MARSHALL DAY Acoustics

WALLARA WATERS - BALANCE OF PHASE ONE CONSOLIDATED NOISE REPORT

Rp 001 R02 20169090 | 16 June 2017

MARSHALL DAY Acoustics

6 Gipps Street
Collingwood VIC 3066
Australia
T: +613 9416 1855
ABN: 53 470 077 191
www.marshallday.com

Project: **WALLARA WATERS - BALANCE OF PHASE ONE**

Prepared for: **Australand Residential No 126 Pty Ltd & The Trustee for Nordic Unit Trust**
Level 9 484 St Kilda Road
Melbourne VIC 3004

Attention: **Sharon Coates**

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Cover photo: Reeds Consulting

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1.0 INTRODUCTION

Australand Residential No. 126 Pty Ltd and Nordic Unit Trust are developing the Wallara Waters residential estate in Wallan. Marshall Day Acoustics Pty Ltd (MDA) has previously provided recommendations for road traffic noise control for the northern portions of the estate ('the initial noise assessment'). The recommended noise wall was constructed and subsequent noise measurements have demonstrated compliance with VicRoads' requirements in this section. This work was completed to VicRoads' satisfaction in 2009 and is not revisited in this report.

MDA report no. Rp 001 2010306ML dated 25 June 2013 entitled *Wallara Waters – Balance of Phase One – Traffic noise barrier recommendations* ('the previous report') provided noise mitigation options for the next stages of Phase One. Based on these recommendations, a noise wall has been constructed to protect additional sections of Phase One of the estate. Greater detail regarding predicted noise levels in Stages 10 and 11 of the estate was provided in a letter from MDA dated 23 September 2016, and the results of compliance testing was provided in a letter from MDA dated 16 December 2016. This report consolidates the advice and outcomes provided in the previous report and the subsequent letters.

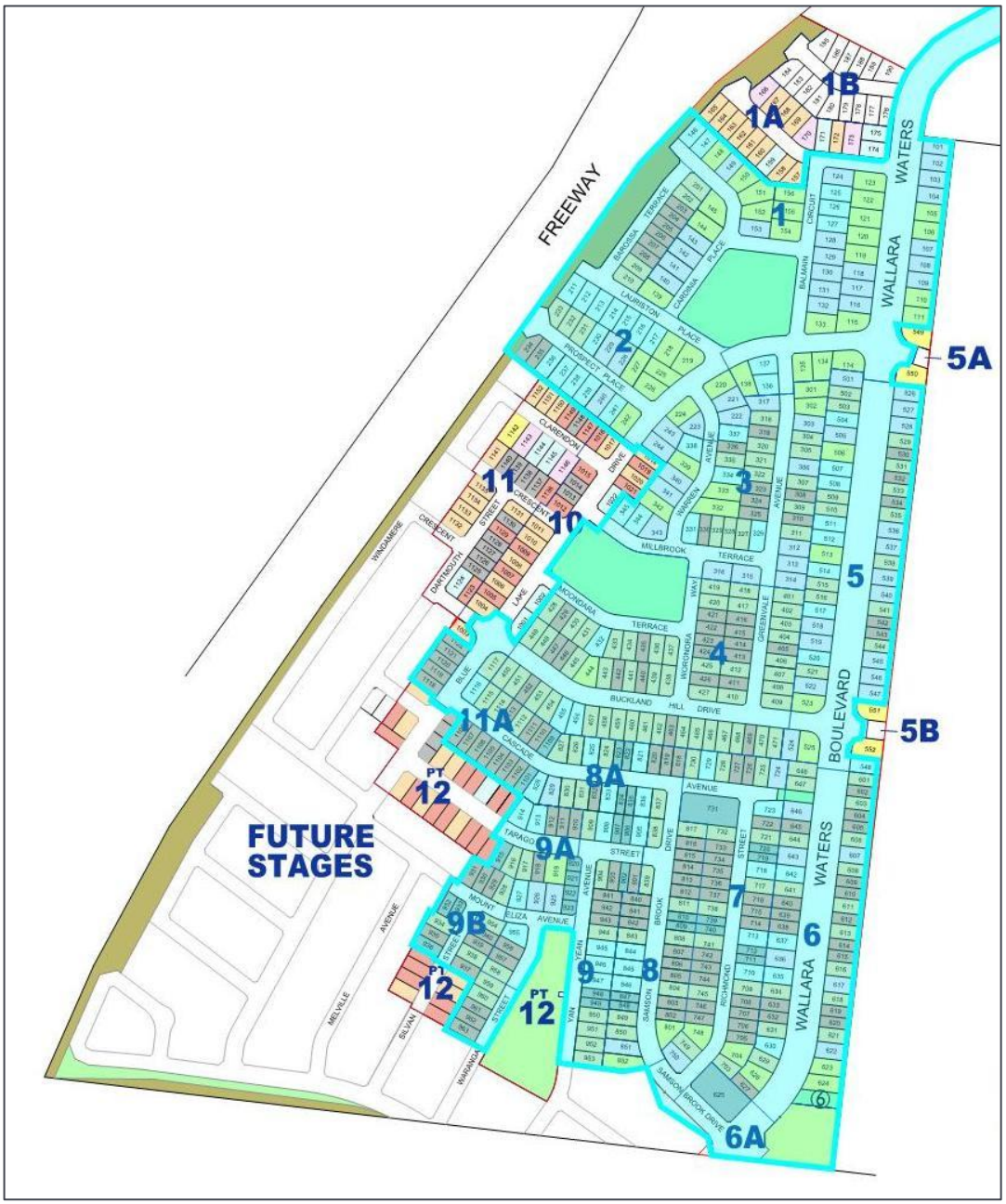
A glossary of acoustic terms and symbols is provided in Appendix A.

