Before Hearing Commissioners
at Christchurch

under: the Resource Management Act 1991

in the matter of: application RMA/2020/405 for land use consent in relation to new buildings to accommodate facilities to provide services including healthcare, employment, education and housing to young people between 10 – 25

by: **The Youth Hub Trust – Te Hurihanga ō Rangatahi**
Applicant

Statement of Evidence of Michael James Smith

Dated: 8 September 2020

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STATEMENT OF EVIDENCE OF MICHAEL JAMES SMITH

INTRODUCTION

1 My full name is Michael James Smith.

2 I am a Principal Acoustics Engineer and director of Altissimo Consulting Ltd.

3 I have practised in the field of acoustics since 2006. I am a full member of Engineering New Zealand (MEngNZ), the Acoustical Society of New Zealand (MASNZ) and the Australian Acoustical Society (MAAS). I hold the degrees of Bachelor of Engineering (Mechanical) and Bachelor of Mathematical and Computer Sciences from the University of Adelaide.

4 I am familiar with the application by the Youth Hub Trust – Te Hurihanga ō Rangatahi (the *Trust*) for land use consent in relation to new buildings (the *Youth Hub*) to accommodate facilities to provide services including healthcare, employment, education and housing to young people between 10 – 25 (the *Application*) at 109 Salisbury Street, Christchurch (the *Site*).

5 I reviewed a draft of the Environment Noise Assessment (the *Noise Report*) prepared by Luke Sadler of Novo Group that was submitted with the Application.[1] Luke Sadler has since left Novo Group and I have been asked to provide evidence regarding the issue of noise for this hearing as I reviewed and am familiar with the Noise Report.

6 I have visited the site, read the submissions, and formed my own conclusions as to potential noise effects from the project.

CODE OF CONDUCT

7 I have read the Environment Court's Code of Conduct for Expert Witnesses, and I agree to comply with it. My qualifications as an expert are set out above. I confirm that the issues addressed in this brief of evidence are within my area of expertise. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

SCOPE OF EVIDENCE

8 I have reviewed the Noise Report in light of the submissions received. My evidence provides a summary of the different components of the activity, and potential noise effects that may

[1] Attached at Appendix 10 of the Application.

arise. I also provide comment on concerns raised in submissions and the section 42A Officer's Report (the *Officer's Report*).

9 In preparing this evidence I have reviewed:

9.1 The Application;

9.2 Submissions lodged in relation to the Application; and

9.3 The Officer's Report including the Environmental Health Report which the Officer has relied upon.

10 I have revised some of the calculations used in the Noise Report.

SUMMARY OF THE POTENTIAL NOISE EFFECTS

11 The Noise Report predicts sound levels from key activities at the most affected neighbours. It considers the potential effects from these activities by considering the permitted activity standards from the District Plan, the existing noise environment, and the character of particular noise sources arising from the Youth Hub.

District Plan

12 The site and receiving areas are zoned Residential Central City, with noise standards of 55 dB / 45 dB L_{Aeq} during the day (7.00am to 11.00pm) and night (11.00pm to 7.00am) respectively. These standards are 5 dB higher than for residential areas outside the city centre (50 dB / 40 dB L_{Aeq}), anticipating a higher level of noise activity by virtue of the central city location.

Existing environment

13 The existing acoustic environment is generally quiet, with low-speed traffic the dominant noise source, plus the general hum of distant activity.

14 The majority of dwellings in the area have been built in the past 10 years and there are a number currently under construction. These are generally medium density townhouses, often two story.

15 Ambient sound levels were measured to be 49-53 dB $L_{Aeq(15min)}$ during the afternoon and 40-42 dB $L_{Aeq(15min)}$ during the evening.

Residential accommodation

16 A significant component of the proposal is the residential accommodation units around the perimeter of the site.

17 On the west of the site are the supported housing units. These are single ensuite rooms, with ground floor units having a private courtyard facing the two townhouses at 362 Durham Street North. The boundary fence will be 2m high, however this will not

completely screen to the courtyards of the first floor windows of the adjacent townhouses. There will be solid fences between adjacent courtyards.

