

APPENDIX 2.4
HUMAN HEALTH TECHNICAL NOTE



**ALLESTON SOLAR FARM HUMAN
HEALTH TECHNICAL NOTE**

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Alleston Solar Farm Human Health Technical Note

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1 Introduction

1.1 Purpose of this Technical Note

This technical note has been prepared on behalf of Alleston Clean Energy Limited (the Applicant) in relation to a full planning application to Planning and Environment Decisions Wales (PEDW) for a ground mounted photovoltaic (PV) solar farm together with associated equipment, infrastructure and ancillary works (the Development) on Land at Alleston Farm, Lower Lamphey Road, Lamphey, Pembrokeshire (the Site).

This technical note has been produced in response to the comments within the Scoping Direction, received on 13/03/2024, from Planning and Environment Decisions Wales (PEDW) in relation to the Scoping Report submitted for the Development. In their response, PEDW requested that further information be provided regarding the potential effects to population and human health as a result of the Development.

PEDW's commentary consisted of the below comment:

“PEDW agrees that it is not necessary to include a standalone chapter on Human Health, however it should be addressed in appropriate chapters of the ES. This topic is therefore scoped into the ES, but not as a standalone chapter.”

The technical note has been produced to respond to the Scoping comment. The technical note has demonstrated there will be no significant effects on human health due to the nature and the scale of the Development.

1.2 Layout of this Technical Note

This technical note is set out as follows:

- Chapter 1 Introduction and Policy Context: sets out the purpose and layout of this technical note, the definition of human health on which this technical note is based, and the policy context;
- Chapter 2 Baseline Conditions: sets out the existing health and wellbeing conditions and priorities within the local area;
- Chapter 3 Summary of Population and Human Health Effects of the Development: provides a summary of effects for relevant determinants of health, with signposting to, and summaries from, relevant parts of the ES; and
- Chapter 4 Conclusions: concludes the technical note.



1.3 Definition of Human Health

The World Health Organisation defines health as ‘*a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity*ⁱ. This definition of health is broad in scope and includes and our interactions with the natural and built environment it through lifestyle, community, activity, and economy.

Similarly, in their guide to ‘Effective Scoping of Human Health in Environmental Impact Assessment’ⁱⁱ, the Institute of Environmental Management and Assessment (IEMA) advises the following wider determinants of health should be reviewed when scoping an assessment of human health.

- Health-related behaviours;
- Social environment;
- Economic environment;
- Bio-physical environment; and
- Institutional and built environment.

The definitions for these determinants are provided in Table 3.1.

1.4 Policy Context

The relevant national and local policy requirements to health and wellbeing have been considered where determining priorities for health, and potential sensitive receptors. As health and wellbeing are multi-faceted and, by nature, have many indirect links to other issues contained within policy, only those policies which explicitly mention health and/ or wellbeing are referred to.

1.5 National Planning Policy

1.5.1 PLANNING POLICY WALES

Planning Policy Wales (PPW) Edition 12ⁱⁱⁱ was adopted in February 2024 and sets out the land use planning policies of the Welsh Government. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales. An important aspect of these objectives is ensuring the built and natural environments positively impact health and wellbeing. PPW ensures that planning addresses health by reducing exposure of populations to air and noise pollution and seeking environmental and physical improvements in the built environment. Developments are required by PPW to consider their impact on the health of existing communities.



1.6 Local Planning Policy

1.6.1 LOCAL DEVELOPMENT PLAN

PCC adopted the Local Development Plan (LDP)^{iv} in February 2013. The LDP provides a framework for development decisions and desirable development for Pembrokeshire's economy, communities and environment. The LDP identifies a number of issues from which the strategic objectives are derived, these issues include health inequalities and the impact of pollution on health and wellbeing. Policies of relevance to this human health technical note include:

- Policy SP1 Sustainable Development: All development proposals must demonstrate positive economic, social and environmental impacts, as well as how they will be achieved and adverse impacts avoided;
- Policy GN.1 General Development Policy: Includes criteria to ensure that development does not result in risk of harm to health and safety, not resulting in a significant detrimental impact on local amenity in terms of visuals, loss of light, loss of privacy, odours, smoke, dust, air quality or noise and vibration levels and being within an accessible location and incorporate sustainable transport principles to reduce impact on highway safety or traffic increase;
- Policy GN.2 Sustainable Design: Includes criteria on resource efficiency and climate change design through location, orientation, density, layout, land use, materials, water conservation, sustainable drainage systems, and waste management solutions;
- Policy GN.4 Resource Efficiency and Renewable and Low-carbon Energy Proposals: Developments which enable the supply of renewable energy through environmentally accepted solutions will be supported;
- Policy GN.10 Farm Diversification: Diversifying the range of economic activities on a farm will be permitted as long as the proposed use helps to support the continued agricultural operation and a new building is justified; and
- Policy GN.35 Protection of Open Spaces with Amenity Value: Developments should not adversely affect the appearance, character or local amenity value of areas of public and private open space. If an adverse effect is identified, the development must demonstrate that no suitable alternative site is available.

1.6.2 WELLBEING ASSESSMENT

Pembrokeshire published their second Wellbeing Assessment in May 2022^v. Of relevance to this Human Health technical note, the assessment addresses topics including: poverty; health and social care; housing; and safe, cohesive and resilient communities.

