18. SCHEDULE OF MITIGATION AND MONITORING PROPOSALS

18.1 Introduction

All mitigation and monitoring measures relating to the pre-commencement, construction, operational and decommissioning phases of the Proposed Development are set out in the relevant chapters of this EIAR.

All mitigation which will be implemented during the various phases of the project are presented in Table 18-1 below. The mitigation measures have been grouped together according to their environmental field/topic and are presented under the following headings:

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

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

All monitoring measures which will be implemented during the pre-commencement, construction, operational and decommissioning phases of the project are outlined in Table 18-2. All monitoring measures were set out in the relevant chapters of this EIAR. The monitoring proposals are presented in terms of the monitoring requirement, frequency of monitoring and the mechanism for reporting results where applicable. By presenting the monitoring proposals in the below format, it is intended to provide a monitoring schedule that can be reviewed and tracked during all phases of the project to ensure all the required monitoring is completed as required.

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

18.2 EIAR Mitigation Measures

Table 18-1 Schedule of Mitigation

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
Pre-Commencement Phase					
MM1	Environmental Management	EIAR Section 4	All proposed site activities will be provided for in a Construction Environmental Management Plan (CEMP), prepared prior to the commencement of any operations onsite. The CEMP will set out all measures necessary to ensure works are carried out in accordance with the mitigation measures set out in the EIAR and will set out the monitoring and inspections procedures and frequencies.		
MM2	Environmental Management	EIAR Section 4	The ECoW will maintain responsibility for monitoring the construction works and audit the implementation of the CEMP. In addition, a Project Ecologist, Project Hydrologist, Project Archaeologist, Project Geotechnical Engineer will visit the site regularly and report to the ECoW.		
MM3	Environmental Management	CEMP Section 4	A Site ECoW will oversee the site works and implementation of the Construction Environmental Management Plan (CEMP), and provide on-site advice on the mitigation measures necessary as necessary to ensure the project proceeds as intended. The level, detail and frequency of reporting expected from the ECoW for the Construction Manager, developer's project manager, and any Authorities or other Agencies, will be agreed by parties where required prior to commencement of construction, and may be further adjusted as required during the course of the project.		
MM4	Surface Water Quality	CEMP Section 4	Baseline water quality field testing and laboratory analysis will be undertaken where required prior to commencement of felling and construction at the site. The		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			baseline monitoring programme will be subject to agreement with Donegal County Council. Baseline laboratory analysis of a range of parameters with relevant regulatory limits and Environmental Quality Standards (EQSs) will also be undertaken as per water monitoring programme for the Proposed Development and each primary watercourse along the route.		
MM5	Birds	EIAR Section 7 CEMP Section 4	A Project Ecologist will be appointed. The responsibilities and duties of the Project Ecologist will include the following: › Undertake a pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided. › Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Proposed Development area. › Oversee management of ornithological and ecological issues during the construction period and advise on ornithological issues as they arise. › Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. › Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress.		
MM6	Birds	EIAR Section 7	Pre-commencement bird surveys will be undertaken prior to the initiation of works at the Site. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas, where access allows. If winter roost sites or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located, and earmarked for monitoring at the beginning of the first winter season or breeding season (respectively) of the construction phase. If it is found to be active during the construction phase no works shall be undertaken within a 500m buffer in line with best practise. No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM7	Concrete Deliveries	EIAR Section 4	The arrangements for concrete deliveries to the site will be discussed with suppliers before work starts, agreeing routes, prohibiting on-site washout of trucks and discussing emergency procedures.		
MM8	Site Drainage Plan	EIAR Section 4 CEMP Section 4	The Project Hydrologist will prepare detailed drainage design before construction commences.		
MM9	Preparative Site Drainage Management,	EIAR Section 4 CEMP Section 4	The detailed drainage design will specify all materials and equipment necessary to implement the drainage measures effectively, which will be brought on site in advance of any works commencing. An adequate quantity of straw bales, clean stone, terram, stakes, etc. will be kept on site at all times to implement the detailed drainage design measures as necessary. The detailed drainage measures will be installed prior to, or at the same time as the works they are intended to drain.		
MM10	Pre-emptive site drainage management	EIAR Section 9 CEMP Section 4	The works programme for the groundworks part of the construction phase of the project will also take account of weather forecasts and predicted rainfall in particular.		
MM11	Drainage Inspection	CEMP Section 3	Prior to commencement of works in sub-catchments across the site, main drain inspections will be completed to ensure ditches and streams are free from debris and blockages that may impede drainage.		
MM12	Drainage Maintenance	EIAR Section 4 CEMP Section 4	An inspection and maintenance plan for the drainage system on site will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be necessary, especially after heavy rainfall, to check		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			for blockages, and ensure there is no build-up of standing water at parts of the systems where it is not intended. The inspection of the drainage system will be the responsibility of the site ECoW or the Project Hydrologist.		
MM13	Earthworks	CEMP Section 3	Drainage and associated pollution control measures will be implemented onsite before the main construction works commence. Where possible, drainage controls will be installed during seasonally dry ground conditions. This will reduce the possibility of impact on surface waters by suspended sediment released during construction and entrained in surface run-off.		
MM14	Earthworks	EIAR Section 8	A 50-metre buffer zone will be maintained around hydrological features and 10m to main drains during construction where possible. With the exception of road crossings of streams and associated culvert construction, no development infrastructure, vehicle or plant movement, construction activity or stock-piling of construction materials or construction waste will take place within this zone, and no vegetation will be removed from within this zone.		
MM15	Felling	EIAR Section 4, 7	Construction will not commence during the Breeding Bird season from March to August inclusive. If breeding activity is identified, the nest site will be located, and no works shall be undertaken within a 500m buffer (Forestry Commission Scotland 2006; Ruddock & Whitfield 2007). No works shall be permitted within the buffer until it can be demonstrated that the nest is no longer occupied.		
MM16	Invasive Species Management	EIAR Section 6 CEMP Section 3	A pre-construction invasive species survey will be undertaken a part of the proposed project. This will provide updated data in advance of any construction given the intervention time period between the original survey work and any future grant of permission/ construction. Measures will be in place to prevent the spread of these species during the proposed works. In addition, all necessary precautions will be taken to prevent the introduction of invasive species to the site from elsewhere.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM17	Archaeology	EIAR Section 13	Two structures of 19th century date were recorded in Glenard townland along the existing road which is due to be upgraded. The structures are not listed in the NIAH or RPS and are not subject to statutory protection. The structures will be fenced off prior to road upgrade works in the vicinity and an archaeologist will monitor excavation works associated with the road upgrade.		
MM18	Human Health	EIAR Section 5	Prior to commencement of any works, the occupants of dwellings in the vicinity of the proposed works will be contacted and the scheduling of works will be identified in line with the engagement plan. Local access to properties will also be maintained throughout any construction works and local residents will also be supplied with the number of the works supervisor in order to ensure that disruption will be kept to a minimum.		
Construction Phase					
Construction Management					
MM19	Health and Safety	EIAR Section 5 CEMP Section 4	During construction of the Proposed Development, all staff will be made aware of and adhere to the Health & Safety Authority's *'Guidelines on the Procurement, Design and Management Requirements of the Safety, Health and Welfare at Work (Construction) Regulations 2006'*. This will encompass the use of all necessary Personal Protective Equipment and adherence to the site Health and Safety Plan. Health and safety guidelines for working within and around electrical substations and overhead lines will be adhered to on site.		
MM20	Health and Safety	EIAR Section 4 CEMP Section 2	› Stock-proof fencing will be erected around the borrow pits to prevent uncontrolled access to these areas. Appropriate health and safety signage will also be erected on this fencing and at locations around the site. › Fencing will be erected in areas of the site where uncontrolled access is not permitted.		
MM21	Health and Safety	EIAR Section 5	Signs will also be erected at suitable locations across the site as required for the ease and safety of operation of the wind farm. These signs include:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Buried cable route markers at 50m (maximum) intervals and change of cable route direction; › Directions to relevant turbines at junctions; › "No access to Unauthorised Personnel" at appropriate locations; › Speed limits signs at site entrance and junctions; › "Warning these Premises are alarmed" at appropriate locations; › "Danger HV" at appropriate locations; › "Warning – Keep clear of structures during electrical storms, high winds or ice conditions" at site entrance; › "No unauthorised vehicles beyond this point" at specific site entrances; and › Other operational signage required as per site-specific hazards.		
MM22	Wastewater Management	EIAR Section 4, 9 CEMP Section 2	Temporary port-a-loo toilets and toilets located within a staff portacabin will be used during the construction phase. Wastewater from staff toilets will be directed to a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. There will also be a water supply on site for hygiene purposes. The wastewater will be transported off site by a waste management contractor holding valid waste collection permits under the Waste Management (Collection Permit) Regulations, 2007 (as amended).		
MM23	Wastewater Management	CEMP Section 9	It is proposed to manage wastewater from the staff welfare facilities in the control buildings by means of a sealed storage tank, with all wastewater being tankered off site by permitted waste collector to wastewater treatment plants. It is not proposed to treat wastewater on-site.		
