

15 Schedule of Mitigation and Residual Effects

15.1 Schedule of Mitigation

Introduction

- 15.1.1 Best practice in Environmental Impact Assessment (EIA) recommends the use of a Draft Scheme of Mitigation, which can act as a quick reference for anyone interested in the mitigation measures which the Applicant has committed to implementing and upon which the assessment of residual effects presented within the EIA Report (EIAR) has been based. It will be utilised by the Applicant throughout development of the detailed design, and the appointed contactors will be required to allow for, and ultimately implement, each of the measures in the schedule as a minimum.
- 15.1.2 **Table 15.1** presents a Schedule of Mitigation for the Proposed Development, listed according to the relevant environmental topic area. Individual EIAR chapters should be referred to for full details of the mitigation.

Table 15.1: Schedule of Mitigation

Subject Area	Mitigation Measure	Timing
Chapter 2: Project Description		
Micrositing	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 pre-construction surveys identify unsuitable ground conditions or environmental constraints that could be avoided by slight relocation. It is proposed that the micro-siting of all infrastructure will be assessed and agreed with the on-site Ecological Clerk of Works (ECoW) before commencing.	Construction
Turbines, Turbine Foundations and Crane Hardstandings	A full ground investigation will be completed prior to construction. This will inform final foundation and crane hardstanding design.	Pre-construction
	Detailed construction drawings with final dimensions will be provided prior to commencement once the final turbine model has been selected.	Pre-construction
	Turbines will be painted an off-white / pale grey colour with low reflectivity semi-matt finish, or similar, as agreed with Aberdeenshire Council.	Construction (before erection of turbines)
	Turbines will not carry any symbols, logos or lettering except where required under other legislation. However, it is proposed to add turbine numbers to the base of each tower.	Construction / Operation
Access Tracks	Existing onsite access tracks, where possible, will be retained, re-used and upgraded (where necessary).	Construction
	New access tracks will be made largely of locally sourced stone and from the on-site borrow pits.	Construction
	Prior to construction, any required improvements to public roads will be undertaken and appropriate highway safety measures will be agreed with Aberdeenshire Council and Transport Scotland, with necessary signage or traffic control measures implemented throughout the construction phase on the agreed basis.	Pre-construction
	Marker posts may be placed in the ground by the edge of the access track in order to guide on-site vehicles during times of poor visibility.	Construction / Operation
Watercourse Crossings	An authorisation application will be made to Scottish Environment Protection Agency (SEPA) for the watercourse crossing under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (CAR).	Pre-construction
Public Road Access	If required, wheel cleaning facilities will be set up at the entrance to site from the B977 to remove mud from the wheels of vehicles leaving the Proposed Development during the construction phase.	Construction
	Public roads will be inspected daily, and a lorry-mounted road brush will be employed to remove any mud or debris transferred onto the public roads from on-site activities.	Construction
Drainage	A detailed drainage design will be undertaken and submitted to the Scottish Ministers and the Aberdeenshire Council, in consultation with SEPA, for approval prior to construction.	Pre-construction
Foul Drainage	Foul drainage for the substation and BESS compounds will be provided in accordance with Building Control requirements and in agreement with SEPA.	Pre-construction
Construction Compounds	Prior to commencing construction work, a detailed appraisal of the construction compound areas will be required, including an assessment by the ECOW and also trial pits and/or boreholes to confirm the nature of the sub-strata.	Pre-construction

Subject Area	Mitigation Measure	Timing
	Any fuel and oil storage tanks must be located within a sealed bunded area, at least 50 m away from any watercourses, in accordance with SEPA guidance.	Construction
	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.	Pre-construction
	On completion of construction works, it is proposed that all temporary structures be removed, and the compound areas be restored with exception of the temporary enabling works compound which will be retained as a permanent car park for the public during operation.	Post-construction
Substation, Battery Energy Storage & Cabling	Details of the final design of all components of the substation, energy storage compound and cabling are proposed to be secured through an appropriately worded condition.	Pre-construction
Borrow pits	Detailed site investigations prior to construction will be carried out to further confirm the rock type, rock characteristics and suitability, as well as potential volumes to be extracted from the search areas.	Pre-construction
	If a batching plant is required elsewhere on site, the location will be agreed in advance with Aberdeenshire Council, SEPA and Scottish Water prior to construction.	Pre-construction
	An authorisation application under the Water Environment (Controlled Activities) (Scotland) Regulations 2011 will be made to SEPA for any borehole sunk	Pre-construction
Construction hours	Normal construction hours will be from 07:00 to 19:00 Monday to Saturday. During the foundation pours and turbine erection phase, operations may proceed round the clock. Delivery of abnormal loads may be made out with normal construction hours, as agreed with the relevant authorities.	Construction
Construction traffic	The Applicant will ensure that the vehicles will be routed as agreed with Aberdeenshire Council, Transport Scotland and Police Scotland.	Construction
Construction Environment Management Plan (CEMP)	The Contractor will produce and adhere to a CEMP. This shall be agreed with Aberdeenshire Council in consultation with relevant parties. The Contractor will amend and update the CEMP as required throughout the construction and decommissioning period.	Pre-construction
	<p>The CEMP shall describe how the Contractor will ensure suitable management of, as a minimum, the aspects listed below during construction of the Proposed Development. An outline CEMP is included in Appendix 2.1. The Final CEMP will, as a minimum, include details of</p> <ul style="list-style-type: none"> • design philosophy and construction methodologies; • surface and ground water management; • water quality monitoring; • flood risk management; • private water supply management; • waste and resource management; • wastewater and water supply monitoring and control; • sound and vibration control; • control of dust and other emissions to air; • spoil management; • peat slide monitoring and control; 	Pre-construction

Subject Area	Mitigation Measure	Timing
	<ul style="list-style-type: none"> oil and chemical delivery and storage; temporary lighting management; existing on-site utilities management; construction traffic management; health and safety management; post construction reinstatement; public liaison provision; and outline decommissioning and restoration methodologies. 	
	Prior to commencement of construction activities, a pollution prevention strategy will be agreed with SEPA and provided within the CEMP.	Pre-construction
Operation Environmental Management Plan (OEMP)	<p>The Applicant will implement an Operational Environmental Management Plan (OEMP) in consultation with Aberdeenshire Council, SEPA, NatureScot and HES where relevant.</p> <p>The OEMP will set out how the Applicant will manage and monitor environmental effects throughout operation.</p>	Post-construction
Public Access	The Applicant aims to minimise disruption to public access to the project site during the construction of the Proposed Development. An Outdoor Access Management Plan will be developed as part of the CEMP to manage site access during construction.	Pre-Construction
Chapter 6: Landscape & Visual Impact Assessment		
Design	<p>The primary mitigation adopted in relation to the Proposed Development is embedded within the design of the Proposed Development and relates to the consideration that was given to avoiding and minimising landscape and visual effects during the evolution of the Proposed Development layout.</p> <p>Appropriate offsets from all properties and settlements have been maintained to ensure that no property would experience an overbearing visual impact such that it became an unattractive place to live.</p> <p>The location of the substation and battery storage in particular have been sited to minimise their visual influence on the surrounding area.</p> <p>As noted previously, turbines will be painted an off-white /or pale grey colour with low reflectivity semi-matt finish, or similar, as agreed with Aberdeenshire Council.</p>	Pre-construction
Aviation Lighting	Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit on the nacelles only (T01, T04, T06, T07, T10, T12 and T16). Visibility sensors will be installed on relevant turbines to measure the prevailing atmospheric conditions and visibility range.	Operation
Chapter 7: Cultural Heritage Assessment		
Embedded Mitigation	<p>Design mitigation measures are outlined in the Embedded Measures section of Chapter 7. A range of design mitigation measures have been adapted as part of the iterative design process to avoid heritage assets within the site and minimise the impact on the setting of cultural heritage assets within the wider area.</p> <p>The remains of two longhouses NJ60SE004 (SLR86), a regionally important site within the Proposed Development boundary has been considered for direct impact. To avoid direct effects, a buffer of 0.2 km was embedded into the design.</p> <p>With potential for indirect (operational) effects, as detailed in Chapter 3: Design Evolution and Alternatives, mitigation through design has been implemented to avoid primary landscape features which contribute to the setting of assets such as the remains of two longhouses (SLR86), Midmar Castle (LB16262) and Barmekin of Echt (SM57). Such mitigation has resulted in a turbine deletion, previously Turbine 1 and the micro siting of turbines to the southern side of Hill of Fare as discussed in Chapter 3: Design Evolution and Alternatives.</p>	Pre-construction

