TABLE OF CONTENTS

TABLES

2 PROPOSED DEVELOPMENT AND DESIGN EVOLUTION

2.1 Introduction

2.1.1 This chapter provides an overview of the Proposed Development, outlines its purpose, and describes the Site and its context. It also discusses layout and design considerations, including how the design has evolved. In addition, the chapter explains how potential environmental effects identified early in the Environmental Impact Assessment (EIA) process, and through assessments undertaken by the EIA team, have influenced the design of the Proposed Development.

2.1.2 In addition, the chapter explains how potential environmental effects which have emerged early in the EIA process, and through the studies by the EIA team, have informed the design of the Proposed Development.

2.1.3 The Proposed Development is for a renewable energy development that comprises a generating station incorporating up to 7 onshore wind turbines of up to 149.9 m to tip and associated infrastructure with a generating capacity of between 30 - 40 Megawatts (MW)[1].

2.2 Site Description and Context

2.2.1 The Site as shown on **Volume 3a, Figure 1.1** currently contains the existing Beinn Ghlas Wind Farm (hereafter, the Wind Farm), comprising 14 wind turbines (approximately 54.1 m to blade tip), each with a capacity of 600 kilowatts (kW) providing an overall installed capacity of 8.4 MW. The Wind Farm has been operational since May 1999. In June 2022, an application to extend the life of the Wind Farm (ref: 21/00870/PP) was approved to allow the Wind Farm to operate to August 2033[2].

2.2.2 The Site comprises low, rugged hills, scattered with small outcrops of rocks and scoured with steep sided streams. There is open moorland, predominantly upland heath and mires including bog pools on the higher ground and a mixture of rough grassland and woodland on the lower slopes.

2.2.3 Within the surrounding area there is a combination of native deciduous woodland and commercial coniferous forestry to the north and southeast of the Site. There is evidence in the wider area of cultivated land and improved grazing but generally the land has been used non-intensively.

2.2.4 A habitat management area was established and remains to the west of the Wind Farm to improve grouse habitat on the Duntanachan Estate. This area was required by Section 75 Agreement as part of the proposal for the Wind Farm in 1998. The purpose was to increase grouse densities on the Duntanachan Estate to encourage the Beinn Ghlas

[1] A figure of 33.6 MW which assumes a wind turbine of 4.8 MW has been used for relevant calculations.

[2] https://publicaccess.argyll-bute.gov.uk/online-applications/applicationDetails.do?activeTab=summary&keyVal=QRVGM8CHJ6900 (A&BC Reference: 21/00870/PP)

golden eagles away from the Wind Farm area, which would help offset any effects from the Wind Farm on the eagles.

2.2.5 Monitoring surveys continue to be undertaken in relation to the existing habitat management area and the area remains fenced to encourage ongoing enhancements of the habitat to support prey for Golden Eagle.

2.2.6 Areas proposed for habitat enhancement are proposed in the Outline Biodiversity Enhancement and Habitat Management Plan: **Volume 4, Technical Appendix 6.10.**

2.2.7 The nearest settlements to the Site are the town of Oban and village of Taynuilt, which are approximately 12 kilometres (km) and 4 km respectively from the Site. Both are predominantly separated from the Site by a range of hills to the south of Loch Etive.

2.2.8 The Site context is shown on **Volume 3a, Figures 1.2** and **1.3** and nearby environmental designations are illustrated by **Volume 3a, Figure 2.1**.

2.3 Site Selection

2.3.1 There are several criteria used by the Applicant to assess the appropriateness of sites for the development of onshore wind projects. These include:

- suitable wind conditions;
- feasibility of access for abnormal indivisible loads (AIL);
- favourable topography and access to enable the construction of projects;
- planning policies which support the development of renewable energy;
- avoidance of environmental constraints (where possible) (see **Volume 3a, Figure 2.2 and Figure 2.2a – Figure 2.2d**); and
- avoidance of the most sensitive landscapes.

2.3.2 The Site has already been found to be suitable for a wind farm since 1999 for a range of reasons which included high average wind speed and access to grid infrastructure. The Site is not located within any area of national environmental importance, and through the undertaking of various technical assessments (including but not limited to feasibility assessments, ecology, ornithology, peat and landscape and visual studies since 2020) it was considered that the Wind Farm could be repowered with limited environmental effects.

2.3.3 The Applicant undertook a thorough site design process involving constraints mapping, site visits and continual review of technical, environmental, habitat management and planning considerations. Design iterations have taken place over several years and have developed in response to environmental data, new policies, economic conditions and consultee response and advice. Through balancing site-specific constraints with the scale of development required to be economically viable, the Applicant considers that the Proposed Development provides the best use of the Site with respect to the potential renewable electricity generating capacity achieved through repowering balanced against the potential environmental and other effects.

2.4 Layout and Design Considerations

2.4.1 This section outlines the environmental and technical constraints which were taken into account during the design evolution described in **Section 6**.

2.4.2 The design of the Proposed Development has been driven by the objective of positioning the turbines and associated infrastructure so that they capture the maximum wind energy within a suitable area, whilst taking into consideration and minimising potential impacts on environmental and technical constraints where possible.

2.4.3 The key constraints to site design, which were assessed during the design, scoping and pre-application process included:

- Landscape and visual impacts;
- Proximity to residential properties, particularly in relation to noise-sensitive receptors;
- Ground conditions, including slope gradients and peat presence;
- Existing forestry;
- Access feasibility;
- Presence of ornithological interests, protected habitats (including peatland habitats), and sensitive species;
- Local topography, including watercourses, hydrology, and existing land use;
- Presence and safeguarding of cultural heritage features;
- Proximity to telecommunications infrastructure;
- Compatibility with aviation interests;
- Re-use of existing infrastructure as far as practicable; and
- Key recreational and tourism routes.

Key Considerations

2.4.4 Constraints analysis was undertaken using Geographical Information Systems (GIS). A project-specific workspace, based on ArcGIS Online, was developed specifically for the Proposed Development. This allowed base-mapping to be overlaid with spatial data, such as environmental constraints and protected sites, and project-specific data to provide the project team with a means of interrogating environmental and project details in a single place at technical meetings and design workshops.

2.4.5 Onsite constraints can be seen in further detail on **Volume 3a, Figure 2.2, 2.2a and 2.3**. In addition to the application of GIS, 3D Civils (a 3D civil infrastructure design service) was used to assist in the constraints mapping and design of the Proposed Development. This allowed for greater inspection of topography and visual aspects.

