3 The Proposed Development

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3 The Proposed Development

3.1 Introduction

3.1.1 This chapter provides a description of the site and its geographical context and presents a description of the Proposed Development.

3.1.2 The Electricity Works (Environmental Impact Assessment) (Scotland) Regulations 2017 (Scottish Government, 2017) require that the EIA Report must include "a description of the development comprising information on the site, design, size and other relevant features of the development." Regulation 5(2)(a).

3.2 Site Status and Context

Site Description

3.2.1 The Proposed Development site is located on the north-west of Yell, Shetland Islands, to the south of Gloup, west of Cullivoe and north of Sellafirth. The site covers Hill of Vigon, Hill of Bakkanalee, Sandwater Hill, Hill of Markamouth, Tonga Field Muckle Bratt-houll, Little Bratt-houll, and Fugla Field. The elevation of the site ranges from 0-112 m above ordnance datum (AOD). The site occupies an area of 1679 hectares (ha). The central grid reference for the site BNG 450134, 1201392. The site location and site boundary are shown in **Figure 1.1**.

3.2.2 The site comprises grazed peatland, intersected with a number of watercourses, water bodies, burns and drainage ditches, including Gossa Water, Fugla Water, Grud Waters, Cullig Mires, River Burn and Burn of Gossawater (among others). No buildings or structures are located within the site boundary. The Dalsetter Hill Road (known locally as the Old Cullivoe Road) intersects the south-eastern corner of the site and will be used as the access to the site from the A968.

3.2.3 The wider area beyond the boundary of the site comprises similar peatland habitat, with small settlements and stand-alone properties along the eastern coastline on north Yell and along the western, eastern and southern coastlines of south Yell. The ferry terminal of Gutcher, connecting Yell to Unst, is located 3.1 km east of the Proposed Development site and the ferry terminal of Ulsta, connecting Yell to Mainland Shetland is located 19.8 km south of the Proposed Development. The closest residential properties are the derelict properties at Dalsetter, and the inhabited properties: The Old School House, Newhouse, Uphouse and Sellafirth House at Sellafirth and Bydon, Niaroo, The Haa and Torvaugh at Gloup.

3.3 Description of the Development

3.3.1 The Proposed Development comprises 29 wind turbines of up to a maximum 200 m height from ground to blade tip when vertical. The overall capacity of the Proposed Development will be up to, but not exceeding 200 MW. A number of ancillary elements are also proposed, including four temporary construction compounds (1, 2, 3 and substation), permanent hardstandings adjacent to the wind turbines for maintenance and decommissioning cranes, temporary laydown areas adjacent to the wind turbines, external transformers, internal access tracks, an abnormal loads access junction off the A968, underground cables between turbines, an on-site substation and maintenance building, a permanent meteorological monitoring mast and nine potential temporary borrow pit search areas. The Proposed Development site layout is shown in Figures 1.2a-e.

3.3.2 Whilst the location of the infrastructure described below has been determined through an iterative environmental based design process, there is the potential for these exact locations to be further optimised through micro-siting allowances prior to construction. A micro-siting allowance of up to 100 m in all directions is being sought in respect of each turbine and its associated infrastructure in order to address any potential difficulties which may arise in the event that preconstruction surveys identify unsuitable ground conditions or environmental constraints that could be avoided. The assessments within this EIA report have included the considerations of this 100 m micro-siting and

it does not alter the conclusions formed as to worst case effects. Any variation of between 50 m and 100 m shall only be permitted following prior written approval of Shetland Islands Council (SIC) in consultation where relevant with aviation consultees, Scottish Water, Scottish Environment Protection Agency (SEPA) and/or Scottish Natural Heritage (SNH). It is proposed that the final positioning of all infrastructure pursuant to this micro-siting allowance will be subject to an appropriately worded planning condition.

Turbines and Turbine Foundation

3.3.3 The Proposed Development will comprise a maximum of 29 wind turbines with a maximum height from ground to blade tip, when vertical, of 200 m (refer to **Figure 3.1**). The total anticipated power rating of the Proposed Development will be no greater than 200 MW, depending on turbine models which are available and fit within the physical parameters used for the purposes of this EIA.

3.3.4 The proposed locations of the turbines have been defined in order to enable the EIA to describe fully the Proposed Development for which permission is being sought. The British National Grid coordinates denoting where each of the turbines are proposed to be located are listed in **Table 3.1** below.

