

The proposed construction method statement for the construction compound / storage area is detailed in **Table 3.5**.

Table 3.5: 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 Transverse Mercator 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 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. 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.

6 JUN 2023 6 46
 KERRY COUNTY COUNCIL
 PLANNING & DEVELOPMENT SECTION

Activity	Notes
Storage units for hazardous products and covered waste skips will be installed as per best industry practice. Complete temporary service provisions – electrical, telecommunications, etc.	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 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.
- 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 and within borrow pits as per the attached Peat and Spoil Management Plan.
- 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.
- Borrow pits will be utilised on site to reduce the requirement for imported fill.
- 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 3.6**.

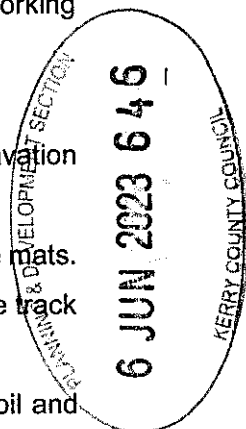
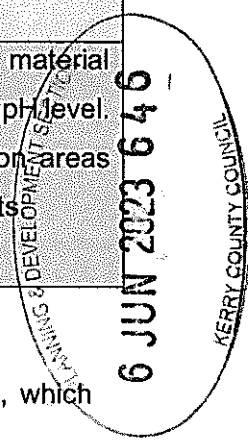


Table 3.6: Excavation and Spoil Management Method Statement

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.
Spoil locations to be identified to machine drivers	Spoil storage areas/borrow pits 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 or to rehabilitate the borrow pits.
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 typically has 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 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 first phase of drainage will then be installed in accordance with the detailed drainage design. Road construction will likely require the crossings of a number of cut drains and minor drainage paths.
- 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.



Figure 3.4 Roadside Berm

- Where necessary, stone will be delivered to site by tipper trucks from approved local quarries (please see **EIAR Figure 15.3**) 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.

As is typical with wind farm roads, the construction method will be Cut and Fill.

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 will be extracted from the borrow pits on site and turbine bases. 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 **Management Plan 3: Surface Water Management Plan** and **Management Plan 2: Water Quality Management Plan**.

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.

There are three proposed water crossings on site and the methodologies are discussed in **Management Plan 2: Water Quality Management Plan**.

3.11.3.1 Borrow Pit

One separate Borrow Pit is proposed on-site which will curtail the impact on the existing local authority road network by reducing the volumes of traffic importing materials to the Site. The borrow pit is permitted on site and will be used to extract siltstone for surfacing the Site Access Roads. The location of all infrastructure required for the borrow pits shall be set out by GPS equipment to the permitted detail as noted on the drawings.

Further details on the borrow pit including extraction methodology can be found in **Management Plan 4: Peat and Spoil Management Plan**.

3.11.3.2 Turbine Bases/Foundation

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.

Each turbine will be constructed on a cast in-situ concrete foundation requiring approximately 590 m³ of concrete which, for the most part, is buried in the ground. The turbine foundations will be constructed so that the top of the foundation is at the existing ground level, with an acceptable tolerance of +/- 1 m. The turbine foundation is estimated to be between 1.8 m and 3.2 m deep and therefore the formation level is 2.8 m to 3.2 m below existing ground level.

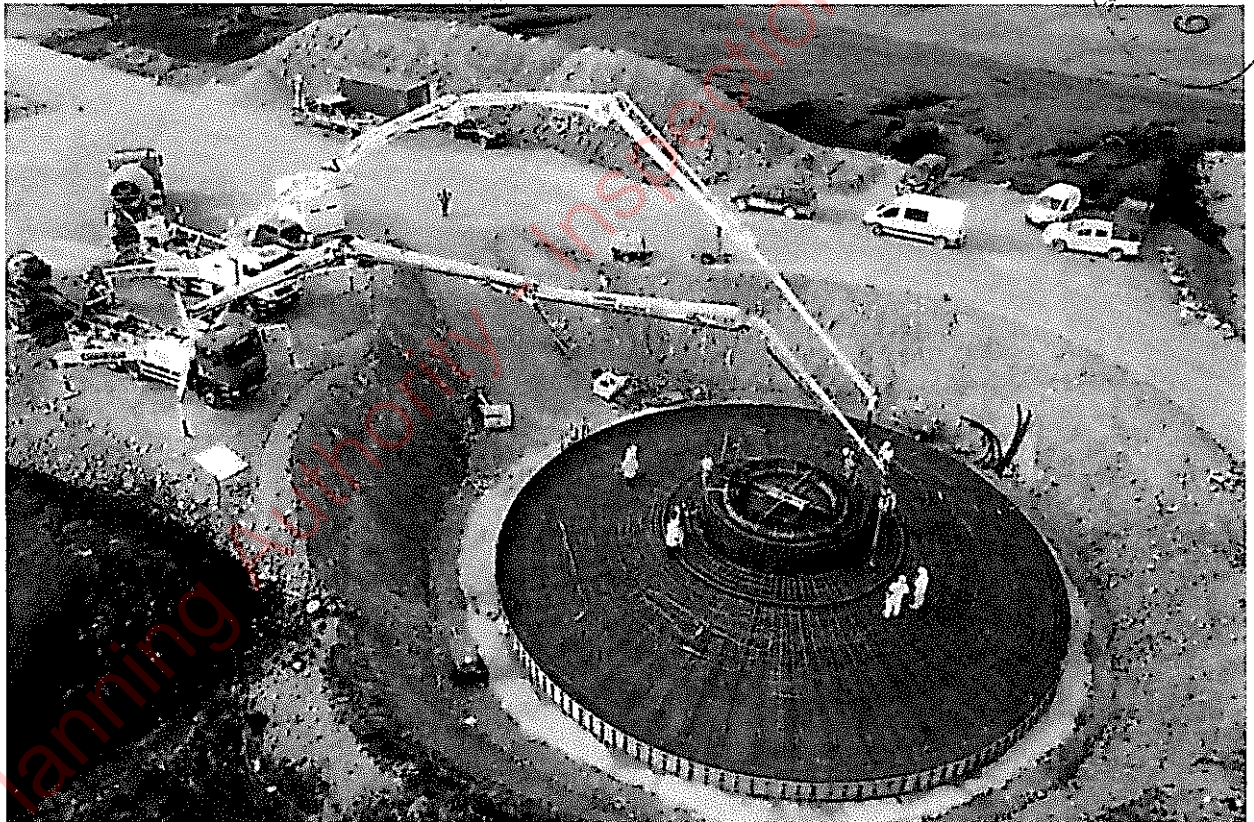


Plate 3.1: Turbine Foundation under Construction with Adjoining Crane Pad⁵

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

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

⁵ 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/>]

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 3.2: Wind Turbine Foundation⁶

⁶ <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 3.7.

Table 3.7: 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 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 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.	

Kerry Planning Only!

6 JUN 2023 6 46

KERRY COUNTY COUNCIL
PLANNING & DEVELOPMENT SECTION

Activity	Notes
Reinforcement steel for the top section of the foundation is fixed along with the required number of cable ducts.	Reinforcing steel shall be checked for design compliance and signed off upon acceptance.
Erect the formwork to contain the concrete pour.	Formwork will be re-used and removed offsite when foundation construction is complete.
The 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 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.

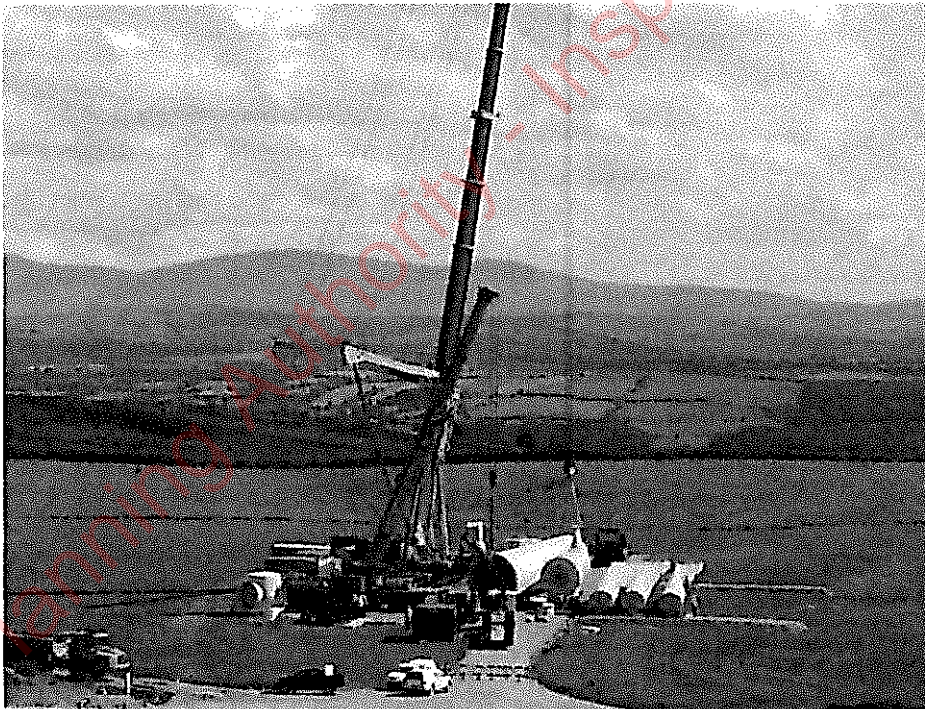


Plate 3.3: Wind Turbine Erection⁷

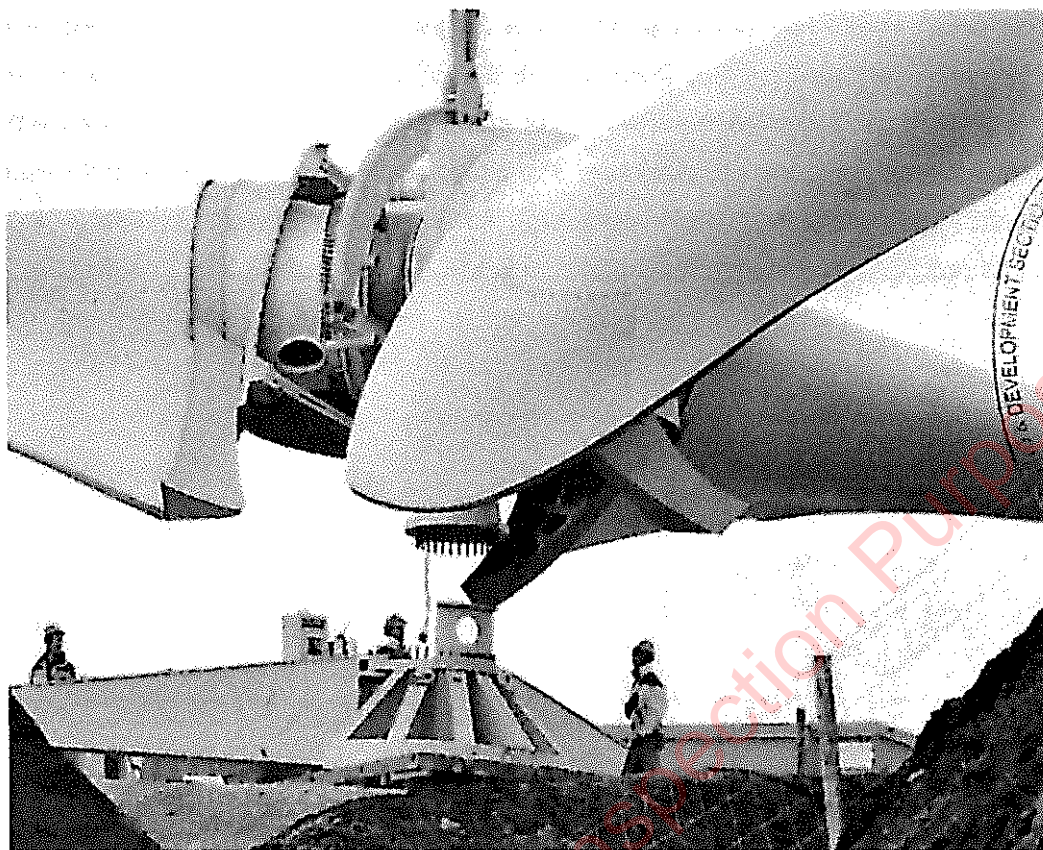


Plate 3.4: Assembly of Wind Turbine Blades ⁷

3.11.3.3 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 crane pad layout measures c.74 m by 58 m. The proposed Turbine Hardstand design is shown on **Figure 3.5**.

