

ENVIROKING LIQUID WASTE FACILITY

843 JOHN RENSHAW DRIVE, BLACK HILL

NOISE IMPACT ASSESSMENT

RWDI # 2201045

13 October 2022

SUBMITTED TO

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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 (L_{Amax}) – 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 (L_{A90}) 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.

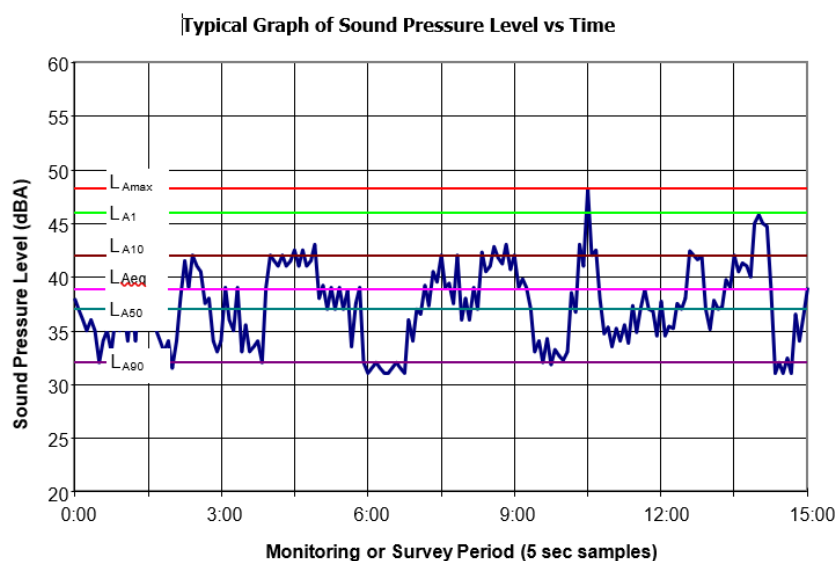




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1 INTRODUCTION

RWDI Australia (RWDI) has been engaged by DFP Planning Pty Ltd on behalf of Enviroking Investments to conduct a noise impact assessment for the proposed modification application at Enviroking Waste Facility located at 843 John Renshaw Drive, Black Hill shown in **Figure 1-1**.