Table 3.1 – Wind Turbine coordinates (British National Grid)

Turbine	X	Y
1	448784	1203666
2	448331	1203036
3	449144	1203369
4	449765	1203441
5	449676	1202945
6	449640	1202314
7	448360	1201874
8	449002	1201654
9	449577	1201755
10	448922	1201085
11	449777	1201270
12	449088	1200632
13	449752	1200772
14	449368	1200263
15	449961	1200325

Turbine	X	Y
16	450428	1200150
17	450396	1201116
18	450606	1200678
19	451071	1200336
20	451554	1200185
21	450563	1201645
22	451005	1201521
23	451298	1200900
24	451800	1200817
25	451593	1201475
26	451724	1202184
27	451323	1202379
28	451037	1202718
29	450906	1203324

3.3.5 Each of the turbines comprise the following components:

- blades;

- tower;
- nacelle;
- hub; and
- transformer.

3.3.6 Each turbine will be mounted on a tapered tubular steel tower and consist of a nacelle containing the gearbox, generator and associated equipment, to which are attached a hub and rotor assembly including three blades. At the base, the turbine will be approximately 7 m in diameter.

3.3.7 An elevation drawing of a typical turbine is illustrated in **Figure 3.1**. The turbines will be of a typical modern, three-blade, horizontal axis design in semi-matt white or light grey with no external advertising or lettering except for statutory notices. The specific turbine manufacturer and model has not yet been selected as this is subject to an on-going tendering exercise and will be confirmed post consent. Therefore, for the purposes of the EIA potential turbine dimensions and operational attributes have been established as a maximum development scenario.

3.3.8 As per CAA guidance turbines over 150 m tip require aviation lighting on both the tower and on the hub (refer to Chapter 13 (Aviation) for further details).

3.3.9 A transformer will be sited either within the base of each tower or externally sited a few metres from the turbine tower. For the purpose of the EIA it has been assumed that the transformers would be external and have the approximate dimensions of 4.5 m long by 3 m wide by 2.5 m high.

3.3.10 The turbine foundations are anticipated to be an inverted "T" in section consisting of a reinforced central concrete pedestal approximately with a reinforced concrete slab. The tower is proposed to be attached to the foundations via an anchor cage which is then screwed to the tower. Until detailed ground investigations have been undertaken the exact size and depth of foundations required cannot be determined. Therefore, for the purposes of this EIA Report, the following approximate dimensions have been used:

- reinforced concrete slab approximately 24 m in diameter; and
- maximum depth of the foundations approximately 3 to 5s m.

3.3.11 An illustration of a typical turbine foundation is provided in **Figure 3.2**. The actual foundation design will be specific to the site conditions as verified during detailed site investigations undertaken before construction commences. In the unlikely event that ground conditions are unsuitable for the standard foundation design described above, a piled foundation design may be required, involving the installation of a series of concrete piles per turbine, with each pile being bored or driven until the underlying bedrock is reached.

Crane Hardstandings

3.3.12 To enable the construction of the turbines, a crane hardstanding area and turning circle at each turbine location will be required to accommodate assembly cranes and construction vehicles. This will comprise a crushed stone hardstanding area measuring, approximately 35 m wide by 75 m long with a typical thickness of approximately 1 m, but subject to the specifications required by the selected crane operator and following detailed ground investigations prior to construction. The crane hardstandings will remain in place during the lifetime of the Proposed Development to facilitate maintenance works.

3.3.13 In addition to the permanent crane hardstanding, a temporary turbine laydown area will be constructed adjacent to the hardstanding and access track. This will consist of bog mats, 85 m long by 19 m wide, which will be removed and re-instated following the completion of construction.

3.3.14 The crane hardstandings are illustrated as part of the site layout on **Figures 1.2a-e** and on **Figure 3.3**.

Access to the Proposed Development Site

3.3.15 All traffic will access the site from the south via the Old Cullivoe Road from the A968. Preferred access routes to the site are shown in **Figures 1.2a-e**.

3.3.16 The recommended route for all deliveries will be from the south, along the A968, from the port at Ulsta. No traffic, with the exception of construction and operation staff travelling to site, are anticipated to travel from the east from the port at Gutcher.

3.3.17 A Transport Assessment (refer to Chapter 11) has been prepared in support of the application for the Proposed Development and this provides greater detail on access routes to the site for construction vehicles. Chapter 11 (Traffic and Transport) includes a review of the proposed route, construction traffic impacts, and an abnormal load route review.

