

Noise Management Plan



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INTRODUCTION

- 1.1.** The **Port Nelson Noise Management Plan¹ (NMP)** sets out the long term commitment of **Port Nelson Limited** (PNL) to the management of **Port Noise** from port related activities. The NMP has been developed in accordance with the Commissioner's recommendation on **Variation 07/01** (the Variation), and is a requirement of Appendix 29.A, and Rule INr.40.1 a) of the **Nelson Resource Management Plan (NRMP)**.
- 1.2.** PNL has prepared a **Port Nelson Environmental Management Plan (EMP)**, a management system that is accredited to the **ISO 14001:2004** standard. The NMP has also been incorporated into the EMP as part of the commitment to noise minimization. The standard is underpinned by the requirement to continually improve environmental performance; therefore the NMP will be updated as improvements are made to noise management.
- 1.3.** PNL's obligations associated with the **Acoustic Treatment of Noise Affected Properties** identified on the **Port Nelson Noise Contour Map** are set out in a separate **Port Nelson Noise Mitigation Plan**, a requirement of Appendix 29.B of the NRMP. The plans are required by rules in the NRMP. The minimum criteria required by the NMP are specified in the NRMP. If any provisions of the NMP are in conflict with those provisions then the provisions of the NRMP shall prevail.
- 1.4.** The NMP outlines how PNL will take active steps to comply with
- The requirements of Rule INr.40.1(a) of the NRMP, and
 - the duty contained in Section 16 of the Resource Management Act 1991 which provides that:

'Every occupier of land (including any premises and any coastal marine area), and every person carrying out an activity in, on, or under a water body or the coastal marine area, shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level'.
- 1.5.** The areas affected by Port Noise are shown on the Port Nelson Noise Contour Map (Appendix A). The Port Nelson Noise Contour Map is based on the energy average of the daily **Ldn** for 5 consecutive busy days. It was derived from noise modelling, therefore instantaneous noise levels at a particular contour line can be expected to be occasionally higher than the representative contour line (see section 1.6 below and definitions in Appendix C).
- 1.6.** PNL uses the Ldn parameter as the basis of its management. In recognition of sleep interference Ldn imposes a 10 dBA penalty for noise at night. The Ldn parameter and the development of noise

¹ Text in bold is defined in the *Meaning of Words* (Definitions) – Appendix C

contours based on it is considered to be an appropriate method to provide for noise management at Port Nelson. These contours have been used to establish land use controls in the NRMP.

2. PLAN OBJECTIVES

2.1. The objectives of the NMP are as follows:

- 2.1.1. To set out PNL's commitment to the management, and minimisation of Port Noise;
- 2.1.2. To provide information on the sources of noise at the **Port Nelson Industrial Area** and the ways this has been managed to date;
- 2.1.3. To provide information on the procedures for investigation of significant noise events through operations;
- 2.1.4. To describe methods to continue to research, develop and implement noise minimisation procedures;
- 2.1.5. To provide a framework for the measurement, monitoring, assessment, and management of Port Noise;
- 2.1.6. To provide a framework for the reporting, processing and investigation of noise complaints, and feedback to the complainant;
- 2.1.7. To provide information on noise minimisation training, and the noise awareness programme;
- 2.1.8. To provide a framework for community input into noise management and noise mitigation at Port Nelson, including contributing to the identification and implementation of the **Best Practicable Option** to reduce Port Noise, through the **Port Nelson Noise Liaison Committee (PNLC)**.

2.2. Noise Policy Objectives (From PNL's Environmental Management Plan)

The PNL Environmental Management Plan incorporates this NMP as part of the framework for addressing environmental effects of port related activities. The EMP noise policy objectives listed below are accordingly endorsed in both plans.

- N2.1. To ensure that noise emitted from port operations is minimised as far as practicable and to assign priority to minimisation of one off clangs and bangs.
- N2.2. To ensure that noise at residential locations is minimised as far as practicable by progressively adopting the best practicable option to limit the emission of noise from all noise-producing processes and operations at the port.
- N2.3. To actively implement the requirements of the NRMP through a Port Noise Management Plan and Port Noise Mitigation Plan once the Variation/Plan Change takes effect.

N2.4 To comply with the NRMP noise monitoring requirements and verify the accuracy of the noise model and associated noise contours on a regular basis.

2.3. This NMP is supported by, or operates in conjunction with, the following

- i. An **Environmental Officer** appointed by PNL with responsibility for overseeing noise management including:
 - Advising the management of PNL of recommendations of the PNLC and reporting to the PNLC on implementation of decisions; and
 - Investigation of options and implementation of procedures for noise minimisation through port operational procedures and staff and contractor training; and
 - Handling and investigation of noise complaints.
- ii. PNL's monitoring and reporting of noise (see section 8 and 9);
- iii. The Port Nelson Noise Mitigation Plan;
- iv. The establishment, funding and ongoing effective operation of the PNLC.

3. RELEVANT STATUTORY DOCUMENTS AND REGULATIONS

3.1. The relevant statutory or other documents that have a bearing on this plan are:

- The Resource Management Act 1991;
- The NRMP;
- The New Zealand Coastal Policy Statement 1994;
- The Port Noise Standard NZS6809:1999;
- Measurement of Sound Standard NZS 6801:1999;
- The Building Act 2004;
- The Health and Safety in Employment Act 1992;
- The Port Companies Act 1988;
- The Health Act 1956.

4. RULE INr.40 PORT NELSON INDUSTRIAL AREA NOISE MANAGEMENT

Rule INr.40 of the NRMP is concerned with the management of noise emitted from the Port Nelson Industrial Area and requires the implementation of a Port Nelson Noise Management Plan, Port Nelson Noise Mitigation Plan, and the establishment of a Port Nelson Noise Liaison Committee.

4.1. Port Nelson Noise Management Plan (NMP)

This NMP outlines PNL's continuing commitment to investigate and adopt the best practicable options to minimise the emission of Port Noise. Procedures to adopt the best practicable option in order to minimise Port Noise are described further in Section 13.

