

## **Appendix 3.1: Outline Construction Environmental Management Plan**



**EDF Energy Renewables Ltd**

**Dunside Wind Farm**  
**Appendix 3.1: Outline**  
**Construction**  
**Environmental**  
**Management Plan (CEMP)**

**Draft report**

Prepared by LUC

June 2023



**EDF Energy Renewables Ltd**

**Dunside Wind Farm**

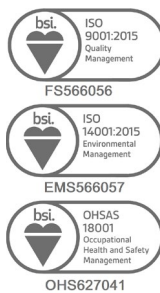
**Appendix 3.1: Outline Construction Environmental Management Plan (CEMP)**

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# Chapter 1

## Construction Environmental Management

### Aims and Objectives

**1.1** This document presents a framework for an Outline Construction Environmental Management Plan (CEMP) and has been prepared by LUC and associated topic specialists on behalf of EDF Energy Renewables Ltd (the 'Applicant') with inputs from the Applicant's engineering team.

**1.2** This outline CEMP has been prepared as part of the environmental impact assessment (EIA) process and forms an appendix to the Environmental Impact Assessment Report (EIA Report) submitted as part of the application for consent for Dunside Wind Farm (the 'Proposed Development').

**1.3** The purpose of the outline CEMP is to present the principles of construction methods and environmental management measures to be employed during the construction phase of the Proposed Development. A final, detailed CEMP will be prepared as a condition of consent, prior to commencement of construction, in consultation with Scottish Borders Council (SBC) and other relevant stakeholders, which will take account of the approved plans and deemed planning conditions granted for the Proposed Development.

**1.4** The Applicant will appoint a Principal Contractor to undertake the construction works. As part of the Civil Works Contract, the Principal Contractor will have responsibility for preparing and delivering the detailed CEMP post-consent. The management measures, method statements and referenced good practice guidance and legislation will form the basis of the detailed design to be prepared by the Principal Contractor.

**1.5** The detailed CEMP will include management measures, and method statements with reference to relevant legislation, policy and good practice guidance.

**1.6** The CEMP will likely contain the following documents, which the Principal Contractor and their sub-contractors will be required to adhere to throughout the construction process:

- A Pollution Prevention Plan (PPP);
- Construction Method Statements (CMS);
- Peat Management Plan (PMP) (following the principles set out in the Outline Peat Management Plan (PMP) presented in **Appendix 8.3**;
- Site Waste Management Plan (SWMP);
- Construction Traffic Management Plan (CTMP) (following draft included in **Appendix 10.1: Transport Assessment**);
- Outdoor Access Management Plan (OAMP) (following the principles set out in the Outline Outdoor Access Management Plan presented in **Appendix 3.3**);
- Site Restoration Plan;
- Species Protection Plans;
- Breeding Bird Protection Plan (BBPP) (following the findings and proposed mitigation set out in the EIA Report Chapter 6, including details of pre-commencement survey methods and protocols in relation to the avoidance of disturbance);
- Restoration and Enhancement Plan (REP) (following the principles set out in the Outline REP presented in **Appendix 6.6**); and
- Decommissioning and Reinstatement Plan.

**1.7** The final CEMP will provide:

- a schedule of all construction stage mitigation measures required to address likely significant effects identified in the EIA Report;
- a schedule of all additional construction stage good practice management measures included as part of the proposed construction works, in line with industry good practice guidance;
- a schedule of roles and responsibilities for delivering the requirements of the CEMP, including a statement of responsibility to 'stop work / activity' to avoid a potential breach of a mitigation measure or legislative requirement;
- a method statement for monitoring, auditing, and templates for reporting and communication of environmental management performance onsite with the Applicant, planning authority and other relevant parties;
- construction stage environmental management measures, based on good practice including but not limited to:
  - Scottish Renewables and Scottish Environment Protection Agency (SEPA) (January 2012) Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste.
  - Scottish Renewables, Scottish Natural Heritage (SNH) <sup>1</sup>, SEPA, Forestry Commission Scotland (FCS) and Historic Environment Scotland (HES) (2019) Good Practice during Wind Farm Construction, Version 4.
  - SEPA (2006) Prevention of Pollution from Civil Engineering Contracts: Special Requirements publication.
  - SEPA /Environment Agency (EA) Guidance on Pollution Prevention Plan (PPP) and Pollution Prevention (GPPs).
  - The Water Environment (Controlled Activities) (Scotland) Regulations 2011 ('CAR Regulations') as amended by Water Environment (Miscellaneous) (Scotland) Regulations 2017.
  - Scottish Government (2012) River Crossings and Migratory Fish: Design Guidance.
  - British Standards Institute (BSI) (2009) Code of Practice for Earth Works, BS6031:2009.
  - BSI (2009) Code of practice for noise and vibration control on construction and open sites. Noise, BS5228-1:2009.
  - CIRIA guidance such as Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors (C532).
- a template for the production of detailed and task/ site-specific plans for onsite components of the construction work.

**1.8** The CEMP will be updated when necessary to account for changes or updates to legislation and good practice methods throughout the construction phase.

**1.9** The CEMP will also be amended to incorporate information obtained during detailed ground investigations which will be undertaken post-consent and prior to construction activities.

**1.10** An appropriately qualified Environmental Clerk of Works (ECoW) / Environmental Site Manager will be appointed with responsibility for monitoring compliance with the requirements of the CEMP and other environmental obligations (including procedures, record keeping, monitoring and auditing).

