BEFORE GISBORNE DISTRICT COUNCIL

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER Resource Consent Applications LU-2017-107936-00 and CD-2017-107937-00 and LL-2017-107938-00 by **Eastland Port Limited** to redevelop Wharf 6 and Wharf 7 to allow the berthing and loading facilities for shipping vessels, the fishing fleet and the port tugs.

Statement of Evidence of Malcolm James Hunt on behalf of Eastland Port Limited

9 May 2018

Introduction

1. My name is Malcolm James Hunt. I am the Principal of the environmental noise and acoustic consultancy firm, Malcolm Hunt Associates [MHA].

2. I hold the degrees of Bachelor of Science [BSc] from Victoria University and Master of Mechanical Engineering [ME] specialising in Environmental Acoustics from the University of Canterbury.

3. I hold other qualifications including the Environmental Health Officer Qualification Regulations 1975. I also hold a Royal Society of Health Diploma specialising in Noise Control Engineering.

4. I have around 30 years' direct experience in the field of environmental noise and building acoustics in New Zealand.

5. I am a 'Full Member' of the New Zealand Acoustics Society, with a requirement of Full Membership being that I satisfy the Society's requirements in regard to continuing professional development [CPD] for both on-going education and development in the field of acoustics. I am a Member of the New Zealand Institute of Environmental Health.

6. My firm, Malcolm Hunt Associates, is a member of the Association of Australasian Acoustical Consultants [A.A.A.C]. This membership is provided to firms only not individuals. A member of the A.A.A.C must meet the AAAC Executives level of required expertise, experience and qualifications in the field of acoustics. Continuing membership also means on-going education and development in the field of acoustics.

7. I have been a member of a number of New Zealand Standard's Committees, including the past New Zealand Standards committees reviewing NZS6808, the 1991, 1999 and 2008 versions of NZS6801 relating to the measurement of environmental noise and NZS6802 relating to the assessment of environmental noise. I am also a past member of international noise/acoustic committees including the International Standards Organisation [ISO technical working groups], International Institute of Noise Control Engineering Working Group Number 2 investigating noise in recreation areas.

8. In 2011 I was awarded the Standards New Zealand 'Meritorious Service Award' by Standards New Zealand Council recognising my involvement in the development of New Zealand Acoustic Standards.

9. I have acted as a noise expert in many Resource Consent Hearings, District Plan Hearings, hearings in the Environment Court and hearings held in the High Court of New Zealand.

10. I have wide experience across the seaport sector, including Gisborne and other ports where I have measured, predicted and assessed noise from a range of port-related noise sources and activities dating back to 2004. For Eastland Port I have undertaken various noise assessments including the upper logyard. Wharfside log yard extension, log debarker trailer lift gantry, and the slipway redevelopment. I have undertaken measurement, assessment, modelling and policy work across various other ports,

including but limited to Port of Wellington, Port of Marlborough, Picton and Havelock Ports, Westport, Port of Napier, Port Nelson and Port Otago. This work has involved acting for both port companies and local territorial authorities.

Code of Conduct

11. While I appreciate this evidence is prepared for the purposes of a Council hearing, I confirm that I have read the 'Code of Conduct for Expert Witnesses' contained in the Environment Court Consolidated Practice Note 2014. I agree to comply with this Code of Conduct. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express. My evidence covers environmental acoustics and vibration for the project which is within my expertise. Unless I state within my evidence and information I discuss has not relied on anyone else's input.

Involvement in Project

12. As above I have investigated nose issues at Gisborne port since 2004. For this project my firm were commissioned in 2017 by *Eastland Port Limited* to undertake an assessment of environmental noise and vibration effects. I have been involved with assessing noise effects of the project as described within the relevant documents including the WorleyParsons engineering report and elsewhere within the application documents.

13. Based on this information I have predicted expected future noise effects in areas surrounding the port. Over recent years I have undertaken various measurements of port activity, taken both within the port and in surrounding areas. I assisted Eastland Port with the process for acquiring, siting and commissioning the automated port noise monitor that was installed during March 2018 on the roof of the Portside Apartment building. In addition, I have investigated roadside road traffic noise issues on behalf of Gisborne District Council as well as measuring noise associated with log truck movements within the port, and in areas surrounding the port.

Methodology

14. The assessments I have undertaken are based on information gathered during site visits, outdoor noise measurements during day and night time and prediction of port noise emissions associated with both the initial construction works, and in relation to port operational activity upon completion of the works. My investigations of potential noise and vibration effects of the proposed works have focused on effects received within the environment surrounding the port, in particular sites with on which residential uses are (or maybe) established, including sites providing apartment or hotel accommodation.

15. My assessment has been based on the relevant provisions of the Tairawhiti Resource Management Plan (TRMP) which sets out at C11.2.15.8(A)(1) general requirements for the assessment of noise from the port. The relevant guiding requirements for noise measurements are;

    a) Measurements are required to be taken in accordance with NZS6801:1991 "Measurement of Sound";

b) Assessment of measured sound levels is to be in terms of;
   - NZS 6802:1991 *Assessment of Environmental Sound*
   - NZS 6802:1999 *Acoustics – Assessment of Environmental Sound*
   - NZS 6809:1999 *Acoustics – Port Noise Management and Land Use Planning*

16. I note the recommended noise conditions refer to NZS6801:2008 *Acoustics – Measurement of Environmental Sound*. The use of this more recent measurement standard is supported.

Site and Activities

17. Details regarding the site, activity, noise sources and descriptions of the receiving environment are fully documented within the 4Sigtht AEE Report, the WorleyParsons Engineering Report, and my firms Noise Impact Assessment [Appendix G.1 to the AEE Report to which the Eastland Port 2017 Environmental Noise Survey Report is attached as APPENDIX B to the Noise AEE report. The Noise Measurement Compliance Report is based on a series of readings taken over a number of days during August 2017 which indicated compliance was achieved for the relevant TRMP port noise provisions (and leaving aside technical issues with the rules, as discussed below). I do not intend to repeat this information within my evidence. I set out the following overview of the site and activity.