Subject Area	Mitigation Measure	Timing
Protective fencing (Farmstead (SLR79) and (SLR96) and Sheilings (SLR116))	Heritage asset within 10 m of the access track and crane hardstandings will be fenced off where appropriate under archaeological supervision prior to construction. This fencing will be maintained throughout the construction period to ensure the preservation of this asset.	Pre-construction
Watching Brief	A watching brief will be maintained on site on ground breaking works to assess the potential for hitherto unrecorded buried archaeological remains to survive within the Proposed Development. If significant archaeological remains are identified during the watching brief, there is the potential that further works, such as excavation and post-excavation analysis, could be required. Details of mitigation will be agreed with AC through a Written Scheme of Investigation (WSI).	Pre-construction
Photographic record (Boundary Stones (SLR44, SLR100, SLR106 and SLR119))	Assets will be recorded through photography to preserve photographic record.	Pre-construction
Enhancement	<p>A program of enhancement measures is proposed for:</p> <ul style="list-style-type: none"> • Barmekin of Echt (SM57); and • Upper Broomhall (SM12190). <p>Proposed measures include:</p> <ul style="list-style-type: none"> • An erosion survey to be carried out on the approaches to the monument and assisted by Archaeology students from local colleges/universities to facilitate pathways into the archaeological profession and to inform the design of the proposed improvements to access. • Enhancement of appreciation points at the Hill Fort along with the provision of Interpretation Boards to further the understanding and experience of the monument. • Creation of designated pathways to access monuments and limit foot erosion. • Provision of increased parking availability to provide more access to appreciate the monument. <p>A program of enhancement measures is proposed for Sunhoney, Stone Circle (SM44).</p> <p>Proposed measures include:</p> <ul style="list-style-type: none"> • Enhancement of appreciation points at the edge of the monument along with the provision of Interpretation Boards to further the understanding of the monument. • Creation of designated pathways to access monuments and limit foot erosion. <p>Other Potential Measures:</p> <ul style="list-style-type: none"> • Outreach to local communities in the form of presentation by industry leaders for furthering understanding of the history in the area. • Excavation and publication of results of a potential longhouse on the site with local groups/student summer schools in conjunction with local universities or colleges. This would be subject to agreement with the local authority. • Renovation of the currently derelict 18th century lodge house on the site for visitor shelter and information. 	Post-construction
Chapter 8: Ecology Assessment		
Design	<p>A range of measures have already been applied as part of the iterative design process (refer to Chapter 3: Design Evolution and Alternatives), to avoid the higher value areas of blanket bog, waterbodies and watercourses, as follows:</p> <ul style="list-style-type: none"> • Higher value areas of blanket bog or heath habitat (i.e. Scottish Biodiversity List/Annex 1 habitat) and waterbodies have been avoided as far as practicable; • Turbines have been sited at least 50m from any areas of standing water and watercourses; 	Pre-construction

Subject Area	Mitigation Measure	Timing
	<ul style="list-style-type: none"> Existing tracks have been used, where possible, in order to reduce the footprint of the Proposed Development and to limit the number of watercourse crossings to one (see Figure 1.2). Some localised upgrading may be required to ensure a suitable running width, with local widening on corners and the addition of turning heads; Floated tracks will be used on deeper peat, to further reduce potential drying impacts; and, Electrical infrastructure cabling will be installed alongside tracks, wherever possible, to further minimise habitat loss. 	
ECoW	A suitably qualified ECoW will be appointed prior to the commencement of any construction activities taking place. The ECoW will be present and oversee construction activities as well as providing toolbox talks to all site personnel with regards to priority species and habitats, as well as undertaking monitoring works and briefings to relevant staff and contractors as appropriate.	Pre-construction
Species Protection Plan	<p>A Species Protection Plan (SPP) will be produced and agreed prior to construction commencing and then implemented during the construction period. The SPP will detail measures to safeguard protected species known to be in the area including bats, otter, with water vole, and reptiles included as a precaution, and will include for pre-construction surveys for protected species, complementing the seasonality of the construction start date, as well as ensuring the use of Best Practice measures during all construction activities (such as sensitive lighting, ramps exiting open excavations etc.).</p> <p>The SPP will describe the process to be followed in the case that new protected species are recorded on-site that will therefore also need to be protected during construction works, as well ensuring the implementation of effective toolbox talks to raise awareness of site personnel to sensitive ecological receptors on site.</p>	Pre-construction
Water/Fish	<p>In order to prevent pollution of watercourses and impacts on fish within the site (with particulate matter or other pollutants such as fuel), best practice techniques will be employed. These are addressed in the Outline Pollution Prevention Plan in within the CEMP (Technical Appendix 2.1) and will include:</p> <ul style="list-style-type: none"> For water crossings: buffer strips around sections of track adjacent to watercourse crossings; and bund and embankment features to be implemented. For tracks: camber in track design; trackside drains, e.g. infiltration trenches with check dams; routine maintenance of tracks; cross drains at regular intervals along access tracks; and check dams will be installed immediately above cross drain inlets. General drainage: no direct discharges of water from works areas to existing drainage channels or surface watercourses; drainage will be directed to infiltration trenches, settlement swales or lagoons. Full details of construction mitigation measures will be provided in the CEMP to be agreed with the planning authority, in consultation with NatureScot and SEPA, post-consent but prior to development commencing. Peatland Restoration and Enhancement. 	Construction
Biodiversity Enhancement & Management Plan	<p>To deliver significant biodiversity enhancement, a BEMP will be implemented during the construction and operation phases that will focus on the enhancement and restoration of blanket bog within areas showing more severe signs of erosion and within reasonable distance of Proposed Development infrastructure. In addition, the BEMP:</p> <ul style="list-style-type: none"> will provide management controls to limit the further expansion and dominance of bracken across the site; describe the measures to be adopted to promote the regeneration, enhancement and expansion of riparian habitat within the site; and limit the further expansion and reduce the presence of commercial plantation tree species across the site. <p>Monitoring will also be implemented, to establish whether the objectives of the BEMP are being achieved. Monitoring will include for the establishment of a minimum of permanent quadrats within areas of blanket bog enhancement within the BEMP areas, with a combination of static photography and vegetative and substrate data being recorded across defined years following the construction phase.</p>	Construction/Operation