**1.11** The final CEMP will include the schedule of commitments made in EIA Report **Appendix 3.5: Schedule of Mitigation, Good Practice, Enhancement and Monitoring**. The CEMP will also maintain a schedule of commitments required by specific Consent/planning conditions. These will form points against which compliance records will be kept and be subject to monitoring of compliance.

**1.12** The appointed Principal Contractor will be responsible for ensuring that construction works are prepared and implemented onsite in accordance with:

- The Health and Safety at Work etc. Act 1974.
- The Construction (Design and Management) Regulations 2015; and
- All applicable third-party safety guidelines.

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<sup>1</sup> Scottish Natural Heritage (SNH) is now known as NatureScot. Where a document has been prepared prior to the formal name change the name SNH is used for document referencing purposes as this was the name of the organisation at the time of publication.



# Chapter 2

## Communication Protocol

### Roles and Responsibilities

**1.1** The CEMP will confirm the roles, responsibilities and communication routes for environmental management during the works. The CEMP will make clear reference to, or incorporate, communication protocols for use in the event of an environmental emergency or incident.

### Recording and Reporting

**1.2** The CEMP will set out the requirements for recording and reporting all aspects of environmental management, such as:

- minutes and attendance record of start-up meeting (onsite meeting prior to commencement of construction works);
- an environmental risk register;
- minutes of meetings covering environmental (ecology, archaeology, hydrology) issues (meetings may be combined with regular construction progress meetings);
- a communication plan;
- records of toolbox talks;
- dust / noise monitoring records;
- site waste and materials management plan and records;
- water quality monitoring records; and
- details of licensing and consents.

### Environmental Audits

**2.1** The CEMP will set out the programme of environmental audits, including audits of subcontractors to be undertaken by the Principal Contractor, on a quarterly basis (as a minimum) and require provision of an audit report, to the Applicant, upon completion.

**2.2** The Principal Contractor will provide a template for completing and reporting audits, for the agreement of the Applicant, prior to the commencement of site works.

### Risk Assessments and Method Statements

**2.3** The Principal Contractor will provide risk assessments and method statements (RAMS) for all works and tasks prior to these being undertaken. These documents take into account and address all of the environmental aspects of the planned works and will include proposed mitigation measures.

### Community Liaison

**2.4** During the construction period, a community liaison group will be set up to circulate information and gain feedback from the local community. A project website will be regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the Site.

**2.5** An Outline Outdoor Access Management Plan is provided in **Appendix 3.3** and sets out public access arrangements that will be put in place during the construction period.

## Chapter 3

# General Construction Activity

### General Working Practices

3.1 In general practice, the Principal Contractor will have the overall responsibility for environmental management onsite during the construction phase with support from an Environmental Clerk of Works (ECoW). Specialist advisors will be appointed (where appropriate) to provide support on such matters as hydrology, archaeology and ecology. and advise on specific issues that may arise during construction and reinstatement phases.

3.2 The CEMP will specify the legislation, regulation and guidance for all construction activities, mitigation and pollution prevention to ensure consistency.

### Site Induction, Training and Tool-box Talks

3.3 The Principal Contractor will ensure that all staff are provided with the following:

- Environmental awareness training and health and safety awareness training.
- Safety rules for all site operatives and visitors.
- A series of toolbox talks prior to commencement of works to ensure all staff on site are aware of task/location-specific site sensitivities and procedures.

3.4 The CEMP will specify the frequency of toolbox talks, requirements for site personnel to undergo training and have agreement to Safety Rule etc recorded, and the procedure to be followed in the event of any breach or accidental malpractice onsite.

### Pre-Construction Habitat and Species Protection Works

3.5 Details of pre-commencement protected species surveys will be referred to and any appropriate mitigation measures proposed in relation to the findings.

3.6 The CEMP will direct the reader to the findings and proposed mitigation set out in Species Protection Plans (SPPs, see EIA Report **Appendix 6.6: Outline Restoration and Enhancement Plan**).

### Habitat and Species Monitoring and Management During Construction

3.7 The Principal Contractor will liaise with the ECoW and will consult SEPA Guidance with regard to the regulatory requirements and ensure that onsite practices accord with the relevant advice/guidance.

3.8 The CEMP will detail the ECoW's responsibilities and will carry out an assessment of the environmental performance based upon reports submitted by environmental management representatives and regular site visits during the construction period. The frequency of these visits and reporting will be set out in the CEMP.

### Water Quality Management

3.9 The CEMP will provide details of pre-construction, construction and post construction water quality monitoring measures to be undertaken as agreed with Scottish Water and SEPA, and these will be included in the Water Quality Monitoring Plan. These will be required to monitor potential effects on the upper Tweed catchment. Monitoring will be undertaken by an ECoW (or equivalent) and monitoring locations will be identified in the final CEMP.

## Infrastructure Protection Works

**3.10** A full search for all utilities onsite will be undertaken prior to construction to ensure that buried cables and pipes are identified. All utilities which could be potentially affected by construction will be protected to ensure that supplies of water, electricity, telephone etc. to properties will be maintained. Further details of any utility protection measures required will be specified in the final CEMP.

## Site Welfare

**3.11** Safety and safety management is of paramount importance and is integral to ensuring the successful construction of the Proposed Development. Throughout the construction phase, the Principal Contractor and other contractors working on the site will report and monitor on health and safety performance.

