

Compliance Noise Monitoring

Byron Resource Recovery Centre
The Manse Road
Myocum



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1. Introduction

1.1 Purpose

Tim Fitzroy & Associates were engaged by Byron Shire Council (BSC) to undertake an operational noise assessment at the Byron Resource Recovery Centre (BRRC) (former Myocum Landfill), The Manse Road Myocum. Key components of the noise assessment were to:

- undertake compliance noise monitoring; and
- provide an updated noise assessment of site operations.

Compliance noise monitoring was undertaken on 23 August 2016.

1.2 Site Description and Surrounds

The subject site is described as Lot 1 DP 1052900 The Manse Road, Myocum. The BRCC is established between two remnant ridgelines. The BRCC is located at Myocum around 6km south of Mullumbimby and 9km southwest of Brunswick Heads. The Myocum quarry is located to the west of the site.

The new Resource Recovery Area is located on the crest of a hill. The surrounding area is undulating.

A number of residences are within close proximity of the BRCC. Residences R1 to R5 (inclusive) are identified in **Illustration 2.1**. Residences R1, R3 and R4 are owned by BSC, while the other residences are privately owned. Residences R1 and R5 are two storey dwelling houses while the other dwellings are single storey.

A BSC operated quarry is located to the immediate west of the BRCC, while Leela Quarry (privately operated) is located to the north (see **Illustration 2.1**). Vegetation provides a visual screen from the BRCC to residences R1, R2, R3 and R5.

2. Resource Recovery Operations

2.1 Typical Operations

Waste Recovery and Recycling operations are carried out in the transfer centre, green-waste and resource recovery areas. The Byron Resource Recovery Centre operating hours are 7:30 am to 4:00pm (Monday to Friday) and 8:00am to 12:00pm (Saturday and Sunday). Landfilling operations ceased in late September 2013. Additional infrastructure has been installed at the existing transfer station for the temporary storage and bulk transfer of waste to South east Queensland. A new Resource Recovery Area has been established on a level area between the redundant northern and southern landfill cells.

Council operates a single body, dual axle, hook lift truck for the purpose of transporting water for dust suppression, emergency spot fire fighting and moving various waste and recyclable products within the site within hook lift bins. Council operates a Backhoe (Cat 432D) for the management of recyclable stockpiles within the resource recovery area, including the loading of lift hook bins, transferring materials to the tip shop and loading small quantities of mulch for customers. Waste is deposited into bins using private or commercial vehicles. The bins are emptied by transfer trucks.

A variety of vehicles including: private vehicles, mini skips, council rubbish trucks (up to 8 per day) deposit waste either at the transfer station or the resource recovery area. Semi-trailers operate in the Resource Recovery area with roll-on roll-off bins. Walking floor trucks operate in the transfer station. Average movements are twice a day, Monday to Friday.

To the north of the face are the weighbridge, waste transfer centre and second hand shop. This area is not in a direct line of site to residences R1, R2, R4 and R5.

2.2 Intermittent Operations

Intermittent noise generating activities include green waste mulching and metal collection/ baling. Based on current throughput green waste mulching occurs on a 6 weekly basis; metal collection/baling once every 2 weeks.

The following corrective actions are employed by BSC to reduce noise impacts from intermittent noise generating activities:

- Green waste and metal processing does not occur on weekends and public holidays;
- Commencement of these operational activities shall take place on weekdays only, commencing no earlier than 9:00 a.m. and ceasing no later than 4:00 p.m.;
- Dates for these operational activities will be scheduled at least two weeks in advance of commencement, and potentially affected resident neighbours will be notified by a letter box drop and/or a roadside message board.

2.3 Licence Conditions

The NSW Environment Protection Authority (EPA) has issued licence conditions for the Myocum Landfill site. Noise Monitoring locations are to be located within 30m of Residence R1 to R5 (inclusive) are identified in **Table 2.1**.

