

## **Appendix 4.1: Outline Construction Environmental Management Plan (CEMP)**



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## 1 Introduction

### 1.1 Purpose of the Report

Pell Frischmann (PF) has been commissioned by LUC (on behalf of Statkraft) to produce an outline Construction Environmental Management Plan (CEMP) for the development of Loch Liath Wind Farm, located to the north-west of Invermoriston, The Highlands (hereinafter referred to as 'the Proposed Development').

The CEMP will detail good practice methods for managing environmental impacts including mitigation and monitoring best practice and should be read in conjunction with the Environmental Impact Assessment (EIA) Report, notably the measures outlined in Appendix 4.2 of the EIA Report (Schedule of Good Practice, Mitigation, Enhancement and Monitoring Measures).

This is a live document which will be provided to the contractors appointed to construct the Proposed Development. It will form part of the documentation required for compliance with the consent as well as environmental and other legislative requirements.

### 1.2 CEMP Structure

This CEMP comprises the following documents:

- Construction Method Statement (CMS);
- Outline Noise and Vibration Management Plan (NVMP)
- Outline Peat Management Plan (PMP);
- Outline Pollution Incident Response Plan (PIRP);
- Outline Ground and Surface Water Monitoring Plan (GSWMP);
- Dust and Air Pollution Management Plan (DAPMP);
- Waste Management Plan;
- Outline Drainage Strategy;
- Outline Ecology Management Plan; and
- Outline Archaeology Management Plan (AMP).

### 1.3 Aims and Objectives

The purpose of this CEMP is to ensure, as far as possible, that all construction activities carried out at the Development are undertaken in a manner which minimises impact on the environment. This document has been produced to remind individuals working on the site of their responsibilities and to ensure that measures to prevent, reduce or mitigate potentially adverse environmental impacts identified in the EIA Report and this CEMP are carried out.

The CEMP has been developed to advise of good construction practices and ensure they are adopted and maintained throughout the construction of the Proposed Development. As part of this a framework for mitigating unexpected impacts during construction has been developed and is detailed within this CEMP.

The CEMP has also been prepared to provide assurance to third parties that their requirements and expectations with respect to environmental performance are met, whilst providing a mechanism for ensuring compliance with current environmental legislation and statutory consents.

### 1.4 Roles and Responsibilities

Given that the project is in pre-planning stage, the CEMP has been developed to provide advisory guidance and describes good construction practices. As noted above, this is a live document and will ultimately be

provided to the contractors appointed to construct the Proposed Development and will form part of the documentation required for compliance not only with consenting requirements but also environmental and other legislative requirements.

The CEMP takes account of and refers to information contained within the EIA Report.

The CEMP will form part of the specification and contract for the works that the Applicant will impose on their contractors as contractual obligations.

It is expected that the contractor selected to construct the Proposed Development will further develop this CEMP with respect to the following:

- Task-specific method statements
- Detailed Sustainable Urban Drainage Systems (SUDS) design
- An application to SEPA for a Construction Site Licence
- Site Waste Management Plan

The implementation of the CEMP (including procedures, record keeping, monitoring and auditing) will be overseen by an Advisory Environmental Clerk of Works (ECoW<sup>1</sup>) who will be appointed by the Applicant to monitor compliance with this document and current legislation.

It is envisaged that environmental management meetings will be held between the ECoW, the Environmental Site Manager and the Applicant to report on environmental mitigation measures and performance and identify actions for improvement where necessary.

### 1.5 Project Status

The project is at pre-planning stage at the time of preparing this document. As part of the EIA, environmental surveys have been carried out to determine onsite constraints and the design of the onsite infrastructure has been developed to avoid these. No detailed design or intrusive ground investigation has been carried out.

As a result of the status of this project, some of the information provided in this CEMP is necessarily general in nature. Task-specific method statements incorporating the requirements of this CEMP will be developed by the selected contractors post-contract award and prior to works starting on site.

### 1.6 Relevant Guidance

The following documents have been considered during the preparation of this CEMP and the management plans contained herein:

#### Pollution prevention guidance from [www.netregs.org.uk](http://www.netregs.org.uk):

- GPP 1: Guidance for Pollution Prevention;
- GPP 5: Works and maintenance in or near water;
- PPG 6: Working at construction and demolition sites;
- GPP 13 Vehicle washing and cleaning;
- GPP 21: Pollution incident response planning; and
- GPP 22: Dealing with spills.

<sup>1</sup> It is recommended that an Advisory Environmental Clerk of Works (ECoW) is appointed to encompass all environmental disciplines, albeit that this may not be undertaken by just one individual (guidance is provided in the Association of Environmental & Ecological Clerks of Works (AEECoW) Good Practice Guidance for planning Authorities, available at: [https://aecow.org/wp-content/uploads/2020/08/ECoW\\_Guidance\\_for\\_PLAs\\_July-2016.pdf](https://aecow.org/wp-content/uploads/2020/08/ECoW_Guidance_for_PLAs_July-2016.pdf)).

**CIRIA guidance:**

- C521: SuDS Design Manual for Scotland and Northern Ireland (2000);
- C532: Control of water pollution from construction sites (2001);
- C609: Sustainable Drainage Systems - Hydraulic, structural and water quality advice;
- C648: Control of water pollution from linear construction projects (2006);
- C698: Site handbook for the construction of SUDS;
- C741: Environmental Good Practice on Site (2015);
- C753: The SuDS Manual (2015);
- C768: Guidance on the Construction of SUDS; and
- X108: Drainage of development sites - a guide.

**Other guidance:**

- 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.
- SEPA: Engineering in the water environment: good practice guide. Sediment management First edition, June 2010;
- SEPA: WAT-SG-29: Engineering in the Water Environment Good Practice Guide: Temporary Construction Methods, First edition, March 2009;
- SEPA: WAT-SG-25 Engineering in the water environment: good practice guide. River crossings Second edition, November 2010;
- SNH et al: Good Practice During Wind Farm Construction, 4th Edition 2019
- Forestry Commission: Forests and Water Guidelines Edition 5, 2011; and
- SNH: Constructed Tracks in the Scottish Uplands, 2nd Edition 2015.

## 2 Outline Construction Method Statement

### 2.1 Introduction

This Construction Method Statement (CMS) has been prepared to detail the methods to be used in the construction of Loch Liath Wind Farm. It includes details of the project scope, structure, design strategy, programme and construction methods where available.

### 2.2 Project details

The construction of Loch Liath Wind Farm will include:

- Up to 13 wind turbines (three [T1, T6 and T7] will have a maximum blade tip height of up to 180 metres (m) and ten [T2, T3, T4, T5, T8, T9, T10, T11, T12 and T13] will have a maximum blade tip height of up to 200m);
- It is anticipated that six of the turbines (T1, T4, T7, T10, T12 and T13) will be fitted with visible aviation warning lights;
- Foundations supporting each wind turbine;
- Associated crane hardstandings and adjacent laydown areas at each turbine location;
- Approximately 9.3 kilometres (km) of new access tracks which includes 8.2km standard/cut track and 1.1km of floating track;
- A total of nine new watercourse crossings and a further seven drain crossings (16 crossings in total) and associated infrastructure i.e. box or bottomless culverts;
- A network of onsite underground electrical cables and cable trenches to connect the turbines to the onsite substation;
- One permanent steel lattice anemometer mast of up to 122.5m in height;
- Vehicle turning heads;
- Onsite substation and control building;
- Onsite passing places (location and size to be determined by the turbine supplier);
- Site signage; and
- A habitat management and enhancement area (further details are provided in Appendix 8.5: Outline Restoration and Enhancement Plan (OREP) for peat, biodiversity, forestry and landscape).

In addition to the above elements of the Proposed Development, construction will also require the following components:

- One temporary construction compound;
- Creation of one temporary borrow pit for the extraction of stone;
- Concrete batching is proposed with the exact location of the batching plant to be confirmed (this is likely to be either in the borrow pit or construction compound, with detail to be confirmed in the CEMP, and subject to obtaining an abstraction licence from the Scottish Environment Protection Agency (SEPA) should water abstraction be required); and
- Whilst no widening of the existing Bhlairaidh Wind Farm access from the A887 is required, it may be necessary to scrape of the top layer of material to ensure the turbine blade tips do not strike the earthworks embankment and it may be necessary to improve the running surface prior to use.

### 2.3 Working Hours

The proposed normal construction working hours are anticipated to be prescribed by The Highland Council (THC) planning department, however as a guide the following times are proposed for construction activities (although component delivery and turbine erection may take place outside these hours as noted below):

- Monday to Friday: 07:00 to 19:00 inclusive;
- Saturday: 07:00 to 13:00 inclusive; and

- Sunday (and public holidays): No construction activity unless otherwise agreed with THC.

Exceptions to the proposed working hours will be made for concrete foundation pours, turbine erection, turbine component delivery and emergency works. Any construction activity which could be audible from residential properties shall be subject to the above hours unless exceptions have been agreed with THC in writing.

Due to the exposed nature of the Site, as well as the extent of the construction programme, some construction activities will be required to take place throughout the different seasons of the year. Some construction activities which are highly dependent on the weather conditions require flexible working hours to be completed safely and efficiently. The following activities are particularly relevant:

- Ground works, road and hardstanding construction (weather dependant);
- Turbine base concrete pours (time dependant);
- Turbine deliveries require to be undertaken when the public road network is not busy and to suit the availability of Police escort vehicles (time dependant); and
- Turbine erection (weather and time dependant).

These operations will not generate excessive noise at any noise sensitive locations.

Excavation of material from the borrow pits will be carried out using standard quarrying techniques, which may include blasting and mechanical excavation. However, all blasting work will be undertaken by a specialist contractor who will assume responsibility for blast design and implementation. There will be no blasting on a Sunday or Bank Holidays.

## 2.4 Programme

An indicative programme is shown in Table 1 below; this programme forms part of the EIA pre-planning process and will be subject to change.

Table 1: Indicative programme

Activity	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site Mobilisation /Demobilisation																		
Construction of Temporary Construction Compound and Car Parking																		
Working of borrow pits																		
Construction and Upgrading of Access Tracks																		
Construction of Turbine Foundations and Hardstandings																		
Construction of Control Building, Substation and Grid Connection																		

Activity	Month																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Installation of Cabling																		
Crane Delivery																		
Erection of turbines																		
Reinstatement																		
Commissioning																		
Demobilisation																		
Staff																		

Construction is provisionally expected to commence in 2027 and be completed by December 2029.

## 2.5 Public Access

The National Catalogue of Rights of Way (CROW) shows that Route HI/HI71/1 is located within / traversing the Site Access). There is potential for direct disruption to the use of this Route during construction for a small number of people. The route may have restricted access and there are also potential implications for public health and safety if not managed. Standard health and safety measures will be implemented during the construction period. As the Site access encroaches on this route a Site-specific Access Management Plan (AMP) will also be prepared for use during construction to manage health, safety and public access An AMP is provided in outline in Appendix 13.1 of the EIA Report.

## 2.6 Health and Safety

All works will be carried out in accordance with the Construction (Design & Management) Regulations (2015) (the CDM Regulations), the Onshore Wind Health & Safety Guidelines (RenewableUK 2015) and any other relevant legislation as appropriate.

The Principal Contractor will establish and maintain a liaison procedure for public, authority and emergency use throughout the construction programme. This procedure will include the names, responsibilities and contact telephone numbers of key personnel as follows<sup>2</sup>:

- Public Liaison;
- Local Authority contact; and
- Emergency contacts: names.

