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Queensland Government

RESIDENTIAL SUBDIVISION - 197-201 TEVIOT ROAD, GREENBANK

Traffic Noise Assessment

20 January 2026

Hatia Dalby Pty Ltd

QE189-01F02 Acoustic Report (r1)

40 YEARS 1982 - 2022 ACOUSTIC ENGINEERING EXCELLENCE

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Executive Summary

Hatia Dalby Pty Ltd proposes a residential subdivision at 197-201 Teviot Road in Greenbank. The Economic Development Queensland (EDQ) is the assessing authority for the development application.

Renzo Tonin & Associates has been engaged by Hatia Dalby Pty Ltd to prepare a traffic noise assessment for the proposed development. The assessment has been undertaken in accordance with the requirements of the Queensland Development Code (QDC) MP4.4 *Buildings in a Transport Noise Corridor*, as required by the EDQ.

Based upon the analysis presented in this report, the following conclusions have been drawn:

- The site is affected by road traffic noise from Teviot Road;
- With no noise amelioration measures, the eastern part of the site would be subject to traffic noise levels equivalent to QDC MP4.4 Noise Category 4, requiring noise mitigation measures to be implemented into the design;
- To reduce traffic noise impacts, it is proposed to construct 2.6m high acoustic fences at the locations shown in Figure 5;
- The fences should be gap-free and constructed to achieve a minimum superficial density of 15kg/m^2. This may be achieved using materials such as concrete tilt panel, masonry block wall, 35mm thick CCA treated lapped and capped timber palings or 75mm Hebel Power Panel.
- With the 2.6m high acoustic fences in place Noise Categories 3, 2 and 1 are predicted for future lowset dwellings, as shown in Figure 6;
- A maximum Noise Category 4 is predicted for highset dwellings along the Eastern boundary of the site, as shown in Figure 7;
- Schedule 1 of the QDC MP4.4 can be used to determine the minimum Weighted Sound Reduction Index (R_W) rating for each building component based on the noise categories;
- Schedule 2 of the QDC MP4.4 can be used to determine the building materials that correspond to the required R_W ratings; and
- Future dwellings would be deemed noise affected and would require mechanical ventilation or air conditioning to achieve compliance with the National Construction Code (NCC);
- Supplementary professional advice from a mechanical consultant will be required for compliance with AS1668 and the NCC;

- The future noise modelling is based on design contour data provided by Town Planning Alliance on 20th November 2025 (Ref: *XREF_DES ALL Conts.dxf*). Note that if the finished pad levels of lots change substantially (greater than 200mm increase), a revised assessment may be needed using the new finished site levels.

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1 Introduction

Hatia Dalby Pty Ltd proposes a residential subdivision at 197-201 Teviot Road in Greenbank. The site location is shown in Figure 1. The real property description is Lot 16 on SP343224. The Economic Development Queensland (EDQ) is the assessing authority for the development application.

Figure 1: Site Location

The purpose of this report is to present an assessment of the road noise impacts on the proposed development, and to establish the required attenuation measures to control noise intrusion to acceptable levels.

Renzo Tonin & Associates (RTA) has been engaged by Hatia Dalby Pty Ltd to assess the traffic noise impacts on the proposed development. The assessment has been undertaken in accordance with the requirements of the Queensland Development Code (QDC) MP4.4 *Buildings in a Transport Noise Corridor*, as required by the EDQ.

The work documented in this report was carried out in accordance with the Renzo Tonin & Associates Quality Assurance System, which is based on Australian Standard / NZS ISO 9001. APPENDIX A contains a glossary of acoustic terms used in this report.

2 Site and Surrounding Area

The site adjoins Teviot Road to the East.

Teviot Road is a *designated transport noise corridor* (designated by Logan City Council-Gazette Notice on 27th July 2012). It is currently being upgraded and is expected to carry approximately 29,350 vehicles per day. The speed limit is expected to remain 80km/hr.

3 Proposed Development

It is proposed to subdivide Lot 16 on SP343224 into 42 residential lots. A site plan of the proposed development is shown in Figure 2. It is proposed to construct acoustic fences at the Eastern boundary of the site along Teviot Road to reduce traffic noise impacts. Access to the subdivision will be provided off Teviot Road.

