



**DOVER FISH PROCESSING FACILITY: NOISE  
IMPACT ASSESSMENT**

**Project ID: 17450**

**23/01/2026**

**Release: R1**



**Prepared For:**

**Tassal Operations Pty Ltd**

**Assured Environmental**



## DOCUMENT CONTROL PAGE

Project Title: DOVER FISH PROCESSING FACILITY: NOISE IMPACT ASSESSMENT

Project Reference ID: 17450

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**Table 1: History of Revisions**

| Revision | Date       | Issued to | Changes         |
|----------|------------|-----------|-----------------|
| RO       | 14/01/2026 | R. Bussey | Initial Release |
| RI       | 23/01/2026 | R. Bussey | Client Comments |

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## GLOSSARY

|                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| A-Weighting         | A response provided by an electronic circuit which modifies sound in such a way that the resulting level is like that perceived by the human ear.                                                                                                                                                                                                                                                                                                                                                                          |
| Background Noise    | Noise level at a given location and time measured in the absence of any alleged noise nuisance sources. Typically, represented by the $L_{A90}$ noise statistic.                                                                                                                                                                                                                                                                                                                                                           |
| RBL                 | Rating background noise level – the overall single-figure background level representing each assessment period (day/evening/night) over the whole monitoring period.                                                                                                                                                                                                                                                                                                                                                       |
| Calibrator          | An instrument used to carry out ‘field calibrations’ before and after monitoring to ensure the sound level meter does not drift.                                                                                                                                                                                                                                                                                                                                                                                           |
| CONCAWE             | Conservation of Clean Air and Water in Europe. Refers to the noise prediction algorithm used, which categorises the meteorological conditions into six discrete categories that indicate varying stability, thus allowing the consideration of neutral or noise-enhancing meteorological conditions within the model.                                                                                                                                                                                                      |
| dB (decibel)        | This is the scale on which sound pressure level is expressed. It is defined as 20 times the logarithm of the ratio between the root-mean-square pressure of the sound field and the reference pressure (0.00002 N/m <sup>2</sup> ).                                                                                                                                                                                                                                                                                        |
| dB(A) or dBA        | This is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (i.e., ‘A’ weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.                                                                                                                                                                                                                                                                                           |
| Fast Time Weighting | Frequency the sound level meters records noise levels. Fast time weighting is every 125 ms.                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Free-field          | Refers to a sound pressure level determined at a point away from reflective surfaces other than the ground with no significant contribution due to sound from other reflective surfaces; generally, as measured outside and away from buildings.                                                                                                                                                                                                                                                                           |
| $L_{Aeq}$           | This is the equivalent steady sound level in dB(A) containing the same acoustic energy as the actual fluctuating sound level over the given period. Noise levels often fluctuate over a wide range with time. Therefore, when a noise varies over time, the $L_{Aeq}$ is the equivalent continuous sound which would contain the same sound energy as the time varying sound. Many studies show that human reaction to level-varying sounds tends to relate closer to the $L_{Aeq}$ noise level than any other descriptor. |
| $L_{Amax}$          | The A-weighted, maximum, sound level. It should be noted that maximum noise levels are not peak levels.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| $L_{Amin}$          | The A-weighted, minimum, sound level.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| $L_{An}$            | The A-weighted, sound level exceeded for n% of the measurement period with A-weighted, calculated by statistical analysis - where n is between 0.01% and 99.99%.<br><br>$L_{A10}$ is representative of traffic noise.<br><br>$L_{A90}$ is representative of background noise.                                                                                                                                                                                                                                              |



---

## ABBREVIATIONS

|       |                                                         |
|-------|---------------------------------------------------------|
| AHD   | Australian Height Datum                                 |
| CRTN  | Calculation of Road Traffic Noise                       |
| EIS   | Environmental Impact Statement                          |
| EMPC  | Environmental Management and Pollution Control Act 1994 |
| EPA   | Environmental Protection Authority                      |
| EPN   | Environmental Protection Notice                         |
| HV    | Heavy Vehicle                                           |
| LGA   | Local Government Area                                   |
| LiDAR | Light Detection and Ranging                             |
| LV    | Light Vehicle                                           |
| NOI   | Notice of Intent                                        |
| PCE   | Permit Conditions Environmental                         |
| WWTP  | Waste Water Treatment Plant                             |



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## 1 INTRODUCTION

### 1.1 Background

Tassal Group Limited (herein referred to as 'Tassal') is a Tasmanian-based salmon farming company founded in 1986. Its principal activities are the breeding, hatching, farming, processing, sales, and marketing of Atlantic salmon.

The Dover processing facility (the Facility) operates under DA229/2010 (Permit Conditions Environmental (PCE) 7861) as varied by Environment Protection Notice (EPN) no. 9635/3, 9635/4 and 9635/5 (the Permit), which places limits on factory production (25,000 t/y) and effluent discharge volumes (490 kL/day) and quality. In April 2021, using the discretion provided by the Permit as varied by condition G9 of EPN 9635/4, the production limit was temporarily increased to 34,000 t/y and effluent discharge volume to 650 kL/day.

Tassal propose to increase the Facility's capacity to 50,000 t/y to allow for long-term growth beyond 2035. The proposal primarily includes upgrades to the existing Wastewater Treatment Plant (WWTP).

A Notice of Intent (NOI) was submitted to the Environmental Protection Authority (EPA) in December 2020. On 18 January 2021, the EPA determined the proposal would be assessed by the Board of the EPA as a class 2B assessment under the Environmental Management and Pollution Control (EMPC) Act 1994. Noise impacts were not flagged by the EPA as an area of concern in the Project Specific Environmental Impact Statement (EIS) Guidelines issued in February 2021, presumably as the upgrades to the WWTP reflect relatively minor changes to the onsite noise-generating equipment. Tassal has also identified that the site has no history of noise complaints.

