# REPORT



# WASTE TRANSFER & RECOVERY FACILITY

63-65 COSGROVE ROAD, STRATFHEILD SOUTH, NSW 2135

NOISE IMPACT ASSESSMENT RWDI # 2304625 1 May 2023

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## GLOSSARY OF ACOUSTIC TERMS

Most environments are affected by environmental noise which continuously varies, largely as a result of road traffic. To describe the overall noise environment, a number of noise descriptors have been developed and these involve statistical and other analysis of the varying noise over sampling periods, typically taken as 15 minutes. These descriptors, which are demonstrated in the graph below, are here defined.

**Maximum Noise Level (LAmax)** – The maximum noise level over a sample period is the maximum level, measured on fast response, during the sample period.

 $L_{A1}$  – The  $L_{A1}$  level is the noise level which is exceeded for 1% of the sample period. During the sample period, the noise level is below the  $L_{A1}$  level for 99% of the time.

 $L_{A10}$  – The  $L_{A10}$  level is the noise level which is exceeded for 10% of the sample period. During the sample period, the noise level is below the  $L_{A10}$  level for 90% of the time. The  $L_{A10}$  is a common noise descriptor for environmental noise and road traffic noise.

 $L_{A90}$  – The  $L_{A90}$  level is the noise level which is exceeded for 90% of the sample period. During the sample period, the noise level is below the  $L_{A90}$  level for 10% of the time. This measure is commonly referred to as the background noise level.

 $L_{Aeq}$  – The equivalent continuous sound level ( $L_{Aeq}$ ) is the energy average of the varying noise over the sample period and is equivalent to the level of a constant noise which contains the same energy as the varying noise environment. This measure is also a common measure of environmental noise and road traffic noise.

**ABL** – The Assessment Background Level is the single figure background level representing each assessment period (daytime, evening and night time) for each day. It is determined by calculating the 10th percentile (lowest 10th percent) background level (LA90) for each period.

**RBL** – The Rating Background Level for each period is the median value of the ABL values for the period over all of the days measured. There is therefore an RBL value for each period – daytime, evening and night time.



Typical Graph of Sound Pressure Level vs Time



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## 1 INTRODUCTION

RWDI Australia Pty Ltd (RWDI) has been commissioned by Waste 360 Pty Ltd to conduct an acoustic assessment for proposed modifications (the "Proposal") to the existing waste transfer and recovery facility located at 63-65 Cosgrove Rd, Strathfield South (Lot 1 DP 202168).

The Proposal will involve the extension of operational hours to 24 hours, 7-day operation which results in the truck movements outside the current operational hours . As per Strathfield Council's advice a noise impact assessment report is required for the proposed extension of operational hours (24/7 operation).

This impact assessment has been carried out in accordance with the following guidelines:

- NSW Noise Policy for Industry (NPfI) (EPA, 2017);
- NSW Road Noise Policy (RNP) (DECCW, 2011);

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# 2 PROJECT DESCRIPTION

## 2.1 Project Location

The Project site is located in an industrial site at 63-65 Cosgrove Rd, South Strathfield South, NSW and is currently operating as a waste transfer and recovery facility. The site is approximately 2700 m<sup>2</sup> in area and an aerial overview of the site is shown in Figure 2-1.



#### Figure 2-1: Project Site Location

The site and surrounding area are zoned as general industrial. All the residential receivers are substantially shielded by large industrial buildings; however, the potentially worst affected residential receivers are located to the east. The addresses and distance from the project site of industrial and residential receivers in each direction is presented in **Table 2-1** and an aerial overview showing their relative locations is presented in **Figure 2-2**.



