



Environmental Impact Assessment Report (EIAR)

Chapter 15 Schedule of Mitigation Measures

**Dernacart Wind Farm
110kV Substation and Grid Connection**

Statkraft Ireland

October 2024

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15. Schedule of Environmental Mitigation

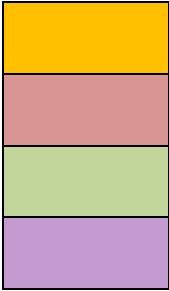
15.1 Introduction

This Schedule of Environmental Mitigation summarises and sets out an implementation programme for all environmental mitigation measures recommended in the Environmental Impact Assessment Report (EIAR) for the proposed Dernacart Wind Farm Development.

15.2 Format of the Mitigation Schedule

The schedule of the following pages is structured in accordance with the following project phases:

- Prior to Commencement of Construction
- During Construction Phase
- Post Construction / Operational Phase
- Decommissioning



The Schedule is presented in a Table format which outlines the following, for each of the project phases:

- i. The environmental aspect or resource for which mitigation is required.
- ii. The required or proposed mitigation measures to undertake/ implement.
- iii. The persons responsible for implementing the recommended mitigation measures.
- iv. The relevant actions, procedures and plans relating to implementation of the mitigation.

Table 15.1 Schedule of Environmental Mitigation Measures

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	<p>Traffic Management Plan (TMP)</p> <p>A Traffic Management Plan (TMP) outlining the required traffic management procedures to be implemented on the public roads during the construction of the proposed development is included as Appendix 3. The Traffic Management Plan will be updated, as appropriate, following the proposed project detailed design/tendering stage, and submitted for the approval of Laois County Council and Offaly County Council, prior to construction.</p> <p>The proposed grid connection will require a Road Opening License (ROL) prior to the commencement of any grid connection works on the public road.</p>	Appointed Project Developer	Appendix 3 Chapter 12 Material Assets – Traffic and Transport
PLANNING STAGE/PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	<p>Construction Environmental Management Plan (CEMP)</p> <p>A Preliminary Construction Environmental Management Plan (CEMP) has been prepared for the project and will be implemented during the construction phase of the project. The CEMP provides a practical guide to the Client and Main Project Contractor to ensure compliance by all parties with Planning and Environmental requirements. The CEMP includes, but it is not limited to, measures to control/ manage various elements of the development. A final Construction and Environmental Management Plan (CEMP) will be prepared by the appointed Contractor in advance of works commencing and will be submitted to the local authority(s) for approval.</p>	<p>Appointed Project Developer</p> <p>Responsible personnel identified in the CEMP</p>	Appendix 2
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	<p>Tree Felling and Hedgerow Removal</p> <p>Where pre-construction removal of woodland and hedgerows is unavoidable, brash mats will be used where practicable to support vehicles on soft ground, reducing soil erosion and avoiding the formation of rutted areas, in which surface water</p>	Appointed Project Developer	Chapter 6 Land and Soil