Prior to works starting on Site, the Balance of Plant (BoP) Contractor will be appointed in addition to a Principal Contractor in accordance with the CDM Regulations. The Principal Contractor will prepare a Construction Phase Health and Safety Plan (CPHSP) prior to the commencement of construction works. Method statements and risk assessments will be carried out for all work activities before they are commenced and incorporated into the relevant section of the CPHSP.

This document will be a live document and will be reviewed regularly by both the Principal Contractor and updated with method statements as and when required. In addition, all sub-contractors appointed to the project by the BoP Contractor will be required to comply with this CEMP and the associated Peat Management Plan (PMP) (see also EIA Report Appendix 7.3), the Traffic Management Plan (TMP) (see also

<sup>2</sup> Details to be confirmed following consent, prior to construction commencing.

EIA Report Chapter 12 and Appendix 12.1), Access Management Plan (see also EIA Report Appendix 13.1) and their own CPHSP.

Delivery and management of materials, including their removal off site, will be carried out in accordance with the prescribed procedures to minimise risk to health and safety of those involved in the works and to the environment. Detailed procedures for management of soils and peat are given in the Outline Peat Management Plan, details of which are included in this CEMP (see also EIA Report Appendix 7.3).

Temporary fencing will be required at locations where there are safety implications for any persons likely to be present on the Site e.g. around settlement ponds and open faced excavations. Suitable safety fencing and warning signage are to be installed for the safety of all operatives from construction traffic where a requirement exists, including along the access where this is designated as a Core Path and therefore used for recreation, as noted above.

The Applicant will maintain liaison with all relevant parties throughout the works. The local community council and councillors will be consulted prior to the start of construction and throughout the construction phase to enable key information to be conveyed and any concerns listened to and addressed. The Highland Council will be notified in advance of all matters related to compliance with the planning consent. The Applicant will ensure all contractors are informed of any obligations with respect to compliance with planning conditions.

## 2.7 Project Structure

The project will typically involve three key contracts:

### **Balance of Plant Contract (BoP)**

The BoP contract will comprise the construction activities associated with building out the access roads, temporary site compound, control buildings, borrow pit working, turbine foundations and crane hard standings together with site cabling and electrical works.

The BoP Contractor will undertake the management of the design and construction activities for the civil/structural and electrical works associated with the site infrastructure.

Delivery of all civil, structural and building design, site establishment, construction and reinstatement will be managed by the BoP Contractor. Selected elements will be subcontracted by the BoP contractor to ensure effective project execution.

The Principal Contractor is responsible for co-coordinating the activities of all other parties/contractors working on the Site to maintain safe working practices, including:

- Management and programme control of all design and construction interfaces, including those with the related contractors;
- Assuming the role of Principal Contractor under the CDM Regulations;
- Meeting the requirements of all relevant conditions of the consent;
- Security and maintenance of the main site compound during the contract;
- Providing appropriate welfare and site accommodation for all contractors working on site;
- Management of all construction related traffic entering and leaving the site; and
- Liaison with, in conjunction with the Applicant, all third parties including THC, NatureScot, SEPA, relevant landowners, the Local Roads Authority and the Health and Safety Executive.

### **Turbine Supply Contract**

The Turbine Contract will involve the design, manufacture, supply, installation, commissioning and testing of up to 13 wind turbines. This will include all necessary consents to facilitate delivery of turbine components to Site.

### **Grid Connection Contract**

The Applicant has submitted an application to SSEN for the grid connection and is in seeking to agree the infrastructure which will be required at the substation. The route of the grid connection will be confirmed at a later date.

## 2.8 Site Compound

The BoP Contractor will establish a construction compound. This will include adequate space for both the Turbine Supply and Grid connection contractors. This will comprise site offices for the contractors and the Applicant, together with changing and messing facilities, parking and toilets for the workforce.

The drawing contained within Appendix B (see EIA Report Chapter 4 Figures) illustrates the typical layout of the temporary construction compound.

Typically, granular fill material and a compacted capping layer will be laid over Geotextile to form the construction compound area and to provide a suitable platform for heavy plant.

Potable water will be brought to Site for use as drinking water (by bowser). A high-level storage tank will be installed on Site. A suitably sized generator with integral banded fuel tank will be located within the compound to provide temporary power during the construction period.

Welfare facilities will consist of a mess room, drying room/changing room and toilets provided by the BoP Contractor. Food and drink may only be consumed in the mess room to avoid risk of contamination and to minimise encouragement of rodents. Toilets will be served from the temporary water supply. The waste will be managed by use of sealed storage and removal from Site, or by use of a septic tank and soakaway. Any septic tank discharge to the environment will be authorised by SEPA prior to use, in accordance with the requirements of the Controlled Activities Regulations (CAR).

All materials, plant and equipment shall be stored within the site boundaries within designated construction compounds and laydown areas. Storage of liquids (e.g. fuel oil) and spillage mitigation measures are described further in the Pollution Prevention Plan (PPP).

All areas of the Site including accommodation areas shall be kept clean and tidy with a regime of good housekeeping established to facilitate mobility of personnel and plant/equipment around the Site and minimise potential hazards and vermin.

A Site Waste Management Plan (SWMP) will be produced by the BoP contractor prior to starting on Site. The SWMP aims to minimise waste from imported materials and waste created on Site during the construction and excavation processes. The SWMP will minimise the quantities of imported materials through good design and best practice, minimise waste and optimise any waste arisings.

For the duration of the construction period an area will be set aside within the site compound to accommodate road vehicles for the construction work force and site visitors. Parking will not be permitted in any other areas, on or off site. Segregated areas and signage will be erected within the construction compound to protect the work force from moving vehicles. At the end of the working day all construction diggers, generators, dumpers and cranes will be parked in a safe and secure area with appropriate security equipment fitted to the plant to minimise vandalism and unwanted attention from members of the public. This is likely to be at the construction compound.



Traffic movements on local roads will be managed effectively to minimise the impact to local traffic journeys. A TMP for offsite vehicular movements has been prepared and sits within this document. A wheel wash will be available at the construction compound. All vehicles will be required to exit through the wheel wash to prevent carryover of construction debris to the public road network.

## 2.9 Site Works

### Access Tracks

The entrance to Site will be taken off the A887, then use the existing Bhlairaidh Wind Farm access track to the travel North towards the Proposed Development. New access tracks will then be constructed to serve the Proposed Development. Further detail can be found in the TMP.

The design of the access tracks has been developed to minimise new track length to reduce environmental impact, construction time, and road-stone requirement. An allowance within the application for consent has been made to allow all infrastructure, including access tracks, to be routed within a micro-siting allowance of up to 50m to avoid any sensitive ecological, hydrological features and to minimise cut/fill operations and areas of soft or boggy ground or peat.

The access tracks will have a width of 6m, with additional local widening on bends, and at passing places. A construction thickness of approximately 300mm to 600mm of compacted crushed aggregate will be applied. This will depend on the construction method and ground conditions established once Ground Investigation works are carried out.

To ensure traffic can move through the Site efficiently and safely, there must be sufficient opportunity for vehicles to pass each other. The proposed track layout has been developed such that adequate provision has been made within the spur roads, turning areas and hard standings to allow vehicles to pass without the requirement for dedicated passing areas or lay-bys.

The route of the access tracks will be set out at between 500m and 1000m intervals to suit site layout prior to removal of vegetation and topsoil using GPS surveying equipment. The vegetation and topsoil will then be stripped to formation level ensuring that all turves are stored vegetated side up.

The track shall be constructed on the subsoil. Dependant on ground conditions a Geogrid may be utilised to provide structural stability and a geotextile membrane installed to limit the migration of fines. The geogrid/geotextile shall be laid directly on the subsoil.

All of the upper topsoil layer, together with turves will be stored separately from the rest of the subsoil in piles adjacent to near the access tracks for later reinstatement.

The track and running surface will then be constructed by tipping and compacting crushed stone to a thickness which allows the required bearing strength to be achieved. This thickness will depend on the underlying ground conditions. The capping layer of stone will comprise finer material to provide a smooth running surface.

Snow poles and edge protection will be installed alongside the access track at high risk areas.

Gates are already in place at the entrance to the Site (at the A887) as it facilitates the existing Bhlairaidh Wind Farm. These gates will remain in place. Additional gates may be placed at strategic locations on the access tracks to prevent unauthorised vehicular access to the Site.

Following construction, the appropriate topsoil and vegetation shall be used to reinstate the track shoulders and turbine foundation areas. Any excess material produced from access track construction shall be spread along the track shoulders.

Floating tracks are proposed along sections of the track which are located on deeper peat and which meet the requirement for floating tracks (see Chapter 7). They will be made up of a permeable separation layer, crushed aggregate, two layers of geotechnical reinforcement membrane and a capping layer. They will be designed to ensure that no severance of the peat flow occurs. Cross drains will be installed under the track where necessary.

The access track layout and construction details can be seen in Appendix B (see EIA Report Chapter 4 Figures) of this CEMP.

Should the onsite borrow pits not provide suitable materials, aggregates will be imported from local quarries with all material being UKAS certified to be free of contamination. Due to the remote location of the Site, the primary solution for concrete production is to batch on Site. Cement, Sand and water will be delivered and in some cases concrete will also be delivered from local ready-mix plants where onsite batching isn't used.

Electrical deliveries will comprise switchgear and transformers for the substation building, cable for the onsite electrical network and connection to the grid. These deliveries will be scheduled for after the completion of the access tracks and will spread out the traffic volume to minimise the peak number of vehicles.

Sufficient signage will be installed on Site to clearly define the boundary of the works and to advise of any hazardous areas accessible to the public. This is detailed further in the TMP and Access Management Plan. Secure and appropriate boundaries shall be established to prevent entry to specific hazardous areas of the Site by unauthorised persons.

### Watercourse Crossings

The site contains a number of waterbodies and watercourses, as such careful environmental protection measures will be adopted during construction to prevent any pollution of the hydrological network.

The proposed site infrastructure requires a total of nine new watercourse crossings and a further seven drain crossings (16 crossings in total). Watercourse crossing design has not been finalised but will likely be one of two types of construction:

- Bottomless arch or box culverts; and
- Pipe/box culverts.

All structures will be designed to allow safe passage of mammals and fish.

The design and installation of the crossings and culverts shall follow appropriate guidance from the following documents:

- SEPA, WAT-PS-06-02: Culverting of Watercourses Position Statement and Supporting Guidance v2 (2015);
- SEPA, WAT-SG-25, Engineering in the Water Environment Good Practice Guide River Crossings (November 2010); and
- CIRIA (1997). Culvert Design Manual - Report 168.

### Turbine Foundations

Turbine foundations are expected to comprise gravity bases. The construction methodology for these is described below.

Prior to any excavations the Principal Contractor will install a suitable SuDS drainage system to prevent silt pollution to surrounding area. Once complete the Contractor will strip and set aside existing vegetation, strip and stockpile topsoil from the affected area. They will then excavate subsoil and stockpile in accordance with best practice guidance, locating away from drainage paths and buffer zones to minimise the possibility of silt pollution.

Once excavation has been completed to foundation formation level layer of compacted crushed stone will be laid to provide a firm working surface. The blinding concrete will be placed on this to provide a level work surface for the fabrication of reinforcement cages.

Next the steel reinforcement will be lifted into place and the cages will be established. Following completion of the cages the Contractor will place concrete shutters and then commence first phase concrete pours. Once the concrete has cured to the specified strength the shutters will be stripped and set aside for reuse.

