TOBIN

Lissinagroagh Wind Farm, Co. Leitrim

Construction Environmental Management Plan (CEMP)

BUILT ON KNOWLEDGE

Document Control Sheet	
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1. INTRODUCTION

FuturEnergy Lissinagroagh DAC, a development company supported by FuturEnergy Ireland, have applied to An Coimisiún Pleanála for planning permission to construct the proposed Lissinagroagh Wind Farm Project in County Leitrim.

The proposed project is described in detail in Chapter 2 of the project Environmental Impact Assessment Report (EIAR) and comprises:

- A proposed wind farm comprising fourteen (14) wind turbines, an on-site 110kV electrical substation and other ancillary infrastructure including access roads and drainage, within a site area of 170.5 hectares (ha), with a further 218.5 ha of proposed biodiversity enhancement lands;
- A proposed grid connection comprising a 110kV underground cable approximately 32km in length to connect the wind farm to the National Grid at an existing ESBN substation in Srananagh, Co. Sligo;
- A proposed turbine delivery route along the public road network between Killybegs, Co. Donegal and the wind farm site, which will require accommodations at specific locations to facilitate turbine and construction material delivery.

The proposed project is the subject of two separate planning applications. The first application is for the proposed wind farm and ancillary works. The second application is for the proposed on-site substation and underground grid connection. This Construction Environmental Management Plan (CEMP) considers the project as a whole.

1.1 SITE LOCATION

The proposed wind farm site is located within the townlands of Lisdarush, Shasmore, Faughary, Boleyboy, Cashelaveela, Tawnyfeacle, Lissinagroagh and Cherrybrookt in north County Leitrim. The closest turbine is located approximately 3 km northeast of Manorhamilton and approximately 4 km southwest of Kiltyclogher (Refer to Figure 1-2). The proposed biodiversity enhancement lands are located to the northeast and southwest of the wind farm in the townlands of Raheelin, Killea, Lugnasaghta, Cooloodonnell and Tullyskeherney and Cashelaveela.

The site is located in close proximity to the Northern Ireland border in County Fermanagh which is approximately 3 km to the north. The site ranges in elevation from 170 to 380 m AOD, with the eastern part of the site bordering Dough Mountain (462m). The northern turbines are situated within the Saddle Hill (375m) Coillte property at elevations between 280 and 310 m AOD generally in undulating terrain. The southern turbines are located between 170 m and 380m AOD.

The proposed landholding within which the wind farm is located extends to approximately 1,096 ha, of which 785 ha are currently commercial forest owned by Coillte. The remaining 311 ha are largely privately-owned third-party lands and comprise a mix of coniferous forestry, marginal agricultural land, peatbogs and transitional scrub. The planning application site boundary extends to 389 ha (Refer to Drawing 10955-2001).

1.2 Brief Project Description

1.2.1 Proposed Wind Farm

- Fourteen (14) wind turbines with a blade tip height range of 180 m to 185 m inclusive, a rotor diameter range from 149 m to 163 m inclusive, a hub height range from 101 m to 110.5 m inclusive, a minimum ground clearance of 22 m, and all associated foundations, hardstanding and assembly areas;
- A permanent meteorological mast with a height of 100 m, with a lightning finial extending above the mast;
- Modifications to an existing site access on the L61801 local road in the townland of Faughary in the west of the site, to be used as a permanent access during construction and operation;
- A new temporary access on the L6184 local road in the townland of Cherrybrook for use by turbine delivery vehicles during construction only, and subsequent reinstatement;
- Modifications to an existing site access on the L61844 local road in the townland of Lissinagroagh in the southeast of the site, to be used as a temporary access during construction phase only;
- Approximately 7.95 km of new internal access tracks to include passing bays and associated drainage;
- Upgrade of approximately 8.35 km of existing access tracks, to include passing bays and associated drainage;
- Temporary and permanent drainage and sediment control systems;
- Ten (10) clear span bridges and one (1) existing culvert extension at watercourse crossings by access tracks;
- Three (3) borrow pits with a total available area of 63,352 m2 for temporary use during construction. The borrow pits will subsequently be used for storage of excavated material;
- Two (2) temporary construction compounds each on an area of 9,100 m2 to contain site offices, storage containers, bunded fuel storage, waste storage, parking areas and security fencing;
- Seven (7) permanent controlled access points on the L61801 and L6184 Local Roads in the townlands of Faughary and Boleyboy to facilitate turbine delivery and construction works which will remain in place after the construction period;
- A temporary crossing of unnamed local road in the townland of Cherrybrook to facilitate turbine delivery vehicles during construction only;
- All associated underground electrical and communications cabling connecting the wind turbines to the on-site substation (the substation is subject to a separate planning application, see details below);
- All related site works and ancillary development including landscaping and soil excavation;
- Biodiversity enhancement areas (218.5 ha) to provide nesting and foraging habitat for birds and other land improvements; and
- Ancillary forestry felling to facilitate construction and operation of the proposed project.

Design flexibility has been sought from An Coimisiún Pleanála for the turbine ranges used by the project. The fourteen (14) wind turbines on site will have a maximum blade tip height

range from 180 m-185 m inclusive, a rotor diameter range from 149 m-163 m inclusive, and a hub height range from 101 m-110.5 m inclusive, and all associated foundations and hard-standing areas respective of each turbine.

1.2.2 Proposed Substation and Grid Connection

- A permanent 110kV on-site electrical substation to consist of: an EirGrid control building containing worker welfare facilities and equipment store; an Independent Power Producer (IPP) control building containing a high voltage switch room, site offices, kitchen facilities, storeroom and toilet amenities; all electrical plant and infrastructure and grid ancillary services equipment; a telecommunications mast; parking; lighting; security fencing; wastewater holding tank; rainwater harvesting equipment and all associated infrastructure and services including site works and signage;
- A 110 kV underground cable from the on-site 110kV substation to the existing ESBN Srananagh Substation in the townland of Ballysumaghan, Co. Sligo, approximately 32 km in length, of which 30.6 km will be in the public road corridor;
    - Eleven (11) existing bridge crossings, of which eight (8) will involve in-road HDD (Horizontal Directional Drill), two (2) will involve off-road HDD and one (1) will be a standard crossing within the bridge deck;
    - Eight (8) existing culvert crossings by open trenching;
    - All related site works and ancillary development.

A single grid connection will be constructed for the proposed project and will become a permanent component of the Irish national grid network.

1.2.3 Proposed Turbine Delivery Route

The proposed TDR extends from Killybegs Port to the wind farm site for 122 km along the R263, N56, N15 and N16 and L6184. There are fifty-seven (57) accommodation areas required along the route to facilitate the transport of oversize turbine components, comprising temporary vegetation management, local strengthening of road edges and street furniture management and subsequent reinstatement.

