

Summary of Evidence – Construction Noise and Vibration – James Bell-Booth

My evidence addresses potential for effects from construction noise and vibration, the typical management of construction noise and vibration effects, the Council Staff Report, Submissions on construction noise and vibration.

Generally, exceedances of construction noise and vibration limits are common even when applying best practicable options (**BPO**) as required by section 16 of the RMA.

The District Plan limits for construction noise and vibration cannot reasonably be applied as absolute limits.

I have provided a recommendation for a suite of succinct construction noise and vibration conditions which require:

- a) Noise from construction works to comply as far as practicable with the relevant levels stated in NZS6803:1999
- b) Vibration from construction to comply with the limits in Table 1 and Table 3 of DIN4150-3:1999
- c) A Construction Noise and Vibration Management Plan (**CNVMP**) be prepared which:
 - i. *gives effect to the construction noise and vibration performance standards and,*
 - ii. *defines the procedures to be followed when construction activities cannot meet the noise and vibration standards*

A detailed construction noise and vibration assessment has not yet been completed for the project. This is typical at this point of a project, as at the consenting stage detailed construction methodologies are not yet defined.

However, as an indication, I have calculated noise and vibration levels from a variety of typical construction activities at the smallest distance between the proposed construction site and neighbouring buildings (approx. 20m).

Noise from unmitigated loud construction activities such as concrete breaking, concrete cutting and impact piling all have the potential to exceed the recommended numerical limit of 70 dB L_{Aeq} .

Vibration from activities such as concrete breaking, impact piling and excavator movements are likely to comply with the DIN4150-3:1999 performance standards for Residential and Commercial receivers at 20m or greater.

A CNVMP would provide a detailed assessment of construction noise and vibration, specific mitigation measures (such as the use of silencers, mufflers, shielding, enclosures and barriers) and the procedures to be followed when construction activities cannot meet the noise and vibration standard. This is typical for projects of this nature and I consider any effects of construction noise and vibration to be adequately controlled when construction activities are conducted in accordance with a CNVMP which fulfils the requirements set out in my proposed conditions.

I largely concur with the findings of Mr Cumberpatch and Mr McGregor in the Council Report. However, in my opinion, many of the additions to my proposed conditions are unnecessary and over-complicate and lengthen the conditions. Much of the additional detail in the Council's proposed condition's are already contained within the standards.

The submissions received which pertain to construction noise and vibration are relatively similar and broadly they consider that:

- The Acoustic report submitted with the application does not adequately assess construction noise and vibration;
- There is uncertainty on the potential damage from vibration;
- Ambiguity around construction duration and hours;
- A CNVMP be developed; and
- A survey of existing building condition is conducted at 238 and 240 Victoria Street prior to construction commencing.

I consider that all of the above topics are adequately addressed via the following proposed conditions.

71. Construction works shall be measured and assessed in accordance with the provisions of NZS 6803:1999, and comply, as far as practicable, with the relevant noise levels stated in NZS6803: 1999, section 7.2 'Recommended numerical limits for construction noise'
72. Construction vibration shall comply with the limits in Table 1 and Table 3 of DIN 4150-3:1999 "*Structural vibration – Part 3: Effects of vibration on structures*".
73. At least 10 days prior to Commencement of Construction, the Consent Holder shall prepare a Construction Noise and Vibration Management Plan ("CNVMP") and submit it to the Council (Team Leader Compliance Monitoring) for certification that the CNVMP gives effect to the objectives and complies with the requirements in Conditions 71 and 72.
74. The objectives of the CNVMP are:
 - a) Identify and adopt the Best Practicable Option for the management of construction noise and vibration;
 - b) Define the procedures to be followed when construction activities cannot meet the noise and vibration standards in Conditions 34 and 35;
 - c) Inform the duration, frequency and timing of works to manage disruption; and
 - d) Require engagement with affected receivers and timely management of complaints.
75. The CNVMP shall include:
 - a) The relevant measures from NZS 6803:1999 "Acoustics - Construction Noise", Annex E2 "Noise management plans";
 - b) The relevant measures from DIN 4150-3:1999 "Structural vibration - Part 3 Effects of vibration on structures", Appendix B "Measures for limiting the effects of vibration"
 - c) The residential apartments at 238 and 240 Victoria Street
76. All construction works shall be carried out in accordance with the certified CNVMP