulted in advance of works. If there is heavy prolonged rainfall or if an exceptional rainfall event occurs, then construction works will cease until peak flows have subsided.
WM43	<u>Drainage network</u> : Windfarm site roads and hardstanding areas are designed to have a permanent surface water drainage network in place. Temporary works areas, such as turning heads, borrow pits and compounds will have a temporary surface water drainage network in place during works. The drainage infrastructure will not be installed during heavy or prolonged rainfall events or when the soil is waterlogged. The site drainage network will ensure that all surface water runoff from upgraded roads and new road surfaces (including hardstand areas) will be captured and treated prior to discharge/release. Transverse drains ('grips') will be constructed, where appropriate, in the surface layer of access tracks to divert any runoff into swales/track side drains; The site drainage network will include check dams and settlement ponds which will settle suspended solids in water runoff while also slowing down the rate of water run-off from these areas. Water will be released to surrounding vegetation at regular intervals via buffered outfall weirs, which also form part of the drainage network.
WM44	<u>On-Site Borrow Pits</u> : It is proposed that bedrock won from the on-site borrow pits during the construction phase will be used to construct the sub-base layer of proposed upgraded and new access roads and hardstand areas. Once installed the sub-base layer will be overlain by a capping layer of clean high-grade bedrock, such as limestone.
WM45	<u>Where dewatering of trenches</u> or excavations is required, there will be no direct discharge of treated water into any watercourse or drain or directly onto adjacent habitats. Rather, all pumped water will be discharged via a silt bag or infiltration trench or settlement pond, as appropriate, to surrounding vegetation.
WM46	<u>Isolation of flow</u> : Works in wet drainage channels will not be undertaken without isolation of flow within the drain. The water will be isolated from the works by over pumping, flume (pipe) or channel diversion methods.
WM47	<u>Concrete control procedures</u> will be implemented and will include the following: • No concrete batching will take place on site, all concrete will be ready-mixed and delivered just-in-time. • The pouring of concrete will be scheduled for dry days. If a sudden rainfall event should occur, then suitable covers will be ready and available at the pour site to cover the concrete. • The pour site will be kept free of standing water. • All operators involved in pouring concrete will be trained and experienced in working with concrete. • Run-off from wind turbine foundation concrete pours will not be permitted to flow over adjacent lands or enter drainage channels. The run-off will be contained within the foundation area and pumped into a skip to settle out; settled solids will be appropriately disposed of off-site. • The Contractor will not permit the discharge of cement contaminated waters to the construction phase drainage system, onto adjacent lands or directly to any artificial drain or watercourse. • Concrete trucks will be washed out at the supplier's facilities and not on site. The only concrete washing that will occur on site is the hand washing of the chutes at the rear of the trucks. Washing of chutes will only take place at the designated area and into a Roadside Concrete Washout unit.
WM48	<u>Refuelling control procedures</u> will be implemented and will include the following: • On site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser. The fuel bowser carried on a double axel refuelling trailer, will be refuelled off-site, and will be towed around the site by a 4x4 vehicle to where machinery is located. The 4x4 vehicle will carry fuel absorbent material and pads in the event of any accidental spillage. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations. • In addition, spill response apparatus including spill-kits and fuel absorbent mats will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment and in the implementation of the Emergency Response Plan, as contained in the Environmental Management Plan.

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MM No.	Mitigation Measure (MM)
	- The fuel bowser will be parked on a level area, away from main traffic activity, in a designated part of the construction compounds when not in use. Taps, nozzles or valves associated with mobile fuel bowser will be fitted with a lock system. Only designated trained and competent operatives will be authorised to refuel plant on site. A Permit to Fuel system will be put in place. - There will be no refuelling of vehicles or plant permitted within 100m of a watercourse or wet drainage channel or local spring/well.
WM49	<u>Storage of Fuels, Oils and Chemicals:</u> All fuels or oils or chemicals, required during construction, will be stored in a designated, bunded, locked storage area within the temporary compounds. All fuel, oil and chemical storage areas will be bunded appropriately to 110% of the volume of oils/fuels each area contains for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area. Fuel, oil and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage. Safety data sheets for all chemicals used will be kept on-site. An emergency response plan to deal with accidental spillages will be contained within the Environmental Management Plan.
WM50	<u>Overnight parking</u> of plant and machinery will only be permitted at an existing hard-core surface at locations which are greater than 50m from watercourse/drainage features/Cullahill Mountain SAC. Drip trays and fuel traps will be used under and around parked plant and machinery to contain any potential leaks.
WM51	<u>Treatment/management of invasive species infestations:</u> Any infestations of Japanese knotweed or other high-impact invasive species within 7m of works will be covered with high density polyethylene grass carpet terram prior to any works commencing at the location. The covering of any new infestations will only be carried out under the direct supervision of a specialist invasive species ecologist, and works within 7m of the infestation will be under the direct supervision of this specialist invasive species ecologist.
WM52	<u>Monitoring of invasive species:</u> Works within 7m of an invasive species infestation will only be carried out under the direct supervision of a specialist invasive species ecologist with prior experience of this type of work.
WM53	<u>Should an Otter holt be identified</u> during pre-construction surveys, then all construction works within 150m of the active otter holt, will be carried out during daylight hours and outside of 2 hours after sunrise or before sunset during summer/outside of 1 hours after sunrise or before sunset during winter. If an active holt (particularly holts at which breeding females or cubs are present) is located within 150 meters of the watercourse crossing points, no works will be undertaken while cubs are present in the holt and NPWS will be notified immediately. No wheeled or tracked vehicles (of any kind) will be used within 20m of active but non-breeding otter Holts – except under license, and light work, such as digging by hand or scrub clearance will not take place within 15m of such holts, except under license. The prohibited working area associated with otter holts will, where appropriate, be fenced with temporary fencing prior to any invasive works and declared as 'out of bounds'. Appropriate awareness of the purpose of the enclosure will be conveyed through toolbox talks with site personnel and sufficient signage will be placed on each exclusion fence. All contractors or operators on site will be made fully aware of the procedures pertaining to each affected holt and subject to conformance audits.
WM54	<u>Traffic speed limits</u> of 50km/h along the Local Roads L1807, L1806, L1804 and L5818; 30km/hr along the local roads L58141, and L18062 and 15km/hr along windfarm site roads.
WM55	<u>A barrier fence to control the extent</u> of construction works will be erected 5m from the boundary of the Cullahill Mountain SAC where works are within 75m of the SAC boundary. The placement of this barrier will be carried out before construction works commence in the area and under the supervision of the Ecological Clerk of Works. No works will take place beyond this barrier.

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MM No.	Mitigation Measure (MM)
WM56	<u>Timing of Construction Works</u> : The construction of the windfarm site road between T2 and T3, and the main groundworks at T3 be limited to the Autumn and Winter period, i.e. September to February inclusive). Paving of the section of uphill section of this windfarm site road will take place before May of the year.
WM57	<u>Dry Stone Walls</u> : following the completion of construction works, historic dry-stone walls within the Ballylehaun Area of the Gathbawn Windfarm will undergo restorations by an experienced dry stone wall builder. The methodology will be provided to and agreed with the Conservation Officer of Kilkenny County Council before restoration works commence. Sections of walls affected by the construction works will undergo restorations where possible, any sections of wall at the Ballylehaun Area which show existing damage or collapse will be included in the restoration programme.
WM58	<u>Veteran Hawthorns</u> : Whilst the LiDAR has successfully been used as a method to record the remnant historical field boundaries within the Ballylehaun Area of the wind farm development, to preserve the historic landscape and prevent further impacts following the construction of the wind farm, the developers of the Project have agreed with the owners of the lands in the vicinity of Turbine T4 in Ballylehaun that the landowner will not remove the remnant field boundaries or fell the veteran hawthorn trees on the upland section of their farm unless considered necessary for the continued use of the land for agricultural purposes
WM59	<u>Parking Exclusion Zone</u> : Overnight parking of plant and machinery will only be permitted at locations which are greater than 50m from the Cullahill Mountain SAC.
WM60	<u>Road Paving</u> : In order to reduce the potential for dust emissions, the uphill section of the windfarm site road between T2 and T3 will be paved with tarmacadam. A dry wheel wash will be installed on level ground before and after this road to reduce dirt on the wheels of vehicles travelled near to the boundary of the Cullahill Mountain SAC.
WM61	<u>Marsh Fritillary</u> : In the event that Marsh Fritillary larval webs were detected within construction works areas during preconstruction surveys, then turves containing Devil's-bit Scabious will be translocated to a nearby location that would be suitable for the establishment of Devil's-bit Scabious. Before translocation, the soil of the mitigation site will be scarified to allow the roots of the plants take hold. These actions will help increase the success of the translocation of Devil's-bit Scabious from the donor site to the mitigation site. Weather conditions will be monitored, and where possible turves will be translocated when the soil is damp but not waterlogged, with a forecast for rain in the following days to aid establishment to ensure that the donor turves succeed. Long periods of drought will be avoided. All translocation works must be supervised by an ecologist with experience of habitat management and establishment of Devil's-bit Scabious.
WM62	<u>Should a Badger sett be identified</u> within 50m of construction works areas during pre-construction surveys, then NPWS will be notified immediately and derogation licenses will be secured in consultation with NPWS to ensure the proposed works cause as limited an effect as possible.
WM63	<u>Security lighting</u> will be used at compounds. All lighting will be cowed in order to prevent light spill, and no lighting will be left turned on overnight. Lighting will be controlled by motion and time sensors to minimise the amount of time the lights are operational.
WM64	<u>A 50m bat buffer area</u> from the tips of Turbine blades will be created through the removal of hedgerows during the construction phase.
WM65	<u>Plant and machinery will not be permitted to idle</u> and any plant operating within 200m of a bat roost (if any) will be fitted with noise dampeners and surrounded by an acoustic enclosure or portable screen.