Tassal has since prepared an EIS, dated August 2025, for the proposal. During public notification of the EIS, several concerns regarding noise emissions were raised. Through additional consultation with the EPA, the following information request has been provided for Tassal to address:

#### ***Supplementary Noise Request***

- *Show locations of all proposed operational noise sources (fixed and mobile sources) associated with the fish processing factory and wastewater treatment plant on the proposed site plan.*
- *Discuss noise-related environmental impacts associated with current and altered traffic flows on residences adjacent to roads. Provide the predicted results of the increased traffic flow and assess both  $L_{Aeq}$  and  $L_{Amax}$  noise emissions to assess for sleep disturbances during the night-time period at Noise Sensitive Premises (NSPs).*
- *Discuss whether the proposed activities will result in increasing the existing noise emissions at NSPs and whether they will comply with the existing noise limits.*
- *All prediction methodologies and assumptions must be discussed.*
- *If required, consider appropriate noise attenuation measures to ensure that:*
  - *The proposed operation noise emissions meet the relevant site-specific noise limits and do not result in increasing the existing noise emissions at NSPs.*



- 
- *Noise emissions from the site do not contain excessive energy in low frequency when measured/observed at any NSPs.*
  - *Noise emissions from the site do not result in any noise sensitive premises experiencing noise emissions greater than the noise indicator levels presented in Environment Protection Policy (Noise) 2009.*
  - *All continuous fixed mechanical plant noise sources potential to cause nuisance at NSPs are located in an enclosed environment.*

## 1.2 Scope of Assessment

Assured Environmental (AE) was appointed by Tassal to undertake a noise impact assessment of the proposal to address the above information request. The NIA will be undertaken in accordance with the following documents:

- General Guidelines for the preparation of an Environmental Impact Statement;
- Tasmanian Noise Measurement Procedures Manual;
- Tasmanian Planning Scheme;
- Huon Valley Planning Scheme;
- Environmental Protection Policy (Noise) 2009; and
- Tasmanian State Road Traffic Noise Management Guidelines.

In accordance with the requirements of the above guidelines, computational modelling has been undertaken to assess the potential for acoustic impacts as a result of the proposed development.

## 1.3 This Report

This report summarises the methodology, results, and conclusions of the noise impact assessment with the proposed site layout.

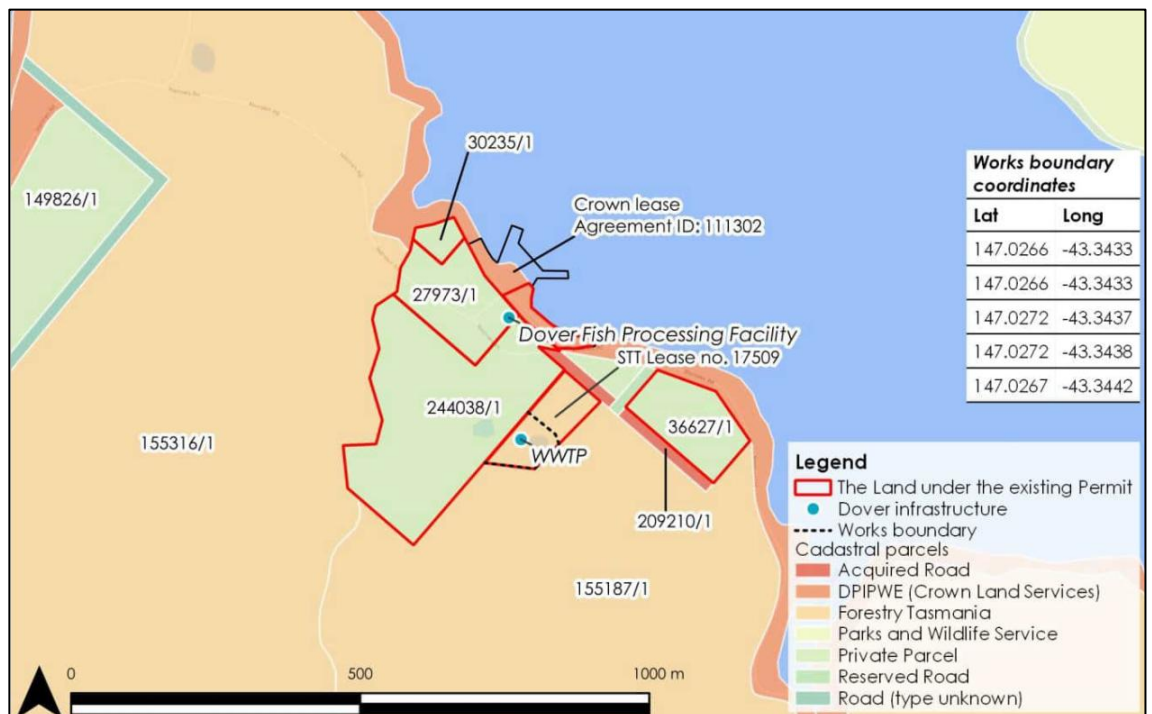
## 2 DESCRIPTION OF ENVIRONMENTAL VALUES

### 2.1 Location

The Facility is located near Strathblane, within the Huon Valley Local Government Area (LGA). The current land tenure information for the Subject Site and surrounding properties is reproduced from the EIS in Table 2, and is shown in Figure 1.

**Table 2: Current Land Title and Ownership**

| Title Ref | Address                       | Tenure                                | Use                                        | Owner / Authority |
|-----------|-------------------------------|---------------------------------------|--------------------------------------------|-------------------|
| 244038/1  | 564 Narrows Road, Strathblane | Private Freehold                      | Marine operation & WWTP                    | Tassal            |
| 27973/1   | 564 Narrows Road, Strathblane | Private Freehold                      | Marine operation & WWTP                    | Tassal            |
| 30235/1   | 564 Narrows Road, Strathblane | Private Freehold                      | Marine operation                           | Tassal            |
| 36627/1   | 564 Narrows Road, Strathblane | Private Freehold                      | Vegetated                                  | Tassal            |
| 155187/1  | Edwards Road, Geeveston       | Permanent Timber Production Zone Land | WWTP (STT lease 17509) & timber production | Forestry Tasmania |
| 155316/1  | Edwards Road, Geeveston       | Permanent Timber Production Zone Land | Timber production                          | Forestry Tasmania |
| 209210/1  | Edwards Road, Geeveston       | Casement                              | Road                                       | Tassal            |



**Figure 1: Location of the Proposed Works, Showing Cadastral Boundaries and Land Titles (Source: Tassal)**



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## 2.2 Receptors

Figure 2 presents the nearest sensitive receptors to the Subject Site based on a review of aerial mapping provided by Tassal. Receptors selected for this assessment are labelled and discussed later in this report.

