

# Noise Management Plan - CTT

<b>PURPOSE</b>	<p>This Noise Management Plan (NMP) incorporates a Noise Management Plan for Terminal Operations and a Noise Management Plan for Rail Operations at the Clyde Transfer Terminal (CTT).</p> <p>This NMP has been prepared in accordance with Conditions 54, 91, 105 and 112-114 to address noise mitigation strategies that involve upgrading the physical characteristics of the CTT site and education programs for rail operators.</p>
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<b>Scope</b>	This NMP has been prepared to provide the management measures implemented to minimise potential terminal and rail related noise impacts during the operation stage of the CTT.
<b>Review Frequency</b>	Yearly

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## Quality Information

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Line of Business:	Waste
Facility:	Clyde Transfer Terminal
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Rev	Revision Details	Issued to	Date
0.1	First draft for internal review	NSW Resource Recovery Technical Team ANZ People & Safety SHEQ Team	06 November 2020
0.2	Second draft for internal review	NSW Resource Recovery Technical Team ANZ People & Safety SHEQ Team	29 July 2021
0.3	Final draft	Department of Planning, Industry and Environment	30 July 2021

## Definitions/Abbreviations

See definitions in the [BMS Dictionary](#) - Only definitions directly pertaining to this document are included.

Subject	Definition
AEMR	Annual Environmental Management Report
BMS	Business Management System
CCC	Community Consultative Committee
COC	Conditions of Development Consent
CTT	Clyde Transfer Terminal
DA	Development Application
DPIE	Department of Planning, Industry and Environment
EIS	Environmental Impact Statement
EP&A	Environmental Planning and Assessment (Act and Regulations)
EPA	Environment Protection Authority
EPL	Environment Protection Licence
NMP	Noise Management Plan
OEMP	Operational Environmental Management Plan
PIRMP	Pollution Incident Response Management Plan
POEO	Protection of the Environment Operations Act 1997
RMS	Roads and Maritime Services
RNMP	Noise Management Plan - Rail Operations
TNMP	Noise Management Plan - Terminal Operations
TPA	Tonnes per annum
Veolia	Veolia Australia and New Zealand
WHS	Work Health and Safety (Act and Regulation)

# 1. Introduction

## 1.1. Overview

Veolia Australia and New Zealand (Veolia) operates the Clyde Transfer Terminal (CTT), which is located within a portion of the Clyde Rail Yard, at 322 Parramatta Road, and forms part of Lot 201 of DP10076683 in the Cumberland Local Government Area. Refer to Site Layout Plan in **Appendix A** of the Operational Environmental Management Plan (OEMP).

The CTT facility has been approved to receive up to 600,000 tonnes per annum (TPA) of waste from within the Sydney Region. Waste is containerised and loaded onto rail wagons for transportation by rail to the Woodlawn Eco Precinct (owned and operated by Veolia) in the Southern Tablelands (approximately 250 kilometres southwest of Sydney) for treatment, recycling and energy recovery.

The CTT includes the following infrastructure:

- An access road for waste trucks entering and exiting the facility from Parramatta Road.
- Incoming and outgoing weighbridges to check the waste type and weight of the waste being delivered to the facility.
- An enclosed building for the unloading and handling of waste, with environmental controls such as dust suppression and odour control systems.
- A hardstand area for temporary storage and maneuvering of full and empty sealed shipping containers prior to loading on to trains.
- Rail sidings for the loading of containers onto trains for rail transport to Woodlawn.

The Minister of Planning approved the Development Application (DA) 205-08-01 on 29 August 2002, in accordance with section 89 (e) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). A number of Conditions (COC) of Development Consent (Consent) were issued to stipulate regulatory requirements for the operation of the CTT.

There have been a number of modifications since to COC which have been approved by the Department of Planning, Industry and Environment (DPIE) in accordance with section 75W of the *Environmental Planning and Assessment Act 1979*. The review of this Noise Management Plan (NMP) has been triggered by modification application (DA No. 205-08-01 MOD 5) to extend operations and increase waste acceptance to 600,000 TPA.

The CTT COCs include requirements for a noise management plan that relates to terminal and rail operations associated with the CTT. This Noise Management Plan (NMP) incorporates a Noise Management Plan for Terminal Operations (TNMP) and a Noise Management Plan for Rail Operations (RNMP) at CTT. This NMP has been prepared in accordance with Conditions 54, 91, 105 and 112-114 to address noise mitigation strategies that involve upgrading the physical characteristics of the CTT site and education programs for rail operators. The management procedures outlined here have been submitted and approved by Cumberland Council subject to Condition 54.

## 1.2. Scope and Objectives

The primary objective of the NMP is to identify mitigation strategies for both operational terminal noise and rail noise, including container handling relating to the CTT's operations.

The purpose of this NMP is to provide noise and vibration management procedures to form part of the CTT Operational Environmental Management Plan (OEMP). It has been prepared to align with the needs of the CTT COCs, EPL, relevant legislation and Veolia's Business Management System (BMS).

The NMP is prepared to ensure that:

- any noise emissions from the CTT during its operation stage do not exceed regulatory limits, and
- any noise issues arising are addressed quickly and effectively.

The NMP covers noise attributable to the CTT operations, which included noise derived from:

- Waste delivery truck movements;
- Mobile plant associated with transferring waste from trucks to containers; and,

- Fixed plant located on site such as compaction units and extraction fans.

This plan has been developed by Veolia in conjunction with Pacific National, the rail operators for the Clyde-Woodlawn Project and covers the rail operations directly attributable to the CTT, which includes:

- Container handling management;
- Loading and unloading of containers onto and from trains;
- Rail movements relating to these containers on adjacent tracks; and,
- Hardstand and track maintenance.