Subject Area	Mitigation Measure	Timing
Bird Disturbance Management Plan	A Bird Disturbance Management Plan (BDMP) will be implemented during construction of the Proposed Development. The BDMP will detail measures to ensure legal compliance and safeguard breeding birds known to be in the area and will include species-specific guidance. The BDMP shall include pre-construction surveys and good practice measures during construction. Pre-construction surveys will be undertaken to check for any new breeding bird activity in the vicinity of the construction works. The ECoW will oversee the implementation of the above measures.	Pre-construction
Chapter 10: Geology, Hydrology & Hydrogeological Assessment		
Design	<p>The infrastructure layout avoids hydrologically sensitive areas where possible and provides appropriate buffer zones between construction elements and watercourses to minimise the risk of water pollution and increased sediment loading.</p> <p>The layout has been designed iteratively to avoid areas of peat where possible (as detailed in Chapter 3, Technical Appendix 10.1 and Technical Appendix 10.2).</p> <p>Where access tracks are in areas of peat greater than 1 m depth, they will be floated. Other infrastructure will be microsited away from areas of deep peat where possible. The practicalities of this will be considered further in the pre-construction design phase.</p>	Pre-construction
CEMP	<p>A CEMP, including surface water management and pollution prevention measures (e.g. Pollution Prevention Plan), will be produced. The CEMP will remain a live document and will be continually updated as the work progresses. Mitigation measures will be incorporated into the CEMP, which will include a Construction Method Statement (CMS). The CEMP will be submitted prior to commencement of the Proposed Development for approval by Aberdeenshire Council, in consultation with SEPA and other agencies such as NatureScot.</p> <p>A pollution incident response plan will be set out in the CEMP relating to the construction of the wind farm, statutory requirements and identification of areas of highest sensitivity. This will provide site spill response procedures, emergency contact details and equipment inventories and their location. All staff will be made aware of this document and its content during site induction. A copy will be available in the site office at all times.</p>	Construction
Monitoring	<p>It is anticipated that a monitoring plan will be implemented. The aim of this will be to characterise the baseline conditions prior to construction works commencing and to continue throughout the construction phase to confirm that the mitigation measures are performing as expected. The monitoring plan will be established and implemented with the agreement of SEPA and will be incorporated into the CEMP.</p> <p>The following elements would be included within the agreed monitoring programme:</p> <ul style="list-style-type: none"> • Regular visual inspection of watercourses, more frequent during periods of high rainfall, in order to establish that levels of suspended solids have not been significantly increased by on-site activities. • Regular visual inspection of surface water management features such as silt traps, settlement ponds, swales, culverts etc. to check for appropriate performance, blockages and to establish whether there are increased levels of suspended sediment, erosion or deposition. • Regular visual inspection of active areas, particularly where vegetation has been stripped, and soil storage areas, to establish whether there are increased levels of erosion. • Water quality monitoring: A monitoring plan, covering baseline, construction and post-construction will be agreed with SEPA. • Monitoring of Private Water Supply (PWS) on site. • Monitoring as required as a condition of any discharge licence(s) or other environmental legislation. • Monitoring following any pollution incidents. • On-going liaison with SEPA as required during construction and decommissioning. 	Pre-construction
Abstraction	The water source for the concrete batching will be confirmed prior to construction commencing. If an on-site abstraction is proposed, this will be managed through the appropriate level of CAR authorisation. Groundwater abstraction (including dewatering) will be covered under General Binding Rule (GBR) 2 if it does not exceed 10 m ³ /day. A CAR authorisation will be required if this threshold is exceeded. Abstractions will not be taken for the	Pre-construction

Subject Area	Mitigation Measure	Timing
	purposes of the Proposed Development from within the catchments of groundwater derived private water supplies. If proposed to do so, additional assessment in line with SEPA LUPS-GU31 will be undertaken.	
Surface Water Management	<p>Where possible a buffer zone of 50 m will be maintained between site infrastructure and watercourses. However, as a minimum, no construction activities (including stockpiles and SuDS features) will be placed within the 50 m watercourse buffer zones. A construction SuDS will be put in place in advance of any removal of vegetation cover and earthworks on site.</p> <p>The surface water drainage will be designed to ensure that there are no untreated surface water discharges directly to surrounding watercourses, ditches or Ground Water Dependent Terrestrial Ecosystems (GWDTEs). SuDS features will be installed prior to the main construction activities. Suitable prevention measures will be in place at all times to prevent the release of pollutants including sediment to the water environment, including adjacent watercourses, ditches, groundwater and GWDTEs.</p> <p>The construction SuDS measures will be temporary (e.g. turbine construction, site compound, borrow pits) and natural drainage will be reinstated as soon as practicable as these areas are restored.</p> <p>Swales will be used to hold water temporarily and to encourage infiltration/discharge into the ground local to where the rain falls.</p> <p>Check dams and silt traps will be placed along the swales or ditches to settle out fine sediment and reduce flow velocities along with subsequent erosion potential.</p> <p>Silt fencing will be used for erosion protection and silt attenuation, and protection of the water environment, where required.</p> <p>Silt ponds and basins will be used to attenuate silt content in runoff from larger construction areas (e.g. turbine foundations, borrow pits).</p> <p>Exposed soils will be restored as soon as possible using vegetated turves (from construction areas), hydro-seeding/seeding (with suitable seed mixes) and other erosion protection measures such as bio-matting, as required.</p> <p>Track construction will include the maintenance of existing drainage paths with suitable cross drains installed where necessary to prevent the collection of surface water. These will be regularly inspected and maintained to ensure optimal performance. Sediment control measures will be incorporated into all site drainage systems.</p>	Construction
Peat Management	<p>The outline Peat Management Plan (PMP) proposes that excavated peat will be used for the reinstatement of the working areas around the turbine foundations, reinstatement of the construction compounds, of the cable trenches and borrow pits, and used in verges to reinstate the slopes and edges of hardstandings and access tracks.</p> <p>The verges will provide a suitable visual tie-in with the surrounding ground and will be kept to a minimum size. The proposed reuse of peat and organic soils is in line with the guidance produced by Scottish Renewables and SEPA and will utilise all the peat and organic soils excavated during construction.</p> <p>The Peat Landslide Risk Assessment contained in Technical Appendix 10.1 outlines good practice and mitigation measures to reduce the likelihood of a peat landslide occurring and reduce the potential effects associated with a peat landslide, including the use of a live geotechnical risk register during the construction and decommissioning phases under the supervision of an on-site geotechnical engineer.</p> <p>Suitable, robust drainage and sediment control measures will be installed in advance of construction activities and will be regularly maintained to prevent soil erosion. They will not surcharge into high-risk areas, specifically in substantial peat landslide risk areas.</p> <p>Contingency planning for peat landslide events will be undertaken at an early stage during construction planning and will be incorporated into the CEMP.</p>	Construction
Groundworks	<p>The vegetation and surface layer of soil or peat will be stripped and stored separately from the lower layers of soil/peat. Excavated vegetated turves will be kept as intact as possible, by separating from the underlying soil/peat and being rolled/folded back in a carpet. These turves will be watered and maintained during the construction phase, and will be rolled back so that they are 'turf side up' once construction is complete.</p> <p>The time any excavation is open will be kept to a minimum to avoid ingress of water, dewatering and associated disruption of groundwater levels/flow and to GWDTE.</p>	Construction

