
DREENACREENIG WEST WIND FARM LIMITED

DERREENACRINNIG WEST WIND FARM, CO. CORK

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

July 2025

**Dreenacreenig West
Wind Farm Limited**
Derreenacrinnig West,
Drimoleague,
Co. Cork



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DOCUMENT APPROVAL

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| | Prepared by | Reviewed / Approved by |
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DERREENACRINNIG WEST WIND FARM ,CO. CORK
CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

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1 INTRODUCTION

1.1 Background to Report

Jennings O'Donovan & Partners Limited, on behalf of Dreenacreenig West Wind Farm Limited, has prepared this Construction Environmental Management Plan (CEMP) for the construction of the proposed three turbine, Derreenacrinnig Wind Farm and the improvement works to roads to facilitate turbine delivery.

The Proposed Development, as proposed, has been designed to ensure that any environmental impacts which may arise can be appropriately mitigated such that there will be no likely significant environmental effects.

This document has been prepared on the basis that this document will be further developed and expanded following the appointment of the Contractors for the main construction works. Some items of this CEMP can only be finalised with appropriate input from the Contractors who will actually carry out the main construction works. This CEMP identifies, for the incoming Contractors, the key planning, environmental and contract document constraints that must be adhered to in order to deliver optimum environmental reassurance for the Site.

The preparation of this document, and its continued development, is considered to be an appropriate mechanism to ensure the appropriate management of construction activities in accordance with the relevant environmental requirements.

This document should be read in conjunction with the Screening Report for Appropriate Assessment, Environmental Impact Assessment Report (EIAR), Planning Report and Planning Drawings.

1.2 Construction Environmental Management Plan (CEMP): Aims & Objectives

This CEMP has been developed in accordance with the Institute of Environmental Management and Assessment Practitioner "*Environmental Management Plans*", Best Practice Series, Volume 12, December 2008.

The principal objective of this CEMP is to avoid, minimise and control adverse environmental impacts associated with the Proposed Development of the wind farm. As such, the Contractors commit to safeguarding the environment through the identification, avoidance and mitigation of the potential negative environmental impacts associated with the Proposed Development.

This CEMP defines good practice as well as specific actions required to implement mitigation measures required to comply with the environmental commitments outlined in the EIAR, the planning process and/or other licensing or consenting processes.

The CEMP will be developed further, and/or amended where necessary, to take account of any additional information which may be made available from the detailed design process or pre-construction confirmatory site surveys within the parameters prescribed in this CEMP and in consultation with the planning authority.

In the event planning permission is granted for the Proposed Development, the CEMP will be updated prior to the commencement of the Proposed Development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the Planning Authority for written approval. The CEMP will form part of the main Civil Balance of Plant Construction works Contract as well as the Electrical Balance of Plant Construction works contract. The Contractors will take account of the structure, content, methods and requirements contained within the various sections of this CEMP when further developing this document (as set out above) as required by their Contract.

While this version of the CEMP provides a benchmark for good practice, where avoidance or further minimisation of risks to the environment can be demonstrated through use of alternative methods or improvements to current practices, the Contractors will implement these wherever possible, subject to approval from environmental monitoring personnel.

1.3 CEMP Development & Implementation

The CEMP has been prepared as part of the planning application for Derreenacrinnig West Wind Farm. It is a live document on site and will be developed further by the Contractors with site specific method statements and plans as required prior to each phase of the works, as set out above. It is also effectively a document management system for recording information and data relating to environmental checks, reports, surveys, monitoring data and auditing. Upon completion of the construction works, the Contractors will submit a complete electronic copy of the final CEMP to the client for their records. This final CEMP will include electronic scans of all hard copy reports, data, field records and correspondence which are gathered over the course of the construction works.

While version numbers will remain fixed depending on the stage of the Project, it is acknowledged that the CEMP is a continually evolving document which can be updated in

part or whole, at any stage of the Project. Hence, revision and document distribution records are included at the front of each CEMP document to enable individual documents to be updated at any time. A summary of the CEMP development process and the required input from the main parties involved in the post planning and construction of the wind farm are indicated in **Figure 1.1**. The Contractors will be responsible for further development of the CEMP in line with other relevant licenses and consents. This may involve liaising with statutory bodies where appropriate. The CEMP will only be updated in line with the parameters in this version of the CEMP or to incorporate any planning conditions.

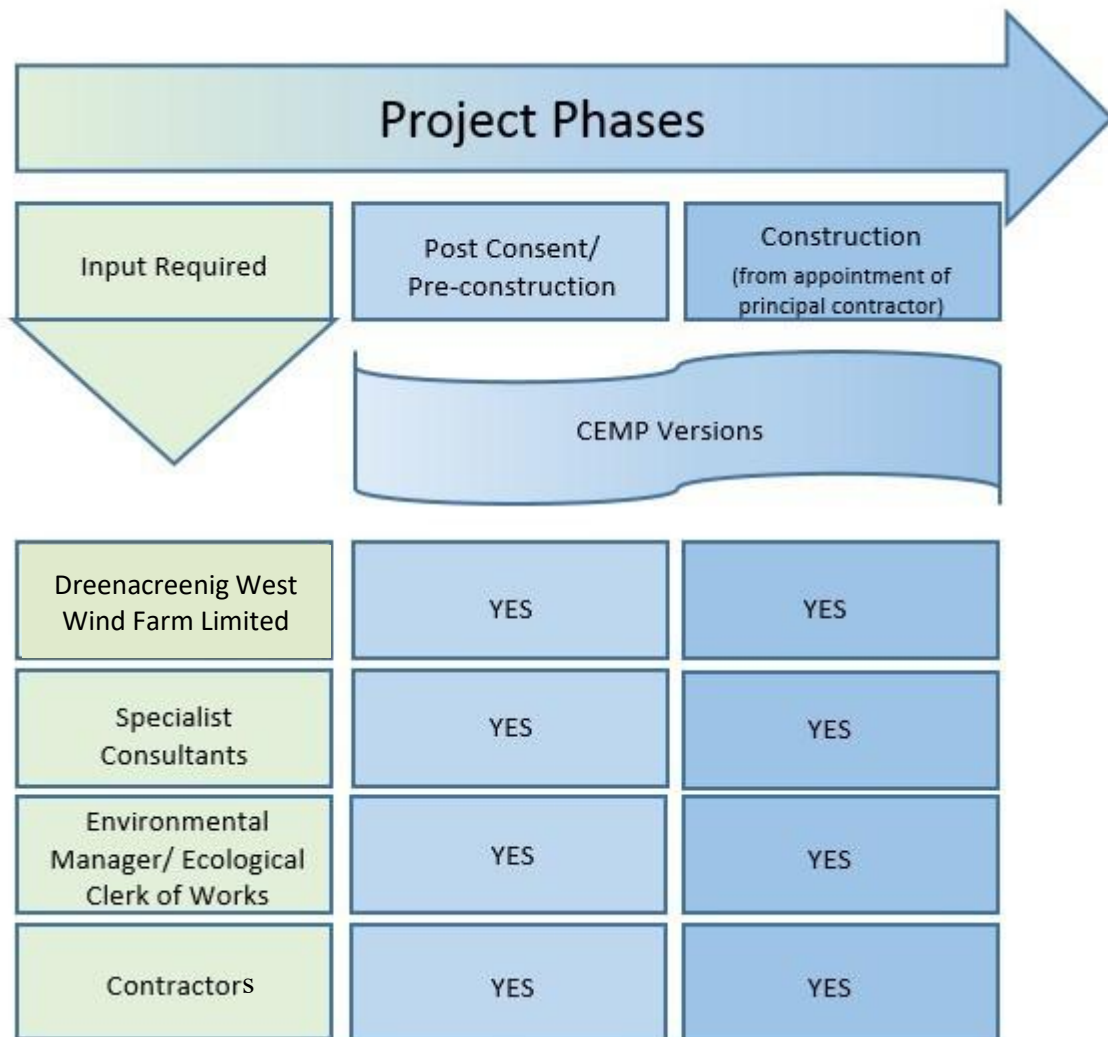


Figure 1.1 Summary of CEMP Development Process

1.4 CEMP Roles & Responsibilities

Prior to commencement of construction works, the Contractors will identify a core Environmental Management Group, comprising of specific project personnel (Environmental Manager) and the Ecological Clerk of Works (ECoW). The Environmental Management Group will meet monthly to discuss the monthly environmental report and will advise site

personnel on areas where improvements may be made on site. The group will draw on technical expertise from relevant specialists where required, including the Resident Engineer and will liaise with other relevant external bodies as required.

The Developer will appoint an Ecological Clerk of Works who will be responsible for coordination, compliance monitoring and continued development of the CEMP and any other surveys, reports or method statements required. The Ecological Clerk of Works will also review the Contractors' method statements and environmental plans as required by the CEMP, carry out compliance auditing during the construction phase and coordinate the Environmental Management Group and required liaisons between Dreenacreenig West Wind Farm Limited, the Planning Authority and other statutory authorities.

The Developer will appoint an Environmental Manager who will be responsible for coordination and development of the CEMP and any other surveys, reports or construction management plans required for discharge of relevant pre-commencement planning conditions. In conjunction with the Ecological Clerk of Works, the Environmental Manager will also review the Contractor's construction management plans, method statements and environmental plans as required by the CEMP, carry out compliance auditing during the construction phase and coordinate the Environmental Management Group and required liaisons between the Employer, the Contractor and other statutory authorities.

The Developer will appoint a Project Manager to monitor the construction phase of the Project and ensure works are being carried out in accordance with the agreed method statements, safety procedures and pollution control measures. The Environmental Management Group will liaise regularly with the Project Manager.

1.5 CEMP Structure

The CEMP is divided into discrete Sections which are designed to be filed as separate documents / folders if required. A copy of the CEMP documents / folder(s) will be kept in the Site offices for the duration of the Site works and will be made available for review at any time. The Contractors Ecological Clerk of Works/Environmental Manager will be responsible for the CEMP and will keep all sections updated throughout the construction phase.

Where a Contractor has standard documents within his own company / corporate Environmental Management Plans which cover a particular requirement of this CEMP, these will be reviewed by the ECoW to confirm that they are appropriate and sufficient to meet the environmental commitments outlined in the EIAR and NIS, and in the event that they do meet

these requirements the documents will either be inserted or cross referenced within the relevant Section of this CEMP.

The CEMP Sections are listed in **Table 1.1** as follows:

Table 1.1: CEMP – Document Structure

| Section | Title & Brief Description | Contractors Development Required |
|---------|---|---|
| 1 | Introduction | No (Information purposes only) |
| 2 | Project Information Provides details on site location, scheme description and a summary of the environmental sensitivities at the Site (as derived from the Appropriate Assessment Screenings and other information where available). | No (Information purposes only) |
| 3 | Environmental Controls Provides details on relevant Planning Consent Conditions and mitigation measures outline in the EIAR and NIS. Any documents prepared by Dreenacreenig West Wind Farm Limited in response to Consent Conditions will be recorded in Table 3.7. Table 3.8 contains a record of all Scheme Amendments and Table 3.9 a Register of Variations. | Yes Any documents prepared by the Contractors in response to Consent Conditions will be recorded by the Contractors in Table 3.7 and inserted in the CEMP where necessary. Any Scheme Amendments and / or Variations to the CEMP required during the works will be recorded by the Contractors in Tables 3.8 and 3.9. |
| 3 | Environmental Communications Plan Contains details on specific requirements relating to: <ul style="list-style-type: none"> • Contact details for Dreenacreenig West Wind Farm Limited, personnel, technical specialists, Contractors' personnel, regulators, landowners, other stakeholders etc.; • Meetings, reports and consultations. • Roles and responsibilities; and • General reporting procedures and tasks. | Yes The Contractors will: <ol style="list-style-type: none"> i) Insert contact information for regulatory authorities and other stakeholders (where not already provided) into Table 4.1 ii) Refer to Table 4.2 for details on requirements for meetings, reports and consultations iii) Insert information on Contractors' appointments and responsibilities relating to environmental management and implementation of this CEMP into Table 4.3. |

| Section | Title & Brief Description | Contractors Development Required |
|---------|---|--|
| | | iv) Refer to Figure 4.1 for a summary of the main communication lines. |
| 5 | <p>Correspondence, Records, Reports</p> <p>This Section relates to document control and retention of records. The information at the start of Section 4 provides:</p> <ul style="list-style-type: none"> • A list of all documents to be retained / filed within the CEMP. <p>Table 5.1 provides a record of all Environmental Consents, Licenses and Permits issued for the Project.</p> | <p>Yes</p> <p>The Contractors will complete Table 5.1. Throughout the duration of the Contract, the Contractors will insert / file all communication records, data, field records and reports associated with Environmental Management and implementation of this CEMP into this Section 5. This Section may be subdivided into sub-folders for specific information relating to discrete areas of Environmental Management (such as waste management, pollution prevention, water quality monitoring, ecology etc). Alternatively, this information may be filed within the individual Management Plans in Section 6. The filing method selected by the Contractors will be made explicit at the start of Section 5.</p> |
| 6 | <p>Management Plans & Available Information</p> <p>Management Plans include the following:</p> <ul style="list-style-type: none"> • MP1 Emergency Response Plan (ERP) • MP2 Water Quality Monitoring Plan (WQMP) • MP3 Waste Management Plan • MP4 Decommissioning Plan • MP5 Surface Water Management Plan | <p>Yes</p> <p>The Contractors is required to develop the Management Plans and/or include additional information or method statements as appropriate and where required by the Contract. The Development of the Management Plans will generate more site-specific documents which address particular environmental management procedures applicable for works in specified areas of the Site. These Management Plans form the Contractors' Environmental Plans (for example.</p> <p>Table 6.1 lists all Management Plans and provides information on Contractors' responsibilities.</p> |

2 PROJECT INFORMATION

2.1 Site Location and Project Description

The Site, as shown in **Figure 2.1**, is located within an agricultural and forested landscape, between Goulanes, Castledonovan, and Gurrans North, in Co. Cork. The nearest settlement is the village of Drimoleague which is situated 5.1km to the southeast of the Site. The Site is located 10.5km north-east of Bantry, Co. Cork and 10.9km west of Dunmanway. The Site is 14.2km south-east the county boundary between Cork and Kerry and is 59km west of Cork City. The Site comprises an area of approximately 104 hectares and ranges in elevation from 200m to 402 m. The Site of the proposed wind farm is currently grazed by cattle and sheep. There is a commercial forestry to the north of the Site, with the remaining land comprising agricultural of varied productivity and open mountain heath.

The Site is located within the townland of Derreenacrinnig West. The Grid Connection development traverses the townlands of Derreenacrinnig West, Barnagowlane West, Glanareagh, Gortnacowly, Ards Beg, Ardrah, Laharanshermeen, Maulraha, Maulikeeve, Derryarkane, Capanaboul, Skahanagh, Gortroe, Shandrum Beg, Shandrum More, Dromloughlin, Ballylicky, Crossoge, in Co. Cork ("the Proposed Development Site").

Temporary works will be required to accommodate the delivery of the turbine components. These temporary works are included as part of this application and are located in the townlands of Castledonovan, Derreenacrinnig East, and Derreenacrinnig West.

A Grid Connection between the consented Derreenacrinnig West Wind Farm electrical substation and the 110Kv electrical substation in Ballylickey will be 14.05km in length, comprising 10.75km of overhead line, and 3.3km of underground cable. The Grid Connection development traverses the townlands of Derreenacrinnig West, Barnagowlane West, Glanareagh, Gortnacowly, Ards Beg, Ardrah, Laharanshermeen, Maulraha, Maulikeeve, Derryarkane, Capanaboul, Skahanagh, Gortroe, Shandrum Beg, Shandrum More, Dromloughlin, Ballylicky, Crossoge, in Co. Cork.

There are 63 houses within 2km of the proposed turbines. The closest house to a turbine that is to be assessed as part of this EIAR, is H1. This is located 983m from T3.

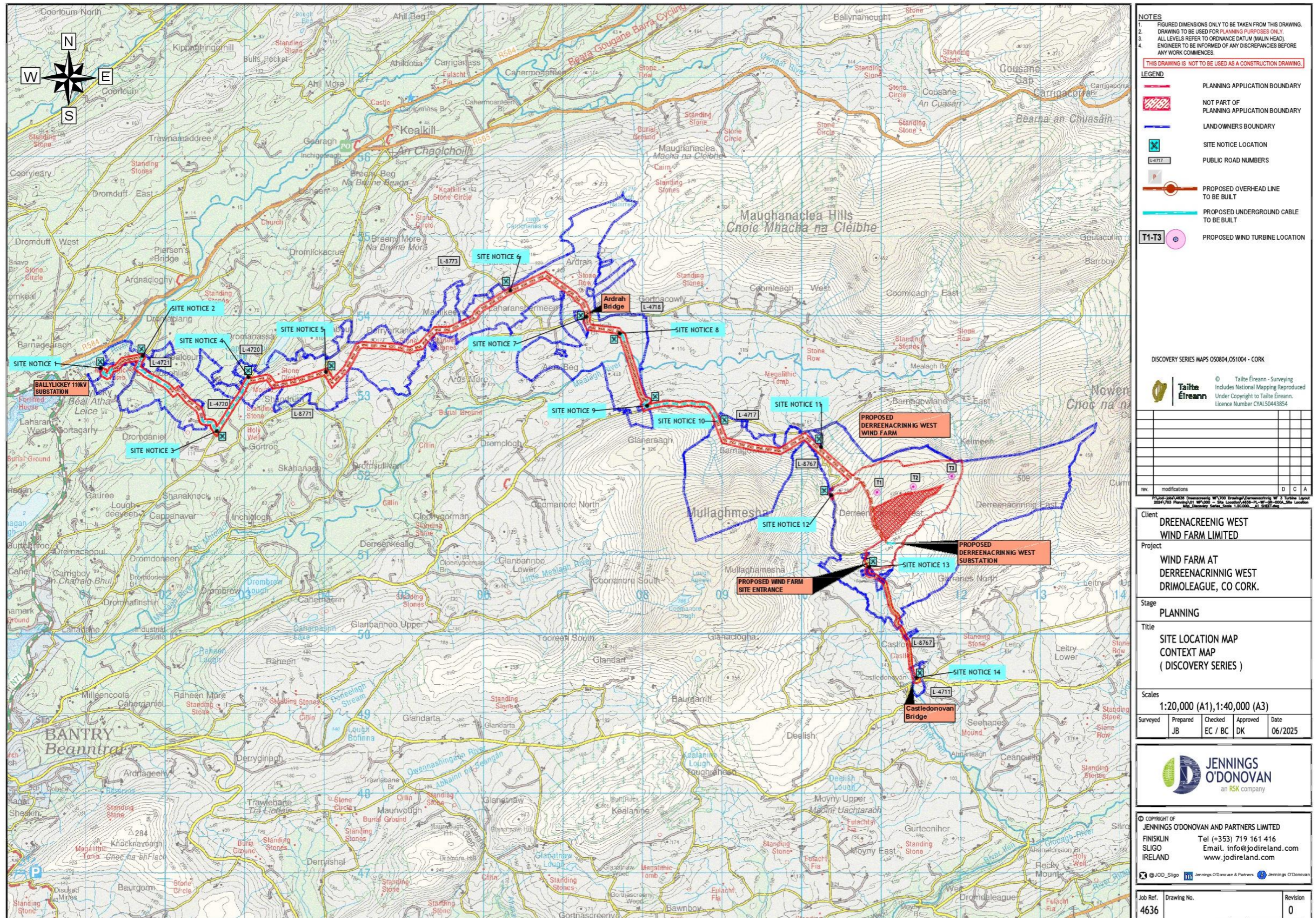


Figure 2.1: Site Location Map

The Proposed Development will consist of the following:

- Construction of 3 No. wind turbines with an overall ground to blade tip height of 119.3m with a rotor diameter of 82m and a hub height of 78.3m.
- Construction of 1 no. permanent 20kV Electrical Substation, all associated electrical plant and equipment, all associated underground cabling, and all ancillary structures and works.
- Construction of one Temporary Construction Compound with associated temporary site offices, parking areas and security fencing.
- Upgrade and reuse of existing hardstands.
- Upgrade and reuse of existing internal site access roads.
- Provision of Biodiversity Enhancement Area.
- All associated underground electrical and communications cabling connecting the wind turbines to the wind farm Electrical Substation.
- Construction of approximately 10.75 km of 20 kV overhead line (OHL) Grid Connection, the OHL to be constructed consists of c. 157 wood poles (ranging from 9m to 15m above ground) supporting electrical conductor lines and ancillary structures and equipment.
- Installation of approximately 3.3 km of underground cable ducting Grid Connection and associated electrical cabling, and all other ancillary works including joint bays, culverts, marker posts and all associated developments.
- Construction Haul Route works along the L-8767, L-4711, and L-8765.

A 10-year planning permission and 40-year operational life from the date of commissioning of the entire wind farm is being sought.

However, part of the electrical substation and all of the Grid Connection will be owned and operated by ESB networks and as part of the national grid infrastructure, their life can extend beyond the life of the wind farm. Accordingly, permission is sought for the Grid Connection and the electrical substation in perpetuity.

3 ENVIRONMENTAL CONTROLS

This CEMP sets out the key environmental considerations to be taken into account by the Contractor during construction of the Proposed Development. This CEMP details the mitigation measures to be implemented in order to comply with the environmental commitments outlined in the EIAR, AA Screening and associated documents, and the applicable guidance documents and best practice measures as listed below. The Contractor will be contractually obliged to comply with all measures outlined in this CEMP. In the event planning permission is granted for the Proposed Development, the CEMP will be updated prior to the commencement of the Proposed Development, to address the requirements of any relevant planning conditions, including any additional mitigation measures which are conditioned and will be submitted to the Planning Authority for written approval. This CEMP will be adhered to and further developed by the Contractor and will be overseen by the Project representative/foreman.

