7000 Acres

Tillbridge Solar Project (Written Representation)

7000 Acres response to the Equality Impact Assessment (EqIA), Human Health and Wellbeing and Noise (Operational)

Deadline submission - 14th November 2024

For the Attention of the Planning Inspectorate:

7000 Acres Written Representation:

This Written Representation will cover the following Tillbridge Solar documents:

A.
Tillbridge Solar Project:
Volume 7: Equality Impact Assessment
Document Reference: EN010142/APP/7.15
April 2024

B.
Tillbridge Solar Project:
Volume 6: Environmental Statement Chapter 11: Human Health Document Reference: EN010142/APP/6.1

Appendix 11-1 Human Health Legislation, Policy and Guidance
Document Reference: EN010142/APP/6.2
Both dated: April 2024

C.
Tillbridge Solar Project:
Volume 6 Environmental Statement Chapter 13: Noise and Vibration
Document Reference: EN010142/APP/6.1

Appendix 13-1: Noise and Vibration Legislation, Policy and Guidance: Document Reference: EN010142/APP/6.2

Appendix 13-2: Acoustics Terminology
Document Reference: EN010142/APP/6.2

Appendix 13-3: Baseline Noise Survey
Document Reference: EN010142/APP/6.2

Appendix 13-4: Noise Modelling
Document Reference: EN010142/APP/6.2
All dated: April 2024

This document will not deal with the potential health implications of EMF. A separate Written Representation has been submitted.

Part I: Summary and conclusions of 7000 Acres assessment of the Equality Impact Statement, Health and Wellbeing, Noise and Acoustics

Potential Risks and Impact on Human Health:

Issue	Risk	Impact
7000 Acres believes this document fails to set out the purpose of the EqIA by not making it clear how vulnerable groups are considered properly, and that reasonable adjustments have been made and that exception planning is in place.	By carrying out desktop reviews and not adequately engaging with these groups (face to face), by not carrying out their own qualitative target surveys, they have missed significant information which could have guided them in their assessment to adequately advise the examiner as to the issues.	Due to missed opportunities, there is a real risk of the possibility of this scheme (and the others – cumulative affect) potentially widening health inequalities in this area.
Pockets of social deprivation have not been identified**.** 7000 Acres has raised rural digital poverty as an issue.	This may have impacted on people who may be prohibited from attending your events due to travel costs.	Large groups of people within the study area and beyond who are unaware that these schemes exist. e.g the elderly where these schemes could create fragmentation, marginalisation and breakdown of social cohesion within our communities with the risk of increasing loneliness and isolation for this group. Rural poverty is a real risk.
By not understanding the wider issues in the surrounding areas to the scheme, by not engaging face to face with certain groups, the applicant has failed to recognise local knowledge. 7000 Acres has pointed out a traveller site in Odder who are at potential risk	Real risk that these developments would result in increase flooding off the fields into the Till River which flows into the Witham. This group live close to the confluence and are at risk of flooding.	Widening health inequalities through potential displacement due recurrent flooding with health implications.

The applicant has not paid enough attention to the requirements of the NHS and Public Health by failing to recognise the Joint Forward Plan and the requirements of the Core20Plus 5.	They have not identified those issues that are important to communities regarding population health. 7000 Acres has highlighted how poor the applicant has engaged with the local health bodies.	It has the potential to impact the health quality agenda for this area set out by Public Health and the NHS. A proper local Health Impact Assessment is required. 7000 Acres requests the applicant to complete a HEAT tool to address the potential impact their scheme could have on health inequalities.
The applicant has stated they have followed IEMA guidelines in preparing these documents. The applicant has failed to understand the inter relationships of the wider social determinants, a sound knowledge around what is population health. The applicant has not identified how health outcomes could be impacted beyond thinking of health in terms of recreational, cycling paths, PROW's and health hazards.	7000 Acres has pointed out huge gaps in their knowledge of what is required of their industry guidance around Health and Wellbeing. There is very little around physical health, as well as social care. An understanding of the issues around mental health in rural areas (the impact area) needs further evaluation, and this needs to be addressed in the context.	Potential for these schemes to affect population health as sub group populations have not been identified adequately to help mitigate potential issues that could arise from these schemes.
Quantitative local data is lacking, so the applicant has failed to understand how the interrelationship of the surrounding area and Gainsborough town are linked. Two Primary Care Networks extend across the impact area which could have provided a valuable source of data around the local issues e.g annual published report	There is a genuine risk to people's mental health. 7000 Acres report has expressed concerns around long term illness and the number of people living in our area with this disability. In this area we have a higher premature mortality rate than the Lincolnshire average. The examiners need to pay attention to the link between health and mental health and give equal parity to both.	There is the potential for reducing health outcomes in this area. 7000 acres recognises there could be an impact on our local farmers, who as part of the EqIA should be referenced as part of the health inclusion group (tenant farmers affected by these schemes).
Regarding **the in combination effects**, the applicant has failed to	Without understanding these impacts fully, there could be consequences	There is the risk of creating further deprivation through industrialisation of rural

understand the requirement. They have not factored in the effect on the wider determinants of health this could have across our region. The cumulative effect needs further detail and should reflect the likely implications for public health. 7000 Acres is unaware as to whether or not public health have provided a full impact assessment.	to health and wellbeing across our region which have not been identified or mitigated. 7000 Acres have attempted to bring this to the attention of the examiners as a serious issue going forward.	areas. We have requested a special hearing on health to understand the issues using health experts in the room.
7000 acres has highlighted its concerns around noise modelling and digital noise assessment vs subjective hearing. We concentrated on the operational aspect only. 7000 acres has highlighted the possible cumulative issue of "background noise creep".	7000 Acres are concerned that once the plant is in situ, there is the potential to widen health inequalities due to the effect that the operational noise will have on communities. The adverse effects have not been listed in the hierarchy table. Besides the sound experts, we feel that experts are required (audiological, psychological and health experts) are better placed to determine the subjective impacts that potentially schemes like this could have on communities living close to them.	Potential to widen health inequalities. This needs to be factored in to the HEAT tool. The examiners need to pay attention to item 13.5.3 **EN010142/APP/6.1** as this demonstrates a good example how this scheme has the potential to impact on a health inequality which needs to be mitigated/resolved.
7000 Acres has highlighted the issues around Governance.	7000 Acres considers risk around decision making and probity which have not been set out clearly in the documents seen on Health and Wellbeing, EqIA and Noise.	Particular attention around health equity is important to demonstrate that no community will be at a disadvantage as a result of these schemes.