18. The Port of Gisborne is located adjacent to the Turanganui River and comprises over 12 hectares of log storage areas, a number of wharves, a breakwater and training wall, along with other port facilities.

19. **Wharf 6 Activity:** Section 2 of the WorleyParsons Engineering Report explains the plans for this redevelopment which involves Wharf 6 being upgraded so that it can accommodate the port tug Waimata and a second new tug in the future. As outlined in the WorleyParsons report the water depths adjacent to Wharf 6 are not sufficient to accommodate the new tugs and the wharf itself is not designed to accommodate the expected loads of the tugs.

20. The proposed primary use for the redeveloped Wharf 6 is for the berthing of tugs. However, it may at times be used by the fishing fleet and possibly other smaller craft. Wharf 6 is not expected to be used by commercial ships which we understand will continue to use Wharf 7 and Wharf 8.

21. The Wharf 6 upgrading is to be undertaken in two stages. Stage 1 is to be undertaken immediately to accommodate the new port tug and Stage 2 when required in the future. The works proposed for the wharf itself could be either upgrading of the existing structure, or replacement with a new wharf. We understand dredging operations are required for the Wharf 6 redevelopment because of the proximity to the training wall which requires stabilisation works to be undertaken for this structure. We further understand the dredging is to be undertaken during daytime using a barge mounted backhoe excavator which will have noise emissions equivalent to a 20 tonne excavator commonly found on many construction sites. Stage 1 works are expected to take approximately 6 months and the Stage 2 works approximately another 6 months.

22. **Wharf 7 Activity:** The proposed use of Wharf 7 is primarily for the loading of agricultural and other produce. This use will continue following redevelopment of the wharf. Section 3 of the WorleyParsons report describes the works to be undertaken for the redevelopment of Wharf 7 including various options to strengthen, upgrading or refurbishing the existing wharf or build a wharf replacement. The Wharf 7 redevelopment is expected to follow Wharf 6 and take approximately 14-16 months.

23. The WorleyParson's engineering report(Section 6.2) refers to the upgrading of Wharf 6 to allow newer tugs to use the wharf will not increase the number of vessel movements within the Port. The redevelopment of Wharf 7 is understood to be necessary to better cater for existing ships, as well as the overflow of ships [mainly transporting logs] from Wharf 8, which will reduce the waiting time for these ships.

Assessment of Operation Noise

Wharf 6 and Wharf 7 Operational Noise

24. Section 7 of the MHA Noise Impact Assessment outlines the TRMP rules applicable to noise from land-based port operations taking place within the Port Management B zone. The Chapter 11 provisions applying to noise and vibration emissions are:

- ***Rule C11.2.15.1*** *– General Rules and Standards for Permitted Activities;*
- ***Rule C11.2.15.2*** *– Rules and Standards for Noise from Construction Activities: All Zones; and*
- ***Rule C11.2.15.4*** *– Rules for Vibration for Construction Activities –All Zones.*

25. Land based activities for the redevelopment are subject to ***Rule C11.2.15.1 (A) - (G)*** which set an average maximum noise (L_{10}) and maximum noise (L_{max}) levels for the different zones. The *Port Management B Zone* rules on noise from activities within the port are based around 'essential port activities' and 'non-essential port activities' which both myself and Dr Chiles consider difficult to check and ascertain compliance with. For this and other reasons (set out below).

26. As outlined in my Noise AEE report, potential non-compliance arises due to the current noise contours running 'through' the port [rather than around the perimeter as envisaged by NZS 6809). As such, the limits for 'essential port activities' are almost always non-complying due to what I consider to be an error which has no material noise effects significance in terms of effects experienced at nearby residential or other noise sensitive sites.

27. Wharf 6 and Wharf 7 redevelopment is likely to result in some increase in both truck movements to the port and loading operations. As such the hypothetical non-compliances will continue. I describe below how a suite of recommended alternative port noise conditions of consent have been developed (in principle at least) with Dr Chiles which do not contain the problems identified with the TRMP port noise provisions. Being based on the noise limits recommended within NZS6809:1994, I consider the alternative port noise limits to adequately protect nearby residential or other noise sensitive receivers from adverse noise effects.

28. In summary, following completion of all works applied for, operational noise from log loading and other operations will not fully comply with the TRMP rules on noise from 'essential port activities' and 'non-essential port activities'. In my view the infringements have very limited noise effects consequences. The infringements are confined to the port itself, i.e. the Port Management B zoned land and a small area of Heritage Reserve zoned land within the adjacent Titirangi Reserve and do not relate to noise received within any of the nearby General Residential or Amenity Commercial zoned land. As noted earlier, the TRMP rules are considered deficient in several respects. I consider the actual noise effects of the proposed works to be 'acceptable' [being the RMA 'test' for restricted discretionary activities) and 'reasonable' (being the wider Section 16 RMA 'test'].

Assessment of Construction Noise & Vibration

Capital and Maintenance Dredging

29. **Rule C11.2.16 (3)** states that any activity that generates noise within the Port MA is a permitted activity provided three standards are met. The conditions are quite detailed but relate to following three standards:

- ***Standard A*** *- L_{10} and L_{max} noise levels measured at the boundary of the Port MA and other specified management areas;*
- ***Standard B*** *– Noise not resulting in the 'long-term modification of the behaviour of aggregations of marine mammal or birds'; and*
- ***Standard C*** *- Noise from sirens and the like used for navigation and/or warning, is excluded from the above conditions.*

30. I note that regarding Standard A compliance is unlikely to be achieved at all times at the Port MA boundary due to the Port MA boundary being located at the river training wall which in fact lies only a few metres away from the dredge area. Likewise, compliance may not be achieved in parts of the immediately adjacent General Management Area. However, no people live in these two management areas and very few people work within them. As such the rule has no real noise effects basis and is unnecessarily restrictive.