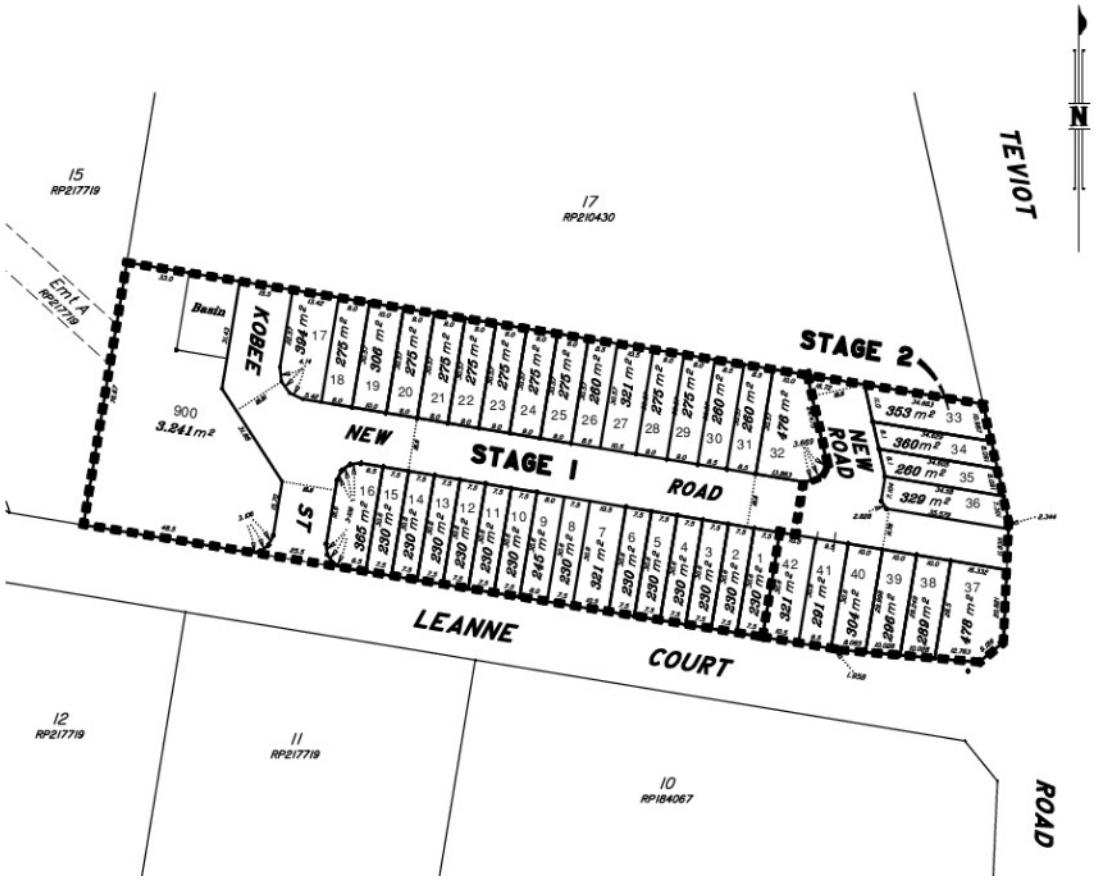

Figure 2: Site plan of proposed development

4 Traffic Noise Intrusion

4.1 Queensland Development Code MP4.4 - Road

The Queensland Development Code (QDC) MP4.4 *Buildings in a Transport Noise Corridor* in 2010 and revised in 2015. The purpose of the QDC MP4.4 is to ensure any habitable rooms of Class 1, 2, 3 and 4 buildings located in a transport noise corridor are designed and constructed to reduce transport noise. The Code requires that each external façade of a habitable room be assigned a noise category which is dependent upon the future $L_{10\ 18hr}$[1] noise exposure at the façade. A summary of the noise categories is presented in Table 1.

Table 1: Noise category levels

Noise Category	Level of transport Noise ($L_{10\ 18hr}$)
Category 4	≥73dBA
Category 3	68-72dBA
Category 2	63-67dBA
Category 1	58-62dBA
Category 0	≤57dBA

Depending on the assigned noise category, the external facades are selected to achieve a minimum Weighted Sound Reduction Index (R_W) requirement as specified in Schedule 1 of the Code.

4.2 Traffic Noise Methodology

Existing traffic noise levels were measured on-site in accordance with AS2702-1984 - *Acoustics - Methods for the Measurement of Road Traffic Noise* and the DTMR *Road Traffic Noise Management: Code of Practice*.