**3.12** Welfare facilities will be in line with current Construction (Design Management) Regulations 2015.

## Site Compound Management

**3.13** Details regarding the temporary construction compound uses, worker and visitor parking, plant, machinery and materials storage will be provided as necessary.

## Onsite Concrete Batching

**3.14** In the event that concrete batching is to be undertaken onsite, the details will be specified as to its final location and pollution prevention measures to be adopted, which will be developed with input from the ECoW.

## Pollution Prevention and Mitigation Plan

**3.15** A Construction Site License will be required in accordance with the Controlled Activity (CAR Regulations) and the Water Environment (Miscellaneous) (Scotland) Regulations 2017. A CAR Construction Site License is required for a construction site that meets the following criteria:

- it comprises an area greater than 4 hectares (ha), or
- it is a linear development greater than 5 km, or
- it has an area of more than 1 ha or any length of more than 500 m on ground with a slope in excess of 25 degrees.

**3.16** A Construction Site Licence requires a Pollution Prevention Plan (PPP) to be produced by the 'responsible person' which in this case will be the Principal Contractor.

**3.17** The Principal Contractor is responsible for pollution prevention for the duration of the contracted works or until such time as permanent measures are in place. Measures for prevention and monitoring performance will be implemented by the Principal Contractor and monitored independently by the ECoW. The CEMP will present the methodology and procedures to be adopted that will avoid construction activities impacting on surface and groundwater and define the actions to be taken in the event of a pollution incident on land or within a watercourse.

**3.18** Pollution prevention measures such as drainage management, fuel, oil and chemical storage and handling, spill kits and spill kit training etc. will be applied in accordance with best practice and relevant guideline documents.

**3.19** Pollution prevention measures and good practice measures are outlined in further detail in Annex A of this CEMP.

## Site Waste Management

**3.20** A number of different waste streams are likely to arise during construction of the Proposed Development. The Principal Contractor will likely be responsible for the production of a SWMP that will identify all waste streams and provide an estimate of expected waste volumes for each waste type generated within the waste stream.

**3.21** An objective of the plan will be to detail how much waste is to be recycled, reduced or processed throughout the life of the construction phase. The CEMP will also note measures to reduce potential environmental impacts associated with the generation, storage and transportation of wastes.

## Water Abstraction

**3.22** The Site is located within a drinking water catchment (Rawburn Water Treatment Works). A water abstraction is likely to be required as part of the Proposed Development. It is anticipated that water would be abstracted from surface water (e.g., a watercourse to provide a reliable water supply for the concrete batching plant). Any surface water abstraction would be subject to suitable water quality and yields being available, which would be determined through future site investigation, post-consent. Any abstraction would require suitable authorisation under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) and Water Environment (Miscellaneous) (Scotland) Regulations 2017.

**3.23** The final CEMP will present water abstraction details.

## Site Excavation

**3.24** Details regarding open trenches, soil handling and topsoil spreading will be set out in the CEMP.

**3.25** Details relating to peat management will be in line with best-practice principles to be adopted during construction. A draft Peat Management Plan (PMP) has been prepared, refer to EIA Report Volume 4: **Appendix 8.3**. This is based on the peat depth surveys undertaken as part of the EIA. This plan will be updated prior to construction following geotechnical site investigation and detailed design of the Proposed Development.

## Environment Incident and Emergency Response

**3.26** The Principal Contractor will prepare a detailed Environment Incident and Emergency Response Plan in line with current guidance, including the feedback from the Peat Landslide Hazard and Risk Assessment (PLHRA). See **Appendix 8.4** of the EIA Report.

**3.27** Consistent with the above, the Principal Contractor will ensure systems are in place to record the key information of any incident and onsite testimony of any personnel witnessing an incident. A communication plan (to be followed in the event of an incident) will be provided prior to commencement of site works.

# Chapter 4

## Typical Construction Stage Environmental Management Measures

### Introduction

4.1 This chapter provides standard sub-headings setting out the key details to be provided in the final CEMP.

### Hours of Works

4.2 The likely construction hours of work are anticipated to be Monday to Friday 07.00 to 19.00 and Saturday 0700-1200. There will be no working on a Sunday or on public holidays. In the event that work outside of these hours is required, this will be agreed with SBC.

### Archaeological Management

4.3 EIA Report Chapter 5 concludes that there are no significant construction effects anticipated on any of the known heritage assets. Any construction effects upon previously unrecorded heritage assets would be mitigated through a programme of good practice archaeological works, to be agreed with SBC Historic Environment Team.

4.4 This programme would allow for features to be recorded appropriately and is likely to comprise a watching brief on ground-breaking works with further work being undertaken as appropriate. In the remainder of the central area the potential for previously unrecorded assets to lie within the construction footprint is low, while in the southern area the potential is negligible. No mitigation is proposed for construction works in these areas of low potential.

### Ecological Management Plan

4.5 The CEMP will include detailed Method Statements based on current best practice for:

- Micro-siting (where necessary, under guidance from the Environmental Clerk of Works) during detailed design / construction will avoid areas of particularly sensitive habitat;
- Pollution prevention measures during site clearance and construction works;
- Pollution spill kits will be made available at suitable locations across the Site and be maintained. All site workers will be briefed on the location of the spill kits and how to use them effectively, and what further actions to take should a significant pollution incident occur;
- Site drainage, water monitoring and sensitive habitat protection;
- Appropriate use and storage of excavated soils and vegetation turfs for track verges and batters, wind turbine bases and crane pad batters;
- Implementation of a Peat Management Plan (**Appendix 8.3: Peat Management Plan**); and
- Site restoration plan and methods, re-vegetation and monitoring methods.

