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Attn: Mitch Ryan

4-18 Doncaster Avenue, Randwick - Construction Noise Assessment for Staged Works

1 INTRODUCTION

This report has been prepared to address potential construction noise impacts during the staged completion of the student accommodation project located at 4-18 Doncaster Avenue, Randwick. It is proposed that completed elements of the building in stage 1 (student rooms, communal areas etc) be occupied during the completion of stage 2.

Stage 2 works are generally limited to the northern extent of the development, as indicated in Figure 1. A summary of construction works which will be undertaken as part of the completion for Stage 2 are detailed below:

- Façade completion (masonry, cladding, glazing installation etc.)
- General fitout works using hand tools.

Structural/excavation works have been completed on site, which are typically the highest noise generating activities.

A temporary wall is proposed to be constructed between the two stages of the development, to provide both acoustic and fire separation between student rooms and the construction site.

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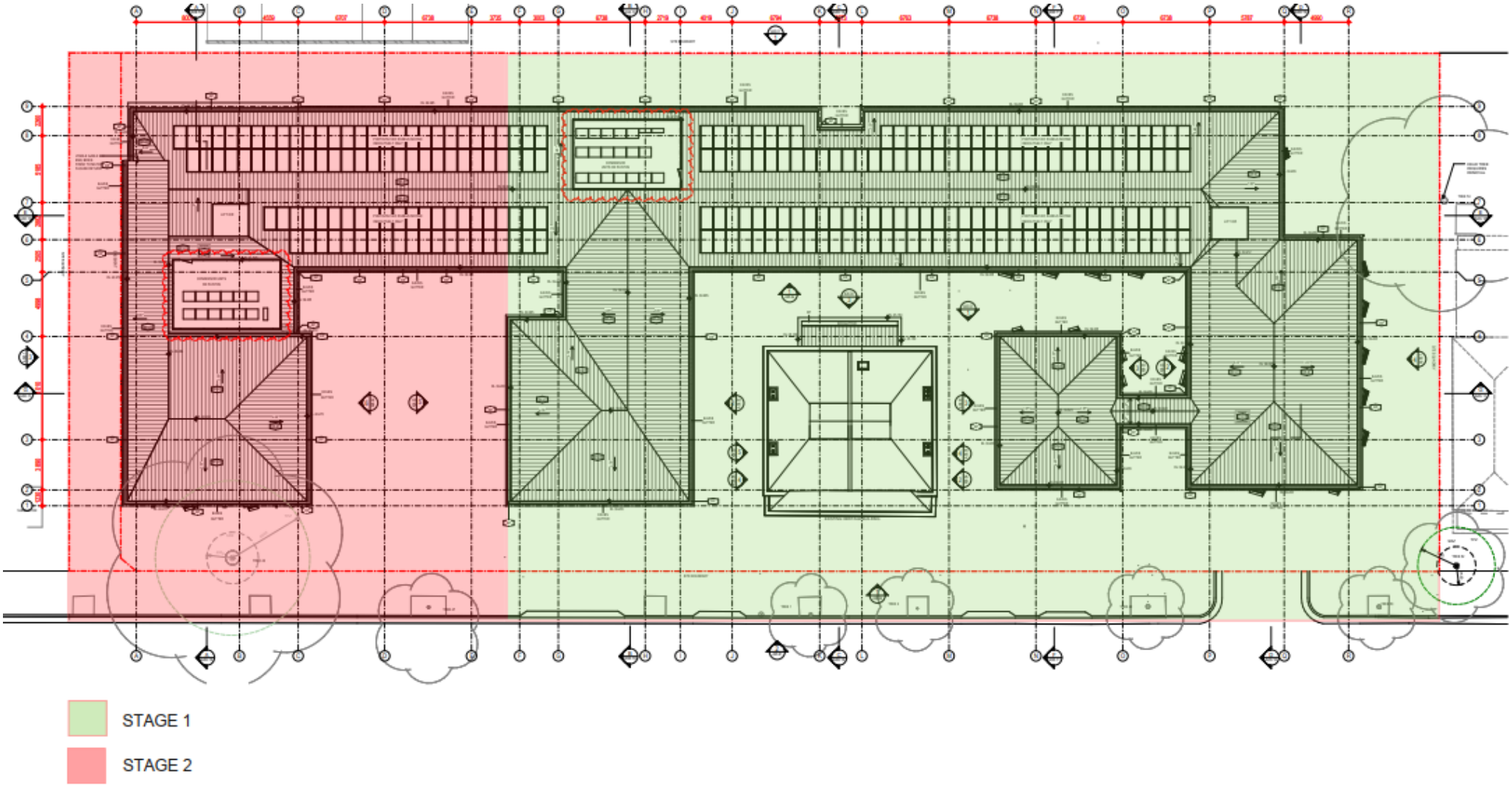