## 2.3 Topography

Figure 3 illustrates the local topography relative to the Australian Height Datum (AHD), as obtained from Elvis LiDAR data at 1 m resolution. The surrounding area has significant change in topography, being at sea level (0 m AHD) across all the water, with land rising up as high as 300 m AHD on the hills to the south of Narrows Road. The main processing buildings of the Facility lie at approximately 10 m AHD, extending down to the waterfront. The WWTP is located further up the hill at approximately 40 m AHD.

It is notable that a substantial ridgeline rises up to the immediate east of the Subject Site, rising as high as 180 m AHD at its highest point, though its height is closer to 100 m AHD along the line connecting the Subject Site to the nearest receptor to the east. The nearest receptors to the east tend to be at or below 40 m AHD, thus this ridgeline is expected to provide substantial shielding from noise associated with the processing operations.

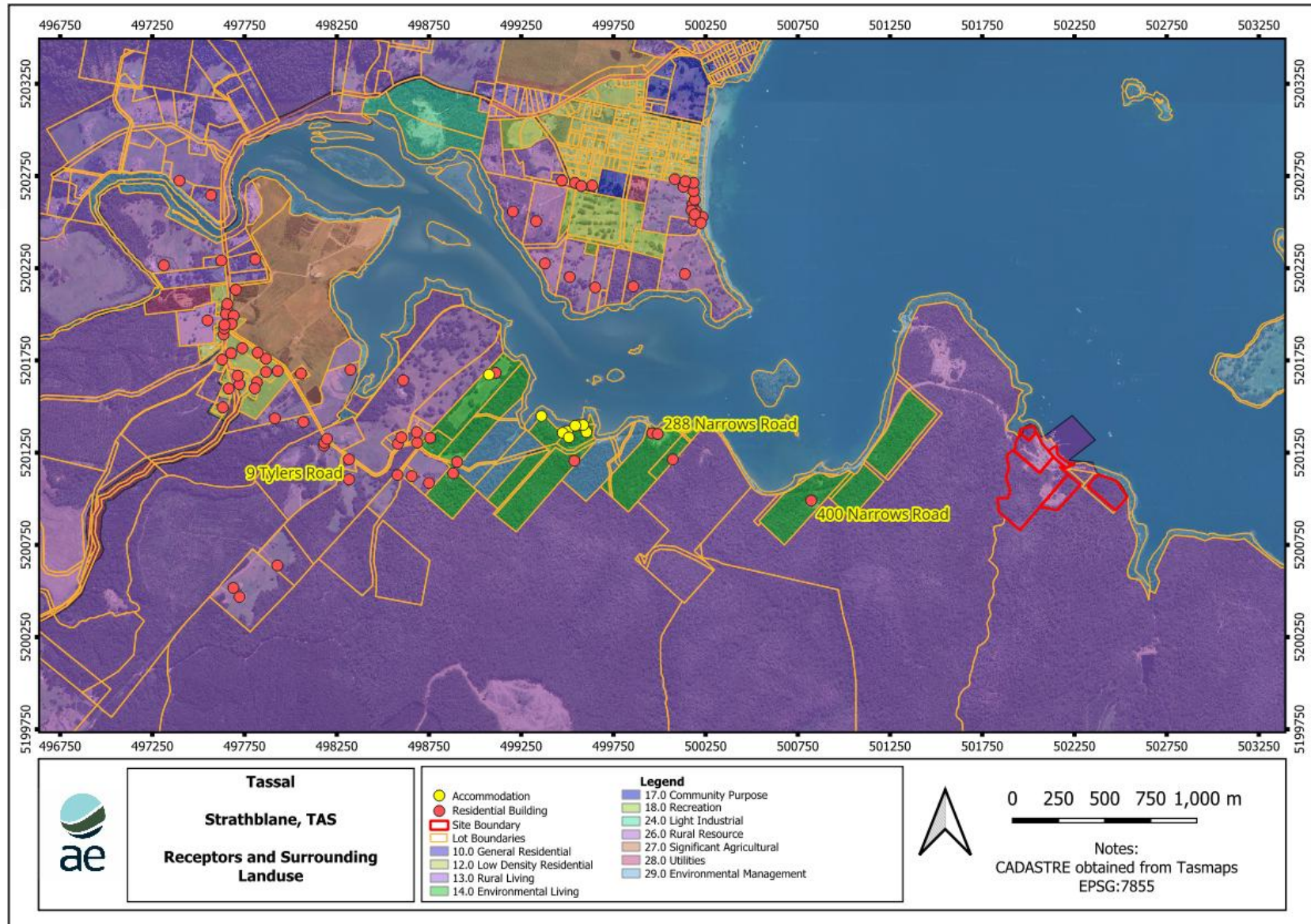


Figure 2: Site Location, Tasmanian Planning Scheme Zones & Sensitive Receptors



Figure 3: Topography (m AHD, sourced from Elvis LiDAR)



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## 3 FACILITY OPERATIONS

### 3.1 Site Infrastructure

#### 3.1.1 Main Facility

The Dover Facility has been operating since 1986 and incorporates a fully enclosed salmon processing facility, a WWTP, and administrative offices. Tassal also conducts marine farming operations adjacent to the Facility. A wharf at the site is used to unload fish from a harvest vessel into the Facility.

Harvested salmon are transported to Dover by a dedicated harvest vessel from the lease area. On arrival, fish are transferred directly to the processing facility via a pipeline, while seawater from the holds is diverted to a wastewater holding tank for treatment.

During the peak harvesting period between October and January, additional whole fish are delivered to the facility by road from Tassal's Okehampton farming area. These deliveries are undertaken by tanker trucks, with up to two truck movements per day.

In January, when harvesting volumes exceed on-site processing capacity, whole fish are transported by tanker from Dover to the George Town facility. Fish are first received into the factory from the harvest vessel and then loaded into tankers for transport. This results in up to two tanker departures per day during this period. Following completion of the proposed factory intensification and WWTP upgrades, it is anticipated that the transfer of fish to George Town will no longer be required.