Condition L6.1 states that the Project Specific Noise Limits (PSNL) Laeq (15 minute) are:

- 43 dB(A) at monitoring points 20 (N1), 21 (N2), 27 (N4) and 28 (N5); and
- 39 dB (A) at monitoring point 22 (N3).

Table 2.1 Noise Monitoring Locations 30m from dwellings

Location	Description	Distance from BRCC (m)
N1	Council owned house, 147 Manse Rd, southeast of BRCC	200
N2	Private House, 110 Manse Road, south of BRCC	300
N3	Council owned house, 1 Dingo lane, west of quarry and BRCC	700
N4	Council owned house, 147 The Manse Road, east of BRCC	200
N5	Private house, 149 Manse Road, east of BRCC	250

The L_{Aeq} is essentially the average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy at a given time; varying sound over a defined measurement period.

In accordance with the NSW Industrial Noise Policy (NSW EPA 2000), the Myocum Waste and Recycling facility is classified as an industrial/commercial noise source. The assessment procedure for an industrial noise source should comprise of:

- Controlling intrusive noise impacts in the short term for surrounding residences; and
- Maintaining noise level amenity for particular land uses for residences and other land uses.

In assessing the noise impact of the Byron Resource Recovery Centre on the surrounding land use, both components must be taken into account for residential receivers, but, in most cases, only one will become the limiting factor forming the project-specific noise level. The intrusiveness of an industrial noise source may be generally considered to be acceptable if the equivalent continuous A-weighted level of noise from the source, measured over a 15 minute period, does not exceed the background noise level by more than 5dB. Therefore, the limiting criteria for the control of intrusive noise impacts is if the $L_{Aeq,15\text{ minute}}$ descriptor is $< RBL + 5\text{ dB}$.

In accordance with the INP, the project specific noise criteria is the lesser of either the amenity or intrusiveness criterion. The work to derive the PSNC was carried out previously, endorsed by the EPA and has resulted in the licence conditions imposed.

Condition No. L6.2 states that noise compliance is to occur within 30m of each nominated residence. Noise Monitoring locations are depicted in **Illustration 2.1**.



Dwelling setback distances from Myocum Landfill

R1	70m
R2	240m
R3	650m
R4	140m
R5	180m

Note: Distances are approximate only.



0 80m

SCALE: 1:4000 (A3)
DRAWN: azaCAD.com.au
BASE SOURCE: GOOGLE MAPS
DATE: MAY 2014
REFERENCE: 22-99-C

Illustration 2.1:
Noise Monitoring Locations and Dwelling Setbacks

3. Noise Assessment

3.1 Acoustical Equipment

Tim Fitzroy & Associates utilised the following equipment in this Noise Impact Assessment:

- A Type 2 Rion NL-22 environmental sound level meter.

Calibration of the noise monitoring equipment was undertaken prior to use. To ensure no significant tonal drift occurred over the monitoring period, the calibration was checked before and after each measurement period.

3.2 Monitoring Methodology

Noise monitoring was undertaken during typical resource recovery operations.

Typical operations include the operation of the excavator and unloading activities at the transfer station and resource recovery area plus vehicular movements.

Ambient sound pressure levels were measured generally in accordance with Australian Standard AS1055.1:1997 - '*Acoustics-Description and measurement of environmental noise - Part 1: General procedures*'. The monitoring locations reflect as much as possible the requirement for monitoring at the most affected point within 30m of each dwelling.

Noise monitoring of typical waste and recycling operations was carried out on Tuesday 23 August 2016 between 7:15am and 12:45pm.

Up to 4, 15 minute samples was obtained at each of the monitoring locations using a Rion NL-22, type 2 Sound Level Meter. The Fast and A weighting settings were used. The microphone at each location was 1.35m above ground level.

Illustration 2.1 shows the location of the noise monitoring locations and set back distances from residences R1 to R5 inclusive to the BRCC.