### 1.3. Legal and Other Requirements

The following regulatory framework applies to this NMP:

- Development Consent (DA 205-08-01) issued under the *Environmental Planning and Assessment Act 1979*
- Environment Protection Licence (EPL 11763) issued under the *Protection of the Environment Operations Act 1997 (POEO Act)* and particularly the *POEO (Clean Air) Regulation 2002*

#### 1.3.1. Conditions of Development Consent

The COCs related to the NMP are detailed in **Table 1.1** below.

**Table 1.1 Condition of Consent Requirements**

Relevant Conditions	Requirement	NMP Reference
54	<p>The Noise Management Plan shall be drafted in consultation with the rail operator for operation of the rail siding adjacent to the waste packaging terminal for the rail haulage services for Collex. The plan is to be submitted to Auburn Council. The plan must address the objective of mitigating operational rail noise from operations directly attributable to the loading and unloading of containers and associated rail operation on the siding adjacent to the Collex terminal, relating to the movement of containers from the Collex packing terminal. The plan must also identify reasonable noise mitigation strategies:</p> <p>(a) Upgrade to hardstand areas utilised for loading and unloading of trains and rail track upgrade where feasible;</p> <p>(b) Resurfacing of hardstand area with appropriate noise mitigation materials;</p> <p>(c) Track repair and realignment where feasible and appropriate to minimise forklift travel having regard for other rail operations and heritage issues;</p>	<p>Noted and addressed in the following sections of the Noise Management Plan (NMP):</p> <p>(a) Section 4.2.1 (Hardstand Upgrade and Resurfacing)</p> <p>(b) Section 4.2.1 (Hardstand Upgrade and Resurfacing)</p> <p>(c) Section 4.2.2 (Track Repair and Realignment)</p> <p>(d) Section 4.1.2 (Container Management Protocol)</p> <p>(e) Section 4.1.2 (Container Management)</p>

	<p>(d) Container management protocols to minimise movement and handling of containers with an emphasis on noise mitigation;</p> <p>(e) Identification and utilisation of forklifts to minimise noise impacts and implement measures to minimise use of reversing alarms at night;</p> <p>(f) Establishment of a noise complaints procedure;</p> <p>(g) Investigating the scheduling of trains outside critical hours subject to metropolitan curfew, Rail Infrastructure Corporation slot management and rail operational considerations;</p> <p>(h) Ongoing community consultation; and</p> <p>(i) Employee education in noise mitigation practices.</p>	<p>Protocol)</p> <p>(f) Section 5.3 (Exceedance and Corrective Actions) and Section 4.3.4 of OEMP</p> <p>(g) Section 4.1.4 (Scheduling of Trains)</p> <p>(h) Section 1.4 (Stakeholder Consultation)</p> <p>(i) Section 4.1.1 (Training)</p>
<b>91</b>	<p>A meteorological station must be sited and operated at the premises in accordance with the Approved Methods for the Sampling and Analysis of Air Pollutants in NSW. The Applicant shall undertake the sampling and analysis of the meteorological parameters specified in table below. Sampling and analysis of 16 meteorological parameters shall be carried out strictly in accordance with the methods and references specified in the table.</p>	<p>Noted and addressed in Section 5.1.1 (Weather Monitoring Instrumentation)</p>
<b>105</b>	<p>The Applicant shall implement the Noise Management Plan, to the satisfaction of the Planning Secretary.</p>	<p>Noted</p>
<b>112</b>	<p>The Applicant shall implement a Heavy Vehicle Noise Monitoring Management Program for the development to the satisfaction of the Planning Secretary. This program must;</p> <p>(a) monitor heavy vehicle noise on site, in accordance with the methods outlined in the “Truck Noise Monitoring – Proposed Test and Management Plan” prepared by Heggies and dated 26 May 2008:</p> <p>(b) be undertaken quarterly for a year starting in October 2008, and annually thereafter, unless otherwise agreed by the Planning Secretary</p> <p>(c) measure at least 25% of the heavy vehicles visiting the site;</p> <p>(d) identify heavy vehicles exceeding the relevant noise criteria specified in Australian Design Rule 28/01, or its successor, and ensure that the owners of these subsequently comply with the relevant noise criteria</p> <p>(e) report the number of non-compliant heavy vehicles identified and the actions undertaken to address these non-compliances in the Annual Environmental</p>	<p>Noted and addressed in the following Sections of the Noise Management Plan (NMP):</p> <p>a) Section 5.1.5 (Vehicle Emissions)</p> <p>b) Section 5.1.6 (Monitoring Schedule)</p> <p>c) Noted</p> <p>d) Section 5.3 (Exceedances and Corrective Actions)</p> <p>e) Section 5.2 (Performance Reporting and Review)</p> <p>f) Section 5.3 (Exceedances and Corrective Actions)</p>

	Monitoring Report; and  (f) be amended, should the monitoring activities not achieve the aim of the program to the satisfaction of the Planning Secretary	
113	The Applicant shall implement an induction program for all drivers of trucks that deliver waste to the waste terminal with the objective of mitigating noise impacts of trucks entering and leaving the waste terminal, including driving procedures and throttle management. The program is to be designed in consultation with Auburn Council and is to emphasise the importance of noise emission control, driving and operating practices and procedures for night time activities.	Noted and addressed in Section 4.1 (Noise Control Measures)
114	The Applicant shall, in conjunction with the rail operator, implement an induction program for all train drivers and other rail staff dedicated to transporting containers to and from the Veolia terminal area by train to Woodlawn. The program is to emphasise noise mitigation measures through "Good Neighbour" rail techniques such as notch control, idling practices, shunting speeds and engine control and shall form an integral part of the operational noise management plan.	Noted and addressed in Section 4.1.1 (Training)

### 1.3.2. Environment Protection Licence

EPL No. 11763 requires that Veolia make all efforts to control environmental pollution from the CTT. The Licence requirements related to the NMP are detailed in **Table 1.2** below.