Written Representations:
Part II: 7000 Acres detailed concerns and relevant questions:

Equality Impact Statement (A):

7000 Acres analysis and report:

Please find below the relevant comments concerning the applicants Equality Impact Statement:

1. We believe the document has failed to set out its purpose (see the assessment below).
2. The Act is very clear that vulnerable groups are considered properly, and that reasonable adjustments are made and that exception planning is in place. As to the assessment of the equality effect within the document, we do not believe that the author understands what is required, nor do they understand rural issues which in itself leads to issues around health inequality.
3. Local deep dive data to obtain quantitative and qualitative data needs to be acquired (not a desktop review approach). Analysis of this data with the help of health experts, should assist the applicant as to whether or not the impact is a concern, and whether this needs mitigation.
4. The impact of these schemes has the potential to widen health inequalities which is a concern. A HEAT tool (Health Equity Assessment Tool) should have been completed to help identify these inequalities. This forms a live document going forward.
5. This has the potential to impact on the NHS Core20plus5 programme within the NHS which is an approach to inform action to reduce healthcare inequalities at both national and system level. This EqiA document needs scrutiny against local ambitions, in particular the new Lincolnshire Joint Forward Plan which has replaced the Joint Strategic Needs Assessment as Lincolnshire has an Integrated Care System. The Joint Forward plan incorporates the Lincolnshire Health and Wellbeing Strategy, Integrated Care Partnership Strategy and the Joint Forward Plan Strategy.
6. A major driver of health inequality in rural areas is exclusion, marginalisation and lack of social connection. Figures from a study on Gainsborough and surroundings referenced in the written representation paper, carried out by West Lincolnshire CCG (2017), showed that the number of pensioners living

alone was high at 28.6%. With exclusion and marginalisation, this will break down established networks, leaving a more vulnerable ageing population with the real risk of increasing loneliness and social isolation. The **PHE paper, “An evidence summary of health inequalities in older populations in coastal and rural areas**”, provides evidence which indicates that mental health is an issue in rural areas as well as neurological issues e.g. Multiple Sclerosis which is classified as one of the disabled conditions. It lists the main drivers of inequalities to include social exclusion and isolation. This needs to be understood more in the context of the document. Fuel poverty and financial difficulties are a real issue in rural communities. It is well recognised that green space benefits rural populations and the very reason people retire to rural areas, therefore there tends to be an increase of an ageing population in rural areas as a result.

7. Article 8 of the Human Right Act states, there is a right of respect for private and family life. It is recognised that this right might be restricted under certain legitimate aims such as national security. This should be balanced by the legitimate protection of health and morals. How will this impact on this group and the families that care for them in our community? It is stated that interference around this legitimacy must be necessary (not just reasonable), however, it should be “proportionate”, that is, not more than is needed to achieve the aim desired. What is taking place in this area is already way over what any community should endure (cumulative effect), and this would not meet the FREDA principles particularly around fairness and autonomy.
8. There is guidance around the protective characteristics as laid down in the Equality Act 2010 and these principles should be followed. Not much of this has been demonstrated within this submission.

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Below we provide more detail around their statements within the document: **Figure A-1**

Figure A-1

Issue	**Detail**	**Questions**
ES-3. This EqIA reflects the Applicant's commitment to consider the interests of protected characteristic groups and aims to inform decision-making, demonstrating due regard to the Equality Act 2010 and the PSED throughout the	There is too much irrelevant detail in their document around the solar farm project process and the various proposed activities attached to the development. This should be a small section at the beginning of the document. The rest of the document should impact on how your scheme will affect those under the heading of Equality and Diversity. This should	We would like the detail of how they engaged with them face to face (not through open meetings as stated in the EqIA held at various points). Did they provide large print or easy read/ details in braille

Scheme's lifecycle. The assessment identifies the Scheme's potential effects on groups with protected characteristics, which are; age, disability, gender reassignment, marriage and civil partnership, pregnancy and maternity, race, religion or belief, sex, and sexual orientation. The report presents findings on potential equality effects and outlines planned mitigations to address adverse effects and actions to enhance positive effects. ES-17. In conclusion, although there is no direct discrimination or victimisation identified as being associated with the Scheme, there may be negative effects associated with, for example, increased noise levels during construction, operation, and decommissioning, which could disproportionately affect sensitive groups such as children, older people and disabled residents	include the cumulative impact. Sadly, this is lacking. There is not enough detail outlining how they engaged with these groups. We have looked at the SoCC and it is obvious that letters to representative organisations were sent as way of justifying engagement as a tick box exercise when clearly, they should have demonstrated an attempt to engage directly with them. Working with these voluntary organisations is essential as part of their engagement. There were no specific surveys done with this group. They have not taken into account the needs of different groups. The Act is very clear that vulnerable groups are considered properly, and that reasonable adjustments are made and that exception planning is in place We have pockets of social deprivation in the study area. These have not been identified, and may impact on people who may be prohibited from attending your events due to the cost of travel. We have provided more detail around this (see above)	to those disabled to inform them about their scheme? You only mention dementia friendly materials. Tell us more about how you enquired around people experiencing multiple needs such as homelessness, mental health problems, being involved in the criminal justice system or substance misuse. This should include our military veteran population within the targeted area. Do people farmers or agricultural workers, experience any specific disadvantage as a result of this project? Why were no targeted surveys carried out (qualitative data to inform this important document)? Please explain why local public health and the NHS were not consulted to assess this document. Up to date analytical data beyond a desk top review is required to inform this document. Do you need to make any reasonable adjustments to the

		activity to avoid discrimination or advance equality of opportunity? This may include adjusting interview questions so they are more accessible or making changes to the way events are managed? Have reasonable adjustments been made with exception planning put in place? Please could the applicant demonstrate this with examples? Please demonstrate an attempt to define the pockets of deprivation.
ES-11. In respect of consultation, the assessment recognises the positive effect of an inclusive and accessible engagement process, **involving authorities**, local communities, and carrying out targeted consultations. This approach includes those who may be excluded by traditional consultation approaches. 6.2.12 Local seldom heard groups and under-represented groups were included in consultee lists, which were included in the draft Statement of	All 4 schemes scoping documents were submitted to the Lincolnshire CCG. As these are all separate schemes, they were submitted individually to the section of the then CCG that deals with planning submissions around Section 106 monies. Therefore, these documents with clinical relevance do not make it through for board scrutiny, and merely get signed off by the Quality Assurance team as a process. Had the CCG known that each of these developments, all located in close proximity, covering an extensive area within 5 miles of Gainsborough town and encompassing many villages, they perhaps would have escalated this to the senior executives on the CCG board for scrutiny to assess the cumulative	Please could the applicant advise as to who they have worked with in the local area to inform them of the issues around health and wellbeing for the targeted area? With reference to this statement “traditional consultation approaches”, could the applicant please advise as to this besides dementia friendly materials and letters to organisational groups. Please be more specific in this answer.

