

4. Development Specification

Introduction

- 4.1 This Chapter provides a Development Specification for the Project for Assessment, covering both construction and operational aspects as well as anticipated timescales. As stated within the EIA Scoping Report (**Appendix 2.1**) and **Chapter 2: Approach to EIA**, the construction stage has been used as a proxy for decommissioning. Further specific assumptions for the decommissioning stage have been defined at the end of the Chapter. The purpose of this Chapter is to ensure that the EIA is based on sufficient information to inform a robust assessment of likely significant environmental effects.
- 4.2 As noted in **Chapter 1: Introduction**, this ES has been prepared to support two concurrent full planning applications to RBC and RMBC (the 'Applications'). The Applications are described in the **Planning, Design and Access Statement**.
- 4.3 All technical assessments reported in this ES are based upon the Assessment Boundary shown in **Figure 1.1**. In addition, this Chapter, along with the supporting spatial plans listed below, forms the basis of the technical assessments presented in **Technical Chapters 6 – 15**.
- 4.4 The supporting plans for which approval will be sought as part of the Applications are as follows:
- **Figure 4.1:** Infrastructure Layout;
 - **Figure 4.2:** Infrastructure Layout - Construction Phase;
 - **Figure 4.3:** Infrastructure Layout - Operational Phase;
 - **Figure 4.4:** Rooley Moor Road Crossing Plan View;
 - **Figure 4.5:** Rooley Moor Road Crossing Plan & Longitudinal Section;
 - **Figure 4.6:** Rooley Moor Road Crossing Construction Detail;
 - **Figure 4.7:** Scout Moor Quarries Access Design General Arrangement; and
 - **Figure 4.8:** Scout Moor Quarries Laydown Area and Junction General Arrangement.
- 4.5 The supporting plans for information comprise:
- **Figure 4.9:** Scout Moor Quarries Access Design Swept Path Assessment;
 - **Figure 4.10:** Scout Moor Quarries Laydown Area and Junction Swept Path Assessment;
 - **Figure 4.11:** Aviation Lighting;

- **Figure 4.12:** Typical Turbine Elevation;
- **Figure 4.13:** Typical Turbine Foundation Detail;
- **Figure 4.14:** Typical Crane Hardstanding;
- **Figure 4.15:** Typical Cable Trench Detail (33kV -Onsite Cabling & 132kV Cable - Grid Connection);
- **Figure 4.16:** Indicative Onsite Substation Layout;
- **Figure 4.17:** Indicative Onsite Substation Elevation;
- **Figure 4.18:** Cable Route Options;
- **Figure 4.19:** Typical Construction Compound;
- **Figure 4.20:** Typical Compound Fencing;
- **Figure 4.21:** Typical Track Details;
- **Figure 4.22:** Typical Water Crossing Methods;
- **Figure 4.23:** Proposed Indicative Fencing Layout with Access Point Locations; and
- **Figure 4.24:** Infrastructure Layout - Indicative Decommissioning Plan.

4.6 The Project for Assessment is in part influenced by engineering design work, which will continue to evolve. The ES has been based on the supporting plans listed above and an overarching description of the Project for Assessment, including operational management strategies and a series of assumptions informed by the Applicant and the wider design team. Together, the plans and description in this Chapter are sufficient information to inform a robust assessment of significant environmental effects as reported in this ES.

Assessment Boundary

4.7 All direct temporary and permanent works will take place within the Assessment Boundary as defined in **Figure 1.1**. The Assessment Boundary has been updated since the submission of the 2025 ES to reflect revisions to the Project for Assessment, including the updated grid connection route and amendments to the Planning Application red line boundary. The Assessment Boundary forms the basis upon which all technical assessments, as presented in **Technical Chapters 6 – 15**, are based.

Overview of the Construction Stageⁱ

Construction Sequencing

4.8 The following activities will be undertaken during construction:

- Site securement;
- Enabling works and establishment of temporary laydown area and construction compound;
- Preparation of peat receptor sites ahead of excavation;
- Localised site clearance and implementation of protective measures around features to be retained;
- Remedial works (if required);
- Earthworks to enable the creation of new site access tracks, hardstands and other infrastructure;
- Formation of drainage features and creation of outfall(s);
- Earthworks and operations (e.g. concrete-batching) to create turbine foundations and crane pads (alongside associated landscaping);
- Excavated peatland to be translocated to suitable receptor sites during groundworks;
- Wind turbine erection;
- Installation of electrical connections and construction of substation control building alongside other electrical infrastructure;
- Turbine commissioning and testing;
- Decommissioning of temporary construction compound, site reinstatement works (e.g. turbine hardstanding / crane pads) alongside site finishes; and
- Habitat management / peatland enhancement works.

4.9 Where appropriate, the above activities are discussed in further detail below. Where assumptions have been made, these have been clearly stated.

Site Securement

4.10 Given the nature of the Project for Assessment, it is not necessary to secure the whole Assessment Boundary during the construction stage. Construction working areas (e.g. at each turbine location) alongside temporary laydown area and construction

ⁱ As noted in **Chapter 2: Approach to EIA**, 'construction' includes site preparation / enabling, earthworks, remedial works and construction activities.

compound will be secured using fencing to prevent unauthorised entry and demarcate the working areas, where appropriate.

- 4.11 At the temporary laydown area and construction compound, additional security measures will include the use of lighting. Gates will also be installed at the construction compound to manage the movement of vehicles, plant, equipment and personnel.
- 4.12 Permanent fencing will be installed where required for health, safety and security. Where appropriate, regular small gaps will be installed at the base of this fencing to allow the passage of mammals.

Temporary Laydown Area and Construction Compound

- 4.13 The temporary laydown area and construction compound will be installed early in the construction stage.
- 4.14 The temporary laydown area will be created off the Scout Moor Quarries Access (Scout Road), in the western part of the Assessment Boundary as shown in **Figures 4.1** and **4.8**. This will include an area of hardstanding for laydown and is approximately 130m in length and 64m wide (at the widest point). The temporary laydown area will be surfaced with aggregate.
- 4.15 The construction compound will be located in the central portion of the Assessment Boundary as shown in **Figures 4.1** and **4.2** and will form the hub of construction operations.
- 4.16 The construction compound will be 100m x 100m, totalling 10,000m² (1ha) and will include:
 - Storage area;
 - Chemical and oil storage area;
 - Waste management area;
 - Washout and refuelling area;
 - Site security hut;
 - Hardstanding and parking areas; and
 - Site offices and welfare facilities.
- 4.17 The typical layout detail of a construction compound is shown in **Figure 4.19**. The typical compound fencing detail is shown in **Figure 4.20**.
- 4.18 The site offices and welfare facilities will be up to circa 3m in height from the ground level. The construction compound area will be surfaced with aggregate.
- 4.19 It is assumed that the appointed contractor(s) will provide a temporary power generator to provide power to the construction compound to support the construction

activities. The construction compound will be maintained in a tidy and contained condition.

Site Clearance and Features for Removal and Retention

4.20 Localised site clearance will be undertaken at the locations of the proposed infrastructure as well as the adjacent areas of associated earthworks, as shown in **Figure 4.2**. Clearance will also be required at the woodland reinstatement area shown in **Figure 4.3** and **4.16**.