31. Dredging operations these are predicted to comply with the L_{10} and L_{max} noise levels at the closest sites in the Commercial Amenity and Residential zones. These sites are located more distant to the works area than the closest point along Port MA boundary, where non-compliance can be expected. As noted in the application, noise from the dredging operations is unlikely to comply at the much closer Port MA/General MA boundary discretionary activity consent is being sought under ***Rule C11.2.16(3).***

32. Regarding Standard B there is no numerical standard or the like to measure the noise effects on the behaviour of marine mammal, regardless with reference to the findings of the 4Sight Ecology and Water Quality Report this report notes that neither the port area nor the disposal ground are known to contain 'aggregations of marine mammals or birds' and that their behaviour would not be adversely affected either the dredging or disposal operations. On this basis compliance with Standard B is expected to be met.

33. Standard C is not applicable to the proposal here.

Temporary Construction Noise Effects

In terms of temporary construction Section 10 of the MHA Noise Impact Assessment notes that the Tairawhiti Plan refers to both the 1983 and 1999 versions of New Zealand Standard, *NZS 6803: 1999; Acoustics –Construction Noise*.

34. I note that NZS 6803:1999 sets different recommended noise for construction projects of less than 2 weeks, less than 20 weeks and more than 20 weeks. The WorleyParsons Engineering Report notes that the Wharf 6 redevelopment is expected to take approximately 6 months, whilst the Wharf 7 redevelopment is expected to take 14-16 months.

35. I further note that the Tairawhiti Plan rules are not consistent with NZS6803. ***Rule C11.2.15.2 - Rules and Standards for Noise from Construction Activities: All Zones***, sets a limit on long term construction noise of "*168 days in any 12 month period.*"

36. NZS6803 has no such time limit, however this issue has been resolved within the wording of recommended consent Condition 32.

37. My Noise AEE report notes that ***Rule 11.2.15.2- Rules and Standards for Noise from Construction Activities in all Zones***, sets average maximum (L_{10}) and maximum (L_{max}) noise levels at the *Port Management B Zone* boundary which is effectively the wharf edge and the northern side of the slipway which adjoin the Turanganui River. Thus, these close-by locations will mean noise from construction activities within the land based Wharf 6 and 7 areas may readily exceed the L_{10} and L_{max} limits set in the rule, although noise effects will be expected to be temporary and only affecting users of the port and adjacent river. I note that land use consent has been sought for this rule infringement.

38. My firms Noise AEE report concludes that the construction noise exceedances are a result of inappropriately drafted rules and that no residential or other noise sensitive activities will eb adversely impacted. Construction noise levels within the nearby *Amenity Commercial Zone* on the northern side of the river and *General Residential* zoned sites east of the port are predicted to be compliant.

39. Overall, I have concluded noise effects of daytime construction activities received within nearby *Amenity Commercial* and *General Residential* zoned areas to the north and east are not likely to be significant and will have effects a 'less than minor' effect in these areas in my view. Regarding to noise from construction traffic, I note the operating hours and the (amended) Condition 35 which refers to measures to minimise this noise effect.

Temporary Construction Vibration Effects

40. Sections 6, 8 and 10 of the MHA Noise Impact Assessment discusses construction based vibration and the associated rules in the Tairawhiti Plan. I note that the rules are based around British 'maximum weighted' standards that are not now in common use in New Zealand, rather than the more generally recognised German Standards which are in common use in New Zealand. Regardless my findings are that the Wharf 6 and Wharf

7 construction works will comply with the plan rules, notably ***Rule C11.2.13 A- Residential and Rural Zones*** and ***Rule C11.2.13 B- Industrial, Port, Commercial Suburban Commercial and Reserves Zones***, that apply to the nearby *Amenity Commercial* and *General Residential* zoned properties.

41. In regards to vibration from piling and other activities associated with the wharf redevelopment this activity will comply with ***Rule C11.2.15.3A***, which applies to residential or rural zoned properties. This is in relation to the nearest *General Residential* zoned properties are approximately 400m away in the Harris Street area.

42. Overall, ground-born vibrations are not likely to be detected beyond the port boundary as I understand that the sheet piling will only be vibrated down to the papa rock, which is at the current seabed level, not driven into the papa rock. This method is common to both Wharf 6 and Wharf 7. In regards to the King Piles of the Wharf 7 Quay Wall this will likely to be socketed into pre-drilled holes which is also a vibration mitigation measure.

43. In my assessment, none of the proposed works are expected to give rise to any significant vibration effects which I have assessed as being of a 'less than minor' nature. I consider the recommended conditions of consent will be sufficient to ensure vibration effects will be controlled to reasonable levels, when measured and assessed as per recommended Condition 8 (Construction Management Plan) and Condition 33 (Construction Vibration Management).

Assessment Summary

44. The following table sets out the effects category for operational noise and construction-based noise and vibration effects from the wharf redevelopment and dredging's activities.

Table A: Summary of Noise Effects – Effects on the Site and Adjacent Sites

Noise Category	Wharf Redevelopment	Dredging Activity
Temporary Construction Noise	Less than minor	Less than minor
Temporary Construction Vibration	Less than minor	De minimus
Operational Noise	Minor	De minimus

45. My overall conclusions is that noise emissions from the wharf redevelopment construction works, including dredging operations, whilst not fully compliant at all times with the TRMP Rules, will be of a 'less than minor' nature, in terms of any effects received at sensitive receiver sites. Noise emissions from operations on the redeveloped wharves [notably Wharf 7 used for vessel loading] will, for the reasons explained, will technically also not fully comply with the TRMP port noise rules. However, this non-compliance also largely arises from erroneous port noise contours and rule wording and is confined to two port and adjacent reserve areas which are not occupied by sensitive uses.