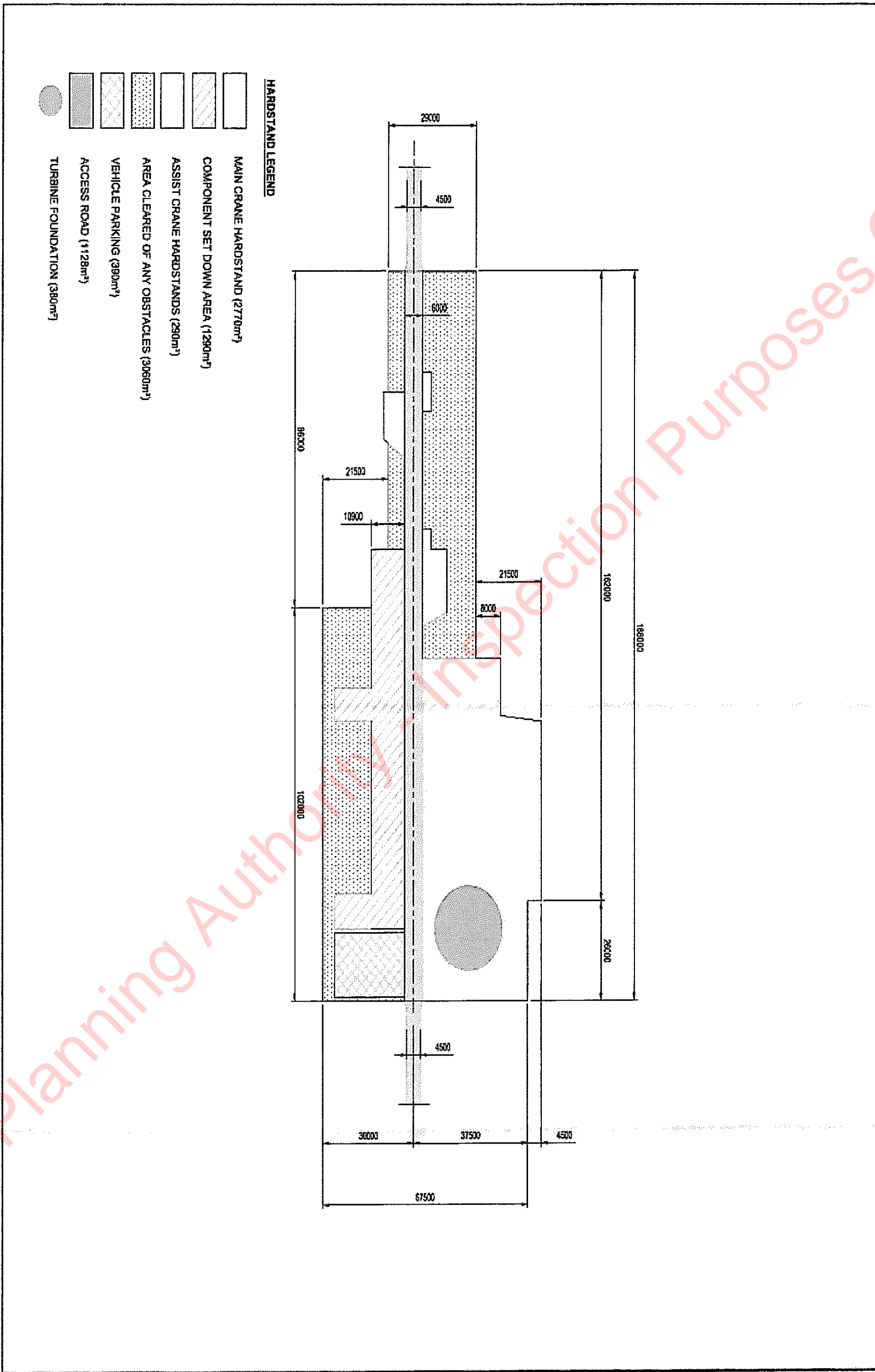


Figure 3.5 Crane Pad Hardstand Design (Excerpt from Drawing No. 6226-PL-601)

PLANNING & DEVELOPMENT SECTION
 6 JUN 2023 6 46

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

Following completion of the hardstands, a series of plate load tests will be undertaken to demonstrate compliance with the turbine supplier requirements of 260 kN/m².

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 or for the rehabilitation of the proposed borrow pits in accordance with **Management Plan 4: Spoil Management Plan**. A Hardstand construction method statement is set out in **Table 3.8**.

Table 3.8: Typical Hardstands Construction Method Statement

Activity	Notes
Set out the crane hardstands with the use of GPS (RTK) equipment.	The Contractors shall see 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.

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6 JUN 2023 6 46

PLANNING & DEVELOPMENT SERVICES
KERRY COUNTY COUNCIL

Activity	Notes
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. 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 3.5: Crane for Wind Turbine Erection ⁷

3.11.3.4 Handling/Disposal of Excavated Material

Details of spoil management methodology are outlined in the attached **Spoil Management Plan**. Excavated soil will be used for landscaping and to reinstate the borrow pit.

3.12 Planning Conditions and Outline Method Statements

This CEMP and its future versions/revisions will form part of the Contract for Inchamore Wind Farm. It will therefore be updated and revised during the different stages of the Development. Where the Development is granted planning permission all the planning conditions associated with the Planning Application, applicant Inchamore Wind DAC will be listed in **Table 3.9**.

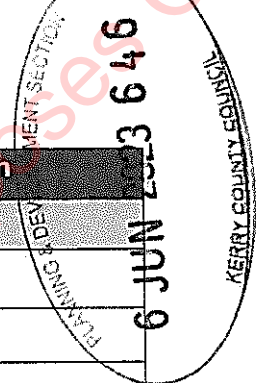
Table 3.9: Relevant Planning Conditions and Related Documentation

Condition No.	Planning Condition	Reason
Planning Ref: INSERT NUMBER		

The Contractors will address all of the mitigation measures and best practice construction methods detailed within the above consent in his 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 3.10**. 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 and Kerry County Council. For example, amendments to layouts or in accordance with the current grant of planning permission.



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Table 3.10: 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 3.11**, 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 3.11**.

Table 3.11: 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 Development communications will take the form of structured reporting arrangements and meetings.

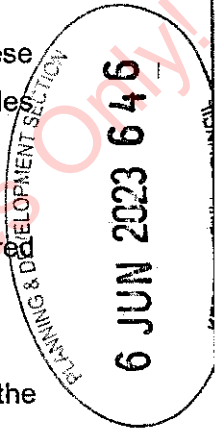
All issues in relation to environmental management/monitoring will be reported to the Ecological Clerk of Works. The Contractors Ecological Clerk of Works will report to the Contractors and Client on a regular basis.

4.2 Contact Sheets

Table 4.1 provides a list of Inchamore Wind DAC., 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
Inchamore Wind DAC	Client Project Manager		
Contractors	Site Manager / EM		
Contractors	Contracts Manager		
Contractors	General Manager		
Contractors	Foreman		
Inchamore Wind DAC	Construction Project Manager		



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.

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, Kerry 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 weekly to assess the requirement for maintenance. The results of these checks will be discussed at the meeting and corrective actions agreed as required.	Attendance required: Ecological Clerk of Works Contractors Site Manager, and any other relevant personnel or statutory consultees where necessary.
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

6 JUN 2023 6 46
 KERRY COUNTY COUNCIL
 PLANNING & DEVELOPMENT



Meeting/ Report	Schedule/ Frequency	Scope & Objective	Attendees/Responsibilities
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 be made at least every 14 days.	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 of identified mitigation measures and highlight any further issues / measures which may be relevant prior to commencement of works in any area. As a minimum, Environmental Checks will be completed at each main piece of site infrastructure (turbine	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 conjunction with the Contractors checks as required. 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.

Meeting/ Report	Schedule/ Frequency	Scope & Objective	Attendees/Responsibilities
		<p>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 or periods of continuous or heavy intermittent rainfall over one or more days. 	



Meeting/ Report	Schedule/ Frequency	Scope & Objective	Attendees/Responsibilities
		<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 Inchamore Wind DAC, 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</p>

Meeting/ Report	Schedule/ Frequency	Scope & Objective	Attendees/Responsibilities
			as 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 is 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 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 person(s). The Site Manager will ensure that all notifications of environmental sensitivities and incidents as well as other general

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PLANNING & DEVELOPMENT SECTION
 6 JUN 2023 6 46

Position	Roles and Responsibilities
	<p>observations on environmental performance are reported back to the Construction Project Manager. The Project Site Manager is responsible for review and further development of the CEMP.</p>
<p>Environmental Manager/Ecological Clerk of Works</p>	<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 NIS 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 Inchamore Wind DAC, the Contractors to see that compliance is achieved with best practice and with all environmental mitigation and monitoring requirements as detailed within the NIS and CEMP, 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 to provide on-site guidance during construction. Note: It is essential



Kerry Planning Authority Only!

DEVELOPMENT STRATEGY
 JUN 2023 646

KERRY COUNTY COUNCIL

Position	Roles and Responsibilities
	<p>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.
<p>Specialist Ecologist/ Environmental Consultant</p>	<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. • Undertake specific monitoring activities and reporting as defined in agreed documentation prepared as part of the planning process.

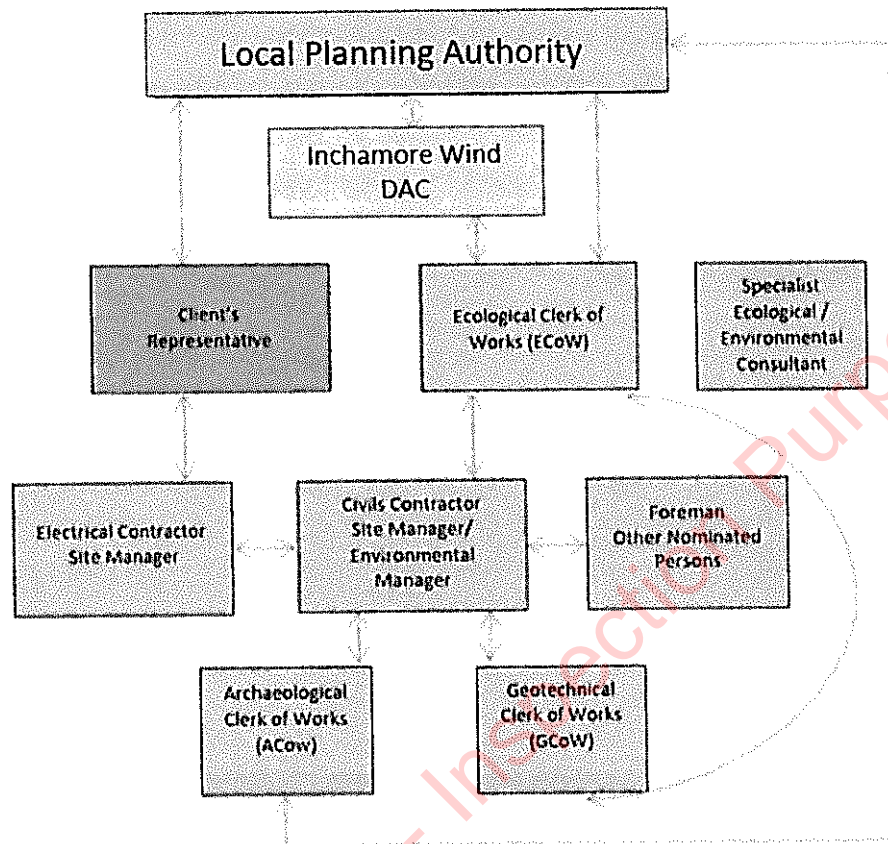
Position	Roles and Responsibilities
	<ul style="list-style-type: none"> • The Ecological Clerk of Works or a Water Quality Specialist will be appointed. They will have responsibility for fulfilling the requirements of the Water Quality Management Plan, including: <ul style="list-style-type: none"> - 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.
Archaeological Clerk of Works	<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. • Immediately notify the relevant authorities in the event of the discovery of archaeological finds or remains and suspend works in the immediate

PLANNING & DEVELOPMENT SECTION
 6 JUN 2023 6 46 -
 KERRY PLANNING AUTHORITY



Position	Roles and Responsibilities
	<p>area pending consultation. Allowance will also be made for full archaeological excavation if required.</p> <ul style="list-style-type: none"> Complete a full report for submission to the Planning Authority and the Department of Arts, Heritage and the Gaeltacht on completion of the works.
<p>Geotechnical Clerk of Works or Appointed Geotechnical Consultant</p>	<p>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.</p>
<p>Contractors Appointments</p>	
<p>Construction Manager</p>	<p>[The Contractors is required to specify roles and responsibilities for each individual below]</p>
<p>Site Agent</p>	<p>[To Be Confirmed]</p>
<p>Foreman</p>	<p>[To Be Confirmed]</p>
<p>Other Nominated Person(s)</p>	<p>[To Be Confirmed]</p>

Environmental Management Group will meet monthly and will comprise the ECoW, Environmental Manager and other site representatives from the Employer and Contractor who have a role on the Site Management. Advice will be provided as required from specialist consultants.



PLANNING & DEVELOPMENT SECTION
 6 JUN 2023 6 46
 KERRY COUNTY COUNCIL

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 Development. The environmental performance at the Site will be on the agenda of the monthly project management meetings for the 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 and Kerry County Council will be informed immediately. In the case of water pollution, in addition to Cork and Kerry County Council, Inland Fisheries Ireland will also be informed immediately. Further details in relation to emergency responses are provided at **Management Plan 1: Emergency Response Plan**.

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 **Management Plan 1: Emergency Response Plan**. 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

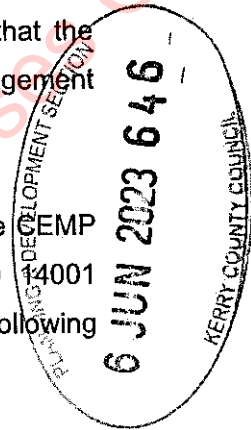
Non-Conformance Notices will be issued where there is a situation where limits associated with activities on the Development are exceeded, or there is an internal/external complaint associated with environmental performance.

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 Inchamore Wind DAC'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 Environmental 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 is 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	Surface Water Management Plan	The Contractors is 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.
MP4	Peat and Spoil Management Plan	The Peat and Spoil Management Plan has estimated the volume of spoil that will be generated during the construction phase, and it

No.	Name	Details
		outlines the locations where the material can be re-used on site. The Peat and Spoil Management Plan is a live document and can be amended by the Contractors where required.
MP5	Waste Management Plan	The Contractors will 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.
MP6	Decommissioning Plan	The Contractors will further develop the Decommissioning Plan. Where changes to the plan are required, the Contractors must consult with the Ecological Clerk of Works.
MP7	Traffic Management Plan	The Contractors will further develop the Traffic Management Plan. Where changes to the plan are required, it can be amended by the Contractors.