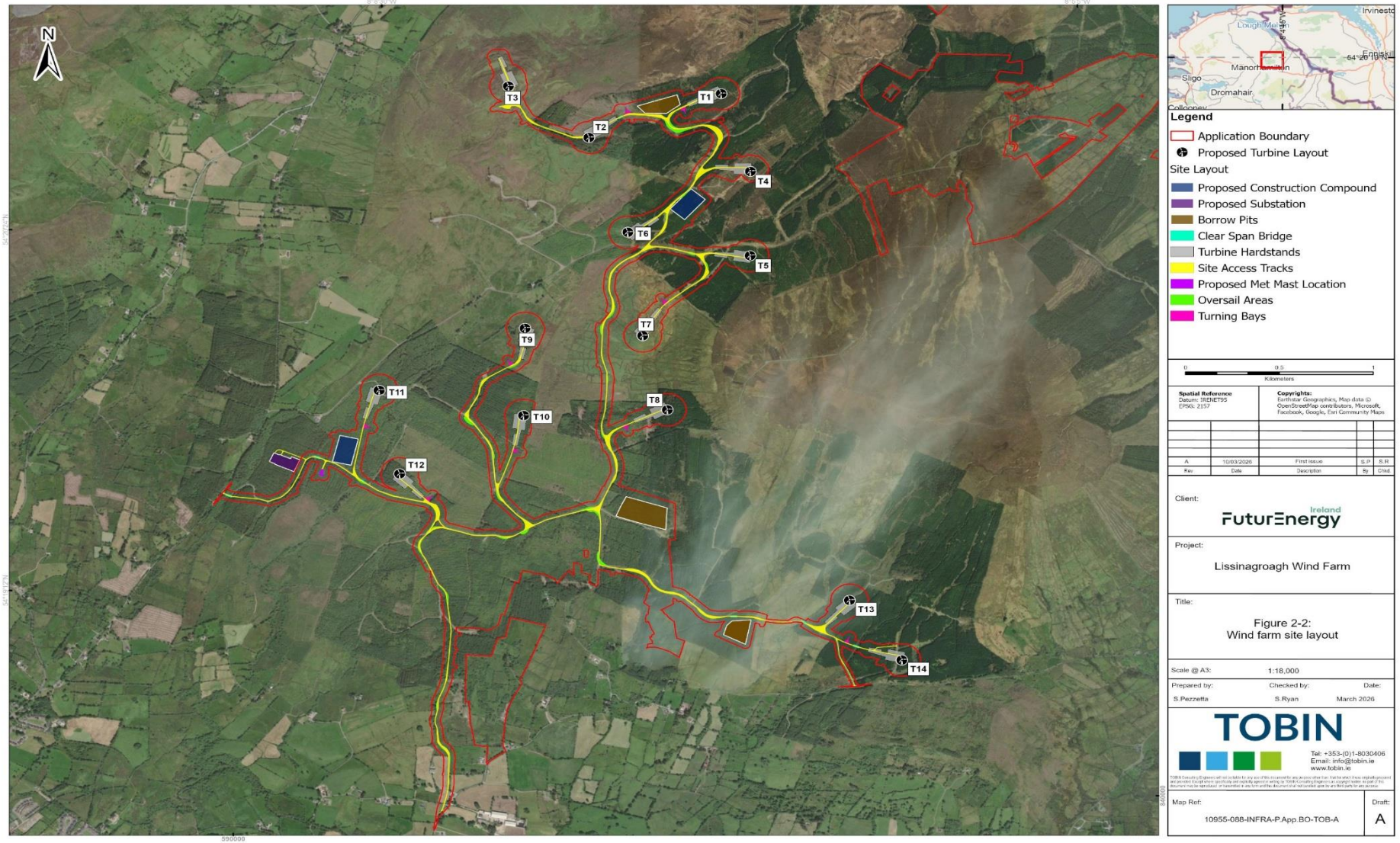

Figure 1-1 Proposed Wind Farm Layout

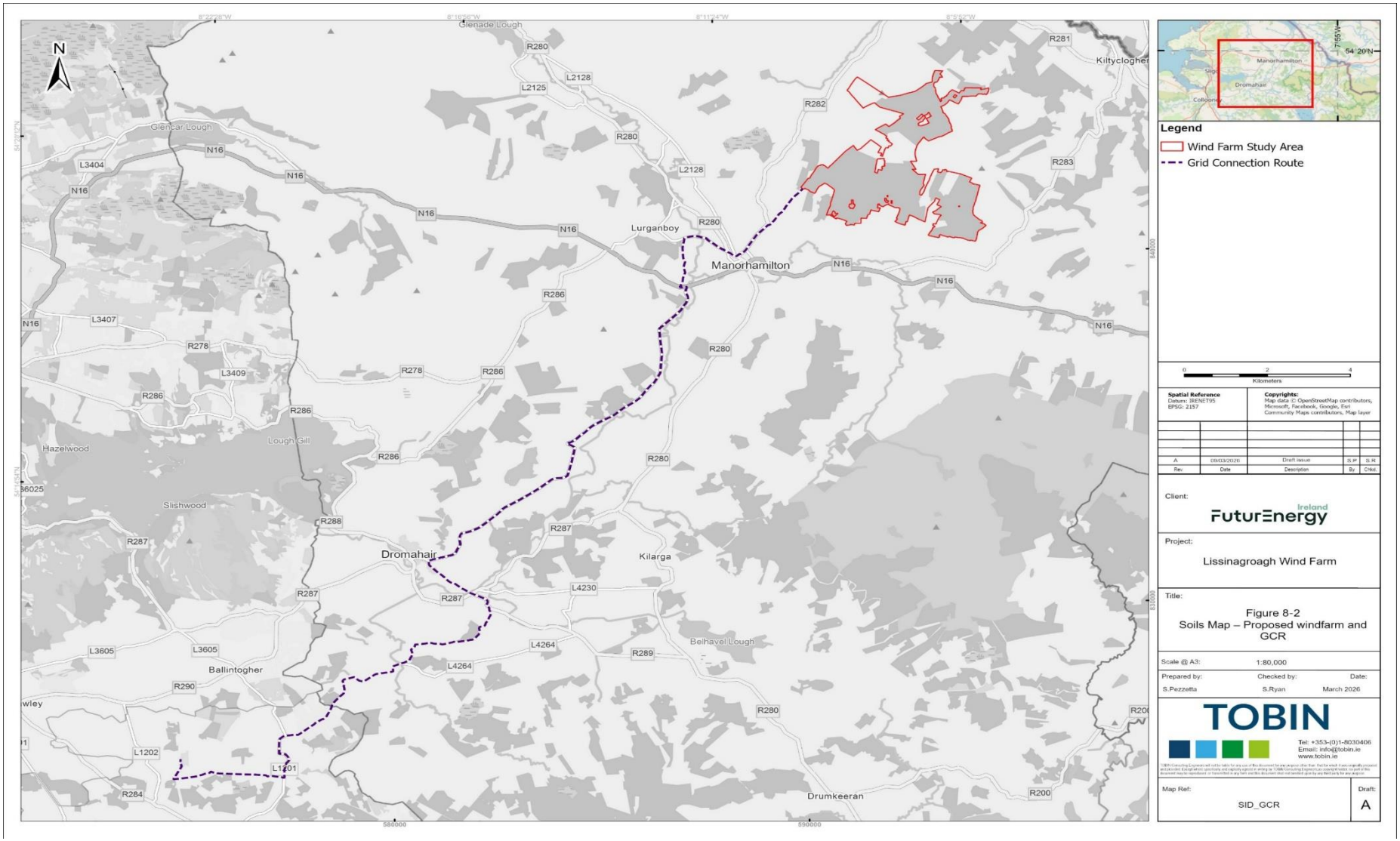

Figure 1-2 Proposed Grid Connection Route

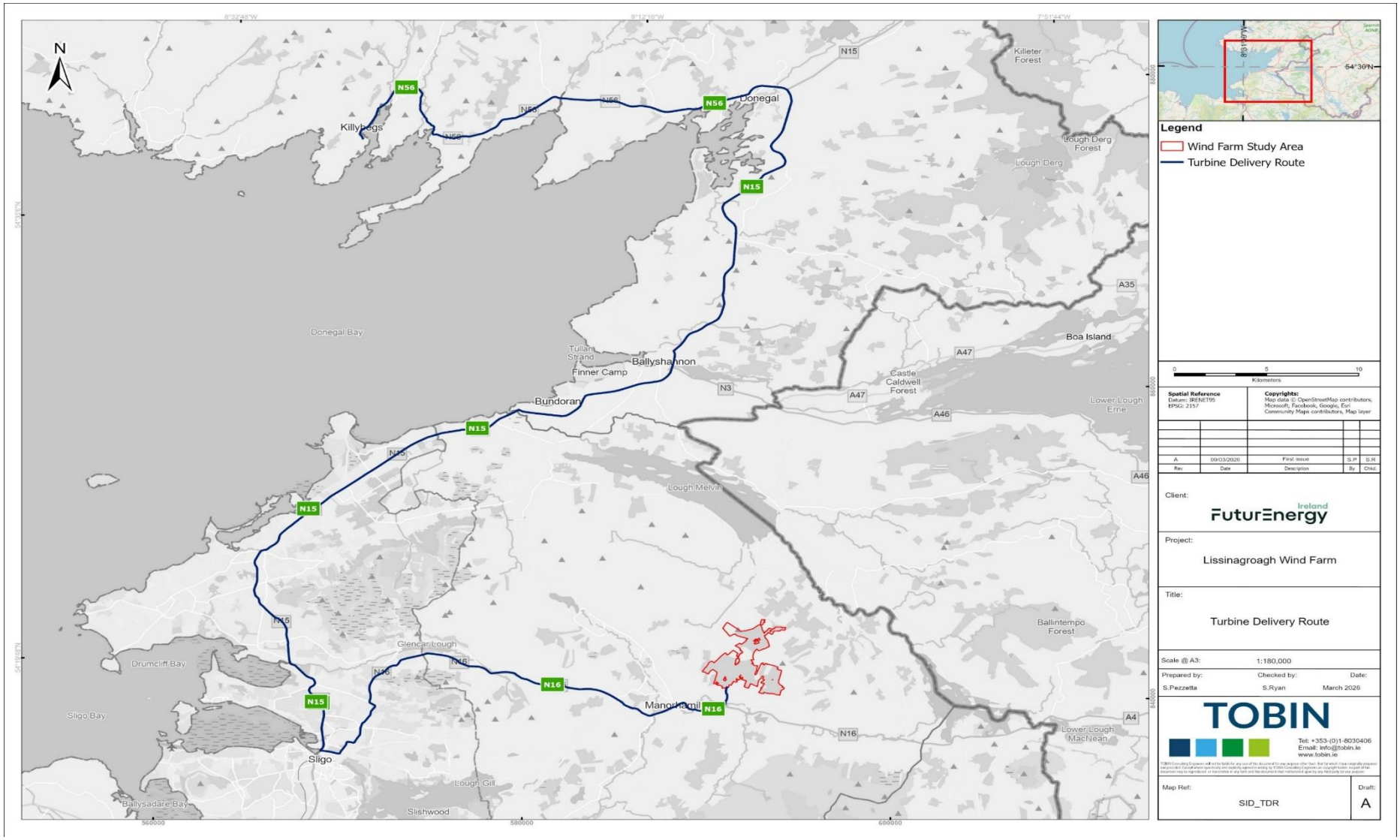

Figure 1-3 Proposed Turbine Delivery Route

1.3 CONSTRUCTION PROGRAMME

It is estimated that the construction phase will take approximately 24 months from starting onsite to completion of commissioning of the turbines.

The construction phase can be broken down into 5 no. main phases as follows (there will be overlap between these):

- 18 months – Civils (including forestry felling and vegetation clearance, drainage, construction of site roads, hardstands, turbine foundations);
- 9 months – Electrical grid connection/substation installation and commissioning;
- 12 months – Site electrical (installing between turbines and substation, pulling cables);
- 4 months – Turbine deliveries and erection;
- 2 months – Commissioning.

1.1.1 Construction Activities and Timing

It is anticipated that approximately 100 persons will be employed during the peak construction period (see EIAR Chapter 4 - Population and Human Health). With the exception of commercial forestry felling, vegetation clearance will commence outside the breeding birds season, which runs from the 1st of March to the 31st of August to protect any active bird nests and chicks. If any minor clearance or trimming is required within those dates, or if the initial vegetation clearance extends past the 1st of March due to unsuitable weather conditions, the works will be preceded by a confirmatory ecological survey (carried out by a qualified and suitably experienced ecologist) to ensure there are no active bird nests within the vegetation involved. If active bird nests are identified, works will stop and consultation will be undertaken with the National Parks and Wildlife Service (NPWS).

The hours of construction activity will be limited to avoid unsociable hours where possible. Construction operations will be restricted to between 07:00 hrs and 19:00 hrs Monday to Friday (excluding public holidays) and between 07:00 hrs and 14:00 hrs on Saturdays.

However, during the following critical periods longer hours will be required:

- Concrete pours for turbine foundations;
- During turbine installation when the weather is suitable (i.e. light winds);
- Delivery of oversized loads; and
- In the unlikely event of an emergency.

Any such out of hours working will be agreed in advance with Leitrim County Council apart from in the case of an emergency.

Due to the volume of concrete required for each turbine foundation, and the requirement for the concrete pours to be continuous, deliveries are often carried out outside normal working hours. Such activities are limited to the day of turbine foundation concrete pours, which are completed in a single day per turbine (can take >12 hours). Because of the scale of the main concrete pours that will be required to construct the proposed wind farm, the main pours will be planned weeks in advance, and refined in the days leading up to the pour. Concrete pours are required for 14 no. wind turbines so they will require 14 days of longer working hours. A similar number of days with longer working hours would be needed for installation of the turbines during a period of calm weather (this is mostly limited to on-site activity).

To accommodate delivery of large turbine components along public routes it will be necessary on occasion to work outside of the core hours, with delivery of these oversized loads in late evenings It is expected 23-38 delivery events will be needed on a maximum of 23-38 days for delivery of these oversized loads which usually travel in convoys of 3-5 vehicles with a Garda escort.

The phasing and scheduling of the main construction task items are outlined in Figure 1-4 below, where March 2028 has been selected as a start date for construction activities (based on likely timeframe to secure planning consent, complete pre-construction design and tendering work, etc.). Where there is overlap between phases, this reflects the anticipated progression of work through the site, with different areas within the site at different stages of completeness.

1.1.2 Construction Sequencing

It is proposed that works will commence at the southern end of the proposed wind farm site, where peat is either absent or extremely shallow, and the topography is flattest. The borrow pit in the southeastern area of the site near Turbines 13 and 14 will be used to source stone material for the southern half of the site, while the second borrow pit in the centre of the site will be used to temporarily deposit excess inorganic soils. As the construction moves to the northern half of the proposed wind farm site where the topography is steeper and there is slightly more peat in some locations (albeit still shallow at mostly <0.5m), the third borrow pit will be utilised as a source of stone after any temporarily stock-piled material is transferred to the first borrow pit. Any peat that is stripped at this stage will then be deposited straight into the first borrow pit, below ground level avoiding the potential for any slippage.

			2028			2029				2030
ID	Task Name	Task Description	Q1 Mar-Jun	Q3 Jul-Sep	Q4 Oct-Dec	Q1 Jan-Mar	Q2 Apr-Jun	Q3 Jul-Sep	Q4 Oct-Dec	2031 Q1 Jan-Mar
1	Site Health and Safety									
2	Site Compounds	Forestry felling & vegetation clearance (avoid Mar – Aug), construct site compounds, site accesses, fencing, gates								
3	Access Tracks	Forestry felling & vegetation clearance, construct tracks, install drainage measures, install clear span bridges & install water protection measures								
4	Turbine Hardstands	Forestry felling & vegetation clearance, excavate base, construct hardstanding areas								
5	Turbine Foundations	Fix steel, erect shuttering, concrete pour								
6	Substation Construction & Electrical Works	Construct substation and grid connection, underground cabling between turbines								
7	Backfilling & Landscaping									
8	Turbine Delivery & Erection									
9	Substation Commissioning									
10	Turbine Commissioning									

Figure 1-4: Indicative Construction Schedule

2. BACKGROUND

This CEMP has been prepared to present the proposed management and administration of site activities for the construction phase of the proposed project, to ensure that all construction activities are undertaken in an environmentally responsible manner. This CEMP summarises the environmental commitments related to the construction of the project, and the measures to ensure compliance with legislation and the requirements of statutory bodies, all as detailed in the project EIAR and Natura Impact Statement (NIS).

This CEMP will be a live document and will be reviewed and updated, as necessary. Upon appointment, the Main Contractor for construction of the proposed project shall update this document to produce an updated version of the CEMP (i.e. the Contractor's CEMP) which will account for any additional requirements set out in Planning Conditions.