On a typical operating day, between 5,000 and 25,000 fish arrive overnight, having been harvested the previous day. Fish are pumped directly into insulated bins, iced, and staged for processing later the same day. The factory is currently capable of processing approximately 3,000 fish per production hour. The number of harvest vessels will remain at one per day, with the vessel carrying more fish per load to achieve the proposed higher production capacity.

Inside the processing hall, fish are conveyed through four fully automated gutting lines. Each fish is graded by size and quality before being packed for dispatch. Total processing time from entry to packing averages around three minutes. Packing formats vary depending on end use, with fish destined for secondary processing placed in bulk bins containing ice slurry, and fish for retail, wholesale or export markets packed into insulated cartons with ice.

To maintain hygiene standards, all processing equipment is routinely cleaned using fresh water. Wash-down water and fish residues are captured through floor drainage and screened. Solid wastes are transported off-site to Tassal's Triabunna facility for further processing, while liquid effluent is directed to a holding tank ahead of treatment. Ice slurry and flaked ice required for handling and packaging are manufactured on site.

The proposal would not alter the nature of fish processing activities undertaken at the site. Any new plant or equipment required would be installed within the existing factory building footprint.

#### 3.1.2 Pump Station

Tassal owns and operates a pump station near "Hawkers Green" on Narrows Road. The pump station is part of a freshwater supply system, with water from the Esperance River pumped to a large storage reservoir on Sustainable Timber Tasmania land to the south-east of the Facility.

The pump station is not part of the EIS proposal; however, it is understood that it is a key noise source for residents in this area and was raised as a concern through representations to the EIS. The pump station is not part of a regulated premise, and no noise limits have been set; therefore, the requirements of the Environmental Management and Pollution Control (Noise) Regulations 2016 apply. Separate to the approvals process for the EIS proposal, Tassal will investigate noise emissions from the pump station and implement mitigation to ensure operation in accordance with the Noise Regulations.

### 3.2 Key Noise-Generating Equipment

The key noise-generating equipment within the Facility is marked on Figure 4.



Figure 4: Markup of Noise-Generating Equipment (Source: Tassal)

The new noise sources are limited to a small number of pumps and blowers at the WWTP, with no other changes to the noise-generating equipment on-site.



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## 4 NOISE ASSESSMENT OF OPERATIONS

This section reviews the noise emissions from the Facility as a result of the proposed expansion.

AE's review identifies the following:

- The proposal involves the addition of a small number of pumps and blowers at the WWTP only. These sources are not expected to emit excessive amounts of noise.
- The new equipment at the WWTP is located at least 1 km from the nearest receptor located at 400 Narrows Road. The attenuation loss for noise propagating 1 km from the source is approximately 68 dB.
- In addition to the distance attenuation, the ground between the Facility and its nearest receptor is forested, meaning that substantial ground absorption across the soft forest floor would be expected.
- Furthermore, there is substantial topographic screening. Whilst the WWTP is located at approximately 40 m AHD and the nearest receptor is located at 20 m AHD, these are separated by a ridgeline that is at least 100 m AHD along the direct line between the sources and the nearest receptor.

Given the above factors, it is expected that the additional equipment associated with the proposal would have a negligible impact on the noise levels at surrounding receptors, and thus their acoustic amenity would be maintained.



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## 5 ROAD TRAFFIC NOISE ASSESSMENT

### 5.1 Literature Review

A key component of the assessment centres around the impacts associated with vehicles using Narrows Road. There are several aspects of the road traffic noise assessment that require a more detailed review to ensure it is assessed in an appropriate way, namely:

- Criteria: there is no directly applicable noise criteria available to be adopted.
- $L_{Amax}$ : the EPA has specifically identified the  $L_{Amax}$  impacts associated with heavy vehicles on Narrows Road as needing assessment. Standard road traffic propagation algorithms do not use an  $L_{Amax}$  metric.
- Unsealed roads: standard road traffic propagation algorithms are designed based on validation with sealed roads of varying surface compositions. There is very little information regarding how noise propagation may differ on an unsealed surface (with Narrows Road being partially unsealed).

AE has prepared a review of relevant information and published literature in order to inform a professional opinion on the most appropriate assessment techniques for the above areas.

#### 5.1.1 Road Traffic Noise Criteria

A comparison of road traffic noise criteria sourced from around Australia and internationally is provided in Table 3.



**Table 3: Comparison of Road Traffic Noise Criteria**

| Source | Document                                                                            | Criteria                                                                                                                                                                                                                                                                                            | Limitations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TAS    | <i>Tasmania State Road Traffic Noise Management Guidelines</i> , dated October 2015 | <p><math>L_{A10,18hrs}</math> 63 dB(A)</p> <p><math>L_{Aeq,8hrs}</math> 45 dB(A) for heavy vehicles at night</p>                                                                                                                                                                                    | <p>Designed for state roads, and only directly applicable for state roads. Some local councils may adopt these same criteria.</p> <p>No relative increase criteria provided.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| TAS    | <i>Environment Protection Policy (Noise) 2009</i>                                   | <p><math>L_{Aeq,16hrs}</math> 55 dB(A) for serious annoyance</p> <p><math>L_{Aeq,16hrs}</math> 50 dB(A) for moderate annoyance</p> <p><math>L_{Aeq,8hrs}</math> 45 dB(A) and</p> <p><math>L_{Amax}</math> 60 dB(A) for sleep disturbance</p>                                                        | <p>Part 4 discusses transport infrastructure, noting that:</p> <ul style="list-style-type: none"> <li>It is necessary for a community's economic, environmental, and social wellbeing;</li> <li>It seeks an optimal balance of economic, environmental and social benefits and costs with a major criterion of minimising the number of people exposed to noise levels that would prejudice protection of the environmental values; and</li> <li>Where environmental values are acutely prejudiced, existing transport infrastructure noise should be reduced to the greatest extent that is reasonably practical, consistent with achieving an optimal balance of economic, environmental and social benefits and costs.</li> </ul> |
| NSW    | <i>NSW Road Noise Policy</i> , dated March 2011                                     | <p>Existing residences affected by additional traffic on existing local roads generated by land use developments</p> <p><math>L_{Aeq,1hr}</math> 55 dB(A) during the day</p> <p><math>L_{Aeq,1hr}</math> 50 dB(A) during the night</p> <p>Increase of no more than 2 dB(A) above existing level</p> | <p>Only considers equivalent noise over a short 1-hour period, so does not evaluate overall daily exposure.</p> <p>Is otherwise highly relevant to the Subject Site's context.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ACT    | <i>Roads ACT Noise Management Guidelines</i> , dated June 2018                      | <p><math>L_{Aeq,15hr}</math> 60 dB(A)</p> <p><math>L_{Aeq,9hr}</math> 55 dB(A)</p> <p>Increase of no more than 5 dB(A) above existing level</p>                                                                                                                                                     | <p>Not perfectly aligned with this context; applicable for existing receptors affected by redeveloped roads rather than the intensification of an existing road.</p> <p>Designed for state roads, and only directly applicable for state roads. Some local councils may adopt these same criteria.</p>                                                                                                                                                                                                                                                                                                                                                                                                                               |