Community Consultation (SoCC) dated 13 February 2023 6.3.2 The purpose of the statutory consultation was to ensure that all key stakeholders had the opportunity to understand the detailed proposals and influence them. 6.3.5 The consultation was developed to be accessible to all groups in the community, including those under-represented or seldom heard groups and individuals who may be less likely to participate or respond to traditional consultation techniques. 6.5.4 The Applicant continued to notify under-represented or seldom heard groups of consultation opportunities throughout the consultation 7.2.3 Where groups are excluded, their needs may not be considered within the planning process potentially leading to differential negative impacts on these groups	effect around Human Health and Wellbeing. Had this been the case, I am convinced that this would have prompted further assessment with data held by the local NHS, Public Health and other NHS statutory bodies. The Tillbridge scoping document submitted was therefore not scrutinised in the context of the above, and therefore became merely a tick box exercise passed over.	6.3.5 needs further clarification. Which groups did they consult, the make up of the seldom heard they reference. It is one thing to identify them, but how and when did they engage with them and what was the outcome. We see no qualitative data to support this statement. Examples would be blind persons unable to travel, those in care homes, single parents. This County has digital poverty, so we would be interested how the applicant overcame this problem. The only one mentioned was dementia friendly literature. Digital call back is unacceptable as the person would have had to make the call In the first place. Please clarify? Please be more specific around 6.5.4 How was this done and how did you continue to notify this group. Examples would be useful to understand? What were the potential resolutions (beyond the one case we know of). 7.2 Inclusive community consultation - please

		expand and show us that this has been considered adequately within the document with examples. What are the negative impacts?
ES-13. Potential employment and employability opportunities demonstrate a positive impact, with potential positive effect on local communities, especially young people and disabled people.	This statement of opportunity is an assumption.	Could the applicant please expand on how they intend to employ people within the protected characteristic groups e.g disabled or from our traveller community?
ES-15. The Scheme's positive contribution to tackling climate change through renewable energy generation is also considered. The potential effects of this relate to mitigating protected characteristic groups' existing vulnerabilities to climate change event, such as older, disabled, or other people with mobility issues.	7000Acres cannot accept this argument as important within this document. Firstly, this is confirmation bias, secondly tackling climate change will take years to see the impact. 7000 Acres has made its position clear as to where its stands around renewable energy especially large scale solar (expanded further in 7.4.18)	
1.3.1: d. **Chapter 5: E**qualities baseline – uses secondary data sources, such as Census 2021 data, to form an understanding of residents living within the area, (they used a desktop review), to develop a baseline of groups with protected characteristics within	7000 Acres has always stated that desktop reviews are a poor way to assess the impact on local health. A Health Impact Assessment with a deep dive is required using the local health public health and statutory bodies to understand the issues.	

and surrounding the Scheme;		
2.3.1 The assessment of equality impacts takes into account the information gathered via the above activities. A professional judgement has been made as to how the Scheme may affect people with protected characteristics as defined in section four of the Act (Ref 1)	7000 Acres questions the **professional judgement**. This document has been prepared by a town planner, and not an expert as guidance advises (**environmental health practitioner**). Judgement should be supported by evidence, which is lacking in this document.	Is there an opportunity for this development to foster good relations between groups? Please could you expand on this?
They reference the Equality Act of 2010 and the Public Service Sector Equality Duty (PSED). 4.2.10 In relation to promoting healthy and safe communities, Section 8 of the NPPF identifies key principles that planning policies should ensure that they consider, including: a. Local strategies to improve health, social and cultural wellbeing for all; b. Enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure; and c. Guard against the unnecessary loss of valued facilities and	By written evidence within the document they demonstrate to the examiner that they have considered this. However, what they have failed to do is provide coherent evidence that their scheme will not impact these groups referenced in the Act.	Please provide further evidence that you understand what is being asked under the act around health promotion, social and culture wellbeing, the loss of facilities (in rural language, our environment and open spaces) which will have an impact on certain groups under the protected characteristics e.g the elderly, those with learning disabilities, military veterans, the traveller community.

services, particularly where this would reduce the community's ability to meet its day-to-day needs.		
4.3.2 Section 1.5 of the **West Lindsey Equality Strategy** outlines its objectives. Objective 3 deals with social equality in communities, setting out to "*stimulate regeneration that maximises benefits for the most deprived areas and communities in Central Lincolnshire. To ensure equitable outcomes for all, particularly those most at risk of experiencing discrimination, poverty and social exclusion*." In addition, reducing health inequalities is one of the strategic priorities of the Plan.		The traveller community who resides in a settlement at the end of the Till River (Odder) who possibly might be impacted by flooding due to the cumulative impact of all the schemes with increase water runoff into the river. They might live a distance away from the scheme, but need to be considered in the context through formal engagement. 7000 Acres has highlighted this as important throughout the process of Gate Burton, Cottam and West Burton Solar examinations, and again now with this examination. Flooding of their site will cause significant health inequalities.
Lincolnshire Joint Health and Wellbeing Strategy (2022) 4.3.5 Lincolnshire's Health and Wellbeing board, which put together the joint Strategy (Ref 11) is tasked with reducing health inequalities in the region by improving the general wellbeing of its inhabitants.	The applicant needs to pay attention to this. The Core20Plus 5 ask for both adults and children and young people, sets out the principles which the local Integrated Care Board has provided in the Lincolnshire Joint Forward Plan. The applicant has no knowledge of this requirement because of the desktop review carried out, and so has been unable to identify those issues that are important to the communities in the target	Please could the applicant familiarise themselves with the Joint Forward Plan and the Core20Plus5 ask for the Lincolnshire? Knowing this, how do they intend through their scheme a reduction in health inequalities and to improve the general wellbeing beyond

	and surrounding areas that could widen health inequalities. Identified in the Joint Forward Plan is a reduction in health inequalities for Learning Disabled people.	recreational facilities, cycle paths and PROW's?
5.1.2 a. The 'Study Area' - Sturton ward in Bassetlaw District Council and Hemswell, Lea, Stow and Torksey wards in West Lindsey District Council, which combined comprise the Study Area (where available) b. West Lindsey and Bassetlaw District Councils combined	Only Hemswell is close to this scheme. The rest are not. We suspect that applicant has merely translated much of this data from the ones they produced for Gate Burton (cut and paste). We find this unacceptable. You will note that most of their assumptions have been based on data for West Lindsey, some being Lincolnshire statistics. West Lindsey is expansive, and does not necessarily represent the study area in question. So much of this is based on assumption. We argue that local deep dive data would be necessary to analyse this and would be key to ensuring that this scheme would not compromise this group and worsen health inequalities.	The applicant should explore deeper the issues around health, wellbeing and social care with local knowledge? For this reason, 7000 Acres would like to see a Health Impact Assessment and a session on health within the examination process.
5.2.15 a. In 2021, the proportion of residents who were over the age of 65 was much higher than the national figure and increasing over time. b. The proportion of the Study Area population with a disability which limits their day-to-day activities either 'a lot' or 'a little' is higher than the proportion of the national population.	The applicant identified that the study area has a higher proportionate level of 65+ than the National average. (Census 2021) showed that 31% of Lincolnshire's population are 65 +. The worrying factor is that there is a predicted increase of 45.7%, and the over 85+ by 117%. This is worrying, as rural areas tend to have an outward migration of people going out to find work in urban areas, or for study purposes, which will be driven by this at scale due to solar farm schemes dominating our rural landscape leaving vulnerable people with a reduced	What are the physical health needs of our elderly and how will you mitigate these e.g loneliness, isolation, fragmented networks which all have the potential to worsen due to the altered landscape planned through this scheme (and the cumulative impact)?