4.6 The CEMP will be informed by the results of the BBPP and REP, including pre-construction breeding survey recommendations. Details will be agreed in consultation with NatureScot and RSPB Scotland and will include necessary measures required to protect ecology at the site and ensure compliance with relevant nature conservation and wildlife protection legislation during construction.

4.7 The CEMP will also detail habitat restoration measures, to be agreed with relevant stakeholders.

## Management of surface & Groundwater and Water Quality Monitoring

**4.8** The design for drainage management measures will be specified, to incorporate sustainable drainage systems (SuDS) to attenuate the volume and rate of runoff and maintain water quality. Annex B presents an outline of the headings that will form part of the SuDS and drainage measures for the Proposed Development.

**4.9** The requirement for visual inspection of surface watercourses and water quality monitoring to be undertaken on discharge waters during the construction phase will be specified, to assess and manage the performance of the drainage system.

**4.10** Scottish Water will be kept informed should any incidents occur.

## Management of Surface Water

**4.11** Details of the design of swales, check dams and settlement ponds will be included as required to provide a surface water management and treatment system that will mitigate any adverse impact on the hydrology of the site and surrounding areas during the construction phase of the project.

## Dust Management

**4.12** Dust management controls and protocols for implementation (e.g., in the event of dry weather) will be specified.

## Waste Management

**4.13** Details of site waste management arrangements will be provided, identifying all waste streams and responsibilities of the contractor.

## Soil and Peat Management

**4.14** A Stage 2 PMP will be produced, using data acquired for the EIA and the pre-construction site investigation campaign. Measures to maintain soil structure and function during temporary storage and reinstatement work will be specified. A draft PMP is included as **Appendix 8.3**.

## Peat Instability Risk Assessment

**4.15** A geotechnical risk register and management plan will be provided to manage risks associated with construction works in close proximity to areas identified as having peat instability in **Appendix 8.4: PLHRA**. Good practice measures to minimise peat slide risk (particularly at areas of concern) will also be specified.

## Noise Management

**4.16** Any noise control measures required during construction work will be specified, and the protocol for addressing noise complaints will be described.

## Traffic Management

**4.17** A separate traffic management plan in consultation with SBC will be prepared for the Proposed Development to manage traffic on the public road during construction.

# Chapter 5

## Construction Method Statements

### Introduction

5.1 This section provides sub-headings for typical detail to be provided in the CMS.

### Temporary Construction Compound and Site Fencing

5.2 Final details of layout of temporary components will be specified in the CMS.

### Public Access Roads

5.3 The Southern Upland Way and a heritage path (The Herring Road) run along a 700m section of the main existing access route into the site. There are Scottish hill tracks which run the length of the main existing access route and recorded Rights of Way (RoW) along the main existing access route and spurs running through the site. Access will be maintained throughout the construction period and a temporary footpath created for Fallago Rig Wind Farm's construction will be reinstated alongside the existing access track to keep recreational users of the section shared by the Herring Road and the Southern Upland Way segregated from wind farm construction traffic.

5.4 Measures to manage recreational access during construction will be set out in the Outdoor Access Management Plan (**Appendix 3.3**) and reflected in the CTMP which will also set out any Agreements or Licences required with the SBC.

### Site Entrances

5.5 The requirement for inspection of site entrance roads will be specified in the CEMP, detailing the requirement/ protocol for providing a road sweeper to remove any mud or debris transferred onto the roads from site activities if required. Wheel cleaning facilities may be established at the Site entrance.

### Site Tracks

5.6 Construction details for new and upgraded site tracks will be detailed, including installation of track drainage features. Locations of cut and fill track will also be fully detailed.

5.7 Areas requiring sub-grade drainage measures to maintain groundwater connectivity will be specified (based on detailed site investigation at pre-construction phase).

### Watercourse Crossings

5.8 The Proposed Development will require the construction of four new watercourse crossings, and utilisation of 19 existing crossings. The design of watercourse crossings will be in accordance with the CAR Regulations 2011<sup>2</sup> and will be specified along with the any CAR licences required.

5.9 Specifications will comply with:

- Flood Estimation Handbook (Statistical Analysis) and Flood Studies Report (FSR) - used where appropriate to determine the design flow;
- CIRIA Culvert, Screen and Outfall Manual (C786F<sup>3</sup>); and

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<sup>2</sup> The Water Environment (Controlled Activities) (Scotland) Regulations 2011, No. 209 <https://www.legislation.gov.uk/ssi/2011/209>

<sup>3</sup> CIRIA (2019). Culvert, screen and outfall manual. Publication C786F; Construction Industry Research and Information Association, London (which replaces CIRIA C689) <https://www.ciria.org/ItemDetail?iProductCode=C786F&Category=FREEPUBS> (accessed 16/12/21)

- SEPA Position Statement on Culverting of Watercourses<sup>4</sup>.

**5.10** The watercourse crossing construction methodology will be specified, including detailed measures to prevent pollution.

### **Turbine Foundations, Crane Hardstandings, Laydown and Storage Areas**

**5.11** Construction design details for turbine foundations, crane hardstandings, laydown and storage areas and construction methods for their installation will be added to the detailed CEMP when a final turbine model has been commissioned.

