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MAPUA BOAT RAMP & SEA SCOUT / COMMUNITY BUILDING
ASSESSMENT OF NOISE EFFECTS
Rp 001 R02 20230813 | 15 January 2024



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TABLE OF CONTENTS

1.0	INTRODUCTION	5
2.0	PROPOSED SITE AND SURROUNDING ENVIRONMENT	5
2.1	Proposed site	5
3.0	APPLICABLE DISTRICT PLAN NOISE LIMITS AND RELEVANT CRITERIA	6
3.1	TRMP Noise Limits	6
3.2	World Health Organisation	6
3.3	NZS 6802:2008 Acoustics - Environmental Noise	7
3.4	Discussion	7
4.0	KEY OPERATIONAL ACTIVITIES AND NOISE SOURCES.....	8
4.1	Hours of Operation.....	8
4.2	Receivers	8
4.3	Noise Sources and Modelling Methodology	9
4.4	Assumed Scenarios.....	10
5.0	ASSESSMENT OF NOISE EFFECTS.....	11
5.1	Boat ramp.....	11
5.2	Functions at the Sea Scout building	11
5.3	Car Parking	12

APPENDIX A GLOSSARY OF TERMINOLOGY

APPENDIX B DRAFT NOISE MANAGEMENT PLAN

APPENDIX C PROPOSED SITE LAYOUT

APPENDIX D SEA SCOUT COMMUNITY BUILDING

APPENDIX E TASMAN RESOURCE MANAGEMENT PLAN

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SUMMARY

We have assessed potential noise emissions associated with the proposed Mapua boat ramp and Sea Scout / Community building. We consider that with appropriate management, noise from the proposed activity – including boat ramp use, car parking and functions with amplified music - will result in acceptable noise effects for the majority of the time at the adjacent sensitive receiver locations, and will provide a noise environment appropriate for residential amenity.

However, we expect there will be a notable adverse noise effect for the dwelling at 13 Tahi Street if the adjacent boat ramp is used prior to 7am or after 10pm.

Generally, our assessment shows the various noise generating activities on site can comply with the applicable Tasman Resource Management Plan (TRMP) daytime permitted activity noise limit of 55 dB L_{Aeq} . The permitted activity “night-time” noise limit of 40 dB L_{Aeq} will be breached at the nearest dwellings, noting that the TRMP includes “night-time” as occurring on Saturdays after 6pm and all day on Sundays and Public Holidays.

Overall, our assessment indicates that activities occurring between 7am and 10pm each day will result in a residential noise amenity anticipated in guidance published by the World Health Organisation and NZS 6802 and will be reasonable.

We recommend that functions in the Sea Scouts building with amplified music should not occur after 10pm and should be limited to 12 per year with no more than two in any calendar month. In addition, we recommend the applicant should develop a Noise Management Plan that provides a process for minimising potential noise effects. We have provided a draft Noise Management Plan in Appendix B.

1.0 INTRODUCTION

Marshall Day Acoustics has been engaged by Mapua Boat Ramp Community Trust to undertake an assessment of noise effects for the proposed Mapua boat ramp and Sea Scout / Community building, following request for further information (RFI) from Tasman District Council.

This report provides:

- A review relevant documentation and architectural drawings;
- An overview of the applicable Tasman Resources Management Plan (TRMP) noise standards;
- Predicted noise emissions from site activities at the nearest residential properties and relevant receivers.

A glossary of terminology is provided in 0.

