



RWE Renewables UK Swindon Ltd.

Pen March Wind Farm: Outline Construction Environmental Management Plan

Technical Appendix 3.1

Project no. 663044

JULY 2023

RSK



RSK GENERAL NOTES

Project No.: 663044

Title: Pen March Wind Farm: Outline Construction Environmental Management Plan

Client: RWE Renewables UK Swindon Ltd.

Date: July 2023

Office: Bristol

Status: Final

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1 INTRODUCTION

1.1 Background

- 1.1.1 RWE Renewables UK Swindon Ltd. (hereafter 'the Applicant') is proposing to construct and operate Pen March Wind Farm (hereafter 'the Proposed Scheme') which would be located north of the A465 Heads of the Valleys road, north-west of the small town of Rhymney and north-east of Merthyr Tydfil.
- 1.1.2 This Outline Construction Environmental Management Plan (CEMP) has been prepared on behalf of the Applicant in support of the Proposed Scheme.
- 1.1.3 This Outline CEMP is a live document and is subject to change throughout the development and planning phase of the Proposed Scheme.
- 1.1.4 In preparing this Outline CEMP, the requirements of the following documents have been considered:
 - Environmental Statement (ES), RSK Environment Ltd, July 2023.
 - Historic Environment Desk Based Assessment, Heritage Collective UK Group, July 2023.
 - Transport Management Plan, Pell Frischmann, July 2023.

1.2 Aim

- 1.2.1 The aim of this Outline CEMP is to provide a framework of environmental principles to manage environmental performance and provide assurance to third parties that their requirements are met.
- 1.2.2 The Outline CEMP provides an overview of the aspects of environmental management required to mitigate any potential environmental incidents during construction. The Principal Contractor will use this to guide the development of a detailed site-specific CEMP.

1.3 Statutory Compliance, Guidance and Best Practices

- 1.3.1 It is the responsibility of the Principal Contractor to ensure that all site works shall be undertaken in compliance with all applicable legal and regulatory requirements.
- 1.3.2 The Principal Contractor shall comply as necessary with the Construction (Design and Management) Regulations 2015 (CDM) and shall comply with all applicable pollution control regulations.

1.3.3 The Principal Contractor shall, where relevant, undertake construction works in accordance with current guidance and best practice, including:

- Environmental Good Practice on Site Guide (C741, 4th edition, Ciria, 2015)
- Control of Dust from Construction Sites (BRE DTi Feb 2003)
- British Standard 5228-1:2009+A1:2014: 'Code of Practice for noise and vibration control on construction and open sites - Noise'
- RPS 235 'Treating and using water that contains concrete and silt at construction sites'
- Institute of Lighting Professionals. Guidance Notes for the Reduction of Obtrusive Light. ILP GN01:2011
- Other sector / Client specific requirements

1.4 Environmental Management System

1.4.1 This document has been produced in accordance with principles outlined in ISO14001:2015. The Principal Contractor is required to adhere to these environmental values and standards whilst implementing this document, including the promotion of environmental awareness among their staff, sub-contractors and suppliers engaged on the construction works.

2 THE PROPOSED SCHEME

2.1 Introduction

- 2.1.1 The main details of the Project are summarised in this section; the description is limited to an overview of the main elements/ approaches sufficient to provide an understanding of the approach to the planned works, and the roles of those main parties responsible for undertaking each part of the works.

2.2 Summary of the Proposed Scheme

- 2.2.1 The Proposed Scheme is illustrated on **Figure 3.1 (Volume 3)** of the Environmental Statement (ES), and will consist of the following principal components:

- Up to six three-bladed horizontal axis wind turbines up to 180 m to blade tip height. Each turbine has an internal transformer and aviation lighting.
- Wind turbine foundations and hardstanding areas which will include crane hardstanding areas and laydown / storage areas.
- An electrical and control building compound with battery storage facilities.
- New site access from the Common Road and associated bell mouth junction.
- On-site access tracks, passing places, and turning heads.
- Two gas pipeline crossings, one water main crossing and three main watercourse crossings.
- Underground power cables (and fibre optic communication cables) linking the wind turbines and the on-site electrical compound and control building.
- A main temporary construction and storage compound with associated lay down areas near to the site entrance.
- Construction working areas associated with turbine locations and access tracks which will be restored after construction is complete.
- Off-site works to enable the movement of abnormal loads during construction (such as the creation of a new slip road from A465 and temporary modifications to street furniture etc).
- On-site Habitat Management Area.