The second phase reinforcement with turbine anchor ring will then be installed. Followed by the placing of concrete shutters second phase concrete phase pour. Once the concrete has cured to the specified strength the shutters will be stripped and set aside for reuse.

The contractor will then backfill around the foundation from stockpiled materials ensuring materials are replaced in layers encountered during initial excavation. Topsoil will be placed to depths encountered during initial excavation. Turves will then be replaced where possible. Alternatively, the Contractor may reseed the area with an approved seed mix.

All earthworks, the storage and movement of materials and reinstatement will be undertaken in accordance with the PMP.

## Electrical Works

### Substation

Substation buildings for the Proposed Development will be of masonry cavity wall structure with pitched roof construction. Foundations are expected to be strip footings. Finishes for wall cladding, roof materials, doors and windows shall be agreed with THC as prescribed in any deemed Planning Conditions.

### Turbine Works

Turbine components will be transported to site in accordance with the TMP and Route Survey Review. Some turbine components may be pre-delivered and offloaded at the crane hardstanding's or temporary laydown areas. Remaining turbine components will be delivered as just-in-time to be lifted directly from haulage vehicles. This will be dependent on the final turbine supplier's method statements.

Adverse weather may delay lifting operations. If this is the case and components cannot be lifted just-in-time suitable provision will be made for offloading on hardstanding's, or laydown areas. Bog mats may be required to temporarily lay-down components on the ground adjacent to hardstanding's.

Turbine components will be lifted by adequately sized cranes (a main 1000 tonne crane and smaller tail crane up to 400 tonne capacity) positioned and fixed as per the Turbine suppliers method statements.

Upon completion of the erection all anchor bolts will be tightened and the internal fit out of the turbine completed. The turbines will then be connected to the site electrical cable network. Turbine testing and commissioning will be undertaken by specialist qualified and experienced engineers.

Adequate temporary lighting will be available for use after dark or in poor lighting conditions.

Upon completion of the erection of the turbines, the relevant records will be made available in hard copy, for review and incorporation into the project quality plan.

Turbine component deliveries will be co-ordinated by the turbine supplier. Specialist haulage vehicles of varying length, dependent upon the component, will be used. The police will be in attendance to escort abnormal loads.

Delivery of turbine components will generally be timed to avoid transportation between the hours of 0830 - 0930 and 1530 - 1630, Monday to Friday to avoid school and commuter traffic on the A887 and local roads.

### Maintenance

During construction, the track network will be subject to continuous heavy plant movements and as a result will likely deteriorate, develop potholes or ruts. Any areas, which fail, suffer deterioration or rutting during construction will be restored as part of the ongoing maintenance obligation of the BoP Contractor.

### Reinstatement

Reinstatement and restoration of the Site will be undertaken as soon as practicable following the completion of each element. Following completion of construction works and when most of the heavy plant has left site, the contractor shall undertake final restoration works. Further detail is provided in the PMP.

## 2.10 Noise Management

All noise during construction will be managed under the various EC Directives and UK Statutory Instruments that limit noise emissions of construction plant, including:

- Guidance set out in BS 5228-1:2009+A1:2014 which covers noise control on construction sites; and the powers that exist for local authorities under Section 60 of the Control of Pollution Act 1974; and
- to control environmental noise on construction sites; and the adoption of Best Practicable Means (as defined in Section 72 of the Control of Pollution Act 1974).

All sub-contractors of the Contractor will be formally required through contract to comply with the noise mitigation measures outlined below.

The following mitigation measures will be implemented by the Contractor to minimise noise impacts on noise sensitive receptors:

- Where it is reasonable and feasible, the quietest construction methods will be used. The Contractor will aim to reduce all noise emissions, regardless of the threshold limits;
- The Contractor's appointed H&S representative will monitor construction activities at regular intervals to ensure that appropriate Personal Protective Equipment is being used by staff during activities identified by Risk Assessments;
- Site inspections shall be undertaken to ensure that plant is being operated with any specified acoustic covers in place. Any excessively noisy plant will be removed from the Proposed Development site for repair or maintenance;
- Local hoarding, screens or barriers to be erected as necessary to shield particularly noisy Activities;
- Plant and equipment:
  - Any plant and equipment required for operation at night (23:00 - 07:00) shall be mains electric powered where practicable (e.g. provision for powering nacelles following delivery, and prior to commissioning. Where practicable, any night-time lighting rigs, pumps or other equipment shall be powered using mains electricity or suitably silenced and shielded to ensure compliance with WHO night-time noise criteria, assuming open windows. If generators are required to be operated overnight, measures shall be taken to minimise noise levels at the nearest dwellings, if necessary;
  - All equipment will be switched off when not in use (including during breaks and down times of more than 30 minutes);
  - The Principal Contractor will ensure that where possible, noisy plant will not be used simultaneously and/or close together to avoid cumulative noise impacts.
  - Any compressors brought on to site to be silenced or sound reduced models fitted with acoustics enclosures.
  - All pneumatic tools to be fitted with silencers or mufflers.
  - All plant items to be properly maintained and operated according to manufacturers' recommendations in such a manner as to avoid causing excessive noise.
  - All plant to be sited so that the noise impact at nearby noise-sensitive receptors is minimised.
  - If required fixed plant will include a noise mitigation scheme to ensure that noise limits are achieved.
  - Fixed and mobile plant used within the site during the construction period shall not incorporate bleeping type warning devices that are audible outwith the Site boundary unless required for health and safety reasons; and
  - Where practicable, and required, noise from fixed plant and equipment will be contained within suitable acoustic enclosures or behind acoustic screens.
- Traffic and deliveries:
  - Where possible loading and unloading will be undertaken away from residences.
  - The majority of deliveries will be programmed to arrive during normal working hours only.

- Care will be taken when unloading vehicles to minimised noise. Delivery vehicles to be routed so as to minimise disturbance to local residents.
- Construction traffic would be prohibited from un-necessary idling within the Site boundary or at the site access points; and
- Night-time deliveries will be minimal and will only be undertaken with special consideration. Care will be taken to minimise noise when unloading vehicles.

### Noise Monitoring

The Contractor will then schedule regular representative monitoring, and also monitoring during specific noise activities which are in close proximity of noise sensitive receptors (e.g. track construction or periods of intensive deliveries). Records of the monitoring completed and the construction activities undertaken during the monitoring shall be kept by the Contractor.

### Noise Complaints

The Contractor's Site Environmental Representative (likely to be the Site Manager) will be the first point of contact for any queries and/or grievances regarding the construction of the Proposed Development. They will be responsible for recording all queries and/or issues raised, for responding in an appropriate and timely manner, for monitoring any actions that require to be implemented.

The Contractor's Site Environmental Representative will be responsible for recording all complaints raised regarding noise, for liaison with the Contractor and construction staff, and for ensuring that appropriate action is undertaken. The Contractor's Site Environmental Representative will also be responsible for responding to the complaint and explaining the actions undertaken to address the complaint. A record of all complaints made and the actions taken will be maintained and will be available to THC Environmental Health Officer upon request.

Should a noise complaint be made to THC relating to noise emission from construction of the Proposed Development, the Contractor will, within 28 days and at their own expense, employ an independent noise consultant to measure the level of noise emission from the Proposed Development at the property to which the complaint relates. The Contractor shall obtain approval of the employment of the independent noise consultant by THC prior to the noise measurements being undertaken.

The Contractor will provide THC with the independent noise consultants assessment and conclusions (including all calculations, recordings, and raw data) within three months of the date of the written request of THC.

The construction works will generate noise for a temporary period. The noise levels and duration will vary dependant on the activities being undertaken. The main sources of construction noise are the operation of large items of plant and equipment such as excavators, diesel generators, dumpers etc.

BS 5228-1:2009 Noise control on construction and open sites provides guidance on appropriate methods for minimising noise from construction activities. The aim of this CEMP is to ensure compliance with the agreed noise limits, as per best practicable means, as defined in the Control of Pollution Act 1974.

The following measures will be put in place to minimise noise:

- Site staff would receive appropriate environmental training at the beginning of the contract and throughout the construction;
- Deliveries and construction activity will not be done out with the site working hours specified in the planning conditions and this CEMP.
- Silencers or mufflers would be fitted to plant, tools and generators where practical;
- Plant items will be properly maintained; and,
- When not in use, staff will be required to turn off vehicle engines and not leave them idling.

The Applicant will maintain contact with the local community council and respond to any concerns relating to noise. A log of complaints and actions taken to remedy these will be put in place. No formal noise monitoring is proposed but any excessive noise levels will be noted by the Applicant or their Site Agent (a person who is representing the Applicant on the Site). This will then be discussed with the contractor to ensure appropriate noise reduction measures are in place.

#### Operational Phase

During the operational phase, the Site will mainly be accessed by light vehicles. These will generate noise for a temporary period and not at excessive levels. Noise generated through the operation of the wind turbines has been assessed as part of the EIA Report and will be further considered and will be managed, mitigation and monitoring accordingly

## 3 Peat Management Plan

An Outline Peat Management Plan (OPMP) is provided as Appendix 7.3 of the EIA Report.

Good practice measures in relation to peat excavation and reuse are now generally well defined following a number of years of practice (at wind farm sites) across the UK and Ireland. In Scotland in particular, there is an increasing body of experience relating to peat restoration, facilitated by Peatland Action (Scottish Natural Heritage, 2017). As a result, there are a number of specialist contractors who have experience in the planning, design and implementation of peat restoration works in the Scottish uplands. A key step in delivering the restoration proposals is identification of appropriate contractors to implement the restoration plans at each location.

The sections below (3.1 to 3.4) outline good practice measures related to excavation and handling, storage, and reinstatement and restoration of peat in association with wind farm construction.

### 3.1. Excavation and handling

The following good practice measures are proposed for excavation and handling during construction and restoration:

- Areas of peat within the footprint of any excavation will have the top layer of vegetation stripped off as turf, prior to construction by an experienced specialist contractor. When excavating areas of peat, the excavated turfs should be kept as intact as possible. Often it is easiest to achieve this by removing large turfs up to 500mm to keep the peat intact.
- These turfs should either be transferred immediately for use in peat restoration areas or stored adjacent to the construction area such that they remain moist and viable (see storage below and Figure 7.10 of the EIA Report). Excavated turfs should be as intact as possible to minimise carbon losses. Stacking of turfs will be avoided in order to best preserve the viability of the vegetation layer.
- Peat will then be removed, stored separately and kept damp (Carbon and Water Guidelines, 2012).
- Excavated soils and turfs will be handled so as to avoid cross contamination between distinct horizons and allow reuse potential to be maximised.
- Mineral soil and aggregate will be kept separate from peat or peaty soils in order to avoid contamination (which could result in a change in chemical or hydrological properties in the peat, reducing the likelihood of successful reinstatement on placement).
- Where possible, cross-tracking of plant over undisturbed vegetation should be minimised, and excavated materials transported to their storage locations along constructed track – for low ground pressure excavators used by the RC, this requirement is less critical.
- If working is required away from constructed roads / tracks, the use of long reach excavators should be encouraged in order to minimise cross-tracking, unless low-ground pressure plant are being utilised.
- Wherever possible, double handling of peat should be minimised (in particular for catotelmic peat and / or where of poor consistency) by direct transport of materials to their point of storage.
- Prior to any excavations, the Principal Contractor will produce a detailed Method Statement identifying where and how excavated peat will be used in reinstatement works. Specific requirements for the excavation, handling, storage and reinstatement of peat will be outlined in this Method Statement. The Principal Contractor will consider potential impacts on downstream hydrological receptors, and also the potential for instability issues with the excavated material.

