6

WHARF

NOISE MANAGEMENT PLAN (NMP)

NAPIER PORT

DOCUMENT CONTROL

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PLAN CERTIFICATED

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Construction Environmental Management Plan

This Noise Management Plan (NMP) has been extracted from the HBRC certified CEMP for the purposes of uploading to the 6 Wharf website.

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1. NOISE

1.1 ENVIRONMENTAL RISK ASSESSMENT

All of the Project's construction related activities will generate noise and vibration due to the nature of the activities and the proximity to Napier City residential areas. However, piling is the only medium-risk activity. The nearest residential property is 385m away from the piling front.

Marshall Day Acoustics (MDA) were engaged by Port of Napier Ltd to undertake an assessment of noise effects from the construction of a new wharf (named 'Wharf 6') at the existing container terminal. This assessment relates to the construction works only (***Refer Append B***).

MDA's report contains a description of the project and methodology, relevant noise performance standards, predicted noise levels and an assessment of the noise effects. The report has been divided into two parts:

1. Airborne construction noise

2. Underwater noise from construction and dredging works

Due to the large separation distance from the proposed construction works to nearby residential receivers, effects from construction vibration would be negligible and have not been considered further.

Table 10. Construction Noise Risk Assessment

	Construction activity				
	Earthworks	Piling	Dredging & Rock Placement	RC Works	Pavement Construction
Nuisance Noise	Low	Medium	Low	Low	Low

1.2 GUIDANCE NOISE LEVELS – PERFORMANCE STANDARDS

Table 11 sets out consented noise levels for comparison of noise levels at the site. Under the Napier City Plan, the Port must manage construction noise within its existing operational noise contours. As far as practicable possible these performance standards will be complied with.

Table 11 Guideline construction noise limits

Building type	Days	Times	Guideline noise limit $L_{Aeq(t)}$	Guideline noise limit L_{AFmax}
Residential	Weekdays	0730-1800	70 dB	85 dB
		1800-2000	65 dB	80 dB
		2000-0730	45 dB	75 dB
	Saturdays	0730-1800	70 dB	85 dB
		1800-2000	45 dB	75 dB
		2000-0730	45 dB	75 dB
	Sundays and public holidays	0730-1800	55 dB	85 dB
		1800-2000	45 dB	75 dB
		2000-0730	45 dB	75 dB
Industrial and commercial	All days	0730-1800	70 dB	-
		1800-0730	75 dB	-

Note: periods in grey are outside the working hours for the project

1.3 MODELLING CONCLUSIONS

Based on measurements of general port operations, it is considered that airborne noise from the majority of construction works would be similar to normal port activities. This would include excavator and crane operations,

truck and vessel movements, and mechanical plant operation. Provided that these works were undertaken at appropriate times of the day, and that the activities are no louder than necessary, in MDA's opinion the noise effects of these activities would be negligible.

While noise from the impact piling would likely be noticeable at the nearest dwellings due to its character, MDA considers that the predicted noise levels are reasonable on the basis that the works would be of limited duration and undertaken within appropriate hours of the day.

The airborne noise from the proposed works are reasonable provided that they are undertaken within appropriate hours of the day, are no louder than necessary.

Marshall Day predicted that Permanent Threshold Shift (hearing loss) would not be caused by a single impact, however driving of impact driven steel piles have the potential to result in PTS from cumulative exposure at underwater receiver distances of up to approximately 580m for low-frequency cetaceans such as baleen whales and less than 20m for mid-frequency cetaceans such as dolphins and orca, and pinnipeds such as fur seals. It is noted that the cumulative exposure is based on the species being present in within these distances for a 24 hour period. The PTS cumulative exposure distances would decrease if the species is in the area for a shorter time period.

Underwater noise from dredging and disposal activities is predicted to be comparable to existing shipping activities.

MARSHALL DAY Acoustics

Figure 3: Predicted Noise Levels for Impact Driven Steel Piles

1.4 CONSTRUCTION NOISE MANAGEMENT

HEB Construction will operate their construction activities in accordance with the guidance and recommendations contained within MDA's Assessment Report (Appendix B) and as per item 1.6 below and as specified by NZS6803:199 "acoustics – Construction noise" as per condition 17 of consent AUTH-123841-02 (CL180008C)

1.5 PREDICTED NOISE LEVELS FOR RELEVANT EQUIPMENT AND/OR ACTIVITIES

Impact piling works will produce the highest noise levels of all the proposed constructions works. If compliance with the construction noise limits is achieved for this activity, it would be achieved for all construction works.

