Thomas Bertwistle
Industry Assessments
The Department of Planning, Housing and Infrastructure
12 Darcy Street
Parramatta NSW 2150

17 December 2024

Dear Thomas,

## RE: Aurizon Port Facility Storage Changes and Increases - Request for Additional Information – Reasonable and Feasible Mitigation Measures.

Aurizon Port Services NSW (**APSN**) was issued the Aurizon Port Facility Storage Changes and Increases - Request for Additional Information (**the RFI**) on the 29 August 2024 by the Department of Planning, Housing and Infrastructure (**DPHI**).

The RFI detailed responses from the NSW Environment Protection Authority (**EPA**) and Newcastle City Council. Specifically, the EPA submission detailed concerns regarding noise impacts associated with modelled exceedances in the sleep disturbance noise level (**SDNL**) trigger for residential receivers in Stockton.

In addition to providing a response to the issues raised by the EPA, the DPHI requested that further information be provided to demonstrate all feasible and reasonable at-source and barrier noise mitigation measures have been considered to mitigate the modelled residual exceedance. This information is to be provided in a format consistent with Table 3.1 of the Noise Policy for Industry (**NPfI**) and has been included as **Attachment 1.**

As identified in the APSN Expansion Noise Model Validation in Response to Feasible Mitigation Measures (SLR, 15 November 2024) and APSN Expansion Response to Feasible Mitigation Measures (SLR, 5 July 2024) modelled potential exceedances of SDNL were restricted to loading of cement ISOs onto train wagons or truck trailers respectively. Modelled exceedances from loading activities occurred when a typical or absolute maximum noise emission coincided with night-time adverse weather conditions.

To support the reasonable and feasible mitigation test Aurizon has undertaken a review of meteorological data provided by the Port of Newcastle (**PoN**) to determine the indicative probability of adverse night-time weather conditions coinciding with night-time loading events. The review was undertaken with the following conservative assumptions taken from the NPfI and assumes loading occurs during night-time periods on average three times a month as per the previously completed Noise Impact Assessment (SLR, 2022):

- Windspeeds up to and including 3m/s.
- Wind direction to the receiver included a +/- 45$^{o}$ buffer for both arms:
    - Stockton 225$^{o}$ – 270$^{o}$ (180$^{o}$ – 315$^{o}$ with buffer).

- Carrington 135º – 140º (90º – 185º with buffer).

Due to technical difficulties, data provided by PoN was amalgamated from onsite and Nobbys BOM meteorological station (2 km from APSN) for November 2023 – November 2024 with data for July and August unavailable. This is not considered to adversely affect the indicative results due to the prevailing wind conditions being from the West in May – September[1] and results for May, June and September returning the lowest rates of adverse weather condition events per month.

Based on the review, it is likely that approximately one monthly loading event will coincide with night-time adverse weather conditions (approximately 12 per year). These results indicate the low probability that identified sensitive receivers may be subject to conditions where loading of wagons potentially generates a typical or absolute maximum noise emission.

The reasonable and feasible mitigation test should be reviewed in the following context:

- Loading of cement ISOs would occur on average three times per month with an average of 12 wagon unloading/loading events in any one night-time period.
- Exceedances would only potentially occur one per month where night-time adverse meteorological conditions coincided with loading events.
- Of the completed 12 loading events per night-time period, almost 90% are at or below the SDNL meaning that only 1-2 of these actions per night are predicted to result in a noise emission that would exceed the Lmax SDNL
- Given the limited number of loading events, internal noise levels are not expected to exceed the enHealth Council (2004) guidance that sound pressure should not exceed approximately 45 dBA internally (equivalent to 55 dBA externally) more than 10 to 15 times during the course of a night-time period.
- Maximum ambient external noise levels during the night-time period already routinely exceed 61 dBa (a 6 dBA exceedance of SDNL) at sensitive receivers.

If you have any queries regarding the indicative probability results or the attached reasonable and feasible mitigation measures, please feel free to contact me on the details below.