### 3.2. Storage

Following excavation, peat will be required to be temporarily stored before reuse, where the material is planned for placement in the borrow pit, the construction compound or the areas of temporary hardstanding, as these will

not be available until after the construction period. Excavated peat will be stored in stockpiles to minimise carbon losses while being stored.

Where possible, excavated turfs will be stored adjacent to the construction area such that they remain moist and viable.

Areas of temporary storage required for peat will be identified in the Principal Contractor's Method Statement taking into account constraints and mitigation requirements identified in further pre-construction investigations. This will describe any intended drainage, pollution prevention and material stability mitigation measures that may be required. The following general guidelines will apply:

- The appropriate temporary storage areas for excavated peat will be as close to the excavation as practicable.
- If storage cannot be avoided, minimise storage time by taking an holistic approach to excavation and restoration such that catotelmic peat (in particular) is used as soon as possible after excavation.
- Store excavated acrotelmic and catotelmic peat separately during excavation works, which will be undertaken by an experienced contractor specialising in peat groundworks and restoration.
- Acrotelmic peat and turved soil blocks should be stored turf side up to prevent damage to vegetation.
- A number of potential areas for temporary peat storage have been identified alongside the proposed tracks (Figure 7.10 of the EIA Report). These have been determined to be suitable areas for temporary excavated peat storage as the ground conditions are suitable for some loading, there is no peat, the peat slide risk is low, they are outside of the main watercourse buffers and the gradients are low. This would be supplemented by smaller peat storage areas near to each section of infrastructure where the peat is extracted and to be re-used to minimise the handling and transportation requirements.
- The design and location of stockpiles, including incorporated drainage elements, will be agreed with the ECoW and Geotechnical Consultant / Geotechnical Clerk of Works prior to excavation works commencing. Storage locations should be checked against the PLHRA likelihood results (Figures 7.4.6 and 7.4.8 of Appendix 7.4 of the EIA Report).
- Temporary peat storage areas should be located so that erosion and run off is limited, leachate from the material is controlled, and stability of the existing peatland in the vicinity is not affected.
- Excavated material is to be stockpiled at least 50m away from watercourses. This will ensure that any wetting required on stored peat does not runoff and discharge into adjacent watercourses.
- Any edges of cut peat that may remain exposed, or areas of peat excavation on steep slopes, will be covered with geotextile or similar approved. This will allow re-turfing and re-vegetation and reduce erosion risks.
- Suitable storage areas will be sited in areas with lower ecological value.
- An up-gradient cut off ditch will be installed around the edge of the storage bund in order to collect up-gradient surface water runoff and divert water runoff from eroding the toe of the bund.
- It is desirable to keep haul distances of excavated peat as short as possible, and as close as possible to intended re-use destinations, to minimise plant movements in relation to any earthworks activity, including peat management, in order to minimise the potential impact on the peat structure. It is important that temporary storage is safe and keeps the material suitable for its planned reuse.
- The handling and storage of peat will seek to ensure that excavated peat does not lose either its structure or moisture content. Peat turfs require careful storage and wetting and to be maintained to prevent drying out and subsequent oxidation to ensure that they remain fit for re-use.
- Stockpiling of peat should be in large volumes, taking due regard to potential loading effects. Piles should be bladed off (smoothed by machinery) at the side to minimise the available drying surface area.
- When planning the temporary storage areas any additional disturbance areas should be minimised.
- Transport of peat to temporary storage areas, restoration areas or designated spoil areas will be by low ground pressure vehicles to avoid excessive compaction of the peat.

### 3.3. Reinstatement and Restoration

The following good practice measures are proposed for reinstatement and restoration:

#### Bare Peat

There are a number of important methodologies regarding the exposure of bare peat including:

- The amount of time any bare peat will be exposed will be minimised to preserve its integrity.
- The phasing of work will be carried out to minimise the total amount of exposed ground at any one time. By stripping turf and replacing as soon as reasonably possible after peat has been re-distributed there will be minimal areas of bare peat.
- Any peat areas on steep ground or that remains partially bare will be covered using geotextile or a similar method to stop erosion.
- Any areas of bare peat, where vegetation is not re-growing, will be seeded with a seed mixture obtained from the existing habitat. Stock exclusion in these areas will continue until vegetation is properly established.
- The re-vegetated areas will be monitored.
- Areas where full recovery is complete will have fences removed, if present.

This approach has been shown to be effective on other peat sites and the turfs re-grow quickly both establishing vegetation and consolidating the peat.

#### Peat Reinstatement Methodology

Peat reuse within the Site is an important aspect of the Proposed Development, as it allows an opportunity to maintain the integrity of the excavated peat and enhance degraded habitats. This peat re-use will be undertaken reflecting the following measures:

- The Principal Contractor will be required to provide appropriate plant for undertaking all reinstatement works such that no unnecessary disturbance of the ground surface occurs. In order to minimise disturbance and damage to the ground surface, any mobile plant required for reinstatement works will be positioned on constructed access tracks, hardstanding areas or existing disturbed areas wherever possible. The use of a long reach excavator for excavations and reinstatement works is preferable as it enables sufficient room to allow initial side casting and subsequent pulling back of turfs over reinstated peat or soil.
- Excavated catotelm or amorphous peat will only be used in restoration works where the topography allows straight forward deposition with no pre-treatment or containment measures and without risk to the environment. Suitable scenarios may be present in those disturbed areas where natural topography profile allows such use. A fibrous layer of acrotelm and turf will be placed above any catotelm or amorphous peat reinstated.
- Reinstatement of vegetation will be focused on natural regeneration utilising peat vegetated turfs. To encourage stabilisation and early establishment of vegetation cover, where available, peat turfs (acrotelmic material) or other topsoil and vegetation turfs in keeping with the surrounding vegetation type will be used to provide a dressing for the final surface.
- For excavations undergoing direct reinstatement, turves and underlying catotelmic peat should be reinstated at the locations from which they were removed.
- Where insufficient turves are available to fully cover reinstated soils, a checkerboard pattern of turf blocks should be used, with turf squares no less than 1 m<sup>2</sup> to act as seed points interspersed amongst the bare areas.

- Where possible, reinstated ground levels should tie in with the surroundings, and any bulking up should be avoided by tamping down soils and turves. For hagg restoration areas using emplaced peat, reprofiling of the hagg area margins may be required to achieve this tie in.
- Any reinstatement and re-profiling proposals will consider, and mitigate against, identified significant risks to environmental receptors. In particular, in areas of replaced peat, water management will be considered in the Principal Contractor's Construction Method Statements to ensure that as far as possible an appropriate hydrological regime is re-established within areas of disturbance. Particular attention will be paid to maintaining hydrological continuity and preventing the creation of preferential subsurface flow paths (for instance within backfilled cable trenches).
- When constructing track the vegetation layer (approx. 500mm thick) will be undercut and rolled back. A geotextile layer will then be installed on the side slopes of the track immediately after track construction to prevent erosion. The undercut vegetation layer will then be rolled back over the verge of the installed track. Through careful management of upgradient water and track cambers to shed water to the peat on the verges the level of saturation can be maintained.
- Peat placed on track verges should gently taper in to the adjacent land form, with the peat blocks placed snugly together and the edge of the peat placed furthest from the track should be firmed in to the adjacent ground to form a seal, in order to minimise water loss through evaporation.
- Track edges and passing places would be reinstated post construction through the removal of capping material and the reuse of peat turfs. Where peat turfs are used to reinstate track edges this will be done in a manner to ensure works tie in with the surrounding topography, landscape and ground conditions.
- The design and construction of tracks on peat shall be done in such a way so as to reduce impacts on the existing peat hydrology at the Site. The built track should allow for the transmittance of water, so natural drainage can be maintained as far as possible.
- Where possible drains will be blocked as soon as they are no longer required to reduce impacts on adjacent peat habitat and allow recovery of the drains to peat habitat.

### 3.4. Monitoring

During construction and restoration, monitoring should be undertaken in any areas where peat is stored or placed, as follows:

- Regular visual inspection of the outer peat surface of any stored peat to identify any evidence for drying or cracking.
- Regular coring of stored peat to log the moisture content of stored peat (using the von Post moisture scale to monitor changes in moisture content for peat on the outside and within the peat mound).
- Clear specification of an action plan in response to these observations, including modifications to coverings, implementation of watering, or construction of temporary berms to retain water in the storage footprint.
- Acceleration of re-use for vulnerable stores if so identified.

Key to the success of the strategy for peat management will be careful monitoring of the post-construction and restoration works. A monitoring programme should be initiated once restoration and peat reinstatement works have been completed, and should include:

- Review of % vegetation cover and vegetation composition in restored hagg areas, with particular attention paid to any residual areas of bare peat or in any areas that have been seeded (due to a lack of available turved material).
- Review of stability of deposits in their new locations.
- Review of potential poaching effects alongside erected fencing.
- Fixed point photography in order to aid review over a series of monitoring intervals.

If required, mitigation recommendations should follow from the monitoring and include:

- Specification of seeding appropriate to the target vegetation or stabilisation with geotextile if revegetation is not occurring naturally (which will assist re-wetting and retention of moisture contents).
- Construction of additional retaining structures if any creep of peat soils is evident at any restored location.

Monitoring should be carried out annually for a minimum of five years after construction and reinstatement works have concluded.



## 4 Pollution Prevention Plan

### 4.1 Introduction

This Pollution Prevention Plan (PPP) details the controls which, in conjunction with the mitigation measures outlined throughout the CEMP, aims to avoid pollution incidents. It also provides details of the measures to be implemented should a pollution event occur.

#### Legislation

The legislation and guidance relevant to the PIRP includes but is not limited to:

- Control of Pollution Act 1974;
- Environmental Protection Act 1990;
- The Environment Act 1995;
- Control of Substances Hazardous to Health Regulation 2002;
- Clean Neighbourhoods and Environment Act 2005;
- Environmental Liability (Scotland) Regulations 2009;
- The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- The Water Environment (Controlled Activities) (Scotland) Regulations – A Practical Guide; and
- Pollution Prevention Guidance and Guidance for Pollution Prevention.

#### Contacts

The following should be contacted in the case of an emergency by any member of staff<sup>3</sup>:

**Table 2: Emergency Contacts**

Contact	Office hours	Out of hours	Address
Fire Department	999 (01698 300 999)	999	
Police Department	999 (01786 289 070)	999	
Ambulance Service	999	999	

The following staff should be contacted following any pollution incident by the site operations staff:

**Table 3: Project Emergency Contacts**

Contact	Office hours	Out of hours	Address
Principal Contractor Emergency Response	TBC	TBC	TBC
Applicant's ECoW	TBC	TBC	TBC

The following should only be contacted by the Applicant's ECoW or the Contractor's Site Environmental Representative as required following a pollution incident.

**Table 4: Key Contacts<sup>3</sup>**

<sup>3</sup> Details to be confirmed following consent, prior to construction commencing.

Contact	Office hours	Out of hours	Address
SEPA	01349 862021	03000 99 66 99	10 Fodderty Way, Dingwall, IV15 9XB
NatureScot	01463 725000	01463 725000	Great Glen House, Leachkin Rd, Inverness IV3 8NW
Scottish Water	0800 0778 778	0800 0778 778	21 Henderson Drive, Inverness IV1 1TR
Scottish & Southern Energy	01463 728049	0800 300 999	10 Henderson Rd, Inverness IV1 1SN
Waste Management Contractor	TBC	TBC	TBC
Specialist Clean Up	TBC	TBC	TBC
Other	TBC	TBC	TBC

#### Potential Pollutants

This section of the PIRP provides details of the chemicals, products and/or wastes which will be used/created during the construction of the Proposed Development which could potentially cause a pollution incident. Table 5 will be continually updated throughout the construction period when potential pollutants are identified.