Subject Area	Mitigation Measure	Timing
	<p>Drainage or pumping from excavations will be minimised through appropriate design. Dewatering of excavations will comply with GBR2 and GBR15. If abstraction exceeds 10 m³ in any one day a CAR registration will be required and if over 50 m³/day a licence will be required. If a licence or registration is required, this will be obtained prior to the commencement of any abstraction.</p> <p>Temporary cut-off or interception drains will be installed to prevent clean surface water runoff entering any excavated areas. Runoff and/or any water pumped from excavations will be passed through a SuDS feature located out with the corresponding buffer zone.</p> <p>Runoff and any water pumped from excavations in proximity to GWDTes will be discharged in proximity of the excavation (mimicking natural flow patterns) after being passed through a construction SuDS feature. Infiltration of flows will be encouraged (e.g. use of swales). Concentration of flows at the discharge point(s) will be avoided.</p> <p>Stockpiles of excavated soils will be placed in areas of lower ecological value, minimal risk of peat instability and at least 20 m from permanent watercourses. Areas of peat and higher sensitivity GWDTes will be avoided for stockpiles. Any runoff from stockpiles will be caught in swales, by silt fencing or blind ditches and clean surface water runoff will be diverted around the stockpiles. Any stockpiles remaining unused/idle for more than a month will be encouraged to re-vegetate with reseeded.</p> <p>Excavations and areas of exposed soils will be reinstated as soon as practicable once construction works are complete at a certain location (e.g. within one month) and will ensure that suitable hydrological conditions are restored.</p> <p>All peat will be stored separately from other soil, drift deposit or rock material. Excavated soils and peat will be stored and replaced, where possible, in the location from which it was removed. Where peat is stockpiled in large amounts, piles will be bladed off at the side to minimise the available drying surface area. The stockpiles will be sprayed to prevent desiccation, if necessary. The stockpiles will be checked and assessed for watering and the findings recorded by the ECoW during each visit to the site. During dry weather the stockpiles will be checked more regularly. Large stockpiles of peat are not expected at this site as the volume of excavated peat has been minimised through the site design.</p>	
Watercourse Crossing	<p>For the watercourse crossings, a bottomless box or arch culvert will be used, where possible, as an alternative to a buried box culvert or full culvert in accordance with current SEPA policy and best practice guidance, to minimise working within the watercourse. The construction of the watercourse crossing will be carried out in accordance with NatureScot and SEPA guidance and final construction details will be approved by SEPA in accordance with the CAR regulations post planning consent.</p> <p>Measures will be taken to minimise potential erosion. Exposed soil will be artificially re-vegetated if natural regeneration is slow. The crossing will be of sufficient size not to restrict or concentrate flows downstream and to convey flows during periods of heavy rainfall. Where the infrastructure crosses artificial drains, these existing flow paths will be maintained by the installation of cross-drains and measures to minimise potential erosion will be implemented.</p>	Construction
Concrete	<p>Concrete batching may be undertaken on-site if a suitable local source is not identified. The following mitigation measures will be implemented to minimise the potential impact of concrete batching on the water environment in line with Guidance for Pollution Prevention 6 (GPP 6):</p> <ul style="list-style-type: none"> • Concrete batching will take place on an impermeable designated area and at least 10 m from any watercourses. • Equipment and vehicles will be washed out in a designated area that has been specifically designed to contain wet concrete/ wash water. • A closed loop system will be used for wash waters. Wash waters will be stored in a contained lined pond for settlement before being reused (e.g. for mixing and washing). • No discharge of wash waters will occur on-site. All excess wash water that cannot be reused will be disposed of off-site. <p>The following mitigation is proposed for concrete handling and placement:</p> <ul style="list-style-type: none"> • Pouring of concrete for turbine bases will take place within well shuttered pours to prevent egress of concrete from the pour area. • Pouring of concrete during adverse weather conditions will be avoided. 	Construction

Subject Area	Mitigation Measure	Timing
	<ul style="list-style-type: none"> The CEMP will include a pollution incident response plan, and drivers of vehicles carrying concrete will be informed to raise awareness of potential effects of concrete and of the procedures for clean-up of any accidental spills. Concrete acidity (pH) will be as close to neutral (or site-specific pH) as practicable as a further precaution against spills or leakage affecting groundwater pH. 	
Oil, Fuel, Batteries and Site Vehicle Use and Storage	<p>The risk of oil contamination will be minimised by good site working practice, but should a higher risk of oil contamination be identified then an oil separator will be considered.</p> <p>The storage of oil is considered a Controlled Activity which comply with the Regulations and GBR26, GBR27 and GBR28, where applicable, and mitigation measures included as part of the CEMP.</p> <p>The mitigation measures to minimise any risk of contaminant release are in line with SEPA Pollution Prevention Guidelines (PPG) and Guidance for Pollution Prevention (GPP) documents and include the following:</p> <p>Storage:</p> <ul style="list-style-type: none"> Storage for oil and fuels on site will be designed to be compliant with GPP 2 and GPP 8. The storage and use of loose drums of fuel on site will be not permitted. The bund will provide storage of at least 110% of the tank's maximum capacity. <p>Refuelling and maintenance:</p> <ul style="list-style-type: none"> Fuelling and maintenance of vehicles and machinery, and cleaning of tools, will be carried out in a designated area where possible in line with PPG 7. Multiple spill kits will be kept on site. Drip trays will be used while refuelling. Regular inspection and maintenance of vehicles, tanks and bunds will be undertaken. Emergency procedure: The Pollution Incident Response Plan will include measures to deal with accidental spillages. <p>Battery storage:</p> <ul style="list-style-type: none"> Once the battery design is finalised, appropriate compound design and fire suppression will be adopted to mitigate the risk of fluid loss and contamination. Regular inspection and maintenance of batteries will be undertaken in line with manufacturers guidelines. Emergency procedure: The Pollution Incident Response Plan will include measures to deal with accidental spillages. 	Construction
Site Cabling	<p>All power and control cabling will be buried underground in trenches which will be partially backfilled with excavated soil, including peat where the trench passes through peat. Excavated material will be laid on the uphill slope to reduce the likelihood of runoff entering the excavations, and used to reinstate the trench to the original ground level immediately after the cables have been installed.</p> <p>Cable runs will be installed alongside tracks where practicable to minimise the disturbance of ground to minimise the risk of sediment wash out. On steep slopes and across GWDTE low permeability plugs will be used at frequent intervals to prevent the trench acting as a preferential flow channel.</p> <p>The length and time for which excavated trenches remain open will be kept to a minimum.</p>	Construction
Chapter 11: Access Traffic & Transport Assessment		
Construction Traffic Management Plan	A Construction Traffic Management Plan (CTMP) will be developed prior to the construction commencing. The CTMP will consider the operation and management of all construction traffic to ensure the safe and efficient transportation of the turbine components and other materials to the site during the construction phase. The CTMP will form an appendix to the final CEMP.	Construction

Subject Area	Mitigation Measure	Timing
	<p>Information on the temporary signage strategy for the delivery route will be presented in the CTMP along with details of temporary advance warning signage at crossing points and the site access junction. The CTMP will also set out a number of road safety measures including use of wheel washers and load netting to reduce the impact of mud, dirt and general detritus deposits on the road.</p> <p>Details of the number of personnel expected on-site will be set out within the CTMP following confirmation with the appointed contractors. Details will include the staff parking arrangements and any strategies for promoting car sharing. All staff will be expected to park within the Site boundary and clear of the adopted public road.</p> <p>It is inevitable that traffic management measures will need to be implemented while mitigation works are undertaken on the road network. If works require temporary road closures, suitable diversion routes will be agreed with the relevant road authority and information will be provided to the public and emergency services to minimise any safety risk and potential delay.</p> <p>At this stage, no road closures are anticipated in order to facilitate the movements of abnormal vehicles. However, where abnormal loads are required to use the whole carriageway to complete a manoeuvre or where a narrow section of the route requires single file running, traffic will need to be controlled by Police escorts.</p> <p>It is proposed that abnormal load deliveries will be carried out outside of typical peak hours to minimise disruption and delay on the local and wider road network. Once vehicle details are known, the haulier will provide load specifications to each affected road authority so that the suitability of the structures along the route can be re-confirmed, prior to undertaking any deliveries.</p> <p>It is proposed that the local community be updated on the haulage delivery schedule so that people have the opportunity to plan journeys with advanced knowledge. This will help to reduce potential for disruption, specifically on the minor roads.</p> <p>It is proposed that information be disseminated via posting information on a website and the possible use of variable message signs. Furthermore, a channel of communication will be made available, most likely by 24 hour phone number, where specific issues and emergencies can be brought to the attention of the project team. It is envisaged that this can also be used to highlight any particular maintenance issues as they arise.</p> <p>All vehicles arriving on-site will be expected to travel in a courteous and respectful manner. The public will be able to report cases of dangerous driving or routeing infringements to the site operator using email or 24 hour emergency contact details to be provided by the Principal Contractor.</p>	
Road Condition Survey	<p>A review of the before and after condition of the carriageway will be undertaken in order to ascertain any damage caused by the construction traffic. It is proposed that a video survey is undertaken, supplemented by inspections as required, prior to the commencement of any works and again upon their completion. This will allow all parties to agree the scope of any issues related directly to the site's construction activities. Given the prolonged period of the construction phase, it is acknowledged that some interim works may be required. The details of these works will be confirmed as issues occur.</p> <p>It is accepted that the responsibility for any maintenance requirements identified and shown to be as a direct result of site construction traffic, will lie with the Applicant. General road maintenance and all maintenance post-construction will remain the responsibility of the relevant road authority.</p>	Construction
Abnormal Loads	<p>The movement of abnormal load convoys will be timed to pass through Aberdeen or Dundee Centres, and the town of Westhill, avoiding peak times. This measure will also ensure deliveries occur during times when pedestrian activity is lower.</p> <p>All abnormal load deliveries will be undertaken using Police escort vehicles to control other road users where abnormal loads are required to use the whole carriageway to complete a manoeuvre or where a narrow section of the route requires single file running.</p> <p>The mitigation works proposed on the turbine delivery route ensure that the largest vehicles are able to negotiate the various junctions and other constraints safely and without undue delay. Street furniture will be temporarily removed to enable the vehicles to over-sail the verges and footways as required. A trial run will be undertaken to re-confirm the suitability of the route prior to the delivery of any turbine components.</p> <p>The haulier will provide load specifications to each affected road authority so that the suitability of the structures along the route can be re-confirmed, prior to undertaking any deliveries. Furthermore, and as outlined above, a road condition survey will be undertaken prior to deliveries starting and again once deliveries have been completed to identify any damage to the carriageway which is as a result on the movement of the abnormal loads. It is agreed that any damage caused by abnormal loads is made good at the Applicant's cost.</p>	Construction