Kind regards,

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**Attachment 1 – Reasonable and Feasible Mitigation Measures**

[1] https://weatherspark.com/y/144563/Average-Weather-in-Newcastle-New-South-Wales-Australia-Year-Round#google_vignette

# ATTACHMENT 1 – Reasonable and Feasible Mitigation Measures

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| Mitigation option | Feasible mitigation test | Reasonable mitigation test | Justification for adopting or disregarding this option |
|---|---|---|---|
| **Mitigation at source**<br><br>**Option 1:** Scheduling handling and loading/unloading of all cement ISOs (**ISO**) to occur during the day and evening periods only.<br><br>**Option 2:** Restrict truck deliveries and double stacking of ISOs to day and evening periods only. Loading and unloading of trains with ISOs to continue during night-time periods.<br><br>**Option 3**: Review of ISO loading and unloading processes to mitigate noise emissions. | **Option 1: Not Feasible**. Train services are required to run on a 24-hour basis to align with client, shipping and network scheduling requirements.<br><br>Inability to load trains during the night-time period is incompatible with client, network and shipping schedules. Further, as concentrate unloading can occur uninterrupted during night-time periods cement ISOs would need additional marshalling and rail movements to align with day and evening periods resulting in major operational inefficiencies and disruption to scheduling requirements.<br><br>**Option 2**: **Feasible**. Truck deliveries and double stacking of ISOs can be restricted to evening and daytime periods.<br><br>Loading and unloading from trains is still required to occur during night-time periods as required due to supply chain scheduling requirements.<br><br>Loading and unloading events are expected to occur on average three times per month with 12 wagons loaded/unloaded per event. | **Option 1: Not Reasonable.** As train services are required to run on a 24-hour basis restricting unloading and loading of ISOs to day and evening periods will be incompatible with client, shipping and network scheduling requirements.<br><br>Additional movements may be trigged to ensure uninterrupted unloading of concentrate occurs whilst ISO are unloaded during designated periods. This would result in greater operational inefficiencies, port rail network congestion and possible excess noise generation.<br><br>**Option 2: Reasonable**. Restriction of unloading and loading of truck trailers to day and evening periods only would remove an identified potential source of SDNL exceedances at sensitive receivers in Stockton and Carrington of up to 5 dB.<br><br>Loading and unloading of trains during night-time periods is required due to client, shipping and network scheduling requirements.<br><br>While this may introduce a source of modelled exceedance of SDNL of up to 5 | **Option 1: Not Adopted.** Scheduling of ISO handling and loading to day and evening periods only would ensure modelled exceedances to SDNL would not occur.<br><br>However, as this is incompatible with operational and wider supply chain requirements and may introduce further congestion to rail network and Site inefficiencies it has been considered not feasible or reasonable and will not be adopted.<br><br>**Option 2: Adopted**. Double stacking of ISOs and the restriction of truck deliveries to day and evening hours can be accommodated. This will remove a modelled source of potential SDNL exceedances of up to 5 dB.<br><br>Loading and unloading of trains during night-time periods on average three time per month is proposed to be adopted due to client, shipping and network scheduling requirements.<br><br>Loading and unloading of cement ISOs from trains may result in exceedances of |

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| | **Option 3: Feasible**. The manner in which ISOs are handled can be reviewed with the goal of reducing noise generation during the loading and unloading ISOs. | dBA during night-time periods under adverse weather conditions it is noted that:<br><br>• Noise monitoring conducted as part of this assessment identified that maximum external noise levels during the night-time period already routinely exceed 61 dBa (a 6 dBA exceedance of SDNL) at sensitive receivers.<br>• Only a single loading event per month is expected to coincide with adverse night-time conditions with only two lifts during that event predicted to exceed the Lmax SDNL.<br><br>**Option 3: Reasonable**. Handling of ISOs is already completed by appropriately qualified personnel with all due diligence. As such, while no changes to handling procedures is expected to achieve a reduction in modelled noise emissions the review can be undertaken. | SDNL by up to 5dB under the following conditions:<br><br>• Night-time hours.<br>• Adverse weather conditions.<br>• Loading generates 'typical' and 'absolute' maximum predicted LAmax noise levels.<br><br>The following mitigating factors need to be considered when determining the actual and likelihood of impact associated with handling of ISOs during night-time periods:<br><br>• Unloading/loading events do not guarantee noise levels generate the modelled 'typical' or 'absolute' maximum predicted noise level or an exceedance of the SDNL.<br>• Noise monitoring conducted as part of the APSN NSW Expansion Addendum Noise Impact Assessment (SLR, March 2024). identified that maximum ambient external noise levels during the night-time period already routinely exceed 61 dBa (a 6 dBA exceedance of SDNL) at sensitive receivers.<br>• Adverse meteorological conditions are in place.<br>• Only a single loading event per month is expected to coincide with adverse night-time conditions with |