- 2.2.2 The Applicant will employ a Principal Contractor (and directly or indirectly as required) certain sub-contractors to carry out the works on site.

2.3 Site Location

- 2.3.1 The Site is located north of the A465 Heads of the Valleys Road, north-west of the small town of Rhymney and north-east of Merthyr Tydfil as shown in **Figure 1.1 (Volume 3)** of the ES. The Site is located on Pen March, part of the southern slope of Cefn y Ystrad, and slopes down from 535 m in the north to approximately 355 m AOD in the south.

2.4 General Site Arrangements

Site set up and compound

- 2.4.1 The main compound is located close to the Site access point and set back approximately 270 m from Common Road to control all access on to the Site, refer to **Figure 3.1 (Volume 3)** of the ES. The compound will measure approximately 50 m by 50 m and includes space for:
- Temporary modular building(s) to be used as a Site office;
 - Welfare facilities;
 - Parking for construction staff and visitors;
 - Reception area;
 - Fuelling point or mobile fuel bowser;
 - Secure storage areas for tools, materials and plant; and
 - Waste storage facilities.
- 2.4.2 The second construction site compound, located in the same footprint as the electrical control building and battery storage facilities, will act as a satellite compound to the main compound.
- 2.4.3 Artificial lighting will be required during the construction phase to ensure safe working conditions, during periods of limited natural light. Examples include vehicle and plant headlights, construction compound lighting, floodlights and mobile lighting units, to be used around specific construction activities. It is intended that the type of lighting would be non-intrusive (e.g. directed down and towards works activity and away from the Site Boundary), to minimise impact on local properties and any other environmental considerations.

Working hours

- 2.4.4 The construction working hours for the Proposed Scheme would be 7am to 7pm Monday to Saturday, though noisy activities on Saturdays would be restricted to before 1pm to reduce disturbance to nearby properties.
- 2.4.5 Out of necessity, due to weather conditions and health and safety requirements, some generally quiet activities, for example, abnormal load deliveries and the lifting of the turbine components may occur outside the specified hours. Any works outside of normal hours will be subject to the requirement to obtain consent from the Local Authority. The agreement should include working hours and methods to ensure that the 'best practicable means' to control potential nuisance are included. Delivery of abnormal loads (i.e., wind turbine blades) will be subject to approval by the Police and the Highways Authorities. Turbine erection may be undertaken during the day or night to maximise good weather windows.
- 2.4.6 The following controls will also apply to the works:
- No works will take place on Sundays or Public Holidays
 - No stacking of lorries on the site boundary outside of the working hours.

- 2.4.7 Normal hours of work set out above do not apply to emergency works nor to equipment that is required to operate continuously.

Fencing and Site Security

- 2.4.8 The electrical compound, control building, and battery storage compound will be permanently fenced with 2.4 m high palisade fencing. The construction compound will be fenced during the construction phase. Fencing will be kept to a minimum during the construction phase and used for health and safety purposes, security and animal welfare, as and when required.

2.5 Construction Programme

- 2.5.1 The proposed scheme is likely to be constructed over a period of approximately 12 months, anticipated to commence in 2025. A detailed construction plan will be prepared prior to construction and will consist of the following principal activities:

- Advance works including:
 - Site investigations further to those already undertaken.
 - Pre-construction environmental surveys (if required).
 - Preliminary mitigation works.
 - Advanced Site access works.
- Civil engineering and ancillary works including:
 - Fencing.
 - Off-site road improvements.
 - Construction/upgrading of main Site access track off the A465.
 - Construction of the temporary construction compound.
 - Construction of all on-site access tracks.
 - Construction of temporary and permanent drainage measures and cable trenches.
 - Laying of electricity and communications cables in trenches.
 - Construction of turbine foundations, crane hardstandings and laydown areas.
 - Construction of control building and electrical compound, along with battery storage facilities.
 - Delivery, installation, testing and commissioning of wind turbines and ancillary equipment.
- Site finalisation works, including restoration.