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MM No.	Mitigation Measure (MM)
WM66	<u>Bat Boxes</u> will be installed under the supervision of the Project Ecologist. These bat boxes will be placed in a suitable location to compensate for any loss through disturbance of potential roosts during the construction works and to provide alternative roosting locations for local roosting bats.
WM67	<u>Hedgerow/tree planting</u>: 3.7km of new hedgerows will be planted during the construction phase. These new hedgerows will include c.100 no. trees (i.e. a new tree will be planted at 35-40m intervals in new hedges). 1.3km of existing hedgerow will be improved by interplanting new hedging into gaps in existing field boundaries. All new hedgerows and enhancement of hedgerows will take place outside of bat buffer zones. Hedgerows will be located to encourage bats to commute away from the turbines. A mix of native fruiting hedge species will be used for any new hedgerows and will comprise of hawthorn, along with blackthorn, holly, hazel, guelder rose, spindle, crab apple, and bird cherry. New trees will comprise a mix of native species such as oak, alder, birch, crab apple bird cherry and rowan. Hedging and trees will be of Irish provenance. Hedging plants will be sourced from Department of Agriculture approved nurseries.
WM68	<u>Bird breeding season</u> : Hedgerow removal, tree felling or pruning, and scrub clearance will take place outside of the bird breeding season (1st March to the 31st of August).
WM69	<u>Ground-nesting birds</u> : Where groundworks in grassland are scheduled to take place during the Meadow Pipit, Curlew, Snipe or Lapwing breeding season, surveys will be carried out by the Site Ecologist of suitable habitat, prior to ground/vegetation clearance works. Where active nests are present and the number of nests represents >1% of the local population, the works within close proximity to an active nest will not be carried out until fledging is completed.
WM70	<u>Should a Kingfisher nest be identified</u> within the Ballyring Upper Stream within 300m of the road bridge in Coolcashin/Garrydague during pre-construction surveys (see SM05), then no construction activities will be permitted within 300m of Kingfisher nest locations during the bird breeding season (March – August inclusive) or until nesting is confirmed as complete following supervision by a suitably qualified Ornithologist.
WM71	<u>Public Road – cleanliness</u> : To ensure that local roads are kept clean, a road sweeper will be used daily at road works locations, and as required at site access points.
WM72	<u>Dust control</u>: Dust minimisation measures will be implemented during the construction works as follows: • The site roads will be regularly inspected and swept to remove build up of mud and aggregate materials from their surface, • Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and windy conditions. • Vehicles delivering material with dust potential will be enclosed or covered with tarpaulin to restrict the escape of dust. Public roads in the vicinity of the site will be regularly inspected for cleanliness, and cleaned as necessary
WM73	<u>Work hours</u> : Construction operations shall generally be restricted to between 0700-1900hrs Monday to Friday, and 0800-1300hrs on Saturdays. Site activities which are likely to create high levels of noise or vibration will be limited to these hours of operation, with no noisy operations on Sundays or Public Holidays However, to ensure that optimal use is made of good weather period or at critical periods within the programme, it could be necessary on occasion to work outside of these hours.
WM74	<u>A Community Liaison Officer</u> (CLO) will be appointed. The CLO will liaise with and keep the local community up-to-date with relevant construction work schedules, through the use of letter drops to or direct contact with nearest neighbours. The CLO will be the point of contact for local residents and local landowners for matters relating to noise, dust or traffic. The Environmental Clerk of Works will liaise with the CLO and will be

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MM No.	Mitigation Measure (MM)
	the point of contact between the contractor/developer and the Local Authority regarding any matters relating to noise or vibration from the construction works.
WM75	<u>Vibration along site roads</u> : The Windfarm Site Roads will be maintained to an even surface in order to reduce the potential for vibration from lorries travelling over them.
WM76	<u>Noise and emissions from plant/machinery</u>: Plant and machinery will not be permitted to idle. Machinery used intermittently will be shut down when not in use. The best means practicable, including proper maintenance of plant, will be employed to minimise the GHG emissions and noise produced by on-site operations. All vehicles and plant will be fitted with effective exhaust silencers. Noise dampeners will be fitted where required. To protect residential amenity, if any plant/machine is required to operate before 07:00hrs or after 19:00hrs Monday to Friday, or before 08:00hrs or after 13:00hrs on a Saturday, then it will be surrounded by an acoustic enclosure or portable screen.
WM77	<u>Noise management</u>: The Contractor undertaking the construction of the Gathabawn Windfarm will be obliged to take specific noise abatement measures when deemed necessary to comply with the recommendations of BS5228-1 (BSI 2014a). The Contractor will coordinate with the construction teams for other developments in order to minimise the cumulative noise effects.
WM78	<u>Noise – rock breaking</u> : If rock breaking is required at the borrow pits, then the following measures will be employed: (i) the rock-breaking tool will be fitted with a suitably designed muffler or sound reduction equipment (without impairing machine efficiency); (ii) the Contractor will ensure that all air lines are sealed, and regular checks will be carried out for air lines leaks; (iii) an acoustic screen will be erected between the compressor or generator and noise sensitive area; (iv) when possible, the line of sight between the top of the machine and reception point will be obscured; and (v) the breaker or rock drill will be enclosed in a portable or fixed acoustic enclosure with suitable ventilation.
WM79	<u>Preservation of Archaeological Records</u> during construction works will be through the following: - Strip, map and sample in areas where construction activities will strip the topsoil (turbine hard standing areas, borrow pits) and there are geophysical anomalies and LiDAR features present; - Watching brief on areas of soil stripping that are within 10m of recorded or potential archaeology, including geophysical and LiDAR features.
WM80	<u>Cultural heritage features</u> : Protective barriers or fencing will be installed/erected at identified cultural heritage features to prevent machinery or plant encroaching on the site/feature and to increase awareness of the presence of the site/feature with the construction personnel. Toolbox talks will be provided to construction personnel regarding the cultural heritage feature(s).
WM81	<u>Aviation safety</u> : the developer will notify the Irish Aviation Authority of their intention to commence crane operations at least 30 days prior to their erection. In addition, the as-constructed co-ordinates and elevations will be provided in the required format, and an aeronautical obstacle warning lighting scheme for the wind farm will be agreed with the Irish Aviation Authority
WM82	<u>Telecom operators</u> will be contacted prior to the erection of the permitted wind turbines to confirm (1) requirement for mitigation measure, and (2) form of mitigation measure to be implemented – i.e. one or a combination of (a) change of telecom equipment on the existing masts; (b) change of signal pathways; (c) installation of telecom apparatus onto the windfarm met mast.

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MM No.	Mitigation Measure (MM)
WM83	<u>'Goal Posts'</u> will be used to identify and highlight the height of nearby overhead lines.
WM84	<u>A banksman</u> will supervise all excavation works and use of large plant in close proximity to services.
WM85	<u>Roadside boundaries</u> will be maintained during the construction phase and following the removal of the boundary to provide a widened transport area or to provide sightlines, a post and mesh boundary fence will be erected immediately.
WM86	<u>Site Entrances - visibility</u> : Hedgerows and roadside vegetation within the visibility splays will be trimmed and maintained throughout the construction phase to ensure safe visibility at site entrances.
WM87	<u>Public Road Works</u> : Works along the public road network will be carried out in co-ordination with Kilkenny County Council and in accordance with "Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads (Department of Transport, Tourism & Sport, 2017).
WM88	<u>Public Road Repair</u> : Any damage to structures or road pavements along widening sections, cable routes or along concentrated construction haul routes, because of the construction works and deliveries to the works areas, will be repaired to at least as good a condition as pre-works.
WM89	<u>The Traffic Management Plan</u> will be a key construction contract document and will be implemented to safely coordinate and manage traffic during the construction works. The Traffic Management Plan will be developed in coordination with Kilkenny County Council.
WM90	<u>Flag-men</u> will be used on public roads at road works locations. These flagmen will control the movement of traffic on the public road, so that road users can continue to use the public road network in a safe and efficient manner.
WM91	<u>Local Communication</u> : Local residents likely to be affected by road works, will be kept up to date on works schedules by the Community Liaison Officer.
WM92	<u>Traffic Volumes</u> : The largest traffic volumes are associated with the concrete pours for the turbine foundations. No other deliveries to the Ballylehaun Area or Ballyring Area of the Gathabawn Windfarm will be scheduled to occur on the concrete pour days in that Area.
WM93	<u>Local Traffic Flow</u> : Site entrance works and public road widening works on the L58141 and L18062 will be carried out prior to the main construction period at the Ballylehaun Area and at the Ballyring Area.
WM94	<u>A road safety and courtesy protocol</u> will be implemented for the duration of construction. All companies delivering to site will have to sign up to this protocol as part of their supply contract. Courtesy for other road users is fundamental to the protocol. Vehicles will slow down or stop, as appropriate, for other road users, in particular for pedestrians and cyclists along the construction haulage routes. Appropriate signage will be maintained for the duration of the project with clear signs at all junctions on the L1807, L1806 and L1804, L1803, L5818 and L58141 local roads.
WM95	<u>Scheduling Deliveries to avoid school drop-off/pick-up times</u> : HGV deliveries to works or compounds that pass through Lisdowney village or Gathabawn village, will be scheduled to avoid drop-off and pick-up times associated with Scoil Bhríde National School and Scoil na Críon Coille National Schools (approximately 8:30-9:00am, 1:30-1:50pm and 2:30-2:50pm). Any deliveries within the school pickup/drop-off times will be subject to a banksman/escort protocol. Construction drivers will additionally be briefed on the reduced-speed environment at the school frontage and on the likelihood of encountering slow moving agricultural vehicles and machinery on the local road haul routes, with the construction traffic schedule having regard, where

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MM No.	Mitigation Measure (MM)
	practicable, to seasonal peaks in agricultural activity such as the silage season. Consultation with the Scoil Bhríde and Scoil na Críon Coille schools and with Kilkenny County Council Roads Section on this measure will be completed prior to finalisation of the Construction Traffic Management Plan.

