
DREENACREENIG WEST WIND FARM LIMITED

DERREENACRINNIG WEST WIND FARM CO. CORK

MANAGEMENT PLAN 2 WATER QUALITY MANAGEMENT PLAN

JULY 2025

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



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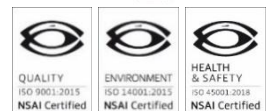
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DOCUMENT APPROVAL

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1 INTRODUCTION

1.1 Scope and Requirements

The Contractor is responsible for pollution prevention for the duration of the contract and until such time as permanent measures, such as permanent drainage and silt mitigation controls, are deemed to be adequate and appropriately constructed.

To verify the efficacy of pollution prevention and mitigation works during construction, Water Quality Monitoring is required to be undertaken by a suitably qualified Environmental Consultant(s), prior to, during and post completion of construction works. This will include all watercourses within the catchment of the construction area. The monitoring will comprise visual, hydrochemistry and grab sample monitoring.

The approved plan will be coordinated and implemented on site by the Environmental Consultant appointed by the Contractor.

1.2 Reference Documentation

Construction works have the potential to cause pollution of the water environment. All construction works on site, and specifically construction works to be undertaken within and within 50 m of any watercourses, will be completed in compliance with current legislation and best practice as detailed within the CEMP and in particular **Management Plan 5: Surface Water Management Plan**.

The following reports (along with any further surveys conducted) will be used to inform the scope of the construction phase Water Quality Management Plan.

- Derreenacrinnig West Wind Farm, Co. Cork Environmental Impact Assessment Report (EIAR), June 2025
- Derreenacrinnig West Wind Farm, Co. Cork Natura Impact Statement (NIS), June 2025
- Derreenacrinnig West Wind Farm, Co. Cork CEMP, June 2025

2 RESPONSIBILITIES

2.1 General

Responsibility for the water quality monitoring programme, and coordination thereof, will lie with the independent Ecological Clerk of Works (ECoW) appointed at the start of the programme.

Prior to works commencing, the Ecological Clerk of Works will be retained by Dreenacreenig West Wind Farm Limited with a responsibility to implement this Water Quality Management Plan. Among other requirements, the Water Quality Management Plan requires a full Baseline water quality survey to be undertaken prior to the commencement of construction and requires the contractor to provide a 'schedule of work' to Ecological Clerk of Works at the beginning of each week.

Field monitoring (as described in **Section 3**) of water quality parameters and collection of samples will be undertaken by the Ecological Clerk of Works or other suitably appointed person(s) (qualified to degree level with at least 5 years' experience in a similar role) based at the Site. The Ecological Clerk of Works or nominated site person(s) will be appropriately trained on the required monitoring methods and the use, calibration and maintenance of all monitoring equipment used. Training will be provided by the Environmental Consultant appointed to undertake the Water Quality Monitoring programme. Undertake specific monitoring activities and reporting as defined in agreed documentation prepared as part of the planning process.

The Ecological Clerk of Works will prepare and deliver site induction and training to all construction personnel, in liaison with the Site Engineer.

- 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 before,

during (if potential pollution visually identified) and after construction works at that location

Collection and analysis of water samples at a number of monitoring locations (i.e., upstream and downstream of construction work locations) before, during (if potential pollution visually identified) and after construction works.

2.2 Hydrochemistry Monitoring

2.2.1 Field Monitoring

Field monitoring of water quality parameters and collection of samples will be undertaken by the Ecological Clerk of Works. The Ecological Clerk of Works will be appropriately qualified to third level education and experienced in the field for no less than 5 years on the required monitoring methods and the use, calibration and maintenance of all monitoring equipment used. Sampling will be in accordance with International Standards of Operation. The chosen laboratory will be accredited.

2.2.2 Laboratory Analysis

Laboratory analysis of water samples will also be undertaken as part of the monitoring programme by an independent and appropriately certified laboratory to be appointed by the Ecological Clerk of Works. ISO 17025 Accreditation proves a laboratory has an acceptable quality management system in place, and it has the ability and competence to provide testing and calibration results.

Coordination of the laboratory sampling and analytical programme will be undertaken by the Ecological Clerk of Works. Samples will be dispatched for analysis under chain of custody procedures. Laboratory analytical results will be sent directly to the Ecological Clerk of Works.

Interpretation and reporting of both the field and laboratory data will be the responsibility of the Ecological Clerk of Works.