2.0 PROPOSED SITE AND SURROUNDING ENVIRONMENT

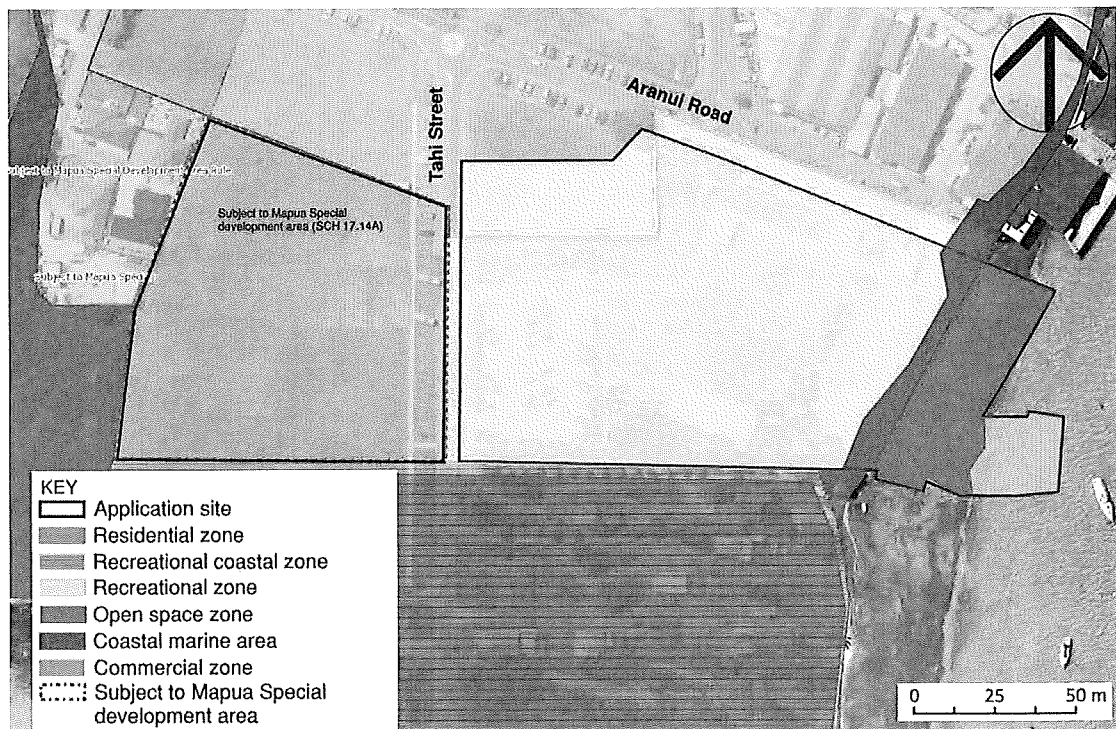
2.1 Proposed site

The proposed project is located along the waterfront park in Mapua. Figure 1 shows the TRMP zoning for both the site and surrounding environment. Most of the application site is zoned Recreation, with the boat ramp located in the Open Space Zone and Coastal Marine Area.

The application includes a new parking area to the west of Tahī Street which is zoned Residential and is subject to the Mapua Special Development Area rules.

Properties to the north are zoned Commercial and to the south Residential Coastal, while properties to the west of the proposed new car park are zoned Residential.

Figure 1: Site location and zoning



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3.0 APPLICABLE DISTRICT PLAN NOISE LIMITS AND RELEVANT CRITERIA

Below we set out the permitted activity noise limits for the application and published guidance relating to the onset of adverse noise effects.

3.1 TRMP Noise Limits

As previously shown in Figure 1, the surrounding receiving areas to the site are zoned *Commercial* to the north, *Open Space/Recreation* to the northwest, *Residential* to the west and *Coastal Residential* to the south. The applicable noise limits are summarised in Table 1:

Table 1:TRMP noise standards

Zone	Assessment location	Noise Limits	Time period
<i>Open Space or Recreation</i>	Noise generated by the activity, when measured at or within the notional boundary of any dwelling in an Open Space, Recreation Zone	55 dB L_{Aeq}	0700-2100 (Monday to Friday inclusive and 0700-1800 Saturday (but excluding public holidays))
		40 dB L_{Aeq}	Night
		70 dB L_{Amax}	All other times, plus public holidays
<i>Residential</i>	Measured at or within the boundary of any site within the zone, other than the site from which is generated or at or within the notional boundary of a dwelling within any other zone	55 dB L_{Aeq}	0700-2100 (Monday to Friday inclusive and 0700-1800 Saturday (but excluding public holidays))
		40 dB L_{Aeq}	Night
		70 dB L_{Amax}	All other times, plus public holidays
<i>Commercial</i>	Measure at or within the boundary of any site within the zone, other than the site from which is generated	55 dB L_{Aeq}	0700-2100 (Monday to Friday inclusive and 0700-1800 Saturday (but excluding public holidays))
		55 dB L_{Aeq}	Night
		70 dB L_{Amax}	All other times, plus public holidays

Noise must be measured and assessed in accordance with the provisions of New Zealand Standard NZS 6801:2008 *Acoustics – Measurement of environmental sound* and New Zealand Standard NZS 6802:2008 *Acoustics - Environmental Noise*.