The CEMP provides a summary of the requirements from relevant guidance, standards, and codes of practice applicable to the work being undertaken as part of the proposed project. The following is a non-exhaustive list of relevant guidance/standards/codes referenced in the preparation of this CEMP:

- Environmental Protection Agency (EPA), Guidelines on the Information to be contained in Environmental Impact Assessment Reports (May 2022);
- Department of Housing, Planning and Local Government (DHPLG), Draft Revised Wind Energy Development Guidelines (December 2019);
- Department of Environment, Heritage and Local Government (DEHLG), Wind Energy Development Guidelines (December 2006);
- EPA Best Practice Guidelines for the preparation of resource & waste management plans for construction & demolition projects (November, 2021);
- Inland Fisheries Ireland (IFI) Guidelines on the Protection of Fisheries During Construction Works in and Adjacent to Waters (IFI, 2016);
- Construction Industry Research and Information Association (CIRIA) C532 publication 'Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors' (CIRIA, 2001);
- CIRIA C648 publication 'Control of water pollution from linear construction projects' (CIRIA, 2006);
- CIRIA C741 publication 'Environmental Good Practice on Site' (4th Edition) (CIRIA, 2015);
- CIRIA C750, 'Groundwater control: design and practice' (CIRIA, 2016);
- CIRIA C697 & C753F publications 'SuDS Manual' (CIRIA, 2007 & 2015);
- National Roads Authority (NRA) (2008). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes. National Roads Authority;
- Irish Working Group on Groundwater (2005) Guidance Document GW5, Groundwater Working Group (WGGW) 2005;
- British Standards Institution (BSI), BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites – Noise;
- BSI, BS 5228: Part 1 and the European Communities (Construction Plant and Equipment) (Permissible Noise Levels);

- Scottish Natural Heritage (SNH) (2019) 'Good Practice during Wind Farm Construction' (4th edition). Scottish Natural Heritage;
- The Institute of Air Quality Management (IAQM) publication '*Guidance on the Assessment of Dust from Demolition and Construction*' (2014);
- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes published by the NRA (now TII) in 2011;
- The Control of Dust and Emissions during Construction and Demolition published by the Greater London Authority (GLA) in 2014;
- Eastern Regional Fisheries Board (2004) guidance document "Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites".
- Department of Agriculture, Food and the Marine. Forestry and Water Quality Guidelines. Forest Service, 2000.

3. PURPOSE AND SCOPE

The purpose of this document is to communicate the key environmental obligations that apply to all Contractors, their sub-Contractors and personnel while carrying out any form of construction activity for the development of the proposed project.

This CEMP should be read in conjunction with the Planning Documents and Drawings, the EIAR, Natura Impact Statement (NIS), and the Traffic Management Plan (TMP) (Appendix 16-1). The CEMP draws from relevant good practice guidance, standards, and codes of practice applicable to the work being undertaken as part of the proposed project. The documents used to prepare the CEMP are listed in the reference section at the end of this document.

The CEMP is a live document that will evolve during the project. As such it will be subject to constant review to address:

- Any conditions required in the planning permission;
- To ensure it reflects best practice at the time of construction;
- To ensure it incorporates the findings of pre-construction site investigations;
- Changes resulting from the construction methods used by the contractor(s);
- Unforeseen conditions encountered during construction.

This CEMP provides a mechanism for ensuring compliance with environmental legislation and statutory consents. It defines the approach to environmental management at the site during the construction phase and addresses all relevant environmental aspects of the management of site preparation and construction work within the development works area.

4. OBJECTIVES

The objectives of the CEMP are to:

- Outline the proposed mechanisms for ensuring the delivery of environmental measures to avoid or reduce environmental effects identified;
- Ensure procedures are in place so that there is a prompt response to effects requiring remediation, including reporting and any additional mitigation measures required to prevent a recurrence;
- Provide an outline of the content that will be supplied in the construction method statements and strategies that will be prepared in order to secure mitigation measures in relation to different design aspects of the proposed development.
- Ensure compliance with legislation and identify where it will be necessary to obtain authorisation from relevant statutory bodies;
- Ensure that appropriate proposed development monitoring and reporting will be in place;
- Provide a framework for reporting, compliance auditing and inspection to ensure environmental aims will be met; and
- Set out the client's expectations to guide contractors on their requirements with regards to environmental commitments and environmental management.

5. IMPLEMENTATION AND CONTROL

In terms of overall environmental responsibility, everyone on site is responsible for ensuring that their actions constitute good environmental practice. All site personnel are charged with following good practice and encouraged to provide feedback and suggestions for improvements. All site personnel are also required to ensure compliance with the requirements of the CEMP.

Compliance with the CEMP, the procedures, work practices and controls will be mandatory and must be adhered to by the Contractor, all site personnel, and sub-contractors employed during the construction phase. The CEMP seeks to:

- Provide a basis for achieving and implementing the construction related mitigation measures identified in the EIAR and NIS; and
- Promote best environmental on-site practices for the duration of the construction phase.

6. REVISIONS TO THE CEMP

As mentioned above, the CEMP is considered a 'live' document and as such will be reviewed on a regular basis to allow any changes to construction programme, operations or unforeseen issues be incorporated at any stage throughout the project as deemed necessary by the Applicant, their agents or relevant authorities. The CEMP will be subject to continual review to address, for example:

- Any conditions stipulated in the planning approval;
- Any requirements/issues highlighted through consultations prior to works e.g. by the National Parks and Wildlife Service (NPWS), Leitrim County Council, etc.;
- To ensure it reflects best practice at the time of construction; and

- To ensure it incorporates the findings of any pre-construction site investigations.

This CEMP will be provided to the appointed Main Contractor who will have responsibility for updating the document as necessary through the construction phase.

The Contractor's CEMP will incorporate the conditions associated with any grant of planning for the proposed project. This CEMP will be subject to ongoing review (throughout the construction phase of the development), through regular environmental auditing and site inspections. This will confirm the efficacy and implementation of all relevant mitigation measures and commitments identified in the application documentation.

The appointed Contractor is required to include further details and/or confirmation in the updated version of the CEMP which will include:

- Details of emergency plan including personnel and contact numbers;
- Site and traffic signage; and
- Method statements.

The appointed Contractor shall also agree and implement monitoring measures to monitor the effectiveness of the CEMP.

7. ENVIRONMENTAL AWARENESS AND CONTROL

In order to ensure that environmental awareness and compliance is communicated effectively at the start and throughout the construction works, this CEMP and its contents will be communicated to all site personnel, including management staff, operatives and sub Contractors. The key elements of this CEMP will form part of the site induction which will be mandatory for all employees, Contractors and visitors attending the site. Environmental toolbox talks will be provided to all site personnel and sub-consultants on a regular basis. These will be targeted at particularly sensitive environmental issues such as:

- Protection of sensitive ecological habitats and key ecological receptors;
- Works close to sensitive water bodies;
- Invasive species management;
- Water pollution and silt control;
- Water pollution in relation to cement and concrete handling;
- Spill prevention and control;
- Dust management.

8. ROLES AND RESPONSIBILITIES

At this stage it is envisaged that the following roles will be appointed for the construction phase of the proposed project; Construction/ Site Manager; Environmental Manager, Ecological Clerk of Works (ECoW), Project Geotechnical Engineer / Geologist; and Project Archaeologist.

The names and contact details of the individuals with responsibility for implementation and supervision of mitigation measures during all phases of the development will be clearly identified and set out in documents such as the Contractor's CEMP and site- specific method statements as appropriate.

Summary details of these roles are outlined in the following sections. At construction stage, the Contractor's CEMP will confirm roles and finalise responsibilities and contact details once appointed.

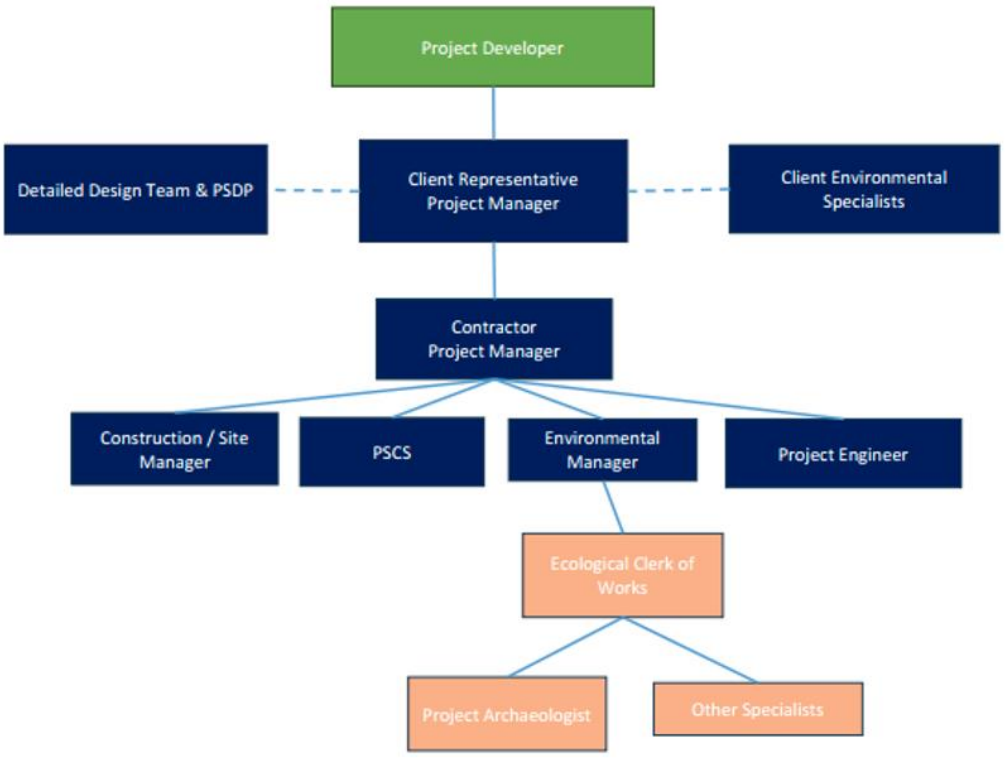

Figure 1-5 Example Project Development Organisation Chart

8.1 Construction Site Manager

A suitably qualified Construction / Site Manager will be appointed by the Contractor for the duration of the construction period. The Construction / Site Manager will have overall responsibility for the organisation and execution of all related environmental activities as appropriate, in accordance with regulatory and project environmental requirements.

8.2 Environmental Manager

The Environmental Manager will ensure compliance with all relevant environmental regulations, and environmental quality control on-site during the construction stage. The Environmental Manager will be responsible for:

- The daily implementation of the CEMP and any other monitoring/mitigation proposals required under the planning consent;
- Ensuring that the objectives of the CEMP are achieved and maintained;
- Informing the appointed contractor(s) of the CEMP and ensuring that appropriate training and awareness materials are developed and implemented on-site;
- Co-ordinating and monitoring the inputs from the ECoW, Project Geotechnical Engineer and Project Archaeologist;
- Implementing appropriate measures in the event of any environmental incidents and managing communications with relevant authorities; and
- Regular communication with the Construction/Site Manager detailing the execution and progress of environmental activities on-site.

8.3 Ecological Clerk of Works

The role of the ECoW is defined by British Standard BS 42020:2013[1] as "*person who has the ecological qualifications, training, skills and relevant experience to undertake appropriate monitoring and to provide specialist advice to "development" site personnel on necessary working practices required to i) safeguard ecological features on site and ii) aid compliance with any consents and relevant wildlife legislation related to the works.*".

Typically, the requirements of the ECoW role is largely fulfilled by a single individual, with support and assistance provided by technical specialists and senior colleagues when required, and will include:

- The ECoW (individual or team of individuals) must therefore have appropriate qualifications, training and experience to meet the requirements of the role and in addition, where needed, can access support from senior ecologists within the company with the required qualifications, training and experience;
- The ECoW will have the power to "Stop Works" at any time they deem it necessary to do so;
- The ECoW will be responsible for monitoring compliance with the mitigation measures and construction phase monitoring requirements relating to ecology / biodiversity as set out project EIAR, NIS and supporting documents such as the, CEMP, etc.;
- The ECoW will be responsible for the day to day management and interaction with the project Environmental Manager;

- The ECoW will have authority over the content of routine reports and will act independently in determining instances of non-compliance with the consents and licenses or any breaches of environmental legislation;
- The ECoW will provide the contractors team, with advice on environmental issues and compliance with planning conditions, commitments etc. as required. This includes managing certain activities that may be required in discharging consent conditions. The ECoW will inform the Contractor and Project Developer Teams of any information that could increase the risk of a non-compliance and/ or require a new licence, consent or approval.

During construction there will be occasions when the ECoW will be required to rapidly respond to unplanned events such as any wildlife incidents, pollution incidents, etc. The ECoW will have a very specific role within the emergency response teams responding to these incidents. Further detail is provided in Section 5.0. The ECoW will also be expected to support the project team in resolving any other unplanned events that are not classified as emergency responses or incidents.