Subject Area	Mitigation Measure	Timing
HGVs	<p>The CTMP, prepared in agreement with each road authority, will include a package of measures to ensure that HGV traffic does not cause undue disruption to other road users. This will include routeing agreements and confirmation of times of operation and delivery schedules.</p> <p>HGVs will be routed via either the A944 or the B9119 and B9125 to arrive at the site via the B977. Specifically, HGVs will be required to avoid the B9119 to the east of Echt where the overall traffic impact would be the greatest. Further review of the principal routes for the delivery of aggregates and concrete may be necessary following confirmation of the source quarries and batching facilities and this will be covered within the Final CTMP, as necessary.</p>	Pre-construction
Chapter 12: Acoustic Assessment		
Good practice measures	<p>For all activities, measures would be taken to reduce noise levels with due regard to practicality and cost as per the concept of ‘best practicable means’ as defined in Section 72 of the Control of Pollution Act 1974.</p> <p>Furthermore, the following noise mitigation options will be implemented where appropriate:</p> <ul style="list-style-type: none"> • Consideration would be given to noise emissions when selecting plant and equipment to be used on-site; • All equipment will be maintained in good working order and fitted with the appropriate silencers, mufflers or acoustic covers where applicable; • Stationary noise sources will be sited as far away as reasonably possible from residential properties and where necessary and appropriate, acoustic barriers could be used to screen them; and • The movement of vehicles to and from the site will be controlled and employees instructed to ensure compliance with the noise control measures adopted. <p>Should it be considered necessary to reduce noise levels from the conservative predicted levels to adhere to the 65 dB(A) weekday (07:00-19:00) threshold and 55 dB(A) threshold for Saturday afternoons (13:00-19:00), the following mitigation measures will be considered:</p> <ul style="list-style-type: none"> • Reduce the number of construction activities occurring simultaneously; • Restrict the distance of construction activity from nearby properties during these times; and • Reduce construction traffic as appropriate. 	Construction
Blasting	<p>With specific regard to borrow pit blasting, it is proposed that the following mitigation measures are implemented:</p> <ul style="list-style-type: none"> • Good practice on blasting, as recommended by Planning Advice Note (PAN) 50 ‘Controlling the environmental effects of surface mineral workings’ will be followed; • The vibration and air overpressure reduction methods outlined in Section 8.6.9.2 of BS 5228-2:2009 will be adhered to where appropriate; • Advance warning will be given to nearby residents; • Blasting will only occur between the hours of 08:00-18:00 on Mondays-Fridays or between the hours of 08:00-13:00 on Saturdays; and • No more than three blasts per day will occur with a maximum charge size of 200 kg per blast at the eastern most borrow pit near the site entrance. • No more than three blasts per day will occur with a maximum charge size of 1000 kg per blast for the other five borrow pits (excluding the eastern most borrow pit). <p>Depending upon the charge sizes required it may be prudent to perform trial blasts with smaller amounts of explosive and measure vibration magnitudes at various distances to more accurately determine how vibration propagates at the site.</p>	Construction
Design	<p>One of the key constraints and considerations in designing the layout of the turbines was the minimisation of potential noise impacts at the nearest residential receptors. As such the turbine layout was designed to ensure that there is an adequate separation distance between any of the proposed turbines and the nearest residential property.</p>	Operation

Subject Area	Mitigation Measure	Timing
	If planning permission is granted for the Proposed Development, planning conditions can be proposed to provide a degree of protection to nearby residents in the form of limits relating to noise level and tonality. Refer to Technical Appendix 12.7 for the set of draft planning conditions	
Chapter 14: Aviation and Other Issues		
Aviation	<p>A Radar Mitigation Scheme (RMS) will be agreed with National Air Traffic Services (NATS) that will remove or reduce to an acceptable level, the impact of the Proposed Development on the NATS En-route Limited (NERL) Perwinnes Radar. The RMS will be agreed prior to the Proposed Development becoming fully operational.</p> <p>A reduced visible aviation lighting scheme has been agreed with the Civil Aviation Authority (CAA). The reduced scheme means only seven wind turbine needs to be lit and no tower lights are required provided an infrared scheme is agreed with the Defence Infrastructure Organisation (DIO).</p> <p>An infrared lighting scheme will be agreed with the DIO prior to the Proposed Development becoming fully operational.</p>	Post-construction
Shadow Flicker	Should incidences of shadow flicker be reported, they will be investigated and if required mitigation applied. Mitigation measures include planting tree belts between the affected dwelling and the responsible turbine(s), and shutting down individual turbines during periods when shadow flicker could theoretically occur.	Operation
Forestry	<p>The Proposed Development has sought to minimise potential impact upon existing forestry on site. In order to comply with the criteria of the Scottish Government's Control of Woodland Removal Policy, compensation planting will be required. The Applicant is committed to providing appropriate compensatory replanting assumed to be at least 12.56 ha. A total area of 42.81 ha has been set aside for potential planting and all within the Site.</p> <p>The extent, location and composition of such planting will be agreed with Dunecht Estates and Scottish Forestry, taking into account any revision to the Dunecht Estate's felling and restocking plans through a planning condition prior to the commencement of operation of the Proposed Development.</p>	Operation

15.2 Summary of Residual Effects

Introduction

- 15.2.1 **Table 15.2** provides a reference to any significant residual environmental effects identified in the technical sections of this EIAR, as well as a cross reference to the relevant mitigation measures identified.
- 15.2.2 The residual effects are highlighted in bold where an effect is considered to be significant. Unless otherwise stated, the residual effects are adverse in nature.