| Source | Document                                                                      | Criteria                                                        | Limitations                                                                                                                                                                                                                                                                                                                                    |
|--------|-------------------------------------------------------------------------------|-----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VIC    | <i>VicRoads Traffic Noise Reduction Policy</i>                                | L <sub>A10,18hr</sub> 63 dB(A)                                  | Not perfectly aligned with this context; applicable for existing receptors affected by redeveloped roads rather than the intensification of an existing road.<br><br>No relative increase criteria provided.                                                                                                                                   |
| QLD    | <i>Transport Noise Management Code of Practice</i>                            | L <sub>A10,18hr</sub> 68 dB(A)                                  | Not perfectly aligned with this context; applicable for existing receptors affected by redeveloped roads rather than the intensification of an existing road.<br><br>Designed for state roads, and only directly applicable for state roads. Some local councils may adopt these same criteria.<br><br>No relative increase criteria provided. |
| SA     | <i>Road Traffic Noise Guidelines</i> , dated November 2021                    | L <sub>Aeq,15hr</sub> 60 dB(A)<br>L <sub>Aeq,9hr</sub> 55 dB(A) | Not perfectly aligned with this context; applicable for existing receptors affected by redeveloped roads rather than the intensification of an existing road.<br><br>No relative increase criteria provided.                                                                                                                                   |
| NT     | <i>Road Traffic Noise on NT Government Controlled Roads</i>                   | L <sub>A10,18hr</sub> 63 dB(A)                                  | Target for future roads. No target is provided for existing roads affected by road upgrades.<br><br>Designed for state roads, and only directly applicable for state roads. Some local councils may adopt these same criteria.<br><br>No relative increase criteria provided.                                                                  |
| WA     | <i>State Planning Policy 5.4 - Road and rail noise</i> , dated September 2019 | L <sub>Aeq,16hr</sub> 60 dB(A)<br>L <sub>Aeq,8hr</sub> 55 dB(A) | Not perfectly aligned with this context; applicable for existing receptors affected by redeveloped roads rather than the intensification of an existing road.<br><br>No relative increase criteria provided.                                                                                                                                   |



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The comparison in Table 3 reveals a relatively wide range of assessment criteria across the Australian states and territories. Most states and territories are also limited in the application of their criteria, typically being designed for state roads and residences affected by either new or redeveloped roads. The exception is NSW, where specific criteria is provided for existing residences affected by additional traffic on local roads.

The NSW criteria is the most directly comparable criteria in the context of vehicles on Narrows Road. It is also a lower criteria, which is likely to be more suitable given the relatively rural location of receptors under consideration, and also ensures a conservative approach to the assessment. It also offers the most conservative relative increase criterion, which is relevant given the need to compare the impacts of current and future traffic generation from the Facility.

The Tasmanian *Environment Protection Policy (Noise) 2009* criteria is also highly relevant, as it sets state-specific targets for amenity based on the overall goals for their acoustic environment. It offers 16-hour and 8-hour assessment periods that capture a more representative notion of daily exposure. Furthermore, it offers an indication of an acceptable external sleep disturbance criterion.

For these reasons, AE is of the opinion that it is reasonable to adopt both of the above criteria for the assessment of road noise along Narrows Road based on additional traffic generated by the Facility's proposed production increase.

The road noise criteria (to be assessed externally at 1 metre from the façade of affected residences) is:

- $L_{Aeq,1hr}$  55 dB(A) during the day;
- $L_{Aeq,1hr}$  50 dB(A) during the night;
- $L_{Aeq,16hrs}$  50 dB(A);
- $L_{Aeq,8hrs}$  45 dB(A);
- $L_{Amax}$  60 dB(A) for sleep disturbance.

AE notes that in addition to the above absolute criteria, relative increase criteria are often relevant. Where the existing traffic volumes already exceed the criteria, it is not reasonable to expect the future traffic volumes to reduce to a level that no longer exceeds the criteria. A typical approach in those instances is to provide a small allowance for relative increases beyond the existing noise levels. Per the above literature review, both NSW and the ACT have additional sections allowing such a relative increase, ranging from 2 – 5 dB.

### 5.1.2 $L_{Amax}$ Road Noise Levels

AE has reviewed available information to inform an approach for estimating the  $L_{Amax}$  emissions from Narrows Road. Two possible approaches have been identified, with the first being to apply a correction to a noise model set to predict a more common traffic metric such as  $L_{A10,18hr}$ . There are correlations that have been established through research<sup>ab</sup>, which are summarised below:

---

<sup>a</sup> *A review of road traffic noise indicators and their correlation with the  $L_{A10(18hour)}$* , Naish, Tan, and Demirbilek, 2011, Paper Number 6, Proceedings of ACOUSTICS 2011

<sup>b</sup> *Correlation of Traffic Noise Parameters in Queensland*, Saavedra, Wong, and Ayva, 2025, Proceedings of ACOUSTICS 2025



$$L_{Amax,1hr,day} = 0.54L_{A10,18hr} + 54.6 \quad (\pm 12.7)$$

$$L_{Amax,1hr,night} = 0.79L_{A10,18hr} + 30.9 \quad (\pm 10.6)$$

The figures in the brackets reflect uncertainty ranges. However, through review of these and other research it is clear that the relationship between the  $L_{Amax}$  and other traffic noise metrics is not well-correlated, so the above relationships are indicative only and will be used with caution. The reason for this is that the  $L_{Amax}$  is expected to be mostly constant, as it depends only on the loudest single event rather than the total amount of traffic.