2.3 Reporting

2.3.1 Monthly Water Quality Reporting

Results of water quality monitoring will assist in determining requirements for improvements in drainage and pollution prevention measures implemented on site. A monthly report on water quality will be prepared by the ECoW.

It will be the responsibility of the ECoW to present the ongoing results of water quality and weather monitoring at site meetings and with outside bodies. This will be done at weekly meetings and reported within the overall Monthly Environmental Report to be prepared by the Ecological Clerk of Works.

The monthly reports on water quality will consider all visual, field monitoring and results of laboratory analysis received that month. Reports will describe how the results compare with Baseline data as well as previous monthly reports on water quality. The reports will also describe whether any deterioration or improvement in water quality has been observed and whether any effects are attributable to construction activities and what remedial measures or corrective actions have been implemented.

Monthly reports on water quality will be provided to the Client Project Manager and will be made available to the Planning Authority.

2.3.2 Final Report on Water Quality

Upon completion of all post-construction monitoring, the Ecological Clerk of Works will prepare a final report on water quality. This final report will cover the overall performance against Baseline data, details on any impacts attributed to construction works and recommendations for remedial works if required.

The final report will be provided to Cork County Council and Inland Fisheries Ireland.

2.4 Contingency Sampling & Emergency Response

In the event that a pollution incident arises which threatens to enter or has entered a watercourse from the construction works, additional sampling and analysis of surface water samples will be undertaken. Examples of such incidents include a spill or accidental release of chemicals, oils and fuels or concrete. Additional sampling and analysis will determine the level of impact to the surface water receptor and remedial requirements, where necessary.

Where a pollution incident has occurred as a result of construction works, the Ecological Clerk of Works and Cork County Council will be consulted to determine sampling requirements and any additional survey requirements where potentially significant impacts are identified. This will be done following the implementation of appropriate mitigation measures as per the Emergency Response Plan (**Management Plan 1** of the **CEMP**).

The results of any monitoring or survey work undertaken by the Contractor will be made available to the Ecological Clerk of Works and the Local Authority. Copies of all correspondence and test certificates will be retained on site.

3 WATER QUALITY MONITORING: OUTLINE SCOPE

3.1 General

Construction-stage details of monitoring and precise monitoring locations will be agreed in writing with the Local Authority prior to commencement of construction works and following consultation with Inland Fisheries Ireland.

Water Quality Monitoring locations will be identified through grid reference, photographic record and indicated on a plan. For repeat sampling locations, each location will also be marked on the ground (stake/post) to ensure that the correct location is sampled each time.

Sample locations will be labelled consistently for the duration of the monitoring period. Where any additional locations are sampled during the works, the location (grid reference) of the sampling point will be recorded and a photograph will be taken at time of sampling.

'Control' sample locations will also be included in the scope of any monitoring.

A water sampling location map will be developed and included in the detailed method statements for precise locations at water crossings within this Proposed Development.

3.2 Surface Water

A monitoring program will be implemented to monitor effects on surface water quality regime during the infrastructure construction, operational and Decommissioning phases of the Proposed Development, in order to:

- Demonstrate that the mitigation measures and surface water management is performing as designed;
- Provide validation that the in-place mitigation measures are not having an adverse effect upon the environment; and
- Indicate the need for additional mitigation measures to prevent, reduce or remove any effects on the water environment, such as additional temporary settlement or filtration structures or short-term flocculant dosing to suit observed site conditions.

The monitoring will be informed by existing water quality Baseline data and Baseline monitoring rounds undertaken prior to the commencement of the construction phase. It is proposed that the water monitoring extent, duration and frequency will be agreed with the local authority or the relevant regulating body post-consent and will nominally consist of physicochemical and biological monitoring. The extent, duration and frequency of the monitoring will be proportionate to the level of activity during each phase of the Proposed Development and the associated perceived risks.

3.3 Groundwater

Monitoring of raw water quality and borehole water levels at the drinking water supply abstraction point shall be undertaken for the duration of the construction works by a suitably qualified hydrogeologist. Details of monitoring are outlined in **Table 8.13** of **Chapter 8: Hydrology and Hydrogeology** of the **EIAR**.

All monitoring data will be screened by the appointed ECoW, and sensibility checked for anomalies. Trends in concentrations of specified parameters shall be determined to pre-empt a trigger threshold event.