4.2. Port Nelson Noise Mitigation Plan

The Port Nelson Noise Mitigation Plan provides for mitigation of dwellings in the residential zone on a three tier basis, and is to be implemented by Rule INr.40 and is described in detail in Appendix AP29.B of the NRMP. It is a separate plan from this NMP and can be viewed on request from PNL or the **Nelson City Council (NCC)**.

4.3. Port Nelson Noise Liaison Committee (PNLC)

The PNLC is referred to in Rule INr.40, which requires PNL to establish, maintain and participate in a Noise Liaison committee. The PNLC has been in existence since the notification of the Variation in various forms and has been actively meeting since March 2009 in a manner consistent with the Commissioners' Recommended Decision adopted by the NCC. The PNLC is discussed in detail in Section 6.

5. AREA COVERED BY THIS PLAN

- 5.1. The port noise contours apply to Port Noise generated within the Port Industrial Area, (but excludes non port noises such as public street traffic noise) as shown below. This NMP however applies only to the **Port Operational Area** where activities are under direct or close control of PNL. It does not apply to the areas outside of the Port Operational Area or to traffic on the State highway and city streets.
- 5.2. Where activities are on land leased to other parties by PNL, only indirect control by PNL is possible. Activities in this category include seafood-processing plants, transport depots, facilities for boat building, and maintenance and general port servicing activities.
- 5.3. Noise emissions from these leased areas are controlled by rule INr.37 and INr.38 of the NRMP. Rule INr. 37 requires that activities in the leased areas of the Port Industrial Area do not exceed noise levels of 65dBA L₁₀ at their boundary during the day, and 55dBA L₁₀ at night. Enforcement of this rule is the responsibility of the NCC. However, as general noise from the Port Industrial Area (including the leased areas) may contribute to measured levels of noise, and therefore requirements for

6. PORT NOISE LIAISON COMMITTEE (PNLC)

6.1. Role of the PNLC

The PNLC is required to consider all noise issues arising from the port operation and carry out the functions identified in this NMP and any functions identified in Appendix 29.B. of the NRMP. The PNLC is a functional interface between PNL and the residents affected by noise from the port. It is recognised that a balance needs to be struck between the needs of PNL and port users, and those of the residents, and a functioning PNLC is a cornerstone of this process. The following excerpt is taken from the Commissioners Recommendations on the Variation, section 11.61:

“The crucial point is that all members of the Committee must have the interests of the proper promotion of the new scheme of port noise management and mitigation as their focus. Thus, it is not the role of the Port representatives on the Committee to try to promote the operation of the Port over the interests of the residents; likewise it is not the role of the residents on the Committee to try to promote their interests over the efficient and appropriate workings of the Port. The Committee is set up to achieve certain outcomes and it is essential that it works constructively to that end.”

6.2. PNLC Resourcing and Support

- 6.2.1. PNL will provide secretarial and logistic support for the committee.
- 6.2.2. PNL will provide a budget that makes adequate provision for the committee to undertake its functions including the investigation and recommendation of noise minimisation measures within the Port Operational Area.

6.3. Functions of the PNLC

The PNLC primary functions are to:

- i. Oversee the implementation of the NMP and the Port Nelson Noise Mitigation Plan.
- ii. Ensure that PNL is made aware of the concerns of its neighbours and other port users and is meeting community expectations to minimise and mitigate Port noise.
- iii. Ensure documentation relevant to noise management are up to date and in use in port operations.
- iv. Review current objectives for noise management (see Section 2).
- v. Submit programmes to fulfill objectives and associated financial requests to PNL management, to be considered within PNL’s annual preparation of budgets.

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- vi. Consider all complaints of Port Noise received and recorded on the PNL's register of noise complaints (see Section 11), CRM², SHED³ reports (see Section 11) and those received by the Nelson City Council and recommend where appropriate further investigations into issues raised by the complainants, or actions to prevent a recurrence of the complaint.
- vii. Review PNL's performance under the requirements of the Variation, and provide recommendations to assist PNL in continuing to fulfill these obligations.
- viii. The PNLC will consider noise issues arising from port related activities with regard to (in no particular order of importance):
- PNL's acceptance of the obligation to manage noise emanating from port operations;
 - The requirement of Section 16 of the Resource Management Act 1991 for PNL and other port users to adopt the best practicable option to ensure the emission of noise does not exceed a reasonable level;
 - The intentions and functions of the PNLC as expressed in the Variation;
- ix. The PNLC is required to carry out the functions given to it by the Port Nelson Noise Mitigation Plan.

6.4. PNLC Composition

The PNLC is required to comprise members as follows

- i. Three members appointed by PNL. At the current time the PNL appointed members are:
- PNL Environmental Officer;
 - PNL Port Logistics Manager;
 - PNL Infrastructure Manager.
- ii. Three members appointed by residents living in the Port Hills (the Residents representatives);
- iii. An independent chairperson appointed by the committee (remuneration and expenses for the Chairman to be met by PNL.)

² CRM stands for Customer Relationship Management and is the internal PNL system to manage noise complaints.

³ SHED stands for Safety, Health, Environment and Damage report and is the internal PNL system to manage incidents occurring on site.

It should be noted that the PNLC is required by the NRMP to be constituted as a separate committee from the Port Nelson Environmental Consultative Committee (PNECC).

6.5. Resident Representative Election Procedure

- 6.5.1. The process for the election of the resident representatives of the PNLC, including the length of tenure of their membership on the PNLC, shall be resolved by the committee, and subsequently recorded in the minutes of that committee meeting.

