

## Meeting Minutes

**Meeting:** Port Botany Community Consultative Committee – Meeting No. 29

**Held:** Tuesday 16<sup>th</sup> February 2021 5.30 – 7pm  
WebEx Meeting - online

<b>Attendees</b>	
<p><b>Community Members</b> Charles Abela John Burgess Peter Fagan Mal Jagdev-Imrich Lynda Newnam Paul Pickering</p> <p>John Carnohan – Bayside BEC Patrick Medway – Bayside Chamber of Commerce</p> <p><b>Government Agencies</b> Alec Brown – ARTC Erin Barker – NSW EPA Derrick Quinlivan – SafeWork NSW</p> <p><b>Council Representatives</b> Bronwyn Englaro – Randwick City Council</p> <p><b>Port Authority of NSW</b> Catherine Blaine</p>	<p><b>Tenants</b> Steve Barclay – Quantem Mark Bernhardt – Origin Aldo Costabile – Elgas Limited Pami Kohli – Vopak Gary McKay – Ampol Jennifer Stevenson – Hutchison Ports Peter Armenis – DP World</p> <p><b>Guest presenters:</b> Margie Harvie David Dack Andrew Dooley</p> <p><b>NSW Ports Representatives</b> Vida Cheeseman Sarah Downey Jonathan Lafforgue Greg Walls Alison Wedgwood Neil Gross – Director, Wilkinson Murray</p> <p>Roberta Ryan – Chairperson Sophie Alais– Minute taker</p>

**Apologies:**

Karen Jones – Opal  
Mark Walker – Qenos  
Clare Harley – Bayside Council  
Rabi Medina – ACFS  
Russell Brown – ACFS  
Jos Kusters – Caltex  
Dozie Egeonu – Hutchison  
Michael Kinnell – Origin Energy  
Clay Marks – Patrick Terminals  
Alexi Cassis – Electorate Offices for Member for Kingsford Smith  
Dylan Parker – Electorate Offices for Member for Maroubra  
Leigh Heaney - Electorate Offices for Member for Kingsford Smith

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Item	Description	Action/ Responsibility
<b>1</b>	<b>Welcome, Apologies and Introductions</b>	
1.1	RR welcomes everyone to the CCC & introduces new minute taker Sophie Alais.	
1.2	<b>Apologies</b> Noted above	
<b>2</b>	<b>Minutes from last meeting (#28)</b>	
2.1	Minutes from the previous meeting have been finalised. The minutes are endorsed by BE and AW. The actions from the previous minutes are being addressed in this meeting.	
<b>3</b>	<b>Update on progress of the Kamay Ferry Wharf project – Margie Harvie, David Dack, Andrew Dooley</b>	
3.1	<p>AD presents on behalf of TfNSW.</p> <ul style="list-style-type: none"> <li>- Regular passenger ferry service ran for 75 years until wharves were destroyed by East coast low in 1974</li> <li>- There have been many attempts to reinstate the wharves. In 2016, TfNSW completed a feasibility study into the reinstatement of the wharves.</li> <li>- 3 stages: First stage is reinstatement of the wharves. TfNSW produced feasibility study. Commonwealth and NSW government announced funding. In October 2020, NSW announced additional funding. Now fully funded.</li> <li>- TfNSW are delivering the project. It will be run by the Maritime Office.</li> </ul> <p>Project Location and boundary.</p> <ul style="list-style-type: none"> <li>- Looking to reinstate wharves in the same historical location. Detailed study was done into the best location for the wharves. Found that the original location from the 1900s was the best location.</li> <li>- Many benefits from reinstating the assets – will provide benefits to the community.</li> <li>- Cultural health and economic benefits towards the local Indigenous population (since it's in the place of the first meeting between Europeans and Indigenous people).</li> <li>- Active transport alternative, shift away from private vehicle use.</li> <li>- Improved access for recreational fishers.</li> <li>- Provides a missing link for walking and cycling tracks along Botany Bay.</li> <li>- Improved access for recreational vessels.</li> </ul> <p>DD presents on behalf on Arup (for TfNSW for Kamay Ferry project).</p> <ul style="list-style-type: none"> <li>- Ferry will be multiuser. The wharves will be used as a ferry service (still needs to be procured).</li> <li>- Predominant use will most likely be small-medium sized vessels.</li> <li>- The ferry service will most likely used by visitors, less so commuters.</li> <li>- No permanent mooring will be allowed.</li> <li>- The wharf has three elements               <ul style="list-style-type: none"> <li>o Shelter</li> <li>o Boarding ramp</li> <li>o Approach jetty</li> </ul> </li> </ul> <p>EIS</p> <ul style="list-style-type: none"> <li>- Full blown state significant project. Not because of its size, but due to the environment, ecology, and cultural significance.</li> <li>- EIS will be on display mid-year.</li> <li>- Traffic and parking is very important to the public. Will be a key part of the EIS.</li> <li>- Many wharf users will be visitors. Some studies and surveys have shown a big surge in people visiting national parks. There will be some offsite parking. Acknowledge that there is a big demand at La Perouse. Working with council to come to a holistic solution.</li> </ul>	

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	<p>MH – We have just launched a website plus a letter drop is in process to 6000 households.</p> <p>RR asks the group if there are any questions or comments.</p> <p>PF asks what the timetable for the ferry service will be. Broadly, the departures in each direction – weekend and weekday. DD says the assumption is that during peak times (specifically, recreational peak times – so weekends), two services per hour. During the week, most likely one service per hour. All of this would be dependent on the operator.</p> <p>PP asks if a private ferry service will run the route, and will the route go for tender. VC says the route will definitely be privately run.</p>	
<p><b>4</b></p>	<p><b>Port Botany – congestion update – JL</b></p>	
<p>4.1</p>	<p>JL says the last overview covered the disruptions in 2020 – Covid, weather and industrial action.</p> <p>JL says DPW has finalised its EBA with the Maritime Union of Australia. Patrick Terminals and Hutchison are still in negotiations.</p> <p>NSW Ports is in a relatively good position, particularly in relation to the challenges playing out globally. In December, we experienced our biggest month in containers, working at a 1:1 ratio with the evacuation of empty containers.</p> <p>NSW Ports trades reflect the NSW economy. NSW Ports experienced an initial decrease in container imports and other trades mostly due to Covid restrictions in China, overall last year’s trade volumes across most trades remained relatively stable.</p> <p>Changes in consumer spending and online shopping has changed the imports seen at Port Botany</p> <ul style="list-style-type: none"> <li>- Containers – increase in whitegoods, furniture, equipment for household renovations.</li> <li>- Increase in bulk liquids e.g., Acetone, ethanol</li> <li>- Decrease in jet fuel and initially minimal unleaded. But diesel fuel imports have increased (used for agricultural, reflects the drought breaking etc).</li> </ul> <p>Australians are buying more since they cannot travel and attend cultural events, a trend that is seen worldwide. This means there is limited shipping capacity in terms of freight slot availability. Ships have been chartered and they are full.</p> <p>Due to the increase in demand, there is disruption and congestion globally. In the last fortnight, there have been between 30 – 40 ships waiting off the cost of Los Angeles waiting to anchor. These extended delays take capacity out of the system.</p> <p>There are reasons driving the above issues in the market. Issues with labour availability due to Covid-19. Australia has been impacted by the virus, but nothing like overseas has. Overseas, while it may be possible to get containers onto the port, you cannot get the boxes off because there is limited availability in trucking, rail, and warehousing facilities due to Covid-19. This impacting Europe, and particularly America, while the UK has the added complexity of Brexit. For example, shipping lines are dropping containers in Northern Europe that are meant for the UK and the containers simply have to find their way back via the network from there.</p> <p>Ultimately, Australia is in a good position since Australia does not have the disruption throughout the broader supply chain that other countries are facing. But everything is off</p>	