Guidance Documents

The guidance documents listed below must be complied with by the appointed Contractor.

- BPGCS005, Oil Storage Guidelines.
- Construction Industry Research and Information Association (CIRIA), (2001). C532 Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors.
- CIRIA, (2005). C650 Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site.
- CIRIA (2006) Guidance on 'Control of Water Pollution from Linear Construction Projects' (CIRIA Report No. C648, 2006).
- CIRIA, (2007). C697 The SUDS Manual.
- CIRIA (2015) SuDS Manual, (CIRIA Report C753, 2015)
- COFORD (2004) Forest Road Manual – Guidelines for the Design, Construction and Management of Forest Roads.
- Coillte (2009): Forest Operations & Water Protection Guidelines.
- Department of Agriculture, Food and the Marine (2018) DRAFT Plan for Forests & Freshwater Pearl Mussel in Ireland – Consultation Document.
- EPA Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects.
- EU Construction and Demolition Waste Management Protocol - BIBM.
- Forestry Commission (2004) Forests and Water Guidelines, Fourth Edition. Publ. Forestry Commission, Edinburgh.

- Forest Services (2006) Draft Plan for Forestry and Freshwater Pearl Mussel Requirements – Site Assessment and Mitigation Measures.
- Forest Service (2000) Forestry and Water Quality Guidelines. Forest Service,
- GPP1 (2020) Understanding your Environmental Responsibilities – Good environmental Practices, NetRegs.
- GPP 22 (2018) Dealing with Spills, NetRegs.
- GPP 5 (2018) Works and Maintenance In or Near Water, NetRegs.
- GPP1 (2020) Understanding your Environmental Responsibilities – Good environmental Practices, NetRegs.
- GPP21 (2021) Pollution Incident Response Planning, NetRegs.
- IEMA's latest Impact Assessment Guidance, 'A New Perspective on Land and Soil in Environmental Impact Assessment' (Feb 2022)
- IFI (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.

3.1 **Human Beings and Community**

The assessment set out in **Chapter 5: Population & Human Health** has not identified any likely significant effects from the Project on population or human health.

The main mitigation measure is by design or avoidance. A suitable separation distance from turbines and other key infrastructure to properties has been embedded in the EIA development design. Additional mitigation to protect site personnel and the public will also be implemented in the event of damage to a turbine and subsequent likely turbine or turbine component failure.

These are:

- Turbines will be procured from a reliable manufacturer and will have undergone vigorous safety checks.
- Physical and visual warnings such as signs will be erected as appropriate for the protection of site personnel and the public.
- Facility for remote turbine deactivation will be provided.
- The construction of the Project will be managed in accordance with the Safety, Health and Welfare at Work Act 2005 (as amended), the Safety, Health and Welfare at Work (General Application) Regulations 2007 (as amended), and the Safety Health and Welfare at Work (Construction) Regulations 2013 (as amended).
- The Developer will appoint a Project Supervisor for the Design Process (PSDP) and a Project Supervisor for the Construction Stage (PSCS). The PSDP will compile a

Preliminary Safety and Health Plan (PSHP), which details general information about the Project and envisaged health and safety risks. The PSHP will be made available to the PSCS. The PSCS will develop a Construction Stage Health and Safety Plan (CSHSP) which incorporates the information contained in the PSHP and details how safety and health will be managed during the construction of the Project.

- The PSCS may also develop the following documents during the pre-construction stage of the Proposed Development, for implementation during the construction stage:
 - Construction and Environmental Management Plan (CEMP)
 - Emergency Response Plan
 - Detailed Traffic Management Plan
- The PSDP will see that the General Principles of Prevention, outlined under the safety design advice provided by the Health and Safety Authority (HSA), are taken into account for all designs relating to the Project.
- Measures are set out in **Chapter 11: Transport and Transportation** relating to how delivery of goods and services would be managed during works to minimise impacts.

3.2 **Ecology**

A suitably qualified Ecological Clerk of Works (ECoW) will be appointed to ensure the mitigation measures outlined in this Section are implemented during the construction phase of the Proposed Development.

The appointed ECoW will deliver a toolbox talk to all contractors, including sub-contractors, prior to construction starting on ecologically sensitive features within or in close proximity to the works area. The duties of the ECoW will be to monitor the efficacy of mitigation measures implemented by the contractors and to report on the application and success of these measures. In the event of pollution occurring or the potential to occur, the ECoW will have a 'Stop Works' authority to ensure measures to stop a pollution event are implemented immediately.

All mitigation measures have been developed in the context of national and international legislative guidance for the protection and management of flora, habitats of conservation importance, fauna and aquatic ecological interest.

Guidelines to be adhered to in the delivery of the CEMP and method statements are as follows:

- CIEEM (2024) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- EPA (2022) Guidelines on the Information to be Contained in Environmental Impact Assessment Report (May 2022). Environmental Protection Agency, Dublin
- European Commission (2017) Environmental Impact Assessment of Projects. Guidance on the preparation of the Environmental Impact Assessment Report. (Directive 2011/92/EU as amended).
- European Commission (2020) Guidance document on wind energy developments and EU nature legislation.
- European Commission (2013) Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment.
- Inland Fisheries Ireland (2016) Guidelines on protection of fisheries during construction works in and adjacent to waters.
- NatureScot (2021) Bats and Onshore Wind Turbines: Survey, Assessment and Mitigation. Scotland's Nature Agency. Version: August 2021 (updated with minor revisions).
- Northern Ireland Environment Agency, Natural Environment Division (2021) Guidance on Bat Surveys, Assessment and Mitigation for Onshore Wind Turbine Developments in Northern Ireland. Version 1.1. Belfast: Department of Agriculture, Environment and Rural Affairs (Northern Ireland).
- Scottish Natural Heritage (2019) Guidance document Bats and Onshore Wind turbine - survey, assessment and mitigation.
- Scottish Natural Heritage (2017). Recommended Bird Survey Methods to Inform Impact Assessment of Onshore Wind Farms. Version 2. Scottish Natural Heritage.
- 'Transport Infrastructure Ireland (TII) (formerly (NRA) (2006a) Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes. National Roads Authority
- 'Guidelines for the protection and preservation of trees, hedgerows and scrub prior to, during and post construction of National Road Schemes' (National Roads Authority, 2006a)
- 'Guidelines for the treatment of bats during the construction of national road schemes' (National Roads Authority, 2006b)
- TII (formerly (NRA)) (2008) Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. National Roads Authority
- TII (formerly (NRA) 2008) Guidelines for the crossing of watercourses during the construction of national road schemes

- TII (formerly (NRA) (2009a) Guidelines for the Assessment of Ecological Impacts of National Road Schemes (Rev 2). National Roads Authority, Dublin
- TII (formerly (NRA)) (2009b) Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes (Rev 2). National Roads Authority
- TII (formerly NRA) (2010) Guidelines on the Management of Noxious Weeds and non-Native Invasive Plant Species on National Roads. National Roads Authority

The description of mitigation measures is provided in terms of mitigation by avoidance, reduction and remediation.

3.2.1 Construction Phase Mitigation

3.2.1.1 Mitigation by Avoidance

3.2.1.1.1 Protection of Watercourses, Fisheries & Freshwater Pearl Mussel

The Proposed Development has been designed to ensure that an adequate buffer zone is provided for between this infrastructure and watercourses. In addition, given the presence of the existing access road and hardstand, no new watercourse crossings will be required at the wind farm site. The buffer zone implemented between all large-scale infrastructure associated with the Site, such as turbines, hardstands, and access tracks are located at distances of over 50 m from any watercourses, except for where the existing access track crosses minor stream headwaters. In addition, the best practice construction measures that are described below are designed to avoid impacts on areas that are outside the Site including watercourses.

A **Surface Water Management Plan** (SWMP, Management Plan 5) has been prepared for the Proposed Development and this plan ensures the implementation of a suite of measures that will avoid negative impacts to water quality and the hydrological regime of the Derreenacrinnig east Stream and the un-named stream drainage the wind farm site and the higher order Owvane, Ilen and Meelagh Rivers downstream.

The mitigation measures set out in the SWMP, in **Section 8.5 of Chapter 8: Hydrology and Hydrogeology** have been designed to manage flow regimes, sediment loss and other pollutant loss to the aquatic environment during the construction phase. These mitigation measures are informed by and consistent with the mitigation measures for freshwater pearl mussel set out by Atkinson et al. (2023).

Protection of Watercourse during Watercourse Crossings

Wind Farm Site

At the Site, drains and minor gullies and streams feeding the Derreenacrinnig East Stream are crossed by the existing access road between the wind farm site entrance and turbine T03. No new channel crossing are required as part of the proposed wind farm development. The following design measures have been implemented for the existing watercourse crossings to ensure any potential impacts of the water quality of the Derreenacrinnig East Stream are minimised:

- Vehicles and plant used in the construction of the proposed crossing will only be refuelled at the Site's bunded and designated refuelling area, no refuelling will be permitted within 50 m of any watercourse at the Site
- To mitigate against the potential risk of accidental leaks or spillages from plant and equipment the following measures will be implemented: Multiple spill kits will be maintained on the Site at all times within the cabs of vehicles and placed strategically at environmentally sensitive locations across the Site. Spill kits will be routinely inspected to ensure that they are fully stocked with oil absorbent booms and pads at all times. Oil absorbent booms will be installed downstream of channel crossing work areas within 25 m of the works location prior to the commencement of works.

Grid Connection Route

The overground electrical cable route has been designed such that all polesets are positioned a minimum distance of 25m from the nearest watercourse, thus avoiding any impacts to watercourse and associated riparian zones.

One no. watercourse crossing, a crossing of the Glanareagh Stream will be required along 1 no. section of the underground electrical cable route. The crossings will be via horizontal directional drilling, thus avoiding the need for any instream works for this watercourse crossing. The mitigation measures to be implemented during horizontal directional drilling are set out in below

Protection of Watercourses during Horizontal directional drilling

The following mitigation measures to reduce potential impacts associated with horizontal directional drilling (HDD) will be implemented:

- Clearbore, which is not toxic to aquatic organisms and is biodegradable will be the drilling fluid used.
- Mud mixing will be monitored to suit the ground conditions encountered.

- The drilling fluids will be constantly monitored, any changes required to the mix will be performed on site by a specialised HDD Contractor upon consultation with the drilling fluid supplier and Environmental Clerk of Works.
- Mud testing equipment will be available at all times during drilling operations to monitor key mud parameters.
- All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages.
- Spill kits, including an appropriate hydrocarbon boom will be available on the Site in the event of any unforeseen hydrocarbon spillages and all staff shall be trained in their use.
- All plant, materials and wastes will be removed from site following the HDD works.
- The launch pit will be reinstated to the original land surface condition and the normal duct trench will continue from this point.
- Test pits and boreholes will not be located directly on, or extend through, the proposed alignment, as these weak points may serve as conduits where inadvertent fluid returns or frac outs could occur. At least a 3m offset will be provided between the boreholes and pipe alignment.

The following measures will be implemented at launch and receptor pits to ensure that the excavation, preparation and works undertaken at these pits do not pose a risk to the water quality of the Glanareagh Stream and the Mealagh River downstream of the horizontal directional drilling:

- All launch pits and reception pits for horizontal directional drilling under watercourses will be buffered back from watercourses at a minimum distance of 20 m.

All spoil arisings from the launch and reception pit at the proposed horizontal directional drilling crossing will be stored in bunded areas to prevent the runoff of silt-laden runoff from the spoil to watercourses. All spoil material will be reused to reinstate the launch pits and reception pits.

Pumps will be available at the launch and receptor pits. The pumps will be powered by diesel fuel and will be stored in a secure bunded area. The pumps will be used to pump any standing water from the pits during works. A lay flat hose will be positioned within the pit and pooling surface water will be pumped from the pit via the lay flat over adjacent vegetated surfaces. Under no circumstances will the lay flat outfall be directed to an existing drainage ditch or the watercourse being crossed via horizontal directional drilling. The discharge of the surface

water to vegetated ground will allow for discharge to ground and will retard overland flows in the direction of the watercourse being crossed.

Continuous monitoring of drilling fluid/mud pressure will be undertaken by the drill technician during all drilling. The drill technician in turn will be supervised by the drill supervisor and all horizontal directional drilling will be monitored by the Project Ecological Clerk of Works (ECoW). The continuous monitoring will ensure that in the event of a change in pressure due to a blockage, the technician will be immediately alerted to this change and will cease drilling operations. This will prevent drill fluid/mud from breaking out through an alternative path of least resistance and will prevent such materials from breaking out to the river. The avoidance of a breakout depends primarily on the experience of the drilling personnel and reliable, accurate drilling records interpreted in relation to the geotechnical information available. The drilling personnel will be suitably qualified and experienced to complete the works. Boreholes will be completed at all HDD locations as part of the Site Investigations works to be completed during the detailed design phase. Trends during the pilot drilling will be monitored and tracked so as to maximise the chances of accurately establishing a point where the formation is causing drilling fluid losses. The volume of drilling mud entering and returning from the bore will be constantly monitored by the drill operating staff. Staff will be especially vigilant for any loss of volume of drill mud returns, which would indicate the escape of drilling mud from the bore.

At the location a number of measures can be implemented as follows:

- Pump drilling fluid with a higher density into the formation.
- Circulate and pump organic lost circulation materials (LCM) into the loss zone to physically seal the fracture. Lost circulation occurs when drilling fluid, flows into one or more geological formations instead of returning to the launch area.
- Grout the loss zone; and/or
- Launch a packer before the loss zone. A packer is a mechanical device sent down the hole to the area of concern. It is designed for blocking the system for sealing grout to set.

All of the above options will be prepared and made available for application during the HDD works.

All equipment will be carefully checked on a daily basis by the Site Supervisor prior to use to ensure plant and machinery is in good working order with no leaks or potential for spillages. In order to minimise any risk of pollution in the first instance. Spill kits, including an appropriate hydrocarbon boom will be available on the Site in the event of any unforeseen hydrocarbon

spillages and all staff shall be trained in their use. It is noted that, given the separation distances between the launch pit and reception pit for the crossing under the Glanareagh Stream that the potential for the release of hydrocarbons to the stream will be extremely unlikely.

In addition to the supervision of drilling the Project ECoW will be required to supervise the set-up and Reinstatement of all launch pits and reception pits at all watercourse crossings to ensure that all measures required to protect water quality and instream habitats are properly implemented.

In addition to the horizontal directional drilling method provided under separate cover, a detailed method statement for the crossing of watercourses will be prepared in advance of all crossings and will be submitted to the NPWS and IFI for agreement prior to the commencement of works.

All drilling fluids and spent drill mud will be prepared and returned within a closed drilling train. All spent mud will be discharged from the closed drilling train to an impermeable bunded container and will be removed from site for disposal at an appropriately licenced facility.

All fuels, lubricants and hydraulic fluids for equipment used during horizontal directional drilling will be stored in securely bunded containers and will not be carried to within 10 m of any watercourse.

All measures to protect water quality will be implemented during horizontal directional drilling works.

An **Emergency Response Plan** (Management Plan 1) has been prepared as part of the CEMP and all measures detailed therein will be implemented in the event of an emergency.

3.2.1.1.2 Protection of Important Habitats

Wet Heath

The proposed wind farm development will not result in the loss of any semi-natural habitats of ecological value. The polesets associated with the overground electrical cable will result in minor loss of wet heath, scrub and wet grassland to the footprint of the poles. Two discrete sections of the proposed underground electrical cable will result in the temporary disturbance of wet heath during the installation of the underground electrical cable.

In order to ensure the full Reinstatement of wet heath habitat along the two sections of the underground electrical cable route, the first step of the electrical cable installation works will be to remove the wet heath vegetation as surface turves. The surface turves to be removed will measure 0.5m x 0.5m and be excavated to a minimum depth of 0.3m or to bedrock level where substrate overburden is shallower than 0.3m. The turves will be set down opposite the excavated location by the excavator. Turves will not be stacked and will be kept moist in the event of prolonged dry weather coinciding with the electrical cable installation works. Once the electrical cable ducting is installed and encased with fill layers to ESB specifications, the electrical cable trench will be backfilled and capped with the turves saved during the initial excavations. The turves will be carefully reinstated by the excavator operator so that they are knitted together.

Hedgerows

Short section of hedgerow will be temporarily removed during the installation of the underground electrical cable. A total of 6 no. hedgerow will be severed during the installation of the underground electrical cable. The combined extent of hedgerow to be lost at the 6 location is estimated to be c. 24m. Once the underground electrical cable is installed, replanting will be undertaken to reconnect the 6 no. hedgerows severed during the installation works. Replanting will be undertaken with native willow species comprising *Salix aurita* and *Salix cinerea*.

Approximately 225m of hedgerow will be temporarily removed at the TDR widening locations no. 1 and 6. Once turbine delivery is completed the hedgerows will be reinstated with native species comprising *Salix aurita*, *Salix cinerea*, *Crataegus monogyna* and *Prunus spinosa*.

Measures to Protect Habitats

- The full extent of the infrastructure footprint will be marked out prior to the commencement of works, with an appropriately robust and visible fencing / marker system. Where this meets Annex I habitats, this will also be the full extent of the works corridor, with no machinery access (access will only be allowed on foot and only for the purposes of silt / pollution control if required), storage or other works allowed outside this area.
- The efficacy and coherence of the marker system (and required remediation) will form an essential part of the Site operations.
- A pre-construction Invasive Species Survey will be conducted during the optimal growing season (May to August immediately prior to works occurring at this site for the Proposed Development) and shall include data on all locations, extents and potential construction

impacts in relation to scheduled and non-scheduled Alien Invasive Species (IAS). This survey will be completed along with reporting on the best course of action to be implemented to avoid the spread of such IAS on the Site or further afield. The management of IAS identified as occurring within the Site will be undertaken in accordance with best practice management guidelines as set out in the TII guidelines "The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads" (2010).

3.2.1.1.3 Protection of Important Mammal Species

The Ecological Clerk of Works for the construction phase will complete a pre-construction to confirm the continued absence of mammal breeding and resting places within 50 m of the construction footprint or identify the presence of newly established breeding/resting places. Based upon the results of these surveys, the ECoW will establish whether or not there is a need at that stage for the implementation of further mitigation measures and the requirement for protected species licences. An example of where such a need could arise is where a badger sett becomes established along or in the immediate vicinity of a hedgerow that will be intersected by the proposed access track.

3.2.1.1.4 Protection of Bats

The Natural England guidance (2014) and NatureScot (2021) recommends that potential collision to bats from wind farm developments can be minimised by siting the proposed turbines so that all parts of the turbine are over 50m from the nearest vegetated corridor. The location of the proposed turbines will satisfy this recommendation with no vegetated corridors occurring within 50m of a turbine rotor diameter. To this end a "bat buffer" area will be implemented around all turbines such that the buffer area will remain free of suitable foraging habitat, consisting of hedgerows, treelines or scrub.

In order to avoid the potential for future interactions between the proposed wind farm and local bat populations, all structures associated with the proposed wind farm such as the control building will be built in a manner to ensure no roosting opportunities are present for bats. Also, no structured vegetation, in the form of hedgerows, treelines, scrub etc. will be permitted to establish at these locations during the operational phase of the turbines.

3.2.1.1.5 Protection of Avian Receptors

Pre-construction surveys, completed by suitably experienced ornithologists, will be completed in order to help inform the approach to the construction works associated with the proposed wind farm to confirm the continued absence of the presence/absence of any

breeding or roosting sites for sensitive ornithological receptors, namely hen harrier, merlin and Peregrine.

Prior to any construction works being undertaken (including enabling works and ground investigations) surveys will be undertaken to identify any breeding/roosting activity associated with these sensitive ornithological receptors. Where such activity by these species is identified the Sites will be identified and will be demarcated so as to avoid disturbance to them. The Applicant will appoint a suitably experienced ECoW to oversee the works and help ensure that suitable protection zones are established and adhered to during the works. Species and site-specific buffer zones, following current best practice, will be established, appropriate to the specific circumstances, under the advice of a suitably experienced ornithologist.

In addition to the pre-construction surveys, all works areas will be checked by a suitably experienced ecologist/ornithologist or the ECoW for the presence of any nesting birds in advance of works commencing during the main bird breeding season. Should any active nest sites be found in areas where construction works are proposed, the location of the nest will be protected from damage and disturbance.

All works will be monitored by a suitably experienced ecologist / ornithologist or the ECoW to help ensure that protection measures are properly implemented and maintained and that works proceed in accordance with best practice and the requirements of the legislation protecting breeding birds. The ECoW will provide a toolbox talk before any personnel start on site which will cover the issue of breeding birds, their legal protections, what to look for and what to do should breeding bird behaviour or a potential nest site be found.

3.2.1.1.6 Protection of Kerry Slug

In order to avoid the potential for mortality to Kerry Slug the ECoW will complete checks for the presence of Kerry Slug in areas of suitable habitat occurring within the construction footprint of the wind farm. In the event that slugs found to be present, they will be transferred to suitable habitat in landholding away from the construction footprint. Such on-going monitoring of suitable habitat within the construction footprint will continue throughout the construction phase. Such monitoring will be undertaken during periods of wet weather when slugs are most active and feeding on the surface and therefore at greater risk of impacts by movement of machinery.

The transfer of Kerry Slugs will be subject to a derogation licence from the NPWS.

3.2.1.1.7 Protection of Herpetofauna

The Ecological Clerk of Works for the construction phase will complete a survey of the construction footprint during spring (late February / March / early April) ahead of the proposed works in order to identify any key amphibian breeding areas. This will allow wildlife barriers to be installed where necessary to minimise impacts upon such features where these are likely to be indirectly affected by the works.