MM24	Refuelling	EIAR Section 4, 8, 9 CEMP Section 3, 5	› On-site refuelling will be carried out using a mobile double skinned, bunded fuel bowser. The fuel bowser, a double-axel custom-built refuelling trailer will be re-filled off site and will be towed around the site by a 4x4 jeep to where machinery is located. It is not practical for all vehicles to travel back to a single refuelling point, given the size of the cranes, excavators, etc. that will be used during the construction of the Proposed Development. The 4x4 jeep will also carry fuel absorbent material and pads in the event of any accidental spillages.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			The fuel bowser will be parked on a level area in the construction when not in use. Refuelling operations will be carried out only by designated trained and competent operatives. Mobile anti-pollution measures such as drip trays and fuel absorbent mats will be used during all refuelling operations. › Fuels stored on site will be minimised. Storage areas where required will be bunded appropriately for the fuel storage volume for the time period of the construction and fitted with a storm drainage system and an appropriate oil interceptor; › The plant used during construction will be regularly inspected for leaks and fitness for purpose; › An emergency plan for the construction phase to deal with accidental spillages is contained within section 5 of the CEMP. Spill kits will be available to deal with and accidental spillage in and outside the re-fuelling area.		
MM25	Plant and Equipment Inspections	CEMP Section 3	A programme for the regular inspection of plant and equipment for leaks and fitness for purpose will be developed at the outset of the construction phase.		
MM26	Temporary water supply and onsite sanitation	EIAR Section 4 CEMP Section 2	Water supply for the site office and other sanitation will be brought to site and removed after use from the site to be discharged at a suitable off-site treatment location.		
MM27	Pre-emptive site drainage management	EIAR Section 9 CEMP Section 3	The works programme for the groundworks part of the construction phase of the project will also take account of weather forecasts and predicted rainfall in particular. The following forecasting systems are available and will be used on a daily basis at the site to direct proposed construction activities: › General Forecasts, Meteo Alarm, 3-hour Rainfall Maps, Rainfall Radar Images, Consultancy Service › Works will be suspended if forecasting suggests either of the following is likely to occur:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			○ >10 mm/hr (i.e. high intensity local rainfall events); ○ >25 mm in a 24-hour period (heavy frontal rainfall lasting most of the day); or, ○ >half monthly average rainfall in any 7 days. Prior to works being suspended the following control measures should be completed: › Secure all open excavations; › Provide temporary or emergency drainage to prevent back-up of surface runoff; and, › Avoid working during heavy rainfall and for up to 24 hours after heavy events to ensure drainage systems are not overloaded.		
MM28	Protection of Watercourses	EIAR Section 9 CEMP Section 3	Silt traps will be strategically placed down-gradient within forestry drains near streams. The main purpose of the silt traps and drain blocking is to slow water flow, increase residence time, and allow settling of silt in a controlled manner.		
MM29	Surface Water Quality	CEMP Section 4	Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken as per water monitoring programme for the overall windfarm development and each primary watercourse along the route. This will not be restricted to just these locations around the immediate wind farm site with further sampling points added as deemed necessary by the ECoW, in consultation with the Project Hydrologist and Site Manager, as the construction phase progresses. In-situ field monitoring will be completed on a weekly basis. In-situ field monitoring will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period. The Project Hydrologist will monitor and advise on the readings collected by in-situ field monitoring.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM30	Concrete Deliveries and Management	EIAR Section 4, 9 NIS Section 5	Only ready-mixed concrete will be used during the construction phase, with all concrete being delivered from local batching plants in sealed concrete delivery trucks.		
MM31	Concrete Deliveries and Management	EIAR Section 4 NIS Section 5	› No washing out of any plant used in concrete transport or concreting operations will be carried out onsite. When concrete is delivered to site, only the chute of the delivery truck will be cleaned, using the smallest volume of water necessary, before leaving the site. › Concrete trucks will be directed back to their batching plant for washout. › Any solid contents that will have been cleaned down from the chute will have solidified and can be broken up and disposed of along with other construction waste.		
MM32	Concrete Deliveries and Management	EIAR Section 4 NIS Section 5	No concrete will be transported around the site in open trailers or dumpers so as to avoid spillage while in transport.		
MM33	Concrete Deliveries and Management	EIAR Section 4	Clearly visible signs in prominent locations will be placed close to concrete pour areas specifically stating washout of concrete lorries is not permitted on the site		
MM34	Concrete Deliveries and Management	EIAR Section 4	Main pours will be planned days or weeks in advance. Large pours will be avoided when prolonged periods of heavy rain are forecast.		
MM35	Concrete Deliveries and Management	EIAR Section 4	Concrete pumps and machine buckets will be restricted from slewing over watercourses while placing concrete.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM36	Concrete Deliveries and Management	EIAR Section 4	Excavations will be sufficiently dewatered before concreting begins. Dewatering will continue while concrete sets.		
MM37	Concrete Deliveries and Management	EIAR Section 4	Covers will be available for freshly placed concrete to avoid the surface washing away in heavy rain.		
MM38	Concrete Deliveries and Management	EIAR Section 4 CEMP Section 3	Surplus concrete after completion of a pour will be returned to the concrete suppliers batching plant for recycling.		
MM39	Road Cleanliness	EIAR Section 4. CEMP Section 3	A road sweeper will be available if any section of the public roads were to be dirtied by trucks associated with the Proposed Development.		
Drainage Design and Maintenance					
MM40	Drainage Planning	EIAR Section 9	Construction of the site drainage system will only be carried out during periods of low rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended sediment in surface water runoff, and transport via this pathway to surface watercourses. Construction of the drainage system during this period will also ensure that attenuation features associated with the drainage system will be in place and operational for all subsequent construction works.		
MM41	Watercourse Buffers	EIAR Section 4. CEMP Section 3	All discharges from the proposed works areas will be made over vegetation filters at an appropriate distance from natural watercourses.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM42	Water Discharge	EIAR Section 4	There will be no direct discharges to any natural watercourses, with all drainage waters being dispersed as overland flows.		
MM43	Wastewater Management	EIAR Section 4. CEMP Section 3	During the construction phase, a self-contained port-a-loo with an integrated waste holding tank will be used on site for toilet facilities. This will be maintained by the service contractor as required and will be removed from the site on completion of the construction phase.		
MM44	Borrow Pit Drainage	EIAR 9 SWMP Section 3	During the construction phase of the project, it will be necessary to keep the borrow pit area free of standing water while rock is still being extracted. This will be achieved by using a mobile pump, which will pump water into the same series of drains, settlement ponds with a level spreader, siltbuster or equivalent, which will receive the water from the single outlet.		
MM45	Drainage Swales,	EIAR Section 4, 9 CEMP Section 3	Swales will be used to intercept and collect run off from construction areas of the site during the construction phase, and channel it to settlement ponds for sediment attenuation as per the drainage design.		
MM46	Interceptor Drains,	EIAR Section 4, 9 CEMP Section 3	Interceptor drains will be installed up-gradient of any works areas to collect surface flow runoff and prevent it reaching excavations and construction areas of the site. It will then be directed to areas where it can be re-distributed over the ground as sheet flow as per the drainage design.		
MM47	Check Dams	EIAR Section 4, 9 CEMP Section 3	Check dams will not be used in any natural watercourses, only artificial drainage channels and interceptor drains. The check dams will be installed at regular intervals along interceptor drains to restrict flow velocity, minimise channel erosion and promote sedimentation behind the dam as per the drainage design.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM48	Level Spreaders,	EIAR Section 4 CEMP Section 3	A level spreader will be constructed at the end of each interceptor drain to convert concentrated flows in the drain into diffuse sheet flow on areas of vegetated ground. The levels spreaders will be located downgradient of any proposed works areas in locations where they are not likely to contribute further to water ingress to construction areas of the site.		
MM49	Piped Slope Drains	EIAR Section 4	Piped slope drains will be used to transfer water away from areas where slopes are too steep to use level spreaders and will only remain in place for the duration of the construction phase.		
MM50	Vegetation Filters	EIAR Section 4, 9	Vegetation filters, that is areas of existing vegetation, accepting drainage water issuing from level spreaders as sheet flow, will remove any suspended sediment from water channelled via interceptor drains or any remaining sediment in waters channelled via swales and settlement ponds.		
MM51	Settlement Ponds	EIAR Section 4, 9 CEMP Section 3	Settlement ponds, placed either singly or a pair in series, will buffer volumes of run-off discharging from the drainage system during periods of high rainfall, by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to water courses as per the drainage design.		
MM52	Dewatering Silt Bag	EIAR Section 4, 9 CEMP Section 3	Silt bags will be used where small to medium volumes of water need to be pumped from excavations. As water is pumped through the bag, the majority of the sediment is retained by the geotextile fabric allowing filtered water to pass through. Silt bags will be used with natural vegetation filters or sedimats - Sediment entrapment mats, consisting of coir or jute matting - will be placed at the silt bag location to provide further treatment of the water outfall from the silt bag. Sedimats will be secured to the ground surface using stakes/pegs. The sedimat will extend to the full width of the outfall to ensure all water passes through this additional treatment measure.		
MM53	Siltbuster	EIAR Section 4, 9	A “siltbuster” or similar equivalent piece of equipment will be available to filter any water pumped out of excavation areas if necessary, prior to its discharge to stilling ponds or swales.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Siltbusters are mobile silt traps that can remove fine particles from water using a proven technology and hydraulic design in a rugged unit.		