c. Due to the aging population, it is expected that the proportion of the population who are disabled will increase in the coming years and should therefore be considered given the long-term nature of the Scheme.	social care due to a diminished younger potential workforce. This has been highlighted in a **PHE paper, “An evidence summary of health inequalities in older populations in coastal and rural areas”**	

5.3.5 The Scheme sits within eight LSOAs, two in Bassetlaw (015C and 015F) and **six in West Lindsey (007A, 007B, 007C, 007D, 005A and 005C)**. **Figure 5-1 q**

purpose of this report, we are focusing on the potential impact throughout the operator's life cycle.

We are convinced, that given that this project is close to certain human inhabitants, there needs to be further evaluation carried out, to ensure that people in this area will not be impacted with resultant effects on health and wellbeing. It is a recognised fact that noise can have a huge effect on human health and wellbeing. Rurality is normally peaceful and quiet, particularly so at night, especially if distant from major roads, so this must be taken into consideration when evaluating this applicant's scheme. We know that many people gain inspiration from the natural quiet environments, and this is particularly true for mental health and wellbeing. This draws parallels with meditation.

During construction and decommissioning there is more tolerance to the noise as this is probably seen more as a nuisance over a short period of time. However, the sixty-year gap poses a problem to humans, as the system would not lend itself to being switched off, so the noise would be constant, even though there might be variance in the noise output. This potentiates a problem on quality of life, and may result in the effected having to move home as a consequence.

The Government Guidelines advise identification of the overall effect of the noise exposure. This is easy to quantify for the construction and decommissioning phase, but more difficult for the operation phase. One cannot convincingly work out the projected noise from transformers, inverters and cooling fans, given that it is only a guess, as in quiet environments we know that sound travels and is subjective.

Digital recorded hearing vs human hearing is very different. In humans, it is the brain that interprets what is heard. Our brains are not computers. For example, music might be loud but if to the person the music is interpreted as a beautiful soothing melody, that person will accept this loud sound. Similarly, if it is loud and not to taste, the person will complain, especially if it is in unsociable hours. So merely picking up sounds digitally at reference points does not in way mean that this can be considered a negative or less adverse effect. Sound is totally subjective to the human ear. So, the method of testing is just a guide to what people should expect (noise of the train, noise of vehicles). Most people adapt to noise however constant alternating noise is the problem.

This scheme and the others are located on relatively flatland, with some areas of elevation, and with very few pockets of woodland which may absorb the sound. Is there a difference in sound produced for external as opposed to internal sited transformers, and if so, how will they impact on the overall noise produced? Sound produced for equipment cooling is important (internal sited transformers) and will any generators be used in this process, or will the cooling fans be driven electrically? The more you load the transformer, the more sound is generated. So, this information is required when considering the overall noise generated from this scheme. There is mention within the document of the low frequency hum that will be generated from the solar panels, and this should be regarded as a new noise which is constant as these panels cannot be switched off by the people who are affected by this.

These schemes tend to emit mainly low frequency sounds (tonal frequencies). Low frequency can be difficult to predict and similarly hard to identify and resolve. This is worrying as low frequency sound has the ability to travel further than high frequency sounds. This was not referenced at all in the documents which needs explaining? Given the height of the panels are 4.5 metres high, the sound from them (hum) travels from a height and has the potential to be transmitted further. Has this been factored in? How satisfied that the operational noise impacts will not be affected by different weather conditions, including changing wind direction which enables sound to carry further? Please expand?

The Government guidance on noise states that the sound level effects cannot be seen as a single value, and that it needs to be referenced in a combination of more than one factor as noise exposure, as well as the number of occurrences of the various noises produced in each given period, the duration of the noise and the time of day that noise occurs. As stated earlier, noise is subjective, so this makes quantifying the impact even more difficult. None of this is subjective data i.e., how each person interprets their level of background noise (human hearing vs recorded sound measurements).

Our concerns are based on the only figures for the operational component, LOAEL/SOAEL, all predicted, with night time assumptions, where no specific layout has been assumed, nor equipment data. Given this assumption, and with no daytime data on the background of limited knowledge around the site, we are not confident that the people in and around the site will be protected adequately enough from noise which could seriously affect their health when the plant is operational. The applicant states that some people (receptors) will be affected.

7000 Acres believes that the noise modelling software SoundPlan is satisfactory for certain tasks, such as new roads and railways. However, when it comes to solar developments, these are spread out in a diffused way with multiple locations which are scattered and not based in a linear or straight line. So, we question the use of this modelling technique in rural areas which is probably more suited to towns and cities where populations are more clustered together and more concentrated (useful when a road or a railway line passes through or close to).

Statements such as minor or negligible are meaningless because noise as stated is subjective and perceived differently by different people. The greatest adverse effect is at night, as during the day there is always background noise which will dampen the extraneous sound. This makes humans more sensitive to sounds that can potentiate sleep disorders, with adverse effects on mental and physical health. How this noise relates to existing noise, whether continuous, the frequency and the pattern occurrence is particularly important and is not fully referenced. Consideration should be taken when electricity demand varies and the system works to accommodate this. Powering up the system could potentiate more noise through noticeable impulsive/intermittent characteristics from plant noise emissions.

There is no documentation data around tonal or impulse noise levels in the document due to limited knowledge around the type of equipment to be installed (invertors, transmitters and cooling fans). This knowledge is essential.

We would argue that rural landscape should be protected for its tranquillity and much of this is characterised by birdsong, the very reason most of us have chosen to live in such a peaceful environment and to be at one with nature. Have tranquil areas been identified, if not why not? How does this noise affect biodiversity, especially repeated or chronic noise? This is incredibly relevant when it comes to overall assessing schemes like this, and the cost to biodiversity. What impact will inverters have on horses? Noise and visual landscape go together, however there is no test to clarify whether or not this will affect people. Many papers on health show the benefit of green open space.

In the overall context, this application should demonstrate that they have taken into consideration the impact it would have on the vulnerable and elderly, and how the noise might affect physical and mental health conditions in the general population. This area has a higher proportion of elderly, some of these are more vulnerable than others (e. g. those living in nursing, residential homes or have care at home, as well as those who are already vulnerable because of loneliness and isolation). In the study area, there are potential people with learning disabilities. We note a reference to one case and without the applicant understanding and resolving this, it will lead to a significant health inequality for this person. This is the whole reason Equality Impact Assessments are done so as to prevent health inequalities. This should reassure the Lincolnshire Health system and ultimately the Secretary of State who is responsible to prevent this from happening.

