

17 February 2021

Ruakaka Developments Ltd.  
c/- Tattico Ltd.  
PO Box 91562  
Victoria St.  
Auckland 1142

**Attention: Ross Cooper**

Dear Ross

**NOISE RESPONSE TO COUNCIL SECTION 92 REQUEST- LU2000057**

This letter addresses the questions raised by Whangarei District Council regarding our Noise Assessment (*Rp 001 20200434 MH Ruakaka Service Centre (ANE)*; dated 25 Sept 2020) for the proposed Ruakaka Service Centre (Reference ID: LU2000057), located at the intersection of State Highway One and State Highway 15A, Ruakaka, Northland.

Questions related to noise are given in Section 17 of Council's letter (dated 22 Jan 2021). They are reproduced below (in italics) and addressed sequentially.

**17.Noise**

*This aspect of the proposal has been assessed by Mr. Daniel Winter (The Styles Group) on behalf of Council, who has requested the following additional information:*

*Vehicle Noise Calculations*

*NOTE: We generally agree with the MDA noise calculations for noise sources from the service centre, except that we have the following points of clarification regarding vehicle noise predictions:*

**Question 1:** *The traffic movement numbers are based on the data provide by Traffic Planning Consultants Ltd which states that night time traffic numbers are estimated as 20% of the total. The MDA Assessment states that the total number of truck trips in the prescribed night-time period is estimated to be 76. We agree with the methodology used to obtain the number of trucks at night being 76 (being 20% of 379), but the traffic report does not define what the night time period is, or if the night time period used in the traffic report is the same as the prescribed night time period of 10.00pm – 7.00am.*

*Please confirm the following:*

- a. *Is the night time period used in the traffic report is the same as the defined prescribed noise night time period of 10.00pm – 7.00am?*

Traffic Planning Consultants have confirmed by email that the night-time period used in the traffic report corresponds to the prescribed night-time period of 10:00pm to 7:00am.

- b. *What number of trucks have been assumed for the peak hour night time peak hour? From our experience of vehicle noise assessments, the night time hour between 6.00am – 7.00am can be much more busy than in the middle of the night as traffic builds for the day. Please confirm what number of trucks has been used for the night time noise model between 6.00am – 7.00am?*

A peak hour period for the night-time was not originally defined. To account for a peak hour period, the night-hour average of truck movements was doubled. However, Traffic Planning Consultants Ltd. has since provided more detailed data which includes data for the peak hour night period (6am to 7am). A total of 26

truck movements have been used for this period with 75% of movements occurring through the SH15A access. This has resulted in a slight increase to our calculated noise levels with the highest prediction being 45 dB L<sub>Aeq</sub> at the driveway access of 39 SH 15A. Note that for most of the 39 SH 15A site, calculated levels are less than 40 dB L<sub>Aeq</sub>. Our report has been updated to reflect this change.

**Question 2:** Section 9.1.1 of the Assessment assumes an overall average truck sound power level of 103 dB L<sub>w</sub>. Is this the average sound power of a number of noise measurements taken of the same vehicle or different vehicles? Please provide more details on what the average is and how the assumed average sound power level of 103 dB L<sub>w</sub> has been used in the noise model for a moving source.

The sound power level of 103 dB is based on measurements taken of many different trucks including articulated trucks and refrigerated vehicles operating on sealed surfaces. The sound power level was applied to a line source with an assumed speed of 15 km/hour and a height of 2.5 metres.

**Question 3:** The notional boundary at 39 SH 15A is reported as 15m from the activity. The predicted night time noise level is 44 dB L<sub>Aeq</sub>. Is this predicted noise level assessment based on 76 truck movements and 600 car movements in the night time period? Please confirm how the night time vehicle noise predictions have been calculated to be 44 dB L<sub>Aeq</sub> at the notional boundary of 39 SH 15A.

Calculated levels are based on the following on-site traffic movements (derived from data provided by Traffic Planning Consultants Ltd):

				Trips on SH1 Access		Trips on SH15A Access	
		DAY	NIGHT	DAY	NIGHT	DAY	NIGHT
Light Veh	Ave trips /hr	140	50	35	13	105	38
	Peak hr trips	445	202	111	51	334	152
Heavy Veh	Ave trips/hr	18	6	5	2	14	5
	Peak hr trips	56	26	14	7	42	20

Noise contours

**Question 4:** Noise emissions have been predicted using noise modelling software. Can a noise contour map be provided? In particular, it would be helpful to see both the 40 dB L<sub>Aeq</sub> contour and the 45 dB L<sub>Aeq</sub> contour lines to inform the extent of the night time noise effects over neighbouring properties.

A noise contour map for the peak hour night-time period is attached to this letter.

Proposed noise limits

**Question 5:** A night time limit of 45 dB L<sub>Aeq</sub> is proposed for all receivers. We understand that an additional 5 dB is being applied for at 39 SH 15A, which has a predicted noise level of 44 dB L<sub>Aeq</sub>. All other receivers have predicted night time noise levels of less than 40 dB L<sub>Aeq</sub> and therefore comply with the District Plan noise limits. For example, a noise limit of 45 dB L<sub>Aeq</sub> is proposed for 33 Heatherlea Drive but this receiver has a predicted noise level of 36 dB L<sub>Aeq</sub>. Why is the a higher noise limit proposed for all receivers when only one receiver (39 SH 15A) has a predicted noise level of over 40 dB L<sub>Aeq</sub>?

Based on measured ambient levels and the proximity of all near receivers to the State Highways, the higher noise limit is considered appropriate for the existing acoustic environment generally.

Measured ambient noise levels.

**Question 6:** Night time ambient noise measurements were taken on 14 June 2020 from 11:46pm - 00:01 am and 00:04 - 00:19am. This amounts to a total of 30 minutes. Section 8 of the Assessment

*reports that ambient noise levels in this area are already elevated due to significant traffic on the state highways. Therefore, it is considered reasonable to provide a higher night-time noise limit than is provided for in the District Plan.*

*Given that the night time noise effects assessment refers to the existing ambient noise levels as being a contributing factor in the conclusion that the noise from the service centre will be reasonable, would more detailed night time ambient noise measurements assist with this determination? Please confirm if 2 x 15 minute measurements is sufficient enough to gain a good understanding of the existing environment?*

In some instances where ambient noise levels need to be determined for an RMA effects assessment, we install a noise logger to obtain data over a longer period. In this case, the site is located immediately adjacent to two State Highways and ambient noise levels are controlled by highway traffic. Waka Kotahi cites the AADT on SH1 just north of the project as 15,630 with 11% truck traffic and the AADT on SH 15A as 4,363 with 20% truck traffic.

Traffic noise levels from State Highways follow a known diurnal pattern. As traffic and truck pass-bys regularly occur throughout the night on State Highways, noise levels do not show the significant variations that can occur near rural roads. Based on the measurements carried out on site and the known diurnal variation that occurs near State Highways, we are confident that ambient traffic noise levels will be 45 dB  $L_{Aeq}$  or above at all times at the measurement location and at other locations that are a similar distance from the State Highways.

We trust this information is satisfactory. If you have any further questions, please do not hesitate to contact us.

Yours faithfully

**MARSHALL DAY ACOUSTICS LTD**

**Mary Hamilton**

**Consultant**

Attachment: Noise Contour Map