MM54	Culvert Upgrades	EIAR Section 4, 9	The following mitigation is proposed for completion of wind farm culvert upgrades: › Where possible pre-cast elements for culverts and concrete works will be used; › All new proposed culverts and proposed culvert upgrades will be suitably sized for the expected peak flows in the watercourse; › In all cases, culverts will be oversized to allow mammals to pass through the culvert. › Culverts will be installed with a minimum internal gradient of 1% (1 in 100). Smaller culverts will have a smooth internal surface. Larger culverts may have corrugated surfaces which will trap silt and contribute to the stream ecosystem. Depending on the management of water on the downstream side of the culvert, large stone may be used to interrupt the flow of water. › All culverts will be inspected regularly to ensure they are not blocked by debris, vegetation or any other material that may impede conveyance › All proposed new stream crossings will be bottomless or clear span culverts and the existing banks will remain undisturbed. No in-stream excavation works are proposed and therefore there will be no direct impact on the stream at the proposed crossing location; › Where the proposed underground cabling route follows an existing road or road proposed for upgrade, the cable will pass over or below the culvert within the access road; › All guidance / mitigation measures proposed by the OPW or the Inland Fisheries Ireland is incorporated into the design of the proposed crossings; › As a further precaution, near stream construction work, will only be carried out during the period permitted by Inland Fisheries Ireland for in-stream works according to the Eastern Regional Fisheries Board (2004) guidance document "Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites", i.e., May to September inclusive. This time period coincides with the period of lowest expected rainfall, and therefore minimum runoff rates. This will minimise the risk of entrainment of suspended		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			sediment in surface water runoff, and transport via this pathway to surface watercourses (any deviation from this will be done in discussion with the IFI); › During the near stream construction work double row silt fences will be emplaced immediately down-gradient of the construction area for the duration of the construction phase. There will be no batching or storage of cement allowed in the vicinity of the crossing construction areas; and, › All new river/stream crossings will require a Section 50 application (Arterial Drainage Act, 1945). The river/stream crossings will be designed in accordance with OPW guidelines/requirements on applying for a Section 50 consent.		
MM55	Silt Fences,	EIAR Section 4, 9.	› Silt fences will be emplaced within drains down-gradient of all construction areas. › They will remain in place throughout the entire construction phase. › Silt fences will be installed as single, double or a series of triple silt fences, depending on the space available and the anticipated sediment loading. › The silt fence designs follow the technical guidance document 'Control of Water Pollution from Linear Construction Projects' published by CIRIA (Ciria, No. C648, 1996). Up to three silt fences may be deployed in series. › All silt fencing will be formed using Terrastop Premium or equivalent silt fence product. › Silt fences will be inspected regularly to ensure water is continuing to flow through the fabric, and the fence is not coming under strain from water backing up behind it		
MM56	Sediment disposal	EIAR Section 4 SWMP Section 3	Sediment that is removed from settlement ponds, check dams, silt bags etc. as part of routine maintenance will be carefully disposed of away from all aquatic zones in the proposed borrow pit or peat and spoil repository		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM57	Excavation seepages and treatment	EIAR Section 4, 9	› Appropriate interceptor drainage, to prevent upslope surface runoff from entering excavations will be put in place; › If required, pumping of excavation inflows will prevent build-up of water in the excavation; › The interceptor drainage will be discharged to the site constructed drainage system or onto natural vegetated surfaces and not directly to surface waters; › The pumped water volumes will be discharged via volume and sediment attenuation ponds adjacent to excavation areas, along with use of more specialist treatment systems such as a Siltbags; › There will be no direct discharge to surface watercourses, and therefore no risk of hydraulic loading or contamination will occur; › Silt traps will be placed in the existing drains upstream of any streams where construction works / tree felling is taking place, and these will be diverted into proposed interceptor drains, or culverted under/across the works area; › Runoff from individual turbine hardstanding areas will be not discharged into the existing drain network but discharged locally at each turbine location through stilling ponds and buffered outfalls onto vegetated surfaces; › Buffered outfalls which will be numerous over the site will promote percolation of drainage waters across vegetation and close to the point at which the additional runoff is generated, rather than direct discharge to the existing drains of the site; and, › Drains running parallel to the existing roads requiring widening will be upgraded, widening will be targeted to the opposite side of the road. Velocity and silt control measures such as check dams, sand bags, oyster bags, straw bales, flow limiters, weirs, baffles, silt fences will be used during the upgrade construction works. Regular buffered outfalls will also be added to these drains to protect downstream surface		
Felling					
MM58	Felling Licence	EIAR Section 4	Felling will be carried out under the terms of a licence application to the Forest Service, as per the Forest Service's policy on granting felling licenses for wind farm developments.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM59	Keyhole felling of Coniferous Plantation	EIAR Section 9	Mitigation measures which will reduce the risk of entrainment of suspended solids and nutrient release in surface watercourses comprise best practice methods which are set out as follows: › Machine combinations (i.e., handheld or mechanical) will be chosen which are most suitable for ground conditions and which will minimise soils disturbance; › Checking and maintenance of roads and culverts will be on-going through any felling operation. No tracking of vehicle through watercourses will occur, as vehicles will use road infrastructure and existing watercourse crossing points. Where possible, existing drains will not be disturbed during felling works; › Ditches which drain from the proposed area to be felled towards existing surface watercourses will be blocked, and temporary silt traps will be constructed. No direct discharge of such ditches to watercourses will occur. Drains and sediment traps will be installed during ground preparation. Collector drains will be excavated at an acute angle to the contour (~0.3%-3% gradient), to minimise flow velocities. Main drains to take the discharge from collector drains will include water drops and rock armour, as required, where there are steep gradients, and avoid being placed at right angles to the contour; › Sediment traps will be sited in drains downstream of felling areas. Machine access will be maintained to enable the accumulated sediment to be excavated. Sediment will be carefully disposed of in the peat disposal areas. All new silt traps will be constructed on even ground and not on sloping ground; › In areas particularly sensitive to erosion or where felling inside the 50 metre buffer is required, it will be necessary to install double or triple sediment traps;		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› All drainage channels will taper out before entering the 50m buffer zone. This ensures that discharged water gently fans out over the buffer zone before entering the aquatic zone, with sediment filtered out from the flow by ground vegetation within the zone. On erodible soils, silt traps will be installed at the end of the drainage channels, to the outside of the buffer zone; › Drains and silt traps will be maintained throughout all felling works, ensuring that they are clear of sediment build-up and are not severely eroded. Correct drain alignment, spacing and depth will ensure that erosion and sediment build-up are minimized and controlled; › Brash mats will be used to support vehicles on soft ground, reducing peat and mineral soils erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place before they become heavily used and worn. Provision will be made for brash mats along all off-road routes, to protect the soil from compaction and rutting. Where there is risk of severe erosion occurring, extraction will be suspended during periods of high rainfall; › Timber will be stacked in dry areas, and outside a local 50 metre watercourse buffer. Straw bales and check dams will be emplaced on the down gradient side of timber storage/processing sites; › Works will be carried out during periods of no, or low rainfall, in order to minimise entrainment of exposed sediment in surface water run-off; › Checking and maintenance of roads and culverts will be on-going through the felling operation; › Refuelling or maintenance of machinery will not occur within 100m of a watercourse. Mobile bowser, drip kits, qualified personnel will be used where refuelling is required; › A permit to refuel system will be adopted:		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Branches, logs or debris will not be allowed to build up in aquatic zones. All such material will be removed when harvesting operations have been completed, but care will be taken to avoid removing natural debris deflectors; › Crossing of streams will not be permitted; › Trees will be cut manually from along streams and using machinery to extract whole trees; and › Travel only perpendicular to and away from stream.		
MM60	Keyhole Felling of Coniferous Plantation	EIAR Section 9	Silt traps will be strategically placed down-gradient within forestry drains near streams. The main purpose of the silt traps and drain blocking is to slow water flow, increase residence time, and allow settling of silt in a controlled manner. The following items shall be carried out during pre-felling inspections and after: › Communication with tree felling operatives in advance to determine whether any areas have been reported where there is unusual water logging or bogging of machines; › Inspection of all areas reported as having unusual ground conditions; › Inspection of main drainage ditches and outfalls. During pre-felling inspections the main drainage ditches will be identified. Ideally the pre-felling inspection will be carried out during rainfall; › Following tree felling all main drains will be inspected to ensure that they are functioning; › Extraction tracks nears drains will be broken up and diversion channels created to ensure that water in the tracks spreads out over the adjoining ground; › Culverts on drains exiting the site, if impeded by silt or debris, will be unblocked; and, › All accumulated silt will be removed from drains and culverts, and silt traps, and this removed material will be deposited away		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			from watercourses to ensure that it will not be carried back into the trap or stream during subsequent rainfall.		
MM61	Clear Felling of Coniferous Plantation	EIAR Section 9 SWMP Section 4	Sampling will be completed before, during (if the operation is conducted over a protracted time) and after the felling activity. The 'before' sampling should be conducted within 4 weeks of the felling activity commencing, preferably in medium to high water flow conditions. The "during" sampling will be undertaken once a week or after rainfall events. The 'after' sampling will comprise as many samples as necessary to demonstrate that water quality has returned to pre-activity status (i.e. where an impact has been shown). Criteria for the selection of water sampling points include the following: › Avoid man-made ditches and drains, or watercourses that do not have year round flows, i.e. avoid ephemeral ditches, drains or watercourses; › Select sampling points upstream and downstream of the forestry activities; › It is advantageous if the upstream location is outside/above the forest in order to evaluate the impact of land-uses other than forestry; › Where possible, downstream locations should be selected: one immediately below the forestry activity, the second at exit from the forest, and the third some distance from the second (this allows demonstration of no impact through dilution effect or contamination by other land-uses where impact increases at third downstream location relative to second downstream location); and, › The above sampling strategy will be undertaken for all on-site sub-catchments streams where tree felling is proposed. › Also, daily surface water monitoring forms (for visual inspections and field chemistry measurements) will also be utilised at every works site near any watercourse. These will be taken daily and kept on site for record and inspection.		
Peat, Subsoils and Bedrock					