**Table 1.2 Environment Protection Licence Requirements**

Relevant Conditions	Requirement	NMP Reference																				
L3.1	<p>Noise generated at the premises must not exceed the noise limits presented in the table below:</p> <table border="1"> <thead> <tr> <th>Location</th> <th>Day - LAeq (15 min)</th> <th>Evening - LAeq (15 min)</th> <th>Night - LAeq (15 min)</th> <th>Night- LA1 (1 min)</th> </tr> </thead> <tbody> <tr> <td>First St, Granville (nearest residence)</td> <td>44</td> <td>38</td> <td>39</td> <td>56</td> </tr> <tr> <td>10 Hampstead Rd, Auburn</td> <td>40</td> <td>38</td> <td>38</td> <td>54</td> </tr> <tr> <td>17 Cumberland Rd, Auburn</td> <td>41</td> <td>39</td> <td>39</td> <td>52</td> </tr> </tbody> </table>	Location	Day - LAeq (15 min)	Evening - LAeq (15 min)	Night - LAeq (15 min)	Night- LA1 (1 min)	First St, Granville (nearest residence)	44	38	39	56	10 Hampstead Rd, Auburn	40	38	38	54	17 Cumberland Rd, Auburn	41	39	39	52	Noted and addressed Section 2.1 (Operational Noise)
Location	Day - LAeq (15 min)	Evening - LAeq (15 min)	Night - LAeq (15 min)	Night- LA1 (1 min)																		
First St, Granville (nearest residence)	44	38	39	56																		
10 Hampstead Rd, Auburn	40	38	38	54																		
17 Cumberland Rd, Auburn	41	39	39	52																		
L3.2	<p>For the purpose of Condition L3.1:</p> <ul style="list-style-type: none"> <li>a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays,</li> <li>b) Evening is defined as the period from 6pm to 10pm</li> <li>c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays</li> <li>d) LAeq(15minute) is defined as the equivalent continuous 'A'</li> </ul>	Noted																				



	<p>weighted sound pressure level- the energy average of the noise measured over a 15 minute period.</p> <p>e) LA1 (1 minute) is defined as the sound pressure level exceeded for one percent of a 1 minute measurement period.</p>	
<b>L3.3</b>	<p>Noise from the Clyde Transfer Terminal premises is to be measured at the most affected point on or within the residential boundary to determine compliance with the LAeq(15 minute) noise limits in condition L3.1.</p> <p>Note: Where it can be demonstrated that direct measurement of noise from the premises is impractical, the EPA may accept alternative means of determining compliance. See Chapter 11 of the NSW Industrial Noise Policy.</p> <p>Note: The modification factors presented in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise level where applicable.</p>	Noted and addressed in Section 3.1 (Existing Environment)
<b>L3.4</b>	<p>Noise from the Clyde Transfer Terminal premises is to be measured at 1m from the dwelling façade to determine compliance with the LA1(1 minute) noise limits in condition L3.1.</p>	Noted
<b>L3.5</b>	<p>The noise emission limits identified in condition L3.1 apply under meteorological conditions of:</p> <ul style="list-style-type: none"> <li>• wind speeds up to 3 m/s at 10 metres above ground level; and/or</li> <li>• temperature inversion conditions of up to 3 degrees Celsius/100m.</li> </ul>	Noted and addressed in Section 3.1 (Existing Environment)

## 1.4. Stakeholder Consultation

As part of an ongoing commitment to stakeholder engagement, Veolia has implemented a program of communication and consultation during the preparation of this NMP. Veolia has consulted with government agencies and other key stakeholders. Veolia aims to ensure that the local community is kept informed of the CTT's operations in a proactive and responsive manner.

### 1.4.1. Government Bodies

The following government entities will be consulted with in relation the requirements of this NMP:

- NSW Department of Planning, Industry and Environment;
- NSW Environment Protection Authority;
- Cumberland City Council

### 1.4.2. Community

Veolia aims to ensure that the local community is kept informed of the progress of the project in a proactive and responsive manner. Veolia's communication may include the following where applicable:

- public notices and announcements;
- meetings and correspondence with appropriate regulatory authorities; and
- discussions with adjoining landowners / neighbours who may be affected by the CTT.

The key objectives of the community focused communication and consultation program include:

- Educating stakeholders regarding key aspects of the CTT; and
- Informing community groups and neighbours to help Veolia understand concerns.

The following avenues provide availability of information about the CTT:

- Dedicated Veolia webpage:  
<https://www.veolia.com/anz/our-services/our-facilities/transfer-stations/clyde-transfer-station>
- Community telephone line and email address:

Location	Contact
CTT 24 hour feedback line	(02) 9841 2600
Dedicated email address	<a href="mailto:clyde.weighbridge@veolia.com">clyde.weighbridge@veolia.com</a>

- Published Monitoring Reports:  
<https://www.veolia.com/anz/our-services/our-facilities/transfer-stations/clyde-transfer-station>
- Published Monitoring Data:  
<https://www.veolia.com/anz/about/about-veolia/operational-compliance/nsw-monitoring-reports>

## 2. Goals of NMP

The goal of the NMP is to confirm Veolia's approach to identifying, monitoring and mitigating noise emissions from the CTT rail and terminal operations that have the potential to impact on sensitive receivers. This includes actions to:

- minimise potential nuisance noise emissions from the site;
- protect the community from excessive intrusive noise and preserve amenity;
- implement a range of mitigation measures that could be used to minimise noise impact from rail operations and operations at the facility; and
- implement mitigating strategies for operational rail noise, including container handling relating to the CTT's operations.