We have not seen any references to acoustic barriers. If so, are these noise impact protections in place for the entire lifetime of the scheme, and if deemed as needed then it was considered that noise from the site is such that it will impact on quality of life. How confident is the inspector that further sites might have similar problems, given this area is not undulating and that there is not much to absorb sound (cumulative effect)? Much of this is negated (no residual effects) as negative impact in the document cumulative effects (Chapter 17: Cumulative Effects April 2023). 7000 Acres urges the examiners to challenge this. Does the scheme take into account “background creep” where operational noise emissions from nearby developments are designed to achieve operational noise limits that do not contribute to additional noise in the area? How do we know these thresholds are not breached where the noise will exceed and effect human health and wellbeing? We argue the very point because the entire 4 now 5 schemes should have been seen as one. Hence a Health Impact Assessment, a good Equality Impact Assessment where for example, the blind are identified in the Local Impact Area could be affected as they have acute hearing to compensate.

Some people suffer from a condition called hyperacusis. These people have acute hearing, the sound is heard in a loud way, sometimes uncomfortable or even painful, which becomes intrusive to their lives. In some people, this creates anxiety and depression, and in severe cases these people become withdrawn from daily activities, because of the sound. It is estimated that this affects about 2% of the adult population. Given the cumulative effect of all the schemes covering a population of approximately 30000 people, that would equate to 600 possible patients with this condition. Obviously, most people can deal with this, however we do not know how many within this study area are affected, and to what degree. There is also a concern around the causes of tinnitus and whether a prolonged exposure to this type of continuous noise, e.g., the low hum or higher frequency noises could potentiate this condition. We do know that stress, anxiety and depression can cause tinnitus.

Finally, in setting out the limits, subjective baseline thresholds should not be exceeded where quality of life could be affected, that is no effect of change in behaviour, attitude or other physiological response should be observed. Otherwise, there will be consequences on human health and well-being, something that has been expressed in the open forum where mental health impact was mentioned frequently.

References:
1. **UK Government Guidance on Noise** Published 6th March 2014 Updated 22nd July 2019
2. **Document in joint response to Sunnica Section 42 Consultation** - The Councils (West Suffolk Council, Suffolk County Council, East Cambridge District Council and Cambridgeshire County Council)
3. **Tinnitus UK**

Below we provide more detail around their statements within the document:
Figure C-1

Figure C-1 (Operator's cycle only)

Issue	Detail	Questions
Environmental Protection Act 1990 1.2.3The Environmental Protection Act 1990 (EPA) (Ref 2) prescribes a statutory nuisance as noise (and vibration) emitted from premises (including land) that is prejudicial to health or a nuisance	7000 Acres will only cover the operator's cycle.	
➢ Paragraph 5.12.6 ➢ Where noise impacts are likely to arise from the proposed development, the applicant should include the following in the noise assessment: ➢ a description of the noise generating aspects of the development proposal leading to	Sound is subjective. We all perceive and experience sound in different ways. Certain sounds are more pleasant than others. It is also age dependant as to whether or not you have been exposed to loud noises in the past (military veterans), whether one has mild or severe tinnitus (perception of sound	What subjective tests have been carried out? Have any qualitative tests been arranged? Has the EqIA highlighted any other issues besides the person known to the applicant? If so, please document. How many partially sighted, blind people live in the study area or surroundings? What proportionate of military

noise impacts, including the identification of any distinctive tonal, impulsive, low frequency or temporal characteristics of the noise if the noise is impulsive, whether the noise contains particular high or low frequency content or any temporal characteristics of the noise ➢ identification of noise sensitive receptors and noise sensitive areas that may be affected ➢ the characteristics of the existing noise environment ➢ a prediction of how the noise environment will change with the proposed development ➢ in the longer term, during the operating life of the infrastructure ➢ at particular times of the day, evening and night (and weekends) as appropriate, and at different times of year ➢ an assessment of the effect of predicted changes in the noise environment on any noise-sensitive	that does not have an external cause). Those whose hearing have been affected by loud noise (presbycusis), to prevent further hearing avoid loud or extraneous noise to prevent further loss. Some people only have hearing in one ear, so even more important to ensure they are protected from noise. Others, may have a condition where noise is heard louder called hyperacusis. Conditions such as autism have a sensory component where they will react to abnormal sounds which lead to issues around behaviour. Others who rely on hearing aids for amplification will have extraneous sounds amplified which has the potential to affect them. The issue here is the continuous plant noise. The reason sound is subjective, is that unlike the digital recorded sound which connects to a computer to analyse, we as humans have instant gratification or distaste for the sound. We can either listen to it, or remove ourselves from it or lodge a complaint. If it is too loud, we lower the volume, if too soft we	veterans with Post Traumatic Stress Disorder maybe affected by noise. Has a HEAT tool been completed (live document to enable health inequalities to be identified rapidly so that a mitigation plan can be put in place quickly. How many people in your study area have hyperacusis? Do you know of any other people who might have a sensory impairment in your study area? Because the subjective nature of noise means that there is not a simple relationship between noise levels and the impact on those affected, please explain what other factors you might have considered in your assessment e.g non-continuous sources of noise, the number of noise events, and the frequency and pattern of occurrence of the noise/ the cumulative impacts of more than one source of noise.

receptors, including an assessment of any likely impact on health and quality of life / well-being where appropriate, particularly among those disadvantaged by other factors who are often disproportionately affected by noise-sensitive areas ➢ all reasonable steps taken to mitigate and minimise potential adverse effects on health and quality of life.	increase it. In fact, sound pollution has become the scourge of the 21st century and for many, people have gravitated to the more peaceful rural villages in appreciation of this (exactly what occurred when cities were quiet during the Covid lockdown). Most rural locations do not have the constant background noise of traffic. So, introducing a constant extraneous noise will have an impact which cannot be measured or quantified. We know that both vision and hearing, two important senses work together. This is the reason people gravitate to the countryside to rejuvenate their mental health by absorbing the beautiful landscape, the country sounds such as birds and running water. A person who has lost their sight, is totally reliant on hearing. They therefore have acute hearing to ensure they are connected. Think how this would be affected by the extraneous noise (the hum the panels produce, the noise of inverters and transformers). Our landscape is flat with relatively little or no barriers to prevent the	

	sound from travelling or absorb the sound. So sound modelling in rural areas is difficult (see our detailed paper reference SoundPlan and BS 4142 guidance). Digital sound readings therefore do not make up for the normal human cochlear (human hearing apparatus) and the function of the brain. Hearing is a difficult speciality on its own. Industrial noise evaluation cannot be relied on its own as an indicator of noise affect by such a development. It needs qualitative input by asking and learning about the community that will be affected by this. The human side needs to be considered, as it is well documented that extraneous continuous noise, whether be day or night will affect human health and wellbeing (both physical and mental health). Once the plant is in situ, this has the potential to widen health inequalities. 7000 Acres has requested the applicant to complete a HEAT Tool (EqIA document (A))	