3.2.1.2 Mitigation by Design & Best Construction Practice

3.2.1.2.1 Protection of Watercourses, Fisheries & Freshwater Pearl Mussel

An Ecological Clerk of Works ("ECoW") will be employed from the commencement to completion of construction works, including access tracks, On-site Electrical Substation and Control Building, Temporary Construction Compound, Hardstands and Turbine Foundations and Wind Farm Internal Cabling works at a minimum. Primary roles for the ECoW will include the setting out and monitoring of the working corridor and review of pollution control measures and working practices during the active construction period as well as ad hoc input into site remediation.

For the construction of culverts, all activities must adhere to IFI, (2016) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters. Section 9 Planning, Design and Construction Issues details on Best Practice guidance for the installation of culverts on watercourses.

All measures outlined in the accompanying SWMP will be fully implemented by the contractor and will be agreed to with the planning authority in advance of construction activities. The objective of the SWMP is to prevent pollution to watercourses and adverse impacts to sensitive fauna. The SWMP has provided sufficient detail so that all activities that could potentially lead to negative impacts on water quality have been identified. The SWMP is based upon a detailed understanding of the hydrology, hydrogeology and geology within and surrounding the Proposed Development.

All watercourses draining the Site will be examined on a repeated scheduled timeframe (i.e. daily/weekly/fortnightly etc.) as deemed appropriate by the Contractor, Planning Authority, NPWS and Inland Fisheries Ireland. A log will be kept of these examinations and a water sampling protocol to monitor key water quality parameters will be established in agreement with the NPWS and Inland Fisheries Ireland. The monitoring protocol will be devised so that sediment release (should it occur) from the Site is detected at an early stage. Sediment

release to the above watercourses from the Site will be restricted to <25mg/l as per the Salmonid Water Regulations.

Method statements outlining the approach to all surface watercourse crossing will be approved in advance with Inland Fisheries Ireland.

Disturbance to natural drainage features will be avoided during the construction phase of the Proposed Development. The design of the Proposed Development has allowed for the establishment of a 50 m wide watercourse buffer zone during the construction phase.

Uncontaminated surface runoff will be diverted away from construction areas through the installation of interceptor drains up-gradient of construction areas.

Drainage waters originating in construction areas will be collected in a closed system and treated prior to controlled, diffuse release. Drainage waters from construction areas will be managed through a series of treatment stages that include swales, check dams and settlement/attenuation ponds along with other pollution control measures such as silt fences and silt mats.

A three-stage treatment train will be employed to capture, retain and treat discharges during the construction phase. This treatment train is also proposed for discharges from hard surfaces that will be installed as a result of the Proposed Development.

Settlement/attenuation ponds will be used to attenuate and treat runoff. A detailed pre-construction peat stability assessment has considered the appropriate location of settlement/attenuation ponds so that these facilities will not increase the risk of slope failure. These will have permanent open water to minimise the risk of sediment washout. Settlement/attenuation pond side slopes will be constructed at shallow grades such as 1 in 3 side slope. Settlement/attenuation ponds will be designed so that outflows are spread diffusely over a wider area so that increases in run-off can be mitigated. Erosion control and detention ponds will be regularly maintained during the construction phase.

Standing water from excavations will not be pumped directly into watercourses. Where dewatering of excavations is required, water will be pumped to the head of a treatment train in order to receive full treatment prior to discharge.

Roadside drains will be shallow with moderate gradients to prevent scouring. In steep areas check dams (possibly in conjunction with settlement ponds and / or cross drains) may be necessary to reduce flow rate.

Oil fuel will be stored within containment areas and emergency response measures for oil spillage on site will be prepared.

Refuelling of plant during construction will be carried out at a designated area, a minimum of 50 m from watercourses. Drip trays and spill kits will be available on site. Maintenance of all plant and machinery will be undertaken off-site. Only emergency break-down maintenance will be carried out on site.

Cement will be mixed within containment areas and if Ready mix vehicles are used these will be washed in the same area and the water cycled.

All vehicles transporting materials to and from the Site will store materials in a contained load so that the potential for emissions or spillage is reduced during journeys and bridge crossing over watercourses. The measures outlined in the UK's Planning Policy Guidance No. 26: Dealing with Spillages on Highways (a Good Practice Guidance notes proposed of the UK EA/SEPA/EHS) will be adhered to in the event of a spillage or accident during the transportation of materials.

All construction personnel will be trained in pollution incident control response. An emergency response plan has been prepared as part of this CEMP for the Proposed Development and information outlining response procedures and contingency plans to contain pollution, as set out in this CEMP, will be made available on site.

Access tracks and turning areas will be confined to areas of shallow peat where possible and will be constructed on a geotextile layer. These areas will also be kept as level as possible to avoid fast run-off. This can be achieved by following contours where possible.

At the proposed temporary storage area, impermeable berms will be put in place surrounding the spoil storage receptor area. The berms will be established in advance of the deposition of spoil material. The berms will be designed to account for a bulking factor of 10% of the spoil material to be disposed in these areas.

3.2.1.2.2 Prevention of Spread of Invasive Alien Species

Construction plant and machinery can if not well maintained result in the introduction of non-native invasive plant species. The introduction and/or spread of invasive species such as Himalayan Balsam, Giant Rhubarb or Rhododendron for example, could result in the establishment of invasive alien species and this may have negative effects on the surrounding environs. Appropriate spread prevention measures have been incorporated into the design of the Project. The following measures address potential effects associated with the construction phase of the Project:

- Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Himalayan Balsam, Japanese Knotweed etc.) by thoroughly washing vehicles prior to leaving any site.
- All plant and equipment employed on the construction site (e.g. excavator, footwear, etc.) will be thoroughly cleaned down using a power washer unit prior to arrival on site to prevent the spread of invasive plant species
- All washing will be undertaken in areas with no potential to result in the spread of invasive species. This process will be detailed in the contractor's method statement.
- Any soil and topsoil required on the Site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present.
- All planting and landscaping associated with the Proposed Development shall avoid the use on invasive shrubs such as Rhododendron.

3.2.1.3 Mitigation by Reduction

3.2.1.3.1 Protection of important habitats

Minimum buffer zones will be implemented between areas associated with the construction of foundations and streams/eroding gullies, except where stream crossings are required.

Within the wind farm site operatives, plant and machinery will be restricted to the footprint of the Proposed Development construction boundary and will not be permitted to encroach upon adjacent lands. This will reduce the potential for damage and disturbance to heath, acid grassland and mosaic habitats.

For the overground electrical cable pole set installation construction traffic and machinery movement will be confined to specific roads and access routes. Construction vehicles to be used in areas underlain by thin peat substrate will be of low ground bearing pressure.

Trampling and the use of machinery on saturated, quaking surfaces has been avoided by positioning polesets outside of such locations. The locations of poles has been configured to minimise the number occurring within wet grassland and wet heath and the use of brash mats will be used if required.

As per the Baseline description, the Meelagh River valley, at the crossing point of the proposed overhead line does not function as an established commuting route for sensitive bird species such as wildfowl and raptors. However, it is possible that this river valley will be occasionally used by such species. Haas et al. (2005) described general principles for protecting birds from collision with overhead lines, including routing of overhead lines as low as possible, for example behind buildings or rows of trees and attach clearly visible markers on the overhead lines posing a high collision risk. The overhead line does not represent a high collision risk to birds and has been designed to following existing hedgerow boundaries as it crosses the Meelagh Valley. As an additional precautionary measure the section of the overhead line crossing the valley between polesets 101 and 109 will be fitted with clearly visible markers. This will further reduce the low collision risk posed by the overhead line to birds.

3.2.1.3.2 Protection of Watercourses

All elements of the **SWMP** and the mitigation measures outlined in **Chapter 8: Hydrology and Hydrogeology** to reduce the amount of silt-laden water generated within the construction footprint will be implemented. These measures will include the provision of clean water catch drains upslope of construction areas and the minimisation of excavation footprints and the time excavations and surfaces are left exposed and denuded.

3.2.1.4 Offsetting

3.2.1.4.1 Habitat restoration

The approach to the Reinstatement of wet heath along short sections of underground electrical cable trenching has been set out above.

Areas of existing hardstand within the wind farm site that are not required for the Proposed Development will be set aside for habitat management. A Habitat Management Plan is provided as **Appendix 6.2** and all measures set out in this plan will be implemented as part of the Proposed Development. The restoration and enhancement of areas of heath and acid grassland will aim to achieve the restoration and enhancement of an area.

3.2.2 Operational Phase mitigation

3.2.2.1 Mitigation by Design

3.2.2.1.1 Protection of Watercourses

The following measures are required in order to ensure the ongoing protection of watercourses:

- Re-seeding / re-vegetation of all areas of bare ground or the placement of Geo-jute (or similar) matting will take place as practically possible at the start of the operational phase to prevent run-off.
- Silt traps erected during the construction phase within roadside and artificial drainage will be replaced with stone check dams for the lifetime of the Project. These stone check dams will only be placed within artificial drainage systems such as roadside drains and not natural streams or ditches.
- A full review of construction stage temporary drainage will be undertaken by the Developer (in conjunction with the Project Hydrologist/ Site Engineer and the Project Ecologist) following the completion of construction, and drainage removed or appropriately blocked where this will not interfere with infrastructure.
- The Temporary Construction Compound / office must house all chemicals within a secure bunded COSSH store for the operational phase of the Project.

3.2.2.1.2 Protection of Bats

Turbines will operate in a manner which restricts the rotation of the blades as far as is practicably possible below the manufacturer's specified cut-in speed (SNH 2021). This is usually achieved by feathering the blades during low wind speeds; the angle of the blades is rotated to present the slimmest profile possible towards the wind, ensuring they do not rotate or 'idle' when not generating power.

Post-construction surveys will be undertaken for the first three years of operation to confirm if blanket curtailment restrictions can be amended in line with post-construction activity levels. The post construction surveys will be used to update the current curtailment regime (blanket curtailment) designed around the values for the key weather parameters and other factors that are known to influence collision risk. This will include all of the following:

- Wind speed in m/s (measured at nacelle height)
- Time after sunset
- Month of the year
- Temperature (°C)
- Precipitation (mm/hr)

3.2.2.2 Offsetting

3.2.2.2.1 Restoration of Important Habitats

Restoration of habitats will require ongoing positive management input as well as monitoring of success and necessary remedial measures. This is set out in the Habitat Management Plan in **Appendix 6.2**.

3.2.3 Decommissioning Phase Mitigation

No new impacts on the surface water and groundwater receiving environment are anticipated during the Decommissioning phase of the Project. The Decommissioning phase of the Project will result in the removal of Site infrastructure such as wind turbines and the Met Mast etc. No new additional mitigation measures to those proposed for the construction which will also be implemented during Decommissioning are required for the Decommissioning phase of the Proposed Development. The Decommissioning phase and associated removal of major infrastructure components is anticipated to result in similar potential risks to surface water and groundwater as those that will be encountered during the construction phase of the Proposed Development.

The excavation of greenfield land is not expected to be required during the Decommissioning phase. In addition, the movement of plant, vehicles and equipment is not expected to be required during the Decommissioning phase since all of the Project's hardstand areas will be pre-existing by the time the Decommissioning phase is being carried out. As a result, the risk of elevated suspended solids being discharged in surface water run-off to the downstream receiving environmental is expected to be low. However, the potential risk remains for spills of fuels hazardous chemicals which is a common risk to all developments. The mitigation measures outlined in this chapter will be implemented during the Decommissioning phase to reduce the potential for such impacts.

3.2.4 Monitoring

An ECoW will be appointed prior to the commencement of construction. The ECoW will be an ecologist with experience of baseline ecological surveys, pre-construction surveys and construction phase supervision. The ECoW will be responsible for completing pre-construction surveys and supervising construction works and advising on the implementation of biodiversity enhancement measures that will be commenced during the construction phase.

Pre-construction confirmatory surveys required in advance of the construction phase will include as a minimum:

- Otter surveys along the Derreenacrinnig East Stream and the un-named stream draining the proposed wind farm site to the north. Surveys to be completed will pay particular attention to identifying the presence/absence of otter holts/couches within 150 m of the proposed wind farm infrastructure. In the event that otter holts or couches identified within 150 m of the Proposed Development the status of the breeding/resting place will be confirmed. Where the holt/couch is identified as a breeding site, then, in the absence of a derogation licence, no works will be permitted to proceed within a 150 m radius of the breeding place, whilst it is still actively used as a breeding site. In the event that a non-breeding active holt or couch is identified within 50 m of the Proposed Development, then, in the absence of a derogation licence, no works will be permitted to proceed within a 50 m radius of the non-breeding but active holt or couch.
- Non-native invasive plant species surveys: An up-to-date confirmatory non-native invasive plant species survey of the Site and adjacent areas will be completed during the growing season immediately prior to the commencement of construction works.
- The ECoW will ensure that best practice construction methods and mitigation measures detailed in this EIAR and accompanying planning documentation including the CEMP and NIS are implemented in full.
- The ECoW will be responsible for ensuring that the construction phase contractor is aware of key biodiversity receptors. The ECoW will inspect the construction works throughout the construction phase and will pay particular attention to the implementation of all biodiversity related mitigation measures.
- The ECoW will provide monitoring inspection reports during the construction phase and will also provide a close-out report following the completion of the contract construction works.
- Where necessary the ECoW will liaise with relevant authorities such as Cork County Council, the IFI and the NPWS with respect to construction phase activities that relate to biodiversity.
- As part of the ECoW terms of appointment, the ECoW will be vested with the authority to stop works where activities have been identified on site that are not in accordance with the mitigation measures outlined in this EIAR, the NIS and/or the CEMP prepared for the planning application for the Proposed Development.

3.2.4.1 Post-construction phase monitoring

3.2.4.1.1 Habitats

Post construction phase monitoring will be completed as per the specification for monitoring set out in the Habitat Management Plan in **Appendix 6.2**.

3.2.4.1.2 *Bats*

Post-construction surveys will be undertaken for the first three years of operation to confirm that the post-construction activity levels are in line with the pre-construction activity levels. The post construction surveys will be used to inform the turbine operation regime designed around the values for the key weather parameters and other factors that are known to influence collision risk to bats. This will include all of the following:

- Wind speed in m/s (measured at nacelle height)
- Time after sunset
- Month of the year
- Temperature (°C)
- Precipitation (mm/hr)

Monitoring will be completed by installing automatic bat detectors at the turbine locations. Monitoring will be completed in accordance with the approach to bat activity monitoring set out by SNH (2021).

3.2.4.1.3 *Birds*

A detailed breeding bird monitoring will be implemented at least 12 months prior to the start of construction works. The monitoring plan would detail survey methods, and the reporting mechanism, for each focal species. The surveys would be completed by suitably experienced ornithologists. The surveys will commence (as a minimum) in the breeding season prior to works commencing and for at least the first fifteen years of wind farm operation (i.e., annually for the first three years, then fifth, seventh, tenth and fifteen years). At which point the need for further monitoring would be reviewed. The surveys would include the flight survey area which comprises the three proposed turbines and a 500m surrounding buffer area.

The monitoring will comprise:

Vantage point surveys as per SNH (2017) from the two vantage points used for the Baseline surveys.

Breeding bird survey following methods used in the Baseline survey to be repeated yearly between early April to early July during each operation phase monitoring year.

Collision fatality searches which will involve the search of a standard polygon area around each of the 3 no. turbines. At the start of each survey, data recorded will include meteorological and ground cover information. The locations of any carcasses found will be

recorded by GPS and will be photographed in-situ. The state of each carcass will be recorded on a corpse record card, using the following categories (after Johnson 2003):

- Intact - a carcass that is completely intact, is not badly decomposed, and shows no sign of being fed upon by a predator or scavenger
- Scavenged - an entire carcass which shows signs of being fed upon by a predator or scavenger, or a portion(s) of a carcass in one location such as wings, legs, skeletal remains or pieces of skin
- Feather Spot - ten or more feathers at one location indicating predation or scavenging. If only feathers are found, 10 or more total feathers or two or more primaries must be discovered to consider the observation a casualty.

Searcher efficiency and predation tests will be carried out at the commencement of the programme in order to calibrate the results to account for the search dog's ability to find bird corpses and to also account for scavenging of corpses by animals. The collision searches will be carried out on a monthly basis in years 1, 2, 3, 5, 7, 10, 15 of the operational wind farm.

3.3 Soils and Geology

The following section details the environmental control measures which must be incorporated into the Contractors' Construction Method Statement (CMS) to ensure the protection of soils and geology. In addition, a Waste Management Plan (**Management Plans 3**) has been prepared which provides further details of control measures and monitoring procedures.

3.3.1 Subsoil and Bedrock Removal

The proposed turbines and infrastructure layout was dictated to a large degree the constraints of the existing infrastructure, peat depth and the topography. Turbines were located in areas where the existing infrastructure is utilised, peat is shallow, and the topography is favourable. The aim of this process was to minimise the volumes of subsoils to be removed either directly by excavation (Turbine Foundations) or as a function of cut and fill requirements (Turbine Hardstands).

Mitigation measures to reduce the effects to the natural soil profile from excavation activities include minimising excavation, appropriate storage for Reinstatement or reuse on site where possible. Soils and excavated material that cannot be used on site will be moved to a licensed facility will be treated as an Article 27 by-product where possible. Peat Spoil will be used as backfill or Reinstatement where possible.

Mitigation by Avoidance

Areas of sensitive or soft soils and shallow bedrock have been avoided during construction by careful design of the wind farm.

Mitigation by Good Practices

Best practice as described in the IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the amount of soil and rock excavation.

Mitigation by Reduction

The disturbance of soil, subsoil and bedrock is an unavoidable effect of the Proposed Development, but careful design of the Wind Farm layout has been undertaken to ensure that the amount of earth materials excavated is kept to a minimum in order to limit the effect on the geological aspects of the Site (by avoiding areas of deep peat and shallow bedrock where possible and reducing the length of site tracks). The management of geological materials is an important component of controlling dust and sediment and erosion control.

Mitigation by Reuse

Bedrock will be re-used for construction of Access Tracks wherever possible.

Mitigation by Remediation

On completion of the construction stage, any areas not required for operation will be reinstated. This will include the Temporary Construction Compounds, turning areas and any materials storage areas. Granular material will be removed as required and reinstated with peat or other soils in keeping with the adjacent soils. Drainage will be reinstated, if required, in order to minimise future erosion of the soils and restore the pre-development state of the environment.

3.3.2 Storage and Stockpiles – Mitigation Measures

Mitigation by Avoidance and Good Practice

Please refer to Section 3.3.1.

- Areas of sensitive or soft soils and shallow bedrock will be avoided during construction of the wind farm.
- IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the amount of soil and rock excavation.
- This CEMP will be updated by the civil engineering contractor and agreed to prior to any works commencing on Site.

Mitigation by Reduction

Whenever possible, soil and rock will be re-used on the Site immediately, thereby reducing the need for double handling, which will also reduce the requirements to stockpile soils. Excavated rock will be used immediately for Access Track construction.

3.3.3 Vehicular Movements – Mitigation Measures

Vehicular movements will be restricted to the footprint of the Proposed Development, particularly with respect to the newly constructed Access Tracks. This ensures that machinery must be kept on tracks and will not move onto areas that are not permitted for the Proposed Development.

Vehicular traffic on Site will be reduced through the re-use of excavated material on Site which will reduce the need to source material from external quarries.

Mitigation by Avoidance and Good Practice

Please refer to Section 3.3.1.

- Areas of sensitive or soft soils and shallow bedrock will be avoided during construction of the wind farm.
- IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the amount of soil and rock excavation.
- This CEMP will be updated by the civil engineering contractor and agreed to prior to any works commencing on Site.

3.3.4 Ground Stability – Mitigation Measures

Mitigation by Avoidance and Good Practice

- Areas of sensitive or soft soils and shallow bedrock will be avoided during construction of the wind farm. Careful design of the wind farm has reduced the amount of construction required in areas of sensitive or soft soils, high slopes and other areas of potential ground instability.
- IWEA and Scottish Best Practice Guidelines will be applied during construction which will minimise the amount of soil and rock excavation.
- This CEMP will be updated by the civil engineering contractor and agreed to prior to any works commencing on Site.
- All Site excavations and construction will be supervised by a geotechnical engineer/engineering geologist.

Emergency Response

Emergency responses to potential stability incidents have been assessed (**EIAR Chapter 16: Major Accidents and Natural Disasters**) and established to form part of **Management Plan 1: Emergency Response Plan** before construction works initiate.

- In the event that soil stability issues arise during construction activities, all ongoing construction activities at the particular area of the Site will cease immediately, the assigned geotechnical supervisor will inspect and characterise the issue at hand, corrective measures will be prescribed.
- Provision for a peat stability monitoring programme to identify early signs of potential bog slides (pre-failure indicators, for example cracks forming). This will be done in line with Scottish Government's 'Peat Landslide Hazard and Risk Assessments: Best Practice Guide for Proposed Electricity Developments 2017).
- In the unlikely event that soil and slope stability issues arise during construction activities, all ongoing activities in the vicinity will cease immediately, all operators will evacuate the area by foot, if safe to do so, until the area is assessed by competent person/s, the assigned geotechnical supervisor will inspect and characterise the issue at hand, corrective measures will be prescribed. The area impacted will be characterised fully and risk assessments completed prior to any further works commencing at or near the location. This assessment will be phased including initial rapid response Phase 1 Assessment which will include at a minimum the prescription of exclusion zones and preliminary mitigation steps to be taken, for example, the management of runoff in or from the affected area.
- Considering the highly dynamic nature of peat or soil stability issues at any particular site, it is important to establish an equally dynamic yet robust framework to follow in the event of an incident. Establishment of an emergency framework will follow relevant guidance to initially qualify any incident (by on site competent geotechnical engineer) and risk assess the area, and to then apply initial measures and design a complete emergency / contingency plan in line with an established structured emergency response. Emergency response will prioritise isolating and containing any materials which is being or will be intercepted by the established drainage network or receiving surface water network. Emergency materials and equipment requirements will be identified, incorporated in the CEMP, and will be managed on site with a view to be being easily accessible and readily available.
- On site training and toolbox talks will ensure any response to any potential incident is mobilised quickly and efficiently.