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM62	Erosion of Exposed Subsoils and Peat	EIAR Section 8, 9	The works programme for the construction stage of the development will also take account of weather forecasts and predicted rainfall in particular. Large excavations and movements of peat/subsoil or peat stripping will be suspended or scaled back if heavy rain is forecast. The extent to which works will be scaled back or suspended will relate directly to the amount of rainfall forecast.		
MM63	Peat Management	EIAR Section 9	It is proposed that excavated peat/subsoil (spoil) will be used to reinstate that proposed borrow pit, for landscaping throughout the site and any excess spoil will be placed in 1 no. peat and spoil repository. The repository is located outside the 50m stream buffer zone (refer to Figure 9-9 of the EIAR). › During the initial emplacement of peat and subsoil at the repository area, silt fences, straw bales and biodegradable matting will be used to control surface water runoff from the enclosure. › The peat repository is an enclosed area. Its drainage can be easily managed. › Drainage from the peat repository will be pumped to settlement ponds as required or will overflow through controlled overflow pipes. › Discharge or pumping will be intermittent and will depend on preceding rainfall amounts. Once the peat repository has been seeded and vegetation is established the risk to downstream surface water is significantly reduced.		
MM64	Peat Management	EIAR Section 4 CEMP Section 4	› Prior to commencing the construction of the excavated roads movement monitoring posts will be installed in areas where the peat depth is greater than 1.5m. › Interceptor drains will be installed upslope of the access road alignment to divert any surface water away from the construction area.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Excavation will take place to a competent stratum beneath the peat. › Road construction will be carried out in sections of approximately 50m lengths i.e., no more than 50m of access road should be excavated without re-placement with stone fill. › Once excavated, peat will be placed within the borrow pit or the peat and spoil repository. › Excavation of materials with respect to control of peat stability. o Acrotelm (top about 0.3 to 0.4m of peat) is generally required for landscaping and will be stripped and temporarily stockpiled for re-use as required. Acrotelm stripping will be undertaken prior to main excavations. o Where possible, the acrotelm will be placed with the vegetation part of the sod facing the right way up to encourage growth of plants and vegetation. o All catotelm peat (peat below about 0.3 to 0.4m depth) will be transported immediately on excavation to the borrow pit or to the designated peat repository. › Side slopes in peat will be not greater than 1 (v): 3 (h). This slope inclination will be reviewed during construction, as appropriate. Where areas of weaker peat are encountered then slacker slopes will be required. Battering of the side slopes of the excavations will be carried out as the excavation progresses. › The excavated access road will be constructed of up to 1000mm of selected granular fill. Granular fill to be placed and compacted in layers in accordance with the TII Specification for Road Works. › A layer of geogrid/geotextile may be required at the surface of the competent stratum should excessive rutting be noted in the track.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› At transitions between floating and excavated roads a length of road of about 10 to 20m will have all peat excavated and replaced with suitable fill. The surface of this fill will be graded so that the road surface transitions smoothly from floating to excavated road. › Where slopes of greater than 5 degrees are encountered along with relatively deep peat (i.e., greater than 1.5m) and where it is proposed to construct the access road perpendicular to the slope contour sit is best practice to start construction at the bottom of the slope and work towards the top, where possible. This method avoids any unnecessary loading to the adjacent peat and greatly reduces any risk of peat instability. › A final surface layer will be placed over the excavated road and will be graded to accommodate wind turbine construction and delivery traffic.		
MM65	Peat instability and failure	EIAR Section 4. CEMP Section 3	The Contractor shall consult the site Geotechnical Engineer and review and take into account the Peat & Spoil Management Plan by Fehily Timoney (January 2022) in Appendix 4-2 of the EIAR, to avoid the risk of peat instability in peat excavations, peat stockpiling and all material stockpiling in areas underlain by peat.		
MM66	Peat Management	EIAR Section 9	› During the initial emplacement of peat and subsoil at the repository area, silt fences, straw bales and biodegradable matting will be used to control surface water runoff from the enclosure. › The peat repository is an enclosed area. Its drainage can be easily managed. › Drainage from the peat repository will be pumped to settlement ponds as required or will overflow through controlled overflow pipes. › Discharge or pumping will be intermittent and will depend on preceding rainfall amounts.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Once the peat repository has been seeded and vegetation is established the risk to downstream surface water is significantly reduced.		
Flora and Fauna					
MM67	Bats	EIAR Appendix 6-2	Noise Disturbance During the construction phase, plant machinery will be turned off when not in use and all plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations (S.I. No. 632 of 2001). Lighting Disturbance Where lighting is required, directional lighting will be used to prevent overspill on to woodland/forestry edges. Exterior lighting, during construction and post construction, shall be designed to minimize light spillage, thus reducing the effect on areas outside the Proposed Development, and consequently on bats i.e., Lighting will be directed away from mature trees/treelines around the periphery of the study area to minimize disturbance to bats. Directional accessories can be used to direct light away from these features, e.g., through the use of light shields. The luminaries will be of the type that prevent upward spillage of light and minimize horizontal spillage away from the intended lands.		
MM68	Bats	EIAR Appendix 6-2	Bat Buffers In accordance with NatureScot Guidance, a minimum 50m buffer to all habitat features used by bats (e.g., hedgerows, tree lines etc.) will be applied to the siting of all wind turbines.		
MM69	Birds	EIAR Section 7	› A Construction and Environmental Management Plan (CEMP) has been prepared. The CEMP will be in place prior to the start of the construction phase. Best practice measures which form part of the design of the project are included in Chapter 4 of the EIAR. The CEMP is included as an Appendix to Chapter 4.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› Construction works will begin outside the bird nesting season as defined by the Wildlife Act 1976 as amended (1st of March to the 31st of August). › Construction works required to facilitate the connection of the wind farm to the national grid within 750m of the identified hen harrier roost (Confidential Appendix Figure 7.6.2.1) located to the south of the proposed development will be undertaken outside of the winter roosting period. As per Gilbert et al., (1998) winter roosts are occupied from October to March inclusive. › All construction works along the turbine delivery route within 800m (McGuinness 2015) of the curlew territory (Confidential Appendix Figure 7.12.1) identified to the north of the proposed development will be undertaken outside the breeding season. The period when breeding curlew are sensitive to disturbance runs from the 1st of March to the 31st of August. › All removal of woody vegetation will be undertaken in accordance with Section 40 of the Wildlife Act 1976 as amended. › During the construction phase, noise limits, noise control measures, hours of operation (i.e. dusk and dawn is high faunal activity time) and selection of plant items will be considered in relation to disturbance of birds. › Plant machinery will be turned off when not in use. › All plant and equipment for use will comply with the European Communities (Noise Emission by Equipment For Use Outdoors) Regulations, 2001 (S.I. No. 632/2001) and other relevant legislation. › An Ecological Clerk of Works (ECoW) will be appointed. Duties will include: o Ensure a pre-construction confirmatory transect/walkover bird survey is undertaken, to ensure significant effects on		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			breeding birds will be avoided. Further details are provided in Section 7.10 below. o Inform and educate on-site personnel of the ornithological and ecological sensitivities within the proposed development site. o Oversee management of ornithological and ecological issues during the construction period and advise on ornithological issues as they arise. o Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. o Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress.		
MM70	Flora and Fauna – Upland Blanket Bog	EIAR Section 6	The Proposed Development has been deliberately designed to minimise loss of Upland blanket bog and Cutover bog. Where the development footprint does occur on this habitat, (i.e., at Turbines T12 and T10 and associated access roads, a section of the new site access track between T10 and T14, Access track between T13 and T14, and a small area of degraded bog at the site of the new access road between T1 and T9), the proposed development provides for the replacement of peatland habitat through the restoration of forestry (WD4) back to peatland, located to the north of Turbine no. T10. This is fully described in the site-specific Biodiversity Management and Enhancement Plan (BMEP), provided in Appendix 6-4 of the EIAR. › The BMEP will ensure that there will be no net loss of peatland habitat associated with the Proposed Development as well as providing an overall long-term net gain in terms of area. › Opportunities for other peatland restoration/improvements have also been incorporated into the BMEP through the inclusion of an additional peatland enhancement area comprising of degraded Upland blanket bog (PB2).		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› On completion of successful peatland restoration to peatland habitats, this will result in an additional area of 4.2ha of restored peatland habitat as a result of the proposed development. › The mitigation/restoration measures will be monitored by a suitably qualified ecologist appointed by the wind farm operator over the lifetime of the proposed development as part of the BMEP to confirm their effectiveness and to allow for alteration in approaches where necessary.		
MM71	Invasive Species	EIAR Section 6 CEMP Section 3	The following measures are proposed to establish good site hygiene to ensure the control of any potential spread of invasive species during construction works, if they are identified prior to the commencement of the construction phase: › A risk assessment and method statement must be provided by the Contractor prior to commencing works. › Fences will be erected around areas of infestation, as confirmed by test pits, and warning signs shall be erected. › A designated wash-down area will be created, where power-washed material from machinery can be contained, collected and disposed of with other contaminated material. This area will contain a washable membrane or hard surface. › Stockpile areas will be chosen to minimise movement of contaminated soil. › Stockpiles will be marked and isolated. › Contaminated areas which will not be excavated will be protected by a root barrier membrane if they are likely to be disturbed by machinery. Root barrier membranes will be protected by a layer of sand above and below and topped with a layer of hardcore. › The use of vehicles with caterpillar tracks within contaminated areas will be avoided to minimise the risk of spreading contaminated material.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› An ECoW/suitably qualified ecologist will be on site to monitor and oversee the implementation of invasive species management plans. › Plant and equipment which is operated within an area for the management of materials in contaminated areas should be decontaminated prior to relocating to a different works area. The decontamination procedures should take account of the following: › Personnel may only clean down if they are familiar with the plant and rhizome material and can readily identify it. › Decontamination will only occur within designated wash-down areas. › Vehicles will be cleaned using stiff-haired brush and pressure washers, paying special attention to any areas that might retain rhizomes e.g. wheel treads and arches. › All run-off will be isolated and treated as contaminated material. This will be disposed of in already contaminated areas.		
Noise and Vibration					
MM72	Construction Phase Noise Control,	EIAR Section 11 CEMP Section 3	The below practices be adopted during construction, including: › Managing the hours according to the CEMP during which site activities likely to create high levels of noise or vibration are permitted; › Establishing channels of communication between the contractor/developer, Local Authority and residents; › Appointing a site representative responsible for matters relating to noise and vibration; › Monitoring typical levels of noise and vibration during critical periods and at sensitive locations; › Keeping site access roads even to mitigate the potential for vibration from lorries.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Furthermore, a variety of practicable noise control measures will be employed. These include: › Selection of plant with low inherent potential for generation of noise and/ or vibration; › Placing of noisy / vibratory plant as far away from sensitive properties as permitted by site constraints, and; › Regular maintenance and servicing of plant items.		
