

Under the Resource Management Act 1991

**In the matter of a submission and further submission to the  
Far North Proposed District Plan**

Between

**Transpower New Zealand Limited**

Submitter

and

**Far North District Council**

Territorial Authority

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**Statement of Evidence of Malcolm James  
Hunt  
on behalf of Transpower New Zealand  
Limited**

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7 October 2024

## Executive Summary

1. Based on my experience including field visits to various Transpower substations around New Zealand involving field readings I have undertaken, and my experience in dealing with noise effects of substation noise for sensitive receivers, I support the general thrust of submission point 454.104 raised within Submission 454 by Transpower NZ Ltd. It specifically requests noise standard NOISE-S1 of the Far North Proposed District Plan (Proposed District Plan) be amended so that maximum levels of noise applying to substation sites be limited during night time hours (2200 hrs to 0700 hrs) to comply with a limit of **45 dB** LAeq in place of the noise limit of **40 dB** LAeq set out within the notified version of the Proposed District Plan and which would apply if the Council planning officer recommendations for amended noise standard NOISE-S1 were to be approved by the Hearing Panel.
2. Based on research, national and international guidance set out below, I have recommended amendments to noise rules set out in NOISE-S1 to set a reasonable night time noise limit of 45 dB LAeq applying to substation sites located in any zone throughout the district. I consider the noise rule amendments I recommend (as set out in ATTACHMENT 1) are not wide-ranging, are discrete and provide an efficient way to protect people and noise sensitive activities from the potentially adverse noise effects of night time substation noise.
3. As explained below, the amendments I recommend to provide for a 45 dB LAeq noise limit for substation activities in the district would also provide improved protection for substations which I consider an essential infrastructure asset.

## **Introduction**

4. My name is Malcolm James Hunt. I am the principal of Malcolm Hunt Associates, an environmental noise and acoustic consultancy firm based in Wellington.
5. I hold the degrees of Bachelor of Science from Victoria University and Master of Mechanical Engineering specialising in Environmental Acoustics from the University of Canterbury.
6. I hold other qualifications, including the qualification of Environmental Health Officer pursuant to the Environmental Health Officer Qualification Regulations 1975. I also hold a Royal Society of Health Diploma specialising in Noise Control Engineering.
7. I have around 35 years' experience in the field of environmental noise and building acoustics in New Zealand.
8. I am an associate member of the New Zealand Acoustical Society and have been a member of various national and international acoustic standards committees, and expert working groups, including a number of New Zealand Standard's Committees. In particular, I was a member of the past New Zealand Standards committees reviewing the 1999 and 2008 versions of NZS6801 relating to the measurement of environmental noise and NZS6802 relating to the assessment of environmental noise. I am also a past member of international noise/acoustic committees including the International Standards Organisation technical working groups.
9. In 2011 I was awarded the Standards New Zealand 'Meritorious Service Award' by Standards New Zealand Council recognising my involvement in the development of New Zealand Acoustic Standards.

10. I have acted as a noise expert in many Resource Consent Hearings, District Plan Hearings, and proceedings in the Environment Court and High Court of New Zealand.
11. I have wide experience across the energy sector where I have measured, predicted and assessed noise from a host of energy-related noise sources and activities, including extensive experience investigating sounds emitted by electricity substations and transmission networks. I have investigated noise by conducting field measurements of existing sound levels from many Transpower substations in both the north and south islands of New Zealand using measurements purposely undertaken within the surrounding environment during night time under calm and quiet conditions.

### **Code of Conduct**

12. While I appreciate this evidence is prepared for the purposes of a Council hearing, I confirm that I have read the 'Code of Conduct for Expert Witnesses' contained in the Environment Court Consolidated Practice Note 2023. I agree to comply with this Code of Conduct. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

### **Scope of Evidence**

13. My evidence deals with submission point 454.104 raised within Submission 454 by Transpower NZ Ltd which specifically requests noise standard NOISE-S1 be amended so that maximum levels of noise from permitted activities be limited during night time hours (2200 hrs to 0700 hrs) to comply with 45 dB LAeq in place of the noise limit of 40 dB LAeq set out within the notified version of the Proposed District Plan.