18 On the east of the site are three/four bedroom apartments, again with private courtyards facing Gracefield Avenue. There are no fences on the boundary of these courtyards.

19 The Noise Report did not include predicted levels from residential accommodation.

20 The potential noise and annoyance from parties / anti-social behaviour in these courtyards is a concern for neighbours. While there is always the potential for this, I am satisfied that this risk can be appropriately mitigated through management controls for the following reasons:

20.1 No alcohol or other drugs will be allowed on the premises.

20.2 There will be an expectation of low levels of noise and activity in the housing from 10pm. If young people want to enjoy the company of a larger group of friends, they will be able to use some of the wider facilities.

20.3 Outside normal business hours when residents only are present on site, there will be behavioural management staff also residing on site.

21 In my opinion, noise effects from the residential living units is comparable to a standalone residential development.

Events centre

22 The proposal includes an events centre with a capacity of 200 people. On a day-to-day basis, the events centre will be used for in-house activities with up to 60 youths present. Amplified music must cease at 2130h during such events.

23 The proposal allows for a limited number of days where a greater number of guests may attend (12 events up to 120 people and an additional 12 events up to 200 guests). Amplified music must cease by 2200h and all guests must be off the site be 2230h as per the proposed Events Management Plan (*EMP*). Events may be operated by partner organisations under a hire agreement.

24 A conservative assessment of music noise from a large function was predicted in the noise report at 50 dB $L_{Aeq(15min)}$ at 9 Gracefield Avenue. At this level it is likely to be audible over the evening/night time ambient sound, and I consider it likely that it would cause disturbance. This prediction assumed a very high internal sound level (100 dB $L_{Aeq(15min)}$).

25 Based on my understanding of the likely events, I consider that internal sound levels would generally be below 90 dB $L_{Aeq(15min)}$ and therefore sound levels at 9 Gracefield Avenue would 40 dB $L_{Aeq(15min)}$. At this level, while music may be sometimes audible, it is at levels where it should not cause annoyance.

26 The proposed EMP has been prepared and includes the following controls:

26.1 Adequate staff, including security staff if necessary, shall be present on site for each event to ensure that visitors can be safely managed and that potential nuisance noise and behaviour is prevented from occurring.

26.2 Traffic management will be in place to manage the drop-offs and pick-ups for the large events.

26.3 The hire agreement with partner organisations will detail the above requirements.

26.4 Amplified music shall cease no later than 9:30pm, except on up to 24 occasions a year when larger events (>60 persons) are permitted to occur. On these 24 occasions a year, amplified music shall cease no later than 10:00pm.

26.5 No alcohol or other drugs will be allowed on the premises, therefore there will be no sale of alcohol within the site.

26.6 All guests shall be off the site by 10.00pm, except for on up to 24 occasions a year when larger events (>60 persons) are permitted to occur until 10:00pm. On these occasions a year, guests shall be off site by 10.30pm.

26.7 No guests shall be permitted to congregate in external court yards after 7:00pm.

26.8 Neighbours in proximity to the Youth Hub will be provided with an events liaison person, whom neighbours may contact should they have any concerns about event management.

27 I consider that day-to-day events will result in negligible noise effects to neighbouring properties.

28 For larger events, I consider the controls detailed in the EMP, particularly the restrictions in hours of operation and number of events, will manage effects to reasonable levels. Proactive management of guests arriving and departing the site will be the key requirement.

Traffic noise including parking and deliveries

29 The proposal contains two car parks: Salisbury Street (x4) for visitors, and Gracefield Avenue for staff (x3) and residents (x3). I understand that the limited parking is due to the nature of the activity and that the majority of visitors will not be driving.

30 The Salisbury Street carpark is provided for visitors and contains four spaces against the building. There is currently a 1.8m high timber paling fence on the property boundary with 103 Salisbury Street. As part of the project, this will be increased to a 2.0m high acoustic fence.