4.21 The following features will be removed:

- Some mire communities, acid grassland, species-poor soft rush and watercourses / waterbodies (such as pond, ditches, streams / brooks) (further details are provided in **Chapter 9: Ecology** and in the **Moorland Restoration and Management Plan**);
- Heritage assets, including Disused Quarry Pit, Spoil Heap, Boundary Stones, Disused Quarry Pit, north to south aligned linear feature, Drystone Field Boundaries (further details are provided in **Chapter 13: Archaeology** and **Appendix 13.1**); and
- Areas of soils and peat where temporary and permanent infrastructure is proposed and adjacent areas of associated earthworks (further details are provided in **Chapter 14: Hydrology, Hydrogeology and Peat** and in **Appendix 14.3**).

4.22 The following features will be retained (albeit some degree of modification may be undertaken):

- Approximately 4,860m of existing tracks on-site;
- Public Rights of Way (PRoW) on-site;
- Some mire, swamp and heathland communities alongside bracken, grassland, plantation woodland and stones / scree habitats (further details are provided in **Chapter 9: Ecology**);
- Rooley Moor Road alongside other non-designated heritage assets, including Ruins of Field Barn, Linear Feature / Leat, Disused Quarry Pits, Sandstone Quarry Pits, Disused Mine Shaft or Quarry Pits, Boundary Stones, Disused Extraction Pits, Colliery and Ruins of Concrete Building (further details are provided in **Chapter 13: Archaeology** and **Appendix 13.1**);
- Some waterbodies / watercourses on-site; and
- Some soils and peat deposits (further details are provided in **Chapter 14: Hydrology, Hydrogeology and Peat** and in **Appendix 14.3**).
- The ancillary agricultural / commercial buildings within the western portion of the Assessment Boundary associated with the grid connection route Option C will be retained.

- 4.23 Where appropriate, suitable protection zones or measures will be set up around the features that are to be retained / modified. It is assumed that these features will be in-situ at existing levels, with surrounding levels responding appropriately.

Ground Investigation, Remediation and Verification Strategy

- 4.24 Land within the Assessment Boundary has previously been subject to quarrying and mining in some locations. Historical landfill has also been recorded in the western extent of the Assessment Boundary, which is considered to be the infilled former Scout Moor Quarry that received inert waste and sludge. Therefore, there is a potential for contamination to be present on-site, albeit this is considered to be relatively low.
- 4.25 Where considered required, intrusive ground investigation works will be undertaken, focussed on the locations of the proposed infrastructure (see **Figures 4.1 – 4.3**). These works will be undertaken, where required, prior to construction in accordance with relevant standards and guidance, such as Land Contamination Risk Management¹, British Standard 10175:2011 + A2:2017², British Standard 5930:2015 + A1:2020³ and BSEN1997 Part 2:2007 Eurocode 7⁴.
- 4.26 Where undertaken, the ground investigation works will determine the absence or presence, type and distribution of any forms of ground contamination and confirm the existing ground conditions and geotechnical properties.
- 4.27 If contamination risks are identified, remedial works will be undertaken, where practicable. Details will be provided within a remediation strategy to be agreed upon with RBC / RMBC and the Environment Agency, with a subsequent verification strategy to ensure that the required thresholds / criteria have been achieved.
- 4.28 If further unexpected contamination is encountered following remediation, appropriate measures will be implemented by the appointed contractor(s) as part of the CEMP, including the use of risk assessments and method statements.
- 4.29 Measures to protect construction workers from exposure to identified contamination will be set out by the appointed contractor(s) as part of the CEMP in accordance with the Construction (Design and Management) Regulations 2015⁵ and other health and safety legislation. Measures will be incorporated into the CEMP, including the use of Personal Protective Equipment (PPE), the preparation of method statements and the provision of environmental awareness training in order to ensure that construction activities are undertaken in line with best practice measures (such as CIRIA Environmental Good Practice on site C811⁶).
- 4.30 For the proposed 'permanent' structures on-site (i.e. the substation control building), gas ground risk assessment will also be undertaken, where required, in line with British Standard 8485:2015 + A1:2019⁷. Elevated radon risks are known within parts of the Assessment Boundary and therefore basic radon protection measures may be required. Where required, protection measures will be identified in line with British Standard 8485:2015+A1:2019 and CIRIA's Assessing risks posed by hazardous ground gases to buildings (C665)⁸ and details will be provided to RBC and RMBC prior to the commencement of construction.

Coal Mining and Unstable Ground Strategy

- 4.31 Coal mining activity is known to have occurred within the Assessment Boundary. The strategy to mitigate any mining risks is likely to involve ground investigation works to determine the presence of former mine workings below the proposed areas of development that may be within influencing distance of wind turbines and other infrastructure foundations. Other unstable ground (such as soft compressible soils and mass movement deposits) will also be identified through any ground investigation works in accordance with the standards noted above.
- 4.32 Prior to any intrusive works, applications will be made to the Mining Remediation Authority to obtain permits to complete the investigation works. In line with the Mining Remediation Authority's current requirements the permit will be completed by land specialists who are deemed suitably qualified to supervise the process by the Mining Remediation Authority.
- 4.33 The results of the ground investigation works will be used to design appropriate remedial measures, which may include a programme of grouting. All works will be undertaken in line with CIRIA's Abandoned mine workings manual⁹. Mine stabilisation works will be permitted and designed in consultation with the Mining Remediation Authority and in a manner so as not to create any environmental impact to surface or ground waters.
- 4.34 Where appropriate, other remedial measures that are required may include temporary works and / or ground improvement (e.g. shoring of excavations, use of geogrid / geotextile mats). Appropriate supervision of permanent works may also be undertaken.

Site Tracks and Crossings

Site tracks

- 4.35 To enable the construction of the Project for Assessment approximately 15,112m of internal site tracks are required, comprising:
- The construction of approximately 9,476m of new cut track;
 - The construction of approximately 752m of new floating track; and
 - The use of approximately 4,884m of existing track.
- 4.36 The internal track layout during construction is shown in **Figure 4.2**, with the locations of the different types of internal site tracks denoted. A micro-siting allowance of 50m has been applied from the centre line of the internal site tracks to allow for any unforeseen environmental and geotechnical constraints.
- 4.37 Where new sections of access track are required, whether cut or floating, these would have a minimum width of 5m, with local widening at bends where necessary.
- 4.38 Access tracks (both cut and floating) will be retained during the operational life of the wind farm, with a partial reduction in the area around junction bellmouths during site reinstatement works.

- 4.39 Marker posts may be placed in the ground by the edge of the internal site tracks in order to guide on-site vehicles during times of poor visibility or at night.

New cut tracks

- 4.40 The construction of new cut tracks on overburden soil will involve the stripping of the existing vegetation layer and underlying soft topsoils and then laying a suitably graded capping material to improve load bearing capacity. A further layer of suitably graded material would be applied where deemed necessary. A shoulder width of 0.5m will be provided on either side of the main track width.
- 4.41 A typical cross-section of a new cut track on overburden soil is shown in **Figure 4.21**.

Floating tracks

- 4.42 Where new tracks are proposed across some areas of peat, floating road construction techniques will be used to limit the potential for ground penetration and damage to the underlying peatland.
- 4.43 The construction of floating tracks will involve a layer of terram (or similar) to be laid over formation followed by a layer of a geogrid / geotextile. The sub-base depth will be dependent on the underlying ground conditions. A layer of crushed stone will then be laid on top to form the track surface.
- 4.44 A typical cross-section of a floating track is shown in **Figure 4.21**.

Typical existing track upgrades / widening

- 4.45 Construction will involve the stripping of the existing vegetation layer and underlying soft topsoils and then laying a suitably graded capping material to improve load bearing capacity where required to widen the existing tracks. A further layer of suitably graded material is to be applied where deemed necessary. The existing fall will be maintained.
- 4.46 A typical cross-section of a widened existing track is shown in **Figure 4.21**.