3.3.18 Prior to construction, appropriate highway safety measures will be agreed with Shetland Island Council (SIC), with necessary signage or traffic control measures implemented throughout the construction phase on the agreed basis.

On-Site Access Tracks

3.3.19 The Old Cullivoe Road is a hard-surfaced track of varying condition. This has been upgraded for the short section to the Scottish Water Treatment Works at Dalsetter but is in poor condition north of this. The section of the Old Cullivoe Road from the junction off of the A968 to the new access track, will be improved to a suitable load-bearing surface of minimum 5 m width from the A968 to the junction with the new access tracks (refer to **Figure 1.2**). The Old Cullivoe Road is designated as a Core Path and will be accessible throughout the operational life of the Proposed Development. The road will remain open to the public during construction, with signage erected to alert members of the public of construction traffic. A regular maintenance plan will be set out as part of the site traffic management plan to ensure the road is kept in an acceptable condition. Pedestrian access will be maintained during construction, but in the interests of health and safety, will be segregated by means of temporary fencing running parallel to the access road. If the path needs to be temporarily diverted during construction, any temporary diversions will be clearly signposted. It is proposed that details of temporary path diversions can be secured by an appropriately worded condition.

3.3.20 Access to the site from the Old Cullivoe Road will controlled by a security hut adjacent to the access track to ensure the safety of the staff and the public.

3.3.21 The access tracks within the site boundary will be approximately 5 m wide with some extra width provided on bends, gradients, junctions, passing and turning places. It is anticipated that approximately 18.35 km of the access track will be floated while approximately 1.75 km of the access track will be dug. There will be approximately 980 m of temporary floated and restored track (refer to **Figure 1.2**).

3.3.22 Construction of the floating access tracks will require the placing of a geotextile membrane on existing topsoil and vegetation followed by aggregate layers. Depending on ground conditions two or more layers of geotextile will be placed in layers of 300 mm to 500 mm. The access tracks will be capped with layers of Type 1 or similar material. Type 1 is unbound aggregate mixture specified under Clause 803 of the Specification for Highway Works (2016) as suitable for vital load bearing foundation in road construction.

3.3.23 Construction of the dug access track will require stripping existing unsuitable material to a suitable bearing or the designed formation, and placing a filter membrane and or geotextile reinforcement membrane (depending on site conditions) on the ground. Aggregate will then be layered, with the access track capped with a layers of Type 1 or similar material.

3.3.24 The proposed layout of access tracks within the site is shown on **Figures 1.2a-e** and illustration of a typical access track is provided in **Figure 3.4**.

Watercourse Crossings

3.3.25 A number of watercourses, both natural and artificial, will be crossed by the proposed access tracks within the site. The crossings maybe simple concrete pipe culverts or arch culverts depending on the watercourse.

3.3.26 Pipe culverts will be twin wall uPVC or pre-cast concrete pipes with cast in-situ headwalls (if required). The arch culverts will have cast in-situ strip footings with precast concrete or galvanised steel arch segments and will be designed in accordance with SEPA Good Practice Guidance (2010). The headwalls, if required, will be precast concrete. Bridges will have cast in-situ concrete abutments with a single span precast concrete beam deck.

3.3.27 A total of 41 new watercourse crossings will be constructed on site. Of the 41 new watercourse crossings, 14 of the crossings required are over main watercourses (shown on 1:50,000 scale OS Mapping) and 27 are required over watercourses shown on 1:25,000 scale OS mapping or watercourses that were observed on site and not shown on OS mapping.

3.3.28 **Figures 10.6a-i** shows the location of all the watercourse crossings while Appendix 10.5 provides details of each watercourse at the location of the crossing. The design of each crossing will be determined at detailed design, following ground investigations and it is proposed that the final solution and detailed design for all water crossings will be addressed through an appropriately worded condition in order to ensure that the works comply with the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (also known as the Controlled Activities Regulations (CAR)). Where necessary CAR licences for work affecting watercourses will be applied for post-consent, prior to construction commencing once final design has been reached.

3.3.29 Illustration of a typical watercourse crossing is provided in **Figure 3.5**.

Drainage

3.3.30 An outline drainage strategy is presented in Appendix 3.1. This provides details on the management of surface waters and of fouled water across the site, with detailed information for drainage related to tracks, borrow pits and crane hardstandings.

