

## 8 HUMAN HEALTH

### 8.1 INTRODUCTION

8.1.1 This chapter of the ES assesses the likely significant effects of the proposed development on human health.

8.1.2 Article 4(2)(a) of the Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 notes that in light of each individual case the effects of the proposed development on population and human health should be considered as part of the ES. Additionally, the Scoping Direction (**Appendix 2.1**) confirms that Human Health should be scoped into the ES.

8.1.3 The direct and indirect effects of the proposed development on human health have been considered and the following issues are addressed within this chapter:

- Noise;
- Air Quality (Construction Phase); and
- Electrical Risks (Transmission and Storage of electricity).

8.1.4 The above potential impacts could potentially pose a risk to the population and human health; therefore, this chapter sets out the potential significance of these impacts and considers how these could be avoided or mitigated.

8.1.5 A noise assessment and air quality technical note have been submitted to accompany this application.

8.1.6 It is suggested that a condition be attached to any planning permission requiring a Construction Environmental Management Plan (CEMP) to be submitted and agreed with the Local Planning Authority and suggested wording is as follows:

*"No development shall take place, including any works of demolition, until a Construction Environmental Management Plan has been submitted to, and approved in writing by, the Local Planning Authority. The approved Plan shall be adhered to throughout the construction period. The Plan shall:*

- i. specify the type and number of vehicles;*
- ii. specify the point of construction access and access route to the site;*
- iii. set out details of the parking of vehicles of site operatives and visitors;*
- iv. set out arrangements for the loading and unloading of plant and materials;*
- v. set out measures for the control of noise during construction;*
- vi. set out measures for the control of dust during construction;*
- vii. set out arrangements for the storage of plant and materials used in constructing the development; and*

*viii. set out arrangements for wheel washing facilities*

*ix. specify the intended hours of construction operations.*

## **8.2 NOISE**

8.2.1 Noise effects during operation of the Proposed Development have been considered in the accompanying noise assessment (**Appendix 8.1**) which includes an assessment of the relevant policy and guidance. Measures to reduce noise which will be adopted during construction are set out below.

### *Relevant Guidance*

8.2.2 British Standard (BS) 5228 Parts 1 and 2 provides guidance for assessing noise during the construction of the development. It also provides guidance on minimising potential impacts through the use of mitigation and the adoption of Best Practicable Means (BPM) or Best Available Techniques Not Entailing Excessive Cost (BATNEEC).

8.2.3 BPM or BATNEEC both seek to ensure that the contractors adopt best practice measures to reduce noise and vibration from site activities.

8.2.4 Whilst BS 5228 does not provide specific guidance with regards acceptable noise levels associated with construction activities, it provides guidance on limits considered to provide satisfactory levels of noise for construction projects.

8.2.5 Based on this guidance, it is often appropriate to set noise Action Levels to provide an indication of the noise levels that can be generated from construction activities, which should minimise the potential for adverse effects.

### *Baseline*

8.2.6 Noise levels in the vicinity of the site are principally influenced by road traffic travelling along the A55 and St Asaph Road. The A55 is the main trunk road across north Wales and remains busy during the day and night. Sensitive receptors include residential properties surrounding the application site.

### *Construction*

8.2.7 During the construction phase (27 weeks) there will be an increase in noise due to the onsite construction activities as well as construction vehicles accessing the site to deliver parts and materials.

8.2.8 The main phases of the construction process, identified as giving rise to the greatest potential for adverse effects upon the existing residents of surrounding properties, are as follows:

- Initial ground works and installation of infrastructure, panels, drainage, etc within the site;
- General construction activities; and
- Vehicle movements.

8.2.9 These works would result in a moderate effect upon the closest noise sensitive receptors during short periods as plant operates closest to the surrounding residential properties.

#### *Mitigation*

8.2.10 Adverse effects are anticipated when construction activities are carried out in close proximity to existing noise sensitive receptors. Mitigation measures and a noise control regime would be adopted to reduce any potential effects.

8.2.11 Mitigation measures will be implemented, which include:

- Adopting a CEMP;
- Adopting the principle of Best Practicable Means to reduce noise levels during the construction work;
- Selection of the most appropriate plant to minimise noise levels; and
- Regular liaison with local residents to inform them of periods where noise levels are likely to be higher.

8.2.12 Through the use of appropriate mitigation and control measures adopted during the construction phase of the Proposed Development, potential adverse effects and residual effects would be minimised.

#### *Operation*

8.2.13 Once operational, the site will be unmanned with only c.10-20 vehicles movements per year associated with the maintenance of the site. Which is unlikely to give rise to any significant noise effects.

8.2.14 It is proposed to connect the solar panels to approximately 400 string inverters, which would be spread across the site. The inverters would be located alongside the panels and positioned, to ensure noise levels associated with their operation were minimised. The inverters would be connected to a number of small substations, distributed across the site.