6.6. Committee Procedure

- 6.6.1. At its first meeting of the calendar year, the Committee will confirm its chairperson for a period of two years. The chairperson will be appointed two-yearly thereafter;
- 6.6.2. In undertaking the business of the PNLC, each member shall in good faith endeavour to achieve consensus on all issues before the Committee;
- 6.6.3. The Port Operator shall respond in writing to the Port Noise Liaison Committee within 30 days, unless the parties agree a different timeframe, to explain its decision with respect to any recommendation of the Port Noise Liaison Committee, and how it proposes to implement any recommendations including timeframes;
- 6.6.4. The focus of the Committee's functions shall be the PNLC matters specified in the Variation.

6.7. Committee Meetings

- 6.7.1. The meetings of the Committee will not be open to the public or media but members will be free to disclose all matters discussed at a meeting unless it is agreed that a particular matter will be discussed in confidence, or if there are privacy issues relating to particular properties.
- 6.7.2. PNL will arrange for the Committee to meet on not less than four occasions each year.
- 6.7.3. The Committee may invite representatives of other parties to attend and contribute to the meetings from time to time when discussing issues that either affect or involve the other parties, and may include, but not limited, to representatives of:
- Nelson City Council;
 - Port operators and users;
 - Cargo owners;
 - Port Industrial Area lessees;
 - Recreational facilities operated within the Port Industrial Area;

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- Auckland Point School;
 - Shipping agents;
 - Owners and residents of noise affected properties.

6.7.4. The representatives of other parties invited to attend a committee meeting will not have voting rights.

6.7.5. A special meeting of the Committee may be called by any member, or other person, by contact with the committee chairperson. The special meeting will be scheduled at the chairperson's discretion.

6.8. Committee Reporting

6.8.1. An annual summary of the activities of the PNLC taken from the minutes of the Committee meetings will be provided to owners and residents of Noise-affected properties, as defined by the NRMP (refer to Appendix C – Definitions). The summary will also be provided to any member of the public upon request.

6.8.2. A summary of PNLC minutes will be available on the PNL website one month after the meeting is held.

7. NOISE MODELLING PROCEDURES

- 7.1. PNL has produced a Port Nelson Noise Contour Map shown in [Appendix A](#) based on the energy average of the daily Ldn for 5 consecutive busy days. In accordance with AP29.A of the NRMP the contour map is required to be updated on an annual basis for the first five years, and every two years thereafter. The port noise contours are also required to be modelled at 1 dB intervals between 55 dBA Ldn and 70 dBA Ldn.
- 7.2. An annual update of noise modelling information will be made available to owners of Noise-affected properties, as defined by the NRMP (refer to Appendix C – Definitions) for the first five years and every two years thereafter.
- 7.3. PNL will carry out monitoring as necessary to calibrate and ensure that the Port Noise Contour Map provides as accurate modeling of Port Noise using a busy five day operating scenario.

8. CONTINUOUS NOISE MONITORING PROCEDURES

- 8.1. PNL has installed a continuous noise monitor in accordance with Appendix 29.A.2 of the NRMP, at the location shown on the map in [Appendix A](#).
- 8.2. As required by AP29.A.2 of the NRMP PNL will maintain at its expense the sound level monitoring equipment and shall arrange for a suitably qualified person to perform continuous monitoring of noise emanating from port activities for at least the first five years. The monitoring equipment is required as a minimum record noise level statistics in 15 minute periods so that the **Leq**, **Lmax** and **L90** noise parameters can be determined for each 15 minute period.
- 8.3. The monitoring equipment will be capable of recording the actual sound when a pre-set threshold or set of thresholds is exceeded, so that the sound can be listened to at a later time. Recordings will be kept for a minimum of six months.

9. REPORTING PROCEDURES & REQUIREMENTS

- 9.1. PNL will provide the results of the sound level monitoring to the NCC and PNLC on a monthly basis. The results will be in summary form showing Leq, Lmax and calculated Ldn levels within two weeks of the end of each month. Significant Port Noise emissions will be highlighted and correlated with port activity, wind speed and wind direction.
- 9.2. When sound level monitoring indicates that Port Noise may be exceeding 65 dBA Ldn or 65 dBA **Leq_(15 min, 10pm-7am)** at properties that are not shown on the Port Nelson Noise Contour Map as eligible for mitigation under Section AP29.B.1 of Appendix 29.B of the NRMP, the results of monitoring will

be recorded, investigated and reported to the PNLC. The investigation will identify as far as possible those properties receiving Port Noise at or above such levels.

- 9.3.** Copies of this plan, and all reports, minutes, and recommendations considered or made by the PNLC and PNL, are to be held at the offices of PNL and the NCC and will be made available to members of the public on request.

10. PROCEDURE FOR MEASURING PORT NOISE

Port Noise is required to be measured as follows (taken from AP29.A.3 of the NRMP):

(a) in accordance **with NZS 6801:1999 Acoustics - Measurement of Sound**, and assessment shall be in accordance with **NZS 6809:1999 Acoustics - Port Noise Management and Land Use Planning**, provided that:

- i) subject to sub-clause (b) i) of this clause, the Rating Level described in clause 7.3 of **NZS 6809:1999** shall be determined for the sole purpose of defining any $Leq_{(15 \text{ min})}$ sound level, required for the purposes of Appendices 29.A and 29B (NRMP); and
- ii) adjustments for any special audible characteristic to any $Leq_{(15 \text{ min})}$ made in accordance with clause 7.3 and A6 of **NZS 6809:1999** shall, except for audible warning devices, not apply to noise from log and container handling activities. The above exception for log and container handling activities shall also apply to audible warning devices on ships where there is no practical alternative for safety reasons.

(b) For the purpose of comparison with noise criteria specified in Appendix 29.B (NRMP) the following will apply:

- i) In assessing any $Leq_{(15 \text{ min})}$ sound level between 10pm and 7am the following day, one ship visit of up to five days duration shall be deemed to be one occasion.