3.2 World Health Organisation

World Health Organisation (WHO) *Guideline Values for Community Noise* (Berglund and Lindvall, 1999) give guidelines for environmental noise exposure. For community or environmental noise the critical health effects (those effects which occur at the lowest exposure levels) are:

- Sleep disturbance - The prevention of sleep disturbance is essential for good physiological and mental functioning of healthy people;
- Annoyance (slight, moderate, high) - Annoyance may, in turn, induce behavioural effects that decrease the quality of life and increase anti-social behaviour;

- Speech interference/communication disturbance. - This may lead to social isolation, particularly in vulnerable groups that is contrary to Government policy on social inclusion.

The WHO Guideline Values for these three critical health effects for community or environmental noise are presented in Table 2. These Guideline Values are the exposure levels that represent the onset of the effect for the general population. That is, at these noise levels, critical health effects only begin to appear in a small number of vulnerable or sensitive groups.

Table 2: WHO Guideline Values for the critical health effects of community or environmental noise

Specific environment	Critical health effect(s)	dB L _{Aeq}	Time base (hours)	dB L _{Amax}
Outdoor living area	Serious annoyance, daytime & evening	55	16	-
Dwellings, indoors -inside bedrooms	Speech Intelligibility and moderate annoyance, daytime & evening sleep disturbance, night-time	35 30	16 8	45 -
Outside bedrooms	Sleep disturbance, window open (outdoor values) night-time	45	8	60

With respect to this application, WHO recommends a noise level of no greater than 45 dB L_{Aeq} outside bedrooms at night and 55 dB L_{Aeq} during the day.

3.3 NZS 6802:2008 Acoustics - Environmental Noise

The 2008 version of NZS 6802 (N.B. the District Plan refers to the 1991 version) makes reference to the following desirable upper limits of sound exposure at or within the boundary of any residential land use:

- Night-time (2200 to 0700 hours): 45 dB L_{Aeq} and 75dB L_{Amax}
- Daytime (0700 to 2200 hours): 55 dB L_{Aeq}

3.4 Discussion

Based on the above, the most stringent noise limits that apply to the site are 55 dB L_{Aeq} during the day and 40 dB L_{Aeq} at night at adjacent Residential zones, noting that "night" also includes all day on Sundays and public holidays, and after 6pm on Saturdays.

Whilst these limits represent the permitted activity standards for the zone, reference to WHO and NZS6802 indicates that a more stringent noise limit is not required during the day on Sundays in order to provide appropriate residential amenity. In other words, a limit of 55 dB L_{Aeq} between 0700 and 2200 hrs each day, including Sundays and Public Holidays would provide an acceptable residential amenity in line with this guidance.

Both WHO and NZS6802 also suggest that up to 45 dB L_{Aeq} at night provides a reasonable standard for the protection of sleep which is 5 dB more lenient than the TRMP permitted activity standard of 40 dB L_{Aeq}.

4.0 KEY OPERATIONAL ACTIVITIES AND NOISE SOURCES

The application includes several distinct noise sources associated with the launching and retrieval of boats, use of the "Sea Scout" building and car parking noise. We consider it unlikely that all aspects of the application would be generating noise at the same time to the maximum extent possible.

For our analysis we have adopted the approach of evaluating potential noise emissions in a conservative use scenario. Given the diverse nature of sound sources linked to this project, we have divided the noise generated by each activity into three different groups:

1. Boat launch/retrieval at the ramp
2. Amplified music and patron noise at sea scouts / community building as associated with a function (e.g. wedding, birthday party etc). [The Sea Scout building is split into three distinct sections with two of these being used for boat storage. The third northern most section will potentially be used for functions].
3. Traffic noise generated within the onsite car park and the new proposed car park to the west of Tahi Street.

4.1 Hours of Operation

Whilst the boat ramp facility would essentially be available 24-hours per day, lighting will not be provided and we expect most activity would take place during daylight hours on weekends and holiday periods. However, it is likely the boat ramp would be used on occasion during the night-time period as defined in the District Plan (i.e. before 7am) when the more stringent noise limits apply. No boat washing facilities will be provided at the ramp.