46. The expected noise and vibration effects will not be likely to cause adverse impacts on any sensitive receivers. The effects of the proposed construction [including vibration] and operation of the redeveloped wharf facilities on the wider environment will in my view be 'minor' or 'less than minor' in nature.

Response to Submissions

47. I have reviewed the submissions received which raise noise or vibration effects as an issue. I set out my response to each below. I consider none of information presented within submissions has caused me to change my assessment conclusions presented in the original Noise AEE report or within this evidence. Generally speaking, submissions received raise valid noise or vibration concerns however they provide not technical information that undermines the basis of my conclusions, nor do they do not provide any observations or information indicating the actual effects would be worse than expected.

48. The submission by **Harborview Apartments Body Corporate [HVBC]** raises concerns about noise emissions which appear to be more related to activity conducted in the wider port area than the areas where Wharf 6 and 7 works are proposed. The relief sought is for noise monitoring equipment to be installed on the submitters apartment site. The monitor has been sited on the roof of the Portside Apartments taking into account a range of practical and technical factors and I do not recommend it be re-located. The submitter also seeks control of construction work hours to be limited to 'normal' work time hours.

49. The control noise emissions during construction of the redevelopment will be addressed through the proposed Construction Management Plans which will include a section on Noise. I specifically refer to proposed Condition 8 in both sets of conditions that require CMP's be submitted to the Council for certification before construction commences.

50. Regarding construction hours, providing draft Conditions 33 and 34 are complied with, no I consider no significant construction work will be able to be undertaken at night or on Sundays or public holidays in compliance with the limits proposed (which are set considerably lower for night times and weekends). Based on the recommended conditions, I am of the view that noise due construction activities can be adequately managed and controlled at all sensitive sites so as to remain reasonable at all times.

51. The submission by **Gillian Ward** notes they have made the submission based on '***the impact on the quality of residents' lives; the attractiveness of our small city, safety of other road users; CBD congestion, noise and hazardous dust'.*** No specific noise concern or relief sought is provided. I consider adherence to the recommended noise and vibration conditions will reasonably control these effects, for any sensitive receiver site.

52. The submission by **Marilyn Callahan** raises concern with traffic movements on public roads, specifically mentioning truck horns and impact sounds. I note, under the RMA, noise from vehicles operating on a public road (including state highway 35) are not subject to noise controls in the TRMP. I note the TRMP sets out measures to help protect residents alongside noisy roads by recommending noise mitigation measures

including site fencing and acoustic insulation of new dwellings (Rule C11.2.15.5.1, page 82) . In addition, I note much of the nearby areas south of the port through which State Highway 35 runs is shown within the TRMP maps to lie within the port noise "Outer Control Boundary" (Ldn 55 dB). See Appendix A (attached) for the location of the TRMP port noise areas. To me, if an area lies within a port noise contour, then appreciable port-related noise can be expected at times. For the limited period of construction traffic caused by the proposed works, Worley Parsons projections are for around 28 to 30 truck movements per day for Wharf 6 and 7 works. In my view this is not likely to contribute significantly to the effects of heavy vehicles currently traversing through the area. I consider the concerns of this submitter regarding construction traffic are addressed (at least in part) by recommended condition 35 (Construction Traffic Management).

53. The submission by **Denis Ramsay [Body Corporate Chairperson Bayview Apartments]** raises concerns about construction and operational noise emissions from vessels loading and 'other activities' which are not defined. The noise issues raised appear to be more related to the wider port area compared to the relatively confined areas within which the Wharf 6 and 7 works will take place. The submitter also notes vehicle noise effects at the public crossing of Customhouse Street is a concern, however I note again that noise from vehicles on a public road (including state highway 35) is not covered within the TRMP provisions, except in regard to roadside mitigation measures to be adopted when new sensitive uses establish in areas within areas affected by high levels of traffic noise.

54. The submission by **Winston Moreson** raises concern about noise, stating the '***noise and vibration impacts do not appear to have been addressee in sufficient detail***'. I do not agree. No specific examples or details to support this claim are provided for review or comment. Council's noise advisor Dr Stephen Chiles has reviewed the available information. Following my initial response to a request for further information, and from discussions with Dr Chiles around wording of possible conditions of consent dealing with noise and vibration, Dr Chiles seemed reasonably satisfied with the investigations and reporting into noise and vibration effects carried out regarding these projects. Section 88 of the RMA requires assessments of environmental noise and vibration effects to be in sufficient detail as reflects the nature and scale of the development and I consider this standard has been achieved.

55. The submission by **Ngati Porou Seafoods Group** which comprises a group of submitter parties, opposes the application on the grounds that the application fails to address actual and potential effects on the environment. This reference to actual and potential effects includes noise however noise and vibration is not specifically identified as a concern. Regardless, I do not agree that noise or vibration effects on the environment (should consent be granted) will be unreasonable or excessive and can be properly managed in my view.

56. The submission by **Rongowhakaata Iwi Trust** is accompanied by a detailed in three parts. Section 1 deals with general considerations, including the Rongowhakaata associations with the port area, the Council public notification process, the Port Community Liaison Group and other matters that apply to both projects/application packages. Section 2 focuses on the Wharf 6 and Wharf 7 redevelopment, whilst Section 3 covers the Slipway redevelopment.

57. The submission of the Rongowhakaata Iwi Trust mentions noise and vibration as a concern and seeks the relief that the impacts of noise and potential effects be independently reviewed. I note this has been the case with Council seeking expert advice from its independent acoustic expert, Dr Chiles.

58. The submission appears to be concerned that, in some cases, the noise rules cannot always be met. This is a relevant consideration considering the identified issues with the TRMP noise provisions that I have discussed with Dr Chiles. Dr Chiles succinctly describes these issues within the tables attached to his report (appended to the Council planners report). Dr Chiles raises a range of valid concerns regarding the 'workability' of the TRMP permitted activity port noise provisions, which I have discussed with Dr Chiles and agree in principle with alternative noise limits based on noise limits recommended within NZS6809:1994.