### 2.1. Operational Noise

The operational assets and activities within the CTT act as potential sources of noise impacts. These may arise from both permanent installations within the CTT and ancillary operations. Noise emissions from these activities have the potential to impact upon environmental and social values.

A Noise Impact Assessment was undertaken for the CTT by Wilkinson Murray Pty Ltd (January 2017), as part of the CTT Environment Impact Statement (EIS) (SG Haddad Advisory, 2017) for increasing the capacity of CTT from 500,000 TPA to 600,000 TPA. This assessment found that the operational noise levels from the Clyde Terminal subject to the would comply with the applicable criteria at all sensitive residential receivers.

Operational noise levels at locations where noise limits apply were estimated using attended measurement results and a simple distance correction. The estimated noise levels at all noise limit locations comply with the applicable criteria. Worst-case operational noise levels for the proposed modification were predicted by increasing the existing LAeq, 15min noise levels by 20% (to account for additional trucks). The future LA1, 1min noise levels are not expected to change with the increased tonnage.

The operational noise criteria for the Clyde Terminal are documented in the Environmental Protection Licence (EPL) for the facility. EPL 11763 requires that noise generated at the CTT must not exceed the specified noise limits in the table below.

**Table 2.1 Operational Noise Goals**

Receptor Location	LAeq,15min dB(A)			LA1,1min dB(A)
	Day	Evening	Night	Night
<b>L1-First Street, Granville (nearest residence)</b>	44	38	39	56
<b>L2- 10 Hampstead, Street Auburn</b>	40	38	38	54
<b>L3- 17 Cumberland, Road Auburn</b>	41	39	39	52

### 2.1.1. Offsite Traffic Noise Criteria

Criteria for off-site road traffic noise limits are specified under the NSW Road Noise Policy (EPA, 2011). The applicable criteria are summarised below:

**Table 2.2 Offsite Traffic Noise Criteria**

Type of Development	Assessment Criteria dB(A)	
	Day (07:00 – 22:00)	Night (22:00 – 07:00)
Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments	LAeq,15 hour 60 (external)	LAeq,9 hour 55 (external)
Existing residences affected by additional traffic on existing local roads generated by land use developments	LAeq,1 hour 55 (external)	LAeq,1 hour 50 (external)

The criteria does not apply to traffic within the CTT site.

## 2.2. Roles and Responsibilities

Responsibilities for implementation of the NMP are summarised in the following table.

**Table 2.3 NMP Roles and Responsibilities**

Action	Responsibility	Timing
Overall implementation of the NMP	Facility Manager	Ongoing
Implement methodology for avoiding excessive noise emissions	Facility Manager	Periodically as required
Coordinate monitoring and compile reports	Monitoring Personnel	As required
Maintain internal records of monitoring	Monitoring Personnel	Ongoing
Reporting on monitoring results	Monitoring Personnel	Annually ( <i>Annual Environmental Management Report</i> )
Collate and maintain records of complaints, respond to complainant	Facility Manager and/or EMR (or site nominee)	Ongoing

Ongoing community consultation	Facility Manager and/or EMR (or site nominee)	Ongoing
Identify non conformances and notify Facility Manager	Monitoring Personnel/EMR or Facility nominee	Ongoing
Implement employee education and induction program	Pacific National (rail provider)	Ongoing
Authorise and confirm the implementation of control measures	Facility Manager and/or Pacific National	As required
Authorise and confirm the implementation of mitigation strategies	Facility Manager and/or Pacific National	As required

### 3. Existing Environmental and Operational Impacts

#### 3.1. Existing Environment

##### 3.1.1. Wind

Wind has the potential to increase noise at a sensitive receiver when it is light and stable and blows from the direction of the source of the noise. As the strength of the wind increases the noise produced by the wind will obscure noise from most industrial and transport sources.

Where wind blows from the source to the receiver at speeds up to 3 m/s for more than 30% of the time in any season, then wind is considered to be a feature of the area and noise level predictions must be made under these conditions.

Modelling was undertaken in the CTT EIS (Maunsell 2001) which confirmed that, on an annual basis, the strongest winds occur during autumn and winter (March to August) and most frequently from the west with a low average percentage of calm days at 8%. During summer, the winds are from the north west to north east and the east sector with an average of 2% calm days. In the spring, the winds are derived from the north to west sector as well as the east sector with an average of 2% calm days. Neither of these directions would impact on residential areas.

##### 3.1.2. Background Noise

Background noise data was assessed in the CTT EIS (Maunsell 2001). Six locations were selected to represent the potentially worst affected residential and industrial areas, as listed in **Table 3.1** below.

**Table 3.1 Details of the Monitored Locations**

Location	Address	Selection Criteria
1A/2B	4 and 7 First Street, Granville	Closest residential area
2	10 Hampstead Road, Auburn	Potentially affected residential area
3	17 Cumberland Road, Auburn	Potentially affected residential area
4	50 Kihilla Road, Auburn	Potentially affected residential area
5	Seventh Street, Granville	Potentially affected residential area
6	Industrial boundary - Mayne Logistics site	Closest industrial site

Locations 1 and 2 were chosen to represent the closest and the potentially worst affected residential areas, a 'long term' (equivalent to one week's worth of valid data) noise monitoring program was chosen for these two locations due to the possibly significant noise impact in these areas.