Regarding the sea scout / community building, we understand that may be used occasionally for events and gatherings mostly during daytime. As we describe below, it is feasible that the building can be used with amplified music in the evening with appropriate noise management practices provided that doors and windows remain closed.

4.2 Receivers

We have considered potential noise emissions to the key residential site boundary receiver locations labelled R1 and R2, these are located south and west of the site on Tahi Street and Aranui Road. Refer to Figure 2 for an aerial showing the nearest receivers and potential noise sources. We have also assessed noise emissions to the commercial areas to the north of the site, denoted C1 and C2.

Table 3 provides the distances between each of the key activity areas and receiver locations.

Table 3: Distances from activities to receiver locations

Ref	Address	Approximate distance to:			
		Boat Launch area	On-site car park	Western car park	Sea scout / community building
R1	13 Tahi Street (upper floor)	35	105	190	95
R2	27B/27C Aranui Road	240	110	20	120
C1	8 Aranui Road	105	120	170	105
C2	3/1 Aranui Road (The Apple Shed)	72	160	220	145

4.3 Noise Sources and Modelling Methodology

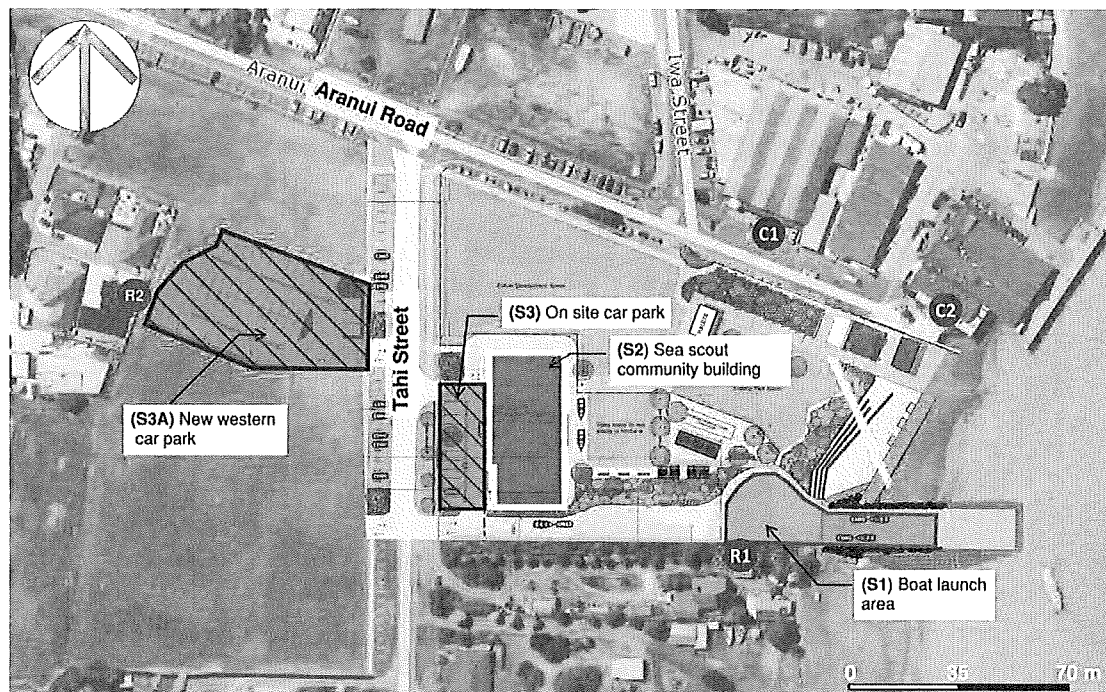
Table 4 summarises each of the noise sources used in our assessment and the associated noise levels based on data collected at several similar facilities around in New Zealand.

Table 4: Summary of assumptions and sound pressure level for each sound source group

Source	Activity	Description	Sound pressure level
S1	Boat launch	Ute/truck manoeuvring (incl. arrival, ramp access and departure), boat engine starting and leaving.	44 dB $L_{Aeq(15min)}$ at 33m
S2	Sea scout / community building	Amplified music and patron noise within the building. Noise breakout is based on the indicative constructions shown in the architectural drawings	94 dB $L_{Aeq(15mins)}$ internal reverberant sound level
S3 and S3A	On-site car parks	We have taken into consideration the planned allocation of 38 car parks, which includes 3 accessible parks and an additional 4 designated for mobile homes. This results in a total of 31 spaces expected for light to medium vehicles.	70 dB L_{AE} at 3 metres 78 dB L_{Amax} at 3 metres for vehicle doors closing

Figure 2 illustrates the location of the potential noise sources labelled S1 to S3A and surrounding receivers labelled R for Residential and C for Commercial.