The assessment links to the well-being of future generations (Wales) Act 2015, which establishes seven national well-being goals, whereby 'a healthier Wales' forms one of these goals.

The assessment identified the following four objectives, relevant to human health:



- Support growth, jobs and prosperity and enable the transition to a more sustainable and greener economy;
- Work with our communities to reduce inequalities and improve well-being;
- Promote and support initiatives to deliver decarbonisation, manage climate adaptation and tackle the nature emergency; and
- Enable safe, connected, resourceful and diverse communities.

2 Baseline Conditions

2.1 Overview

This chapter considers the existing human health baseline within Pembroke Parish (where data is available at this level of granularity) and is primarily informed by Data Cymru^{vi}, Public Health Wales^{vii}, Census data^{viii}, data on Indices of Multiple Deprivation^{ix} and Pembroke County Council Corporate Strategy 2023-2038^x, unless otherwise referenced. Comparisons are made to the national average (Wales) and the regional average (Pembrokeshire), where applicable data could be found.

2.2 Demographic Profile

The age profile within Pembroke Parish is most represented by those between the ages of 45 and 59 years, and exceeds the averages of Wales and Pembrokeshire. The ages least represented within Pembroke are those ages 15 and 90+.

Pembrokeshire's Wellbeing Assessment (2022) found that Pembrokeshire has an ageing population.

2.3 Deprivation

At the local level, the baseline conditions of deprivation are identified for the local area using the Welsh Index of Multiple Deprivation (IMD) at small areas (or neighbourhoods) which are also known as lower super output areas (LSOAs) which on average contain around 1,500 people. There are 1,909 of these neighbourhoods across Wales.

The Site sits within LSOA: Pembroke: St. Michael. Table 2.1 presents the IMD for Pembroke: St. Michael.



Table 2.1 Indices of Multiple Deprivation

Domain of Deprivation (Rank out of 1,909 where 1 is the most deprived)	Pembroke: St. Michael
Overall IMD Rank	1,538
IMD Percentage	50% least deprived
Income Rank	1,374
Income Percentage	50% least deprived
Employment Rank	1,128
Employment Percentage	50% least deprived
Education Rank	1,275
Education Percentage	50% least deprived
Health Rank	1,540
Health Percentage	50% least deprived
Community Safety Rank	1,752
Crime Percentage	50% least deprived
Barriers to Housing Rank	1,638
Barriers to Housing Percentage	50% least deprived
Access to Services Rank	1,083
Access to Services Percentage	50% least deprived
Physical Environment Rank	884
Physical Environment % Percentage	30-50% least deprived

Table 2.1 demonstrates that the area that ranks 1,538 out of 1,909 LSOAs (where 1 is the most deprived), within the 50% least deprived neighbourhoods, nationally. Of the indicators, Pembroke: St. Michael ranks highly for income, education, health, community safety, barriers to housing, and ranks lower for employment, access to services and physical environment.

2.4 Life Expectancy and Mortality

As shown in Table 2.2, physical health and mortality statistics relating to Pembrokeshire perform better or significantly better than the national data.



Table 2.2 Life Expectancy and Mortality

Indicator	Year	Pembrokeshire	Wales
Life expectancy			
Life expectancy at birth for males	2017-19	79.2	78.5
Life expectancy at birth for females	2017-19	83.02	82.3
Morbidity			
Killed and seriously injured (KSI) casualties on Welsh roads	2022	61 ^{xi}	1,016 ^{xii}
Residents identified as being disabled and limited a lot	2021	9.2% ^{xiii}	21.1% ^{xiv}
Mortality			
Rate of male cancer registrations per 100,000 population	2019	627.7	683.0
Rate of female cancer registrations per 100,000 population	2019	496.1	546.9
Infant Mortality Rate (per 1,000)	2011 / 2021	4.8	3.6
Key			
Significantly better than the Welsh average			
Better than the Welsh average (but not significantly so)			
Worse than the Welsh average (but not significantly so)			
Significantly worse than the Welsh average			
Not Compared			

2.5 Mental Health and Behavioural Risk Factors

As shown in Table 2.3, the mental health insight for Pembrokeshire is varied compared to the national data.

The indicators show that Pembrokeshire ranges from better or worse than the national data but in all cases is not significantly different from the Welsh average.



Indicator	Year	Pembrokeshire	Wales
Mental Health			
% of adults aged 16+ years who reported having mental disorder(s)	2018-20	10	10
Number of suicides	2022	25	339
Lifestyle and behavioural risk factors			
% of adults who reported being active for less than 30 minutes in the week	2018-20	37	33
% of adults who reported being overweight or obese (BMI 20+)	2018-20	59	60
% of adults who reported being a smoker	2018-20	21	17
% of adults who reported being an e-cigarette user	2018-20	6	6
Rate of alcohol misuse per 100,000 people	2020-21	226	213
Rate of drug misuse per 100,000 people	2020-21	166	196
% of adults aged 16+ years who reported having respiratory system complaints	2018-20	9	8
Key			
Significantly better than the Welsh average			
Better or the same than the Welsh average (but not significantly so)			
Worse than the Welsh average (but not significantly so)			
Significantly worse than the Welsh average			
Not Compared			