Locations 3, 4 and 5 were chosen to represent other potentially affected residential areas. The duration of noise monitoring for these three locations varied between three to five week days. Location 6 was chosen to represent the closest and potentially worst affected industrial site.

During the monitoring periods noise data loggers recorded for continuous fifteen (15) minute intervals for the entire monitoring period. **Table 3.2** shows the LAeq and LA90 (RBL) for each monitored location.

**Table 3.2 Ambient Background Noise dB(A)**

Location	Period	Rating Background Level (RBL) LA90	Rating Background Level (RBL) LAeq
1	Day	43.1	54.6
	Evening	45.4	55.1
	Night	41.3	49.3
2	Day	41.7	59.5
	Evening	43.5	55.5
	Night	39.2	53.7
3	Day	46.7	63.7
	Evening	46.9	60.6
	Night	37.0	58.3
4	Day	41.7	59.2
	Evening	45.8	56.6
	Night	40.5	53.0
5	Day	41.6	55.3
	Evening	47.2	53.3
	Night	39.6	49.7
6	Day	41.1	55.7
	Evening	43.5	54.9
	Night	41.9	53.0

This data supplemented the long-term ambient noise monitoring in order to determine the extent of existing industrial noise exposure at the identified receivers. The EIS assessment examined the potential impacts of activities undertaken in CTT operations on a range of sensitive receptors. These are discussed in more detail below.

### 3.1.3. Operational Activities

The CTT operates on a 24 hour per day, 7 days per week basis.

Noise associated with the operational activities include:

- Fixed plant, including fans and compactors, which will generate continuous noise.
- Mobile plant, including truck movements, bobcats and sweepers which will generate time varying noise levels
- Train movements

Vibration associated with the operational activities include:

- Mobile plant, including truck movements, bobcats and sweepers
- Occasional dropping of heavy equipment, occasional loading and unloading.
- Train movements

The operation of the rail and train movements can cause both operational noise and vibration, which could potentially affect neighbouring residential and/or industrial receivers.

## 3.2. Predicted Noise Impacts

As per the results shown in the EIS for CTT (Maunsell, 2001), the noise sources during terminal and rail operations were considered to have potential to generate environmental impacts are shown in **Table 3.3** below.

**Table 3.3 Proposed noise sources**

Source	Location	Effective Sound Power Level LAeq 15min (dBA)	Comments
Train movements	On-site rail sliding	100	
Delivery trucks	Line	108 (day <sup>1</sup> ), 103.2 (night <sup>2</sup> )	Day: Total 111 dBA, 2 sources each 108 dBA (corresponding to 10 vehicles per hour peak). Night: As above, one truck for 5 mins every 15 minutes (corresponding to 2 vehicles per hour)
Front end loader	Point	111.4	Inside building
Sweeper	Point	106	Inside building
Slug Packer	Point	90	Continuous operation

Note: <sup>1</sup> DAY 7:00 am - 6:00 pm

<sup>2</sup> NIGHT 10:00 pm - 7:00 am

An Amenity Noise Impact Assessment was undertaken for the CTT, based on noise criteria specifically for land use and associated activities. The relevant noise criteria for amenity relate only to industrial-type noise and do not include road, rail or community noise. The noise levels from new industries need to be such that the



cumulative impact does not produce noise levels that would significantly exceed the relevant criterion for protection of amenity.

An impact assessment relative to the industrial noise criteria was undertaken. The results are shown in **Table 3.4** which presents the SoundPLAN model predicted noise levels due to operation of the CTT for day and night time scenarios.

**Table 3.4 SoundPLAN Single Point Receiver Predictions**

Receiver	Predicted LAeq, 15 min		INP1 -Project Specific Noise Levels		Auburn DCP (modified)	Compliance with Criteria	
	Day	Night	Day	Night		Day	Night
1	38.1	39.1	48.1	44	42	YES	YES
2	29.6	29.9	46.7	43.7	42	YES	YES
3	32.5	32.7	51.7	42	42	YES	YES
4	26.0	26.3	46.7	43	42	YES	YES
5	28.5	29.3	46.6	42	42	YES	YES
6	62.0	N/A	70 when in use		67	YES	N/A
7	57.7	N/A	65 when in use		67	YES	N/A

Note: <sup>1</sup> EPA's Industrial Noise Policy (2000)

Assessing intrusiveness impacts involves setting a noise goal relative to the existing acoustic environment. The equivalent continuous noise level (LAeq) of the source should not be more than five decibels above the measured background level (LA90).

Amenity noise impact assessment is based on noise criteria specific to a land use and associated activities. The relevant noise criteria for amenity relate only to industrial-type noise and do not include road, rail or community noise. The noise levels from new industries need to be such that the cumulative impact does not produce noise levels that would significantly exceed the relevant criterion for protection of amenity.

Based on the noise assessment results in the Clyde EIS, the assumed day and night time scenarios and sound power level designated for the proposed plant equipment, calculated noise levels are predicted to comply with the EPA's intrusiveness and amenity criteria at the closest residential, commercial and industrial premises. The results of the assessment indicated that operational noise emissions from the CTT would fully comply with the relevant Industrial Noise Policy power sound levels at all identified receivers during worst-case, maximum operating conditions. Full compliance was predicted under both neutral and adverse meteorological conditions.

The assessment concluded that given the existing background noise levels experienced at the closest residential sensitive receivers to the CTT, operational activities are expected to be inaudible at these localities in comparison to background levels.