### **Turbine and Turbine Transformer Erection**

**5.12** Construction details for turbine and turbine transformer installation will be specified in the detailed CEMP.

### **Site Electrical Works**

**5.13** Construction details for site electrical works will be specified in the detailed CEMP.

### **Cable Trench Design Philosophy**

**5.14** The route and design of onsite cables will be specified, including methods of installation, watercourse crossing and measures to ensure that cable trenches do not provide a preferential pathway for dewatering peat forming habitats.

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<sup>4</sup> SEPA (2015) SEPA Position Statement to support the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2011: WAT-PS-06-02: Culverting of Watercourses – Position Statement and Supporting Guidance, [https://www.sepa.org.uk/media/150919/wat\\_ps\\_06\\_02.pdf](https://www.sepa.org.uk/media/150919/wat_ps_06_02.pdf) (accessed 16/12/21)



## Chapter 6

# Decommissioning and Restoration Plan

- 6.1** Before the expiry of the Proposed Development's consent, a decision will be made as to whether to apply for an extension to the life of the Proposed Development in order to maintain the wind farm for a period beyond 35 years, or to decommission the project at this time.
- 6.2** If a decision was taken to decommission the Proposed Development this will require the removal of all the turbine components, transformers, the substation and associated buildings.
- 6.3** In the event of decommissioning, a Decommissioning and Restoration Plan (DRP) will be prepared and will be submitted for approval by the planning authority, NatureScot and SEPA no less than 12 months prior to the final decommissioning of the proposed development.
- 6.4** The detailed DRP will be implemented within 18 months of final decommissioning (termination of generation) of the Site, unless otherwise agreed with SBC.
- 6.5** The DRP will set out methods for the following:
- site track and hardstand areas: new site tracks and areas of hardstanding constructed during as part of the Proposed Development will be restored, unless otherwise agreed with the landowner and/or SBC;
  - turbines: the decommissioning of the wind turbines will follow the reverse of the erection process involving similar lifting plant and equipment;
  - turbine foundations: it is widely accepted that there is no appreciable effect on the local environment from buried reinforced concrete structures left in-situ due to the inert state of concrete. Foundations will be excavated to an agreed depth and covered to enable the re-establishment of vegetation;
  - cabling works: cables will remain in situ to avoid any effect to the local environment by their removal; and
  - substation and battery compound: will be decommissioned by disconnecting and dismantling all the surface plant. Solid structures such as the building and equipment plinths will be demolished, and the foundation will be removed to an agreed depth below ground level. Ducting and cabling that is within the agreed depth to be cleared will be removed. The fence surrounding the compound will be removed and the area covered with topsoil and reseeded, as required.

# Appendix A

## Good Practice Measures

### Introduction

**A.1** This section of the CEMP provides a general overview of the standard good practice measures to be adopted. These are measures primarily applicable to the construction phase, which is the phase of activities with greatest risk of adverse effects in terms of both probability and magnitude. The principles identified for construction are also anticipated to be applicable for decommissioning.

### Pollution Risk

**A.2** Good practice measures in relation to pollution prevention will include the following:

- refuelling would take place at least 50 m from watercourses and, where possible, it would not occur when there is risk that oil from a spill could directly enter the water environment. For example, periods of heavy rainfall or when standing water is present would be avoided;
- foul water generated onsite would be managed in accordance with best practice and be drained to a sealed tank and routinely removed from Site;
- drip trays would be placed under vehicles which could potentially leak fuel/oils when parked;
- areas would be designated for washout of vehicles which are a minimum distance of 50 m from a watercourse;
- washout water would also be stored in the washout area before being treated and disposed of;
- if any water is contaminated with silt or chemicals, runoff would not enter a watercourse directly or indirectly without treatment;
- water would be prevented as far as possible from entering excavations;
- procedures would be adhered to for storage of fuels and other potentially contaminative materials in line with the CAR, to minimise the potential for accidental spillage; and
- a plan for dealing with spillage incidents would be designed prior to construction, and this would be adhered to should any incident occur, reducing the effect as far as practicable. This would be included in the final CEMP.

**A.3** Site investigation (e.g., trial pitting and/or boreholes) will be undertaken prior to any construction works where excavation will be required (e.g., where foundations are proposed) and it will inform detailed design and construction methods to ensure pollution risk is considered prior to construction. These methods will be specified in the final CEMP.

**A.4** The drainage design for the battery storage area will be agreed with SEPA prior to construction and include measures to contain potentially polluting materials in the event of an accident.

### Erosion and Sedimentation

**A.5** Erosion control is recognised as being more effective than sediment control in preventing water pollution, i.e. minimising generation of sediment and control 'at source'. This 'prevention-led' philosophy will be applied to this project. Careful construction project programming will take account of interactions between construction, erosion and sedimentation, thus reducing the potential for adverse effects.

