

Dawn Errington
Eastleigh Borough Council
Dawn.Errington@eastleigh.gov.uk

12/04/2024
Our Reference: 0170/Allington

Dear Dawn,

ALLINGTON SOLAR FARM – NOISE COMMENTS RESPONSE

Metrica Environmental Consulting Ltd ('Metrica') has been commissioned by Locogen Consulting Ltd ('the Client') to respond to comments made by the Environmental Health Officer (EHO) at Eastleigh Borough Council (EBC) on a Noise Impact Assessment (NIA) undertaken by Metrica to support the Allington Solar Farm development ('the Development').

The EHO comments are as follows:

*"I have reviewed the 'Noise Impact Assessment. Allington Solar Farm, Eastleigh' report produced by Metrica Environmental Consulting, dated November 2023, version 1.0. The report indicates that the representative night-time background level is 30dB (Chart 3: night-time background statistical analysis (2300 – 0700) – Location 1 is missing), taken from a survey of 24h. The proposed development involves the installation of battery containers, auxiliary transformers, and inverters, being these last ones the noisier ones (91dB sound power level). There were no acoustic feature corrections applied. The assessment indicates that there are 3 locations where the predicted noise is 3dB higher than the background noise. Based on the BS4142, these would not represent an indication of an adverse impact. However, in our view, the noise from the proposed equipment would be different in character from the existing noise climate, and therefore more noticeable in the identified receptors (specially NSR6, assuming that this receptor is a residential dwelling).
We recommend the applicant need to provide measures to mitigate the impact of the noise at the residential receptors. Having said that, it is also unclear if the proposed equipment will be located in the open field, or it will be enclosure within a structure, and whether calculations took this factor into account."*

To address several minor points:

- ◆ In the interest of completeness, the missing Chart is presented at the end of this Technical Note;
- ◆ It can be confirmed that NSR6 is a residential dwelling; and
- ◆ Equipment will be located in the open field, housed within manufacturers containers.

In summary, the EHO agrees that in terms of the relevant assessment methodology (BS 4142¹), the predicted levels presented in the Metrica NIA will not result in an adverse impact. However, the EHO recommends that mitigation measures should be implemented as noise from the Development will be

¹ BS 4142:2014 +A1:2019 Method for rating and assessing industrial and commercial sound

different in character from the existing noise climate and therefore more noticeable. The EHO does not state the level of mitigation required.

Having reviewed the response, Metrica consider that the predictions in the NIA will not result in adverse impacts, and are therefore acceptable without additional mitigation, for the following reasons:

- ◆ Context;
- ◆ Predicted noise levels are 'low' in terms of BS 4142; and
- ◆ Predictions are worst case.

Further discussion is presented in the following sections.

Context

The EHO response states that noise from the Development will be different in character from the existing noise climate. However, as noted in Section 8.1.1 of the Metrica report, the nearest NSRs are already exposed to noise from variety of existing noise sources, including industrial sources, as follows;

- ◆ An existing solar farm is located to the northeast of the Development, close to NSR3;
- ◆ Various vehicle repair / servicing facilities are located on the northern boundary of the Development, close to NSR1 and NSR2. In addition to noise typically associated with vehicle repair facilities, it is likely that air conditioning and cooling fans will be present at these locations;
- ◆ Seddul Bahr industrial estate located to the south of the Development (close to NSRs 4 – 6) includes numerous noise emitting industrial units, including vehicle repair and mechanics. Again, it is likely that air conditioning and cooling fans will be present at these locations;

In addition to the above, the NSRs are exposed to noise from local roads (Allington Lane), motorways (M27), rail lines (running through the Development) and aircraft (Southampton Airport).

The main source of noise from solar and BESS developments is from cooling fans associated with the inverters. Based upon our substantial experience of operational BESS developments, noise from the cooling fans is broadband, and not will not result in acoustic features which have the potential to increase the level of impact at nearby dwellings (as noted in Section 7.3 of the Metrica NIA).