Figure 2: Site plan showing noise sources and key sensitive receivers



4.4 Assumed Scenarios

Table 5 describes all the conservative scenarios that we contrived in order to calculate noise levels at relevant receivers for daytime and night-time. We have assessed the conservative situation that all noise sources will be operating collectively during the day whereas the boat ramp and community facility may operate separately at night (as defined by the TRMP).

Table 5: Assessed scenarios.

Scenario	Prescribed time	Description
1	Daytime	Boat launch + Car parks + Sea Scout Community Building (DT) <ul style="list-style-type: none"> • Boat launch (2 movements per 15 min) • Sea Scout / Community building with amplified music • Both car parks (15 movements per 15 min)
2	Daytime	Boat launch + Car Parks (DT) <ul style="list-style-type: none"> • Boat launch (2 movements per 15 min) • Both car parks (2 movements per 15 min each)
3	Night-time	Boat launch + Car Parks (NT) <ul style="list-style-type: none"> • Boat launch (1 movement per 15 min) • Both car parks operating (1 movement per 15 min)
4	Night-time	Sea Scout Community Building (NT) <ul style="list-style-type: none"> • Sea Scout Community building with amplified music • Both car parks operating (15 movements per 15 min)

The predicted noise levels for each daytime and night-time scenario are shown in the following Table 6. For clarity we have not provided the L_{Amax} maximum noise levels in the table but can confirm the activity complies with the applicable night-time limit of 70 dB L_{Amax} at all assessment locations.

Table 6: Predicted daytime and night-time noise level at any point within the boundary of relevant receivers. (Red cells indicate a noise limit breach)

Pos	Assessment location	Scenario 1	Scenario 2	Scenario 3	Scenario 4
		Daytime	Daytime	Night-time	Night-time
		dB L_{Aeq} (15min)	dB L_{Aeq} (15min)	dB L_{Aeq} (15min)	dB L_{Aeq} (15min)
R1	13 Tahi Street	53	53	50	37
R2	27C Aranui Road	44	36	32	44
C1	8 Aranui Road	43	40	36	40
C2	3/1 Aranui Road (The Apple Shed)	43	42	38	36

Our analysis indicates that all activities can occur on site during the day and comply with the TRMP permitted daytime activity standards at all locations.

However, if the boat ramp were to be used at night, which we note includes all day on Sundays and public holidays, and after 6pm on Saturdays, noise levels will exceed the applicable 40 dB L_{Aeq} limit at position R1 (13 Tahi Street). The predicted noise level is 50 dB L_{Aeq} .

Similarly, activities within the community facility have the potential to exceed the night-time noise limits at R2 (27A Aranui Road). The predicted level is 44 dB L_{Aeq} which is 4 dB above the 40 dB L_{Aeq} permitted activity standard.

We note that we have not applied a penalty for any Special Audible Characteristics that might be present in the noise emissions (e.g. tones or impulsivity). If SAC penalty were to be applied, predicted noise levels would be 5dB higher.

5.0 ASSESSMENT OF NOISE EFFECTS

As we note above, the proposed activity will result in a breach in the TRMP permitted activity limits in some instances and the associated adverse noise effects associated with those breaches are discussed as follows:

5.1 Boat ramp

We consider that use of the boat ramp between 0700 and 2200hrs on any day will allow for an appropriate residential noise amenity that is consistent with the guidance published in NZS6802 and WHO. Therefore noise limit breaches at the nearest residential boundary during the TRMP “night-time” periods of Saturday between 6pm to 10pm, and all day on Sundays and public holidays, will result in acceptable noise effects.

However, use of the boat ramp outside these times, i.e. before 0700 and after 2200hrs, will generate noise levels of 50 dB L_{Aeq} at the nearest residential dwelling which is above both the TRMP limit of 40 dB L_{Aeq} and the 45 dB L_{Aeq} noise level recommended in the WHO and NZS6802 published guidance.