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		ponding can occur. Brash mat renewal will take place when they become heavily used.		
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	Protection of Water Quality – Water Quality Monitoring	<p>A programme of surface water quality monitoring will be prepared in consultation with Inland Fisheries Ireland (IFI) prior to the commencement of the construction of the proposed development. The plan will include surface water quality monitoring during the pre-construction, and construction phase.</p> <p>Baseline water quality monitoring will be undertaken upstream and downstream of the site prior to construction to determine the baseline water. This baseline data will include the main components of a full hydrograph for the streams including both high spate flow and base flow where possible.</p>	<p>Appointed Project Developer</p> <p>Appointed Environmental Manager</p>	Chapter 7 Water
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	Biodiversity – Otter	<p>A pre-construction survey for otter should be undertaken prior to the commencement of any works as per NRA (2006) guidance in order to identify any changes within the site. The pre-construction survey should be undertaken no more than 10-12 months in advance of construction. The survey should be supplemented by an additional survey immediately prior to site works commencing if a sufficient time period has elapsed since the pre-construction survey.</p> <p>All construction site works will be undertaken in accordance with best-practice guidance set out in NRA (2006) in relation to construction works and otter. Implementation of best-practice guidelines for otter will be overseen by the appointed ecologist.</p>	<p>Appointed Project Developer</p> <p>Appointed Project Ecologist</p>	Chapter 5 Biodiversity
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	Biodiversity - Badger	A pre-construction survey for badger should be undertaken prior to the commencement of any works as per NRA (2005) guidance in order to identify any changes within the site. The pre-construction survey should be undertaken no more than 10-12	Appointed Project Developer	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE		ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<p>months in advance of construction commencement. The survey should be supplemented by an additional survey immediately prior to site works commencing if a sufficient time period has elapsed since the pre-construction survey.</p> <p>Any mitigations required for badgers will be carried out under license from NPWS and using NRA Guidelines (2005) (now TII) where applicable, Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes.</p>	Appointed Project Ecologist	
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	Biodiversity – Invasive Species	<p>Giant hogweed, medium-impact Jenkins spire snail (<i>Potamopyrgus jenkinsi</i>) and European Rabbit were noted during pre-construction surveys carried out within the Dernacart Wind Farm.</p> <p>An invasive species survey shall be undertaken prior to commencement of construction. Areas where invasive species are present will be identified and demarcated prior to commencement of construction.</p> <p>A construction-stage IAPS management plan will be prepared and will incorporate the appropriate management measures. The construction stage management plan should set out clear processes for the eradication, control and containment of each IAPS on-site and is to include a detailed implementation and treatment schedule (including initial and follow-up treatments) in light of the construction schedule and the prevailing IAPS conditions on-site at the time.</p> <p>Where any IAPS is identified within/adjacent to the works footprint, fencing and/or advisory signage is to be erected around stands (minimum 7 m buffer in the case of Japanese knotweed).</p>	<p>Appointed Project Developer</p> <p>Appointed Project Ecologist</p> <p>Appointed Project Contractor</p> <p>Appointed Ecological Clerk of Works</p>	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	Archaeology/ Cultural Heritage	<p>It is recommended that the appointed contractor will make provision for archaeological monitoring to be carried out under licence to the Department of Housing, Local Government and Heritage (DHLGH) and the National Museum of Ireland (NMI), and will ensure the full recognition of, and the proper excavation and recording of all archaeological soils features, finds and deposits which may be disturbed in the course of the works.</p> <p>Mitigation to offset the risk of damage to Kilnahown Bridge and Blackhall Bridge (two structures listed in the NIAH), and subsurface elements of the former course of the Grand Canal, in particular will include recording, protection and monitoring of the sensitive fabric prior to and for the duration of the Construction Phase.</p> <p>Recording, overseeing of protective measures and monitoring is to be undertaken by an appropriate heritage specialist engaged by the appointed contractor in accordance with the methodology provided in The Construction Management Plan.</p>	<p>Appointed Project Developer</p> <p>Heritage Specialist</p>	Chapter 10 Cultural Heritage
PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS	Material Assets	<p>All relevant bodies i.e. ESB Networks, EirGrid, Gas Networks Ireland, Eir, Laois County Council/Offaly County Council etc. will be re-contacted and drawings for all existing underground services along the proposed development sought prior to the commencement of the proposed development.</p> <p>In advance of any construction activity, the contractor will</p>	Appointed Project Developer	Chapter 13 Material Assets