2.6 Sensitive Receptor Groups

A mapping exercise of the local sensitive community receptors has been undertaken. The following receptors were found within a 1km radius of the Site's boundary, as being those most likely to be used by the community living in close proximity to the Site and have a bearing on their health and wellbeing:

- Educational facilities;
 - Tabernacle Kindergarten
 - Golden Grove Primary School



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- Lamphey Primary School
- Healthcare services;
 - Westgate House Dental Surgery
 - Rothery Health Centre & Sports Injury Clinic
 - Revival Clinical Therapy and Sports Massage
- Care homes;
 - Shangri-la Care Services
- Retirement homes;
 - Hollyland Lodge
- Religious amenities;
 - Apostolic Church
 - Tabernacle United Reform Church
 - Mount Pleasant Baptist Church
 - St Michael's Church
 - St Daniels Church
 - St Mary's Anglican Church
 - St Tyfei & St Faith Church
 - Wellspring Anglican Church
- Numerous Public Rights of Way (PRoWs) and bridleways:
 - Footpath SP32/51/1 that runs in a north-south direction through the northern area of the Site
 - Footpath SP32/52/1 which connects to SP32/51/1 running through the western boundary of the Site
 - Footpath SP32/51/2 that runs through the southern extent of the Site
 - Bridleway SP32/68 borders the west of the Site
- Park/ recreation grounds and sports facilities:
 - Lower Common Park and Playground
 - Pembroke Cricket Club



- Pembroke Rugby Football Club

There are no secondary education or college facilities, allotments within 1km of the Site. There is a National Cycle Route, Route 4 on Lower Lamphey Road which borders the Site to the north.

3 Summary of Population and Health Effects of the Development

Table 3.1 defines each determinant of health per the IEMA guidance 'Effective Scoping of Human Health in Environmental Impact Assessment'^{xv} and establishes the following:

- Whether the determinant is relevant to the Development; and
- If it is relevant, whether it is already considered in the ES within the relevant technical chapter, or is discussed in this technical note.