8.2.15 The inverters would have active cooling, which would only operate when the panels were generating, with the cooling fans temperature dependent, i.e. only operating at full speeds during periods of peak generation during the mid part of the day.

8.2.16 The battery storage element would be located within the southern part of the site, adjacent to the A55. This facility would contain a number of energy storage inverters and battery containers. The energy storage inverters would potentially operate on a 24 hour basis and charge the batteries either by solar or from the grid and when converting the stored energy for generation onto the grid. These inverters would be actively cooled, with the cooling fans operation whilst the inverters were working. The battery storage containers would incorporate HVAC equipment to ensure the correct temperature was maintained within the containers during charging and discharge cycles.

*Mitigation*

8.2.17A 3 m high noise barrier will be installed around the battery storage facility in order to reduce noise as residential receptors to an acceptable level. The Noise Assessment confirms that the operation of the solar farm and energy storage facility would generate acceptable levels of noise at surrounding properties both during the day and night-time periods.

8.2.18It is considered that there will be no significant noise related issues associated with the Proposed Development. Therefore, there would not be any risk to human health as a result of noise.

**8.3 AIR QUALITY**

8.3.1 An air quality technical note (**Appendix 9.1**) has been prepared to accompany this application. The air quality note considers construction traffic against the criteria set out in relevant guidance. An assessment of the likely air quality effects on human health is provided below. The operation of the Proposed Development will not result in any direct emissions to air.

*Baseline*

8.3.2 The site does not lie within an Air Quality Management Area and therefore the air quality can be considered to be currently acceptable. Sensitive receptors include residential properties surrounding the application site.

*Construction*

8.3.3 Construction works will generate vehicle movements, but these will be temporary and thus will not have a significant lasting effect on local air quality. It is, therefore, considered that the impact of traffic emissions during the construction phase will be 'not significant'.

8.3.4 The construction works will give rise to a risk of dust impacts during, construction, as well as from trackout of dust and dirt by vehicles onto the public highway.

8.3.5 Any potential air quality impacts associated with the construction phase would be relatively short-term as it is anticipated that the site will be constructed over approximately seven months.

*Mitigation*

8.3.6 A CEMP will be prepared which will include measures for reducing dust during construction such as:

- Daily on-site and off-site inspections;
- Erection of barriers around dusty activities;
- Provision of wheel wash facilities;
- Covering any stockpiles to prevent wind whipping; and

- Dust suppression techniques using water sprays.

8.3.7 In addition, vehicles will be switched off when not in use.

8.3.8 It is considered that following the adoption of appropriate mitigation measures there will be no significant air quality related issues associated with the proposed development. Therefore, there would not be any risk to the population and human health as a result of air quality.

## **8.4 ELECTRICAL RISKS (TRANSMISSION AND STORAGE OF ELECTRICITY)**

### *Baseline*

8.4.1 At present there are no significant risks to human health existing at the site as all electrical power cables which are present are assumed to have been installed in accordance with appropriate regulations.

### *Construction*

8.4.2 During construction there is potential for an effect on human health associated with the installation of electrical equipment.

### *Mitigation*

8.4.3 The Proposed Development will be installed by a qualified contractor in accordance the appropriate regulations and guidance. Appropriate signage will be installed warning members of the public of any temporary exclusion areas if necessary. Accordingly, any effect on human health his considered to be negligible.

### *Operation*

8.4.4 The Proposed Development would have the ability to generate and store electricity, as a battery energy storage facility is proposed towards the southern boundary of the site. This section considers whether the generation and transmission of electricity will cause any risks to human health.

8.4.5 The batteries would be housed in containers which will be suitability insulated. Each battery enclosure is equipped with two different types of fire detection systems, smoke and heat detectors to ensure safety. The power generated from the site would be transmitted via underground cables.

8.4.6 Once the site is operational, the development will be enclosed by boundary fencing to ensure no unauthorized access to the site. In addition to fencing, it is proposed that c.3m high pole mounted CCTV security cameras will be installed around the site. Appropriate signage will be placed around the site to deter potential unauthorized access.

8.4.7 The site will be managed and controlled remotely; any potential risks that may arise can be managed remotely. If required a technician would be sent to site to investigate any fault.

8.4.8 Maintenance visits to the site will be made throughout the year (c.10-20 visits per year). The maintenance visits will involve inspections of the equipment on site to ensure all equipment is kept in a good state to minimise any potential risk to human health.

8.4.9 An Energy Storage Safety Management Plan (**Appendix 10.1**) has been prepared, to outline the measures which will be put in place to address any safety concerns around the energy storage component of the project.

8.4.10 Appropriate security measures will be implemented, and the storage component will be designed to appropriate electrical codes and standards, and therefore it is deemed that there would not be a significant risk of electric shock resulting from trespassers on the proposed development.

8.4.11 Based on the above design of the scheme and safety checks which are in place, it is not considered that there would be any risk to human health as a result of the generation or storage of electricity on the proposed site.