59. I discuss below the approach of New Zealand Standard NZS6809:1994 *Port Noise Management & Land Use Planning* for managing the effects of port noise which in my experience is consistent with the approach adopted within most other New Zealand ports and which will resolve potential regulatory problems associated with the existing TRMP port noise provisions (as outlined within the attachment to Dr Chiles report).

Planning Officer's Report

60. I have reviewed the Gisborne District Council Section 42A report prepared by Todd Whittaker . I understand the Planner has relied in part of the advice and information pertaining to noise Dr Stephen Chiles when preparing his review.

61. The planners report states there is an "outstanding matter" in that the noise limits proposed as conditions by Eastland Port are based on the provisions within the TRMP, however this is an over-simplification. The Noise AEE report I prepared describes within sections 7 and 8 the difficulties with the TRMP port noise rules (which are more fully summarised in the attachment to Dr Chiles report). The original consent conditions recommended by Eastland Port were based on wording previously approved by GDC and were necessarily based on the (faulty) TRMP noise provisions. My evidence to Council previous hearings on nose matters related to both the Wharfside logyard and Upper Logyard applications also identified technical difficulties in the way the TRMP port noise provisions were worded, most importantly the artificial distinction to be made between noise from "essential" and noise from "non-essential" port activities.

62. As I have discussed with Dr Chiles, the approach NZ Standard NZS 6809:1999 is preferred (subject to the comments below) as it has been specifically developed for the management of port noise and the application of appropriate land use planning techniques to ensure the long-term compatibility of ports and their neighbours. NZS6809:1999 has been adopted into many other District Plans. It recommends that:

- Limits be set on the emission of noise from the port (in the long term); and
- Land use planning measures be adopted to manage the effects of port noise in noise sensitive areas.

63. NZS6809:1999 utilises noise contours (referred to as inner and outer control boundaries) as means of managing and controlling port noise. The inner control boundary sets noise limits which apply to sites located beyond this boundary, thereby capping the amount of cumulative noise able to be emitted by port activities. The Standard envisages these noise contours are predicted based on forecast port activity and the impact of port developments, and that the location of the inner control boundary and outer control boundary is established through the appropriate public procedures under the Resource Management Act 1991, which is the case for the (now somewhat dated) TRMP port noise contours.

64. The contours set out in the TRMP have attracted some criticism from myself and Dr Chiles as they seem to be located in locations which are hard to understand. Two key observations regarding the TRMP port noise contours I have noted are;

a) The 'Inner Control Boundary" as shown on the TRMP maps cuts through the operational port area whereas NZS6809 recommends that all land used for port operations be included within the Inner Control Boundary; and

b) The large area of the Outer Control Boundary which lies over much of the eastern area of the Gisborne CBD. It is hard to imagine what noise sources located within the port were modelled that resulted in such a wide area included within this boundary.

65. The noise limits recommended within NZS6809:1994 (and included within recommended Condition43) are described as follows;

Unit	**Description**
Ldn	Level 'day night' is the night-weighted, the long-term average sound level measured over a 24 hour time period obtained after the addition of 10 decibels to sound events occurring during the night (10pm to 7am).
LAeq (9 hrs) LAeq(15min)	Energy average sound level - measured over the stated assessment period. The LAeq levels represent the constant energy average A-frequency-weighted sound level as measured for a fluctuating sound level measured over the same time period.
LAFmax	Single highest sound level during the sample period, measured using "Fast" response.

66. Port noise limits described in this manner are set out within recommended Condition 43, which although I generally agree with, I also recommend be modified slightly for the reasons I outline below in this evidence.

67. As port noise levels expected to occur between the Inner and Outer control boundaries are undesirable for establishing noise sensitive activities such as residential uses, the

TRMP applies an acoustic insulation rule for new sensitive uses establishing in this area (Rule C11.2.15.1). Beyond the outer control boundary specific controls for noise sensitive use are not considered to be unnecessary within the recommendations of NZS6809:1994.

68. Under this Standard, the location of the inner and outer control boundaries are recommended to be based on the expected long term noise level of 65dBA Ldn and 55dBA Ldn noise contours around the port. The Ldn value is calculated based on a five day average with a 10 dB night weighting applied to port noise measured between 7am and 10pm (which accounts for the added sensitivity to noise people have during night time periods). In addition, NZS6809 adopts a night time (short term) port noise of 60dBA Leq (9 hr) applying at the inner control boundary, provided that no single 15 minute sound measurement level shall exceed 65dBA Leq and 85dBA Lmax. In combination, these measures are effective in controlling port noise to suitable levels which will adequately protect health and well-being in my view.

69. NZ Standards are developed by expert committees with consensus required before being formally approved by the Standards Council in accordance with the Act. New Zealand Standards do not have any 'regulatory force' on their own unless cited as a means of compliance in a statutory document, such as in the District Plan, or within a condition of Resource Consent.

70. The planner supports the approach taken by Dr Chiles to adopt the relevant recommendations of NZS6809:1994 for regulating cumulative port noise, as opposed to the existing provisions of the TRMP which are described as "problematic". Mr Whittaker considers this approach will assist with the appropriate measurement and monitoring of noise levels and it will also enable transparent recording of any noise incidents. It will also provide both Eastland Port and the affected community an ability to review and implement measures to rectify and mitigate future noise issues and/or incidents.

Recommendations for Conditions

71. I have reviewed the noise conditions recommended in his advice to Council. As I describe above, I generally concur with the approach taken by Dr Chiles in this regard as acoustically it is difficult to separately measure noise from 'essential' from 'non-essential' port activities which are all taking place on the same site. As set out within the table attached to Dr Chiles report, there are multiple difficulties with the TRMP port noise rules and these can be addressed using the recommended approach of NZS6809:1994 (amended for use at Eastland Port as recommended below).

