

Preliminary EMP

Project specific measures to avoid and / or prevent significant adverse environmental effects (i.e. mitigation measures) have been considered through the EIA Scoping process when appraising likely environmental effects.

At this stage, this has focussed on 'primary mitigation' (i.e. inherent mitigation, comprising fundamental aspects of the project design) and 'tertiary mitigation' (i.e. standard environmental commitments / practices).

To support RMBC and RBC and other stakeholders, the mitigation measures that have been identified at this stage have been collated into a single Schedule of Mitigation set out below. This will be developed further as part of the ES. To note, the 'primary mitigation' is outlined within **Chapter 4** and is not captured specifically below. Therefore, only relevant tertiary mitigation measures are captured within the table below.

It is envisaged that mitigation will be secured through suitably worded planning conditions or another mechanism, where appropriate, and the Schedule of Mitigation will be utilised by the Applicant and appointed contractor(s) to control mitigation commitments and assurance over their implementation.

Schedule of Mitigation

Mitigation measure	Description / details of measure
Construction Environmental Management Plan (CEMP) / Decommissioning Environmental Management Plan (DEMP)	<p>A CEMP / DEMP will be prepared, which will set out the environmental measures to manage and control environmental effects during construction / decommissioning, as appropriate.</p> <p>A CEMP / DEMP should include measures in line with all relevant legislation, government and industry standards, codes of practice and best practice measures, inclusive of, but not limited to:</p> <ul style="list-style-type: none"> • Construction (Design and Management) Regulations 2015; • Environmental Protection Act 1990; • Environmental Protection (Duty of Care) Regulations 1991; • The Waste (England and Wales) Regulations 2011; • The Confined Space Regulations; and • CIRA's Control of water pollution from construction sites, Guidance for consultants and contractors. <p>Specific measures to be included are outlined below:</p> <p><u>Air quality and dust management</u></p> <ul style="list-style-type: none"> • Implementation of emissions in line with IAQM's Guidance on the Assessment of Dust from Demolition and Construction including: <ul style="list-style-type: none"> • Undertaking daily on-site and off-site inspections where receptors (including roads) are nearby, to monitor dust; • Erecting solid screens or barriers around dusty activities or the working area boundary that are at least as high as any stockpiles on-site; • Ensuring all vehicles switch off their engines when stationary - no idling vehicles; and • Using enclosed chutes, conveyors and covered skips. • Construction plant emissions will be switched off when not in use and will meet emissions standards. <p><u>Artificial lighting</u></p> <ul style="list-style-type: none"> • Appropriate positioning and direction of lighting to avoid light spillage / glare to properties; • Use of accessories, such as hoods or shields to direct light to where it is required; • The use of sufficient lighting units for the task in hand to avoid the need for tall, wide beam lighting units;

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- Use of motion-sensor activated lighting, where practicable;
- The reduction of fixed lighting outside core construction working hours; and
- Any requirements for ongoing monitoring and liaison with stakeholders.

Utilities

- Existing utilities and services will be identified in liaison with the relevant operators;
- The preparation of specific method statements and making workers aware of the location of utilities where works are undertaken in proximity to utilities; and
- Adherence to relevant HSE guidance, including Avoiding danger from underground services.

Flood risk and water management

- Management of surface water in line with industry best practice and guidance, such as British Standard 8582:2013;
- Procedures for operations in proximity to hollows / slopes are to be adopted to minimise flood risks; and
- Checking the weather forecast and works to be postponed in time of severe rainfall events to mitigate potential risk of flooding to construction workers;
- Installation of temporary drainage system (before permanent drainage strategy is installed);
- Storage of all materials appropriately to avoid increasing flood risk off-site;
- No storage site accommodation / cabins are to be stored / located in areas at risk of surface water flooding; and
- Procedures for operations in proximity to watercourses are to be adopted to minimise flooding risks.

Contamination management

- Use of Personal Protective Equipment (PPE);
- Preparation of method statements;
- Environmental awareness training; and
- Use of appropriate Respiratory Protective Equipment (RPE), where required.

UXO management

- The potential risks of UXO will be communicated to all construction workers, provision of safety training by a competent UXO expert and safety monitoring.
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Mitigation measure	Description / details of measure
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Traffic management

- Preparation of a construction logistics / traffic management plan to include planned route(s) for construction traffic, restricting deliveries to certain periods and appropriate management in relation to other activities adjacent (e.g. quarry operations); and
- All vehicles are to adhere to the highway code and where dangerous loads are being transported these would be done in accordance with relevant legislation.

Fire safety

- Works will be undertaken in accordance with Fire Prevention on Construction Sites: Joint Code of Practice and HSE's Fire safety in construction.

PRoW Management

- The public would be informed of the nature, timing and duration of particular activities and the duration of any works by newsletters and liaison with Parish Councils where applicable;
- For health and safety reasons, construction plant should be separated from public access points via the use of specific construction vehicular access points and public access will be redirected away from the area of works wherever possible; and
- The provision of clear directions for any alternative routes to maintain public access.