**Table 5: Site Chemical, Product and Waste Inventory**

Chemical / Product / Waste	State	Maximum volume on site	Location	Containment	Risk
Diesel	Liquid	TBC	Within vehicles Site compounds	TBC	Flammable /Highly Polluting
Engine Oil	Liquid	TBC	Within vehicles Site compounds	TBC	Flammable/Highly Polluting
Hydraulic Oil	Liquid	TBC	Within vehicles Site compounds	TBC	Flammable/Highly Polluting
Cement	Powder Liquid	TBC TBC	TBC TBC	TBC TBC	Irritant/Highly Polluting Irritant/Highly Polluting
Black Water	Liquid	TBC	TBC	TBC	Toxic/Highly Polluting
Paint	Liquid	TBC	TBC	TBC	Toxic/Highly Polluting
Cleaning fluid	Liquid	TBC	TBC	TBC	Irritant/Highly Polluting
Other	TBC	TBC	TBC	TBC	TBC

#### Pollution Prevention

Following the pre-construction surveys, the Principal Contractor, in consultation with the Applicant's ECoW (and other advisors as required), will identify the sensitive locations within the Site on a site plan. Sensitive locations will include watercourses, areas of ground-water dependent terrestrial ecosystems and areas identified as protected species habitat.

Following the detailed design and prior to construction, a site drainage plan will be included within the PIRP which will detail:

- all watercourses, springs, boreholes or wells located within or adjacent to the site and the direction of flow;
- site access for emergency vehicles;
- locations of soakaways receiving outflow;
- locations of fire hydrants and spill kits;
- locations for storage of materials; and
- locations of inspection points, oil separators, and locations suitable for portable storage tanks and/or drain blocking.

### Pollution Response

#### Procedure

Following any pollution incident, the following will be undertaken:

- construction work will halt immediately at the location of the incident;
- where safe to do so, the source of the incident will be moved away from the receptor/turned off.
- staff will deploy spill-kits as appropriate;
- the Section Agent at the location of the incident will contact the Contractor's Site Environmental Representative and inform them of the incident who will in-turn inform the Health and Safety Advisor;
- the Health and Safety Advisor and Site Manager will proceed to the location of the incident to assess the health, safety and environmental risk;
- the Principal Contractor's Health and Safety Advisor and Site Manager will request additional resources/equipment as required to mitigate the impact of the incident; and
- the Site Manager will record the incident and the actions taken (refer to Section 14.7) and report to the Applicant's ECoW.

#### Equipment

The Principal Contractor will hold on site the following equipment to address a pollution incident:

- absorbents;
- drain mats/covers;
- pipe blockers;
- booms;
- plant nappies; and
- drainage trays and pumps.

### Reporting

The Principal Contractor will investigate all pollution incidents and provide reports to the Applicant detailing the following:

- a description of the pollution incident;
- the causes of the pollution incident;
- the impacts of the pollution incident;
- measures implemented to mitigate the pollution incident; and
- lessons learned and measures implemented to prevent a repeat occurrence.

### Training

Prior to commencing on site all staff will undergo PIRP training. This training will cover, but is not limited to:

- legal responsibilities of all staff;
- prevention of a pollution incident;
- response to a pollution incident; and
- location and correct use of response equipment and of Personal Protection Equipment (PPE).

Details of the staff trained in the pollution incident response will be included within the PIRP here<sup>4</sup>.

**Table 6: Staff Trained in Pollution Incident Response**

Staff	Training	Date	Date of review
TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC

### Testing

Testing of the PIRP will be undertaken prior to construction by the Principal Contractor and following commencement of construction at six monthly intervals.

Following testing of the PIRP, the Principal Contractor will update and amend the PIRP as required and undertake tool-box talks and training sessions with all staff to communicate any alterations to the PIRP.

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<sup>4</sup> Details will be confirmed following consent, and prior to construction commencing.



## 5 Outline Ground and Surface Water Monitoring Plan

### Introduction

Construction of the Proposed Development will require activities to be undertaken near watercourses and waterbodies. Internal tracks are proposed to cross several watercourses. This will be done using culverts. Surface water runoff will be attenuated and discharged using greenfield runoff rates.

This outline Ground & Surface Water Management Plan (GSWMP) outlines the key issues pertaining to the construction of the Proposed Development and the mitigation measures proposed to reduce potential effects.

### Key Issues

#### Watercourse Crossings

The access tracks of the Proposed Development will require the construction of 9 watercourse and 7 drainage ditch crossings (refer to Appendix B - see EIA Report Chapter 4 Figures).

The Principal Contractor will be responsible for submitting Controlled Activity Regulation (CAR) applications to SEPA for the construction of the new crossings, as required. Following agreement, details of the applications will be appended to the final CEMP.

#### Flooding

The SEPA flood maps<sup>5</sup> show the likely extent of flooding for high, medium, and low likelihood for fluvial (river), pluvial (surface water) and tidal flows.

SEPA's online flood map indicates that the only areas near the Proposed Development at risk of fluvial flooding are in the immediate vicinity of Loch na Ruighe Duibhe, particularly in the north and south. Further to the North the Loch Nam Meur and Allt Seanabhaille have associated localised flood zones. No infrastructure is located within these areas, with the exception of watercourse crossings.

<sup>5</sup> ©SEPA 2022

### Runoff

Silt-laden surface runoff has the potential to enter watercourses and field drains, particularly during periods of heavy rainfall. This runoff is predicted to occur from excavation works, exposed ground and stockpiles on site. This could temporarily impact the water quality of watercourses downstream from the construction works.

Soil compaction may occur due to permanent road construction and movement of construction vehicles and plant. This could result in reduced water permeability of the soil into the ground, resulting in increased surface water runoff. There is the possibility of increased localised flooding due to the increased runoff.

The structural integrity of watercourse banks could potentially be damaged from construction activities. This could be directly, or via indirect loosening of soil structure, causing erosion or collapse. This could result in water quality and localised morphology impacts.

### Pollutants

Spills and leaks may mobilise oils, fuels, and cement, which have the potential to be carried in surface water. These pollutants could be carried into watercourses, impacting on ecological value and freshwater quality. Untreated foul sewage from welfare facilities during construction has the potential to discharge directly into surrounding watercourses unless appropriately managed.

### Mitigation Measures

#### General

The Principal Contractor will abide and by the Guidance for Pollution Prevention (GPPs) and Pollution Prevention Guidance (PPGs) where still relevant (NetRegs, 2018), including:

- GPP 2: Above ground oil storage tanks;
- PPG3: Use and design of oil separators in surface water drainage systems;
- GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer;
- GPP5: Works and maintenance in or near water;
- PPG6: Working at construction and demolition sites; and
- GPP13: Vehicle washing and cleaning.

The Principal Contractor will abide by all CAR requirements (including the requirement to implement construction specific SuDS where required) and follow the guidance provided in Good Practice during Wind Farms Construction Version 3 (Scottish Renewables, et al., 2015).

Watercourses and drains ditches will be marked on site using coloured pegs to ensure that construction staff are aware of their presence. Clearly labelled 'No Entry' signs will be placed on fences and all site staff and visitors will be briefed on the importance of these watercourses and field drains.

### Monitoring

Water quality monitoring locations are to be confirmed and agreed post consent<sup>6</sup>.

**Table 7: Water Quality Monitoring Locations (to be confirmed and agreed post consent)**

Location	X coordinate	Y coordinate	Watercourse
TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC
TBC	TBC	TBC	TBC

<sup>6</sup> Details will be confirmed after consent, prior to construction commencing.

### Pre-construction management

No more than 12 weeks before construction commences baseline surveys will be undertaken to record the current status of the minor tributaries within the site. This will include the following:

- Photographic record of the watercourse crossing point;
- Record of flow and sediment type at watercourse crossing point; and
- Water quality samples from the water quality monitoring locations analysed for the following:
  - pH;
  - alkalinity;
  - electrical conductivity;
  - dissolved oxygen;
  - total suspended solids;
  - nitrate;
  - phosphate;
  - sulphate;
  - dissolved organic carbon (DOC);
  - total organic carbon (TOC);
  - turbidity;
  - aluminium;
  - iron;
  - manganese; and
  - total petroleum hydrocarbons (THP).

### Construction Monitoring

The ECoW will conduct weekly inspection of all site pollution prevention measures (silt fences, settlement ponds, check dams, splash boards etc) and visually assesses their effectiveness during construction. Recommendations for proactive remedial action will be made to the Principle Contractor. Regular reporting will be provided by the ECoW to the Contractor, Applicant and consenting body, and will record all such advice given and any resulting action undertaken onsite

Water quality monitoring will be undertaken by the Principal Contractor. The Principal Contractor will appoint a member of staff who is appropriately trained in water quality monitoring.

Daily inspections of watercourses close to construction activities will be undertaken by the Principal Contractor to identify:

- pollution risks;
- spillages or leakages;
- non-compliance with this CEMP;
- monitoring of over-pumping arrangements if required; and
- pollution incidents.

Weekly inspections will be undertaken of all watercourses and bodies across the site, in particular after periods of heavy or prolonged rainfall.

The Principal Contractor will be responsible for recording the results of the daily and weekly inspections, recommending appropriate actions, and monitoring the implementation and outcome of such actions.

The Principal Contractor will take monthly water samples suspended solids readings at the approximate locations provided in Table 7 (the exact locations will be confirmed by the Principal Contractor following appointment).

These samples will be analysed for the parameters noted above.

The Principal Contractor will be responsible for reporting to the Applicant if there are unacceptable alterations to the baseline. The Principal Contractor will be responsible for determining the cause of the alteration and implementing appropriate mitigation or changes to practice to reduce/remove this change, if caused by construction activities.

Details of operational water quality monitoring will be provided within the CEMP.

### Watercourse Crossings

All watercourse crossings will be subject to detailed design in accordance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011. The detailed design for the watercourse crossings, and the requirements for CAR authorisations or licences will be agreed with SEPA prior to construction to ensure that impacts on fluvial geomorphology are minimised and acceptable to SEPA.

Details regarding watercourse crossings forms an appendix to the EIA Report (Appendix 7.5).

### Drainage and Runoff

#### Operational Drainage Design

The detailed design of the drainage systems will be agreed with THC and SEPA following consent.

#### Construction Drainage

All works associated with earth movement or similar processes will be carried out in accordance with the BSI Code of Practice for Earth Works BS6031:1981.

Due to the location of the Proposed Development, there is a high likelihood of precipitation throughout the year. Site management will check the local weather forecast daily and ensure all staff are aware, to maintain pollution control and runoff in periods of rainfall.

Temporary drainage systems will be used to alleviate localised flood risk and prevent the obstruction of surface runoff pathways. Where required, temporary attenuation ponds will be provided to reduce silted runoff from the access tracks entering watercourses. If flocculants are considered necessary to aid settlement of fine suspended solids such as clay particles, the chemicals used must first be approved by SEPA.

The requirement for dewatering will be minimised in all locations by the efficient excavation of the foundation void and subsequent concrete pouring and backfilling.

Access tracks will be kept to the shortest length possible, and tracks will be designed to spread the load of plant and vehicles to minimise soil compaction.