3 LOCAL ENVIRONMENTAL CONTEXT

3.1 Introduction

- 3.1.1 The local environment is summarised in this section with consideration as to how this may be affected by the construction works.
- 3.1.2 Environmental management measures have been developed to avoid or reduce environmental impacts associated with the construction works. Mitigation measures will be confirmed in the detailed CEMP.

3.2 Ecology and Ornithology

Ecology

- 3.2.1 Almost all of the Site is encompassed by two Sites of Importance for Nature Conservation (SINCs): Pen March and Traed y Milwyr, Llechryd SINC and the Merthyr Common North SINC. The construction phase will lead to habitat loss; some for the duration of the Proposed Scheme, and some that are temporary losses (or damage) during construction only.
- 3.2.2 No evidence of great crested newt, otter, water vole or badger was found. Bat foraging and commuting was recorded, but overall activity was low and no potential bat roosting features were identified on Site. The presence of reptile (common lizard and adder) has been identified.
- 3.2.3 A suitably qualified Environmental Clerk of Works (ECoW) will be employed for the duration of the construction period, although this may not necessarily be a full-time role throughout. The role of the ECoW would include the following:
 - Give toolbox talks to all staff on-site, so staff are aware of the ecological sensitivities on the Site and the legal implications of not complying with agreed working practices.
 - Agree and monitor measures designed to minimise damage to retained habitats.
 - Undertake pre-construction surveys and checks and advise on ecological issues where required.
 - Undertake pre-construction inspections of areas which require reptile mitigation and carry out an appropriate level of supervision during vegetation clearance.
 - Oversee vegetation and habitat reinstatement on areas subject to disturbance during construction.
- 3.2.4 To minimise the loss of habitat and the potential to kill or injure protected species a range of good practice measures will be implemented. These include:
 - Micro-siting of project elements to avoid areas of more important habitat or features which could potentially be used by protected or notable species, such as possible refuges for reptiles, where possible.

- General good practice measures to avoid inadvertent damage to retained habitats would include the erection of temporary protective fencing demarcating the working footprint, to be overseen by the ECoW. Good practice techniques for vegetation and habitat reinstatement would be adopted and implemented on areas subject to disturbance during construction as soon as is practicable.
- General good practice measures to protect protected and notable species either known to be present or with the potential to be present, would be implemented during the construction phase, these will include:
 - All potentially dangerous substances or materials within the temporary construction compound would be carefully stored to prevent them causing any harm to mammal species which may enter the compound at night.
 - During construction, all excavations greater than 1 m depth would either be temporarily covered at night or designed to include a ramp to allow reptiles and other animals a means of escape should they fall in.
 - A speed limit would be implemented on-site to reduce the risk of road traffic collisions
- Pre-construction surveys for protected species (badger, otter and water vole) will be undertaken during the last available season prior to commencement of construction or enabling works to ensure the likely absence results recorded remain unchanged since the baseline surveys.
- Checks for the presence of hedgehogs, polecats, hares or other protected or notable species will also be carried out during the construction phase, immediately prior to vegetation clearance.
- In the unlikely event that protected species not recorded at the Site previously are identified during the pre-construction surveys and checks, appropriate mitigation measures would be developed and agreed.

3.2.5 To minimise the potential to kill or injure reptiles, mitigation measures include:

- Any site clearance (vegetation removal) would ideally commence within the active period for reptiles (March to October inclusive) although other considerations, such as breeding birds, mean that removal may need to take place at other times of year;
- During vegetation removal, the following steps will be followed:
 - The area of vegetation requiring removal would first be subject to a habitat assessment by a suitably experienced ecologist.
 - The vegetation would then be cut in a staged and directional manner, under an ecological watching brief.
 - Any brash, or suitable features for refuge, would be dismantled by hand.
 - Any reptiles discovered during the above works will be carefully relocated to a safe place well away from the working area by the ECoW should they not disperse naturally.