- Detailed emergency response protocols are specified in the **Management Plan 1: Emergency Response Plan**.

3.3.5 Soil Contamination

Mitigation by Avoidance and Good Practise

Protecting soils from spills will in turn mitigate against the potential for contaminants reaching watercourses, mitigation measures for contaminants are presented in detail in **EIAR Chapter 8: Hydrology and Hydrogeology**.

- Mobile bowsers, tanks and drums will be stored in secure, impermeable storage area, away from drains and open water;
- Fuel containers will be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores;
- Ancillary equipment such as hoses, pipes will be contained within the bund;
- Taps, nozzles or valves will be fitted with a lock system;
- Fuel and oil stores including tanks and drums will be regularly inspected for leaks and signs of damage;
- Only designated trained operators will be authorised to refuel plant on Site.

Mitigation by Reduction

As discussed previously, careful design of the wind farm has reduced the amount of Site traffic required on Site by reducing Access Tracks lengths, excavation volumes and double handling. Similarly, good site practice will also result in less traffic and a lower potential for fuel spills and leakages.

Emergency Response

Hydrocarbon spill or leak – Hydrocarbon contamination incidents will be dealt with immediately as they arise. Hydrocarbon spill kits will be prepared and kept in vehicles associated with the construction phase of the Proposed Development. Spill kits will also be established at proposed construction areas, for example, a spill kit will be established and mobilised as part of the turbine erection materials and equipment. Suitable receptacles for hydrocarbon contaminated materials will also be at hand.

Significant hydrocarbon spill or leak – In the event of a significant or catastrophic hydrocarbon spillage, emergency responses will be escalated accordingly. Escalation can include measures such as the installation of temporary sumps, drains or dykes to control the flow or migration of hydrocarbons, excavation and disposal of contaminated material.

Cementitious material – Cement / concrete contamination incidents will be dealt with immediately as they arise. Spill kits will also be established at proposed construction areas, for example, a spill kit will be established and mobilised as part of the turbine erection materials and equipment. Suitable receptacles for cementitious materials will also be at hand.

Emergency contact numbers for the Local Authority Environmental Section, Inland Fisheries Ireland, the Environmental Protection Agency and the National Parks and Wildlife Service will be displayed in a prominent position within the vicinity of works.

Additionally, emergency responses, including methodologies, are specified in the **Management Plan 1: Emergency Response Plan.**

In the event of a significant contamination or pollution incident e.g., discharge or accidental release of hydrocarbons / fuel to surface water systems, contamination occurrences will be addressed immediately, this includes the cessation of works in the area of the spillage until the issue is resolved. The relevant authorities noted above and stakeholders will also be promptly informed.

A full Schedule of Mitigation Measures relating to Soils and Land Use can be seen in **Appendix 17.1.**

3.3.6 Material and Waste Management

All materials used on site and wastes generated on site will be reduced by good site practice and attention to the CEMP, these measures are outlined in the **Management Plan 3: Waste Management Plan.** All waste will be segregated and re-used where possible or removed from site for recycling. Any waste which is not recyclable or compostable will be properly disposed to landfill. Whenever possible, excavated materials will be re-used close to the area of excavation. The careful design which has been achieved will result in minimal excess soil and rock.

3.4 Hydrology and Drainage

The following section details environmental control measures which will be implemented on site in relation to hydrology and drainage and provide the framework within which the targeted Construction Method Statement must be prepared. In addition, a **Surface Water Management Plan** and a **Water Quality Management Plan** have been prepared (see **Management Plans 5 and 2** respectively) which provide further details of control measures and monitoring procedures.

3.4.1 Construction Phase

General

The mitigation measures to be employed during the completion of the Project to avoid, reduce and minimise the potential impacts on the water environments are set out below. These measures cover the three main components of the Project (wind farm, Grid Connection and TDR upgrade). Measures specific to each component are provided below.

1. A Construction Manager will be appointed to oversee construction. The Construction Manager will have overall responsibility to ensure the environmental protection measures and commitments given in the CEMP / EIAR are implemented
2. The Developer will appoint an Environmental / Ecological Clerk of Works (ECoW) for the duration of the construction project. The ECoW will have an ecological and environmental management background with practical experience of wind farm construction projects. The ECoW will monitor the environmental aspects of construction (water quality, performance of surface water management infrastructure, etc.). The ECoW will have the authority to instruct the contractor to implement additional mitigation measures, if deemed appropriate. The ECoW will maintain a written record of all environmental issues on site, including incidents, corrective actions and monitoring results. This file will be made available to the relevant Authorities upon request. The ECoW will be responsible for notifying the relevant Authorities of any environmental incident.
3. To minimise soil erosion, earthworks will be suspended during extreme weather conditions. An extreme rainfall event will be classified as an event that corresponds to the Met Éireann Orange – Weather Alert for rainfall. The ECoW will monitor the weather forecast to make preparations ahead of adverse weather conditions.

| Met Eireann Orange – Weather Alert for Rainfall |
|---|
| 50 mm – 80 mm in 24 hrs |
| 40 mm – 60 mm in 12 hrs or less |
| 30 mm – 50 mm in 6 hrs or less |

5. Following mobilisation to site, surface water management infrastructure will be the first works carried out. Additional controls will be installed as needed as construction progresses and/or as identified during site inspections of surface water management infrastructure. Measures to be employed for all elements of the Project include:

- a. Clean surface water runoff will be diverted around earthworks area to minimise the volume of silted water generated. To achieve this, shallow cut-off drains / barriers will be installed.
 - b. Check dams will be installed along the alignment of drains to slow flows and remove silt. These will be constructed using clean stone and geotextile spanning across the drainage channel. Alternatively, straw bales and / or sandbags will be used, which may be more efficient for works along the Grid Connection.
 - c. The public roads serving the Project site will be kept clean of mud and debris so that silt is not washed to downstream watercourses. If mud or debris is tracked onto the public roads from vehicles leaving the work areas, the road will be swept.
6. The release of cement to water courses will be prohibited. Concrete pours will occur in contained areas using shuttering. Rinsing down of concrete trucks will be done at a dedicated location on site – adjacent to the Temporary Construction Compound, or at a suitable alternative location, a minimum distance of 50 m from any watercourse. The rinse down area will consist of a settlement pond (3m wide, 4m long and 1.2m deep – minimum dimensions), lined with terram and stone filter. This will have the capacity to hold enough water for the rinse down of 70 trucks using 150 litres per truck. Water will be able to percolate through the stone filter and terram while removing cement fines. This settlement pond will not receive surface water runoff so capacity to receive rinse down water is always available. Discharge from the rinse down pond will be permitted once the pH neutralises, as confirmed by the ECoW. Signage will be erected at each concrete pour location directing drivers to the rinse down area. This rinse down area will be removed at the end of the construction phase.
7. Hydrocarbons (oils, diesel and chemicals) will be stored and managed in an appropriate manner to ensure no negative impacts on land, soils, and geology. Specific measures will include:
- a. Toolbox talks on storage and management of hydrocarbon and refuelling of vehicles will be given to delivery drivers in addition to plant operatives.
 - b. Any storage of oils and diesel will be in steel or plastic tanks of good integrity and bunded to 110% of tank capacity. All fuel and hydraulic fluids will be stored in the Site COSHH store located in the Site compound.
 - c. Refuelling will be at discrete 'fuel stations', to be designated for the purpose of safe fuel storage and fuel transfer to vehicles.
 - d. Refuelling may be carried out directly from delivery vehicles or from bunded fuel bowzers. Refuelling of mobile plant will not take place within 50 m of any sensitive receptor, such as a drinking water supply well or watercourse.
 - e. The plant used during construction will be regularly inspected for leaks and fitness for purpose.

- f. Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment according to best codes of practice.
- g. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained, and the contaminated soil removed from the Site and properly disposed of.
- h. Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the Site for disposal or re-cycling.
- i. Appropriate spill control equipment, such as oil soakage pads, will be kept in the Site plant to deal with any accidental spillage. Spare spill kits will be kept at the construction site compound. Spill kits will be at hand during refuelling of vehicles.
- j. Only emergency repairs to machinery will be permitted on site. Machinery requiring maintenance will be taken back to a garage or contractor's yard.

Wind Farm Construction

The Site was originally designed to avoid the risk to the water environment as far as possible. Avoidance of risk / impact was achieved by using the existing site roads / tracks and implementing surface water management infrastructure (some of which is still in use). The construction of the wind farm was started in 2017 with most of the larger elements of the wind farm completed in 2018. The mitigation measures specific to completion of the wind farm construction to be employed to avoid, reduce and mitigate potential impacts on the water environment are:

1. Existing access roads and hardstands will be used with minor modifications to facilitate the larger turbines.
2. The proposed turbine locations are located at permitted turbine locations at which foundations have been partially excavated.
3. These turbines have been positioned at a minimum distance of 50 m from the streams draining the Site.
4. Enlargement of hardstand areas and stripping of vegetation will be kept to a minimum. This will reduce areas of soil exposed to erosion.
5. Restoration of redundant areas will be carried out as soon as practical in the construction programme.
6. Stockpiled soils will be kept a minimum distance of 50 m from any watercourse. Silt fences will be placed downgradient of stockpiles to treat runoff.
7. If required, dewatering of foundations will be to temporary silt traps / settlement ponds. Flow from the silt traps will be diffuse. The water would travel overland, and any silt would be settled before reaching existing drains. As noted in **Chapter 7: Land and Soils**, dewatering of foundation excavations is not envisaged.

8. The roads and hardstand areas will be constructed with aggregate – there will not be a hard-paved surface. This will reduce runoff volumes in practice.

Grid Connection

The mitigation measures specific to the Grid Connection to be employed to avoid, reduce and mitigate potential impacts on the water environment are:

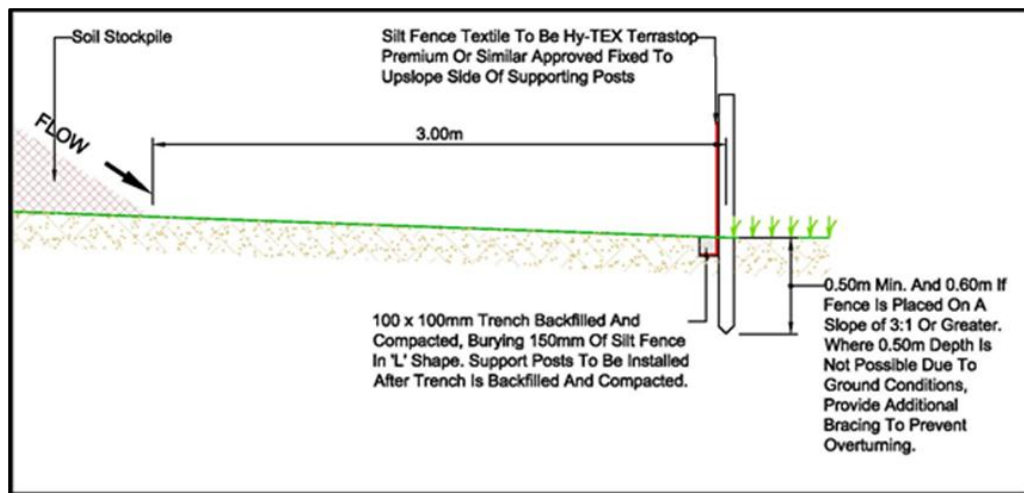
1. A minimum setback of 25 m will be used for the installation of poles in the vicinity of EPA-designated streams.
2. Surface water management infrastructure required along each section of the Grid Connection will be installed prior to commencement of works in that area.
3. Existing farm and forestry tracks will be used as far as possible to access pole locations. Wide-track machines and / or bog mats will be used on peat where ground conditions are soft. This will avoid rutting.
4. Works on stream crossings will be carried out in dry weather as far as practical when low flows occur in the streams / drains. In-stream works are not envisaged, but if needed, will be avoided between 01 October and 30 June as per IFI guidelines. The IFI will be consulted for crossings wider than 600 mm. Stream crossing design will have regard to the IFI's guidance documents for road construction^{Error! Bookmark not defined.}.
5. The trenching for the Grid Connection will be done in short sections minimising the amount of disturbed ground and soil exposed to runoff. Each section of trench opened will be completed (ducting installed and backfilled) by the end of each working day.
6. The section of trenching to be completed each day will be inspected and surface water protection measures put in place prior to excavation works commencing. This will include placement of sandbags to protect existing roadside drains, placement of sandbags to direct runoff from the works area, erecting silt fencing where appropriate, locating culverts to be crossed that day, etc. Any roadside drainage affected by the trenching will be reinstated on an ongoing basis.
7. Surplus excavated inert material will be loaded directly into trucks and taken for reuse on site (this material will be clean aggregate). Tarmac from the public road will be taken off site to an authorised / licenced facility. Where the material encountered is suitable for reuse as backfill, it will be placed on the upgradient side of the trench so that any rainfall runoff (carrying silt) will be into the trench.
8. Concrete truck rinse down will not be carried out along the grid route. This will be done at the batching plant or at a dedicated location on site for concrete chute rinse down.
9. In the unlikely event that trenches need to be dewatered, pumped water will not be discharged directly to the environment. Due to the extremely high value of the receiving surface water environment, water will not be pumped from trenches to the roadside drains. The water will be treated prior to release, and this will be achieved using either

filter / sediment bags, Silt-buster or vacuum tanker. The filter / sediment bag provides a robust, mobile and versatile solution for treating silty water. If a vacuum tanker is used, the water will be taken to the wind farm site and discharged into an on-site settlement pond. The water will be released into a drain leading to the pond at a rate that doesn't exceed the design parameters of the pond, to ensure the water is sufficiently treated to remove silt.

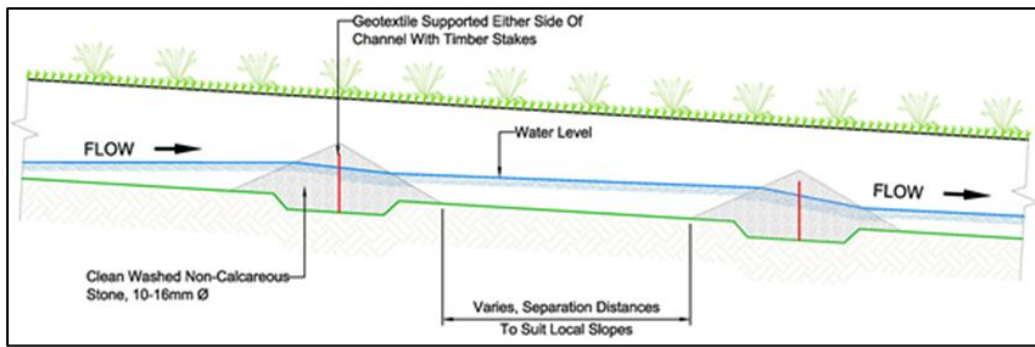
3.4.1.1 Surface Water Management Infrastructure

The infrastructure to be used to manage and treat surface water, and to control erosion the construction phase includes:

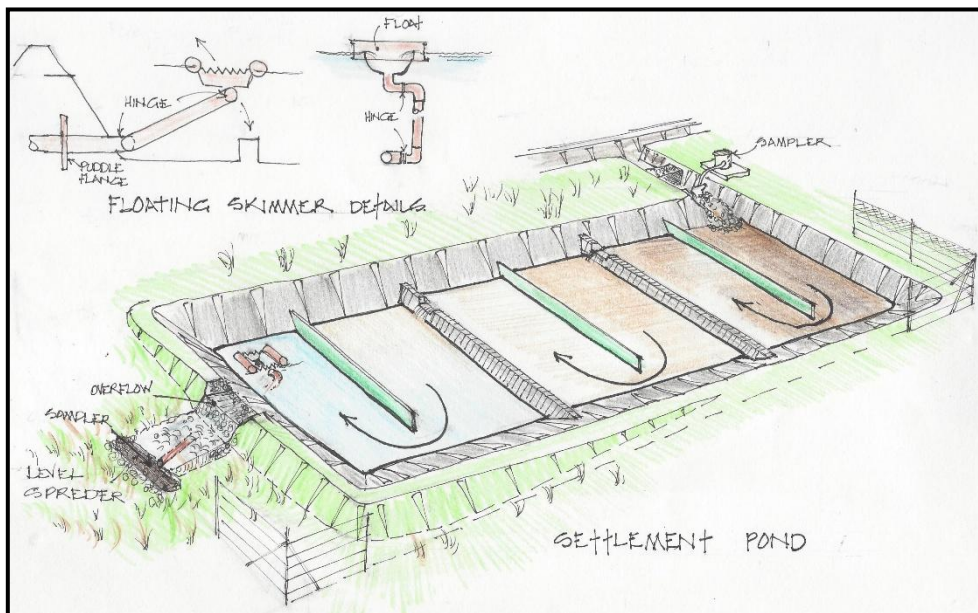
1. To reduce the volume of water to be treated during construction and to reduce the erosion potential of exposed peat and soils, clean surface water runoff will be diverted around earthworks areas. This will be done with the use of diversion barriers / channels. Diversion channels are shallow interceptor drains, while barriers can be plastic (HDPE or LDPE material approximately 0.3m high that is inserted vertically (50 to 100mm) into the peat/ground surface to divert overland flows), or sandbags.
2. Silt fences will be erected on the downslope side of any earthworks areas to intercept any overland flows that could potentially be carrying silt / fines. These are constructed with geotextile embedded in the peat and supported with wooden pegs. See example below.



3. Check dams will be installed in roadside drains (particularly in the wind farm) at frequent intervals. These will be constructed using geotextile supported by two wooden pegs, sandwiched by clean washed filter gravel, as illustrated.



4. Where dewatering of trenches is required for the underground cabling, filter / sediment bags (or similar) will be used to treat water prior to discharge to the environment. Filter / sediment bags will be placed in a vegetated area, so treated water flows overland, providing further treatment, to watercourses or drains.
5. Use of settlement ponds at the turbine locations, as appropriate. Water pumped from the foundation excavation or runoff from the works area will, where necessary, be directed to a settlement pond to remove silt and fines. The flow from the settlement ponds will be diffuse overland flow. An example is shown below.



The settlement ponds have been sized to treat runoff for a 60-minute storm duration with a 10-year return period. The size of the pond is driven by settlement of the clay particles. Additional settlement will be achieved within each pond with the installation of a forebay, internal stone filters and decanting of water from the surface of the pond. Furthermore, discharge from the ponds will be to a level spreader for overland flow downslope through vegetated areas; there will not be direct discharge to watercourses from the settlement ponds.

Plate 3.1 shows examples of the surface water management infrastructure used in wind farm construction, including 3-chamber silt pond, road-side drainage check dam, flow barrier, clean water diversion channel and filter / sediment bags.



Plate 3.1: Surface Water Management Features

3.4.1.1.1 Site Specific Water and Sediment Management

Turbine T1

Turbine T1 is located on the western side of the Site overlooking a moderately steep slope to the northwest. The crange area has been constructed with a cut into the hillside on its southern and south-eastern perimeter. The crange area needs to be enlarged to the north

and the Turbine Foundation excavation needs to be enlarged. From approximately 100 m to the east, the access road slopes towards the cranage area. Surface water runoff from the ridge to the south overlooking the road flows across the road, via a French drain type culvert, and discharges to a channel before breakout to diffuse flow onto the blanket bog. There are no natural streams near turbine T1. The surface water management will consist of:

- The existing culvert will be upgraded so that runoff doesn't flow across the road surface, with trafficking resulting in silt-laden runoff. The clean water will be piped under the road and into the existing swale / overland flow arrangement.
- A cut off trench will be installed along the south-eastern and southern perimeter of the cranage area. Water will be directed to a small settlement pond with diffuse discharge via a level spreader to the blanket bog at the southwest corner of the cranage area. This will be used to treat water from the excavation if dewatering is required.
- A silt fence will be erected to the west and downgradient of the excavation and soil stockpiling associated with the Turbine Foundation and cranage area enlargement works.

Turbine T2

Turbine T02 is located on the northern side of, and adjacent to, the ridge forming the surface water divide between the Mealagh and Ilen river catchments. The turbine is in the catchment of the Ilen River, while the cranage area is in the catchment of the Mealagh River. The cranage area is flat, with its northern part made ground. A small earthen berm is constructed along the northern perimeter of the cranage area. There is an opening in the berm at the north-eastern corner through which runoff water is directed. The surface water catchment of turbine T2 extends to an area just slightly larger than the cranage area. There is a clean-water cutoff drain on the south side of the road between T1 and T2. Collected water from the ridge to the south of the road is conveyed under the road via a stone / rip-rap culvert. Commercial forestry is located immediately adjacent to the north. The surface water management will consist of:

- A silt fence will be erected to the east and downgradient of the excavation and soil stockpiling associated with the Turbine Foundation enlargement works.
- A check dam will be installed at the northeast corner of the hardstand where surface water runoff exits this location.
- A settlement pond will be located downgradient from the turbine location. It will discharge via a level spreader to a vegetative buffer with sheet flow. The sheet flow will travel >50m before reaching any watercourse.