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6 JUN 2023 646 -

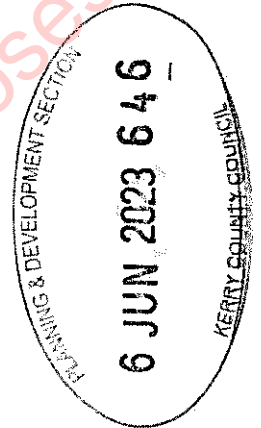


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Client: Inchamore Wind DAC
Project Title: Inchamore Wind Farm
Document Title: Construction Environmental Management Plan

Date: May 2023
Project No: 6226
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MANAGEMENT PLAN 1 - EMERGENCY RESPONSE PLAN



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INCHAMORE WIND DAC

INCHAMORE WIND FARM
CO. CORK

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

MANAGEMENT PLAN 1 EMERGENCY RESPONSE PLAN

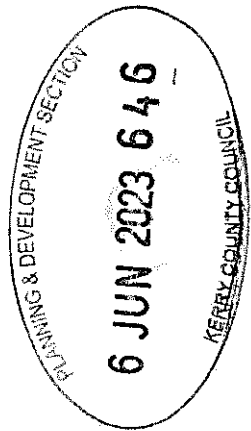
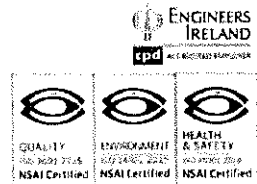
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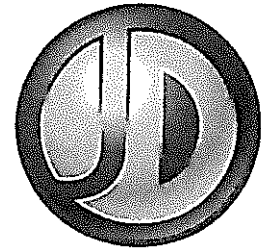


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**DOCUMENT APPROVAL**

PROJECT	Inchamore Wind Farm	
CLIENT / JOB NO	Inchamore Wind DAC	6226
DOCUMENT TITLE	Construction Environmental Management Plan (CEMP) Emergency Response Plan	

Prepared by		Reviewed/Approved by
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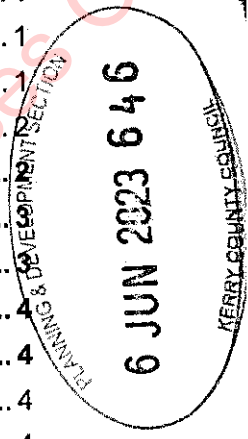
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CONTENTS

1	INTRODUCTION	1
1.1	Why have an Emergency Response Plan?.....	1
1.2	Outline of this Environmental (Incident & Emergency) Response Plan	1
1.3	What is an Environmental Incident?.....	1
1.4	Reference Documents	1
2	GENERAL REQUIREMENTS OF AN ERP.....	
3	INCIDENT & HAZARD REPORTING	
4	WASTE DISPOSAL AFTER ENVIRONMENTAL INCIDENCES	
5	SITE INDUCTION AND TOOLBOX TALKS	4
6	PROCEDURE AND COMMUNICATION PLAN IN EVENT OF AN INCIDENT	4
6.1	Procedures to be followed in the event of an incident:	4
6.1.1	Spillages/Leaks/Containment Failure.....	4
6.1.2	Contamination of Watercourse.....	5
6.1.3	Land Slide.....	5
6.1.4	Fire	6
6.1.5	Blade Throw	6
6.1.6	Vandalism.....	6
6.2	Communication Plan.....	7
6.3	Environmental Response Plan for Inchamore Wind Farm.....	8
6.4	External Contacts	9
6.5	Internal Contacts	9
6.6	Chemical Product & Waste Inventory	10
6.7	Pollution Prevention Equipment Inventory (On/Off-Site Resources).....	11
6.8	List of Staff Trained in the Use of Spill kits and Booms	12
6.9	Site Environmental Incident Report Form	13
6.10	Site Environmental Audit Form	15



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1 INTRODUCTION

1.1 Why have an Emergency Response Plan?

Many construction and industrial sites intrinsically have the potential to cause significant environmental harm which could threaten water supplies, public health and wildlife in the event of an environmental incident. The aim of this plan is to see that in the event of an emergency, quick action will limit any impacts on humans and the local environment.

This response plan forms part of the conditions of work for staff, and for every contractor or sub-contractor at the site.

1.2 Outline of this Environmental (Incident & Emergency) Response Plan

The information contained in this plan forms the Emergency Response Plan (ERP), part of the Construction Environmental Management Plan (CEMP) for Inchamore Wind Farm.

It contains details of:

- Who should be contacted in an emergency?
- Procedures to be followed in an emergency
- Staff responsibilities in an emergency

1.3 What is an Environmental Incident?

This plan should be instigated once there has been an emergency or environmental incident on site or elsewhere, linked to the construction of Inchamore Wind Farm. Such an incident is a discharge to air, land or water that could cause environmental damage.

Causes of environmental incidents on this site include:

- Leaking plant or equipment
- Containment Failure
- Fire
- Land Slide
- Vandalism
- Overfilling of containment vessels
- Flooding on site
- Leaking Portaloo
- Discharge of raw or partially treated effluent

- Wind-blown waste, litter or dust
- Fuel drips or spills during refuelling
- Leak from fuel or chemical containers
- Contaminated water or sediment/silt entering a water course or drain
- Failure of pumps and pipelines
- Blade throw (results from wind turbine failure and may include the splintering of rotor blades and detachment of debris)

Any of these incidents could affect drainage systems, surface waters, aquatic ecosystems, groundwater and soil. These incidents could also affect air quality by producing toxic fumes and airborne pollutants which may damage human health, wild and domestic animals and ecosystems. The emergency procedures to be followed for each of the incidents listed above are detailed in **Section 6.1**.

1.4 Reference Documents

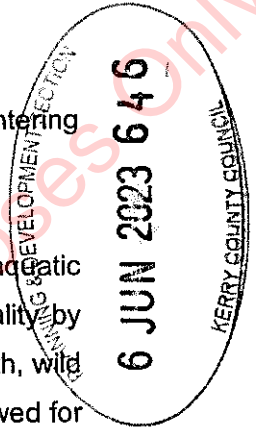
Current legislation including the Safety, Health and Welfare at Work Act 2005 and the Safety Health and Welfare at Work (Construction) Regulations 2013, has been taken into account into the production of this Plan and will be accounted for in the further development of the Contractor's Construction Management Plan.

This plan has been developed alongside other Management Plans that form part of the Construction Environmental Management Plan (CEMP) including a:

- Water Quality Management Plan
- Surface Water Management Plan
- Peat and Spoil Management Plan
- Waste Management Plan
- Decommissioning Plan
- Traffic Management Plan

2 GENERAL REQUIREMENTS OF AN ERP

As mentioned, environmental incidents may include flooding, spillages (oil and chemicals), contaminated run-off, riverbed disturbance, damage to underground services, damage to habitats, poor waste disposal and storage.



This Emergency Response Plan:

- Identifies key staff and 24-hour contact details to be contacted in the event of an emergency (**Section 6.5**)
- Identifies key external bodies and emergency response numbers who should be contacted in the event of an emergency (**Section 6.4**)
- Details an Inventory of Chemical Products and Waste Inventory on Site (**Section 6.6**)*
- Details an Inventory of Pollution Prevention Equipment (**Section 6.7**)
- Provides details of staff trained in the use of spill kits and booms etc. (**Section 6.8**)
- Provides details of reporting requirements (**Sections 6.3 to 6.9**)
- Provides detailed procedures to be followed in the event of an emergency (Sections
- Provides a Communication Plan for operatives outlining key actions in the event of an emergency (**Section 6.2**). This will be available to all operatives on site.

**Because of the nature of wind farm construction operations and the nature of works on site, the potential pollutants will vary.*

3 INCIDENT & HAZARD REPORTING

A blank Environmental Incident Report Form for reporting environmental incidents or hazards for the site is attached in **Section 6.9**. A blank Site Environmental Audit Form is attached in **Section 6.10** to record audit results. The details recorded in these forms will be regularly reviewed and will form part of the response plan procedural review.

4 WASTE DISPOSAL AFTER ENVIRONMENTAL INCIDENTS

If spill kits etc. are used in the event of a pollution incident, operatives need to carefully dispose of used equipment by carefully placing them in a sealed bag or container. They should then be removed from site by a licensed waste contractor as per the **Waste Management Plan**. Contaminated soil also needs to be disposed of as hazardous waste by a permit holder. This is also further detailed in the **Waste Management Plan** of this CEMP.

5 SITE INDUCTION AND TOOLBOX TALKS

It is imperative that all contractors, sub-contractors and staff on site are fully familiar with this emergency response plan and it will be detailed regularly in Toolbox Talks. During these talks, they will also receive regular reminders of the importance of the local environment and of the necessary environmental controls that are in place on site.

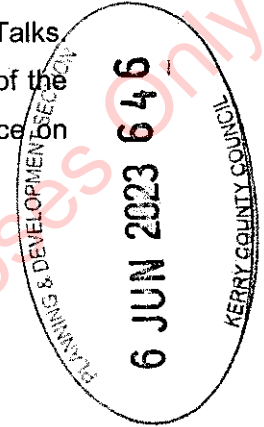
6 PROCEDURE AND COMMUNICATION PLAN IN EVENT OF AN INCIDENT

6.1 Procedures to be followed in the event of an incident:

The following procedures are intended as a guide in dealing with incidents. Health & Safety guidance should be followed at all times applying common sense and ensuring the health & safety of yourself and others:

6.1.1 Spillages/Leaks/Containment Failure

1. Identify the source of the spillage and cut off source, if possible, e.g., by closing valve, righting container etc.
2. Work on site will cease and all operatives will assist in placing spill mats on the affected area. Site Manager/ Main Contact must be notified.
3. Identify where spillage may go. If spillage is near a watercourse (drainage/ditch/river) divert spillage away from the watercourse through the use of absorbent materials from the spill kit.
4. Notify all parties in the order listed in **Sections 6.4 and 6.5**. Notification should be made by one member of staff whilst remainder of staff present deal with the spill/incident.
5. Dig up all contaminated ground as soon as possible/immediately. All contaminated materials should be placed in sealed polythene bags/containers and disposed of appropriately by an appropriate licensed waste contractor.
6. Complete required record of incident and response into reporting system



6.1.2 Contamination of Watercourse Suspended Solids

7. If watercourse is at risk of contamination from suspended solids from a slope failure the Site Manager/ Main Contact must be notified and the following actions must be implemented:
 - a) Place straw bales wrapped in geotextile or sand/gravel bags with geotextile curtains **immediately** in the watercourse(s) at regular intervals downstream from the incident. These sand/straw bags and bales will be removed and replaced with stone filters once water quality is stabilised.
 - b) Stone check dams faced with a layer of geotextile will be constructed at critical points along the watercourse.
 - c) Small sumps will be formed intermittently between the check dams to reduce the amount of suspended solids contained in the water.

Oil Spill in Watercourse

8. If spill has reached the watercourse the Site Manager/ Main Contact must be notified and the following actions must be implemented:
 - a) Place flexible absorbent booms across watercourse, ahead of the contamination within a quiet stretch of water.
 - b) Place absorbent cushions in the water immediately upstream of these booms as well as downstream of the booms.
 - c) Remove and replace saturated absorbent material as required. Please ensure removed cushions are placed in sealed polythene bags/containers and disposed of by the principal waste contractor.

6.1.3 Land Slide

9. Please see EIAR Figure 8.6 a and b Mapped Landslide Susceptibility for further detail of flow routes and storage locations for excavated materials to be re-used for reinstatement works. Where the unlikely event that the onset or actual detachment of peat (e.g., cracking, surface rippling) occurs:
 - a) All activities in the area will cease and all available resources will be diverted to assist in the required mitigation procedures.
 - b) The Site Manager/ Main Contact must be notified
 - c) All relevant authorities will be notified if a peat slide event occurs on site and this Emergency Response Plan (ERP) followed.

- d) Where peat slides do not represent a risk to a watercourse and have stopped moving, they will be stabilised using rock infill, if required. The failed area and surrounding area will then be assessed by the engineering staff and a stabilisation procedure implemented. The area will be monitored, as appropriate, until movements have stopped.
- e) Where possible, check barrages (comprises the placement of rock fill across a watercourse which allows the passage of water but will prevent peat debris from passing through) will be constructed on land using rock fill to prevent a peat slide reaching any watercourse.
- f) If peat reaches a watercourse a check barrage will need to be constructed across the watercourse preventing the peat from moving downstream. The check barrage will allow water to flow through it, but the peat will be trapped.
- g) The size of the check barrage will depend on the scale of the peat slide to be contained and the geometry of the watercourse at the location of the barrage.
- h) All measures to contain the peat slide must be approved by the Cork County Council or Inland Fisheries Ireland (IFI).

6.1.4 Fire

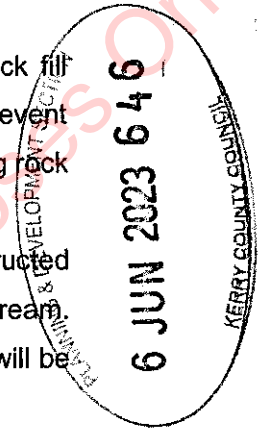
10. In the unlikely event of a fire at a turbine or at the substation, all personnel on site will meet at a designated fire point and emergency services will be contacted.

6.1.5 Blade Throw

11. In the unlikely event of ice throw from blades, all activities in the area will cease and site personnel will stand clear of turbines where possible until they have been shut down completely.

