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# WILLIAMSON PARK

# WHANGAMATA

# ASSESSMENT OF NOISE EFFECTS

Report No 16289

Prepared for:

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Cambridge  
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Prepared by:

A blue ink signature of Nevil Hegley, written in a cursive style, positioned above a dotted line.

Nevil Hegley

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## 1 INTRODUCTION

It is proposed to develop the existing Williamson Park, 418 Ocean Road, Whangamata, as shown on Figure 1, to accommodate various types of community and public events. This report considers the potential noise effects of the proposal and the design criteria that will be appropriate to control the noise to within a reasonable level.



**Figure 1. Location of Williamson Park**

The aim is to design and operate the facility at a level generally considered acceptable in a residential community for this type of activity.

It is anticipated that up to twenty day events per year between 7:00am and 7:00pm and seven night events per year with six events between 4:00pm and 11:00pm and one event on New Year's Eve from 4:00pm to 12:30pm will be held with the emphasis on family style entertainment.

This report considers the noise from the various events and how the venue will be controlled to ensure the noise for neighbours is within a reasonable limit.

## **2 THE PROPOSAL**

The exact mix of events has not been finalised although the following is a list of typical events that are being planned:

Day time – up to a total of 20 events

Hours: 7am – 7pm

Night time – up to a total 7 events

New Year's Eve: 4pm – 12:30am

All other night events: 4pm – 11:15pm (music finishing at 11.00pm)

### 3 PREDICTED NOISE

For the music events it is proposed to construct a stage in the centre of the park facing out to sea (toward the east) as shown on Figure 2.



**Figure 2. Location of Stage**

The proposed sound system to be used for the two concerts has been reported by the operator as having a sound level of 95dBA at 35m, which is at the mixing desk. This is considered to be a realistic level for such an event and similar to the level used in shows located in the Auckland area. It has been assumed that the reduction in the noise between the front of the stage and the back of the stage behind the speakers will be 7dBA, which reflects the directivity effect of the speakers and the difference that has been measured at other sites.

Noise from the proposed concerts has been modelled using the Brüel & Kjær Predictor v11.10 programme. This is a powerful environmental noise calculation software package that uses a digital terrain model, which in this case has been assumed to be flat (the small variation in height on the site and immediate surrounding land is fairly represented by this assumption). The noise output from the speaker system adopted in the calculations has the sound spectrum of similar

concerts that have been measured in the field. The calculations have been undertaken in accordance with the requirements of ISO 9613-1/2 Acoustics – Attenuation of Sound during Propagation Outdoors. For this project a 10m grid has been adopted at 1.5m above ground height. The noise from the amplified music has been evaluated and the noise calculated at each grid point from which the noise contours have been determined. All calculations have been undertaken assuming a slightly positive meteorological effect and ground absorption of 0.7, which is representative of the surrounding ground. No screening effect of the houses in the residential zone has been included in the calculations. The noise has been predicted to satisfy the requirements of NZS6802:2008 Acoustics – Environmental Noise.

Based on the above the noise contours for the proposed concerts, based on a level of 95dB at 35m in front of the stage, have been calculated as shown on Figure 3.



**Figure 3. Predicted Noise Contours, dB  $L_{Aeq}$**

#### **4 PUBLIC ADDRESS SYSTEM**

Noise from any public address system that may be used for community events has the potential to annoy residents, as it conveys a message in which the residents are unlikely to have an interest.

Any public address system would be installed so that it would provide clarity and volume for the patrons, yet not annoy the residents. This will be achieved by using with a low noise level system, utilizing a relatively large number of directional speakers around the area to be covered to ensure that a speaker is always reasonably close to the receiver position and will focus on the people, not the residents outside of the park. This makes it practicable to keep the volume to within the requirements of the Proposed District Plan and ensure clarity within the park.