### **3.2.1. Sleep Arousal**

The operational noise from the proposed development was recognised to have the potential to affect sleep for the closest residents. The LA1 was calculated as 41.3 dB(A) + 15 dB(A) which did not exceed 56.3 dB(A) when calculated at Location 1, the most affected bedroom window, thus complying with the EPA's sleep arousal criteria.

### **3.2.2. Vibration**

A vibration assessment was also conducted at the CTT as per the Clyde EIS. Given the considerable distance of the facility to residential premises and the fact that onsite operational plant and equipment produce low vibration levels, provided stationary equipment is suitably vibration isolated, it has not been identified that the vibration levels generated by the CTT affect nearby premises.

## 4. Noise Mitigation Management Measures

### 4.1. Operational Noise Control Measures

Noise mitigation practices at the CTT during normal operations include the following:

- Noise emission level checks of all critical items of plant, mobile plant and equipment including slug packers (compactors) and waste delivery trucks for compliance with expected noise limits appropriate for those items. The quietest available plant and equipment that can economically undertake the work required have been selected. Noise emission levels of all critical items of mobile plant and equipment have been checked for compliance with noise limits appropriate to those items when a new plant arrives on site.
- Truck speeds within the CTT are kept as low as practical.
- Trucks enter and exit the site in a forward direction, eliminating the need for reversing alarms outside the terminal building.
- All noise associated with the unloading and compaction of the waste is generated in the building and compaction pits, which acts as additional noise attenuation.
- Operators are trained in order to raise their awareness of potential noise problems and to increase their use of techniques to minimise noise emission.
- A permanent noise barrier on the south-western Terminal boundary minimises noise emissions at the nearest sensitive receivers.
- Maintenance of the existing hardstand provides for an improved site structure minimising noise impacts through an appropriate surfaces for areas to be utilised for container handling.

The following subsections provide details regarding noise mitigation strategies in the form of physical improvements to the site and more efficient loading and unloading of containers for rail haulage services for the CTT. Mitigation measures related to noise from rail operations, such as shunting, are managed by Pacific National (PN).

#### 4.1.1. Hardstand

Loading and unloading of containers currently utilises the hardstand of the CTT and is conducted in accordance with the noise control measures outlined in **Section 4.1** to minimise noise from the associated rail operations.

The hardstand area occupies approximately 11,000 square meters, spanning 230 metres from the east to the west and between 20 to 60 metres from the north to the south. This facilitates a more efficient operation of the rail-related activities for the CTT by achieving the objectives set out in **Section 1.2** and eliminating surface irregularities which give rise to impactful noise emissions from forklifts and containers. In particular, noise impacts associated with the loading and unloading of trains have been reduced by:

- enabling more efficient forklift and container movements;
- improving the quality of the surface on which the forklift and container movements will take place; and,
- minimising the distance of forklift and container movements.

As part of the ongoing maintenance program, the surface of the existing hardstand is inspected on a regular basis. Any areas found to be in need of maintenance works, will undergo further resurfacing works with appropriate construction materials such as asphalt to minimise noise impacts or further deterioration. The most appropriate material will be determined at the time of resurfacing.

The effectiveness of the hardstand to mitigate noise and provide operational benefits will continue to be assessed to provide a basis for determining the need for undertaking additional hardstand works.

#### 4.1.2. Container Management Protocol

Container handling at the CTT is managed to minimise the extent of container movements, thereby minimising the resulting noise emissions from these operations. This protocol aims to provide the most practical and effective means of managing containers in relation to noise impacts. This container management protocol is as follows:

- Minimising the movement of containers on the hardstand area between containerisation of waste and loading of waste onto trains;
- Minimising forklift engine idling noise (particularly during evening and night periods) by switching off engine or parking in a well shielded position such as adjacent to the compactors;
- Minimising forklift movements when unloaded, i.e. forklift never travels empty policy;
- Ensuring the majority of movements involving the transfer of containers to and from ground stacks are during day-time periods;
- Loading containers directly from the compaction area onto rail wagons whenever there is a train in the siding; and,
- Stacking containers in areas adjacent to rail sidings to reduce the distance between the stacking location and rail sidings;
- Utilising to its maximum efficiency the space available for storage of containers and minimising excess container movement through double handling; and,
- Designating container stacking areas to ensure the required clearance for forklift manoeuvring from any structures.

#### 4.1.3. Plant and Equipment Measures

Measures for forklifts involve a sound reduction package, which includes variable frequency reversing alarms, silencers on exhausts, and sound rated engine covers.

All plant and equipment is maintained according to the manufacturer specifications as well as undergoing annual noise compliance checks.

### 4.2. Rail Noise Control Measures

Rail operations within the Clyde Marshalling Yards are undertaken 24 hours, 7 days a week. Due to restrictions on freight movements within the metropolitan rail network, rail operations within the yards are predominantly outside peak periods.

#### 4.2.1. Rail Noise Mitigation Training

As required by Condition 114, an induction program has been implemented for PN train drivers and other rail staff dedicated to transporting containers to and from the CTT. The program focuses on the noise mitigation strategies identified in this plan to ensure that all relevant staff are trained in the appropriate rail noise mitigation measures.

For train operators, this program also focuses on “Good Neighbour” rail techniques such as notch control, idling practices, shunting speeds and engine control. For forklift operators, this program involves training in practices

such as throttle control, techniques to minimise impacts during grappling and container set down, and use of “real time” noise feedback systems where feasible. This approach has been found to greatly assist operators in minimising emissions from certain types of plant and equipment.