Non-Compliance Events

The ECoW shall produce a procedure setting out the sequence of actions to be completed and the lines of communication required to resolve and appropriately report on a non-compliance event relating to ecology/biodiversity, should one occur.

This procedure shall be approved by the Project Developers team prior to construction commencing. The ECoW, and any other individual present on-site, has a duty of care to report any wildlife crime or breach of environmental legislation to the Project Developer. The Project Developer must report such breaches to the relevant authorities.

Reporting and Follow up

After the ECoW has responded to an incident or non-compliance event the ECoW will produce a report to the Environmental Manager for approval before it is issued to the Project Developer. The report will set out the following information as a minimum;

- Precise details of the event and those involved;
- Assessment of impact and severity (method for assessment to be developed by ECoW);
- Mitigation introduced;
- Subsequent revision of risk assessments and construction method statements and/or construction programme; and
- Lessons learnt.

Ad-Hoc Advice and Support

The ECoW will provide the Contractors Team, with advice on environmental issues and compliance with planning conditions, commitments etc. as required. This includes managing certain activities that may be required in discharging consent conditions.

8.4 PROJECT GEOTECHNICAL ENGINEER / GEOLOGIST

The Geotechnical Engineer / Project Geologist will report to the Environmental Manager and is responsible for inspection and review of geotechnical aspects associated with construction stage of the project. The Geotechnical Engineer / Project Geologist will be full time on-site during the site preparation and groundworks (such as excavation activities) and will visit site regularly at agreed periods during the construction phase.

8.5 PROJECT ARCHAEOLOGIST

The Project Archaeologist will report to the Environmental Manager and is responsible for inspection and review of any finds discovered during the construction of the project. The Project Archaeologist will monitor all stripping of topsoil, the demolition/alteration of structures and the programme of test trenching for the proposed project, including the proposed grid connection.

9. COMPLIANCE AUDITS AND COMMUNICATIONS

The ECoW and Environmental Manager will develop appropriate procedures and programmes for the following non exhaustive list of items:

- Environmental Audits, a programme of planned and spot check audits shall be developed and approved by the client;
- A programme of toolbox talks shall be developed. Toolbox talks covering relevant topics during construction;
- The ECoW and Environmental Manager will support the project team in producing site induction material tailored to the different activities carried out on site, and ensuring this material is appropriately incorporated into the overall project induction material. This will require attendance to project meetings, and production of material relevant to planning conditions and Environmental Legislation. The toolbox talks and site inductions shall include information on the role of the ECoW in the event of an incident;
- The ECoW shall ensure this information is included in the relevant induction and toolbox talk material. Once the above programmes and plans have been agreed, the Environmental Manager will be responsible for managing these plans and conducting the necessary audits, toolbox talks, etc.;
- The ECoW shall check progress, and the Environmental Manager will be reporting on progress against the programmes, plans and status of completed audits, toolbox talks etc to the ECoW on a daily basis;
- The ECoW will be required to report on audits and toolbox talks delivered in the monthly compliance report;
- Occasionally the ECoW will be required to deliver toolbox talks and produce site induction material depending on the topic being considered.

10. INCIDENTS AND COMPLAINTS

All safety or environmental incidents associated with the project will be reported and investigated in line with the ERP. Typically, the following procedures will be followed in the event of an incident:

- Works will stop immediately where safe to do so;
- The Environmental Manager will be contacted;
- The size of the incident will be assessed and determined if it can be controlled by site staff or if emergency services are required to attend;
- The appropriate enforcing authority will be contacted;
- The Environmental Manager will investigate after the incident;
- The findings will be sent to the appropriate authority; and
- An action plan will be prepared to set out any modifications to working practices required to prevent a recurrence.

This section sets out a procedure to manage and resolve any complaints received from members of the public during the construction phase of the proposed project. The following measures will be adopted and refined, as necessary, taking account of any relevant planning conditions.

A specific procedure for the management of noise complaints is provided in EIAR Appendix 9-10 and will be implemented by the Applicant and the Main Contractor.

The following measures will be implemented to deal with complaints and the Contractor's CEMP will contain more specific details with regard to phone numbers to contact:

- Clearly display a notice board at the site entrance so that the public know whom to contact if they have a complaint or comment;
- Personnel on site, including sub-contractors are required to perform their duties in accordance with this CEMP, and in such a way as to minimise the risk of complaints from third parties;
- All complaints received regarding the construction works will be recorded and categorised (e.g. noise, property damage, traffic, dust, shadow flicker etc.) within a central Site Complaints Log. This complaints log will include the following key details:
    - Name, address and contact details of the complainant (with the complainant's permission);
    - Brief outline of the complaint;
    - Date of Complaint;
    - Name of person receiving complaint details; and
    - Agreed timeline for response to complaint.
- All complaints will be communicated to the Project Manager and the Project Developer immediately;
- All complaints will be followed up and resolved in so far as is practicable; and
- The complainant, Project Developer and other stakeholders will be kept informed of the progress in resolving the complaint.

11. FACILITIES, SAFETY AND SECURITY

The proposed project will be constructed, in accordance with all relevant Health and Safety Legislation.

Aspects of the development that will present health and safety issues include:

- Health and safety aspects of construction activities;
- General construction site safety (e.g. slip/trip, moving vehicles etc);
- On site traffic safety during construction associated with localised high road embankments;
- Traffic safety during the transport of abnormal loads to the site;
- Lifting of heavy loads overhead using cranes;
- Working at heights; and
- Working with electricity during commissioning.

A (Preliminary) Health and Safety (H&S) Plan covering all aspects of the construction process, including the Health and Safety requirements must be prepared prior to the construction stage. This has been undertaken and prepared by the Project Supervisor for the Design Process (PSDP)for the project Egan Safety Solutions.

Rigorous safety checks will be conducted on the turbines during construction. Signs will be erected at suitable locations across the site as required.

12. ENVIRONMENTAL EMERGENCY RESPONSE

12.1 HAZARD IDENTIFICATION

In order to establish the type of potential emergencies that may occur, the hazards outlined in Table 12-1 have been identified as being potential situations that may require an emergency response should they occur.

Table 12-1: Potential Hazards Identified

Hazard Type	Emergency Incident
Plant / Machinery/tools causing damage	Accident resulting in injury / power failure / loss of critical infrastructure
Spillages / Leaks	Accidental spill / leak leading to significant environmental contamination
Flooding	Accident leading to injury / damage to site infrastructure
Severe Weather	Accident leading to injury / damage to site infrastructure
Fire / Explosion	Accident leading to injury / damage to site infrastructure
Turbine Collapse	Accident leading to injury / damage to site infrastructure
Landslide	Accident leading to injury / damage to site infrastructure
On-site/Construction Traffic – plant/machinery and construction vehicle movements	Traffic accident leading to injury / damage to site infrastructure
Wind Turbine Rotational Failure	Accident leading to injury / damage to site infrastructure

12.2 ENVIRONMENTAL EMERGENCY RESPONSE PROCEDURES

Every effort will be made to prevent environmental emergencies and incidents during the construction and operational phase of the project.

The Contractor will be responsible for developing a detailed environmental Emergency Response Plan (ERP) for the proposed construction works, environmental emergencies, as part of the H&S Plan.

This ERP will be activated in the event of an environmental emergency such as a fire, spillage, structure collapse etc. and will provide details on who is required to be notified etc. The ERP will also include details of all personnel inducted and authorised to work on the site.

In the event of an environmental emergency, the Environmental Manager, ECoW and Project Manager will be notified immediately and will determine the scale of the emergency and the requirement for the assistance of emergency services. Works will cease in the area of the incident and contact will be maintained with the emergency services to direct them to the scene of the incident as required.

If necessary, the Environmental Manager, with support from the ECoW will inform the appropriate regulatory authority depending on the nature of the incident. Details of the incident will be recorded (e.g. cause, extent, actions and remedial measures).

A record of all environmental incidents will be kept on file by the Environmental Manager. These records will be made available to the relevant authorities if required.

Furthermore, the Environmental Manager and ECoW will be responsible for outlining corrective actions required and will advise the Contractor and Project Developer Teams as appropriate.

The ERP must include contact names and telephone numbers for the relevant local authorities (all sections/departments) including ambulance, fire brigade, An Garda Siochána and the HSA. Reporting of environmental emergencies to the local authority will be required as well as other relevant stakeholders such as IFI, NPWS or the EPA.

12.2.1 EcoW Responsibilities

During construction there may be occasions when the ECoW could be required to rapidly respond to unplanned events such as any wildlife incidents, pollution incidents, etc.

The ECoW will have a very specific role within the emergency response teams responding to these incidents.

The ECoW will also be expected to support the project team in resolving any other unplanned events that are not classified as emergency responses or incidents.

12.2.2 Site Evacuation and Fire Drills

A site evacuation/fire drill procedure will be developed to provide basis for carrying out the immediate evacuation of all site personnel in the event of an emergency. At induction, all personnel will be made aware of the evacuation procedure. The Fire Services Acts of 1981 and 2003 require the holding of fire safety evacuation drills at specific intervals and maintaining records of such drills. The details of this procedure will be finalised in the Contractor's CEMP at construction stage and will include:

- Details regarding the notification of emergency situations to all those on site including use of a siren/horn to notify all personnel;
- Details of assembly point(s) and signage;
- Details of the roll call procedure to account for all personnel on site;
- Communication process between the Site Security Officer and the Site Manager during the procedure (i.e. notification of roll count etc.);
- Course of action to be undertaken by the Site Manager.

12.2.3 Spill Response and Control

A detailed spill response and control procedure will be developed and finalised in the Contractor's CEMP at construction stage, outlining the steps that will be followed in the event of an oil / fuel spill occurring, including:

- Identification and blocking of the source of the spill;
- Alerting personnel in the vicinity of the spill and any possible dangers;

- Elimination of any potential ignition sources in the vicinity of the spill;
- Spill containment approach and spill control materials;
- Covering or bunding off of any vulnerable areas where appropriate (i.e. drains, streams, sensitive habitats);
- Clean up using the spill control materials;
- Containment and disposal of used spill control materials;
- Communication with the ECoW – providing relevant information on the location, type and extent of the spill so that they can take appropriate action;
- ECoW actions including inspection of the site, making certain necessary measures are in place to manage the spill and prevent further spillage;
- ECoW notification to the appropriate regulatory body if necessary.

12.2.4 Emergency Contact Details

A list of emergency contacts is presented in Table 12-2. A copy of these contacts will be included in the Site Safety Manual and in the site offices and the various site welfare facilities.

Table 12-2: List of Emergency Contacts

Contact	Telephone
Emergency Services – Ambulance, Fire, Gardaí	112 / 999
Local Garda Station – Manorhamilton	(071) 982 0620
Local Fire Service	999 or 112
Local Doctor / GP Service – Manorhamilton Health Centre	071 985 5788
Our Lady's Hospital Manorhamilton	(071) 982 0406
ESB Faults / Emergencies	1850 372 999
Gas Networks Ireland 24hr Emergency Line	1850 20 50 50
Site Manager / Construction Manager / Site Supervisor	To be confirmed by Appointed Main Contractor
Client: FEI	01 669 8565
Ecological Clerk of Works (ECoW)	To be confirmed by Appointed Main Contractor
Environmental Manager	To be confirmed by Appointed Main Contractor
Project Supervisor Design Stage (PSDS)	To be confirmed by Appointed Main Contractor
Project Supervisor Construction Stage (PSCS)	To be confirmed by Appointed Main Contractor
Health and Safety Authority Ireland (HSA)	0818 289 389
Inland Fisheries Ireland (IFI)	0818 34 74 24

Project Ecologist	To be confirmed by Appointed Main Contractor
Project Hydrologist	To be confirmed by Appointed Main Contractor
Project Geotechnical Engineer / Geologist	To be confirmed by Appointed Main Contractor
Project Archaeologist	To be confirmed by Appointed Main Contractor

12.2.5 Emergency Communication Procedure

The Contractor's CEMP will be updated with an agreed Emergency Communication Response Procedure following appointment of the Contractor.

12.2.6 Induction Checklist

Table 12-3 below provides a list of items highlighted in the Emergency Response Procedure (ERP) which must be included in the induction or gathered from all personnel that will work on the proposed project during the mandatory site induction. This will be revised throughout the various stages of the project. This list will be updated and expanded on within the Contractor's CEMP.