Crossings

Rooley Moor Road Crossing

- 4.47 The site track layout has been designed to limit vehicular crossings of Rooley Moor Road as a non-designated heritage asset and public route, with a single crossing point proposed as shown in **Figure 4.2**.
- 4.48 The Rooley Moor Road crossing details are shown in **Figures 4.4 – 4.6**. A layer of terram (or similar) will be laid over the existing road surface to prevent aggregate migration, followed by a geogrid with a layer of crushed stone to create the crossing surface. The historic road will be reinstated to its original form for the operational life of the wind farm, with the maintenance track junction re-graded to match the roads original levels. A stone set at the transition will also be utilised for the reinstatement as shown in **Figure 4.5**.

Watercourse crossings

- 4.49 Four watercourse crossings will be constructed within the Assessment Boundary near T10, T14 (x2); and T16 (as shown in **Figure 14.5**).
- 4.50 Two types of watercourse crossings will be used depending on the topography / watercourse, as follows:
- Closed pipe crossing – with a new pipe set into the watercourse bed, surrounded by concrete. Locally won compacted material will be used to back fill and landscape over the culvert up to the site track level; or
 - Bottomless arch crossing – with the installation of a bottomless pipe over the watercourse. Locally won compacted material will be used to back fill and landscape over the culvert up to the site track level.
- 4.51 Typical cross-sections of the above water crossing methods are shown in **Figure 4.22**.
- 4.52 Further crossings of minor man-made or ephemeral drain crossings will also be required.

Earthworks

- 4.53 There will be earthworks to enable access, create the temporary laydown area and construction compound and install electrical cables / services, foundations and crane pads. Due to this, there will be areas where levels will reduce (areas of cut) and areas where levels will increase (areas of fill).
- 4.54 **Figure 4.2** shows the areas of the Assessment Boundary subject to cut and fill. The maximum deviations from existing ground levels will up to be approximately +9.034m / -10.542m. Currently, it is expected there will be an overall cut and fill balance with any excavated material retained within the Assessment Boundary.
- 4.55 Any material brought on-site or recovered for purposes of re-use (e.g. for fill, etc.) will be subject to screening to ensure the absence of contamination / hazardous materials in line with standards and guidance, including CL:AIRE's The Definition of Waste: Development Industry Code of Practice¹⁰.
- 4.56 All earthworks will give due consideration to ground movement and will be undertaken with relevant standards and guidance, including CIRIA's Treated ground engineering properties and performance¹¹ and British Standard 6031:2009 Code of Practice for Earthworks¹².

Foundations

- 4.57 The foundation solution for the wind turbines is anticipated to comprise gravity foundations unless geotechnical studies indicate a piled (deep) foundation is more appropriate.
- 4.58 The typical depth of a gravity foundation is up to 3.5m. However, depth is dependent on the depth to obtain a suitable bearing. The wind turbine foundations have a total diameter of 25m². The volume of concrete required for each turbine foundation is estimated at 1,240m³ and therefore a total of 16,468m³ of concrete is required.

4.59 A typical turbine foundation detail is shown in **Figure 4.13**.

4.60 Foundations will be installed for other infrastructure (e.g. the substation), where required.

Crane Pads

4.61 At each wind turbine location, to provide a level and firm base for the cranes and other plant, hardstanding will be constructed. Hardstanding would also be used to temporarily store turbine components (e.g. nacelle) until they are installed.

4.62 Due to the size of turbines proposed as part of the Project for Assessment (i.e. up to 180m to tip height), mobile cranes with a lifting capacity of up to 1,000 tonnes will be required.

4.63 The total crane pad area for each wind turbine, including permanent hardstanding, temporary hardstanding and clearance area, has a length of approximately 196m and a width of 93.5m at its widest pointⁱⁱ with a total area of circa 7,093m². The majority of the crane pad will be formed of clearance area (non-load bearing) required for the manoeuvring of turbine components. The intrusive, load bearing components only form approximately 2,975m² of the overall crane pad area.

4.64 The construction of the load bearing components of the pads will involve the stripping of the existing vegetation layer and underlying soils and then laying a suitably graded capping material to improve load bearing capacity. There will be areas of the pads that will be used temporarily and other areas for permanent use and these are indicated in **Figure 4.2**.

4.65 The crane pads will be retained through the operation of the wind farm for use during maintenance activities (e.g. component replacement), albeit some areas will be covered over in topsoil / grassed. The areas of the 'permanent' crane pad will be surfaced utilising coarse aggregate. The working area around the crane pad will be kept free of obstructions (e.g. vegetation). These areas are indicated in **Figure 4.2**.

4.66 A typical crane pad detail is shown in **Figure 4.14**.

Aggregate Requirements

4.67 Crushed aggregate is required for the construction of the Project for Assessment. It has been calculated that a total of approximately 77,271m³ of material would be required for the construction of the Project for Assessment.

4.68 For the purposes of the assessments, it is assumed 100% of the stone will be imported from outside the Assessment Boundary and will be supplied by a third-party source.

4.69 The Project for Assessment does not incorporate any borrow pits.

ⁱⁱ Including 6m site track.

Cable Installation

- 4.70 Turbines will be connected to the on-site substation via 33kV cables and fibre cables, with each cable connecting several wind turbines together in a string. Earthing grid bare cable conductors will also be installed.
- 4.71 The location of the on-site cables (33kV and fibre cablesⁱⁱⁱ) will generally follow the alignment / route of the internal site tracks, which helps minimise the extent of works and reduces disturbance to previously undisturbed land.
- 4.72 The 33kV cables will be underground and laid from a drum attached to a suitable vehicle in trenches approximately 1.2m in depth and 2m wide that will be backfilled with layer of sand and excavated soil material. The 33kV cables will be gathered in the trench in a trefoil arrangement. The cables will be protected from mechanical damage by the backfill, separated by warning mesh. Soil / peat will then be reinstated depending on location.
- 4.73 In the vicinity of the substation, the cable trench will need to be up to 4m wide to accommodate multiple circuits converging from the turbines. In this area, suitable separation distances between cables will be maintained, and trench dimensions will be increased. A typical trench detail for the 33kV cables is provided in **Figure 4.15**.
- 4.74 From the on-site substation there will be an underground cable connection to the Rossendale BSP in Rawtenstall. This connection from the on-site substation to the Rossendale BSP will utilise higher voltage 132kV cables. The cables will connect into the BSP where the electrical control equipment will interface with the local distribution network. For the connection from the on-site substation to the Rossendale BSP there are two options for the routing. These options are shown in **Figure 4.18** and include the following:
- Option A – to the north of the wind turbines and then west along the B6527 (Bury Road); or
 - Option C – to the west of the wind turbines and then north along the A681 (Bacup Road).
- 4.75 Both options are identified in **Figure 1.1** and will primarily follow the route of the existing highway or access track corridors.
- 4.76 The exact routing of this connection (A or C) is not known at this stage and will be subject to further consultation with landowners, the Local Highways Authority (LHA), and SP Electricity North West but will be delivered by the Applicant.
- 4.77 The 132kV cables will be installed in line with SP Electricity North West (SP ENW) guidance¹³ to allow adoption following completion. A typical trench arrangement for the installation of a 132kV cable (**Figure 4.15**) comprises several key components designed to ensure electrical performance, mechanical protection, and long-term system reliability. The trench will generally begin with a formation layer, consisting of a prepared and levelled base that provides a stable foundation for the cable system.