### Pollution Prevention

Spill kits will be kept in all vehicles, and soakage pads and oil booms maintained in all work areas. This will enable the rapid and effective response to accidental spillages. All construction staff will be trained in equipment use. All vehicle maintenance, fuelling and washing will be undertaken on appropriate impermeable surfaces away from watercourses in order to minimise risk of leaks to soil and surface waters. All construction and plant vehicles will be regularly maintained.

The Principal Contractor will develop a specific method statement to address the batching, transport, transfer, handling and pouring of liquid concrete at foundations.

All operations involving concrete transfer between vehicles, or into vehicles will take place out with 30m of watercourses or waterbodies to prevent cement, unset concrete and grout from entering the water environment. Concrete wash out locations will be located in both construction compounds. The Principal Contractor will ensure that these are regularly cleaned, and the waste disposed. Concrete and wash out liquid

will not be discharged into drains or watercourses on site or at compounds. Drainage will be collected and treated or removed to an appropriate treatment point or licensed disposal site.

#### Storage of Fuel/Chemicals

Stationary oil storage tanks will be located outwith the 0.5% Annual Exceedance Probability (AEP) (1 in 200-year return period) flood level shown in the SEPA Flood Maps. Plant and material will be stored in safe areas above the 0.5% AEP (1 in 200-year return period), where practicable and temporary construction works will aim to be resistant to flood impacts in order to prevent movement or damage during potential flooding events.

To mitigate potential pollution from chemical contaminated runoff, all fuels and chemicals will be stored in accordance with best practice procedures. This will include a designated fuelling site at a safe distance from watercourses (>50m where possible), and in appropriate impermeable bunded containers or areas. These containers/areas will be designed to capture any leakages, from a tank or associated equipment. Storage areas will be kept well away from areas where GWDTEs have been identified.

#### Untreated Foul Drainage

The welfare facilities will connect to a septic tank or self-contained storage tanks. The tanks will be emptied and maintained on a regular basis by a suitably licensed contractor.

## 6 Outline Dust and Air Pollution Management Plan

During prolonged periods of dry weather, there is potential for air quality to be impacted by airborne dust as a result of material delivery, vehicle movements and excavations. This Outline Dust and Air Pollution Management Plan (DAPMP) identifies potential sources of dust emissions, their associated impacts and also detailing the measures to be implemented at the Site to reduce dust and particulate emissions.

The aim of the DAPMP is to raise awareness of the impact of dust emissions during construction and operation and to ultimately minimise the nuisance caused to nearby receptors by implementing a dust minimisation strategy to be adopted by the contractor and site operator and how this will be monitored.

#### Potential Receptors

The site is relatively remote, however, the following receptors have the potential to be impacted by dust generation:

- A887 and A82;
- Local water bodies;
- Priority Peatland; and
- Ancient woodland.

#### Sources of dust emissions

The following activities have the potential to generate dust on site:

- Construction Vehicle movements;
- Earthworks, excavation and handling of stockpiled material;
- Winds blowing across material stockpiles;
- Crushing and grading of site-won material; and
- Air-flush from drilling operations, in the unlikely event that turbine bases require piling .

These activities are worsened by prolonged periods of dry weather and during strong winds bring the greatest potential for dust to be generated.

### 6.1 Mitigation Measures

A range of mitigation measures will be implemented by the Principal Contractor, these will include:

#### General Measures

Site specific rules will be established by the BoP contractor and monitored by the ECoW. Where possible all machinery and dust-causing activities will be located away from the sensitive receptors mentioned above, where reasonably practicable. Material handling operations will be minimised, especially those most likely to cause the generation of dust such as excavation, compaction and material transfer.

#### Construction Traffic

Operatives of all construction vehicles must switch off engines when not moving or working on site. All road-going vehicles will comply with current emissions standards. Movement of construction traffic around the site will be minimised, where possible. The site layout has been developed to allow this to happen. Appropriate speed limits will be set around the site. Loads will be covered if the load has the potential to generate dust.

Dust and road cleanliness on routes to the main site access will be monitored. A wheel wash facility will be installed at the site compound and should it be deemed necessary a road sweeper will be deployed.

Material deliveries and vehicle access will be timed to avoid the need for traffic to queue.

#### Construction activities

In general avoidance is key, as such dust generating activities will be minimised. Water will be used as a dust suppressant, where required and particularly in dry conditions. The water will be either reused from the on-site drainage system/treatment ponds or brought in from off-site. Prolonged storage of material and debris on the site will be kept to a minimum. It is proposed that completed earthworks and exposed areas will be covered or re-vegetated as soon as is practicable. Slopes of any stockpiles and mounds will be not greater than the natural angle of repose of the material. The stockpiles/mounds must not have sharp changes in shape. Should a problem be identified with a stockpile then appropriate measures would be taken such as suppressants or sheeting. Suitable wetting of soil surfaces will be carried out during earth moving activities to minimise contamination through airborne dust. This may be done using a water bowser or static sprinklers. Hard surfacing of internal roads will be completed as soon as practical to aid in minimising dust re-suspension.

#### Monitoring during construction

Regular inspection of areas near the work site will be conducted to assess where there is a risk of build-up of dust. Observations will be recorded in site diaries which will be retained on site by the site manager. on site staff will be educated to be vigilant and report any excessive dust emissions to the site manager. Construction plant will be subject to daily inspection and washed regularly to prevent any dust build-up.

Where dust has been identified as an issue, the contractor shall undertake an investigation to determine the cause and to identify which mitigation measures should be put in place.

Where a site activity is identified as being the source of the emissions and implemented mitigation measures have failed, the operation identified as the source will be ceased until a remedial measure has been found.

Any infringement to this would be reported to the ECoW and a report written up by the contractor identifying what happened, how it happened and what mitigation will take place to prevent it happening again.

#### Operational Phase

During the operational phase the main source of dust will be from vehicles driving on site tracks during prolonged periods of dry weather. Measures including appropriate speed limits will be set around the site and vehicles will not be left idling on site.

During operation dust levels will continue to be monitored as part of site inspections. Should this monitoring highlight that unacceptable levels of dust was being generated, then the appropriate mitigation measures or enforcement of site rules will be put in place.

## 7 Outline Waste Management Plan

It is not anticipated there will be significant quantities of waste generated through the construction period of the Proposed Development.

A Site Waste Management Plan will be kept on site, detailing how waste is managed.

Fully enclosed skips and other smaller containers will be used for all wastes on site. Separate skips, as detailed below, will be held on site to allow segregation of waste materials for recycling or recovery.

- general mixed non-hazardous;
- wood;
- metal;
- hazardous (special) - depending on the types of special waste generated, separate containers may be used;
- plastics; and
- inert construction waste.

All the legal documents to ensure the Duty of Care for waste will be kept on site during the construction of the extension.

All waste leaving the site will be accompanied with a Waste Transfer Note (WTN) (for non-hazardous) or Special Waste Consignment Note (SWCN). These will be checked by the site manager to ensure that the following information is detailed:

- producer of the waste;
- site name & location;
- date;
- description of the waste (i.e. contents and volume);
- EWC code;
- signature of the waste carrier; and
- name of disposal site.

Once complete, the WTN / SWCN will be signed by the Contractor and a copy retained by the Local Authority.

SEPA will be notified a minimum of 72 hours prior to the transfer of Hazardous/Special waste. The contractor will confirm whether the waste carrier will undertake the appropriate notification.

Regular waste audits will be undertaken by the Principle Contractor to check for the following:

- containers are adequately signed;
- containers are being filled fully prior to uplift;
- there is no cross contamination of materials (e.g. hazardous and non-hazardous or wood and metal etc.);
- food and hazardous wastes are contained in covered containers;
- containers are fit for purpose - i.e. adequately sized and structurally sound; and waste documentation is being retained, e.g. WTN's.

## 8 Outline Drainage Strategy

An Outline Drainage Strategy will be produced by the Contractor as part of their Construction Management Plan. The DS is intended to demonstrate the likely measures that will be implemented across the Proposed Development site to remove both surface and foul water from site whilst protecting hydrological, and related resources.

Detailed proposals for such measures will be documented prior to construction and will provide the same or greater provision in terms of protecting the water environment as those described in this document. The measures are proportionate to the risk and, where greater risk is highlighted at specific locations prior to construction, specific measures would be agreed at that time.

The methods set out in this report will generally be based on good practice and the following guidance:

- Forestry Commission, 'Forest and Water Guidelines, 4th Edition';
- The Construction Industry Research and Information Association (CIRIA), 'Environmental Good Practice On Site (C650)' (2005); and
- CIRIA, 'Control of Water Pollution from Construction Sites (C532)' (2001).

The DS will take into account activities during the construction and operational phases of the Proposed Development, including:

- access roads;
- water course crossings;
- turbine foundations; and
- hardstanding areas and buildings (including crane hardstandings, construction compounds and associated infrastructure).

The appropriate methodology to cover water control and the means of drainage from all hard surfaces and structures within the site are described in the following sections.

Drainage from the site will be based on a SUDS design. SUDS replicate natural drainage patterns and have several benefits:

- attenuation of runoff to greenfield runoff rates;
- measures such as retention ponds and lagoons will treat runoff and reduce sediment whilst also producing a suitable habitat environment; and
- treatment of runoff will reduce contamination of watercourses by reducing direct discharge of water back into the natural drainage network.

### 8.1 Surface Water Management

#### Access Tracks and Turbine Hard standings

Access tracks and turbine hard standings will be designed to have adequate cross fall in accordance with the turbine manufacturers guidance to permit safe delivery of equipment. The cross fall allows free drainage to avoid ponding of rainwater and overland flow.

All surface water runoff from the access tracks and turbine hard standings will be routed to a swale. Swales offer one level of treatment, removing silts and sediment before discharging water into the existing drainage ditch network.

Check dams will be installed within the swales and existing drainage ditches to provide attenuation, reduce velocities and promote sediment settling.

intervals to reduce the volume of water collected in a single channel and, therefore, reduce the potential for erosion.

Outfall pipes will drain into a bunded section of the drainage ditch to allow suspended solids to settle. Further measures could include the use of hay bales or mesh to offer further filtration and remove suspended solids

During the construction of new access tracks and the upgrade of existing infrastructure, runoff will require further treatment. Treatment measures will include silt traps, settlement ponds and other appropriate filtration measures. These will be carefully sited at locations such as junction between swales to offer maximum benefit.

Any material excavated during the construction of access tracks will be stored adjacent to the track and compacted to increase stability and erosion potential. Silt fences and mats will be employed to minimise sediment levels in runoff. Material will be stored at least 50m from watercourses to reduce the potential from sediment to be transferred into the wider drainage system.

The site benefits from relatively shallow gradients which will assist in slowing the rate of surface water discharge.

Loose material associated with the construction of the access tracks will be prevented from entering the existing drainage network by implementing the following methodology:

- silt fences will be erected; and swales will be inspected daily and cleaned out as required to maintain their continued effectiveness;
- the inlet and outlet of settlement lagoons, retention basins and extended detention basins will be checked on a daily basis for blockages; and
- culverts, swales and drains will be checked after periods of heavy precipitation;
- silt matting will be checked daily and replaced as required;
- excess silt will be disposed of in designated areas at least 50m away from any drainage ditches;
- the access tracks will be inspected daily for areas where water collects and ponds.

### 8.2 Drainage and Watercourse crossings

All new crossings will be designed in a way that they do not adversely affect the current watercourses and drainage provision within the site and can also accommodate the predicted flow generated from the site.

Authorisation from SEPA under the Water Environment (Controlled Activities) (Scotland) Regulations 2005 (CAR) will be obtained prior to construction of the watercourse crossings.