Traffic volumes and composition for Teviot Road used in this assessment was obtained from the Logan City Council. The data was sourced from Council's Way2Go modelling data for Teviot Road – *between Stoney Camp Road and Anderson Drive/Leanne Court intersection*. Commercial vehicle data was not supplied. In this instance, data obtained from an approved residential subdivision report to the North of the site at 119-187 Teviot Road, Greenbank was used [RTA Ref: QB824-02F01 (r0), dated 28th January 2020 and EDQ Approval No: DEV2019/1059, dated 27th April 2020]. The calculations here-in rely on the accuracy of the data.

Table 2: Traffic data – AADT and % Commercial Vehicles (CV)

Road (Both Directions)	Year 2031		Year 2036		Speed
	AADT	%CV	AADT	%CV	
Teviot Road	23,764	8.7%	29,350	8.7%	80km/h

[1] $L_{10\ 18hr}$ is the arithmetic average of the 18 hourly measurements of the L_{A10} level or the noise level exceeded for 10 percent of the time between 6am and midnight on a typical weekday.

Physical data across the site have been obtained from drawings provided by Hatia Dalby Pty Ltd, aerial photographs and from site inspections.

Traffic noise levels have been predicted at various locations using the SoundPLAN[2] computer program. This program uses the CoRTN (1988)[3] algorithms endorsed by The Department of Transport and Main Roads (DTMR) and Council.

The computer model for the site has been developed based on estimated 2036 traffic volumes to predict future traffic noise exposures across the site.

The future noise modelling is based on design contour data provided by Town Planning Alliance on 20th November 2025 (Ref: *XREF_DES ALL Conts.dxf*). Note that if the finished pad levels of lots change substantially (greater than 200mm increase), a revised assessment may be needed using the new finished site levels.

4.3 Existing Traffic Noise Levels

Traffic noise measurements could not be undertaken along Teviot Road due to road construction activities occurring at the time of site visits. Accordingly, noise monitoring data collected at 119-187 Teviot Road, Greenbank for an approved subdivision development were adopted for the purposes of this assessment to calibrate the noise model. The referenced approvals are RTA Ref: QB824-02F01 (r0), dated 28th January 2020, and EDQ Approval No: DEV2019/1059, dated 27th April 2020.

The noise logger installation location is shown in Figure 1. The microphone of the noise logger was positioned at a height of approximately 1.5m above ground level. The instrumentation was set to record the noise level statistics over consecutive 1-hour intervals throughout the test.

Test instrumentation consisted of:

- *Portable Noise Logger*: RTA02 (S/N 0039, v19.tfb);
- *Sound Level Meter*: NTi-XL2 (S/N: A2A-13505-E0, FW4.03); and
- *Acoustical Calibrator*: Larson Davis/NTi CAL200 (S/N 15600).

The logging result is shown in Table 3.

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[2] SoundPLAN is an integrated software package for noise and air pollution evaluation developed in Germany by Braunstein + Berndt GmbH. It has been configured to predict the extent of (i) road traffic noise intrusion by application of the CRTN '88 algorithms and (ii) industrial noise emission using the CONCAWE algorithms. It is in use in several countries and has had widespread application throughout Australia. It is endorsed by Department of Transport and Main Roads, Brisbane City Council, Department of Environment and Science and most other State environmental authorities.

[3] CoRTN 1988 – *Calculation of Road Traffic Noise*, UK Department of Transport HMSO, 1988.

Table 3: Existing traffic noise levels (free field)

Parameter	Measured Level (dBA)
$L_{10\ 18hr}$	66

4.4 Future Traffic Noise Exposure

Using the SoundPLAN computer model, the future traffic noise exposures at each lot have been predicted. The parameters used in the model for the predictions are presented in Table 4.

Table 4: Parameters used in the SoundPLAN model for future traffic volumes

Parameters	Teviot Road (Both Directions)
18-hour count	27,587
Percentage commercial vehicles (%)	8.7
Traffic speed (km/h) (Zone)	80
Receiver height Above Ground Level (AGL)	1.8m – Representing Lowset residences 4.6m – Representing Highset residences 1.5m – Representing Open Spaces
Façade Correction (dBA)	+2.5
Road Surface Correction (dBA)	0

The future noise levels have been predicted in the form of noise contours as shown in the following figures:

Figure 3: Future lowset noise level contours – No acoustic fences

Figure 4: Future highset noise level contours – No acoustic fences

It can be seen in these figures that without any barriers, the Eastern part of the site would be subject to traffic noise levels equivalent to Noise Category 4 at lowset receivers. To reduce noise impacts to lower categories, noise amelioration measures will be required.