Condition 8

72. I agree with the addition of item (xiii) to the Construction Management plan which inserts a requirement demonstrate in the plan how construction noise and vibration will be mitigated, including adopting 'best practicable options'.

Condition 33 & 34 – Construction Noise & Vibration Management

73. I agree with the Conditions 33 and 34 as they are based on acceptable standards and will provide adequate p[protection to sensitive receiver sites.

Condition 42 – Noise Management Plan

74. I agree with this condition, including the additional items 7 to 20 which requires the plan to include additional measures such as the involvement of the PCLG and the reporting of noise monitoring results and noise management actions/initiatives to the PCLG and reporting of noise monitoring results via EPL's website.

75. I do not agree item XVII which states 'current day' noise contours should be included in the Plan, also including details of the process for review and update of these contours. I advise that 'current day' contours representing, say, the last three month noise emissions cannot be provided by the port company itself as an acoustic expert would need to prepare each contour set which is a time-consuming and costly undertaking. Rather, I recommend amending this requirement to include the operative TRMP port noise contours in the plan for information purposes, together with details of the process for review and update of these contours.

76. Should the contours be updated through a planning process, then I recommend these replacement contours be included in the plan. For the above reasons, I do not consider it reasonable to include condition 43 (XIX) requiring 'current noise contours' to be displayed on EPL's website. I recommend amending Condition 43 XIX to require the current noise monitoring report prepared pursuant to Condition 45(i) to be displayed on EPL's website.

77. The automated noise monitor installed at Portside Apartments delivers timely and accurate information regarding recorded sound levels, weather conditions at the time and photographic evidence of vessels in port at the time, etc. The system is designed to provide the raw data to be used to compile regular noise report updates, with such reports being prepared every three months or so. This is a good level of noise reporting to the community and Council in my view. The system is also designed to be used for the investigation of noise complaints, with the all historical sound level data able to be retrieved, which allows noise incidents to be examined in terms of sound level (to a resolution of 1 second) and frequency content (to a resolution of 15 minutes).

78. The output of the monitor is raw data. The retrieved sound level information requires checking by the port company before it can be adopted as a true measurement of the noise emissions from the port. There are times that due to high winds, stormy conditions considerably increase measured sound levels. Also, the influence of noisy activities in the area unrelated to port activities needs to be rules out. Together this means screening type checks needs to be carried out on the raw measurement data. On this basis I have advised EPL that the monitor can deliver the data for the company to prepare regular updates (and be very handy for complaint investigation) but it is not recommended that any other party be granted regular access to the monitoring system itself.

79. Regarding Condition 42 (XX), I recommend a wording amendment to require the Wharf 6 and 7 Construction Noise Management Plan be appended to the overall Noise Management Plan required by Condition 43. This is proposed for reasons of clarity, as I consider the term 'integration' has an uncertain meaning used in this context.

80. Dr Chiles proposes Conditions 42 to 44 be replaced with a suite of port noise limits based on the recommended limits contained in the port noise standard NZS6809:1994. I support this approach, but note limitations below regarding where these limits are to be applied.

81. I support the reverse sensitivity functions of the existing TRMP port noise contours, but I do not agree these currently (or have ever) reflected the noise generated on a day to day basis at the port, assessed in terms of Ldn, in accordance with NZS6803:1004. This is not to imply the noise levels have been unreasonable or excessive, rather the contours do 'fit' the port properly and appear to be dysfunctional from their inception. I therefore agree with the 'interim' approach of amended Condition 42 but point out below some amendments are necessary to make these amended noise limits workable.

82. In the medium term I support a complete revision of the TRMP port noise provisions (including the contour locations) as a means of ensuring the contours are 'fit for purpose' and reflect the areas likely to be affected by (mitigated) port noise due to long term development of the port area. The process for revision and prediction contours is set out within NZS6809:1994, together with guidance for Council's on factors to be considered when deciding to accept such contours into a district plan (which the Standard envisages would be a public process, such as a Plan Change under the RMA). I am of the view that the current port noise-related noise conditions are suitable as a 'holding measure' only as I consider the contours set out within the TRMP are no longer appropriate for the current port.

83. Two amendments are recommended for Condition 43. The first relates to noise emissions already authorised under consents for the Upper Logyard and Wharfside logyard which include conditions that allow port noise levels to be received up to LA10 75 dB within the closest parts of the Heritage Reserve. The Ldn limit for port noise of 65 dB set out in Condition 43 applies within sites zoned Heritage Reserve. I have calculated under existing consents non-compliance within some closer parts of Heritage Reserve sites will likely be exceeded during busy periods.

84. The area of non-compliance within the Heritage Reserve is quite limited as it would not be likely to occur more than 50 metres within the reserve site, as shown in **Figure 1** below. Also, Appendix A (attached) indicates an aerial photograph of this area showing the TRMP port noise areas as well as the area (in red outline) affected by Ldn >65 dB within the Heritage Reserve. Below I set out my recommended amendments to Condition 43 so that Ldn noise limit for busy five-day periods will not be exceeded by noise from already consented activities received within the closest parts of the Heritage Reserve (and which are highly affected by noise from passing traffic travelling on Rakaiatane Road and other noise sources.