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		undertake detailed surveys and scans of the Proposed Development site to confirm the presence of any services. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation methods and to schedule a suitable time to carry out works. Some minor alignment alterations may be required if previously unknown services are encountered which will likely result in brief suspension of services		
DURING CONSTRUCTION	Biodiversity – Ecological Clerk of Works (ECoW)	<p>A suitably qualified and experienced Project Ecologist/ECoW will be employed during the construction phase of the project. Duties will include the review of all method statements, delivery of toolbox talks, undertaking of all required pre-construction surveys for protected species and monitoring of works throughout the construction phase to ensure that works are taking place in compliance with the CEMP and that the requirements of the Conditions of Planning and all environmental controls and EIAR mitigation is implemented in full. As part of toolbox talks, contractor staff and other site personnel, as relevant, will be made aware of the procedure to follow if a protected species or their resting or breeding site is encountered.</p> <p>The appointed ECoW will be awarded a level of authority and will be allowed to stop construction activity if there is potential for adverse environmental effects other than those predicted and mitigated for in the EIAR. The appointed ECoW will have demonstrated professional experience in managing large-scale construction works affecting ecological receptors identified within the EIAR.</p>	Project Ecologist/ Ecological Clerk of Works	Chapter 5 Biodiversity
DURING CONSTRUCTION	Biodiversity -	The area of proposed works will be kept to the minimum necessary to minimise disturbance to habitats and flora. Vegetation removal within the Site is to be minimised and be restricted to those areas	Appointed Project Contractor	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	Habitats	<p>of vegetation which have been identified for removal (to be clearly marked by contractor staff prior to removal). Removal of vegetation from anywhere outside of marked areas will not be permitted.</p> <p>The extent of access for all construction plant and machinery is to be clearly marked out.</p> <p>All operatives will be made aware of the proximity of the River Barrow and River Nore SAC (002162) to the Site as part of toolbox talks. Movement of construction plant/vehicles is to be minimised within the SAC boundary.</p>		
DURING CONSTRUCTION	Biodiversity - Disturbance to Fauna (general measures)	<p>General measures on the disturbance to fauna include, but are not limited to, the following:</p> <ul style="list-style-type: none"> • Disturbance of fauna generally will be reduced by controlling the movement of construction vehicles and personnel. • Construction materials and wastes are to be kept in designated areas to reduce risk of accidental injury/entrapment of any wildlife on-site. • In accordance with Section 40 of the Wildlife Acts, vegetation removal, including tree removal, will be conducted outside of the restricted bird nesting period (March 1st to 31st August, inclusive). This will not only protect nesting birds, but a range of biodiversity. • Where areas of dense vegetation are to be removed, such as within the conifer treeline, the ECoW will be present to oversee removal of vegetation and ensure any necessary mitigation measures are in place in the event that a previously unknown breeding or resting site of any 	<p>Appointed Project Contractor</p> <p>Appointed Ecological Clerk of Works</p>	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<p>protected mammal species is encountered during the works.</p> <ul style="list-style-type: none"> Mammals and birds are mobile and so are expected to disperse from the area; however, young or hibernating animals are vulnerable to impacts during vegetation clearance. Prior to any vegetation clearance, the area will be checked by the ECoW to check for the presence of young or hibernating animals. Should any resting or breeding place of any protected species be discovered within the Site during the pre-construction or construction phases, the ECoW is to be informed immediately and the advice of NPWS sought. Any works in the area are to cease immediately and the area is to be cordoned off until the ECoW has authorised recommencement of works. All temporary construction lighting is to be switched off outside daylight hours. Construction lighting is to be directed inwards into the Site to reduce indirect alteration of adjacent habitats outside the Site and minimise nocturnal impacts on faunal species. To reduce the level of night-time disturbance to nocturnal fauna, construction activities should be restricted to standard construction hours. Construction work will not take place outside of these hours unless in exceptional circumstances. 		
DURING CONSTRUCTION	Biodiversity- protection of Bats	<p>Construction phase mitigation for bats is to be implemented in accordance with the following best-practice guidance for bats:</p> <ul style="list-style-type: none"> Bat Mitigation Guidelines for Ireland Ver 2. Irish Wildlife Manuals, No 134 (Marnell et al., 2022) 	Appointed Project Contractor	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<ul style="list-style-type: none"> • 'Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes' (NRA, undated) • 'Guidelines for the Treatment of Bats During the Construction of National Road Schemes' (NRA, 2005b) 	Appointed Project Environmental Manager	
DURING CONSTRUCTION	Biodiversity – Otter	<ul style="list-style-type: none"> • All construction site works will be undertaken in accordance with best-practice guidance set out in NRA (2006) in relation to construction works and otter. Implementation of best-practice guidelines for otter will be overseen by the appointed ecologist. • In the event of a previously unidentified otter breeding/resting place being encountered within or in proximity of the development site, all construction activity and site works will be undertaken in accordance with relevant best-practice guidance set out in NRA (2006) in relation to construction works and otter. 	Appointed Project Contractor Appointed Ecological Clerk of Works	Chapter 5 Biodiversity
DURING CONSTRUCTION	Biodiversity - Badger	<p>The NRA (2005) guidance document outlines certain general provisions with regard to site works in the vicinity of badger setts. These provisions will be followed where possible.</p> <p>During the construction phase of the development, activities may pose a threat to badger setts. In order to comply with the above guidelines:</p> <ul style="list-style-type: none"> • Before any work starts on-site, all affected badger setts will be clearly marked, and the extent of bounds prohibited for vehicles. These 'Sett Protection Zones' should extend out 30 m from all sett entrances of each affected sett and should be clearly demarcated on the ground with fencing and signage. Bunting is an option on a temporary basis. Hazard tape is inadequate as it is prone to deterioration and damage by wind or cattle etc. Scrub 	Appointed Project Contractor Appointed Ecological Clerk of Works	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<p>and vegetation should not be cleared from the sett area, unless under the direction of the appointed ecologist.</p> <ul style="list-style-type: none"> • Construction activities within the vicinity of affected setts may commence once setts have been evacuated, as required, and destroyed. • Where affected setts do not require destruction, construction works may commence once recommended alternative mitigation measures to address badger have been complied with, where necessary, and under the direction of the ecologist e.g., sett screening, restricted working hours etc. • The use of noisy plant and machinery in the vicinity of active setts should cease at least two hours before sunset. • No artificial lighting (either during or after construction) to be positioned where it would fall on a badger sett, or well used paths leading directly from it. • Chemicals should be stored as far away from the setts as possible (minimum 30 m distance). • All contractors/operators/site staff should be notified of the presence of badger on-site and made fully aware of the procedures pertaining to each sett via toolbox talks, to be given by the appointed ecologist. All contractors and sub-contractors should be instructed to keep out of the sett protection zone. <p>If, for whatever reason, a location cannot be ruled out as a badger sett, in order to determine whether it is indeed a badger sett and what its activity status is, the location will be monitored for a brief period e.g., five or more days.</p>		
DURING CONSTRUCTION	Tree Felling	All tree-felling is to be conducted in a manner sensitive to bats, and in accordance with NRA (2005). Where mature trees require felling,	Appointed Project	Chapter 5 Biodiversity