Wind Analysis

2.4.6 For turbines to work as effectively as possible, they must be suitably spaced relative to the predominant wind direction. If they are too close together in this direction, the wake effects from the wind turbines located on the upwind edge of the array would create turbulent air for the next row and so on through the array, reducing overall energy output. Additionally, turbulent air increases the strain placed on the turbines, which could shorten their operational lifespan. Conversely, if wind turbines are located too far apart, the

opportunity to maximise the capacity and, thereby, electricity generation from a site is reduced.

Landscape Character and Visual Amenity

2.4.7 The landscape and visual environment of the Proposed Development has been a key consideration throughout the design process. Landscape and visual constraints do not generally constitute technical or 'hard' restrictions to development but are rather 'design considerations' that inform the layout design process.

2.4.8 The effects of the Proposed Development in relation to the above considerations, along with considerations across the wider study area are set out in **Volume 2, Chapter 5: Landscape and Visual Impact Assessment** (LVIA) of the EIA report. This includes a range of viewpoints that represent the appearance of the Proposed Development from key landscape and visual receptors.

2.4.9 A Design and Access Statement also accompanies the application and explains the iterative process of design and describes how the final layout of the Proposed Development has taken the above considerations into account.

Ecology and Ornithology

2.4.10 Ecological surveys have been carried out across the Site and surrounding area from 2020 to 2025, including a Phase 1 habitat survey, a National Vegetation Classification Survey, a Peatland Condition Assessment and assessment of potential groundwater dependent terrestrial ecosystem, fish habitat survey, and protected species surveys (including bats, pine marten, badger, otter, red squirrel and freshwater pearl mussel). Sensitive and protected ecological features and appropriate buffers have been avoided. Sensitive habitats within the Site have been avoided where possible, or where unavoidable the potential impacts reduced as far as practicable. Through careful design, areas of priority peatland habitat have been avoided where possible and remaining impacts on peatlands minimised. The recommended habitat standoff distances from blade swept path to key habitat features have been incorporated into the design.

2.4.11 Ornithology surveys supported by surveys for the operational Wind Farm have been carried out across the Site and surrounding area since 2000, including eagle monitoring, flight activity surveys; black grouse surveys, scarce breeding bird surveys (for raptors and divers listed in Schedule 1 of the Wildlife and Countryside Act 1981 and Annex 1 of the EU Birds Directive), moorland breeding bird surveys, winter walkovers for non-breeding birds and eagle monitoring surveys. Suitable buffers were considered during the design evolution process and areas have been avoided owing to the presence of sensitive bird populations which has led to a reduction in the number of turbines proposed.

2.4.12 Proposed habitat enhancement measures form an integral part of the Proposed Development and will include peatland restoration and riparian woodland creation. This will not only support the local biodiversity but will support Scotland's commitment of reaching net zero emissions by 2045 and thereby tackling the climate change emergency.

2.4.13 Ecology and Ornithology is discussed further in **Volume 2, Chapter 6: Ecology** and **Chapter 7: Ornithology.**

Noise

2.4.14 Construction noise has been assessed by a desk-based study of a potential construction programme (including the decommissioning of the existing wind turbines) and by assuming the Proposed Development is constructed using standard and common methods. Noise levels have been calculated for receiver locations closest to the areas of work and compared with guideline and baseline values. Factors including in particular the restrictions of hours of working have been taken into consideration.

2.4.15 Noise levels from operation of the turbines have been predicted for those locations around the site most likely to be affected by noise. Noise limits have been derived following the simplified assessment method stipulated in national planning guidance given the relatively large separation distance of approximately 1.9 km or more between the turbines and the nearest Noise-Sensitive Receptors (NSRs).

2.4.16 Wind developments within 5 km have been considered in the cumulative assessment. Other, more distant wind farms were not considered as they do not make an acoustically relevant contribution to cumulative noise levels. Predicted operational noise levels have been compared to the limit values to demonstrate that turbines of the type and size which would be installed can operate within the limits so derived. The noise assessment concludes that operational noise levels from the Proposed Development will be within levels recommended in national guidance for wind energy schemes.

2.4.17 The potential noise effects of the Proposed Development are addressed further in **Volume 2, Chapter 11: Noise and Vibration.**

Forestry

2.4.18 No forestry associated impacts are anticipated from any of the proposed wind turbines onsite, as these are sited outwith woodland areas. Nevertheless, due to the proposed widening of the access road, running through Fearnoch Forest and at the existing site access junction from Glen Loan Road, to accommodate the delivery of abnormal loads from the anticipated port of entry, the Proposed Development will impact upon a small area (approximately 1.61 ha) of woodland resulting in the felling of trees.

2.4.19 The areas of forestry that would be affected to facilitate the Proposed Development are shown in **Volume 4, Technical Appendix 13.1: Forestry Site Visit** along with site survey results and photography. Forestry issues and compensatory planting requirements are discussed further in **Volume 2, Chapter 13: Other Issues**. Additionally, enhancement measures have been identified and are proposed as part of the habitat enhancement measures reported in **Volume 2, Chapter 6: Ecology,** and discussed further in the **Technical Appendix 6.10.**

Telecommunications

2.4.20 Consultation was undertaken with the relevant telecommunication link operators to provide an understanding of the telecommunications links within the vicinity of the Site and to enable operators to advise their position with respect to the Proposed Development. Telecommunications are discussed further in **Volume 2, Chapter 13: Other Issues**.

Aviation

2.4.21 Consultation was undertaken with the relevant aviation consultees to identify whether the Proposed Development would have an impact on aviation interests. Aviation is discussed further in **Volume 2, Chapter 13: Other Issues**.

2.5 Consideration of Alternatives

2.5.1 With respect to the Proposed Development, the alternatives considered were as follows:

- different turbine and infrastructure layouts/locations within the Site;
- alternative turbine heights/dimensions; and
- different access routes to and from the Proposed Development site in terms of delivery of AIL.

2.5.2 The design and layout of the Proposed Development was adapted and altered in response to environmental constraints and consultation feedback. The environmental features which constrain the Site are illustrated by **Volume 3a, Figure 2.2**. The Proposed Development went through a series of five design iterations. Each of these layouts are shown on **Volume 3a, Figure 2.4** and a summary of the layout iterations is included in **Section 2.6**.

2.6 Design Evolution and Development of the Preferred Option

2.6.1 The Proposed Development has undergone six principal iterations of the initial layout (Layout A) which have been developed at different stages in the project design process:

- **Layout A** – 20 turbine initial layout, each with a maximum height to blade tip of 180 m, representing a layout which considered basic onsite constraints only.
- **Layout B** – 18 turbine Scoping layout, each with a maximum height to blade tip of 180 m, representing a layout that avoided the northern edge of the site to minimise landscape impact and to avoid ornithology constraints;
- **Layout C** – 14 turbine layout, each with a maximum height of 149.5 m to blade tip, informed by detailed landscape appraisal and early results of onsite surveys and consultant inputs;
- **Layout D** – 12 turbine refined layout with a maximum height of 149.5 m for public consultation informed by the presence of ornithological constraints with a track layout designed to minimise impact on ecological constraints; and
- **Layout E** – 11 turbine refined layout with a maximum height of 149.5 m, including reflecting further baseline environmental surveys, alongside further design of ancillary infrastructure.
- **Layout F** – 7 turbine refined layout with a maximum height of 149.9 m, accounting for protected ornithology species.