Table 12-3: Site Induction Checklist

Emergency Response Plan – Site Induction Items TBC	Status
Site Induction (all personnel must undergo the site induction prior to commencing work on-site)	
All personnel must be made aware of site evacuation and fire drill procedures	
All personnel must be made aware of the spill response and control procedure	
All personnel must be made aware of environmental incident procedures	
All personnel must be made aware of incident and complaints procedures	
All personnel must be made aware of the emergency communication procedure and Emergency Contact Details for the project	
All personnel must be made aware and have access to the Site Safety Manual	
All personnel must be made aware of the personnel tracking procedure and provide their contact details at induction	

13. MITIGATION AND MONITORING MEASURES AGREED

All mitigation and monitoring measures relating to the pre-construction and construction phases of the proposed project were set out in the various sections of the project EIAR, this CEMP and the Natura Impact Statement (NIS) prepared as part of the planning applications for the overall project.

Mitigation and monitoring measures are presented in Table 19-1 of Chapter 19 - Schedule of Mitigation in the EIAR.

The mitigation and monitoring measures have been presented in this format as it is intended to provide a review list that can be easily checked and reported on during the future phases of the project. The use of a table to present the information will be further expanded upon over the course of the proposed project and will provide a template for use during site compliance audits.

This CEMP will be a key construction contract document, which will ensure that all mitigation measures, which are considered necessary to protect the environment are implemented.

14. ENVIRONMENTAL MANGEMENT PROCEDURES (EMP)

EMP 1: MANAGEMENT OF EXCAVATIONS

1.1 Purpose

To describe measures for the management of all excavations and excavated peat and rock on the site.

1.2 Excavation of Peat

- To reduce the risk of peat failure in areas of deeper peat (>2m), an 'excavate and replace' system will be used. Shortly after an area has been excavated, it will be backfilled with crushed stone. This stone will provide support to the adjacent peat mass.
- To reduce the construction impact on peat, the movement of machinery throughout the site will be controlled by requiring that construction vehicles and machinery do not encroach onto land beyond the proposed development footprint. These vehicles will also be required to travel via the constructed roads when moving between works areas. To emphasise this requirement, the boundaries of the footprint of the development will be fenced off with post and wire. The Environmental Manager will monitor vehicle movements throughout the construction phase.
- Temporary engineered deposition areas will be designated where necessary at the turbine and crane hardstand's locations to hold temporary stockpiles. In order to ensure the stability of the temporary stockpiles, acceptable slope angles will be specified as part of the temporary works designs. These will be completed on a case by case basis by a suitably qualified designer.
- To prevent sedimentation of local watercourses by excavated peat, excavation works in an area will not commence until the surrounding existing drainage regime is protected by interceptor drains and settlement ponds/silt fencing. Excavated peat will be reused where appropriate on site for re-grading or re-vegetation.
- Surplus excavated peat remaining after localised landscaping requirements will be deposited in the peat deposition areas.
- Peat turves, where identified by the project ecologist, will be separated and stored with the vegetated side upwards, peat stacks will not be higher than 1m.

1.3 Excavation of Rock

- To minimise the requirement for stockpiling rock and to reduce the volume of crushed stone imported onto site, excavated rock can be reused in the construction of the turbine hardstands.

  A detailed, site specific method statement for excavation of rock will be required from the Contractor(s) prior to commencement of works.

1.4 Responsibility

- The Geotechnical Engineer will supervise all excavation activities, ensuring they are carried out in accordance with the relevant designs and procedures, while also reviewing and monitoring associated data.
- Surplus excavated peat remaining after localised landscaping requirements will be deposited in the peat deposition areas.
- Peat turves, where identified by the project ecologist, will be separated and stored with the

vegetated side upwards, peat stacks will not be higher than 1m.

- The Environmental Manager will monitor the bog and the excavation areas and associated drainage.
- The Construction Manager will monitor vehicle movements throughout the construction phase.
- The Project Manager will oversee the phasing of the excavation and machinery movement across the site.
- Construction personnel will be informed of the measures to prevent pollution of water courses, particularly at stream crossings.
- The Design Engineer and Sub-contractors will have responsibilities as appropriate.
- All responsibilities will be finalised by the Appointed Contractor(s).

EMP 2: CONTROL AND MANAGEMENT OF SURFACE WATER RUN-OFF

2.1 Purpose

To describe measures for the management of all surface water and run-off on the site, for the protection of watercourses and in particular, sediment and erosion control.

2.1.1 Existing Site Drainage

The proposed wind farm site is located on the boundary of the Sligo Bay and Drowse (ID: 35) WFD Catchment and the Erne (ID: 36) WFD Catchment. The site is also subdivided between the WFD sub-catchment of Drowes_SC_010, Bonet_SC_010 and MacneanLoughs connector _SC_010.

The proposed wind farm study area is characterised by a large number of watercourses. These range from naturally occurring upland streams to modified drainage channels within forested areas at mid to lower elevations. The eastern is part of the site is characterised by several flashy watercourses in deep ravines the majority of which have existing crossings in place as part of the existing forestry road network. Many of the naturally-occurring streams have been modified by agricultural and forestry activities in the area. Streams and drainage channels were assessed and mapped during field surveys. This resulted in an update of the published EPA mapping at some locations, particularly in the southeastern part of the site.

2.2 PLAN

- Implement erosion control to prevent runoff flowing across exposed ground and become polluted by sediments.
- Intercept and divert clean water runoff away from construction site runoff to avoid cross- contamination of clean water with soiled water;
- Implement sediment control to slow down runoff allowing suspended sediments to settle in situ particularly on roads;
- Implement the erosion and sediment controls before starting site clearance works;
- Minimise area of exposed ground by maintaining existing vegetation that would otherwise be subject to erosion in the vicinity of the wind farm infrastructure and keeping excavated areas to a minimum;
- Delay clearing of soil and peat until before construction begins rather than stripping the entire site months in advance particularly during road construction;
- Avoid working near drains during or after prolonged rainfall or an intense rainfall event and cease work entirely near drains when it is evident that pollution is occurring;
- Install a series of silt fences or other appropriate silt retention measure where there is a risk of erosion runoff to watercourses from construction related activity particularly if working during prolonged wet weather period or if working during intense rainfall event;
- Implement sediment control measures that includes for the prevention of runoff from adjacent intact ground that is for the separation of clean and 'dirty' water;
- Install appropriate silt control measures such as silt-traps, check dams and sedimentation ponds;
- Provide public road cleaning where needed particularly in the vicinity of drains; and
- Controls need to be regularly inspected and maintained otherwise a failure may result, such

as a build up of silt or tear in a fence, which will lead to water pollution so controls must work well until the vegetation has re-established; inspection and maintenance is critical after prolonged or intense rainfall.

2.3 MONITORING

- The Environmental Manager will monitor the general level of suspended solids at designated sampling points in the rivers/streams downslope of the active construction areas using a turbidity meter.
- Implement erosion control to prevent runoff flowing across exposed ground and become polluted by sediments.
- The Environmental Manager will tour the site each day and check the cross-drain pipes, dirty water drains and outlets, settlement ponds, interceptor drains and silt fences for any damage or blockages. Any damage or blockages will be repaired or cleared promptly.
-
- Water quality monitoring will take place prior to and during the construction phase and for the first 6 months of the operational phase. The location of sampling points and the programme of monitoring of water quality will be agreed with the Planning Authority prior to the commencement of construction. This monitoring, together with visual monitoring, will help to ensure that the mitigation measures that are in place to protect water quality are effective.
- Water Monitoring Programme to include monitoring of streams and from end points of Sediment and Erosion Control system and visual monitoring of Sediment and Erosion Control measures.

2.4 RESPONSIBILITY

- The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water sampling is carried out. Where standards are breached and remedial action is taken, an investigation must be carried out in conjunction with the Construction Manager, and further samples must be taken to verify that the situation has returned to normal.
- The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations and that booms for watercourses are long enough and have adequate anchorage.
- The Construction Manager (or a designate) is responsible for ensuring the spill kits are adequately stocked and should inform the Environmental Manager when items have been used.

EMP 3: FUEL AND OILS MANAGEMENT

3.1 Purpose

To describe measures for the management of all fuel and oils on site for the protection of watercourses from any spills.

3.2 Construction Machinery and Vehicles

- The potential for hydrocarbons getting into the existing drains and local watercourses will be mitigated by only refuelling construction machinery and vehicles in designated refuelling areas using a prescribed re-fuelling procedure.
- Refuelling will be carried out using 110% capacity double bunded mobile bowsers. The refuelling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using.
- Plant nappies or absorbent mats to be place under refuelling point during all refuelling to absorb drips. Plant nappies to be provided beneath small mobile plant (e.g. small generators, pumps etc).
- Mobile bowsers, tanks and drums should be stored in secure, impermeable storage area, away from drains and open water;]
- To reduce the potential for oil leaks, only vehicles and machinery that are mechanically sound will be allowed onto the site. An up to date service record will be required from the main contractor(s).
- Potential leaks from delivery vehicles will be reduced by visually inspecting all delivery vehicles for major leaks. Contractors supplying concrete and crushed stone to the site will be contractually required to supply their products using roadworthy vehicles.
- Potential leaks from the cranes used for turbine erection will be mitigated by contractually requiring the crane suppler to supply cranes to site that are in good working order, up to date in servicing and free of leaks.
- Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility.
- The Environmental Manager will be immediately informed of the oil leak/spill, and will assess the cause and the management of the clean-up of the leak or spill. They will inspect nearby drains for the presence of oil, and initiate the clean-up if necessary.
- Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery.
- Correct action in the event of a leak or spill will be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment and cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction.
- In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery.

3.3 Oil Storage during the Construction Phase

- The scale of potential impacts on downstream water quality will be reduced by only storing the required volume of oils for the works taking place at the time.
- Fuel containers must be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores;
- Access to oil stores will be controlled by the storage of oils within a locked steel container within the site compound. The site compound will be surrounded by a palisade fence and locked when there are no site personnel present.
- Collision with oil stores will be prevented by locating oils within a steel container in a designated area of the site compound away from vehicle movements.
- Leakages of oil from oil stores will be prevented by storing these oils in bunded tanks which have a capacity of 110% of the total volume of the stored oil. Ancillary equipment such as hoses and pipes will be contained within the bunded storage container. Taps, nozzles or valves will be fitted with a lock system.
- The volume of leakages will be prevented through monitoring oil storage tanks/drums for leaks and signs of damage. This will be carried out daily by the Environmental Manager.
- Long term storage of waste oils will not be allowed on site. These waste oils will be collected in leak-proof containers and removed from the site for disposal or re-cycling by an approved service provider.

3.4 Responsibilities

The Construction Manager and Environmental Manager are responsible for ensuring Fuel and Oils are managed in line with this procedure. The Appointed Contractor(s), in updating the CEMP, must designate personnel to the tasks relating to Fuels and Oil, as outlined below.

…… is the designated person for …….. area responsible for being present during tanker refilling operations of oil storage tanks.

…….. is the designated person responsible for checking bunds weekly.

…….. Is the designated person authorised to pump from the bund only when accumulated rainwater is clear

3.5 Reference

- Best Practice Guidelines BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).

EMP 4: MANAGEMENT OF CONCRETE

4.1 Purpose

To describe measures for the management of concrete on site for the protection of watercourses.

4.2 Supervision of Concrete Pours

- To reduce the potential for cementitious material entering watercourses, concrete pours will be supervised by the Construction Manager, a suitably qualified Engineer and the Environmental Manager.
- The Construction Manager will ensure that the area of the pour is completely drained of water before a pour commences.
- Pours will not take place during forecasted heavy rainfall.
- Incidental rainfall from light showers during the period of a pour is typically absorbed into the concrete matrix but heavier showers can result in some run off from the top surface of the concrete pour. If run-off is encountered, the Environmental Manager will block the outflow from the drains to retain or treat the run-off until the pH is neutral before discharge to the drainage network.
- In the event of a spillage on site, the Environmental Manager will temporarily block the dirty water drains in the immediate area and monitor the pH levels of the water in the associated settlement ponds and if necessary will adjust the pH levels using CO_2 entrainment. Any spillage will be cleared immediately and deposited in the Chute wash down area.

