

Project:	Nayland Street Sumner Skate Park	Document No.:	Da 001 R01		
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Subject:	Preliminary Assessment				

Christchurch City Council has engaged Marshall Day Acoustics to conduct a preliminary noise assessment of the proposed skate park at 26 and 26A Nayland Street, Sumner. The land immediately to the west at 20 and 24 Nayland Street will be developed as a Village Green -- its noise emissions are not considered in this document.

Whilst we have provided preliminary skate park noise level predictions at adjacent properties in this document, it does not constitute a formal assessment of noise effects. Further analysis will be required.

Summary

A summary of our assessment is provided below, with details discussed in the following sections:

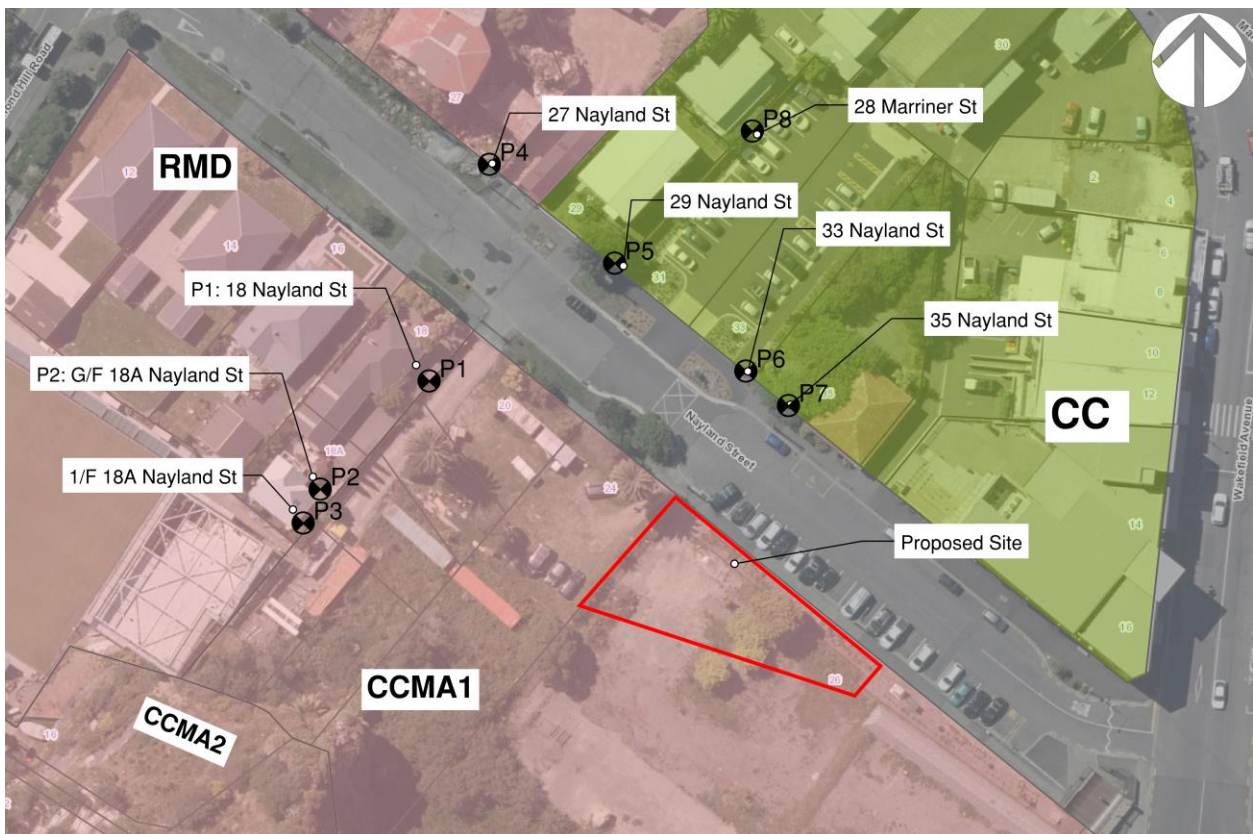
1. Based on the assumed level of skateboarding activity, noise levels will exceed the applicable permitted activity noise standards by up to 7 dB, indicating the activity will have discretionary status with respect to noise (District Plan Rule 6.1.5.1.4).
2. The potential for adverse noise effects is greatest at the upper floor of the dwelling at 18A Nayland Street. Night-time activity could result in sleep disturbance effects. However, we understand there are no sleeping areas at first floor level. In any event, skatepark use should generally be discouraged after 10pm.
3. Substantial non-compliances are predicted for the commercial properties to the north of the site. However, these are arguably less noise sensitive as they are occupied by a carpark, health care centre and automotive workshop etc. As these commercial activities are likely to only operate during the day, we do not expect any adverse noise effects to arise at night.
4. A 1.8 metre high noise control boundary fence at 18/18A Nayland Street is critical to ensuring compliance at the ground floor of these residences. A taller fence along the southern portion of the boundary, around 4.5 metres high, would be required for skatepark noise to comply at the upper floor of 18A Nayland Street, if this was deemed necessary.
5. For a resource consent application, an assessment of noise effects will be required that discusses:
 - a. The definition of "the site" with respect to the skate park, the adjacent Village Green and whether noise effects are to be assessed separately or cumulatively;
 - b. The ambient background noise levels at the sensitive receivers;
 - c. Proposed noise mitigation measures for the site including noise control fences, lighting controls etc; and
 - d. Potential adverse noise effects at neighbouring properties.

