BEFORE THE INDEPENDENT HEARINGS PANEL HUTT CITY COUNCIL

UNDER	The Resource Management Act 1991
IN THE MATTER	Of the Proposed Lower Hutt District Plan
	Hearing Stream 4: Other Zones – Quarry Zone (QUARZ) and Quarry Zone Protection Overlay (QZPO)

Statement of evidence of Jamie Leif Exeter on behalf of Winstone Aggregates Ltd (Acoustics)

01 July 2026

PHERNNE TANCOCK

Barrister, Harbour Chambers
phernne.tancock@legalchambers.co.nz
+64 21 496 823

1. Introduction

1.1. My full name is Jamie Leif Exeter. I am a Principal at Styles Group Acoustics & Vibration Consultants.

1.2. Winstone Aggregates (**Winstone**) has engaged me to provide acoustic and vibration evidence on the Hutt City Proposed District Plan (the **HCPDP**). I provided acoustic and vibration advice to Winstone to assist their submission on the draft HCPDP, and I am providing advice in respect of the Belmont Quarry Fast Track Application.

1.3. This evidence addresses the outstanding noise and vibration matters between Winstone and Hutt City Council. I have identified these matters in my review of the following documents:

a. Section 42A Officer's Report, Boffa Miskell, 19 June 2026 (the **s42A Report**).

b. Review of Winstone Aggregates Submission 444 - Noise & Vibration Matters QUARZ-S3 - Vibration associated with blasting, Malcom Hunt Consulting, 11 June 2026 (the **Acoustic Review**).

1.4. All references to HCPDP standards in this evidence are consistent with the numbering used in Appendix 1 of the s42A Report.

2. Qualifications and relevant experience

2.1. I have over 20 years' experience in acoustics, with more than 18 years specialising in the measurement, prediction, and assessment of environmental noise and vibration under District Plans and the Resource Management Act 1991.

2.2. I hold a Diploma in Audio Engineering and am a Professional Member of the Acoustical Society of New Zealand. I have extensive experience in the measurement and assessment of noise and vibration generated by quarries, blasting, and the use of heavy machinery. I regularly undertake peer reviews for local authorities and provide expert evidence at hearings and for district plan reviews. I am one of three authors of the Association of Australasian Acoustical Consultants Guideline for Interpreting and Applying NZS

6803:1999, which relates to the measurement and assessment of construction noise.

3. Expert Witness Code of Conduct

3.1. I have prepared my evidence in compliance with the Code of Conduct for expert witnesses set out in the Environment Court's Practice Note 2023. I confirm that my evidence is within my area of expertise and that I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

4. Outstanding matters

QUARZ-S3.2.b (blasting overpressure effects on buildings)

4.1. The Acoustic Review recommends that the assessment location for blasting overpressure should be 'not less than 4 m from unoccupied buildings, in the direction of the blasting'. This recommendation has been made to ensure that reflections from the building do not increase the measured level (façade effect).

4.2. I agree that locating a microphone within 3.5 m of a building will introduce a façade effect. However, I don't support the recommendation because:

a. The recommended location may not be accessible at some neighbouring sites where buildings are less than 4 m from the boundary or a retaining wall.

b. The location of 'not less than 4 m from unoccupied buildings' is uncertain. The assessment location could be anywhere between the boundary and 4 m from the building.

4.3. I consider the appropriate assessment point to be incident on the façade because the potential effect is damage to the building. In my experience, measurements can either be made from a proxy location (e.g. in line with the façade and 4 m from any reflective surface) or at 1 m from the façade with a -3 dB adjustment made to the measured level to account for the reflection.

4.4. I recommend that QUARZ-S3.2.b is replaced with the following update:

i. 133 dB L_{Zpeak} incident on the façade of any building on another site.

QUARZ-S3.5 (communication with neighbours)

4.5. The proposed standard QUARZ-S3.5 states:

> Where blasting is irregular and the occupiers of neighbouring sites could be alarmed, they shall be advised of impending blasts at least one hour before any such blast.

4.6. Winstone seeks that QUARZ-S3.5 be deleted because the standard is unclear and would be difficult to assess compliance with.

4.7. The Acoustic Review supports deleting the standard but recommends that the procedures for notifying the neighbours of upcoming blasting events be included in the Quarry Management Plan. This requirement is proposed in the additional standard QUARZ-S7.3.vii, as follows:

> Methods to be employed to provide prior advice to occupants of nearby sites of the timing of proposed quarry blasting including a description of properties to be advised, the proposed method of notification and the timing of such notification prior to planned blasting.

4.8. The 42A Report supports including standard QUARZ-S7.3.vii but considers that QUARZ-S3.5 is still required and should be retained.[1]

4.9. I consider that QUARZ-S3.5 is not suitable as a permitted standard because:

a. One of the triggers for requiring neighbours to be advised is when blasting is 'irregular'. However, the standard does not define what 'irregular' means or how it should be assessed. Blasting may only occur between 10.00 am and 4.00 pm on Monday to Saturday, so it cannot occur at irregular times of the day.

b. The other trigger is when occupiers of neighbouring sites could be 'alarmed'. However, the standard does not define what 'alarmed' means or how it should be assessed. The term is subjective and cannot be measured objectively.