A potentially more accurate approach involves the direct prediction of  $L_{Amax}$  noise at a receptor based on measured values of pass-bys. AE understands that the EPA measured a truck pass-by during a site visit to the Facility, capturing an  $L_{Amax}$  level of 72.8 dB(A) at 5 – 10 m from the source. This correlates to a sound power level of approximately 95 – 101 dB(A) depending on the true distance. Importantly, this value correlates fairly well with AE's own noise measurements, which on multiple occasions have identified truck pass-bys to generate an  $L_{Amax}$  of about 100 dB(A). As a second datapoint, this data will be used for direct point source propagation calculations.

### 5.1.3 Unsealed Road Effects

Standard road traffic noise prediction models such as the UK Calculation of Road Traffic Noise (CRTN) allow for a surface correction depending on the type of pavement, but are limited to sealed road surfaces. AE is mindful that a section of Narrows Road that passes by several receptors is unsealed, and expects different acoustic characteristics. As such, further research was conducted in order to estimate the effects of an unsealed road compared to a sealed road. The key findings of this research are as follows:

- Light vehicles are expected to produce noise levels approximately 3 - 6 dB higher on unsealed roads compared to sealed roads in similar settings<sup>c</sup>. The variance is likely due to differences in the condition of the sealed and unsealed segments of road.
- Effects of road surfaces are less pronounced for heavy vehicles compared to light vehicles, heavy vehicle engine and exhaust noise is more significant and masks the tire interaction noise to an extent. In a test that showed light vehicle noise increasing by 3 – 6 dB from a standard surface (depending on the new surface under test), heavy vehicles in the same conditions were found to increase by 0 – 2 dB<sup>d</sup>.

## 5.2 Narrows Road Traffic Volumes

Existing and future vehicle trips as a result of the Facility are sourced from the Traffic Impact Assessment<sup>e</sup> and are summarised in Table 4 for Light Vehicles (LV) and Heavy Vehicles (HV). It is noted that a trip is a single movement (i.e. arrival or departure), hence a vehicle arriving and then leaving would constitute a total of two trips.

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<sup>c</sup> *Research on Motor Transport Produced Noise on Gravel and Asphalt Roads*, Leipus, Butkus, and Januševičius, 2010, The Baltic Journal of Road and Bridge Engineering vol 5 issue 3

<sup>d</sup> *Effects of Road Texture on Traffic Noise and Annoyance at Urban Driving Speeds*, Dravitzki, Walton, and Wood, November 2002, New Zealand Acoustical Society

<sup>e</sup> *Expansion of Dover Tassal Facility, 564 Narrows Road, Dover – Traffic Impact Assessment*, Hubble Traffic, May 2025



**Table 4: Existing and Future Traffic Trips (LV / HV)**

| Type     | Total Trips | Peak Hour Trips         |                         | 16-hour trips<br>06:00 – 22:00 | 8hr-trips<br>22:00 – 06:00 |
|----------|-------------|-------------------------|-------------------------|--------------------------------|----------------------------|
|          |             | Day<br>15:00 - 16:00    | Night<br>04:00 - 05:00  |                                |                            |
| Existing | 244 / 22    | 38 / 0                  | 38 / 1                  | 169 / 19                       | 75 / 3                     |
| Future   | 296 / 30    | 61 / 3<br>07:00 - 08:00 | 38 / 0<br>22:00 – 23:00 | 218 / 27                       | 78 / 3                     |

### 5.3 Noise Modelling Methodology

For the purposes of predicting impacts associated with noise emissions from the use of Narrows Road upon sensitive receptors, predictive noise modelling was undertaken using the proprietary software CadnaA (version 2026 build 211.5606) developed by DataKustik. CadnaA incorporates the influence of meteorology, terrain, ground type and air absorption in addition to source characteristics to predict noise impacts at receptor locations.

All predictions have been undertaken in accordance with CRTN methodology. The predictive noise modelling incorporated the following assumptions:

- $L_{Aeq}$  values were calculated from the  $L_{A10}$  values predicted by the CRTN methodology using the approximation  $L_{Aeq} = L_{A10} - 3$  dB.
- Noise source heights were set at 0.5 m above road level for cars, 1.5 m for heavy vehicle engines and 3.6 m for heavily vehicle exhausts.
- Noise from heavy vehicle exhausts is 8 dB lower than the steady continuous engine noise.
- The existing vehicle speed is assumed to be 70 km/h per the current posted speed limit. For the future scenario, the speed limit is updated to 50 km/h in line with Tassal’s commitment to lower vehicle speeds as part of the proposal; and
- The road surface is assumed to be unsealed. A +4 dB surface correction is applied, which balances the increases on gravel roads with a portion of the traffic being heavy vehicles.
- Corrections established for Australian conditions applied through a negative correction to the CRTN predictions of -1.7 dB for façade corrected levels (Samuels and Saunders, 1982).

Corrections established for façade reflections by applying an additional +2.5 dB correction, as is standard practice. Table 5 summarises the model configuration used for the modelling.

**Table 5: Model Configuration**

| Parameter         | Approach                                                        |
|-------------------|-----------------------------------------------------------------|
| Standard          | Calculation of Road Traffic Noise (CRTN).                       |
| Digital Terrain   | LIDAR data at 1 m intervals. Triangulation calculation applied. |
| Ground Absorption | Road absorption of 0.0, soft ground absorption of 1.0.          |



## 5.4 Assessment of Impacts

### 5.4.1 Period Assessment

The results of the period noise level assessment are presented in Table 6. Where the future traffic noise levels indicate an exceedance of the noise criteria, the relative change compared to the existing traffic noise levels is presented for discussion.

Results are presented at three receptors, with the two residential receptors nearest the Facility selected for reference (288 and 400 Narrows Road), as well as the closest receptor to Narrows Road along its entire length (9 Tylers Road).

