MZA ACOUSTICS

PLYMOUTH GROVE, MANCHESTER

TO: James Borley (Avison Young)

FROM: Chris Holmes (MZA Acoustics)

DATE: 12th October 2026

SUBJECT: Planning Condition 19(a) - Discharge

The following note has been produced for submission to Manchester City Council with respect to the student residential development at Plymouth Grove, Manchester.

Planning Approval (138294/FO/2023)

The development received planning approval (application *138294/FO/2023*) with conditions, of which Condition 19 relates to entertainment noise emitted from the building and is repeated below.

> *Prior to any above ground works, a scheme of acoustic insulation for the non residential areas (gym, residential spaces) within the development shall be submitted for approval in writing by the City Council, as Local Planning Authority.*
>
> *Where entertainment noise is proposed the LAeq (entertainment noise) shall be controlled to 5dB below the LA90 (without entertainment noise) in each octave band at the facade of the nearest noise sensitive location, and internal noise levels at structurally adjoined residential properties in the 63HZ and 125Hz octave frequency bands shall be controlled so as not to exceed (in habitable rooms) 47dB and 41dB (Leq,5min), respectively*
>
> *(b) Prior to the first use of those spaces within the development, a verification report will be required to validate that the work undertaken conforms to the recommendations and requirements approved as part of part (a) of this planning condition. The verification report shall include post completion testing to confirm the noise criteria has been met. In instances of non-conformity, these shall be detailed along with mitigation measures required to ensure compliance with the noise criteria. A verification report and measures shall be agreed until such a time as the development complies with part (a) of this planning condition.*
>
> *Any mitigation measures shall be implemented in accordance with a timescale to be agreed with the City Council, as Local Planning Authority. Any measures shall thereafter retained and maintained in situ.*
>
> *Reason - In order to limit the outbreak of noise from the commercial premises pursuant to policies SP1 and DM1 of the Core Strategy (2007) and saved policy DC26 of the Unitary Development Plan for the City of Manchester (1995).*

Through discussions with Lisa Jones, Environmental Protection Officer at Manchester City Council, it has been confirmed that the condition should also detail mitigation for impact noise from the gym to rooms above.

It is also noted that, based on the wording of the above condition, and MZA Acoustics' experience of working with Manchester City Council, the criteria in the condition are typically applicable to the control of noise of an "entertainment" or "commercial" nature which may affect nearby residential receptors which is necessarily more stringent than a student residential development where the uses are all managed by the same operator.

Given that the development would be operated by a single student residential operator, any noise impact arising from use of the non-residential spaces to the student spaces would be dealt with by the implementation of appropriate management protocol by the Operator themselves.

In accordance with the condition wording, this document presents the scheme of acoustic insulation (both noise and vibration control) which is to be adopted, with testing to be undertaken post-completion in accordance with part b) of the condition to confirm compliance with the criteria.

The Development

The development is for an eight-storey building (7 floors plus ground) of student residential accommodation with associated amenities at ground floor level. A ground floor site plan is appended to this memo.

It is noted that the ground floor amenity areas include the following spaces which might be louder than typical residential use:

- Social Lounge
- Gym
- Cinema room

It is noted that, with reference to Condition 19, none of the above spaces would be considered to generate "entertainment noise" – which is considered to generally apply to commercial venues etc. where high levels of amplified music are possible.

The gym is small in size and will include only background level music, while the Social Lounge and Cinema Room are likely to include typical domestic/consumer systems. Accordingly, the proposed uses and any audio systems are not considered to be of the capability to cause levels of internal noise (especially at low frequencies) which would risk noise impact to off-site residential receptors.

Furthermore, it should be noted that the large area of window in the Social Lounge has a high-performance acoustic laminate glazing proposed, and the facades of both rooms are sealed (no openable windows), which will further mitigate noise impact.

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Internal Airborne Sound Transmission

As noted above, none of the spaces are considered to generate particularly high levels of "entertainment" noise which, as noted in the condition wording, is focussed on low frequency noise impacts.