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DURING CONSTRUCTION	Bio-security	<p>they will ideally be felled between September and early November, in order to avoid the disturbance of any roosting bats. Tree felling will be completed by Mid-November at the latest because bats roosting in trees are very vulnerable to disturbance during their hibernation period (November – April). Once felled, trees will be left intact on-site for a minimum of 24 hours prior to disposal to allow any bats which may be present to leave.</p> <p>Where tree felling is required, trees should be felled away from setts and must not block badger paths. Badger paths should be cleared of felled timber and scrub, where possible.</p> <p>Any accumulations of ivy growing on structures should be removed in the autumn months and left on the ground for 24 hours to allow any residing bats to exit safely.</p> <p>Where removal of woodland and hedgerows is unavoidable, brash mats will be used where practicable to support vehicles on soft ground, reducing soil erosion and avoiding the formation of rutted areas, in which surface water ponding can occur. Brash mat renewal will take place when they become heavily used.</p>	Contractor Appointed Ecological Clerk of Works	Chapter 6 Land and Soil
		<p>Prior to being brought to site, validation should be provided by all suppliers that construction plant, machinery and vehicles are free from invasive species. Similarly, certification is to be obtained from suppliers that all raw materials to be imported to site including soil, fill, sand, gravel and landscaping materials are free from invasive species.</p> <p>All vehicles, machinery and equipment/tools are to arrive to site clean and steam washed. Visual inspections are to take place. All</p>	Appointed Project Contractor	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	<p>Personal Protective Equipment (PPE) brought to site is to be clean and dry with any attached vegetation or debris removed.</p> <p>A schedule of regular site inspections for invasive species is to be prepared and undertaken for the duration of the construction works. These inspections are to encompass the IAPS growing season for the duration of the construction works programme to monitor existing IAPS growth, identify any new IAPS stands, inspect materials storage areas and monitor implementation of IAPS management measures on-site, where required e.g., fencing, signage etc.</p> <p>Where there is a requirement for IAPS control areas, all vehicles, equipment/tools, footwear etc used in these areas will be thoroughly cleaned in a designated area once works in that area are complete to prevent spread of IAPS. The use of tracked machinery within IAPS infested areas is to be prohibited. The use of tracked machinery within close proximity of IAPS infested areas is to be strictly controlled. This should be undertaken with direction from the ECoW.</p>		
DURING CONSTRUCTION	<p>Biodiversity – Management of Alien Invasive Plant Species (IAPS)</p> <p>No non-essential ground maintenance or any other ground disturbance should take place within IAPS fenced areas. Where works are required within/adjacent to infested areas, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site and ensuring bio-security compliance. This should be done in consultation with a suitably qualified specialist. Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice of a suitably qualified specialist.</p>	<p>Appointed Project Contractor</p> <p>Appointed Ecological Clerk of Works</p>	Chapter 5 Biodiversity

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	<p>Where application of herbicides is required to treat IAPS on-site, the proximity of ecological receptors is to be taken into account. Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual, aquatic approved herbicides are to be used. Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake. Herbicides are to be applied strictly in accordance with the manufacturer’s recommendations and by competent, experienced and licenced personnel registered as a Professional Pesticides User.</p> <p>Monitoring of control measures should be undertaken approximately six to eight weeks after treatment to determine success of measures used.</p> <p>Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil and deter any subsequent reinvasion. Planting should be carried out with regard to ‘Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species (Kelly, 2012).</p> <p>Where off-site removal of IAPS material or infested soil is required, then the relevant NPWS licence will be required to be procured in advance of removal of IAPS material off-site and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477). Off-site removal of such material will be undertaken in accordance with licence conditions.</p>		

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	<p>All management and control measures implemented on-site during the construction phase are to be carried out in accordance with best practice guidance as set out in 'The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)' TII (2020), 'The Management of Noxious Weeds and Non-native Invasive Species on National Roads' NRA (2010), 'Best Practice Management Guidelines Rhododendron Rhododendron ponticum and Cherry Laurel Prunus laurocerasus' Maguire, et al., (2008), 'Best Practice Management Guidelines Japanese Knotweed Fallopia japonica' Kelly, et al., (2015) and 'Managing Japanese Knotweed on Development Sites: the Knotweed Code of Practice' UK Environment Agency (2006)</p>		
DURING CONSTRUCTION	<p>Accidental Spills and Contamination/Pollution</p> <p>The management of fuel/oil and other chemicals on site will have regard to the following elements:</p> <ul style="list-style-type: none"> Chemicals will be bunded and where applicable, stored within double-skinned tanks/containers with the capacity to hold 110% of the volume of chemical contents. Ancillary equipment such as hoses and pipes will be contained within the bund. Bunds will be located on flat ground a minimum distance of 50 m from any watercourse or other water- conducting features, in a designated, secure, impermeable storage area. Measures will be implemented throughout the construction stage to prevent contamination of the soil from oil and/or petrol leakages. All plant will be regularly inspected for leaks to ensure it is fit for purpose. All taps, nozzles and valves will be fitted with a lock system that will be regularly checked for signs of damage. Where required, refuelling of plant on-site will only be carried out at a designated area within the site compound. Only designated trained operators will be authorised to refuel plant 	<p>Appointed Project Contractor</p> <p>Appointed Project Environmental Manager</p>	<p>Chapter 5 Biodiversity</p> <p>Chapter 6 Land and Soil</p> <p>Chapter 7 Water</p>

