

TECHNICAL NOTE: Royal Berkshire Hospital, Reading
Recommended Noise Mitigation to Existing Rooftop Plant Adjacent to Redlands Road

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This Technical Note has been prepared to provide specific recommendations for noise mitigation, in the form of a solid acoustic barrier, for some existing rooftop plant at the Royal Berkshire Hospital, Reading.

The plant in question is located on a second floor flat roof, immediately adjacent to Redlands Road, just north of the junction with Morgan Road. This is identified in plan in Figure 1.

Figure 1 – Plant Location in Plan



There is currently an open weather louvre screen in place to the north, west and south of this plant area, as can be seen from Figures 2 and 3.

Figure 2 – View from Redlands Road



Figure 3 – 3-D Aerial View



The context of this Technical Note involves two separate matters, which have become inter-related.

The first is a planning application for new ICU AHU plant (to replace older plant that will be removed), set back further from Redlands Road at a higher rooftop level. Hepworth Acoustics prepared a noise assessment for the application, report ref P22-521-R01v1, dated July 2023.

The second is a noise complaint received by the Environmental Protection & Nuisance Team at Reading Borough Council, understood to be from a property on the west side of Redlands Road, further south from Morgan Road.

The ongoing noise complaint issue has caused a delay with the plant planning application, due to uncertainty regarding the existing noise in the area.

It is understood that no abatement notice has been served in connection with the complaint, however the Hospital has been informed, and are willing to seek means of reducing the noise.

Hepworth Acoustics has not undertaken a detailed investigation in relation to the noise complaint. However, as part of the above reference assessment/report, an attended baseline noise survey was undertaken over a suitable time period at the nearest residences to the proposed new plant, at the junction of Redlands Road and Morgan Road. We have also discussed the matter in detail with the Principal Environmental Health Officer at Reading Borough Council, who has carried out an inspection of plant in the relevant rooftop areas.

From this, it has been agreed to very likely that the complaint relates, in part if not in whole, to the existing plant identified in this Technical Note.

It is therefore expected that a reduction of noise from this plant will appreciably reduce existing noise at the complainant's property. In the absence of a detailed assessment, the precise expected improvement that this will achieve at the complainant's property is uncertain. This is because other plant items at the Hospital may be contributing to the overall noise level at that property.

However, with specific regard to the new ICU AHU application and noise assessment, it is somewhat clearer that the background noise levels determined during the baseline noise survey were predominantly due to the existing plant identified in this Technical Note.

It has been agreed therefore that a pragmatic measure, accounting for both the new application and the complaint, will be to apply noise mitigation to this plant, in the form of a solid acoustic barrier.

Acoustic Barrier Specification

It is understood that the existing weather louvres do not provide any necessary air flow to the associated plant.

It is therefore recommended that the proposed acoustic barrier should follow the lateral and vertical extents as the existing weather louvre screen, either by replacement or by construction immediately inside the existing screen (so as to avoid any visual implication).

As a basic specification, the acoustic barrier should be of overall mass not less than 10kg/m^2 , and thickness not less than 20mm. The construction should be imperforate with no holes or gaps and should be sealed at the base.

However, in this case, to maximise the efficacy of the acoustic screening by minimising acoustic reflections between the plant noise source and the inner facing of the barrier, it is recommended that acoustically lined industrial grade barrier panels are employed, with an acoustically absorbent finish to the inside faces. This would be typically of $\sim 100\text{mm}$ mineral fibre of density $10\text{-}60\text{kg/m}^3$, retained behind perforated sheet steel. Proprietary solutions for acoustically absorbent panels are available from numerous companies, including www.gallowaygroup.co.uk, www.allawayacoustics.co.uk and www.iacacoustics.global.