#### **5 CROWD NOISE**

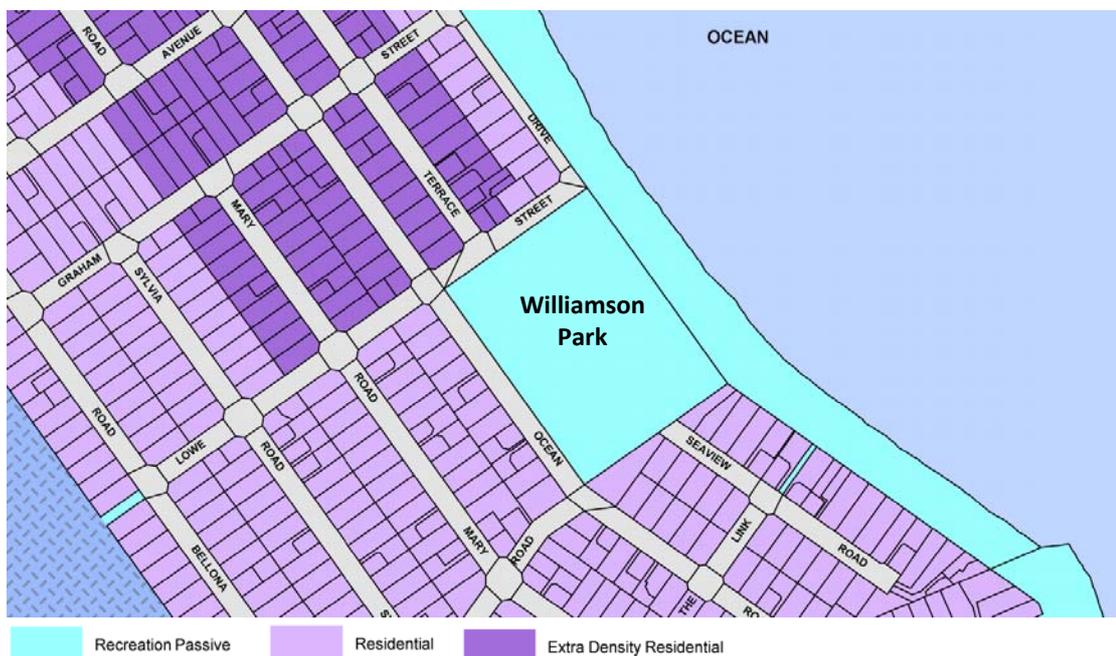
It is generally accepted that crowd noise cannot be controlled. However, for this type of venue, crowd noise is not expected to reach a level similar to the amplified music except when cheering takes place at the end of an item, and then the noise level would be of short duration. Thus, crowd noise is not expected to be a problem for any of the events held at the park.

The approach not to include crowd noise in the analysis has been supported by the Environment Court. This decision was reached for the night time events at Eden Park, Auckland and the planning controls adopted at other venues around the country, such as the Wellington, Rotorua, Tauranga and North Harbour Stadiums.

## 6 DESIGN CRITERIA

In determining if the noise will be reasonable for the neighbours guidance has been taken from Proposed District Plan Decisions Version, which with respect to noise, is operative as there are no outstanding appeals with respect to noise.

As shown in Figure 4, the site is zoned Recreation with residential neighbours on three sides of the proposed venue.



**Figure 4. Site Zoning**

Source: District Plan Map 38B

The relevant noise controls in the Proposed District Plan (PDP), section 53.4, Rule 7 states:

1. A festival event and any noise from it, is a permitted activity provided:
  - a) Electronically amplified noise and vehicle noise at the notional boundary of adjacent sites from 10pm to 7am the following day is no louder than 40dB  $L_{Aeq(15min)}$  and 70dB  $L_{AFmax}$ ; and
  - b) It occurs between the hours of 7 am-10 pm Sunday-Thursday and 7 am-12 midnight Friday and Saturday; and

- c) The noise of any helicopter associated with the festival, event complies with the standards in NZS 6807:1994 Noise Management and Land Use Planning for Helicopter Landing Areas (excluding Section 5: Land Use Planning); and
  - d) No buildings are erected (under this rule) that remain after the festival, event finishes; and
  - e) It lasts no longer than 12 consecutive hours; and
  - f) There are no more than 500 people on the site.
2. A festival, event that is not permitted under Rule 7.1 is a restricted discretionary activity.
  3. The Council restricts its discretion to matters 1- , 6-7, 12 and 13 in Table 6 at the end of Section 53.

**NOTE**

1. After 10 pm, the Council may apply excessive noise provisions under sections 326 - 328 of the RMA if noise, particularly electronically amplified noise, is excessive for the location and event.
2. The Council recommends event planners contact the Area Manager prior to the festival, event.

The requirements of Table 6 are set out below.

Table 6 - Restricted Discretionary Activity Matters			
Matter		Assessment Criteria	
1.	Effects of not meeting the standard(s)	a)	Whether actions (if any) taken to address the adverse effects of not meeting the standard(s) are effective.
2.	Utility infrastructure provision and location (including easements) for water, wastewater, solid waste, stormwater, electricity, telecommunications	a)	Whether the provision and location of utility infrastructure on the reserve is appropriate.
		b)	The extent to which cumulative adverse visual effects of additional infrastructure has on the existing character of the area.
		c)	The extent to which the activity will affect capacity of reticulation networks.
		d)	Whether the activity should be connected to existing reticulation networks.
		e)	The extent to which the proposed infrastructure improves the resilience and security of the network
		f)	Whether easements are appropriate
		g)	Whether there is technical and practical potential for co-location of utility infrastructure on a reserve.
		h)	The extent to which technical and functional needs require the proposed location of the utility infrastructure.