Table 15.2 Summary of Residual Effects

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
Chapter 6: Landscape and Visual Impact Assessment			
Construction Phase			
Effects on Existing Landscape Features	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Moderate / Minor non-significant effect to moorland vegetation, watercourses and drainage channels as a worst case.
Effects on Landscape Character Types (LCTs) within which the Proposed Development is located	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Major / moderate significant effect to the central part LCT 22(i) Grampian Outliers where the Proposed Development would be located as a worst case.
Indirect effects to other LCTs	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Moderate / Minor non-significant effect to parts of LCT 22 (i) Grampian Outliers and LCT 25 (ii) Deeside as a worst case.
Visual effects	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Major / moderate significant temporary effect from elevated locations such as Viewpoint 10 as a worst case.
Operational Phase			
LVIA Viewpoints during daylight hours	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Significant effects from 16 of the 22 LVIA Viewpoints as a worst case.
LVIA Viewpoints during dark sky hours	Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit (T01, T04, T06, T07, T10, T12 and T16).	This has been implemented through embedded mitigation.	Significant effects from 11 of the 22 LVIA Viewpoints as a worst case.
Effects on settlements during daylight hours	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Significant effects from seven settlement as a worst case.
Effects on settlements during dark sky hours	Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit (T01, T04, T06, T07, T10, T12 and T16).	This has been implemented through embedded mitigation.	Significant effects from seven settlements as a worst case.
Effects on users of Core Paths during daylight hours	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Significant effects from five Core Paths as a worst case.
Effects on users of Core Paths dark sky hours	Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit (T01, T04, T06, T07, T10, T12 and T16).	This has been implemented through embedded mitigation.	Significant effects from five Core Paths as a worst case.
Effects on users of Cycle Routes during daylight hours	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the	This has been implemented through embedded mitigation.	Significant effects from Aberdeenshire Cycle Route - Midmar - Dunecht as a worst case.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
	design process. Refer to Chapter 3: Design Evolution and Alternatives .		
Effects on users of Cycle Routes during dark sky hours	Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit (T01, T04, T06, T07, T10, T12 and T16).	This has been implemented through embedded mitigation.	Significant effects from Aberdeenshire Cycle Route - Midmar - Dunecht as a worst case.
Effects on road users during daylight hours	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Significant effects from A980, B993, B9119, B977 as a worst case.
Effects on road users during dark sky hours	Mitigation of visible turbine aviation lighting has been designed into the scheme by adopting a cardinal lighting scheme where only the outermost turbines are lit (T01, T04, T06, T07, T10, T12 and T16).	This has been implemented through embedded mitigation.	Significant effects extending to approximately 7 km from the Proposed Development as a worst case.
Effects on Dee Valley SLA	No additional mitigation is proposed as consideration of landscape and visual matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Significant effects extending to approximately 7 km from the Proposed Development as a worst case.

Chapter 7: Cultural Heritage Assessment

Construction

Effect on the potential site of the Battle of Corrichie (NJ60SE0001)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	Minor effect on NJ60SE0001 which is not deemed significant.
Effect on the Farmstead (SL79)	Fence off or mark out any heritage assets or features in proximity to construction activities in order avoid disturbance where possible. This will be included within the appropriate section of the CEMP.	Implementation of the CEMP on site will be through an appropriately worded planning condition.	Very minor effect on SL79 which is not deemed significant.
Effect on Boundary Stones (SLR44, SLR100, SLR106 and SLR119)	Assets will be recorded through photography to preserve photographic record.	Implementation of the CEMP on site will be through an appropriately worded planning condition	Minor effect on Boundary Stones which is not deemed significant.
Effect on Farmstead (SLR96)	Fence off or mark out any heritage assets or features in proximity to construction activities in order avoid disturbance where possible. This will be included within the appropriate section of the CEMP.	Implementation of the CEMP on site will be through an appropriately worded planning condition.	Very minor effect on SLR96 which is not deemed significant.
Effect on Sheilings (SLR116)	Fence off or mark out any heritage assets or features in proximity to construction activities in order avoid disturbance where possible. This will be included within the appropriate section of the CEMP.	Implementation of the CEMP on site will be through an appropriately worded planning condition.	Very minor effect on SLR116 which is not deemed significant.
Effect on Unknown buried remains	A watching brief will be maintained on site on ground breaking works to assess the potential for hitherto unrecorded buried archaeological remains to survive within the Proposed Development. If significant archaeological remains are identified during the watching brief, there is the potential that further works, such as excavation and post-excavation analysis, could be required. Details of mitigation will be agreed with AC through a Written Scheme of Investigation (WSI). This will be included within the appropriate section of the CEMP.	Implementation of the CEMP on site will be through an appropriately worded planning condition.	Moderate effect which is deemed a significant effect .

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
Operational			
Effect on Barmekin of Echt (SM57)	Effects on this asset have been addressed through embedded mitigation. However, a programme of enhancement measures have been proposed for Barmekin of Echt (SM57) and Upper Broomhall (SM12190) which include: <ul style="list-style-type: none"> An erosion survey to inform the improvements to access; Enhancement of appreciation points at the Hill Fort along with the provision of interpretation boards; Designated pathways to access monuments and limit foot erosion; and Provision of increased parking availability. 	Implementation through an appropriately worded planning condition requiring a Cultural Heritage Enhancement Management Plan.	Moderate effect on SM57 which is deemed a significant effect .
Effect on Sunhoney, Stone Circle (SM44)	Effects on this asset have been addressed through embedded mitigation. However, a programme of enhancement measures have been proposed for Sunhoney (SM44) which include: <ul style="list-style-type: none"> Enhancement of appreciation points at the edge of the monument along with the provision of interpretation boards; Creation of designated pathways to access monuments and limit foot erosion. 	Implementation through an appropriately worded planning condition requiring a Cultural Heritage Enhancement Management Plan.	Moderate effect on SM44 which is deemed a significant effect .
Effect on Upper Broomhill (SM12190)	Effects on this asset have been addressed through embedded mitigation. However, a programme of enhancement measures have been proposed for Barmekin of Echt (SM57) and Upper Broomhall (SM12190) which include: <ul style="list-style-type: none"> An erosion survey to inform the improvements to access; Enhancement of appreciation points at the Hill Fort along with the provision of interpretation boards; Designated pathways to access monuments and limit foot erosion; and Provision of increased parking availability. 	Implementation through an appropriately worded planning condition requiring a Cultural Heritage Enhancement Management Plan.	Minor effect on SM12190 which is not deemed significant.
Effect on Midmar Castle (LB16262)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Minor effect on LB16262 which is not deemed significant.
Effect on Christchurch (SM32)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Minor effect on SM32 which is not deemed significant.
Effect on New Wester Echt (SM6074)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Minor effect on SM6074 which is not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
Effect on Tamnagorn (SM49)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Very minor effect on SM49 which is not deemed significant
Effect on Cluny Castle (GDL000103)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Very minor effect on GDL000103 which is not deemed significant
Effect on Midmar Motte (SM100)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Very minor effect on SM100 which is not deemed significant
Effect on Cluny Crichton Castle (LB3246)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Negligible effect on LB3246 which is not deemed significant
Effect on Learney House (LB9516)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Negligible effect on LB9516 which is not deemed significant
Effect on Crathes Castle (GDL00119)	No additional mitigation is proposed as consideration of cultural heritage matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives.	This has been implemented through embedded mitigation.	Negligible effect on LB9516 which is not deemed significant
Effect on Cullerie (SM90088)	No mitigation required as no impact anticipated.	None	Neutral / None
Effect on East Finnercy (SM6076)	No mitigation required as no impact anticipated.	None	Neutral / None
Effect on Dunecht House (GDL00153)	No mitigation required as no impact anticipated.	None	Neutral / None
Effect on Ha Hoose and Raemoir House (LB3247/LB3249)	No mitigation required as no impact anticipated.	None	Neutral / None