Photographs of the noise monitoring locations, N1 to N5, transfer station and resource recovery operations are provided in **Appendix A**.

The weather during the noise monitoring was fine. Winds conditions ranged from light (2km/hr) to moderate (17 km/hr) winds. BOM data was collected from the Ballina

Airport Weather Station and was representative of the conditions experienced onsite. (see **Appendix B**).

3.3 Noise Monitoring Results

- The noise monitoring results (nmr) are provided in Table 3.1.

During normal operations the main sources of noise at the BRCC was the loader and excavator operation in the resource recovery area and in the transfer area. Other sources of noise included vehicle entering and leaving the BRCC and vehicle movements on the site and along The Manse Road. In addition crushing operations were being undertaken in the Leela Quarry. Crushing operations contributed to noise levels at noise monitoring locations N2 and N3.

Environmental noise including crows and cicadas was significant in some locations. .

Table 3.1 Monitoring Results at N1 to N5 under Normal Operating Conditions

Date	Location	Time	Measured L _{Aeq(15min)} dB(A)	Estimated BRCC Contribution	Comments	Licence Condition dB(A)
23/08/2016	N1	7:15-8:15	46.5	45	Main noise excavator and loader operation in Resource Recovery Area. Secondary Crow calls, Vehicle entering and leaving	43
23/08/2016	N2	11:00-12:00	54.1	40	Main noise crushing operation at Leela Quarry Secondary Noise: vehicles travelling along The Manse Road. Tertiary Noise Limited impact from loader operation at BRCC transfer station	43

23/08/2016	N3	12:15-12:30	48.6	<30	Main noise crushing operation at Leela Quarry Secondary Noise: Bird Calls. BRRC operations were not audible	39
23/08/2016	N4	8:30-9:30	52.7	47	Main noise excavator and loader operation in Resource Recovery Area. Secondary Crow calls, Vehicle entering and leaving	43
23/08/2016	N5	9:45-10:45	52.1	39	Primary noise Wind rustling leaves in trees, Bird calls, BRRC not audible with exception of reversing alarm on excavator and distant unloading of rubbish	43

Note: Full noise monitoring results are located in **Appendix C**.

3.4 Observations

3.4.1 Typical Operations at N1 to N5

At location N1, the measured LAeq fro 1 hour was 46.5 dB (A). The dominate noise was the loader and excavator operation in the Resource Recovery Area. Secondary noises included the loader and crow calls.

The measured LAeq of 46.5 dB (A) is 3.5 dB (A) above the noise limit of 43 dB (A). The estimated contribution from Resource Recovery Operations was 45 dB (A). The residence, R1 is owned by BSC, the operator of the Byron Resource Recovery Centre.

At location N2, the measured LAeq was 54.1 dB (A). N2 was affected by crushing operations at the Leela Quarry and traffic noise primarily associated with the Byron Resource Recovery Centre and bird calls. Noise contribution from the Byron Resource Recovery operation was estimated to be 40 dB (A). This is 3 dB (A) below the noise limit of 43 dB (A).

At location N3, the measured LAeq was 48.6dB (A). During the monitoring period the loader operation in transfer station was not audible. The primary noise source was from excavator and crusher operations at the adjoining Leela Quarry. The estimated contribution from Resource Recovery Operations was less than 30 dB (A). This is 9dB (A) below the noise limit of 39dB (A). The residence, R3 is owned by BSC, the operator of the Byron Resource Recovery Centre. Measurement was suspended after a minimum 15 minute period due to the inaudibility of BRRC operations at the N3.

At location N4, the measured LAeq was 52.7dB (A) with the dominant noise being the excavator and loader operations BRRC coupled with crow calls and breeze in adjacent trees. Noise estimated from Resource Recovery operations account for 47 dB (A). This is 4 dB (A) above the noise limit of 43dB (A). The residence, R4 is owned by BSC, the operator of Byron Resource Recovery Centre.