Nonetheless, on the basis that these spaces may generate noise levels (from occupants) which are higher than typical residential use, the floors which separate "noisy" amenity spaces are designed to achieve uplifts over the standard building regulations sound insulation performance in order to protect against disturbance to future occupants as follows:

Room	Separating Ceiling/Floor Build-Up	Comment
Social Lounge	• 225 mm concrete slab (min 2,500 kg/m^3) • Standard plasterboard ceiling with open cell ceiling to centre of room	Expected to achieve > 50 dB $D_{nT,w} + C_{tr}$ (5 dB above building regulations)
Gym, Cinema	• 225 mm concrete slab (min 2,500 kg/m^3) • 12.5 mm acoustic plasterboard ceiling	Expected to achieve > 53 dB $D_{nT,w} + C_{tr}$ (8 dB above building regulations)

Based on the above, and the limits stipulated by Manchester City Council, the following noise limits are established in the ground floor spaces (as a worst-case, these consider the slab alone, as per the central area of the Social Lounge ceiling. Rooms with a continuous solid suspended ceiling may have higher performances, although is not likely to be significant at the lowest frequencies):

- Noise limit in ground floor amenity spaces at 63 Hz: 83 dB
- Noise limit in ground floor amenity spaces at 63 Hz: 81 dB

Impact Sound Transmission (Gym)

Noise from impact within the gym is difficult to predict. While the Association of Noise Consultants (ANC) and Institute of Acoustics (IoA) Professional Practice Guidance (ProPG) Gym Acoustics Guidance (GAG) provides a calculation method for rooms directly below, there is no no standardised methodology for the calculation of receiver rooms above – where the construction of the building can significantly alter the transmission of impact sound throughout.

The document recommends that, where possible, in-situ testing is undertaken to determine the mitigation requirements for the specific building.

However, as part a) of Condition 19 is required to be discharged prior to above ground works, this cannot take place.

On this basis, and as required by part a) of the condition, a general scheme of mitigation is discussed below and it is recommended that, should further evidence be required by MCC prior to undertaking the testing for part b) of the condition, in-situ testing of the proposed flooring would be undertaken at a suitable time in the construction programme to demonstrate compliance with the criteria. However, it is MZA's opinion that this additional step is largely unnecessary given the requirement for testing already included in part b) of the condition.

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Gym Impact Sound Mitigation Strategy

The gym itself has a 250 mm reinforced concrete suspended slab, which is considered a robust starting point for the control of impact sound.

The gym floor will be finished throughout with a Pliteq GenieMat FIT 30 product, pictured below, which is a product often employed in commercial gyms beneath both cardio studios and free-weights areas for the control of impact sound in mixed-use developments.

In MZA's experience, this should be suitable for the proposed use (which does not include the use of heavy free-weights, as discussed below).



Figure 1 - Pliteq GenieMat FIT30

It has been verified by the operator that there are to be **no free-weights** used in the gym, with all strength equipment to be provided through resistance machines. Resistance machines themselves are generally provided with an element of in-built isolation of the weight stack to the machine itself, as illustrated in the case of a pin-loaded machine below, where dampened springs are introduced beneath the weight stack.



Figure 2 - Weight stack isolation (damped springs)

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At this stage, the exact equipment selections and suppliers are not known, however equipment is to be procured with appropriate isolation, and this can be upgraded as necessary and if found to be required following the testing undertaken for part b) of Condition 19.

Finally, of the cardio equipment typically installed in student gyms (e.g treadmills, rowing machines, bikes, ellipticals etc.), only treadmills are typically considered to risk generating any significant impact noise.

Again, most modern treadmills also include intrinsic elastic isolation, however further isolation can be easily retrofitted if found necessary following the testing undertaken for part b) of Condition 19.

Requirements for Verification Testing (Part (b) of Condition 19)

In accordance with the requirements of part b) of the condition, testing will be required once the development is complete, and before it is occupied.

The testing should be representative of the actual use cases in the spaces and, where possible, use the actual equipment which is proposed.

It is recommended that, with respect to airborne noise, measurements of the sound insulation performance are conducted and the results of these are used to inform the limits for any speaker systems which are installed in the spaces in conjunction with the criteria of part a) of the condition.

With respect to impact noise, it should be noted that the criteria referenced in the above condition for entertainment noise (e.g music) are not necessarily considered applicable to the assessment of gym impact noise. Instead, the GAG proposes the following criteria for impact sound to residential areas:

- **G20 – G25** during the day
- **G15 – G20** during the night

It is recommended that these criteria are adopted for the assessment of impact sound transmission for the discharge of part b) of the condition.

Conclusion

The above note provides a scheme of acoustic mitigation to the amenity areas which have been identified as potentially generating levels of noise which are higher than typical residential use.

Noise limits have been established for the spaces based on the separating floor/ceiling build-ups which are to be installed.

It is considered that the strategies proposed are appropriate to discharge part a) of the condition, with part b) requiring testing to verify the performance and compliance with the criteria of Manchester City Council.

Please do not hesitate to contact us with any questions.

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