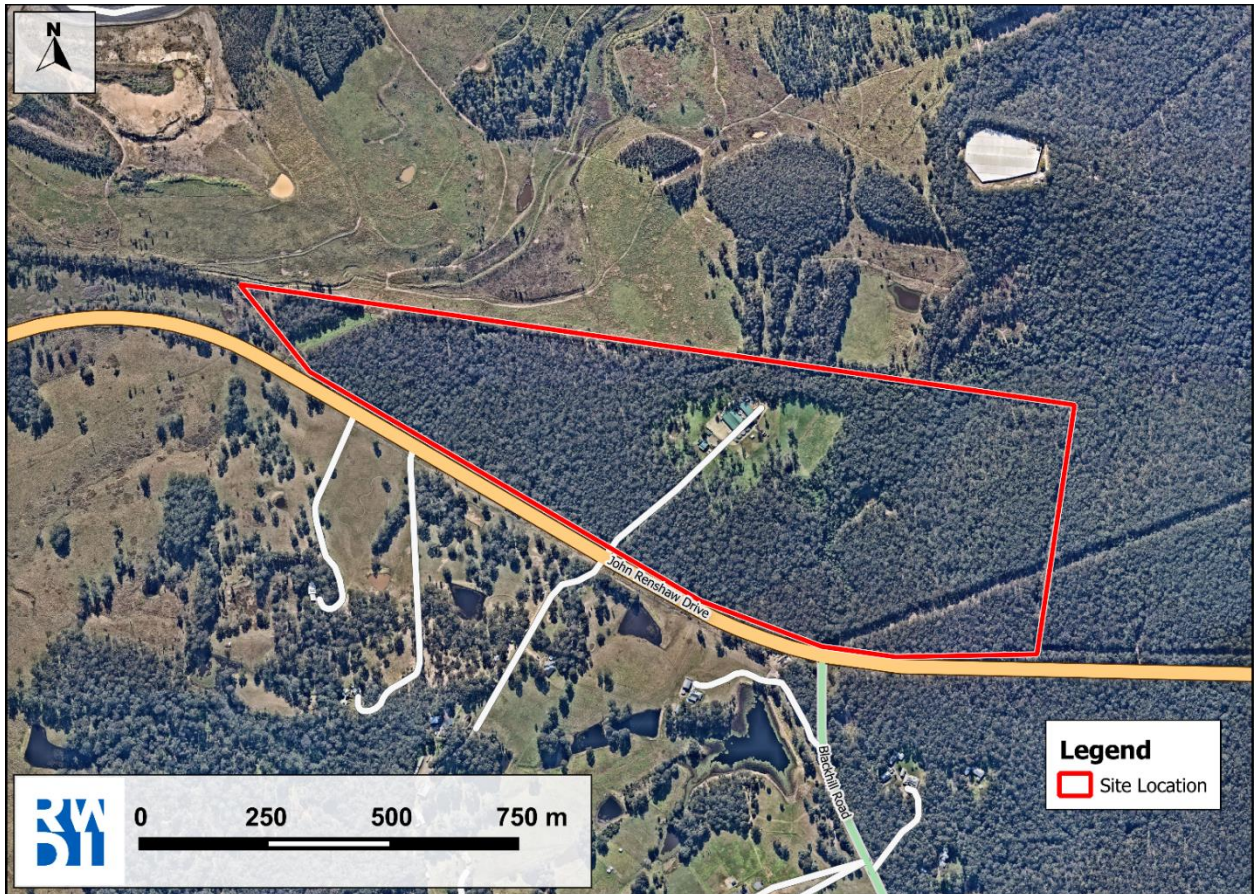


Figure 1-1 Site Location

This assessment is required as part of the submission for the proposed s4.55 Modification Application (**MP_07_0048-Mod-3**) to be approved by NSW Department of Planning and Environment (DPE).

Enviroking propose to modify Condition 6 of Schedule 2 of the Development Consent to increase the quantity of waste to be processed, treat or handed at the facility from 20,000 tonnes to 30,000 tonnes per annum.

EPA's noise and vibration requirement for the proposed modification include a quantitative assessment of potential construction, operational and transport noise and vibration impacts in accordance with relevant Environment Protection Authority guidelines and including details of any on-going monitoring regime to be implemented.

It should be noted:

- Minimal vibration impacts are anticipated from the proposed modification given there are minimal existing or proposed vibration intensive equipment or operations. As a result, no vibration impacts are assessed.
- No additional construction is required to service the proposed modification. The facility will not require alterations and additions work as all the existing equipment and machinery are adequate to accommodate the additional throughput. As a result, no construction impacts are assessed.

This report addresses applicable EPA noise requirements for the proposed modification at the Enviroking Waste facility.

RWDI/Wilkinson Murray completed the noise impact assessment for Enviroking Waste Facility, Report No. 20277 Version A, dated August 2020 (**Report No. 20277 Ver A**). Relevant literature have been reproduced or referenced in this modification assessment.

The following documentation are relevant in this assessment:

- Attachment 1 Planning Secretary's Environmental Assessment Requirements Enviroking Liquid Waste Facility (**MP07_0048-Mod-3**);
- NSW Noise Policy for Industry 2017 (**NPfi**);
- NSW Road Noise Policy (**RNP**); and
- Genesis Traffic Report, Reference T418M21 (**Traffic Report**)

1.1 Project Description

The current activities and approved hours of operation are presented in **Table 1-1**.

The current approved annual throughput and the proposed annual throughput is presented in **Table 1-2**. The facility will only receive the additional 10,000 tonnes during the daytime period between 7am and 5pm.

It is understood:

- The maximum number of trucks in a 15 minute period is typically 2 trucks in the unload area or waiting on the gravel road in front of the unload area. However, infrequently there may be 3 trucks (1 in the oily water bay, 1 in the grease trap area, 1 out the back of shed/stormwater/heavy waste area.
- There will be no increase in staff at the facility with the additional 10,000 tonnes throughput and no additional trucks parked/stored on-site – i.e. all additional throughput will be handled using existing trucks/employees or external contractors as is currently the case.
- The operator has indicated that there have been no odour or noise complaints for approximately 10+ years.



Table 1-1 Current Approved Hours of Operation

Activity	Day	Current hours
Plant Operation	Monday – Friday	5:00 am to 5:00 pm
	Saturday	6:00 am to 12:00 pm
	Sunday and Public Holidays	Nil
Collection/delivery vehicles	Monday – Friday	1:30 am to 7:00 am (up to 13 vehicle trips) 7:00 am to 6:00pm (unrestricted)
	Saturday	
	Sunday and Public Holidays	Nil
Emergency collection vehicle access	7 days per week	24 hours per day

Table 1-2 Current and Proposed Annual Throughput

Current Annual Throughput	Proposed Annual Throughput
20,000 tonnes	30,000 tonnes

1.2 Objectives

The objectives of this assessment are as follows:

- Confirm the neighbouring land use, sensitive receptors and terrain surrounding the site;
- Establish the background noise levels in order to set appropriate criteria in accordance with the NPfI;
- Confirm the sound power levels for additional significant equipment and processes as a result of the proposed throughput increase
- Assess the operational noise impacts utilizing a computer noise model and in accordance with the NPfI.
- If required, recommended appropriate noise mitigation to achieve and maintain compliance with the relevant criteria specified in the NPfI.