4.3 Concrete Water

- Pours will not take place during heavy rainfall.
- To reduce the volume of cementitious water, washout of concrete trucks will not take place on site. Concrete trucks will be washed out off site at the source quarry.
- To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The wash down area will consist of a polythene lined bunded area with a capacity of about $20m^3$. This capacity will be sufficient to accommodate the chute wash down for two turbine base pours.
- The Environmental Manager will monitor the pH of the water in the chute wash down bund and can dose with CO2 or acidic water from the drains until the washout water achieves neutrality before discharge.

4.4 Responsibilities

- All concrete pours will be supervised by suitable personnel.
- The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water sampling is carried out. Where standards are breached, he/she should carry out an investigation and in conjunction with the Construction Manager, he/she should ensure remedial action is taken and further samples taken to verify that the situation has returned to normal.
- The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations and that booms for watercourses are long enough and have adequate

anchorage.

EMP 5: CONSTRUCTION WASTE MANAGEMENT PLAN

5.1 Purpose

To describe measures for the management of waste associated with the construction of the wind farm. Based on a 24-month construction period and an average of 100 construction staff each year, the maximum municipal waste generated for the proposed project is expected to be in the region of 61,500 kg over 2 years.

5.2 WASTE MANAGEMENT PLAN

- The Waste Management Hierarchy (illustrated below) will be assessed and applied in the preparation and maintenance of the Construction Phase Waste Management Plan.
- The Construction Phase Waste Management Plan will address the following aspects of the Project:
- Analysis of the waste arising/material surpluses;
- Specific waste management objectives for the project;
- Methods proposed for prevention, reuse and recycling of wastes, and
- Material handling procedures.

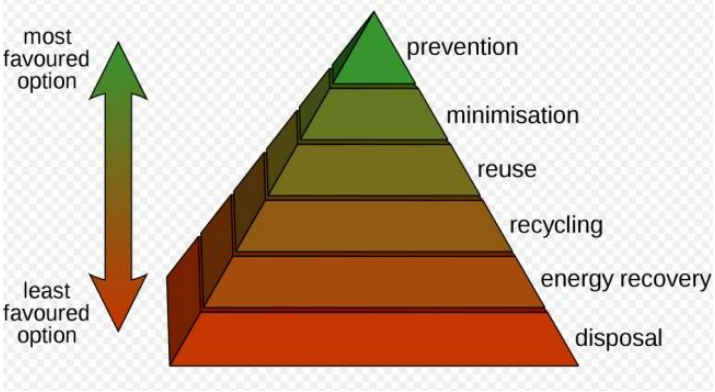

Figure 1-6 The Waste Management Hierarchy

5.2.1 Construction Methodology and Raw Materials

The construction phase of the wind farm will require a variety of construction methodologies. The anticipated phasing of the construction phase will be as follows:

Table 14-1: Construction Phasing

Activity
Prepare site, pre-construction activities, site accesses
Access track construction & drainage plan implementation
Crane hardstand construction

Turbine foundation construction
Substation construction
Internal trenching and ducting
External grid connection trenching and ducting
Turbine delivery
Turbine erection
Permanent meteorological mast erection
Reinstatement/Landscaping
Wind farm commissioning
Project closeout

5.2.2 Construction

Contractors working on site during the works will be responsible for the collection, control and disposal of all waste generated by the works. Construction phase waste may consist of hardcore, stone, concrete, steel reinforcement, shuttering timber, food waste from the canteen and unused oil, diesel and building materials. This waste will be collected at the end of the construction phase and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility. Domestic wastewater from the on-site holding tank will be collected on a regular basis by approved contractors and disposed of in an authorised facility in accordance with best practice. Plastic waste will be taken for recycling by an approved contractor(s) and disposed or recycled at an approved facility.

5.2.3 General Waste Management on Site

To manage waste effectively, focus on the following:

- Ordering the correct amount of materials to be delivered when needed.
- Ensuring materials are not delivered to site damaged and unusable
- Reducing the amount of packaging used by suppliers
- Where possible, establish a 'take back' system with suppliers
- Ensuring wastes are handled and stored correctly

Limiting the amount waste going to landfill by reusing and recycling where possible.

5.2.4 Construction Compounds

Construction compounds /waste storage area(s) will be created for storage of waste materials, plant, and equipment and for site offices, and welfare facilities.

5.2.5 Wastes Generation

Best practice procedures in general will minimise waste generated on-site. Measures including good site management will be taken to limit the quantity of waste generated during construction phase. Waste such as excavated material on-site will be recycled where possible.

Surplus materials will include materials generated by the excavation/extraction works during construction of tracks, construction compounds and turbine foundations, mainly comprising excavated excess peat and sub-soils.

Waste streams will include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc), wooden pallets, waste batteries, fluorescent tubes etc.

5.2.6 Minimisation, Reuse, Recycling and Management of Construction Watse

The primary aim of this Waste Management Plan is to ensure that wastes generated during the course of the project are managed in a systematic manner in accordance with Waste Management Legislation and the principles of the waste Hierarchy, i.e. Prevention, Minimisation, Reuse, Recovery, and Recycling.

Waste generated during the construction phase will be identified and segregated according to their category as described by the European Waste Catalogue (EWC). In order to effect this designated waste storage areas will be created at Construction Compound(s), other suitable locations, for storage and segregation of wastes prior to transport for recovery/disposal at suitably licensed/permitted facilities. Suitably sized containers for each waste stream will be provided and will be supervised by the Waste Management Coordinator (WMC). The WMC will be responsible for the management of wastes during the entire project. The numbers and sizing of the containers will be agreed with the Waste Contractors/ Hauliers in advance of the commencement of the road improvement works. Source segregation of the wastes generated will result in cost savings, in addition to providing an environmentally sound route for the management of all the Construction and Demolition Waste.

Under Waste Management Regulations 2007 a waste collection permit, for appropriate waste codes and destinations is required by the waste haulier, to transport the waste from one site to another. The contractor(s) will ensure the movement of all wastes are carried out in compliance with relevant waste regulations.

Wastes will only be treated or disposed of at waste facilities to carry out a specific activity (i.e. chemical treatment, landfill, incineration etc.) for the specific waste types. Records of all waste movements and associated documentation will be held on site. It is planned that all waste activities at the site will comprise of;

- source,
- segregation,
- storage, and
- collection

In order to prevent/minimise the generation of wastes, the contractor(s) will ensure that raw materials are ordered so that the timing of the delivery/quantity delivered, and the storage is not conducive to the creation of unnecessary waste.

The Contractor(s) will continuously seek to improve the waste management process on the site during all stages of the construction phase and maximise opportunities for reuse/recycling where ever they exist. For example in relation to waste packaging, the contractor(s) will seek to negotiate take back of as much packaging waste as possible at source, to ensure maximum recycling. The Construction Waste Management Plan will be included in the team weekly meetings. In addition the plan will be communicated to the whole construction team regularly on site, including any updates form earlier revisions of the plan.

An overview of the methods to manage the primary waste streams is presented in the following sections:

Soils and Spoil

Any materials excavated on site in the course of the construction works (i.e. soil/peat stripping for track construction, turbine foundations/ hardstanding areas) will be stored on site and re-used on site. As such, off-site disposal of this material is not expected.

No waste soils, subsoils, bedrock will require disposal outside the overall boundary of the proposed development site. All excavated material will be reused within the site except for some material used during the construction of the GCR.

Concrete

Concrete waste may potentially occur. There shall be no washout of trucks at site. Excess concrete will be returned to the supplier for reuse. Concrete trucks will be washed out off site at the source quarry. To reduce the volume of cementitious water, only concrete truck chutes will be washed down on site. The concrete trucks will wash down their chutes at a designated chute wash down area in the site compound. The wash down area will consist of a polythene lined bunded area. The capacity of this will be sufficient to accommodate the chute wash down for two turbine base pours.

The environmental manager will monitor the pH of the water in the chute wash down bund(s) and can dose with CO_2 or acidic water from the drains until the wash out water achieves neutrality before discharge.

Waste-Water Treatment / Effluent disposal

During the construction time period, the maximum wastewater production is estimated to be the same as the maximum water consumption (3,000 litres per day). The project will include an enclosed wastewater management system at the temporary compound capable of handling the demand during the construction phase when as many as 100 people will be working on site. A holding tank is proposed for wastewater management.

During the construction phase, staff facilities will be provided at the site compound/other suitable locations. A cabin comprising a canteen, washroom and toilets will be provided. This cabin will contain three integrated holding tanks; one for clean water, one for waste water and the third for sewage. The waste water tank and sewage tank will be emptied as required by a

vacuum tanker and removed from site to a licensed facility. These staff facilities will be removed at the end of the construction phase.

Hazardous and Other Waste

The following Table lists some of the waste types that may be generated during the construction works. Although some waste types may be generated in locations other than the construction compounds (for example if absorbent filters are required at foundation/track locations etc., such waste materials will be stored within the construction compounds only. Waste materials generated out with the construction compounds will be taken to the compounds on a daily basis.

Table 14-2: Common Construction Wastes

Common Construction Wastes					
Concrete	Wood	Cables	Ducting	Metallic packaging/tins	Cardboard packaging
Paper packaging	Plastic packaging	Wooden packaging	Office paper	Non-hazardous detergent	Plastic containers
Plastic bottles	Mixed waste	Septic tank sludge	Ferrous metal	Non-hazardous electrical waste (WEEE)	

Table 14-3: Hazardous Waste

Hazardous Waste, as categorised by the European Waste Catalogue	
13 01 10: Used mineral hydraulic oil (non-chlorinated)	13 02 08: Other waste engine, gear or lube oil
13 02 05: Waste engine, gear or lube oil (non-chlorinated)	13 02 08: Other waste engine, gear or lube oil
16 01 07: Oil filters	20 01 23: Discarded equipment containing CFCs
16 06 01: Lead batteries	16 07 08: Oily waste from transport and storage tanks
16 10 01: Hazardous liquid wastes to be treated off-site	20 01 21: Fluorescent tubes and other mercury-containing waste
20 01 33: Hazardous batteries and accumulators that are collected separately	15 02 02: Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances

If hazardous waste is encountered, then appropriate handling, storage, transportation, and disposal will be carried out. Prior to being removed from the site, the waste will undergo a

comprehensive waste assessment and classification by suitably trained/qualified person(s), in accordance with the European Waste Catalogue hazardous waste list.

If non hazardous waste becomes contaminated with hazardous waste, the entire load will be considered hazardous. At the site every effort will be made to segregate waste, and properly segregate hazardous waste from non hazardous and inert waste arising. Hazard wastes will be identified, removed and kept separate from other wastes in order to avoid cross contamination. Specific method statement detailing the necessary mitigation measures during the excavation/handling, transportation, and disposal of hazardous materials encountered at the site will be prepared as required.

Oil paints, adhesives and chemicals will be kept in a separate contained secured storage area. Lids will be kept on containers to avoid spillage/evaporation. Waste oils, adhesives etc will handled, and disposed of appropriately. Every effort will be made at the site for no long-term storage of hazardous materials/fuels/oils/chemicals, etc. There shall be no long-term storage of waste oils etc. at the site.

Gravel/Stone/Asphalt/ Bituminous Materials

There will be no requirement for the storage of Asphalt/bitumen materials on site. Road surface materials will be delivered to site as required, with excess returned to supplier.

Metals

It is now common practice to segregate metals for reuse and recycling, however there are still sites where waste metal is thrown away in the general rubbish. One of primary sources of metal on sites is rebar. Waste of rebar will be reduced by ordering 'made to measure' from the source, and detailed scheduling of all reinforced concrete structural elements.

Timber

Timber waste will be stored separately. Any pallets will be returned to the supplier for reuse. Off- cuts/trimmings will be used in formwork where at all possible. A container for waste wood, covered where possible will be located at compound/other storage areas. This waste will be collected by the waste contractor and will forward it for wood recycling.

- An open skip will be put in place to collect at the temporary site construction compounds.
- Special care will be taken to segregate the timber into treated and untreated fractions.
- The following timber materials are considered as waste by timber recyclers - plywood, painted timber and pressure treated timber. This waste timber fraction will be disposed of to mixed waste skip.
- This material will be collected by the contracted and licensed non-hazardous waste collectors and brought to a licensed waste recycling facility.

