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Memorandum

To:	Liz White, Liz White Planning Ltd
CC:	Mackenzie District Council
From:	Jeremy Trevathan, Acoustic Engineering Services
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Project:	Mackenzie District Plan Review Stage 4 Plan Change 29 Response to Noise Submissions
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Meeting ☐ Telephone ☐ Memorandum ☑ File Note ☐

Dear Liz,

Re: Mackenzie District Plan Change Review Stage 4
Plan Change 29 – Response to Noise Submissions

This memorandum addresses specific noise-related submissions as requested, which have been made as part of the Mackenzie District Plan Change Review, Stage 4, Plan Change 29 – *Open Space and Recreation Zones, Noise, Signs and Temporary Activities, and Variations* process.

By way of background, we note that Acoustic Engineering Services (AES) were engaged by Mackenzie District Council in 2023 to undertake a review of the noise and vibration provisions in the Operative Mackenzie District Plan, as part of Stage 4 of the Mackenzie District Plan Review (report titled *Mackenzie District Plan Review,* file reference AC23173 – 02 – R1, as prepared by AES and dated the 4th of March 2024).

AES have then provided further input and comment throughout the Plan Change Review process, including comments on the Preferred Approach – Noise report and Stage Four Community Survey Report 4 September 2023 to 2 October 2023.

In 2024 AES provided a detailed technical review of the proposed zone noise limits (report titled *Mackenzie District Plan Review, Noise – Technical Scope Phase 2,* file reference AC23173 – 07 – R2, as prepared by AES and dated the 19th of June 2024), which involved site visits to the Mackenzie District. AES then provided further comment on the Draft Noise provisions throughout August 2024.

This memorandum has been prepared by Jeremy Trevathan (AES). His qualifications and experience can be found in Appendix A.

Please find our comments below.

1.0 NOISE-R1 NOISE LIMITS

Transpower (submission 14.01)

The submitter is concerned that the 40 dB $L_{Aeq(15min)}$ night-time noise limits for specific zones fails to appropriately provide for the operation and maintenance of Transpower's substation. It seeks that it is increased to 45 dB $L_{Aeq(15min)}$ for noise generated for the National Grid, through such an exception being added to clause 1 of NOISE-R1.

AES Comment

The existing five Transpower substations in the Mackenzie District (Ohau A, Tekapo A, Tekapo B, Twizel, and Albury), currently have their own Designations under the ODP (Designations 3 – 7 respectively). There are no attached noise conditions.

The ODP Noise Chapter 14 does not specifically provide for noise associated with electricity generation or National Grid. However, given that the Transpower substations in the Mackenzie District are located in their own respective Designations, and that there are no attached conditions outlining any noise limits, it is our understanding that the ODP does not currently impose any noise limits on this activity.

In our experience, it is common in newer district plans for noise associated with electricity generation and supply to be permitted and/or exempted from the overall noise limits that apply to the surrounding zone. For example, the Noise chapter of the Selwyn Partially Operative District Plan (PODP) identifies these activities as being 'important infrastructure', and the definition of 'important infrastructure' broadly includes activities like the transport network, airport, telecommunication, national grid, drainage and stormwater infrastructure etc.

Separate noise limits for national electricity grid infrastructure (where they are necessary) are typically provided within the Designation conditions, and sometimes this limit to be slightly higher than the residential limits for general noise. Continuing with the Selwyn PODP example, in cases where substations are located close to dwellings / noise sensitive activities, there are examples where noise limits of 55 dB $L_{Aeq(15min)}$ daytime and 45 dB $L_{Aeq(15min)}$ night-time at the notional boundary have been adopted.

From our perspective the approach taken in the Selwyn PODP provides a good balance of flexibility for the network operator and protection for sensitive receivers. A similar approach could be adopted in the Mackenzie PDP.

With respect to the suitability of a 45 dB limit vs a 40 dB limit, we note that a 45 dB L_{Aeq} night-time limit is still consistent with recommended limits in relevant NZ and international standards (NZS 6802:2008, and the World Health Organisation Guidelines for Community Noise) to allow occupants to sleep with windows open. Furthermore, providing more lenient noise limits for noise from 'important infrastructure' may also be more consistent with Strategic Direction ATC-03 (as outlined in the PC29 s32 report) "*…the importance to the District and beyond of infrastructure, particularly nationally and regionally significant infrastructure, is recognized and provided for…*". A 45 dB L_{Aeq} night-time limit could however be perceived as only a moderate level of amenity protection, if the area is otherwise quiet.