2 SENSITIVE RECEIVERS

Figure 2-1 presents the site location and surrounds. Residential receivers are located to the south (shown in yellow) and **Table 2-1** summarises these receivers. To the north and east of the site are coal mining operations. The land to the south and west is rural with some isolated residential properties. The nearest and potentially most affected receivers are located to the south of the site, opposite John Renshaw Drive.

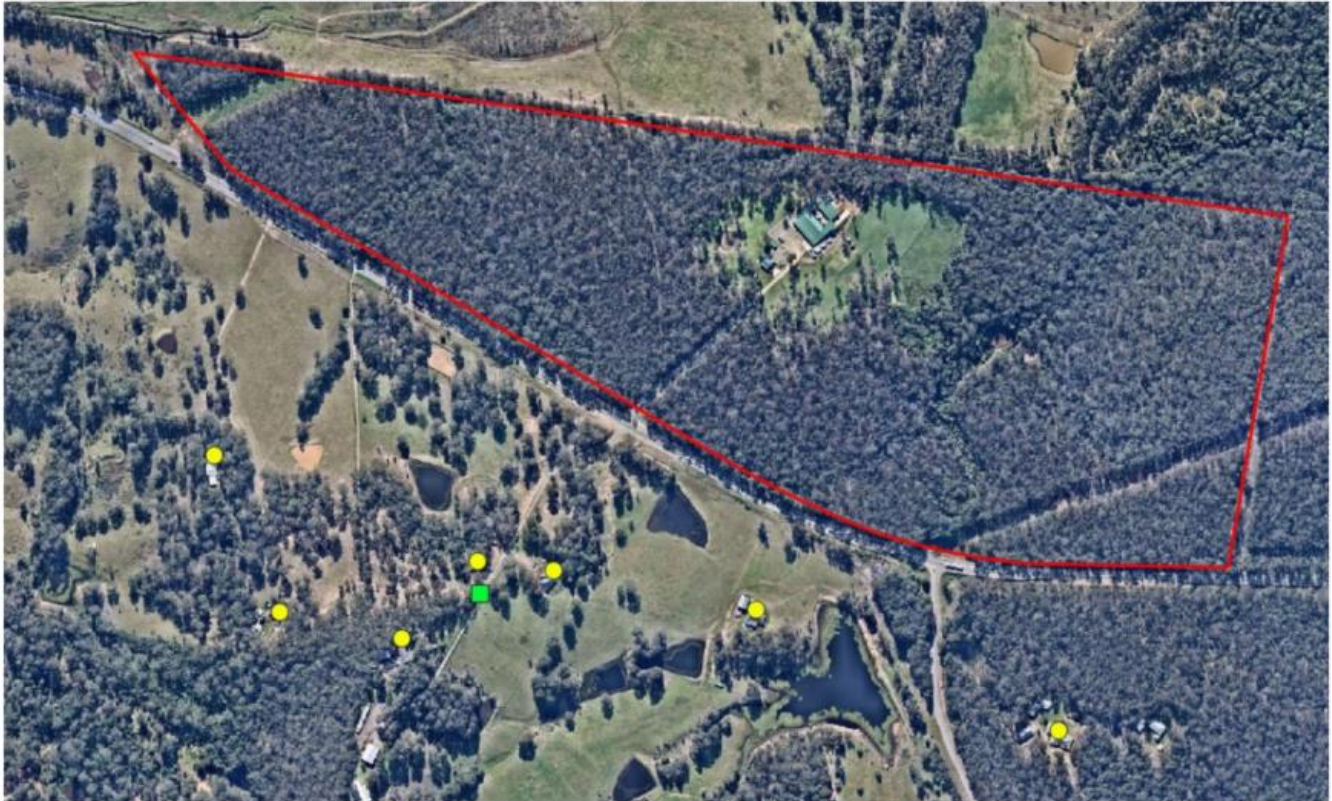


Figure 2-1 Aerial Overview and Sensitive Receivers

Table 2-1 Closest Sensitive Receivers

Address	Lot Number	Approximate Distance (m)
12 Black Hill Road	DP1208965	550
45 Black Hill Road	DP1091535	750
850 John Renshaw Drive	DP1048112	575
836 John Renshaw Drive	DP583620	650
836 John Renshaw Drive	DP583620	800
800 John Renshaw Drive	DP804925	900
786 John Renshaw Drive	DP804925	900



3 AMBIENT NOISE SURVEY

3.1 Unattended Long Term Noise Monitoring

Table 3-1 (reproduced from Table 3-1, **Report No. 20277 Ver A**) presents the results of the unattended long term monitoring carried out between 30th July 2020 to 8th August 2020. The location of unattended noise monitoring is shown in **Figure 2-1**, represented by the green marker.