31 The Noise Report recommended that this fence has a surface mass of at least 8 kg/m^2. This is appropriate for most noise walls as the amount of sound travelling over the wall limits the overall performance. Given that vehicles will travel close the fence, I recommend that the fence surrounding the Youth Hub car park is constructed of a more dense material (minimum 15 kg/m^2). This could be 25mm thick timber of any masonry product. This increased surface mass may provide an additional 2-3 dB of attenuation, but more importantly will result in a noticeable improvement to the character of the noise over a standard boundary fence. This is due to the low to mid frequency character of car engines.

32 The Noise Report considers a typical use case of 6 vehicle movements in a 15-minute period. Under this circumstance, I predict[2] a sound level of 52 dB $L_{Aeq(15min)}$ at 103 Salisbury Street. This achieves the daytime permitted activity standard.

33 During the larger events discussed in Paragraph 23, the car-park will be used as a drop-off area, with 22 vehicle movements anticipated during a 15-minute period. This may extend up to 2230h. During events I predict a sound level of 58 dB $L_{Aeq(15min)}$. This exceeds both the day and night permitted activity standards.

34 During event drop-offs and pick-ups there is likely to be degraded outdoor amenity at 103 Salisbury Street, and sound may be audible indoors. However this is limited to a maximum of 24 events per year, with event drop-offs and pick-ups each to last 30-minutes to an hour. On this basis, I consider noise effects from these movements to be reasonable.

[2] I have reviewed the calculations used in the Noise Report. The calculation used a distance of 0.8m from source to receiver for the entire parking manoeuvre. I consider this gives an incorrectly high noise level and have revised this to use a 2m distance. In addition, I have presented a level for the typical 15-minute period, without applying a duration correction. Updated calculations in Appendix A.

35 The Gracefield Avenue carpark is well separated from neighbouring properties and I consider effects from these vehicle movements to be insignificant.

36 While the proposal will result in additional traffic on Salisbury Street, I note that noise from vehicles on public road are excluded from the District Plan. While the existing level of traffic on Salisbury Street is low, the increase in traffic is unlikely to alter the overall character of the environment.

37 The visitor's carpark will be used for deliveries. I expect that all deliveries will occur during the day and will be from small courier vans.

38 I understand that rubbish from residential living will be collected through standard council processes. Given the events held are unlikely to be catered and no alcohol is served, the amount of waste generated by the events centre is expected to be minimal. Provided any contracted waste collection occurs during the day I am comfortable that this can be managed to minimise any potential noise effects on neighbours.

Café

39 The Café is located in the courtyard near the Salisbury Street entrance. The main noise source associated with the café is the patrons, especially patrons using the café courtyard. In terms of the area of the courtyard it is assumed that 10 seated patrons can occupy the area.

40 A 4m setback from the seating area to the property boundary has been designed so that noise from people talking at a normal voice level will meet the daytime permitted activity standard (55 dB L_{Aeq}) at the property boundary.

41 The most affected properties are 3-9 Gracefield Avenue, which have first floor windows overlooking the café. With windows open, noise from people speaking is likely to be 40 dB in rooms facing the café. Depending on the amount of background noise in the overlooking rooms, speech may be clearly audible and words sometimes intelligible. This would be similar to where windows overlook footpaths or outdoor living spaces.

42 With windows closed, some patron noise will be audible at times, but words would generally not be intelligible.

43 I consider daytime noise effects from the café to be reasonable for a central city residential zone.

Rooftop terraces

44 The proposal includes terraces on the first and second floors of the Youth Hub. The north-facing first-floor terrace is approximately 12m from the Site boundary. For a group of 10 people talking with a normal voice, sound levels are predicted at 50 dB $L_{Aeq(15min)}$ at the Site boundary. The south-facing first-floor terrace is approximately 23m from the Site boundary. For a similar group, a sound level of 47 dB $L_{Aeq(15min)}$ is predicted. Both terraces are shielded to the western site boundary by the housing units.