MM73	Construction Phase Noise Control,	EIAR Section 11	Operation of plant: all construction operations shall comply with guidelines set out in British Standard documents *'BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise'*.		
MM74	Construction Phase Noise Control,	EIAR Section 5, 11 CEMP Section 3	The following list of measures will be considered, where necessary, to ensure compliance with the relevant construction noise criteria: › No plant used on site will be permitted to cause an on-going public nuisance due to noise. › The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations. › All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order for the duration of the contract. › Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers. › Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use. › Any plant, such as generators or pumps, which is required to operate outside of general construction hours will be surrounded by an acoustic enclosure or portable screen.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› During the course of the construction programme, supervision of the works will include ensuring compliance and using methods outlined in British Standard BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise. › The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations shall generally be restricted to between 07:00hrs and 19:00hrs weekdays and between 07:00hrs and 14:00hrs on Saturdays. However, to ensure that optimal use is made of good weather periods or at critical periods within the programme (i.e., concrete pours, rotor/tower deliveries) it could occasionally be necessary to work out of these hours. › Where rock breaking is employed in relation to the proposed borrow pit location, the following are examples of measures that will be considered, where necessary, to mitigate noise emissions from these activities: o Fit suitably designed muffler or sound reduction equipment to the rock breaking tool to reduce noise without impairing machine efficiency. o Ensure all leaks in air lines are sealed. o Use a dampened bit to eliminate ringing. o Erect acoustic screen between compressor or generator and noise sensitive area. When possible, line of sight between top of machine and reception point needs to be obscured. o Enclose breaker or rock drill in portable or fixed acoustic enclosure with suitable ventilation.		
Air Quality/Dust					
MM75	Construction Phase Dust Control	EIAR Section 10	› In periods of extended dry weather, dust suppression may be necessary along haul roads, site roads, substation and construction compounds and around the borrow pit area to ensure dust does not cause a nuisance. If necessary, de-silted water will be taken from stilling ponds in the site's drainage system and will be pumped into a bowser or water spreader to		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
		CEMP Section 3	dampen down haul roads, borrow pit and site compounds to prevent the generation of dust where required. Water bowser movements will be carefully monitored to avoid, insofar as reasonably possible, increased runoff. › All plant and materials vehicles shall be stored in dedicated areas (on site). › Areas of excavation will be kept to a minimum, and stockpiling will be minimised by coordinating excavation, spreading and compaction. › Turbines and construction materials will be transported to the site on specified haul routes only. › The agreed haul route roads adjacent to the site will be regularly inspected for cleanliness and cleaned as necessary. › The transport of construction materials which may have the potential to generate dust will be undertaken with tarpaulin cover or similar, where necessary. › The transport of dry excavated material from the on-site borrow pit which may have potential to generate dust will be avoided. If necessary, excavated material will be dampened prior to transport from the borrow pits.		
MM76	Construction Phase Air Quality	EIAR Section 10	› All construction vehicles and plant will be maintained in good operational order while onsite, thereby minimising any emissions that arise. › All machinery will be switched off when not in use. › The majority of aggregate materials for the construction of the proposed development will be obtained from the borrow pit on site. This will significantly reduce the number of delivery vehicles accessing the site, thereby reducing the emissions associated with vehicle movements.		
Cultural Heritage					
MM77	Impact of excavation works	EIAR Section 13	› Licensed archaeological monitoring of any geotechnical / engineering trial pits or investigations and a report detailing the results of same.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
	on unrecorded potential sub-surface sites		› Licensed archaeological monitoring of all ground works during construction. A report on the results of the monitoring will be compiled and submitted to the relevant authorities on completion of the project.		
Traffic					
MM78	Management of Large Deliveries	EIAR Section 14	A comprehensive set of mitigation measures will be put in place before and during the construction stage of the project in order to minimise the effects of the additional traffic generated by the Proposed Development. For delivery of abnormal sized loads - The following are the main points to note for these deliveries. These will take place after peak evening traffic: › The delivery of turbine components is a specialist transport operation with the transportation of components carried out at night when traffic is at its lightest and the impact minimised. › The deliveries will be made in consultation with the Local Authority and An Garda Síochána / The Police Service of Northern Ireland. › It is estimated that 144 abnormal sized loads will be delivered to the site, comprising 29 convoys of 5, undertaken over 29 separate nights. › These nights will be spread out over an approximate period of 15 weeks and will be agreed in advance with the relevant authorities › In order to manage each of the travelling convoys, for each convoy there will be two police escort vehicles that will stop traffic at the front and rear of the convoy of 5 vehicles. › There will also be two escort vehicles provided by the haulage company for each convoy.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM79	Construction Phase Traffic and Transport	EIAR Section 5, 14	A detailed **Traffic Management Plan (TMP)** is provided specifying details relating to traffic management and included in the CEMP. Prior to the commencement of the construction phase of the proposed development a detailed TMP will be prepared by the Contractor for agreement with the relevant local authorities and An Garda Síochána / The Police Service of Northern Ireland prior to construction works commencing on site. The detailed TMP will include the following: › **Traffic Management Coordinator** – a competent Traffic Management Co-ordinator will be appointed for the duration of the project and this person will be the main point of contact for all matters relating to traffic management. › **Delivery Programme** – a programme of deliveries will be submitted to the County Council in advance of deliveries of turbine components to site. Liaison with the relevant local authorities and Transport Infrastructure Ireland (TII) will be carried out where required regarding requirements such as delivery timetabling. The programme will ensure that deliveries are scheduled in order to minimise the demand on the local network and minimise the pressure on the access to the site. › **Information to the local community** – Local residents in the area will be informed of any upcoming traffic related matters e.g., temporary lane/road closures (where required) or delivery of turbine components at night, via letter drops and posters in public places. Information will include the contact details of the Project Co-ordinator, who will be the main point of contact for all queries from the public or local authority during normal working hours. An "out of hours" emergency number will also be provided. › **A Pre and Post Construction Condition Survey** – Where required by the local authority, a pre-condition survey of roads associated with the proposed development can be carried out immediately prior to construction commencement to record an accurate condition of the road at		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			the time. A post construction survey will be carried out after works are completed to ensure that any remediation works are carried out to a satisfactory standard. Where required the timing of these surveys will be agreed with the local authority. All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers. › **Liaison with the relevant local authority** - Liaison with the County Councils and An Garda Síochána / The Police Service of Northern Ireland, will be carried out during the delivery phase of the large turbine vehicles, when an escort for all convoys will be required. Once the surveys have been carried out and "prior to commencement" status of the relevant roads established, (in compliance with the provisions of the CEMP), the Roads section will be informed of the relevant names and contact numbers for the Project Developer/Contractor Site Manager as well as the Site Environmental Manager. › **Implementation of temporary alterations to road network at critical locations** – at locations highlighted in section 14.1.8. In addition, in order to minimise the impact on the existing environment during turbine component deliveries the option of blade adaptor trailers will also be used where deemed practicable. › **Identification of delivery routes** – These routes will be agreed with the County Councils and adhered to by all contractors. › **Delivery times of large turbine components** - The management plan will include the option to deliver the large wind turbine plant components at night in order to minimise disruption to general traffic during the construction stage. › **Travel plan for construction workers** – While the assessment above has assumed the worst case in that construction workers will drive to the site, the construction company will be required to provide a travel plan for construction staff, which will include the identification of routes to / from the site and identification of an area for parking.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› **Additional measures** - Various additional measures will be put in place in order to minimise the effects of the development traffic on the surrounding road network including wheel washing facilities on site and sweeping / cleaning of local roads as required. These are set out in the CEMP which is contained in Appendix 4.3. › **Re-instatement works** - All road surfaces and boundaries will be re-instated to pre-development condition, as agreed with the local authority engineers.		
MM80	Construction Phase Traffic and Transport	EIAR Section 14	Truck wheel washing facilities will be available on site where deemed necessary and will be effective.		
Operational Phase					
MM81	Wastewater Management	EIAR Section 4	The removal and disposal of wastewater from the site will be carried out by a fully permitted waste collector holding valid Waste Collection Permits as issued under the Waste Management (Collection Permit) Regulations, 2007.		
MM82	Electrical Substation	EIAR Section 4, 8, 9 CEMP Section 3, 5	The electrical substation will be bunded appropriately to the volume of oils likely to be stored, and to prevent leakage of any associated chemicals and to groundwater or surface water. The bunded area will be fitted with a storm drainage system and an appropriate oil interceptor.		
MM83	Human Health	EIAR Section 5	An operational phase Health and Safety Plan will be developed to fully address identified Health and Safety issues associated with the operation of the site and providing for access for emergency services at all times.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
MM84	Site Drainage	EIAR Section 9	The operational phase drainage system of the Proposed Development will be maintained into the operational phase as described below and as shown on the Drainage drawings submitted with this planning application: › Interceptor drains will be installed up-gradient of all proposed infrastructure to collect clean surface runoff, in order to minimise the amount of runoff reaching areas where suspended sediment could become entrained. It will then be directed to areas where it can be re-distributed over the ground by means of a level spreader; › Swales/road side drains will be used to collect runoff from access roads and turbine hardstanding areas of the site, likely to have entrained suspended sediment, and channel it to settlement ponds for sediment settling; › On steep sections of access road transverse drains ('grips') will be constructed in the surface layer of the road to divert any runoff off the road into swales/road side drains; › Check dams will be used along sections of access road drains to intercept silts at source. Check dams will be constructed from a 4/40mm non-friable crushed rock; › Settlement ponds, emplaced downstream of road swale sections and at turbine locations, will buffer volumes of runoff discharging from the drainage system during periods of high rainfall, by retaining water until the storm hydrograph has receded, thus reducing the hydraulic loading to watercourses; and, › Settlement ponds have been designed in consideration of the greenfield runoff rate.		
MM85	Site Drainage	EIAR Section 4	The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.		