2.6.2 Design iterations (A to F) are shown on **Volume 3a, Figure 2.4**.

Layout A – Initial Layout

2.6.3 An initial layout was identified following initial feasibility work undertaken by the Applicant. The initial layout contained the maximum of 20 turbines with a maximum height to blade tip of 180 m that was identified could fit onto the site within the parameters of basic on-site constraints, such as watercourses, environmental designations and steep slopes. Early on in the design process, turbines at the greater height of 200 m were also considered in detail with comparative visual appraisals. It was decided, as a result of this exercise, that 180 m tip height turbine should be looked at further.

Layout B – Scoping Layout

2.6.4 The scoping layout contained 18 turbines with a maximum blade tip height of up to 180 m. These turbines were distributed across the site and represented a slightly reduced number of turbines from the maximum of 20 turbines that was identified could fit onto the site within the parameters of basic onsite constraints (as discussed above).

2.6.5 The location and sensitivity of all identified environmental receptors were mapped in this iteration, and appropriate buffers around them were agreed between the technical specialists and project engineers as a result of desk studies and field surveys. The following design principles and buffers were applied during this design iteration:

- 50 m buffer from watercourses;
- appropriate turbine separation distances;
- 30 m buffer from designated heritage assets of medium importance and 10 m buffer from non-designated heritage assets;
- avoidance of areas of deep peat (>1 m depth);
- avoidance of development on slopes greater than 15 % gradient; and
- avoidance of the most sensitive habitats and sensitive ornithology species.

Layout C

2.6.6 The omission of two turbines was recommended following early consideration of landscape and visual matters in order to reduce potential effects upon nearby residents and landscape and visual effects in locations to the north and west. In addition, it was recommended that, if feasible, the height of proposed turbines be kept below the 150 m threshold at which aviation lighting is required.

2.6.7 A design workshop was held with technical specialists to present a new design with alternative track layout comprising a 16 turbine layout with the purpose of achieving an improved layout of turbines (with consideration given to other infrastructure and wind turbine tip height).

2.6.8 Concerns were raised regarding the likely impacts to peatland habitat and groundwater dependent terrestrial ecosystems (GWDTE). This resulted in modifications to the track layout to mitigate impacts on near natural blanket bog/highly dependent GWDTE.

2.6.0 When the landscape and visual appearance of Layout C was reviewed, it became apparent that the distribution of the turbines across the site was leading to a development that extended widely across some views, with notable variations in the ground levels of the turbine bases and with some turbines appearing as outliers from some locations. In some instances, the arrangement of turbines also led to clustering and overlapping of turbines. This resulted in the removal of two turbines to create a 14-turbine layout. Ornithology constraints were also considered when developing this layout.

Layout D

2.6.1 Further technical appraisal (including consideration of ornithological constraints) of the arrangement and appearance of the proposed turbines was undertaken. This

recommended that the Proposed Development be focussed in the southern parts of the site, with turbines removed from the northern and western areas. This resulted in the removal of two turbines which appeared as outliers visually. This represented the layout (including track design) taken forward for public consultation.

Layout E

2.6.2 Landscape and visual issues were considered throughout the design iteration process, with the layout being tested against the LVIA viewpoints to ensure that effects mitigated in Layout C were not increased by the movement of turbines.

2.6.3 Further survey work comprised a further peat depth survey, and an archaeological desk based review followed by a walkover survey. A review of Layout E by the construction design and management (CDM) principal designer and lead engineer was conducted.

2.6.4 A second design workshop was held to review Layout D and to identify locations for additional ancillary infrastructure, a temporary construction compound, and other considerations. This led to a chilled layout being identified to be taken forward for further review.

2.6.5 The Phase 2 Peat Survey further covered the chilled turbine layout indicative track, and ancillary infrastructure for deep peat. Some micrositing was undertaken to ensure that turbines and ancillary infrastructure were placed outwith pockets of peat >1 m depth and avoided priority habitats.

Layout F – Final Layout

2.6.6 The final layout including ancillary infrastructure is shown on **Volume 3a, Figure 2.5**. The final site layout reflects the primary design driver to reuse existing infrastructure as far as practicable to reduce potential for disturbance while balancing this with the need for a technically feasible design that is sensitive to environmental receptors.

2.6.7 Through the removal of four turbines, it is considered that the final layout has avoided and/or reduced impacts on sensitive onsite constraints, such as important habitats and sensitive ornithological constraints, and is more compact, resulting in less habitat loss overall and a better appearance in views towards the site.

2.6.8 At this point due to the application being below 50 MW, it was established that the application would need to be progressed in accordance with the Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017 and not as a S36 application which would involve a planning submission to Scottish Ministers.

2.6.9 Individual technical assessment chapters in the EIA Report refer to design input in further detail and respond to specific matters.

2.7 The Proposed Development

Key Components

2.7.1 The Proposed Development infrastructure would comprise the following components:

- Up to seven wind turbines of approximately 4.8 MW each, with a maximum blade tip height of up to 149.9 m;

- Hardstanding areas at the base of each turbine, with a permanent area of approximately 1,400 m^2;
- Upgrading of four existing road junctions to support construction and abnormal road traffic;
- Upgrading of forestry tracks from the A85 through Fearnoch Forest, Glen Lonan Road (C32) and existing wind farm access track to accommodate the delivery of abnormal loads to the site and use of existing track for access to the first construction compound. An internal network of new onsite access tracks and upgrade of existing Wind Farm access track. The total length of the Site Access and Internal Access Tracks would be approximately 12.83 km of which 2.71 km is new access track (1.6 km floating) with associated new watercourse crossings and 8.52 km is existing access track and watercourse crossings which would need to be upgraded. In total there would be 4 new watercourse crossings and 22 existing crossings;
- Upgrading of the existing onsite sub-station/control building;
- Transformers and underground cables to connect the turbines to the onsite substation;
- Permanent anemometry mast for wind monitoring, including associated foundation and hardstanding;
- Telecommunications equipment;
- Concrete batching plant;
- Preliminary temporary construction compound; and
- Temporary construction compound.