1.1 Phase One of Wallara Waters

Error! Reference source not found. provides a drawing showing Phase One of the development which shows the house lots created pursuant to an existing planning permit ('the permit area') together with an area marked 'Future Stages' which will be developed pending further planning approval.

At this stage, VicRoads has provided consent for the Stages 1, 2, 3, 4, 5, 6, 6a, 7, 8, 8a, 9, 9a, 9b and 11a. These stages are shown in Figure 1.

Figure 1: Stages for which VicRoads has provided consent



1.2 Contents of this report

This report provides the results of modelling of future noise levels with the extent of noise barrier currently constructed. Compliance with VicRoads' traffic noise level objective is addressed in Stages 10, 11 and 12, and the extent of the Future Stages that can be developed without further noise mitigation is determined.

2.0 TRAFFIC NOISE CRITERIA

A number of clauses in the planning permit and Section 173 agreement for Wallara Waters relate to assessment and mitigation of noise from traffic on the Hume Freeway. With regard to criteria, the planning permit and Section 173 agreement require that the developer:

> provide to VicRoads and to the Responsible Authority a Noise Impact Assessment Report prepared by a suitably qualified acoustic engineer which predicts noise levels based on traffic volumes for a period of ten years commencing from the anticipated date of completion of the subdivision or any stage of the subdivision. Such report shall include recommendations for attenuating noise impacts based on the anticipated volume of traffic to a L10 18 hour noise level of 63dBA or less measured between 6:00 a.m. and midnight at 1.5 metres height at a location of 1 metre from the most exposed façade of any noise sensitive building. Such a report must be to the satisfaction of VicRoads and the Responsible Authority.

In accordance with the relevant international standards, the equivalent terms ' dB' and '$L_{A10(18h)}$' are used in this report rather than the ' dBA' and 'L10 18 hour' terms used above.

With regard to house lots where 63 dB $L_{A10(18h)}$ cannot be achieved by practicable means, the requirement is:

> Where on-site noise attenuation is proposed for lots which are exposed to a predicted noise level of 63dBA or more, whether with or without the construction of any noise attenuation barrier, the lots so exposed must be identified in the Noise Impact Assessment Report and the noise attenuation recommended for such lot or lots must be completed to the satisfaction of the Responsible Authority and VicRoads prior to the occupation of any building constructed on any such lots. The on-site noise attenuation measures must be designed and constructed to comply with AS 2107-2000 'Acoustics-Recommended Design Sound Levels Reverberation Times for Building Interiors;'

Although the requirement refers to *'with or without the construction of any noise barrier'*, in practice, VicRoads will generally not allow dwellings to be constructed in areas that are exposed to over 63 dB $L_{A10(18h)}$ that are not protected by a noise barrier. Only slight exceedances of 63 dB are allowed, but only at locations that are protected by noise barriers, and then only if it is not practicable to build the noise barrier higher.