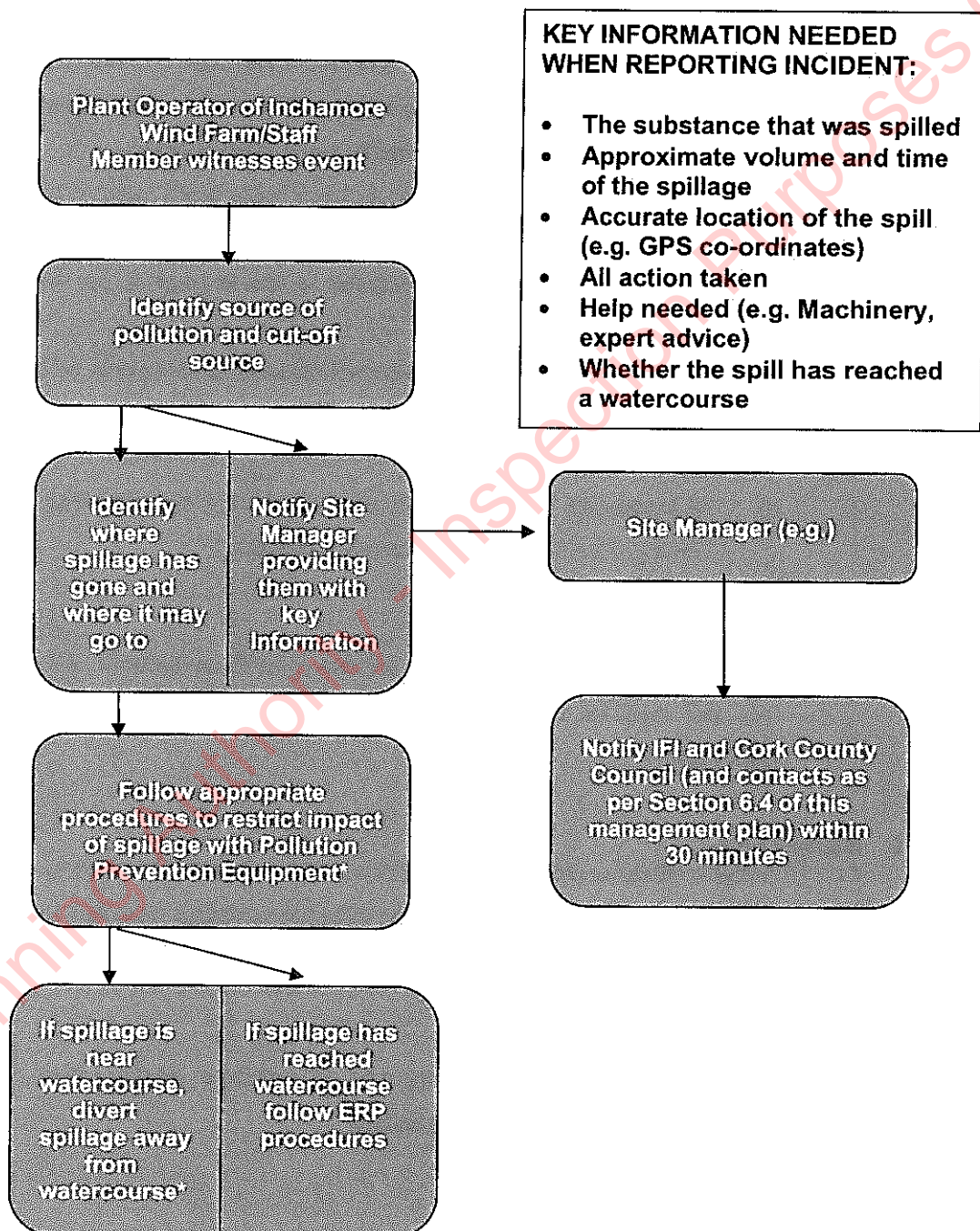
6.1.6 Vandalism

12. In the event of a vandalism at the site, all personnel on site will be notified and An Garda Síochána will be contacted.



6.2 Communication Plan

A Communication Plan (to be followed in the event of an incident) will be provided by the Contactor, in liaison with relevant stakeholders and will be included in the updated ERP prior to commencement of site development works. An outline Communication Plan is proposed below:



6.3 Environmental Response Plan for Inchamore Wind Farm

INCIDENT RESPONSE PLAN FOR INCHAMORE WIND FARM <i>Based on template provided in GPP 21 – Pollution Prevention Guidelines.</i>	
Site Address: Inchamore Wind Farm, Ballyvourney, Co. Cork Official Company Address: Inchamore Wind DAC C/O FuturEnergy Ireland, 27/28 Herbert Place, Dublin 2, D02DC97, Ireland. KEY HOLDERS FOR SITE – NAME & CONTACT NUMBERS:	ITM: 516,843 E, 572,156 N Map references: OSI Discovery Sheet 79 Link to Map:
Overview of the activities on site: Include number of employees at different time of the day: Daylight Hours: Dusk to Dawn: Weekend Dusk to Dawn: Bank Holidays:	
Date & Version of the plan:	Name & position of person responsible for compiling/approving the plan:
Review Date	Date of next exercise:
Objectives of the plan: To limit any potential harmful impact to the local environment through swift and appropriate actions in the event of an emergency.	
List of external organisations consulted in the preparation of this plan with contact details	
Distribution list of who has received this plan and which version. Please note that it is recommended that you review and revise this plan regularly:	

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6 JUN 2023 6 46
 KERRY COUNTY COUNCIL

6.4 External Contacts

Contact	Office Hours	Out of Office
Emergency Services (Fire/Police/Ambulance)	999 or 112	999 or 112
Local Garda Station Ballyvourney	026 45002	
Local Hospital. Bantry Hospital	027 50133	
Environment Directorate, Inniscarra, Co. Cork	021 4532700	
EPA	053-916 0600	1850 365 121
Inland Fisheries Ireland	01 8842600	1890 347 424 (24 hours a day)
Roads Service (Blocked/Flooded Roads)	0300 2000 100	0300 2000 100
ESB- Electricity Company	01 8529534	
Telecommunications – Eircom	1800 475 475	

6.5 Internal Contacts

Names and position of staff authorised and trainers to activate and co-ordinate the plan. Staff to be contacted if need to move or evacuate the site

Other Staff:

Managing Director		
Site Manager		
Environmental Manager		
Health & Safety Manager		

6.7 Pollution Prevention Equipment Inventory (On/Off-Site Resources)			
Type	Location	Amount	Staff contact

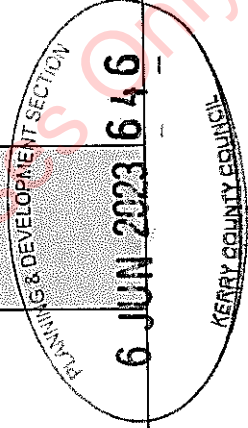
For example:

- Personal protective Equipment (PPE) available that should be worn
- absorbents
- drain mats/covers
- pipe blockers
- booms
- pumps
- sandbags
- silt fencing
- over drums

IF ANY OF THIS EQUIPMENT REQUIRES SPECIALIST TRAINING – STATE WHO HAS BEEN TRAINED IN ITS USE AND DATE OF TRAINING (attach evidence where possible).

6.8 List of Staff Trained in the Use of Spill kits and Booms

Name	Date of Training



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6.9 Site Environmental Incident Report Form

Site		Date	
Time		Weather:	
Report By:		Position:	
Inchamore Wind Farm personnel present:		Position:	
Contractor Personnel Present:		Position:	

Description of Incident

Item Spilled	
Estimate of Volume of Spillage	

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List of actions followed once incident was noted	Time	Corrective Action By	
		Action	By
Who first observed incident?			
First action			
Next Action			
Time Pollution Hotline was contacted			
Other			

PLANNING & DEVELOPMENT
 6 JUN 2023 6 46
 KERRY COUNTY COUNCIL

Details of Clean-Up contractor or how contamination was removed from site:

Details of how this could be avoided in future:	
Details of review of internal procedures as result of this incident:	

DATE REPORT COMPLETED _____

6.10 Site Environmental Audit Form

Site:		Date:	
Time:		Weather conditions:	
Report by:		Position:	
Inchamore Wind Farm personnel present:		Position:	
Contractor personnel present:		Position:	

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
1. Miscellaneous					
1.01	Does the contractor carry out regular internal environment audits on the site? Are recommendations recorded and is corrective action monitored?				
1.02	Have any environment incidents occurred and have these been reported as per on site procedure?				
1.03	Does the site induction contain a section on environmental requirements, including spill procedures, and is this communicated effectively?				
2. Land					
2.01	Are areas of hard standing (excluding bunded and refuelling areas) appropriately drained?				
2.02	Have local roads been inspected and cleaned where necessary?				
2.03	Has all test pitting and soil stripping been monitored by an archaeologist?				
2.04	Have all site clearance works been checked by an ecologist prior to works?				

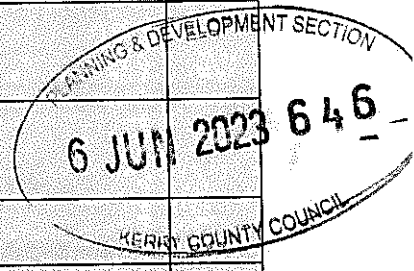
Item	Questions	Yes	No	Corrective Action Required	
				Action	By
3. Material and equipment					
3.01	Is there knowledge of the IFI Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (2016) and OPW Environmental Guidance: Drainage Maintenance & Construction (2019)				
3.02	Are transformers/ generators located in secondary containment bunds?				
3.03	Are all bunds capable of containing 110% of the volume of the largest container?				
3.04	Is refuelling carried out in a designated refuelling bay?				
3.05	Does all site drainage on hard standing drain to an oil interceptor?				
3.06	Is the designated area for oil, fuel and chemical storage appropriately sited (i.e. on hard standing at least 10m from a watercourse)?				
3.07	Are there procedures in place to monitor bund integrity and manage bund rainwater levels? Are these followed and recorded?				
3.08	Is there awareness that oil or residue from contaminated water removed from bunds should be disposed of as special waste and not discharged to land or the water environment? (oil absorbent materials (pads etc.) should be used first)				
3.09	Are all drums and mobile plant (e.g. generators) placed on drip trays more than 10m from any watercourse?				
3.10	Is all plant maintained in a good state of leaks? Are there records of this?				
3.11	Are there adequate spill kits available and stored in close proximity to potential risks?				
3.12	Are all refuelling browsers double skinned, locked when not in use, and in a good state of repair?				
3.13	Is there evidence of unmanaged/ unrecorded fuel / oil spillages on site?				
3.14	Are dry or wet wheel washing facilities fully operational and effective?				
3.15	If wet wheel washing facilities are required, are these closed systems				

PLANNING & DEVELOPMENT SECTION
 6 JUN 2023 646
 KERRY COUNTY COUNCIL

Kerry Planning & Development Section Only!

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
	with no discharge to the water environment?				
3.16	Are there laboratory certificates (accredited by the Irish National Accreditation Board) to confirm that imported material stone aggregate brought onto site is free from any contamination?				
4. Noise, Dust and Light					
4.01	Are there facilities to dampen stockpiles and site working areas/roads to suppress dust?				
4.02	Are vehicles carrying loose material sheeted at all times?				
4.03	Are construction works, or deliveries of materials to and from the development, audible at noise sensitive premises?				
4.04	Has all external construction lighting received the approval of the planning authority?				
5. Waste					
5.01	Is the site tidy and free from litter?				
5.02	Is there evidence of waste beyond the site boundary?				
5.03	Is waste segregated and kept securely in containers in clearly designated areas?				
5.04	Does all waste leaving the site have the appropriate duty of care paperwork?				
5.05	Is all waste leaving the site being taken to an appropriately licenced site?				
5.06	Does all special/ hazardous waste (e.g. oil contaminated soils, waste oil) have the appropriate Special Waste Consignment Note?				
5.07	Is material re-used/recycled on site where possible?				
5.08	Are waste management practices in line with the site waste management plan?				
5.09	Are relevant Waste Management Exemptions in place for use of waste on site (e.g. use of waste concrete to create foundation sub-base)?				
5.10	Is there any evidence of burning on site?				

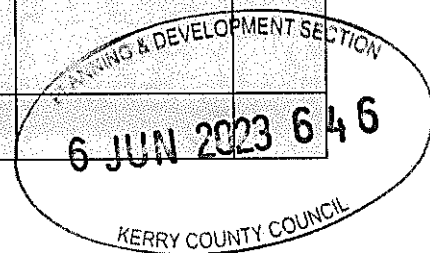
Item	Questions	Yes	No	Corrective Action Required	
				Action	By
5.11	Is there any evidence of unlicensed burial of waste?				
6. Water					
6.01	Do all discharges to land or watercourses have appropriate authorisation from Local Authorities /IFI?				
6.02	Does all watercourse engineering (bank protection, crossing etc.) have the appropriate authorization from Local Authorities / IFI?				
6.03	Do any abstractions from a watercourse or groundwater body have the appropriate authorization from Local Authority / IFI?				
6.04	Has confirmation for the SUDS design for access roads been gained from Local Authority / IFI?				
6.05	Are cut-off ditches installed on the uphill side of the working area to avoid contaminated surface water run-off?				
6.06	Have field drain been diverted where necessary?				
6.07	Is adequate treatment (e.g. settlement tank/lagoons/discharge to land) provided to prevent silt contaminated water entering watercourses and groundwater?				
6.08	Has vegetation removal/ clearance of the site been minimised to avoid unnecessary areas of bare ground?				
6.09	Have buffer-strips been left between working area and watercourses?				
6.10	Is plant operating in the watercourse?				
6.11	Have all culverts been installed at the base of stockpiles situated within close proximity to watercourses?				
6.12	Have silt fences been installed at the base of stockpiles situated within close proximity to watercourses?				
6.13	Are there adequate controls on site construction roads to minimize sediment runoff into watercourses (in particular, are there adequate flow attenuation measures within surface drain)?				
6.14	Are there any sign of decaying straw bales in water courses? (this could lead to organic pollution of the water course)				



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Item	Questions	Yes	No	Corrective Action Required	
				Action	By
6.15	Are silt traps regularly maintained?				
6.16	Has ease of maintenance been considered in the design of permanent drainage features?				
6.17	Is there evidence of contamination of any watercourse (e.g. with oil, sediment, concrete, waste) in the vicinity of the works?				
6.18	Is monitoring of potential impacts on watercourses carried out on a regular basis and fully recorded?				
6.19	Are dewatering operations being carried out in such a way to minimise sediment contamination?				
6.20	Is drainage and run off in concrete batching areas adequate?				
6.21	Are adequate pollution prevention measures considered and put in place during concrete pours?				
7. Landscape					
7.01	Have earthworks been designed to promote successful re- instatement of vegetation?				
7.02	Are reinstatement and restoration works being implemented in a timely manner as per the requirements of the Contract?				
8. Ecology					
8.01	Have storage sites (soil, plant etc.) been sited on areas of lower quality habitat where possible?				
8.02	Is the ECoW a member of the institute of Ecology and /or Environmental management as required by planning conditions?				
8.03	Have buffer zones been constructed and maintained around designated protected species exclusion areas (e.g. red squirrel dreys, water vole habitats, otter holts, badger holts etc.)?				
8.04	Have toolbox talks on the subject of ecology and environmental responsibilities on site been delivered? Have attendance record been maintained for these?				