EIAR 20.3 Operational Phase Mitigation Measures & Monitoring Arrangements

The following Environmental Protection Measures will apply during the operation of the Gathabawn Windfarm:

EIAR 20.3.1 Operational Phase Surveying, Monitoring & Supervision

WM No.	Operational Phase Surveying, Monitoring & Supervision
WM96	<u>Surface water quality monitoring</u> of watercourses downstream of the works will be carried out monthly for the first six months post construction, and thereafter annually during the Operational Years 1, 2, 3, 4 and 5, and then every 5 years thereafter, to record any change to baseline trends. Samples will be analysed by an appropriately certified laboratory and the resulting report submitted to Kilkenny County Council.
WM97	<u>Inspections of Drainage System</u> : The Asset Manager will inspect the drainage system during quarterly site inspections, and any necessary repairs or maintenance works carried out promptly.
WM98	<u>Bat Activity Surveys</u>: Post-construction bat activity and roost surveys will be carried out during the Operational Years 1, 2, 3, 5 and 10 to record any change to baseline roosting and activity trends. Operational Phase bat surveys will include carcass searches at the turbine locations. Carcass search methodology will involve searching a 100m² grid square for each turbine. Surveyors will walk a transect path every 5-10m within the square searching visually for carcasses. Due to the difficulty in locating smaller remains such as bats and taking into account the rotor diameter of the turbine blades, where available, specially trained detection dog teams will be used to conduct searches within a 60m radius of each turbine tower instead of visual searches. Detection dog teams have been shown to detect 70-100% of carcasses present where dogs and handlers are proficiently trained and experienced compared to visual searches being only 10-70% efficient depending on searcher expertise and terrain factors (McKeague et al., 2024; Paule et al., 2011). Both carcass search methods will be conducted with efficiency trials and carcass removal rate surveys on site to inform the collision rate estimates based on the number of carcasses found. The results of the operational phase bat surveys will inform further mitigation where the collision rate proves to be higher than predicted based on the field study data presented in this EIAR 2026. These measures are in line with the best practice guidance for post-construction monitoring of onshore windfarms for Bat species (NatureScot, 2021).
WM99	<u>Bird Surveys</u> : Confirmatory bird activity surveys, including fatality monitoring (carcass searches, carcass removal rates and detection efficiency) during Years 1, 2, 3, 5, and every 5 years thereafter of the operational phase. (SNH, 2009).
WM100	<u>Annual Invasive Species Survey</u> : An invasive species survey will be conducted of the Biodiversity Areas, and the operational windfarm site. Should a new infestation be identified, remedial measures will be implemented. Any remedial works will be carried out by the Asset Manager or Environmental Manager for low to medium impact species, and by an invasive species specialist ecologist for high-impact invasive species.

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WM101	<u>Invasive Species Survey during major maintenance</u> : Prior to facilitating works for turbine component transportation, the works locations will be surveyed for invasive plant species. Should a new infestation be identified, then the works within 7m of the infestation will be carried out under the direct supervision of an ecologist with prior experience of invasive species.

EIAR 20.3.2 Operational Phase Mitigation Measures

OMM No.	Operational Phase Mitigation Measure (OMM)
WM102	<u>Environmental Management Plan for the Operational Phase</u> : Following the completion of the construction and commissioning of the Project, the Environmental Management Plan will be updated, and the operation of the Gathabawn Windfarm Project will be carried out in accordance with the updated Plan. A suitably qualified Environmental Manager will be appointed by the Project Promoter, and it will be their responsibility to ensure that the EMP is implemented through liaising with the Asset Manager and by carrying out regular audits on EMP compliance. The EMP will be an important contract document for the Asset Management contractor who will be contractually obliged to comply with the EMP and the requirements of the Environmental Manager.
WM103	<u>A Community Liaison Officer</u> will be appointed for the duration of the operational phase and will act as a point of contact for the local community.
WM104	<u>The Community Benefit Fund</u> will be distributed in line the Government's Renewable Energy Support Scheme (RESS) 'Community Benefit Fund Good Practice Principles Handbook'. The Fund will be registered with SEAI and a Report will be prepared annually and submitted to the SEAI, to demonstrate compliance with the RESS Handbook.
WM105	<u>The Community Benefit Fund</u> will be set up once the windfarm becomes operational and will be distributed annually. The Community Liaison Officer will be available to local community groups at the set-up stage of the Fund to assist in the organisation of a fund committee and thereafter during the distribution of funds. The latest recipients of the funding will be listed on the community website www.ecopowergathabawn.ie . Annually, the opening of the fund for applications will be advertised on the community website, on Local Radio and in the Local Newspapers
WM106	<u>Cultural heritage interactive database</u> : Offsetting of effects will be further provided by the implementation of an interactive database which will enable members of the local community to record folklore and other intangible cultural heritage of the area around the Gathabawn Windfarm Project. This database will be available to the public, for example through the local libraries and online, the data will be checked before being made publicly available, and the database will be demonstrated in the local schools, community centres and with local heritage groups. The windfarm owner will fund the ongoing maintenance of this database.
WM107	<u>Curtailment Strategy – Noise</u> : A noise curtailment strategy will be developed and implemented to ensure that the operating windfarm complies with the prescribed operational noise criterion. In order to develop this strategy: (i) a pre-construction noise survey will be carried out to establish the background noise levels and to confirm the applicable wind turbine noise criteria at identified Noise Sensitive Locations (NSL) and (ii) following the commissioning of the Project and the commencement of operation of the wind farm, a second noise survey will be carried out at the NSLs to establish compliance with the noise limit conditions applied to the development. This survey will be carried out according to the IOA GPG and Supplementary Guidance Note 5: Post Completion Measurements (July 2014). Where exceedances are confirmed during surveys, then appropriate sound power operating modes will be activated for specified turbines operating in specified wind conditions as required to reduce noise

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OMM No.	Operational Phase Mitigation Measure (OMM)
	output when exceedance at a NSL is predicted by the wind turbines computer SCADA software. A third noise survey will be carried following the activation of sound power modes to confirm the effectiveness of the curtailment strategy.
WM108	<u>Amplitude modulation</u> : In the event of a complaint which indicates potential amplitude modulation (AM) associated with turbine operation, the windfarm operator will employ an independent acoustic consultant to assess the level of AM experienced by the complainant in accordance with the methods outlined in the 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 valuable information on the frequency and duration of occurrence, which can be used to evaluate mitigation requirements. The mitigation measures, if required, will consist of the implementation of operational controls on specified turbines, which will curtail or stop the relevant turbines under specific operational conditions, so that OAM is eliminated.
WM109	<u>Shadow Flicker Control</u> : The wind turbines will be fitted with a Shadow Flicker Control Module, comprising a central processing unit (CPU) and light sensors. Should a complaint regarding shadow flicker be received from a neighbouring resident, the occurrence of shadow flicker at the receptor will be investigated and the Control Module will be set to automatically turn off the turbine at the request of the resident, if the defined parameters for shadow flicker events, at a given sensitive receptor, are predicted to occur. This will eliminate shadow flicker at the residence in question. A report on the operation of the Shadow Flicker Control Module and compliance with any planning condition limiting shadow flicker occurrence will be prepared and submitted to the Local Authority after Year 1 of operation, and every 3 years thereafter.
WM110	<u>TV Signals</u> : the Promoter will sign up to the 2RN Protocol Agreement to manage and rectify interference caused by the Gathabawn turbines to television services locally. To rectify interference on TV signals caused by the Gathabawn turbines, one of the following measures would be undertaken, decided on a case-by-case basis: (i) TV Antenna re-alignment and increase height - In instances where user dwelling antennas are misaligned and installed either at very low heights or in attic spaces, re-aligning the aerial and increasing its height may resolve TV interference. (ii) Antenna Re-tuning to an alternative transmitter could resolve TV issues for some residences. (iii) Subscription-Free Satellite TV service (SaorSat) which would provide digital TV to residences with a once-off installation charge (covered by the developer). This service can be deployed over satellite, which would incur no interference from the wind farm.
WM111	<u>WQ and Soil Protection at Turbine Delivery Facilitating Works locations</u> : During any reopening/re-widening of site entrances or facilitating works locations, any topsoil removed to reveal the hardcore underneath will be stored in an adjacent temporary deposition area, sealed to prevent erosion, and a silt curtain will be erected downslope of this deposition area. Following the completion of the transportation, the hardcore area will be covered over once again using the soil in the deposition area. The area will be reseeded/replanted as appropriate to the location. The area will be fenced from livestock until revegetation has occurred.
WM112	<u>Control of vehicle/machinery movement</u> : Operational phase traffic, personnel and materials will be restricted to the windfarm site roads and hardstanding areas.
WM113	<u>Maintenance of windfarm roads</u> : The windfarm roads will be maintained during the operational phase and kept in good working order and free of wheel ruts and potholes.
WM114	<u>Vegetation Monitoring</u> : The rate of re-vegetation of exposed soils and growth of newly planted hedgerows and trees will be checked by the Asset Manager during quarterly site inspections. Where revegetation is