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	<p>schedule internationally, so it will be a long time before ships are back on schedule in Australia.</p> <p>Another challenge (impacting Australia, Indian, and other exports) is because capacity is full and demand is high, prices have escalated. The latest Shanghai freight index shows that the average cost of shipping goods from Shanghai to Australia has gone up over 150%. To Northern Europe, its gone up 300% and to the USA it has increased 200 – 250% over the past 12 months, compared to January 2020.</p> <p>This means the shipping lines are keen to get empties back to China, but it is taking longer for full exports (e.g. agricultural exports) to reach their markets. This is because agricultural exports are usually destined for smaller ports, which require a 2 – 3-week turnaround before they head back to China for fulfilling. So, the focus is on making sure this is not forgotten at the expense of evacuating empties.</p> <p>Throughout Covid-19, NSWP, tenants and port operators have together invested more than \$2B in infrastructure and machinery e.g., berth upgrades, empty container park developments, storage tanks, port road upgrades and rail capacity, container cranes and straddles since FY15 when NSWP started.</p> <p>JL outlines some of the investments to date</p> <ul style="list-style-type: none"> <li>- Focus on rail – key part of the strategy to reduce movement of trucks on the road. PB is well connected to a network of metropolitan and regional intermodal terminals.</li> <li>- PB only container dock in Australia with on-dock rail at every container terminal.</li> <li>- Long term goal – 3 million TEUs per year/around 40% of future forecast container volumes. Current rail mode share is 18%.</li> <li>- Committed to increasing capacity in collaboration with the stevedores. Every 1m TEU on rail reduces the number of trucks around the port by 900 trucks a day.</li> </ul> <p>JL says that Enfield is part of a state-wide intermodal strategy - \$250m to develop as a key logistics hub.</p> <ul style="list-style-type: none"> <li>- Intermodal terminal and warehousing are connected by dedicated freight rail to PB.</li> <li>- Intermodal terminal fully operational and managed by LINX.</li> <li>- Last year completed another 7 warehouses and won an award for warehousing design and build.</li> </ul> <p>JL says that there is more investment in additional empty container park in PB. In relation to the Brotherson Dock Life Extension and BLB works, there has been more investment in port infrastructure including wharves and berths to accommodate larger vessels and ensure longevity.</p> <p>PK says that in the three weeks since additional controls were put on Friendship St, congestion has eased. PK thanks JL.</p>	
5	<p><b>Corporate Affairs update – Community and membership feedback, CUA Days 2021 and community care program – VC &amp; SD.</b></p>	
5.1	<p>. SD said PB CCC feedback survey was issued in January to gather feedback on the committee's effectiveness. SD thanks all who took part and shared their views and ideas.</p> <p>11 responses received – with a good spread across the groups makeup (5 from the community, 5 from industry representatives including tenants, and 1 response from a local government representative).</p>	

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	<p>According to the responses, SD said the purpose of the group was clear, however responses from industry representatives indicated less clarity regarding their role and the value they derive from the forum. SD said there were a few questions about community representation and what constitutes community. SD reminded the group that the Terms of Reference was updated last year with agreement from everyone and suggested that members to refer to the PB CCC Terms of Reference on the NSW Ports website. Available here: <a href="https://www.nswports.com.au/community#community-engagement">https://www.nswports.com.au/community#community-engagement</a></p> <p>VC outlined the annual community sentiments study. VC said they selected participants randomly.</p> <p>VC outlined a breakdown of the current top issues.</p> <ul style="list-style-type: none"> <li>- Traffic 16%</li> <li>- Workplace issues/safety 12% (survey was during the time that industrial action was taking place).</li> <li>- More communication 7% (NSW Ports has started a Facebook page so it can proactively engage with the community).</li> <li>- Noise 7% (only half were directly impacted. Other half were from social media).</li> <li>- Yarra Bay 6% (reflect confusion about NSW Ports' ownership structure as around half of all participants think that NSW Ports is government owned).</li> </ul> <p>VD &amp; SD outlined the next steps.</p> <ul style="list-style-type: none"> <li>- 2021 meeting agenda will focus on areas identified through the survey and the broader community sentiments.</li> <li>- The same HSE advice remains in place regarding keeping meetings online where possible.</li> <li>- Ongoing proactive updates via new community channels – Facebook is tracking well. Reaching 50,000 – 70,000 people each month.</li> <li>- NSW Ports introducing new campaigns including community grants. Applications open soon. It will award grants across NSW Ports assets like Port Botany and Port Kembla in July. Will share this information with the community members in particular.</li> <li>- Updating signage on Molineux point (showed pictures of the concepts to the group). Plan to use QR code capability. Concepts will be circulated shortly – they are not too far away.</li> </ul> <p>JB asked SD and VC about similar initiatives like Banks Park. JB asks if there is any news going forward with Bayside Council.</p> <p>VC answers that she saw the park a few weeks ago and it looked different. VC said she will be in touch and discuss offline with JB when she finds more out.</p>	
	<p><b>Community Member Updates</b></p>	
<p>6</p>	<p><b>Port Authority: Port Botany community assets - CB</b></p>	<p>Action: Boat ramp to be cleaned.</p>


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6.1	<p>CB provides an update on the AtonN repair works.</p> <p>CB said that PANSW have renewed the contract with the landscape contractor Dragonfly.</p> <p>CB says she want to make the CCC aware of work that is being done on navigational devices off Molineux Point that were damaged by a vessel. Work will start on Sunday, with a marine contractor coming in and they will use Hayes Dock Services Area as a laydown point for materials. Most of the work to be done during the day. No interruptions to harbour movements. Works will involve the use of a vibrating hammer to get old piles out.</p> <p>CB also provided an progress update on the lights around the boat ramp and can confirm that they have all been replaced and are working. parking lot.</p> <p>JB says that in relation to the lights, they were operational but broke down. But now they are functioning again. JB hopes that the problem is now fixed once and for all.</p> <p>JB also says that the boat ramp needs to be cleaned up. There were high tides at Christmas but now its low tides again JB says he doesn't know who is in charge of cleaning the boat ramp.</p> <p>CB thanks JB for raising the boat ramp issue. CB says the Port Authority tried to clean it regularly and they have a schedule. But CB will investigate the issue.</p>	
7	<b>Port Botany Expansion operation update (Patrick/Hutch) – CM, DE</b>	
7.1	<p>JS said there is no update on the PB expansion. No attendee from Patrick present.</p>	
8	<b>Tenant Developments and round table updates – All and NSW Ports</b>	
8.1	<p>DP World says they have dismantled a crane and two rigs meaning real estate has been freed up.</p> <p>GW says TfNSW is doing three more nights of road work outside the Port on Foreshore and Botany Roads from east of Penrhyn Road to Beauchamp Road.</p>	
9	<b>EPA Update - EB</b>	
9.1	<p>EB says she has two things to report.</p> <ol style="list-style-type: none"> <li>1. Draft <b>Construction Noise Guidelines</b> are on public exhibition. Interim guidelines have been available for a long time. Now the new ones will be exhibited until 15<sup>th</sup> March 2021. Further information and details on how to make a submission is available at: <a href="https://yoursay.epa.nsw.gov.au/construction-noise">https://yoursay.epa.nsw.gov.au/construction-noise</a></li> </ol> <p>The key changes include</p> <ul style="list-style-type: none"> <li>• increased emphasis on minimising noise from major construction activities as far as possible using feasible and reasonable mitigation measures without reliance on numerical noise limits</li> <li>• improved guidance for managing noise from construction activities taking place outside the recommended standard hours of work</li> <li>• a simplified assessment path for routine activities undertaken by public authorities on public infrastructure through industry management procedures</li> <li>• alignment of the level of assessment required with risk of noise impact</li> <li>• increased emphasis on the need for proponents to justify the selection of feasible and reasonable mitigation measures to improve transparency</li> </ul> <p>emphasis on the need for community engagement to manage construction noise impacts</p>	<p>AW will investigate if there are any investigations into water quality at Foreshore Beach.</p>

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	<p>EB says the guidelines are not retrospective. Any projects that have already been approved will operate under the old guidelines.</p> <p><b>2. EPA Regulatory Strategy</b></p> <ul style="list-style-type: none"> <li>- On exhibition until the end of March. You can find a copy of it, further information and details on how to make a submission at: <a href="https://yoursay.epa.nsw.gov.au/regulatory-strategy">https://yoursay.epa.nsw.gov.au/regulatory-strategy</a>.</li> <li>- Replaces the EPA's current Compliance Policy</li> <li>- The Regulatory Strategy sets out what the EPA does, why it does it and how it does it. It includes the EPA's proposed approach to regulating new and existing environmental challenges.</li> <li>- It includes principles around being a world class regulator.</li> </ul> <p>RR asks the CCC for any questions.</p> <p>PP asked if there was more sewage released into Foreshore Beach near the airport. PP asks if there is any monitoring of the water quality done by the Port.</p> <p>AW says that NSW Ports does not do water monitoring there, Sydney Water have responsibility for the canal and it has been a point of discussion with many stakeholders such as Bayside Council and Sydney Airport.</p> <p>As an action, AW says she can investigate whether there are currently any investigations/actions into water quality at Foreshore Beach/Millstream.</p> <p>BE says there is regular water monitoring results that can be viewed on the Beach Watch app including for Foreshore Beach. BE asks the group if Bayside Council is concerned about the reports.</p> <p>RR says there is no representatives from Bayside Council in today's CCC meeting.</p> <p>BE says Randwick Council have to make comments on water quality in an annual report on the Beach Watch program so checking if Bayside have the same requirements.</p>	
	<b>HSE Update</b>	
<b>10</b>	<b>Summary of complaints/incidents – Port Botany noise investigation outcome – AW, NG</b>	
10.1	<p>AW provided the group with a rundown of recent complaints since last November. AW says there have been 15 noise complaints since the last meeting with 7 last week from the Botany area.</p> <p>AW provided a presentation on the results of the noise monitoring investigation and next steps. Presentation attached to the minutes (<b>see Appendix 1</b>).</p> <p>AW says that NSW Ports is committed to continuing to investigate the noise issue, even if there is a seasonal decrease in complaints and that NSW Ports is currently undertaking the recommended next steps from the noise investigation report and further information on the results and outcomes of those recommendations will be provided to the committee when available.</p> <p>BE says that Council is monitoring the situation and making sure that building controls address any extra noise from nearby construction sites.</p>	
<b>11</b>	<b>Port Botany Expansion Rail Noise (as per CoA 2.28) - AW</b>	
11.1	AW says there are no issues regarding rail noise associated with the Port Botany Expansion.	
<b>12</b>	<b>Biosecurity - TB</b>	