Ornithology

- 3.2.6 Construction activities will result in a small loss of breeding bird habitat, however this is not likely to be significant. Inadvertent damage to nests could also occur during construction. The role of an ECoW on site would include the following:
- Make contractors aware of the ornithological sensitivities within the Site prior to construction (particularly with regard to the potential presence of sensitive breeding species such as breeding waders).
 - Undertake surveys for nesting birds throughout the construction period that falls within the nesting season and set up and monitor appropriate exclusion areas whilst nests are in use.
- 3.2.7 To minimise disturbance to breeding birds during construction and to prevent damage to active nests, a range of good practice measures will be implemented. These include:
- Restrict activities in sensitive areas as far as practicable in the early part of the breeding season (specifically for curlew, avoiding construction activity in previous nesting areas from mid- March through to mid- April).
 - Conduct pre-commencement surveys, especially when site clearance and construction activities may be required to take place during the main breeding bird season from March to August inclusive.
 - Implement disturbance-free buffers around nest sites of sensitive species and monitor closely. For breeding waders, disturbance-free buffer zones are only required until chicks have hatched and are capable of walking away from any sources of disturbance. For raptors, disturbance-free buffer zones would be required until chicks have fledged, or the relevant nest is confirmed to have failed.
 - The following distances are a guide only and may vary according to topography and other site-specific factors:
 - Curlew 200-300 m.
 - Red kite 150-300 m.
 - Snipe 300 m.
 - Peregrine 500-750 m.
 - Use of screens or a screened rolling corridor to limit the extent of construction disturbance, specifically during the breeding season. These would not restrict access to land but would aim to provide a visual barrier between construction work and sensitive breeding bird species.

3.3 Air Emissions

- 3.3.1 Construction works will give rise to a risk of fugitive dust impacts during earthworks and construction, as well as from track-out of dust and dirt by vehicles onto the public highway. The local community may experience occasional, short-term dust annoyance.
- 3.3.2 Construction can also result in increases in vehicles, plant and equipment on and off-site, whose exhaust emissions can impact on the local air quality, increasing particulate matter and nitrogen dioxide levels, which can have adverse effects on human health. However, such emissions are unlikely to be significant, particularly in comparison to levels of similar emission components from vehicle movements on the surrounding highways network.
- 3.3.3 To reduce emissions of dust and limit dispersion mitigation measures will include:
- Plan site layout so that dust causing activities are located away from receptors, as far as is possible.
 - Appropriate dust suppression for example water spray, will be used where there is a high potential of dust generation.
 - Cover, seed or seal stockpiles to prevent wind whipping.
 - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques.
 - Minimise drop heights when loading or handling equipment.
 - Impose and signpost a maximum speed limit on un-surfaced haul roads.
 - Plant and equipment to be switched off when not in use (including during breaks and down time of more than 30 minutes); No idling vehicles or plant on-site.
 - Re-vegetate earthworks and soil stockpiles to as soon as practicable.
 - Road sweeping will be in operation to prevent detritus from the site entering the highway.
 - Wheel washing facilities will be placed near site exits, if and when required.
 - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.

3.4 Noise and Vibration

Construction noise

- 3.4.1 Construction phase noise and vibration impacts arising from equipment, vehicular movements and other construction processes have the potential for a short-term impact on sensitive receptors near the Site.
- 3.4.2 The closest residential receptor is a farmstead located approximately 200 m south of the Site Boundary, south of the A465 Heads of the Valleys Road.

3.4.3 The distance between the construction areas and residential receptors is sufficient that no significant effects are anticipated in respect of noise from construction activities. However, as good practice, mitigation measures should be implemented, which include:

- Restricted hours of working (07:00 to 19:00 Monday to Friday, 07:00 - 12:00 Saturdays) for most heavy vehicle movements to avoid sensitive periods. Any requirement to work outside of these periods would only occur through prior agreement with the local planning authority (for example turbine erection requires low wind speed conditions and may require longer working hours if conditions are poor at the time);
- All construction activities to be undertaken in accordance with good practice as set out in BS5228-1 (2014);
- Where possible, employees on the Proposed Scheme construction site will be advised of quieter methods of operating plant and tools, and to report any damage to noise control measures as soon as they are identified;
- Where possible and practicable to do so, for any particular activity, locally available and suitable plant, machinery and working practices would be adopted. All equipment will be maintained in good working order and will be fitted with appropriate noise controls at all times (e.g. silencers, mufflers and/or acoustic hoods); and
- Construction plant capable of generating significant noise and vibration levels will be operated in a manner to minimise the duration of the higher magnitude levels.