An event requiring a response will be determined by the ECoW where, in their judgement based on trends indicated on monitored data, a breach of the trigger threshold has occurred or is likely.

In that case, the ECoW shall initiate a 'stop works order' response which will require work to cease within the GWS abstraction's source protection areas / zone of contribution.

The ECoW shall investigate the potential cause of the deterioration and put in place additional mitigation measures if required, which may include deployment of containment measures, such as absorbent materials, hydrocarbon booms, and in-situ water treatment where necessary; or use of bio-remediation techniques for hydrocarbon spills where applicable.

Works shall only recommence when additional monitoring has determined that specific water quality parameters have returned to acceptable levels determined by the ECoW.

Disruption mitigation will be implemented to see to continuity of an alternative supply of potable water to the GWS until the borehole supply is restored. This will include communication and coordination with the GWS, supply of an interim water supply and if

necessary ongoing maintenance of a bowser or equivalent and in accordance with the requirements of BS 8551:2015 Provision and management of temporary water supplies and distribution networks. Provision of a temporary water supply will continue until the problem is satisfactorily resolved.

In the extremely unlikely event that the GWS source is permanently disabled then the Developer shall at his own cost undertake to provide a replacement permanent equivalent supply that would likely comprise a new water supply borehole.

Temporary or permanent measures necessary in any particular case, would be required to be technically assessed on the basis of the nature and extent of the supply failure by an appropriately qualified independent water supply hydrologist / hydrogeologist, and agreed with the GWS and local authority.

Any permanent measures would be selected, designed, and implemented taking into account the hydrogeological conditions local to the Site, by an appropriately qualified water supply hydrologist / hydrogeologist and specialist supplier, and agreed with the GWS.

Any new abstraction shall be subject to the terms of the Water Environment (Abstractions and Associated Impoundments) Act 2022 and the Water Environment (Abstractions and Associated Impoundments) Regulations 2024.

3.4 Hydrochemistry Monitoring

Sample locations, monitoring frequency and precise hydrochemistry parameters will be agreed in writing with Cork County Council, prior to commencement of construction, and following consultation with Inland Fisheries Ireland.

As a minimum, the monitoring programme will include:

- During the construction phase, daily visual inspections of excavations, dewatering procedure, settlement ponds, silt traps, buffered outfalls and drainage channels etc. will be carried out by a suitably qualified person. Any excess build-up of sediment at settlement ponds, drains or at any other drainage features that may decrease the effectiveness of the drainage feature will be promptly removed;
- During the construction phase of the Proposed Development, all development areas will be monitored on a daily basis for evidence of groundwater seepage, water ponding and wetting of previously dry spots;

- Following the completion of the construction phase, silt traps, buffered outfalls and drainage channels will be periodically inspected during maintenance visits to the Site when the operational phase water quality monitoring will also be carried out;
- Any proposed crossings of small unmapped drains will be monitored daily during construction and during each Site visit during the operational phase. These small culvert crossings will be monitored in terms of their impacts (if any) on the receiving watercourses and in terms of their structural integrity to identify any signs of erosion or potential for sediment release;
- It is proposed that a handheld turbidity meter is available at the Site to accurately measure the quality of water discharging from the Site. The meter will be maintained and calibrated before each use by a qualified Environmental Clerk of Works; and
- Any discharges of sediment treated water should meet the requirements of the *Surface Water Regulations 2009*, as amended.

Daily visual observation in areas of high construction activity or during high rainfall periods to identify any evidence of siltation, oil or silt. Visual inspections will include details of the colour of the water at the time of inspection.

Weekly visual inspections and monthly field hydrochemistry monitoring.

Post construction monitoring will be agreed with Cork County Council. Post construction will be defined as when the Reinstatement phase is completed.

Monthly analysis of water parameters will be carried out. Construction-stage analytical determinants (including limits of detection and frequency of analysis) will be specified and agreed with the Local Authority and third parties for each sample location. The agreed suite of grab sample determinants will include the following:

Parameters for hydrochemistry analysis

- pH
- Temperature
- Total Suspended Solids
- Dissolved Organic Carbon
- Conductivity

- Dissolved Oxygen
- Total Oxidized Nitrogen
- Ammoniacal Nitrogen
- Ammonia
- Potassium
- Phosphate
- Biological Oxygen Demand (BOD)
- Chemical Oxygen Demand (COD)
- Total Petroleum Hydrocarbons (TPH)