		i)	The extent to which the utility infrastructure contributes to the functioning and well-being of the community.
		j)	Whether the extension of existing above ground utility infrastructure is appropriate.
		k)	Whether the extension of existing above ground utility infrastructure is appropriate.
		l)	Whether the proposed network utility could practically be located underground.
3.	Consistency with the Council's reserve management plan	a)	Whether the activity is consistent with the operative reserve management plan for the reserve prepared under the Reserves Act 1977
4.	Building design and layout	a)	The extent to which the building is required to support the sporting and leisure activities undertaken on the reserve.
		b)	Whether building windows overlook the reserve area but do not overlook dwellings close by
		c)	The extent to which landscaping will assist with retention and enhancement of the open space character of the reserve.
		d)	The extent to which the building design is consistent with existing buildings and structures.
		e)	The extent to which the design of buildings and structures incorporate noise attenuation measures to ensure achievement of the noise limits set by the Plan.
5.	Space available to the public	a)	The extent to which available public space will be reduced by the proposed building or exclusive use by groups within the community as a result of the development or lease arrangement.
6.	Reserve layout	a)	Whether the proposed location of the activity is a practical and efficient use of the open space available on the reserve.
		b)	Whether the proposed activity is compatible with other recreation activities established on the reserve.
		c)	The extent to which the location and layout of the activity takes into account the nature of adjoining activities and provides adequate separation from residential activities.
7.	Vehicle parking and access	a)	Vehicle parking and access should be designed and located to minimise the effect on adjacent residential properties and maintain the open space character of the reserve area. In doing this consideration should be given to: <ul style="list-style-type: none"> <li>i) Separation distances; and</li> <li>ii) Landscaping; and</li> <li>iii) Fences</li> </ul>
		b)	The extent to which vehicle parking has been planned to enable joint use by other activities which use or occupy the reserve area.
		c)	Whether the site can provide adequate parking for the

			size of activity or whether offsite parking arrangements are appropriate.
		d)	Whether consultation and approval is needed from the roading authority.
		e)	Where the activity involves use of roads, whether an approved traffic management plan is in place.
8.	Off-site effects from earthworks	a)	Whether existing infrastructure and utilities are protected.
		b)	The extent to which changes in water drainage to and from adjacent sites because of the earthworks may cause adverse effects, such as ponding, erosion, drainage or flooding.
		c)	Whether mitigation measures are implemented to avoid earthwork debris being carried into adjacent properties, waterways, estuaries and harbours, also taking into account cumulative effects.
9	Protection and enhancement of biodiversity, water bodies, landscapes and natural character	a)	The extent to which indigenous habitat, landscape and natural character features, or historical, cultural, scientific or scenic areas are protected and enhanced and incorporated into reserve management.
		b)	Whether the activity creates or retains linkages between indigenous ecosystems
		c)	The extent to which the activity does not adversely affect aquatic ecosystems and natural processes.
10.	Effects on Māori cultural sites and the cultural/traditional relationship of Māori with their ancestral land	a)	Whether the activity adversely affects a Māori cultural site.
		b)	Whether consultation is needed to assess the effects on the relationship of Māori with their ancestral land, and who should be consulted.
11.	Colour and reflectivity	a)	Whether the selected colour palette integrates with the surrounding landscape.
		b)	Whether the building will be visually recessive and have low reflectivity.
12.	Positive and adverse effects on adjacent sites and the local community	a)	The extent to which positive effects from the activity contribute to the economic, social and cultural wellbeing of the local community.
		b)	Whether the frequency and duration, including the proposed hours, of the activity are tolerable.
		c)	Whether these effects are appropriate to occur in the Recreation Passive Zone, or in whichever zone they are received.
13.	New permanent buildings	a)	Whether the building/s have a viable use beyond the festival, event.
		b)	The extent to which the building/s comply with the standards in Table 4, and Table 5 if in the Coastal Environment.
14.	Adverse visual effects on the landscape (from plantation forestry)	a)	Whether after harvesting the ground is replanted with trees or other vegetative cover within a reasonable time period (e.g. less than 3 months).

	activities)	b)	Whether roads, tracks, landings and skid sites are located to minimise adverse visual effects on the landscape.
		c)	The extent to which harvesting is staged to mitigate significant adverse visual effects on the landscape.
15	Buffers from Outstanding Natural Features and Landscapes Overlays, Residential Areas, adjacent sites, streams, wetlands and sealed roads	a)	Whether appropriately-sized buffers from the Outstanding Natural Features and Landscapes Overlay, Residential Areas, adjacent sites, streams, wetlands and sealed roads are in place and are maintained during plantation forestry operations.

As set out above, for an activity that occurs between 7am - 10pm Sunday - Thursday and 7am - 12 midnight Friday and Saturday there are no specific set noise limits. However, section 16 of the Resource Management Act requires that the best practicable option must be adopted to ensure that the emission of noise does not exceed a reasonable level.