11. COMPLAINT HANDLING & INVESTIGATION PROCEDURES

- 11.1.** Noise complaints can be lodged with either NCC or PNL. Complaints lodged directly to PNL enable immediate action to be taken towards mitigating the source of noise. Appendix B sets out the procedure for noise complaints lodged with PNL. A complaint may be lodged via telephone, facsimile, letter or email. PNL considers that the complaints process is a useful way to receive information from affected parties that may lead to the reduction of Port noise. This occurs not only at the time of the complaint, but as part of the overall aim to minimise Port noise. Information provided by complainants is used to determine the sources of Port noise, and for correlation with readings from the continuous noise monitor.

11.2. PNL will maintain a register of noise complaints and report the details of complaints and action taken to investigate and resolve complaints to the PNLC at the earliest opportunity. The register of noise complaints will be consistent with the following:

- i. Record the details of the name and address of the complainant and the time and date of the complaint;
- ii. Record a description of the noise, the estimated length of time that the noise occurred and identify, if possible, the source of the noise;
- iii. Record of the noise levels from the continuous noise monitor, including; Noise events⁴, Short report⁵, and Half second Sound Pressure Level⁶;
- iv. Identify Port operations occurring around the time of the complaint;
- v. Record the details of what vessels were in Port at the time, and at which berth they were located;
- vi. Record the wind speed and wind direction;
- vii. Take steps to investigate the noise complaint as soon as practicable;
- viii. Report back to the complainant and provide details of complaint to the NCC Environmental Officer;
- ix. Record the steps taken to investigate the noise complaint and to resolve or mitigate the noise issue in the noise register;

11.3. PNL will report the details of complaints and action taken to investigate and resolve complaints to the PNLC at the earliest opportunity.

11.4. The process of investigation may be undertaken through the PNL internal Safety, Health, Environment and Damage reporting and investigation (SHED Report) process at the discretion of the Infrastructure Manager.

11.5. The Nelson City Council will take such steps as necessary to encourage any noise complaints to be made directly to it, and the NCC Environmental Officer will investigate the complaint as soon as circumstances allow and will advise PNL of the complaint.

11.6. When a noise complaint is received, PNL will as soon as practicable advise the NCC if the complaint is not received through the Council.

⁴ Significant noise event profile displaying measurement of Leq, Leq max, SPL max, event spectra and wind speed.

⁵ Statistical report showing measurement of Leq, L90, and SPL max in 15 minute intervals.

⁶ Sound Pressure Level measurements displayed at half second intervals

12. SOURCES OF NOISE AND EXISTING NOISE ENVIRONMENT

To understand the noise environment at Port Nelson, noise observations, measurement and modelling has been undertaken by an acoustic engineer (Hegley Acoustics Consultants Limited). As part of the modelling it was necessary to identify and quantify dominant noise sources.

The following noise sources have been identified.

12.1. Container Handling

Container handling activities include:

- i. Unloading containers delivered to the Port by road using lift-trucks. This mainly occurs during the day (receiving and delivery);
- ii. Moving containers to and from ship side during vessel working using trucks and lift-trucks (marshalling);
- iii. Loading full containers and unloading empty containers using cranes (stevedoring);
- iv. Loading and unloading containers into RoRo vessels (stevedoring);
- v. Storage of refrigerated containers with their cooling systems running;
- vi. Loading and unloading of containers with break bulk cargo;
- vii. Container washing and (testing) 'pre-tripping';
- viii. Lashing bars dropped on deck - dropping twist locks on deck or wharf;
- ix. Transport of containers within the Port Operational Area;
- x. Undertaking repairs on containers;
- xi. Containers blowing over during wind events.

12.2. Cranes

Crane activity noise sources include:

- i. Mobile Harbour Crane - whining sound from the crane rope drum operation;
- ii. Ship's own crane or gantry - movement warning devices emit a penetrating sound;
- iii. Preparing cargo for lifts - removal of container lashing bars;
- iv. lashing bars dropped on deck - dropping twist locks on deck or wharf;

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- v. Operation of spreaders - the impact noise between lifting spreader and container;
 - vi. Placing the cargo on the wharf or on the ship - penetrating impact noise caused by the container landing on the wharf and on the ship.
 - vii. Lifting of hatch lids and placement on wharf or ship;
 - viii. Sliding containers into the guides on the vessel;
 - ix. Lifting of logs and placing into ship holds, particularly into an empty hold.

12.3. Container Handling Forklifts

Forklift operations that generate noise include:

- i. Engine revving;
- ii. Impact of spreader or forks against the container or cargo;
- iii. Placement of the container on the wharf or truck;
- iv. Reverse warning indicators.

12.4. Ships at Berth

This is noise which continues for the whole time, day and night, that the vessel is in port and is mainly caused by the generators which provide power to run winches, refrigeration plants, integrated refrigeration units, heating and lighting, etc. This is a fairly constant noise for the full duration of the ship's stay on the berth. The use of ships' horns is another source of noise. The noise level produced by the ships are beyond the direct control of PNL but is included in the calculation of the port noise contours as part of the total port noise experience and is managed through the provisions of the NRMP.

12.5. Container Refrigeration Units (Reefer Units)

Refrigeration containers have a cooling unit built in. They are used in two main areas, full containers awaiting shipment and empty containers being prepared in the empty container yard. Their positions are fixed because the power is fed underground to units that accommodate up to 16 containers. The port has up to 630 power points available for containers at various locations. Up to 128 of these are used for testing empty containers. Empty containers are tested for a period between 6 and 12 hours depending on the design.

Full containers are on power for an average of 2 days prior to the estimated arrival time of the ship. The power to frozen cargo cuts on and off automatically whilst power to chill containers is continuous.

12.6. Container Repair

The repair of damaged containers takes place during daytime hours in the Empty Container Yard. General steel repair work also includes grinding and hammering of steel members back into shape which causes a hollow impact sound and grinding noise.

12.7. Trucks

Cargo arrives and departs from the Port by road trucks that travel through the operational areas along set routes to fixed areas where they are unloaded by forklifts or in the case of logs, by log loaders. Container trucks stop at the port entrance for documentation and break-bulk cargo trucks move direct to the storage areas or direct to shipside.