Outline Biodiversity Enhancement and Habitat Management Plan

2.7.2 A number of biodiversity enhancement measures are proposed as part of the Proposed Development's OBE-HMP. The OBE-HMP includes provisions for the protection, maintenance, restoration and creation of habitats locally through the implementation of seven discrete 'objectives' for which work packages and methods have been identified. This is discussed in greater detail in **Technical Appendix 6.10**.

Wind Turbines

2.7.3 The candidate turbine model to be installed as part of the Proposed Development would be selected through a competitive procurement process. However, blade tip height would not exceed 149.9 m. Indicative elevations are shown on **Volume 3a, Figure 2.6**. In the EIA, a worst-case scenario of the turbine dimensions/characteristics was used. Grid references for the proposed turbines are identified in **Table 2.1**.

Table 2.1: Proposed Turbine Locations

Turbine	Easting	Northing
T01	198584	725789
T02	198159	725467
T03	197686	725693
T04	197136	725538
T05	197919	726322
T06	197367	725942
T07	197633	726580

2.7.4 The proposed turbine locations and ancillary infrastructure would be subject to a proposed maximum micrositing tolerance of 50 m in any direction. This tolerance allows for minor changes in turbine or infrastructure location to respond to possible variations in ground conditions across the site, which will be confirmed following detailed site investigation work carried out prior to construction. Any movement of turbines or other infrastructure from the Proposed Development layout (shown in **Volume 3a, Figure 2.5**), outwith the micrositing tolerance, would be agreed with Argyll & Bute Council (A&BC) prior to construction, in accordance with the mitigation measures set out in this EIA Report. It is acknowledged that that the agreed micrositing distance may form a planning condition accompanying consent for the Proposed Development.

2.7.5 Each turbine would be expected to have an associated transformer, located either internally or externally to the turbine. External transformers would be located within weather-proof housing which would have indicative dimensions of 10 m(l) x 5 m(w) and 4 m(h). Transformer housing would be colour finished to blend in with the surrounding landscape.

Turbine Design

2.7.6 The turbines would be three bladed, horizontal axis turbines with solid tubular towers. The final colour and finish of the wind turbine blades, nacelles and towers would be subject to agreement with A&BC and controlled through a condition should consent be granted. However, turbine blades would likely be made from reinforced composite materials such as fibreglass or carbon spar with glass fibre air foil shells and the towers would consist of steel.

2.7.7 The proposed turbines would likely be of a semi-matt finish with a mid-grey colour. Although, off-white has been an accepted colour for turbines, more recently constructed wind turbines have been a mid-grey tone, which reduces the distance over which turbines are visible, especially in dull weather or low light conditions. The choice of material and colour for the proposed turbines is an important consideration in terms of visual impact.

Turbine Foundations

2.7.8 Turbine foundations would be dependent upon site-specific ground conditions at the turbine locations and the type of turbine chosen. However, it is envisaged that installation

of the turbines using a steel reinforced concrete base (gravity foundation) would be suitable.

2.7.9 The concrete gravity foundations would be located underground. Therefore, a quantity of earth and rock would need to be removed. The amount of earth to be removed would depend upon site-specific ground investigations at each turbine location. Topsoil, peat and other material would be removed from the foundation area and stored so that it may be used later for reinstatement. Indicative details on construction requirements and metrics are discussed and analysed further **Volume 2, Chapter 13: Other Issues**, and **Technical Appendix 13.4: Carbon Calculator.** The Peat Management Plan (**Volume 4, Technical Appendix 8.3**) sets out options for reuse of the excavated material and provides guidance on management and handling of excavated peat and soils.

2.7.10 Turbine foundations will be excavated to a depth of suitable bearing strata and sit directly on sub formation or engineering fill with an approximate diameter of 25 m with a circular or octagonal plan shape (see **Volume 3a, Figure 2.7** for indicative turbine foundations). Should geotechnical investigations demonstrate that the required bearing capacities are not achievable, then a piled foundation design would be adopted using the same overall design footprint.

2.7.11 An anchor ring and foundation bolts would be cast into a central column onto which the turbine tower would be fixed. Concrete for the foundations would either be delivered to the Proposed Development in a "ready mix" form or processed in a concrete batching plant located onsite within a construction compound.

2.7.12 For the purposes of this EIA Report, a maximum (worst-case) scenario for turbine foundations of a 3 – 4 m depth and 25 m diameter circular or octagonal footprint has been assumed. The concrete bases would be allowed to cure (i.e., reach its design strength) before turbines are fitted. The specific foundation diameter and working area will be dependent on the final choice of turbine and ground conditions encountered in-situ.

Turbine Erection

2.7.13 The turbine components would be delivered to the relevant storage area for each component, whether it be to a specific turbine hardstanding or to a storage area located at a construction compound, until weather conditions are appropriate for turbine erection. The bottom turbine tower section would firstly be fixed to the anchor ring and foundation bolts embedded into the central column of the foundations, followed by the upper turbine tower sections, all being lifted into place by two cranes (a heavy lifting capacity crane, and a smaller service crane). The cranes would then lift the nacelle into place on the top section of the turbine tower. Blades would then be fitted individually to the rotor hub.

Turbine Hardstanding

2.7.14 Level hardstanding areas are required adjacent to each turbine base for the operation of a heavy lifting capacity crane, and a smaller service crane, used for assembly of the turbine components. These areas may also be considered for use as storage areas for the turbine components where practicable. The hardstandings would have the same general construction method as the turbine access tracks that they adjoin but the specification and thickness will vary depending upon loading requirements.

2.7.15 The cut-and-fill batters required on the hardstandings would be dictated by pre-construction detailed Site Investigation (SI) surveys. In addition to the hardstanding for the main assembly crane, up to two additional temporary crane pads may be required for crane assembly. An indicative crane hardstanding detail is provided in **Volume 3a, Figure 2.8**.

2.7.16 The hardstandings would be constructed using suitable surplus material generated from the construction of the wind turbine bases and construction tracks and processed to the appropriate fill specification requirements. Topsoil and peat would be excavated, and stone laid and compacted to the required depth. The thickness of hardstanding fill would be dependent on the ground conditions at specific locations.

Permanent Anemometer Mast

2.7.17 One permanent self-supporting anemometer mast will be installed to ensure the accurate ongoing measuring and monitoring of wind speed data on the Site. The height of the mast will be the installed wind turbine hub height and an indicative design is provided in **Volume 3a, Figure 2.9**. The mast will be installed at the location show on **Volume 3a, Figure 2.5**. A suitable off-road vehicle shall take components to the site location from the main access track.

Onsite Access

2.7.18 **Volume 3a, Figure 2.5b** shows the indicative track layout, illustrating how the internal track connects turbines with ancillary infrastructure (including the proposed construction compounds) and the Site Access.

2.7.19 The Site access and tracks would be developed to meet the requirements of appropriate guidelines (such as visibility, construction materials, surface water drainage, gradient, and safety of other road users).