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OMM No.	Operational Phase Mitigation Measure (OMM)
	slower than expected, that area will be prepared and re-seeded or replanted in an appropriate manner, as advised by a suitably qualified ecologist.
WM115	<u>Fuel/Oil control procedures</u> will be implemented and will include the following: On site re-fuelling of machinery (if required) will be carried out using a mobile double skinned fuel bowser. The fuel bowser, double-axle custom-built refuelling trailer, will be refuelled off-site, and will be towed onto the site by a 4x4 vehicle to where machinery is located. The 4x4 vehicle will carry fuel absorbent material and pads in the event of any accidental spillage. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations. In addition, spill response apparatus including spill-kits and fuel absorbent mats will be stored in each turbine and stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment and in the implementation of the Emergency Response Plan, as contained in the Environmental Management Plan. All fuels or oils, required during operation, will be stored in a designated, bunded, locked COSSH storage area at the control buildings. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment will be contained within the bunded area. Fuel, oil and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage. Safety data sheets for all chemicals used will be kept on-site.
WM116	<u>Bat Boxes</u>: The new bat boxes will be checked annually for integrity and will be replaced if necessary.
WM117	<u>The bat buffer zone</u> will be maintained during operation by trimming existing trees and hedgerows, removing any scrub and additionally no new trees or hedgerows will be planted within the buffer zones. Grazing intensity and sward heights will be monitored, and where grazing has ceased in agricultural lands around a turbine that the grass will be mowed to maintain a low sward if required.
WM118	<u>Feathering the blades</u>: The rotational speed of the turbine blades when idling during low wind speeds will be reduced by 'feathering' the turbine blades, which means turning the turbine blades parallel to the wind. With feathering in place, the turbines can continue to rotate slowly, but at speeds that pose much less of a risk to bats (Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation - SNH 2019). The feathering will reduce the rotational speed of the turbine blades when idling so they do not exceed 2RPM.
WM119	<u>Curtailment Strategy - Bats</u>: Operational monitoring will be undertaken at each turbine, using automated detectors at ground level, for periods of at least ten nights, during spring (April, May), mid-summer (June, July) and autumn (August, September). Prevailing on-site weather data (temperature, wind speeds and rainfall) will be recorded concurrently with the bat activity monitoring, in order to identify conditions associated with high levels of Leisler's Bat activity. This monitoring will be carried out in order to collect sufficient data to inform the development of an effective curtailment strategy for the protection of Leisler's Bat, while avoiding curtailment of operating turbines unnecessarily. The monitoring will identify the periods in which there is risk to Leisler's Bat and will also identify periods where there is little or no risk to Leisler's Bat. For example, a curtailment strategy could comprise the following parameters: If the bats are only active in significant numbers between sunset and sunrise, then curtailment would be targeted only on these periods. Or where bat activity is strongly influenced by weather conditions such as temperature, wind speeds and rainfall, curtailment would reflect the suitable or unsuitable conditions. Where high Leisler's Bat activity is recorded during monitoring, curtailment would be deployed on turbines where the activity occurs when ALL of the following parameters are met: • when wind speeds are below 6 m/s, and • when air temperatures are above 9°C and • between 1st April and 30th September throughout the night (starting 15 minutes prior to sunset and ending 30 minutes after sunrise).

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OMM No.	Operational Phase Mitigation Measure (OMM)
	If the monitoring indicates that curtailment is required, then the relevant turbines will be curtailed similar to the parameters listed above and will be informed by the data gathered during monitoring. Annual reports on the curtailment strategy will be provided to relevant statutory bodies (where required). The report will also consider the latest bat monitoring and deterrent systems.
WM120	<u>Security lighting</u> will be cowed in order to prevent light spill and no lighting will be left turned on overnight. Lighting will be controlled by motion and time sensors to minimise the amount of time the lights are operational.
WM121	<u>Waste Management</u>: waste arising during the operation stage will be carried out according to a Waste Management Plan. An appropriately licensed waste company will be contracted to deal with all windfarm wastes. The Waste Management Plan will be included in the Environmental Management Plan for the operational project. The Asset Manager will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.

Chapter 20: Mitigation Measures & Monitoring Arrangements – Proposed Gathabawn Windfarm**EIAR 20.4 Decommissioning Phase Mitigation Measures & Monitoring Arrangements**

The following Environmental Protection Measures will apply during the decommissioning of the Gathabawn Windfarm:

EIAR 20.4.1 Decommissioning Phase Monitoring & Mitigation Measures

WM ID	Decommissioning Phase Mitigation Measure
WM122	<u>Environmental Management Plan</u> : Any decommissioning works will be carried out in accordance with the updated EMP. A suitably qualified Environmental Manager will be appointed by the Project Promoter, and it will be their responsibility to ensure that the EMP is implemented through liaising with the Asset Manager and the decommissioning Contractor(s) and by carrying out regular audits on EMP compliance. The EMP will be an important contract document for the decommissioning contractor(s) who will be contractually obliged to comply with the EMP and the requirements of the Environmental Manager
WM123	<u>Up-to-date Best Practice</u> : Prior to the commencement of decommissioning works, a <u>review of these protective measures</u> listed herein will be carried out to ensure that the most up-to-date measures are implemented during decommissioning works to comply with best practice at the time.
WM124	<u>Consultation & Supervision of Works</u> : The works will be carried out in consultation with Kilkenny County Council and under the supervision of a suitably qualified engineer and ecologist. Re-vegetation of the site will be carried out under the supervision of a suitably qualified ecologist.
WM125	<u>A Community Liaison Officer</u> (CLO) will be appointed for the duration of the decommissioning phase and will be the point of contact for local residents.
WM126	<u>Fauna surveys</u> : It is recommended that a programme of pre-decommission monitoring of terrestrial habitats, marsh fritillary, bats, terrestrial mammals and birds be conducted in the period preceding the commencement of substantial decommissioning works to ensure adequate protection of these species is ensured during the process of decommissioning. The resulting survey data can inform the design of any mitigation that may be required and ensure that any such mitigation is fully and effectively implemented.
WM127	<u>Invasive Species Survey</u> : Before any decommissioning works commence, the works locations will be surveyed for invasive plant species infestations and should any be present within 7m of the works, then the works within 7m of the infestation will be under the direct supervision of an ecologist with prior experience of invasive species.
WM128	<u>Weather forecasting</u> warnings will be consulted in advance of works, and decommissioning works will not take place during periods of prolonged heavy rain or exceptional rainfall events.
WM129	<u>Hours of Work</u> : Decommissioning operations will be restricted to between 0700-1900hrs Monday to Friday.
WM130	<u>Control of Machinery/Vehicular Movements</u> : Decommissioning traffic, personnel and materials will be restricted to the decommissioning works areas. Machinery will be kept on the windfarm site roads and hardstanding areas, and, aside from reinstatement works, will avoid moving off the hardstanding areas where possible.
WM131	<u>Fit for Purpose</u> : All plant and machinery which will be used during decommissioning works will be fit for purpose and in good working order prior to mobilisation to works areas.
WM132	<u>Noise and GHG emissions from plant/machinery</u> : Plant and machinery will not be permitted to idle. Machinery used intermittently will be shut down when not in use. All vehicles and plant will be fitted with effective exhaust silencers. Noise dampeners will be fitted where required. The best means practicable, including proper maintenance of plant, will be employed to minimise noise and GHG emissions.

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WM ID	Decommissioning Phase Mitigation Measure
WM133	<u>Fuel Controls</u> : Overnight parking of plant and machinery will only be permitted at the turbine locations. There will be no refuelling of vehicles or plant permitted within 100m of a watercourse or drainage feature or within 100m of the Cullahill Mountain SAC or the Gales Hill Nature Reserve. Any re-fuelling of machinery on site will be carried out using a mobile double skinned fuel bowser which will carry fuel absorbent material and pads in the event of any accidental spillages. In addition, spill response apparatus including spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment.
WM134	<u>Protection of WQ and Soils</u> : During decommissioning works, topsoil removed will be stored in an adjacent temporary deposition area, sealed to protect it from weathering, and a silt curtain will be erected around this deposition area.
WM135	<u>Land reinstatement</u> : Following the completion of decommissioning, the hardcore areas at the turbines and at widened site entrances and facilitating works locations will be covered over, using the soil in the deposition areas. The areas will be reseeded/replanted as appropriate to the location. The areas will be fenced from livestock until revegetation has occurred. Land reinstatement works will not take place during periods of prolonged heavy rain or exceptional rainfall events or when the soil is waterlogged.
WM136	<u>Revegetation</u> : The Asset Manager and Project Ecologist will check the rate of re-vegetation of exposed soils and reinstated areas quarterly following decommissioning works (until revegetation is attained). Where revegetation is slower than expected, that area will be prepared and re-seeded in an appropriate manner.
WM137	<u>Waste Management</u> : waste arising during the decommissioning stage will be carried out according to a Waste Management Plan. An appropriately licensed waste company will be contracted to deal with all decommissioning wastes. The Waste Management Plan will be included in the Environmental Management Plan for the decommissioning stage. The Asset Manager will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.

EIAR 20.5 Environmental Management Plan

An Environmental Management Plan (EMP) has been prepared for the whole Gathabawn Windfarm project. The EMP describes the approach to environmental management during the construction stage of the Gathabawn Windfarm.

The EMP is considered a dynamic document and as such will be reviewed and updated as required throughout each stage of the Gathabawn Windfarm development to ensure it contains the latest relevant information, environmental commitments, mitigation measures and monitoring arrangements.

The purpose of this document is to communicate environmental protection measures that apply to the development of the Gathabawn Windfarm to those with responsibility for carrying out works or activities on site so that significant adverse effects on the receiving environment can be prevented. The EMP will include all of the mitigation measures and monitoring arrangements for the Project, including those proposed as part of the EIA Report and AA Report, along with Traffic, Surface Water, Waste and Biodiversity Management Plans, Emergency Response Procedures, any additional measures, monitoring or procedures included in consent conditions.

An Environmental Clerk of Works will be appointed, independent of the main construction Contractor, and will carry out weekly audits of the construction works and process, reporting to the Project Manager on EMP compliance. If non-compliance is detected, then, prompt corrective action will be agreed and committed to by the Contractor, with a view to the swift and effective resolution of any deviations from the EMP requirements. Furthermore, the Environmental Clerk of Works will have a 'stop-works' authority to temporarily stop works at a works location in order to avoid or react to an unforeseen adverse environmental event. Works will not be allowed to re-commence until the issue is resolved.

The EMP will be an important contract document for the main construction contractor (Contractor) who will be contractually obliged to comply with the EMP and the requirements of the Environmental Clerk of Works.

Following the completion of construction, the roles and responsibilities and the environmental commitments included in the EMP will be updated for the operational phase of the Project. Similarly, the EMP will be updated once again prior to decommissioning.