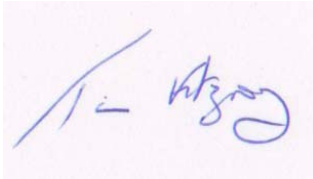
At location N5, the measured LAeq was 52.1 (A). The Resource Recovery Facility operations were not audible, with the exception of the reverse beeper on the excavator operating at the Resource Recovery Area. In the absence of environmental noises and vehicular traffic along the Manse Road the Resource Recovery Facility operations noise level was 39dB (A) and therefore in compliance with the noise limit.

4. Conclusions & Recommendations

It is concluded from the noise monitoring carried out on 23 August 2016

- The noise limit at location N1 was exceeded the noise limit of 43 dB(A) by 2 dB;
- The noise limit at location N2 was compliant with the noise limit of 43 dB(A);
- The noise limit at location N3 was compliant with the noise limit of 39 dB(A);
- The noise limit at location N4 exceeded the noise limit of 43 dB(A) by 4 dB; and
- The noise limit at location N5 was compliant with the noise limit of 43 dB (A).

Residences R1, R3 and R4 are owned by Byron Shire Council.



Tim Fitzroy
Environmental Health Scientist

References

- NSW DECC, 2009 Noise Guide for Local Government, Department of Environment,
Climate Change & Water, Sydney
- NSW EPA, 2000 Industrial Noise Policy. Environmental Protection Authority,
Sydney

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A Photographs



Photo A **Transfer Station**



Photo B **Resource Recovery Area**



Photo C **Noise Monitoring Location (N1)**



Photo D **Noise Monitoring Location (N2)**



Photo E **Noise Monitoring Location (N3)**



Photo F Noise Monitoring Location (N4)



Photo G Noise Monitoring Location (N5)

B BOM Data

Latest Weather Observations for Ballina

IDN60801

Issued at 3:03 pm EST Tuesday 23 August 2016 (issued every 30 minutes, with the page automatically refreshed every 10 minutes)

[About weather observations](#) | [Map of weather stations](#) | [Latest weather observations for NSW](#) | [Other Formats](#)

Station ID: 058198 **Name:** BALLINA **Lat:** -28.84 **Lon:** 153.56 **Height:** 1.3 m
Details: AIRPORT AWS

Data from the previous 72 hours. | See also: [Recent months at Ballina](#)

Date/Time EST	Temp °C	App Temp °C	Dew Point °C	Rel Hum %	Delta -T °C	Wind					Press QNH hPa	Press MSL hPa	Rai n sinc e 9am mm
						Dir	Spd km/ h	Gus t km/ h	Sp d kts	Gus t kts			
23/03:00pm	22.1	21.4	16.4	70	3.5	ENE	15	19	8	10	1011.9	1011.9	0.0
23/02:30pm	22.4	21.8	15.7	66	4.0	E	13	19	7	10	1011.8	1011.8	0.0
23/02:00pm	23.3	24.2	15.1	60	4.9	WSW	4	11	2	6	1011.8	1011.8	0.0
23/01:30pm	23.3	23.6	15.9	63	4.5	W	9	15	5	8	1011.9	1011.9	0.0
23/01:00pm	22.2	20.8	15.5	66	4.0	WSW	17	24	9	13	1012.5	1012.5	0.0
23/12:30pm	23.5	22.3	15.0	59	5.1	NW	15	19	8	10	1012.6	1012.6	0.0
23/12:00pm	23.9	23.4	15.9	61	4.8	NW	13	19	7	10	1013.3	1013.3	0.0
23/11:30am	22.3	22.8	15.6	66	4.0	NNW	7	13	4	7	1013.7	1013.7	0.0
23/11:00am	21.9	22.1	15.7	68	3.7	NNW	9	11	5	6	1014.2	1014.2	0.0
23/10:30am	21.9	21.9	15.3	66	3.9	NNW	9	15	5	8	1014.0	1014.0	0.0
23/10:00am	21.7	21.5	15.8	69	3.5	NNW	11	19	6	10	1014.3	1014.3	0.0
23/09:30am	20.8	21.5	16.2	75	2.8	N	7	11	4	6	1014.3	1014.3	0.0
23/09:00am	20.4	20.6	15.8	75	2.7	N	9	15	5	8	1013.8	1013.8	5.2
23/08:30am	19.8	20.2	16.3	80	2.1	N	9	15	5	8	1013.	1013.	5.2