#### Table 2-1: Nearest Residential and Industrial Receivers

Direction	Residential, Approx. Distance	Industrial, Approx. Distance	
North 40 Cave Road, 650 m		57 Cosgrove Road, adjoining site	
East	16 McEnroe Street, 400 m 29 Gregory Street, 450 m	34-48 Cosgrove Road, opposite site	
South	116 Cosgrove Road, 1000 m	71-73 Cosgrove Road, adjoining site	
West	20 Rebecca Road, 550 m	71-73 Cosgrove Road, adjoining site	



#### Figure 2-2: Location of Identified Industrial and Residential Receptors

## 2.2 Proposed Development

The existing site is currently operating as waste transfer and recovery facility. Only minor waste construction and demolition on inert matter, arising from strip outs of shops and offices is accepted at this facility. This waste includes:

- Metals;
- Plastics; and
- Wood

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No bulk construction and demolition material will be accepted or processed which include:

- 1. Concrete slabs;
- 2. Large quantities of brick;
- 3. Soils;
- 4. Putrescent waste; and
- 5. Liquid waste and tyres

The waste is brought in by contractors/other customers and dumped upon the floor of the building. It is hand sorted to extract timber, metals, cardboard, and other valuable materials. Good furniture or resalable items are taken aside for onwards transport to retailers. Some of the waste is delivered by the waste bin sideline and is tipped onto the floor which will be sorted and stored in another part of the building for onwards transport. The collected waste will be piled up by a diesel loader. This waste is taken to the landfill sites by few large trucks (generally two) during the day.

Currently the site is operating from 07:00 AM to 10:00 PM, where the facility is open from 07:00 AM to 04:30 PM Monday to Friday and 07:00 AM to 01:30 PM on Saturdays to receive waste. The waste transfer facility is planning to extend the operational hours to 24 hours a day, 7 days a week. There will be no changes to the current site activities except for some heavy vehicle movements outside current operational hours. The existing layout of the site, the layout of the ground floor and layout of the first floor is shown in **Figure 2-3**, **Figure 2-4**, and **Figure 2-5** respectively.

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Figure 2-3: The structural layout of the site (overview)

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Figure 2-4: The structural layout of the site (Ground floor)

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Figure 2-5: The structural layout of the site (First floor)

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# **3** EXISTING NOISE ENVIRONMENT

Attended and unattended noise monitoring was conducted in 2017 as part of the original EIS.Monitoring took place at 29 Gregory Street, Strathfield South and 124 Cosgrove Road, Strathfield South between 1 February and 10 February 2017.

The aim of the Gregory Street monitoring location was to under the background noise level of the area to develop operational noise levels for the site. During both visits to 29 Gregory Street, no discernible industrial noise was observed. The LAeq, period contribution from the industrial noise can therefore be assumed as 10dBA less than the measured value.

The aim of the Cosgrove Road monitoring location and attended measurement was to understand the traffic noise levels along the potential traffic routes of the area. The dominant source of noise at this location was observed to be traffic noise.

The noise monitoring equipment used for this measurement consisted of ARL 215 environmental noise loggers set to A-weighted, fast response, continuously monitoring in 15-minute intervals. This equipment is capable of remotely monitoring and storing noise level descriptors for later detailed analysis. The equipment calibration was checked before and after the survey and no significant drift was noted.

The logger determines LA1, LA10, LA90 and LAeq levels of the ambient noise. LA1, LA10 and LA90 are the levels exceeded for 1%, 10% and 90% of the sample time respectively (see Glossary of Acoustic Terms for definitions). The LA1 is indicative of maximum noise levels due to individual noise events. This is used for the assessment of sleep disturbance. The LA90 level is normally taken as the background noise level during the relevant period.

Additionally, attended measurements of existing heavy traffic along Cosgrove Road were conducted on 1 February 2017. These were short term measurements taken as a truck passed by.

The results of these measurements are presented in Table 3-1,

Table 3-2, and Table 3-3.

#### Table 3-1: Summary of Unattended Noise Monitoring Results, 29 Gregory Street

Period	RBL (dBA)	L <sub>Aeg, period</sub> (dBA)	Contribution from Industrial Sources L <sub>Aeq,</sub> <sub>period</sub> (dBA)
Daytime (7am-6pm)	40	54	44
Evening (6pm-10pm)	40	52	42
Night Time (10pm-7am)	38	46	36

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#### Table 3-2: Summary of Unattended Noise Monitoring Results, 124 Cosgrove Road

Period	RBL (dBA)	L <sub>Aeq, period</sub> (dBA)	L <sub>Aeq,15hr</sub> (dBA)	L <sub>Aeq,9hr</sub> (dBA)
Daytime (7am-6pm)	47	64		
Evening (6pm-10pm)	42	62	63	59
Night Time (10pm-7am)	37	59		