See **Gathabawn Windfarm Project Environmental Management Plan** in Volume D which accompanies the planning application.

Appendix to Chapter 20: Monitoring Arrangements & Mitigation Measures

Appendix 20.1: Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

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A20.1 Candidate Gathabawn Grid Connection - Mitigation & Monitoring Arrangements

A20.1.1 Introduction

Mitigation measures which are envisaged to avoid, prevent, reduce or offset adverse effects of the Candidate Gathabawn Grid Connection to the environment are set out in the sections below. The mitigation measures and monitoring arrangements have been developed by the EIA Topic competent experts in collaboration with the Project Design Team and the EIA Co-ordinators.

The primary mitigation for the Candidate Gathabawn Grid Connection is mitigation by avoidance i.e. the design of the Project through the consideration of alternative locations, layouts, size and scale, as set out in Chapter 4: Alternatives Considered. For effects that cannot be avoided through consideration of alternatives, mitigation by prevention, reduction or offsetting are proposed. These are listed in Section A20.1.2 below. The expected effectiveness of the mitigation measures is provided within the topic chapters. The potential for mitigation measures to cause indirect effects has been considered in Chapter 20 Interaction of the Foregoing.

Monitoring is also proposed to take place after consent is granted, in order to check that proposed processes and measures are operating as intended and that the Project in practice conforms to the predictions made during the EIA process and to record any unforeseen effects or non-compliance with consent conditions in order to undertake appropriate remedial actions.

Note: For ease of reference within the Environmental topic chapters, the mitigation measures and monitoring arrangements are identified with a Grid Connection Measures (GM) ID code, as outlined in the tables below.

A20.1.2 Candidate Gathabawn Grid Connection: Monitoring Arrangements & Mitigation Measures

The following Environmental Protection Measures and Monitoring Arrangements will apply during the construction, operation and decommissioning phases of the Candidate Gathabawn Grid Connection:

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
	Preconstruction Surveying & Monitoring
GM01	<u>Engineering Review</u> : A suitably qualified engineer will review and approve the civil contractor's method statements and final detailed design prior to the commencement of construction works.
GM02	<u>Water Quality Monitoring</u>: Confirmatory surface water quality monitoring will be carried out prior to the commencement of construction works at the water quality monitoring locations to determine the pre-construction status of surface water quality in downstream watercourses. This monitoring will include laboratory analysis of water samples which will be carried out by an independent and appropriately certified laboratory. The monitoring of water quality parameters and collection of samples will be undertaken by the Environmental Clerk of Works, who will be appropriately trained on the required monitoring methods and the use, calibration and maintenance of all monitoring equipment used. Records will be kept of biological and chemical monitoring undertaken carried out prior to the commencement of construction works.
GM03	<u>Pre-construction surveys for invasive species</u> will be carried out to determine if any new infestations of invasive species have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys for invasive species will be carried out at the construction works areas plus 7m, by the Project Ecologist, to

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
	accurately determine the extent of new invasive species infestations. Mapping, showing the most up to date distribution and extent of each infestation, will be distributed to the Environmental Clerk of Works and to the Project Engineer.
GM04	<u>Pre-construction surveys for Otter holts</u> will be carried out by an experienced Ecologist to determine if any new Otter holts have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys for Otter holts and activity (particularly holts at which breeding females or cubs are present) will be carried out 150m upstream and downstream of watercourse crossing locations.
GM05	<u>Pre-construction surveys for Kingfisher nests</u> will be carried out to determine if any new Kingfisher nests have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys will be carried out by a suitably qualified Ornithologist within the construction works area boundary and within 300m upstream and downstream of watercourse crossing locations and will be undertaken between March and April (early visit) and again between May and June (late visit).
GM06	<u>Pre-construction surveys for Badger setts</u> will be carried out to determine if any new Badger setts have been established in the interim period between the submission of the planning application and the commencement of construction works. These pre-construction confirmatory surveys will be carried out by the Project Ecologist within the construction works area boundary and within 50m of the construction works areas and carried out no more than 10-12 months in advance of proposed construction activities.
GM07	<u>Pre-construction surveys for Bat roosts</u> will be carried out at all trees and buildings identified as having bat roost potential during initial pre-planning surveys. Surveys will be carried out by the Project Ecologist at a time of year that is appropriate to the type of roost e.g. June to August for maternity roosts, or November to February for hibernation roosts. If the location or status of roosts has changed, then the use of lighting at nearby construction works locations will be adapted accordingly by the Project Ecologist.
GM08	<u>Pre-construction licenced archaeology surveys</u> and investigations will be carried out in advance of construction works taking place, at identified locations within the construction works area boundary. These surveys will include photographic surveys, townland/civil parish boundary surveys, wade and detection surveys, geophysical surveys and/or archaeological test trenching as required. The nature and scope of these surveys will be agreed with the National Monuments Service (NMS). The archaeologists will also provide a toolbox talk to construction teams. This will aim to outline the importance of archaeology, the legal implications of destroying it without appropriate reporting and recording, how to identify potential archaeology, outline a protocol and who to report it to when potential archaeology is found,
GM09	<u>Confirmatory road condition surveys</u> involving pre-construction and post-construction inspections and high-definition video surveys will be undertaken along the routes of concentrated construction traffic and road works locations the affected sections of the N77, the R432, the L1807, L1811, L1808, L1806, L1804, L5818, L5821 and L5820, and along road works locations on the L5818, L5820, L5821, L1806, L18062, L1808, L1811, L1807, N77 and R432.
GM10	<u>Confirmatory consultations with service operators</u> (i.e. Uisce Eireann, Eir, ESB Networks, and Gas Networks Ireland) and confirmatory ground surveys at service locations will be carried out ahead of, and throughout, excavation works or use of machinery in close proximity to existing overhead and underground services.
GM11	The <u>construction Method Statements</u> to be developed by the construction contractors will take full account of the EMP including the mitigation and monitoring measures and will be reviewed by the Project Engineer and the Environmental Manager prior to the commencement of construction works.

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
	During Construction Surveying & Monitoring
GM12	The <u>Environmental Management Team</u> will monitor construction works for compliance with the Environmental Management Plan. The project Environmental Management Team which includes an Environmental Clerk of Works, the Project Ecologist and specialists as required such as archaeologists, invasive species specialists and hydrologists, who are independent of the site contractors. The Environmental Management Team will report to the owner's Project Manager.
GM13	A <u>Landowner Liaison Officer</u> (LLO) will be appointed and will monitor the erection and maintenance of the construction works area boundary fences and will liaise with the landowners regarding the location of access gateways along the fence, and of livestock water supply pipes and livestock water supply sources. The LLO will keep the landowners up to date with relevant construction work schedules.
GM14	<u>Engineer Supervision</u> : a suitably qualified <u>engineer</u> will <u>supervise</u> all excavations and construction works.
GM15	<u>Inspections of the drainage network around the Parksgrove Substation</u> will be conducted regularly during the construction phase under the following schedule: Daily visual inspections by the Contractor; weekly inspections by the Environmental Management team; Event based inspections by the Contractor as follows: >10 mm/hr (i.e. high intensity localised rainfall event); or >25 mm in a 24 hour period (heavy frontal rainfall lasting most of the day); or, rainfall depth greater than monthly average in 7 days (prolonged heavy rainfall over a week). Inspections will examine the functioning of the various elements of the drainage system, and if evidence of sedimentation or scouring and any changes in the drainage water including discolouration, odour, oily sheen or the presence of litter, then the required corrective maintenance or actions will be identified and will be implemented immediately the Contractor.
GM16	<u>Surface water quality monitoring</u> of watercourses downstream of the works will be carried out at regular intervals by the Environmental Management team during the construction phase. Laboratory analysis of water samples will also be undertaken as part of the monitoring programme by an independent and appropriately certified laboratory. The surface water monitoring locations and sampling programme are defined in the Surface Water Management Plan which forms part of the Gathabawn Windfarm Project Environmental Management Plan. Surface water quality monitoring will include Total Suspended Solids [TSS] monitoring, with readings above 25mg per litre (as specified in the Salmonid Waters Regulations, SI 293 of 1988) triggering a non-compliance issue, and resultant remedial action by the construction Contractor, in line with the EMP. Records will be kept of biological and chemical monitoring undertaken before, during and after the works, and will be made available upon request to any authorised person as defined under the Local Government (Water Pollution) Acts.
GM17	At <u>W3, W4 and W5, monitoring of Q values and sediment build up</u> will be carried out immediately downstream of the dam locations during crossing works. This monitoring will be conducted throughout the construction works and also conducted as part of surface water monitoring in order to confirm that the Q values and sediment levels return to baseline levels. Prior to dam being removed at W3, W4 or W5, where sediment build up poses significant downstream effects on the watercourse, this sediment will be removed.
GM18	<u>Fit for Purpose</u> : All plant and machinery which will be used during construction will be fit for purpose and in good working order prior to mobilisation to works areas. The plant and machinery will be regularly inspected by the Contractor for leaks and maintained in good working order for the duration of the works.
GM19	<u>Fuel, oil and chemical stores</u> including tanks and drums will be regularly inspected for leaks and signs of damage.