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12.1	<p>DPI update on marine algae detection in Botany Bay.</p> <p>TB says in response to questions of the red macro algae species found in the Lady Robinson Beach area he reached out to DPI to get an update. DPI is currently working with the Royal Botanic Gardens on the issue.</p> <p>TB says there were sightings of <i>Pachymeniopsis lanceolata</i> and <i>Grateloupia turuturu</i> at Monterey and Dolls Point since September 2019. Furthermore, there was a sighting of <i>G. turuturu</i> off channels near Bare Island at La Perouse. Both algae types are seasonal, appearing in Spring and going at the end of summer.</p> <p>The algae is not acting invasively. Basically, DPI determined that the algae is low risk and will continue to monitor the situation. Not further control activities are proposed for these species at the moment. The community is encouraged to avoid the species and not disturb any populations when visible.</p> <p>Expertise from the Royal Botanical Gardens Sydney and NSW DPI State Veterinary Diagnostic Laboratory at Elizabeth Macarthur Agricultural Institute are preparing a joint presentation to the Australian Marine Science Association on the detection and diagnostic/identification capabilities in NSW.</p>	
<b>Other Business</b>		
13	<b>Orica Southlands Development - GW</b>	
13.1	<p>GW says he is responding to a question from LN in the lead up to this meeting.</p> <p>GW says NSWP on the 14<sup>th</sup> May made a submission on the proposed development raising concerns with the accompanying intersection analysis. The applicant prepared and submitted a response to submissions report. NSWP raised concerns about the outcome with TfNSW. TfNSW also thought that the intersection analysis was inadequate. The Project remains yet to be determined.</p> <p>Further information and documentation is available at <a href="https://www.planningportal.nsw.gov.au/major-projects/project/10186">https://www.planningportal.nsw.gov.au/major-projects/project/10186</a></p>	
14	<b>Next Meeting</b>	
14.1	<p><b>Tuesday, 11<sup>th</sup> May 2021</b></p> <p><b>5.30 – 7pm</b></p> <p><b>Location: TBA</b></p>	
<p><b>These minutes have been endorsed by the meeting Chair</b></p> <p><b>Signed:</b></p>  <p><b>Date: 23<sup>rd</sup> March 2021</b></p>		





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### Appendix 1

# Port Botany Noise Investigation

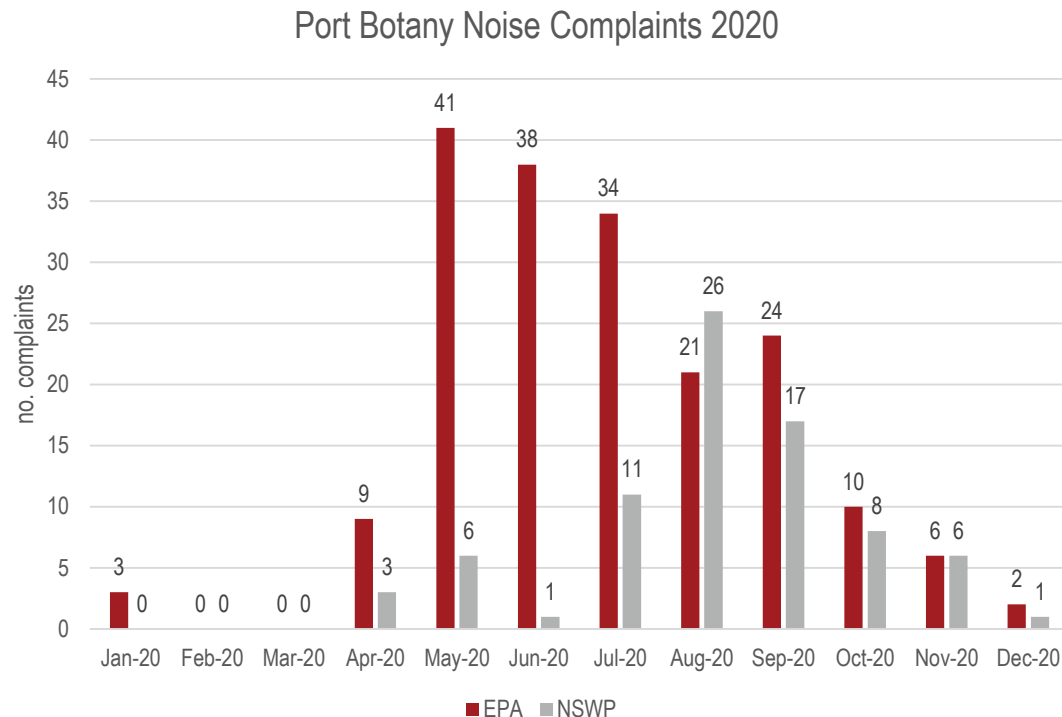
Presentation to PB CCC – February 2021

16/02/2021

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# Port Botany Noise Complaints - Recap

- Since April 2020 – significant increase in noise complaints received by NSW Ports, EPA and Randwick Council relating to low frequency noise
- NSW Ports Complaints: 90 from approx. 23 complainants
- EPA Complaints: 185 from approx. 60 complainants



# Port Botany Noise Complaint Response

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## What we knew:

- Seasonal trends in complaints data with influences from wind direction
- No evidence of breaches of EPA licence noise levels from licensed premises
- No change in port operations since April 2020
- Strong social media response – increasing total complaint numbers

## How we responded:

- Set up a 24/7 staffed phone line and website form to receive complaints.
- Reviewed weather and shipping data and noise levels from port noise monitors.
- Met regularly with EPA, DPIE and Randwick and Bayside Councils
- Communicated with port tenants to advise of the issue and request assistance in reviewing noise levels on site.
- Set up Facebook to share news and directly engage with community members.
- Engaged acoustic consultants, Wilkinson Murray, to conduct a Noise Investigation

# Wilkinson Murray Noise Investigation Objectives

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- Assess and characterise the noise experienced by residents.
- Identify and locate likely sources of noise that are causing complaint.
- Compare current and historical noise data to determine if problematic noise sources have increased or background noise has decreased such that noise has become more intrusive.
- Assess the significance of potential factors which may influence the transmission and perception of noise including wind speed and direction, temperature inversions, spectral characteristics (i.e. low frequency noise), impulsiveness, resonance, etc.