Chapter 8: Ecology

Construction

Loss of Habitats: dry heath	The appointment of an ECoW for the duration of the construction works and is responsible for advising the Applicant and Principal Contractor on micro-siting requirements to ensure impacts on dry heath are reduced further where possible. The BEMP is predicted to improve the quality and integrity of the dry heath habitat during the operational phase.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Low adverse effects which are not deemed significant.
Loss / Drying effect on habitat: blanket bog	Embedded mitigation during the design process (i.e 50 m watercourse buffer). Further to this, mitigation includes the adoption of good practice and the appointment of an ECoW for the duration of the construction works and is responsible for advising the Applicant and Principal Contractor on micro-siting requirements to ensure impacts on blanket bog are reduced further where possible.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Negligible adverse effects which are not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
	The BEMP will be implemented during the construction and operation phases that will focus on restoration of blanket bog and will likely include positive net benefit in terms of supporting the peat macrotope overall integrity.		
Operational			
Loss of habitat: dry heath	The BEMP is predicted to improve the quality and integrity of the dry heath habitat during the operational phase.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Low <u>beneficial effect</u> which is not deemed significant.
Loss / Drying effect on habitat: blanket bog	The BEMP is predicted to improve the quality and integrity of the blanket bog habitat during the operational phase.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Moderate <u>beneficial effect</u> which is deemed a significant effect .
Bracken control	The BEMP prescribes management controls to limit the further expansion and dominance of bracken across the site. This is to be completed primarily through manual controls undertaken throughout specific growth seasons of the year.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Low <u>beneficial effects</u> which is not deemed significant.
Riparian habitat enhancement / Deer control	The BEMP describes the measures to be adopted to promote the regeneration, enhancement and expansion of riparian habitat within the site. This is to be achieved through a marked increase in deer control/cull rates across the Site and complimented with riparian tree planting where appropriate.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Moderate <u>beneficial effect</u> which is deemed a significant effect .
Commercial plantation woodland regen control	The BEMP prescribes management controls to limit the further expansion and reduce the presence of commercial plantation tree species across the Site. This is to be completed through regular manual controls undertaken throughout the year.	Through implementation of the proposed habitat enhancement measures within the BEMP	Low <u>beneficial effect</u> which is not deemed significant.
Chapter 9: Ornithology			
Construction			
Red kite: construction displacement	Embedded mitigation such as the development and implementation of a Bird Disturbance Management Plan (BDMP), appointment of an ECoW and pre-construction are proposed during the construction phase. These measures will aim to ensure that no breeding activity is disrupted by construction activities.	The appointment of an ECoW and the implementation of a CEMP and BDMP on site.	Displacement of red kite during construction is not deemed significant.
Operational			
Red kite: operational displacement	No significant unmitigated effects were predicted for any Important Ornithological Features, and therefore no specific mitigation is required. Measures within the BEMP, specifically, bracken management, will extend outwith the wind farm area and will provide additional foraging areas for red kite, thus reducing any potential reliance on the open ground contained within the wind farm area.	Through implementation of the proposed habitat enhancement measures within the BEMP.	Displacement of red kite during operation is not deemed significant.
Red kite: operational collision risk	No significant unmitigated effects were predicted for any Important Ornithological Features, and therefore no specific mitigation is required. Measures within the	Through implementation of the proposed habitat enhancement measures within the BEMP.	Collision risk of red kite during operation is not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
	<p>BEMP, specifically, bracken management, will extend outwith the wind farm area and will provide additional foraging areas for red kite, thus reducing any potential reliance on the open ground contained within the wind farm area.</p> <p>In addition, A deer management plan will be produced prior to construction commencing and will include provision for the removal of deer carrion and grallochs from within 200 m of the Proposed Development turbines throughout the operational period to help reduce the attractiveness of areas near turbines, and therefore reduce collision risk for red kite</p>		

Cumulative

Red kite: cumulative collision risk	<p>No significant unmitigated effects were predicted for any Important Ornithological Features, and therefore no specific mitigation is required. Measures within the BEMP, specifically, bracken management, will extend outwith the wind farm area and will provide additional foraging areas for red kite, thus reducing any potential reliance on the open ground contained within the wind farm area.</p> <p>In addition, A deer management plan will be produced prior to construction commencing and will include provision for the removal of deer carrion and grallochs from within 200 m of the Proposed Development turbines throughout the operational period to help reduce the attractiveness of areas near turbines, and therefore reduce collision risk for red kite</p>	Through implementation of the proposed habitat enhancement measures within the BEMP.	Cumulative effect from collision risk of red kite during operation is not deemed significant.
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Chapter 10: Hydrology, Geology and Hydrogeological Assessment