We generally find that a setback distance of approximately 70 – 200 meters is required for substations to comply with a night-time 45 dB L_{Aeq} limit (depending on the size of the substation). The setback distance required could increase to 100 – 400 metres if a 40 dB L_{Aeq} limit is applied. Boundary acoustic fencing or screening can be used to reduce the above distances if necessary.

However as above, if new substations and the like are typically Designated, the limits / otherwise in the underlying District Plan may be relatively immaterial.

2.0 NOISE-R3 RECREATION ACTIVITIES

QCP (submission 26.11)

The submitter seeks that NOISE-R3 is amended to apply to commercial recreation activities.

AES Comment

In our experience it would be unusual for commercial ventures which provide 'recreational' activities (which may include activities such as zip lines, boat/kayak hire, or a high wire course / rope bridges in this case) to be exempt from the noise limits.

The difference between a 'commercial' recreational activity and the same activity undertaken by the general public would be one of scale and intensity. For example, there is a much higher likelihood of noise issues from a commercial operation that operates over many hours each day and serves a broad customer base (i.e., a commercial kayak hire operation), compared to a private individuals or groups of people using kayaks after work or on weekends.

The submission mentions how the provisions (as currently drafted) are appropriate to apply to large scale commercial recreational activities in the Open Space zone (as it will likely be impractical for these activities to comply with the noise limits), but that small scale commercial activities should be exempt. It is not clear to us how the rule could be worded to clearly and effectively differentiate between 'small' and 'large' scale commercial recreational activities. Indeed, it seems to us that the purpose of the Resource Consent process is to sort out such issues of scale, intensity, and the appropriateness of those activities in the context of the limits to protect the wider public from excessive noise.

Furthermore, we note that smaller commercial recreational activities should find it easier to comply with the noise limits, and therefore would be less likely to trigger a Resource Consent requirement due to noise.

3.0 NOISE-R4 TEMPORARY ACTIVITIES

TLGL (submission 10.08)

The submitter seeks that NOISE-R4 is amended so that temporary events are exempted from the applicable daytime noise limits (i.e., clause 2 is amended to state that between 10am and 10pm the noise standards do not apply), on the basis that their frequency is already limited to no more than 6 per year under TEMP-R2 and the noise standards would continue to apply at night.

AES Comment

The proposed outcome sought (10 am – 10 pm, 6 events per year, 4 hours of amplified music, no noise standards), would be very lenient in our experience, and would technically permit noise of any magnitude, which could be highly disruptive. Most Districts in the country have a noise limit that accompanies the temporary events provision, or at least limitations on sound system size etc.

In our experience, limitations on sound system size can be difficult to apply to a real world scenario due to a multitude of different factors. For example, there are no consistent standards across speaker manufacturers with respect to stated power (wattage) ratings.

We would recommend that a noise limit is included in the temporary event provisions. In terms of the temporary events noise limit itself – in our experience, 65 dB L_{Aeq} generally tends to be the tipping point for 'tolerated by most people' vs 'complaints are likely'. However, a 70 dB L_{Aeq} noise limit is not uncommon where a District wants to further enable events. For example, the Ashburton Plan permits a noise limit of up to 70 dB L_{Aeq}, up to 6 times a year. The Tauranga Plan has a noise limit of up to 70 dB L_{Aeq}, for up to 10 events per year.

In summary, for 6 events per year, we would recommend a 65 dB L_{Aeq} limit, if the intent is to minimize the number of potential complaints. A 70 dB L_{Aeq} limit may be appropriate, and more enabling, but might lead to a higher number of complaints. Any limit higher than this (i.e., 75 dB L_{Aeq}) would be unusually high in terms of what is seen throughout other districts in the country, and likely inappropriate for up to 6 events per year.

4.0 NOISE-R6 CONSTRUCTION NOISE

OWL (submission 28.05)

The submitter seeks that NOISE-R6 is amended to add a further condition which would permit "noise from any natural hazard mitigation works". While supporting the intent of NOISE-R6 to permit construction noise where it is compliant with the noise limits set out in Tables 2 and 3 of NZS6803:1999 Acoustics – Construction Noise, the submitter considers it would be appropriate for an additional permitted activity condition be added to this rule to allow construction noise associated with natural hazard mitigation works, as due to the nature of this work (being often in short or emergency time frames to prevent natural hazards from occurring), it considers it would be appropriate for the MDP to enable natural hazard mitigation works to occur without the need for resource consent.