Table 3.1 Summary of Population and Human Health Effects of the Development

Determinant of Health	Definition	Relevant to Development	Discussion
Health-related behaviours			
Physical activity	<i>'How the project affects physical activity levels, including opportunities to promote physical activity through: education; transportation and planning; planning and environment; workplaces; sport, parks and recreation; and in health promotion initiatives and services. Where physical activity effects relate most directly to 'open space' or 'transport' discussed below, avoid duplication and cross-refer in the scoping decision.'</i>	No	<p>The Applicant is additionally applying for a Secondary Consent to reroute the PRoW SP32/51 which runs in a north-south direction across the northern and southern area of the Site. This PRoW will be improved and developed into a more logical route to ensure the continued enjoyment by local walkers. This will therefore promote the usage of the PRoW and its network, supporting walking within the local community. Further information regarding the rerouted PRoW has been submitted via a Secondary Consent application, therefore this determinant of health is scoped out of further consideration as an item in this technical note.</p> <p>In addition to the Secondary Consent Application, a solar farm would have very little influence on physical activity levels given that it is not a development accessible to the public and will only have a small number of people accessing it from time to time for maintenance. Per IEMA's guidance, this is discussed under transport and open space effects, therefore this determinant of health is scoped out of further consideration as an item in this technical note.</p> <p>No significant effects are identified.</p>
Risk-taking behaviour	<i>'How the project affects behaviours, including opportunities to reduce risk taking behaviours for its workforces and end users. Reference how this can be reflected within the construction / operational management plans in relation to markets created by the presence of the workforces, as well as in terms of operational opportunities introduced by the project as determined by its land use mix alternatives and types of commercial outlets proposed. Issues include use of alcohol,</i>	No	<p>In the context of IEMA's guidance in relation to the Proposed Development, risk-taking behaviour refers to the introduction of the workforces associated with the Proposed Development and risky behaviours that they might engage in such as the consumption and spread of 'alcohol, cigarettes, drugs, non-prescribed drugs, problem gambling and communicable illness'.</p> <p>There will be a maximum of 100 jobs created during the construction phase of the Development and therefore will introduce a minimal temporary construction workforce into the local area. The behaviours of the workforce will be managed through their contractual obligations to the Contractor which will set out restricted areas and services within the</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>cigarettes, non-prescribed drugs, problem gambling and communicable illness (including STIs and other infections).</i></p>		<p>local area and restricted behaviours. Should an individual engage in behaviours in discord with their contract during their employment term, and within a restricted area, they will be subject to a disciplinary process which may result in termination of their employment. The potential for risk-taking behaviour is therefore not considered significant.</p> <p>During the operation phase, employment opportunities will be limited to approximately 2 people on Site per month for maintenance activities. Visits will be conducted during a shift, and therefore do not require temporary accommodation or for the workers to move to the area. The potential for risk-taking behaviour is therefore not assumed to be significant, however the same contractual obligations will apply in order to manage behaviours during the operational phase. The potential for risk-taking behaviour is therefore not considered significant.</p> <p>No significant effects are identified.</p>
<p>Diet and nutrition</p>	<p><i>'How the project affects access to food, including opportunities to promote good nutrition; support production and/or access to affordable healthy food options, including changes in availability or quality of agricultural / growing land. This may also include learning and skills initiatives as well as access to allotments, new retail outlets and markets. Where relevant consider how the project may influence diet related elements to reduce obesogenic environments.'</i></p>	<p>No</p>	<p>As stated at paragraph 8.42 of Chapter 8 Agricultural land and Soils, the Site is used for both equestrian activities and arable cropping, especially maize. As a result of the Development, a portion of the Site will be sown to grassland and managed over the operational lifespan of 40 years, increasing the biodiversity value of the site. The land between the panels within the fenced area can continue to be made available for sheep grazing, allowing for on-going farm operation to take place alongside the operation of the solar farm. A portion of the Site dedicated to equestrian facilities will remain in use. This is expected to have a beneficial effect to the quality of the soils and therefore a beneficial effect on the potential for growing crops following the decommissioning phase.</p> <p>Whilst the Development of National Significance decision (DNS/3247619) states that best and most versatile agricultural land is needed to ensure food security, the Development will only occupy 8.6 hectares of best and most versatile agricultural land for a temporary duration and will enhance soil health for future agricultural production. As stated in the Solar Energy Wales Briefing^{xvi} (2022) solar developments on agricultural land allow soil health to recover from intensive farming and due to their temporary nature do not impact the</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
			<p>best and most versatile status. Additionally, solar farms promote food security by combating climate change effects, through clean energy production and therefore cannot be concluded to hinder food security.</p> <p>No significant effects are identified.</p> <p>As the Development is not introducing a new population to the area, it is not considered that the provision of skills initiatives relating to diet and nutrition, and their effect on obesity, is relevant for consideration, nor is the provision of allotments or outlets; these items are therefore not discussed further. For this reason, this is scoped out of further consideration as an item in this technical note.</p>
Social environment			