**A.6** All construction work will be undertaken to meet contemporary good practice standards, including recommendations in CIRIA guidance documents such as Control of Water from Linear Construction Projects<sup>5</sup> and Handbook for Construction of SuDS<sup>6</sup>. Specific measures that will be employed include:

- All stockpiled materials would be located out with a 50 m buffer from watercourses, including on up-gradient sides of tracks and battered to limit instability and erosion;
- stockpiled material would either be seeded or appropriately covered, minimising the area of exposed bare ground;
- monitoring of stockpiles/excavation areas during rainfall events;
- water would be prevented as far as possible from entering excavations through the use of appropriate cut-off drainage;
- where this is not possible, water that enters excavations would pass through a number of settlement lagoons and silt/sediment traps to remove silt prior to discharge into the surrounding drainage system. Detailed assessment of ground conditions would be required to identify locations where settlement lagoons would be feasible;
- clean and dirty water onsite would be separated, and dirty water would be filtered before entering the stream network;
- if the material is stockpiled on a slope, silt fences would be located at the toe of the slope to reduce sediment transport;
- the amount of ground exposed, and duration it is exposed, would be kept to a minimum and appropriate drainage would be in place to prevent surface water entering deep excavations;
- a design of drainage systems and associated measures to minimise sedimentation into natural watercourses would be developed - this may include silt traps, check dams, and/or diffuse drainage;
- silt/sediment traps, single size aggregate, geotextiles or straw bales would be used to filter any coarse material and prevent increased levels of sediment. Further to this, activities involving the movement or use of fine sediment would avoid periods of heavy rainfall where possible; and
- the ECoW and construction personnel would carry out regular visual inspections of watercourses to check for suspended solids.

## Modification of Surface Water Drainage Patterns

**A.7** The principles on which the surface water management strategy will be devised are:

- runoff from the development area will not be significantly different from runoff prior to development; and
- runoff from the development area will not result in any downgrading in the status or quality of downstream watercourses or habitat.

**A.8** To achieve this, the following measures will be considered:

- Artificial drainage to be installed only where necessary. The individual lengths, depths and gradients of drains will be minimised to avoid intercepting large volumes of diffuse overland flow and generating high velocity flows during storm events.
- Drainage features will, wherever practical, be installed in advance of ground being cleared of vegetation, with sustainable drainage techniques specifically targeted at impermeable surfaces.
- Cross-drains will be constructed at appropriate intervals to conduct surface flow across the track to discharge it from the drainage system. Frequent discharge points will limit the concentration of surface runoff and diversion of flows between sub-catchments.

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<sup>5</sup> CIRIA (2006). Control of water pollution from linear construction projects: technical guidance. Publication C648D; Construction Industry Research and Information Association, London. [www.ciria.org](http://www.ciria.org)

<sup>6</sup> CIRIA (2007). Site handbook for Construction of SuDS. Publication C698; Construction Industry Research and Information Association, London. [www.ciria.org](http://www.ciria.org)

- channel works will be minimised and carefully managed where necessary will reduce the potential for impediments to flows.
- SEPA will be fully consulted regarding the requirements for registration or licensing of elements of the drainage system such as discharges and watercourse crossings under the CAR Regulations.
- All watercourse crossing structures will be designed and constructed using good practice techniques and will be of sufficient capacity to receive 1:200 year plus climate change storm events.
- Watercourse crossings will not restrict water flow, hinder the passage of mammals along the banks, where mammals are present, or form a barrier to suspected fish migration. They will be designed and constructed following guidance published by the Scottish Executive, River Crossings and Migratory Fish: Design Guidance and will be engineered in accordance with CIRIA<sup>3</sup> and SEPA river crossing guidance<sup>7</sup>.

## Fluvial Flood Risk

**A.9** Sustainable Drainage Systems (SuDS) would be incorporated used to manage water at Site. SuDS techniques aim to mimic pre-development runoff conditions and balance, or throttle flows to the rate of runoff that might have been experienced at the Site prior to development. Good practice in relation to the management of surface water runoff rates and volumes and potential for localised fluvial flood risk would include the following:

- drainage systems would be designed to ensure that any sediment, pollutants, or material which may cause blockages are removed before water is discharged into a watercourse;
- onsite drainage would be subject to routine checks to ensure that there is no build-up of sediment or material which may reduce the efficiency of the original drainage design causing localised flooding;
- drainage measures would attenuate runoff rates to ensure minimal effect upon flood risk;
- where necessary, check dams would be used within cable trenches to prevent trenches developing into preferential flow pathways and trenches shall be backfilled with retained excavated material; and
- as per good practice for pollution and sediment management, prior to construction, section specific drainage plans would be developed, and construction personnel made familiar with the implementation of these.
- Detailed information on ground conditions and drainage designs would be provided in the final CEMP and in the Construction Site Licence.

## Modification of Groundwater Levels and Flows

**A.10** The key concerns for good groundwater management involve careful decisions regarding the locations of drainage and dewatering activity and ensuring such activities are undertaken sympathetically and minimised in terms of extent and time to avoid excessive influence on groundwater levels and flows. To achieve this, the following measures will be employed:

- Where necessary, a permanent drainage system, typically consisting of French drains (using a gravel layer as water conduit, rather than pipework, running downhill to a soakaway zone designed to enable water to percolate back into soil), will be installed at hardstanding locations.
- Any necessary dewatering activity will be limited to the minimum necessary duration, with removed water returned locally to minimise hydrological regime alteration, such discharges will be discussed with SEPA to establish appropriate level of licence.
- Bunds will be installed to divert groundwater flow from cable laying trenches on cross-slope sections, where this is appropriate.

**A.11** The above measures will also minimise any potential effect upon sensitive habitats and groundwater-source Private Water Supplies (PWS).