Turbine T3

Turbine T3 is located at the eastern end of the Site. The access road north of the turbine location forms the surface water divide between the Ilen and Mealagh catchments. The topography falls away sharply to the south from the turbine location. The crane area is cut into the rock rising to the west. The road leading west from turbine T3 climbs towards T2. There is a low earthen berm on both sides of the road and along the southern perimeter of the crane area. There are no streams or drains near turbine T1. Runoff is sheet flow along the road with a break-out point located east of the turbine. The surface water management will consist of:

- A cut off trench along the western perimeter of the hardstand. This will send clean runoff water to the south onto the blanket bog.
- A settlement pond on the east side of the turbine location to collect flows from the turbine excavation location. It will discharge via a level spreader to vegetative buffer with sheet flow, with flows directed to the roadside drain on the northern side of the access road.

3.4.2 Operational Phase

Mitigation measures to be employed during the operation phase of the wind farm and Grid Connection are:

- To mimic as close as possible greenfield runoff rates and volumes, permeable finishes on roads and hardstands have been used. Break-out points have been provided along the length of the roadways to send water onto the hillside to its natural drainage pathway and over-the-edge is also used; water is not delivered to drains / streams from long sections of roads.
- Vegetation has been allowed develop in the roadside drains. This slows flows and reduces erosion potential.
- Site drainage will be inspected and maintained during the lifetime of the wind farm. Culverts will be cleared of debris, so blockages do not occur. These tasks will be included in the contract for the wind farm operator.
- Rainfall concentrated at the turbine towers will be collected and discharged to a level spreader downhill from the turbine.
- Clay plugs will be installed along the length of the cable trenches to eliminate these acting as preferential pathways. Clay plugs will be installed at greater frequency on steeper gradients.
- Storage of diesel for the backup generator, if used, will be in a self-bunded tank.

3.4.3 Monitoring

The ECoW will undertake weekly inspections at all outfalls from the construction works. The ECoW will be responsible for monitoring water chemistry at the agreed monitoring points in the streams draining the Site, as shown on Figures 8.3 and 8.4 (**EIAR Chapter 8: Hydrology & Hydrogeology**).

Table 8.13 (**EIAR Chapter 8: Hydrology & Hydrogeology**) summaries the surface water quality monitoring programme.

All samples collected will be input to a database and compared to baseline monitoring data. In the event of levels being identified which are outside of the Baseline or above applicable guideline or legislative values an investigation will be undertaken.

It is also proposed to establish the Site-specific relationship between turbidity values and TSS to allow real-time assessment of water quality. Field measurement of turbidity will be taken at the monitoring locations and samples will be sent to a laboratory for TSS analysis. Once a sufficient number of samples have been collected, it will allow the relationship between turbidity and TSS concentration to be established.

Turbidity monitoring will be carried out on the streams draining the Site. The emission limit value will be set at a turbidity value equivalent to 20mg/l, TSS; established based on sampling and analysis as described above. An investigation will be carried out in the event of an exceedance occurring. It should be noted that turbidity fluctuates naturally with the stage of the stream, higher values occurring during high flow events, so alerts may not necessarily be attributed to on-site works.

Monthly samples will be submitted to an accredited laboratory for analysis. Test results will be maintained on site and available for inspection by Council and Inland Fisheries Ireland staff.

3.5 Air and Climate

3.5.1 Air

The main potential impact during the construction phase of the Proposed Development will be from dust nuisance at sensitive receptors close to the Site. Good practice site procedures will be followed by the appointed contractor to prevent dirt and dust being transported onto the local road network. Good practice site control measures will comprise the following:

- Site Access Roads will be upgraded and built in the initial construction phases. These roads will be finished with graded aggregate which compacts, preventing dust.
- Approach roads and construction areas will be cleaned on a regular basis to prevent build-up of mud and prevent it from migrating around the Site and onto the public road network.
- Wheel wash facilities will be provided near the Site entrances and all vehicles entering and exiting the Site will be required to use these facilities to prevent mud/dirt being transferred from the Site to the public road network.
- Public roads along the Construction Haul Route will be inspected and cleaned daily when being used for construction delivery. In the unlikely event that dirt/mud is identified on public roads, the roads will be cleaned. The wheel wash facility will be investigated, and any issues identified will be fixed before the facility is used by further construction vehicles
- During periods of dry and windy weather, there is potential for dust to become friable and cause nuisance to nearby residences and users of the local road network. This requires wetting material and ensuring water is supplied at the correct levels for the duration of the work activity. The weather will be monitored so that the need for damping down activities can be predicted. Water bowsers will be available to spray work areas (wind turbine area and Grid Connection route) and haul roads to suppress dust migration from the Site.
- Vehicles delivering materials to the Site will be covered appropriately when transporting materials that could result in dust, e.g., crushed rock or sand.
- Exhaust emissions from vehicles operating within the Site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the Contractor by ensuring that emissions from vehicles are minimised through regular servicing of machinery.
- All machinery when not in use will be turned off.
- Ready-mix concrete will be delivered to the Site and no batching of concrete will take place on the Site. Only washing out of chutes will take place on site and this will be undertaken at a designated concrete washout facility at the contractor's compound. The concrete wash water will be disposed of at a licensed facility as outlined in the **Management Plan 3: Waste Management Plan**.
- Speed restrictions of 15 km/h on access roads will be implemented to reduce the likelihood of dust becoming airborne. On-site speed limits will be implemented, policed by the Contractor and referred to in the toolbox talks.
- Stockpiling of materials will be carried out in such a way as to minimise their exposure to wind. Stockpiles will be covered with geotextiles layering and damping down will be carried out when weather conditions require it.

- Earthworks and exposed areas/soil stockpiles will be re-vegetated to stabilise surfaces as soon as practicable.
- An independent, qualified Geotechnical Engineer will be contracted for the detailed design stage of the Project and geotechnical services and will be retained throughout the construction phase, including monitoring and supervision of construction activities on a regular basis. The methodology statement will be signed off by a suitably qualified Geotechnical Engineer.
- A complaints procedure will be implemented on site where complaints will be reported, logged and appropriate action taken.

3.5.2 Climate

The following mitigation measures will be implemented to reduce GHG emissions during the construction of the Proposed Development:

- All machinery when not in use will be turned off.
- Exhaust emissions from vehicles operating within the Site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the Contractor by ensuring that emissions from vehicles are minimised through regular servicing of machinery.
- Use of local quarries, materials suppliers and waste facilities will be used, as outlined in **EIAR Chapter 16 Traffic and Transport**, minimising travel distances
- A robust Traffic Management Plan (**Management Plan 7**) has been developed, utilising the most direct routes where possible. This plan will be updated to reflect project needs.

3.6 Archaeology and Cultural Heritage

The Wind Farm layout was informed by Cultural Heritage desktop studies and fieldwork undertaken during the design and assessment phases and was designed to avoid the locations of known and potential heritage receptors.

The ground reduction works on the footprint of the Proposed Development were previously subject to archaeological monitoring to the level of natural subsoil and bedrock material and nothing of archaeological significance was identified. There is no potential for the presence of archaeological features or objects below natural levels and, therefore, any further required ground reductions within the Proposed Development during the construction phase will not require any archaeological mitigation. There are also no recorded cultural heritage constraints located within the environs of the Proposed Development and no mitigation measures, such as protective cordons, will be required during the construction phase.

Archaeological monitoring of ground works within previously undisturbed areas along the Grid Connection and turbine delivery route work areas will be carried out during the construction phase. In the event that any archaeological features are identified during monitoring they will be recorded and then securely cordoned off while the National Monuments Service are consulted to determine further appropriate mitigation measures, which may include preservation in situ (by avoidance) or preservation by record (by archaeological excavation).

The Proposed Development will result in no predicted effects on any architectural or other cultural heritage constraints and, therefore, no mitigation measures for these elements of the cultural heritage resource are required.

3.7 Noise & Vibration

No significant construction noise effects have been identified. Therefore, no specific mitigation measures are required. However, general guidance for controlling construction noise through the use of good practice given in BS 5228 will be followed. During construction of the Proposed Development, operations shall be limited to working times specified, except where delivery of large transport loads such as turbines where it may be necessary to transport outside of daytime hours.

3.8 Traffic and Transport

The following mitigation measures are proposed during the construction phase:

- A Traffic Management Plan (TMP) has been developed (see **Appendix 11.1**). Prior to construction and once the Contractor's have confirmed their suppliers, the TMP will be updated in consultation with Cork County Council, and An Garda Síochána as necessary to take account of any conditions attached to a grant of permission. All drivers will be made aware of the location and presence of sensitive receptors at an induction session prior to construction activities taking place and will be made aware of the speed limits of the various roads on the route which are contained in the TMP and on the traffic arrangements for entering and exiting the Site. This is to ensure compliance with speed limits, and traffic management arrangements.
- All significant traffic likely to be generated by Derreenacrinnig Wind Farm will be during the construction of the Project and will be temporary in nature. The estimated timescale for the completion of the construction phase is 16 to 18 months, inclusive of all works to Site Access Tracks, access routes, electrical substation building and erection and commissioning of turbines and Grid Connection works. The construction-phase Traffic

Management Plan will mitigate these impacts. A number of mitigation measures are embedded within the design:

- The design is such as to minimise the extent of the new build requirement by using existing internal tracks, thereby minimising materials requirements.
- Designing the cable for installation in pre-laid ducts, rather than directly installing the cable in the ground. The latter would require the entire trench from joint bay to joint bay to be fully open for cable laying.
- There will be special transporter vehicles with rear wheel steering used in delivery of wind turbine components to ensure safe transportation and manoeuvrability on the roads. Extendable transporter vehicles will be retracted on return journeys.
- Prior to the delivery of abnormal loads i.e. turbine components, the Applicant or their representatives, will consult with An Garda Síochána and Cork County Council Roads Departments to discuss the requirement for a Garda escort.
- The Developer will confirm the intended timescale for abnormal deliveries and every effort will be made to avoid peak times such as school drop off times, church services, sporting events, peak traffic times where it is considered this may lead to unnecessary disruption.
- Abnormal loads are likely to travel at night and outside the normal construction times as may be required by An Garda Síochána. Due to the relatively modest distance between Ringaskiddy Port and the Site of c.80 km, the journey is achievable within a 2-3 hour timeframe. Accordingly, locations for resting will not be required. Local residents along the affected route will be notified of the timescale for abnormal load deliveries.
- The Developer will lodge a bond with Cork County Council prior to commencement of construction in the amount to be agreed with the respective Council for the possible repair/upkeep of the local roads. At the end of the construction period, any further defects will be remedied to the satisfaction of Cork County Council and Transport Infrastructure Ireland.
- Wheel cleaning equipment will be used at the exit from the Site to prevent any mud and/or stones being transferred from Site to the public road network. All drivers will be required to see that their vehicle is free from dirt and stones prior to departure from the construction Site.
- The Site entry point will also be appropriately signed. Access to the wind farm construction Site will be controlled by on Site personnel and all visitors will be asked to sign in and out of the Site by security / Site personnel on entering and exiting the Site. All Site visitors will undergo a Site induction covering Health and Safety issues at the

Contractor's temporary compound and will be required to wear appropriate Personal Protective Equipment (PPE) while onsite.

- Any dust generating activities will be minimised where practical during windy conditions, and drivers will adopt driving practices to minimise the creation of dust. Where conditions exist for dust to become friable, techniques such as damping down of the potentially affected areas will be employed.
- To reduce dust emissions, vehicle containers/loads of crushed stone will be covered during both entrance and egress to the Site.
- A survey of the turbine component haul route will be undertaken prior to commencement to identify if any new overhead lines or broadband lines will need to be raised along the route to allow abnormal loads such as tower sections and nacelles to be delivered.
- During the construction phase, clear construction warning signs will be placed on the local roads as necessary, which will advise road users of the presence of a construction Site and of the likelihood of vehicles entering and exiting the Site or road construction areas. This will help improve road safety.
- Works on public roads on the turbine delivery haul road and Grid Connection will be strictly in accordance with "Guidance for the Control and Management of Traffic at Road Works – 2nd Edition 2010" as well as "Traffic Signs Manual 2010-Chapter 8- Temporary Traffic Measures and Signs at Roadworks".
- All vehicles using or while in operation at the wind farm site shall either have roof mounted flashing beacons or will use their hazard lights.
- A speed limit of 25 km/h shall apply to all vehicles within the wind farm site.

The following measures are recommended during the operational phase:

- All vehicles using the wind farm site shall either have roof mounted flashing beacons or will use their hazard lights.
- A speed limit of 25 km/h shall apply to all vehicles within the wind farm site.
- Locational signage shall be maintained throughout the operational period.
- Road surfaces shall be inspected on a quarterly basis and will be repaired within one month of the inspection.

The wind turbines proposed as part of the Proposed Development are expected to have a lifespan of up to 40 years. Following the end of their useful life, the wind turbines may be replaced with a new set of machines, subject to planning permission being obtained, or the Site may be decommissioned fully, with the exception of the Electrical Substation.

As the turbine blades can be cut into manageable lengths on Decommissioning, there are no requirements to adjust street furniture on the turbine supply haul route for Decommissioning. The traffic management of the Decommissioning phase will be informed by the road conditions at the time of Decommissioning. It is not possible to predict the changes to the public road infrastructure and policies in the next 30-40 years. It is envisaged that a Traffic Management Plan will be developed for the Decommissioning phase.

Nevertheless, the following traffic management measures are likely to be required:

- Signage will be erected at the Site entrance
- Construction traffic associated with Decommissioning will be scheduled so as to avoid school drop off and collection times.
- All vehicles using or while in operation at the wind farm site shall either have roof mounted flashing beacons or will use their hazard lights.
- A speed limit of 25 km/h shall apply to all vehicles within the wind farm site.

3.8.1 Delivery Volume for Construction Materials

The estimated HGV and abnormal load deliveries of materials and turbine components required to construct the Proposed Development, and the Grid Connection are given in **Table 3.1**. Further details are outlined in **Section 11.5.1** of **Chapter 11: Traffic and Transportation**.

Table 3.1: HGV and Abnormal Load Deliveries

| Materials | Quantity | No. Of Deliveries | Timeframe (Months) | Maximum Loads / Day | Vehicle Type |
|---|--------------------|-------------------|--------------------|---------------------|--------------|
| Site Drainage | - | 10 | 1-2 | 1 | OGV2 |
| Construction of Additional Internal Access Tracks (Imported Crushed Stone) | 206 m ³ | 11 | 0-2 | 10 | OGV2 |
| Construction of Additional Turbine Hardstand Areas (Imported Crushed Stone) | 255 m ³ | 13 | 2-8 | 10 | OGV2 |
| Turning Head Additional Road Widening (Imported Crushed Stone) | 32 m ³ | 2 | 2-6 | 10 | OGV2 |
| Hardstand Blade Fingers (Imported Crushed Stone) | 79 m ³ | 4 | 2-6 | 10 | OGV2 |

| Materials | Quantity | No. Of Deliveries | Timeframe (Months) | Maximum Loads / Day | Vehicle Type |
|---|---|-------------------|--------------------|---------------------|--------------|
| TDR Road Widening Overrun Area (Crushed stone & Tarmacadam) | 617 m ³ 617 m ³ | 60 | 4-10 | 10 | OGV2 |
| Construction of Turbine Foundations | 1,584 m ³ | 264 | 6-10 | 88 | OGV2 |
| Construction of Turbine Foundation Steel Rebar | 150 t | 8 | 6-10 | 3 | OGV2 |
| Substation Construction | 23 | 3 | 4-8 | 2 | OGV2 |
| Substation Electrical Works | - | 20 | 14-16 | 2 | OGV1 |
| Substation Commissioning | | 5 | 1 | 2 | OGV1 |
| Internal Cabling Installation (Imported Crushed Stone) | 443 m ³ | 23 | 8-10 | 5 | OGV2 |
| Turbine Delivery and Erection | 3 Turbines | 51 | 10-14 | 3 | OGV2 |
| Under Ground Grid Connection (Crushed Stone & Tarmacadam) | 218 m ³ 218.66 m ³ | 21 | 4-12 | 15 | OGV2 |
| Overhead Line Poles | 31.4 m ³ | 6 | 4-12 | 3 | OGV2 |
| Energisation | - | 5 | 14-16 | 2 | OGV1 |
| Turbine Commissioning | - | 5 | 14-16 | 2 | OGV1 |
| Site Restoration | - | 15 | 15-16 | 5 | OGV1 / OGV2 |
| Waste Removal | - | 16 | 1-16 | 1 | OGV1 |
| Total | | 542 | | | |

3.8.2 Site Entrance

The Site access will be from an existing site entrance on a local road off the L-8767 which will be upgraded to allow abnormal load turbine delivery vehicles. Further details are outlined in **Section 2.7.4**.

Wheel wash equipment will be used on site to prevent mud and stones being transferred from site to the public road network. This will be carried out under the supervision of the Site Health & Safety manager and in accordance with the agreed Traffic Management Plan (TMP) (see **Appendix 11.1**) to ensure that it is undertaken in a safe manner.

3.8.3 Construction Material Haul Route

The construction of the Proposed Development will require specific grades of granular material to be delivered to the Site for the structural layers of wind farm access roads, fill under Turbine Foundations and Turbine Hardstands / crane platforms. The construction of Turbine Foundations will require imported ready mix concrete and reinforcing steel. The construction of the Onsite Substation and Control Building will require delivery of general building materials such as concrete blocks. Precast concrete products will be required for onsite Grid Connections. The construction of the Grid Connection will require selected granular materials to backfill trenches and asphalt surfacing materials. The materials will be sourced from local quarries in the area such as those show on **Figure 11.4 of Chapter 11: Traffic and Transportation.**

3.9 Waste

Staff Facilities

Provision for separation of waste streams will be provided so that e.g., paper, and cardboard waste and bottles will be recycled. This waste will be appropriately stored to prevent exposure to wind, rain, and wildlife.

Sewage

A rainwater harvesting system will be proposed as the source of water for toilet facilities for the operational phase. Wastewater from the staff welfare facilities in the control building will be collected in a sealed storage tank, fitted with a high-level alarm. This is a device installed in a fuel storage tank that is capable of sounding an alarm, during a filling operation, when the liquid level nears the top of the tank.

Concrete

During the construction phase:

- Mitigation measures detailed in **Section 3.4.1**

Chemicals, Fuels and Oils

All storage containers of over 200 litres will have a secondary containment of 110% capacity to ensure that any leaking oil is contained and does not enter the aquatic environment.

Only essential refuelling (e.g., cranes) will be carried out, outside of this area but not within 50m of any watercourse. In such cases a non-permeable High-density Polyethylene (HDPE) membrane will be provided beneath connection points to catch any residual oil during filling and disconnection.

A Chemical and Waste Inventory will be kept. This inventory will include:

- List of all substances stored on-site (volume and description)
- Procedures and location details for storage of all materials listed
- Waste disposal records, including copies of all Waste Transfer Notes detailing disposal routes and waste carriers used
- Any tap or valve permanently fixed to the mobile unit through which oil can be discharged to the open or when delivered through a flexible pipe which is fitted permanently to the mobile unit, will be fitted with a lock and locked shut when not in use
- Sight gauges will be fitted with a valve or tap, which will be shut when not in use. Sight gauge tubes, if used will be well supported and fitted with a valve
- Mobile units will have secondary containment when in use/out on site

All dangerous substances will be conveyed in a container that complies with the ADR¹. As such the manufacturer of each bowser will provide certification to contractors of the following:

- A leak-proof test certificate.
- A copy of the IBC (intermediate bulk containers) approval certificate.
- An identification plate attached to the container.

Where mobile bowsers are used on site, guidelines (EU Directive 95/55/EC) will be followed so that:

- Any flexible pipe, tap or valve will be fitted with a lock where it leaves the container and be locked shut when not in use;
- Flexible delivery pipes will be fitted with manually operated pumps or a valve at the delivery end that closes automatically when not in use. Where possible, a nozzle designed to dispense oil is used;
- The pump or valve will have a lock and be locked shut when not in use.

Refuelling

During construction/Decommissioning, all refuelling on site will be within the Temporary Construction Compound within the re-fuelling area. Only essential refuelling (e.g., cranes) will be carried out, outside of this area, but not within 50m of any watercourse. In such cases a non-permeable High-density Polyethylene (HDPE) membrane will be provided beneath connection points to catch any residual oil during filling and disconnection. This membrane will be inspected and if there is any sign of oil contamination, it will be removed from site by

¹ ADR, 2023 (European Agreement Concerning the International Carriage of Dangerous Goods by Road). <https://unece.org/transport/standards/transport/dangerous-goods/adr-2023-agreement-concerning-international-carriage>
Accessed 29/01/2024

a specialist licensed waste contractor. All vehicles will be well maintained and free from oil or hydraulic fuel leaks.

Vehicles will be refuelled off-site where possible. For vehicles that require refuelling on-site, fuels will be stored in the Temporary Construction Compound and banded to at least 110% of the storage capacity of fuels to be stored.

Refuelling will take place via a mobile double skinned fuel bowser. The bowser will be a double axel refuelling trailer which will be towed to the refuelling locations by a 4x4 vehicle. The 4x4 will carry, a drip tray, spill kit and absorbent mats in case of any accidental spillages. Only designated competent personnel will refuel plant and machinery on the Wind Farm Site.

Packaging

In accordance with the waste hierarchy, packaging will be returned to the originator ahead of re-use or recycling. Where this is not possible, waste will be separated as appropriate and safely stored on site appropriately in anticipation to be transferred offsite by a licensed contractor to a licenced facility.

Metals

Waste metals from concrete reinforcing etc, have a commercial value and therefore there is an additional economic incentive for the appropriate re-use or recycling with the licensed waste contractor.