Item	Questions	Yes	No	Corrective Action Required	
				Action	By
9. Documentation Check					
9.01	Start-up meeting record				
9.02	Full contacts list in Section 3, Table 3.0 of CEMP				
9.03	Induction records				
9.04	Pollution Prevention Measures Register				
9.05	Geotechnical Risk Register				
9.06	Weekly meeting minutes				
9.07	Records of environmental checks and routine monitoring of mitigation measures				
9.10	Water Quality Monitoring Results				
9.11	Safety and Environmental Awareness Reports (SEARs). Filed and entered on database?				
9.12	Safety and Environmental Audit Reports for the site. (If yes, insert date of last audit)				
9.13	Contractor's Environmental Plans (or Construction Method Statements):				



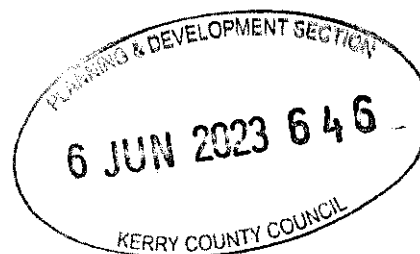
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Project Title: Inchamore Wind Farm
Document Title: Construction Environmental Management Plan

Date: May 2023
Project No: 6226
Document Issue: Final

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**MANAGEMENT PLAN 2 –
WATER QUALITY MANAGEMENT PLAN**

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INCHAMORE WIND DAC

INCHAMORE WIND FARM CO. CORK

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

MANAGEMENT PLAN 2 WATER QUALITY MANAGEMENT PLAN

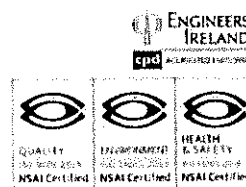
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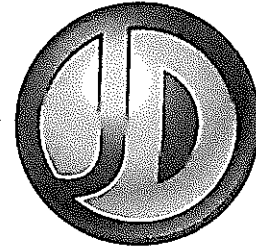
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DOCUMENT APPROVAL

PROJECT	Inchamore Wind Farm	
CLIENT / JOB NO	Inchamore Wind DAC	6226
DOCUMENT TITLE	Construction Environmental Management Plan (CEMP) Water Quality Management Plan (WQMP)	

Prepared by		Reviewed/Approved by
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CONTENTS

1. INTRODUCTION	1
1.1 Scope and Requirements	1
1.2 Reference Documentation	1
2. RESPONSIBILITIES.....	2
2.1 General.....	2
2.2 Hydrochemistry Monitoring	3
2.3 Reporting.....	4
2.4 Contingency Sampling & Emergency Response.....	4
3. WATER QUALITY MONITORING: OUTLINE SCOPE	5
3.1 General.....	5
3.2 Hydrochemistry Monitoring	12
4. WATER CROSSINGS	13
4.1 Locations	13
4.2 Design	18
4.3 Construction Requirements.....	19
4.4 Mitigation Measures.....	19

Appendix A – Design Drawings

Appendix B – TLI Inchamore Technical Notes and Culvert Schedule



1. INTRODUCTION

1.1 Scope and Requirements

1.1.1 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.

1.1.2 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.

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

1.2 Reference Documentation

1.2.1 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 65 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 4: Peat and Spoil Management Plan** and **Management Plan 3: Surface Water Management Plan**.

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

- Inchamore Wind Farm, Co. Cork Environmental Impact Assessment Report (EIAR), May 2023
- Inchamore Wind Farm, Co. Cork Natura Impact Statement (NIS), May 2023
- Inchamore Wind Farm, Co. Cork CEMP, May 2023

2. RESPONSIBILITIES

2.1 General

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

2.1.2 Prior to works commencing, the Ecological Clerk of Works will be retained by Inchamore Wind DAC 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.

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

- 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.
- 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.,

PLANNING & DEVELOPMENT SECTION
6 JUN 2023 646
KERRY COUNTY COUNCIL

upstream & downstream of the seven onsite water crossing locations) before, during (if potential pollution visually identified) and after construction works at that location

- EPA Q Value Biological Monitoring at seven water crossing locations (i.e., upstream & downstream of instream construction work locations) before and after construction works.

2.1.4 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.

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

2.2.4 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 EM.

2.3.2 It will be the responsibility of the EM 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

2.3.3 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.

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

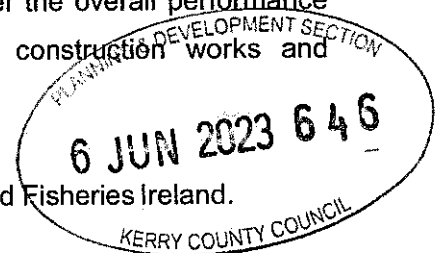
2.3.5 Final Report on Water Quality

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.

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

2.4 Contingency Sampling & Emergency Response

2.4.1 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.



2.4.2 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).

2.4.3 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

3.1.1 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.

3.1.2 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.

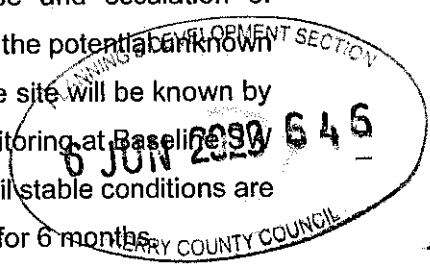
3.1.3 Sample locations will be labelled consistently for the duration of the monitoring period. Where any additional locations are sampled during the works, the location (grid reference) of the sampling point will be recorded and a photograph will be taken at time of sampling.

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

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

3.1.6 Baseline monitoring undertaken at the Development as part of this study will be repeated periodically i.e., before, during and after construction phase, to measure any deviations from baseline hydrochemistry that occur at the Site, including discharge rates and along watercourses. Specifically, a construction period and post construction monitoring programme for the Inchamore site will include the following:

- During the construction phase, daily inspection of silt traps, buffered outfalls and drainage channels and daily measurement of total suspended solids, electrical conductivity, and pH at selected water monitoring locations on the Site (locations close to active working zones). Monitoring of same during times when excavations are being dewatered (likely high in solids) will be done in real time. In this regard, physiochemical properties will be monitored in real time by means of alarmed telemetry e.g., telemetric monitoring at baseline sampling locations and alarm thresholds established in line with water quality reference concentrations/limits which will be set using relevant instruments for example, Surface Water Quality Regulations, <25 mg/ L Total Suspended Solids (TSS).
- Continuous Monitoring will be carried out as part of Active Management of construction water management and treatment (**Appendix 9.6**). These monitoring systems will travel with the active construction areas / remain with the Active Management infrastructure. The purpose of this is to recycle water if quality is unfavourable and adjust the dewatering and treatment train accordingly until discharge quality is observed to be acceptable. A small degree of tolerance above reference concentrations is acceptable at this location but only if the discharge from the Active Management train discharges to another Passive Management system or to a non-sensitive vegetated area. If discharging within sensitive areas or buffer zones, the quality of discharge from the Active Management train will be in line with prescribed reference limits (e.g., 25 mg/L TSS)
- Continuous Monitoring at downstream Baseline SW Monitoring Locations (**Figure 9.7b**) will be carried out using telemetry during the construction phase. Triggering of the threshold at these locations will trigger emergency response and escalation of measures including immediate full site inspection to ascertain to the potential unknown source (bearing in mind that the quality of managed runoff at the site will be known by means of live telemetry and handheld meters). Continuous monitoring at Baseline SW Monitoring Locations will continue into the operational phase until stable conditions are observed e.g., stable conditions in line with baseline conditions for 6 months.
- Post construction: inspection of silt traps, buffered outfalls and drainage channels, measurement of total suspended solids, electrical conductivity, and pH at selected water monitoring locations at the Site will be carried out at a reasonable frequency (weekly initially gradually reduced based on observed stability of conditions), and will also be scheduled following extreme metrological events (**EIAR Chapter 9: Hydrology and Hydrogeology**). During the operational phase of the project the stilling ponds and

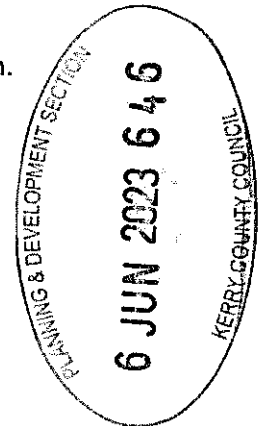


buffered outfalls will be periodically inspected e.g., weekly during maintenance visits to the Site initially and gradually reduced based on observed stability of conditions.

- During the construction phase of the project, the Development areas will be monitored daily for evidence of groundwater seepage, water ponding and wetting of previously dry spots, and visual monitoring of the effectiveness of the constructed drainage and attenuation system so that it does not become blocked, eroded or damaged during the construction process. This monitoring will continue at a reasonable frequency (weekly initially gradually reduced based on observed stability of conditions) during the operational phase of the Development, however it is envisaged that any potential issues in this regard will be identified and rectified during the construction phase.
- During the construction phase of the Project, the Development areas and adjacent receiving drainage systems will be monitored daily for evidence of erosion and other adverse impacts to natural drainage channels and existing degraded areas whereby soils/peat are exposed and prone to enhanced degradation. This monitoring will continue at a reasonable frequency during the operational phase of the Project; however, it is envisaged that any potential issues in this regard will be identified and rectified during the construction phase.
- During both the construction and operational phases of the project watercourse crossings will be monitored frequently (daily during construction and intermittently during operational phase i.e., weekly / monthly inspections initially and reduced gradually in line with observed stability and confidence in longer term data obtained. The water course crossings will be monitored in terms of structural integrity and in terms of their impact on respective watercourses.
- Site water runoff quality at all surface water monitoring locations will be monitored on a continuous basis during the construction phase of the Project. Monitoring will continue into the operational phase until such time that the Site and water quality have stabilised (stable conditions in line with baseline conditions for e.g., eight (8 No.) consecutive quarterly monitoring events). This monitoring will be carried out at the downstream surface water baseline sampling location (**EIAR Appendix 9.6**)
- Continuous monitoring systems will be in place, particularly in principal surface water features draining the site. For example, remote sensing, or telemetric monitoring sensors (turbidity) will be employed in this regard.
- At construction areas requiring drilling (HDD) and/or significant excavations (launch pits, cable joint bays), and in the management of general excavations, arisings will be managed carefully with a view to containing and treating all drained water and runoff

which will likely be laden with suspended solids. Active continuous monitoring will be required at these locations in line with the conceptual model presented in **EIAR Appendix 9.6 – Tile 8**. The monitoring location will be at the outfall or discharge point of the treatment train at any respective location. Continuous monitoring will include telemetry.

- Continuous Monitoring Locations or Telemetric Monitoring Stations (TMS) will use probes to monitor the following parameters:
 - Electrical Conductivity
 - Turbidity (Data obtained can be equated to estimated Total Suspended Solids (TSS) through calibration)
 - pH
 - Temperature
 - Capacity for additional probes.
- TMSs will be self-powered and will be comprised of the following components at a minimum:
 - Remote Telemetry Unit (RTU) – Modem / data hub and transmission.
 - Solar panel
 - Sensor – pH
 - Sensor – Turbidity
 - Sensor – Electrical Conductivity
 - Sensor Cleaning Device (SCD)(Turbidity probe)
 - Power Management Unit (PMU)
 - Power Bank (PB)
 - Website – presenting data trends over time.
 - Metal stand / frame and protective fencing.
 - The TMS will have capacity for additional parameters.
- Telemetric continuous monitoring sampling frequency is generally set at one data point per 15 minutes, however considering the intensive nature of the proposed works, particularly drilling activities, if possible, it is recommended that sampling frequency is set at 5 minutes or less with a view to escalating responses to potential discharge quality issues in good time. Data is transmitted to a project website which will display data trends over time. Access to the website can be gained and shared via a website link.



