

Before an Expert Consenting Panel

Under the COVID-19 Recovery (Fast-track Consenting) Act 2020 (CRA)

In the matter of an application by Pudong Housing Development Company Ltd, Foodstuffs North Island Ltd, and Silk Road Management Ltd for land-use and subdivision consent for the demolition of existing buildings and redevelopment of the site including a supermarket, retail, commercial and residential units, parking and loading at 360 Dominion Road, 88 Prospect Terrace and 113 Grange Road, Mt Eden, Auckland.

Evidence of Rhys Hegley on behalf of Pudong Housing Development Company Ltd, Foodstuffs North Island Ltd, and Silk Road Management Ltd

Date: 23 June 2021

QUALIFICATIONS AND EXPERIENCE

- 1 My full name is Rhys Leonard Hegley. I am a partner at Hegley Acoustic Consultants. I hold a Bachelor of Engineering from the University of Auckland (1993) and have attended specialist courses in acoustics in Australia and America. I am a Chartered Acoustic Engineer and I am a member of the Institution of Professional Engineers New Zealand.
- 2 For the last 21 years I have specialised in the measurement and assessment of noise. This work has included the preparation of reports for resource consent applications and notices of requirement and attendance at council hearings, the Environment Court and Boards of Inquiry.
- 3 I have advised on a wide range of activities from the development of business activities such as childcare centres, service stations and workshops through to large scale industrial activities such as petrochemical plants, power stations, dairy factories and roading projects. Included in this work has been the prediction of noise and vibration from, and measurements of, supermarket activities and all manner of construction activities.

CODE OF CONDUCT

- 4 Although these proceedings are not before the Environment Court, I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note and agree to comply with it as if these proceedings were before the Court. Except where I am relying on evidence of another person, this evidence is within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

SCOPE OF EVIDENCE

- 5 This evidence responds to noise and vibration issues raised in comments on the application for the proposed development. In particular, this report responds to:
- 5.1 Night time truck use;
 - 5.2 Mechanical plant;
 - 5.3 Submission of Rosalind Roux DeBuisson;
 - 5.4 Submission of We Love Eden;
 - 5.5 Submission of Ian Buckland;
 - 5.6 Submission of Ya-hui Tsai; and
 - 5.7 Submissions of Auckland Council.
- 6 Where submissions include common topics, I have responded to the topic rather than the submission. Where submissions discuss specific issues, I have responded to the submission directly.

NIGHT-TIME TRUCK USE

- 7 The submissions of Helen Perrett, Rosalind Roux DeBuisson, and Eden We Love (their proposed condition 111B) all discuss night time truck movements. In response, the applicant proposes the following conditions, which I support:
- a. *No heavy vehicles (8m or longer) associated with supermarket deliveries shall arrive or depart from the site between the hours of 6:00pm and 7:00am the*

following day without prior written approval from Auckland Council.

b. No vehicles associated with private refuse and recycling collection from any of the activities on site shall arrive or depart from the site between the hours of 6:00pm and 7:00am the following day without prior written approval from Auckland Council.

- 8 I note that the Eden we Love submission requests trucks be prohibited from site from 5.00pm to 8.00am. I do not support this as the proposed 6.00pm to 7.00am fits comfortably within the standard definition of night time used by the AUP.

MECHANICAL PLANT NOISE

- 9 Submissions by Eden We Love, Ian Buckland (section 2.2) and Ya-hui Tsai query noise from mechanical plant and, in particular, that which may face the eastern residential boundary of the proposed site.
- 10 Proposed condition 102 provides day and night time noise limits from the proposed activities when received within the residential zone. These limits provide an appropriate level of residential amenity (matching the relevant AUP rule, E25.6.19) and apply to the cumulative level of noise from the site rather than the mechanical plant in isolation.
- 11 At this consenting stage of a project, mechanical plant has yet to be selected making a detailed analysis impracticable. However, as I state in Section 4.2.2 of the original assessment, there are numerous mitigation measures that can be applied to such plant including its suitable selection and location, screening, enclosing or the addition of silencers. Based on this, and experience with similar projects, it is considered reasonable to assume that it will be practicable for any mechanical plant to comply with the relevant

noise limits. While this statement was made with respect to the ancillary retail units of the proposal, it remains true for all mechanical plant on site. By way of example, I have been involved with numerous supermarket projects with residential neighbours where it has been practicable to control plant noise to within the specified limits.