To summarise:

- The developer must erect traffic noise barriers of sufficient height and suitable construction in order to reduce external noise levels to 63 dB $L_{A10(18h)}$ or less at the worst-affected dwellings
- If it is not practicable to achieve 63 dB $L_{A10(18h)}$ or less at the worst-affected dwellings, the developer must erect traffic noise barriers that reduce noise to a level as close as practical to 63 dB $L_{A10(18h)}$. At any dwelling where 63 dB $L_{A10(18h)}$ is exceeded, the developer must provide sound insulation treatment to the dwellings.

The planning permit condition only addresses noise at ground floor level. If buildings more than one storey high are to be constructed, their design should take into account additional on-site noise mitigation measures (such as internal layout or architectural facade treatments) to upper floors that may be necessary to achieve acceptable internal noise levels. In relation to sound insulation treatment to dwellings, Australian/New Zealand Standard AS/NZS 2107:2016 *"Acoustics - Recommended design sound levels and reverberation times for building*

interiors" (AS2107) presents the recommended design sound levels for "houses and apartments in inner city areas or entertainment districts, or near major roads", which is considered to be applicable to the development site. Further information is presented in Appendix C.

The recommendations in this report result in predicted noise levels less than or equal to 63 dB $L_{A10(18h)}$ at the worst-affected dwellings. A subsequent report will address areas where predicted noise levels may marginally exceed 63 dB $L_{A10(18h)}$.

3.0 NOISE MEASUREMENTS PRIOR TO NOISE WALL CONSTRUCTION

Noise levels prior to noise wall construction were measured in accordance with VicRoads' *Environmental Guidelines: Traffic Noise Measurements – Requirements for Acoustic Consultants 1999* (the precursor to Appendix C of VicRoads Road Design Note RDN 06-01 *Interpretation and Application of VicRoads Traffic Noise Reduction Policy 2005*), using Acoustic Research Laboratories Noise Loggers Type 015 and 215. Accurate calibration of the noise loggers was confirmed before and after measurements using a Rion Sound Level Calibrator Type NC-73. The noise monitoring locations are shown in Appendix D.

The noise loggers were left on-site from 29 April 2005 to 17 May 2005, during which time weather conditions at the nearby Kilmore Gap weather station were monitored. Results for the days with acceptable weather conditions are shown in Table 1.

Table 1: Measured noise levels, dB $L_{A10(18h)}$

Date	Location 1	Location 2	Location 3
9 May 2005	60	64	69
10 May 2005	61	65	69
11 May 2005	62	66	69
12 May 2005	60	64	70
13 May 2005	59	63	69
Average	60	64	69

4.0 FREEWAY NOISE MODELLING

4.1 Calculation method

$L_{A10(18h)}$ noise levels were predicted using the *Calculation of Road Traffic Noise* (CRTN) method. This method was developed in the United Kingdom and is specified in VicRoads' Road Design Note RDN 06-01 *Interpretation and Application of VicRoads Traffic Noise Reduction Policy 2005* for traffic noise modelling.

For this study, the CRTN method was implemented on SoundPLAN noise modelling software. SoundPLAN was developed by Braunstein & Berndt in Germany and is widely used in Australia and internationally for environmental noise modelling.

4.2 Terrain data

Terrain data on the subject site was provided by Reeds Consulting. For areas outside the subject site (including the road reserve) terrain data was obtained from Vicmap in the form of 1m ground contours.

4.3 Road surface conditions

VicRoads has advised us that road surface on the Hume Freeway near the site is a 10mm spray seal on the southbound carriageway and is half asphalt and half 10mm spray seal on the northbound carriageway.

According to the *Guide to the selection of road surfacings* (Austroads, 2000), the following corrections should be applied to the CRTN method in Australia:

- Spray seals, 10 mm or larger: 4 dB
- Dense graded asphalt (DGA): 0 dB.

To allow for the combination of surfaces, a correction of 3 dB was applied in the model. This assumption is not critical, as the model calibration process compensates for any inaccuracy in the road surface correction. For example, if the assumption regarding the road surface correction is too high by 1 dB, this will be adjusted for when calibrating the model.

4.4 Traffic conditions

The planning permit for Wallara Waters requires noise mitigation be designed for traffic conditions 10 years after completion of the relevant stage of the development. Based on the timing of the approvals for the permit area – namely, that construction would commence by 2015 – noise mitigation has been designed for traffic conditions in 2025. This assumption is not critical, as the change in traffic volume per annum (discussed below) is not significant.

The 2005 traffic volumes and composition shown in Table 2 were determined based on advice from Andrew O'Brien (now O'Brien Traffic) in 2005. Further details are provided in MDA report no. 001 R01 2008426 dated 10 December 2008.