#### Table 3-3: Summary of Results of Attended Heavy Traffic Measurements

Location	Period	Total No. of Measurements	Average SEL (dBA)	Average L <sub>Amax</sub> (dBA)
Opposite 102 Cosgrove Road	4:00pm-5:00pm	10	75	74

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## 4 NOISE CRITERIA

## 4.1 EPL 21104

The EPL provides noise limits:

L3 Noise Limits

L3.1 The facility must be designed, built and operated in accordance with the Environmental Impact Statement and the assessment titled, "Proposed Waste Transfer & Recovery Facility – Noise and Air Quality Impact Assessment" prepared by Wilkinson Murray Pty Limited dated April 2017

The assessment prepared by Wilkinson Murray (now RWDI) was conducted in accordance with the EPA *Industrial Noise Policy* which has since been superseded by the *Noise Policy for Industry*.

The Project Specific Noise Levels developed in the Wilkinson Murray report are presented in Table 4-1.

#### **Table 4-1: EPL Operational Noise Limits**

Location	Period	Project Specific Noise Limits
	Daytime (7am-6pm)	45 LAeq,15min
<b>Residential Receivers</b>	Evening (6pm-10pm)	45 LAeq,15min
	Night (10pm-7am)	43 LAeq,15min
Industrial Receivers	When in use	70 LAeq,1hr

Furthermore, the Wilkinson Murray report developed noise criteria for additional road traffic in accordance with the NSW *Road Noise Policy (RNP)*.

The *RNP* provides criteria for managing noise levels associated with a development that will increase traffic on a particular road.

The RNP assessment criteria for residential land uses are presented in Table 4-2.



#### Table 4-2: Road Traffic Noise Assessment Criteria for Residential Receivers

		Noise Criteria (dBA)	
Road Category	Type of Proposal / Land Use	Day (7am-10pm) (dBA)	Night (10pm-7am) (dBA)
Freeway / arterial / sub-arterial roads	Existing residences affected by additional traffic on existing freeways / arterial / sub- arterial roads generated by land use development	L <sub>Aeq,15hr</sub> 60 (external)	L <sub>Aeq,9hr</sub> 55 (external)

The *RNP* also offers the relative increase criteria to manage the permissible increase in road traffic noise from a land use development. This criteria states that:

"For existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise level should be limited to 2 dB above that of the corresponding 'no build option'."

As the measured  $L_{Aeq,15hr}\,and\,L_{Aeq,9hr}$  from

**Table** 3-2 are above the *RNP* assessment criteria at both assessment locations, the relative increase criterion is to be adopted.

## 4.2 NPfl Maximum Noise Trigger Levels

Noise sources at night occurring over a short duration have the potential to cause sleep disturbance despite complying with project noise trigger levels. The site intends to operate through the night period. Therefore, maximum noise level events need to be considered for potential sleep disturbance.

The *NPfI* recommends that, where the night time L<sub>Amax</sub> receiver noise levels from a development exceeds 52 dBA or the RBL plus 15 dBA, whichever is the greater, then a more detailed assessment of potential sleep disturbance impacts is warranted. **Table 4-3** presents the maximum noise trigger levels for the receivers identified in this assessment. These noise levels are typically addressed at the facade of potentially affected dwellings and should consider multiple storey dwellings.

#### **Table 4-3: Maximum Noise Screening Level**

Receiver	Night RBL (dBA)	RBL + 15 dBA	Maximum Noise Trigger Level (dBA)
All	38	53	52

Additionally, in instances where night time L<sub>Aeq,15min</sub> noise levels exceed 40 dBA or the prevailing RBL plus 5 dBA, whichever is the greater, then a detailed assessment of potential sleep disturbance impacts is warranted.

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# 5 NOISE ASSESSMENT

## 5.1 Operational Noise

Operational noise from the waste transfer facility can come from a number of sources. The expected sources of significant noise emissions from the site, as well as the assumed sound power level (SWL) used for the assessment are as follows:

- Single axle tip truck 107 dBA
- Frond-end loader 105 dBA
- Trommel and conveyors 108 dBA

Noise from the day to day operation has been modelled using the noise prediction software CadnaA. The operation of the facility does not vary between day, evening and the night period. The surrounding area, including topography and surrounding buildings, have been included in the model. The following assumptions have been included in the noise modelling:

- All equipment and plant running continually for the entire period;
- SWL from equipment and plant as previously stated; and
- Noise-sensitive receivers as previously identified in **Table 2-1**.