Housing	<p><i>'How the project affects housing need, e.g. construction workforce, and provision, including opportunities to provide good quality new or regenerated housing that responds to local needs. Where housing is proposed reference how the project can provide: a dwelling mix relative to community need; housing that meets high build quality and internal space standards to avoid overcrowding; appropriate and equitably located affordable housing and social housing provision; homes that are designed to be adaptable to different life stages and care needs; inclusion of homes specifically adapted to support independent living for older and disabled people; a layout and movement that promotes cohesion and connects with existing communities to avoid physical barriers, residential segregation or gated communities; a design that promotes a sense of safety and neighbourliness and reduces the risk of social isolation; a good quality indoor environment</i></p>	No	<p>Due to the size and nature of the Development it is considered that the construction workforce would compromise approximately 100 total people within the workforce who would be locally sourced and/or would be accommodated temporarily nearby during the works. Therefore, there will be no increased demand on housing within the area.</p> <p>Enhancements from the Development include the diversion and improvements to PRoW SP32/51, as addressed within the Secondary Consent Application, which will improve the natural environment surrounding the Development and promote active travel.</p> <p>No significant effects are identified.</p> <p>As the Development will not be providing permanent housing, the remaining items included within IEMA's definition are not relevant and are therefore scoped out of further consideration.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>(e.g. air quality, efficient thermal comfort, noise insulation and natural light); high quality safe outdoor space, including public green space, including maintenance; land uses and spaces which encourage social interaction; the inclusion, retention or re-provision of an appropriate mix of community facilities, public amenities and social infrastructure; inclusion where appropriate of day-care for dependent children or adults; homes that are protected from flood risk and sustainable drainage systems avoid increasing flood risk for others; and where temporary accommodation is proposed, such as for construction workforces, how appropriate standards, legacy opportunities and community implications are addressed.'</i></p>		
Relocation	<p><i>'Does the project involve population relocation, and include opportunities to safeguard people's health, including mental health, during any loss of housing and community support or connections (noting that mental health effects may commence even before the planning decision); how protocols for communication have been set up and how they handle uncertainty; how hard-to-reach and seldom-heard groups are engaged with; how individual needs are being understood and responded to; how people are supported to maintain continuity with schools, social networks and employment; how the support package responds to affordability, which influences alternative housing quality and overcrowding; how support is provided</i></p>	No	<p>The Development would not require the relocation of existing residents, therefore this determinant of health is scoped out of further consideration.</p> <p>The IEMA guidance does not refer to the relocation of the construction workforce, therefore this is addressed under 'Housing'.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<i>irrespective on tenure; how the remaining community may be affected (e.g. their identity and viability of retained services and amenities).'</i>		
Open space, leisure, and play	<i>'How the project affects places and spaces, including opportunities to encourage physical activity, use of space and social networking. Reference: existing, new and improved opens spaces (green and blue); natural habitats; sports, leisure and recreational amenities and facilities; and play facilities. Note how the project takes into account quality, safety, age, sensory and mobility considerations. Consider how well these spaces link to communities and the public realm in ways that are safe, welcoming and accessible for all. Consider the location and timing of re-provision in terms of its ability to positively influence physical activity, social interaction and supports the mental health benefits of exposure to greenspace. Identify how the project reduces an obesogenic (obesity enabling) environment in terms of equitable access to physical activity opportunities.'</i>	No	<p>The Site is of arable use and is therefore not a publicly accessible site for leisure or play, beyond the available PRoWs that cross the Site. As discussed in Chapter 7 Landscape and Visual Effects, PRoW 32/51 will be diverted, and the other PRoWs will remain open during construction, operation and decommissioning of the Development.</p> <p>The Applicant also recognises the importance of creating an environment that feels safe, and pleasant, in order to mitigate the perception of crime and to encourage use. Chapter 7 Landscape and Views (paragraphs 7.187-189) advise that the Landscape Strategy uses screening planting to minimise the visual impact of the Development on visual receptors including the users of PRoW, within the Site.</p> <p>The baseline information considered in Chapter 2 of this technical note highlights that obesity rates are in line with national averages; it is therefore considered that the retention of the PRoW network will provide opportunities for walking.</p> <p>No significant effects are identified.</p>
Transport modes, access, and connections	<i>'How the project affects the way people travel, including opportunities to promote active, safe and sustainable transport and access. Reference how it can support: prioritisation and promotion of walking and cycling; road and route safety, including traffic management, travel planning and/or calming measures; use of good quality public transport with suitable access and connectivity. Discuss</i>	No	<p>The Development's impact on the local transport network and management procedures for safe usage of the network is outlined within the Transport Statement and Construction Traffic Management Plan. Both reports have concluded the impact of the Development on the wider road network will be negligible. Therefore, transport was scoped out of the ES as there are no transport related matters in which the Development would impact.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>as relevant how the project has had regard to: new transport infrastructure connectivity to places, spaces, services and facilities; healthy streets; connections to strategic walking and cycling routes; and quality, safety, age, sensory and mobility considerations. Explain how it avoids or minimises adverse effects on: routine journey times, access to health, social care and education; emergency service response times; and community severance. Set out the effect on existing routes, including public rights of way, parking provision and pedestrian or cycling infrastructure, that may be affected by diversions or capacity changes, including how changes are communicated and alternatives are equitable.'</i></p>		<p>As mentioned above, the existing PRoW, not including the diverted PRoW SP32/51 will remain open during the construction, operation and decommissioning of the Development.</p> <p>No significant effects are identified.</p>