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MM86	Surface Water Quality	CEMP Section 4	Monthly sampling for laboratory analysis for the range of parameters adopted during pre-commencement and construction phases will continue after construction is complete. The project hydrologist will monitor and advise on the readings received from the testing laboratory and monitoring will only cease once the hydrologist is satisfied that the chemical and biological monitoring results show that there is no adverse impact on the quality of surface water within the natural watercourses draining the site.		
MM87	Site Drainage	EIAR Section 4	Drainage swales and silting ponds will remain in place to collect runoff from roads and hardstanding areas of the Proposed Development during the operational phase.		
MM88	Fuel Control	EIAR Section 9	Mitigation measures to avoid contamination by accidental fuel leakage and compaction of soil by on-site plant will be implemented as per the construction phase mitigation measures.		
MM89	Land on Decommissioning	EIAR Section 9	During decommissioning, it may be possible to reverse or at least reduce some of the potential impacts caused during construction by rehabilitating construction areas such as turbine bases and hard standing areas. This will be done by covering with peatland vegetation/scraw or poorly humified peat to encourage vegetation growth and reduce run-off and sedimentation.		
MM90	Telecoms and other service interference	EIAR Section 14	In the event of interference occurring to telecommunications, the Department of the Environment, Heritage and Local Government Wind Farm Planning Guidelines (2006) state that these effects are generally easily dealt with by the use of divertor relay links out of line with the proposed wind turbines.		
MM91	Flora and Fauna	EIAR Section 7	A detailed post-construction Bird Monitoring Programme has been prepared for the operational phase of the Proposed Development, please refer to Appendix 7-8 of the EIAR for further details. The programme of works will monitor parameters associated with collision, displacement/barrier effects and habituation and these surveys will be scheduled to coincide with Years 1, 2, 3, 5, 10 & 15 of the lifetime of the wind farm. Monitoring measures are broadly based on guidelines issued by the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Scottish Natural Heritage (SNH, 2009). The following individual components are proposed for monitoring years: › Monthly flight activity surveys: vantage point surveys › Distribution and abundance surveys: breeding wader to a 500m radius of the development area, breeding hen harrier surveys and winter hen harrier roost surveys to a 2km radius of the development area. › Targeted bird collision surveys (corpse searches) will be undertaken with training dogs. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.		
MM92	Flora and Fauna	EIAR Section 6	Blade Feathering On a precautionary basis, and in addition to buffers applied to habitat features, it is proposed that all wind turbines are subject to 'feathering' of turbine blades when wind speeds are below the cut-in speed of the proposed turbine. Bat Buffers In accordance with NatureScot Guidance, a minimum 50m buffer to all habitat features used by bats (e.g., hedgerows, tree lines etc.) will be maintained from the turbines. Lighting The applicant commits to the use of lights during operation in line with guidance that is provided in the Institute of Lighting Professionals Guidance Note 08/18 Bats and artificial lighting in the UK and Dark Sky Ireland Lighting Recommendations. Exterior lighting will be designed to minimise light spillage by using directional accessories (Stone, 2013).		
MM93	Flora and Fauna	EIAR Section 6	The Proposed Development has the potential to result in enhancement of the surrounding areas through habitat rehabilitation management (as described in the Biodiversity and Enhancement Management Plan) that will be implemented during the construction phase of the Proposed Development and maintained during the		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			operational phase. Details of the management that will be undertaken are provided in the Biodiversity and Enhancement Management Plan in Appendix 6-4 of the EIAR. These include: › Drain blocking within degraded peatlands, › Surface Peat Assessments, › Vegetation Sampling, › Hydrological Monitoring.		
MM94	Noise and Vibration	EIAR Section 11	Commissioning noise surveys will be undertaken to ensure compliance with any noise conditions applied to the development. In the unlikely instance that an exceedance of these noise criteria is identified, the assessment guidance outlined in the IoA GPG and Supplementary Guidance Note 5: Post Completion Measurements (July 2014) should be followed and relevant corrective actions will be taken.		
MM95	Air and Climate	EIAR Section 10	Any vehicles or plant brought onsite during the operational phase will be maintained in good operational order that comply with the Road Traffic Acts 1961 as amended, thereby minimising any emissions that arise.		
MM96	Shadow Flicker	EIAR Section 5	Where daily or annual shadow flicker exceedances are experienced at buildings, a site visit will be undertaken firstly to determine the existing screening and window orientation. This will determine if the receptor has an actual line of sight to any turbine. Once this is completed and all of the potential receptors identified, in the event of an occurrence of shadow flicker exceeding guideline threshold values of 30 minutes per day at residential receptor locations, mitigation options will be discussed with the affected homeowner, including: › Installation of appropriate window blinds in the affected rooms of the residence; › Planting of screening vegetation; › Other site-specific measures which might be agreeable to the affected party and may lead to the desired mitigation, which includes the option of a shadow flicker control unit which allows a wind farm's turbines to be programmed and		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			controlled using the wind farm's Supervisory Control and Data Acquisition (SCADA) control system to change a particular turbine's operating mode during certain conditions or times, or even turn the turbine off if necessary.		
MM97	Human Health	EIAR Section 5	› Access to the turbines is through a door at the base of the structure, which will be locked at all times outside maintenance visits. › Staff associated with the project will conduct frequent visits, which will include inspections to establish whether any signs have been defaced, removed or are becoming hidden by vegetation or foliage, with prompt action taken as necessary. › Signs will also be erected at suitable locations across the site as required for the ease and safety of operation of the proposed renewable energy development. These signs include: o Buried cable route markers at 50m (maximum) intervals and change of cable route direction; o Directions to relevant turbines at junctions; o "No access to Unauthorised Personnel" at appropriate locations; o Speed limits signs at site entrance and junctions; o "Warning these Premises are alarmed" at appropriate locations; o "Danger HV" at appropriate locations; o "Warning – Keep clear of structures during electrical storms, high winds or ice conditions" at site entrance; o "No unauthorised vehicles beyond this point" at specific site entrances; and o Other operational signage required as per site-specific hazards. › An operational phase Health and Safety Plan will be developed to fully address identified Health and Safety issues associated with the operation of the site and providing for access for emergency services at all times.		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			Decommissioning Phase		
MM98	Decommissioning	EIAR Chapter 4	Prior to the end of the operational period the Decommissioning Plan (Appendix 4-6 of the EIAR) will be updated in line with decommissioning methodologies that may exist at the time and will agreed with the competent authority at that time.		
MM99	Decommissioning	DP Section 3	Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of the material proposed for turbine foundation backfilling. The invasive species survey will also be undertaken along the cable route to identify invasive species at joint bay locations where excavation to expose the cabling for removal will be required.		
MM100	Decommissioning	EIAR Chapter 4 DP Section 2	On removal of turbines, the covering of the foundation will be completed using locally sourced material imported to site as the required quantity of material does not currently exist at the site. The imported soil will be spread and graded over the foundation using a tracked excavator and revegetation enhanced by spreading of an appropriate seed mix to assist in revegetation.		
MM101	Decommissioning	EIAR Chapter 4 DP Section 3	The following mitigation measures are proposed to avoid release of hydrocarbons at the site: › Road-going vehicles will be refuelled off site wherever possible; › On-site refuelling will be carried out at designated refuelling areas at various locations throughout the site. Machinery will be refuelled directly by a fuel truck that will come to site as required › Only designated trained and competent operatives will be authorised to refuel plant on site. › Fuel volumes stored on site should be minimised. Any fuel storage areas will be bunded appropriately; › The plant used will be regularly inspected for leaks and fitness for purpose; and,		