3.3.31 A detailed drainage design will be undertaken and provided to SEPA and SIC prior to construction. Illustration of typical drainage design is provided in **Figures 3.6a** and **b**.

Electrical Connection

3.3.32 The electrical power produced by the individual turbines will be fed to an onsite substation within the site via underground cables. The proposed location for the onsite substation is shown in **Figures 1.2a-e**, which is located in the south of the site. The Applicant has entered into a grid connection agreement with the electricity system operator, who will provide a connection via the transmission licence holder, which will be subject to a separate planning process.

3.3.33 Onsite cables installed by the Applicant within the site will be laid in trenches, typically up to a maximum of 0.5 m deep and 1 m wide. The trenches will also carry earthing and communication cables for the operation of the Proposed Development. Cabling will be located mainly adjacent to the access tracks. The cables will be laid on a sand bed and the trenches backfilled using suitably graded material.

3.3.34 The onsite substation compound will measure approximately 100 m by 60 m and will accommodate all the equipment necessary for automatic remote control and monitoring of the Proposed Development, in addition to the electrical switchgear, fault protection and metering equipment required to connect the Proposed Development to the electricity transmission network, and a hardstanding area for vehicle parking constructed from crushed stone to a depth of approximately 300 mm. The substation will also contain welfare facilities (all foul and waste water will be removed from site to be disposed of by a licenced provider). Indicative layout and elevation drawings of the onsite substation are provided in **Figures 3.7** and **3.8**. It will be constructed and finished in accordance with details to be approved by SIC through an appropriately worded condition.

3.3.35 A temporary construction compound, approximately 50 m by 60 m, will be located adjacent to the onsite substation to allow the construction of the onsite substation. The temporary construction compound will be removed and the land reinstated following completion of construction.

Meteorological Monitoring Mast

3.3.36 A permanent onsite meteorological monitoring mast will be required to monitor wind speeds for the operational life of the Proposed Development. It is expected that the mast will be of a height no greater than 80 m and will be situated on a reinforced concrete foundation of approximately 5 m by 5 m (refer to **Figure 3.9**).

3.3.37 The final location and height of the meteorological mast will be determined in consultation with the confirmed wind turbine manufacturer prior to construction of the Proposed Development. It is proposed that these details and any requirements for aviation lighting will be addressed through an appropriately worded condition.

Temporary Construction Compounds

3.3.38 Four secure, temporary construction and material storage compounds will be required during the construction period. This will comprise a specific substation construction compound adjacent to the onsite substation and three further temporary construction compounds for construction of the rest of the Proposed Development. The locations of these compounds are shown in **Figures 1.2a-e**.

3.3.39 The primary compound is construction compound 1 located at the southern point of the site boundary adjacent to the A968. The compound will be an area of approximately 100 m by 100 m. Construction compounds 2 and 3 will be smaller, approximately 50 m by 50 m. Construction compound 2 will be located between turbines T27 and T28 and construction compound 3 will be located between turbines T3 and T6.

3.3.40 The compounds will house temporary portable cabin structures to be used as the main site office and welfare facilities, including toilets, clothes drying and kitchen, and provision for sealed waste storage and removal. This area will also be used for the storage and assembly of turbine components, parking for vehicles, containerised storage for tools and small parts, and oil and fuel storage.

3.3.41 The compounds and site office areas will be floated using the same methodologies as for the site access tracks. The temporary construction compounds will be removed and the land will be restored following completion of the construction phase.

3.3.42 The detailed location, size and engineering properties of the construction compounds will be confirmed prior to the start of construction, after the turbine supplier and model have been confirmed.

Temporary Potential Borrow Pit Search Areas

3.3.43 To minimise the volume of imported material brought onto the site and any associated environmental impact, borrow pits located within the site will be used to source stone for track construction. A borrow pit is an area where material has been excavated for use at another location.

3.3.44 Nine potential temporary, borrow pit search areas have been identified and it is proposed that the actual borrow pit(s) would be located within these search areas. The location of the search areas is shown on **Figure 1.2a-e.**

3.3.45 Detailed site investigations will be carried out prior to construction to confirm the rock type, rock characteristics and suitability, as well potential volumes to be extracted from the search areas. The final borrow pit(s) identified during the geotechnical evaluation will be defined within the Construction Environmental Management Plan (CEMP) (refer to Section 3.4 below). The pollution control measures to be implemented during usage of the borrow pit(s) and its reinstatement will also be covered within the CEMP.