14. Submitters to the Noise Chapter identified issues of clarity and confusion within the notified version of NOISE-S1 which specifies noise limits for permitted activities taking place within various planning zones. The Council planner in their s.42A report and Council's noise expert (Mr Ibbotson) recognise the notified version of NOISE-S1 contained numerous errors and omissions. Appendix 3a to the s42 Officer's report authored by Council's noise expert Mr Ibbotson (*Proposed Revisions to NOISE-S1* dated 20 September 2024) confirms the notified version of NOISE-S1 contained many errors and was "not fit for purpose"<sup>1</sup>. Subsequently, Mr Ibbotson redrafted NOISE-S1 including amending how noise limits are applied to permitted activities in different zones when received within different receiving environments.
  
15. The Transpower submission point 454.104 to increase the night time noise limit by 5 dB has been rejected in Council's s42 report however I consider problems with the original drafting of the notified version of NOISE-S1 has disadvantaged Transpower in formulating wording of its original submission point 454.104. This has led to difficulties the Council planner describes in accepting how this submission point could be given effect to<sup>2</sup>. In essence, Council's planner (on the advice of its noise expert) found it would be difficult to provide the relief sought by Transpower (NOISE-S1 night time noise limit amended from 40 dB LAeq to 45 dB LAeq) without causing district-wide changes to the night time noise limit that would apply across all zones and would apply to all permitted activities.
  
16. The evidence below discusses widely available information and environmental noise guidelines that support the adoption of a 45 dB LAeq night time noise limit which I propose apply only to

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<sup>1</sup> See page 1 of Appendix 3a to the s42 Officer's report by Mr Ibbotson, Marshall Day Acoustics dated 20 September 2024 .

<sup>2</sup> See para 472 of the s42 Officer's report.

substation noise emissions. My recommendation is based on both the reasonableness of the limited application of this slightly elevated noise limit and its usefulness in providing certainty for substation developments. It will also provide a means of notifying the public of the noise limits that could be expected at nighttime from substations, should they wish to establish near them. The evidence below proposes a solution in the form of a recommended 45 dB LAeq night time noise limit that would apply as a new noise rule applying only to noise from activities taking place within sites designated for use as substations.

### **Transpower Submission on Night Time Noise Limits**

17. NOISE-S1 submission point 454.104 raised within Submission 454 by Transpower NZ Ltd specifically requests noise standard NOISE-S1 be amended so that maximum noise emitted by all types of permitted activities within specified zones be limited during night time hours (2200 hrs to 0700 hrs) to comply with **45 dB LAeq** in place of the noise limit of **40 dB LAeq** set out within the notified version of the Proposed District Plan. Following consideration of submissions received subsequently Council officers have recommended rule which contains a 40 dB LAeq night time noise limit for district-wide application within NOISE-S1.
18. Specifically, submission point 454.104 refers to Transpower's request to amend the night time noise limit to **45 dB LAeq** applying within NOISE-S1 to any permitted noise-making activity taking place within any relevant zones. Relevant zones are listed as General Residential zone, Rural Residential zone, Kororareka Russell Township zone, Hospital zone, Rural Production zone, Rural Lifestyle zone, Māori Purpose zone, Horticulture zone, Moturoa Island zone, Kauri Cliffs zone, Ngawha Innovation and Enterprise Park zone, Settlement zone, Carrington Estate zone, Natural Open Space zone, Open Space zone, Sport and Active Recreation zone, and Orongo Bay zone.