At this noise level, there will be a notable adverse noise effect for the dwelling at 13 Tahi Street including potential sleep disturbance if the dwelling’s windows are opened for ventilation. However, the extent of adverse noise effect will be influenced by the occurrence of these events but we expect them to be focussed at weekends and during holiday periods. Practical steps such as the erection of signage requesting consideration of neighbours, can also minimise the extent of potential effect.

5.2 Functions at the Sea Scout building

Typical day-to-day activities at the proposed building will result in acceptable noise effects at all adjacent sensitive receptors including during the day on Sundays and Public Holidays.

Whilst our analysis shows that amplified music and patron noise during functions has the potential for adverse noise effects, we consider these can be appropriately managed to acceptable levels as follows:

- There should be no more than 12 functions with amplified music per year and no more than two in any month
- Music should be finished by 10pm

We recommend a Noise Management Plan be prepared, this should address as a minimum:

- A person responsible for the implementation of the noise management plan
- Hours of operation
- Procedure to ensure external doors and windows remain closed (except for normal patron access)
- Procedures to ensure rubbish and recycling collections occur during daytime only
- Methods for receiving and responding to noise complaints

5.3 Car Parking

The extent of noise generated by cars manoeuvring and doors closing in the car park will inherently be associated with the activity occurring at either the proposed boat ramp and Sea Scout building.

The greatest potential for noise disturbance from car park noise is for the dwellings at 27A/27B Aranui Road from the proposed western car park when guests are departing after a function. We consider that the proposed 10pm curfew for amplified music and limit to 12 functions per year will ensure any adverse effects are minimised.

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APPENDIX A GLOSSARY OF TERMINOLOGY

A-weighting	The process by which noise levels are corrected to account for the non-linear frequency response of the human ear.
dB	<u>Decibel</u> The unit of sound level. Expressed as a logarithmic ratio of sound pressure P relative to a reference pressure of $P_r=20 \mu\text{Pa}$ i.e. $\text{dB} = 20 \times \log(P/P_r)$
dBA	The unit of sound level which has its frequency characteristics modified by a filter (A-weighted) so as to more closely approximate the frequency bias of the human ear.
$L_{\text{Aeq}}(t)$	The equivalent continuous (time-averaged) A-weighted sound level. This is commonly referred to as the average noise level. The suffix "t" represents the time period to which the noise level relates, e.g. (8 h) would represent a period of 8 hours, (15 min) would represent a period of 15 minutes and (2200-0700) would represent a measurement time between 10 pm and 7 am.
L_{Amax}	The A-weighted maximum noise level. The highest noise level which occurs during the measurement period.
SEL or L_{AE}	<u>Sound Exposure Level</u> The sound level of one second duration which has the same amount of energy as the actual noise event measured. Usually used to measure the sound energy of a particular event, such as a train pass-by or an aircraft flyover
SPL or L_p	<u>Sound Pressure Level</u> A logarithmic ratio of a sound pressure measured at distance, relative to the threshold of hearing ($20 \mu\text{Pa}$ RMS) and expressed in decibels.
SWL or L_w	<u>Sound Power Level</u> A logarithmic ratio of the acoustic power output of a source relative to 10^{-12} watts and expressed in decibels. Sound power level is calculated from measured sound pressure levels and represents the level of total sound power radiated by a sound source.

APPENDIX B DRAFT NOISE MANAGEMENT PLAN

Introduction

As operators of the Mapua Sea Scout and Community Building we acknowledge that we have a responsibility to ensure that our premises do not generate excessive noise disturbance during functions that include amplified music. The purpose of this Noise Management Plan ("the Plan") is to detail the procedures we will adopt to ensure that disturbance to neighbours caused by adverse effects over which we have control is avoided or minimised. Our aim is to adopt the best practicable options available to meet this objective while managing events on site.

Key Elements of the Plan are:

- Avoid or minimise the impact of noise from our premises to neighbours and local residents.
- The identification of noise sources relating to the premises and acceptable levels of noise arising from such sources.
- Detailed steps to manage noise from and around our premises that we have control over (as far as reasonably possible).
- Feedback from neighbours and others to make appropriate adjustments to the Plan as necessary.
- Maintenance of a register of public complaints received in relation to noise associated with the hospitality facility.
- Services such as rubbish/recycling to be collected during District Plan daytime only;
- Cleaning, dumping of glass into bins outside only to be carried out during District Plan daytime only.
- Permitted levels and operation of any sound system
- The operation of mechanical systems
- Actively monitoring of outdoor areas to encourage noise minimisation with the intention of avoiding any noise disturbance.

