

Our ref: RC/SCU/GM10971-0014

Date: 13th October 2021

Your ref:

Steven Mott
Planning and Building Department
South Derbyshire District Council
Civic Offices
Swadlincote
Derbyshire
DE11 0AH

Dear Steven

RE: DMPA/2021/0315 - Land at Hawthorn Farm, Scropton – Noise Screening Assessment

I understand you are picking up this application from Laura Hayes.

Wardell Armstrong LLP (WA) has been instructed by GS Vogt Limited (the Applicant) to prepare this noise screening report in relation to a proposed solar farm at Hawthorn Farm, Scropton, Derbyshire. The proposed development is to install up to 10MWp of solar photovoltaic panels and associated works, including substations, inverters, access tracks, security fencing and cameras.

This screening report follows:

- A planning committee meeting on the 17th August 2021 where a decision on the application was deferred. Members of the committee raised queries in relation to potential noise impacts and sought further information.

This screening report considers the potential impact of noise from the proposed solar farm at existing noise sensitive receptors and has been prepared in accordance with the most recent layout, proposed equipment, and current planning and technical guidance including the following:



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- National Planning Policy Framework (2021) (NPPF).
- Noise Policy Statement for England (2010) (NPSE).
- Planning Practice Guidance – Noise (2019) (PPG-Noise).
- British Standard BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (BS4142).

The British Standard BS4142 is the appropriate standard for assessing new industrial and commercial noise at existing noise sensitive receptors. In brief, the standard seeks to determine any adverse impact, from proposed industrial or commercial noise. The assessment details a way to determine the rating sound level, which is calculated from the noise from the industrial source (specific sound), plus any noise penalties to account for any characteristics of the noise source. This calculated rating level is compared with the background sound level, to determine the noise impact of any proposed source of industrial noise. The background sound level (L_{A90}) is the sound level which is exceeded for 90% of the measurement period and calculated by a statistical analysis, background sound levels are extensively used for rating industrial noise.

Where noise from industrial or commercial sources exceeds the background sound level, then this could be an indication of an adverse noise impact. However, where the specific sound is equal to or less than the background sound level, then this is an indication of a low impact, which is the lowest noise criteria in the standard, and shows that industrial noise is not significant.

The development site is located on agricultural land to the north of Scropton Road, Derby. To the north, east and west, the site is bound by open agricultural land. To the south the site is bound by agricultural buildings, open agricultural land, and some residential dwellings fronting Scropton Road. The nearest residential dwellings are located 100m from the proposed PV panels. Given the rural site setting, the background sound levels at receptors are likely to be moderate to low.

The solar panel themselves do not produce noise, however the ancillary equipment for the solar farm does include some equipment which produces low levels of noise, these are as follows:

- **Inverters** – The electrical inverters require cooling equipment such as fans which produce some sound. The manufacturer's data sheet shows that the proposed inverters produce sound emissions of <55dB(A). There are no details on how this level is calculated, or whether it is a sound power or pressure level. For the purposes of this



assessment, and to provide a robust assessment, the sound level emission of the inverters is taken to be 55dB(A) at 1m.

- **Substations** – The electricity substation produces some sound due to the throughput of electricity. Substations are located throughout the country as part of the national grid. The manufacturer's data sheet shows that the proposed transformers produce a sound power of 82dBA.

The solar farm produces electrical energy from sunlight. No electricity is produced, and no noise is emitted when the sun has set.

The inverters themselves comprise of a small box (approx. 1m x 0.6m x 0.4m) which is located behind a number of the solar panels (27 inverters distributed equally across the site). The proposed inverters for this application, include a forced cooling system which comprises of a cooling fan which operates only when required, (i.e. where the ambient temperature and load on the panel are sufficiently high). The inverters will be obscured from view by the solar panels themselves and are located at least 100m from the nearest residential receptors. The noise from the inverters is 55dB(A) at 1m. The noise from the inverters at receptors is calculated to be 15dB(A). Noise from the cooling fans is likely to be broadband, and not likely to attract a noise penalty. Therefore, the calculated rating sound level, of the inverters is likely to be less than the background sound level at the nearest noise sensitive receptors. In terms of BS4142, this potentially may cause a low impact at residential receptors. The noise level from the inverters is considered to be acceptable and not significant.

In addition to the inverters, the development includes an electrical substation. The electrical substation is located within a 40ft shipping container and is positioned approximately 250m to the north of the nearest noise sensitive receptor. Assuming the substation produced a sound power level of 82dB(A), then the noise from the substation at the nearest receptors would be 26dB(A), which does not consider any attenuation provided by the shipping container itself. Noise from electricity substations tends to be tonal, and therefore a +4dB penalty maybe required. Even with this noise penalty, the calculated rating level of the substation is likely to be less than the background sound level at the nearest noise sensitive receptors. In terms of BS4142, this potentially may cause a low impact at residential receptors. The noise level from the sub-station is considered to be acceptable and not significant.



Summary

The proposed solar farm is located at least 100m from the nearest noise sensitive receptors and will not operate during the sensitive night-time hours, for the majority of the year. The solar farm includes some equipment which produces noise, these are:

- Small inverters for each solar panel, which include intelligent cooling fans, which only operate when required (i.e. during sufficiently high load, and high ambient temperature).
- An electrical substation located approximately 250m from the nearest noise sensitive receptor, housed within a shipping container.

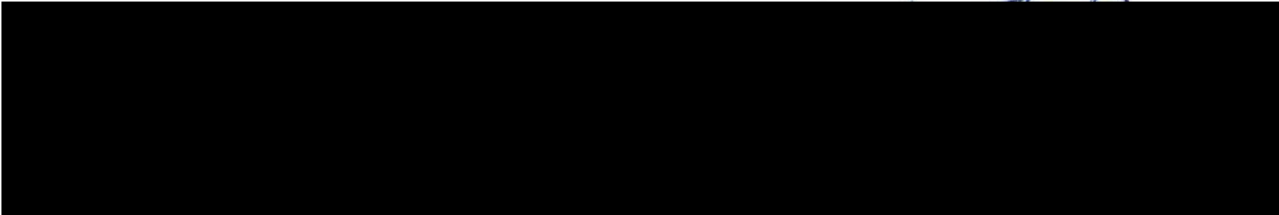
Given the likely noise emissions, and distance to the receptors, noise from the solar farm is very unlikely to adversely affect any residential receptor and will be below Lowest Observed Adverse Effect Level (LOAEL) when considered in accordance with Planning Practice Guidance – Noise 2019

Conclusion

We are satisfied that the proposed development will have no significant noise impact on local receptors and no further assessment is required.

Yours sincerely

for Wardell Armstrong LLP



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