[1] At paragraphs 132-133.

c. The standard does not specify how neighbours must be advised or what information must be provided.

d. It is ambiguous with no measurable triggers or actions and would be difficult to monitor compliance with or enforce.

4.10. The outcomes sought by this standard would be better achieved by including the procedures for notifying and communicating with neighbours in the Quarry Management Plan, as required by QUARZ-S7.3.vii.

4.11. I therefore recommend that QUARZ-S3.5 is deleted and support the proposed QUARZ-S7.3.vii.

QUARZ-S3.12 (blasting vibration effects on people inside buildings)

4.12. The Acoustics Review recommends compliance with the vibration limits provided in Appendix J, Table J4.5(A) of the Australian Standard AS 2187-2:2006 *Explosives – Storage and use, Part 2: Use of explosives* as a permitted standard for blasting vibration with respect to effects on the occupants of buildings.

4.13. The relevant ground vibration limit in the Standard is 5 mm/s for 95% of blasts per year. I don't consider this to be a suitable reference for a permitted standard for avoiding adverse effects on amenity because:

a. There is no vibration limit for the top 5% of blasts each year.

b. The number of blasts that can exceed 5 mm/s PPV and potentially generate unreasonable disturbance increases with the total number of blasts per year.

c. It would not be possible for Winstone or Council to determine compliance with the permitted standards until all blasts for the year have been completed.

d. It would not be possible for Winstone or Council to determine compliance unless every blast is monitored, which is inconsistent with the requirements of the proposed QUARZ-S7.3.c.vi which states:

Frequency of vibration monitoring on an ongoing basis which shall not be less than a frequency of at least 1 in 20 blasts.

4.14. Technically, the proposed standard would also enable exceedances of the DIN 4150–3:2016 limits for protecting 'Line 3' structure types[2] from damage. However, to my knowledge, there are no heritage buildings near the quarry site, so I have not considered this to be an issue.

4.15. The numerical limit of 5 mm/s PPV that would apply for 95% of the blasts is the same limit that would typically be applied by the DIN 4150–3:2016 Standard at the foundations of single-level dwellings. Vibration from blasting is commonly dominated by low frequencies. Under the DIN 4150–3:2016 Standard, the guideline limit at the foundations of a single level dwelling is 5 mm/s PPV for short-term vibration where the dominant frequency is no greater than 10 Hz.[3]

4.16. It is possible that vibration from blasting could have a higher dominant frequency than 10 Hz when measured from the foundations of a dwelling, meaning a higher limit would apply.[4] However, the dominant frequency largely depends on the response of the structure, which cannot be predicted. All blast designs will therefore be based on compliance with the most stringent and likely limit of 5 mm/s PPV.

4.17. Due to the transient and infrequent nature of vibration from permitted blasting, I consider that compliance with the DIN 4150–3:2016 limits in this case will also ensure that the effects on amenity are reasonable.

4.18. I recommend that QUARZ-S3.12 is deleted and blasting vibration is required to comply with the guideline values of DIN 4150–3:2016 in all buildings, unoccupied or otherwise. This requirement is already covered by the proposed standard QUARZ-S3.11.

[2] Structures that are particularly sensitive to vibration and of great intrinsic value e.g. heritage buildings.
[3] This alignment is coincidental because the DIN 4150–3:2016 is designed for the protection of buildings and is not concerned with the amenity of people inside buildings.
[4] The relevant DIN 4150–3:2016 limits increase with frequency between 10 Hz and 50 Hz.

5. Summary of recommendations

5.1. In this evidence I have made the following recommendations:

a. QUARZ-S3.2.b (blasting overpressure effects on buildings) should be updated to the following to provide a clear and consistent assessment location that is relevant to the potential effects:

i. 133 dB L_{Zpeak} incident on the façade of any building on another site.

b. QUARZ-S3.5 (communication with neighbours one hour before blasting) should be deleted because it is unclear and will cause issues with compliance, monitoring, and enforcement. The outcomes sought by this standard will be achieved through the proposed standard QUARZ-S7.3.vii.

c. QUARZ-S7.3.vii (communication provisions in the Quarry Management Plan) should be included, as proposed in the Acoustics Review.

d. QUARZ-S3.11 (blasting vibration effects on buildings) should be included, as proposed in the Acoustics Review. The numerical limits that will apply under this standard will be suitable to avoid unreasonable effects on both building damage and people inside buildings due to the low frequency vibration from blasting and the transient and infrequent nature of the vibration events (even though the DIN 4150–3:2016 limits are not designed for mitigating effects on people inside buildings).

e. QUARZ-S3.12 (blasting vibration effects on people inside buildings) should be deleted because it prescribes no limits to the largest 5% of all blasts at the quarry each year, and compliance can only be determined by measuring every blast over a 12-month period. Unreasonable effects on the amenity of people inside buildings can be avoided through compliance with the proposed standard QUARZ-S3.11.

Jamie Leif Exeter

01 July 2026