4.5 Traffic Noise Attenuation Measures

To attenuate traffic noise intrusion from the Teviot Road, it is proposed to construct acoustic fences and to implement a mechanism to ensure that future residences are constructed in accordance with the Queensland Development Code (QDC) MP4.4 *Buildings in a Transport Noise Corridor*.

It is proposed to construct 2.6m high fences, as shown in Figure 5 and described in Table 5. The extents of the bottom and top RLs of the fences extracted from the model at Locations A to J are presented in Table 5.

Table 5: Bottom and Top RLs of proposed fences

Point (Refer to Figure 5)	Bottom RL of Fence(m)	Fence Height (m)	Top RL of Fence (m)
A	67.3	2.6	69.9
B	67.9	2.6	70.5
C	67.4	2.6	70.0
D	67.3	2.6	69.9
E	66.9	2.6	69.5
F	67.1	2.6	69.7
G	67.0	2.6	69.6
H	66.6	2.6	69.2
I	66.4	2.6	69.0
J	66.3	2.6	68.9

The fences should be gap-free and constructed to achieve a minimum superficial density of 15kg/m^2. This may be achieved using materials such as concrete tilt panel, masonry block wall, 35mm thick CCA treated lapped and capped timber palings or 75mm Hebel Power Panel.

4.6 QDC MP4.4 Noise Categories with Noise Barriers

With the proposed fences in place, the QDC MP4.4 noise contours have been predicted at each allotment. The contours for ground and upper floors are shown in Figure 6 and Figure 7 respectively.

It can be seen in Figure 6 that with the proposed 2.6m high acoustic fences in place, Noise Categories 3, 2 and 1 are predicted for lowset houses.

As can be seen in Figure 7, a maximum Noise Category 4 is predicted for highset residences along the Eastern boundary of the site.

The MP4.4 Code will require that the glazing, external walls, roof, floors and entry doors of the proposed houses achieve minimum R_W ratings based upon the relevant noise category. The Weighted Sound Reduction Index (R_W) ratings are specified in Schedule 1 of the Code. An extract of Schedule 1 for Noise Categories of 1 to 4 are shown in Table 8.

Table 6: Minimum R_W rating for each relevant noise category

Noise Category	Minimum transport noise reduction (dBA) required for habitable rooms	Component of building's external envelope	Minimum R_W required
4	40	Glazing	43
		External Walls	52
		Roof	45
		Floors	51

Noise Category	Minimum transport noise reduction (dBA) required for habitable rooms	Component of building's external envelope	Minimum R_W required
		Entry Doors	35
3	35	Glazing	38 (Total area of glazing for a habitable room is greater than 1.8m^2)
			35 (Total area of glazing for a habitable room is less than or equal to 1.8m^2)
		External Walls	47
		Roof	41
		Floors	45
		Entry Doors	33
2	30	Glazing	35 (Total area of glazing for a habitable room is greater than 1.8m^2)
			32 (Total area of glazing for a habitable room is less than or equal to 1.8m^2)
		External Walls	41
		Roof	38
		Floors	45
		Entry Doors	33
1	25	Glazing	27 (Total area of glazing for a habitable room is greater than 1.8m^2)
			24 (Total area of glazing for a habitable room is less than or equal to 1.8m^2)
		External Walls	35
		Roof	35
		Entry Doors	28

The minimum R_W rating for each building component can be achieved by:

- Using the materials specified in Schedule 2 of the Code (http://www.hpw.qld.gov.au/SiteCollectionDocuments/mp-4-4-buildings-in-transport-noise-corridors.pdf); or
- Using materials with manufacturer's specifications that, in combination, achieve the minimum R_W rating for the relevant building component and applicable Noise Category.