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GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM20	<u>Liaison with Contractor</u> : The Project Ecologist will liaise with the Contractors on a weekly basis regarding the upcoming schedule of works and will advise the Contractors of any particular ecological protection requirements at specific locations on site.
GM21	Any excavation <u>works in close proximity (7m) to an invasive species infestation</u> location will be carried out under the direct supervision of an invasive species specialist ecologist.
GM22	<u>Invasive Species Control</u> : Visual inspections will be carried out by the Contractor on all machinery and equipment (particularly for machinery and equipment which has come into contact with water or soils) for evidence of attached plant or animal material, or adherent mud or debris. Any attached or adherent material will be removed before entering or leaving the site, securely stored away from traffic for removal to a contaminated waste storage bin at the temporary constructions.
GM23	<u>Monitoring – Dust</u> : During working hours, the construction contractor will monitor dust control methods and weather forecasts for dry and windy conditions and will carry out weekly on-site and off-site inspections to monitor dust caused by the construction works. Public roads will be regularly inspected for cleanliness and regular dust soiling checks of surfaces along public roads and within 100m of site access points will also be carried out. The frequency of monitoring will be increased when construction activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
GM24	<u>Archaeological Monitoring of initial groundworks</u> in Parksgrove and Moatpark will be carried out by the Project Archaeologist under licence during construction works. The nature/scope of the groundworks monitoring will be agreed with the National Monuments Service (NMS). This will include a Watching Brief on areas of track construction, soil stripping, or grid connection works that are within 10m of recorded or potential archaeology, including geophysical and LiDAR features.
GM25	<u>Section 12 Notification</u> applications for any works within a Zone of Notification shall be submitted and approved by the National Monuments Service, with mitigation agreed upon approval for these assets
During Construction Mitigation Measures	
GM26	<u>Environmental Management Plan</u>: The construction of the Gathabawn Windfarm Project will be carried out in accordance with the Environmental Management Plan (EMP). The EMP will include all of the mitigation measures and monitoring arrangements for the Project. An Environmental Clerk of Works will be appointed, independent of the main construction Contractor, and will carry out weekly audits on EMP compliance. If non-compliance is detected, then, prompt corrective action will be agreed and committed to by the Contractor, with a view to the swift and effective resolution of any deviations from the EMP requirements. The EMP will be an important contract document for the main construction contractor (Contractor) who will be contractually obliged to comply with the EMP and the requirements of the Environmental Clerk of Works. Furthermore, if a significant unforeseen environmental effect takes place, then, the Environmental Clerk of Works will have a '<u>stop-works</u>' authority to temporarily stop works until the issue is resolved.
GM27	<u>Fencing of works areas</u> : The boundaries of construction works areas in agricultural lands will be fenced to prevent the encroachment of construction phase personnel, machinery or materials beyond this boundary. Livestock proof fencing will be used, with landowner access maintained through the provision of openings along the boundary fences.
GM28	<u>Control of Movement of Machinery/Vehicles</u> : Construction traffic, personnel and materials will be restricted to within the construction works area fence and will avoid moving onto areas not delineated on the site drawings.

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GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM29	<u>Land reinstatement</u> will not be carried out during very wet weather or when the soil is waterlogged. If any compaction has occurred along the construction works area, these areas will be ploughed with a sub-soiler to loosen the subsoil layer.
GM30	<u>Excavation of Materials</u> : The excavation of earth materials during the construction stage will be kept to a minimum. The excavation of materials will be completed in accordance with best practices for the management and treatment of such materials. (i.e. British Standards BS6031:2009 Code of Practice for Earthworks, and MAFF (2000) Good Practice for Handling Soils).
GM31	<u>Storage of Overburden</u> : During construction works, excavated material will be removed for temporary or permanent storage at designated berms. All storage berms will be placed more than 50m away from any watercourse or wet drainage channel. Temporary silt control methods such as silt fencing or curtains will be placed around all overburden storage areas and/or installed between the berms and local watercourses or wet drainage channel, depending on the location, and the existing vegetative between the berms and watercourse / drainage features will be left in place.
GM32	<u>Protection of Soils in Berms</u> : All storage berms will be graded and sealed following emplacement. Topsoil and subsoil will be stockpiled separately. Re-seeding of permanent berms will be carried out as soon as practical in these areas. Construction works areas along cable routes in agricultural lands will be reseeded as soon as practical after reinstatement. Measures such as silt curtains around the bases of these areas and sediment traps will also be incorporated to prevent runoff of suspended solids, dust and soil erosion, if required.
GM33	<u>No storage of excavated material on the public road</u> along the UGC routes, all excavations from public roads will be removed to licensed waste facilities in accordance with the Waste Management Plan.
GM34	<u>Protection of watercourses and existing drains</u> : Additional mitigation measures will be deployed within 50m of watercourses or wet drainage features, including the placement of silt trapping arrangements along preferential surface water flowpaths, and temporary drain blocking in existing drains. Works will not take place within this 50m zone during prolonged heavy or exceptional rainfall events.
GM35	<u>Weather forecasts</u> will be consulted in advance of works. If there is heavy prolonged rainfall or if an exceptional rainfall event occurs, then construction works will cease until peak flows have subsided.
GM36	<u>At Parksgrove Substation, a permanent surface water drainage network</u> will be installed at the substation compound and along the associated access road, and will ensure that all surface water runoff from the access road and new the hardstand areas will be captured and treated prior to discharge/release. The drainage infrastructure will not be installed during heavy or prolonged rainfall events or when the soil is waterlogged. The site drainage network will include check dams and settlement ponds which will settle suspended solids in water runoff while also slowing down the rate of water run-off from these areas. Water will be released to surrounding vegetation via buffered outfall weirs.
GM37	<u>Where dewatering of trenches</u> or excavations is required, there will be no direct discharge of treated water into any watercourse or drain or directly onto adjacent habitats. Rather, all pumped water will be discharged via a silt bag or infiltration trench or settlement pond, as appropriate, to surrounding vegetation.
GM38	<u>Any replacement culverts under the public road</u> (if required), will be sized to cope with a minimum 100-year flood event. In all cases, culverts will be oversized to allow mammals to pass through the culvert. The replacement of drain crossing structures will be carried out in accordance with the Office of Public Works (OPW) Guidelines Construction, Replacement or Alteration of Bridges and Culverts (2013), and also with the Department of Transport, Tourism & Sport Guidelines for Managing Openings in Public Roads (April 2017). Crossings will be designed to meet IFI's <i>Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters 2016</i> and OPW's <i>Design Guidance For Fish Passage On Small Barriers (2021)</i> .

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM39	<u>In-stream works – isolation of flow and electrofishing:</u> In-stream works at W3, W4 and W5 will not be undertaken without isolation of flow within the watercourse by over-pumping through a flume (pipe). The Project Ecologist will supervise all watercourse crossing works at W1 to W6 inclusive. A pre-works survey will be carried out by the Project Ecologist to identify any electrofishing requirements at the watercourses, and if required electrofishing of the isolated section will be carried out under licence prior to the commencement of excavation works.
GM40	<u>Instream works at W3, W4 and W5</u> will be followed by site-specific reinstatement measures to ensure the restoration of flow character and morphology within the affected reach. Measures will include: bank stabilisation using boulder armour or willow/brush bank protection; reinstatement of bank slope and character, creation of compound channels where necessary; reinstatement of instream flow features such as boulder substrates, pool / riffle sequences, or spawning cobbles; and planting along the riparian margin to stabilise banks, add flood protection and provide riparian buffer.
GM41	<u>HDD Control of Works:</u> The horizontal directional drilling works will be carried out by an experienced Drilling Contractor and supervised and managed by a competent and experienced Mud Engineer who understands the technicalities and challenges of drilling works. The Mud Engineer will advise the Construction Manager on the selection of competent drillers for the HDD works; monitor the watercourse bed during drilling works and will supervise the drilling works including the drilling pressures and the implementation of any contingency measures. From a surface water quality protection perspective, the area around the launch/reception pit, bentonite batching, pumping and recycling plant will be bunded using appropriate terram geotextile and/or sandbags in order to contain any spillages. Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area. Spills of drilling fluid will be cleaned up immediately and stored in an adequately sized watertight skip before being taken off-site to a suitably licensed waste facility. The HDD works from preparatory stage through to reinstatement will be supervised by the Project Ecologist. In the event of a break-out occurring, the Environmental Emergency Response Procedure for Frac-Out will be implemented which includes the following contingency measures; • In the event of break-out occurring in the stream/river bed, the rig will immediately shut off the pumps and the drilling assembly will be pulled off to reduce annular pressures; • In the event of break-out on the road an excavator will be available to dig a pit to contain fluid with vacuum trucks/pumps available to transfer drill fluid from the containment point back to the recycling point; and in either scenario, drilling fluid additives designed to plug the formation will be introduced to the circulation system and let set. Environmental Emergency Response Procedures are included in the Whole Gathabawn Windfarm Project Environmental Management Plan.
GM42	<u>Protective Barrier:</u> Prior to works commencing along the Parksgrove-Moatpark UGC, a silt curtain will be installed immediately inside the road boundary fence for the entire length of the UGC within the verge, and where the UGC enters agricultural land, a double silt curtain will be installed on the outside of the construction works area upto and around the drilling pit on the western side of the river. On the eastern side of the River Nore, prior to works commencing, a silt curtain will be installed along the entire length of the access road from the R432, with a double silt fence installed beyond the construction works area boundary upto and around the drilling pit on the eastern side of the river.
GM43	<u>Only precast concrete or double skinned HDPE pipes</u> will be used for new drain crossing structures, if required, along the Ballylehaun-Ballyring UGC. Only precast concrete chambers will be used at Joint Bays.
GM44	<u>Concrete control procedures</u> will be implemented and will include the following: • All concrete will be ready-mixed and delivered to site just-in-time;