Control of Pollution Act 1974

3.4.4 The Control of Pollution Act 1974 (COPA 71) gives local authorities power for controlling noise and vibration from construction sites. If deemed necessary by the Local Authority, a Section 61 consent may be utilised to agree methods, times durations and noise levels.

3.5 Landscape and Visual

3.5.1 Visual receptors include people in settlements, using the local area for recreation, and travelling through the area on roads. To mitigate against physical landscape, measures will include the following:

- Ground disturbance on-site will be restricted as far as practicable and any soil materials excavated would be retained on the Site for re-use on areas to be re-vegetated following the construction phase.

3.6 Cultural Heritage

3.6.1 A desk-based assessment recommended that a phased archaeological approach should be undertaken, including a written scheme of investigation (WSI) prepared by a professional archaeological company registered with ClfA. This may include:

- An initial trial trench evaluation across those areas of the Proposed Scheme where impacts to archaeological remains might occur to identify where archaeological remains have been identified, and the nature and date of such remains. An archive on the results will also be required.
- Should significant archaeological remains be identified during the evaluation, then more detailed investigation and analysis of the remains should be undertaken, possibly through an archaeological excavation. This will target those areas of significant remains identified at the evaluation stage.
- Following excavation, if and where necessary, post excavation assessment reports of the results will need to be prepared to determine the extent of further analysis needed on finds or environmental information recovered from the works and the scope of further reporting and publication if necessary. An archive would be prepared of the results.
- If only a few archaeological remains are revealed or remains of low significance are identified through evaluation, an archaeological watching brief may be needed during mobilisation and construction works.
- All archaeological works undertaken at the Proposed Scheme would need to be monitored by the Planning Services section of GGAT to ensure the works are being undertaken to the correct standards and to view the archaeological results.
- All archaeological reports will be lodged with the GGAT HER and made publicly available, including online. The archives will be stored with appropriate repositories (digital archives with the NMR) and again should be publicly accessible.
- The access track is known to run through the location of a leat associated with the Dowlais Free Drainage System. The leat should be bridged by the access track to leave the remains intact.
- The possible route of the Grid Connection may run through or around the location of Pitwellt Pond. The route should avoid running through the site of the pond as it is part of the Dowlais Free Drainage System which local policy indicates should be retained. If a route to the north is chosen around the pond, further leats may need to be crossed by the works.

3.7 Hydrology, Hydrogeology, Geology and Peat

3.7.1 Desk-based inspections indicate that the entire Site Boundary lies within Flood Zone A and is considered to be at little or no risk of fluvial or coastal/tidal flooding. However, some areas of the Site are at risk from flooding from surface water and small watercourses.

- 3.7.2 Flood risk downstream is a more serious consideration. The River Rhymney lies immediately east of the Site Boundary. The natural drainage on the Site has been significantly modified historically, with a number of artificial channels diverting water into Pitwellt and Jepson's Ponds in the south-western section of the Site. Access tracks would require installation of trackside drainage and cross-drains, which would affect overland drainage. Three watercourse crossings will be required. All construction works involving earthworks will generate loose sediment, which could potentially enter surface watercourses and waterbodies. This could adversely affect downstream watercourses through changes to dissolved oxygen and nutrient levels, as well as potentially increasing downstream flood risk. Sections of the Proposed Scheme overlie a Source Protection Zone (SPZ), which is sensitive to the potential effects of pollution to groundwater.
- 3.7.3 Peat surveys identified areas of peat within the Site Boundary. Construction activity, e.g. plant and vehicle movements, soil stripping and stockpiling, would affect the nature of soils and peat. A Peat Slide Risk Assessment and Peat Management Plan show that areas of deep peat can be avoided and peat resources can be safeguarded.