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<sup>7</sup> Scottish Executive (2000). River crossings and migratory fish: design guidance

## Loss of Soils and Soil Compaction

**A.12** This issue is closely aligned to erosion and sedimentation mitigation, discussed above. The following measures will be considered:

- Prior to the availability of tracks for heavy vehicles, movements will be restricted; avoiding sensitive receptors such as deep peat where possible.
- Low pressure vehicles will be used where vehicles are required to cross sensitive soil/peat locations.
- Where possible, topsoil will be stripped in reasonably dry conditions and stored in a mound no more than 2 m high.
- Stored topsoil will be kept from the passage of vehicles and will be prevented from intermixing with other materials.
- Where distinct soil layers are identified, excavated sub-soils will be stored separately from topsoil to enable successful restoration of the soil profile.
- Soil reinstatement will be undertaken under reasonably dry conditions to limit compaction. Soil loosening may be required in areas where heavy load traffic has occurred.

## Peat Stability

**A.13** Early identification of areas of deep peat and/or peat stability concern were an integral part of the design stage but were necessarily limited to locations where access was possible. Peat depths were typically very shallow.

**A.14** The combination of peat and steep slopes on this Site led to the instruction to undertake a Peat Landslide Hazard Risk Assessment (PLHRA) (refer to EIA Report Volume 4: **Appendix 8.4**).

**A.15** Good construction practice and methodologies to prevent peat instability are identified in the PLHRA. These include but are not limited to:

- Use of appropriate supporting structures around peat excavations (e.g. for turbines, crane pads and compounds) to prevent collapse and the development of tension cracks;
- Avoid cutting trenches or aligning excavations across slopes (which may act as incipient back scars for peat failures) unless appropriate mitigation has been put in place;
- Minimise the effects of construction on natural drainage by ensuring that natural drainage pathways are maintained or diverted such that alteration of the hydrological regime of the site is minimised or avoided; drainage plans should avoid creating drainage/infiltration areas or settlement ponds towards the tops of slopes (where they may act to both load the slope and elevate pore pressures);
- Awareness of peat instability and pre-failure indicators should be incorporated in site induction and training to enable all site personnel to recognise ground disturbances and features indicative of incipient instability;
- Full site walkovers should be undertaken at scheduled intervals to be agreed with the Local Authority to identify any unusual or unexpected changes to ground conditions (which may be associated with construction or which may occur independently of construction);
- All construction activities and operational decisions that involve disturbance to peat deposits should be overseen by an appropriately qualified geotechnical engineer with experience of construction on peat sites; and
- The geotechnical risk register prepared prior to construction should be updated with site experience as infrastructure is constructed.

**A.16** Further details are available in EIA Report Volume 4: **Appendix 8.4**, including specific mitigation measures for peat stability.

## Pollution Prevention Planning

**A.17** The Principal Contractor will prepare a detailed Environmental Incident and Emergency Response Plan in line with Guidance on Pollution Prevention GPP21<sup>8</sup> and GPP22<sup>9</sup>.

**A.18** Pollution prevention planning prioritises prevention at source, followed by mitigation measures local to source. Pollution incident management will operate on two main principles:

- reducing the likelihood of an incident occurring; and
- minimising the magnitude (or severity) of an incident that does occur.

**A.19** In tandem, these measures will limit the potential for contamination of surface and groundwater, soil and associated habitats. To achieve this, the following measures will be implemented:

- There are four temporary construction compounds planned, which are all least 50 m from any Ordnance Survey 1:10,000 mapped watercourses. They will be constructed on a compacted stone compound and out with SEPA's 1:200 year flood risk zone. One compound will re-use the concrete batching area established for Fallago Rig Wind Farm and is intended for Scottish Power Transmission (SPT) use during grid connection works at the Fallago Rig substation. One compound is close to the site entrance and Wedderlie Farm which was established as a compound and car park for the construction of Fallago Rig Wind Farm and has been retained by the farmer for agricultural use. The other two will be used for site management, concrete batching and storage all chemical, fuel and oil requirements for Dunside Wind Farm and will be restored following the completion of construction.
- Construction activities in sensitive locations (including those within 50 m of hydrological features) will be carefully considered and also supervised by suitably qualified environmental specialists such as an ECoW.
- Oil and chemical storage will meet the requirements of SEPA's GPP2<sup>10</sup> and GPP26<sup>11</sup>, i.e. good practice including secondary containment (bund) volumes. This will apply to all temporary storage locations. All chemical, fuel and oil stores will be sited on impermeable bases within an appropriately-sized secure bund, suitable to contain at least 110% of the contents (for a single tank) or 110% of the contents of the largest container (for multiple tank storage), with default location within the construction compound. Materials will be stored in accordance with applicable COSHH (Control of Substances Hazardous to Health Regulations) requirements. Empty chemical/fuel containers will be retained within the construction compound (bund area) until collected from Site. No underground storage devices will be employed.
- The Principal Contractor is responsible for ensuring that all materials ordered or brought to Site listed as hazardous under the COSHH Regulations are accompanied with a hazardous information sheet. The Contractor has responsibility for ensuring the Site complies with the COSHH Regulations.
- Site compounds will be secure environments, with locked storage containers to prevent unauthorised releases (including via theft or vandalism).
- Storage of chemicals and/or fuel will be limited to the minimum required to serve immediate need, in order to minimise the volumes of chemicals and fuels stored onsite. Biodegradable oils will be used as a substitute for standard oil/grease, wherever practical.
- Delivery and refuelling of vehicles and machinery will be carried out in specific designated areas such as construction compounds or other suitably equipped sites and will be carried out under supervision. Self-bunded fuel tanks will be located in the construction compound, chemicals will be stored in appropriate Hazmat/Shipping containers. Chemicals/Oils requiring bunds will be placed on bunded pallets or in bunded cabinets as necessary. Associated equipment such as refuelling hoses, vent pipes, delivery pipes and sight gauges will be contained within bunded areas.