3.3.46 The borrow pit(s) will require the use of plant to both win and crush the resulting rock to the required grading. It is anticipated that rock will be extracted by breakers and other relevant methods that may be required. Noise associated with stone extraction is discussed in Chapter 8 (Noise).

3.3.47 Environmental considerations have influenced the location of the borrow pit search areas to minimise the effect on ecology, hydrology and landscape, and to allow successful reinstatement measures to be put in place as appropriate. Following construction, the borrow pit(s) will be restored and reinstated to agreed profiles. Further details on the borrow pits can be found in Appendix 3.2.

3.4 Construction

3.4.1 The estimated onsite construction period for the Proposed Development is expected to take approximately 24 months and includes a programme to reinstate all temporary working areas. Normal construction hours will be between 07:00 and 19:00 Monday to Friday and 08:00 to 18:00 at weekends. These times have been chosen to minimise disturbance to local residents and if required to be restricted this will be agreed with SIC by an appropriately worded condition. Details of the construction programme will be provided to SIC in the CEMP prior to the commencement of construction.

3.4.2 Turbine installation may occur outwith the working hours outlined above in order to avail of available weather windows. Any construction outwith these hours will be in line with the noise restrictions as assessed in Chapter 11 (Noise) and advance warning of any works outwith the normal working hours will be provided to SIC and local residents.

3.4.3 The construction programme will consist of the following principal operations, listed sequentially wherever possible. The Proposed Development will likely be phased so that certain activities will take place concurrently:

- construction of the primary temporary site compound and establishment of a storage area for wind farm components and temporary site facilities;
- construction of access tracks, including construction of watercourse crossings, and excavation of cable trenches;
- construction of wind turbine foundations, crane pad hardstanding areas, met mast and substation;
- cable laying;
- erection of wind turbines;
- connection of on-site electrical power and signal cables;
- commissioning of the site equipment; and
- site reinstatement and restoration of temporary works areas.

3.4.4 The main materials likely to be required in part or total for the construction of the track, turbine and control building foundations, hardstanding areas and cable trenches are described below:

- crushed stone;
- geotextile;
- cement;
- sand;
- concrete quality aggregate;
- steel reinforcement; and
- electrical cable.

3.4.5 It is proposed that the concrete required for the foundations will be batched on-site at the temporary construction compounds. Mitigation measures to ensure the protection of watercourses and habitats from the batching of concrete are detailed in Chapter 10 (Geology, Peat, Hydrology & Hydrogeology).

3.4.6 Should surface water run-off or groundwater enter the excavation during construction, appropriate pumping measures to divert the water run-off away from watercourses will be taken to ensure the works are safely carried out and the excavation is sufficiently dry to allow concrete placement. Once the concrete is cast, the excavated material will be used for backfill and compacted to the required design density. Once this backfill is completed, the hardstanding areas will be constructed.

3.4.7 The proposed method for constructing the wind turbines is as follows. The turbines will be erected using a large mobile crane or crawler crane, positioned on the hardstanding adjacent to the turbine base. A smaller tail crane will be positioned adjacent to the delivery position of the turbine components. The two cranes will lift the tower sections and blades into their assembly positions, and the main crane will lift the tower sections, nacelle and blades into their operational positions.

3.4.8 As soon as practical, once installation is complete, the immediate construction area will be restored to its original profile, although the crane hardstanding's will be retained for future maintenance. The topsoil and peat will be replaced and reseeded where appropriate and as advised by an onsite Environmental Clerk of Works (ECoW). The ECoW will be responsible for pre-construction surveys and will be onsite through construction and post-construction as required. Further details of their role will be provided in the CEMP.

Traffic and Transportation

3.4.9 A detailed Transport Assessment is provided within Chapter 11 (Traffic and Transport) of this EIA Report.

3.4.10 Construction traffic associated with the construction and maintenance of the Proposed Development falls into two categories, namely Abnormal Indivisible Loads (AIL) and Construction/Maintenance Loads. Details of both types of vehicles are as follows:

- AILs:
  - wind turbine blade transporter;
  - nacelle/tower section transporter;
  - assembly crane; and
  - transformer transporter.
- Construction/Maintenance Loads:
  - 4-axle large tipper Heavy Goods Vehicle (HGV);
  - standard low loader; and
  - land rover/transit vans, general personnel transport.