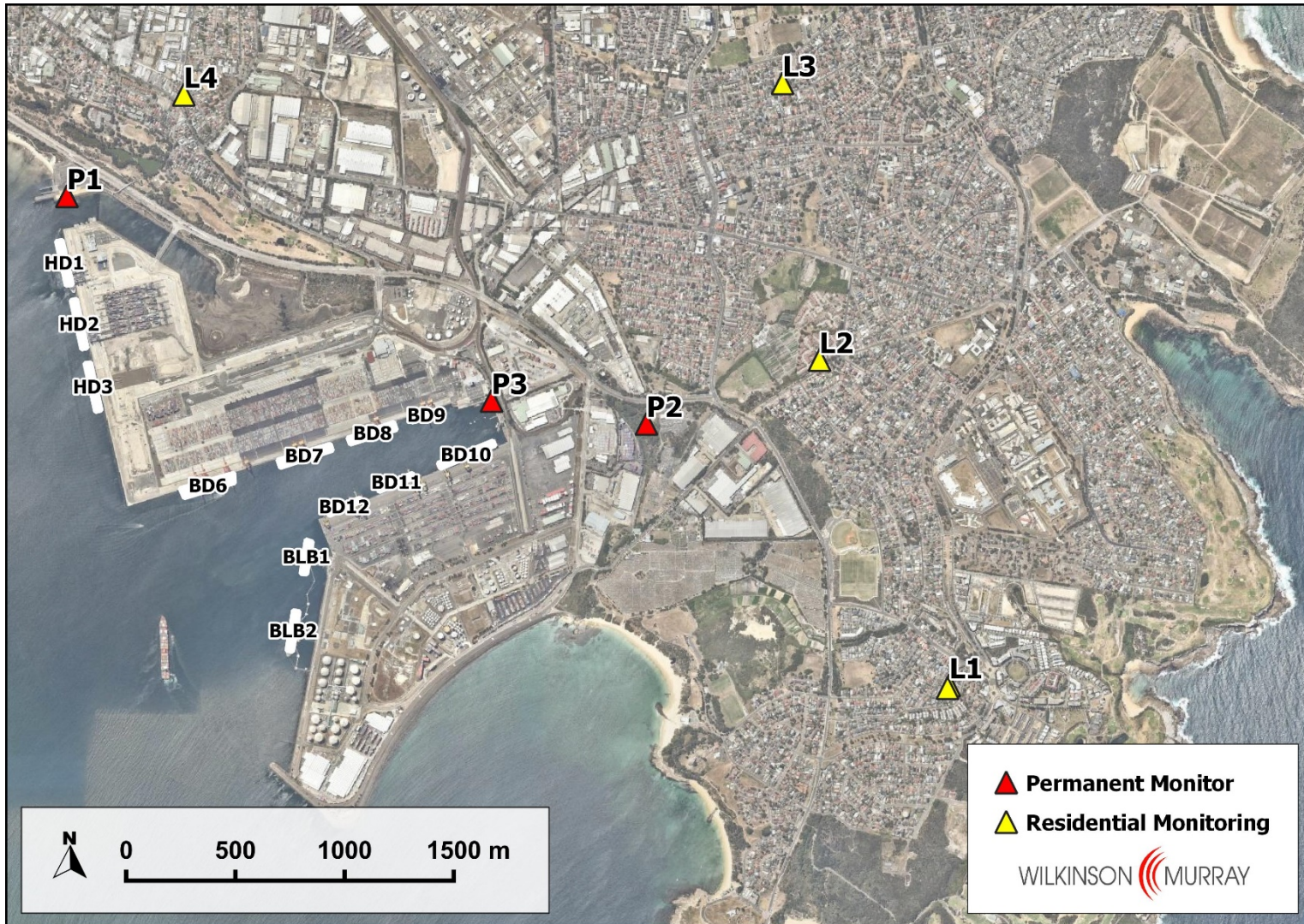
# Scope of Noise Investigation

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No defined scope: WM free to design and approach in a systematic way.

- Unattended long-term monitoring at affected receivers:
  - Period of 28 August to 28 September
  - Type 1 Sound Level Meters used with audio recorded where no objection
  - Wet weather data excluded.
  - Asked residents to provide qualitative feedback on noise levels.
- Attended short-term monitoring at affected receivers.
  - At the four residences, within the port area and other locations around Port
  - Type 1 Sound Level Meters.
  - Dates: 30-31 Aug, 22-23 Sept, 23-24 Sept
- Data review including existing noise levels from existing monitors, vessel berthing data and port utilisation, weather data
- Understand any patterns or correlation from all these data sources.

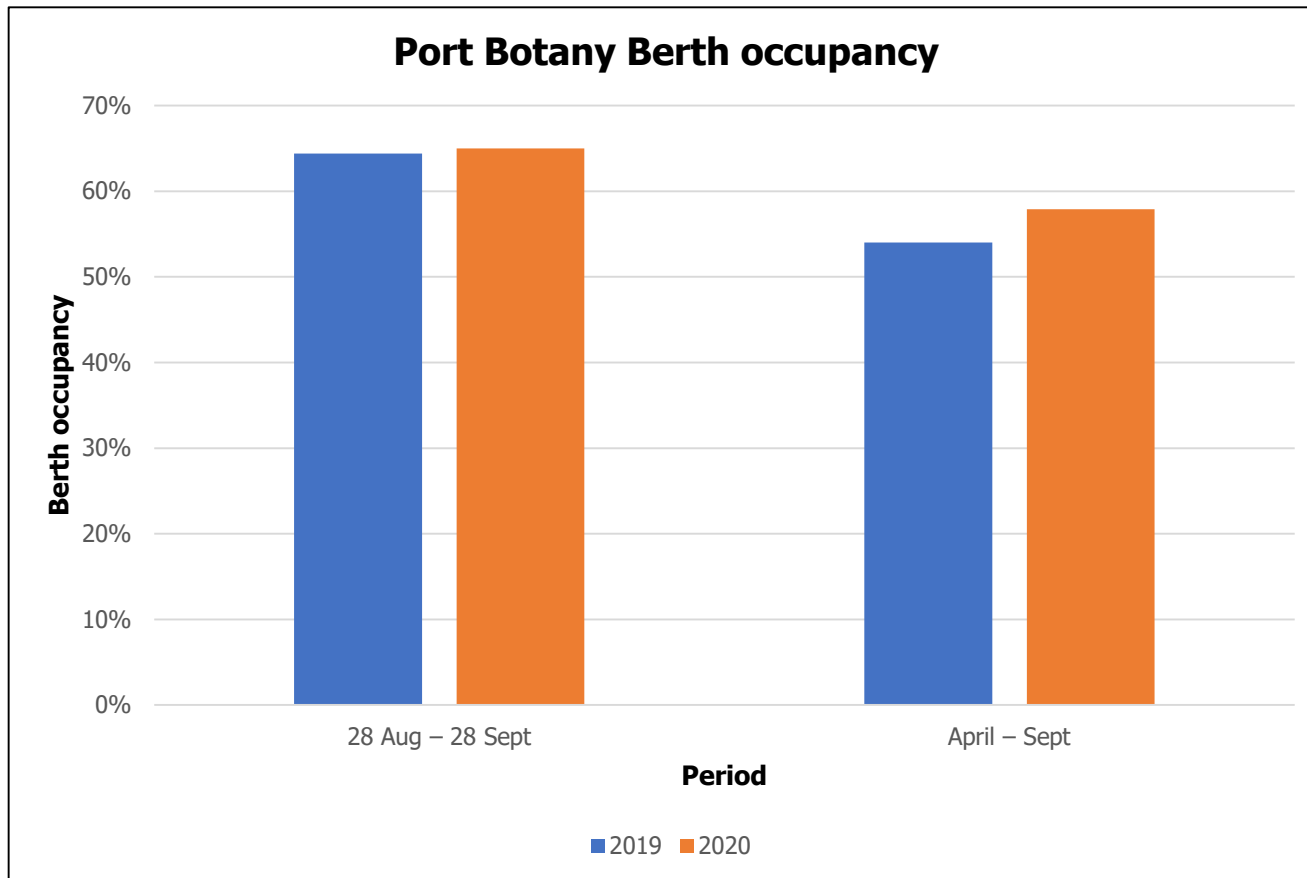
# Residential Monitoring



# Port Utilisation

Rumour: the Port was quieter during the noise survey period.