Paragraph 5.12.9 Operational noise, with respect to human receptors, should be assessed using the principles of the relevant British Standards and other guidance	ß	7000 Acres needs more clarification as to the impact the operational noise will have on communities. There is so much unknown around this subject and its effect.
Paragraph 5.12.12 Applicants should submit a detailed impact assessment and mitigation plan as part of any development plan, including the use of noise mitigation and noise abatement technologies during operation.		Without this clarification, how will the applicant know what to mitigate against? Please advise further?
Paragraph 5.12.16 A development must be undertaken in accordance with statutory requirements for noise.		
5.12.17 The Secretary of State should not grant development consent unless they are satisfied that **the proposals will meet the following aims, through the effective management and control of noise**: ➢ avoid significant adverse impacts on health and quality of life from noise ➢ mitigate and minimise other adverse impacts on health and quality of life from noise ➢ where possible, contribute to improvements to health and quality of life through the effective	This application should demonstrate that they have taken into consideration the impact it would have on the vulnerable and elderly, and how the noise might affect physical and mental health conditions in the general population. The area has a higher proportion of elderly, some of these are more vulnerable than others (e. g. those living in nursing, residential homes or have care at home, as well as those who are already vulnerable because of loneliness and isolation). Please consider this when looking at the cumulative impact.	Please reassure 7000 Acres that the vulnerable elderly have been considered with examples? We have not seen any references to acoustic barriers. If there are proposed noise impact protections put in place, are they there for the entire lifetime of the scheme, and if deemed as needed, then it was considered that noise from the site is such that it will impact on quality of life. How confident is the inspector that further sites might have similar problems, given this area is not undulating and that there is not much to absorb sound (cumulative effect)? Please define whether or not combinations of more than one factor other than noise

management and control of noise Noise Policy Statement for England (2010) states: 1.4.5 This long-term vision is supported by three aims: a) “Through the effective management and control of environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development: b) “Avoid significant adverse impacts on health and quality of life; c) Mitigate and minimise adverse impacts on health and quality of life; and where possible, contribute to the improvements of health and quality of life.”	Adverse effects are defined in terms of a combination of more than one factor such as noise exposure, the number of occurrences of the noise in a given time period, the duration of the noise and the time of day the noise occurs. The noise assessments do not document this.	exposure will occur? Detail noise recurrence and the number in one time period, the duration of the noise, and the time. Approximate data can be obtained from other schemes.7000 Acres needs to assure itself people will not have their health affected by this scheme. Please go beyond what is in your document and list those adverse effects that will impact on people’s health? We mentioned power up and powering down the system and own concerns around this in our detailed document. If there are impacts, how will you apply mitigation such that it will be acceptable to the people affected?
Paragraph 2.11.7 The Secretary of State should ensure that appropriate assessment methodologies have been used in the evidence presented to it, and that the appropriate mitigation options have been considered and adopted.		
1.4.6 Further guidance on defining ‘significant	This development becomes the	Can we assume that wherever you are placed

adverse effects' and 'adverse effects' using the concepts: No Observed Effect Level (NOEL) – the level below which no effect can be detected. Below this level, there is no detectable effect on health and quality of life due to noise; Lowest Observable Adverse Effect Level (LOAEL) - the level above which adverse effects on health and quality of life can be detected; and Significant Observed Adverse Effect Level (SOAEL) - the level above which significant adverse effects on health and quality of life occur. 1.4.7 With reference to the SOAEL, the NPSE states: "It is not possible to have a single objective noise-based measure that defines SOAEL that is applicable to all sources of noise in all situations. Consequently, the SOAEL is likely to be different for different noise sources, for different receptors and at different times. It is acknowledged that **further research is required to increase our understanding of what may constitute a significant adverse**	neighbour and thus noise generated from them will have an impact. 7000 Acres would like all this data tabled to include whether or not a significant adverse effect is likely to occur; and state whether or not a good standard of amenity can be achieved. 7000 Acres notes that there has been no documented No observed effect level. All these readings are predicted. Surely, data now should be such that developers should have noise levels from other schemes that they can share with the public? Again, **professional judgement** as to whether or not the noise is an adverse effect either significant or not, this opinion should be assessed by an expert health practitioner with the capable knowledge. 7000 acres does not accept a town planner or a sound specialist in this opinion regarding health affect or quality of life.	around this scheme that some noise will affect those people? Please expand. What are the specific SOAEL values? Please a try and detail out the adverse effect to health and wellbeing to people. 7000 Acres has stated that we do not believe the sound modelling is valid for such a spread-out scheme, and also its use in rural settings. Please supply data from schemes that are operational. 7000 Acres would like to see actual levels to benchmark your predicted levels against. Please obtain an independent health experts' advice to recommend whether or not the noise produced will affect the quality of health of the people living next to the scheme (cumulative effect to be considered as well). Documentary evidence of this would be useful?

impact on health and quality of life from noise. However, not having specific SOAEL values in the NPSE provides the necessary policy flexibility until further evidence and suitable guidance is available." 1.4.8 For situations where noise levels are between the LOAEL and SOAEL, all reasonable steps should be taken to mitigate and minimise the effects. However, this does not mean that such adverse effects cannot occur. 1.4.9 Some effects might not be significant in EIA noise terms, but may be in health/policy terms if they are at or above SOAEL (i.e. where there may be "significant adverse effects on health and quality of life"). Where exceedances of LOAEL have been identified (i.e. where "adverse effects on health and quality of life" can be detected), mitigation measures are proposed to reduce noise as far as reasonably practicable.	The literature is full as to the effects noise can have on health and quality of life. Sleep deprivation leads to many chronic health problems, including heart disease (high blood pressure with its sequelae), renal disease, diabetes, stroke, obesity, and depression (long-term mental health issues). 7000 Acres does not agree with statement "not having specific SOAEL values in this document **creates a policy flexibility until further evidence and suitable guidance is available"**. Until we know this, no scheme on such a large scale should be considered. The applicant is developing in an area where people live, so it is imperative that these values are specific and relevant to mitigate.	
1.5.5 Further details on the hierarchy of noise effects are presented in Table 3, which has been reproduced from NPPG.	You have shared the table but not tabulated your results as per the hierarchy table should be set out. This describes the noise impact, whether	Please set out the table as intended to demonstrate whether or not your findings will be intrusive or disruptive. Display what is being asked of you in this table to document your findings. 7000 Acres objects to tables