Blocks, Bricks, and Tiles

The careful storage of these materials will significantly reduce the volumes of wastes occurring at the site. Every effort will be made to use broken blocks/off-cuts. Final quantities of these wastes generated will be stockpiled (possibly crushed/screened), and reused at the site as sub base materials for road/other suitable hardstanding locations.

Packaging/Plastic

Double handling will be avoided by segregating packaging wastes immediately after un-wrapping. Waste packaging will be segregated and in separate containers, at storage area for collection by the waste contractor for disposal to licensed facility.

Mixed Waste

- This waste stream will arise from waste packaging of electrical and engineering components.
- An open skip will be put in place to collect mixed waste within a designated waste area at the temporary site construction compounds.
- This skip will accept plastic packaging, plastic piping, cardboard and timber waste.
- Special care will be taken to ensure that no green waste or food waste will be disposed of in this skip. The purpose of this arrangement is to stop birds scattering food items across the site and therefore prevent vermin infestation.
- This material will be collected by contracted and licensed non-hazardous waste collectors.

Mixed Waste/Canteen Waste

- Staff canteens have the potential to generate food waste and packaging waste. Designated receptacles will be provided at the canteen(s) to allow for segregation, and storage of individual waste streams. These will include receptacles for food waste, dry recyclables, and residual bin. All offices and canteens will be equipped with black plastic refuse bags and wheelie bins for the purpose of collecting and delivering this waste stream to the compactor. This material will be collected by the contracted waste management company/transported to licensed facility.

Dry recyclable collection from welfare facilities

- All offices and canteens will be equipped with clear plastic bags and wheelie bins for the purpose of collecting dry recyclables. This will be strictly managed to prevent any food waste entering the dry recyclable stream.
- Recycling wheelie bins will be located at all welfare facilities and offices associated with the wind farm project.
- This material will be collected by the contracted and licensed non-hazardous waste collectors.

Other waste

Other wastes which may be generated may include residual non recyclable waste such as paper, cloth, some cardboards, or plastics. Others may include fibreglass and geotextiles, and polystyrene. These types of materials will be stored in a dedicated container at the site compound. All residual wastes will be dispatched to suitably licensed facility for disposal. Other construction and demolition waste will be collected and disposed of appropriately.

5.2.6.1 Management of General Waste

- Access to materials will be controlled. A dedicated storage area will be provided in the site construction compounds for building materials such as cables, plastic piling for the settlement ponds, geotextile matting, blocks, tools and equipment, fence posts and wire, booms, pipes.
- Access to stored materials will be restricted; the site compound will be securely fenced from

the outset and will be locked when there are no site personnel present.

- To contain and manage construction phase waste, multiple skips will be provided at the temporary site construction compounds; one for recyclable waste and others for various construction waste. These skips will be emptied when required by a licensed waste management company. Waste oil and waste oil drums will be collected and stored in containers and on a bunded tray within the storage container.
- At the end of each phase, the completed works areas will be tidied of any unused material or waste; this material will be brought to the site compound for storage and reuse or placed in the appropriate skip for disposal.

5.2.7 Construction Phase General Waste

- Construction waste (timber, steel, concrete) These elements will be segregated and stored in dedicated bins on site for recycling.
- Timber waste will be kept to a minimum through the re-use of shutters throughout the job. At the end of the job, the majority of timber will be sent onto a new site for re-use. Any timber that cannot be re-used because of poor quality will be recycled.
- All waste steel reinforcing will be stockpiled and at the end of each work unit, it will be collected for recycling by Licensed Facility.
- Plastics and packaging will be segregated and stored in dedicated bins on site for recycling.
- Waste oil stored on site will be stored in labelled containers and will be collected by licensed facility/licensed oil-recycling contractor as necessary. Records will be maintained on the volumes of waste oil generated.
- Paper / cardboard, this material will be recycled.
- Wastewater from office and welfare facilities. These facilities will be regularly emptied by licensed/suitable contractors.

5.2.8 Alignment of Responsibilities

A Waste Management Coordinator (WMC) will be assigned at the wind farm site, to have an overall responsibility for the management of waste that may be generated at the site. As part of the record keeping procedures, the WMC will keep records of all waste being removed from site. This information will be recorded in a standard format. The effectiveness and accuracy of the documentation will be monitored on a regular basis. The Waste Management Plan will be updated on a regular basis where required and made available as required (i.e. sub contractors). The WMC will be appropriately trained/suitably qualified in all aspects of materials wastes management, and the site personnel will be in a position to;

- Distinguish reusable materials from materials suitable for recycling
- Ensure maximum segregation at source
- Cooperate with Site Management, on locations for stockpiling reusable materials
- Separate materials for recovery
- Identify and liaise with operators for recovery outlets

The WMC will be responsible for educating site personnel, sub contractors, and suppliers, about

the best alternatives to conventional waste disposal/Waste Management Regime at the wind farm site. Training will also be given to site personnel in materials management on site. The WMC will continually identify waste minimisation actions on site and these will be updated in the plan.

5.2.9 Training

Copies of the Waste Management Plan will be available to all site personnel. All site personnel and sub contractors will be instructed about the objectives of the Waste Management Plan for the site and informed of the responsibilities which fall upon them as a consequence of its provisions. This will be carried out during the site induction process for all site personnel. Where source segregation and materials reuse techniques apply, each member of the construction team will be given instructions on how to comply with the Waste Management Plan for the site. Site notices will be designed to reinforce the key messages of the waste management plan and will be displayed prominently for the benefit for all on site personnel.

5.2.10 Waste Records

All details of wastes (arising/generated/movement, etc) will be recorded during the project. Each consignment of waste removed from the site will be documented in the form of a waste management movement record form which will ensure full traceability of the material to its final destination. All records will be retained at a designated location at the site office/construction compound and made available for auditing of the waste management plan.

5.2.11 Waste Management Plan Summary

Wastes will inevitably be generated during the construction phase of the project. There shall be no requirement to remove peat/spoil etc from the site. A certain amount of surplus soils/materials will be generated. These materials will be reused as backfill/landscaping around turbine bases and hardstands.

Other than spoils from excavations, waste arising during the construction phase will be minimised by site management, by timing the ordering of materials required at the site, in a manner which reduces the likelihood of over-ordering, or damaging during storage. Furthermore, several of the traditional waste streams arising maybe used at the site where appropriate. Waste will be segregated and stored on site at designated locations/in containers prior to transport to appropriate licensed facilities.

A Waste Management Coordinator will be appointed to ensure the Waste Management Plan is followed. Training will be given to all site personnel, so that they are aware of the Waste Management Regime at the site and know their responsibilities.

Records will be kept tracing the inputs and outputs of the construction works at the site. These records will be made available to relevant authorities, should it be required.

The design and implementation of the Waste Management Plan will provide for the optimum planning/management and handling of wastes generated during the construction phase of the wind farm development.

5.3 REFERENCES

Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG, July 2006).

EMP 6: CONSTRUCTION TRAFFIC MANAGEMENT

6.1 Purpose

To describe measures for the management of all traffic, including construction traffic and oversized loads, for the minimisation of disturbance and nuisance to the local community.

6.2 General

The Appointed Contractor(s) will prepare a detailed Traffic Management Plan prior to the works commencing. This Plan will be finalised in agreement with An Garda Síochána and Leitrim County Council.

The plan will include provision for:

- Communicating with the local community, An Garda Síochána and Leitrim County Council.
- Details of site access and any site traffic rules, including security, parking, loading and unloading, required speed or other relevant details.
- Details of the turbine component delivery and any road closures.
- Programme of maintenance and upkeep of public roads.
- Site operating hours (including delivery) to be outlined.

6.3 Public Roads

- In order to mitigate from a significant impact during peak traffic hours, the majority of staff will either arrive on-site before or after the peak morning traffic and finish work before or after the evening peak traffic hours.
- The condition of the public roads will be monitored on an on-going basis and a road sweeper provided to clean the public roads if required.

6.4 Site Entrance

- There will be no parking of any vehicles on the public road near the wind farm site entrance.
- Adequate parking will be provided on site for both employees and visitors.
- The condition of the site entrance will be monitored on an on-going basis and a road sweeper provided to clean the public road if required.

6.5 Responsibility

- Project Manager
- Construction Manager
- Construction personnel
- Delivery personnel

EMP 7: WHEEL WASH MANAGEMENT PROCEDURE

7.1 Purpose

To describe measures for the protection of watercourses and public roads from dirty water from vehicles.

7.2 PROCEDURE

The Appointed Contractor(s) will reduce the potential for the roads being dirtied by heavy vehicle traffic, by including the following:

- A Wheel Wash facility will be provided at the Site Entrance.
- Wheel washes will be cleaned as required

Dry Option: At assigned locations at the site entrance a wheel wash will be installed for wheel washing prior to vehicles leaving site. A dry wheel wash (vibrating) will be used to remove any mud from the vehicle's wheels, with excess mud / etc. being collected and treated/disposed of following treatment.

The wheel wash station will remain on site until the development is complete. The wheel cleaning procedure will consist of:

1) Before leaving the site, vehicles will enter the wheel wash and be inspected for any heavy deposits left on wheels. If present, these will be removed manually.
2) Following inspection, all wheels are to be cleaned down with the vibration system, until clear of all deposits.
3) Vehicles will be permitted to leave site following approval of the operating manager/ site representative that the above steps have been completed to a satisfactory standard.

Daily inspections of the wheel wash will be completed to check it is operating as described above, and to make sure there is no excess material collected posing risk during periods of rain. The washout area will be cleaned as required, with excess material disposed of appropriately (Deposition area), or used as back fill within the site. If required, drainage ditches/berms will divert dirty water to sedimentation pond for treatment, prior to outfall to vegetated area (preventing sedimentation (runoff /rainwater washing material away).

On site roads/local roads will be kept as free of mud as is practicable during ground working operations. Machine trafficking around the site will be kept to a minimum in order to reduce the effects of rain on 'broken' ground.

If wheel wash facility is not sufficient, a road sweeper will also be used in the immediate area which will be ordered directly via the site manager.

7.3 RESPONSIBILITY

The Construction Manager/Environmental Manager will monitor the wheel wash area/sediment control infrastructure and carry out corrective action where required.

EMP 8: CONSTRUCTION DUST MANAGEMENT

8.1 Purpose

To describe the measures for the management of nuisance impacts on air quality from construction generated dust.

8.2 PROCEDURE

In order to ensure that no dust nuisance occurs, a series of measures will be implemented:

- Site roads will be regularly cleaned and maintained as appropriate.
- Hard surface roads will be swept to remove mud and aggregate materials from their surface.
- Furthermore, any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and/or windy conditions.
- Speeds will be restricted on hard surfaced roads as site management dictates.
- Public roads in the vicinity of the site will be regularly inspected for cleanliness and cleaned as necessary.

A temporary vehicle wheel wash facility will be installed in proximity to the site entrance.

The dust minimisation plan will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practice and procedures.

8.3 RESPONSIBILITY

- The Environmental Manager is responsible for ensuring the standard construction dust management measures highlighted in section 11.7.2, Table 11.10 are followed.

8.4 REFERENCES

- Guidelines for the Treatment of Air Quality During the Planning and Construction of National Road Schemes (Consultation Draft, National Roads Authority, October 2006)
- Control of Dust from Construction and Demolition Activities (BRE, 2003).

EMP 9: CONSTRUCTION NOISE MANAGEMENT

9.1 Purpose

To describe measures for the management of impacts from construction noise.

A specific procedure for the management of noise complaints is provided in EIAR Appendix 9-10 and will be implemented by the Applicant and the Appointed Contractor.

9.2 Procedure- Control of Noise at Source

- Only properly functioning and maintained plant/equipment will be permitted on site.
- No unnecessary revving of machinery on site.
- Plant will be properly used and regularly maintained.
- Compressors, if needed, will be 'sound related' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever machines are in use.
- All vehicles and mechanical plant will be fitted with effective exhaust silencers.
- Machinery will be turned off where practicable when not in use.