**Table 6: Period Assessment Results**

| Receptor         | Distance to Road <sup>a)</sup> | Period                       | Noise Levels (dB(A)) |  | Criteria (dB(A)) | Complies? | Change |
|------------------|--------------------------------|------------------------------|----------------------|--|------------------|-----------|--------|
|                  |                                |                              | Modelled Results     |  |                  |           |        |
| <b>Existing</b>  |                                |                              |                      |  |                  |           |        |
| 400 Narrows Road | 115 m                          | L <sub>Aeq,1hr</sub> (day)   | 45                   |  | 55               | Y         |        |
|                  |                                | L <sub>Aeq,1hr</sub> (night) | 46                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,16hr</sub>        | 43                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,8hr</sub>         | 41                   |  | 45               | Y         |        |
| 288 Narrows Road | 27 m                           | L <sub>Aeq,1hr</sub> (day)   | 51                   |  | 55               | Y         |        |
|                  |                                | L <sub>Aeq,1hr</sub> (night) | 52                   |  | 50               | N         |        |
|                  |                                | L <sub>Aeq,16hr</sub>        | 49                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,8hr</sub>         | 47                   |  | 45               | N         |        |
| 9 Tylers Road    | 6 m                            | L <sub>Aeq,1hr</sub> (day)   | 57                   |  | 55               | N         |        |
|                  |                                | L <sub>Aeq,1hr</sub> (night) | 58                   |  | 50               | N         |        |
|                  |                                | L <sub>Aeq,16hr</sub>        | 54                   |  | 50               | N         |        |
|                  |                                | L <sub>Aeq,8hr</sub>         | 52                   |  | 45               | N         |        |
| <b>Future</b>    |                                |                              |                      |  |                  |           |        |
| 400 Narrows Road | 115 m                          | L <sub>Aeq,1hr</sub> (day)   | 47                   |  | 55               | Y         |        |
|                  |                                | L <sub>Aeq,1hr</sub> (night) | 43                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,16hr</sub>        | 43                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,8hr</sub>         | 42                   |  | 45               | Y         |        |
| 288 Narrows Road | 27 m                           | L <sub>Aeq,1hr</sub> (day)   | 53                   |  | 55               | Y         |        |
|                  |                                | L <sub>Aeq,1hr</sub> (night) | 49                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,16hr</sub>        | 49                   |  | 50               | Y         |        |
|                  |                                | L <sub>Aeq,8hr</sub>         | 45                   |  | 45               | Y         |        |
| 9 Tylers Road    | 6 m                            | L <sub>Aeq,1hr</sub> (day)   | 58                   |  | 55               | N         | +1     |
|                  |                                | L <sub>Aeq,1hr</sub> (night) | 54                   |  | 50               | N         | -4     |
|                  |                                | L <sub>Aeq,16hr</sub>        | 54                   |  | 50               | N         | +2     |
|                  |                                | L <sub>Aeq,8hr</sub>         | 50                   |  | 45               | N         | -2     |

a) Approximate distance from façade to edge of road.

The results at the three assessed receptors primarily indicate an improvement in the noise levels at surrounding receptors, which is due to the reduced vehicle speed. Reiterating from the literature review discussed in Section 5.1.1, where the existing traffic volumes are already on or above the criteria, it is not reasonable to expect the future traffic volumes to reduce to a level



that does not exceed the criteria. A typical approach in those instances is to provide a small allowance for relative increases beyond the existing noise levels.

The results at each receptor are as follows:

- At 400 Narrows Road, the predicted noise levels are well below the criteria in all instances.
- At 288 Narrows Road, the predicted noise levels are below or on the criteria in all instances for the future scenario. This is an improvement on the existing scenario where exceedances were predicted during the night.
- At 9 Tylers Road, the predicted noise levels are on or exceed the criteria in all instances. In general there is a minor increase in the daytime noise levels compared to the existing volumes, whilst there is a reduction in the night noise levels. The highest increase is for the  $L_{Aeq,16hr}$  metric during the day, where an increase of up to 2 dB is expected. This is within what the literature review suggests to be an acceptable relative increase of 2 – 5 dB nominated in Section 5.1.1. AE also notes that the dwelling at 9 Tylers Road is located very close to Narrows Road, so compliance would be unlikely in most circumstances.

## 5.4.2 Maximum Assessment

As discussed in Section 5.1.2, two different approaches for predicting the  $L_{Amax}$  are adopted so each method can be compared and evaluated. It is noted that the maximum noise levels would be relatively similar for the existing and future operations, as they consider the single highest event which is a HV pass-by.

### 5.4.2.1 Extrapolation from $L_{A10,18hr}$

The noise model was re-run using road sources corrected to represent the  $L_{A10,18hr}$ . The results and subsequent corrections to an  $L_{Amax}$  metric are presented in Table 7.

**Table 7:  $L_{Amax}$  Results – First Method**

| Receptor         | Distance to Road | $L_{A10,18hr}$ (dB(A)) | Calculated $L_{Amax,night}$ (dB(A)) | Criteria (dB(A)) | Complies? |
|------------------|------------------|------------------------|-------------------------------------|------------------|-----------|
| 400 Narrows Road | 115 m            | 41                     | 63 ( $\pm 10.6$ )                   |                  | Uncertain |
| 288 Narrows Road | 27 m             | 47                     | 68 ( $\pm 10.6$ )                   | 60               | Uncertain |
| 9 Tylers Road    | 6 m              | 56                     | 75 ( $\pm 10.6$ )                   |                  | N         |

The results generally indicate noise levels above the criteria, but there is significant uncertainty due to the poor correlation between the  $L_{A10,18hr}$  and  $L_{Amax}$  metrics, thus these results are not conclusive.



#### 5.4.2.2 Point Source Prediction

Table 8 presents the indicative results based on a moving point source propagation calculation with a sound power level of 95 – 101 dB(A).