Logs are initially scaled at the north end of Graham Street before the truck travels to the storage area where the logs are offloaded by log-loaders. An impact noise is also generated when the metal frames that hold the logs in place in transit are lowered on log trucks after the logs have been removed.

The main container truck exchange area is located on the north side of the container storage area adjacent to the tug berth.

Road trucks and mafi-trucks are used during the stevedoring and marshalling operations to transport containers to and from the storage area from and to the ships or cranes. The route they take is circular between the storage area and shipside

It should be noted that noise from trucks and machinery moving on public roads is not included as port noise.

12.8. Log Loaders

Log loaders are similar to forklifts and are large diesel driven machines with hydraulically controlled beaks that can lift 20 tonnes of logs. Their initial duty is to offload the trucks of logs on arrival and to place the logs into storage rows. They are used to either move the logs to shipside during loading or onto trucks that transport the logs to shipside where another log loader offloads and places the logs into bunks ready for the stevedore to lift onto the ship.

The log loaders generate noise especially when applying revs to lift the heavy loads. An associated noise can be logs rolling from the stockpile when log loaders are removing logs from the pile. The log trucks moving back from shipside rattle and bang. A booming sound may occur when logs are first placed in large empty holds of ships.

12.9. Abrasive Blasting

The ship repair industry need to undertake abrasive blasting of hulls to remove the paint ready for recoating and is a particularly noisy operation. The abrasive blasting mainly occurs at the slipway at an elevated location.

The Slipway is outside of the Port Operational Area (but within the Port Industrial Area) and is managed by a lease holder (Calwell Slipway, Nelson Ltd).

The slipway has a resource consent that permits a higher level of noise at its boundary than the other leased areas within the Port Industrial Area, to enable the abrasive blasting to take place (see section 5 for details).

13. NOISE MINIMISATION

Noise reduction measures implemented to date include changes in land use within the port, adoption of a Ships Berthing Code of Practice, investigation and where possible adoption of new technology and staff awareness programmes. The following noise reduction methods are currently in place at PNL.

13.1. Management changes to minimise noise have included:

- i. Preventing horns being blown as a signal between log loader and truck;
- ii. Moving the log storage closer to the loading wharf and further away from the residential area;
- iii. Day time activities utilise zones closer to residential areas e.g. a new location for the empty container yard;
- iv. Requesting shipping companies to investigate modifying generators/funnels of ships;
- v. New land acquired and redeveloped to provide log storage;
- vi. Modification to crane spreaders e.g. Height Indicator System for reduced impact between container and spreader;
- vii. Berth allocation policy to use Brunt Quay as the preferred berth over Main Wharf South for container vessels;
- viii. Purchasing decision policy to acquire quieter plant and equipment e.g. container handling forklifts, log loaders, trucks and trailers.

13.2. Container Handling, Stevedoring and Marshalling Code of Practice

Activities that take place at night are limited to those essential to service ships to facilitate their efficient use of the port facilities. The following measures are in place or have been identified to be included in future stevedoring codes of practice:

- i. Awareness training will be provided for all stevedoring and marshalling staff and all new staff will be briefed on noise, particularly noise at night;
- ii. Staff input into methods of improving the noise environment will be encouraged;

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- iii. Regular meetings will be held between stevedores and cargo planners to minimise unnecessary movements at night;
 - iv. Records will be kept of improvements to minimise movements;
 - v. Stevedoring Foremen will audit the noise being generated during the operations, take steps to mitigate the noise where practical, and will monitor staff performance for future staff allocation;
 - vi. Container twist locks to be placed in holding boxes rather than dropped onto the deck of the ship;
 - vii. Where practicable the twist locks to be taken off the containers at wharf side rather than on the ship (this reduces the potential of accidental dropping of the steel holding units and stops the container about a metre above the wharf to enable the twist locks to be removed and the container lowered slowly to the wharf, reducing the landing impact);
 - viii. High stacking forklifts spreader hydraulic lift control to be fitted with pressure reducing valve to delay the initial lift speed and avoid the impact when the spreader engages the container;
 - ix. Reversing indicators on forklifts are disengaged at night and replaced with reversing strobe lights;
 - x. Plant operators to complete a checklist of equipment at the start of each shift to include noting any noise generating faults;
 - xi. Radios will be used for communications instead of verbal instructions;
 - xii. Use of horns will be limited to safety purposes;
 - xiii. The log marshalling company will comply with the Log Storage Code of Practice.

13.3. Ships at Berth Code of Practice

The following mitigation measures are in place or have been identified to be included in future ships at berth codes of practice:

- i. Berth ships with the major noise source, e.g. generators or ventilation fans, directed away from the residential area, unless the ship is required to be berthed on the opposite side for loading purposes;

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- ii. Maintain and display in the Duty Pilots office a register of noisy ships and their best berth and direction so that they may be identified prior to entering port and berthed as above. The berth selection will be subject to operational constraints;
 - iii. Seek proactive support from regular shipping lines to minimise noise from vessels by:
 - Endeavouring to achieve the loading at other ports that enables the vessel to be berthed as required in i) above;
 - Investigating means of reducing the noise emitted from overly noisy motors, generators, fans or loading gear;
 - Investigating means of muting the noise emitted from the ship's loading equipment warning bells or sirens without compromising their safety purpose;
 - iv. Loudspeaker systems shall not be used on ships in port for any reason other than for safety warnings;
 - v. Ship horns shall only be used when testing is required prior to departure and if possible the testing shall be undertaken during day hours, 0700-2200. The exceptions are :
 - Cruise Liners upon arrival or departure to relay a welcome and thank you signal;
 - Where the horns are required for navigational safety, such as in fog.