Community safety	<p><i>'How the project affects crime and injury risk, including opportunities for its design and management to incorporate elements to minimise both actual crime and fear of crime. Explain how it has had regard to: police/security and emergency response requirements, including avoiding consequent local capacity challenges; policies on modern slavery; and practices to safeguard vulnerable adults and children. Explain how the project minimises injury risk (e.g. falls and drowning) to the public during all phases. Consider if the project may affect discrimination, harassment or relations between groups.'</i></p>	Yes	<p>As discussed above, the use of landscaping to create a pleasant space, and the use of fencing around the Site perimeter and CCTV, will ensure the creation of a space in which crime and anti-social behaviour is discouraged. Effects to community safety are therefore not considered to be significant.</p> <p>IEMA's guidance requests that practices and policies to regulate modern slavery, and for safeguarding vulnerable adults are included; the working practices of any contractor employed for the construction, operational management, and decommissioning phases of the Development will be scrutinised at the tender stage to ensure these safeguards are in place.</p> <p>Best practice measures will be implemented during the construction and decommissioning phases to ensure the risk of injury to the employees on-Site and the public are mitigated. An outline Construction Environmental Management Plan (oCEMP) and outline Decommissioning Management Plan (oDEMP) are provided at [Appendix 5.1] and [Appendix 5.2] of the ES respectively; a detailed CEMP and detailed DEMP will be secured by planning condition, which</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
			<p>will secure the health and safety measures required to mitigate the potential risk to human health from construction and decommissioning plant and activity.</p> <p>With regard to operational safety, security fencing will be installed around the solar panels and High Voltage compound.</p> <p>As the Development will not introduce a new population to the local area, the capacity requirements of the local police force have not been considered in the ES. As discussed previously, during the construction and decommissioning phases, the workers employed will be bound by contractual requirements to behave in a responsible and legal manner; a significant effect to the demand of the local police force is therefore not expected.</p> <p>No significant effects are identified.</p>
Community identity, culture, resilience and influence	<p><i>'How the project affects the way people feel about their community, including opportunities to contribute to a positive community identity, sense of belonging and sense of control. Consider how it can positively respond to its influence on the physical, economic, cultural and/or social landscape of communities. May include project related change due to: population in-migration and out-migration; visual landscape/townscape change; changes to the extent or setting of ecological or cultural assets; lighting changes, including night-lighting, overshadowing and reflections; and the attractiveness of the area, public spaces and buildings. Consider how it can support community engagement at all stages of development. Consider influences on local pride and wellbeing; cultural and spiritual ethos and community sense of control over their living environments and workplaces.'</i></p>	Yes	<p>As part of the relevant stages of a DNS application, the Development will undergo:</p> <p>Stage 1: Pre-Application Stage 2: Application Stage 3: Examination Stage 4: Decision</p> <p>The following consultation activities will occur during Stage 1: Pre-Application. The Applicant has received Pre-Application Advice through consultation with PCC and relevant stakeholders. The Applicant has received comments on the Scoping Report from statutory consultees and received a Scoping Direction from PEDW. The ES will be submitted as part of the pre-application consultation. The Applicant will additionally engage in a consultation and publicity period to obtain advice and opinions from the local community and relevant stakeholders.</p> <p>Responses gathered from Stage 1 of the DNS application will be submitted within the Consultation Report in Stage 2. This will outline how the local community, stakeholder and PCC were involved and considered and submitted with the final planning application.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
			No significant effects are identified.
Social participation, interaction and support	<i>'How the project affects opportunities for community participation and interaction, and for social and family support. Explain how it may affect indoor or outdoor community assets and meeting places, for voluntary, social, cultural or spiritual participation. Consider influences on social support and social networks; volunteering and social enterprise; and the ability to provide family support.'</i>	No	The Development will not remove or provide community spaces, and therefore this determinant of health is not considered further in this technical note.
Economic environment			
Education and training	<i>'How the project affects the educational and skills attainment, including opportunities to provide good quality education and training opportunities. How it can maintain or improve school availability, capacity and quality. Consider as relevant primary school, secondary school, further/higher education/training, adult education and specialist educational need providers. Discuss as relevant the project's provision for workforce related skills development, apprenticeships and career advice, including any targeted access for particular geographic or vulnerable groups. Consider as relevant where any re-training is provided for people whose jobs are displaced by the project. Where changes in educational facilities are proposed consider the location and timing of new or re-provided facilities, transitional arrangements and staffing implications.'</i>	No	The discussion of skills development, school availability, capacity and quality is not relevant to the Development and is therefore scoped out of further consideration.