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	<p>on site. Rigid and articulated vehicles will be fuelled off site as will all site vehicles (jeeps, cars and vans).</p> <ul style="list-style-type: none"> Controls will be regularly inspected and maintained. Regular cleaning and servicing of bunds, gullies, pipe work, and oil interceptors will be carried out to ensure the system is operating at its optimum. Procedures and contingency plans will be set up to deal with emergency accidents or spills. An emergency spill kit containing oil boom and absorbers will be kept on site in the event of an accidental spill/emergency. All crews will be trained in the use of spill kit equipment. All emergency procedures and equipment will be in place prior to the commencement of any works. The Local Authority will be informed immediately of any spillage or pollution incident that may occur on-site during the construction phase. In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery. 		
DURING CONSTRUCTION	<p>Management of Concrete</p> <p>A designated trained operator, experienced in working with concrete will be employed during the concrete pouring phase.</p> <p>There shall be no pouring of concrete during extreme/prolonged rainfall. The pour site will be kept free of standing water and plastic covers will be ready in case of a sudden rainfall event.</p> <p>Any small volumes of incidental wash generated from cleaning hand tools, cement mixers or other plant, as required, will be trapped on-site to allow sediment to settle out and reach neutral pH before the clarified water is released and allowed to percolate</p>	<p>Appointed Project Contractor</p> <p>Appointed Project Environmental Manager</p>	<p>Chapter 5 Biodiversity</p> <p>Chapter 7 Water</p> <p>Chapter 6 Land and Soil</p>

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		<p>to ground. Settled solids will need to be appropriately disposed of off-site.</p> <p>Washout of concrete trucks will not occur at the site. Washout of plant is to be carried out in designated, contained, impermeable areas.</p> <p>Where concrete is delivered on site, only the chute will be cleaned, using the smallest volume of water practicable. No discharge of cement contaminated waters to the construction phase drainage system or directly to any artificial drain or watercourse will be allowed. Chute cleaning water will be undertaken at lined cement washout ponds;</p>		
DURING CONSTRUCTION	Management of Construction Waste	<p>In the event that any buried waste or potentially contaminated material is encountered, this will be segregated from clean, inert material, and then tested and classified.</p> <p>In the unlikely event of hazardous material being encountered, it will be transported for treatment/recovery or disposal in suitable facilities.</p> <p>All wastes are to be removed from site by appropriate licenced waste contractors to suitable waste facilities.</p>	<p>Appointed Project Contractor</p> <p>Appointed Project Environmental Manager</p>	<p>Chapter 5 Biodiversity</p> <p>Chapter 6 Land and Soil</p> <p>Chapter 7 Water</p>
DURING CONSTRUCTION	Storage of Materials	<p>The storage of materials, spoil, containers, stockpiles and waste, however temporary, should follow best practice at all times and be restricted to designated areas only.</p> <p>Material stockpiles should be kept to a minimum size, and be located on impermeable bases, where necessary.</p>	<p>Appointed Project Contractor</p> <p>Appointed Project</p>	<p>Chapter 5 Biodiversity</p> <p>Chapter 6 Land and Soil</p>

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	Storage of materials will be located away from any temporary drains and moving plant, machinery and vehicles.	Environmental Manager	Chapter 7 Water
DURING CONSTRUCTION	<p>Peat, Subsoil and Topsoil Excavation</p> <p>Appropriate engineering controls, such as the installation of a drainage system with settlement / stilling ponds, silt traps, check dams and interceptor drains, will be carried out in tandem with, and where possible, prior to, any excavation work to mitigate potential impacts. In relation to construction works, the most important aspects of these measures involve:</p> <ul style="list-style-type: none"> • The timing of the construction phase soil stripping and excavation works will take account of predicted weather, particularly rainfall. • Soil stripping activities will be suspended during periods of prolonged rainfall events. • The area of exposed ground will be kept to a minimum by maintaining where possible existing vegetation that would otherwise be subject to erosion in the vicinity of the 110kV Substation and Grid Connection infrastructure. The clearing of peat will be delayed until just before construction begins rather than stripping the entire site months in advance particularly during road construction. • A minimal volume of peat and subsoil will be removed to allow for infrastructural work to take place in comparison to the total volume present on the site. 	Appointed Project Contractor	<p>Chapter 6 Land and Soil</p> <p>Chapter 7 Water</p>
DURING CONSTRUCTION	<p>Soil Erosion, Soil Compaction and Soil Stability</p> <ul style="list-style-type: none"> • A site surface water management system will be constructed on the site to attenuate run-off, guard against soil erosion and safeguard downstream water quality. The drainage system will be implemented along all work areas including all internal site access roads, storage areas, hardstand areas and temporary site construction compound. 	Appointed Project Contractor	<p>Chapter 6 Land and Soil</p> <p>Chapter 7 Water</p>