Date/Time EST	Temp °C	App Temp °C	Dew Point °C	Rel Hum %	Delta -T °C	Wind					Press QNH hPa	Press MSL hPa	Rai n sinc e 9am mm
						Dir	Spd km/ h	Gus t km/ h	Sp d kts	Gus t kts			
m											5	5	
23/08:00am	18.2	20.2	16.9	92	0.8	NNW	2	6	1	3	1013.6	1013.6	5.2
23/07:30am	17.5	19.2	17.2	98	0.2	NNE	4	6	2	3	1013.8	1013.8	5.2
23/07:00am	15.7	17.5	15.5	99	0.1	CALM	0	7	0	4	1013.8	1013.8	5.2
23/06:30am	14.9	15.3	14.7	99	0.1	NE	6	9	3	5	1013.6	1013.6	5.2
23/06:16am	14.7	16.1	14.4	98	0.2	CALM	0	0	0	0	1013.6	1013.6	5.2
23/06:00am	14.8	16.2	14.5	98	0.2	CALM	0	0	0	0	1013.5	1013.5	5.2
23/05:52am	15.0	16.5	14.7	98	0.2	CALM	0	0	0	0	1013.5	1013.5	5.2
23/05:30am	15.4	17.1	15.1	98	0.2	CALM	0	0	0	0	1013.5	1013.5	5.2
23/05:16am	15.2	16.8	14.9	98	0.2	CALM	0	0	0	0	1013.3	1013.3	5.2
23/05:00am	15.0	16.5	14.7	98	0.2	CALM	0	0	0	0	1013.4	1013.4	5.2
23/04:46am	14.7	16.0	14.2	97	0.3	CALM	0	0	0	0	1013.1	1013.1	5.2
23/04:30am	15.6	16.6	15.3	98	0.2	N	4	9	2	5	1013.0	1013.0	5.2
23/04:00am	15.7	15.8	15.4	98	0.2	NNW	9	11	5	6	1013.1	1013.1	5.2
23/03:30am	15.9	16.0	15.6	98	0.2	N	9	11	5	6	1013.4	1013.4	5.2
23/03:01am	15.7	16.3	15.2	97	0.3	N	6	7	3	4	1013.6	1013.6	5.2
23/03:00am	15.7	16.3	15.2	97	0.3	N	6	7	3	4	1013.6	1013.6	5.2
23/02:30am	15.8	16.2	15.2	96	0.3	WNW	7	9	4	5	1014.5	1014.5	4.0
23/02:29am	15.8	16.2	15.2	96	0.3	WNW	7	9	4	5	1014.6	1014.6	4.0
23/02:17am	15.8	16.3	15.0	95	0.5	WSW	6	7	3	4	1014.5	1014.5	3.4

C Noise Data

Location N3

Address	Time	Measurme	LAeq	LAE	LAmx	LAmn	LA01	LA10	LA50	LA90	LA95	LCpeak	Over	Under	Pause
1	23/08/2016 12:15	0:15:00	48.6	78.2	68.9	38.4	62.6	46.6	43.3	41.1	40.7	82.5	-	-	-
2	23/08/2016 12:30	0:15:00	44.3	73.9	59.4	33.8	53.2	47.1	42.5	37.3	36.4	81.6	-	-	-
3	23/08/2016 12:45	0:02:23	43.5	65	51.1	33.1	49.4	46.2	42.8	36.3	35	85.2	-	-	-