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Determinant of Health	Definition	Relevant to Development	Discussion
Employment and income	<p><i>'How the project affects socio-economic status and working conditions, including opportunities to provide economic opportunities and resources that protect and promote good health. Reference how it can influence: the type, quality and quantity of employment during each phase; unemployment, including from displacement of existing businesses or services or following completion of a project phase; particular features of employment, such as shift work, job security, working conditions, or occupational hazards; targeted recruitment, procurement and investment within an area that may raise standards of living, including for areas that experience the adverse effects of the project. Consider how the project's employment profiles may affect: family structures, roles or relationships; poverty, social exclusion, social status or income disparities; and/or levels of economic activity/inactivity. Describe where it makes provision for new employment land uses (e.g. new office space) including any managed and affordable workspace for local businesses and voluntary/social enterprises.'</i></p>	Yes	<p>As referred to above, there will be approximately 100 construction jobs generated.</p> <p>The operational phase of the Development will require an average of approximately 2 people per month on Site. The operational workforce will be dedicated to the routine maintenance of the solar farm. Considering this, an assessment of potential effects to employment and income has not been undertaken.</p> <p>The effects identified over the construction period are anticipated to be the same during decommissioning.</p> <p>No significant effects are identified.</p> <p>The discussion of family structures, roles or relationships; poverty, social exclusion, social status or income disparities; and/or levels of economic activity/ inactivity is not considered relevant, as this is not a large-scale employment development.</p>
Bio-physical environment			
Climate change mitigation and adaptation	<p><i>'How the project affects climate altering pollutant emissions and climate adaptation strategies, including opportunities to positively respond the challenges of climate change and global health inequalities. Reference how it contributes to an increase or decrease in</i></p>	Yes	<p>The purpose of the Development is to provide the infrastructure with which to generate renewable energy, in order to aid climate change mitigation by reducing the generation of greenhouse gas (GHG) emissions and pollutants from non-renewable energy sources, such as the combustion of fossil fuels.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>incremental but long-term and escalating climatic change impacts that affect the current and future global populations in terms of: extreme weather, heat stress and flood risk and fire injury risk; exacerbation of chronic cardiovascular and respiratory conditions; exposure to food-, water- and vector-borne infection or toxins; food production and malnutrition; population displacement, labour productivity and economic loss. Consider effects to more sensitive populations, potentially geographically distant, including in low- and middle-income countries. Discuss sustainable design and management measures that support elimination or reduction in climate altering pollutant emissions (see IEMA Greenhouse Gas Management Hierarchy), including through renewable energy sources, agricultural practices, transports choice, materials selection, construction techniques and procurement. Consider adaptation that increases reliance to climate change, including how buildings and public spaces are designed for efficient thermal comfort and resilience to flooding.'</i></p>		<p>The Development aligns with Pembrokeshire's findings from the PCC Wellbeing Assessment (2022)^{xvii} by helping Pembrokeshire become a 'green energy capital of the UK'.</p> <p>An assessment of climate change was scoped out of the ES since the construction and operation will not result in significant effects on climate change, however the operation will contribute to climate change mitigation by enabling prevention of further climate change effects through the generation of renewable energy, therefore, no significant effects are identified.</p>
Air quality	<p><i>'If the EIA is scoping in air quality as a technical chapter with the prospect of human receptor impacts, then also scope in air quality as a determinant of health. Consider the contribution and impact that point source and fugitive emissions to air from the project will make to local air pollution, including opportunities to contribute to maintaining a good standard of air quality. How it affects</i></p>	Yes	<p>Air Quality was scoped out of the ES, therefore air quality is not discussed further in this technical note. See Chapter 2 of the ES, Appendix 2.1 Scoping Report and Appendix 2.2 Scoping response for further information.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>exposure to: dust, aerosols, odour, coarse particulate matter, particulate matter (e.g. PM10 and PM2.5), nitrogen dioxide and other relevant air pollutants. Consider the distribution and duration of exposures (short-term and long-term, including where more sensitive population or sub-populations may be present. or features of pollutants that may affect toxicity, such as particulate matter composition or size. Include peak events due to project activities (including combined impacts of all pollutants/activities) and/ or meteorological conditions. Explain the level of change with reference to relevant statutory health protection standards, and have regard to the degree of change relative to the baseline situation and advisory guide values (e.g. WHO global air quality guidelines). Consider the project’s application of the ‘as low as reasonably practicable’ principle given the non-threshold health effect nature of some air pollutants.’</i></p>		
<p>Water quality or availability</p>	<p><i>‘If the EIA is scoping in the water environment as a technical chapter with the prospect of human receptor impacts, then also scope in water quality and availability as a determinant of health. If it is very likely that any pollutant linkage pathways would be broken by normal good practice mitigation, provide clear text that the findings of the EIA water chapter will be kept under review and will be scoped into the health chapter if there are significant effects to the water environment that relate to human receptors, drinking or bathing water.</i></p>	<p>No</p>	<p>A Flood Consequences Assessment is submitted as part of the planning application which concludes that the development is at low risk of flooding and will not increase flood risk elsewhere. Therefore, water resources and flood risk was scoped out of the ES, and is therefore not considered further in this technical note.</p> <p>An outline CEMP and outline DEMP are provided as [Appendix 5.1 and Appendix 5.2, respectively], and outline measures to protect water quality during construction and decommissioning.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>Reference as relevant how the project can affect: drinking water quality (from ground or surface water sources), including biological and chemical agents; drinking water quantity or access; and recreational/bathing water quality, including biological and chemical agents and disease vectors. Explain the level of change with reference to relevant statutory health protection standards, having regard to the degree of change relative to the baseline situation and advisory guide values. Consider application of the as low as reasonably practicable principle.'</i></p>		
<p>Land quality</p>	<p><i>'If the EIA is scoping in ground conditions as a technical chapter with the prospect of human receptor impacts, then also scope in land quality as a determinant of health. Or if it is very likely that any pollutant linkage pathways would be broken by normal good practice mitigation, provide clear text that the findings of the EIA ground condition chapter will be kept under review and a health assessment will only scope this in if there are significant effects to the soil environment that relate to human receptors. How the project affects: mobilisation of historic pollution; risk of new ground pollution (e.g. industrial agents or accidental spills); and food resources and safety (e.g. availability of or contamination on agricultural land, and allotments). Consider potential for ground pollutants (new or historic) to migrate off-site and if appropriate consider such effects proportionately within the air</i></p>	<p>No</p>	<p>As detailed above, the solar farm will support the soil health on Site by halting intensive agricultural practices. Additionally, ground conditions are scoped out of the ES, therefore is not considered further in this technical note. See Chapter 2 of the ES, Appendix 2.1 Scoping Report and Appendix 2.2 Scoping Response.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<i>quality or water quality determinants depending on the relevant health pathway.'</i>		
Noise and vibration	<i>'If the EIA is scoping in noise (and vibration) as a technical chapter with the prospect of human receptor impacts, then also scope in noise as a determinant of health. Consider how the project affects the existing sound environment, including opportunities to maintain a standard of sound environment that is conducive to health, including mental health. Reference as relevant how the project affects exposures to noise and vibration, including if information is available, an indication of the likely number of people affected. Consider the distribution and duration of exposures (including to any sensitive subpopulations), or exposures at more sensitive locations such as hospitals or schools. Consider any particular features of the noise that mediate its effect, such as frequency, tone or character; how both short-term and long-term exposures may affect health outcomes, with reference to both peak event metrics and averaged noise metrics (referencing scientific evidence such as the 2018 WHO Environmental Noise Guidelines and underpinning systematic reviews). Explain the level of change with reference to relevant standards set by, or commonly adopted in relation to, government noise policy, and have regard to the degree of change relative to the baseline situation and advisory guide values. Consider the project's application of the 'as low as reasonably practicable' principle.</i>	Yes (construction phase only)	A Noise Impact Assessment (July 2024) was conducted for the Development which concluded there will be no adverse noise impacts on nearby noise sensitive receptors. There will be appropriate levels of protection for noise will ensure this. Therefore, noise and vibration were scoped out of the ES and are not considered further in this technical note. Noise mitigation measures for during construction are set out in principle in the oCEMP included at Appendix 5.1 of the ES and will be detailed within the detailed CEMP.