Ref. No.	Reference Heading	Reference Location	Mitigation Measure	Audit Result	Action Required
			› An emergency plan for the decommissioning phase to deal with accidental spillages will be developed (refer to EIAR Section 4). Spill kits will be available to deal with and accidental spillage in and outside the refuelling area. A programme for the regular inspection of plant and equipment for leaks and fitness for purpose will be developed at the outset of the decommissioning phase.		
MM102	Decommissioning	EIAR Section 7	The following measures are proposed for the decommissioning phase: › During the decommissioning phase, disturbance limitation measures will be as per the construction phase (see Chapter 7 of the EIAR). › Plant machinery will be turned off when not in use. › All plant and equipment for use will comply with the Construction Plant and the European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001 (S.I. No. 632 of 2001). A project ecologist will be appointed to oversee the decommissioning phase, with similar duties to those outlined above during the construction phase.		
MM103	Decommissioning	EIAR Chapter 14 DP Section 3	A Traffic Management Plan will be prepared in advance of any decommissioning works. The removal of turbines from site will be undertaken by a specialist haulier. The traffic management arrangements although similar to those that will be implemented for turbine delivery as outlined in the EIAR will be agreed in advance of decommissioning with the competent authority Donegal County Council. The Traffic Management Plan for the decommissioning phase will also include provision for the removal of underground cables from the underground ducts. This will be done by opening the joint bays in along the public road .		