It is also notable that the exceedance in background noise only occurs during night-time periods (2300 – 0700), when residents are likely to be inside their properties. In addition, it is likely that cooling fans (i.e. the source of noise) will operate at slower speeds or switched off altogether during night-time periods. The NR assessment presented in Section 8.2 of the Metrica NIA demonstrates that internal noise levels during night-time periods will be significantly below NR20, assuming all plant is operating at full power simultaneously. During daytime periods it is likely that ambient noise levels will mask noise from the Development, and in practice noise from the Development will not be noticeable above the existing acoustic environment.

Low Noise Levels

BS 4142:2014 states that where the rating level and background levels at a receptor are low, changes in the absolute level should be taken into account. It states:

"Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."

While BS4142:2014 does not provide guidance on absolute noise levels from industrial developments, BS 4142:1997 states that “*background noise levels below about 30 dB and rating levels below about 35 dB are considered to be very low*”.

Maximum predicted noise levels are therefore currently 2 dB below the level considered to be ‘very low’ by BS 4142.

Worst Case Assumptions

In practice, it is anticipated that impacts presented in the Metrica NIA will be lower for the following reasons:

- ◆ Predictions assume all plant is operating simultaneously, at full power, during both daytime and night-time periods. In practice the level of noise emitted by the Development will be related to both the intensity of light incident upon the panels. It is therefore anticipated that noise from the Development will be negligible for much of the time, particularly during night-time periods;
- ◆ The maximum noise levels for the solar and PCSK inverters are only likely to occur if the ambient temperatures exceeds 40°C. Such high air temperatures are anticipated to be rare, and as such cooling fans (i.e. the source of noise) are anticipated to operate at slower speeds or switched off altogether, particularly during night-time periods;
- ◆ Predictions assume receptors are downwind of all noise sources simultaneously. The worst-case receptors (NSR 4 – 6) are located predominantly to the south, and as such are unlikely to be downwind of the Development under prevailing winds.
- ◆ No account is taken of the attenuation afforded by trees / shrubs between the noise sources and NSRs. While unlikely to result in a substantial reduction, trees between NSR 6 and the Development are likely to mitigate noise levels in practice; and
- ◆ NSR 4 and NSR 5 are closer to the Allington Lane than the representative background noise monitoring location, and as such in practice background noise levels will be higher at these locations than the monitoring location.

Given all the above, it is anticipated that the predictions presented in the Metrica NIA will be higher than those experienced in practice, and that overall, no additional mitigation is required at this stage.

Proposed Planning Condition

The NIA considers the likely noise level output of the proposed Development based on candidate plant and typical noise control options. Source noise levels of individual items of plant will vary as the final plant specifications and required control measures are determined during a commercial tendering process. Accordingly, neither the predicted levels presented in the NIA, nor the noise levels at source, should not be used to specify particular noise level limits.

Rather, it is more appropriate to consider noise levels at the nearest NSRs with regards to the existing sound levels in the area (as assessed by BS 4142). This allows appropriate levels of protection to be allocated to the nearest receptors, whilst providing the developer will sufficient flexibility in the design and specification of plant at the tendering stage.

Accordingly, we respectfully recommend the following planning conditions to control operational noise effects:

1. *“The noise Rating level (as defined in BS4142:2014+A1:2019) from the operation of the Development shall not exceed 5 dB above the background sound levels, as measured at the nearest Noise Sensitive Receptors (as existing or consented at the time of this consent),*

2. *Prior to first operation, a revised Noise Impact Assessment (NIA) shall be submitted to Eastleigh Borough Council for approval. The NIA report shall include details of the specified plant to be installed and any required noise control measures to ensure that the operational noise levels from the Development will be below the noise level limits detailed in Planning Condition 1."*

Please do not hesitate to get in contact if you have any questions.

Yours sincerely,



Martin Stevenson BSc, MIOA

Director

Missing Chart 3: Night-time Background Statistical Analysis (2300 – 0700) – Location 1