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
	• Dry granular cement will be used in UGC cable trenches; • The pouring of concrete will be scheduled for dry days. If a sudden rainfall event should occur, then plastic covers will be ready and available at the pour site to cover the concrete. • The pour site will be kept free of standing water; • Designated trained operator experienced in working with concrete will be employed during concrete pouring; • Concrete trucks will be washed out at the supplier's facilities and not on site. The only concrete washing that will occur on site is the hand washing of the chutes at the rear of the trucks. Washing of chutes will only take place at the designated area and into a Roadside Concrete Washout unit. • No discharge of cement contaminated waters to any artificial drain or watercourse will be allowed.
GM45	<u>Fuel/Oil control procedures</u> will be implemented and will include the following: On site re-fuelling of machinery will be carried out using a mobile double skinned fuel bowser. The fuel bowser, a double axel custom-built refuelling trailer, will be refuelled off-site, and will be towed around the site by a 4x4 jeep to where machinery is located. The 4x4 jeep will carry fuel absorbent material and pads in the event of any accidental spillage. Mobile measures such as drip trays and fuel absorbent mats will be used during all refuelling operations. In addition, spill response apparatus including spill-kits and fuel absorbent mats will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment and in the implementation of the Emergency Response Plan, as contained in the Environmental Management Plan. The fuel bowser will be parked on a level area, away from main traffic activity, in a designated part of the construction compound when not in use. Taps, nozzles or valves associated with mobile fuel bowser will be fitted with a lock system. Only designated trained and competent operatives will be authorised to refuel plant on site. A Permit to Fuel system will be put in place.
GM46	<u>Along the cable routes, there will be no refuelling</u> of plant or machinery within 100m of a watercourse or wet drainage channel or local spring/well.
GM47	<u>Storage of Fuels, Oils and Chemicals:</u> All fuels or oils or chemicals, required during construction, will be stored in a designated, bunded, locked storage area within the temporary compounds. All fuel, oil and chemical storage areas will be bunded appropriately to 110% of the volume of oils/fuels each area contains for the duration of the construction phase. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area. Fuel, oil and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage. Safety data sheets for all chemicals used will be kept on-site. An emergency response plan to deal with accidental spillages will be contained within the Environmental Management Plan.
GM48	<u>Overnight parking</u> of plant and machinery will only be permitted at an existing hard-core surface at locations which are greater than 50m from watercourse/drainage features/Cullahill Mountain SAC. Drip trays and fuel traps will be used under and around parked plant and machinery to contain any potential leaks.
GM49	<u>In-stream works</u> (W3, W4 and W5) will only be undertaken during <u>the IFI specified period</u> (July, August and September) and will be carried out in accordance with the <i>Guidelines on Protection of Fisheries during Construction Works in and adjacent to Waters</i> (IFI, 2016). As requested by IFI during preplanning consultations for the windfarm, a site-specific method statement for each crossing will be provided to IFI and OPW at least one month ahead of works at each crossing.
GM50	<u>Treatment/management of invasive species infestations:</u> Any infestations of Japanese knotweed or other high-impact invasive species within 7m of works will be covered with high density polyethylene grass carpet terram prior to any works commencing at the location. The covering of any new infestations will only

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GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
	be carried out under the direct supervision of a specialist invasive species ecologist, and works within 7m of the infestation will be under the direct supervision of this specialist invasive species ecologist.
GM51	<u>Should an Otter holt be identified</u> during pre-construction surveys, then all construction works within 150m of the active otter holt, will be carried out during daylight hours and outside of 2 hours after sunrise or before sunset during summer/outside of 1 hours after sunrise or before sunset during winter. If an active holt (particularly holts at which breeding females or cubs are present) is located within 150 meters of the watercourse crossing points, no works will be undertaken while cubs are present in the holt and NPWS will be notified immediately. No wheeled or tracked vehicles (of any kind) will be used within 20m of active but non-breeding otter Holts – except under license, and light work, such as digging by hand or scrub clearance will not take place within 15m of such holts, except under license. The prohibited working area associated with otter holts will, where appropriate, be fenced with temporary fencing prior to any invasive works and declared as ‘out of bounds’. Appropriate awareness of the purpose of the enclosure will be conveyed through toolbox talks with site personnel and sufficient signage will be placed on each exclusion fence. All contractors or operators on site will be made fully aware of the procedures pertaining to each affected holt and subject to conformance audits.
GM52	<u>Road traffic speed limits</u> of 50km/h along the Local Roads L1807, L1806, L1804, and L5818; 30km/hr along the local roads L5821, L5820 and L18062; and 15km/hr along windfarm site roads.
GM53	<u>Should a Badger sett be identified</u> within 50m of construction works areas during pre-construction surveys, then NPWS will be notified immediately and derogation licenses will be secured in consultation with NPWS to ensure the proposed works cause as limited an effect as possible.
GM54	<u>Security lighting</u> will be used at compounds. All lighting will be cowled in order to prevent light spill, and no lighting will be left turned on overnight. Lighting will be controlled by motion and time sensors to minimise the amount of time the lights are operational.
GM55	<u>Noise and emissions from plant/machinery</u> : Plant and machinery will <u>not be permitted to idle</u> . Machinery used intermittently will be shut down when not in use. Any plant operating within 50m of the River Nore or within 200m of a bat roost (if any) will be fitted with noise dampeners and an acoustic enclosure or portable screen placed between the source of noise and the sensitive receptor.
GM56	<u>Hedgerow planting</u> : Any gaps created in hedgerows along the Ballyring-Parksgrove UGC will be reinstated with native hedgerow species in the next suitable planting period following the completion of the works. Hedging plants will be sourced from Department of Agriculture approved nurseries.
GM57	<u>Bird breeding season</u> : Hedgerow removal, tree felling or pruning, and scrub clearance will take place outside of the bird breeding season (1st March to the 31st of August).
GM58	<u>Ground-nesting birds</u> : Where groundworks in grassland are scheduled to take place during the Meadow Pipit, Curlew, Snipe or Lapwing breeding season, surveys will be carried out by the Site Ecologist of suitable habitat, prior to ground/vegetation clearance works. Where active nests are present and the number of nests represents >1% of the local population, the works within close proximity to an active nest will not be carried out until fledging is completed.
GM59	<u>Should a Kingfisher nest be identified</u> within 300m of watercourse crossing points during pre-construction surveys (see GM05), then no construction activities will be permitted within 300m of Kingfisher nest locations during the bird breeding season (March – August inclusive) or until nesting is confirmed as complete following supervision by a suitably qualified Ornithologist.
GM60	<u>Public Road – cleanliness</u> : To ensure that local roads are kept clean, a road sweeper will be used daily at road works locations, and as required at site access points.

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GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM61	<u>Dust Control</u> : Any loads of material which have the potential for dust emissions (such as aggregate) will be covered during transportation.
GM62	<u>Work hours</u> : Construction operations shall generally be restricted to between 0700-1900hrs Monday to Friday, and 0800-1300hrs on Saturdays. Site activities which are likely to create high levels of noise or vibration will be limited to these hours of operation, with no noisy operations on Sundays or Public Holidays. However, to ensure that optimal use is made of good weather period or at critical periods within the programme, it could be necessary on occasion to work outside of these hours.
GM63	<u>A Community Liaison Officer (CLO)</u> will be appointed. The CLO will liaise with and keep the local community up-to-date with relevant construction work schedules, through the use of letter drops to or direct contact with nearest neighbours. The CLO will be the point of contact for local residents and local landowners for matters relating to noise, dust or traffic. The Environmental Clerk of Works will liaise with the CLO and will be the point of contact between the contractor/developer and the Local Authority regarding any matters relating to noise or vibration from the construction works.
GM64	<u>Noise and emissions from plant/machinery</u> : Plant and machinery will not be permitted to idle. Machinery used intermittently will be shut down when not in use. The best means practicable, including proper maintenance of plant, will be employed to minimise the GHG emissions and noise produced by on-site operations. All vehicles and plant will be fitted with effective exhaust silencers. Noise dampeners will be fitted where required. To protect residential amenity, if any plant/machine is required to operate before 07:00hrs or after 19:00hrs Monday to Friday, or before 08:00hrs or after 13:00hrs on a Saturday, then it will be surrounded by an acoustic enclosure or portable screen.
GM65	<u>Preservation of Archaeological Records</u> during construction works will be through the following: - Strip, map and sample in areas where construction activities will strip the topsoil (turbine hard standing areas, borrow pits) and there are geophysical anomalies and LiDAR features present; - Watching brief on areas of soil stripping that are within 10m of recorded or potential archaeology, including geophysical and LiDAR features.
GM66	<u>Cultural heritage features</u> : Protective barriers or fencing will be installed/erected at identified cultural heritage features to prevent machinery or plant encroaching on the site/feature and to increase awareness of the presence of the site/feature with the construction personnel. Toolbox talks will be provided to construction personnel regarding the cultural heritage feature(s).
GM67	<u>'Goal Posts'</u> will be used to identify and highlight the height of nearby overhead lines.
GM68	<u>All excavation works and use of large plant</u> in close proximity to services will be supervised by a banksman; and a stock of repair materials for underground water mains will be kept at active works locations along the public road. Where Uisce Eireann assets are to be crossed by the UGC, the electrical cables will be installed under the Uisce Eireann asset in accordance with Eirgrid specifications and in accordance with Uisce Éireann's Standards Codes and Practices in relation to separation distances.
GM69	<u>Roadside boundaries</u> will be maintained during the construction phase.
GM70	<u>Public Road Works</u> : Works along the public road network will be carried out in co-ordination with Kilkenny County Council and in accordance with "Guidelines for the Opening, Backfilling and Reinstatement of Openings in Public Roads (Department of Transport, Tourism & Sport, 2017).
GM71	<u>Public Road Repair</u> : Any damage to structures or road pavements along cable routes and along concentrated construction haul routes will be repaired to at least as good a condition as pre-works.