Site Entrance

2.7.20 The entrance to the Proposed Development site for vehicles delivering both construction materials and turbine components, such as tower sections and blades, would be from an existing junction with the A85 at Fearnoch Forest to the north of the Site, which would require widening. Site Access junction details are illustrated in **Volume 3a, Figure 2.10a** and discussed further in **Volume 2, Chapter 10: Traffic and Transportation**.

Site Access and Internal Access Tracks

2.7.21 Access to the Site would be taken along the existing forestry track through Fearnoch Forest and then along Glen Lonan Road (C32) before connecting with the existing Beinn Ghlas Wind Farm site entrance. Access junction details on to and off Glen Lonan Road are illustrated in **Volume 3a, Figures 2.10b and 2.10c**. The onsite track network would use the existing Wind Farm tracks where possible, with new sections of tracks required to access certain infrastructure locations. The total length of the Site Access and Internal Access Tracks would be approximately 12.83 km of which 2.71 km is new access track (1.6 km floating) with associated new watercourse crossings and 8.52 km is existing access track and watercourse crossings which would need to be upgraded. Indicative track details are shown on **Volume 3a, Figure 2.11**.

2.7.22 The following objectives were adopted during the track design:

- tracks make use of existing infrastructure and track/disturbed ground where suitable;
- track length is kept to a minimum to reduce construction time, the requirement for stone, land-take, and to reduce associated environmental effects;
- gradients to be kept to acceptable levels to accommodate the requirements of delivery vehicles, including AIL, and to allow construction plant to move safely around the Site;
- tracks are routed to avoid sensitive hydrological, ecological and archaeological features as far as practicable and to keep watercourse crossings to a minimum;
- tracks are routed to minimise tree translocation and/or felling requirements;
- to facilitate safe access to each wind turbine, ground with potential instability and deeper areas of peat has been avoided;
- tracks are designed to minimise the required cut-and-fill quantities;
- horizontal and vertical alignments of tracks are designed in such a way as to comply with turbine supplier requirements, for example minimum turning radius and vertical curvature on both the tracks and hardstandings;
- to build health and safety aspects into track design from an early stage, including avoiding slopes which would be too steep for access and creating clear definitions between turbine working areas and access tracks;
- to minimise watercourse crossings; and
- to avoid disturbance to public access.

2.7.23 The running width of the tracks would be approximately 5 m although there may be some localised widening and a requirement for passing places and laydown areas. The track surface would have a cross fall for the runoff to drain into ditches on the downhill side of the track where necessary. Lateral and cross drains would also be installed, with erosion protection, where required. **Volume 4, Technical Appendix 8.7: Watercourse Crossing Inventory and Infrastructure within 50 m of a Surface Water Feature** sets out the drainage infrastructure required.

2.7.24 Turning heads of sufficient size to accommodate articulated vehicles would also be provided at several locations, as indicated on **Volume 3a, Figure 2.5**.

2.7.25 In general terms, the construction method would see topsoil, including peat, being removed and stored adjacent to the construction area until required for reinstatement. Excavations would continue to expose a suitable horizon or bedrock on which to construct the track. The tracks would be constructed in layers, with a geo-textile membrane if required, overlain by a base of coarse stone, and subsequent layers of higher graded crushed stone. Each layer of stone would be compacted and shaped to provide a profile and surface finish of a quality suitable for the turbine construction vehicles. The estimated depth of stone would be 750 millimetres (mm), though the final thickness used would be dependent on local ground conditions and load capacity.

2.7.26 Tracks used by construction vehicles would be retained throughout the lifetime of the Proposed Development for use by maintenance vehicles.

Floating Track

2.7.27 Where it is not possible to avoid areas of deepest peat, floating track construction would be used. It is anticipated that there would be approximately 1.6 km of floating track, where consistent peat depths of 1.2 m or greater are identified, which is generally where there are shallow gradient slopes (below 5 %).

Underground Cabling

2.7.28 The Proposed Development would comprise underground electric cables which would connect the turbines, the substation and control building compound. The majority of the underground power cables would run parallel to access tracks, connecting each turbine with Supervisory Control and Data Acquisition (SCADA) (the cables being buried in the electrical cable trenches). An indicative cable trench is shown in **Volume 3a, Figure 2.12**.

Watercourse Crossings

2.7.29 As part of the access track construction and associated hardstanding works, 22 new watercourse crossings and 4 existing crossings would be required, locations identified in **Volume 4, Technical Appendix 9.6: Schedule of Watercourse Crossings**. Bridges and bottomless culverts would be used for the main watercourse crossings. Closed culverts may be used for minor drainage channels. Existing crossings will be used, if acceptable. Otherwise, they will be upgraded or replaced as required.

2.7.30 The watercourse crossings will be subject to registration under The Water Environment (Controlled Activities) (Scotland) Regulations (2011) (as amended) (CAR) and Water Environment (Miscellaneous) (Scotland) Regulations (2017). Further consultation with Scottish Environment Protection Agency (SEPA) will be undertaken prior to commencement of construction by the Applicant, to ensure compliance with CAR.

Aggregate for Construction

2.7.31 The Proposed Development would require crushed stone to construct new tracks, create hardstanding areas for the cranes and lay the turbine foundations.

2.7.32 The total estimated required quantity of aggregate is approximately 195,000 cubic metres, which is expected to be won from the Site. An assumption has been made by an experienced engineer that the rock onsite would be suitable for track and hardstanding construction, pending confirmation during subsequent site investigation (SI) and processing of the excavated material.

2.7.33 Rock extraction by means of blasting operations is anticipated to be required along the Site Access and when constructing crane pads and turbine foundations. Anticipated noise impacts will be within the levels recommended in national guidance, due to the distance between the nearest noise receptors and turbine locations. Additional information on anticipated noise impacts and mitigation to protect ornithological interests are provided in **Volume 2, Chapter 10: Noise and Vibration and Chapter 7: Ornithology.**

Substation and Control Building

2.7.34 Based on high-level analysis undertaken by a grid specialist to estimate the footprint for the substation after repowering the Wind Farm, it was concluded that the current

substation building can host the upgraded equipment with minor internal modifications. Additional space will be required for an inductive 2.5 MVAr reactor[3] which would be situated outside and adjacent to the existing substation building.

2.7.35 The layout and elevations of the substation and the proposed inductive reactor are shown on **Volume 3a, Figure 2.13** and **Figure 2.14.**

2.7.36 The existing substation at the Wind Farm includes a control and metering room, telecommunications equipment, an office, and welfare facilities for visiting staff. The internal layout of the substation would be upgraded to accommodate any new technology required to repower the Wind Farm.