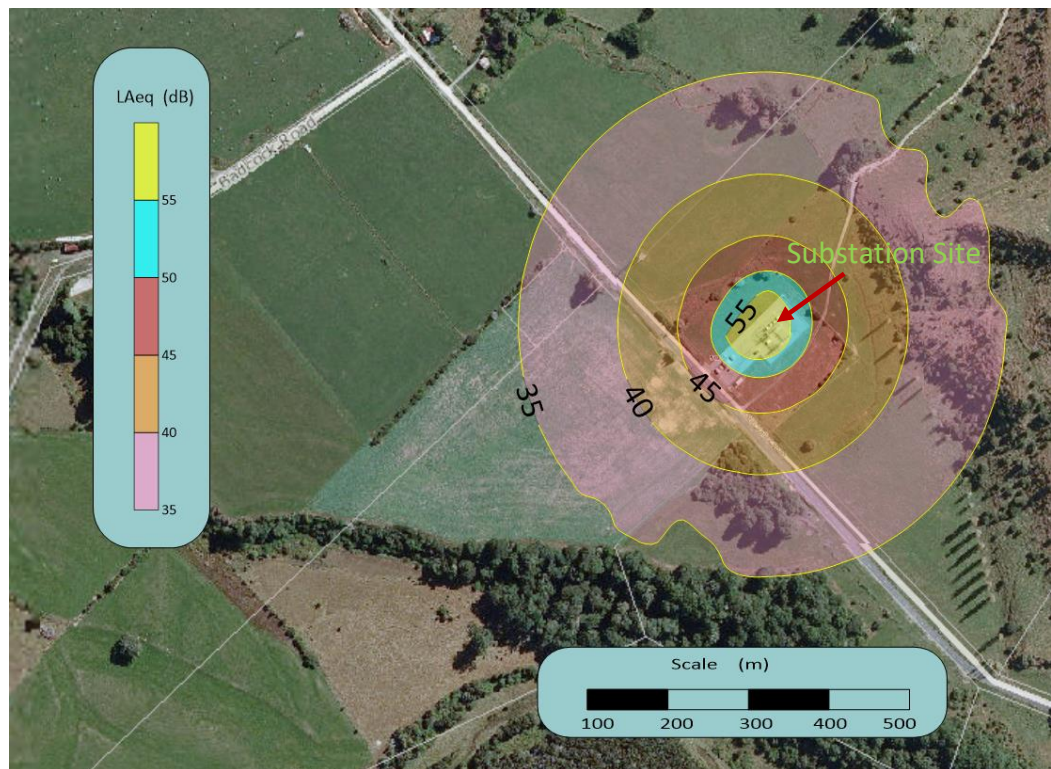
19. The evidence below sets out that night time noise effects within sensitive receiver environments will be adequately protected (according to relevant standards and guidelines) in cases where a 45 LAeq night time noise limit is set. The evidence also explains how a 45 dB night time limit is adopted widely within the Operative Far North District Plan which, as far as I am aware, has to date provided adequate night time noise protection. The evidence below sets out the relevant NZ standards and international guidelines that support a 45 dB LAeq noise limit that will adequately protect health and amenity within sensitive receiver environments, including an adequate level of sleep protection.

### **Typical Substation Noise Levels**

20. A substation contains a collection of different types of grid-connected electrical equipment that may make noise. Typically, the main noise sources (if present) are transformers, switchgear, reactors, capacitors, and circuit-breakers. The most common noise sources are transformers which practically always generate some noise as they operate more or less continuously (except for maintenance) and emit a constant low frequency hum due to “magneto-constriction” (or vibration) of core steel and the steel body of the transformer. The hum is due to the structure resonating at 50 Hz plus the associated sounds at harmonic frequencies of 100 Hz and 200 Hz. Other transformer-related sounds are cooling fans attached to the transformer cooling fins (which operate only intermittently) and transformer oil circulation pumps. A typical 110kVA transformer would emit sound measuring around 75 dB at 1 metre.
21. Circuit breakers operate very infrequently but can generate sound that has an “impulsive” character – loud sound of short duration. Substations may also contain auxiliary plant such as diesel generators, and air compressors however these are not common substation noise sources. The incoming transmission

lines can also emit low levels of sound as a result of corona discharge of the conductor however this sound is generally only detectable near ground beneath the transmission line under damp conditions.

22. Cumulative LAeq sound level contours (lines of equal sound pressure) for a typical rural substation are shown in Figure 1 which is based on measurements taken at the Murchison substation in the South Island. This is a relatively small, rural substation that has two 110/11 kVA transformers with no other significant noise sources.



**Figure 1** Cumulative substation noise emission levels for a rural substation operating under typical loads.

23. The noise affected areas shown in Figure 1 are indicative of a typical rural substation. Substation noise would affect a wider area for larger urban substations where more noise sources or larger capacity transformers are installed (e.g. 220 kVA transformers).