Table 2: 2005 traffic conditions

Hume Freeway		**2005**
Traffic volume (per day)	Two-way	17,252
Proportion of heavy vehicles		30%
Traffic speed		100km/hr

VicRoads provided forecast traffic volumes for 2021 and 2031. The VicRoads forecasts are shown in Table 3 together with the estimated traffic volumes for 2025.

Table 3: VicRoads's data and estimated 2025 traffic conditions

Hume Freeway		**2021**	**2031**	**2025**
Traffic volume (per day)	Northbound	15,100	17,300	15,900
	Southbound	14,600	16,700	15,400
	Both directions	29,700	34,000	31,300
Proportion of heavy vehicles		25%	25%	25%
Traffic speed		100km/hr	100km/hr	100km/hr
Source		VicRoads (email 1 May 2013)	VicRoads (email 1 May 2013)	MDA interpolation

The 2025 volumes were determined by calculating the percent traffic growth per annum based on the 2021 and 2031 volumes and interpolating. The percent traffic growth per annum was 1.4%.

4.5 Other modelling assumptions

The ground was assumed to be 25% hard ground, based on earlier noise modelling at the site. This assumption, when combined with the other assumptions, appears slightly conservative. As discussed in Section 4.6, the modelled noise levels were higher than the measured levels.

A facade correction of +2.5 dB was applied to the predicted noise levels. Thus, the noise contours show the noise level measured at the facade of a dwelling, in accordance with VicRoads' requirements.

Buildings included in the model are single storey (3m) height.

4.6 Noise model calibration

The noise monitoring locations shown in Appendix D were entered into the noise model and the measured noise levels compared to the modelled noise levels based on the 2005 traffic data shown above. Table 4 shows a comparison of the measured and modelled noise levels.

Table 4: Comparison of measured and modelled noise levels, dB $L_{A10(18h)}$

	Location 1	Location 2	Location 3
Measured (average)	60	64	69
Modelled	63	65	73
Difference	3	1	4

Note: The values shown do not include a facade correction.

The modelled noise levels exceed the measured noise levels by 1 - 4 dB, demonstrating the noise model is conservative. To calibrate the model, 1 dB was subtracted from the predicted noise levels. This result validates the modelling assumptions, including the road surface correction and the percent hard ground.

4.7 Results

A range of noise barrier options were investigated, including some designs with noise barrier heights of up to 9 m. Following a review of the practicability of the various options, the preferred scenario was for a 6 m high noise barrier on the boundary terminating north of Taylors Creek.

The following scenarios are presented here:

- Noise barrier prior to 2015. This noise barrier was constructed in response to the initial noise assessment, primarily to protect the northern portion of the site.
- Current situation. The noise barrier now extends along the boundary to just north of Taylors Creek.

Appendix E provides noise contour plots showing the predicted noise levels for 2025 for the above scenarios.

4.7.1 Prior to 2015

The first contour plot shows predicted noise levels with the first section of noise barrier (i.e., prior to construction of the second section) and without construction of dwellings, to represent the situation prior to development of more recent stages. It is included here because it was a key finding of the previous report.

Predicted noise levels exceed the VicRoads noise limit of 63 dB $L_{A10(18h)}$, with noise levels of up to and in excess of 72 dB $L_{A10(18h)}$ near the freeway.

4.7.2 Current noise barriers

The second contour plot shows predicted noise levels with the current noise barrier and construction of dwellings, to represent the situation once development of Stages 10, 11 and 12 and the Future Stages area progresses. As shown, the predicted noise levels are less than VicRoads' traffic noise objective of 63 dB $L_{A10(18h)}$ in Stages 10, 11 and 12, and much of the Future Stages area. Further discussion regarding these findings are provided in Section 6.0.

5.0 COMPLIANCE NOISE MEASUREMENTS

Following construction of the current noise barriers, further noise measurements were undertaken south of Stages 10 and 11 with the aim of confirming the accuracy of the noise modelling in the vicinity of Stages 10, 11 and 12, and to also provide confirmation regarding noise modelling for future development within the Future Stages area. This section provides details of these measured noise levels and compares the measured noise levels with the noise levels predicted using the noise model.

5.1 Measured noise levels

Current noise levels were measured in accordance with VicRoads' Road Design Note RDN 06-01 *Interpretation and Application of VicRoads Traffic Noise Reduction Policy 2005*, using Rion NL-31 Sound Level Meters configured as unattended noise monitors. Accurate calibration of the noise loggers was confirmed before and after measurements.