Figure 3 above shows the predicted LAeq noise contours from the impact piling works. The piling works are predicted to achieve compliance with the daytime construction noise limit of 70 dB LAeq and 85 dB LAFmax, with the closest dwellings receiving noise levels in the order of 55 dB LAeq and 65 - 70 dB LAFmax.

These noise levels will be monitored in real time utilising the Napier Port existing noise monitor. Early on in the project, this will be monitored live while impact piling is carried out to ensure compliance with the consent. If noise levels reach peak allowable, impact piling will be halted until more favourable weather conditions are encountered.

1.6 PRACTICABLE CONSTRUCTION NOISE MITIGATION STRATEGIES

HEB Construction will employ where practicable the following construction noise mitigation strategies:

- Utilising a non-metallic ‘dolly’ or ‘cushion cap’ between the hammer and the driving helmet of the impact piling rig (e.g. plastic or plywood).
- Use an impact piling driving system that includes a ‘skirt’ to shroud the point of impact
- Fitting of silencers on the rig engine
- Fitting engine covers
- Construction of an effective acoustic barrier, such as a stack of containers placed on the land side of the site
- Regularly inspect and maintain equipment. Ensure it is well oiled and lubricated
- Adjust the time of day and the duration of the activities to fit within 0730-1800
- Use localised screening/enclosure where required
- Ensure minimum amount of energy required (hammer drop height) is used to drive the piles
- Endeavour to progress the piles with vibro methods where practicable to reduce impact piling

1.7 NOISE MONITORING REQUIREMENTS

Noise monitoring will be conducted in general accordance with NZS 6801:2008 and NZS 6803:1999.

Monitoring will be conducted as follows:

- When an activity commences for the first time on site to assess the noise levels prior to the continuing. This will enable an assessment of the effectiveness of any proposed noise control measures or mitigation.
- At regular intervals during the first 6 months of works, at least monthly, to check ongoing compliance with the construction noise criteria. After 6 months this will continue at 3 monthly intervals for the first year of construction to check compliance.
- In response to construction noise related complaints.
- If noise monitoring indicates that Project noise criteria are being exceeded, and that was not anticipated then the management of the area will be reviewed.

1.8 COMMUNICATION, CONSULTATION AND COMPLAINTS RESPONSE PROCEDURES

A key component of HEB Construction's approach to mitigation of the noise is early stakeholder engagement. This approach recognises that while the predicted noise levels are within performance standards/limits and the Port is already a significant source of localise noise residents are "acclimatised" to this noise and will most likely find the character of the piling operation noise different and therefore they will be more aware of the sound. Through early and proactive stakeholder engagement HEB will seek to minimise the impact of construction works on potentially affected parties. Prior to the start of work the HEB team will advise Napier Port of the planned works, duration, timing and who to contact if they have an issue. This information can then be shared with stakeholders. All communication with stakeholders will be undertaken in conjunction with the Port.

Napier City Council monitoring staff are also a key stakeholder for the Project. They will be kept up to date with current activities and locations.

HEB Construction will provide regular updates via the https://www.napierport.co.nz/ website to ensure residents and local businesses can plan, as much as possible, their activities around the piling works.

1.9 COMPLAINT MANAGEMENT

Complaints may be referred by one or more of the regulatory authorities, a member of the public, or a Member of the Project team. It is the responsibility of the Project Manager to respond to and follow up all complaints relating to dust. The Project Manager is responsible for ensuring suitably qualified Personnel are available to respond to complaints at all times including after hours and on weekends when complaints regarding noise could be received. On call staff will be notified of the complaint via the appropriate personnel acting in accordance with the complaint management procedures. The on-call staff will respond by visiting the area in question and then taking noise measurements

2.0 COMPLAINT INITIAL ACTION

Actions to be taken as soon as possible by the staff member responding to the complaint on behalf of the Project Manager:

- Fill out a complaint form.
- Note the time, data, identity and contact details of complainant. Wind direction and strength and weather conditions are recorded. Note if complainant has been referred from a consent authority.
- Ask the complainant to describe the noise; whether it is a constant or an intermittent problem; how long has it been going on for; if it is worse at any time of day, does it come from an identifiable source.
- As soon as possible after receipt of a complaint undertake a site inspection. Note all noise producing activities taking place, which staff member(s) or sub-contractor(s) are responsible for the noise mitigation methods that are being used.
- If complaint was related to an event in the recent past, note any noise producing activities that were underway at that time, if possible.
- As soon as practical (preferably within 30 minutes) visit the area from where the complaint originated to ascertain if noise is still a problem.
- If it becomes apparent that there may be a source of noise other than activities on the Wharf 6 Construction Project causing the noise nuisance it is important to verify this. Photograph and document the source and emissions. Take measurements wherever possible.
- As soon as possible after the initial investigations have been completed contact the complainant to explain any problems found and remedial actions taken.
- If necessary, update any relevant procedures to prevent any recurrence of problems.
- Complete complaint form and file on complaint register.