3.4.11 Preferred access routes are detailed in Chapter 11 (Traffic and Transport).

3.4.12 The abnormal loads are those that will require an escort, either by private contractor or by police escort. Construction/maintenance loads are those that do not require any special escort or permissions and are only influenced by normal traffic regulations.

3.4.13 The Applicant will ensure that the vehicles will be routed as agreed with SIC and Transport Scotland, to minimise disruption and disturbance to local residents. Further details regarding transport and access can be found in Chapter 11 (Traffic and Transport) of this EIA Report.

Pollution Prevention and Health & Safety

3.4.14 Prior to commencement of construction activities, a pollution prevention strategy, contained within a CEMP, will be agreed with SEPA to ensure that appropriate measures are put in place to protect watercourses and the surrounding environment. Further details regarding the contents of the CEMP are provided later in this chapter.

3.4.15 As with any development, during the construction stage there is the potential for threats to the quality of the water environment in waterbodies, watercourses and local ditches. These mostly arise from poor site practice so careful attention will be paid to the appropriate guidance and policies to reduce the potential for these to occur (refer to Chapter 10 (Geology, Peat, Hydrology & Hydrogeology) for further details)

3.4.16 Any fuel or oil held on site will only be of an amount sufficient for the plant required. This will be stored in a bunded area and an oil interceptor will be installed in the construction compounds to prevent pollution in the event of a spillage. There will be no long term storage of lubricants or petrochemical products on-site at the Proposed Development.

3.4.17 High standards of health and safety will be established and maintained. At all times, all activities will be undertaken in a manner compliant with applicable health and safety legislation and with relevant good practice as defined under applicable statutory approved codes of practice and guidance.

3.4.18 Further details of site specific storage and management of fuel and oil and protection of watercourses during construction is presented in Chapter 10 (Geology, Peat, Hydrology & Hydrogeology).

Construction Environmental Management Plan (CEMP)

3.4.19 As part of the construction contract, the Applicant will produce, and adhere to, a CEMP. The CEMP shall be developed in accordance with the joint Scottish Renewables, SNH, SEPA, Forestry Commission Scotland and Historic Environment Scotland guidance on Good Practice During Windfarm Construction (2015).

3.4.20 The CEMP shall describe how the Applicant will ensure suitable management of, but not limited to, the following environmental issues during construction of the Proposed Development:

- noise and vibration;
- dust and air pollution;
- surface and ground water;
- ecology (including protection of habitats and species);
- agriculture (including protection of livestock and land);
- cultural heritage;
- waste (construction and domestic);
- pollution incidence response (for both land and water); and
- site operations (including maintenance of the construction compound, working hours and safety of the public).

3.4.21 The Applicant shall provide the following for integration within the CEMP:

- details of the all the environmental mitigation which is described within this EIA Report (refer to Chapter 17 (Schedule of Environmental Commitments)) that is required during construction of the Proposed Development, and of how the Applicant will implement this mitigation and monitor its implementation and effectiveness;
- details of how the Applicant will abide by the local and national legislative requirements e.g. The Water Environment (Controlled Activities) (Scotland) Regulations 2011 (amended 2013);

- details of how the Applicant will implement and monitor construction best practice techniques e.g. the control of noise and dust;
- details of a Peat Management Plan, following the principles set out in the joint Scottish Renewables and SEPA guidance on the assessment of peat volumes, reuse of excavated peat and the minimisation of waste' (Scottish Renewables and SEPA, 2012) (an outline Peat Management Plan is provided in Appendix 10.3);
- details of a Waste Management Plan which will include opportunities to reduce and re-use waste on site, recycling of waste which cannot be reused and disposal of waste to landfill; and
- details on how the Applicant will liaise with the public and local landowners and how they will respond to any queries and/or complaints.

3.4.22 The Applicant shall consult with SNH, SEPA, Historic Environment Scotland and SIC on the relevant aspects of the CEMP. The Applicant shall amend and update the CEMP as required throughout the construction and decommissioning period.

3.4.23 The CEMP shall, where applicable, cross-reference and correspond with the Construction Traffic Management Plan (CTMP). The CTMP will detail the management of traffic to and from site, including abnormal loads and daily workers commute. It shall also include mitigation for impacts to public transport, local private access and public foot paths. The Applicant shall amend and update the CTMP as required throughout the construction and decommissioning period.

3.4.24 Specific requirements of the CEMP for each of the environmental topics assessed in the EIA are provided in the relevant EIA Report chapters.