ⁱⁱⁱ To enable the operation of the SCADA system.

Above this, a bedding material—typically sand or fine granular fill—is placed to cushion the cable and distribute mechanical loading. The cable or duct installation follows, with the cable circuit either installed directly within the trench or drawn through protective ducts where ground conditions, crossings, or highway interfaces require additional protection. Surrounding the cable, a layer of thermal backfill is used to maintain the required thermal conductivity of the cable environment and ensure the cable can operate at its rated capacity. Protection measures, such as cable protection tiles or covers and clearly identifiable marker tape, are then installed to reduce the risk of accidental damage during future works. The trench is then backfilled and reinstated in accordance with relevant highway or landowner standards to ensure structural integrity, surface continuity, and compliance with statutory requirements.

- 4.78 The 132kV cables will be pulled into underground ducts laid in cable trenches approximately 0.9 to 1.2m in depth and 0.5m wide but with a 3m permanent easement width to allow access for installation and inspection / maintenance. An indicative cable trench arrangement for the 132kV cables is shown in **Figure 4.15**.
- 4.79 Temporary Working Areas will be required approximately every 1 km with an indicative footprint of around 12m × 6m for cable drum storage, jointing works, plant access and material storage.
- 4.80 Cabling installation works on the public highway will likely require temporary closures / disturbances the nature of which would be agreed with RBC / RMBC prior to construction with appropriate consents and licenses sought. All such works will be short-term and temporary.
- 4.81 At the point where the grid connection crosses Rooley Moor Road, works will be required to facilitate underground cable installation. Given the condition of the road in this location, a trench-based installation method is anticipated. This would involve the temporary removal of the existing road surface, excavation of a cable trench, installation of the cable, and subsequent reinstatement of the road to its existing condition.

Site Reinstatement Works

- 4.82 Following the completion of the main construction works, the following site reinstatement works will be undertaken:
- The temporary access junction arrangement and temporary laydown area / construction compound area will be made good within the replacement of turves / topsoils in the correct order (though the underlying hardstanding will not be removed in these areas);
 - The layer of terram (or similar) at the Rooley Moor Road crossing will be removed and the section of Rooley Moor Road reinstated (with stone sets at the transition);
 - Verge reinstatement around internal site tracks;

- Reinstatement using turves and topsoil around wind turbine foundations and crane pads (though the underlying hardstanding will not be removed in these areas); and
- Reduction in widening at access track bends.

Moorland Restoration Works

- 4.83 The moorland habitats within the Assessment Boundary are currently in a severely degraded condition. As part of the Project for Assessment, moorland restoration is proposed to enhance the existing habitats and increase carbon sequestration / climate resilience alongside providing improvements in water quality and reducing flood risk.
- 4.84 There is a commitment to achieving the following measurable outcomes:
- Peat balance: Ensure no net loss of peat material;
 - Peat restoration: Restore areas of bare, eroding peat; and
 - Habitat condition improvement: Where feasible, upgrade 'poor' condition blanket bog to 'moderate' condition.
- 4.85 The **Moorland Restoration and Management Plan** has been developed using the most recent guidance for developments on peatland¹⁴. All peatland habitats lost to the Project for Assessment will be restored at a ratio of 1:10 (i.e. for every 1ha of peatland habitat loss, 10ha of additional degraded habitat (e.g. bare, eroding peat) will be restored). The delivery of the plan will be controlled via a Section 106 Agreement.
- 4.86 The moorland restoration works comprise controlled restoration and community restoration, as discussed below.

Controlled restoration

- 4.87 Controlled restoration – traditional peatland restoration methods – will be undertaken across 116.6ha of land outside of the Common Land.
- 4.88 The restoration works / activities will include:
- Installation of stock fencing and control of access / stocking levels. Initially, these areas will be controlled and fenced to reduce pressures from stock and the public to allow establishment, but access will be slowly reintroduced in 8 – 10 years, dependent on the monitoring results;
 - Increasing water levels through ditch / drain blocking and / or backfilling, gully reprofiling and bog creation;
 - Plug planting, spot turving and patch repair; and
 - Flailing of purple moor grass to encourage natural growth.

Community restoration

- 4.89 Community restoration will be undertaken on 228ha.

4.90 The works / activities will include:

- Vegetation management (e.g. flailing, wind rowing) to control purple moor grass and allow other species to grow.

Management and Monitoring

4.91 Following the works / activities above, a scheme of post-construction habitat management and monitoring will be undertaken. This will be overseen by a Habitat Management Group and completed under the **Habitat Management and Monitoring Plan**, the delivery of which will be secured by way of a planning obligation and / or planning condition. This includes adaptative management measures, with remedial actions to be undertaken where required.

Habitat and Ecological Enhancement

4.92 In addition to the moorland habitat restoration works above, as part of the Project for Assessment the following habitats will be enhanced / created:

- Acid grassland (49.49ha);
- Woodland (0.67ha); and
- Tree planting within marginal riparian habitat (2.84km).

4.93 Bird and bat boxes will also be installed alongside hibernacula for reptiles and amphibians.

4.94 Ongoing management, management and maintenance of the habitats and ecological enhancements will be undertaken under a Habitat Management and Monitoring Plan, produced in accordance with the submitted **Outline Habitat Management and Monitoring Plan**, the delivery of which will be secured by way of a Section 106 Agreement. This will ensure that the Biodiversity Net Gain exceeds the statutory 10% requirement. Adaptive management measures will be included, with remedial actions to be undertaken where required.

Replacement Common Land

4.95 A portion of the Project for Assessment is located on land designated as Common Land under the Commons Act 2006. The land will be deregistered under Section 16 of the Commons Act 2006 and suitable replacement land will be provided to compensate for the areas released from the Common Land. Grazing rights will be granted on the replacement land and regranted over the release land required for micro-siting but not utilised for construction, resulting in a net gain in the extent of Common Land. Similarly, rights of access will be regranted over these areas to include the internal site tracks, resulting in an enhanced potential for amenity use on the Common Land. This will be undertaken as part of a separate Common Land application.

4.96 New fencing will be installed and existing fencing will be repaired / upgraded to stockproof fencing. Access points will also be installed where appropriate, with the design to be confirmed via planning condition. Where appropriate, regular small gaps will be installed at the base of fencing to allow the passage of mammals.

4.97 The locations of fencing and access points are indicated in **Figure 4.23**.

Construction Public Access Management and Enhancements

4.98 There are a number of PRow and permissive / informal paths that cross the Assessment Boundary. There are also areas of the Assessment Boundary classified as Open Access Land and Common Land.

4.99 It is known that areas within the Assessment Boundary are used by a number of individuals / groups and organisations, such as local walkers and ramblers, cyclists and mountain bikers, equestrians, dog walkers, long-distance walkers, community groups, sports and running clubs and nature conservation groups.

4.100 Health, safety and security requirements will make it necessary to manage the use of routes where they traverse / come in proximity to the construction working areas and intersect with the site access tracks.

4.101 As part of a Construction Phase Path Management Plan, to be secured via planning condition, the following measures are proposed, as set out in the submitted **Outdoor Access Management & Enhancement Plan**:

- Short-term path closures during specific construction activities;
- Clearly marked crossing points with appropriate signage;
- Temporary diversions, where required;
- Giving path users priority at designated crossings;
- Barriers (e.g. Heras fencing) to separate public routes from construction areas;
- Temporary vehicle restraint systems in higher-risk locations;
- Public information (e.g. signage and leaflets) explaining temporary changes to access;
- Strict speed limits for construction vehicles on shared tracks;
- Warning signs at site exits to remind drivers of speed restrictions and path users;
- Flashing beacons on construction vehicles when using access tracks; and
- Regular toolbox talks for all workers to raise awareness of public access routes and user safety.