Construction

Surface Water Flow and Level Alterations	<p>Embedded mitigation through design and good practice.</p> <p>Mitigation will include:</p> <ul style="list-style-type: none"> • Drainage deigned in accordance with SuDS principles; and • Watercourse crossings to be appropriately sized. 	<p>Through the implementation of the CEMP, with specific reference to:</p> <ul style="list-style-type: none"> • Pollution Prevention Plan (PPP); • SEPA Pollution Prevention Guidance (PPGs) and Guidance for Pollution Prevention (GPPs); • CAR (including General Binding Rules (GBRs)); • Water Quality Monitoring; and • Monitoring by ECoW. 	Negligible effects on surface water which is not deemed significant.
Groundwater Flow and Level Alterations: Ground Water	Any excavations requiring dewatering are to be kept open for the minimum time possible.	<p>Through the implementation of the CEMP, with specific reference to:</p> <ul style="list-style-type: none"> • SEPA PPGs and GPPs; and • CAR (including GBRs). 	Negligible effects on ground water which is not deemed significant.
Groundwater Flow and Level Alterations: Private Water Supplies (PWS)	<p>Embedded mitigation through design such as:</p> <ul style="list-style-type: none"> • Design developed to maximise distance to PWS; and • Existing drainage to be maintained where possible. <p>Mitigation includes any excavations requiring dewatering are to be kept open for the minimum time possible.</p>	<p>Through the implementation of the CEMP, with specific reference to:</p> <ul style="list-style-type: none"> • Water Quality Monitoring; and • Monitoring by ECoW. 	Minor effects on PWS which is not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
Groundwater Flow and Level Alterations: GWDTE	Embedded mitigation through design such as: <ul style="list-style-type: none"> Design developed avoid direct impact on GWDTE; and Existing drainage to be maintained where possible. Mitigation includes any excavations requiring dewatering are to be kept open for the minimum time possible.	Through the implementation of the CEMP, with specific reference to: <ul style="list-style-type: none"> Monitoring by ECoW. 	Negligible effects on GWDTE which is not deemed significant.
Sediment Discharges: Surface Water	Mitigation through the implementation of appropriate SuDS principles and pollution control measures.	Through the implementation of the CEMP, with specific reference to: <ul style="list-style-type: none"> PPP; SEPA PPGs and GPPs; CAR (including GBRs); and Monitoring by ECoW. 	Minor effects on surface water which is not deemed significant.
Contaminant Discharges: Groundwater	Mitigation measures include <ul style="list-style-type: none"> ensuring concrete batching is undertaken in line with GPP6; and ensuring that the storage of fuels and oils in line with GPP2 and GPP8. 	Through the implementation of the CEMP, with specific reference to: <ul style="list-style-type: none"> PPP; SEPA PPGs and GPPs; CAR (including GBRs); and Monitoring by ECoW. 	Negligible effects on groundwater which is not deemed significant.
Contaminant Discharges: PWS			Negligible effects on PWS which is not deemed significant.
Contaminant Discharges: GWDTE			Negligible effects on GWDTE which is not deemed significant.
Contaminant Discharges: Soils			Negligible effects on soils which is not deemed significant.
Soil Loss and Compaction: Peat	Mitigation measures include the appropriate handling, storage, reuse and reinstatement of peat.	Through the implementation of a Peat Management Plan (PMP) and the appointment of an ECoW to monitor its implementation.	Minor effects on peat which is not deemed significant.
Peat Instability	Embedded mitigation through design to avoid areas of peat landslide risk.	Through the implementation of the mitigation measures within the Peat Landslide Risk Assessment.	Minor effects on peat instability which is not deemed significant
Operational			
Surface Water Flow and Level Alterations	Drains associated with tracks (trackside, undertrack and transverse) and the permanent SuDS features will be inspected periodically, including after any heavy rainfall event, and maintained as necessary.	Through the implementation of an OEMP on site.	Negligible effects on surface water which is not deemed significant.
Groundwater Flow and Level Alterations: Groundwater	Drains associated with tracks (trackside, undertrack and transverse) and the permanent SuDS features will be inspected periodically, including after any heavy rainfall event, and maintained as necessary.	Through the implementation of an OEMP on site.	Negligible effects on groundwater which is not deemed significant.
Groundwater Flow and Level Alterations: PWS			Minor effects on PWS which is not deemed significant.
Groundwater Flow and Level Alterations: GWDTE			Negligible effects on GWDTE which is not deemed significant.
Sediment Discharges	Cuttings and embankments associated with tracks will be managed as required to ensure stability of vegetation cover and regularly inspected for erosion and gullyng.	Through the implementation of an OEMP on site.	Minor effects on surface water which is not deemed significant.
Contaminant Discharges: Groundwater	Mitigation measures include the storage of fuels and oils in line with GPP2 and GPP8.	Through the implementation of an OEMP on site.	Negligible effects on groundwater which is not deemed significant.
Contaminant Discharges: PWS	All vehicles associated with operation and maintenance to carry spill kits.		Negligible effects on PWS which is not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
Contaminant Discharges: GWDTE			Negligible effects on GWDTE which is not deemed significant.
Contaminant Discharges: Soils			Negligible effects on soils which is not deemed significant.
Peat Instability	Embedded mitigation through design to avoid areas of peat landslide risk.	Through the implementation of the mitigation measures within the Peat Landslide Risk Assessment.	Minor effects on peat instability which is not deemed significant
Decommissioning			
Surface Water Flow and Level Alterations	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a Decommissioning Environmental Management Plan (DEMP) on site.	Negligible effects on surface water which is not deemed significant.
Groundwater Flow and Level Alterations: Groundwater	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Negligible effects on groundwater which is not deemed significant.
Groundwater Flow and Level Alterations: PWS	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Minor effects on PWS which is not deemed significant.
Groundwater Flow and Level Alterations: GWDTE	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Negligible effects on GWDTE which is not deemed significant.
Sediment Discharge: Surface Water	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Minor effects on surface water which is not deemed significant.
Contaminant Discharges: Groundwater	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Negligible effects on groundwater which is not deemed significant.
Contaminant Discharges: PWS	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Negligible effects on PWS which is not deemed significant.
Contaminant Discharges: GWDTE	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach and changes in legislation at the time of decommissioning.	Implementation of a DEMP.	Negligible effects on GWDTE which is not deemed significant.
Soil Loss and Compaction: Peat	Appropriate mitigation, environmental management and monitoring measures will be adopted as during the construction phase, subject to advances in approach	Implementation of a DEMP.	Minor effects on peat which is not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
	and changes in legislation at the time of decommissioning.		
Peat Instability	Embedded mitigation through design to avoid areas of peat landslide risk.	Through the implementation of the mitigation measures within the Peat Landslide Risk Assessment.	Minor effects on peat instability which is not deemed significant
Chapter 11: Access, Traffic and Transport			
Construction			
Moderate effect from abnormal loads on Pedestrian Amenity, Fear & Intimidation; and accidents & road safety	Mitigation measures include: <ul style="list-style-type: none"> Provision of an abnormal loads escort; implementing identified works to facilitate movement on the road network; and a delivery schedule avoiding busy times. 	Liaison with the Police and affected roads authorities in line with measures set out in the Abnormal Loads Route Assessment (ALRA) (Technical Appendix 11.1).	Minor effect which is not deemed significant.
Chapter 12: Acoustic Assessment			
Construction			
Potential for noise and vibration to be created during general construction activities and by construction traffic	Due regard for 'best practicable means' (defined by Section 72 of the Control of Pollution Act 1974). A range of noise mitigation measures are proposed for the construction phase in accordance with measures outlined in BS 5228-1:2009. Site operations to be limited to 07:00-19:00 Monday to Saturday (except during the construction of the turbine foundations and turbine erection or periods of emergency work). Good practice on blasting shall be followed along with guidance on charge size, blast frequency and timing.	Noise mitigation measures would be implemented as part of the CEMP which will be required to be agreed as a condition of consent.	Effects resulting from general construction activities are not deemed significant.
Operational			
Potential impact on residential amenity due to operational noise	Impact is deemed to be acceptable as the Proposed Development meets noise limits specified by relevant guidance both alone and in the cumulative scenario. No additional mitigation measures are required due to absence of identified significant effect.	The Proposed Development will operate to conditioned requirements, proposed conditions provided in Technical Appendix 12.7: Suggested Planning Conditions.	Effects on residential amenity are not deemed significant.
Decommissioning			
Potential noise from Proposed Development decommissioning activities	General best practice measures of reducing noise, employed during the construction phase, would be adopted as precaution.	A Decommissioning and Restoration Plan would be submitted for approval no later than twelve months prior to the final decommissioning of the Proposed Development.	Effects from decommissioning activities are not deemed significant.
Chapter 13: Socio-economics			
Construction			
Socio-economics	No mitigation measures have been considered for the Proposed Development as there are no significant adverse effects anticipated.	None	Minor / Moderate beneficial effect which is deemed a significant effect .
Tourism	No mitigation measures have been considered for the Proposed Development as there are no significant adverse effects anticipated.	None	Negligible effect on tourism during construction which is not deemed significant.

Likely Significant Effect	Mitigation	Means of Implementation	Residual Effect
Operational			
Socio-economic	No mitigation measures have been considered for the Proposed Development as there are no significant adverse effects anticipated.	None	Negligible / Minor <u>beneficial effect</u> which is not deemed significant.
Tourism	No mitigation measures have been considered for the Proposed Development as there are no significant adverse effects anticipated.	None	Negligible effect on tourism during operation which is not deemed significant.
Chapter 14: Aviation and Other Issues			
Construction			
Forestry: Loss of woodland	Embedded mitigation through design. In addition, a scheme of compensatory replanting is proposed.	Implementation through an appropriately worded planning condition.	Effects resulting from the loss of woodland is not deemed significant.
Unexploded Ordnance (UXO): Exposure to UXO	Re-assess risk pre-construction and apply relevant UXO support such as ground scanning in advance of earth works.	Implementation of the CEMP.	Effects from exposure to UXO are not deemed significant.
Operational			
Aviation: Visible Aviation Warning Lighting	Reduced Lighting Scheme with only 7 of the proposed 16 turbines lit at the nacelle and no tower lights to be placed on any of the turbines.	Lighting scheme will be conditioned requirement upon the consent.	Effects resulting from visible aviation lighting are not deemed significant.
Aviation: Military low flying	Infrared lighting will be fitted to the relevant turbine(s).	Lighting scheme will be conditioned requirement upon the consent.	Effects on the Military Low flying zone are not deemed significant.
Aviation: Impact upon the 2800 ft Surveillance Minimum Altitude Area (SMAA)	Mitigation includes sectoring and/or increasing the height of the 2800 ft SMAA. A change to the IFP would mitigate this impact which requires agreement from Aberdeen Airport who will manage the change	An appropriately worded suspensive condition to be applied in agreement with Aberdeen Airport.	No impact anticipated on the 2800 ft SMAA.
Telecommunications: Impact upon an Arquiva link	No additional mitigation is proposed as consideration of telecommunication matters was inherent in the design process. Refer to Chapter 3: Design Evolution and Alternatives .	This has been implemented through embedded mitigation.	No impact is anticipated on the Arquiva link.
Shadow Flicker: Potential shadow flicker at identified receptors	Embedded mitigation through design limits potential number of receptors. Mitigation measures can also include planting tree belts between the affected dwelling and the responsible turbine(s) and shutting down individual turbines during periods if shadow flicker was to occur.	Implementation of the OEMP.	Potential shadow flicker effects at identified receptors are not deemed significant.