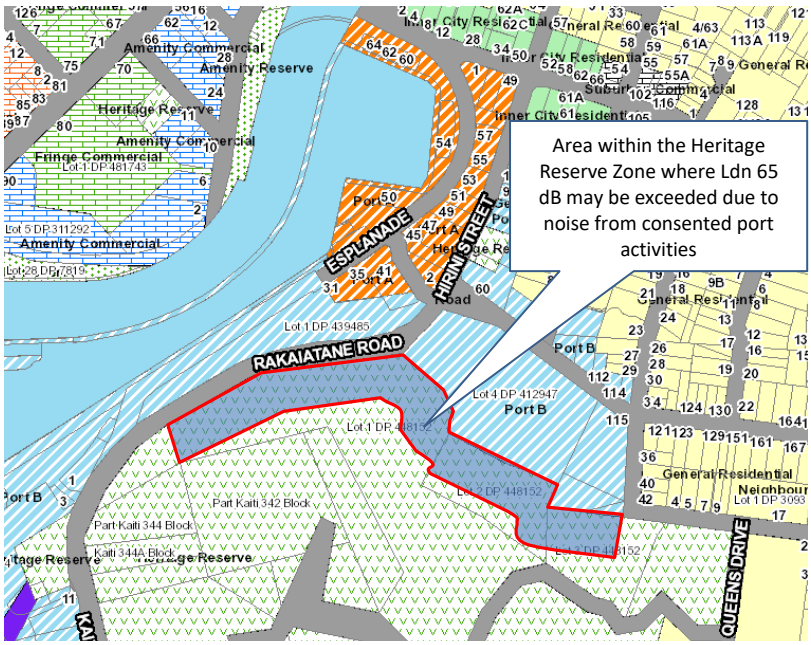


Figure 1 TRMP planning map of the port area showing (in red outline) the limited area within the Heritage Reserve likely to receive Ldn levels exceeding 65 dB during periods of busy port activity. See also Appendix A, attached.

85. The second issue is the Ldn 63 dB limit applying at the Portside Apartment monitoring location. Dr Chiles recommends the 65 dB limit to be applied at the Commercial Amenity zone and for this limit to be reduced to 63 dB for the extra distance for sound to travel from that compliance boundary location to the noise monitoring location on top of the Portside Apartment building (a distance of around 25 metres). Dr Chiles has allowed 2 dB for reductions due to this additional sound propagation effect, so that in his view, non-compliance would occur if 63 dB were exceeded at the Apartment monitoring location. I do not agree 2 dB is the correct value to assume.

86. I have looked into this 2 dB reduction and consider that, as the 5 day Ldn will be mainly caused by sound sources well within the port (some 200 metres distant) , the difference in sound from the closest point on the Commercial Amenity Zone to the sound level reaching the monitoring location not will be likely to be more than 1 dB. Thus, the noise limit at the compliance monitoring location should only be 1 dB different from that expected at the zone boundary compliance location.

87. Although the proposed 2 dB allowance may have been calculated based on the closest vessel noise sources (or similar), the chief port activity and therefore the main noise sources that will affect the 5 day Ldn levels measured at the Portside Apartments are those main land-based sources associated with log handling, located well inside the port working area. Sound propagating from this far afield will reduced by only a small amount (1 dB) between the zone boundary compliance location and the monitor 25 metres further away.

88. In summary, the changes I recommend for Condition 43 as follows;

~~*Sound from all activities in the port operational area*~~ *Sound from all activities in the TRMP Port Management Area excluding the rail bridge, Port A Management Zone and area outside the breakwater, must comply with the following noise limits when measured and assessed in accordance with NZS 6801 and NZS 6809:*

~~*At any point in the Amenity Reserve Zone or Heritage Reserve Zone outside the Port Inner Control Boundary*~~ *i) At any point in the Amenity Reserve Zone outside the Port Inner Control Boundary,* *ii) At any point in the Heritage Reserve Zone more than 50 metres from the Port B Management Zone.*	*65 dB L_{dn}*
At any point in the Amenity Commercial Zone, Residential General Zone or Inner City Residential Zone	*65 dB L_{dn}* *60 dB $L_{Aeq(9h)}$ (2200h-0700h)* *65 dB $L_{Aeq(15\ min)}$ (2200h-0700h)* *85 dB L_{AFmax} (2200h-0700h)*
At the permanent port noise monitoring location (Portside Hotel)	~~*63*~~ *64 dB L_{dn}* *60 dB $L_{Aeq(9h)}$ (2200h-0700h)* *65 dB $L_{Aeq(15\ min)}$ (2200h-0700h)* *85 dB L_{AFmax} (2200h-0700h)*

Condition 44 and 45 – Noise Monitoring

89. I have explained above that real-time noise monitoring data is not considered appropriate to share publicly. Apart from the data veracity concerns I hold, I have not come across this approach at other ports where permanent noise monitoring takes place (Port Otago and Lyttleton). Data is readily able to be misinterpreted causing issues for Council and EPL and this can be circulated before the data is checked and verified. I therefore recommend the following wording for Condition 44 which in my view represents best practice in this area.

44. The Consent Holder shall maintain a permanent noise monitor at the Portside Hotel or an alternative location agreed by the Consent Authority. The monitor shall be regularly calibrated and continuously measure sound levels to provide sufficient valid data for the Consent Holder to prepare reports regarding compliance with the limits applying at this location under these conditions. The Consent Holder shall prepare a summary report of monitoring results and submit this to the PCLG every three months, within one month of the end of reporting period.

90. I agree with Condition 45 which requires a relatively comprehensive check of noise emissions however given the recommended 'verified' noise reports proposed to be provided by the port company every three months within (amended) Condition 44, I see not need to repeat the reporting of compliance every two years as proposed in Condition 45. I recommend a one-off check following the first three months of operations as a detailed noise level compliance at multiple sites. I therefore recommend the following wording for Condition 45.