At night time the PDP adopts a limit of 40dB  $L_{Aeq(15min)}$  and 70dB  $L_{AFmax}$  where night time for the site may be considered to be outside the hours of 7am - 10pm Sunday - Thursday and 7am - 12 midnight Friday and Saturday.

The only time when a noisier event may occur, when the lower night time noise limits are in place, is for the seven night time events proposed each year. In such a case there will be up to a 2½ hour period between 10:00pm - 12:30am on New Year's Eve and 1 hour on six other occasion between 10pm – 11pm when the 40dB  $L_{Aeq(15min)}$  and 70dB  $L_{AFmax}$  limits are applicable.

For events with relatively high noise levels such as proposed it is the total noise received over a given period that will influence the reaction to the sound, not simply the level of noise on its own. Basically, this means that one very loud sound for a short period will have a similar effect as a lower sound that continues for a longer period. The actual level will depend to some extent on the type of sound (music in this case), the existing noise environment, community expectations, the benefits that may be associated with the sound and the time when the sound occurs.

A higher noise level than is set in the PDP for 1 hour into the night time period (2½ hours in the case of New Year's Eve) may be considered reasonable for amplified music if the event is of limited duration. There will be up to six events when the higher noise levels could occur for 1 hour into the night time period for events other than New Year's Eve.

The levels proposed for the concerts may be compared to levels currently experienced at other venues throughout the country where a compromise has been reached by providing a reasonable level of acoustic amenity for the residential community and providing the public with additional entertainment opportunities that would not otherwise be available.

Allowing higher noise levels at entertainment venues for a limited period is accepted in many places throughout the country and is necessary if entertainment is to be provided for the community. This approach has been used at locations such as the Palmerston North Show Grounds where a level of 75dBA  $L_{10}$  at the residential interface is permitted for 30 days each year for the full day. At Western Springs in Auckland a level of 82dBA  $L_{Aeq(5min)}$  for up to 6 nights plus 70dB  $L_{Aeq(5min)}$  for four nights of the year is permitted at the residential boundary (as well as noise from the Speedway) and at Hamilton Stadium 6 events a year at 80dBA  $L_{10}$  are permitted. These levels are accepted by the community with the knowledge that the events are of limited duration and number each year.

## 7 PROPOSED CONDITIONS

When considering the above, there is a reasonable balance between offering entertainment with amplified music and protecting the residents from excessive noise. The noise from the proposed events would be controlled to a level of 95dB  $L_{Aeq}$  when measured at the mixing desk (35m from the stage), which has been adopted to calculate the noise contours shown on Figure 3.

Not all musical items will be played at these levels and where the level is lower the noise received by the residents will be correspondingly lower. As a guide, the area of influence will reduce by approximately quarter for the musical items where the noise is 5 - 6dBA lower than the 95dB  $L_{Aeq}$  level adopted in the predictions.

To provide a degree of certainty for the neighbours it is recommended there should be some conditions to control the proposed activities. These are:

- i) Subject to the conditions below, electronically amplified noise at the notional boundary of adjacent sites shall not exceed 40dB  $L_{Aeq(15min)}$  and 70dB  $L_{AFmax}$  if it occurs between the hours of 10pm to 7am the following day;
- ii) For up to six occasions a year and up to 11pm, amplified noise during an event shall not exceed a level of 95dB  $L_{Aeq}$  when measured at 35m from the stage;
- iii) On New Year's Eve and up to 12:30am the following day, amplified noise during an event shall not exceed a level of 95dB  $L_{Aeq}$  when measured at 35m from the stage;
- iv) Noise from sound checks shall not exceed 30 minutes on the day of the event and a level of 85dB  $L_{Aeq}$  when measured at 35m from the stage;
- v) No event shall exceed 12 consecutive hours;
- vi) The noise shall be measured in accordance with the requirements of NZS6801:2008 Acoustics - Measurement of Environmental Sound; and
- vii) For an event where the noise level will be up to 95dB  $L_{Aeq}$  when measured at 35m from the stage the community within the 70dB  $L_{Aeq}$  noise contour [as shown on Figure 3 above] shall be advised of the event via a letter box drop a minimum of seven days before the event. As a minimum, this letter shall include the date and time of the proposed event and a contact number in case there are any concerns.

## **8 CONCLUSIONS**

When considering the above, a reasonable balance is proposed between the requirements of the suggested entertainment with amplified music and the acoustic protection of the residents.

Taking into account the expectations of the Proposed District Plan for any festival, the limited duration of the proposed events and the predicted noise levels, the noise will be loud but will be within a reasonable level for the neighbours. By adopting the recommended conditions any adverse effect for the neighbours will be minimised and generally will comply with the requirements of the Proposed District Plan Decisions Version.

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