Grid Connection

2.7.37 The Proposed Development would contain underground electric cables which would connect the turbines to the existing substation. The underground electric cables would run parallel to access tracks in trenches as far as practicable and existing cable routes would be utilised were possible.

2.7.38 The 33 Kilovolts (kV) cabling connecting each wind turbine to the 33 kV substation would be single core and consequently each circuit would comprise three individual power cables in a trefoil arrangement and surrounded by sand backfill. Construction and trenching specifications would depend on ground conditions encountered.

2.7.39 The connection of the substation to the wider grid network would fall under a separate consenting process and would be subject to a separate environmental investigation and application.

2.8 Construction, Operation and Decommissioning

2.8.1 Health and Safety during Construction, Operation and Decommissioning

2.8.2 The Renewable UK Onshore Wind Health and Safety Guidelines (2015) note that wind turbine development and operation can give rise to a range of risks to public safety including:

- traffic (especially lorries during construction, and abnormal loads for the transport of wind turbine components; including beyond the Application Boundary);
- construction site hazards (particularly to any people entering the Site without the knowledge or consent of the site management);
- effects of catastrophic wind turbine failures, which may on rare occasions result in blade throw, tower topple or fire; and
- ice throw, if the wind turbine is operated with ice build-up on the blades.

2.8.3 The Renewable UK guidance (2015) states that:

"Developers should ensure that risks to public safety are considered and managed effectively over the project lifecycle and should be prepared to share their plans for managing these risks with stakeholders and regulators; effective engagement can both

[3] Inductive reactors, also known as inductors, are critical components in many electrical circuits. Their primary function is to limit the current within a circuit by producing an electromagnetic field, a concept known as inductance. https://www.electricity-magnetism.org/inductive-reactors/ [accessed 22/05/2025]

build trust, and help to reduce the level of public safety risk by taking account of local knowledge."

2.8.4 Site security and access during the construction period would be governed under Health and Safety at Work Act (1974) and associated legislation. There would be limited public access to the Site during construction; access by vehicles and pedestrians along the public road portion of the Site Access would be managed in line with a Construction Traffic Management Plan (CTMP) (see **Volume 2, Chapter 10: Traffic and Transportation**). However, the Land Reform (Scotland) Act (2003) establishes statutory rights of responsible access on and over most land. The legislation offers a general framework of responsible conduct for both those exercising rights of access and for landowners.

2.8.5 During construction, some restrictions on use of the paths running through the Site and along the Site Access may be required for public safety in accordance with the Construction (Design and Management) Regulations (2015). Notices would be placed in prominent locations around the Site, outlining any areas of restricted access.

2.8.6 Once the construction period and commissioning of the Proposed Development is complete, no special restrictions on access are anticipated.

2.8.7 Informal recreational access within the Site and along the Site Access during the operational phase, would be permitted in line with existing arrangements. Appropriate warning signs would be installed concerning restricted areas such as the substation compound, transformers, switchgear and metering systems. All onsite electrical cables would be buried underground with relevant signage.

Construction Phase

Construction Works

2.8.8 Construction Method Statements and a Construction Environmental Management Plan (CEMP) would be prepared prior to the start of construction, detailing measures to avoid or mitigate potential effects associated with key construction activities. These would reflect and expand upon measures identified in this EIA Report and would be agreed with A&BC, SEPA, NatureScot and other stakeholders, where appropriate.

2.8.9 The purpose of the CEMP will be to:

- provide a mechanism for ensuring that construction methods avoid, minimise and control potentially adverse significant environmental effects, as identified in the EIA Report;
- ensure that good construction practices are adopted and maintained throughout the construction of the Proposed Development;
- provide a framework for mitigating unexpected effects during construction;
- provide assurance to third parties that agreed environmental performance criteria would be met;
- establish procedures for ensuring compliance with environmental legislation and statutory consents; and
- detail the process for monitoring and auditing environmental performance.

2.8.10 The CEMP would be updated when necessary to account for changes or updates to legislation and good practice methods throughout the construction phase. The CEMP would also be amended to incorporate information obtained during detailed ground investigations which would be undertaken post consent and prior to construction

activities. Compliance with the CEMP (including procedures, record keeping, monitoring and auditing) would be overseen by a suitably qualified and experienced Ecological Clerk of Works (ECoW).

2.8.11 The CEMP would contain the following documents, which the Principal Contractor and their sub-contractors would be required to adhere to throughout the construction process:

- Pollution Prevention Plan (PPP);
- Construction Method Statements (CMS);
- Peat Management Plan (PMP); and
- Site Waste Management Plan (SWMP).

2.8.12 The CEMP would also contain the following information:

- a completed register of contacts confirming the contact details for all key personnel for managing environmental issues, including the Applicant's representatives, the ECoW, Principal Contractor contacts and appropriate regulator contacts;
- the construction programme and detailed working method statements;
- a site-specific action plan, providing a register of environmental risks and outlining the requirement for accompanying site-specific mitigation, monitoring and reporting procedures; and
- audit and inspection procedures.

2.8.13 The Principal Contractor would be responsible for the continual development of the CEMP to take account of monitoring and audit results during the construction phase and changing environmental conditions and regulations.

2.8.14 The services of other specialist advisers would be retained as appropriate, to be called on as required to advise on specific environmental issues.

2.8.15 Performance against these documents would be monitored by the Applicant's Construction Project Manager and the ECoW throughout the construction period. They would ensure that the works carried out would be in accordance with the relevant legislation and best practice guidance documents.

Construction Programme

2.8.16 Construction of the Proposed Development is anticipated to take approximately 23 months from mobilisation to completion.

2.8.17 An indicative two-phase construction programme, which takes into account potential ornithological constraints and other potential restrictions, is set out in **Table 2.2**. Should restrictions remain in place a site presence would still be maintained with some restricted work being undertaken and any preparatory work being undertaken in advance of the winter months.

2.8.18 A more detailed construction plan which may be less restrictive would be prepared prior to construction and agreed through consultation with the Applicant's representatives, the ECoW, Principal Contractor contacts and appropriate regulator contacts;

Table 2.2: Indicative Construction Programme*

Activity	Month																					
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul
New Wind Farm construction																							
Access road works (inc. forestry felling), foundations and platforms																							
Cable Trenching and Installation																							
Turbine installation and commissioning																							
Restoration works																							
Substation works																							
Decommissioning of old Wind Farm																							
Access roads and platforms and turbine dismantling																							
Restoration works																							

*Programme will be updated to show type of maintenance/restricted work once this has been established through consultation with relevant parties.