4.102 In addition to the above, construction vehicles will not be permitted to use Rooley Moor Road. The access gates at either end of Rooley Moor Road will be retained / maintained to manage movement and discourage misuse.

4.103 As set out in the submitted **Outdoor Access Management & Enhancement Plan**, part of the Project for Assessment comprises works to be undertaken to enhance public access, including:

- Opening 10.3km of site tracks to walkers, cyclists and horse riders (following completion of works), creating opportunities for new circular recreational routes to provide more opportunities for outdoor exploration;
- Establishment of a new link from Rooley Moor Road to avoid a section with a steep incline, in part utilising the site access tracks in the northern part of the Assessment Boundary, near the substation;
- Strengthening the connection between Lee Quarry and Cragg Quarry mountain bike facilities via access tracks, improving mountain biking and multi-use access across the area;
- T9 will be located close to the existing mountain bike route between Lee Quarry and Rooley Moor Road. A temporary closure of this route will be required during construction; however, following completion, the route will be enhanced through provision of a higher-quality access wind farm track and improved surfacing of the existing alignment;
- Upgrading infrastructure, such as car parks and amenity areas, enhancing waymarking and potential introduction of inclusive design measures (e.g. installing self-closing gates); and
- Provision of information panels / boards at key locations to highlight historic features, water supply infrastructure and renewable energy.

4.104 As part of the coordinated package of measures to reduce illegal off-road vehicle use, barriers will be installed to prevent access, including fencing, bunds, strategic planting and controlled access points to deter illegal vehicles while maintaining access for walkers, cyclists and horse riders. Ongoing measures are outlined under 'Operational Public Access Management' below.

Construction Drainage and Pollution Management

4.105 During construction, drainage features will be installed including:

- Temporary interceptor drains and drainage ditches upslope of areas subject to excavation (e.g. the turbine foundations, new cut tracks, etc.);
- Use of temporary sumps within excavations;
- Swales along the internal site tracks;
- Settlement lagoons; and
- Drainage at the temporary laydown area and construction compound.

4.106 Where components of the permanent drainage strategy are used during construction, all silt and debris build-up will be removed and permanent components fully reinstated on completion of construction.

4.107 Where necessary, the temporary drainage strategy will include measures to remove / capture silt, sediment and debris. The temporary drainage strategy will be designed,

installed and maintained in accordance with British Standard 8582:2013 – Code of practice for surface water management for development sites¹⁵.

- 4.108 Where there are deeper works (e.g. excavations), dewatering measures may be needed, and appropriate abstraction and discharge licenses will be sought from the Environment Agency.
- 4.109 Welfare facilities will comprise septic tanks, emptied on a regular basis. There will be no discharge to ground.
- 4.110 During construction, a number of measures will be implemented to prevent / reduce pollution in line with relevant guidance and best practice, such as CIRIA's Control of water pollution from construction sites. Guidance for consultants and contractors¹⁶. Such measures will include:
- Bunding of fuel storage areas;
 - Use of sediment control measures to avoid build-up in watercourses on-site; and
 - Procedures and methods for activities on-site, such as fuel handling and storage and concrete batching on-site.

Construction Peatland Management

- 4.111 The excavation / earthworks will include a level of peat stripping and excavation to enable the construction of the Project for Assessment. However, the infrastructure has been designed to avoid areas of deeper peat where possible with an average peat depth of 0.3m across all permanent infrastructure. Only 6.27% of the infrastructure is situated on peat greater than 1.0m in depth, while 69.59% of the infrastructure is situated on peat greater than 0.3m in depth (see further details in **Chapter 14: Hydrology, Hydrogeology and Peat** and in **Appendix 14.3**). All wind turbines have been located outside areas greater than 1.0m in depth.
- 4.112 The estimated volume of peat to be excavated due to the Project for Assessment is approximately 96,674m³. The peat will be re-used around the Assessment Boundary, as follows:
- Reinstatement of temporary hardstanding (and adjacent associated earthwork areas);
 - Reinstatement of the construction compound (and adjacent associated earthwork areas);
 - Reinstatement of the floating and standard site access track earthworks; and
 - Reinstatement of the substation earthworks.
- 4.113 In addition to these reinstatement works, there will be the placement of peat in the north-west area of the Assessment Boundary to reconnect to isolate peat (see further details under 'Moorland Restoration Works' below). The re-use volume associated with the above is circa 97,537m³, more than that to be excavated. This indicates that all

excavated peat will be beneficially re-used on-site, with additional restoration proposed in areas of degraded peat.

4.114 During and after excavation, the storage, haulage and re-use of excavated material will be planned to minimise material movement around the Assessment Boundary. Any excavated peat will be appropriately stored until it is re-used in the areas outlined above. Best practice measures for temporary and permanent peat storage during construction would be followed, in accordance with guidance, such as Scottish Renewables and SEPA's Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste¹⁷.

4.115 The Outline Peat Management Plan (provided in **Appendix 14.3**) details:

- The volumes of peat to be excavated and the characteristics of the peat; and
- The management of excavated peat, including handling excavated materials, temporary storage, translocation and re-use.

4.116 These details would be further developed as part of a detailed Peat Management Plan after pre-construction intrusive investigations have taken place and would be agreed with RBC / RMBC and other relevant stakeholders pursuant to a planning condition. However, the Outline Peat Management Plan (**Appendix 14.3**) provides sufficient detail in order for there to be confidence in the estimated volume and management of peat. The re-use for enhancement works is also set out (and is detailed further under 'Moorland Restoration Works' below).

Construction Soil Management

4.117 Soil management will follow the principles outlined in The Institute of Quarrying's Good Practice Guide for Handling Soils in Mineral Workings¹⁸ and Defra's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites¹⁹.

Construction Waste Management

4.118 Construction materials will be brought on-site during construction and will require management. Measures to reduce construction material use / include:

- 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 the 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; and
- Use of reclaimed materials in the construction works;
- Careful location of stockpiles and other storage areas;

- Use of good practice in the design of storage areas and the use of suitable containers;
 - Use of sheeting, screening and damping, where appropriate;
 - Control and treatment of runoff from soil and stockpiles;
 - Minimising storage periods; and
 - Minimising haulage distances.
- 4.119 Construction waste streams are expected to include waste from welfare facilities, food waste, paper, plastics, glass, cardboard, paper, packaging and used formwork.
- 4.120 All arisings will be identified, classified and quantified and, where appropriate, segregated / separated to maximise material re-use and recycling. The appointed contractor(s) will take responsibility for inspecting and classifying waste materials generated by the works in accordance with relevant guidance, such as Waste Classification: Guidance on the classification and assessment of waste²⁰.
- 4.121 Construction waste materials will be removed, handled and disposed of in line with legislative requirements (including The Hazardous Waste (England and Wales) Regulations 2005²¹) and any necessary permits, licenses, or notices will be obtained.