Site security

- Site security arrangements during the construction stage will be in line with the requirements set out in the Construction (Design and Management) Regulations 2015;
- Temporary fencing and hoarding will be erected around relevant working areas and compound area / laydown areas to prevent unauthorised entry;
- Use of lighting; and
- Appropriate management of the movement of vehicles plant, equipment and personnel.

Waste management

- Preparation of waste management plan to outline the aims, objectives and ongoing management responsibilities, including management practices, to be implemented and set targets for the reduction, diversion of landfill and reuse of waste;
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Mitigation measure	Description / details of measure
	<ul style="list-style-type: none"> • Ordering of materials will be on an 'as needed' basis to prevent over supply; • Co-ordination with suppliers enabling them to take / buy back surplus stock; • Purchase of materials pre-cut to length to avoid excess scrap waste generated on-site; • Request that suppliers use least amount of packaging possible on materials to be delivered; • Ensuring correct storage and handling of goods to avoid unnecessary damage that would result in their disposal; • Use of reclaimed materials in the construction works; • Characterisation of materials both chemically and physically in line with relevant guidance, such as Waste Classification: Guidance on the classification and assessment of waste; and • Management of hazardous wastes in line with legal requirements (e.g., Control of Pollution (Special Wastes) Regulations 1980 and The Dangerous Substances (Conveyance by Road in Road Tankers and Tank Containers) Regulations 1981), ensuring appropriate storage, collection and disposal in line with sustainable management practices where possible. <p data-bbox="461 730 613 754"><u>Resource use</u></p> <ul style="list-style-type: none"> • The recycling and reuse of materials on-site. <p data-bbox="461 823 734 847"><u>Passerine management</u></p> <ul style="list-style-type: none"> • Outline of timings of works in areas where there are breeding species of high conservation interest (i.e. Birds of Conservation Concern (BoCC) red / amber, Local Biodiversity Action Plan (BAP), UKBAP), particularly where there are high densities or confirmed breeding records; • Sensitive methods for carrying out vegetation clearance and / or excavation of the ground during the breeding season; and • A phased approach, as to prevent large areas of breeding habitat that may take several years to replenish undergoing excavation and compaction from machinery simultaneously. <p data-bbox="461 1158 595 1182"><u>Heat stress</u></p> <ul style="list-style-type: none"> • Provision of shaded refuge, potable water supplies and appropriate PPE will be provided to avoid health and safety risks associated with high summer temperatures.
Construction Phase Plan	The Plan will be prepared in accordance with the Construction (Design and Management) Regulations 2015. This will include health and safety measures to reduce any identified risks to construction workers from potential land contamination, ground

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	<p>gas and mine gas as well from general construction activities, with appropriate method statements and risk assessments to be prepared prior to the commencement of specific activities.</p> <p>All plant and equipment, such as cranes and other lifting equipment, will be maintained in line with the manufacturers recommendations and operated by suitably qualified personnel. Appropriate bases will be used for plant (e.g. hardstanding).</p>
Peat slide management	<p>The following measures will be implemented with respect to peat slide:</p> <ul style="list-style-type: none"> • Peat storage only on areas of low / negligible peat slide risk; • Controls on peat storage heights; • Provision of adequate cut-off drainage and suitable outflows; and • Routine maintenance and inspection of peat storage areas.
Ground investigation(s)	<p>Intrusive ground investigation works will be undertaken. Where relevant, in line with Land Contamination Risk Management (LCRM), quantitative risk assessments will be required as part of the intrusive ground investigation(s) which will involve comparing soil contaminant concentrations against Generic Assessment Criteria and assessing Source-Pathway-Receptor Linkages. Appropriate mitigation measures will be specified in line with the LCRM.</p>
Material management	<p>Grading certificates for all backfill material and confirmation of the source of all backfill materials provided prior to commencement of backfilling operations. All material brought on-Site and re-used will also be tested in accordance with relevant guidance / standards.</p>
Earthworks / foundation design	<p>Risks from construction over peat will be fully mitigated by appropriate ground investigation and foundation design targeting the underlying competent bedrock strata which have no hazard.</p> <p>All earthworks and foundation design will be in accordance with relevant industry guidance, including British Standard 6031:2009: Code of Practice for Earthwork and Building Regulations Approved Document A - Structure.</p> <p>Implementation of appropriate measures to address unstable ground / geotechnical hazards, including temporary works (shoring of excavations, the design of haul roads, piling and crane platforms, etc).</p>
Turbine structural design	<p>The design of the wind turbines will also be informed by detailed analysis to minimise any aeroelastic effects and appropriate measures will be implemented, such as ensuring that there is enough damping for the different modes and that there is no resonance. The wind turbines will be constructed to current engineering standards, including British Standard EN 61400</p>