Physical changes to overland drainage and surface water flows

- 3.7.4 Mitigation measures for physical changes to overland drainage and surface water flows include:
- Constructed drains would be no longer and deeper than necessary to provide the required track drainage.
 - All long-term and temporary drainage infrastructure would be established on a running basis ahead of excavation works.
 - All crossing structures would be designed with sufficient capacity for a rainfall intensity of a 1-in-100 year storm event, plus allowance for climate change.
 - Cross-drains under tracks would be installed at an appropriate frequency.

Particles and suspended solids

- 3.7.5 Measures to mitigate against particles and suspended solids entering watercourses include:
- Peripheral bunding and cut-off drains will be used to divert clean water around and away from working areas.
 - During excavation works, appropriate sediment control protection measures will be installed on the downslope side of the excavation to prevent inadvertent discharge of silty water into study area watercourses.
 - All engineering work adjacent to watercourses, including track construction and installation of watercourse crossings, would have appropriate sediment control measures established prior to groundworks.
 - Minor in-stream works may be required for crossings of the minor watercourses or drainage areas. If required, this work would be undertaken using a temporary dam to control flow while culvert pipes are installed.

- For areas of larger excavation, such as turbine bases and hardstandings, temporary water control measures may be used, for instance temporary settlement ponds or proprietary treatment systems such as Siltbusters.
- Construction activities would be restricted during periods of wet weather, particularly for work occurring within 20m of a watercourse or within areas of peat.
- Any water collected within excavations would be pumped out prior to further work in the excavation. This water is likely to require treatment to remove suspended solids prior to discharge to ground.
- Vegetation cover would be re-established as quickly as possible on track verges, screening bunds and cut slopes by re-laying of excavated soil turves.
- A water quality monitoring programme would be established at key locations.

3.7.6 Risk assessments will be undertaken and all Hazardous Substances and Non-Hazardous Pollutants used and/or stored within the Proposed Scheme will be identified. Hazardous substances likely to be on site include oils, fuels, hydraulic fluids and anti-freeze. Measures to mitigate against water contamination include:

- No hazardous materials would be stored within the SPZ.
- Storage for all potentially hazardous materials would be provided within a secure, dedicated part of the construction compound with protective bunding and a dedicated and contained drainage system.
- All deliveries of oils and fuels would be supervised by the Site Manager or designated alternative.
- All storage tanks would be located within impermeable, bunded containers where the bund is sufficient to contain 110 % of the tank's capacity. For areas containing more than one tank, the bund would be sufficient to contain 110 % of the largest tank's capacity or 25 % of the total capacity – whichever is greater.
- Any valve, filter, sight gauge, vent pipe or other ancillary equipment would be located within the containment area.
- Waste oil would not be stored within the Proposed Scheme but would be removed to dedicated storage or disposal facilities.
- Management procedures and physical measures would be put in place to deal with spillages, such as spill kits and booms.
- Maintenance procedures and checks would ensure the minimisation of leakage of fuels or oils from plant.
- Refuelling and servicing would be undertaken in a dedicated impermeable surface with lipped edges to contain any contaminants.
- Concrete batching is not proposed. Any concrete requirement would be fulfilled by deliveries of ready-mix concrete to the required area as needed.
- Washing-out of concrete mixing plant will only be permitted in one designated location with protective bunding and a dedicated and contained drainage system to ensure that wash-out water can be suitably treated prior to discharge or removal off-site.

- In the event of any spillage or discharge that has potential to harm or pollute the water environment (surface or groundwater), all necessary measures would be taken to remedy the situation. These measures would include:
 - Identifying and stopping the source of the spillage.
 - Containing the spillage to prevent it spreading or entering watercourses by means of suitable material and equipment.
 - Absorbent materials, including those capable of absorbing oils, would be available within the Proposed Scheme to mop up spillages. These would be in the form of oil booms and pads and, for smaller spillages, quantities of proprietary absorbent materials. Sandbags would be readily available for use to prevent spread of spillages and create dams if appropriate.
 - Use of any potentially polluting material within the SPZ would be minimised and closely supervised at all times by the Site Manager.
 - Where an oil/fuel spillage may have soaked into the ground, the contaminated ground would be excavated and removed off-site by a licensed waste carrier to a suitable landfill facility.
 - The emergency contact number of a specialist oil pollution control company would be displayed within the Proposed Scheme.
 - Sub-contractors would be made aware of the guidance for handling oils/fuels and of the procedures to follow when dealing with spillages.
- NRW would be informed of any discharge or spillage that may be harmful or polluting to the water environment. Written details of the incident would be forwarded to NRW no later than 14 days after the incident, in line with current best practice guidance.