24. A key aspect of Transpower's submission to the Proposed District Plan to increase the night time permitted activity noise standard of NOISE-S1 is that this restricts the land area within which the permitted activity noise limit is achieved (acknowledging designated sites would not strictly need to comply with district plan permitted activity noise standards). I consider the size of this 'compliance area' around substations is important in terms of assessment of 'reasonable noise' under s.16 of the RMA and thus will be a key consideration for Council when assessing noise complaints and whether there is any need to take enforcement action against activities causing unreasonable noise effects.
25. As can be seen from Figure 1, in this example 45 dB is achieved at distances between 50 and 100 metres from the substation boundary, whereas typically 40 dB is achieved at a far greater distance of between 200 to 300 metres. It is clear that setting a night time noise standard of 45 dB will significantly reduce the land area within which an 'unreasonable noise' finding could be arrived at, when assessment is based on whether or not the permitted activity night time noise standard is achieved. In my experience, Council officers commonly base their assessment of 'reasonableness' on whether or not the permitted activity night time noise standard is achieved.
26. This situation is exacerbated in situations where substation sound contains a 'special audible characteristic' such as a prominent tone. As above, transformer sounds commonly possess prominent audible tones (at 50 Hz, 100 Hz and 200 Hz). Under the Proposed District Plan it is a requirement of NZS6802:2008 *Acoustics – Environmental Noise* to assess the presence of 'special audible characteristics' when assessing noise impact at sensitive receiver sites. A +5 dB "penalty" applies to the received sound level to account for the added annoyance such sounds may cause in sensitive settings.
27. Thus, in reality where the sound under investigation includes an audible tone, the relevant noise contours in Figure 1 is the 40 dB contour for situations where the night time noise standard of 45 dB applies and when

an audible tone is present. Similarly, the 35 dB noise contour is the relevant noise contour should a 40 dB noise limit apply during night time with an audible tone present.

28. The outcome is that the 5 dB penalty applying to substation sound containing a noticeable tone (which is commonly the case for substations) will, under NZS6802:2008, be assessed as if it were received at a level 5 dB higher than in real life, which in turn means the land area within which the night time permitted activity noise limit is achieved will vastly increase if a 40 dB LAeq night time limit is adopted in NOISE-S1, compared to the reduced affected area if a 45 dB LAeq night time noise NOISE-S1 limit is adopted in the Proposed District Plan as sought by Transpower.

### **Operative District Plan Night Time Noise Standards**

29. Permitted activities under the Operative District Plan are required to achieve compliance with stated noise performance standards. My reading of the Operative District Plan is that night time a noise limit (2200 hrs to 0700 hrs) of 45 dB L10 within adjacent sites or within the notional boundary is specified for permitted activities almost universally where a night time noise limit is specified.
30. I have examined the Operative District Plan and found reference to the 45 dB L10 noise limit within the following district plan zones and rules:

District Plan Chapter	Noise Rule
7.6 Residential Zone	7.6.5.1.15
7.7 Commercial Zone	7.7.5.1.8(b)
7.8 Industrial Zone	7.8.5.1.6(b)
8.6 Rural Production Zone	8.6.5.1.7
8.7 Rural Living Zone	8.7.5.1.11
8.8 Minerals Zone	8.8.5.1.7
9.6 Recreational Activities Zone	9.6.5.1.12
9.7 Conservation Zone	9.7.5.1.8
10.6 General Coastal Zone	10.6.5.1.10
10.7 Coastal Living Zone	10.7.5.1.12
10.8 Coastal Residential Zone	10.8.5.1.14
10.9 Russell Township Zone	10.9.5.1.13
10.10 South Kerikeri Inlet Zone	10.10.5.1.12

**Table 1** Operative district plan noise rules which set night time noise limits at 45 dB L10.

31. In addition to rules governing night time noise from permitted activities in the various planning zones of the Operative District Plan, I have also identified the use of the 45 dB L10 noise limit within noise conditions attached to several district plan designations which apply to electricity substations in the district. I summarise these designation night time noise requirements as follows:

- Designation TE244 – Top Energy Ltd - Kerikeri Substation - Condition 5 requires noise from the substation to comply with a noise limit of **45 dBA** (L10) at any point in the residential zone.
- Designation TE247 - Top Energy Ltd - Wiroa Substation - Condition 8 requires noise from the substation emitted between 2200 to 0700 hrs to comply with a noise limit of **45 dBA** (L10) measured at or within the boundary of any other site in the zone.
- Designation TE249 – Top Energy Ltd - Oruru Road Substation.

Condition 8 requires substation noise to comply with “...permitted activity rule 8.6.5.1.7 of the Far North District Plan”. As per Table 1 above, Rule 8.6.5.1.7 sets a night time noise limit for permitted activities standard in the Rural Production Zone of **45 dBA** (L10) between 2200 to 0700.