Construction Traffic

2.8.19 The largest volume of traffic would be anticipated during the construction phase of the Proposed Development, when vehicles are likely to be travelling from major centres and ports to deliver materials to the Site and Site Access. Further detail is provided in **Volume 2, Chapter 10: Traffic and Transportation.**

Construction Workforce

2.8.20 A detailed construction workforce schedule, i.e., employee numbers throughout the construction programme, and likely shift patterns, would not be known until the contract for building the Proposed Development had been awarded; however, the maximum number of staff likely to be onsite at any one time would be 50. The Applicant is committed to using local suppliers, contractors and labourers as far as possible.

Construction Compounds

2.8.21 During the construction period, preliminary temporary construction compounds would be required that would include a laydown area for wind turbine components. Temporary construction compound 1 (TTC1) would be approximately 120 m x 40 m and temporary construction compound 2 (TCC2) would be approximately 120 m x 40-60 m wide given its irregular shape. The location of the construction compounds are shown on **Volume 3a, Figure 2.5**.

2.8.22 The construction compounds would include temporary cabins, to be used for the site offices, the monitoring of incoming vehicles and welfare facilities for site staff including toilets; parking for construction staff visitors and construction vehicles; secure storage for tools and small parts; a receiving area for incoming vehicles; and temporary security fencing around the compound.

2.8.23 TCC1 would be used as a preliminary construction compound and storage area for materials to build out the track upgrade to site. TCC2 would be used as a storage area for the various components, fuels and materials required for construction of the turbines and ancillary infrastructure on the main site. Temporary lay-down areas, forming part of the crane hardstandings, would be provided for parking and unloading vehicles, including AIL. Indicative crane hardstanding drawings are provided in **Volume 3a, Figure 2.8**.

2.8.24 In addition, a temporary location for a possible concrete batching will potentially be included within the construction compound, measuring approximately 50 m x 50 m.

2.8.25 Any lighting would be directional in accordance with Institute of Lighting Professionals (ILP) guidance and mounted on the individual portacabins.

2.8.26 The construction compounds and lay down areas would be constructed by first stripping the topsoil, which would be stored in a mound for subsequent reinstatement at the end of the construction period, in line with industry best practice Care would be taken to maintain separate stockpiles for turf and the different soil types to prevent mixing during storage. A geotextile would then be placed on the sub-stratum, which would be overlain by a working surface of stone to approximately 750 mm thickness. Measures for ensuring compliance with industry best practice would be set out in a CEMP that would be finalised and agreed with A&BC.

2.8.27 Reinstatement would involve removing the stone and underlying geotextile before carefully ripping the exposed substrate and replacing the excavated soil.

Construction Hours

2.8.28 The construction working hours for the Proposed Development, unless otherwise agreed with A&BC would be 7 am to 7 pm Monday to Sunday. Noisy activities on weekends would be restricted to reduce disturbance to nearby properties. Construction working hours for any upgrade/construction works for the access track within 500 m of residential properties will be prohibited in the CEMP on Saturday afternoons (13:00 to 19:00) and Sundays. Certain activities, such as electrical works in the substation, or turbine erection in the event of delays due to high winds, may need to be undertaken outside of the hours cited above.

2.8.29 Construction hours generally also apply to the delivery of materials to the Proposed Development; however, abnormal loads may be delivered outwith these hours, when the road network is at its quietest, to reduce traffic disturbance. Delivery of the nacelles, towers and blades to the Proposed Development site would require the use of abnormal sized and slow-moving trucks. These trucks would require a police escort and the timing of these deliveries may be dictated by the police. The timing of the delivery of abnormal loads (i.e. wind turbine blades) will be agreed with the relevant authorities after detailed investigation. More details can be found **in Volume 2, Chapter 10: Traffic and Transportation**.

Access

2.8.30 The Site is accessible to the public via general access rights under the Land Reform Act (Scotland) (2003). During construction, access to areas where construction is taking place, or when there are construction related activities, may be restricted for health and safety purposes in accordance with the Construction (Design and Management) Regulations (2015). In this instance, notices would be placed in prominent locations around the Site and Site Access outlining any areas of restricted access. Measures for ensuring public safety during construction would be agreed in advance with A&BC's Access Officer and set out in the CEMP. The CEMP would outline measures to inform recreational users of the construction work and direct users into safe areas where there would be no conflict with plant and machinery.

Felling

2.8.31 The Proposed Development would require 1.61 hectares (ha) of woodland to be felled to facilitate turbine delivery. Further details are provided in **Volume 2, Chapter 13: Other Issues** and in **Volume 4, Technical Appendix 13.1 and 13.2**.

Operational Phase

Turbine Monitoring and Control

2.8.32 All turbines are controlled by a Supervisory Control and Data Acquisition (SCADA) system, which would gather data from all the turbines and provide the facility to control them from a remote location. The SCADA system would gather data from all the turbines

via communications cables connecting to each turbine (the cables being buried in the electrical cable trenches).

2.8.33 In the case of any fault, including over-speed of the blades, overpower production, or loss of grid connection, the turbines shut down automatically through integrated braking mechanisms. They are also fitted with vibration sensors so that, if, in the unlikely event a blade was damaged, the turbines would again be automatically shut down.

Meteorological Effects

2.8.34 Turbines, like any tall structure, can be susceptible to lightning strike and appropriate measures are included in the turbine design to conduct lightning strike down to earth and minimise the risk of damage to the structure. In the case of a lightning strike on a turbine or blade, the turbine would be automatically shut down.

2.8.35 In cold weather, ice can build up on blade surfaces when operating. The turbines can continue to operate with a thin accumulation of snow or ice but would be shut down automatically when there is a sufficient build up to cause aerodynamic or physical imbalance of the rotor assembly. Many models now include de-icing technology.

2.8.36 Local meteorological conditions would be monitored by a permanent anemometer mast (**Volume 3, Figure 2.9**), which would be located as shown by **Volume 3a**, **Figure 2.5**.

Turbine Servicing and Repair

2.8.37 Each manufacturer has specific maintenance requirements; however, it is anticipated that routine servicing of the turbines would typically be undertaken twice a year, with a full annual service and a minor service every intervening six months. In the first year, there would likely be an initial three-month service post-commissioning. Individual turbines would be switched off when servicing is ongoing. Maintenance and servicing would include activities such as changing of gearbox oils and individual turbine components.

2.8.38 Blade inspections would be likely to be required between every two and five years. Traditionally, these would be undertaken using a cherry picker or similar but may also be performed with a 50-tonne crane and a man-basket or using drones. Repairs to blades would use the same equipment. Light winds and warmer, dry conditions are required for any blade repairs; hence summer (June to August) would be the most appropriate period for this work.

2.8.39 Operational waste would generally be restricted to small volumes of waste generated from machinery repair and maintenance. Maintenance contractors would dispose of any such waste off-site, in line with Scottish waste management regulations and duty of care.