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	<ul style="list-style-type: none"> All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Temporary works will be such that they do not adversely interfere with existing drainage channels/regimes. All site excavations and construction will be supervised by a suitably competent and experienced engineer. The Contractor's method statements for each element of work will be reviewed and approved by the engineer prior to site operations. Prior to excavation, drains will be established to effectively intercept overland flow prior to bulk earthworks. Works should be ceased during heavy rainfall or storm events. A competent project geotechnical engineer or engineering geologist will be employed during the construction phase of the works. As part of the detailed design and assessment, identification of potential planes of weakness will be made in the overburden such as discrepancies in the material type and foliation direction in the bedrock. Earthworks will be constructed to safe stable angles in accordance with the detailed design and best practice. 		
DURING CONSTRUCTION	<p>Peat Instability and Failure</p> <p>The following general measures incorporated into the construction phase of the project will assist in the management of the risks for this site:</p> <ul style="list-style-type: none"> Appointment of experienced and competent contractors and detailed designers; The construction works on site should be supervised by experienced and qualified personnel; Ensure construction method statements are followed or where agreed modified/ developed. Allocate sufficient time for the project to be constructed safely with all peat stability mitigation measures included in the programme; 	Appointed Project Contractor	Chapter 6 Land and Soil

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<ul style="list-style-type: none"> Set up, maintain and report findings from monitoring systems, including sightline monitoring; Maintain vigilance and awareness through Tool-Box-Talks (TBTs) on peat stability; Prevent undercutting of slopes and unsupported excavations; Prevent placement of loads/overburden on marginal ground; and, Manage and maintain a robust drainage system. This will be the responsibility of the appointed contractor and their designer. <p>For the duration of the construction work the contractor will use weather forecasting (e.g. using Met Éireann website) to plan works their work and suspense /cease the works during periods of prolonged rainfall.</p> <p>The level of peat monitoring recommended for the site reflects the strategy of placing infrastructure in low-risk areas of the site. With the siting of infrastructure using mitigation by avoidance, higher risk parts of the site have been avoided and sightline monitoring is considered appropriate for this site.</p>		
DURING CONSTRUCTION	Earthworks Resulting in Suspended Solids Entrainment in Surface Waters	Temporary silt fencing/silt trap arrangements will be placed within existing roadside/field drainage features along the grid connection to capture any suspended sediments from the works area. The trapped sediment will be removed and disposed at an appropriate authorised facility.	Appointed Project Contractor	Chapter 7 Water
DURING CONSTRUCTION	Potential Hydrological Effects from Directional Drilling Works	The following mitigation measures are proposed where crossings are to be achieved by means of Horizontal Directional Drilling (HDD):	Appointed Project Contractor	Chapter 7 Water

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<ul style="list-style-type: none"> • Drilling fluid returns will be contained within a sealed tank / sump to prevent migration from the works area. Spills of drilling fluid will be cleaned up immediately and stored in an adequately sized skip before been taken off-site; • The drilling fluid/bentonite will be non-toxic and naturally biodegradable (i.e., Clear Bore Drilling Fluid or similar will be used); • The drilling process / pressure will be constantly monitored to avoid any possible leaks or breakouts into the surrounding geology or local watercourse; • This will be gauged by observation and by monitoring the pumping rates and pressures. If any signs of breakout occur then drilling will be immediately stopped; and • Any frac-out material will be contained and removed off-site. 		
DURING CONSTRUCTION	Morphological Changes to Surface Watercourse and Drainage Patterns by Watercourse Crossings	<p>General Best Practice Pollution Prevention Measures will also include:</p> <ul style="list-style-type: none"> • Protection of the riparian zone watercourses by implementing a constraints zone around stream crossings, in which construction activity will be limited to the minimum, i.e. works solely in connection with duct laying at the stream crossing; • No stockpiling of construction materials will take place within the constraints zone; • No concrete truck chute cleaning is permitted in this area; • Works shall not take place at periods of high rainfall, and shall be scaled back or suspended if heavy rain is forecast; • Plant will travel slowly across bare ground at a maximum of 5km/hr. Bog mats will be employed to protect tracked areas as necessary; 	Appointed Project Contractor	Chapter 7 Water