Spill kits and containment bunds will be in place during construction of the bridge crossing.

To reduce the possibility of adversely affecting the existing watercourses or existing drainage network any upgrade works will not be conducted during times of high flow.

Prior to access track construction, site operatives will identify depressions or zones which may concentrate water flow. These sections will be spanned with plastic pipes or drainage matting to ensure hydraulic conductivity under the road and reduce water flow over the road surface during heavy precipitation.

All watercourse crossings are anticipated to be suitable for culvert designs. These will be either box culverts, circular concrete or plastic pipe culverts and will comply with SEPA CAR requirements.

The use of in-situ concrete in the construction of watercourse crossings will be avoided in favour of pipes or precast units.

### 8.3 Surface Water Treatment

Silt traps will be installed to trap and filter sediment-laden surface water runoff from excavation works. Silt traps will be installed on the down-slope side of tracks adjacent to existing drainage crossings to stop sediment transfer into the wider drainage network.

Settlement lagoons will be installed to allow settlement of sediment within the surface water runoff, allowing suspended solids to settle out of water before being discharged to ground or the wider drainage network. All settlement lagoons will be actively managed to control water levels and contain any runoff, especially during times of rainfall. If required to achieve the necessary quality of the final runoff, further measures could include the use of silt traps to further improve the removal of suspended solids.

Settlement lagoon outflow will be inspected on a daily basis and following periods of high rainfall. Discharge may be pumped, when required, for maintenance purposes. Any pumping activities will be supervised and authorised by the Site Manager and in accordance with the approved detailed Risk and Method Statement.

In extreme storm events, there could be elevated levels of runoff from the hardstanding elements, such as access tracks and hard standings, when compared to the greenfield runoff rates.

Drainage grips within the swales will be provided on the downside slope runoff approximately every 20m. The grips shed runoff to adjacent rough ground to attenuate flow and allow natural filtration. In areas within 50m of a primary drainage ditch or where cross-slopes exceed 1 in 20, drainage channels will be bunded and outflow will be monitored daily. Appropriate licensing and discharge consents will be sought (under CAR) before the construction phase of the Proposed Development.

#### Surface Water Monitoring

A surface water monitoring programme will be established in agreement with SEPA and NatureScot prior to the construction phase of the Proposed Development.

### 8.4 Conclusion and Recommendation

The purpose of this DS is to detail appropriate measures to control surface water runoff, and drain hardstandings and structures during the construction and operation of the Proposed Development. The measures detailed throughout this report would minimise any effects on surface and groundwater environment.

This document would be adapted to meet the additional requirements of the construction contractor, when appointed, to ensure that all measures implemented are effective and site-specific. Consultation with bodies

including NatureScot and SEPA would be carried out to confirm agreement with the measures proposed prior to construction commencement.

The DS is considered to be a live document, such that modifications can be made following additional information and advice from consultees.

## 9 Outline Ecology Management Plan

An Outline Restoration and Enhancement Plan (OREP) for peat, biodiversity, landscape and forestry forms an appendix to the EIA Report (Appendix 8.5). The below measures are specifically in reference to construction.

### 9.1 ECoW Role and Responsibilities

The Applicant will appoint a suitably qualified ECoW prior to the commencement of any construction activities. The ECoW will be present during construction, and will monitor compliance with the CEMP and relevant legislation.

This list of below is not exhaustive and the ECoW role will encompass all environmental disciplines, potentially being undertaken by more than one individual, to be confirmed following consent and prior to construction commencing.

The ECoW will advise and assist the Contractor in avoiding, minimising and mitigating adverse effects. The ECoW will inform the Applicant and Contractor of areas of particular concern, and will advise on mitigation required to enable works to proceed.

The ECoW will advise on the implementation of the CEMP, including the Species Protection Plans and OREP, and will undertake relevant duties as required.

The ECoW will provide reports on a weekly basis which will be made available to all relevant site personnel including the Applicant.

The ECoW will provide toolbox talks to all site personnel, detailing the environmental and ecological considerations of the site including priority species and habitats.

The ECoW will advise on micro-siting where required, and will monitor works undertaken in sensitive locations (such as watercourses). The Contractor will consult the ECoW prior to undertaking micro-siting.

The ECoW will conduct weekly inspection of all site pollution prevention measures (silt fences, settlement ponds, check dams, splash boards etc) and visually assesses their effectiveness.

In advance of any works near or crossing a watercourse, the ECoW will survey the condition of the watercourse and confirmed signs of, or habitat potential for, protected terrestrial and aquatic species, using a species specialist if necessary.

The ECoW will implement markers and exclusion zones around ecologically sensitive areas as necessary to preclude construction activities from impinging on these features. Where works are required within these ecologically sensitive areas, the ECoW will be consulted on any pre-works checks and mitigation required before works are allowed to proceed under the supervision of the ECoW.

The ECoW will be consulted regarding proposals and location for temporary material storage (e.g. turf, peat), and will monitor the condition of stored turf.

The ECoW will monitor the method and condition of reinstated habitat, and will maintain records to be provided to the Applicant.

The ECoW will engage with the Restoration and Enhancement Steering Group (RESG), providing specialist advice as necessary. The ECoW will monitor progress and compliance with measures detailed in the OREP, and will report back to the RESG as required. The ECoW will develop and implement the monitoring regimes

stipulated by the OREP during construction, and will maintain records that can be handed to the RESG upon completion of construction.

The ECoW will liaise with statutory consultees as required and agreed with the Applicant and in line with THC requirements.

The ECoW will maintain records of: sightings and signs of protected species; pre-works and micro-siting surveys undertaken (including dates, location, and findings); weekly checks of key locations (including silt pollution prevention measures); tasks undertaken; and advice given.

### 9.2 Species Protection Plan

#### 9.2.1 General Mitigation

Within six months prior to construction (or during the suitable survey period prior to commencement of works), a series of pre-construction update surveys will be undertaken to update the baseline information contained within the EIA Report. The aim of these surveys will be to provide up to date information to finalise required mitigation proposals. The CEMP will be updated with the latest survey results and management requirements.

Where potentially sensitive locations are noted (such as potential but unconfirmed water vole habitat), a final pre-construction check will be undertaken by the ECoW immediately prior to works commencing, with the potential to move infrastructure within 50m micro-siting allowance if necessary. The licensing process will be engaged if necessary.

Micro-siting of the infrastructure will avoid any notable features identified during pre-construction surveys. If unavoidable, the ECoW will make necessary protected species licence applications. The ECoW will advise on and monitor compliance with any licence conditions.

Plant and personnel will be constrained to a prescribed working corridor through the use of temporary barriers, thereby minimising damage to habitats and potential direct mortality and disturbance to species.

Works compound, storage sites and access tracks will avoid, as far as practicable, areas identified as being of ecological value by the ECoW.

Security lighting will be designed to minimise light-spill on sensitive habitat features such as watercourses, waterbodies, and woodland edges.

Any required culverts will be designed to be adequately sized and orientated in the correct direction for wildlife in accordance with good practice including the following principles:

- Use of bottomless arch or single span crossings wherever possible in the first instances.
- Retention/recreation of natural stream beds wherever possible.
- Closed pipes used as a last resort.
- Any pipe culverts will be set below the existing watercourse bed wherever possible and use will be made of natural bed material.

The ECoW will be consulted during micro-siting and construction of watercourse crossings to ensure protection of the water environment and sensitive ecological features (including otter, water vole and fish habitat), and to ensure implementation of the design principles.

Any trenches dug during construction and decommissioning operations will be covered at the end of each day. Alternatively, mammal ramps will be positioned in such a way that trapped mammals may be allowed to escape.



Temporary open pipe systems will be capped when unattended to prevent animals accessing them and becoming trapped.

All exposed pipes and trenches will be checked each morning prior to starting construction activities. If trapped animals are found, the ECoW or specialist animal handler will be contacted to remove any distressed animals.

Regular ecological toolbox talks will be given to all site personnel on the potential presence of protected species and any measures that need to be undertaken should such species be discovered during construction activities. As part of the environmental tool box talks given to site construction staff, the importance of adhering to speed restrictions and watching out for wildlife and grazing farm stock will be highlighted.

Site personnel will report any sightings of protected species and any potential site of shelter of a protected species encountered to the ECoW as soon as possible.

### 9.2.2 Exclusion and Licensing Procedure

Should a resting site of a protected species be identified during construction (for example otter resting site, water vole burrow, or pine marten den), all construction work will cease immediately. The ECoW will be consulted and they will make an assessment of the use of the site, including whether breeding is likely, and determine the appropriate initial exclusion zone that should be implemented.

The exclusion area stipulated by the ECoW will be demarcated by the Contractor and no construction personnel will enter this exclusion area except when accompanied by the ECoW. The exclusion area will remain in place for the duration of the construction period. The Contractor will ensure that all construction activities are undertaken outwith this area.

In discussion with the Contractor, the ECoW will determine whether a licence is required before works can proceed. Where a licence is deemed to be required, the ECoW will make an application for a suitable derogation licence from NatureScot to permit the disturbance or destruction of this resting site. Works will not recommence within the exclusion zone until a licence has been granted and the ECoW is satisfied that any conditions have been met.

At this time, the destruction of any newly identified resting site is considered unlikely to be required. However, should this be the case, NatureScot will be consulted and a licence sought.

### 9.2.3 Bats

#### Legislation

Bats are protected under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) as they are European Protected Species (EPS). As such, in Scotland it is an offence to deliberately or recklessly

- a) capture, injure or kill a wild animal of a European Protected Species;
- b) harass a wild animal or group of wild animals of a European Protected Species;
- c) disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- d) disturb such an animal while it is rearing or otherwise caring for its young;
- e) obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;

- f) disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or
- g) disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; or
- h) damage or destroy a breeding site or resting place of such an animal.

Section 44 of the Regulations establishes the power to grant licences for certain purposes including development.

#### Mitigation

The General Mitigation measures above, including the Exclusion and Licensing Procedure, will be implemented in full.

Within 6 months prior to commencement of construction activities (or during the suitable survey period prior to commencement of works), a pre-construction survey for roosting bats will be undertaken in areas of suitable habitat likely to be impacted by the works. This will be conducted by a suitably qualified and experienced ecologist. Areas of potential or confirmed roosting habitat will be marked up on a map to indicate ecologically sensitive locations.

If required, the ECoW will make relevant licence applications (e.g. licence to disturb) to NatureScot on behalf of the Applicant and will oversee and/or undertake related mitigation measures in accordance with any licence obtained. The survey effort required to support a licence application will be determined by the level of bat roost potential noted and proposed works, and will be undertaken in accordance with best practice<sup>7</sup>.

The Contractor will inform the ECoW at least one week ahead of works in ecologically sensitive areas to allow time for final pre-construction checks, and will consult the ECoW on any required mitigation measures.

If roosting bats are confirmed which are likely to be disturbed, damaged or destroyed as a result of the works, a licence from NatureScot will be required and appropriate mitigation agreed.