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM72	<u>The Traffic Management Plan</u> will be a key construction contract document and will be implemented to safely coordinate and manage traffic during the construction works. The Traffic Management Plan will be developed in coordination with Kilkenny County Council.
GM73	<u>Flag-men</u> will be used on public roads at road works locations. These flagmen will control the movement of traffic on the public road, so that road users can continue to use the public road network in a safe and efficient manner.
GM74	<u>Local Communication</u> : Local residents likely to be affected by road works, will be kept up to date on works schedules by the Community Liaison Officer.
GM75	<u>Steel plating</u> will be available to cover the open trench to ensure access to property is maintained.
GM76	<u>Timing of Works</u> : UGC works which overlap, or whose associated HGV traffic is along, the L1807, L1806 the will not be carried out during concrete pour days for the Gathabawn turbines in the Ballyring Area.
GM77	<u>TII</u> : As requested by TII during preplanning consultation for the windfarm, all proposals relating to the N77 national road agreed and licensed between the Road Authority and the applicant will be shared with TII.
GM78	<u>Uisce Eireann</u> : As requested by Uisce Eireann during preplanning consultations, excavated materials from cable trenches and joint bays along the public road network will be sampled to ensure the material is inert.
GM79	<u>N77 Crossing</u> : the Parksgrove-Moatpark UGC will cross the N77 by horizontal directional drilling (HDD) rather than open-cut trenching, with no works within the N77 carriageway itself.
GM80	<u>Controlling Extent of Works</u> : Cable trenching along the Candidate Gathabawn Grid Connection route will be carried out in short, progressive sections, no longer than 100m in length, with each section reinstated before the next is opened.
GM81	<u>Scheduling Deliveries to avoid school drop-off/pick-up times</u> : HGV deliveries to works or compounds that pass through Lisdowney village or Gathabawn village, will be scheduled to avoid drop-off and pick-up times associated with Scoil Bhríde National School and Scoil na Críon Coille National Schools (approximately 8:30-9:00am, 1:30-1:50pm and 2:30-2:50pm). Any deliveries within the school pickup/drop-off times will be subject to a banksman/escort protocol. Construction drivers will additionally be briefed on the reduced-speed environment at the school frontage and on the likelihood of encountering slow moving agricultural vehicles and machinery on the local road haul routes, with the construction traffic schedule having regard, where practicable, to seasonal peaks in agricultural activity such as the silage season. Consultation with the Scoil Bhríde and Scoil na Críon Coille schools and with Kilkenny County Council Roads Section on this measure will be completed prior to finalisation of the Construction Traffic Management Plan.
GM82	<u>Grid Connection Coordination</u> : The Applicant will engage with other renewable energy developers proposing grid connections to the EirGrid Ballyragget Substation, with a view to sharing or optimising the use of grid connection assets, trenching corridors and associated infrastructure, and coordinating the timing and sequencing of construction works to minimise cumulative and repeated disruption to the same sections of public road.
GM83	<u>Waste Management</u> : waste arising during construction works will be carried out according to a Waste Management Plan. The main contractor will engage an appropriately licensed waste company to deal with all its wastes during construction. The Waste Management Plan is included in the Construction Environmental Management Plan. The Construction Contractor will undertake waste audits detailing resource recovery best practice and identify materials can be reused/recycled.

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM84	<u>Reduction in Embodied Carbon</u> : Where feasible, standard concrete containing Portland cement will be replaced with an alternative concrete mix with lower associated embodied carbon, as per the Climate Action Plan. This will be a minimum of 30% GGBS replacement, or concrete with equivalent or lower associated embodied carbon.
GM85	<u>Reduction in Embodied Carbon</u> : Procurement contracts will ensure that material choices with lower associated embodied carbon relative to standard construction materials are considered favourably during the tender process for the wind farm.
GM108	The Parksgrove-Moatpark UGC works will not be carried out during the period 1st April to 31st July inclusive
GM109	The Promoter of the of the Gathabawn Windfarm Project will liaise with other renewable energy developers where there is potential for the timing of groundworks associated with grid connection works to overlap within a sub-catchment. The Promoter will liaise with the other developer(s) with the aim of jointly agreeing the timing of works to provide a buffer of time between works. The Project Ecologist will consult with NPWS and advise on the timing of the works to avoid or reduce cumulative impacts to habitats and species in downstream waterbodies and in the Parksgrove/Moatpark area.
	During Operation Surveying, Monitoring & Supervision
GM86	<u>Surface water quality monitoring</u> of watercourses downstream of the works will be carried out monthly for the first six months post construction, and thereafter annually during the Operational Years 1, 2, 3, 4 and 5, and then every 5 years thereafter, to record any change to baseline trends. Samples will be analysed by an appropriately certified laboratory and the resulting report submitted to Kilkenny County Council.
GM87	<u>Inspections of Drainage System</u> : The Asset Manager will inspect the drainage system during quarterly site inspections, and any necessary repairs or maintenance works carried out promptly.
	Operational Phase Mitigation Measures
GM88	<u>The Asset Manager</u> will have responsibility for the implementation of the operational phase mitigation measures and will appoint environmental specialists as required.
GM89	<u>Vegetation Monitoring</u> : The rate of re-vegetation of exposed soils and growth of newly planted hedgerows and trees will be checked by the Asset Manager during quarterly site inspections. Where revegetation is slower than expected, that area will be prepared and re-seeded or replanted in an appropriate manner, as advised by a suitably qualified ecologist.
GM90	<u>Fuel/Oil control procedures</u> will be implemented and will include the following: All fuels or oils, required during operation, will be stored in a designated, bunded, locked storage area within the substation compound. All fuel storage areas and the transformer at Parksgrove Substation will be bunded appropriately to 110% of the volume of oils/fuels relevant for each area/or for the transformer. All bunded areas will be fitted with a storm drainage system and an appropriate oil interceptor. Ancillary equipment such as hoses, pipes will be contained within the bunded area. Fuel, oil and chemical stores including tanks and drums will be regularly inspected for leaks and signs of damage. Safety data sheets for all chemicals used will be kept on-site.
GM91	<u>Security lighting</u> will be cowled in order to prevent light spill and no lighting will be left turned on overnight. Lighting will be controlled by motion and time sensors to minimise the amount of time the lights are operational.
GM92	<u>A Community Liaison Officer</u> will be appointed for the duration of the operational phase and will act as a point of contact for the local community.

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM93	<u>Environmental Management Plan for the Operational Phase</u> : Following the completion of the construction and commissioning of the Project, the Environmental Management Plan will be updated, and the operation of the Gathabawn Windfarm Project will be carried out in accordance with the updated Plan. A suitably qualified Environmental Manager will be appointed by the Project Promoter, and it will be their responsibility to ensure that the EMP is implemented through liaising with the Asset Manager and by carrying out regular audits on EMP compliance. The EMP will be an important contract document for the Asset Management contractor who will be contractually obliged to comply with the EMP and the requirements of the Environmental Manager.
	Decommissioning Phase – Surveying, Monitoring and Mitigation Measures
GM94	<u>Up-to-date Best Practice</u> : Prior to the commencement of decommissioning works, a <u>review of these protective measures</u> listed herein will be carried out to ensure that the most up-to-date measures are implemented during decommissioning works to comply with best practice at the time.
GM95	<u>Environmental Management Plan</u> : Any decommissioning works will be carried out in accordance with the updated EMP. A suitably qualified Environmental Manager will be appointed by the Project Promoter, and it will be their responsibility to ensure that the EMP is implemented through liaising with the Asset Manager and the decommissioning Contractor(s) and by carrying out regular audits on EMP compliance. The EMP will be an important contract document for the decommissioning contractor(s) who will be contractually obliged to comply with the EMP and the requirements of the Environmental Manager
GM96	<u>Invasive Species Survey</u> : Before any decommissioning works commence, the works locations will be surveyed for invasive plant species infestations and should any be present within 7m of the works, then the works within 7m of the infestation will be under the direct supervision of an ecologist with prior experience of invasive species.
GM97	<u>Fit for Purpose</u> : All plant and machinery which will be used during decommissioning works will be fit for purpose and in good working order prior to mobilisation to works areas.
GM98	<u>Noise and GHG emissions from plant/machinery</u> : Plant and machinery will not be permitted to idle. Machinery used intermittently will be shut down when not in use. All vehicles and plant will be fitted with effective exhaust silencers. Noise dampeners will be fitted where required. The best means practicable, including proper maintenance of plant, will be employed to minimise noise and GHG emissions.
GM99	<u>Hours of Work</u> : Decommissioning operations will be restricted to between 0700-1900hrs Monday to Friday.
GM100	<u>A Community Liaison Officer (CLO)</u> will be appointed for the duration of the decommissioning phase and will be the point of contact for local residents.
GM101	<u>Consultation & Supervision of Works</u> : The works will be carried out in consultation with Kilkenny County Council and under the supervision of a suitably qualified engineer and ecologist. Re-vegetation of the site will be carried out under the supervision of a suitably qualified ecologist.
GM102	<u>Storage of Overburden</u> : During any reopening of jointing chambers in agricultural lands, topsoil removed to reveal the jointing chamber cover underneath will be stored in an adjacent temporary deposition area, covered to protect it from weathering, and a silt fence will be erected around this deposition area.
GM103	<u>Protection of WQ and Soils</u> : During decommissioning works, topsoil removed will be stored in an adjacent temporary deposition area, sealed to protect it from weathering, and a silt curtain will be erected around this deposition area.
GM104	<u>Weather forecasting</u> warnings will be consulted in advance of works, and decommissioning works will not take place during periods of prolonged heavy rain or exceptional rainfall events.
GM105	There will be no <u>refuelling of plant or machinery</u> within 100m of a watercourse, wet drainage channel or private well/spring. Any re-fuelling of machinery on site will be carried out using a mobile double skinned fuel bowser. Spill response apparatus including spill-kits and hydrocarbon absorbent packs will be stored in the cabin of each vehicle and operators will be fully trained in the use of this equipment.

Appendix 20.1 Candidate Gathabawn Grid Connection – Monitoring Arrangements & Mitigation Measures

GM No.	Candidate Gathabawn Grid Connection – Surveying, Monitoring & Mitigation Measures (GM)
GM106	<u>Reinstatement Works</u> : Following cable pulling works, the covers will be replaced on the chambers, and ground above the chamber reinstated as appropriate to the location. If in agricultural lands, the area will be reseeded as appropriate and fenced from livestock until revegetation has occurred. Land reinstatement works will not take place during periods of prolonged heavy rain or exceptional rainfall events or when the soil is waterlogged.
GM107	<u>Revegetation</u> : The Asset Manager and Project Ecologist will check the rate of re-vegetation of exposed soils and reinstated areas quarterly following decommissioning works (until revegetation is attained). Where revegetation is slower than expected, that area will be prepared and re-seeded in an appropriate manner.