13.4. Cargo Transport and Storage Code of Practice

The following mitigation measures are in place or have been identified to be included in future cargo transport and storage code of practice where practical:

- i. Receiving containers at the port and the delivering onto the customer's road freighting company's truck will generally occur during the hours 0700 - 2200, unless delivering direct to the ship.
- ii. Placing as many reefer (refrigerated) containers on power with their motors positioned facing away from the Port Hills as practical.
- iii. Placing stacks of empty containers, where practical, to form a buffer between the Port Hills and port operations, subject to obtaining a balance between noise mitigation and adverse visual effects, and determining that there is no adverse effects due to deflection of noise.
- iv. Empty container yard, packing containers and quarantine work will generally be day operations, 0700 – 2200, other than during peak times when the operations must

continue to achieve completion prior to the ship visit. However, pre-tripping (checking they will hold the required temperature) of reefer containers is a 24 hour operation.

- v. Regular meetings will be held between cargo planners and stevedores and to minimise unnecessary movements at night.

13.5. Plant, Equipment and Development Code of Practice

Plant and equipment used in the Port Operational Area is subject to the following measures:

- i. Plant and equipment tenders shall include noise levels as an important factor and this will be considered when deciding which offer/quotation/tender to accept.
- ii. Plant and equipment shall be regularly maintained to keep noise emissions to a minimum and repaired at an early date whenever damage causes increased noise.
- iii. Daily start-up checklist for operators includes a check on anything that the operator identifies as noisy and/or has suddenly become noisy.
- iv. Safety warning devices shall where practical minimise noise. For example:
 - Disengaging the reversing indicators at night and replacing them with reversing strobe lights for safety;
- v. The effect of noise on residents shall be a factor when considering alternatives for port development.

13.6. Port Users

PNL will continue to encourage companies working within the Port Area to be aware of noise issues through:

- i. Contractor inductions;
- ii. Updates to the Common User Protocol.

13.7. Port Noise Network

- i. The PNL Environmental Officer will maintain regular communication with Ports across New Zealand and internationally to share best practice in minimising port noise;
- ii. Maintain regular contact with providers of specialised port equipment and ensure noise reducing modifications are adopted as soon as is practicable;
- iii. Keep up to date with New Zealand Standards for industry and adopt applicable best practice.

13.8. Audits and Performance Measurement

- i. The noise minimisation objectives of this plan may be audited externally as part of the Ports environmental management programme accredited to ISO 14001;
- ii. Develop performance measures for external audit with the objective of continuous improvement to ISO 14001 accreditation standards;
- iii. Revise the PNEMP noise policy to align with the NMP.

14. SIGNIFICANT NOISE EVENT INVESTIGATION PROCEDURE

The nature of operations at Port Nelson in conjunction with the proximity of the Port Hills residential area means that at night residents may be exposed to sudden clangs and bangs which cause them to be woken. In acoustic terms these clangs and bangs are represented by the L_{max} parameter. L_{max} is the A frequency weighted maximum sound level in decibels over a particular time frame (normally 15 minutes).

14.1. Significant Noise Event

PNL is committed to minimising the clangs and bangs associated with operations, particularly at night. To reduce the occurrence of noise events which exceed 85dBA L_{max} (modeled at the 65 dBA L_{dn} contour line on the Port Noise Contour Map) noise levels⁷ PNL will:

- 14.1.1. Ensure all relevant staff receive induction and training in the importance of noise minimisation (see Section 13.6, and 15);
- 14.1.2. Work closely with other port users to ensure all noise sources are kept to a minimum in particular L_{max} events exceeding 85 dBA.
- 14.1.3. Irrespective of any complaint, whenever the continuous sound level monitor indicates that Port Noise has exceeded 85dBA L_{max} 2200hrs – 0700hrs PNL will:
 - i. Identify the source of the L_{max} exceedance event and investigate its cause. Video monitoring footage of port activity will be used where possible to investigate the source of Port Noise in order to reduce the occurrence of significant noise;
 - ia Record and analyse noise levels from the continuous noise monitor, including Noise events (including sound recordings), Short report, and half second SPL for the 15 minute interval;
 - ii. Investigate and implement any action which could help prevent that noise event which exceeded 85 dBA L_{max} from reoccurrence;

⁷ Noise limits taken from NZS 6809:1999 Acoustics – Port noise: Management and land use planning

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- iii. Report its findings to the PNLC, within 7 days of the event including a report on the actions taken;
 - iv. Where the findings involve a breach of company policy on noise by an employee what action has been taken and if no action the reason. It is acknowledged that such action may include redeployment to day shifts, further training or treatment of the matter as a performance management issue.
- 14.1.4. PNL will also investigate and report the highest three L_{max} readings per calendar month in excess of 75dBA 2200 hours — 0700 hours (modelled at the 65dBA Ldn contour line on the Port Noise Contour Map) such investigation to be identical to sub-clauses i, ii and iv in clause 14.1.3 above and shall be reported as part of the monthly reporting requirements of AP29.9.A.2 i(b).

15. NOISE AWARENESS AND REINFORCEMENT

An integral part of minimising noise at source is an active and effective awareness and training programme. PNL has an Environmental Management Plan that is accredited to the ISO14001 standard. The standard requires any staff that have the potential to cause a significant **Environmental Aspect** are competent on the basis of appropriate education, training or experience. PNL have identified noise generation as the most significant Environmental Aspect of its operation. The awareness of noise generation and the reinforcement of methods to minimise noise is assisted by the following methods:

15.1. PNL Training Modules

The following training modules are part of the PNL Training and Development programme, which incorporates unit standards from the Stevedoring and Ports National Certificate. Each of these training modules incorporates a section on minimising noise:

- i. Wharfhand Training Module;
- ii. Deckhand Training Module;
- iii. Hatchmen Training Module;
- iv. Crane Driver Training Module;
- v. Port Environmental Training Module;
- vi. Vehicle Use Training Module;
- vii. Radio Use Training Module;
- viii. Maffi Truck Use Training Module;

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- ix. Forklift Driving Training Module;
 - x. Fertiliser Unloading Training Module;
 - xi. Yardman Training Module.