32. It is clear the 45 dBA L10 noise limit has wide adoption within the Operative District Plan which I consider has been reasonably effective in managing night time noise effects to date. However, it appears the s.S42A planner’s recommendations are that the existing 45 dBA L10 night time noise limits be removed when these substation designations are ‘rolled over’ into the Proposed District Plan.
33. In my experience in the Far North District and elsewhere is that a 45 dB night time noise standard for permitted activities is effective in managing and avoiding adverse night time noise effects throughout the district.
34. In general, the Operative District Plan noise provisions are based on noise measured and assessed in accordance with New Zealand Standard 6801:1991 *Measurement of Sound* and New Zealand Standard 6802:1991 *Assessment of Environmental Sound*. Both these 1991 Standards have been superseded (replaced) by revised 2008 versions of these standards. One of the main consequences is the change in noise metric from L10 to LAeq which is discussed within Council’s expert noise advice (Section 3.1 of the s.32 planning report dated 30 June 2020). In summary, for continuous noise such as that emitted from substations, there is no material difference in decibel sound level whether measured using the older L10 unit or the newer LAeq noise metric.

### **Noise Guidelines**

35. The effects of environmental noise experienced at noise sensitive locations such as dwellings, residential accommodation, hospitals,

etc are usually expressed in terms of sleep disturbance - in addition to fatigue and mental health effects, disrupted sleep patterns can leave people irritable, change their behaviour, and reduce their ability to work or perform tasks.

36. Available evidence confirms noise can disturb sleep by a number of direct and indirect pathways. It has been shown that awakening reactions are relatively rare, occurring at a much higher level due to non-noise related reasons than the physiological reactions to noise.
37. The World Health Organisation guidelines on night time noise state sound pressure levels within rooms for sleeping should not exceed **30 dB LAeq** and **45 dB LAeq** at the outside façade of bedrooms and living spaces. This is based on the widely accepted noise reduction from outside to inside with the window partly open is 15 dB.
38. WHO *Night Noise Guidelines For Europe* (2009) and EU Noise Directive (2002/49/EC) recommend 40 dB L<sub>night,outside</sub> of as a night noise limit if it is desired to protect the most vulnerable groups such as children, the chronically ill and the elderly [emphasis added]. However, the guidelines recognise this is an aspirational goal which may or may not be achievable.
39. The issue of the Proposed District Plan adjusting downwards [lowering] the original district-wide night noise limits of the Operative District Plan in order to cater for vulnerable subgroups in the general population have been considered. In my experience, setting the balance for sustainable management of noise in the environment requires a focus on the average response to noise of the average person. To impose a restrictive standard in order that the most vulnerable groups are protected to a high standard will impose costs and restrictions on the community who would

otherwise be adequately protected at levels suited to the majority of the population.

### **NZ Standard NZS6802:2008**

40. NZS6802:2008 *Acoustics – Environmental Noise* sets out (at Section 8.6) guidance around setting district plan noise limits. Clause 8.6.2 sets out guidelines “for the reasonable protection of health and amenity” for residential and noise sensitive sites which include a night time limit not exceeding 45 dB LAeq. Although the Standard does also recognise communities may wish to set more or less stringent noise limits “to suit their particular circumstances” it is clear outdoor environmental noise received at levels up to 45 dB (outdoors) during night time outside living and sleeping rooms will result in an acceptable noise outcome in terms of NZS6802:2008.
41. Thus, there should be no concerns regarding a district-wide erosion of night time noise protection by accepting the NOISE-S1 wording changes I recommend to give effect to Transpower’s request (at submission point 454.104) that the night time noise limit for substation sites be increased slightly to 45 dB LAeq.

### **Reverse Sensitivity Effects**

42. Although there are no Transpower substations currently established in the Far North, there may be in future. I understand Transpower would site any substations away from sensitive receivers. However, sensitive receivers could subsequently establish near any future substation site. Reverse sensitivity may arise where new sensitive activities are introduced into an environment already affected by noise from lawfully established activities (such as substations). In this case, concerns arise should a new dwelling or building housing a noise sensitive activity establish on a site in proximal distance to an existing

substation where the night time noise limit for permitted activities within that receiving zone are set as low as 40 dB LAeq.

43. New arrivals establishing in the area may become aware of substation noise and complain to Council regarding the reasonableness of the noise experienced. In my experience Councils and the Courts will look at the existing activity performance standards and assess whether adverse effects being complained of can reasonably be internalised with any noise over-spill being reduced to levels compliant with the permitted activity noise standard.
44. In my experience, district plan permitted activity noise performance standards are often used by Councils as a basis to establish a 'reasonable' noise level and as a base for enforcement or regulatory actions on this finding. It is possible that the regulatory actions arising from such an assessment could result in the new, noise sensitive activity restricting the rights of the existing activity in a more than minor way even though noise emissions within the relevant receiving environment does not exceed 45 dB LAeq.
45. I agree with the Transpower submission requesting a 45 dB night time noise limit for substation noise would provide improved reverse sensitivity protection and can be supported from a noise effects perspective when combined (as proposed) with a suitable companion LAFmax night time limit and a suitable companion LAeq noise limit for daytime.