3.10 Construction

The following sections detail an outline construction sequence to provide an overview of the construction process; The construction-stage details of the sequence and methodologies, to be undertaken within the framework of this CEMP, will be determined by the Contractors.

3.10.1 Phasing of Works

It is envisaged that the following will be the sequence of construction for the Proposed Development:

1. Site Preparation including felling and drainage
2. Site Access Roads
3. Contractors Compound and Welfare Facilities
4. Crane hardstandings
5. Turbine Foundations
6. Internal cable ducting
7. Installation of the Grid Connection

8. Erection of wind turbines
9. Commissioning and Energisation

3.10.2 Working Hours

The Proposed Development will have approximately 25 construction workers during the peak of the construction phase. Working hours for construction will be from 07:00 to 19:00 on weekdays, with reduced working hours at weekends, from 07:00 to 13:00 on a Saturday. It should be noted that during the turbine erection phase, operations will need to take place outside those hours with concrete pours commencing at 05:00 and continuing till 16:00, to facilitate Turbine Foundation construction and so that lifting operations are completed safely. Hours of working for Turbine Foundation construction will be agreed with Cork County Council prior to the commencement of Turbine Foundation construction. **Chapter 11: Traffic and Transportation** refers to this in further detail. A detailed Traffic Management Plan (**Appendix 11.1**) will be implemented for the construction phase. This shall be agreed prior to the commencement of construction works with the Planning Authority so that strict controls described therein are in place with all suppliers coming to the Site.

3.10.3 Site Management Procedures and Construction Methodologies

Prior to commencement of construction, the appointed Contractors(s) will prepare detailed method statements and work programmes for the construction stage. These method statements will be prepared in the context of measures set out in this CEMP and will take account of mitigation measures as outlined in the planning application and accompanying environment reports, and site investigations to be carried out prior to construction. Any specific requirements will be fully incorporated into the appointed Contractors scopes of work and appropriate supervision and management will be carried out to ensure full compliance.

The method statements produced by the Contractors(s) will be reviewed by the Ecological Clerk of Works (ECoW) and will be agreed with the appropriate parties, including Cork County Council. The Developer will employ a project manager to monitor the construction phase of the Project and ensure works are being carried out in accordance with the agreed method statements, safety procedures and pollution control measures.

3.10.3.1 Mobilisation of Contractors Plant

Prior to commencement of construction works, the selected Contractors shall submit to the Developer a full list of plant, equipment and accommodation (site offices etc.) proposed for use during the works.

Dates for mobilisation will be agreed with the Developer and/or his representative/Owners Engineer.

3.10.3.2 Site Infrastructure

Site Access Roads / Turbines

Machinery and vehicles used in access track construction are operated from the track only as it is constructed.

The location of all infrastructure required for this Proposed Development shall be set out by GPS (Real-Time Kinematic enabled²) equipment to the permitted detail as noted on the approved drawings. The Site will be set out using wooden posts to mark the boundary and extent of construction activities, in accordance with the approved Site layout and environmental constraints drawings, and with contributions from the appointed ecologist. The boundaries of the buffer zones will be taped/fenced off to prevent construction plant from entering the buffer zones and impacting on water quality. Site personnel will be informed of the buffer zones through toolbox talks onsite, both before and during construction. New personnel will be informed of the construction buffer zones with induction training before commencing work.

3.10.3.3 Establish Pre- Commencement Mitigation Measures

Prior to construction works advancing on site, the Contractors shall confirm to the Employer of their intention to advance the works in a sound practical manner with no undue impact on the receiving environment. The Contractors shall identify all sensitive environmental areas within the Employer's site and confirm their intended method of construction works regarding these areas in line with the methods outlined in this CEMP. All environmentally sensitive areas shall be identified prior to the detailed design/construction phase.

Where the estimated working area is reduced by any sensitive environmental areas i.e., buffer zones, post and tape marking shall be used to set out these locations and thus prevent the entry of Contractors plant within these areas during construction works.

To protect any known ecological features that occur close to the planned infrastructure, a delineated working corridor will be employed throughout the construction. Posts and tape will be used to establish these areas and thus prevent the entry of Contractors plant outside

² Real-time kinematic (RTK) processing on a drone records GPS information and geotags images as they're captured during flight.

the working corridor during construction works. Locations of ecological significance or where invasive species are identified will also be fenced off.

A 50 m buffer to natural watercourses will be employed during construction to protect water quality and to ensure that there is no significant direct effect on existing watercourses. Where spoil storage areas are located in proximity to watercourse buffer zones, silt fencing will be installed along the area facing the buffer zone and maintained in line with the instructions of the manufacturer. Works within the buffer zone will be subject to specific method statements.

3.10.3.4 Site Preparation

Access to the Site

The Site access will be from an existing site entrance on a local road off the L-8767 which will be upgraded to allow abnormal load turbine delivery vehicles, see **Drawing 4636-PL-WF-105**.

The Turbine Delivery Route will begin at Ringaskiddy Port, then onto the N28 heading west, onto the N40, then onto the N25, the N71, then continuing on the R586 onto Dunmanway, then Drimoleague, then on the L4614-0, L-4711 and L-8767 towards the Site.

The delivery of the turbines will require co-ordination with a number of statutory bodies including Cork County Council, An Garda Síochána and delivery details are set out in **Chapter 11: Traffic and Transportation**.

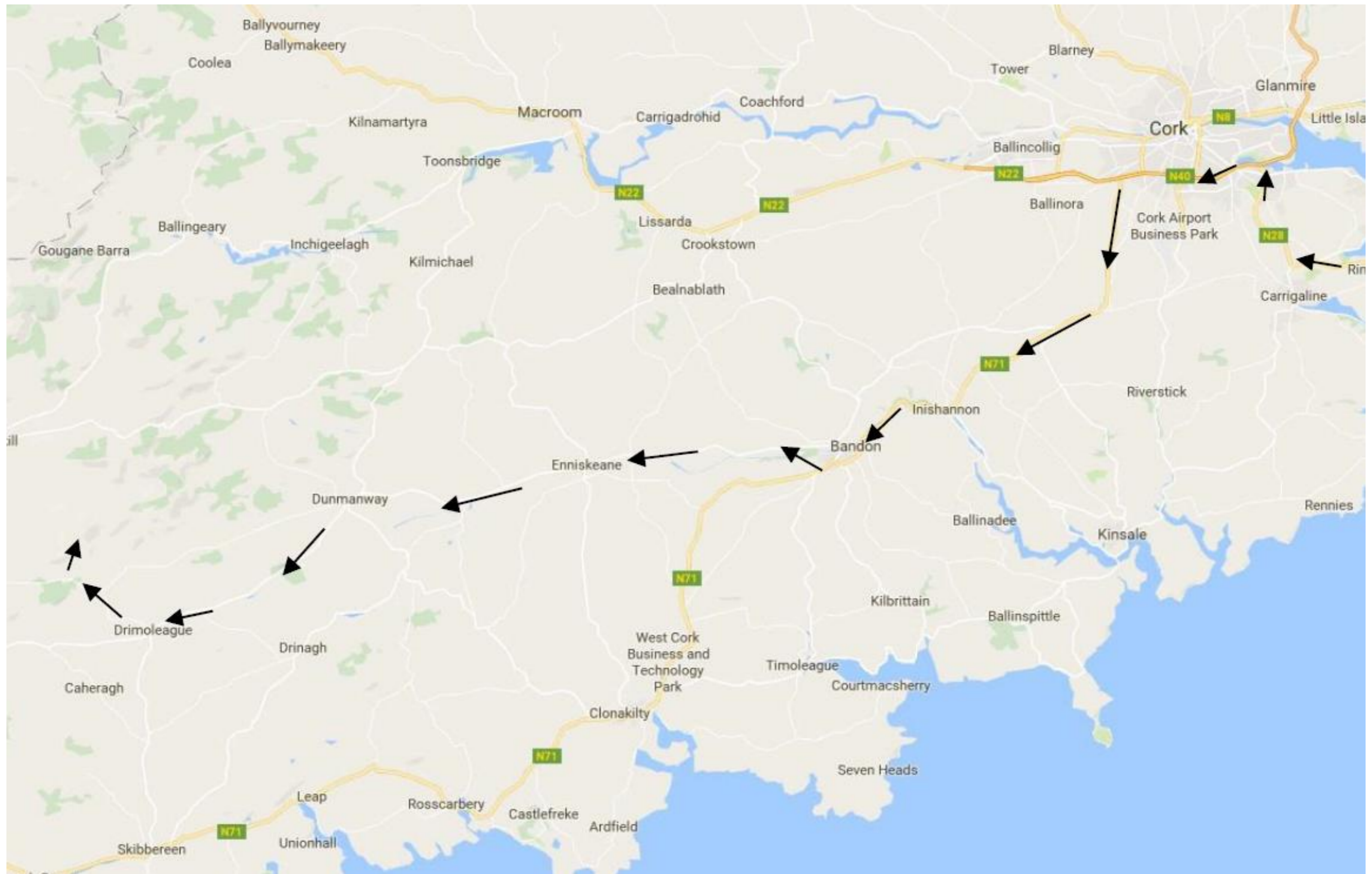


Figure 3.1: Turbine Delivery Route from Port of Cork to Proposed Development Site

Works required at the Site entrance will include the following:

- Clearing visibility splays of vegetation / soil to a level surface;
- Excavating to solid formation level;
- Installing roadside drainage features;
- Placing entrance sub-base with rockfill material;
- Placing capping layer;
- Providing surface dressing where necessary to prevent rutting of existing road surface.

The detailed construction method statement for site entrance preparation is included in **Table 3.2**.

Table 3.2: Site Entrance Preparation CMS

| Activity | Notes |
|---|--|
| Video Road Condition Survey. | The Contractors will arrange and provide a video survey to establish the condition of the road prior to mobilisation to site. |
| Prepare a Traffic Management Plan (TMP) in coordination with Cork County Council and An Garda Síochána and implement. | The Contractors will agree an approved TMP with the Roads Section at Cork County Councils and An Garda Síochána and the Developer. |
| Set out the alignment of the Site entrance using GPS equipment. | Wooden pegs/posts or similar to be used in setting out, following a site walkover by the Ecological Clerk of Works. |
| Archaeology Requirements. | The Site will be accessible to the appointed archaeologist at all times during working hours. The nominated archaeologist will monitor all invasive works. |
| Install drainage treatment features as per the Surface Water Management Plan (Management Plan 5). | Required to minimise the transportation of suspended solids generated during the construction stage. |
| Excavate and/or clear the area which is required to accommodate the visibility splays. | The top layer of vegetated material is set aside for re-use as a sealing layer to prevent sediment runoff and reduce visual impact. |

| Activity | Notes |
|---|--|
| Re-align private fences as required by the visibility splays and detailed design. | Required for stock control, security, and sight line visibility requirements. |
| Excavate to track formation level along the extent of the Site entrance and accommodate drainage. | The Contractors shall provide that soil is carefully distributed and banked adjacent to the entrance within the construction boundary. Any storage of material will be located to see that no interference with visibility splays occurs. |
| Installation of stone foundation and surfacing of apron to be installed. | In the interests of road safety, appropriate construction measures will be implemented to see that site debris is not deposited on the carriageway. In the unlikely event of same occurring, the Contractors shall ensure that all material is removed immediately in accordance with the provisions of the TMP to be agreed with Cork and Kerry County Council. |
| Installation of security gates/hut (where required), tied into the re-aligned fence. | Required for site security. |

Contractors Compound and Welfare Facilities

The Temporary Construction Compound will be in place for the duration of the construction works only. The Temporary Construction Compound will be used as a secure storage area for construction materials and to contain temporary site accommodation units for sealed type staff welfare facilities. The Temporary Construction Compound will contain cabins for offices space, meeting rooms, canteen area, a drying room, parking facilities, and similar personnel type facilities.

An area within the Temporary Construction Compound will be used for the storage of fuel and oils and this will be suitably bunded to 110% of the storage volume. The bund will be lined with an impermeable membrane in order to prevent any contamination of the surrounding soils, vegetation and water table. Double protection containers / equipment will be used along with drip trays and details.

During the construction phase, water will be supplied by water bowser. The maximum wastewater production is estimated to be the same as the maximum water consumption

(1,000 litres per day). The Proposed Development will include an enclosed wastewater management system at the Temporary Construction Compound, capable of handling the demand during the construction phase with 25 construction workers on site at peak. A holding tank is proposed for wastewater management. Wastewater will be removed off-site and disposed at an appropriate licenced facility.

The proposed construction method statement for the Temporary Construction Compound / storage area is detailed in **Table 3.3**.

Table 3.3: Contractors' Compound and Welfare Facilities CMS

| Activity | Notes |
|---|---|
| Set out the perimeter of the Site compound using GPS equipment following a site walkover by the Ecological Clerk of Works | Setting out must be undertaken to Irish Grid co-ordinates and to sub-centimetre accuracy in the X, Y and Z plane. |
| Archaeology | The Site will be accessible to the appointed archaeologist at all times during working hours. The nominated archaeologist will monitor all invasive works. |
| Install drainage treatment and flow attenuation features as per the detailed design | Required to minimise the transportation of suspended solids generated during the construction stage. |
| The top layer of vegetated material will be stripped and stored for re-use onsite. | The top layer of vegetated material is set aside for re-use as a sealing layer to prevent sediment runoff and reduce visual impact. The location for storage of these vegetated turves will be around the perimeter of the Site compound away from any sensitive habitats. |
| Stone will be placed in layers to form the hardstanding area for the Site compound. | Hardcore area with Clause 804 stone on geotextile layer (Netlon SS30 or similar) for temporary site offices and for vehicle movements / parking. |
| The accommodation, eating and sanitary cabins will be installed in accordance with the construction drawings. The Site office will be located in the temporary storage area. | Foul drainage from site welfare accommodation will discharge to a holding tank. The holding tank will be fully enclosed with no discharge outlet. The toilets will be the 'portaloo' chemical toilet type. The holding tank will be emptied as required by a licenced waste disposal operator. |

| Activity | Notes |
|---|---|
| | Temporary power supply and telecommunications will be connected to the relevant cabins. |
| Construct covered bunded area for oil tanks. Construct Plant refuelling Area. | Bund to absorb 110% of potential spill volume. Non-permeable concrete refuelling area with petrol interceptor. |
| Storage units for hazardous products and covered waste skips will be installed as per best industry practice. | All storage units for hazardous products will be fully lockable and bunded proprietary steel containers. |
| Provide measures for waste management. | Waste segregation skips will be deployed for optimum recycling and re-use of materials. Skips will be covered with lid. |
| Construct an impervious bunded area for plant refuelling and plant maintenance and cleaning operations. | An oil interceptor will be installed on the drainage outlet from the bunded area to separate any oils from the surface run off. Generators and associated diesel tanks are to be installed on such an area. |
| Parking | Parking areas shall be identified by signage with a handrail system or barrier separating pedestrian areas and vehicle routes. |
| Reinstatement | Compound areas to be restored to pre-construction condition at completion and demobilisation stage. |

3.10.4 Site Security

From an operational point of view, for control of site access and for proper site management, all access to the Site will require passage through a controlled safety barrier/gate or hut. The exact location(s) shall be decided by the Contractors with primary responsibility for safety on the Site. It is proposed that the barrier(s) be located at the entrance to the Site so that no unauthorised traffic can enter the Site and to check that all personnel are permitted / inducted on the Site. The barrier will be set back sufficiently so that HGVs can enter the Site without stopping.

The Contractors shall be responsible for securing each area of work, so as to ensure the safety and health of all affected persons (Contractors' personnel, site supervision staff, members of the general public, traffic, etc.). The Contractors will provide details to the Developer of security arrangements for the following:

- Fencing specification.
- Provision of personnel to man site access point(s).
- Signage; and
- Signing in/out procedures.

3.11 Site Clearance and Construction Methods

The management of earthworks will be of paramount importance throughout the construction of the Proposed Development. The general principles that will apply to earthworks include:

- Excavations to only take place following implementation of setting out the working corridor, drainage treatment and flow attenuation provisions.
- Archaeological supervision works will be undertaken during all earthworks.
- Vegetation within the construction corridor shall be cleared as part of the excavation works.
- Suitable plant to be used, particularly when working off road i.e., use of geotextile mats.
- Machinery and vehicles used in access track construction are operated from the track only as it is constructed.
- Vegetated top-mat layer to be removed separately and set aside from other spoil and place around the excavations for use in Reinstatement. Spoil storage areas will be around turbine bases
- Topsoil stockpiles shall be no more than 1 m in height, smoothed to prevent erosion, and watered to prevent them drying out.
- Apply the vegetated capping layer to permanently exposed excavations or storage areas to mitigate against movement and to avoid sediment run-off. Input from the appointed ecologist will be used to apply the appropriate species of the immediate environment in the capping layer.
- No permanent stockpiles will remain on site after completion of the construction phase.
- Monitor all rock breaking activities and Survey Areas for indicators of peat/soil movement/slide. The appropriate remedial action will be taken.

The construction method statement for excavation and spoil management is shown in **Table 3.4**.

Table 3.4: Excavation and Spoil Management Method Statement

| Activity | Notes |
|---|---|
| Archaeology | The Site will be accessible to the appointed archaeologist at all times during working hours. The nominated archaeologist will monitor all invasive works. |
| Install drainage treatment and flow attenuation features as per the detailed design, which includes recommendations of an expert ecologist | Required to minimise the transportation of suspended solids generated during the construction stage. Temporary and permanent ponds and outflow buffers will be constructed as per the attached Surface Water Management Plan (Management Plan 5) . |
| Spoil locations to be identified to machine drivers | Spoil storage areas to be mapped and pegged out prior to excavation commencing. |
| A Risk Assessment shall be developed for each and every excavation location to be carried out on site. | Control measures to mitigate safety, stability and environmental risks specific to the local conditions. |
| The vegetated layer will always be removed and set aside separately from any spoil material. | Required to enhance revegetation. |
| Excavated material will only be stored to a maximum height of 1.0 m along access tracks. | Prevent movement of stored material and protect watercourses. |
| Excavated material will not be stored in areas which have been identified as unsuitable for spoil storage. | Prevent movement of stored material and protect watercourses against harmful run offs. |
| Excavated material will be separated and stored so that it is not left exposed to the elements. This will be provided for through the immediate application of a vegetated capping layer. | No spoil is permitted to be stored on areas identified as sensitive or high value habitats. Other material will be used for landscaping. |
| Interim (temporary) material storage during the construction stage will be kept to a minimum by the implementation of a continuous construction cycle: 1) Excavate material. | Return and re-vegetate the Site to its original state as soon as possible. |

| Activity | Notes |
|--|---|
| 2) Handle material. 3) Permanently store material. | |
| Permanent excavated or spoil surfaces shall be re-vegetated without undue delay using seed collected pre-construction, final details of which will be approved by the ecologist. Reseeding will occur within the growing season. | To encourage growth of locally-common habitats |
| Material from excavations in rock, suitable sands and gravels will be carefully managed and re-used as structural fill in the locality of the excavation where possible. | To minimise the volume of imported material required and ensure no impact on the local pH level. No spoil will be permitted to be stored on areas identified as sensitive or high value habitats. |

3.11.1 New Site Access Roads

Carrying capacity will be based on the weight restriction for the installation crane, which is expected to have a maximum 20 tonne axle weight with a minimum of 12 tonnes.

Prior to advancing any construction works, final road design shall take into account the following:

- Existing Ground Profile
- Existing Ground Soil Type
- Bearing Capacity
- Natural Drainage
- Proposed Turbine Delivery Specification
- Existing Environmental Buffers

As the Project will most likely be advanced as Design & Build, the Contractors will be obliged to form the design and construction works with reference to the above and seek final approval from the Engineer for their design prior to advancing any work on site. In any event, it is proposed that the Site access roads are built as follows:

- The alignment of the new Site Access Roads will be established and the centrelines will be marked out with ranging rods or timber posts.
- Any trees/hedgerow within the construction corridor shall be cleared prior to any construction works. All works will be undertaken outside of the breeding season.

- The angle of repose of the cut face of excavations shall be battered back approximately 45 degrees. However, where peat is encountered, it will be increased to 26.5 degrees.
- Slopes will not be undercut or excavations left unsupported for periods in excess of 24 hours.
- Soil excavation shall be observed by a qualified archaeologist, in accordance with the approved scheme of archaeological monitoring in order to respond appropriately to identification of any potential archaeological remains.
- The access road will be excavated to a suitable formation level. Roadside berms will be developed as 0.6 m in height and 1 m in width.
- Where necessary, stone will be delivered to site by tipper trucks from approved local quarries (please see **EIAR Figure 11.4**) and will be placed, spread and compacted in layers to form the running surface. The compaction will be carried out using a dead weight roller.
- Imported stone will be used throughout for the final surfacing layer.
- Well-graded granular fill (quarry sourced clean stone) will be spread and compacted in layers to provide a homogeneous running surface. The thickness of layers and amount of compaction required will be decided by the Site Manager based on the characteristics of the material and the compaction plant to be used.

3.11.2 Cut and Fill (Excavated) Roads

This form of road construction is a traditional method whereby the final road construction is formed on a firm bearing strata. This is generally found following removal of the initial vegetation layer and more than likely the underlying layer of soft material found between the topsoil layer and the firm strata. Typically, this form of road construction could be founded on relatively shallow excavations. However, if soft spots are encountered locally, they will be excavated out and in-filled with selected excavated rock. Imported rock will be chemically compatible with the existing geology. It will be tested for compatibility prior to entering the Site. This involves using rock that is similar to the geology of the Site and locally sourced i.e., sandstone till. Construction of Cut and Fill road sections will be carried out in accordance with detailed design. This system will consist of either 1 or 2 layers of stone depending on the load bearing capacity of base layer and the design loading required with construction traffic. Where the underlying layer is clay, 2 layers of stone are used. In areas where the load bearing layer is rock, the capping layer is omitted, and the running layer is installed directly onto the rock surface.