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>Consider for indoor spaces, including housing quality, as well as outside spaces (private and public) in relation to tranquillity and opportunities for respite. Consider relevant interdependencies between indoor noise, air quality and overheating that could arise from mitigation or adaptive behaviours.'</i></p>		
Radiation	<p><i>'How the project affects actual and perceived exposure to electromagnetic and ionising radiation risks, including opportunities to adopt exposure guidelines and design measures that avoid or minimise actual risks. Consider the mental health effects of widespread concerns about exposure from major electrical infrastructure or radiation sources. Note where there is the potential for high and/or prolonged exposure in close proximity to places where people spend extended periods of time.'</i></p>	No	<p>The infrastructure implemented for the Development will be below the relevant guidance thresholds, and as such is not discussed further in this technical note.</p>
<i>Institutional and built environment</i>			
Health and social care services	<p><i>'How the project affects provision or use of health and social care services, including opportunities to extend capacity and quality standards. How it affects the accessibility, capacity and quality of: primary care; secondary care (including hospitals); ambulance services; social services, including use of community centres; dental services; pharmacy services; sexual health services; and mental health services. Consider when appropriate how its provision of occupational healthcare services for its workforces can avoid or reduce pressures on community services. Consider any challenges relating to</i></p>	No	<p>As identified in Section 2 of this technical note, there are no healthcare facilities within a 1km vicinity of the Site. Given that this is not a residential development and will not generate significant employment during the construction, operational or decommissioning phases, it is unlikely that there will be additional pressure placed on local primary healthcare services.</p> <p>A detailed CEMP and DEMP will be implemented during the construction and decommissioning phases respectively to mitigate the risk of major accidents onsite, through ensuring best practice health and safety protocols are followed. Should an accident occur onsite, the emergency services will be contacted, and appropriate actions followed, such as visiting the nearest Accident and Emergency department. The effect to local health and social care service provision is not anticipated to be</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>recruitment and retention of staff, as well as the role of health and social care services in preparedness for emergency scenarios (major accidents and/or disasters). Whilst projects are not expected to subsidise or fund public services where there is entitlement, it may support routine health and social care planning through information provision and will often make a financial contribution where there is a need to support transitional arrangements, step changes in demand or temporary demand peaks. For both project workers and end users, reference may be made to: usual place of residence / primary care registration location; and expected profile of service use when away from their usual place of residence, e.g. travelling. Explain where it includes the provision, or replacement of facilities and how these meet appropriate service provider requirements. Consider the project risk profile in terms of transmission of infectious disease and any measures to share information or otherwise support disease prevention services, or equivalent occupational provision, including screening, vaccination and epidemic response.'</i></p>		<p>significant due to the proposed mitigation and the temporary nature, and low numbers of workers in the context of the local population.</p> <p>During the operational phase, employment opportunities will be limited to maintenance activities on Site, with approximately 2 people on Site per month. These visits will be conducted during a shift, and therefore do not require temporary accommodation or for the workers to move to the area. The potential for accidents is therefore not assumed to be significant, however contractual obligations will apply in order to manage health and safety of employees.</p>
Built environment	<p><i>'How the project affects the built features of the environment that contribute to health, including opportunities to contribute to local or neighbourhood design that fits positively into the wider spatial planning context to support physical, mental and social wellbeing. Explain as relevant: the project's use classes (land</i></p>	No	<p>As above, the Development will include a diversion and improvement to PRoW SP32/51 which will improve the surrounding natural environment and promote healthy lifestyles within the local community by facilitating easy access to walking. Therefore, the project will contribute to the health of the local neighbourhood.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<p><i>uses) and how these relate to need without over supply that promotes risk taking behaviours or unhealthy lifestyles; how buffer zones are used and maintained (e.g. between industrial uses or transport corridors and residential or public space uses); how it extends or complements existing community provision of local retail, financial and commercial services, community assets, social infrastructure and green space; how it minimises susceptibility to major accidents or disasters; how it promotes recycling and manages waste to avoid nuisance or hazards; how it extends or operates within capacity of communications and sanitation systems and water and energy resources; how any utilities diversions or interruptions minimise disruption to end users; how it incorporates principles of inclusive and age-friendly / life course design including in connecting to existing street, route and places; and how any new built environment features due to the project will be managed and maintained.'</i></p>		
<p>Wider societal infrastructure and resources</p>	<p><i>'The wider societal effects of the project for public health. Reference as relevant how the project contributes to: energy infrastructure; transport infrastructure; waste management infrastructure; water infrastructure; communication and IT infrastructure; or other infrastructures on which society depends for good population health. Also consider its wider contribution to: economic development or GDP; climate change mitigation or adaption (including improved air quality and</i></p>	<p>No</p>	<p>There are multiple wider societal effects of the project in relation to public health. The project contributed to energy infrastructure by providing a substantial amount of renewable energy. This in turn, contributes to climate change mitigation by reducing the greenhouse gas emissions associated with energy production via fossil fuels. The Development will additionally provide protection and enhancement to the natural environment through a biodiversity net gain.</p>



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Determinant of Health	Definition	Relevant to Development	Discussion
	<i>preparedness for extreme weather events such as heatwaves, storms and flooding); and protection or enhancement of the natural environment (e.g. biodiversity, access to natural spaces and habitats).'</i>		



4 Conclusion

4.1 Construction

There are no significant beneficial or adverse effects identified during construction in relation to population and human health.

4.2 Operation

There are no significant adverse or beneficial effects identified during operation in relation to population and human health.

4.3 Decommissioning

There are no significant beneficial or adverse effects identified during decommissioning in relation to population and human health.



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