### **Overall Assessment & Recommendation**

46. Available guidance indicates controlling outdoor noise from permitted activities during night time to levels not exceeding 45 dB within residentially zoned sites or within the notional boundary to noise sensitive activities would result in an acceptable level of control over potential night time substation noise effects, when

adopted in conjunction with night time LAFmax and daytime LAeq noise limits proposed within the planner's recommendations for NOISE-S1.

47. While I recommend the 45 dB night time noise limit be implemented within the Proposed District Plan and remain consistent with New Zealand Standard recommendations for night time noise whilst also meeting the guidance of the World Health Organisation, I do not see it as necessary to adjust the night time noise limit by +5 dB applying to all permitted activities across all zones, which may be one interpretation of the Transpower request. Instead, I recommend the revised noise limit only apply to substation sites.
48. I agree with Council's planner (at para 472 of the s.42A report) where he suggests a 'nuanced approach' would be required rather than apply the increased limit across all zones and situations. The planner opines (and I agree) that *"...increasing the limits in all locations to address a site-specific conflict is not efficient and may reduce overall nighttime amenity in the zones that are predominantly established to provide for more sensitive activities"*.
49. I recommend a more efficient approach of implementing a small number of appropriate wording amendments to NOISE-S1 applicable only to noise generated at substation sites located within any zone. The recommendations I make are set out in ATTACHMENT 1. My recommended amendments are shown within the wording of NOISE-S1 proposed by Council's planner (with all the planner's recommendations accepted) so that the only changes shown are the recommendations I have made to give effect to Transpower's request (at submission point 454.104) that the night time noise limit for substation sites be increased slightly to 45 dB LAeq.



50. The amendments I recommend to NOISE-S1 establish a reasonable night time noise limit of 45 dB LAeq which would apply to all substation sites<sup>3</sup> located in any zone throughout the district. I consider the noise limit proposed will adequately protect people and noise sensitive activities from the potentially adverse noise effects of night time substation noise, whilst also being reasonably necessary to implement in order to protect the National Grid, including any assets that are established in future.

### **Recommendation**

51. As above, I confirm my opinion that limiting the noise emitted by substation activities to not more than 45 dB during night time, as requested by Transpower, would result in acceptable environmental noise effects within sensitive receiver sites, in line with upper limits recommended within NZ noise standards and international guidelines for environmental noise.
52. A 45 dB night time noise limit would be entirely consistent with the night time noise limits applying to all permitted activities in all ZONES (and selected substation sites across the district) under existing noise provisions of the Operative District Plan.
53. Wording changes to give effect to the recommendations for limiting night time noise from substation sites are set out below in ATTACHMENT 1. I have also taken the opportunity to correct two typographical errors I identified at;
- NOISE-S1(c) (in order to remain consistent with the s.42A report the numerals “46” have been corrected to “45”); and
  - NOISE-S1 (corrected spelling of “Heavy” which was erroneously published as “Heave”).

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<sup>3</sup> The term ‘substation’ is a term defined within the Proposed District Plan to mean ‘those parts of works or electrical installations, being a building, structure, or enclosure exceeding 10m<sup>2</sup> in area and having equipment rated at over 22 kV, and incorporating fittings that are used for the purposes of the control of the transformation, transmission, or distribution of electricity’.

Although correcting these two typographical errors was not included within the Transpower submission, I have included them in this evidence in the interests of improving the final wording of NOISE-S1.



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Malcolm Hunt  
7 October 2024

## ATTACHMENT 1 – Recommended Amendments to NOISE-S1

In the interests of clarity, this version of NOISE-S1 shows the S.42A recommended amendments as accepted.

The changes to NOISE-S1 supported by my evidence are identified by red underline and ~~strikethrough~~.