Specifications for plant and equipment used for rail operations have consideration for minimising the noise generated by these activities. In addition, the receiving rail siding, Crisps Creek Intermodal Facility (IMF) has noise restrictions on its rail operation which limits the locomotives that can be utilised for this operation to quieter classes.

#### **4.2.2. Scheduling of Trains**

Train scheduling is dictated by the metropolitan freight train curfew during morning and evening passenger peak period. Based on these present restrictions and limitations to hours of operation at the receiving rail siding, the train is currently scheduled to arrive at the CTT around 9:30pm. The rail operations at the CTT are dependent on the number of containers on each train and therefore the length of the train; however the scheduling of operations is based on a maximum of 55 wagons per train. On arrival, the train is split into three rakes of wagons. Two of the rakes are placed on sidings adjacent to the CTT for immediate unloading of empty containers and loading of full containers, and the remaining wagon rake is left at the CTT for unloading and loading during the following day. The wagons left loaded during the day from the previous night's train are then connected with the other two rakes for departure to the IMF around 1:00am. Any changes to the metropolitan curfew and scheduling will be monitored to ensure all opportunities for alternative departure and arrive times are considered.

#### **4.2.3. Track Repair and Realignment**

Consideration has been given to whether track repair and realignment is feasible and appropriate to minimise forklift travel having regard for other rail operation and heritage issues.

Ongoing maintenance of all operational tracks is essential to ensure the tracks are in good working order and repair. If, as part of the ongoing maintenance program, the tracks were found to be in need of maintenance works, repairs would be undertaken as required.

## 5. Noise Monitoring and Reporting

### 5.1. Monitoring Program

The noise measurement procedures employed in the [Environmental Monitoring Program \(MAN-14012\)](#) for any noise monitoring required are guided by the requirements contained in the following documents (refer to **Appendix B** for a glossary of acoustic terms):

- AS 1055.1-1997 “Acoustics - Description and Measurement of Environmental Noise”
- NSW Environment Protection Authority, “Environmental Noise Control Manual” (1994)
- NSW Environment Protection Authority, “Environmental Criteria for Road Traffic Noise” (1999)
- NSW Environment Protection Authority, “Industrial Noise Policy” (2000)
- Australian Design Rule (ADR) 28/01, “External Noise of Motor Vehicles” (2006)

The CTT noise monitoring program includes regular site inspection by operators, as well as timely acknowledgement and response to any complaints. Ongoing spot checks of noise intensive plant and equipment will also be undertaken throughout operation. Truck noise monitoring is completed annually and is monitored by measuring the noise emitted as the trucks drive up the ramp into the waste shed. Noise monitoring at the nearest receiver is only done in the event of a noise complaint.

Noise monitoring for rail operations at the CTT is on an as-required basis. Regular checks of noise generated from container handling and loading, as well as train movements are not performed at the CTT unless a noise complaint is received. Where required, the following noise monitoring will be performed by the operation staff:

**Table 5.1 Operational Noise Monitoring Requirements at the CTT**

Parameter	Monitoring Required	Frequency	Criteria / Performance Measure / Trigger	Response
Operational Noise	Noise level checks on equipment	As required	Detection Complaints	Investigate operation and equipment
Operational Noise	Attended measurements and unattended noise logging at background sensitive receiver locations	As required	Detection Complaints	Carry out noise monitoring  Assess based on monitoring results
Operational Vibration	Vibration level exceedances	As required	Detection Complaints	Investigate operation and equipment
Operational Noise	Carry out noise emission tests on waste delivery vehicles	Annually	Detection Complaints	Notify customers on exceedances

### 5.1.1. Weather Monitoring Instrumentation

A weather station has been installed on site, and will remain in place throughout the operation of the CTT. Noise measurements, as required, are to be accompanied by a qualitative description and quantitative measurement of prevailing local weather conditions throughout the monitoring period.

Meteorological measurements shall be guided by the following documents:

- AS 2922-1987 “Ambient air – Guide for the siting of sampling units”
- AS 2923-1987 “Ambient Air-Guide for Measurements of Horizontal Wind for Air Quality Applications”
- USEPA 454/R-99-005 “Meteorological Monitoring Guidance for Regulatory Modelling Applications”
- The weather station is programmed to continuously record the meteorological parameters as required by Condition 91.

### 5.1.2. Instrumentation and Measurement Procedures

All acoustic instrumentation employed throughout the monitoring program, where required, are to comply with the specifications of AS/IEC 61672.2-2004, “Electro acoustics - Sound Level Meters” and carry a current NATA or manufacturer calibration certificate. All instrumentation is programmed to record continuous statistical noise level metrics in 15 minute intervals, which may include the LAmax, LA1, LA10, LA90, and the LAeq.

Plant and equipment sound power levels are measured in general accordance with AS1217.5-1985.

Truck compliance checks are to be carried out in general accordance with Australian Design Rule (ADR) 28/01 using a modified drive-by method. Truck Noise assessment methodology is further discussed in **Section 5.1.6**.

### 5.1.3. Noise Logging

Both attended and unattended noise measurements have been conducted at the CTT for operation related noise to determine if the CTT conforms to the noise criteria required by the EPA. Whilst no exceedances have been recorded, additional noise measurements may be considered, to assist in addressing any noise complaints that may be received in future.

Due to the distance of the monitoring location of the nearest sensitive receiver from the CTT, direct noise measurements at this location were not able to distinguish between noise from the CTT and other contributing noise sources. As such, the assessment of the CTT’s compliance with noise limits was achieved through a combination of plant and equipment sound power level measurement, near and far field noise measurements and acoustic modelling.