45 The second floor terrace runs on the western face of the market garden and is proposed to have outdoor seating. This distance from the outdoor seating to the southern boundary is approximately 20 m. Predicted sound levels from a group of 10 people talking is 50 dB $L_{Aeq(15min).}$ The elevated nature of this area results in effective screening by both the floor of the gardens and balustrade, particularly from people seated at the tables and chairs.

46 I understand that the use of the rooftop terraces will be managed by 'house rules' and the on-site social workers.

Outdoor recreation

47 The basketball court is shielded by the 10m high supported housing units along the western elevation of the recreation area. There is no screening to the south other than the boundary fence to 103 Salisbury Street, which is the closest property 14m to the south.

48 The predicted sound level[3] from the basketball court at this boundary is 55 dB $L_{Aeq(15min)}$. Sound at this level may be clearly audible over the ambient environment but is within the District Plan permitted day time levels.

49 Basketball hoops have a character of sound that can result in annoyance even at relatively low levels. However they are commonly installed in driveways and intermittent use is accepted as part of residential amenity. Effects will need to be managed by 'house rules' to ensure use of the basketball hoop does not extend to unsociable hours.

Mechanical plant

50 The heating, ventilation and cooling (HVAC) as well as refrigeration systems have not been specified yet. These will be designed to comply with permitted activity standards and have a similar character to residential-scale heat pumps.

[3] The Noise Report presents this as a rating level of 50 dB L_{Aeq} for the daytime period, adopting a 5 dB reduction for the activity being present for less than 80% of the time period

RESPONSE TO ISSUES RAISED BY SUBMITTERS

51 I have read all of the submissions that expressed concerns with noise levels from the proposed Youth Hub. I consider I have addressed these submissions above regarding residential living, traffic, rooftop terraces and basketball court.

52 I disagree with submitters comments that the presence of noise barriers around the perimeter indicate a problem. I consider solid 2.0m property boundaries to be not uncommon and consistent with good practice.

RESPONSE TO OFFICER'S REPORT

53 The Officer's Report generally agrees with the Noise Assessment.

54 I agree with Ms Stout that compliance with standards does not mean the absence of noise at neighbouring properties, and standards are set at levels considered acceptable for amenity in a central city residential setting.

55 I also agree that noise from residents is best controlled by 'house rules' and the oversight by the resident manager which has been effective in boarding house or hostel situations to ensure that nuisance noise can be promptly attended to if necessary.

CONCLUSIONS

56 The proposed Youth Hub contains a number of intermittent noise sources associated with people congregating and playing.

57 I consider that the residential housing components are equivalent to medium-density living, and will result in no additional effects over those anticipated by the zoning.

58 Noise from day-to-day use of the events centre will be contained within the site. The additional 24 events may result in additional noise effects from music, people congregating, and vehicle pick-ups and drop-offs. These effects will be managed through the Event Management Plan. With these controls, the limited number of events, and all guests being off the site by 2230h, I consider noise effects from the events centre to be reasonable.

59 Predicted sound levels for most activities are generally between 50-55 dB $L_{Aeq(15min)}$, consistent with permitted day time noise levels in the District Plan. The majority of activity will occur during daytime hours (0700-1700h). The sound from people playing and talking is compatible with a central city environment.

Dated: 8 September 2020

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Michael James Smith

APPENDIX A – REVISED CALCULATIONS

Salisbury Street Carpark - Normal use

Calculation step	**Value**	**Sound level adjustment**
Source level at 5m		74 dB L_{AE}
Number of events	6	+ 8
Distance adjustment	2 m	+ 8
Barrier	-5 m	- 8
Time adjustment	15 mins	- 30
Sound level at receiver		52 dB $L_{Aeq(15min)}$

Salisbury Street Carpark – Events use

Calculation step	**Value**	**Sound level adjustment**
Source level at 5m		74 dB L_{AE}
Number of events	22	13
Distance adjustment	2 m	8
Barrier	-5 m	-8
Time adjustment	15 mins	-30
Sound level at receiver		58 dB $L_{Aeq(15min)}$