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<ul style="list-style-type: none"> • Machinery deliveries shall be arranged using existing structures along the public road; • All machinery operations shall take place away from the stream and ditch banks, apart from where crossings occur. Although no instream works are proposed or will occur; • Any excess construction material shall be immediately removed from the area and taken to an appropriately licensed facility; • No stockpiling of materials will be permitted in the constraint zones; • Spill kits shall be available in each item of plant required to complete the stream crossing; and, • Silt fencing will be erected on ground sloping towards watercourses at the stream crossings if required. 		
DURING CONSTRUCTION	Potential Hydrological Impacts on Designated Sites	<p>The hydrological regime locally will not be affected by the proposed works and so the regime of the SAC will not be affected as a result of the following:</p> <ul style="list-style-type: none"> • No significant dewatering is proposed during construction. Any pumping required will be temporary and at a very shallow depth; • All building and trenching works are proposed at or very near existing ground levels with minimal ground disturbance proposed; and • No deep foundations are required or are proposed. As such there will be no interruption or blocking of shallow or deep groundwater pathways below the proposed development site. 	Appointed Project Contractor	Chapter 7 Water
DURING CONSTRUCTION	Air Quality and Climate	Hard surface roads will be swept to remove mud and aggregate materials from their surface while any un-surfaced roads will be restricted to essential site traffic.	Appointed Project	Chapter 8 Air Quality and Climate

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	<p>Any road that has the potential to give rise to fugitive dust must be regularly watered, as appropriate, during dry and/or windy conditions.</p> <p>Vehicles exiting the site shall make use of a wheel wash facility where appropriate, prior to entering onto public roads.</p> <p>Vehicles using site roads will have their speed restricted, and this speed restriction must be enforced rigidly. On any un-surfaced site road, this will be 20 kph.</p> <p>Public roads in the vicinity of the site entrance will be regularly inspected for cleanliness and cleaned as necessary.</p> <p>Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.</p> <p>During movement of materials both on and off-site and before entrance onto public roads trucks will be adequately inspected to ensure no potential for dust emissions.</p> <p>Ensure regular maintenance of plant and equipment. Carry out periodic technical inspection of vehicles to ensure they perform most efficiently.</p> <p>All site vehicles and machinery will be switched off when not in use, and no idling of engines will be permitted.</p> <p>At all times, these procedures will be strictly monitored and assessed. In the event of dust nuisance occurring outside the site</p>	Contractor	

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION	PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
	boundary, movements of materials likely to raise dust will be curtailed and satisfactory procedures implemented to rectify the problem before the resumption of construction operations.		
DURING CONSTRUCTION	<p>As there will be no significant effects there is no requirement for specific construction phase mitigation measures.</p> <p>Best practice in the form of BS5228 –1&2:2009 + A1 2014, Code of Practice for the Control of Noise and Vibration on Construction and Open Sites will be adopted during the construction phase in order to minimise the noise generated by construction activities and nuisance to neighbours including the following:</p> <ul style="list-style-type: none"> • A pre-construction commitment to managing nuisance noise will be agreed through notification and consultation with affected parties, if deemed necessary. • Working hours at the site during the construction phase will be limited to Standard working hours for construction will be 8.00am to 8.00pm Monday to Friday and 8.00am to 6.00pm on Saturday (if required) (subject to planning consent and local authority stipulated conditions) , with no works on Sundays or Bank Holidays except in exceptional circumstances or in the event of an emergency. Any deviations to these times will be agreed in advance with Laois County Council and Offaly County Council. • Construction contractors will be required to comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 as amended in 1990 and 1996 (S.I. No. 320 of 1988, S.I. No. 297 of 1990 and S.I. No. 359 of 1996), and the Safety, Health, and Welfare at Work 	<p>Appointed Project Contractor</p> <p>Appointed Project Environmental Manager</p>	Chapter 9 Noise and Vibration

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<p>(Control of Noise at Work) Regulations, 2006 (S.I. No. 371 of 2006).</p> <p>The main control measures will be control of noise at source using the following methods in line with Clause 8 'Control of noise' of BS 5228-1:2009+A1:2014:</p> <ul style="list-style-type: none"> • Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery (Clause 8.2.1 General). • Use of appropriate plant and equipment where possible with low noise level generation where possible (Clause 8.2.2 Specification and substitution). • All construction plant to be used on site should have effective well-maintained silencers and mufflers (in the case of pneumatic drill) (Clause 8.2.3 Modification of existing plant and equipment). • Noise generating equipment will be located as far as possible away from local noise sensitive areas identified (Clause 8.2.5 Use and siting of equipment); and • Regular and effective maintenance of site machinery including a full maintenance schedule to ensure that all pieces of equipment are in good working order. With efficient use of well-maintained mobile equipment, considerably lower noise levels than those predicted can be attained (clause 8.2.6 Maintenance). 		
DURING CONSTRUCTION	Traffic and Transport	All traffic management and road signage will be in accordance with the Department of Transport (DoT) Traffic Signs Manual Chapter 8: Temporary Traffic Measures and Signs for Road Works; and in agreement with Laois County Council and Offaly County Council.	Appointed Project Contractor	Chapter 12 Traffic and Transport