ROSALIND ROUX DEBUISSON SUBMISSION

- 12 Rosalind Roux DeBuisson, the owner of 86 Prospect Terrace, requests a mechanism by which her family could be relocated should they find construction effects intolerable.
- 13 Reference to Table 2 of my initial assessment shows that the effects to this dwelling are, in my view, moderate for construction noise. Noise is predicted to exceed the 70dB L_{Aeq} limit of the Auckland Unitary Plan – Operative in Part (AUP) for a single day for any rock breaking adjacent to this property (and only if breaking is necessary) and for two days during piling.
- 14 Table 7 shows vibration from piling is not expected to result in cosmetic or structural damage, but will, at times, be noticeable, being above the 2mm/s amenity threshold of the AUP.
- 15 Given the above, it is my view that the predicted construction effects will be reasonable to the occupants of this dwelling. Nevertheless, I am instructed by the applicant that it would accept a condition in the following form regarding relocation for occupants of the three closest dwellings to the project if the panel considers that necessary and appropriate to address potential effects. The proposed condition is based on the recent Environment Court decision NZEnvC 2/1 for the nearby Panuku development at 198 –

202, 201-222 Dominion Road and 113 – 117 Valley Road, Mt Eden with amendments to suit the current project.

72Ac. The consent holder shall make an offer of relocation no later than 4 weeks in advance of any proposed rock-breaking within 20m, or piling within 30m, of the eastern site boundary. The consent holder shall offer to relocate any resident of 86 Prospect Terrace, 86A Prospect Terrace and 111 Grange Road for the duration of rock breaking or drilling within the specified distances of that property. The specified distances shall be increased if the initial vibration monitoring under condition 75 finds that vibration at any of the dwellings under consideration is expected to be greater than the 2mm/s peak particle velocity limit set out in condition 66. This offer shall remain open for acceptance until such time as all rock-breaking and piling has been completed on the site.

72B. Where an offer of relocation is accepted in the above circumstances, the consent holder shall pay for the reasonable costs of relocation to a place which is generally equivalent to the relocating resident's current standard of accommodation.

- 16 This submission also mentions damage resulting from vibration. Figures 3 and 4 of my original assessment shows that vibration will be well below the limits of DIN 4150¹, which are set for the protection from cosmetic structural damage.
- 17 Proposed conditions 67 – 72 address the issue of damage through pre and post condition surveys to identify any damage and, if necessary, a course of remediation. Condition 67 specifically identifies 86 Prospect Terrace as being covered by these conditions.

¹ DIN 4150-3 Structural vibration, Part 3: Effects of vibration of structures

EDEN WE LOVE SUBMISSION

- 18 The submission by Eden We Love raises the issue of noise from vehicles travelling over judder bars. I have discussed this issue with the design team who advise that no judder bars are proposed for the site.
- 19 In its appendix 8, the Eden We Love submission asserts that I have not considered noise from traffic associated with the proposal on the surrounding road network. In response, I note that the movement of vehicles on roads is a permitted activity under Rule E26.2.3.2 (A68) of the AUP. This rule does not provide any controls or permitted activity standards for the noise from vehicles on existing roads.
- 20 The Eden We Love submission proposes several changes to conditions, which I address below.

Condition 67

- 21 As currently proposed, condition 67 requires building condition surveys to 86 Prospect Terrace, 86A Prospect Terrace, 111 Grange Road and Lot 1 DP 170042 Body Corporate Retail Shops on Dominion Road. These sites are the closest to, and share a boundary with, the proposal.
- 22 The submission seeks to add a further 10 sites.
- 23 I do not support this requested change. Table 7 of my original assessment shows predicted levels of vibration to the suggested sites to be no more than 2mm/s, and well below the cosmetic damage thresholds of E25.6.30/ DIN 4150, which start at 5mm/s and then increases with increasing frequency.

