

Memorandum

From:	Date
Jo Lacy	12/04/2022
To	cc
Sophie Nolan	Ivan Bland, Ashley Davies, Simon Everett, Michael Pimlott
Subject	
Prospect House – Condition 12 Plant Noise Assessment Validation Measurements	

Cundall have prepared this memorandum to provide evidence of compliance with Planning Condition 12 related to the Prospect House School development (hereafter referred to as 'the Development').

Local Authority Planning Condition

The site lies within the jurisdiction of Manchester City Council. Planning condition 12 of the approved application (Reference 124767/FO/2019) states the following in relation to plant noise.

Prior to first use of the development any external equipment, insulation, externally mounted ancillary plant, equipment and servicing shall be selected and/or acoustically treated in accordance with a scheme designed so as to achieve a rating level of 5dB (LAeq) below the typical background (LA90) level at the nearest noise sensitive location. The scheme shall be submitted to and approved in writing by the City Council as local planning authority in order to secure a reduction in the level of noise emanating from the site. The approved scheme shall be completed before the premises is occupied.

Upon completion of the development a verification report will be required to validate that the work undertaken throughout the development conforms to the recommendations and requirements in the approved acoustic consultant's report. The report shall also undertake post completion testing to confirm that the noise criteria has been met. Any instances of non-conformity with the recommendations in the report shall be detailed along with any measures required to ensure compliance with the agreed noise criteria.

Reason - To minimise the impact of the development and to prevent a general increase in pre-existing background noise levels around, pursuant to policy DM1 and SP1 of Manchester's Local Development Framework: The Manchester Core Strategy.

Plant noise limits

Full details of plant noise limits are detailed in Cundall's acoustic design report (Ref: FS0831-CDL-XX-XX-SP-AS-45301, RevB, dated 14 November 2019).

An environmental noise survey at the proposed development site has been undertaken by ECUS Environmental Consultants in order to assist with the initial feasibility study for the development. Details of the methodology, weather conditions and full noise data have been outlined within their report Ref: 11024, issued in March 2018.

A summary of noise measurement results is reproduced below:

Location	Period	dBL _{Aeq} Log-average	dBL _{Aeq,30min} Range	dBL _{A1,30min} Range
M1	11:40-15:00 hrs	56	55-57	69-72
M2	11:25-15:05 hrs	47	45-49	62-71

To see that noise from proposed building services plant does not adversely affect the level of amenity enjoyed at nearby dwellings, planning condition 12 specifies that external plant to be limited to 5 dB below the existing background sound levels when measured at 1 m from the nearest noise-sensitive receptor (NSR). These have been identified as existing residential dwellings on Bank House Road to the north west of the site boundary. On this basis, the following table provides recommended limiting plant noise levels based upon the measured background level.

Time period	Noise-sensitive receptor	Representative background sound level dB L _{A90}	Plant noise rating level limit dB L _{A1,Tr}
Daytime (07:00-23:00 hrs)	Dwellings on Bank House Road	42 ^[1]	37

^[1] Existing background noise value based on modal measured L_{A90} value at location M1 during Ecus noise survey.

In-situ plant noise measurements

The external plant serving the completed Development consists of two Air Handling Units (AHUs) serving the Kitchen; one supply fan, and one extract fan. The AHU's are positioned in an external plant compound surrounded by fencing.

Source level measurements of the AHUs were undertaken by Jo Lacy (AMIOA) at site on 7 April 2022, to measure the in-situ noise levels being emitted from the intake and exhaust ductwork, and case-radiated break-out. It was confirmed that all plant was operating at its maximum design duty at the time of testing.

Measurements of the AHUs were undertaken at 1 m from the end of the intake ductwork and from the exhaust ductwork. Both measurements were off-axis out of the airflow and at minimum of 1 m from other reflecting surfaces. Breakout measurements were also undertaken at 1 m from the AHU casings and a minimum of 1 m from reflective surfaces. An additional measurement of all cumulative plant noise was undertaken at 1 m from the outside of the plant enclosure fencing.

Plant item / noise source	Distance	Sound pressure level, L _p dB(A)
Exhaust	@ 1 m from noise source	66
Unit breakout	@ 1 m from noise source	70
Supply	@ 1 m from noise source	62
Enclosure breakout	@ 1 m from plant enclosure	58

Subjective impressions were that plant noise emissions associated with the Development were completely inaudible at the site boundary with the nearest noise-sensitive receptors (NSRs). As such, an assessment of plant noise impacts has instead been undertaken by applying appropriate distance attenuation corrections to the source values presented above.

BS 4142 Plant Noise Assessment

Based on the in-situ source level measurements of the external plant, a BS 4142 assessment for predicted plant noise impacts at the nearest noise-sensitive receptors (dwellings Bank House Road) is presented below.

Assessment stage	Result	BS 4142 Clause	Commentary
Assessment Period, T_r	1 hour	7.2	Plant will operate during daytime hours only (07:00 - 23:00) It has been assumed plant will operate continuously during this 1 hour assessment period
Predicted specific sound level at NSR	$L_s = 26$ dB	7.3.6; 7.3.8	Specific sound predicted by calculation and assumed to be continuous. Based on point source distance attenuation correction from plant enclosure to NSR
Acoustic feature corrections	+ 3 dB	9.2	+3 dB correction for intermittency
Rating Level	$L_{A,T_r} = 29$ dB	9.1	
Representative background sound level (evening)	42 dB	8.1 8.2	See section Error! Reference source not found. above
Excess over background sound level	- 13 dB	11	
Assessment outcome	13 dB below representative background sound level 8 dB below MCC plant noise rating level limit Indication of low impact		

As can be seen from the above, the calculated rating level at NSRs is 13 below the representative background sound level and 8 dB below the requirements of MCC noise policy and Condition 12 attached to the scheme.

Summary

Source level noise measurements of completed external plant installations at Prospect House School were undertaken on 7 April 2022. A subsequent assessment of plant noise impacts associated with the development has identified that the worst-case rating level is 13 dB below the representative background sound level.

On this basis, it is considered that external plant noise emissions are compliant with the requirements of Condition 12

Yours faithfully
For and on behalf of
Cundall Johnston & Partners LLP



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