	intrusive or disruptive in a graded way. (**Please see Table 2**)	randomly pasted and copied into the document as evidence that this is present, when in fact the applicant should **complete the hierarchy table** describing the issues from the findings as described in the table.
13.3.10 A series of assumptions were made for the generation of the operational noise model 13.3.11 Operational noise has been predicted with all plant being in maximum operation at all times of day as a worst-case assumption. 13.3.12 BESS cooling fans will operate dependent on ambient temperatures and would not be in a full mode of operation during cooler temperatures but have been assumed to operate fully at all times as a reasonable worst-case. 13.3.13 **Sound level data for transformers in reduced modes of operation are not available from manufacturers and are therefore not available for the purposes of this assessment.** Noise predictions are based on inverters and cooling fans operating at full load so are likely to be overestimated. Consequently, this is considered to represent a reasonable worst-case assessment.	Powering up the system could potentiate more noise through noticeable impulsive/intermittent characteristics from plant noise emissions	Is there a difference in sound produced for external as opposed to internal sited transformers, and if so, how will they impact on the overall noise produced? Please reference both (noted that there mention of internal transformers). Sound produced for equipment cooling is important (internal sited transformers) and will any generators be used in this process, or will the cooling fans be driven electrically? The more you load the transformer, the more sound is generated. So, this information is required when considering the overall noise generated from this scheme. Please expand? Please reassure 7000 Acres as to noise generated from powering up the system.? What components of sound will be heard - tonal/impulsive? When can you advise 7000 Acres that you have sound data for the transformers in reduced modes. A prediction that will affect people for sixty years is not acceptable. There are other schemes in operation which should give the applicant the answers and reassure the examiners

		that people will not be affected.
13.4.3 The Study Area for **operational noise effects is defined at 500m from the Principal Site**, based on the results from preliminary modelling. It is considered that receptors further than 500m from the Principal Site will experience considerably lower levels of noise emissions as these will attenuate over distance, resulting in negligible noise effects from the Scheme.	This depends on other factors: wind, whether flat or undulating landscape, buffer vegetation, or background noise level? Please see our response to the sound modelling **SoundPlan** within the detailed noise report above.	Rural landscape should be protected for its tranquillity. Much of this landscape is characterised by birdsong, the very reason most of us have chosen to live in such a peaceful environment and to be at one with nature. Have tranquil areas been identified, if not why not? Are their any future designated quite areas identified by West Lincolnshire District Council which need appropriate management?
13.4.10 It is acknowledged that short-term exposure to noise can cause disturbance to PRoW users and result in adverse noise effects. Planning Practice Guidance Noise (Ref 1-2) identifies an adverse noise effect as something that "affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life." This is considered to describe the level of noise effect that may be perceived by PRoW users		How will walkers who use the PROW's be affected by this development? Which pathways, and what levels of noise will they experience (a good place to use SoundPlan). Our concerns are that these pathways become less used because of this background noise. We need more detail around this. Are they close to the transformers or the BESS sites?
13.4.14 Baseline noise monitoring has been carried out to establish the existing noise climate in the area around the Principal Site in order to define representative background noise conditions.	One week's readings are not satisfactory to determine this. There are so many variables that affect this method that one cannot represent what the background noise is like eg was harvesting taking place, was there a community	

	fare on, holiday traffic (more trains) etc.	
Operational Noise: 13.4.48 Noise predictions of the operational Scheme have been undertaken using **SoundPLAN** 13.4.49 Operational noise has been assessed following BS 4142 guidance, whereby the rating level of noise emissions from activities are compared against the background level of the pre-development noise climate This records background sound level, specific sound level and a rating level. (Familiar with the parameters set out). It also recognises that certain acoustic features of a sound source can increase the impact over that expected based purely on the sound level e.g Tonality, Impulsivity and Intermittency and other background features where the sound is neither tonal or impulsive (penalty score calculated). It also compares the rating level of the new noise source with the existing background level: ➢ "Typically, the greater this difference, the greater the	7000 Acres believes that the noise modelling software SoundPlan is satisfactory for certain tasks, such as new roads and railways. However, when it comes to solar developments, these are spread out in a diffused way with multiple locations which are scattered and not based in a linear or straight line. So, we question the use of this modelling technique in rural areas which is probably more suited to towns and cities where populations are more clustered together and more concentrated (useful when a road or a railway line passes through or close to).	Low frequency can be difficult to predict and similarly hard to identify and resolve. This is worrying as low frequency sound has the ability to travel further than high frequency sounds. Expand more on low frequency and how you plan to mitigate this? Given the height of the panels are 4.5 metres high, the sound from them (hum) travels from a height and has the potential to be transmitted further. Has this been factored in? Consideration should be taken when electricity demand varies and the system works to accommodate this. Powering up the system could potentiate more noise through noticeable impulsive/intermittent characteristics from plant noise emissions. Please reassure? How does this noise affect biodiversity, especially repeated or chronic noise? This is incredibly relevant when it comes to overall assessing schemes like this, and the cost to biodiversity. We note that within your documents you state that this would be difficult. This concerns 7000 Acres particularly the effect of noise from solar panels, inverters and transformers on our bat population. This knowledge to comment on. What other

magnitude of the impact. ➢ A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context. ➢ A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context. ➢ The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context." The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.		species? What impact will inverters have on horses? Cumulative impact: Does the scheme take into account "**background creep**" where operational noise emissions from nearby developments are designed to achieve operational noise limits that do not contribute to additional noise in the area? How do we know these thresholds are not breached where the noise will exceed and effect human health and wellbeing? When will the plant to be used be finalised and how will this be cascaded with the relevant noise emission information? Please expand on what you mean the layout optimised for location of the inverters away from sensitive receptors where the highest levels of noise were predicted. Does this mean you are placing them next to receptors where the lowest levels of noise were predicted or are they located away from all receptors? The problem here, as you mitigate to sort one area out, you will create an issue elsewhere due to the nature of rural homes. This needs detailing. Has the applicant any knowledge of any low frequency sounds emanating from this scheme? Please advise?

13.7.14 Plant **that will be used in the Scheme has not yet been finalised.** Consequently, a conservative approach of considering the reasonable worst-case options has been taken when defining noise source emissions data and it may be possible that quieter plant can be incorporated into the final design. Quieter plant would be the most effective way of controlling noise emissions. 13.7.15 The Scheme layout has been **optimised to locate inverters as far as practically possible from sensitive receptors where the highest levels of noise were predicted**. 13.7.17 **Low frequency noise can be very difficult to predict** with a high level of certainty and similarly hard to identify and resolve if present. The following assumptions and parameters in EN010142/APP/6.2 have been used to prepare the operational noise model: See **Table 13-17** p45 EN010142/APP/6.1, only **considers night-time periods with all items of plant operating, as a worst-case assessment**		The night time prediction: No exceedances of SOAEL have been predicted. Please can the applicant explain given the fact they have not completed a hierarchy table – how intrusive, how disruptive? As this is subjective we know that some types and level of noise will cause a greater adverse effect at night than if they occurred during the day. This is because people tend to be more sensitive to noise at night as they are trying to sleep. The adverse effect can also be greater simply because there is less background noise at night. How does one access the night time prediction against subjective hearing. Obviously, one cannot, as it will only materialise once the plant is in situ. The examiners therefore need to guard against accepting these values of prediction as the only means of assessing whether or not a receptor will be affected or not at night once the plant is in operation. At night time, when the sun does not shine, the plant will power down and it will be the BESS that takes over. 7000 Acres needs to see that the cooling fans and other equipment powered at night will not disturb any receptors or for that matter wildlife including if any horses/livestock that are in the vicinity (particularly horses who are sensitive to these noises).

