Memorandum

BDP.

To:	Dr. John Hindley - Twelvetrees Consulting Ltd Ian Palmer – Ian Palmer Architects	Date:	27/02/2026
From:	Lewis Herd – BDP Acoustics	Cc:	As per email distribution list
File ref:	P3003804(COR)U003		

Subject RNCM Decarbonisation

New AHUs - External Noise Measurements

1. Introduction

BDP Acoustics has been appointed to undertaken interim noise measurements of the AHU components of the RNCM decarbonisation scheme.

The decarbonisation scheme works include new AHUs and heat pumps, which are cumulatively subject to a local authority noise limit externally, and project noise limits internally.

The purpose of these measurements is to establish whether the installed ventilation elements are 'on-course' to meet the relevant noise limits which apply to the overarching scheme including the proposed new heat pumps, which will be installed in a later phase of works.

BDP Acoustics attended site on 16/12/2025 and undertook external noise measurements local to the AHUs and internal measurements in a sample of the worst-case rooms: Studios 4 & 5, and Practice Room L2.01.

This document relates to the new AHU external noise measurements only.

2. Summary of Measured Results

Building services noise measurements should be taken with the units operating at their typical design duty. We were advised by RNCM site staff facilitating the testing that:

- AHUs 3 & 4 have an automatic variable operational duty within a fixed range
- AHUs 1, 2 & 6 only have one operational duty

In the absence of a typical design duty at which to undertake the test for AHUS 3 & 4, measurements were taken with the units operating at the extremes of the specified duty range (i.e. low and high).

A summary of the measured results are outlined in the section below.

2.1. External Noise Measurements & Analysis

Due to only a small difference in results for the two operating modes associated with AHUs 3 & 4 when measured externally, only the results for the higher duty operation have been presented.

To facilitate comparison with the LPA criteria, the measured noise levels taken locally at the new AHU atmospheric terminations have been used to inform a simple noise propagation calculation, accounting for the distance separation to the worst-case receptors.

Table 1 shows the cumulative predicted level contributions from the AHUs at the closest noise sensitive receptors against the proposed external noise limit criteria detailed in P3003804(REP)U001 RNCM Decarbonisation Plant Noise Assessment Report [P02].

Table 1: Predicted levels at noise sensitive receptors based on measured levels at AHUs

Identified noise sensitive receptor	External noise limit criteria at the NSR façade location for the proposed new equipment (dB $L_{Ar,Tr}$)	Predicted level at the NSR façade location based on measured data (dB $L_{Ar,Tr}$)	Difference
MMU Manchester School of Art off Rosamund St W	47 dB during daytime (0700-2300 hours)	33 dB	14 dB
Unite Students – Sir Charles Grove Hall off Higher Chatham St	40 dB during nighttime (2300-0700 hours)	32 dB	8 dB

Based on the predicted noise levels above, it is anticipated that the AHU noise contributions leave suitable additional headroom for the future noise contributions of the heat pump equipment to be installed in a subsequent phase of the scheme.

3. Summary

Interim acoustic measurements have been undertaken following the installation of the new AHUs at RNCM.

- Noise measurements were taken locally at the new AHUs, to inform a simple noise propagation calculation to assess the AHU noise level at the worst-case receptors (i.e. nearest/most exposed).
- Externally, the AHU noise levels are capable of allowing the local authority criteria to be achieved, subject to the noise contributions from the heat pump equipment still to be installed.