5 Conclusion

Based upon the analysis presented in this report, the following conclusions have been drawn:

- The site is affected by road traffic noise from Teviot Road;
- With no noise amelioration measures, the eastern part of the site would be subject to traffic noise levels equivalent to QDC MP4.4 Noise Category 4, requiring noise mitigation measures to be implemented into the design;
- To reduce traffic noise impacts, it is proposed to construct 2.6m high acoustic fences at the locations shown in Figure 5;
- The fences should be gap-free and constructed to achieve a minimum superficial density of 15kg/m^2. This may be achieved using materials such as concrete tilt panel, masonry block wall, 35mm thick CCA treated lapped and capped timber palings or 75mm Hebel Power Panel.
- With the 2.6m high acoustic fences in place Noise Categories 3, 2 and 1 are predicted for future lowset dwellings, as shown in Figure 6;
- A maximum Noise Category 4 is predicted for highset dwellings along the Eastern boundary of the site, as shown in Figure 7;
- Schedule 1 of the QDC MP4.4 can be used to determine the minimum Weighted Sound Reduction Index (R_W) rating for each building component based on the noise categories;
- Schedule 2 of the QDC MP4.4 can be used to determine the building materials that correspond to the required R_W ratings;
- Future dwellings would be deemed noise affected and would require mechanical ventilation or air conditioning to achieve compliance with the National Construction Code (NCC);
- Supplementary professional advice from a mechanical consultant will be required for compliance with AS1668 and the NCC;
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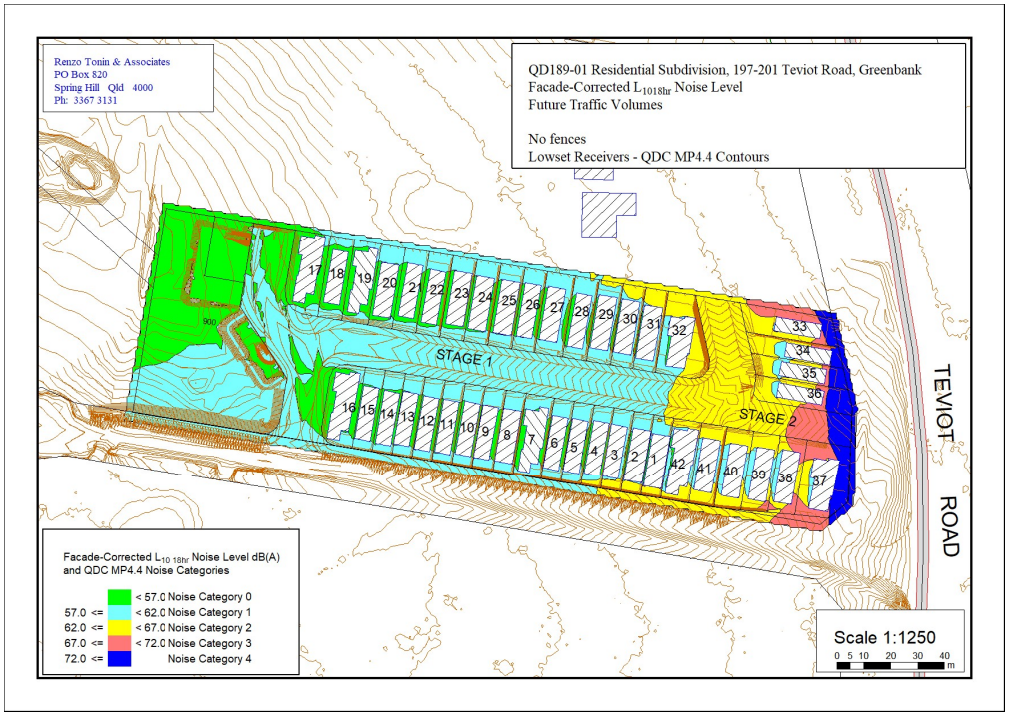