Changes in or contamination of water supply to vulnerable receptors

3.7.7 Mitigation measures to minimise the risk of changes in or contamination of water supply to vulnerable receptors include:

- Handling and storage of potentially polluting materials, and spillage and emergency procedures, are set out above.
- All groundworks requiring excavation would be minimised as far as practicable, within the necessary engineering constraints for construction. This would include keeping to a practical minimum the depth and area of all excavations for turbine foundations, hardstanding areas and access tracks within the SPZ.
- Excavation of cable trenches could lead to groundwater flows between catchments if the trenches act as preferential flow paths. Where possible, cables should be laid in disturbed ground adjacent to access tracks.
- Any groundwater seepage into excavated areas would be removed to adjacent water storage in infiltration ponds or trenches, to allow re-infiltration of groundwater as near to its abstraction as practicable.

- Any water collecting within excavations would be pumped out prior to further work within the excavation. The water is likely to require treatment to remove suspended solids prior to discharge to ground.
- Should any potential spillage or pollution incident be identified in an area with groundwater seepage, water testing would be undertaken prior to removal to a settlement pond or infiltration trench to ensure it has not been contaminated. Should contamination be identified, the water would be removed for treatment rather than allowed to infiltrate to groundwater.

Flood risk

3.7.8 Measures to mitigate against increased flood risk include:

- Waste water drainage would be provided by a suitably sized containment tank, which would be emptied by tanker and all waste water would be removed for disposal at a suitably licensed treatment facility. No discharge to ground or to a watercourse is proposed.
- The surface water drainage network for the Site would be designed taking into account the requirements of the Flood and Water Management Act 2010 (Schedule 3) and current best practice guidance from the Welsh Government (2018) and CIRIA Publication C753 – the SuDS Manual (CIRIA, 2015).
- Use of suitable SuDS features would encourage infiltration to ground in areas where ground conditions are suitable.
- It is anticipated that settlement ponds would be used at each turbine location, the electrical and control building compound and the construction compound to provide water storage, attenuation and treatment to remove suspended sediment from surface water runoff. The ponds would be established during construction to provide water management for the construction phase works. The ponds are anticipated to be fully reinstated at the end of the construction period.
- Swales and filter strips would provide attenuation, storage and treatment for access tracks and turbine hardstandings, with swales forming the preferred option. During construction, small sumps with silt fencing would be established periodically along track routes in order to manage entrained sediment within the surface water. The sumps and silt fencing would be removed at the end of the construction phase, once vegetation on the filter strips and swales has become established.
- Temporary cut-off drains and bunds would be required around excavation areas for the turbine bases and hardstanding areas, to capture clean runoff and divert it around construction areas. These may be converted into swales at the end of the construction phase if long-term drainage is required.

Soil and peat erosion and compaction

3.7.9 Mitigation measures against soil and peat erosion and compaction include:

- All traffic routes will be clearly demarcated, and vehicles would not be permitted access outside these areas.

- Only tracked or low ground pressure vehicles would be permitted access to unstripped ground. Soil stripping would be undertaken with care and would be restricted to as small a working area as practicable. Topsoil would be removed and laid in a storage bund, up to 2 m in height, on unstripped ground adjacent to the working area. Subsoils and superficial geological deposits would be removed subsequently and would be laid in storage bunds, also up to 2 m in height.
- For work within areas of peat, acrotelmic peat (the uppermost 0.5 m) would be removed as for the topsoil. The underlying catotelmic peat would be stored in bunds up to 1 m in height.
- Limited smoothing or 'blading' of stockpiled soils and catotelmic peat would be undertaken to help shed rainwater and prevent ponding of water on the stockpile.
- Excavated soil and peat would be used in restoration and rehabilitation of long-term infrastructure at the end of the construction period, in order to promote fast re-establishment of vegetation cover.
- Should prolonged periods of dry weather occur, a damping spray would be employed to maintain surface moisture on the soil and peat bunds.
- All construction works in areas of peat would be subject to supervision by the ECoW, with micro-siting applied to move construction activity away from areas of peat where this is possible within engineering and other environmental constraints.
- Any construction work would make use of current best practice guidance relating to developments in peatland areas.
- Micro-siting would be used to avoid possible problem areas identified during ground investigation or other detailed design works.