Refer to **Report No. 20277 Ver A** for details on the noise monitoring equipment, monitoring methodology, and calibration information.

Table 3-1 Existing Noise Levels

Monitoring Location	Time of Day	Noise Levels (dBA)	
		RBL	Laeq
836 John Renshaw Drive	Day	45	61
	Evening	40	52
	Night	35	50
	15-hour 7.00am to 10.00pm	-	55
	9-hour 10.00pm to 7.00am	-	47

Day = 7:00am to 6:00pm; Evening = 6:00pm to 10:00pm; Night = 10:00pm to 7:00am.



4 OPERATIONAL NOISE EMISSION CRITERIA

4.1 Project Noise Trigger Levels

Table 4-1 (reproduced from Table 3-5, **Report No. 20277 Ver A**) presents the project noise trigger levels for the sensitive receivers, with the controlling project noise trigger levels shown in **bold**.

Refer to **Report No. 20277 Ver A** for details on the selection of the project intrusiveness noise levels and project amenity noise levels.

Table 4-1 Project Noise Trigger Levels

Receiver	Time of Day	Project Intrusiveness Noise Levels (L _{Aeq,15min} dBA)	Project Amenity Noise Levels (L _{Aeq,15min} dBA)
All	Day	50	48
	Evening	45	43
	Night	40	38

4.2 Maximum Noise Level Criteria (Sleep Disturbance)

Table 4-2 (reproduced from Table 3-5, **Report No. 20277 Ver A**) presents the project maximum noise trigger levels for the sensitive receivers during the night period, with the adopted level shown in **bold**.

Refer to **Report No. 20277 Ver A** for details on determining the maximum noise trigger level.

Table 4-2 Maximum Noise Trigger Levels

Receiver	Night RBL (dBA)	RBL + 15 dBA	Maximum Noise Trigger Level (dBA)
All	35	50	52



4.3 Road Traffic Noise Criteria

The RNP provides criteria for managing noise levels associated with a development that will increase traffic on a particular road. The proposed increase in throughput during the daytime period only will result in an increased number of movements on John Renshaw Drive.

The RNP assessment criteria for residential land uses are presented in **Table 4-3**.

John Renshaw Drive is classified as an arterial or sub-arterial road.

Table 4-3 Road Traffic Noise Assessment Criteria for Residential Receivers

Road Category	Type of Proposal / Land Use	Noise Criteria (dBA)	
		Day (7am to 10pm)	Night (10pm to 7am)
Freeway / arterial / sub-arterial roads	Existing residences affected by additional traffic on existing freeways / arterial / sub-arterial roads generated by land use development	L _{Aeq,15hr} 60 (external)	L _{Aeq,9hr} 55 (external)
Local roads	Existing residences affected by additional traffic on existing local roads generated by land use development	L _{Aeq,1hr} 55 (external)	L _{Aeq,1hr} 50 (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’.”

5 OPERATIONAL NOISE ASSESSMENT

5.1 Noise Modelling Methodology

Operational noise emissions associated with the Project were modelled using the CadnaA acoustic noise prediction software. Factors addressed in the noise modelling are:

- Equipment noise level emissions and locations;
- Shielding from ground topography and structures;
- Noise attenuation due to geometric spreading;
- Ground absorption; and
- Atmospheric absorption.

Topographical data for the site and nearby surrounding area has been sourced from NSW Spatial Services as 2m contours and has been incorporated in the model.

A ground absorption factor of 0.5 has been applied to the entire model. This global ground absorption value conservatively represents the mix of hard ground (absorption = 0) and soft ground (absorption = 1) on and around the site.

5.2 Operational Noise Sources

Two separate scenarios during the daytime have been considered for assessing noise emissions from the modification. The first scenario consists of truck movements plus operation of the plant between 7 am and 5 pm. The second scenario consists of truck movements only between 5 pm and 6 pm.

The existing approved truck movements and plant operation during the night period will remain the same. Therefore, no assessment during the night period is required. Refer to **Report No. 20277 Ver A** for details on the existing night assessment.

In each scenario it has been assumed as a “worst case” that there would be four trucks accessing the site within a 15-minute period.