### 5.1.4. Plant and Equipment Emissions

Noise emission levels of all critical items of mobile plant and equipment are checked for compliance with noise limits appropriate to those items when a new plant item first arrives on site.

### 5.1.5. Vehicle Emissions

Condition 112 requires that vehicles using the CTT undergo an annual noise emission assessment in accordance with Australian Design Rule (ADR) 28/01.

ADRs are intended for manufacturers and importers of motor vehicles at the first registration of vehicles to ensure that vehicles are safe to use, that pollutants (including noise) are controlled, and to secure vehicles against theft.

ADR 28/01 refers to both moving and stationary noise measurements, with the vehicle specifications determining the specific testing requirements as shown in the table below.

**Table 5.2 Vehicle Noise Emission Limits**

Vehicle Category Code	Vehicle Type	Vehicles in Motion	Stationary Vehicles			
		Spark Ignition and Direct Injection Diesel Engines	Spark Ignition Engines Exhaust Outlet Height		Diesel Engines Exhaust Outlet Height	
			<1500mm	>1500mm	<1500mm	>1500mm
NA	Light Goods Vehicles GVM ≤ 3.5 t on road use	78 to 80	89	85	99	95
NB	Medium Goods Vehicles GVM > 3.5 t ≤ 12 t on road use	81 to 84	95	91	101	97
NC	Heavy Goods Vehicle GVM > 12t on road use	81 to 87	95	91	103	99

**Note:**

<sup>1</sup> Units are given in LAmax Noise Limits (dBA) – ADR 28/01

<sup>2</sup> For vehicles in motion test, LAmax noise limits are based on the Gross Vehicle Mass (GVM) and the Net Engine Power (NEP). The noise limits in the table are expressed as a range where the lower noise refers to the minimum GVM and NEP in each category and the upper noise level refers to the maximum GVM and NEP in each category.

Monitoring at the CTT to assess vehicle noise emissions is undertaken in accordance with the approved Truck Noise Test Plan provided in **Appendix A**.

The Truck Noise Test Plan assesses a representative sample of the total truck movements at the CTT in a year. A drive-by test of the vehicles accessing the site is conducted and the noise emissions from each truck measured, recorded and assessed from compliance against the ADR 28/01 criteria.



## 5.2. Performance Reporting and Review

Truck noise monitoring results are documented and reported in the Annual Environmental Management Report (AEMR). The AEMR assesses the continuing suitability, adequacy and effectiveness of the on-site environmental management measures implemented. This review will include performance against the goals of the NMP. This includes an assessment of the monitoring results against the relevant compliance aspects of the consent conditions. In accordance with Condition 112, the Annual Truck Noise Assessment Report is included in the AEMR and submitted to the DPIE, EPA, Cumberland Council and the community to report any non compliance with the requirements of ADR 28/01. Veolia's recommendations for mitigation measures to ensure noise emissions are reduced may also be included in this report.

A register, compiled of trucks exceeding the noise limits, provides a further system of reporting put in place by Veolia to improve noise management at the CTT. Identifying trucks exceeding the noise limits, both owned and/or operated by Veolia or external contractors, allows Veolia to set out a method of rectifying non conforming vehicles. Initial verbal and written communication is employed to request operators to repair defects before exclusion from the premises as a final stage.

Furthermore, the storage of each series of noise measurements, including the measured LA<sub>max</sub> noise levels together with the relevant information, enables individual vehicles and operators to be identified and to record any actions arising from the truck inspections, as well as any written communication sent to operators in relation to the noise limits exceedances.

Noise monitoring in relation to rail operations and related impact is not undertaken regularly at the CTT as no key risks have been identified. Ongoing management strategies implemented are deemed sufficient to maintain the rail noise performance of the CTT.

## 5.3. Exceedances and Corrective Actions

Handling of any noise related complaints will be managed in accordance with the process outlined in **Section 4.3.4** of the OEMP. The Facility Manager, or their site nominee, will record and manage all complaints in accordance with Veolia's complaints handling, notification and reporting procedures.

If a noise complaint is received or any changes to the operations occur then the following actions will be taken:

- Determine whether noise controls are being implemented and effective;
- Identify the measurements of noise levels to determine the activity causing excessive noise emission levels. If necessary, amelioration strategies will be employed to achieve acceptable emissions.
- Consultation with any other relevant parties (e.g. community, businesses, government agencies) to address any noise issues.
- Additional attended measurements of noise levels to determine the activity causing excessive noise emission levels will be conducted. If necessary, amelioration strategies will be employed to achieve acceptable emissions.

It should be noted, since the commencement of operations of the CTT, no noise complaints have been received.

Corrective actions taken will be reported in Veolia's issue management system, Rivo, which may include recommendations for any further mitigation measures for compliance with noise emissions requirements.

## 5.4. Publishing of Monitoring Data

Where required, Veolia publishes the results of any environmental monitoring required under the EPL on the following website:

<https://www.veolia.com/anz/about/about-veolia/operational-compliance/nsw-monitoring-reports>

## References

Document Name
NSW EPA (2017). <i>Noise Policy for Industry (2017)</i> , NSW Environmental Protection Agency. January 2017.
DECCW(2011). <i>NSW Road Noise Policy (2011)</i> , Department of Environment, Climate Change and Water NSW. March 2011.
Wilkinson Murray (2016). <i>Clyde Transfer Station Noise Impact Assessment</i> , Wilkinson Murray Pty Ltd. January 2017.

# Appendix A - Truck Noise Test Plan

# Appendix B - Glossary of Acoustic Terms