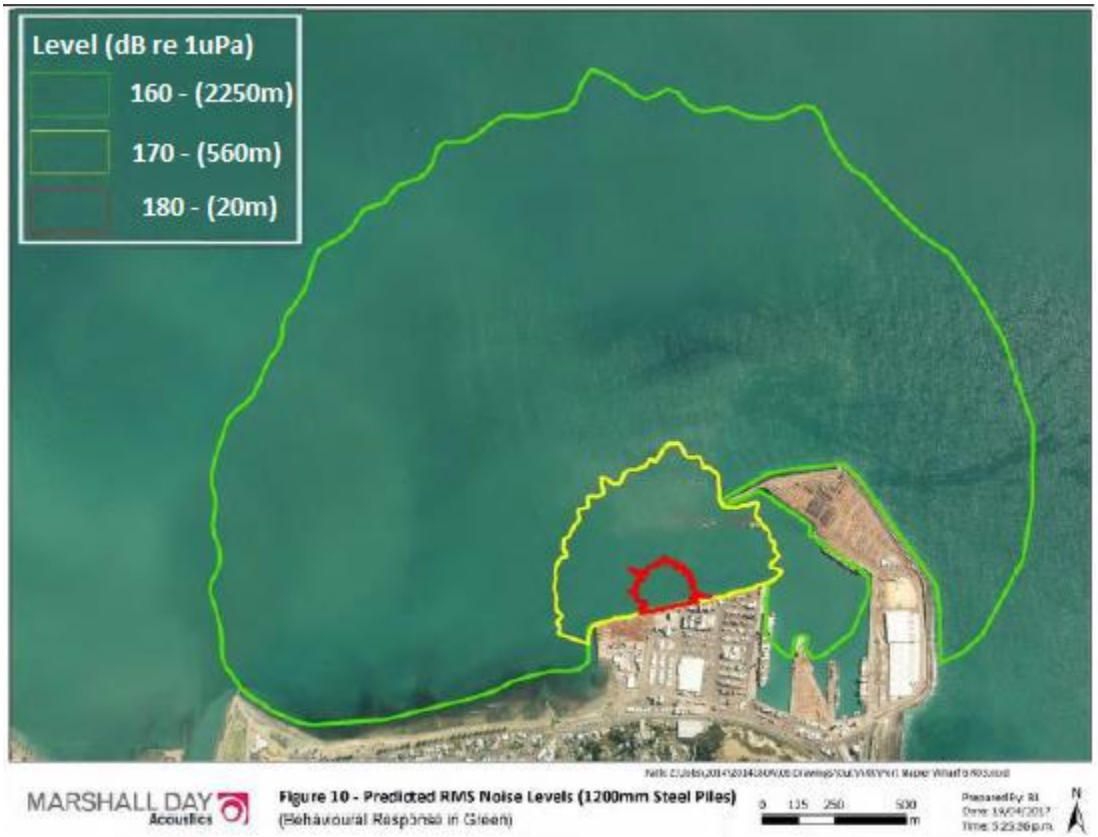
2.1 FOLLOW UP ACTIONS

The Project Manager will advise the Napier City Council as soon as practical that a complaint has been received, what the findings of the investigation were, and any remedial actions taken. Following that the Project Manager will advise Project staff and sub-contractors that a complaint has been received, what the findings of the investigation were, and the remedial actions taken.

2.2 UNDERWATER NOISE MITIGATION MEASURES

HEB Construction will employ the following mitigation measures in order to reduce and/or manage the effects of underwater noise:

1. No impact piling will commence if a diver or marine mammal is identified within:
    - 2.25 km of the piling rig with no dolly (HEB do not operate with this system)
    - 560 m if a plastic or plywood dolly/cushion head is utilised (Typical HEB hammer)
2. Use 'soft starts' (gradually increasing the intensity of impact piling) and minimise duty cycle
3. Implement low power or shut down procedures if a diver or marine mammal is identified within:
    - 2.25 km of the piling rig with no dolly
    - 560 m if a plastic or plywood dolly/cushion head is utilised
4. Stop piling if a diver or marine mammal is identified within:
    - 580 m of the piling rig with no dolly
    - 150 m if a plastic or plywood dolly/cushion head is utilised
5. Where practicable, prioritise equipment and technology that results in low noise levels and has favourable spectral characteristics (e.g. bored piling, vibro piling and then impact piling in order of preference
6. Soft starts (gradually increasing the intensity of impact piling) and minimise duty cycle (operational time vs. down time



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