15.2. PNL Meetings

As part of normal PNL operations, PNL will schedule regular meetings to enable proactive consultation between staff members and departments. Meetings at which noise may be discussed include the following:

- i. Daily '9.15' Operations meeting held between all departments;
- ii. Quarterly Cargo Operations briefings;
- iii. Foremen's Meetings (stevedoring);
- iv. Internal Environment Committee.

15.3. Internal PNL Documentation

Internal documents will be used by PNL to keep staff aware and up to date with noise issues, and as a forum for sharing best practice. Examples of these are as follows:

- i. Best Practice 'Soft Touchdown';
- ii. Stevedoring Health & Safety Audit;
- iii. Noise Audits completed during stevedoring operations;
- iv. Mobile Harbour Crane Driver Expectation Agreement;
- v. Staff Environmental Induction.

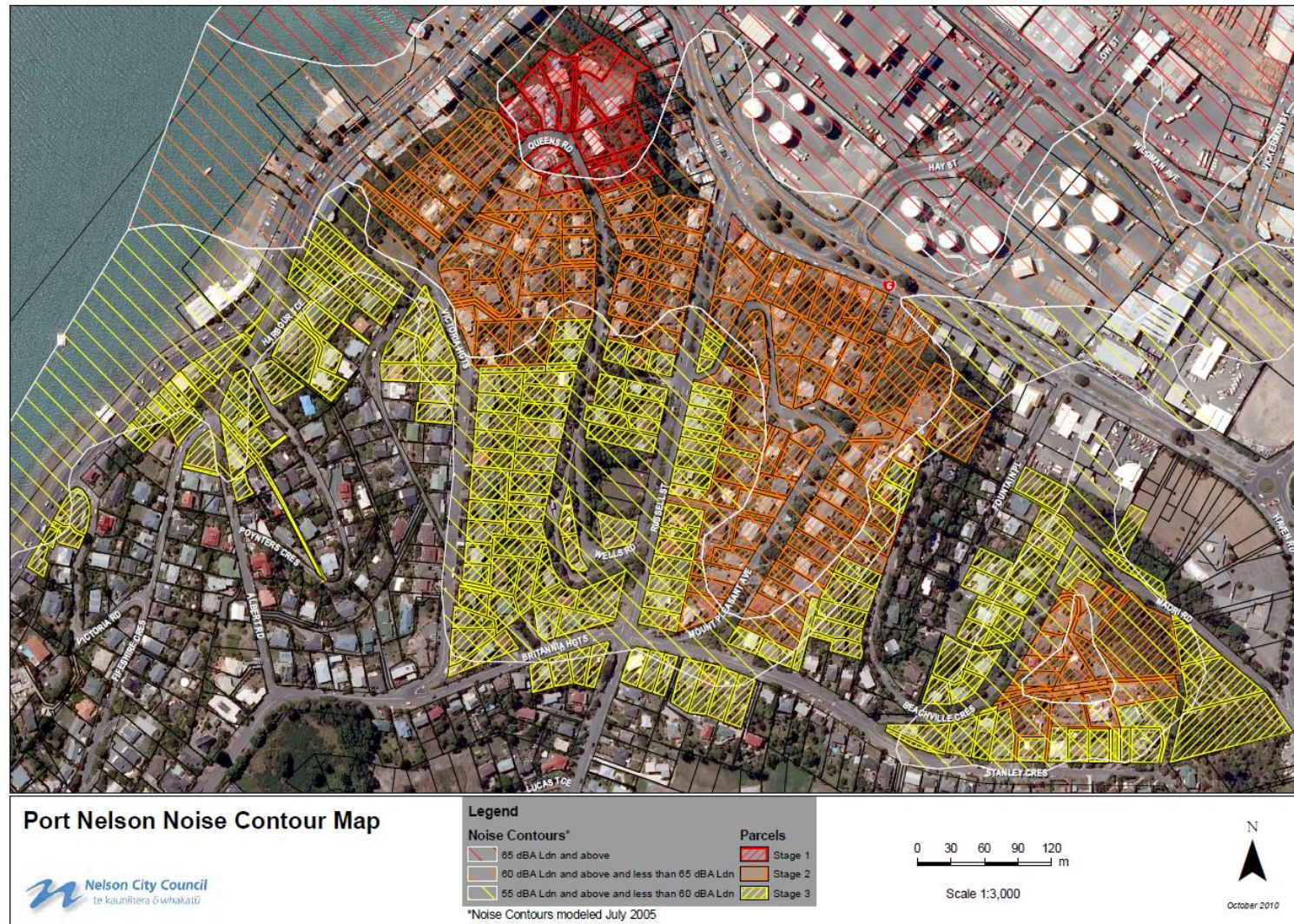
15.4. PNL Staff Expectations

PNL's expectations of staff with regard to noise will be included in future employment documents. Staff will be inducted and trained on these expectations. Where staff are not meeting these expectations then this will be managed directly with staff as a performance issue and may result in disciplinary action. These expectations will be clearly set out in PNL employment documentation, including but not limited to: Employment Agreements, Job Descriptions, and PNL's Policy and procedures.

16. ALTERATIONS TO THIS PLAN

- 16.1.** This Plan will be updated as required to reflect any relevant changes made to the NRMP;
- 16.2.** This Plan may be altered by resolution of the PNLC in accordance with the AP29.A1.i(h) of the NRMP;
- 16.3.** Any amendments to this Plan will be sent to the NCC as required by AP29.A.2 of the NRMP.