Actual Situation: The port was slightly busier compared to last year

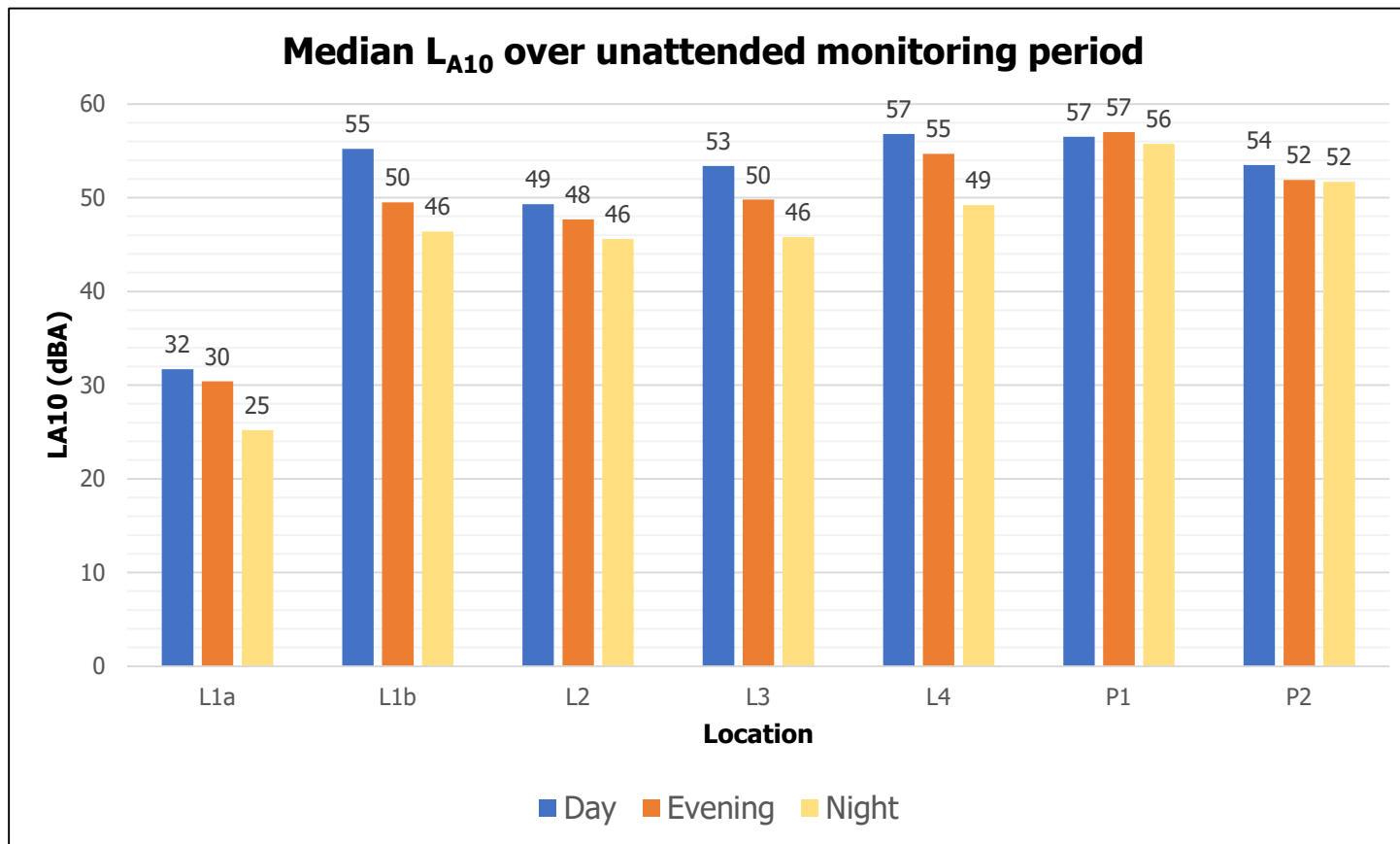




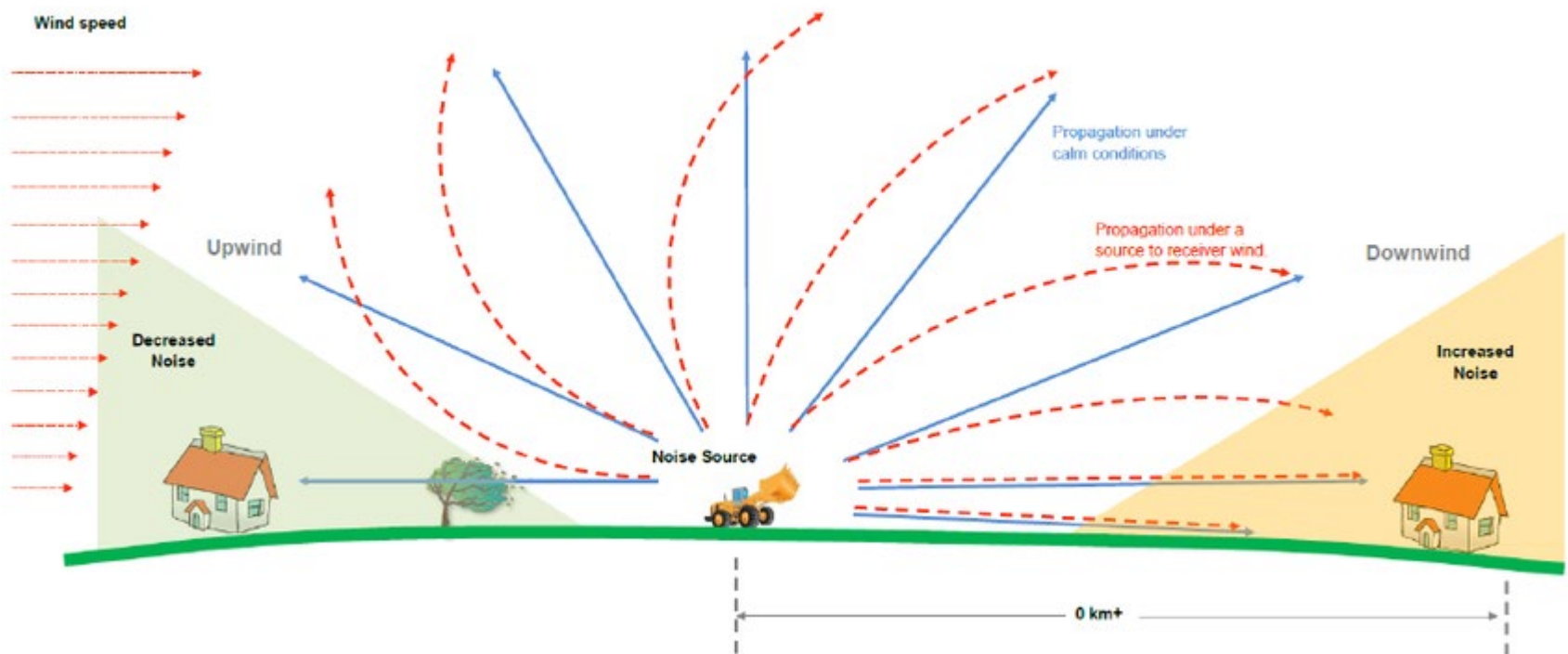
# 24 Hour Noise Levels

Rumour: the Port is noisier at night.

Actual Situation: night time levels at residences are consistently less than day



# Definitions: Noise Enhancement



- Generally low wind speeds 0.5 – 3m/s.
- At higher wind speeds, too much turbulence in air dissipates noise.
- At higher wind speeds, rustling of trees etc raises background levels

# Night Time Enhancing Winds

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Reviewed meteorological data from Sydney Airport and Little Bay weather stations for night time enhancing winds – meaning from the port to each receiver location

Compared Autumn 2017-19 with Autumn 2020, Winter 2017-19 with Winter 2020 and against the survey period (Aug/Sept).

- Little Bay: Highest percentage of night time enhancing winds – approx. 30-40%.
- Matraville South: approx. 17-26%
- Matraville North: approx. 11-16%
- Botany: Lowest percentage with only 2-10% - may explain lower complaint numbers

Winter 2020 data across all four locations was consistently higher (between 2-6%) than previous years.

The survey period was slightly less than the winter but generally consistent, except at Botany location where percentages increased from the winter period – reflects seasonality in data

# Temperature Inversions

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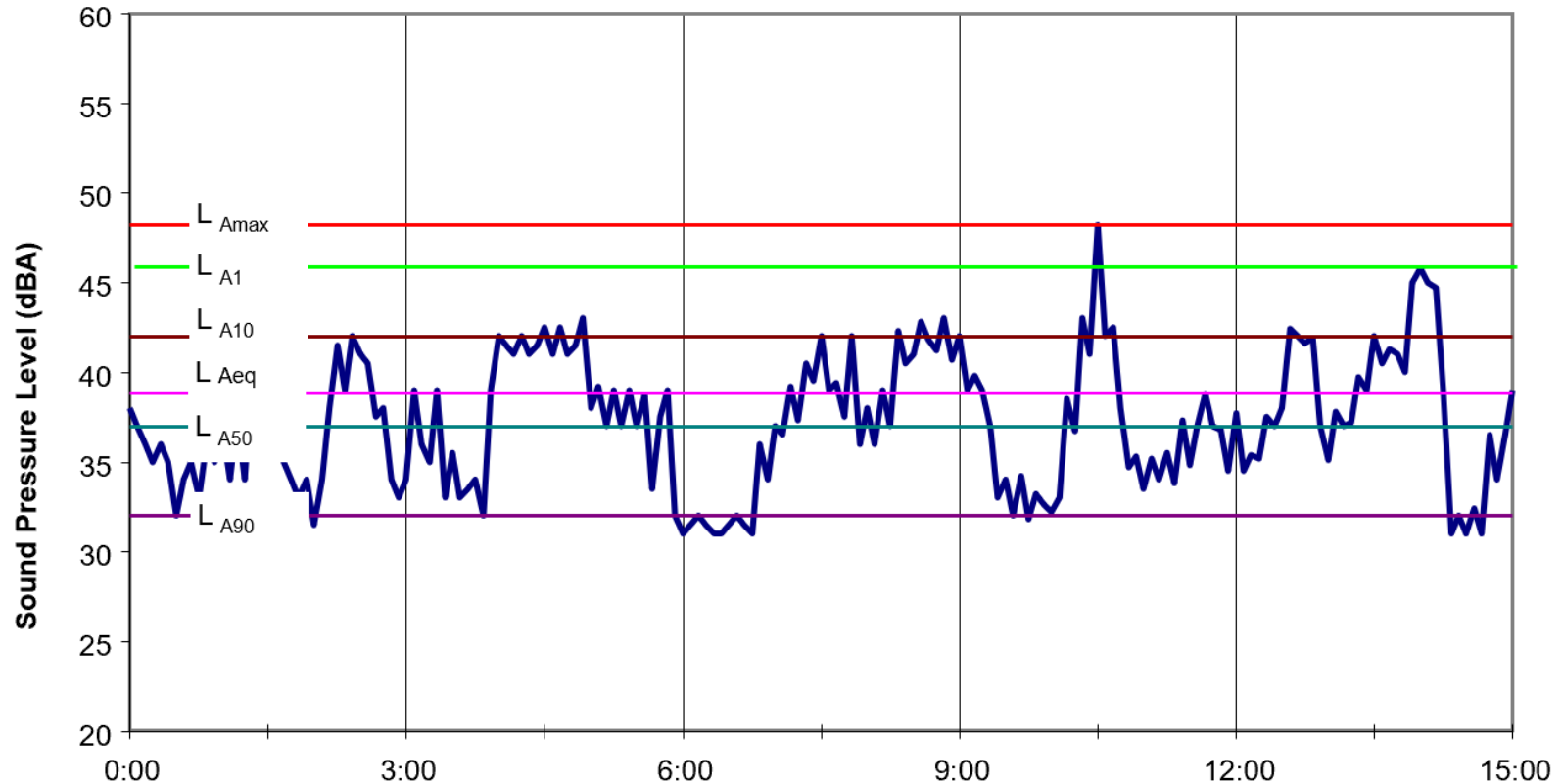
Temperature inversion, also called thermal inversion, is a reversal of the normal behaviour of temperature in the troposphere (the region the atmosphere nearest Earth's surface), in which a layer of cool air at the surface is overlain by a layer of warmer air.