**Table 8: L<sub>Amax</sub> Results – Second Method**

| Receptor         | Distance to Road | Calculated L <sub>Amax</sub> (dB(A)) | Criteria (dB(A)) | Complies? |
|------------------|------------------|--------------------------------------|------------------|-----------|
| 400 Narrows Road | 115 m            | 46 – 52                              | 60               | Y         |
| 288 Narrows Road | 27 m             | 58 – 64                              |                  | Uncertain |
| 9 Tylers Road    | 6 m              | 71 – 77                              |                  | N         |

The results indicate compliance at 400 Narrows Road and an uncertain result at 288 Narrows Road. The former is below the calculated values from Table 7. The latter has some overlap with the calculated values from Table 7, though tends to be on the lower end of the uncertainty range. At 9 Tylers Road, the predicted results exceed the criteria, and are similar to those predicted in Table 7.

### 5.5 Discussion and Recommendations

The period assessment indicates that there is no more than a minor increase to receptor noise levels as a result of the changes to the traffic volumes servicing the Facility under the proposal. AE is of the opinion that this is an acceptable result, with no specific mitigation warranted.

The maximum assessment results are less certain but generally suggest some potential for maximum noise levels exceeding the nominated criteria, especially receptors located closer to the roadway. This is true for both the existing and future operations. A maximum noise level assessment is primarily conducted to evaluate the potential for sleep disturbance. When considering the potential for sleep disturbance, the following factors should be considered (AE responses to each item are noted):

- How often the maximum noise events occur;

*AE response: per the vehicle schedule in the provided Traffic Impact Assessment<sup>e</sup>, the existing operations result in 5 HV trips during the night (3 in, 2 out), and the future operations result in 6 HV trips during the night (4 in, 2 out). The most that would occur in a single hour is 3 trips between 06:00 and 07:00 hours.*

- The distribution of events through the night;

*AE response: for both existing and future operations, all night HV pass-bys occur during the period from 04:00 to 07:00 hours*

- The context of the local area including the occurrence of other events of a similar level or character; and

*AE response: for receptors located nearer the Facility along Narrows Road, ambient noise is expected to be relatively low, with maximum events primarily associated with LVs and HVs approaching or departing the Facility. For receptors located nearer the Huon Highway, traffic noise is expected to be a key characteristic of the acoustic environment, and the number of pass-bys along Narrows Road is expected to be higher on account of the greater number of residences in that area.*



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*Critically, the Facility has operated since 1986 and is therefore a well-established component of the surrounding noise environment. The influence of its existing operations on the surrounding acoustic environment should not be ignored when establishing the significance of additional impacts on surrounding receptors. As the number of HVs and their distribution do not change significantly as a result of the proposal, future maximum noise events are expected to be similar in level and character to existing events.*

- Current scientific literature available regarding the impacts of maximum noise level events.

*AE response: The NSW Road Noise Policy (NSW EPA, 2011) presents a review of relevant literature at the time of its preparation. The key items within this review are:*

- *The World Health Organisation provides guidance on external  $L_{Aeq}$  noise levels based on several categories:*
  - *< 30 dB(A): no substantial biological effects are observed*
  - *30-40 dB(A): a number of effects are observed, but their impact is modest*
  - *40-55 dB(A): adverse health effects are observed, with many people needing to adapt their lives to cope; vulnerable groups are more severely affected*
  - *>55 dB(A): adverse health effects occur frequently, and a sizeable proportion of the population is highly annoyed and sleep disturbed. Cardiovascular disease risk rises, and public health is also threatened.*
- *Though not mentioned in the Road Noise Policy, the World Health Organisation (WHO) also recommends indoor sound pressure levels to not exceed approximately  $L_{Amax}$  45 dB more than 10-15 times per night.*
- *$L_{Amax}$  internal noise levels below 50-55 dB(A) are unlikely to awaken people*
- *One or two noise events per night, with  $L_{Amax}$  internal noise levels of 65-70 dB(A), are not likely to affect health and wellbeing significantly*
- *The RNP notes that sleep disturbance is a subjective phenomenon, and further research is required to develop our understanding of its occurrence.*

*A more recent 2016 Korean study<sup>f</sup> examined the occurrence of sleep disturbance for a variety of noise inputs. The key findings were that the mean  $L_{max}$  of  $55.1 \pm 9.2$  dB was not found to correlate significantly with sleep disturbance. The predicted maximum noise levels from on-road HVs accessing/departing the Facility are generally within this range, assuming a 10 dB reduction through open windows.*

As the future operations do not substantially change the amount of events or their distribution, and recent literature suggests no strong correlation with the predicted levels and sleep disturbance, AE is of the opinion that the maximum noise events as a result of HVs are unlikely to cause adverse amenity impacts for surrounding receptors.

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<sup>f</sup> Chung, Youn, Lee, Jo, Park, Jo, Lee, Sung, and Sim. 2016. *Environmental Noise and Sleep Disturbance: Night-to-Night Variability of Sleep/Wake Pattern*. Sleep Medicine Research 7(2).



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## 6 CONCLUSIONS

Tassal proposes to increase their Dover Facility's capacity to 50,000 t/y to allow for long-term growth beyond 2035. The proposal primarily includes upgrades to the existing Wastewater Treatment Plant, introducing several new items of fixed plant and alterations to the vehicle schedule.

AE has briefly reviewed the impacts associated with the new fixed plant and concluded that the distance and topography separating the Facility from the nearest receptors are sufficient to ensure that there will be a negligible increase in noise.

A more detailed review of traffic noise impacts was also conducted. This was guided by a literature review into suitable criteria,  $L_{Amax}$  conversions, and the impacts of unsealed road surfaces on standard propagation algorithms.

The period assessment found that the  $L_{Aeq}$  noise levels at receptors were in some instances exceeding the nominated criteria. However, AE noted that in these situations the noise levels were expected to either not increase, or increase by a minor amount ( $\leq 2$  dB) as a result of the changed traffic schedules. In the context of relative increase criteria that is often employed in such situations, this is an acceptable increase.

The maximum assessment was approached through two different methods; extrapolating from the  $L_{A10,18hr}$  and predicting based on source measurements conducted by the EPA. There was some overlap in the results of the two methods, notably being more closely aligned for receptors located closer to the roadway. Whilst the predicted noise levels at closer receptors were above the set  $L_{Amax}$  criterion, the expected change compared to the existing acoustic environment is minimal (1 additional heavy vehicle trip in an environment where heavy vehicles accessing the facility are a well-established characteristic). On this basis AE finds the result acceptable.