Figure 1 – Proposed Construction Stages

2 PROPOSED NOISE MANAGEMENT LEVELS

For residential developments, the NSW EPA *Interim Construction Noise Guideline* provides external noise management levels for residential development. However in this case, as both construction works and occupants will generally be located internally within the building, an internal noise management level would be appropriate.

Australian Standard AS2107:2016 provides a recommended range for internal noise levels. Whilst not strictly applicable to construction noise, it provides reasonable guidance on acceptable noise levels. Further, given the intermittent nature of construction noise, it is typical to adopt an acceptable noise limit of between 5-10dB(A) above what would be acceptable for typical or continuous noise levels (mechanical plant or traffic noise for example).

Table 1 – Adopted Internal Construction Noise Management Levels

Location	AS2107 Recommended Internal Noise Level dB(A) $L_{eq(15min)}$	Construction Noise Management Level dB(A) $L_{eq(15min)}$
Student Accommodation Rooms	35 – 45 dB(A) (Living Rooms)	55

3 ASSESSMENT & RECOMMENDATIONS

3.1 CONSTRUCTION NOISE IMPACTS

Noise impacts to student rooms will be affected by airborne and structure borne noise. We note that it is impossible to accurately to predict internal noise levels from construction activities (due to uncertainties with the propagation of noise through the building structure), however a discussion has been presented in the table below which identifies the following:

- Proposed construction activities.
- The likelihood of the proposed activities to exceed noise or vibration criteria.
- Discussion of mitigation strategies.

Table 2 – Discussion of Noise Impacts to Student Rooms Within the Development

Proposed Activity	Noise Impacts	Discussion & Mitigation Strategies
Power Hand Tools	Exceedances of noise management level is expected for power tools such as drills and nailing that generate structure vibration/noise.	Recommended that activities such as impact drilling, nailing to concrete, etc be scheduled at times which minimise impacts to occupants.
Jack Hammer	Exceedances of noise management level is expected.	Recommended to be scheduled at times which minimise impacts to occupants Sample measurements could be considered.
Hand Tools	Minor, intermittent exceedances of noise management level is expected. Hammering into structure likely to generate structure vibration/noise.	Recommended that hammering of structure to be scheduled at times which minimise impacts occupants of the adjacent departments.
Material Handling	Minor, intermittent exceedances of noise management level possible.	Floor coverings such as rubber matting may be considered to minimise noise and vibration impacts from material handling.

3.2 RECOMMENDATIONS

In order to mitigate construction noise impacts to students within the development, the following is recommended:

- The wall separating stage 1 and stage 2 be constructed to achieve a minimum acoustic performance of R_w 50.
- Notification of intended construction works be provided (through leaflet or similar) to common notice boards within the occupied student accommodation rooms.
- Where high noise generating activities are expected to occur, consideration should be given to scheduling works such that they are restricted prior to 8am.

4 CONCLUSION

This report has addressed potential construction noise impacts during the staged completion of the student accommodation project located at 4-18 Doncaster Avenue, Randwick. Internal noise management levels and mitigation techniques have been provided to mitigate construction noise impacts to occupied student rooms. Based on the assessment, noise impacts from the construction of Stage 2 works can be appropriately mitigated to minimise noise impacts to occupants within Stage 1 of the development.

Please contact us should you have any further queries.

Yours faithfully,

Acoustic Logic Pty Ltd
Alex Washer