APPENDIX A NOISE CONTOUR PLAN –



APPENDIX B NOISE COMPLAINTS PROCEDURE

PORT NELSON COMPLAINTS PROCEDURE for a complaint received by PORT NELSON LTD

1. Call Logged and complainant details taken;
 - a. Name, address, contact details, time and date.
2. Noise event details taken:
 - a. Description of noise e.g. **One off** Clang or bang or **continuous/ongoing** noise? Any possible/likely cause, and location within Port.
3. Gatehouse staff to notify Foreman of noise complaint and to outline **#2** above. Foreman is to take steps to immediately investigate the cause of the noise event and if caused by port operations to take appropriate actions to prevent or reduce the likelihood of recurrence;
4. Gatehouse staff to contact NCC/CALLCARE (ph 5460200) and provide all of the information from above (As soon as practicable);
5. Gatehouse staff to fill out Incident Register in full;
6. Environmental Officer to enter details into CRM and track investigation;
 - a. Notify Nelson City Council Environmental Officer of noise complaint;
 - b. Detailing of the noise levels from the continuous noise monitor, including; Noise events (including sound recordings), Short report, and Half second SPL;
 - c. Identify Port operations occurring around the time of the complaint. Video monitoring footage of port activity will be used where possible to investigate the source of Port Noise, in order to reduce the occurrence of significant noise;
 - d. Take steps to investigate the noise complaint as soon as practicable;
 - e. Report back to the complainant within 5 working days of the complaint being made the outcome of the investigation;
 - f. Record the steps taken to investigate the noise complaint and to resolve or mitigate the noise issue, and report to PNLC at the earliest opportunity.
7. Complaint and investigation report tabled at next PNLC meeting to include complainant satisfaction to PNL response and review of actions is undertaken.

APPENDIX C DEFINITIONS

“Acoustic Treatment” means acoustic treatment of a residential property that achieves an indoor design level of 40 dBA_{Ldn} (5 day) within all living area(s) and all bedroom(s), either with ventilating windows open or with mechanical ventilation installed and operating, when port noise is at or below the certified level of port noise. Acoustic treatment shall include the cost of testing and obtaining an acoustic certificate.

“Best practicable option” in relation to a discharge of a contaminant or an emission of noise, means the best method of preventing or minimising the adverse effects on the environment having regard, among other things, to:

- d) the nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects, and
- e) the financial implications, and the effects on the environment, of that option when compared with other options, and
- f) the current state of technical knowledge and the likelihood that the "option can be successfully applied.

“dBA” means the A-frequency-weighted sound pressure level in decibels relative to a reference sound pressure of 20 micropascals. See NZS 6801:1991 clause 2.1 definition of frequency, sound pressure, reference sound pressure, sound pressure level, decibel, weighting, and sound level.

“Environmental Officer” is the Noise Officer appointed by the Port Operator pursuant to this Port Noise Management Plan.

“Environmental Aspect” means a feature or characteristic of an activity, product or service that affects or can affect the environment.

“ISO 14001” is a series of documents relating to the implementation of an Environmental Management System (EMS). ISO 14001:2004 is the document which defines the requirements for the EMS and provides guidance for its use.

“L90” means the L90 exceedance level, in A-frequency-weighted decibels, which is equalled or exceeded, 90 percent of the total measurement time. See NZS 6801:1991 clause 2.2 definition of exceedance level.

“Leq” in decibels, is the value of the steady continuous A-weighted sound pressure level that, within the relevant measurement time interval, has the same mean square sound pressure as the sound under consideration, the level of which varies over time.

“Ldn” means the “Day Night Average Sound Level” as defined in NZS6801:1999 and is the night-weighted sound exposure level in A-frequency weighted decibels. (An additional 10 dBA is added to the Leq for the period from 10 pm to 7 am.) It is measured for 24 hours from midday to midday.

“Lmax” means the maximum sound level: The maximum noise level during a designate time interval or a noise event.

“Nelson City Council” or “NCC” refers to the Local Government Council of the Nelson Region.

“Nelson Resource Management Plan” or “NRMP” refers to the combined District (land use) and Regional (coastal, land disturbance and freshwater) Plan that is prepared under the Resource Management Act 1991.

“Noise Affected Property” means a site used for residential purposes that is situated in the Residential Zone adjacent to PNL and identified on the Port Noise Contour Map as receiving levels of port noise at or above 55 dBA Ldn but excludes:

- i. Properties that have received acoustic treatment in accordance with rule INr40.1 and Appendix 29.B (Noise Mitigation Plan) and are receiving port noise at or below the certified level of port noise.

“Port Nelson Industrial Area” Means the land and water space zoned industrial and de-lineated in pink on Maps 6R, 9R and 10R of Volume 4 of the NRMP.

“Port Nelson Environmental Management Plan” refers to the management system that controls environmental effects of port activities and is accredited to ISO14001 standard.

“Port Nelson Noise Management Plan” means the Port Noise Management Plan created pursuant to Rule INr.40 of the Nelson Resource Management Plan

“Port Nelson Limited” or “PNL ” refers to the operator of Port Nelson.

“Port Nelson Noise Mitigation Plan” means the Port Noise Mitigation Plan of Port Nelson created pursuant to Rule INr.40 of the Nelson Resource Management Plan.

“Port Noise” means noise generated within the Port Industrial Area; and includes

- Noise from ships and boats at berth;
- Noise associated with the handling of cargo;
- Noise from trucks and machinery;
- Noise from administrative, repair, storage and maintenance activities;

but excludes:

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- Noise from ships and boats not at berth;
 - Noise associated with construction of permanent Port Industrial Area facilities;
 - Noise from an emergency situation;
 - Noise from vehicles on public roads.

“Port Nelson Noise Contour Map” means a noise contour map referred to in Appendix 29.A.1.(i) of the NRMP and contained in the Port Noise Management Plan showing port noise Ldn levels based on a busy 5 day operating scenario to provide for the identification of Noise Affected Properties.

“PNL” means Port Nelson Limited or its successor.

“Port Nelson Noise Liaison Committee” means the committee established pursuant to Rule INr.40 of the NRMP to consider noise issues arising from port operations, and carry out functions identified in the NMP and Appendix 29B of the NRMP.

“Port Operational Area” refers to the area that is under direct Port Nelson Ltd control, and does not include leased areas.

“RoRo” means Roll on Roll off, where cargo may be driven directly into the hold of a ship via a ramp.

“Variation 07/01 (Port Noise)” means the NCC initiated Variation to the NRMP to manage Port noise.