TIME FRAME / SCHEDULE	ENVIRONMENTAL MITIGATION / RECOMMENDATION		PERSONS RESPONSIBLE	RELEVANT CHAPTER /ACTION REQUIRED
		<p>The road surface of the public roads will be reinstated to the standards set out by the Department of Transport (DoT) Guidelines on the Opening, Backfilling and Reinstatement of Trenches on Public Roads (April 2017). All road permanent reinstatement works will be in accordance with the requirements of Laois County Council and Offaly County Council.</p> <p>A construction wheel wash facility will be provided at the construction compound to wash truck tyres leaving the construction site.</p>		
DURING CONSTRUCTION	Built Services Infrastructure	<p>Although it has been determined that the significance of effects on the existing built services network will likely be not significant, the following best practice measures will be implemented during the construction phase:</p> <ul style="list-style-type: none"> • All relevant bodies i.e. ESB Networks, EirGrid, Gas Networks Ireland, Eir, Laois County Council/Offaly County Council etc. will be re-contacted and drawings for all existing underground services along the proposed development sought prior to the commencement of the proposed development. • In advance of any construction activity, the contractor will undertake detailed surveys and scans of the Proposed Development site to confirm the presence of any services. If found to be present, the relevant service provider will be consulted with in order to determine the requirement for specific excavation methods and to schedule a suitable time to carry out works. Some minor alignment alterations may be required if previously unknown services are encountered which will likely result in brief suspension of services. Although the exact number of interruption days for particular utility customers cannot be ascertained at this stage, any service interruptions are likely to be brief and occur rarely if required and will generally occur for a set number of hours per day. 	Appointed Project Contractor	Chapter 13 Material Assets

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	<ul style="list-style-type: none"> Any underground services encountered will initially be surveyed for levels in order to determine if there is adequate cover available for ducting to pass over the services. Works during the construction phase, if required, including service diversions and realignment will be carried out in accordance with relevant guidance documents, including Gas Networks Ireland's publication 'Safety advice for working in the vicinity of natural gas pipelines'; the HSA 'Code of Practice for Avoiding Danger from Underground Services', 2010; The Contractor will be obliged to put measures in place to ensure that there are no significant interruptions to existing services and all services and built services are maintained unless this has been agreed in advance with the relevant service provider; and Any construction works in the vicinity of utility networks will be carried out in accordance with the utility providers method statement and service providers Codes of Practice, as well as best practice in accordance with the CEMP. 		
DURING CONSTRUCTION	<p>Waste Management</p> <p>Notwithstanding the effect from the generation and management of solid waste streams arising from the Proposed Development being assessed as imperceptible during the construction phase, the following best practice measures will be implemented:</p> <ul style="list-style-type: none"> Waste is to be managed in accordance with the waste hierarchy in Council Directive 98/2008/EC on waste and section 21A of the Waste Management Act 1996, as amended, as follows: (a)Prevention; (b)re-use; (c)Recycling; (d)Other recovery (including energy recovery); and (e) Disposal; All waste to be removed from site is to be undertaken by authorised waste contractors and transported to an authorised facility in accordance with best practice. 	Appointed Project Contractor	Chapter 13 Material Assets

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POST CONSTRUCTION /OPERATIONAL PHASE	Lighting	Minimal lighting and where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer.	Wind Farm Operator	Chapter 5 Biodiversity Chapter 11 Landscape
POST CONSTRUCTION /OPERATIONAL PHASE	Land and Soils	Integrity testing of bunds and culverts will be undertaken regularly as required and storage tanks will be regularly checked for leaks. These mitigation measures are considered sufficient to reduce risk to ground/peat/soils and subsoils.	Wind Farm Operator	Chapter 6 Land and Soil
POST CONSTRUCTION /OPERATIONAL PHASE	Protection of Water Quality	<p>The maintenance of the development will incorporate effective maintenance of the drainage system. The maintenance regime will include inspecting the following:</p> <ul style="list-style-type: none"> • Drains, cross-drains and pipes for any blockages; • Outfalls to existing field drains and watercourse; • Existing roadside swales and gullies for any obstructions; and • Progress of the re-establishment of vegetation. <p>All equipment with the potential for oil spillage will be bunded. Provision of spill kit facilities and training of operatives in use of same</p>	Wind Farm Operator Appointed Project Environmental Manager	Chapter 7 Water
DECOMMISSIONING	Land and Soils	Mitigation measures applied during decommissioning activities will be similar to those applied during construction where relevant. Some of the impacts will be avoided by leaving elements of the infrastructure in place where appropriate. Access tracks which are not required for farm use or forestry will be left to vegetate naturally. Mitigation measures to avoid contamination by accidental fuel leakage and compaction of soil by on-site plant will	Wind Farm Operator	Chapter 6 Land and Soil

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		be implemented as per the construction phase mitigation measures.		
DECOMMISSIONING	Water quality	Prior to decommissioning/demolition any hazardous material such as oils or lubricants will be removed in accordance with Waste Management standards.	Wind Farm Operator	Chapter 7 Water
DECOMMISSIONING	Air Quality and Climate	Should decommissioning be undertaken Impacts resulting from the decommissioning phase are expected to be similar in nature, but smaller in scale in comparison to the construction phase. Therefore, similar mitigation measures such as those related to dust and construction vehicles are recommended.	Wind Farm Operator	Chapter 8 Air Quality and Climate