3.8 Access, Traffic and Transport

- 3.8.1 The Proposed Scheme includes a new site entrance off the Common Road, which is designed to safely allow the delivery of wind turbines and construction materials. The Common Road runs along the southern boundary of the Site and can be accessed from the strategic road network via the A740 and A465 Heads of the Valleys Road. A desked based assessment determined that residual traffic and transport effects will be temporary and will have no significant or lasting impact.
- 3.8.2 Measures to promote good practice measures relating to construction traffic during the construction phase of the development (such as dust and dirt control measures and pollution prevention controls) are given in section '3.3. Air Emissions' and section '3.7. Hydrology, Hydrogeology, Geology and Peat'.
- 3.8.3 A Construction Traffic Management Plan (CTMP) will be prepared and agreed with Caerphilly County Borough Council and Merthyr Tydfil County Borough Council in advance of the construction phase.

3.9 Materials Sourcing and Waste Management

- 3.9.1 For construction, the Proposed Scheme will require a range of materials (for example stone for access tracks, the Site compound and the control building/electrical compound). Excavated material from the turbine bases and access tracks will be re-used on-site for restoration/reinstatement. For example, soils that are excavated during construction will be set aside for backfilling of foundations and reuse in restoration of disturbed areas around the turbine locations and hardstandings. On-site concrete batching will not take place and ready mixed concrete will be delivered to Site.
- 3.9.2 A Site Waste Management Plan will be developed for implementation during construction. This will outline details of the materials requirements and anticipated waste generation during construction and how the Contractor intends to consider the management of these aspects

3.10 Residents and local community

- 3.10.1 There are scattered areas of industrial and residential development to the south, south-east and south-west of the Site. The closest commercial receptor is a trading estate directly adjacent to the south-west boundary, while the closest residential receptor is a farmstead located 200 m south of the Site Boundary.
- 3.10.2 There are two Public Rights of Way (PRoW) located within the Site Boundary and a Bridleway and a National Cycle Network route adjacent to the southern edge of the Site. The Site is part of CL38 Merthyr and Gelligaer Common and Countryside and Rights of Way (CRoW) land is used by graziers and members of the public.
- 3.10.3 Given the location and nature of the development, the construction process may impact upon residential properties located within the vicinity of the Proposed Scheme or on members of the public who use it for recreation purposes, however the sensitivity of each receptor may vary. It is considered that the following environmental issues may be of concern and details of mitigations are detailed in the sections above:
- Nuisance including:
 - Mud on roads spread by construction traffic;
 - Excessive or poorly directed light; and
 - Litter.
 - Dust and fumes from transport and construction activity;
 - Noise and vibration from transport and construction activity;
 - Traffic and transport disruption;
 - Disruption to business; and
 - Reduction of access to amenity space.

4 EMERGENCY PREPAREDNESS AND RESPONSE AND GENERAL ENVIRONMENTAL REQUIREMENTS

4.1 Emergency Preparedness and Response

4.1.1 The Contractor shall provide details for emergency preparedness and response within their detailed CEMP, including:

- Spill kit contents, locations and spill drills;
- Plan for extreme weather events;
- Incident reporting and investigation;
- Emergency contacts; and
- Incident response.

4.2 General Environmental Requirements

4.2.1 The Contractor shall provide details for general environmental management within their detailed CEMP, including:

- Roles and responsibilities;
- Competence training and awareness;
- External communications;
- Documentation and records;
- Monitoring, inspections and audits;
- Key performance indicators and reporting; and
- Consents Permits and other permissions.