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| | | | only two lifts during that event predicted to exceed the Lmax SDNL.<br><br>Due to the above factors Aurizon is proposing to adopt Option 2.<br><br>**Option 3:** **Adopted**. Aurizon will conduct an audit and review of the ISO handling procedures within six months of operations commencing. The audit scope will determine whether best practice handling processes are being implemented by personnel. |
| Mitigation in the transmission path to the receiver<br><br>**Option 1:** Double stacking of ISO containers on site eastern and western boundaries (170m each) to form noise wall.<br><br>**Option 2:** Construction of a 5 meter high noise wall on site eastern and western boundary (170m each) of operations | **Option 1:** **Not Feasible.** Stacking of ISOs to form a noise wall to provide noise shielding is not feasible due to the following operational considerations:<br><br>• Blocking access to the rail siding to the east.<br>• Blocking truck access from the Dyke Road to the west. If access is permitted gaps would render the noise wall ineffective.<br>• Operational inefficiencies due to non-optimal placement of containers.<br>• Safety implications due to blocking of site lines.<br><br>Construction of a 170m long noise wall using double stacked ISOs would require approximately 60 ISOs. At any one-time Aurizon holds on average 20 ISOs onsite. | **Option 1:** **Not Reasonable.** The stacking of containers is not considered reasonable given the:<br><br>• Disruption to site operations.<br>• Additional handling required.<br>• Negligible noise reduction such an arrangement would provide due to the gaps present within the ISOs.<br>• Insufficient number of ISO available to construct a noise wall.<br>• Visual impact concerns to receivers at Stockton.<br>• Noise monitoring conducted as part of the APSN NSW Expansion Addendum Noise Impact Assessment (SLR, March 2024). identified that maximum ambient external noise levels during the night-time period already routinely | **Option 1:** **Not Adopted.** Not reasonable or feasible primarily due to:<br><br>• Impediment to site operations.<br>• Ineffectiveness of ISOs as a noise barrier<br>• Ambient noise levels during the night-time period already routinely exceeding 61 dBA at sensitive receivers.<br><br>**Option 2:** **Not Adopted.** Not reasonable or feasible primarily due to:<br><br>• Impediment to site operations.<br>• Prohibitive costs of approximately $750k per wall or $1.5 million for both. Cost would be equivalent to 9% and 18% of the recent completed shed extension. |

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| | ISOs are a cylindrical container within a steel frame meaning that significant open space exists. This makes them inappropriate for use as a noise wall.<br><br>Due to the proposed arrangement of ISOs to form a noise wall it is likely aesthetic impacts for Stockton receivers would occur due to the double stacking of containers over 170m of frontage on the Site's eastern side.<br><br>**Option 2: Not Feasible.** Construction of a noise barrier is not feasible due to the following operational considerations:<br><br>• Blocking access to the rail siding to the east.<br>• Insufficient space on the eastern boundary of the Site.<br>• Blocking truck access from the Dyke Road to the west. To permit access gaps in the wall would be required rendering ineffective.<br>• Safety implications due to blocking of site lines. | exceed 61 dBa (a 6 dBA exceedance of SDNL) at sensitive receivers.<br><br>**Option 2: Not Reasonable**. Construction of a 5m high noise wall is not considered reasonable due to:<br><br>• Disruption to operations.<br>• Visual impact to receivers at Stockton.<br>• Noise monitoring conducted as part of the APSN NSW Expansion Addendum Noise Impact Assessment (SLR, March 2024). identified that maximum ambient external noise levels during the night-time period already routinely exceed 61 dBa (a 6 dBA exceedance of SDNL) at sensitive receivers.<br>• Prohibitive costs of approximately $750k per wall or $1.5 million for both. Cost would be equivalent to 9% and 18% of the recent completed shed extension. | • Ambient noise levels during the night-time period already routinely exceeding 61 dBA at sensitive receivers. |
| Mitigation at the receiver<br><br>**Option 1**: Noise mitigation treatment of affected residences in Carrington and Stockton. | **Option 1: Feasible**. Noise mitigation measures such as double glazing, wall and ceiling insulation, sealing of gaps etc. are in theory a feasible option to mitigate potential noise impacts. | **Option 1: Not Reasonable**. Noise mitigation treatment of affected residences is not considered reasonable due to:<br><br>• Excessive costs and uncertain scope due to age of housing and number of potentially impacted residences. | **Option 1: Not Adopted.** Not considered for adoption as:<br><br>• Ambient noise levels during the night-time period already routinely exceeding 61 dBA at sensitive receivers. |

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| | Due to the variety in age and design of potentially affected housing the scope of mitigation measures cannot be refined. | • Effectiveness of potential measures on older housing.<br>• Minimal likelihood of SDNL exceedances.<br>• Ambient noise levels during the night-time period already routinely exceeding 61 dBA at sensitive receivers.<br>• Aurizon becoming responsible for ongoing maintenance of residential mitigation measures.<br>• Additional assessment requirements.<br>• Extended installation period for potential houses. | • Minimal likelihood of SDNL exceedances occurring.<br>• Scope uncertainty and excessive costs.<br>• Ongoing management requirements. |