If the vertical alignment requires local infilling for the formation of the road, the above process of exposing a firm strata is followed and infill material is employed to raise the road profile in a local embankment.

3.11.3 Road Drainage

A vegetative filter strip and under-road drainage will allow discharge in a controlled manner downslope of the works.

Any crossing of field drains, man-made drains and vegetated drains will be piped directly under the road through appropriately sized drainage pipes. Where appropriate, a lateral drainage ditch (interceptor drain) will be cut along the uphill side of the road to intercept the natural runoff. This lateral drain will be drained under the road at regular intervals through correctly sized cross drains. In cases where the roads must run significantly downhill, transverse drains ('grips') will be constructed where appropriate in the surface of the roads to divert any runoff down the road into the drainage ditch. Where the crossing of ditches, field drains, man-made drains and vegetated drains cannot be avoided, the design of the crossing, (in this case culverts) shall be prepared in line with the drainage design philosophy. This is further detailed in **Surface Water Management Plan (Management Plan 5)** and **Water Quality Management Plan (Management Plan 2)**.

Under road drainage will be provided under the excavated roads at all locations where existing land drainage passes under the proposed roads. Conventional cross drains will be 150 mm diameter and increased to 300 mm diameter (minimum) at points for land drainage or natural drainage paths. The spacing of the cross drains will be dependent upon whether the roads run parallel or tangential with the general contours of the Site.

The detailed design of all under-road drains in areas near flushes will have the input from the Ecological Clerk of Works to see that there is sufficient flow connecting the upstream and downstream habitats. These will be inspected by the Ecological Clerk of Works during construction.

All existing site drainage channels and culverts shall be maintained, and any additional drainage design required on-site shall be carried out as per the detailed design. Any such additional requirements will be reviewed by the Engineer and Ecological Clerk of Works prior to site clearance activities taking place on-site.

3.11.3.1 Turbine Bases/Foundations

Turbine Foundation requirements will be provided by the wind turbine supplier, and appropriate factors of safety will be applied to these in accordance with Draft Revised Wind Energy Development Guidelines, 2019. The turbine towers will be anchored to the concrete foundation using a bolt assembly which shall be cast into the concrete.

The Turbine Foundations will be 57m³ (19m x 3) in diameter and will have a depth up to 3.0m deep. The Turbine Foundation design will depend on the turbine type and will be decided by the structural engineers at detailed design stage and will be within these design parameters. The central part of the foundation (plinth) will range between 5m and 6m in diameter and will be raised from the main Turbine Foundation below ground level. It will encompass a cast-in insert or bolts to connect to the bottom of the turbine tower and reinforced bar structural elements.

The area around and above the Turbine Foundation will be backfilled with compacted stone or crushed rock.



Plate 3.2: Turbine Foundation under Construction with Adjoining Crane Pad³

³ SSE Renewables, [Accessed online 30/03/2023 <https://www.sserenewables.com/news-and-views/2021/09/concrete-poured-for-first-of-103-wind-turbine-bases-at-viking-wind-farm/>]

There are two options for design and Construction of Turbine Foundations as follows:

- **Option 1 – Turbine Foundation constructed directly on in-situ ground:**

The Contractors shall demonstrate that the soil/rock properties at the formation level are in compliance with the Turbine Foundation Design limiting criteria for a ground bearing base.

- **Option 2 –Turbine Foundation constructed on engineering fill:**

If it cannot be demonstrated that Option 1 is achievable, the Contractors shall establish and demonstrate a suitable bearing stratum at a lower level, design and construct engineering fill to the formation level of the foundation and demonstrate that the fill properties at the formation level are in compliance with the Turbine Foundation Design limiting criteria for a ground bearing base.



Plate 3.3: Wind Turbine Foundation⁴

⁴ <https://www.grousemountwindfarm.ie/documents/downloads/EIS%20Vol%201%20-%20Section%203%20-%20Text%20-%20Project%20Implementation.pdf> [Accessed 15/02/2022]

The construction method statement for the turbine bases will generally follow the sequence as defined in **Table 3.5**.

Table 3.5: Turbine Base Construction Method Statement

| Activity | Notes |
|---|---|
| Set out the turbine location with the use of GPS (RTK) equipment. | The Contractors shall tape off buffer zones with assistance from the Ecological Clerk of Works and toolbox talks will be used to inform site staff of the importance of the buffer zones. |
| Archaeology | The Site will be accessible to the appointed archaeologist at all times during working hours. The nominated archaeologist will monitor all invasive works. |
| Set out and install drainage treatment and flow attenuation features. | Required to minimise the transportation of suspended solids generated during the construction stage. |
| Remove and locally store the top layer of vegetated material over the excavation area. | This material will be stored for re-use to cover and promote natural re-vegetation of the inorganic spoils that will be deposited at the nearest suitable location to the excavation, monitored by the Ecological Clerk of Works. |
| Excavate remaining material to 1 m depth and segregate organic material from mineral material. | Selected excavated organic material will be considered for re-use as backfilling material. |
| Excavate to formation level. Complete plate bearing tests. | Any excavated inorganic material will be re-used as structural ballast to minimise the required volumes of spoil and imported stone. |
| A reinforcement steel cage for the Turbine Foundation will be assembled after insertion of the Turbine Foundation insert arrangement (required for fixing steel tower) and formwork will be fixed to surround the cage. | Reinforcing steel shall be checked for design compliance and signed off upon acceptance. |
| Reinforcement steel for the top section of the Turbine Foundation is fixed | Reinforcing steel shall be checked for design compliance and signed off upon acceptance. |

| Activity | Notes |
|---|---|
| along with the required number of cable ducts. | |
| Erect the formwork to contain the concrete pour. | Formwork will be re-used and removed offsite when Turbine Foundation construction is complete. |
| The Turbine Foundation anchorage system will be checked both for level and line prior to the concrete being installed in the base. These checks will be passed to the appointed Turbine Contractors for their approval. | |
| The Turbine Foundation will be backfilled with a cohesive material. | Using the material arising during the excavation and landscaped using the vegetated soil set-aside during the excavation. |



Plate 3.4: Wind Turbine Erection⁷



Plate 3.5: Assembly of Wind Turbine Blades ⁷

3.11.3.2 Turbine Hardstands/Crane Pads

A crane pad hardstand area will be required at each turbine. The hardstands must allow for two cranes (including outriggers) to operate in the vicinity of the turbine to allow for turbine erection. The hardstand must also provide storage and set down areas for turbine components. The hardstand requirements are specified by the turbine supplier and require strict compliance so that there are no stability issues during erection of the turbine sections.

All Turbine Hardstands will be designed to take account of the loadings which will be provided by the appointed turbine and installation Contractors and will consist of a compacted stone structure which is to be installed in accordance with the Transport Infrastructure Ireland (TII) Specification 800 2013.

Two types of hardstands are facilitated:

- Locations that will require a turning head.
- Standard Hardstand arrangement where delivery vehicles do not require a turning area.

Hardstand formation will consist of either 1 or 2 layers of stone depending on the properties of the underlying load bearing layer. Where the underlying layer is clay, 2 layers of stone

formation are used, the stone capping layer and the running layer. In areas where the load bearing layer is rock, the capping layer is omitted, and the running layer is installed directly onto the rock surface (in this case siltstone).

The current hardstand areas will be upgraded. The total Turbine Hardstands area will be 7,734m² (2578m² x 3) and includes the main crane hardstand 2,910m² (970m² x 3) the component set down area 840m² (280m² x 3), the assembly crane pads 288m² (96m² x 3) and the vehicle parking 108m² (36m² x 3).

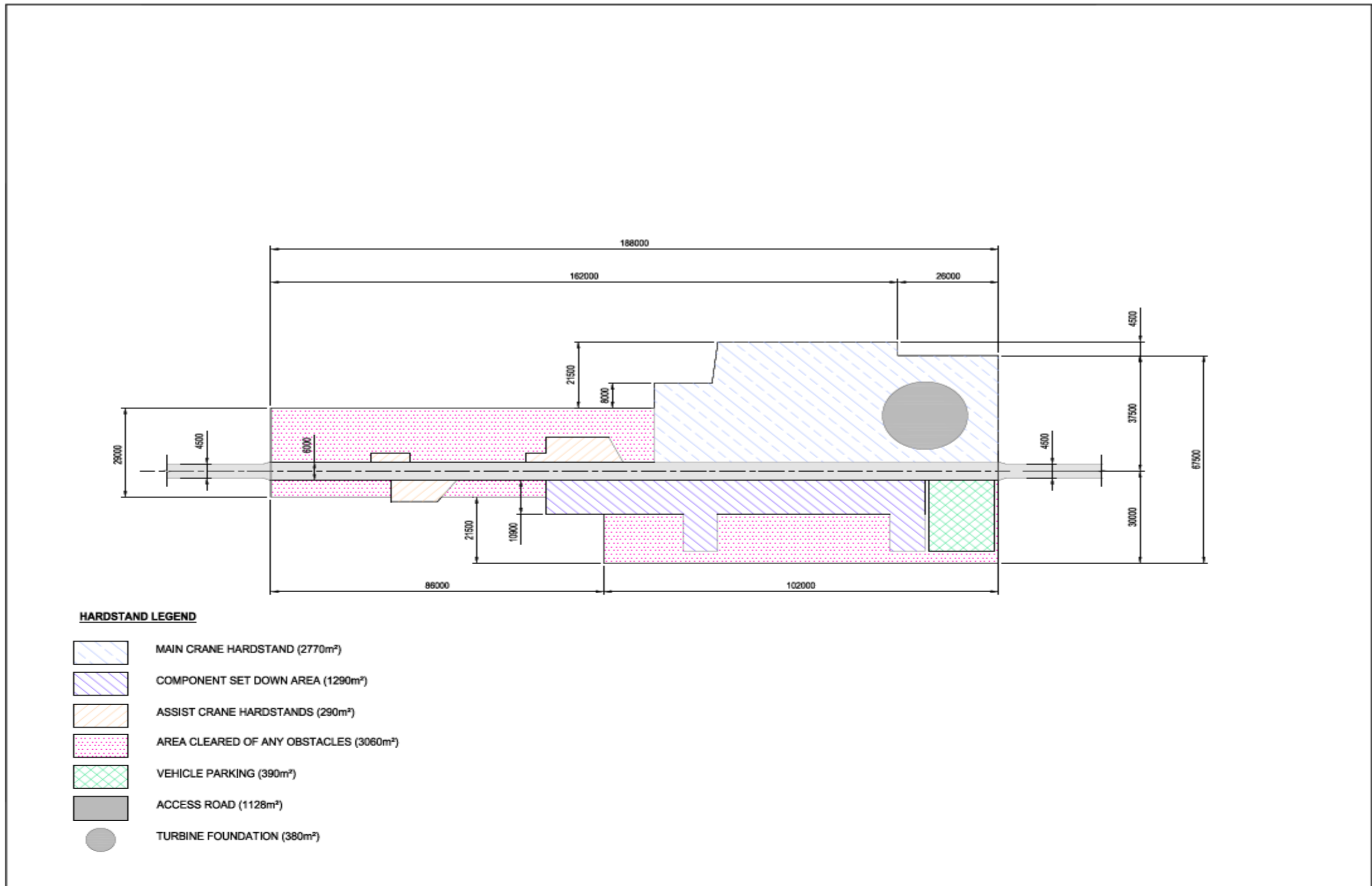


Figure 3.2 Crane Pad Hardstand Design (Excerpt from Drawing No. 4636-PL-600)

The hardstand area will be excavated to a formation level of weathered rock where possible or on stiff bearing strata on overlying material.

Excavated material will be used for side slope formation local to the hardstands. Material from the excavation of the hardstands will be used to dress exposed areas around the hardstand with the remainder being used for landscaping around the turbine base. A Hardstand construction method statement is set out in **Table 3.6**.

Table 3.6: Typical Hardstands Construction Method Statement

| Activity | Notes |
|---|---|
| Set out the crane hardstands with the use of GPS (RTK) equipment. | The Contractors shall ensure that buffer zones and areas of restricted working width are taped off with assistance from the ECoW and toolbox talks used to inform site staff of the importance of the buffer zones with identification of areas on drawings and maps. |
| Archaeology | The Site will be accessible to the appointed archaeologist at all times during working hours. |
| Set out and install drainage treatment and flow attenuation features around the crane hardstand and turbine area. | In areas of peat only 'bog master' low ground pressure excavators will be used to minimise the impact on the vegetation layer. Temporary and permanent ponds and outflow buffers will not be constructed in sensitive habitats or buffer zones. Liaison with the ECoW at the detailed design stage will assist in the identification of suitable locations. |
| Remove and locally store the top layer of vegetated material over the area of the crane hardstand excavation. | This material will be stored for re-use to cover and promote natural re-vegetation of the amorphous peat and /or inorganic spoils that will have to be deposited at the nearest suitable location to the excavation. |
| Excavate remaining material to 1 m depth and segregate organic material from mineral material. | Selected excavated organic material will be considered for re-use as backfilling material. |
| Excavate material to the required formation level. | The formation level for the crane hardstands will be on weathered rock or stiff overlying material. |

| Activity | Notes |
|---|---|
| | Where suitable, the excavated material will be re-used as structural backfill material to minimise the required volumes of spoil and stone. |
| Place rock fill in accordance with the design to form the crane hardstand structure. Where appropriate, geotextile and/or geogrid should be used to help reduce the volume of stone. Fence off steep edges. | Special consideration will be given towards the stone placement and compaction so that the structural integrity meets the loading requirements. |
| Plate bearing tests will be undertaken following completion of the hardstand structure. | The number and location of the plate bearing tests shall be specified by the Contractor's designer. |



Plate 3.6 Proposed Crane to be used for wind turbine erection ⁷

3.11.3.3 Handling/Disposal of Excavated Material

Details of spoil management methodology are outlined in the attached **Waste Management Plan (Management Plan 3)** and **Chapter 7: Land and Soils**. Excavated soil will be used for landscaping.

3.12 **Planning Conditions and Outline Method Statements**

This CEMP and its future versions/revisions will form part of the Contract for Derreenacrinnig West Wind Farm. It will therefore be updated and revised during the different stages of the Proposed Development. Where the Proposed Development is granted planning permission all the planning conditions associated with the Planning Application will be listed in **Table 3.7**.

Table 3.7: Relevant Planning Conditions and Related Documentation

| Condition No. | Planning Condition | Reason |
|------------------------------------|--------------------|--------|
| Planning Ref: INSERT NUMBER | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

The Contractors will ensure all of the mitigation measures and best practice construction methods detailed within the above consent in their design and in any detailed environmental plans as required by this CEMP or the Contract.

3.13 **Scheme Amendments**

Scheme Amendments will be recorded in **Table 3.8**. These amendments do not include changes to the scheme design which are completed in accordance with the existing planning consent. Instead, this refers to changes in the design of the wind farm for which additional approvals and / or consents may be required from Cork County Council. For example, amendments to layouts or in accordance with the current grant of planning permission.

No scheme amendments are anticipated at present, but **Table 3.8** is included in the interest of completeness and to ensure that any amendments, if made, are appropriately recorded and managed in accordance with this CEMP.

Table 3.8: Scheme Amendments

| Reference | Date | Scheme Amendment Description | Environmental Sensitivities potentially |
|-----------|------|------------------------------|---|
| | | | |
| | | | |
| | | | |
| | | | |

3.14 Register of Variations

Where any variations to the Management Plans and CEMP are required (either as a result of Scheme Amendments or through corrective actions or improvements noted and undertaken on site) these will be recorded in **Table 3.9**, Register of Variations. Furthermore, all changes to construction methods, design, mitigation and the implications of these changes and authorising personnel will be recorded in **Table 3.9**.

Table 3.9: Register of Variations

| No. | Variation Description | Authorising Personnel | Completion Date |
|-----|-----------------------|-----------------------|-----------------|
| | | | |
| | | | |
| | | | |
| | | | |

4 COMMUNICATION PLAN

4.1 Introduction

Both the Contractors and the Client will appoint Project Managers to the Project. These Project Managers will be the main points of contact between the two parties. This includes the Contractors Construction Project Manager and the Client.

It is envisaged that main Proposed Development communications will take the form of structured reporting arrangements and meetings.

All issues in relation to environmental management/monitoring will be reported to the Ecological Clerk of Works. The Contractors Ecological Clerk of Works will report to the Contractors and Client on a regular basis.

4.2 Contact Sheets

Table 4.1 provides a list of Dreenacreenig West Wind Farm Limited, Contractors and relevant third-party contact details. This table will be updated and maintained by the Contractors for the duration of the Contract.

Table 4.1: Contact Sheets

| Company | Position | Name | Telephone |
|--------------------------------------|------------------------------|------|-----------|
| Dreenacreenig West Wind Farm Limited | Client Project Manager | TBC | TBC |
| Contractors | Site Manager / EM | TBC | TBC |
| Contractors | Contracts Manager | TBC | TBC |
| Contractors | General Manager | TBC | TBC |
| Contractors | Foreman | TBC | TBC |
| Dreenacreenig West Wind Farm Limited | Construction Project Manager | TBC | TBC |

4.3 Meetings Reports and Consultations

Table 4.2 lists all meetings and consultations as required by the Contract. The table also provides details on the schedule/frequency, scope & objectives and attendees / responsibility for each meeting.

4.4 Roles & Responsibilities

Roles and responsibilities for environmental management, monitoring and reporting are detailed in **Table 4.3**. The Ecological Clerk of Works Contractors will be responsible for the delivery of all elements of the Environmental Management Plan. The Ecological Clerk of Works Contractors will retain all responsibility for issuing, changing and monitoring the Environmental Management Plan.

4.5 Reporting Procedures

Figure 4.1 provides a diagrammatic outline of the general tasks and communication lines, based on the roles described in **Tables 4.2** and **4.3** and tasks detailed in the Management Plans. The Contractors will update this information as part of the construction stage CEMP upon receipt of a planning permission.

Management Plan (1) Emergency Response Plan includes the communications plan for reporting procedures for all potential environmental risks, hazards or incidents which may relate to ecology, water quality, dust, noise or archaeology. Environmental reporting to statutory bodies, such as Cork County Council, will be managed by the relevant Contractors in accordance with an agreed reporting schedule.

Table 4.2: Meetings, Reports and Consultations

| Meeting/ Report | Schedule/ Frequency | Scope & Objective | Attendees/Responsibilities |
|---|-------------------------------------|---|--|
| A Record of all meetings, checks, permissions and licenses will be retained within Section 4 of this CEMP | | | |
| Site Inductions | All new site personnel and visitors | | Contractors to organize and maintain records |
| Weekly environmental meetings | Weekly | To provide updates on environmental mitigation measures and performance and identify actions for improvement. The Ecological Clerk of Works Contractors is required to maintain a Pollution Prevention Measures Register in which mitigation measures put into place will be listed and checked | Attendance required: Ecological Clerk of Works Contractors Site Manager, and any other relevant personnel or statutory consultees where necessary. |

| Meeting/ Report | Schedule/ Frequency | Scope & Objective | Attendees/Responsibilities |
|---|---|--|--|
| | | weekly to assess the requirement for maintenance. The results of these checks will be discussed at the meeting and corrective actions agreed as required. | |
| Monthly Environmental Report & Monthly Environmental Management Group Meeting | Monthly | To provide a compiled record of weekly meeting minutes and environmental performance and monitoring results (e.g., air, noise or water quality monitoring as appropriate). To identify any areas / action for improvement. | To be prepared by Ecological Clerk of Works. Report to be issued to the Contractors and Construction Project Manager before the end of each calendar month. Report to be discussed at the monthly meeting with recommendations for improvement passed to the Contractors in written format |
| Final Environmental Report | Upon completion of construction works | The final report will document the environmental and ecological effects of the construction period. The evidence for effects will be based on findings included in the minutes of weekly meetings and monthly meetings, together with other recording information maintained by the Ecological Clerk of Works. The report will relate results to residual effects predicted in the EIAR. | The Final Report will be prepared by the Ecological Clerk of Works. The report will be made available to the Contractors, Construction Project Manager and Planning Authority, if required. |
| Environmental Checks and Monitoring of Mitigation Works | As required in advance of construction works regular checks will also | Environmental Checks are to be carried out in advance of construction works. This will comprise an on-site meeting / inspection to confirm the appropriate use | Environmental checks will be undertaken by the Contractors Ecological Clerk of Works. The Ecological Clerk of Works may also undertake regular checks, either independently or in |

| Meeting/ Report | Schedule/ Frequency | Scope & Objective | Attendees/Responsibilities |
|-----------------|---------------------------------|--|---|
| | be made at least every 14 days. | <p>of identified mitigation measures and highlight any further issues / measures which may be relevant prior to commencement of works in any area.</p> <p>As a minimum, Environmental Checks will be completed at each main piece of site infrastructure (turbine bases, construction compounds, sub-station, control room) prior to works commencing in that area.</p> <p>Environmental Checks will include:</p> <ul style="list-style-type: none"> • Checks for visual evidence of contamination / sediment alongside watercourses, nearby working areas and in areas of surface water discharge. • Regular checks of all plant and equipment to identify any oil or fuel leaks to confirm the condition of the plant. • Inspection of drainage and erosion and sediment control measures. Additional checks will be made before, during (where safe to do so) and immediately following anticipated storm events | <p>conjunction with the Contractors checks as required.</p> <p>The Contractors and Ecological Clerk of Works will retain a record of all inspections / findings of Environmental Checks within Section 4 of this CEMP. All records will be made available for audit / review. All records will also be made available for discussion during regular meetings as scheduled herein.</p> |

| Meeting/ Report | Schedule/ Frequency | Scope & Objective | Attendees/Responsibilities |
|---------------------|----------------------------|---|--|
| | | <p>or periods of continuous or heavy intermittent rainfall over one or more days.</p> <ul style="list-style-type: none"> • Environmental checks will also encompass a review of: <ul style="list-style-type: none"> - Waste management procedures - General site tidiness - Temporary materials storage (extracted materials stockpiles) and restoration works and - Soil stability - Signs of any mammal activity on site - Buffer zones (if any) are being maintained | |
| Environmental Audit | At least once every month. | | <p>Environmental Audits may be carried out by the Contractors, or Dreenacreenig West Wind Farm Limited at any time during the works.</p> <p>Audit procedures and forms are included within Section 4 and TS1. These will be followed / completed by the Employer when undertaking environmental audits and may also be adopted by the Contractors, unless alternative procedures and forms are submitted and approved as</p> |

| Meeting/ Report | Schedule/ Frequency | Scope & Objective | Attendees/Responsibilities |
|---|---------------------|--|--|
| | | | part of the Contractors' construction stage CEMP. |
| Liaison with regulator / statutory Consultees | As Required | Provide regular updates to relevant authority on environmental performance and maintain good working relationships with the regulatory bodies. | Contractors and Ecological Clerk of Works where required. Meetings will be initiated as required by Planning Conditions, Management Plans or as agreed throughout the duration of the construction phase. The Contractors are responsible for obtaining all relevant permissions, consents, licenses and permits. Some permits may require application and implementation by an appropriately qualified person. In these instances, the Contractors will consult with the other specialist Environmental Consultants where required. |