- Telemetric Monitoring Systems will be used a key part of Active Management of runoff and construction water at the site, as presented in **EIAR Appendix 9.6 – Tiles no. 7 to 9**.
- A handheld turbidity meter will be available and used to accurately measure the quality of water discharging from the site at any particular location. The meter will be maintained and calibrated frequently (per the particular unit's calibration requirements / user manual) and will also be used to check and calibrate remote sensors if they are employed. Quality thresholds have been established for the purposes of escalating water quality issues as they arise.
- Rainfall will be monitored (one (1 No.) rainfall gauge required). This unit will be connected with and displayed with other site water quality telemetry data via the telemetry website.
- Surface water runoff control infrastructure will be checked and maintained on an ongoing basis, and stilling ponds and check dams will be maintained (de-sludge / settle solids removed) on an ongoing basis, particularly during the construction phase of the Development. It is important to minimise the agitation of solids during these works, otherwise it will likely lead to an acute significant loading of suspended solids in the drainage network. This can be achieved by temporarily reducing or blocking inking flow and vacuum extracting settled solids or *sludge*. Where the drainage feature possesses relatively significant flow rates, isolating and over pumping is the best course of action.
- Regular checking and maintenance of pollution control measures are required (in line with frequencies outlined above), with an immediate plan for repair or backup if any breaches of design occur. In the event that established infrastructure and measures are failing to reduce suspended solids to an acceptable level, construction works will cease until remediation or upgrading works are completed.

Monitoring (Grid Connection Route and Turbine Delivery Route)

Monitoring will be carried out at each significant construction location (HDD and any excavation >2.0 m) and at significant environmental receptors including the following Environmental Monitoring Locations:

- Upstream and downstream of surface water crossings on mapped rivers.
- Operational wells within groundwater buffer zones associated with significant construction locations (namely SW Crossings).
- Groundwater abstraction points within buffer zones (mapped wells, source protection areas, and/or associated Regionally Important Karst Aquifer).

Monitoring proposed will be specified relative to the particular activity and associated risk at respective locations.

Routine Surface Water Monitoring

Similar to Wind Farm Site baseline monitoring, baseline surface water samples will be obtained at upstream and downstream sampling locations at each significant construction location over mapped rivers. Baseline surface water samples will be obtained at accessible locations such as existing bridges on public roads. Where upstream access is poor, the upstream baseline sampling location will be directly/immediately upstream of the construction location (e.g., existing bridge / culvert).

Routine Groundwater Monitoring

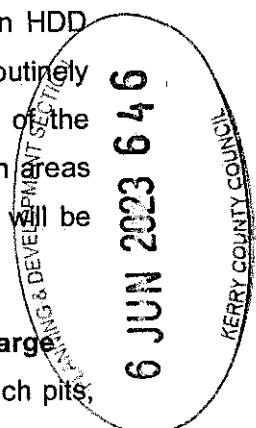
At Horizontal Directional Drilling (HDD) locations, any mapped wells identified in HDD groundwater buffer zones (250 m) will be monitored to establish baseline, and routinely monitored during the construction and for a period into the operational phase of the development. All abstraction points associated with groundwater source protection areas and within Regionally Important Karst aquifers associated with the development will be monitored with the same frequency.

Continuous Monitoring of Active Construction Water Management and Discharge

At construction areas requiring drilling (HDD) and/or significant excavations (launch pits, cable joint bays), and in the management of general excavations, arisings will be managed carefully with a view to containing and treating all drained water and runoff which will likely be laden with suspended solids. Active continuous monitoring will be required at these locations in line with the conceptual model presented in (EIAR Appendix 9.6). The monitoring location will be at the outfall or discharge point of the treatment train at any respective location. Continuous monitoring will include telemetry.

Continuous Monitoring Locations or Telemetric Monitoring Stations (TMS) will use probes to monitor the following parameters:

- Electrical Conductivity
- Turbidity (Data obtained can be equated to estimated Total Suspended Solids (TSS) through calibration)
- pH
- Temperature
- Capacity for additional probes.



TMSs will be self-powered and will be comprised of the following components at a minimum:

- Remote Telemetry Unit (RTU) – Modem / data hub and transmission.
- Solar panel
- Sensor – pH
- Sensor – Turbidity
- Sensor – Electrical Conductivity
- Sensor Cleaning Device (SCD)(Turbidity probe)
- Power Management Unit (PMU)
- Power Bank (PB)
- Website – presenting data trends over time.
- Metal stand / frame and protective fencing.
- The TMS will have capacity for additional parameters.

Telemetric continuous monitoring sampling frequency is generally set at one data point per 15 minutes, however considering the intensive nature of the proposed works, particularly drilling activities, if possible, it is recommended that sampling frequency is set at 5 minutes or less with a view to escalating responses to potential discharge quality issues in good time. Data is transmitted to a project website which will display data trends over time. Access to the website can be gained and shared via a website link.

In line with monitoring objectives in relation to surface water quality, parameter value thresholds or limits will be established on the telemetry website, text and email alerts will be established which will notify relevant assigned persons of trend anomalies which require investigation, escalation, and corrective mitigation, for example:

- A threshold of 25 mg/L Total Suspended Solids (TSS) will be applied at treatment train outfalls/discharge points, in line with legislative reference limits for surface water quality. Exceedance of such threshold will trigger further investigation and escalation of responses on site with a view to identifying potential uncontrolled sources of contaminants. Parameter trend analysis will also inform investigations and response, for example, intermittent spikes in concentrations in line with baseline conditions versus continuously elevated concentrations caused by an ongoing environmental incident.
- The website will be periodically checked and maintained on a weekly basis at a minimum. The client will also receive maintenance alerts in relation to the monitoring stations, for example, in the event data is not being received from a particular probe

the client / assigned person/s will be notified by the system and maintenance call outs will be conducted.

3.2 Hydrochemistry Monitoring

3.2.1 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.

3.2.2 As a minimum, the monitoring programme will include:

3.2.2.1 The baseline monitoring will include groundwater samples taken from private groundwater wells (3-4) closest to the Development.

3.2.2.2 A water level staff will be placed in the seven watercourses within the development footprint prior to the commencement of the works. Weekly water level readings will be recorded for the duration of the works.

3.2.2.3 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.

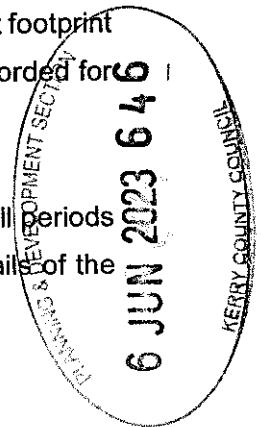
3.2.2.4 Weekly visual inspections and monthly field hydrochemistry monitoring.

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

3.2.3 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
- Chemical Oxygen Demand
- Total Petroleum Hydrocarbons*

4. WATER CROSSINGS

4.1 Locations

There are three (3 No.) proposed watercourse crossing as shown on **Figure 4.1**.

* Only during construction phase

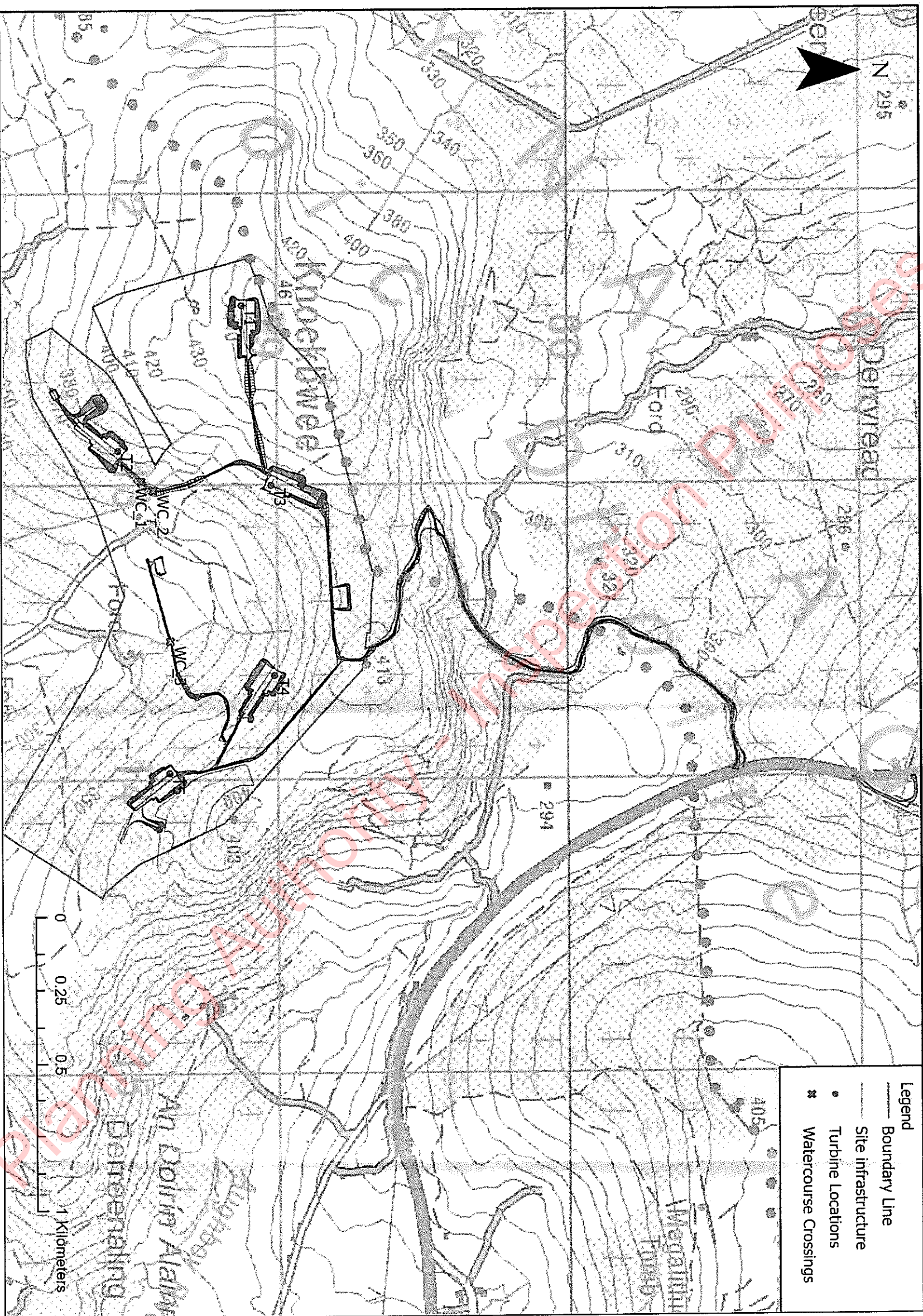


Figure 4.1 Watercourse crossings

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WC1

WC1 is located to the west of the Site, east of T2 and on An_Inse_Mhór¹. The crossing will be a Clear Span Bridge. Details can be seen in **Drawing No. 6226-PL-305**.



Plate 4.1: Existing watercourse where WC1 will be located.

¹ Segment Code 19_1801, EPA Code 19102

WC2

WC2 is also located on An_Inse_Mhór stream² to the east of WC1. The crossing will be a Clear Span Bridge and details of this can be seen in **Drawing No. 6226-PL-306**.



Plate 4.2 Existing watercourse where WC2 will be located.

² Segment_Code 19_947, EPA Code Unavailable

WC3

WC3 crosses an unnamed stream³ and is located near the centre of the Site, to the east of the proposed substation and to the west of the proposed T5. The crossing infrastructure is Clear Span Bridge, of which details can be seen in **Drawing No. 6226-PL-307**.



Plate 4.3 Existing watercourse where WC3 will be located.

³ Segment Code 19_1068, EPA Code Unavailable

Grid Connection

Appendix B details the Technical Notes and Culvert Schedule for the Development as prepared by TLI Group. Table 4.1 summarises the number of crossings along the Grid Connection Route.

Table 4.1: Summary of crossings along the Grid Connection Route

Description	Service Crossings No.	Culvert Crossings No.	Watercourse/bridge Crossings No.	HDD No.
Section 1 Underground Grid Connection	6	107	3	3
Section 2 Underground Grid Connection	0	6	0	1
Total Crossings	6	113	3	4
Total	126			

4.2 Design

All watercourse crossings have been designed on a bespoke basis. The following guidance was used in the sizing of watercourse crossings:

- Hydrological assessments made using a number of methods including Flood Estimation Handbook (Statistical Analysis) and Flood Studies Report (FSR) where appropriate to determine the design flow.
- CIRIA Culvert design and operation guide (C689).
- Inland Fisheries Ireland (2016) Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters.
- Where planning consent is received a Section 50 Application will be submitted to Office of Public Works (OPW) for approval prior to works commencing on site.
- As part of the drainage design, detailed mapping of drainage paths across the site has been undertaken; utilising topographical surveys, contour mapping and aerial photography.

4.2.1 Clear Span Crossings

All water crossings will be clear span as shown on Planning Drawing No. 6226-PL-305 to 6226-PL-307.

- The clear span design is nominally segmented precast arch or similar and will avoid

permanent disruption to the stream bed and banks, protecting fishery habitats.

- The crossing direction will be perpendicular to the stream direction, therefore minimising the length of stream affected.
- The crossing detailed design is to allow for the passage of out-of-bank flood flows within the clear span.
- The crossing location site has been informed by the hydrological analysis and identification of constraints to:
 - Be located in an area where bank slopes are shallow, thus reducing the potential for runoff to carry sediment into the watercourse.
 - Be located so as not to coincide with any incoming tributary streams.
- The structure will include ledges or areas of undisturbed riverbank to allow for the free passage of otters.

4.3 Construction Requirements

The Ecological Clerk of Works (Ecological Clerk of Works) will be consulted with regard to all watercourse crossing works. Surveys by the Ecological Clerk of Works will be carried out immediately prior to construction so that adequate mitigation is built into the design in respect to fish passage and avoiding impact on downstream ecology.

Following consultation with the Contractors, Ecological Clerk of Works and third parties, CCC will be frequently consulted during watercourse crossing construction, as agreed prior to the commencement of construction.