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	<p>which relates to turbine structural components. Once completed and operational, there will be regular checks and inspections of the wind turbines.</p>
Operational surface water drainage system	<p>The new surface water drainage systems, which will attenuate / treat runoff. The proposed SuDS will incorporate adequate infrastructure to ensure safe management of storms with a return period of up to 1 in 100 years, plus an allowance for climate change. The drainage strategy will include filter drains to collect any runoff that will convey flow to an attenuation basin with a controlled discharge. The systems will include pollution prevention measures (e.g. interceptors).</p>
Operational fire safety strategy	<p>Stringent control measures for fire will be implemented where appropriate as part of the Project for Assessment. The wind turbines will be fitted with an active fire protection system, which includes but is not limited to detection (of flames, heat, gas, and smoke), alerting personnel and rescue services, and activating systems for fire suppression or extinguishing.</p> <p>All operational plant / infrastructure as part of the Proposed Scheme will be designed, installed and maintained in line with relevant legislation, standards and guidance, including Electrical Equipment (Safety) Regulations 2016, Electricity Safety, Quality and Continuity (Amendment) Regulations 2006 as well as Recommended Practice for Fire Protection for Electric Generating Plants and High Voltage Direct Current Converter Stations. The control measures for the prevention of fire will be in accordance with legislation, standards and guidance (such as the Equipment and Protective Systems for Use in Potentially Explosive Atmospheres Regulations 2016).</p> <p>There will also be dedicated management / supervision.</p>
Operational waste management strategy	<p>To set out all waste arisings (including materials that would be classified as hazardous waste) and how each waste stream will be managed, transported and disposed of, including compliance with relevant legislation, regulation or guidance for each waste arising (i.e. detailed responsible persons, necessary carriage certificates / duty of care notification or documentation needing to be implemented).</p>
Risk management strategies	<p>The risk management strategies that will be implemented include:</p> <ul style="list-style-type: none"> • The turbines will have sensors on them to detect the buildup of ice and automatically prevent the turbines spinning when ice has developed. In addition, services crews will be trained regarding the potential for ice throw, ice risk conditions will be monitored during operation and public notices will be displayed at access points, alerting members of the public and staff of the possible risk of ice throw under certain weather conditions; • Above the maximum operational wind speed for which they are designed, the blades pitch out of the wind and the turbine stops operating. The maximum allowable windspeed (called 'Vref' or 'V50') is calculated during the suitability

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	<p>assessment. If the calculated V50 exceeds the turbine V50, a yaw power back up system can be deployed, essentially a battery pack to power the yaw motors to ensure the turbine is facing the right direction during a grid outage, a system which extends the V50 by a few m/s; and</p> <ul style="list-style-type: none"> The turbines will have a lightning protection system. The blade tip is made from aluminium and there are three further receptors near the end of the blade with a lightning cable running through the blade and into the hub / nacelle / tower / foundation. A lightning detection system can also be provided to measure the strength of a lightning strike and aid the detection of potential damage.
Operational chemical / substances management	Chemical storage facilities will be designed to the relevant regulations and standards, such as the Dangerous Substances and Explosive Atmospheres Regulations 2002 and associated HSE guidance. All handling, storage and disposal of chemicals / substances will also be undertaken in accordance with relevant regulations.
Operational health and safety management	All operational activities will also comply with all relevant health and safety legislation, such as The Work at Height Regulations 2005 and Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1999. In addition, only qualified staff with the appropriate level of training and experience will undertake specific tasks. There will be the appropriate maintenance of equipment and first aid and safety equipment will be available.
Operational aviation lighting	<p>The operational lighting installations will be designed to relevant legislative requirements, including Article 222 of the Air Navigation Order (ANO) (SI 2016/765 as amended) and Civil Aviation Authority (CAA) Policy Guidelines and Statement.</p> <p>Aviation warning lighting will be installed on wind turbines of 150m or greater tip height. This will include medium intensity (2000 candela) steady red aviation lights on top of the nacelles and low intensity red lights (32 candela) at an intermediate height on the wind turbine towers. To reduce impacts, measures include a reduction in the intensity of lights and directional intensity will be considered.</p>
Operational external lighting strategy	The substation / control building will be equipped with passive infrared sensor-controlled security lighting.
Radar and telecommunications safeguarding strategy	CAP 764 and other international documents such as the Eurocontrol Guidelines for Assessing the Potential Impact of Wind Turbines on Surveillance Sensors provide guidance on how to carry out an assessment of the potential impact of wind turbines on aviation operations together with the typical options for mitigating any impacts. Such mitigation may include

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	sensitive turbine layout and micro-siting, the procurement of new and improved radar equipment to provide additional surveillance data, ensuring the elevation of the blades is below the radar main beam or consideration of in-fill radar.
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	For telecommunications, mitigation options include re-networking by the addition of an extra node on the link path or the replacement of a wireless link with a leased line between the link ends, the use of an alternative scanner, increasing link elevation (by raising the receivers / transmitters) or the replacement of the UHF link with a microwave link.
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