45. *Within three months of the re-commencement of operations in the Wharf 6 and Wharf 7 areas the Consent Holder shall conduct noise monitoring over at least a one-week period at two representative locations surrounding the port agreed with the Consent Authority, in addition to the permanent noise monitoring position. The Consent Holder shall submit a report setting out the results to the PCLG within one month of the measurements.*

Conclusion

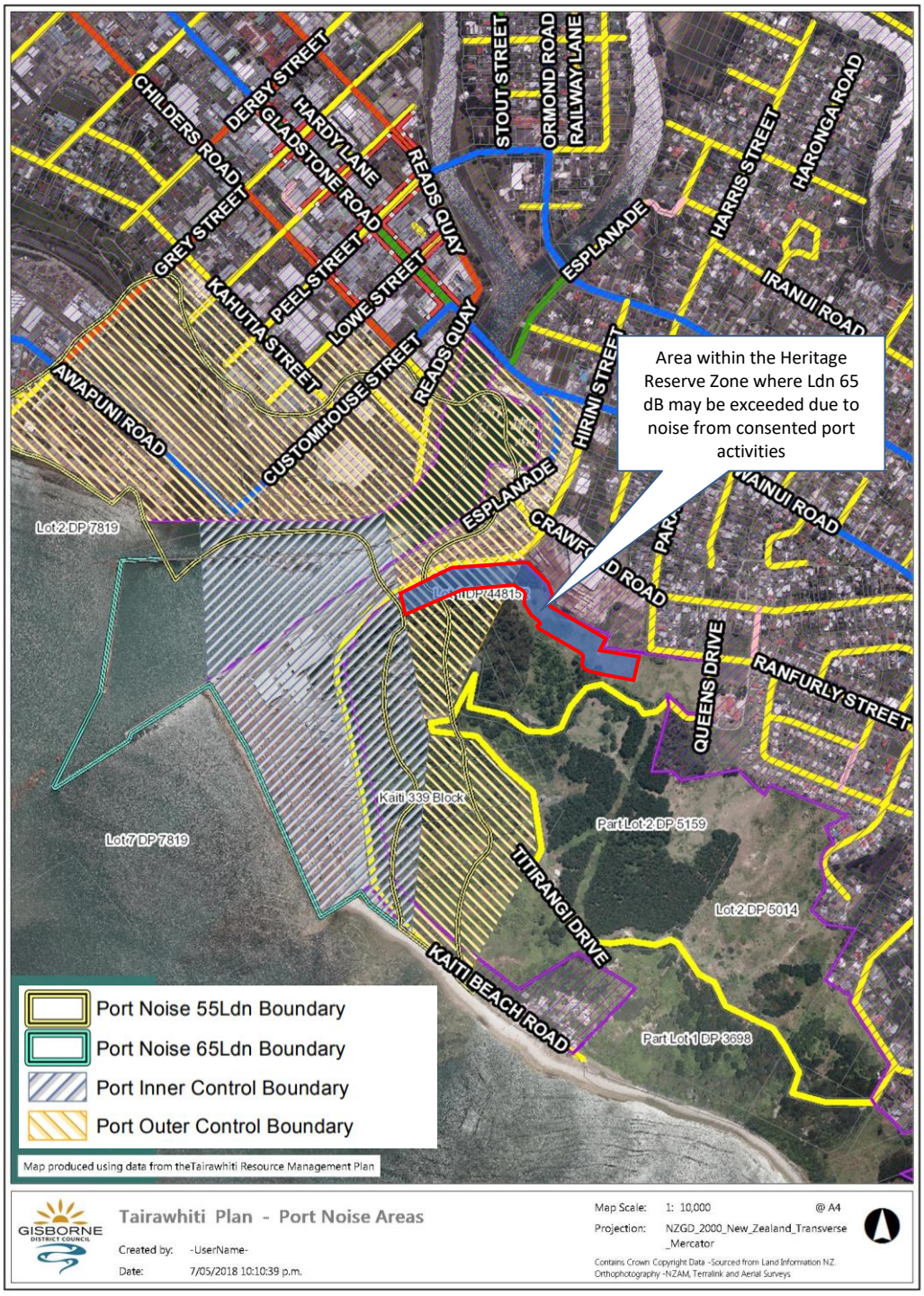
91. I have assessed noise and vibration effects associated with the Wharf 6 and 7 developments based on measured and predicted emission levels and vibration effects based on similar projects. The levels of noise and vibration expected from the most significant activities are predicted to be received at levels below the relevant thresholds for adverse effects.

92. Overall, noise and vibration emissions from the proposed works (compliant with the recommended consent conditions) are considered likely to result in acceptable effects on the environment, consistent with those anticipated by the TRMP.

93. I consider there are no noise or vibration-related reasons why consent cannot be granted under the Act for the proposed activities, subject to attaching the relevant (amended) consent conditions.

Malcolm Hunt 9 May 2018

Appendix A – Port Noise Boundaries of the TRMP


Area within the Heritage Reserve Zone where Ldn 65 dB may be exceeded due to noise from consented port activities
CHILDERS ROAD
DERBY STREET
HARDY LANE
GLADSTONE ROAD
GREY STREET
PEEL STREET
LOWE STREET
KAHUTIA STREET
READS QUAY
STOUT STREET
ORMOND ROAD
RAILWAY LANE
ESPLANADE
HARRIS STREET
HARONGA ROAD
IRANUI ROAD
HIRINI STREET
AWAPUNI ROAD
CUSTOMHOUSE STREET
Lot 2 DP 7819
QUEENS DRIVE
RANFURLY STREET
Kaiti 339 Block
Lot 7 DP 7819
Part Lot 2 DP 5159
TITIRANGI DRIVE
Lot 2 DP 5014
KAITI BEACH ROAD
Part Lot 1 DP 3698
Port Noise 55Ldn Boundary
Port Noise 65Ldn Boundary
Port Inner Control Boundary
Port Outer Control Boundary
Map produced using data from theTairawhiti Resource Management Plan
GISBORNE DISTRICT COUNCIL
Tairawhiti Plan - Port Noise Areas
Created by: -UserName-
Date: 7/05/2018 10:10:39 p.m.
Map Scale: 1: 10,000 @ A4
Projection: NZGD_2000_New_Zealand_Transverse_Mercator
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