Temperature inversions cause sound levels to propagate further due to a refraction effect off the warmer air layer.

- Compared data from Kurnell Autumn and Winter Periods in 2019 with 2020.
- Generally comparable percentages of occurrence between 2019 and 2020 for both evening and night periods

# Noise Levels 101

Typical Graph of Sound Pressure Level vs Time



Monitoring or Survey Period 15 minutes

# Data Analysis – Ambient Noise

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- Compared data from the two permanent loggers at Foreshore Road Boat Ramp and Eastern End of Botany Road.
- Between 2020 and previous years 2017-2019 .
- Over two periods:
  - Autumn period (April/May) primarily lockdown + complaint onset
  - Winter period (June/July/August)
- Over the day (7am-6pm), evening (6pm-10pm) and night time (10pm-7am) periods.
- Statistically analysed the background noise level (L90) and ambient level (Leq) to determine the 10<sup>th</sup> percentile of L90 and 50<sup>th</sup> percentile of Leq values.
- Considered broadband noise as well as low frequency noise.

# Data Analysis – Ambient Noise

Season	Location	Period	7am-6pm		6pm-10pm		10pm-7am	
			L <sub>A90</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>	L <sub>Aeq</sub>
Autumn April & May	Botany Rd East	Average 2017-2019	49.2	53.9	46.9	51.5	48.3	51.2
		2020	49.5	53.0	47.8	51.5	48.4	51.1
		Difference	<b>0.3</b>	<b>-0.9</b>	<b>0.9</b>	<b>0.0</b>	<b>0.1</b>	<b>-0.1</b>
	Foreshore Rd	Average 2017-2019	53.5	61.8	53.0	60.3	50.8	55.1
		2020	51.3	55.3	50.6	54.5	49.3	53.7
		Difference	<b>-2.2</b>	<b>-6.5</b>	<b>-2.4</b>	<b>-5.8</b>	<b>-1.5</b>	<b>-1.4</b>
Winter June to August	Botany Rd East	Average 2017-2019	50.6	55.0	49.3	53.3	49.1	52.4
		2020	50.4	53.7	48.9	51.8	50.5	55.0
		Difference	<b>-0.2</b>	<b>-1.3</b>	<b>-0.4</b>	<b>-1.5</b>	<b>1.4</b>	<b>2.6</b>
	Foreshore Rd	Average 2017-2019	54.6	63.7	54.4	63.6	51.2	55.3
		2020	52.3	56.3	52.4	56.5	50.4	55.0
		Difference	<b>-2.3</b>	<b>-7.4</b>	<b>-2.0</b>	<b>-7.1</b>	<b>-0.8</b>	<b>-0.3</b>

# Data Analysis – Low Frequency Noise

Season	Location	Period	7am-6pm		6pm-10pm		10pm-7am	
			L <sub>A90</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>	L <sub>Aeq</sub>	L <sub>A90</sub>	L <sub>Aeq</sub>
Autumn April & May	Botany Rd East	Average 2017-2019	34.6	41.3	32.4	39.1	34.2	38.5
		2020	35.8	41.5	34.8	40.1	36.2	40.6
		Difference	<b>1.2</b>	<b>0.1</b>	<b>2.4</b>	<b>1.0</b>	<b>2.0</b>	<b>2.2</b>
	Foreshore Rd	Average 2017-2019	42.1	53.2	40.5	51.2	38.4	44.9
		2020	39.1	46.3	37.9	44.8	37.2	44.2
		Difference	<b>-3.0</b>	<b>-6.9</b>	<b>-2.6</b>	<b>-6.4</b>	<b>-1.2</b>	<b>-0.7</b>
Winter June to August	Botany Rd East	Average 2017-2019	35.9	42.2	34.5	40.6	34.7	39.2
		2020	38.0	43.3	36.4	41.4	38.0	42.3
		Difference	<b>2.1</b>	<b>1.1</b>	<b>1.9</b>	<b>0.8</b>	<b>3.3</b>	<b>3.1</b>
	Foreshore Rd	Average 2017-2019	42.5	54.5	41.0	53.5	38.2	45.0
		2020	40.1	47.0	39.3	46.4	38.1	45.2
		Difference	<b>-2.4</b>	<b>-7.5</b>	<b>-1.7</b>	<b>-7.2</b>	<b>-0.1</b>	<b>0.2</b>



# Data Correlation – Resident Ranking v Noise Levels

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- Reviewed resident diary data (and other complaints) to determine if there were particularly noisier nights or quieter nights.
- Identified a number of nights with no complaints, which were used to determine and set baseline noise levels.
- Identified a number of noisier nights as per complaint number and resident feedback.
- Identified a number of quieter nights as per resident feedback

# Data Processing

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- Split the night into three 2-hour periods 12pm-2am, 2am-4am & 4am-6am.
- Compared the L10 (rather than Leq) for each 15-minute period against the baseline level for the respective 2-hour period .
- Baseline is the 50<sup>th</sup> percentile of the L10 data for the baseline nights in each one third octave band for each of the 2-hour periods and for each location.
- Also repeated for the low frequency data.
- Following tables show examples from Appendix F of the report of low perceived noise night and high perceived noise night.
- Reiterate we are just comparing levels to correlate complaints.