Construction Logistics

Vehicle routing, volumes and parking

- 4.122 Some components will be delivered by Abnormal Indivisible Load (AIL) (e.g. turbine components). General construction material deliveries such as aggregate, concrete and plant will be delivered by Heavy Goods Vehicles (HGV). Other movements to and from the Assessment Boundary will be via Light Goods Vehicles (LGV) and cars.
- 4.123 The AIL access route will originate at the Port of Liverpool and access the Assessment Boundary from the north via the M65, A56, A680, B6527 and A680. Access to construct the Project for Assessment will then be via Scout Road (i.e. the existing Scout Moor Quarry access from the A680).
- 4.124 To facilitate AIL access to the construction working areas, sections along Scout Road / quarry access track will be upgraded and locally widened and therefore require a level of cut and fill. The extent and location of these works have been refined following design development and are shown in the updated **Figures 4.7** and **4.8**.
- 4.125 During the peak of construction there will be up to 208 daily movements (100 Car / LGV and 108 HGV journeys).
- 4.126 All appointed contractor(s) and subcontractor construction parking will be located within the Assessment Boundary, with no parking on roads within the wider area. Parking spaces will be provided at the construction compound.

Construction traffic management

- 4.127 A Construction Traffic Management Plan (CTMP) will be implemented which will contain measures to reduce the impacts of construction traffic movements – this will be secured via planning condition.
- 4.128 In addition, other measures such as a public information campaign, road signage strategy, the use of Staff Travel Plan, the provision of an Abnormal Load Transport Management Plan and segregation of path, bridleway and PRow users from construction traffic movements will be applied – as relevant these will be secured via planning condition.
- 4.129 The timing of haulage vehicle movements will be scheduled to avoid arriving / leaving after 19:00 and before 07:00, where possible. Abnormal loads would be scheduled to avoid peak traffic times, where practicable.

Construction employment

- 4.130 It is anticipated that during construction, as a worst case, a total of 245 net additional person years could be supported across the UK, inclusive of 220 within the North West, of which, 55 within Rochdale and Rossendale. This is the equivalent of 120 net additional FTE generated across the UK during construction, inclusive of 110 within the North West, of which, 35 FTE in Rochdale and Rossendale.

Construction working hours and days

- 4.131 Unless otherwise agreed with RBC / RMBC, construction working hours will be 08:00 to 18:00 Monday to Friday and 09:00 to 14:00 Saturday, with no working on Sundays or Public / Bank Holidays. Exceptions to these working hours may arise, for example, when AILs are delivered and offloaded or to conduct specialist activities. Appropriate permissions and notifications will be sought from RBC / RMBC where these circumstances arise. Some quiet works may take place outside of these hours. These construction working hours and days will be secured via planning condition.

Construction Environmental Management Practices

- 4.132 The appointed contractor(s) will comply with current legislation (including the Health and Safety at Work etc. Act 1974²², the Control of Pollution Act 1974²³ and Construction (Design and Management) Regulations 2015). This will be captured within the CEMP, the contract documents, methods statement and risk assessments issued by the appointed contractor(s) ahead of the works.
- 4.133 As an overview, the CEMP will include the following:
- Programme and phasing details of proposed construction works;
 - A plan of site preparation and construction works, highlighting the various stages and their context within the project, including a full schedule of materials, manpower resources, and plant and equipment schedules;
 - Detailed layout arrangements, plans for storage, accommodation, vehicular movements, delivery and access;
 - Prohibition or restricted operations;

- Details of plant used;
- Identification of roles and responsibilities of key staff in relation to environmental management;
- Details of operations that are likely to result in disturbance, with an indication of the expected duration of each phase with key dates;
- A plan to keep local residents informed of the proposed working schedule; and
- A mechanism for the public to register complaints and procedures for handling complaints and requirements for monitoring and record-keeping.

4.134 A commitment has been made to a number of environmental measures and management practices during the construction stage and, where appropriate, these will be set out as part of a detailed CEMP and will be agreed with RBC / RMBC. The measures to be implemented during construction are outlined in **Volume 3: Environmental Management Plan**.

Timescales

- 4.135 Site preparation is anticipated to commence in 2028, with some initial works potentially undertaken from 2027. The Project for Assessment is intended to be completed and operational in 2030. Therefore, the main construction programme will be circa 2 years.
- 4.136 The wind farm will have an operational life of 40 years and will be decommissioned in 2070.

The Operational Project

4.137 As shown in **Figure 4.3**, the operational infrastructure comprises:

- Wind turbines, with auxiliary cabins;
- Substation, including control building and electrical infrastructure;
- On-site access tracks, with crossings; and
- Turbine crane pads / hardstandings.

4.138 In addition, there will be below-ground electrical infrastructure / cabling.

Wind Turbines

4.139 The wind farm will consist of up to 12 turbines, each with a minimum rated generating capacity of 5.7MW, resulting in a minimum total generation capacity of 68.4MW^{iv}.

^{iv} The stated installed capacity and MW output of the Project for Assessment is based on current turbine technology available at the time of Application and the candidate turbine used for the purposes of assessment. It is

4.140 Turbines have been positioned to optimise wind resource within the Assessment Boundary. The location of the turbines has also considered the following:

- A minimum 965m distance between the wind turbines and the nearest residential property;
- A minimum of 3 times the rotor diameter between the wind turbines and overhead lines;
- A minimum distance between the wind turbines and Pennine Bridleway dependent on topple distance;
- A minimum 125m distance between the wind turbines and telecommunication infrastructure;
- A minimum 30m distance between the wind turbines and watercourses, where possible; and
- Peatland areas over 1m in depth will be avoided, where possible.

4.141 Turbine co-ordinates are shown in **Table 4.1**. These coordinates are subject to a maximum of 50m micro-siting allowance for any environmental and geotechnical constraints in each location.

Table 4.1: Proposed wind turbine co-ordinates

Turbine no.	Easting	Northing
1	386563	417532
3	386153	417975
4	386104	418629
6	385413	418740
7	385260	418009
8	385156	419206
9	385650	419541
10	386137	420048
11	385182	419867
14	383369	419137
15	383057	419653
16	386250	419312

acknowledged that future technological advancements in turbine design, efficiency, and rated generating capacity may result in an increased total generation capacity (MW) of the Project for Assessment compared to that currently stated; however, any such changes would remain within the assessed development parameters and below the maximum generating capacity limit of 99.9MW as per the agreed grid connection agreement and NSIP threshold. This means a worst case scenario is presented for the purposes of assessment of both harms and benefits.

- 4.142 The wind turbines will be of conventional design and include a tower, nacelle and three blades. The blades will have a rotational speed of 6.2 – 12.2 revolutions per minute. The wind turbines will be finished in an off-white matt colour.
- 4.143 The final turbine choice would be made post consent during a separate procurement phase. For the purposes of this Chapter, the dimensions of a representative candidate turbine will be up to 180m to tip height, 150m rotor diameter and a hub height of 105m.
- 4.144 A typical wind turbine elevation is shown in **Figure 4.12^v**.
- 4.145 Wind turbines will be constructed to current engineering standards including British Standard EN 61400²⁴ which relates to essential design requirements to ensure the structural integrity and safety of the turbines. This will include measures such as lightning protection systems, appropriate topple distance and active fire protection systems.
- 4.146 The performance of the wind turbines will be monitored and controlled by way of a Supervisory Control and Data Acquisition (SCADA) system. The SCADA system will gather data from all the wind turbines and allow them to be controlled from a remote location.
- 4.147 The turbines may also include an Auxiliary Cabin, as shown on **Figure 4.12**.

