

**TECHNICAL NOTE: Star Brands, Dunlop Road, Redditch
Inspection of Noise Control Works**

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1. This Technical Note has been prepared to summarise the findings of our brief visit to the above site on Tuesday 18 July 2023. This follows recent introduction of noise mitigation measures to the steam boiler, which is located towards the easternmost part of the site.
2. The application of mitigation measures follows our earlier noise assessment of April 2023 (report reference P23-098-R01v1), which identified a number of potential measures to reduce steam boiler noise, in outline form. The option taken by Star Brands has been to line all of the nearby reflective building services that are close-in around the steam boiler with industrial-grade acoustically absorbent panels to reduce reflection of noise off these surfaces towards dwellings.
3. As set out in our earlier report, this mitigation measure would be expected to make a relatively small, but nonetheless perceptible difference in noise level at nearby residences on Enfield Road. It is understood that the rationale for adoption of this measure is that a local resident(s) has asserted that noise from the steam boiler has become more significant since the recent introduction of a new storage building (itself not noise generating) a few metres to the northwest of the boiler plant cabin, and also a new acoustic barrier to the southeast side. This suggests that the additional acoustically reflective surfaces may create a build-up of reverberant sound from the plant and create an unimpeded reflected path of noise propagation over the acoustic barrier.
4. Following, Start Brands Ltd have engaged IAC Acoustics to installed 'Varitone' panels to the surfaces surrounding the steam boiler, to control the reflections as described above. It is understood that as part of their proposals, IAC Acoustics confirmed that about a 3dB reduction in noise would be expected at the boundary. This is consistent with our own expectations and prior advice.
5. The completed installation is shown in the appending Figure 1. It is noted that this also includes a mass barrier to the northeast side, to reduce noise propagation away to the open side.
6. Hepworth Acoustics visited the site during the daytime to inspect the mitigation installation and, insofar as is possible, to measure noise levels from the steam boiler at Enfield Road.
7. Prior to the works, night-time noise measurements determined a noise level of 43dB L_{pA} for the steam boiler, based on a measurement of 44dB $L_{Aeq,T}$ at Location 1, and a residual noise measurement of 36dB $L_{Aeq,T}$ at Location 3, as per the site plan in Figure 2, all as per our earlier report, and at >4.0m above local ground height.

8. Subsequent noise measurements, carried out on Tuesday 18 July 2023, were undertaken using the same equipment as reported for the earlier survey.
9. During our daytime visit it was slightly less straightforward to measure boiler noise due to greater levels of residual noise, both from road traffic and from commercial type noise sources. Nonetheless, notwithstanding a small degree of uncertainty in the noise measurements due to the extraneous noise, it was possible to obtain suitably representative noise readings during lulls in extraneous noise. This included a reading of 42dB $L_{Aeq,T}$ at Location 1, with the steam boiler noise present, and a further residual noise measurement of 38dB $L_{Aeq,T}$ was recorded at Location 3. From this, an estimated steam boiler noise level of 40dB L_{pA} may be derived.
10. This indicates a reduction of 3dB due to the installed mitigation. This is consistent both with expectation based on for the measures, and also of the subjective impression that noise levels around the plant were softened by the reflection controls.
11. As set out in Point 4, above, this corresponds to a relatively small, but nonetheless perceptible difference in noise level at nearby residences.
12. As per our earlier report, our assessment was that the pre-mitigation *“sound level for the steam generation of equipment up to 43dB L_{Aeq} is relatively modest. Even with a window partially open, this would be expected to result in operational noise within 30dB $L_{Aeq,15min}$ inside the most exposed dwellings, hence consistent with the recommended internal night-time noise level guideline of BS 8233. With windows closed, internal noise levels will be lower still. However, with windows open, this does not include any substantial margin to account for the specific character of the noise.”* Although this was the case, noting the relatively benign character of the steam boiler noise, the further reduction achieved now adds beneficially to this margin.
13. Moreover, subjectively, the noise is at a low level and is not obtrusive. This is considered in keeping with the established mixed residential and commercial/industrial area.
14. Indeed, during our survey on Tuesday 18 July 2023, we were approached by a number of local residents enquiring as to the purpose of our work. With regard to night-time noise from the site, the general consensus was that the steady fixed plant/machinery noise is at a generally acceptable level, but that somewhat more noticeable, on occasion, is noise generated by staff, either in terms of dropping pallets or throwing items into skips loudly, or from voices when sat outside on a break (including at night).
15. It is noted that there are existing signs around the site reminding staff to keep noise to a minimum, and it is clear that there are management protocols in place at the site. However, in light of the comments from local residents it would be advisable to reinforce this instruction, and ensure that it is adhered to, especially during the summer months, when it is more likely staff will be outside (e.g. to smoke) during the night when on break, and that residents may have their windows open.

Figure 1 - Noise Mitigation Measures around Boiler Plant



Figure 2 – Site Aerial View



Figure 3 – Site Notice at Front of Site



Figure 4 – Site Notice at Rear of Site