AES Comment

It is not clear to us that there is a need for an exception for "noise from any natural hazard mitigation works" in the Rule.

NZS 6803:1999 section 1.5 already states that the noise limits in the Standard do not apply to 'emergency works' (as defined in the RMA).

Where 'natural hazard mitigation works' do not fit the RMA definition of 'emergency works', it seems reasonable to us that these should comply with normal construction noise limits.

We note that short duration non-emergency natural hazard mitigation works would likely be subject to the 'short duration' recommended limits for noise from construction activities under NZS 6803, which are lenient.

It is also common that, if compliance with the relevant limits in NZS 6803 cannot be achieved, and where the constructor has adopted the best practicable option (i.e., the quietest construction methods that can reasonably be adopted), non-compliances are examined via a Resource Consent process, and then simply managed via a Noise Management Plan. This is commonly how construction noise management works in other jurisdictions, and we would not endorse a departure from this standard practice.

5.0 NOISE-R13 NOISE ASSOCIATED WITH MOTORISED CRAFT

OWL (submission 28.06)

The submitter seeks that a new permitted activity condition is added to NOISE-R13, to expand it to permit noise generated by motorised craft being used for either infrastructure inspections or resource consent compliance monitoring. The submitter considers that this would ensure consistency with GRUZ-R15(1)(h).

AES Comment

In our experience, the current motor-craft noise limits drafted in NOISE-R13 are relatively stringent and can pose some compliance challenges for certain operators. This can be the case in commercial tourist thrill ride settings where the operator may want to drive in a way that is purposefully loud / fast for entertainment purposes.

However, where vessels are operated in a careful and controlled manner, we would not expect that the current limits would be problematic to comply with. We do not expect that vessels used on Lake Opuha to

inspect the dam would need to operate in the same manner as a tourist thrill ride and is therefore likely to comply with the noise limits anyway.

If the dam operator is envisaging a change to aspects of their inspection activities (such as switching to V8 jet boats from traditional propulsion) that might not comply with the proposed limits, it is our view that it is appropriate for this to be considered through a Resource Consent and noise assessment process.

In our opinion, the current limits in NOISE-R13 are appropriately set to permit motor vessel activity at low to moderate intensities, while capturing the most extreme use cases which are likely to cause annoyance and / or disturbance.

6.0 NOISE-R16 REVERSE SENSITIVITY / ACOUSTIC INSULATION

TLGL (submission 10.07)

The submitter seeks that NOISE-R16 is amended so that it does not apply to alterations, extensions of change of use of existing buildings, stating that it is not practicable or feasible to retrofit existing buildings, and unreasonable to require an acoustic assessment for these activities. The submitter also seeks that clause 1 is amended to remove reference to road noise being based on measured or predicted noise limits plus 3 dB, as it considers is it unclear what this means or is based on.

AES Comment

With respect to the "measured or predicted noise limits plus 3dB" matter, we note that it is common to require a +3 dB increase to measured or predicted traffic noise levels, to account for future growth of traffic volumes. This practice is advised by NZTA in their road traffic noise prediction guidance literature.

The reasoning behind a +3 dB increase in assessment noise level is that it roughly equates to a doubling in traffic volume, which is a reasonable expectation for future growth in traffic volumes (and is based on historical precedent). The +3 dB addition can also provide a safety margin above the current level to allow for other factors which can contribute to road noise generation, such as a potential future change to the road surface, to one that generates higher noise levels. There are limited prospects for future appreciable reductions in road traffic noise levels (due to technological advancement, or otherwise), and therefore it is not unreasonable to assume that future noise levels will be slightly higher.

With respect to applying the rule to "the Alteration of an Existing Building which Creates a New Habitable Room", objection to the inclusion of these has been a common theme in plan change submissions on similar rules in other jurisdictions, and we acknowledge that there are certain 'practical issues' created by their inclusion. Some of these issues can include:

- Small changes to a single facade of a habitable space (such as putting in a ranch slider in place of a smaller window) would trigger the rule for the whole space, and compliance may end up requiring other walls (that are not being altered as part of the planned works) to be upgraded.