Substation

- 4.148 As shown in **Figure 4.3**, the substation will be constructed in the northern part of the Assessment Boundary.
- 4.149 The substation will house a substation control building, transformers to step up the voltage for connection to the grid network, an area for temporary storage during operation, car parking, diesel generator and an auxiliary transformer. The total substation compound will be 75m x 55m, totalling 4,125m². The control building area will be a maximum of 5.5m x 16m (175m²).
- 4.150 An indicative layout of the substation compound is shown in **Figure 4.17**, providing an indication of the potential arrangement of the compound and associated infrastructure. The maximum height of the main transformer within the substation compound will be 6.7m as shown in **Figure 4.18**. The substation control building would be up to 5.6m in height.
- 4.151 The substation will be secured by a high palisade security fence up to 2m in height. Secure access gates will be provided to prevent unauthorised access.
- 4.152 Outside of the areas of infrastructure, the compound will be surfaced with a layer of aggregate.

^v The exact size of the turbines will depend on the particular model selected. The Applicant will engage with manufacturers to acquire turbines that fall within the parameters set.

4.153 A woodland reinstatement area is located surrounding the substation as shown in **Figure 4.3**.

Electrical Infrastructure

4.154 The electrical infrastructure installed during construction will be subject to ongoing maintenance and management during operation.

Site Access Tracks and Crossings

4.155 The site access tracks and crossings installed during construction will continue to be used during operation to provide access for maintenance.

Crane Pads

4.156 Part of the crane pads installed during construction will be retained and continue to be used during operation for maintenance purposes. The edges of the pads, as far as reasonably practicable, will be blended to the adjacent contours with natural vegetation being allowed to re-establish. Other areas will be retained, though covered over in topsoil / grassed.

4.157 Typical detail of the crane pad, including areas to be retained / covered over, is shown in **Figures 4.2, 4.3 and 4.14**.

Operational Drainage Strategy

4.158 The Project for Assessment includes Sustainable Drainage Systems (SuDS) to manage surface water discharge and surface water pollution on-site. The SuDS include:

- Trackside drainage – surface water drainage ditches adjacent to access tracks that will include permanent check dams (to reduce velocity, slow sediment transport and prevent channel scour) and relief drains crossing the tracks longitudinally to prevent surcharging. These trackside drains will be drained to the existing drainage sub-catchments across the site at a controlled rate to ensure no increase in flows;
- Attenuation basins – Attenuation features will be located adjacent to and downslope of each turbine hardstanding area, substation and compound, with runoff shedding overland into the basin/swale features. These will be vegetated basins will allow any exceedance flows to overtop and shed back into the surrounding downslope, thus maintaining existing overland flow routes within each sub-catchment. These flows eventually route into the watercourses within and adjacent to the site;
- The features are designed to accommodate the 1 in 30 year event, with a conservative estimate of all flows from the temporary and permanent working areas contributing. The attenuation basin is designed to drain down in a controlled manner following rainfall events, ensuring that stored surface water is gradually released rather than discharged rapidly. Water collected within the basin will be conveyed via a piped outfall system, which directs flows safely to a nearby watercourse. To prevent downstream flooding and maintain greenfield runoff conditions, a flow control structure will be installed at the outlet, restricting discharge to the agreed greenfield runoff rate. This controlled release

mimics natural drainage patterns, reducing peak flows and supporting sustainable water management within the site; and

- Where new infrastructure or hardstanding is proposed on site, existing overland flow paths may be severed, preventing the surface water from its natural flow through the catchment. In order to maintain these flow paths, interception drains should be included on the upslope side of any hardstanding to capture the clean runoff and route it around to the downslope side. This can be by means of swale or drainage ditch, which is then piped to the downslope side and released in a controlled way, such as unlined filter drain or swale.

- 4.159 The proposed strategy has been designed to accommodate a return period of up to 1 in 100 years, plus a 45% uplift allowance for climate change. A climate change allowance has been taken as the design value as the upper end allowance for the 2050s epoch.
- 4.160 Attenuation features and trackside drainage have been designed to accommodate the 1 in 30 year event, with any exceedance flows being retained on-site and routed overland and into the surrounding ground. Discharge rates will be limited to the equivalent greenfield runoff rates.
- 4.161 A detailed drainage scheme, in accordance with the **Drainage Strategy**, will be secured via planning condition.

Operational Lighting Strategy

- 4.162 Infrared and visible lights will be attached to the wind turbines to make them visible to civil, military, commercial and general aircraft operating in the vicinity of the Project for Assessment.
- 4.163 Infrared lights will be installed on all wind turbines to meet military requirements.
- 4.164 Visible lights will be minimised to avoid local light pollution while still meeting UK CAA requirements. The turbines with visible lights have been agreed with the CAA and comprises T1, T4, T7, T10, T11, T14, T15, and T16 as shown in **Figure 4.11**. The visible lights will be operated by a suitable control device such as that the lights are only turned on 'night' which the CAA defines as 30 minutes before sunset to 30 minutes after sunrise. Automatic dimming to 200 candela (cd) will also be used, in line with CAA policy and NatureScot²⁵ guidance, to reduce light intensity to 10% of the peak intensity when visibility in all directions is greater than 5km. This wind turbine lighting scheme has been agreed with the CAA to avoid local light pollution while maintaining aviation safety.
- 4.165 The substation will incorporate a minimal and controlled lighting strategy to meet operational and security requirements while limiting effects on the surrounding environment. It will comprise:
- Passive infrared (PIR) sensor-controlled security lighting, activated only in response to movement and remaining unlit under normal conditions;

- Operational lighting, used only during periods of low light where essential maintenance or emergency works are required, and limited to infrequent and short-duration use; and
- External lighting designed in accordance with dark sky principles, including the use of directional, downward-facing luminaires, low-intensity lighting, and the avoidance of unnecessary or continuous illumination. Lighting will be directed away from sensitive ecological features, including watercourses.

4.166 There will also be internal lighting within the wind turbine columns and the substation control building.

4.167 Detailed lighting design will be secured through a planning condition.

Chemical Storage

4.168 Small quantities of lubricants, fuel and clean equipment will be stored on-site, such as within the substation control and ops building. Such facilities will be designed to the relevant regulations and standards, such as the Dangerous Substances and Explosive Atmospheres Regulations 2002²⁶ and associated HSE guidance²⁷. All handling, storage and disposal of chemicals / substances will also be undertaken in accordance with relevant regulations.

Fire and Lightning Strike Management

4.169 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.

4.170 Operational plant / infrastructure will be designed, installed and maintained in line with relevant legislation, standards and guidance, including Electrical Equipment (Safety) Regulations 2016²⁸ and Electricity Safety, Quality and Continuity (Amendment) Regulations 2006²⁹. The control measures for the prevention of fire will be in accordance with legislation, standards and guidance.

4.171 In the event of a lightning strike, the wind 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. The design and maintenance of these systems will reduce the likelihood of a fire being initiated by a lightning strike.

Operational Public Access and Security Strategy

4.172 During operation there would be no restrictions placed on the movement of the public utilising the existing PRoWs or Rooley Moor Bridleway, other than in exceptional circumstances (e.g. turbine component replacement).

4.173 As set out in the **Outdoor Access Management & Enhancement Plan**, operational site management will include:

- The potential for Ranger to ensure ongoing maintenance and community engagement;
- Deploying CCTV, motion-activated cameras and drones to track illegal activity and support enforcement efforts;
- Use of signposting to encourage responsible off-roading at dedicated facilities; and
- Enforcement collaboration alongside education (e.g. awareness campaigns) and wider partnership support and coordination.