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<sup>8</sup> Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA), SEPA and Department for Agriculture, Environment and Rural Affairs (DEFRA) (2021) Pollution Incident Response Planning, Version 1.1, <https://www.netregs.org.uk/media/1436/gpp-21-final.pdf>

<sup>9</sup> NRW, NIEA and SEPA (2018) GPP22 Dealing with Spills, Version 1, <https://www.netregs.org.uk/media/1643/gpp-22-dealing-with-spills.pdf>

<sup>10</sup> NRW, NIEA, SEPA, the Energy Institute and the Oil Care Campaign (2018) GPP 2: Above ground oil storage tanks, <https://www.netregs.org.uk/media/1475/gpp-2-pdf-jan-2018.pdf>

<sup>11</sup> NRW, NIEA, SEPA, the Energy Institute and the Oil Care Campaign (2019) GPP 26 Safe storage of Drums and Intermediate Bulk Containers, <https://www.netregs.org.uk/media/1693/gpp-26-safe-storage-of-drums-and-ibcs.pdf>

- Standing machinery will have drip trays placed underneath to prevent oil and fuel leaks causing pollution. Vehicle maintenance and repairs will be undertaken in the construction compound. Exceptionally, vehicles or other equipment that has broken down will require maintenance at the point of breakdown. Special precautions will be taken in this eventuality, including the use of drip trays and spill kits to prevent pollution.
- No pesticides, detergents or rock salt will be applied to access tracks or other Site infrastructure.
- Run-off from the construction compound carries a higher risk of being contaminated and will be treated appropriately, such as by oil interception and/or neutralisation of high alkalinity.
- Contingency measures will contain items identified in GPP22<sup>9</sup> and will include emergency plans for different pollution incidents, fire procedures, emergency contact telephone lists, spill kits located at appropriate locations onsite and staff trained and equipped to deal with incidents effectively.
- There is the intention to batch concrete onsite, rather than requiring ready-mix cement to be brought to the Site. Concrete batching plants will be located at least 100 m from watercourses, positioned in secure contained areas that have a separate drainage system and where groundwater is not expected to be close to the surface. The washing-out of mixing plant will be carried out in a contained area. Wash water and surface runoff from these areas will be adequately treated to deal with suspended solids and high alkalinity before discharge. Lined settlement ponds will be used to prevent infiltration of alkaline runoff. Consultations will be carried out with SEPA at the detailed design stage regarding the discharge licensing requirements, under the CAR Regulations, and agreement for precise locations.
- Pre-cast concrete structures will be considered for all appropriate locations. Use of wet concrete in the vicinity of watercourses will be minimised and carefully controlled. Competent personnel will confirm that details such as rainwater removal and good quality shuttering are in situ prior to pour. Particular care will be taken to develop robust procedures where concrete will be used between cables and stream beds (to protect the cable from scour) at excavated cable watercourse crossing locations.
- Ground investigations will be undertaken across the areas where the proposed infrastructure will be located, including any location where directional drilling is deemed necessary. If grout or any drilling lubricants are to be used, these will have appropriate protocols developed and communicated for storage, use and collection.
- Should any contaminated groundwater or surface water be identified, work will cease, enabling investigation of the source of contamination and development of measures to contain and/or remove pollutant (this will include any water within cable trenches).
- All sewage and wastewater will be collected onsite in an appropriately designed and located tank and will be tankered from Site at an appropriate frequency. Disposal of sewage from the Site will be carried out by methods recommended in GPP4<sup>12</sup>. In all cases, final disposal will be into the local sewer system at a location agreed with Scottish Water.

## Noise and Vibration

- Those activities that may give rise to audible noise at the surrounding properties and heavy goods vehicle (HGV) deliveries to the Site will be limited to the hours 07:00 to 19:00 Monday to Friday and 07:00 to 12:00 on Saturdays.
- Turbine deliveries may take place outside these times and would be coordinated with SBC and Police Scotland's input. Activities that are unlikely to give rise to noise audible at the Site's boundary may continue outside of the stated hours.
- All construction activities shall adhere to good practice as set out in BS 5228.
- All equipment will be maintained in good working order and any associated noise attenuation such as engine casing and exhaust silencers shall remain fitted at all times.
- Where flexibility exists, activities will be separated from residential neighbours by the maximum possible distances.
- A site management regime will be developed to control the movement of vehicles to and from the Development site.

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<sup>12</sup> NRW, NIEA and SEPA (2017) GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer, <https://www.netregs.org.uk/media/1471/gpp4-20171114-online-v2.pdf>

**Appendix A**  
Good Practice Measures

Dunside Wind Farm  
June 2023

- Construction plant capable of generating significant noise and vibration levels will be operated in a manner to restrict the duration of the higher magnitude levels.



# Appendix B

## Drainage Design

**B.1** This section sets out the headings that will form part of the SuDS and drainage measures that will be implemented as part of the Proposed Development:

- General Philosophy
- Hydraulic / Water Quality Design Criteria
- Working in the vicinity of Watercourses
- Management of Silt and Water pollution
- Detailed drainage design:
  - Trackside Drainage
  - Settlement Ponds / Lagoons
  - Watercourses
  - Turbine Foundations
  - Excavated Soil Management
  - Concrete Washout Area
  - Maintaining Site Hydrology
  - Maintenance / Monitoring of SuDS performance.