### 9.2.4 Otter and Water Vole

#### Legislation

Otter is protected under the Conservation (Natural Habitats &c.) Regulations 1994 (as amended) as it is a European Protected Species (EPS). As such, in Scotland it is an offence to deliberately or recklessly

- a) capture, injure or kill a wild animal of a European Protected Species;
- b) harass a wild animal or group of wild animals of a European Protected Species;
- c) disturb such an animal while it is occupying a structure or place which it uses for shelter or protection;
- d) disturb such an animal while it is rearing or otherwise caring for its young;
- e) obstruct access to a breeding site or resting place of such an animal, or otherwise to deny the animal use of the breeding site or resting place;
- f) disturb such an animal in a manner that is, or in circumstances which are, likely to significantly affect the local distribution or abundance of the species to which it belongs; or
- g) disturb such an animal in a manner that is, or in circumstances which are, likely to impair its ability to survive, breed or reproduce, or rear or otherwise care for its young; or

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<sup>7</sup> Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edition). The Bat Conservation Trust, London.



- h) damage or destroy a breeding site or resting place of such an animal.

Section 44 of the Regulations establishes the power to grant licences for certain purposes including development.

Water vole benefit from partial protection in Scotland from the Wildlife and Countryside Act 1981 (as amended) in respect of Section 9(4) only. This protects their place of shelter but not the animals themselves. It is an offence to:

- a) damage, destroy or obstruct access to any structure or place which a water vole uses for shelter or protection; or to
- b) disturb water voles while they are using such a place.

There is provision for the licensing of activities that could affect water vole habitat for social, economic or environmental purposes (i.e. including development).

#### Mitigation Measures

The General Mitigation measures above, including the Exclusion and Licensing Procedure, will be implemented in full.

Within 6 months prior to commencement of construction activities (or during the suitable survey period prior to commencement of works), a pre-construction otter and water vole survey will be undertaken. This will be conducted by a suitably qualified and experienced ecologist. Areas of potential or confirmed habitat will be marked up on a map to indicate ecologically sensitive locations.

Survey will not be undertaken during, or after heavy rain or periods of flood.

If required, the ECoW will make relevant licence applications (e.g. licence to disturb) to NatureScot on behalf of the Applicant and will oversee and/or undertake related mitigation measures in accordance with any licence obtained.

Prior to works commencing, the ECoW will mark exclusion areas around all known otter resting sites and water vole burrows within the Site using a marking method and distance approved by the Planning Authority in consultation with NatureScot.

Blasting will avoid conflict with the crepuscular nature of otters by avoiding scheduling blasting between 30 minutes after sunrise and 30 minutes before sunset, thereby reducing the risk of mortality and disturbance.

The Contractor will inform the ECoW at least one week ahead of works commencing in or near watercourses to allow time for final pre-construction checks, and will consult the ECoW on any required mitigation measures.

### 9.2.5 Pine Marten, Red Squirrel and Badger

#### Legislation

Pine marten and red squirrel benefit from protection under UK legislation including the Wildlife and Countryside Act 1981 (as amended); they are listed on Schedule 5 and are protected under Section 9.

Section 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended) makes it an offence, subject to certain exceptions, to "intentionally or recklessly":

- a) kill, injure or take a scheduled animal;

- b) damage, destroy or obstruct access to any structure or place which a scheduled animal uses for shelter or protection; or to
- c) disturb a scheduled animal while it is occupying a structure or place which it uses for that purpose.

There is provision for the licensing of activities that could affect pine marten for social, economic or environmental purposes (i.e. including development).

Badger receives protection under the Protection of Badgers Act 1992 (as amended). The Act makes it an offence to:

- a) wilfully kill, injure, ill treat or take a badger;
- b) possess a dead badger or part of one;
- c) possess or control a living, healthy badger; and
- d) intentionally or recklessly damage, destroy or obstruct access to a sett, or disturb a badger whilst it is occupying a sett.

The Wildlife and Natural Environment (Scotland) Act 2011 (WANE) also makes it an offence to permit any of the above.

Under certain circumstances, NatureScot can issue a licence to allow works that would otherwise be illegal under this Act to proceed.

#### Mitigation Measures

The General Mitigation measures above, including the Exclusion and Licensing Procedure, will be implemented in full.

Within 6 months prior to commencement of construction activities (or during the suitable survey period prior to commencement of works), a pre-construction survey for pine marten, red squirrel and badger will be undertaken in areas of suitable habitat (including rocky areas for pine marten). This will be conducted by a suitably qualified and experienced ecologist. Areas of potential or confirmed habitat will be marked up on a map to indicate ecologically sensitive locations.

If required, the ECoW will make relevant licence applications (e.g. licence to disturb) to NatureScot on behalf of the Employer and will oversee and/or undertake related mitigation measures in accordance with any licence obtained.

Blasting will avoid conflict with the crepuscular nature of pine marten and badger by avoiding scheduling blasting between 30 minutes after sunrise and 30 minutes before sunset, thereby reducing the risk of mortality and disturbance.

The Contractor will inform the ECoW at least one week ahead of works in ecologically sensitive areas to allow time for final pre-construction checks, and will consult the ECoW on any required mitigation measures.

If a den, drey or sett is confirmed that would be affected by works, a licence from NatureScot will be required and compensatory mitigation may be required (e.g. compensatory boxes or artificial sett). It would not be possible to destroy a den or drey if young were present, and activities affecting badger setts are not generally granted a licence during the badger breeding season (December to June inclusive).

### 9.2.6 Fish and Fish Habitat

#### Mitigation Measures

The General Mitigation measures above will be implemented in full, particularly with regards to protection of the aquatic environment.

Pre-construction fish habitat surveys will be undertaken by the ECoW (or appointed specialist) at watercourse crossings to allow micro-siting of the crossings away from potentially sensitive habitats wherever possible.

The Contractor will inform the ECoW at least one week ahead of works commencing in or near watercourses and will consult the ECoW on any required mitigation measures. Works undertaken within the watercourse buffer will be supervised by the ECoW.

### 9.2.7 Breeding Birds

#### Legislation

All wild birds benefit from protection under UK legislation including the Wildlife and Countryside Act 1981 (as amended) and the Nature Conservation (Scotland) Act 2004.

The Wildlife and Countryside Act (WCA) 1981 (as amended) makes it an offence, subject to certain exceptions, to:

- a) kill, injure or take any wild bird;
- b) take, damage or destroy the nest of any wild bird while that nest is in use or being built ; or
- c) take or destroy an egg of any wild bird.

Some species receive enhanced statutory protection due to their listing in Schedule 1 of the Wildlife and Countryside Act 1981. It is an offence to "intentionally or recklessly" disturb a Schedule 1 species while it is building a nest or is in, on, or near a nest containing eggs or young.

#### Mitigation Measures

Protection of breeding bird nests from damage and/or destruction during the breeding season will need to be ensured. Wherever possible, all vegetation clearance will occur outside the breeding season (i.e. between September - February, inclusive), to ensure that no active nests are damaged or destroyed by the proposed works. This would include any areas of shrub clearance and vegetation removal for access tracks, compounds or turbine bases due to the populations of ground nesting birds on and around the site.

Removing vegetation from working areas outside the breeding season, wherever possible between October and February inclusive but preferably between November and January, would also reduce the attractiveness of those areas to breeding birds the following season, which means that birds are less likely to breed in those areas.

Avoidance of unnecessary disturbance to habitats by minimising the extent of ground clearance and other construction practices as far as practicable.

Pre-works species-specific survey will be undertaken in areas of suitable habitat by the ECoW (or an appointed ornithological specialist as required).

Where vegetation clearance takes place within the nesting season, any vegetation that is to be removed or disturbed will be checked by the ECoW for nesting birds immediately prior to works commencing.

If birds are found to be nesting in vegetation scheduled for removal, any works which may affect them will be delayed until the young have fledged and the nest has been abandoned naturally. An appropriate buffer will be established around the nest with exclusion fencing/signage.

The ECoW will confirm the absence of nesting birds a maximum of 24-48 hours prior to removal of vegetation, where possible.

## 9.3 Habitat Management

The OREP outlines measures that will be undertaken to enhance habitats in areas outwith the construction zone, and measures to restore and reinstate habitats post-construction. Measures in the OREP will be implemented by the Principle Contractor, where possible, to ensure those areas of habitat that have been temporarily lost during construction are successfully re-instated after construction has finished.

To facilitate restoration, disturbed ground will be restored as soon as practically possible using materials removed during the construction of access tracks, excavation of cable trenches and wind turbine foundations. To achieve this, any excavated soil will be stored in such a manner that is suitable to facilitate retention of the seed bank. This will aid site restoration and help conserve the pre-construction floristic interest at the site. Access tracks will be allowed to re-seed naturally during operation.

## 10 Outline Archaeology Management Plan

An Archaeology Management Plan including the following mitigation measures will be implemented:

- Appointment of an Archaeological Clerk of Works (ACoW) to supervise ground-breaking operations and provide on-site advice on avoidance of effects (e.g. providing on-site identification and recording of previously unrecorded heritage assets, and liaising with the local authority archaeological adviser as necessary).
- Preparation of a Written Scheme of Investigation (WSI) to be submitted to the decision-maker's archaeological adviser for approval prior to any construction works (including enabling works) commencing on site. Measures within the WSI are likely to include the implementation of a working protocol should previously unrecorded heritage assets, including buried archaeological remains, be discovered, and provision of written guidelines and constraints mapping to all contractors, accompanied by appropriate briefing (as below) to ensure sensitivities are understood.

## 11 Outline Decommissioning Plan

Following the 35-year operational life of the Proposed Development, an application may be submitted to retain or replace the turbines, or they could be decommissioned.

Decommissioning would involve the following:

- Dismantling and removal of wind turbines and electrical equipment; and
- Restoration of the turbine areas, hardstandings and new tracks.

Turbine components and electrical equipment would be dismantled and removed in a similar fashion to their delivery and erection. Craneage would be used to split the turbines into sections which would then be transported from the site by HGVs unless the components are sold on, in which case, they would be removed as abnormal loads. Turbine components would be cut up offsite in controlled environments ready for reuse, recycling or appropriate disposal.

The removal of the top of the turbine base would be undertaken requiring an excavated trench around the upstand to provide a working area. Breakout of the top part of the plinth would be undertaken using an excavator mounted jack hammer. The cables would be cut level with the remaining concrete. Once the broken-out concrete has been removed, the area would be reinstated by backfilling with soil/peat to an agreed method statement, as outlined in the restoration section above.

The high voltage and SCADA cables would be left in place to avoid unnecessary ground disturbance.

The CEMP would be updated as required to ensure best practice was adopted during decommissioning of the Proposed Development. This could include measures such as draining and removing hazardous liquids prior to the dismantling of the Proposed Development components.

Overall, it is estimated that the decommissioning period for the Proposed Development would be approximately 12- 18 months.

An assessment of effects during the decommissioning phase has not been undertaken in the EIA as the baseline against which to assess likely significant decommissioning effects is not known. However, a method statement will be prepared and agreed with the relevant statutory consultees including THC prior to decommissioning of the Proposed Development, and it is anticipated that any effects associated with decommissioning will be similar to or less than those associated with construction.

## 12 Conclusions

The purpose of this CEMP is to ensure that all construction activities carried out at the Proposed Development are in a manner which minimises impact on the environment. This document has been produced to remind individuals working on the site of their responsibilities and to ensure that measures to prevent, reduce or mitigate potentially adverse environmental impacts identified in the EIA Report and this CEMP are carried out.

The CEMP has been developed to advise of good construction practices and ensure they are adopted and maintained throughout the construction of the Proposed Development. As part of this a framework for mitigating unexpected impacts during construction has been developed and is detailed within this CEMP.

The CEMP has been prepared to provide assurance to third parties that their requirements and expectations with respect to environmental performance are met, whilst providing a mechanism for ensuring compliance with current environmental legislation and statutory consents.

## Appendix A References

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Appendix B Drawings (see EIA Report Chapter 4 Figures)