Hours of Operation

- 24 The Eden We Love submission proposes a new condition 111A, which would limit the hours of operation of the supermarket to 7.00am to 10.00pm. In my view, this condition is not needed (although I understand that the applicant will accept a restriction on opening hours to 6.30 am – 10.00 pm).
- 25 The noise sources from a supermarket are the truck unloading bay, the mechanical plant and the vehicle movements within the car park. The analysis presented in my original assessment showed that:
- 25.1 The truck unloading bay will not operate at night. The condition proposed in paragraph 7 of my evidence would prevent trucks from visiting the unloading bay between the hours of 6.00pm and 7.00am. Smaller vehicles, such as vans, would be able to visit the site outside of these hours, but would result in much lower, and compliant, levels of noise.
- 25.2 Mechanical plant associated with the supermarket will operate regardless of the opening hours and will have to comply with the night time limits of the consent conditions.
- 25.3 The final paragraph of section 4.3.6 of the original assessment confirms that the combined night time vehicle movements from all on site activities (including the supermarket) can comply with the night time noise limits of the proposed condition.

IAN BUCKLAND SUBMISSION

- 26 In section 2.1 of his submission, Mr Buckland notes that as the proposal will be founded on rock, there is the potential issue of trucks using the site to result in adverse vibration to neighbours. I do not share Mr Buckland's concern. Trucks on site will generally be travelling slowly and over well prepared surfaces meaning the likelihood of noticeable levels of vibration is considered negligible.
- 27 On page 8 of his submission, Mr Buckland reports my original assessment as assuming residential houses will be empty during business hours. In response, I can confirm that my assessment of construction effects considered all neighbouring buildings equally with no view as to whether they were occupied. On page 13, I do note the sites where I consider occupancy to be of potential relevance. The sites I refer to are 3 – 5 (87 – 91 Prospect Terrace) which form the Claire House Aged Care facility and which I observe would likely be occupied all day. I also note that the Claire House submission did not raise noise or vibration as an issue. The second comment relating to occupancy was site 20, the Girl Guide Hall at 132 Grange Road, as its website shows limited use of the hall. Clearly if a building is unoccupied, there are no noise effects.
- 28 At the bottom of page 6 of his submission, Mr Buckland queries section 3.3.3 of my original assessment where I talk of a single piling rig. In response, I note that the purpose of section 3.3.3 of my original report was simply to identify the neighbours that should be addressed in any assessment of construction effects. A piling rig was selected for the purpose of that assessment as it is expected to be the noisiest item of plant that will be used across the entire site. Once the receivers had been established, subsequent sections of the original assessment provided a detailed assessment of construction noise and vibration.

- 29 Mr Buckland notes my assessment addresses noise from plant in isolation and goes on to state his expectation that multiple items of plant will be operating at once on site. In response, the plant I have considered in detail (the piling rig and rock breaker) are relatively large and observations of other, similar sites show that as a result, such plant tends to operate well removed from other activities. This being the case, while other plant may be present during each activity, it is unlikely to provide a contribution to the resulting noise level at the dwelling most exposed to the breaking/ piling. For completeness, I also note that should cumulative noise become an issue, site management (as required by the Construction Noise and Vibration Management Plan (CNVMP) through condition 14) could be used to mitigate the noise effects.
- 30 Mr Buckland provides three comments and suggestions with respect to construction noise and vibration. Under (b), Mr Buckland queries how construction effects that comply with the AUP rules will be mitigated. Specific measures are addressed in Section 3.3.4 of my original assessment. Further, proposed condition 14 requires a CNVMP to be prepared and applied throughout the construction period. This document serves a number of roles, one of which is the development of the best practicable option for the control of noise and vibration from all construction activities, regardless of the resulting levels.

YA-HUI TSAI SUBMISSION

- 31 This submitter is the owner of 111 Grange Road (site 14 of my original assessment).
- 32 Under the heading of noise and vibration, the submission notes that Table 9 of the original assessment predicts a level of up to 54dB L_{Aeq} at the most exposed external location within the

submitter's property from the operation of the proposal. This is correct. For clarification, I note that this level is both the uppermost for all activities expected from the proposal and that it is compliant with the 55dB L_{Aeq} limit of relevant AUP rule, E25.6.19.