These scenarios are:

- 7:00am to 5:00pm – Four trucks (in and out) and four trucks unloading within a 15-minute period; and
- 5:00pm to 6:00pm – Four trucks (in and out) and four trucks unloading within a 15-minute period with plant operating throughout.

It should be noted current approval on truck movements are unrestricted from Monday to Saturday between 7 am and 6 pm (shown in **Table 1-1**).

RWDI/Wilkinson Murray attended the Enviroking site on 30 July 2020 to conduct source noise measurements of the site plant, trucks unloading and truck movements on the site. Results from these noise measurements have been used in the noise modelling.



5.3 Predicted Operation Noise Level

The predicted noise levels at the nearest southern surrounding receivers for each scenario are presented in **Table 5-1** and **Table 5-2**.

The predicted noise levels associated with the increased throughput comply with the relevant noise criteria. No noise mitigation is required.

Table 5-1 Predicted Noise Levels – 7:00am to 5:00pm – $L_{Aeq,15min}$ dBA

Receiver	Predicted Level	Day Period Criteria	Compliance?
12 Black Hill Road	35	48	Yes
45 Black Hill Road	23	48	Yes
850 John Renshaw Drive	35	48	Yes
836 John Renshaw Drive	29	48	Yes
836 John Renshaw Drive	26	48	Yes
800 John Renshaw Drive	27	48	Yes
786 John Renshaw Drive	28	48	Yes

Table 5-2 Predicted Noise Levels – 5:00pm to 6:00pm – $L_{Aeq,15min}$ dBA

Receiver	Predicted Level	Day Period Criteria	Compliance?
12 Black Hill Road	34	48	Yes
45 Black Hill Road	22	48	Yes
850 John Renshaw Drive	34	48	Yes
836 John Renshaw Drive	28	48	Yes
836 John Renshaw Drive	25	48	Yes
800 John Renshaw Drive	27	48	Yes
786 John Renshaw Drive	27	48	Yes

5.4 Maximum Noise Level Assessment (Sleep Disturbance)

The maximum noise level assessment is applicable during the night time period only and is not required in this assessment given the existing night period operations will not change.

5.5 Road Traffic Noise Assessment

Road traffic during the operation phases from the modification are anticipated to be insignificant in comparison to the road traffic on the surrounding road network.

A traffic survey completed by Genesis Traffic dated 22 August 2022 (**Traffic Report**) identified:

- Existing peak hour traffic along John Henshaw Drive averages 750 to 800 vph.
- Proposed increase in traffic from the Enviroking facility modification: 1 vph.

It may therefore be concluded that there is no risk of a 2dB increase arising from operational road traffic. On this basis, noise impacts from operational road traffic noise are minimal.

5.6 On-going Noise Monitoring Regime

An on-going noise monitoring regime may not be required at this stage, given the predicted noise levels are well below the noise limits.

Monitoring captured at the nearest residential receivers may likely be dominated by extraneous noise activity such as road traffic noise from the surrounding road network, and other activity in the local area unassociated with the site.

6 CONCLUSION

RWDI Australia (RWDI) has been engaged by DFP Planning Pty Ltd on behalf of Enviroking Investments to conduct a noise impact assessment for the proposed modification application at Enviroking Waste Facility located at 843 John Renshaw Drive, Black Hill.

The site proposes a modification to the annual throughput of waste from 20,000 to 30,000 tonnes per annum. The additional 10,000 tonnes per annum will occur during the daytime period only and has been assessed.

No night time assessment has been completed (including the sleep disturbance) as the existing approved night operations will not change.

The acoustic assessment has considered noise from plant operation, truck movements on site and traffic noise on John Renshaw Drive.

The assessment has been conducted to address the EPA noise requirements presented in **MP07_0048-Mod-3**, and in accordance with the Npfl and RNP.

The predicted noise levels comply with all relevant criteria and no adverse impact on surrounding residential receivers is expected.

This report entitled "Noise Impact Assessment," 13th October 2022 was prepared by RWDI Australia (RWDI) for Enviroking Investments ("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.

The conclusions and recommendations contained in this report have also been made for the specific purpose(s) set out herein. Should the Client or any other third party utilize the report and/or implement the conclusions and recommendations contained therein for any other purpose or project without the involvement of RWDI, the Client or such third party assumes any and all risk of any and all consequences arising from such use and RWDI accepts no responsibility for any liability, loss, or damage of any kind suffered by Client or any other third party arising therefrom.

Finally, it is imperative that the Client and/or any party relying on the conclusions and recommendations in this report carefully review the stated assumptions contained herein and to understand the different factors which may impact the conclusions and recommendations provided.