3.5 Operation and Maintenance

3.5.1 During operation, only site maintenance vehicles and local utility company vehicles will normally be required on the site. Daily visits to the control building by maintenance personnel in four-wheel drive or conventional passenger vehicles will occur following the commissioning phase.

3.5.2 Any diesel or oil stored on-site will be held within an appropriately bunded location within the onsite substation building.

3.5.3 Health and safety will also be controlled as in the construction phase, as set out above in 3.4.17.

3.5.4 In the unlikely event that a major turbine component requires replacement, vehicles delivering the components will use the new access tracks and crane pads, utilising the same route as delivery of components during construction.

Operation Environmental Management Plan

3.5.5 The Applicant will implement an Operation Environmental Management Plan (OEMP). Similar to CEMP the OEMP will set out how the Applicant will manage and monitor environmental effects throughout operation. The OEMP will be developed in consultation with SNH, SEPA and SIC and will include but not be limited to:

- details on the track, water crossings and turbine maintenance;
- the control and monitoring of noise;
- the control and monitoring of surface and groundwater;
- a pollution prevention plan and a pollution incidence response plan;
- details of how the Applicant will abide by the local and national legislative requirements e.g. The Water Environment (Controlled Activities) (Scotland) Regulations 2011;
- an operational Peat Management Plan; and
- a Habitat Management Plan and relevant protected species management plans.

3.6 Decommissioning

3.6.1 The operational lifespan of the Proposed Development would be approximately 30 years, after which it would be appropriately decommissioned. It is expected that decommissioning would take approximately twelve months. The environmental effects of decommissioning are considered to be no greater than construction effects but experienced over a much shorter time period.

3.6.2 During the decommissioning phase, vehicles would access the site by the same routes used for delivery and construction.

3.6.3 Either the restored temporary construction compound would be re-established or a new construction compound would be developed as agreed with SIC at the appropriate time, to temporarily store decommissioned plant and equipment. The nacelles and blades would be removed using cranes situated on the crane pads as previously constructed. The towers would then be dismantled.

3.6.4 All components would be removed from the site for disposal and/or recycling as appropriate and in accordance with regulations in place at that time.

3.6.5 If required, exposed parts of the concrete foundations would be ground down to below sub-soil level, however, the remaining volume of the foundations would remain in situ. It is considered that leaving in situ will cause less environmental impact than that of complete removal.

3.6.6 The land used for the turbine base areas, onsite access tracks, temporary compounds and crane pads would be returned to its previous use unless further consents were granted to retain or vary the use of these elements of the Proposed Development.

3.6.7 If, after the operational lifespan of the Proposed Development has expired, there is potential for repowering the Proposed Development, for example by installing new nacelles, blades or other components, this would be subject to a separate consenting process.

3.6.8 The CEMP will be updated prior to decommissioning by the Principal Contractor to reflect current legislation and policy and will be agreed with SIC, SNH, SEPA and Historic Environment Scotland.

3.7 References

Renewable UK (2019). *UKWED Figures Explained*. Available at: http://www.renewableuk.com/page/UKWEDExplained

Scottish Government (2011). *The Water Environment (Controlled Activities) (Scotland) Regulations 2011*. Available at: http://www.legislation.gov.uk/ssi/2011/209/contents/made

Scottish Government (2014). *Scottish Planning Policy*. Available at: http://www.gov.scot/Publications/2014/06/5823

Scottish Renewables and SEPA (2012). *Developments on Peatland: Guidance on the assessment of peat volumes, reuse of excavated peat and the minimisation of waste*. Available at: http://www.scottishrenewables.com/publications/guidance-assessment-peat-volumes-reuse-excavated/

Scottish Renewables, Scottish Natural Heritage, SEPA, Forestry Commission Scotland and Historic Environment Scotland (2015). *Good practice during wind farm construction, 3rd edition*. Available at: http://www.snh.gov.uk/docs/A1168678.pdf

SEPA (2010). Engineering in the water environment: good practice guide. River Crossings. 2nd Edition. Available at: https://www.sepa.org.uk/media/151036/wat-sg-25.pdf

Specification for Highway Works (2016). Volume 1, Series 0800: Road Pavements – Unbound, Cement and other Hydraulically Bound Mixtures. Available at: http://www.standardsforhighways.co.uk/ha/standards/mchw/vol1/pdfs/MCHW%20800.pdf