33 The submitter notes that the external level reported in my Table 9 exceeds the 40dB L_{Aeq} internal limit described by Table 10 of my original assessment. In response, I note that:

33.1 Tables 9 and 10 are within different sections of my report and, as such, are not for comparison. Table 9 predicts noise from the business zoned activities of the proposal to the residentially zoned receiver (111 Grange Road). For residential receivers, the measurement location is outside of the dwellings.

33.2 Table 10 forms part of a different discussion and relates to the residential units of the proposal as, being zoned business, they can expect higher levels of noise from their neighbours than is considered desirable for residential amenity. The approach is to design the façade to control the internal level of noise received to 40dB L_{Aeq} during the daytime in accordance with E25.6.10 /Table 10.

33.3 To complete the discussion, I note that a room with windows open for ventilation typically experiences internal noise levels in the order of 15dB lower than those outside. This reduction is independent of façade construction as it is the open window that will control the mitigation available. This being the case, the internal level within the most exposed room at 111 Grange Road with windows open would be the 54dB L_{Aeq} incident level

less the 15dB façade reduction = 39dB L_{Aeq} internally. This level is less than the 40dB L_{Aeq} that the AUP describes as being an appropriate level for internal amenity (Table 10).

- 34 Under the heading of 'Noise and Air Pollution' the submitter discusses the transmission of noise to their property. In response, I note that all predictions we have undertaken used computer modelling software in which a full, three dimensional model of the site and its surrounds was developed. This included topography and the buildings of both the neighbouring sites and the proposal. As such, my view is that the noise modelling, and the reported levels, has been undertaken to a high level of accuracy.

AUCKLAND COUNCIL SUBMISSION

- 35 I have read the review of my original assessment provided by Mr Gordon of Auckland Council. While generally supportive, several queries were raised, and I respond to these below, referencing Mr Gordon's headings.

Operational Noise Effects – Between units within the Application Site (E25.6.9)

- 36 Mr Gordon points out that I do not specifically address the noise between adjacent units with the development, for which E25.6.9 provide the relevant criteria. Mr Gordon then expresses his view that this rule would be complied with without any practical difficulty. I agree with this statement.

Construction Vibration E25.6.30(1)

- 37 Mr Gordon notes that construction vibration is predicted to exceed 5mm/s at two sites (Sites 14 and 30, Table 7 of my original

assessment). While I confirm this, I do not agree that these levels exceed the limit for the avoidance of cosmetic damage to buildings contained within E25.6.30(1). This rule references the criteria of DIN 4150, which provides frequency specific limits beginning at 5mm/s and which increase with increasing frequency. Figures 3 and 4 of my original assessment provide a full analysis against the criteria of E25.6.30(1)/ DIN 4150 and show full compliance, with a factor of safety.

Infringements of AUP(OP) E25

- 38 From the above, it follows that I do not agree with Mr Gordon where, under bullet point (2) he states that there will be an exceedance of E25.6.30(1) and therefore an infringement of the AUP. I do agree that, at times, the limits of E25.6.30(2) may be exceeded.
- 39 Under bullet point (3), Mr Gordon notes that E25.6.10(2) will not be met as, technically, the design presented in the original assessment was not based entirely on the zone or precinct standards, as the rule requires.
- 40 This comment relates to fact that the proposal is zoned Business Mixed Use where the noise limits are relatively permissive between sites. Through E25.6.10, the AUP requires the façade of any residential component be capable of controlling noise from neighbouring activities to internal levels appropriate for residential amenity. The way the rules are structured means that the activities conducted within eastern residential sites are permitted to produce Mixed Use noise levels to the proposal.
- 41 However, rather than adopt these elevated levels, the sample apartment façade design presented in section 5.2 of my original

assessment was based on lower levels of incident noise from the residential zone. The reason for this is that the activities of these residential sites are limited not only by the Business – Mixed Use zone rule to their west, but also by the Residential zone noise limits (E25.6.2) to their remaining boundaries. Compliance with the relatively low residential zone noise rules at three boundaries would make it impracticable to produce the Mixed Use zone levels to the proposal. In other words, if the activities within the neighbouring residential zone are to be fully compliant with the AUP noise rules, the sample façade design provided for the proposed apartments will ensure compliance with E25.6.10.