  This is at odds with how the Building Code typically applies to alteration works – normally if you are not altering a wall then you typically do not need to update that wall to comply with new Building Code provisions. This can result in confusion or the perception of 'absurdity' when Building Consent applicants are told that they need to modify walls (for noise reasons) that do not require modification for any other reason.

  However, addressing noise ingress into a room requires a holistic assessment of all the facade elements, and upgrading only the new elements is likely (in many situations) to be pointless, as the noise ingress through other elements will dominate, and the noise situation in the room is unchanged.

  Ultimately it is not straightforward to draw a clear line between 'minor' changes to the facades of a habitable space and 'major' changes (such as a substantive expansion of a habitable space and

upgrade of multiple facades) that should reasonably be expected to comply with reverse sensitivity noise provisions.

- Another issue that can arise is that fully new habitable spaces built as an extension onto an existing dwelling would need to comply, but existing habitable spaces (that are not being changed) within the same dwelling would not need to comply. So again, this can confuse people as there may be a clear difference between the noise levels within the dwelling.

  Again, the above situation can lead to some perceived 'absurdity' to the rule, however, to simply remove the need for all 'new habitable spaces to existing dwellings' to comply with the Rule would undermine the goal of protecting the roading network from reverse sensitivity issues created by housing intensification.

With respect to applying the rule to "the Use of an Existing Building for a New Noise Sensitive Activity", this invokes similar issues to those discussed above.

An example of issues that could occur with the inclusion of 'change of use' in the Rule could be where a developer builds a hotel in a heritage industrial building, and compliance with the internal noise level requirements cannot be achieved without interfering with facade elements that are part of the heritage listing.

Again, there are not really any simple answers to the above, however these are likely to be relatively rare cases , and in most cases, we would expect these rules to be able to be complied with using standard building products / techniques and minimal issues. Therefore, we do not consider the requirements to be particularly onerous for parties adding new habitable room to an existing building or changing the use of a building to house a new noise sensitive activity. If the Rule were changed to allow for such cases, this would again undermine the goal of protecting the roading network from reverse sensitivity issues created by housing intensification.

Therefore, in consideration of the above, we recommend that (1) "the Alteration of an Existing Building which Creates a New Habitable Room" and (2) "the Use of an Existing Building for a New Noise Sensitive Activity" be retained in the Rule.

However, we agree that the requirements should only be limited to the new / altered part of the existing building, instead of the entire existing building. Aside from the fact that this would effectively financially restrict many people from making minor alterations to their dwelling, there are several reasons why this is the case such as:

- It simply would not be practical in a lot of cases to bring old buildings up to the new building code. For example, the new building code may require the use of treated timber in a new wall. This would not be practical to apply to the entire house, simply for a localized alteration.

- There is an argument that if Council requires treatment to the entire building, this can lead to more requirements. For example, force all owners of existing buildings to insulate their buildings to meet the noise criterion – which would be a nonsensical arrangement.

A reasonable compromise between practicality and noise effects therefore needs to be established, which we expect the proposed Rule wording to achieve.

Please do not hesitate to contact us further as required.

Kind Regards,

Ph.D. B.E.(Hons.) Assoc. NZPI®
Principal Acoustic Engineer
Acoustic Engineering Services Ltd

7.0 APPENDIX A – QUALIFICATIONS AND EXPERIENCE

Jeremy William Trevathan is the Principal Acoustic Engineer and Managing Director of Acoustic Engineering Services Limited (AES), an acoustic engineering consultancy with offices in Auckland, Wellington and Christchurch. Jeremy has the following qualifications and experience:

- Bachelor of Engineering with Honours and Doctor of Philosophy in Mechanical Engineering from the University of Canterbury.
- Associate of the New Zealand Planning Institute, and a Member of the Acoustical Society of New Zealand (ASNZ).
- AES Member Representative for the Association of Australasian Acoustical Consultants (AAAC), a judge for the Association of Consulting Engineers of New Zealand (ACE NZ) Innovate Awards, and a member of the MBIE College of Assessors.
- A member of the ASNZ working group advising the Ministry for the Environment (MfE) regarding the National Planning Standards (2019).
- Nineteen years' experience in the field of acoustic engineering consultancy and has been involved with a large number of environmental noise assessment projects throughout New Zealand. During that time, Jeremy has provided expert evidence before Council Hearings Panels, the Environment Court and Boards of Inquiry.