18.3 EIAR Monitoring Measures

Table 18-2 Monitoring Schedule

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
Pre-Construction Phase						
MX1	Drainage Maintenance	EIAR Section 4 SWMP Section 4	An inspection and maintenance plan for the drainage system on site will be prepared in advance of commencement of any works. Regular inspections of all installed drainage systems will be necessary, especially after heavy rainfall, to check for blockages, and ensure there is no build-up of standing water at parts of the systems where it is not intended. The inspection of the drainage system will be the responsibility of the site ECoW or the Project Hydrologist.	On going	Monthly	Project Hydrologist
MX2	Clear Felling of Coniferous Plantation	EIAR Section 9 SWMP Section 3	Sampling will be completed before, during (if the operation is conducted over a protracted time) and after the felling activity. The 'before' sampling should be conducted within 4 weeks of the felling activity commencing, preferably in medium to high water flow conditions. The "during" sampling will be undertaken once a week or after rainfall events. The 'after' sampling will comprise as many samplings as necessary to demonstrate that water quality has returned to pre-activity status (i.e. where an impact has been shown). Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will also be undertaken as per water monitoring programme for the overall Proposed Development and each primary watercourse along the route.	As Required	Monthly	ECoW
MX3	Drainage Inspection	SWMP Section 3	Prior to commencement of works in sub-catchments across the site main drain inspections will be competed to ensure ditches and streams are free from debris and blockages that may impede drainage.	As Required	Monthly	Project Hydrologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
MX4	Invasive Species	EIAR Section 6 CEMP Section 3	A pre-commencement invasive species survey shall be completed for the site.	Once	As required	Project Ecologist
MX5	Birds	EIAR Section 7	Pre-commencement bird surveys will be undertaken prior to the initiation of works at the Site. The survey will include a thorough walkover survey to a 500m radius of the development footprint and/or all works areas, where access allows. If winter roost sites or breeding activity of birds of high conservation concern is identified, the roost or nest site will be located, and earmarked for monitoring at the beginning of the first winter season or breeding season (respectively) of the construction phase. If it is found to be active during the construction phase no works shall be undertaken within a 500m buffer in line with best practise. No works shall be permitted within the buffer until it can be demonstrated that the roost or nest is no longer occupied.	Once	As required	Project Ornithologist
Construction Phase						
MX6	Archaeological Monitoring	EIAR Section 13	An archaeologist will monitor excavation works associated with the grid connection cable route and a full photographic record of the bridges will be made by the archaeologist prior to the removal of any components. A report will be complied on completion of the monitoring and sent to the Local Authority and National Monuments Service.	As Required	As Required	Project Archaeologist
MX7	Water Quality and Monitoring	CEMP Section 3 SWMP Section 4	The effectiveness of drainage measures designed to minimise runoff entering works areas and capture and treat silt-laden water from the works areas, will be monitored continuously by the ECoW on-site. The ECoW or Project Hydrologist will respond to changing weather, ground or drainage conditions	Daily	As Necessary	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			on the ground as the project proceeds, to ensure the effectiveness of the drainage design is maintained in so far as is possible.			
MX8	Water Quality and Monitoring	EIAR Section 9 SWMP Section 4	Daily surface water monitoring forms will be utilised at every works site near any watercourse. These will be taken daily and kept on site for record and inspection.	Daily	As Necessary	ECoW
MX9	Surface Water Quality	CEMP Section 4 SWMP Section 4	Baseline laboratory analysis of a range of parameters with relevant regulatory limits and EQSs will be undertaken as per water monitoring programme for the Proposed Development and each primary watercourse along the route. This will not be restricted to just these locations around the proposed renewable energy development site with further sampling points added as deemed necessary by the ECoW in consultation with the Project Hydrologist and Site Manager. In-situ field monitoring will be completed on a weekly basis. In-situ field monitoring will also be completed after major rainfall events, i.e. after events of >25mm rainfall in any 24-hour period. The Project Hydrologist will monitor and advise on the readings collected by in-situ field monitoring.	As Required	Monthly	ECoW
MX10	Clear felling of Coniferous Plantation	EIAR Section 9 SWMP Section 3	Checking and maintenance of roads and culverts will be on-going through any felling operation. No tracking of vehicle through watercourses will occur, as vehicles will use road infrastructure and existing watercourse crossing points. Where possible, existing drains will not be disturbed during felling works.	As Required	Monthly	ECoW
MX11	Plant and Equipment Inspections	EIAR Section 9	The plant used should be regularly inspected for fuel leaks, unnecessary noise generation and general fitness for purpose.	As Required	Monthly	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
		CEMP Section 4				
MX12	Plant and Equipment Inspections	CEMP Section 3	Local areas of the haul route will be condition monitored and maintained, if necessary.	Daily	Monthly	ECoW
MX13	Flora and Fauna	CEMP Section 4	A Project Ecologist will be appointed. The responsibilities and duties of the Project Ecologist will include the following: › Undertake a pre-construction transect/walkover bird survey to ensure that significant effects on breeding birds will be avoided. › Inform and educate on-site personnel of the ornithological and ecological sensitivities within the Proposed Development area. › Oversee management of ornithological and ecological issues during the construction period and advise on ornithological issues as they arise. › Provide guidance to contractors to ensure legal compliance with respect to protected species onsite. › Liaise with officers of consenting authorities and other relevant bodies with regular updates in relation to construction progress.	As required	As required	Project Ecologist
MX14	Noise and Vibration	CEMP Section 4	Monitoring typical levels of noise and vibration during critical periods and at sensitive locations will be carried out.	Daily	Monthly	ECoW
Operational Phase						
MX15	Surface Water Quality	SWMP Section 4	Monthly sampling for laboratory analysis for a range of parameters adopted during pre-commencement and construction phases will continue for six months during the operational phase. The Project Hydrologist will monitor and	Monthly	Monthly	ECoW

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
			advise on the readings being received from the testing laboratory.			
MX16	Drainage Inspections	SWMP Section 4	The drainage system will be monitored in the operational phase until such a time that all areas that have been reinstated become re-vegetated and the natural drainage regime has been restored.	Monthly	Monthly	ECoW
MX17	Ornithology	EIAR Section 7	A detailed post-construction Bird Monitoring Programme has been prepared for the operational phase of the Proposed Development, please refer to Appendix 7-8 of the EIAR for further details. The programme of works will monitor parameters associated with collision, displacement/barrier effects and habituation and these surveys will be scheduled to coincide with Years 1, 2, 3, 5, 10 & 15 of the lifetime of the wind farm. Monitoring measures are broadly based on guidelines issued by the Scottish Natural Heritage (SNH, 2009). The following individual components are proposed for monitoring years: › Monthly flight activity surveys: vantage point surveys › Distribution and abundance surveys: breeding wader to a 500m radius of the development area, breeding hen harrier surveys and winter hen harrier roost surveys to a 2km radius of the development area. › Targeted bird collision surveys (corpse searches) will be undertaken with training dogs. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.	Years 1, 2, 3, 5, 10 & 15	Annually	Project Ornithologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
MX18	Ornithology	Appendix 7-8	The monitoring measures will include: › Monthly flight activity surveys: vantage point surveys. › Breeding Bird surveys: Adapted Brown & Shepard › Hen Harrier Winter Roost Surveys › Targeted bird collision surveys (corpse searches) will be undertaken with trained dogs. The surveys will include detection and scavenger trials, to correct for these two biases and ensure the resulting data is robust.	1, 2, 3, 5, 10 and 15	As required	Project Ornithologist
MX19	Ornithology	Appendix 7-8	Audits will be required to ensure the effectiveness of the enhancement plan. The audit will assess: › Objectives of the individual farm plan; › Implementation of the plan; and › Adherence to requirements of the farm plan.	Every five years	As required	Project Ornithologist
MX20	Bats	EIAR Section 6	<u>Bat Monitoring Plan</u> Post-construction bat monitoring will be undertaken for at least three years' post construction of the renewable energy development. The monitoring will also include static detector surveys, walked survey transects and corpse searching to record any bat fatalities resulting from collision. The results of post construction monitoring shall be utilised to assess changes in bat activity patterns and to inform the design of any advanced site specified mitigation requirements, including curtailment if deemed necessary following post construction monitoring.	Years 1, 2, 3	Annually	Project Ecologist

Ref. No.	Reference Heading	Reference Location	Monitoring Measure	Frequency	Reporting Period	Responsibility
MX21	Flora and Fauna	EIAR Section 6	The Proposed Development has the potential to result in enhancement of the surrounding areas through habitat rehabilitation management (as described in the Biodiversity Management and Enhancement Plan) that will be implemented during the construction phase of the Proposed Development and maintained during the operational phase. Details of the management that will be undertaken are provided in the Biodiversity Management and Enhancement Plan in Appendix 6-4 of the EIAR. These include: › Drain blocking within degraded peatlands › Surface Peat Assessments › Vegetation Sampling › Hydrological Monitoring	As required	As required	Project Ecologist
Decommissioning Phase						
MX22	Decommissioning	DP Section 3	The Site Manager in consultation with the ECoW will be responsible for employing the services of a suitably qualified ecologist and any other suitably qualified professionals as required throughout the decommissioning works.	As required	As required	Site Manager
MX23	Decommissioning	DP Section 3	Prior to decommissioning, a suitably qualified ecologist will complete an invasive species survey of any material proposed for use as part of foundation backfilling. The invasive species survey will also be undertaken along the cable route to identify invasive species at joint bay locations where excavation to expose the cabling for removal will be required.	As required	As required	Project Ecologist