# Data Summary

## 31 August – 1 September 2020 – Low Perceived Noise Night

Date & Time	Wind Speed m/s	Wind Direction	Stability Class	L1a Woonah Inside SE		L1b Woonah Outside SE		L2 Wassell St E		L3 Anthony St NE		L4 Wilson St NW		P1 Foreshore NW		P2 Botany Rd E	
				LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF
1/09/2020 0:15	4.9	SSE	D	-3	-14	-8	-14	-1	-7	-1	-2	6	1	4	1	-1	-3
1/09/2020 0:30				-1	-5	-6	-7	-2	-4	-3	-1	5	2	5	3	2	0
1/09/2020 0:45	4.2	SSE	D	-1	-11	-8	-12	-3	-7	-4	-3	4	1	6	3	0	-3
1/09/2020 1:00				-3	-12	-9	-14	-3	-8	-4	-3	5	2	4	2	3	-1
1/09/2020 1:15	4.2	SSE	D	-2	-13	-8	-13	-3	-8	-5	-3	5	2	1	1	0	-3
1/09/2020 1:30				-1	-14	-10	-14	-4	-8	-6	-4	5	1	2	3	0	-4
1/09/2020 1:45	4.2	SSE	D	-3	-15	-11	-16	-4	-8	-7	-5	4	1	3	10	0	-2
1/09/2020 2:00				-3	-15	-10	-15	-4	-9	-5	-5	4	-2	-2	-2	2	-2
1/09/2020 2:15	4.9	S	D	-4	-15	-11	-15	-5	-9	-5	-5	4	-2	-2	-1	0	-4
1/09/2020 2:30				-5	-14	-9	-13	-3	-7	-5	-3	5	-1	4	10	3	-2
1/09/2020 2:45	4.2	SSE	D	-5	-14	-12	-15	-3	-8	-3	-2	6	0	0	2	0	-3
1/09/2020 3:00				-4	-10	-9	-10	-2	-6	-3	-2	6	2	2	3	4	1
1/09/2020 3:15	3.5	S	D	-5	-13	-11	-14	-2	-6	-2	-2	5	1	0	2	4	1
1/09/2020 3:30				-5	-12	-10	-11	-2	-5	-2	-1	5	0	0	3	2	0
1/09/2020 3:45	3.0	S	D	-5	-13	-12	-14	-2	-7	-2	-2	6	1	1	5	3	1
1/09/2020 4:00				-6	-15	-15	-15	-7	-9	-10	-6	2	-1	-2	0	0	-1
1/09/2020 4:15	3.0	SSE	D	-6	-16	-14	-15	-7	-10	-9	-6	2	-2	0	0	1	-2
1/09/2020 4:30				-6	-16	-13	-15	-8	-11	-10	-7	3	-3	1	-1	-4	-6
1/09/2020 4:45	2.6	SSE	D	-6	-15	-14	-16	-8	-11	-3	-5	5	-1	2	0	1	-1
1/09/2020 5:00				-6	-16	-10	-15	-5	-8	-4	-5	4	-2	1	1	0	-2
1/09/2020 5:15	2.3	WSW	D	-4	-15	-4	-12	-6	-6	-1	-4	5	1	3	2	2	1
1/09/2020 5:30				-4	-13	-3	-8	0	-7	0	-5	6	1	2	2	3	4
1/09/2020 5:45	2.3	W	E	-4	-13	-3	-10	1	-7	2	-3	6	1	3	3	3	2
1/09/2020 6:00				-2	-13	1	-12	5	-3	3	-3	8	3	1	2	2	2

# Data Summary

## 4 September – 5 September 2020 – High Perceived Noise Night

Date & Time	Wind Speed m/s	Wind Direction	Stability Class	Location & Direction from Port													
				L1a Woonah Inside SE		L1b Woonah Outside SE		L2 Wassell St E		L3 Anthony St NE		L4 Wilson St NW		P1 Foreshore NW		P2 Botany Rd E	
				LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF
5/09/2020 0:15	1.9	WNW	E	3	6	2	4	0	1	2	-1	7	-1	3	3	-1	-1
4				8	4	6	2	4	1	0	5	-2	3	4	-2	0	
5/09/2020 0:45	2.3	W	D	2	6	2	4	3	5	3	6	5	-1	4	5	-1	1
5/09/2020 1:00				5	9	4	8	4	7	3	4	3	-1	3	4	-1	2
5/09/2020 1:15	3.3	WSW	D	7	12	6	10	6	9	5	10	5	0	3	3	0	2
5/09/2020 1:30				5	9	4	8	4	7	3	8	4	1	3	4	2	2
5/09/2020 1:45	1.9	W	D	7	11	6	10	5	10	4	10	6	1	2	2	1	1
5/09/2020 2:00				6	10	5	9	5	9	7	11	1	-2	-3	-2	0	3
5/09/2020 2:15	0.0	CALM	F	12	11	4	8	8	12	8	11	8	0	1	0	2	3
5/09/2020 2:30				5	9	3	8	6	11	6	9	0	-4	-1	-3	1	4
5/09/2020 2:45	1.2	W	F	4	7	2	6	6	10	6	10	2	-4	1	0	1	4
5/09/2020 3:00				4	7	3	6	6	10	5	9	2	-2	4	5	3	6
5/09/2020 3:15	1.6	NNW	F	4	7	3	6	6	9	5	7	3	-3	3	4	1	3
5/09/2020 3:30				3	6	2	6	4	8	5	8	3	-3	4	4	0	2
5/09/2020 3:45	1.6	NW	F	2	5	1	5	4	8	6	9	3	-2	4	2	0	2
5/09/2020 4:00				3	7	-2	7	-1	5	0	7	-2	-4	1	-2	-2	-1
5/09/2020 4:15	1.6	WNW	F	3	7	-1	7	2	8	2	9	-2	-4	2	-1	-1	2
5/09/2020 4:30				5	8	1	8	2	8	3	9	-3	-3	4	0	-2	0
5/09/2020 4:45	1.6	N	F	5	9	2	9	3	8	4	11	0	-2	5	0	-2	1
5/09/2020 5:00				5	9	2	9	5	11	3	9	1	-2	4	0	-1	1
5/09/2020 5:15	1.6	W	D	5	9	3	9	2	8	3	9	0	-3	3	-2	-2	0
5/09/2020 5:30				1	4	3	4	3	3	2	5	5	2	4	1	-2	-1
5/09/2020 5:45	1.6	WNW	D	4	-2	12	-2	7	7	3	7	6	1	4	0	0	-1
5/09/2020 6:00				2	5	3	3	2	6	4	6	7	2	2	1	1	1

# Resident Ranking v Berth Occupancy

Date	Wind Direction	Wind Speed	L1 - Woonah St	L2 - Wassell St	L3 - Anthony St	L4 - Wilson St	No of Complaints		Berth and Exhaust Orientation													
			South East Little Bay Philip Bay La Perouse	East Chifley Malabar	North East Hillsdale Eastgardens Matraville	North West Botany Pagewood	NSW Ports	EPA	Patrick			DP World			Hutchinson			Bulk Liquid				
			BD6	BD7	BD8	BD9	BD10	BD11	BD12	HD1	HD2	HD3	BLB1	BLB2								
27/08/2020	NW	0-3 m/s	High					0	0		E											
28/08/2020	WSW	2-5 m/s	Medium	Medium	Low			3	1	E	E		W	E			S				N	
29/08/2020	NW	0-3 m/s	Low	Medium	Low			0	0	E	E	E	W	W			S	N			N	
30/08/2020	NNW	1-2 m/s	Medium	Medium	Low			1	0	E	E	E	E	W			S	N	N			
31/08/2020	NW	2-3 m/s	Low	Low	Low			0	0	E	E	E	E	W		E	S	N			N	N
1/09/2020	SSE	2-5 m/s	High	Low	Low			0	0		E	E			E		S				N	
2/09/2020	NW	2-3 m/s	Medium	Low	Low			0	0	E	E	E	E	E	E						N	
3/09/2020	WSW	1-4 m/s	High		Low			1	0	E	E	E	E	E	E						N	
4/09/2020	NNE	0-3 m/s			Medium	Low		3	4	E	E	E	E	E	E			S				N
5/09/2020	WSW	0-3 m/s			High			2	8	E	E	E	E	E	E			S			N	N
6/09/2020	SSW	1-2 m/s			Medium			0	1	E	E	E	E	E	E	E		S			N	
7/09/2020	WNW	0-2 m/s		Medium				0	3	E	E	E	E	E			N	S				N
8/09/2020	NW	1-5 m/s		Medium				0	0	E	E	E	E	E			N	S			N	N
9/09/2020	S	1-8 m/s		Medium			Low	1	1	E	E		E	W			N	S			N	N
10/09/2020	SE	4-5 m/s		Medium				1	0		E		E	W		E		S			N	N
11/09/2020	SSE	3-4 m/s	Low	Medium				0	2	E	E	E		W	E	E		S			N	N
12/09/2020	NW	2 m/s	Medium	Medium				0	0	E		E		E	E	E		S			N	
13/09/2020	NW	0-3 m/s		Medium				0	2	E		E		E		W	N	S			N	N
14/09/2020	NW	0-3 m/s	Low	Medium				0	0	E	E	E		E		W	N					N
15/09/2020	SSE	1-2 m/s	Low	High				0	0	E	E	E	E	E		W	N				N	
16/09/2020	NNE	1-4 m/s		High				0	0	E		E	E	E			N				N	
17/09/2020	W	0-3 m/s		Medium				0	0	E		E					N	N			N	
18/09/2020	S	2-6 m/s	Low	Medium				0	0	E	E	E		E		E	N	N				N
19/09/2020	WNW	0-2 m/s	Low	Medium				1	0	E		E		E	E	E		N			N	N
20/09/2020	NNE	3-6 m/s	Low	Low				0	0	E		E		E	E	E		N				N
21/09/2020	WSW	0-2 m/s	Low	Medium				1	0	E		E		E	E							N
22/09/2020	NW	2-5 m/s	Low	Medium				0	0	E				E		E		S				N
23/09/2020	SW	0-3 m/s	Low	High				1	0	E				E		E		S				N
24/09/2020	WNW	1-4 m/s	Medium					2	0	E				E		E		S				N
25/09/2020	N	2-3 m/s	Low					1	0	E				E	E	E		S				N
26/09/2020	WNW	4-9 m/s	Low	Medium	Low			1	0	F		F				F						
27/09/2020	W	3-5 m/s	Low	High	Low			0	0		E	E				E		S				N
28/09/2020	NW	1-2 m/s													E						N	N

# Data Correlation – Wind Direction & Noise Levels

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- Seldom were there nights where the wind direction changes halfway through the night (and berth occupancy similar).
- One example on night of 28 Aug – 29 Aug where we see a change in wind direction in the early hours of the morning and a corresponding change in noise levels at the monitoring locations.
- Following table presents measured 15-minute L10 for each of the locations and applied a colour scale to help show changes throughout the period.