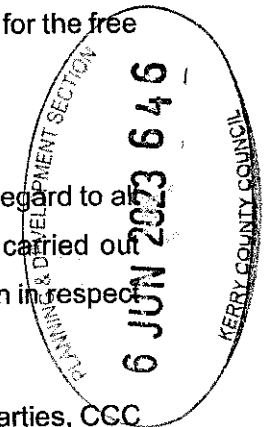
4.4 Mitigation Measures

Suspended solid pollution will be avoided by use of a clear span structures. Where a Clear Span Bridge is installed, its construction will follow IFI (2016) for works in or adjacent to watercourses.

Mitigation will include protection of the riparian bank structure, minimisation of sedimentation to the watercourse by use of silt fencing, sandbags or other sediment reducing measures, and minimisation of instream activity.

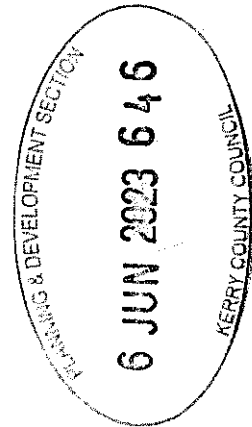
The following mitigation is proposed and is in line with IFI (2016) Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters, in particular Section 6 – River and Stream Permanent Crossing Structures.

During the construction phase the appointed Contractor(s) shall ensure that:



- No works will take place within the 65 m buffer zone of watercourses except for the clear span bridges, road development and drainage measures as detailed.
- Site compounds and temporary excavation areas will be located at a minimum distance of 65 m from any watercourse. All drainage from these facilities will be directed through a settlement pond with appropriate capacity and measures to provide spill containment.
- All site drainage, as described in the **Management Plan 3: Surface Water Management Plan** and shown on associated drawings, will be directed through either sediment traps, settlement ponds and / or buffered drainage outfalls to ensure that total suspended solid levels in all waters discharging to any watercourse will not exceed 25 mg/L (IFI, 2016). All construction site run-off will be channelled through a stilling process to allow suspended solids to settle out and through a spill-containment facility prior to discharge.
- Daily monitoring of all sediment traps and settlement ponds will be undertaken by the Ecological Clerk of Works to ensure satisfactory operation and/or maintenance requirements.
- The storage of oils, hydraulic fluids, etc., will be undertaken in accordance with current best practice for oil storage (Enterprise Ireland, BPGCS005).
- All machinery operating at the Site will be fully maintained and routinely checked to ensure no leakage of oils or lubricants occurs. All fuelling of machinery will be undertaken at a discrete “fuel station” designated for the purpose of safe fuel storage and fuel transfer to vehicles.
- Any extensions to existing drainage culverts on the site roads will be undertaken in dry conditions and in low flow conditions on drains that do not run dry.
- The pouring of concrete, sealing of joints, application of water-proofing paint or protective systems, curing agents, etc., will be completed in the dry to avoid pollution of the freshwater environment (see **Chapter 9: Hydrology and Hydrogeology** for further details). There will be no batching or storage of cement allowed in the vicinity of any watercourse crossing construction area.
- Procedures (as detailed in **Chapter 9: Hydrology and Hydrogeology**) will be put in place to ensure the full control of raw or uncured waste concrete to ensure that watercourses will not be impacted.
- Should there be any incidents of pollution to watercourses, immediate steps as specified in the **Emergency Response Plan** (CEMP-Management Plan 1) will be undertaken to resolve the cause of the pollution and where feasible, mitigate against the impact of pollution.

- Re-seeding / re-vegetation of all areas of bare ground or the placement of Geo-jute (or similar) matting will take place prior to the start of the operational phase to prevent silt-laden run-off. The seed mix will contain only suitable native species of plant.
- 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 in natural streams or drainage lines.
- 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.

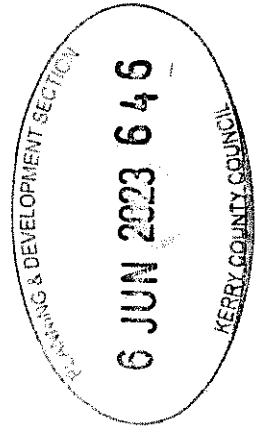


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Client: Inchamore Wind DAC
Project Title: Inchamore Wind Farm
Document Title: CEMP – Water Quality Management Plan

Date: May 2023
Project No: 6226
Document Issue: Final

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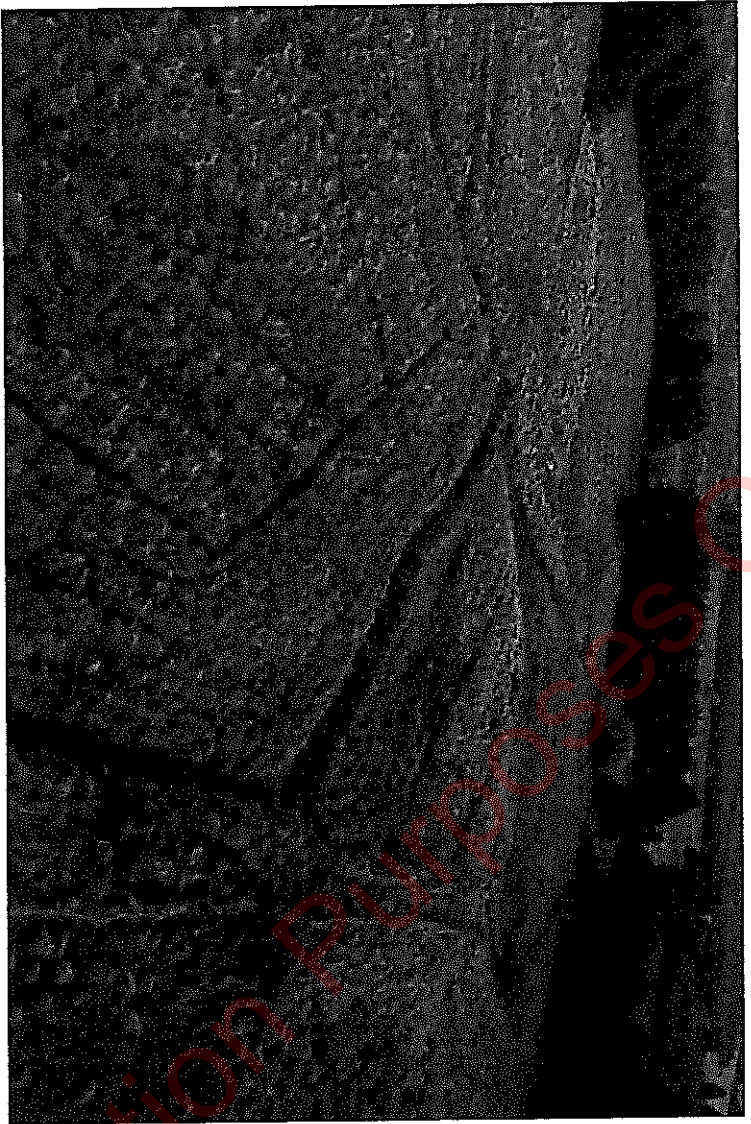


APPENDIX A

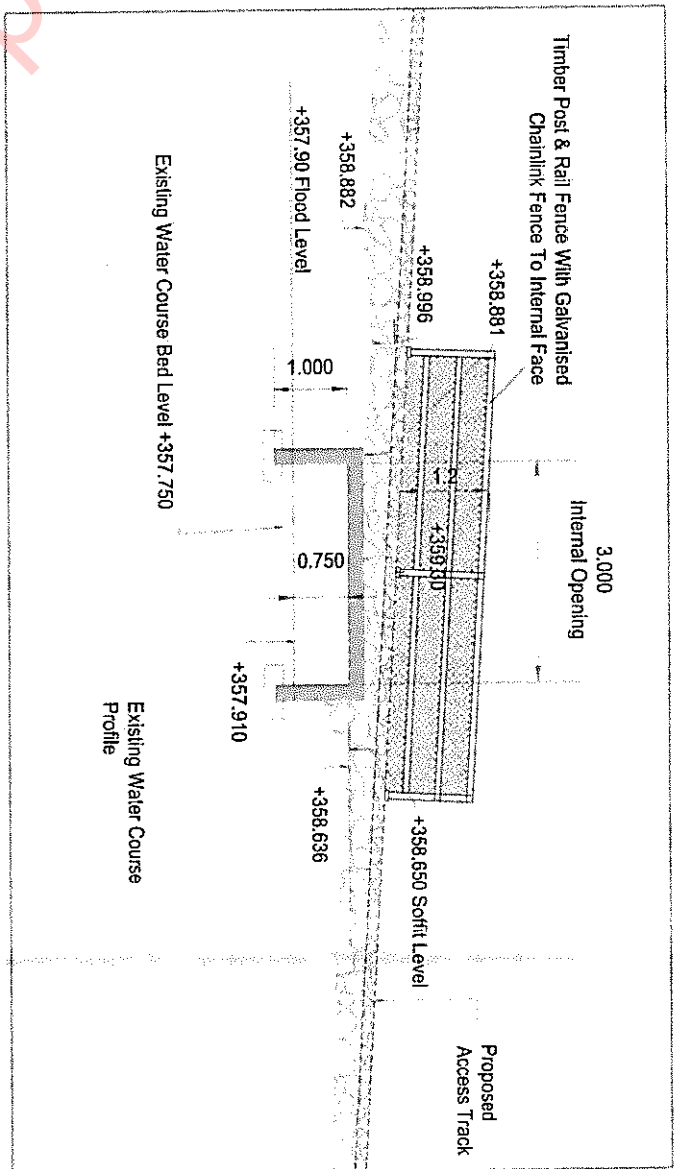
Design Drawings



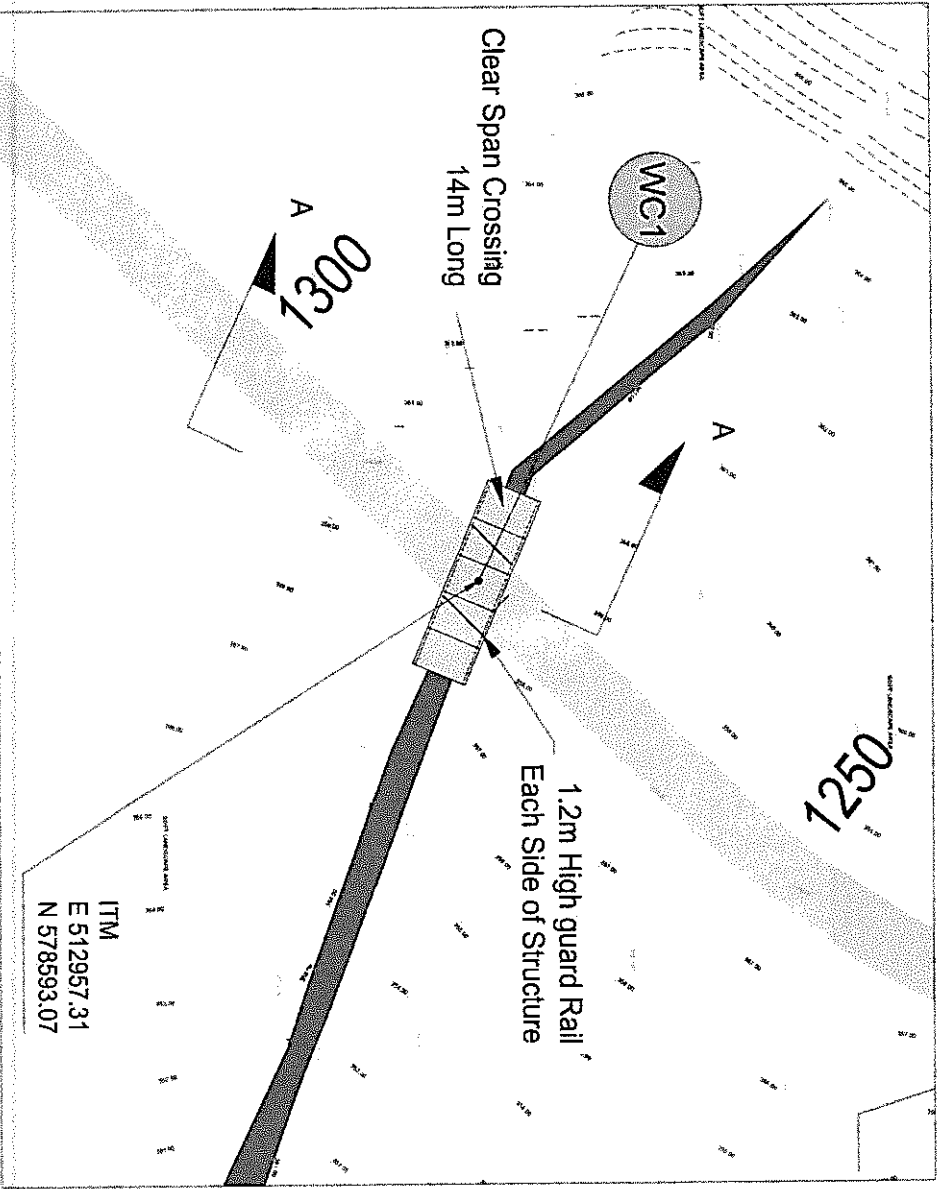
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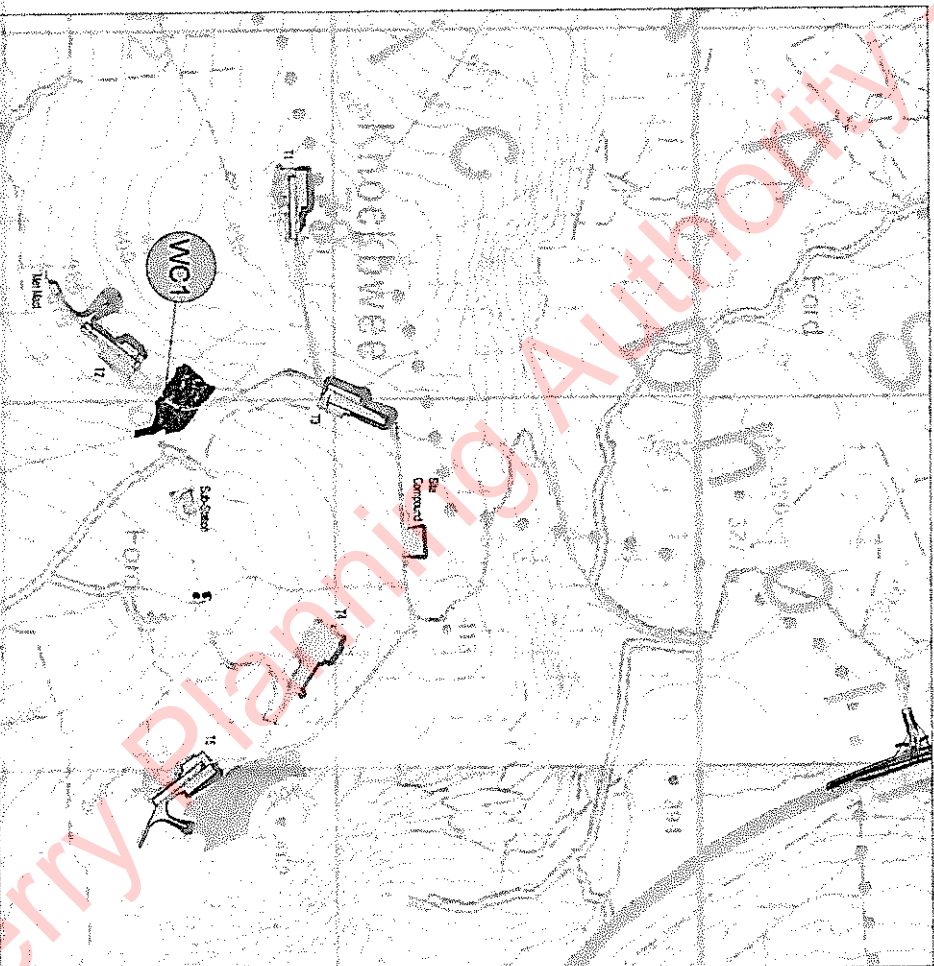
PHOTOGRAPH OF EXISTING WATERCOURSE