The predicted operational noise levels at the surrounding receivers are presented in **Table 5-1**. As can be seen from **Table 5-1**, the predicted operational noise levels all comply with the noise criteria.

#### Table 5-1: Predicted Operational Noise Levels, LAeq, 15min dBA

<b>B</b>		Noise Lin		<b>C</b> and <sup>1</sup> and a
Receiver	Predicted Level	Day/Evening Nig	Night	Compliance
57 Cosgrove Road, adjoining site	48	70	70	Yes
34-48 Cosgrove Road, opposite site	67	70	70	Yes
29 Gregory Street	40	45	43	Yes
16 McEnroe Street	32	45	43	Yes
40 Cave Road	36	45	43	Yes
20 Rebecca Road	21	45	43	Yes

## 5.2 Maximum Noise Level

As the Project proposes to operate 24 hours per day, noise emissions during the night time period require an assessment for potential sleep disturbance at the nearest noise sensitive receivers. A summary of the L<sub>Amax</sub>



sound power levels of typical activities that may occur at the facility with the potential to cause sleep disturbance is presented in **Table 5-2**.

#### **Table 5-2: Sleep Disturbance Noise Events**

Noise Source	Lw LAMax	Source Height
Truck Engine Starting	100	2 m
<b>Reversing Alarm</b>	111	1 m
Roller Door	94	4 m
Forklift loading / unloading	100	2 m
Air Brake Release	115	1 m

Review of **Table 5-2** indicates that air brake release could have the greatest impact on sleep disturbance at surrounding residential receivers. The predicted night time L<sub>Amax</sub> noise levels at the nearest receivers is presented in **Table 5-3** and complies with the screening level of the *NPfl*.

#### Table 5-3: Predicted Maximum Noise Levels, LAFmax dBA

Receiver	Predicted Level	Screening Level	Compliance
29 Gregory Street	41	53	Yes
16 McEnroe Street	29	53	Yes
40 Cave Road	34	53	Yes
20 Rebecca Road	28	53	Yes

## 5.3 Road Traffic Noise

Based on information provided, the total number of vehicle trips per day for the project site would be approximately 32 trucks from the Cosgrove Road (assumed based on 90 minutes to load each truck as per the information provided by the client). The traffic-generation estimate is considered to be conservatively high. It is anticipated that the period of highest traffic flow will occur between 2:00pm and 4:00pm with approximately 10 movements per hour.

For the purpose of being conservative in this assessment, during the day period (7am-10pm), there would be 10 trucks per hour and during the night period (10pm-7am), there would be 4 trucks per hours. Based on these volumes an increase of 0.2 dB and 0.5 dB during the day and night periods, respectively.

This is below the 2 dB criterion limit established in the NSW *Road Noise Policy* for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments.

## 5.4 Recommendations

Based in the results of this assessment, there is no required additional mitigation due to noise produced from construction, general operation of the site or the increase of traffic in the surrounding area.

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# 6 CONCLUSION

RWDI has completed a noise impact assessment for the proposed extension of operational hours (24/7 operation) to the existing waste transfer and recovery facility located at 63-65 Cosgrove Rd, Strathfield South, NSW. The increase in operational hours will result in a negligible impact and noise emissions will comply with relevant noise goals.

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# 7 STATEMENT OF LIMITATIONS

This report entitled *Waste Transfer & Recovery Facility – Noise Impact Assessment, 1 May 2023*, was prepared by RWDI Australia Pty Ltd ("RWDI") for Waste360 Pty Ltd ("Client"). The findings and conclusions presented in this report have been prepared for the Client and are specific to the project described herein ("Project"). The conclusions and recommendations contained in this report are based on the information available to RWDI when this report was prepared. Because the contents of this report may not reflect the final design of the Project or subsequent changes made after the date of this report, RWDI recommends that it be retained by Client during the final stages of the project to verify that the results and recommendations provided in this report have been correctly interpreted in the final design of the Project.

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