# Data Correlation – Wind Direction & Noise Levels

## 27 August – 28 August 2020 – High Perceived Noise Night

Date & Time	Wind Speed m/s	Wind Direction	Stability Class	Location & Direction from Port													
				L1a Woonah Inside SE		L1b Woonah Outside SE		L2 Wassell St E		L3 Anthony St NE		L4 Wilson St NW		P1 Foreshore NW		P2 Botany Rd E	
				LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF
28/08/2020 0:15	3.0	NW	E	6	10	4	8	4	7	3	5	7	4	5	6	5	5
28/08/2020 0:30				6	10	3	7	4	6	1	5	5	1	3	3	6	6
28/08/2020 0:45	3.0	NNW	D	7	10	4	7	6	8	3	7	2	0	3	2	2	4
28/08/2020 1:00				6	9	4	6	4	7	1	6	7	4	4	4	2	4
28/08/2020 1:15	3.3	N	D	6	10	3	7	4	7	1	6	7	3	5	4	2	4
28/08/2020 1:30				5	8	3	5	5	9	3	7	4	2	4	3	2	4
28/08/2020 1:45	3.3	N	D	3	6	2	3	5	8	2	7	4	2	5	7	3	4
28/08/2020 2:00				3	5	0	3	3	6	2	4	3	0	3	2	1	3
28/08/2020 2:15	3.5	NNW	D	4	6	2	5	3	5	3	5	6	1	4	3	1	3
28/08/2020 2:30				5	7	3	6	4	5	3	5	8	4	5	6	5	5
28/08/2020 2:45	3.5	NNW	D	4	6	3	5	3	5	2	4	3	-2	4	4	4	4
28/08/2020 3:00				4	7	3	5	3	5	3	4	9	1	4	2	4	3
28/08/2020 3:15	2.6	NW	E	5	8	3	6	3	5	2	4	2	-2	5	3	4	4
28/08/2020 3:30				7	10	4	8	4	5	4	7	6	3	5	6	3	3
28/08/2020 3:45	3.0	WSW	D	4	7	2	5	2	3	3	5	6	2	4	3	4	3
28/08/2020 4:00				5	9	0	7	-2	1	-3	1	4	-1	2	-2	1	1
28/08/2020 4:15	2.3	SSW	D	4	7	0	5	1	5	-1	5	3	0	4	-1	1	2
28/08/2020 4:30				2	2	0	2	2	5	1	6	6	3	1	0	2	4
28/08/2020 4:45	3.0	SW	D	0	0	-4	-1	1	2	1	7	5	2	1	1	3	4
28/08/2020 5:00				2	5	-3	2	1	4	1	6	7	2	2	1	3	3
28/08/2020 5:15	3.0	SSW	D	0	2	-3	0	1	4	1	5	6	3	1	0	3	2
28/08/2020 5:30				-1	-1	-4	-2	1	3	2	5	7	3	1	1	4	3
28/08/2020 5:45	5.3	SW	D	-1	-1	-2	-2	2	2	3	5	9	4	2	0	6	5
28/08/2020 6:00				0	0	2	-1	7	2	4	4	9	5	-2	0	6	5

# Data Correlation – Temperature Inversion & Noise Levels

## 4 September – 5 September 2020 – High Perceived Noise Night

Date & Time	Wind Speed m/s	Wind Direction	Stability Class	Location & Direction from Port													
				L1a Woonah Inside SE		L1b Woonah Outside SE		L2 Wassell St E		L3 Anthony St NE		L4 Wilson St NW		P1 Foreshore NW		P2 Botany Rd E	
				LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF	LA10	LALF
5/09/2020 0:15			E	3	6	2	4	0	1	2	-1	7	-1	3	3	-1	-1
5/09/2020 0:30	1.9	WNW	E	4	8	4	6	2	4	1	0	5	-2	3	4	-2	0
5/09/2020 0:45				2	6	2	4	3	5	3	6	5	-1	4	5	-1	1
5/09/2020 1:00	2.3	W	D	5	9	4	8	4	7	3	4	3	-1	3	4	-1	2
5/09/2020 1:15				7	12	6	10	6	9	5	10	5	0	3	3	0	2
5/09/2020 1:30	3.3	WSW	D	5	9	4	8	4	7	3	8	4	1	3	4	2	2
5/09/2020 1:45				7	11	6	10	5	10	4	10	6	1	2	2	1	1
5/09/2020 2:00	1.9	W	D	6	10	5	9	5	9	7	11	1	-2	-3	-2	0	3
5/09/2020 2:15				12	11	4	8	8	12	8	11	8	0	1	0	2	3
5/09/2020 2:30	0.0	CALM	F	5	9	3	8	6	11	6	9	0	-4	-1	-3	1	4
5/09/2020 2:45				4	7	2	6	6	10	6	10	2	-4	1	0	1	4
5/09/2020 3:00	1.2	W	F	4	7	3	6	6	10	5	9	2	-2	4	5	3	6
5/09/2020 3:15				4	7	3	6	6	9	5	7	3	-3	3	4	1	3
5/09/2020 3:30	1.6	NNW	F	3	6	2	6	4	8	5	8	3	-3	4	4	0	2
5/09/2020 3:45				2	5	1	5	4	8	6	9	3	-2	4	2	0	2
5/09/2020 4:00	1.6	NW	F	3	7	-2	7	-1	5	0	7	-2	-4	1	-2	-2	-1
5/09/2020 4:15				3	7	-1	7	2	8	2	9	-2	-4	2	-1	-1	2
5/09/2020 4:30	1.6	WNW	F	5	8	1	8	2	8	3	9	-3	-3	4	0	-2	0
5/09/2020 4:45				5	9	2	9	3	8	4	11	0	-2	5	0	-2	1
5/09/2020 5:00	1.6	N	F	5	9	2	9	5	11	3	9	1	-2	4	0	-1	1
5/09/2020 5:15				5	9	3	9	2	8	3	9	0	-3	3	-2	-2	0
5/09/2020 5:30	1.6	W	D	1	4	3	4	3	3	2	5	5	2	4	1	-2	-1
5/09/2020 5:45				4	-2	12	-2	7	7	3	7	6	1	4	0	0	-1
5/09/2020 6:00	1.6	WNW	D	2	5	3	3	2	6	4	6	7	2	2	1	1	1



# Exacerbation Internally

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- Noise transmission from outside to inside doesn't happen equally across all frequencies (particularly when windows are closed).
- Expect during winter months at night time windows are mostly closed.
- Light weight constructions have much poorer attenuation in low frequencies when compared to mid and high frequencies.
- Therefore, any low frequency external sources appear more prominent internally.
- Masonry constructions have much stronger attenuation in low frequency when compared to light weight constructions.
- In addition, room modes (the acoustic properties of every single room are different) may mean higher sound pressure levels in particular locations within an affected room.

# Summary

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- One month monitoring period was representative of typical Port use and mix of weather conditions to draw conclusions.
- Able to dispel myths the Port was operating at reduced capacity.
- Able to dispel myths that night is noisier than day.
- Confirmed the strongest correlation of complaints is due to noise enhancing weather conditions.
- There was no observable correlation between high perceived noise levels and number of vessels at berth.
- A number of sources contributed to industrial noise at residential receivers
- Low frequency noise was observed to be predominantly from ships berthed at the port but other sources of low frequency noise exist from the industrial precinct around Port Botany which have localised impacts (i.e. L3 location).
- Intermittent crashes and bangs are audible at residences but can't attribute all to Port as these operations occur elsewhere in industrial precinct.

# Recommendations – Next Steps

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- Permanent noise monitor be installed towards the south east to capture noise levels in the Little Bay/Phillip Bay area.
- Noise measurements be conducted to confirm the source noise levels of the ships in the Port.
- The NEPTUNES noise measurement protocol for moored ships which was developed by the Environmental Ship Index organisation should be considered as the measurement procedure.

# Q & A