Figure 3: Future lowset noise level contours – No acoustic fences

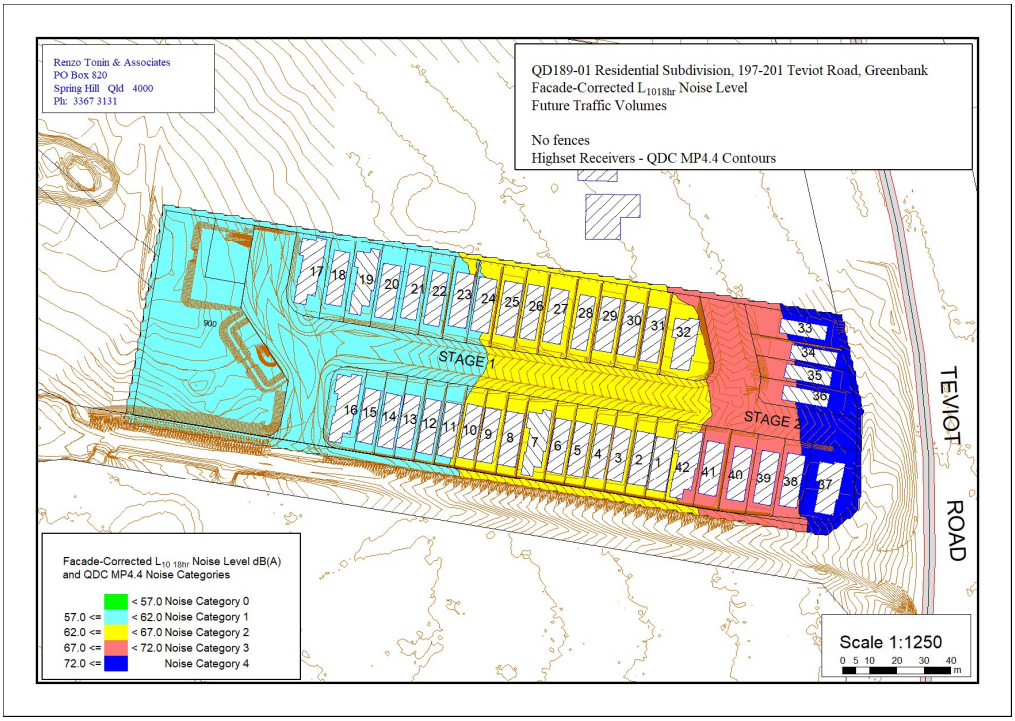

Figure 4: Future highset noise level contours – No acoustic fences

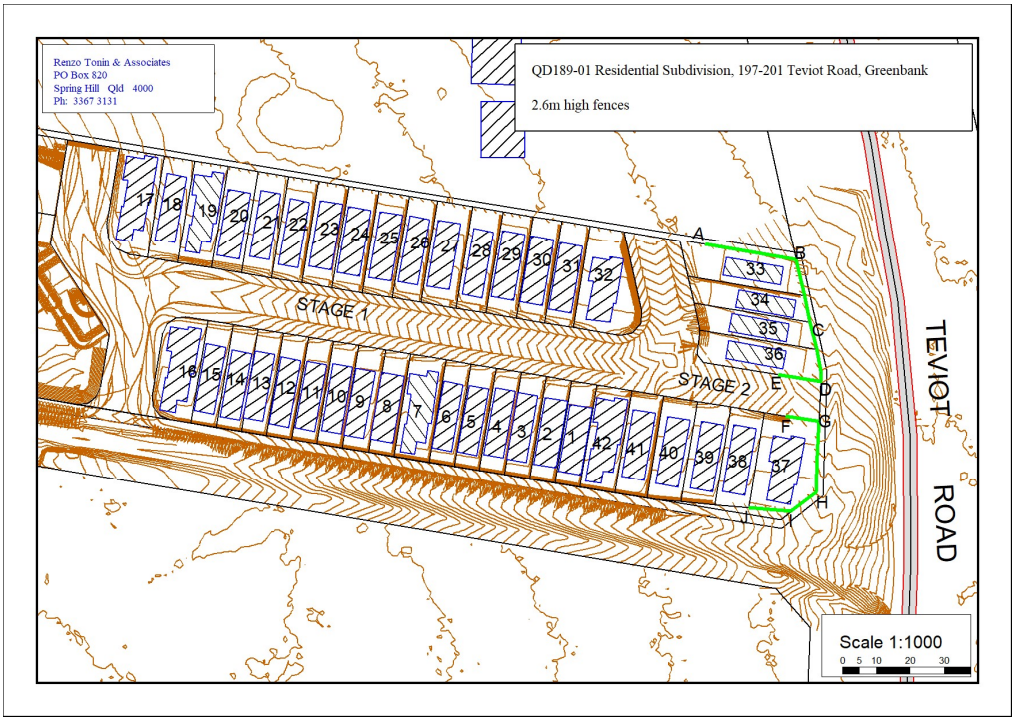

Figure 5: Locations of proposed 2.6m high acoustic fences

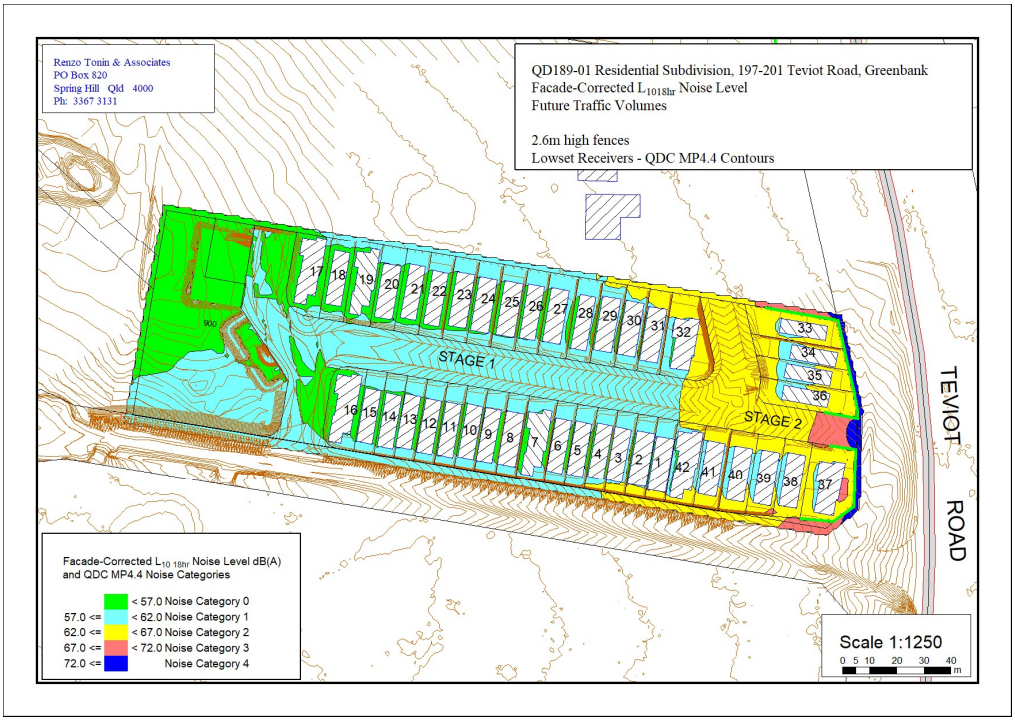