9.3 Responsibility

- The Construction Manager will be familiar with the noise sensitive receptors and alert the Environmental Manager in good time prior to work commencing in the areas closest to any noise sensitive receptors.
- The Environmental Manager will review any relevant planning conditions in updating this plan.

9.4 References

- BS5228 –1&2:2009, Code of Practice for the Control of Noise and Vibration on Construction and Open Site

EMP 10: ARCHAEOLOGICAL AND HERITAGE PROTECTION

10.1 Purpose

To describe measures for the management and protection of archaeological and cultural heritage on the site.

10.2 PROCEDURE

- Prior to the commencement of construction, a programme of archaeological test trenching will be carried out at the greenfield locations across the proposed wind farm site. This work will be carried out under licence to the NMS. Dependent on the results of the testing assessment, further mitigation will be implemented as required and agreed with the National Monuments Service (NMS) of the DoHLGH.
- If archaeological remains are identified during the course of these works, further mitigation will be implemented as required and agreed with the NMS of the DoHLGH.

10.3 RESPONSIBILITY

- Project Manager
- Environmental Manager
- Construction Manager
- Project Archaeologist

EMP 11: ECOLOGICAL MANAGEMENT PLAN FOR THE PROTECTION OF HABITATS AND FAUNA

11.1 PURPOSE

To describe measures for the management and protection of habitats and fauna on the site.

11.2 PROCEDURE

- Ensuring implementation of ecological protection measures outlined below.
- Advising on re-vegetation onsite.
- Monitoring of success of re-vegetation.

11.3 ECOLOGICAL PROTECTION MEASURES

General Habitats

Habitat degradation will be limited by controlling the movement of construction vehicles and machinery. Construction vehicles and machinery will not encroach onto habitats beyond the proposed development footprint and will be required to travel via the constructed roads when moving between works areas. To emphasise this requirement, the boundaries of the footprint of the development will be fenced off with post and wire. The Environmental Manager will also monitor vehicle movements.

Monitoring

- The following confirmatory surveys will be undertaken:
    - Confirmatory bird surveys breeding season.
    - Confirmatory terrestrial mammal survey, particularly, for otters.
    - Confirmatory surveys for Flora Protection Order species.
- Bird surveys will be carried out prior to, during the construction phase and post construction in accordance with the approved Bird Monitoring Programme.
- Water quality monitoring will take place prior to, during the construction phase and post construction in accordance with the approved Water Quality Monitoring Programme.
- Routine inspections and maintenance of sediment and erosion control measures will take place regularly during the construction phase and during the operational life of the project. Silt traps and settlement ponds will be cleaned on a regular basis to ensure their effectiveness.
- To reduce the level of disturbance to fauna, construction activities will be restricted to between 7:00hrs and 19:00hrs Monday to Friday (excluding public holidays) and between 07:00hrs and 14:00hrs on Saturdays. Construction work will not take place outside of these hours unless in exceptional circumstances. Construction activities (including human presence) along the GCR, (inclusive of the following WFD river waterbodies Bonet_030, Bonet_040, and Bonet_050.and Shanvaus_010), will not begin until one hour after dawn and will cease an hour before dusk. Noise, vibration, lighting, and human activity, have the potential to temporarily disturb/displace European otter within Lough Gill SAC, particularly during dawn and dusk when the species is most active.
- In the unlikely event that protected faunal species are found actively using the Site for

breeding/roosting during the construction phase, works in the affected areas will cease immediately, and the relevant area will be cordoned off until advice is sought from a suitable qualified expert/NPWS, Full details on pre-construction confirmatory surveys can be found in EIAR Chapter 5- Biodiversity Section 5.12.4 Pre-Construction Confirmatory Surveys.

11.4 RESPONSIBILITY

- Ecological Clerk of Works
- Environmental Manager
- Construction Manager
- Project Ecologist

EMP 12: MANAGEMENT OF INVASIVE SPECIES

12.1 PURPOSE

To describe measures for the management of invasive species on site.

12.2 PROCEDURE

Areas where invasive species are present will be identified and demarcated prior to commencement of construction:

Invasive Species Control

The following principles will be applied during the management of Invasive Species at the Development site:

- Prevention/Biosecurity: Preventing invasive species from arriving on site/preventing spread of invasive species.
- Response: Regular monitoring combined with a rapid response to treat/ eradicate invasive species that are identified encroaching on the site, to ensure that they do not become established.
- Eradication: Aiming to eradicate invasive species on site will prevent the problem increasing.
- Containment: It may not be realistic to completely eradicate invasive species from a particular site. This could be due to level of infestation or the species involved, and resourcing limitations (both financial and personnel required).

Informing

- Invasive Species 'Tool Box Talks'/Site Inductions will be delivered to ensure all site personnel are of aware of/what invasive species looks like that are potentially at the location/greater area, i.e. Japanese Knotweed and issues associated with the same. To reduce the likelihood of invasive species spreading, the construction personnel involved in works will be trained in basic relevant invasive species prevention and management ('Tool Box talk').
- Prior to the commencement of construction, the development footprint will be surveyed for the presence of invasive species. If invasive species are present, the Project Manager/Environmental Manager will manage their control. The control methods will be specific to the local site conditions as well as the invasive species being managed. Control

methods can include physical and/or chemical control methods and monitoring.

- Where any non-native species is present, a management plan will be put in place, to manage the risks and implications of the species, along with legal requirements.
- A distribution map of the invasive alien plant species at the development site has been developed, and will be incorporated into the CEMP.
- Where a non-native species is identified as a risk of being introduced, spread within, or moved off site, mitigation measures will be in place to prevent spread of the species.
- If required, the project will be phased, to allow time to deal with the presence and/or risk of spread of non-native species.
- Where a species requires long-term management (e.g. Japanese knotweed), a site management plan will be developed that addresses all issues associated with it.
- Locations of invasive species within the overall site will be highlighted and excluded from the works.
- To reduce the likelihood of invasive species being introduced to the site from quarries, the aggregate will be crushed stone which will be biologically inert and would not be expected to have a seed bank.
- No machinery will be permitted to park within demarcated/exclusion areas.
- If excavations are required/movement of invasive species such as Japanese Knotweed, relevant licenses will be obtained, and any excavations/movement of the same will be in line with current beast practice.

Biosecurity

- To reduce the likelihood of invasive species being introduced to the site from construction works on other sites, it will be required that vehicles and tools will arrive on site clean. Work boots will be dipped in or scrubbed with a disinfectant solution and thoroughly dried afterwards before being used on the site for the first time (Also requirement during water quality sampling between different catchments). All PPE will be visually inspected and any attached vegetation or debris removed. PPE and tools will remain on site for the duration of construction. Any machinery or equipment returning from a different construction site will be cleaned, power washed/steam washed and visually inspected again before re-entering the site.

Equipment/Machinery

To maintain good site hygiene when dealing with any non-native species:

- A fence/signage that can be clearly seen will mark out any area of issue. Signs should be erected to warn people working there that the area is infested / contaminated. No entry signage will be put in place.
- Where contaminated soil, materials or water are located, signage should be erected to indicate them.
- Personnel working on or between sites will ensure their clothing and footwear are cleaned where appropriate to prevent spread.
- Tracked vehicles should not be used within the area of infestation.
- All vehicles leaving the infested area and / or transporting infested soil/materials must be thoroughly pressure-washed in a designated wash-down area before being used for other work.

- Where cross-contamination is possible (i.e. from one site to another), vehicles or machinery will be designated to specific sites where possible to prevent spread.
- Material / water left after vehicles have been pressure-washed must be contained, collected and disposed of appropriately.
- All chemicals used for the control of non-native species should be stored and used in an appropriate manner carried out by specialist/suitability trained personnel.

Methodologies

Invasive species management methodologies and plans outlining Best Available Techniques (BAT) will be sourced from the National Invasive Species Database, from previously published documents/current best practice, and from the Invasive Species Ireland and Inland Fisheries Ireland websites. See the Invasive Species Management Plan, Appendix 5-6 of the main EIAR.

12.3 RESPONSIBILITY

- Project Manager
- Environmental Manager
- Construction Manager
- Project Ecologist

12.4 REFERENCES

Information on invasive species is provided in the National Road Authority (NRA) (now Transport Infrastructure Ireland (TII))[1], and Invasive Species Ireland (ISI)[2] documents provided in Annexes I and II, in relation to identification, control and eradication of Japanese Knotweed.

EMP 13: MONITORING AND AUDITING

13.1 Purpose

To describe measures for environmental monitoring during the construction works and audit of control measures to ensure environmental protection.

13.2 PROCEDURE

All mitigation measures, any planning conditions and relevant construction methods will be monitored on site. The Appointed Contractor(s) will nominate an Environmental Manager for the works. The Environmental Manager will provide Audit Checklists to ensure regular checks of the site's control measures for the ongoing protection of the environment.

Monitoring will be carried to ensure adherence with the following;

EMP-2	Surface Water Management and Run-off Control (Sediment and Erosion Control)
EMP-3	Fuels and Oils Management
EMP-4	Management of Concrete
EMP-5	Construction Waste Management Plan
EMP-6	Construction Traffic Management
EMP-7	Wheel Wash Management Procedure
EMP-8	Construction Dust Management
EMP-9	Construction Noise Management
EMP-10	Archaeological & Heritage Protection
EMP-11	Ecological Management Plan Protection of Habitats and Fauna

Checklists for daily, weekly or monthly site audits will be finalised by the Environmental Manager and the relevant personnel informed of their duties. Checklists will include (but are not limited to) confirmation that fuel is stored appropriately, waste management rules are adhered to, all environmental buffers are maintained, Surface water and run-off control measures of the are in place and functioning, and concrete chute wash-out procedure is being followed. Checklists will be finalised with the Final Contractor(s)'s EOP.

All environmental records, including completed checklists, will be retained at the site office.

13.3 RESPONSIBILITY

- Project Manager
- Environmental Manager
- Construction Manager
- Project Ecologist
- Project Archaeologist

Details of Monitoring Procedure and Checklists to be finalised by Appointed Contractor(s)'s Environmental Manager

15. DECOMMISSIONING PLAN

The Decommissioning Plan sets out the framework for the safe and environmentally responsible removal of the proposed wind farm infrastructure at the end of its operational life. It ensures that all works are undertaken in accordance with best practice, relevant legislation, and the mitigation measures outlined in the Environmental Impact Assessment Report (EIAR) and associated planning documentation.

15.1 SCOPE OF WORKS

Decommissioning will include the dismantling and removal of all above-ground infrastructure, including wind turbines and the meteorological mast. Underground cabling will be removed where practicable, with ducting generally left in situ to minimise environmental disturbance. Turbine foundations will be backfilled and reinstated rather than fully removed to reduce impacts such as noise, dust, and soil disturbance. Reinstatement of disturbed areas will be undertaken following removal works.

15.2 ENVIRONMENTAL MANAGEMENT

A range of environmental control measures will be implemented during decommissioning to minimise potential impacts. These include drainage protection, dust and noise control, pollution prevention, invasive species management, and traffic management. A Construction Waste Management Plan will guide the handling of materials, prioritising waste prevention, reuse, and recycling in accordance with the waste hierarchy and relevant legislation.

15.3 MATERIALS AND WASTE MANAGEMENT

Materials generated during decommissioning will be segregated and managed to maximise reuse and recycling opportunities. Components such as metals and cabling will be recovered for recycling, while any non-recyclable materials will be disposed of at appropriately licensed facilities. Waste handling will comply with all applicable regulatory requirements and permit conditions.

15.4 EMERGENCY RESPONSE

An Emergency Response Plan (ERP) will be implemented to address potential incidents such as accidents, spills, fire, or peat instability. The ERP will define roles and responsibilities,

communication procedures, evacuation protocols, and incident reporting requirements to ensure a timely and effective response.

15.5 Programme and Duration

The decommissioning phase is expected to take approximately five months to complete, from initial dismantling works through to final site reinstatement. A detailed programme of works will be developed prior to commencement.

15.6 Monitoring and Compliance

Environmental monitoring, inspections, and audits will be undertaken throughout the decommissioning phase to ensure compliance with mitigation measures and environmental commitments. The Environmental Clerk of Works (ECoW) and Site Manager will oversee implementation, and corrective actions will be taken where required. The Decommissioning Plan will be reviewed and updated as necessary to reflect site conditions and project requirements.

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