Table 4.3: Roles and Responsibilities

| Position | Roles and Responsibilities |
|--------------------------------|---|
| Construction Project Manager | The Construction Project Manager will: Ensure that the Contractors has obtained the relevant approvals and licenses and consents from regulatory bodies and statutory consultees where required. Ensure that the Contractors has submitted all relevant documentation to liaise with the Site Manager and the Ecological Clerk of Works and ensure that corrective actions and variations to the CEMP have been instigated. |
| Project Site Manager/ Engineer | The Site Manager will provide liaison between the Ecological Clerk of Works and the Contractors where environmental sensitivities, instruction for environmental performance improvements or corrective actions are requested by the Ecological Clerk of Works or other appropriate person(s) as a result of environmental checks or audits conducted by these persons(s). The Site Manager will ensure that all notifications of environmental sensitivities and incidents as well as other general observations on environmental performance are reported back to the |

| Position | Roles and Responsibilities |
|---|---|
| | Construction Project Manager. The Project Site Manager is responsible for review and further development of the CEMP. |
| Environmental Manager/Ecological Clerk of Works | <p>The Ecological Clerk of Works will be a member of the Environmental Management group and will work with the Contractors to ensure compliance with best practice and with all environmental mitigation and monitoring requirements as detailed within the relevant planning conditions, compliance documents and CEMP during both the pre-construction and construction phases. The main roles of the Ecological Clerk of Works are as follows:</p> <ul style="list-style-type: none"> • Organise start-up meeting / Toolbox talks with the Contractors to agree working methods, specifically including communications; schedules; monitoring of data storage; and preparation of plans indicating location of key features including mitigation measures, monitoring points and sensitive habitats (where not previously highlighted and approaches agreed). • Give tool box talks as agreed with the Contractors to address key areas, including water pollution prevention, protected species management, and on-site biodiversity. Highlight to staff the requirement for compliance with planning conditions. • Undertake a pre-construction walkover with the Site Engineer / Site Manager to confirm that access routes remain appropriate to the conditions present at the time of construction • Delineate any sensitive habitats or features with wooden stakes and high visibility tape • Undertake or delegate to an appropriately qualified person, a pre-construction Invasive Alien Species survey along the works route • Monitor the installation of poles and infrastructure • Inspect pollution control measures during the works • Maintain a presence on site during the pre-construction and construction works, including setting out of access routes. • Organise a minimum of weekly meetings with the Site Environmental Supervisor and / or Foreman, to allow briefing on the programme of works on site and to provide on-site guidance during construction. • Identify environmentally sensitive areas and ecological hazards for demarcation by the Contractors. • Develop written reports / audits and submit to the Contractors and present findings at meetings as required. Prepare updated reports and a final report on mitigation measures, procedures and monitoring. |

| Position | Roles and Responsibilities |
|---|--|
| | <ul style="list-style-type: none"> • Monitor potential environmental impacts and the successful implementation of all mitigation as detailed in the EIAR, AA Screening and this CEMP. • Maintain a weekly presence on site during the main construction works • Prepare a pre-construction Invasive Alien Species survey along the works route • Identify environmentally sensitive areas and ecological hazards for demarcation by the Contractors. • Produce written reports to the Contractors following site visits and meetings. This includes monthly reports and a final report. <p>The Contractors will provide comprehensive information on all proposed works and all scheduling to the Ecological Clerk of Works in advance, in order to anticipate and address any issues, especially access to new areas including areas where Invasive Alien Species may occur, vegetation clearance, setting out of buffer zones, excavation and silt mitigation measures, temporary compound works and vegetation Reinstatement.</p> |
| <p>Ecological Clerk of Works and/ or Water Quality Specialist</p> | <p>The Ecological Clerk of Works will work with Dreenacreenig West Wind Farm Limited, the Contractors to ensure that compliance is achieved with best practice and with all environmental mitigation and monitoring requirements as detailed within the EIAR, NIS, relevant planning conditions and CEMP. The Ecological Clerk of Works will delegate and oversee the work to ensure competency of tasks achieved.</p> <p>Where a particular ecological concern exists at the Site, or specific habitat management activities are to be undertaken in conjunction with the main civils construction works, a Specialist Ecologist / Environmental Consultant may also be required unless the Ecological Clerk of Works is suitably qualified to undertake the particular ecological responsibilities. The main roles of the Ecological Clerk of Works are as follows:</p> <ul style="list-style-type: none"> • Organise start-up meeting / Tool box talks with the Contractor to agree working methods, specifically including communications; weekly schedules; monitoring of data storage; and preparation of plans indicating location of key features including mitigation measures, monitoring points and sensitive habitats. • Maintain a weekly presence on site during the main construction works. • Organise a minimum of weekly meetings with the Site Manager and / or Foreman, to allow briefing on the programme of works on site and |

| Position | Roles and Responsibilities |
|---|---|
| | <p>to provide on-site guidance during construction. Note: It is essential that the Contractor supplies information on works and scheduling to the ECoW in advance in order to anticipate and address any issues, specifically including drainage, buffer /protection zones, silt mitigation measures, cabling, roads, turbine bases, met masts, compounds, landscaping, topsoil removal, storage and replacement, vegetation Reinstatement and restoration works, planting, felling and habitat management.</p> <ul style="list-style-type: none"> • Highlight the need for compliance with planning conditions. <p>Contractors Note: If failures occur and actions are taken which contravene legislation then the Project Ecologist has the power to stop works in the affected area with immediate effect. These actions will only be taken where appropriate. Notification to stop works will be by verbal means, followed up with written confirmation recording the time and date of the instruction, personnel involved and reasons for the instruction. Upon recommencement of works, details of any corrective actions and / or remedial measures implemented will be recorded within Section 4.</p> <ul style="list-style-type: none"> • Give toolbox talks as agreed with the Site contractor to address key areas, including water pollution prevention, protected species management, and on-site biodiversity. • Monitor potential environmental impacts, including: <ul style="list-style-type: none"> - Use of and storage of oils and toxic chemicals on site, e.g., cement - Dewatering of excavations (including turbine bases) - Silt control - Water management, including working in or close to watercourses - Protection of ecological interests, e.g. protected species and habitats • Identify environmentally sensitive areas and ecological hazards for demarcation by the Contractor. • Produce written reports to the Contractor following site visits and meetings. This includes monthly reports and a final report. |
| Specialist Ecologist/ Environmental Consultant | <p>Where a Specialist Ecologist / Environmental Consultant is employed, this person(s) will:</p> <ul style="list-style-type: none"> • Provide advice and maintain regular liaison with the Project Site Manager, Project Manager, Ecological Clerk of Works and Contractors and / or another specialist Environmental Consultant as and when required. |

| Position | Roles and Responsibilities |
|--------------------------------------|---|
| | <ul style="list-style-type: none"> • Undertake specific monitoring activities and reporting as defined in agreed documentation prepared as part of the planning process. • The Ecological Clerk of Works or a Water Quality Specialist will be appointed. They will have responsibility for fulfilling the requirements of the Water Quality Management Plan, including: <ul style="list-style-type: none"> - Daily visual inspection of access roads for signs of ground damage or solids escape to nearby watercourses in vicinity of construction works - The ground between the structure under construction and the nearest downslope watercourse for signs of solids escape or ground damage - Surface water features in vicinity of construction works - Any pollution control measures at structures and along access roads (e.g., silt fences, drain or stream crossings etc.) for evidence of contaminated run-off or mitigation failure - Attendance at the critical work phases including, access road construction, foundation excavation, watercourse crossings, concrete pouring and back-filling. - Collection and analysis of water samples at a number of monitoring locations (i.e., upstream & downstream of the 5 no. instream work locations) before, during (if potential pollution visually identified) and after construction works at that location. - EPA Q Value Biological Monitoring at monitoring locations (i.e., upstream & downstream of instream construction work locations) before and after construction works. |
| <p>Archaeological Clerk of Works</p> | <p>The main roles of the Archaeological Clerk of Works (licenced) are as follows:</p> <ul style="list-style-type: none"> • Maintain regular liaison with the Project Site Manager, Project Manager, Ecologist and Ecological Clerk of Works as appropriate. • Maintain liaison with officers of the Planning Authority, specifically the Council Archaeologist and Planning Officers as appropriate. • Where applicable apply for licence application; the Minister for Dept of Culture Heritage and Gaeltacht can approve and issue a licence under Section 26 of the National Monuments Act 1930. • Facilitate compliance with planning conditions and agreed Archaeological Programme of Works. • Demarcate any archaeologically sensitive areas and set up exclusion zones as required on site. |

| Position | Roles and Responsibilities |
|--|---|
| | <ul style="list-style-type: none"> • Immediately notify the relevant authorities in the event of the discovery of archaeological finds or remains and suspend works in the immediate area pending consultation. Allowance will also be made for full archaeological excavation if required. • Complete a full report for submission to the Planning Authority and the Department of Arts, Heritage and the Gaeltacht on completion of the works. |
| Geotechnical Clerk of Works or Appointed Geotechnical Consultant | The Geotechnical Clerk of Works will be responsible for preparation and monitoring of a geotechnical risk register as well as specific duties relating to geotechnical issues as they may arise during site construction works. Soil instability and the potential for slide even can have a significant impact on environmental receptors. In completing the geotechnical risk register, the Geotechnical Clerk of Works will work with the Contractors to identify suitable mitigation and monitoring methods. Where possible, construction works will avoid causing change to local hydrological and hydrogeological flow patterns and water levels. |
| Contractors Appointments | |
| Construction Manager | [The Contractors is required to specify roles and responsibilities for each individual below] |
| Site Agent | [To Be Confirmed] |
| Foreman | [To Be Confirmed] |
| Other Nominated Person(s) | [To Be Confirmed] |

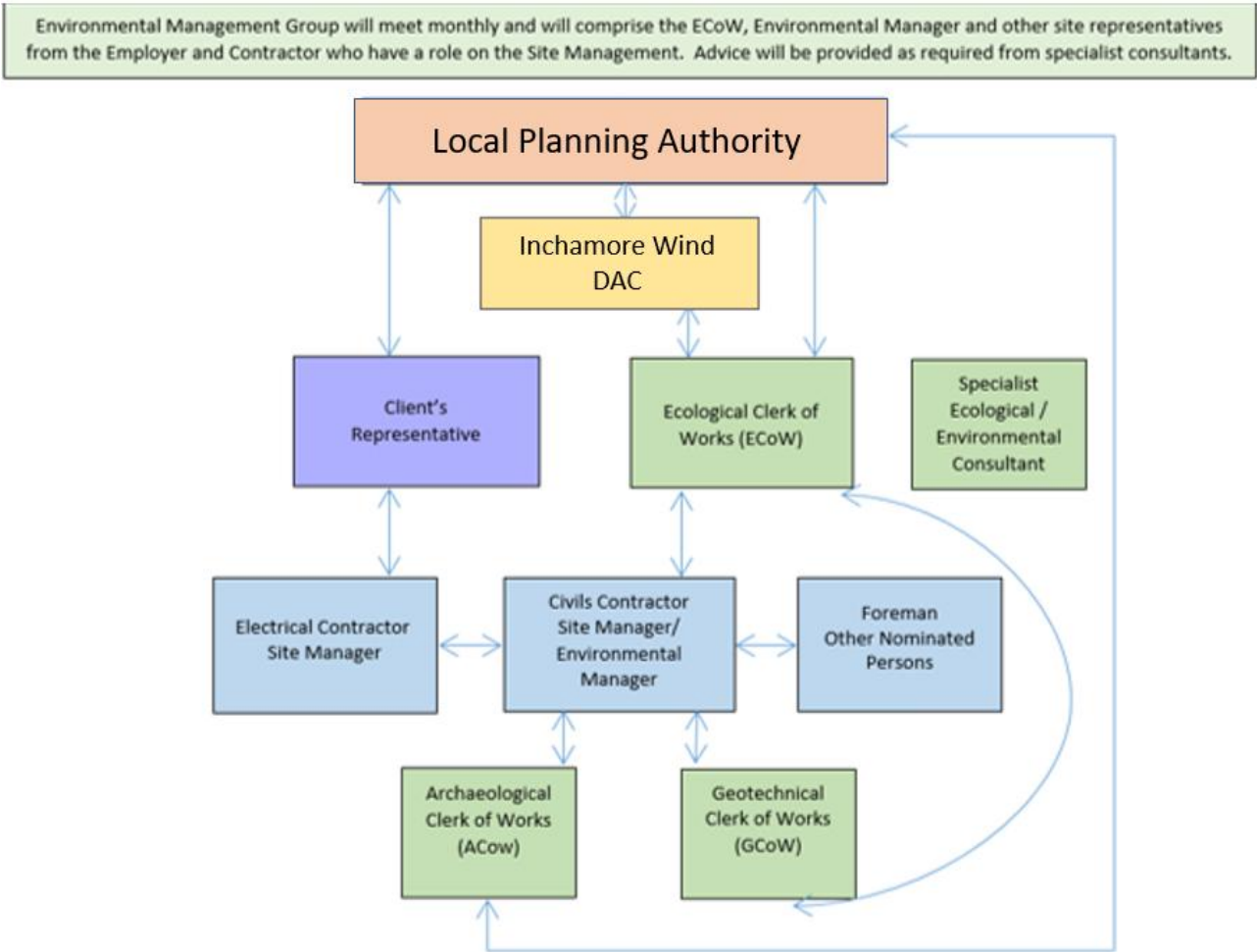


Figure 4.1 General Communication Plan

4.6 Training, Awareness and Competence

All site personnel will receive environmental awareness information as part of their initial site briefing. The detail of the information will be tailored to the scope of their work on site. This will ensure that personnel are familiar with the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The CEMP will be posted on the main site notice board during the Proposed Development. The environmental performance at the Site will be on the agenda of the monthly project management meetings for the Proposed Development. Elements of the CEMP will be discussed at these meetings including objectives and targets, the effectiveness of environmental procedures etc. Two-way communication will be encouraged by inviting all personnel to offer their comments on environmental performance at the Site.

4.7 **Emergency Preparedness and Response**

An emergency preparedness and response procedure are required to prevent environmental pollution incidents. Suitable spill kits and absorbent material for dealing with oil spills will be maintained on-site. In the event of pollution or potential risk of pollution, Cork County Council will be informed immediately. In the case of water pollution, in addition to Cork County Council, Inland Fisheries Ireland will also be informed immediately. Further details in relation to emergency responses are provided at **Emergency Response Plan (Management Plan 1)**.

5 CORRESPONDENCE, RECORDS & REPORTS

5.1 Requirements

The Contractors will insert / file all communication records and reports associated with Environmental Management and implementation of this CEMP under this Section 5. As a guide, the following sub-sections of filed information will be required (at a minimum):

- 5-A) Meeting minutes and attendance record
- 5-B) Weekly Environmental Reports
- 5-C) Monthly Environmental Reports
- 5-D) Environmental Checks
- 5-E) Audit Reports
- 5-F) Ecology documentation and monitoring records
- 5-G) Pollution Prevention, including a Pollution Prevention Measures Register
- 5-H) Water Quality documentation and monitoring records
- 5-I) Archaeology documentation and monitoring records
- 5-J) Ground Risk, including a Geotechnical Risk Register
- 5-K) Waste Management documentation
- 5-L) Licensing and Consents: copies of all permissions, consents, licenses and permits and related correspondence. A summary record of all such documents shall also be provided in accordance with **Table 5.1** of this CEMP.
- 5-M) General Correspondence: all other relevant internal and external communication records relating to environmental management issues and implementation of the CEMP.
- 5-N) Training Records
- 5-O) Toolbox Talk Records
- 5-P) Ecological Clerk of Works Reports

All of these documents and records will be made available for inspection in the Site office. The documentation will be maintained and will be reviewed on a regular basis with revisions controlled in accordance with the Site quality plan.

5.2 Environmental Audits

The Contractors Ecological Clerk of Works will consult and assist with the Client in evaluating compliance with applicable legislation by means of a monthly Environmental Audit. A blank Environmental Audit Report form is included in **Emergency Response Plan (Management Plan 1)**. All completed audit report forms and records of corrective actions (and close outs) must be filed within this section of the CEMP.

5.3 Environmental Consents, Licenses & Permits

The Contractors Ecological Clerk of Works (or otherwise nominated responsible person(s)) will complete the summary record for all applicable permissions, consents, licenses and permits obtained for the Site. This record will follow the format provided in **Table 5.1**.

Table 5.1: Record of Environmental Consents, Licenses and Permits Issued

| Consents, Licenses & Permits | Governing Legislation | Licensed Activity |
|---|-----------------------|-------------------|
| Pollution Control & Hydrology | | |
| | | |
| | | |
| Biodiversity | | |
| | | |
| | | |
| Waste Management / Contaminated Land | | |
| | | |
| | | |
| Noise / Vibration | | |
| | | |
| | | |
| Archaeology | | |
| | | |
| | | |
| Transport | | |
| | | |
| | | |
| Other | | |
| | | |
| | | |

5.4 Environmental Monitoring and Measuring

All of the mitigation measures outlined in Section 3.0 will be monitored, where applicable. The Contractors will put in place a program of monitoring for dust, noise, vibration and water sampling in accordance with the requirements of this CEMP.

Copies of all records will be maintained in the Site office and will be reviewed by the Contractors.

5.5 Non-Conformance, Corrective and Preventative Action

Non-Conformance Notices will be issued where there is a situation where limits associated with activities on the Proposed Development are exceeded, or there is an internal/external complaint associated with environmental performance.

Non-Conformance is the situation where essential components of the CEMP are not met, or where there is insufficient control of the activities and processes to the extent that the functionality of the CEMP, is compromised in terms of the policy, objectives and management programmes.

Correction will be required in order to improve the identified non-conformance. The CEMP must conform to its objectives and targets and the requirements of the ISO 14001 management standard. In the event of non-conformance with any of the above, the following must be undertaken:

- Investigate the non-compliance.
- Develop a plan for correction of the non-compliance.
- Determine preventive measures and ensure they are effective.
- Verify the effectiveness of the correction of the non-compliance.
- Ensure that any procedures affected by the corrective action taken are revised accordingly.

Responsibility must be designated for the investigation, correction, mitigation and prevention of non-conformance.

6 MANAGEMENT PLANS & AVAILABLE INFORMATION

6.1 Management Plans

Various Management Plans have been prepared, as listed in **Table 6.1**. These are intended to provide a benchmark for best practice and to define Dreenacreenig West Wind Farm Limited's minimum requirements for environmental management and mitigation.

6.2 Contractors Requirements

The Contractors is required to further develop the Management Plans into detailed site and works specific environmental plans, method statements and procedural documents. **Table 6.1** provides a summary of the content of the Management Plans and the Contractor's obligations for their further development.

Table 6.1: List of Management Plans

| No. | Name | Details |
|-----|-------------------------------|--|
| MP1 | Emergency Response Plan | The Contractors will further develop the Emergency Response Plan. This will include procedures for dealing with containment of accidental chemical or fuel spills, potential overload of the drainage system by silt during unforeseen adverse weather conditions etc. The Contractors will prepare a Communication Plan for emergency response in the event of a spillage. Detailed procedures will be outlined in this document. |
| MP2 | Water Quality Management Plan | The Contractors are obliged to implement the water quality monitoring proposals set out therein. The Contractors is obliged to implement the water crossing proposals set out therein. |
| MP3 | Waste Management Plan | The Contractors will comply with and further develop the Waste Management Plan. The detailed plan will specify the licensed waste facilities that will be used for the duration of the Project. |
| MP4 | Decommissioning Plan | The Contractors will comply with and further develop the Decommissioning Plan. Where changes to the plan are required, the |

| No. | Name | Details |
|---------------|-------------------------------|---|
| | | Contractors must consult with the Ecological Clerk of Works. |
| MP5 | Surface Water Management Plan | The Contractors are obliged to implement the water quality monitoring proposals set out therein. Where changes to the plan are required, the Contractors must consult with the Ecological Clerk of Works. |
| Appendix 11.1 | Traffic Management Plan | The Contractors will comply with and further develop the Traffic Management Plan. Where changes to the plan are required, it can be amended by the Contractors. |