Figure 6: QDC MP4.4 Noise Categories for lowset residences – 2.6m high acoustic fences

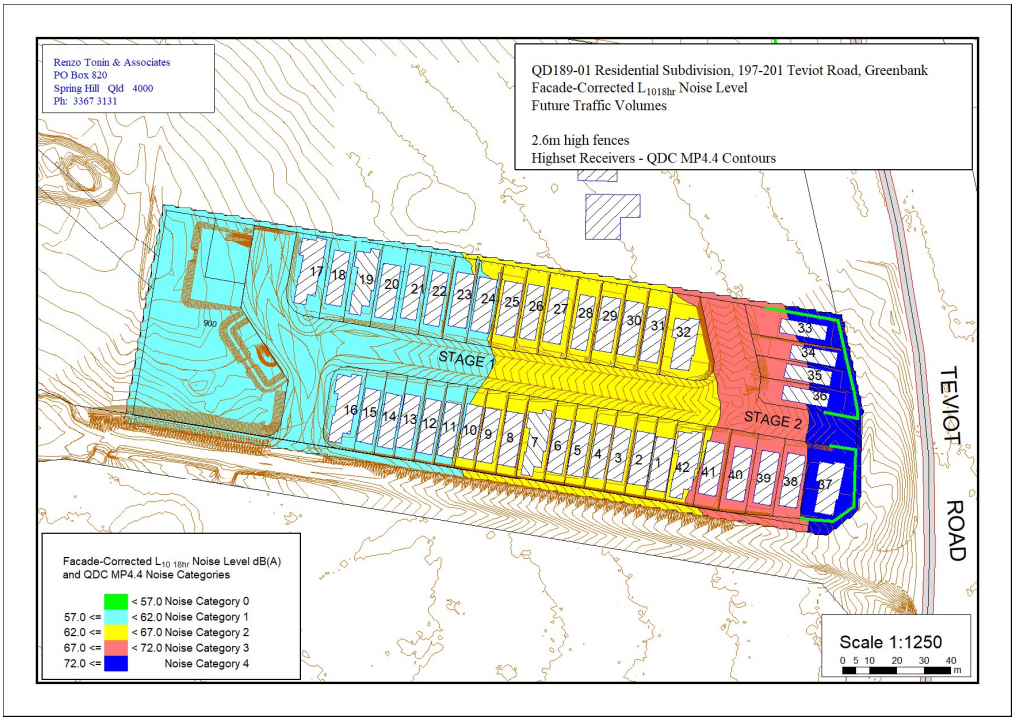

Figure 7: QDC MP4.4 Noise Categories for highset residences – 2.6m high acoustic fences

APPENDIX A Glossary of Terminology

The following is a brief description of the technical terms used to describe noise to assist in understanding the technical issues presented.