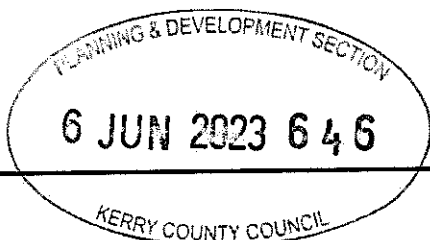
SECTION A - A THROUGH PROPOSED WATERCOURSE CROSSING WC 1 Scale 1:100



PLAN : WATERCOURSE CROSSING WC 1 Scale 1:500



LOCATION PLAN : WATERCOURSE CROSSING WC 1 Scale 1:20,000



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 Author: Michael Kelly

Client
Inchamore Wind DAC

Project
**Proposed Wind Farm
 at Inchamore, Coolea,
 Co. Cork**

Stage
Planning

Title
**Proposed Watercourse
 Crossing WC 1**

Scales
 As Noted (A3)

Surveyed	Prepared By	Checked	Date
	AL/CC	S.M.	28-04-2023

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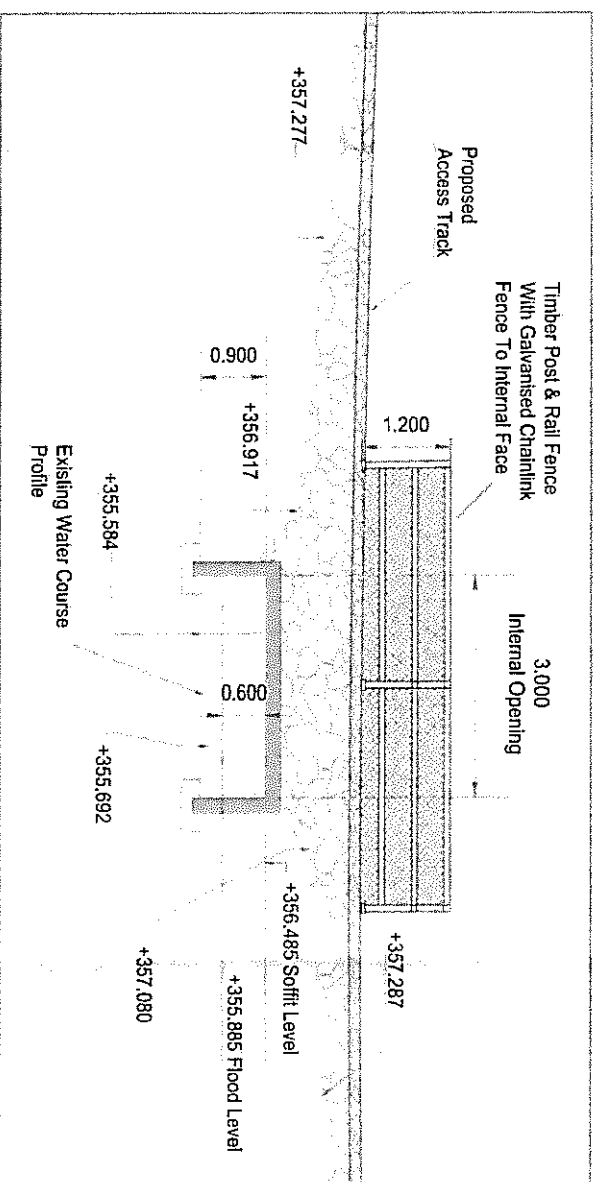


Job No.	Drawing no.	Revision
6226	PL-305	

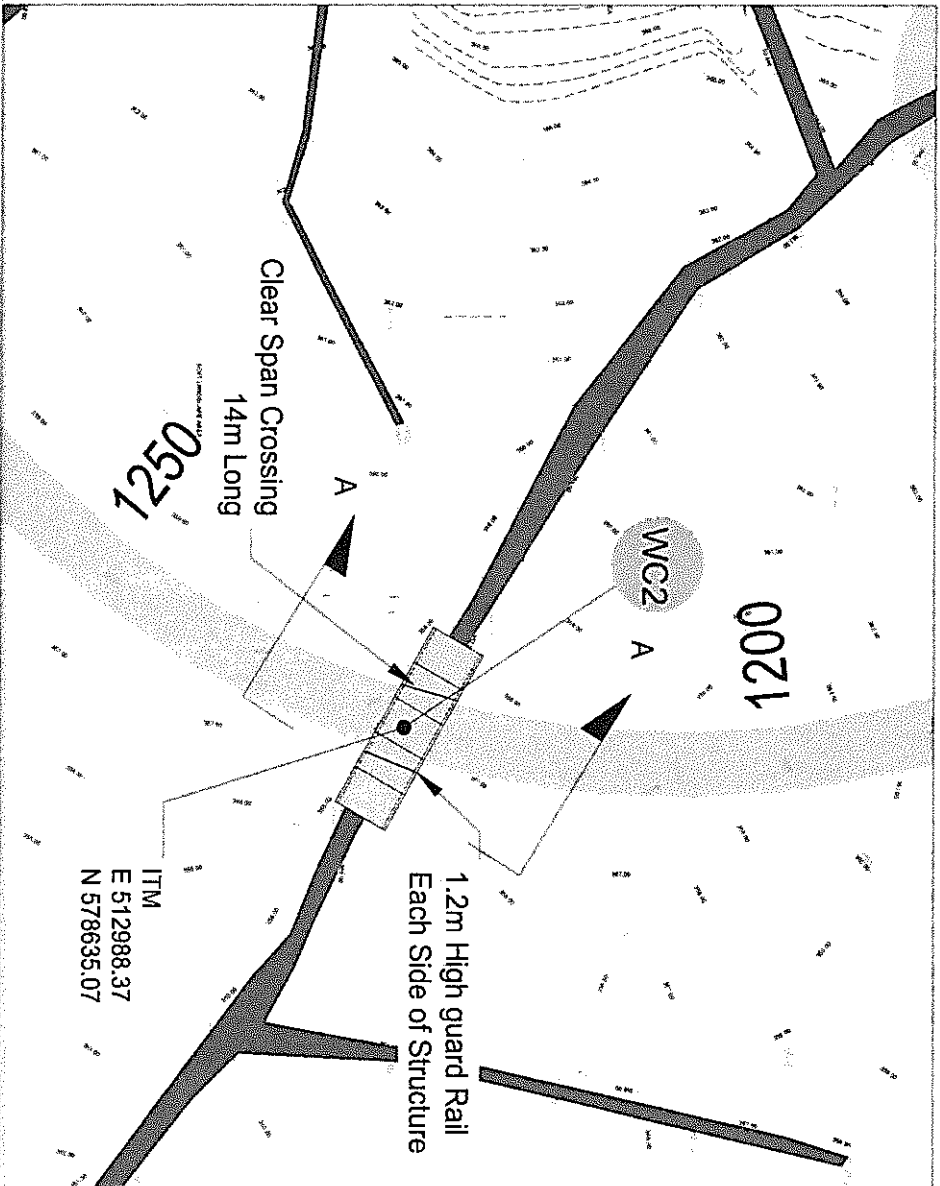
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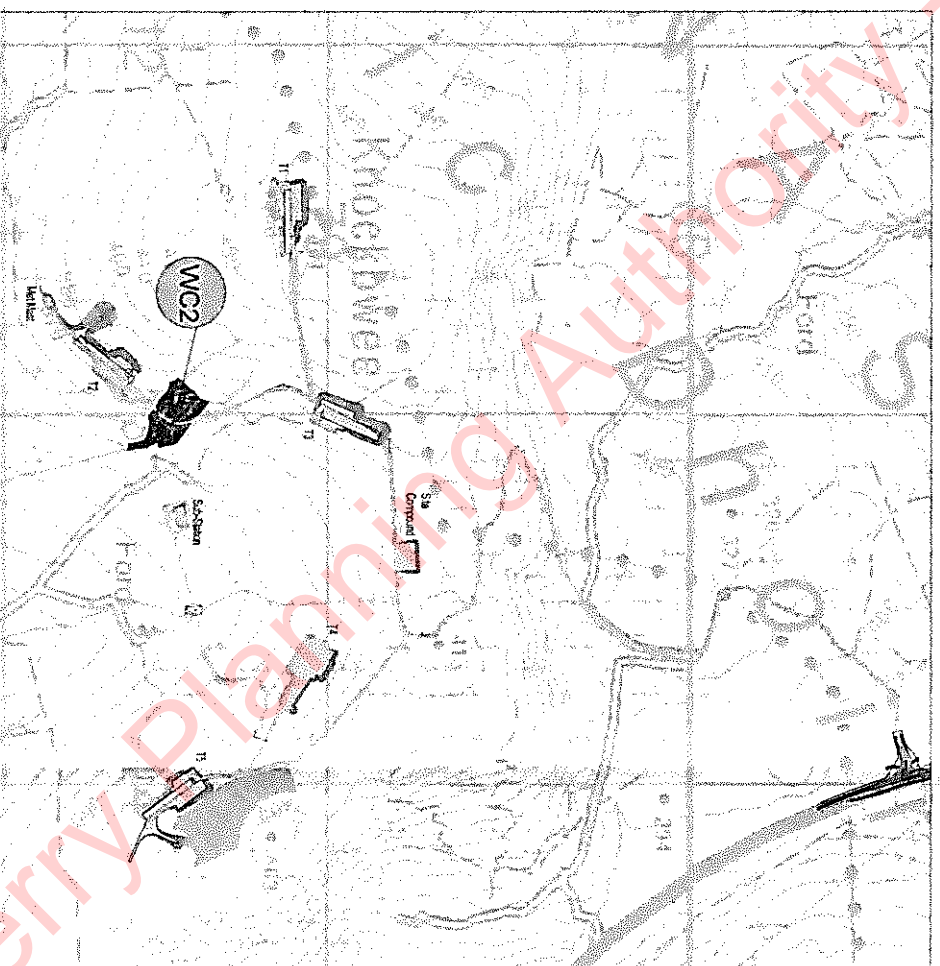
PHOTOGRAPH OF EXISTING WATERCOURSE



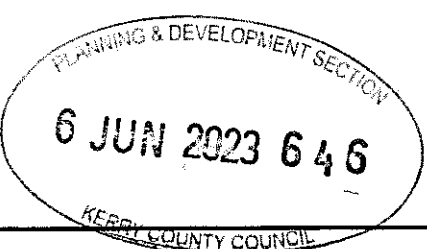
SECTION A - A THROUGH PROPOSED WATERCOURSE CROSSING WC 2 Scale 1:100



PLAN : WATERCOURSE CROSSING WC 2 Scale 1:500



LOCATION PLAN : WATERCOURSE CROSSING WC 2 Scale 1:20,000



Client	Inchamore Wind DAC
Project	Proposed Wind Farm at Inchamore, Coolea, Co. Cork
Stage	Planning
Title	Proposed Watercourse Crossing WC 2

Drawn	Checked	Date
Survised	Prepared By	AMC
As Noted (A3)	AMC	28-04-2023

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Job no.	Drawing no.	Revision
6226	PL-306	

Kerry Planning Authority - Inspection Purposes Only!

Client: Inchamore Wind DAC
Project Title: Inchamore Wind Farm
Document Title: CEMP – Water Quality Management Plan

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APPENDIX B

TLI Inchamore Technical Notes and Culvert Schedule



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