Sources of noise include:

- Patron conversation and amplified music from the communal spaces
- Persons on premises including external areas, car parks, and persons entering and leaving the premises; and
- Traffic noise from guest and services vehicles.

Resource consent conditions

The primary noise-related resource consent condition for the site is:

<TO BE CONFIRMED>

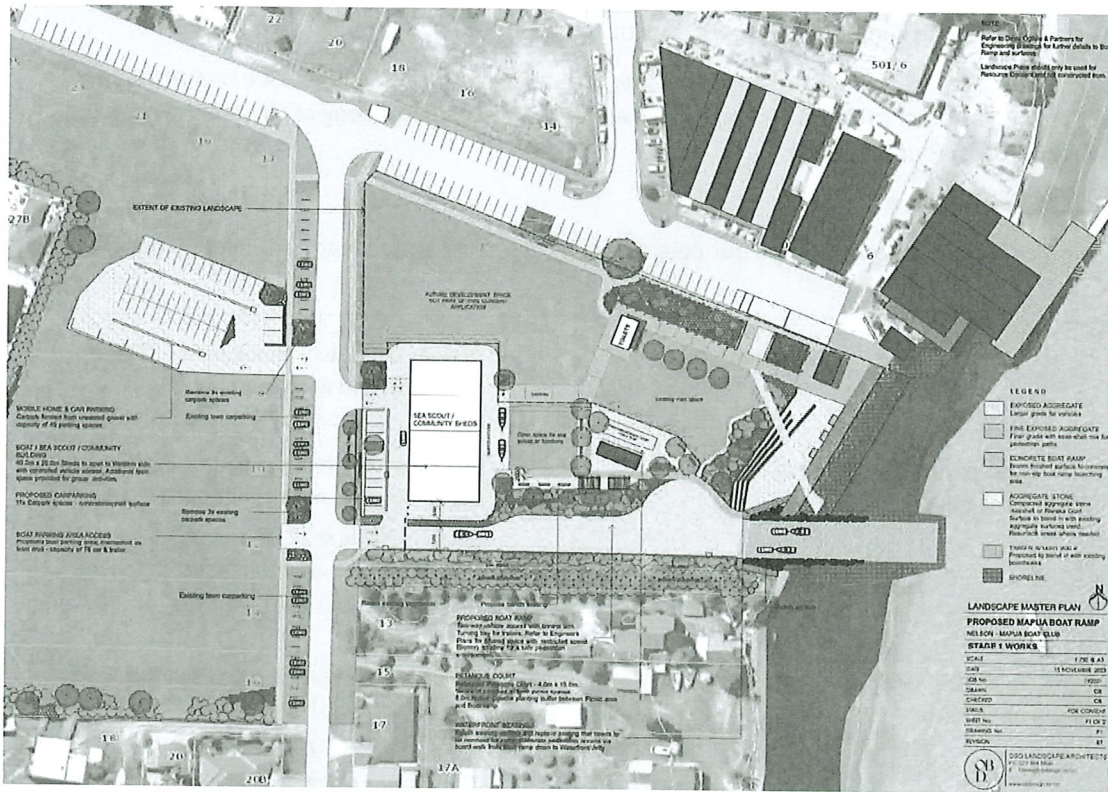
Steps taken to manage noise emissions

Generally, the overriding requirement for control of noise is "at source" in relation to noise on premises. Actions for the control of noise from the premises that we will adopt include:

- [TBC] Only 12 functions with amplified music are permitted in any year with a maximum of 2 in one month.
- Careful consideration of the location, orientation and design of loudspeakers inside the building to ensure consistency with the consent conditions and compliance with the noise limits.
- The maximum music noise level permitted within the function centre is 90 dB L_{Aeq}
- All speakers shall be turned off at 2200 hrs.
- All external doors and windows shall remain closed when music is being played, except for the normal entry and egress of patrons.
- No glass disposal into bins etc is to occur outdoors except between 0700 - 2000 hours.

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APPENDIX C PROPOSED SITE LAYOUT



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APPENDIX D SEA SCOUT COMMUNITY BUILDING