Adverse Weather	Weather effects that enhance noise (that is, wind and temperature inversions) that occur at a site for a significant period of time (that is, wind occurring more than 30% of the time in any assessment period in any season and/or temperature inversions occurring more than 30% of the nights in winter).
Ambient Noise	The all-encompassing noise associated within a given environment at a given time, usually composed of sound from all sources near and far.
Assessment Period	The period in a day over which assessments are made.
Assessment Point	A point at which noise measurements are taken or estimated. A point at which noise measurements are taken or estimated.
Background Noise	Background noise is the term used to describe the underlying level of noise present in the ambient noise, measured in the absence of the noise under investigation, when extraneous noise is removed. It is described as the average of the minimum noise levels measured on a sound level meter and is measured statistically as the A-weighted noise level exceeded for ninety percent of a sample period. This is represented as the L90 noise level (see below).
Decibel [dB]	The units that sound is measured in. The following are examples of the decibel readings of every day sounds: 0dB The faintest sound we can hear 30dB A quiet library or in a quiet location in the country 45dB Typical office space. Ambience in the city at night 60dB CBD mall at lunch time 70dB The sound of a car passing on the street 80dB Loud music played at home 90dB The sound of a truck passing on the street 100dBThe sound of a rock band 115dBLimit of sound permitted in industry 120dBDeafening
dB(A)	A-weighted decibels. The ear is not as effective in hearing low frequency sounds as it is hearing high frequency sounds. That is, low frequency sounds of the same dB level are not heard as loud as high frequency sounds. The sound level meter replicates the human response of the ear by using an electronic filter which is called the "A" filter. A sound level measured with this filter switched on is denoted as dB(A). Practically all noise is measured using the A filter.
Frequency	Frequency is synonymous to pitch. Sounds have a pitch which is peculiar to the nature of the sound generator. For example, the sound of a tiny bell has a high pitch and the sound of a bass drum has a low pitch. Frequency or pitch can be measured on a scale in units of Hertz or Hz.
Impulsive noise	Having a high peak of short duration or a sequence of such peaks. A sequence of impulses in rapid succession is termed repetitive impulsive noise.
Intermittent noise	The level suddenly drops to that of the background noise several times during the period of observation. The time during which the noise remains at levels different from that of the ambient is one second or more.
L_{Max}	The maximum sound pressure level measured over a given period.
L_{Min}	The minimum sound pressure level measured over a given period.
L_1	The sound pressure level that is exceeded for 1% of the time for which the given sound is measured.
L_{10}	The sound pressure level that is exceeded for 10% of the time for which the given sound is measured.

L_{90}	The level of noise exceeded for 90% of the time. The bottom 10% of the sample is the L90 noise level expressed in units of dB(A).
L_{eq}	The "equivalent noise level" is the summation of noise events and integrated over a selected period of time.
Reflection	Sound wave changed in direction of propagation due to a solid object obscuring its path.
SEL	Sound Exposure Level (SEL) is the constant sound level which, if maintained for a period of 1 second would have the same acoustic energy as the measured noise event. SEL noise measurements are useful as they can be converted to obtain Leq sound levels over any period of time and can be used for predicting noise at various locations.
Sound	A fluctuation of air pressure which is propagated as a wave through air.
Sound Absorption	The ability of a material to absorb sound energy through its conversion into thermal energy.
Sound Level Meter	An instrument consisting of a microphone, amplifier and indicating device, having a declared performance and designed to measure sound pressure levels.
Sound Pressure Level	The level of noise, usually expressed in decibels, as measured by a standard sound level meter with a microphone.
Sound Power Level	Ten times the logarithm to the base 10 of the ratio of the sound power of the source to the reference sound power.
Tonal noise	Containing a prominent frequency and characterised by a definite pitch.