NOISE - S1	General noise rules applying to noise emitted from all zones and overlays (unless provided for by a specific standard elsewhere)
<p><u>Receiving zone</u></p> <p>General Residential</p> <p>Māori Purpose - Urban</p> <p>Kororāreka Russell Township</p> <p>Hospital</p> <p>Natural Open Space</p>	<p>Noise rule</p> <p>a) Noise generated in all zones, other than the zones in b) and c) below:</p> <p>Noise shall not exceed the following rating noise levels at any point within the received property boundary:</p> <p>7.00 am to 10.00 pm – (daytime): 50 dB LAeq; 10.00 pm to 7.00 am – (night-time): 40 dB LAeq and 70 dB LAFmax.</p> <p>b) Noise generated in Mixed Use, Light Industrial, Horticultural Processing facilities, Ngawha Innovation and Enterprise Park or Orongo Bay zones, or from non-aircraft operation activity within an Airport Zone:</p> <p>Noise shall not exceed the following rating noise levels at any point within the receiving property boundary:</p> <p>7.00 am to 10.00pm (daytime): 55dB LAeq 10.00pm to 7.00am (night-time): 40dB LAeq and 75 dB LAFmax.</p> <p>c) Noise generated in the Hospital or Heavy Industrial zones or Mineral Extraction Overlays <u>or within any site used for substation activities within any zone:</u></p> <p>Noise shall not exceed the following rating noise levels at any point within the receiving property boundary:</p> <p>7.00am to 10.00pm (daytime): 55 dB LAeq 10.00pm to 7.00am (night-time): <del>46</del><u>5</u> dB LAeq and 75 dB LAFmax</p>

<p><u>Receiving zone</u></p> <p>Rural Production</p> <p>Rural Lifestyle</p> <p>Māori Purpose - Rural</p> <p>Horticulture</p> <p>Moturoa Island</p> <p>Kauri Cliffs</p> <p>Ngawha Innovation and Enterprise Park</p> <p>Settlement</p>	<p>d) Noise generated in all zones, other than the zones in e) and f) below:</p> <p>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the receiving property:</p> <p>7.00 am to 10.00 pm – (daytime): 55 dB LAeq; 10.00 pm to 7.00 am – (night-time) 40 dB LAeq and 70 dB LAFmax.</p> <p>e) Noise generated in Mixed Use, Light Industrial, Horticultural Processing Facilities, Ngawha Innovation and Enterprise Park or Orongo Bay Zones, or from non-aircraft operation activity within an Airport zone:</p> <p>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the receiving property:</p> <p>7.00am to 10.00pm (daytime): 55dB LAeq 10.00pm to 7.00am (night-time): 40 dB LAeq and 75 dB LAFmax</p> <p>f) Noise generated in the Hospital or Heavy Industrial zones or in Mineral Extraction Overlays:</p> <p>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the receiving property:</p> <p>7.00am to 10.00pm (daytime): 55 dB LAeq and 75 dB LAFmax</p> <p><u>g) Noise generated within any site used for substation activities within any zone:</u></p> <p><u>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the receiving property:</u></p> <p><u>7.00am to 10.00 pm (daytime): 55d B LAeq</u> <u>10.00pm to 7.00 am (night-time): 45dB LAeq</u> <u>and 75 dB LAFmax</u></p>
<p><u>Receiving zone</u></p> <p>Rural Residential Carrington Estate</p>	<p>Noise rule</p> <p><u>gh)</u> Noise generated in all zones, other than the zones in <u>hi)</u> and <u>ij)</u> below:</p> <p>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the receiving property:</p> <p>7.00 am to 10.00 pm (daytime): 50 dB LAeq</p>

	<p>10.00 pm to 7.00 am (night-time): 40 dB LAeq and 70 dB LAFmax.</p> <p>hi) Noise generated in Mixed Use, Light Industrial Horticultural Processing Facilities, Ngawha Innovation and Enterprise Park or Orongo Bay zones, or from non-aircraft operation activity within an Airport zone:</p> <p>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the property:</p> <p>7.00am to 10.00 pm (daytime): 55d B LAeq 10.00pm to 7.00 am (night-time): 40dB LAeq and 75 dB LAFmax</p> <p>ii) Noise generated in the Hospital or Heavy Industrial zones or in Mineral Extraction Overlays <u>or within any site used for substation activities within any zone</u>:</p> <p>Noise shall not exceed the following rating noise levels within the notional boundary of any noise sensitive activity within the receiving property:</p> <p>7.00am to 10.00 pm (daytime): 55d B LAeq 10.00pm to 7.00 am (night-time): 45dB LAeq and 75 dB LAFmax</p>
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