Site and Zoning

Figure 1 shows the layout of the site. The proposed skate park and the adjacent properties to the south, east and west are zoned Residential Medium Density Zone (RMD), while the land opposite Nayland Street to the north is zoned Commercial Core Zone (CC).

We also note that the land to the south of the proposed site has been classified as Cliff Collapse Management Area 1 (CCMA1) and 2 (CCMA2). Rule 5.6.1.1 of the CDP states that any structure or part of a structure, whether permanent, moveable or immovable is prohibited within the CCMA1 and is non-complying activity within the CCMA2.

Figure 1: Zoning Details and assessment locations



Noise Performance Standards

Rule 6.1.5.1.1 of the Christchurch District Plan (CDP) states that any activity outside the Central City that generates noise and which is not exempt by Rule 6.1.4.2. or Rule 6.1.5.1.1 P2 is permitted with respect to noise if it meets the noise standards for the category given in Rule 6.1.5.2.1.

Table 1: Relevant noise limits (excerpt from Table 1, Rule 6.1.5.2.1)

Zone of site receiving noise from the activity		0700 – 2200 hrs		2200 – 0700 hrs	
		dB L _{Aeq}	dB L _{Amax}	dB L _{Aeq}	dB L _{Amax}
a	All residential zones (other than in the Accommodation and Community Facilities Overlay)	50	n/a	40	65
e	All commercial zones	55	n/a	45	70

These rules apply at the boundary of any site receiving noise from the activity. The predicted noise levels in the next section are assessed at the boundary of the nearest occupied sites. We have assumed that the

village green and skatepark will be considered collectively as ‘the site’ for the purposes of any future resource consent application. If assessed in isolation, skate park noise will exceed the permitted activity noise standards at the village green site boundary by more than 10 dB and the activity will have non-complying status.

Predicted Noise Levels

Our calculations are based on our previous noise measurements at similar skate park projects. The dominant noise sources include skateboard wheels rolling over a concrete surface and skateboards impacting the ground after a trick. This preliminary assessment is focussed on skateboard noise rather than scooters and BMX, which are much quieter and have become more common at skate parks. As a result of the focus on skateboard noise, the noise level predictions are considered conservative.

Experience suggests that skateparks are much busier during the day than at night. As the skate park will not be fenced off and will be accessible 24 hours, we have assessed the possibility that night-time skating could occur. As the possibility of sleep disturbance is greatest at night, noise limits are more stringent. We understand the site will be designed to discourage night-time use as far as practical.

We have considered two scenarios to test the skatepark layout with respect to noise emissions.

Daytime: We have assumed skateboarders will skate the length of the skate park closest to the assessment positions eight times within a minute. This equates to 120 movements every 15 minute period.

Night-time: We expect that the usage will be significantly decreased when compared to daytime. For the night-time assessment, we have assumed boarders will skate through the skatepark 10 times within a 15 minute period. To assess potential sleep disturbance effects from maximum noise levels (L_{Amax}), we have predicted noise levels from boards being dropped at the closest point to the sensitive receivers.

We have calculated the noise associated with the proposed skate park at critical locations P1 to P8, where the highest noise levels from the skate park are expected. Figure 1 shows the assessment locations. Our assessment assumes that noise levels at P1 and P2 will benefit from the noise reduction provided by the existing 1.8 metre (approximately) high solid fence. Table 2 summarises the predicted noise levels.

Noise levels above the District Plan permitted activity standard are highlighted in red text.

Table 2: Predicted Noise Levels from Skate Park

Assessment Position	Predicted Daytime Noise Levels		Predicted Night-time Noise Levels			
	dB $L_{Aeq(15min)}$	DP Noise Limit	dB $L_{Aeq(15min)}$	DP Noise Limit	dB L_{Amax}	DP Noise Limit
P1: 18 Nayland St	50	50	40	40	61	65
P2: G/F of 18A Nayland St	49	50	39	40	60	65
P3: 1/F of 18A Nayland St	55	50	45	40	65	65
P4: 27 Nayland St	53	50	42	40	63	65
P5: 29 Nayland St	57	55	46	45	67	70
P6: 33 Nayland St	62	55	51	45	72	70
P7: 35 Nayland St	62	55	51	45	72	70
P8: 28 Marriner St	53	55	42	45	56	70

Our assessment indicates that noise levels will be above the permitted activity noise standards at the commercial property boundaries (P5 to P7) during the day and at night (if used). The potential noise effects would need to be assessed as part of any resource consent application but, in general, commercial properties will be less sensitive to noise and are likely to be unoccupied at night.

Non-compliances are also predicted for residential boundary locations P3 and P4. Most notable of these is P3 which is the upper storey of the dwelling at 18A Nayland St. This location does not benefit from the boundary fence which provides a noise reduction to the ground floor of this dwelling (P2). Options to reduce noise levels further, include locating a fence close to the edge of the skate park, or to provide a high fence (e.g. 4.5 metres) along the southern part of the boundary with 18A Nayland St.

At location P4, noise levels are predicted to be just above the permitted activity standard at the closest part of the residential site boundary to the skate park. We expect that noise levels will further reduce at the dwelling on this site, once additional distance is taken into account.