a. Sound source heights for inverters and transformers have been based on measurements of Power Electronics central inverters at a similar existing facility; b. No specific layout has been assumed for the substations, with the sound sources spread evenly across the proposed substation footprint; c. 140 Solar Stations have been identified, with six BESS modules and one inverter per Station; d. A tracker system will be used on the solar PV modules to maximise their efficiency by keeping them oriented towards the sun. Manufacturers data from NEXTracker indicate that tracker motors have a sound pressure level of approximately 40 dB. As this level of noise is unlikely to be perceptible outside the Order Limits and would be unlikely to cause disturbance, noise emissions from tracker motors have not been considered in the operational noise assessment; and e. Modelling assumes the site is continuously operational during daytime and night-time as a worst-case assumption, based on the possibility for some sound sources		What does the applicant mean “reasonable steps” to reduce noise. We have not seen any mention of acoustic barriers in their submission. Please advise? If you do not know what plant will be used, or inverters/transformers/cooling fans, how can you state: not anticipated to be any noticeable impulsive or intermittent characteristics from plant noise emissions experienced at the surrounding receptors? Besides the hum there will be other noises emanating from the plant from the inverters/transformers/cooling fans which is a concern as there will be different frequencies with varying degrees of loudness, some emanating different tones and some impulsive. This needs to be clarified as part of the plant noise cumulative effect which has the potential to affect receptors with adverse effect which will impact on their health and wellbeing. Please demonstrate this in the hierarchy table. 13.8.33 view around **anticipation, needs further clarification?** 7000 Acres are under the impression there should be a 500-meter buffer between residents and the plant/BESS. Explain why you have 250 meters from residential receptors? What guarantees can the applicant provide to ensure a

to operate in the early mornings and late evenings, particularly in the summer. The Scheme layout has been optimised to locate inverters as far as practically possible from sensitive receptors where the highest levels of noise were predicted. In general, there is a commitment to locate Solar and BESS Stations at least 250m from residential properties. 13.8.37: Reasonable steps to reduce noise are covered in Section 13.7 and have been applied in noise predictions. Consequently, although adverse levels of noise are identified at some receptors, NPSE requirements are complied with through provision of embedded mitigation. **Likely Impacts:** 13.8.32: It has been assumed that all plant is in operation continuously during the daytime. 13.8.33 There is **not anticipated to be any noticeable impulsive or intermittent characteristics from plant noise emissions experienced at the surrounding receptors.** Transformers within the BESS compound can have tonal features,		quiet plant is procured? This evidence would be crucial before granting this scheme, as 7000 Acres believes the applicant will put cost before considering what affects it will have on local receptors. The applicant states that they plan to change the layout at a later date. The examiner needs to assure themselves that this change will not impact any receptor. 7000 Acres is not satisfied by the mitigation offered by the applicant. Weather does play a role in sound. Wind which is common in this area carries sound, so omitting this from the overall noise calculations concerns us. This will only become apparent once the plant is operational. How does the applicant mitigate against this?

although noise emissions from the BESS will be dominated by the cooling fans. However**, overall plant noise emissions experienced at receptors will likely be perceived as a distinctive continuous and steady hum**; therefore a 3dB correction to account for noise that is ‘distinctive against the residual acoustic environment’ has been applied in determining the rating level. 13.8.35 As the **night-time** period provides the most onerous assessment criteria and operational noise is assumed to be constant as a worst-case assumption. **No** exceedances of SOAEL have been predicted 13.8.36 At all other receptors, the LOAEL is exceeded, however, the SOAEL is not exceeded at any location, indicating non-significant adverse impacts. No significant impacts are predicted. 13.9.4 **No additional mitigation measures are proposed for the operational phase** following the above embedded measures, given that there are not expected to be any significant effects as a result of the Scheme.		

13.9.5 **No enhancement measures** are proposed during operation 13.10.8 **No exceedances of the SOAEL are predicted during the operational phase** and therefore residual effects remain as in the assessment of likely effects – not significant. Battery storage module sound power levels have been based on AECOM library sound power data for battery storage module cooling systems, giving a sound power of 71dB(A). Battery storage cooling fans have been modelled as point sources with a source height of 2m. Sound level data of substation transformers at the Scheme are based on similar rated transformers for solar plant developments from AECOM library data. Sound level data of shunt reactors at the Scheme are based on similar rated shunt reactor for National Grid substation developments from AECOM library data. Monitoring consisted over an average week. A weather station was set up to capture weather data during the monitoring period between the 8th and 15th		

of July 2022. During this period, there were a few brief periods of weather that were not suitable for noise monitoring. The **data in these periods has been omitted from the overall noise level calculations**. **Cumulative assessment**: Noise and Vibration There are no residual effects for Noise and Vibration		
13.5.3 Additional comments relating to noise have been received relating to a resident at East Cottage, Northlands Road, which is part of receptor group R15 (seeTable 13-2). The resident has Autistic Spectrum Disorder and is sensitive to noise, which causes distress. As this chapter assesses noise based on national policy requirement as set out in Appendix 13-1: Legislation and Planning Policy of this ES [EN010142/APP/6.2], **the average response to noise is assessed.** Consequently, this chapter does not consider how noise may impact on someone who is sensitive. However, consultation with representatives of East Cottage residents is		Has this been addressed fully? We have made comments within the detailed report. This has the potential to widen health inequalities which falls under the duty of the Secretary of State to consider. Please describe what mitigation measures you have put in place for this resident and their family who care for this person?

ongoing to determine how the best practicable acoustic environment can be provided. Details of the consultation and measures adopted to control noise at East Cottage will be submitted during the examination.		

To the applicant, please note, it is not good enough to answer the questions by cut and pasting of your documents to justify answers given. We have read and understood your documents. We are searching for further answers to our questions outside your document. If we do not understand, we will ask for that detail.

The author of this document is a health professional who has thirty years' experience of working in Lincolnshire as a General Practitioner and in a leadership position within the local Lincolnshire NHS. The author also has experience in Ear Nose and Throat as a specialty as a General Practitioner for over 25 years

Table 2: Hierarchy table of noise effects

Response	**Examples of outcomes**	**Increasing effect level**	**Action**
No Observed Effect Level			
Not present	No Effect	No Observed Effect	No specific measures required
No Observed Adverse Effect Level			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
Lowest Observed Adverse Effect Level			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
Significant Observed Adverse Effect Level			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

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