Moorland Restoration and Habitat Management Strategy

- 4.174 Management and monitoring arrangements will be implemented during the operational stage in relation to the moorland restoration proposals and the other proposed ecological habitat enhancements. This will be controlled through the **Moorland Restoration and Management Plan** and the **Habitat Management and Monitoring Plan**, via the S106 Agreement.
- 4.175 The Habitat Management Group, to be secured via the S106 Agreement, will oversee the arrangements and ensure that the prescriptions are enacted in a timely manner, reviewing findings of monitoring and refining the implementation of the restoration and enhancement works.

Operational Waste Management Strategy

- 4.176 Once operational, the following wastes will be generated:
- Operational activity and maintenance waste, including oils, greases, rages and damaged / worn components and associated packaging of new components (e.g. metals, wood / timber, cardboard, paper and plastics); and
 - Organic / green waste from ongoing management.
- 4.177 As the Project for Assessment will be unmanned, with personnel / maintenance engineers only required to visit for maintenance, small amounts of solid activity and maintenance waste will be generated. Wastes will be managed in accordance with the general principles of the waste duty of care³⁰.
- 4.178 Due to the large amounts of moving components associated with wind turbines oil is required for their lubrication, hydraulics and gearbox. This will occasionally (approximately every 5 – 7 years) require changing and the subsequent 'spent' oil will need to be removed.
- 4.179 Waste arisings in the operational stage will be also addressed through the completion of an Operational Waste Management Strategy. This will 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).

Operational Logistics

Vehicular access

- 4.180 Once operational, vehicular access will be required to access the wind turbines and associated infrastructure for routine maintenance activities (i.e. statutory inspections, addressing faults, HV maintenance). The vehicle movements associated with the operational Project for Assessment are anticipated to be limited consisting of approximately 15 visits per turbine, per year (up to 180-two-way movements per year).
- 4.181 Similar to the construction stage, primary operational access / egress will be taken from the existing Scout Moor Quarry access to the west of the Assessment Boundary that will connect to the internal road structure to enable access to each wind turbine within the Assessment Boundary.
- 4.182 As noted above, site tracks and parts of the crane pads will be retained for use in ongoing maintenance operations of the wind farm.

Operational employment

- 4.183 During its 40 years operational period, the Project for Assessment, as a worst case is estimated to support a total of 90 net additional person years jobs across the UK, inclusive of 60 within the North West, of which 40 within Rochdale and Rossendale. This is the equivalent of up to two net additional FTE jobs generated across the UK, inclusive of one within the North West and Rochdale and Rossendale.

Operational hours

- 4.184 The Project for Assessment will be operational 24 hours a day / 7 days a week, with short-term routine shutdown / maintenance periods when required.

Climate Change Resilience

- 4.185 Consideration of the evolving climate has been considered throughout the design. The evolving climate can include increases in mean summer and winter temperatures, increases in annual precipitation, decreases in mean summer precipitation and a higher likelihood of extreme weather events.
- 4.186 The following aspects of the Project for Assessment relate to climate change resilience:
- Peatland restoration proposals will enhance resilience to climate change impacts (see 'Moorland Restoration Works');
 - Surface water drainage strategy incorporates appropriate allowances for climate change (see 'Operational Drainage Strategy' above); and
 - Reduction of impacts to habitats and species, where possible (e.g. reducing operational lighting to ecological features (see 'Operational Lighting Strategy') and ongoing habitat management and monitoring (see 'Moorland Restoration and Habitat Management Strategy').

Decommissioning

- 4.187 The Project for Assessment is expected to operate for 40 years, after which time decommissioning would take place.
- 4.188 As set out in the **Outline Decommissioning, Restoration and Aftercare Strategy**, decommissioning works are anticipated to include:
- Dismantling and removal of wind turbines;
 - Demolition and removal of the substation control building;
 - Dismantling and removal of electrical infrastructure, such as switchgear and transformers; and
 - Removal of hardstanding, concrete bases / foundations up to 1.5m below ground level and cover with topsoil.
- 4.189 Where features are removed, the land will be reinstated to its original baseline conditions in so far as is possible. The screening woodland can be left in situ, or removed if requested.
- 4.190 The works during decommissioning are indicated in **Figure 4.24**.
- 4.191 A Decommissioning, Restoration and Aftercare Plan, including associated Environmental Management Plan, for the wind farm and site restoration will be prepared and submitted to RBC / RMBC for approval, pursuant to a planning condition, prior to such works commencing.

References

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- ¹ Environment Agency (2020) Land Contamination Risk Management.
- ² British Standard 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites: Code of Practice.
- ³ British Standard 5930:2015 + A1:2020 Code of Practice for Site Investigations.
- ⁴ Eurocode 7: Geotechnical Design (report no. BSEN1997)
- ⁵ Construction (Design and Management) Regulations 2015 No. 51.
- ⁶ CIRIA (2023) Environmental good practice on site guide (5th Edition) (C811).
- ⁷ British Standard 8485:2015+A1:2019 - Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings
- ⁸ CIRIA (2007) Assessing risks posed by hazardous ground gases to buildings (C665)
- ⁹ CIRIA (2019) Abandoned mine workings manual (C758D).
- ¹⁰ CL:AIRE (2011) The Definition of Waste: Development Industry Code of Practice.
- ¹¹ CIRIA (2002) Treated ground engineering properties and performance (C572).
- ¹² British Standard 6031:2009 Code of Practice for Earthworks.
- ¹³ Electricity Specification 400E5 (Nov 2024). Installation and Repair of Underground Cables Operating at 33kV and 132kV. Available at: <https://www.enwl.co.uk/globalassets/get-connected/cic/icpsidnos/g81-policy/policy-library-documents/cables/es400e5---installation-and-repair-of-33kv-and-132kv-cables---issue-9.pdf>
- ¹⁴ NatureScot (2023) A risk-based approach to peatland restoration and peat instability.
- ¹⁵ British Standard 8582:2013 – Code of practice for surface water management for development sites.
- ¹⁶ CIRIA (2001) Control of water pollution from construction sites. Guidance for consultants and contractors (C532).
- ¹⁷ Scottish Renewables and SEPA (2012) Developments on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste.
- ¹⁸ The Institute of Quarrying (2021) Good Practice Guide for Handling Soils in Mineral Workings.
- ¹⁹ Defra (2008) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites
- ²⁰ Environment Agency, Natural Resources Wales and Scottish Environmental Protection Agency (2021) Waste Classification: Guidance on the classification and assessment of waste (1st edition v.1.2 GB).
- ²¹ The Hazardous Waste (England and Wales) Regulations 2005 No. 894.
- ²² Health and Safety at Work etc. Act 1974 c. 37.
- ²³ Control of Pollution Act 1974 c. 40.
- ²⁴ BS EN 61400 – Wind Turbines.
- ²⁵ NatureScot (2024). Guidance on Aviation Lighting Impact Assessment. Available at: <https://www.nature.scot/doc/guidance-aviation-lighting-impact-assessment>. Accessed 01 June 2026.
- ²⁶ Dangerous Substances and Explosive Atmospheres Regulations 2002 No. 2776 (as amended).
- ²⁷ HSE (2013) Dangerous Substances and Explosive Atmospheres Regulations 2002. Approved Code of Practice and guidance L138.
- ²⁸ Electrical Equipment (Safety) Regulations 2016 No. 1101.
- ²⁹ Electricity Safety, Quality and Continuity (Amendment) Regulations 2006 No. 1521
- ³⁰ Defra (2018) Waste Duty of Care Code of Practice.