Track Maintenance

2.8.40 Once the Proposed Development is operational, the volume of traffic using the access tracks would be low. Correspondingly, the need for any track maintenance works is anticipated to be low and infrequent. Any such works required would generally be undertaken during the drier conditions in the summer months.

Operational Workforce

2.8.41 A team of several staff including engineer fitters would supervise the operation of the wind turbine installation and would visit the Proposed Development to conduct routine maintenance. The frequency of these visits would depend on the turbine manufacturer.

Decommissioning and restoration of existing Beinn Ghlas Wind Farm

2.8.42 The Proposed Development is anticipated to have an operational life of approximately 35 years (excluding construction which is estimated to take approximately 23 months and decommissioning which is estimated to take 1 year). This is the proposed course of operations which is being applied for and any alternative to this action would require separate consent from the A&BC.

2.8.43 The approach to decommissioning and restoration will either involve (a) concurrent construction and decommissioning of the existing Beinn Ghlas Wind Farm or (b) decommissioning first followed by the construction of the repowering wind turbines. The planning consent under which Beinn Ghlas is currently operated is as issued by A&BC (ref: 97/00719/DET). An application to vary condition 2 relative to planning permission (ref: 97/00719/DET) to allow Beinn Ghlas Wind Farm to operate for an additional 10 years was submitted by Beaufort Wind Ltd (now Headwind Development Services Limited) in April 2021. The application was granted consent in June 2022 to allow the Wind Farm to operate until 21 August 2033.

2.8.44 Condition 2 of the consent (ref: 21/00870/PP) provides for the Wind Farm to be decommissioned and the site restored when it has come to the end of its operational life under the existing consent. For the avoidance of doubt, while the decommissioning and reinstatement of the existing Beinn Ghlas Wind Farm will be undertaken in substance in accordance with what was proposed in the existing Environmental Statement (ES) and agreed with relevant parties at the time, it will be secured and implemented under the new consent rather than the existing consent.

2.8.45 Current industry best practice will be employed during the decommissioning and restoration of the existing Wind Farm, with the key activities anticipated to include:

- Dismantling and removal of all of the wind turbines, met mast and any supporting above ground electrical equipment;
- Demolition and removal of all the wind turbine foundations to a level of 0.5 m below ground level;
- Restoration of all wind turbine crane hardstandings;
- Reinstatement, reseeding and aftercare of disturbed ground as a consequence of the above activities.

2.8.46 The removal of infrastructure at the end of the operational life of the Proposed Development would be the reverse of the erection process, involving similar cranes and technical procedures.

2.8.47 The existing tracks which are not re-used as part of the repowering project would be restored. The cables currently in use at the Wind Farm are not likely to be suitable for the increased capacity of modern turbines and new cables are expected to be installed as part of any repowering works on site. Closer to the time of decommissioning, Nadara will

reassess the practicalities of removing old cables based on location, carbon impact of any cable removal works and demand for used cable.

2.8.48 The decommissioning activities would seek to maximise the reuse and recycling of component materials from the removed infrastructure and ensure contaminated material (e.g. lubricating/cooling oils etc.) will be handled and removed in accordance with the relevant current legislation and best practice. The Applicant is committed to adopting a circular economy approach to decommissioning, prioritising reuse, recycling and minimising environmental impacts. As part of this commitment, they published an 'Outline Circular Decommissioning Strategy' in April 2025 in partnership with Reblade (**Volume 4, Technical Appendix 2.1**). Within this document, Nadara outlined their approach to the repowering project, including:

- *"Identifying circular options for the decommissioning of existing Wind Farm parts, products and materials*
- *Committing to evolve internal processes that will help establish material traceability*
- *Taking a "no landfill" approach to end-of-life wind turbine blades*
- *Working with external experts and internal resource to plan in advance the processes, technical approach and material solutions for circular decommissioning*
- *Committing to Wind Farm decommissioning circularity by taking a Life Cycle Analysis (LCA) based approach to decision making to help create carbon savings*
- *Responsibly sourcing and encouraging circular-minded suppliers and contractors through tender and procurement practices*
- *Enabling positive stakeholder engagement and participation through all stages of development, construction and operation*
- *Ensuring circularity practice during construction and decommissioning site works*
- *Fostering circular-focused research and development, e.g. by supporting suppliers and contractors that innovate and find new methodologies that will help advance circularity within the sector*
- *Supporting the creation of circular jobs, skills and educational opportunities that will allow for long term sustainable employment within the local area as well as the wider region."*

2.8.49 Through the processes described above, the Applicant aims to ensure that the decommissioning of the Proposed Development aligns with circular economy, just transition and greenhouse gas emission reduction ambitions whilst creating economic growth through circular skills, jobs and supply chain opportunities in Scotland.

2.8.50 Reinstatement of vegetation will be focused on natural regeneration vegetated turves or soils stripped and stored with their relevant seed bank. To encourage stabilisation and early establishment of vegetation cover, where available, topsoil and vegetation turves in-keeping with the surrounding vegetation type will be used to provide a dressing for the final surface. Reinstatement will be undertaken under the direction of the Site Ecological Clerk of Works (ECoW) and will aim to create an even distribution of turves to promote seed dispersal.

Decommissioning and restoration of the Proposed Development

2.8.51 At the expiry of the consent or the end of the Proposed Development's useful life, it is proposed that the turbines and transformers would be removed. The upper sections of the turbine foundations, would be removed to a depth of at least 1 m, and backfilled with

appropriate material. Peat or topsoil would be replaced, and the area reseeded. Crane hardstands will be removed and the area suitably reinstated. Access tracks will be left in-situ for landowner use or reinstated by either allowing them to grass over or covered with soil and reseeded. At least six months prior to the decommissioning of the site, a Decommissioning Method Statement would be prepared, for agreement with A&BC and relevant consultees.

Environmental Commitments

2.8.52 A summary of the proposed mitigation commitments is provided in **Volume 2, Chapter 15: Schedule of Environmental Commitments**.

2.9 References

Health and Safety Executive, 2015. 'Construction (Design and Management) Regulations 2015'.

Health and Safety Executive, 1974. 'Health and Safety at Work etc Act 1974'.

RenewableUK, 2015. 'Onshore Wind Health & Safety Guidelines'.

Scottish Government, 2024. 'Climate Change (Emissions Reduction Target) (Scotland) Act 2024'.

Scottish Government, 2022. 'Onshore Wind: Policy Statement'.

Scottish Government, 2017. 'The Water Environment (Miscellaneous) (Scotland) Regulations 2017'.

Scottish Government, 2011. 'The Water Environment (Controlled Activities) (Scotland) Regulations
2011'.

Scottish Government, 2003. 'Land Reform (Scotland) Act 2003'.