Condition 57

- 42 Mr Gordon notes a discrepancy between the construction noise criteria proposed by condition 57 and those of the AUP. The reason for the discrepancy is that the condition was taken from the Environment Court decision referred to in paragraph 15 above. On balance, I support Mr Gordon's recommended change. The Table of proposed condition 57 would therefore read as follows:

Time of Week	Time Period	Noise Limit, dB	
		<i>L</i>_{Aeq(30min)}	<i>L</i>_{Amax}
<i>Weekdays</i>	<i>7:30 am - 6:00 pm</i>	<i>70</i>	<i>85</i>
	<i>6:00 pm - 10:00 <u>8:00 pm</u></i>	<i>55 <u>65</u></i>	<i>80</i>
	<i><u>8:00 pm – 10:00 pm</u></i>	<i><u>40</u></i>	<i><u>70</u></i>
<i>Saturdays</i>	<i>7:30 am - 6:00 pm</i>	<i>70</i>	<i>85</i>
	<i>6:00 pm - 10:00 <u>8:00 pm</u></i>	<i>55 <u>65</u></i>	<i>80</i>
	<i><u>8:00 pm – 10:00 pm</u></i>	<i><u>40</u></i>	<i><u>70</u></i>
<i>Sundays and public holidays</i>	<i>7:30 am - 6:00 pm</i>	<i>55</i>	<i>80</i>

<i>At all other times</i>	45	70
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Condition 101

- 43 Mr Gordon notes that while providing operational noise limits to the Business – Local Centre zone, proposed condition 101 omits limits to the Business – Mixed Use zone. I support the following amendments to the condition, which is based on the relevant AUP rules.

101. The following noise limits are not to be exceeded by any activities occurring on the site when measured or assessed as the incident level on the facade of any building on any other site in the Business – ~~Local Centre~~ zone.

Business – Local Centre zone noise limits

Period	Noise Limit
<i>7:00 am - 10:00 pm</i>	<i>60 dB L_{Aeq}</i>
<i>10:00 pm - 7:00 am</i>	<i>50 dB L_{Aeq}</i> <i>60 dB L_{eq} at 63 Hz</i> <i>55 dB L_{eq} at 125 Hz</i> <i>75 dB L_{AFmax}</i>

Business – Mixed Use zone noise limits

<u>Period</u>	<u>Noise Limit</u>
<u>7:00 am - 11:00 pm</u>	<u>65 dB L_{Aeq}</u>
<u>11:00 pm - 7:00 am</u>	<u>55 dB L_{Aeq}</u> <u>65 dB L_{eq} at 63 Hz</u> <u>60 dB L_{eq} at 125 Hz</u> <u>75 dB L_{AFmax}</u>

Condition 103

- 44 Proposed condition 103 requires a report demonstrating compliance with operational noise limits “prior to the occupation of buildings”. Mr Gordon recommends an additional report be submitted within 3 months of the supermarket commencing operation to demonstrate compliance.
- 45 I support Mr Gordon’s suggestion to move the compliance monitoring until after the supermarket becomes operational as much of the plant will not be in use until this time. This being the case, I further suggest that the amendment to the condition be that compliance monitoring for the project as a whole be completed within 3 months of the supermarket opening to capture as much of the activity as possible. My suggestion is as follows:

103. Within 3 months of the supermarket commencing operation, ~~Prior to occupation of the buildings, the~~

consent holder shall submit a report prepared by a suitably qualified and experienced acoustic specialist to Auckland Council for certification. The report shall demonstrate that noise from external plant and the commercial activities with the development complies with Conditions 101 and 102 operational noise limits.

Condition 106

- 46 For the reasons outlined in paragraphs 39 – 41 above, I do not agree with Mr Gordon that condition 106 requires amendment.

CONCLUSION

- 47 After considering the submissions, I remain of the view that my original assessment provides a full assessment of the proposal. Some of the submissions include discussions on conditions. Where I believe those suggestions add value, I have suggested updated conditions.



Rhys Hegley

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23 June 2021