The monitor locations are shown in Figure 2.

Figure 2: Noise monitor locations
Base image: Google Earth

The noise monitors were left on-site from 9 November to 22 November 2016, during which time weather conditions at the nearby Kilmore Gap weather station were recorded. Results for the days with acceptable weather conditions are shown in Table 5. Further details regarding the measured noise levels are provide in Appendix F.

Table 5: Measured noise levels, dB $L_{A10(18h)}$

Date	Location 1	Location 2	Location 3
Thursday, 10 November 2016	57.8	57.1	58.8
Friday, 11 November 2016	55.1	54.7	57.3
Wednesday, 16 November 2016	55.8	55.2	57.8
Average on acceptable days	56.3	55.7	58.0

5.2 Comparison with modelled noise levels

As detailed in Section 4.4, noise levels have been predicted for 2025 traffic conditions. In addition, VicRoads requires noise levels to be assessed at the facade of the affected buildings. Table 6 details the measured noise levels with adjustments for facade effect and traffic growth to represent future conditions.

Table 6: Adjusted measured noise levels for future conditions, dB $L_{A10(18h)}$

	Location 1	Location 2	Location 3
Measured noise level	56.3	55.7	58.0
Facade effect	2.5	2.5	2.5
Traffic growth	0.8	0.8	0.8
2025 noise level	59.6	59.0	61.3

The monitor locations were entered into the noise model and 2025 noise levels were predicted at the monitor locations. Table 7 compares the future-adjusted measured noise levels with the noise levels predicted by the model for the monitor locations.

Table 7: Comparison of measured and modelled noise levels, dB $L_{A10(18h)}$

	Location 1	Location 2	Location 3
Predicted noise level	62.6	62.0	63.8
Measured noise level adjusted for 2025 conditions	59.6	59.0	61.3
Difference	3.0	3.0	2.5

Appendix H shows the measurement locations overlaid on the 2025 noise level contours.

In all cases, the measured noise level is less than the modelled noise level. Thus, advice relying on the predicted noise levels within Stages 10, 11 and 12, and the Future Stages area, can be considered to be conservative.

6.0 IMPLICATIONS FOR THE NEXT STAGES OF DEVELOPMENT

Following the compliance measurements discussed in Section 5.0, it is clear that the noise modelling provides a conservative basis on which to determine the portions of Phase 1 that can be developed without further noise mitigation.

No further traffic noise assessments are required regarding development within the area where predicted noise levels are clearly below 63 dB $L_{A10(18h)}$. Development in this area can proceed without further investigations.

However, the area near the noise barrier shows patches where predicted noise levels are slightly higher than 63 dB $L_{A10(18h)}$. In the southwest corner, the exceedance is unequivocal,

with apparent predicted noise levels of up to 66 dB $L_{A10(18h)}$ at some facades. Appendix G contains a drawing showing the areas in which predicted noise levels are close to or clearly in excess of 63 dB $L_{A10(18h)}$. With regard to this area, it is recommended that:

- Extension of the noise barrier across Taylors Creek be investigated and completed prior to development within the area where predicted noise levels are clearly in excess of 63 dB $L_{A10(18h)}$
- Detailed noise measurements be conducted in the area where predicted noise levels are close to 63 dB $L_{A10(18h)}$. If the measured noise levels are consistently less than the modelled noise levels in this area, development can proceed without further noise mitigation. If not, the noise measurements will provide detailed information regarding external noise levels which will assist with any determination of acoustic treatment requirements for the dwellings.

7.0 SUMMARY

Australand Residential No 126 Pty Ltd and Nordic Unit Trust are developing the Wallara Waters residential estate in Wallan. They are now seeking consent from VicRoads to develop Stages 10 and 11 of Phase 1 of the estate.

This report addresses compliance with VicRoads' traffic noise requirements in Stages 10 and 11. It also addresses compliance in Stage 12 and the future stages.

The existing noise barrier extends from the northern extent of the subject site to Taylors Creek. Noise modelling of the existing noise barrier shows compliance with VicRoads' requirements within Stages 10, 11 and 12, and much of the future stages.

Compliance noise measurements conducted in 2016 for the extended noise barrier confirmed the accuracy of the traffic noise model results. These results therefore confirmed compliance with VicRoads' requirements (summarised in the Planning permit condition 22) within Stages 10, 11 and 12, and much of the future stages.

Development of the following areas can proceed without further noise mitigation:

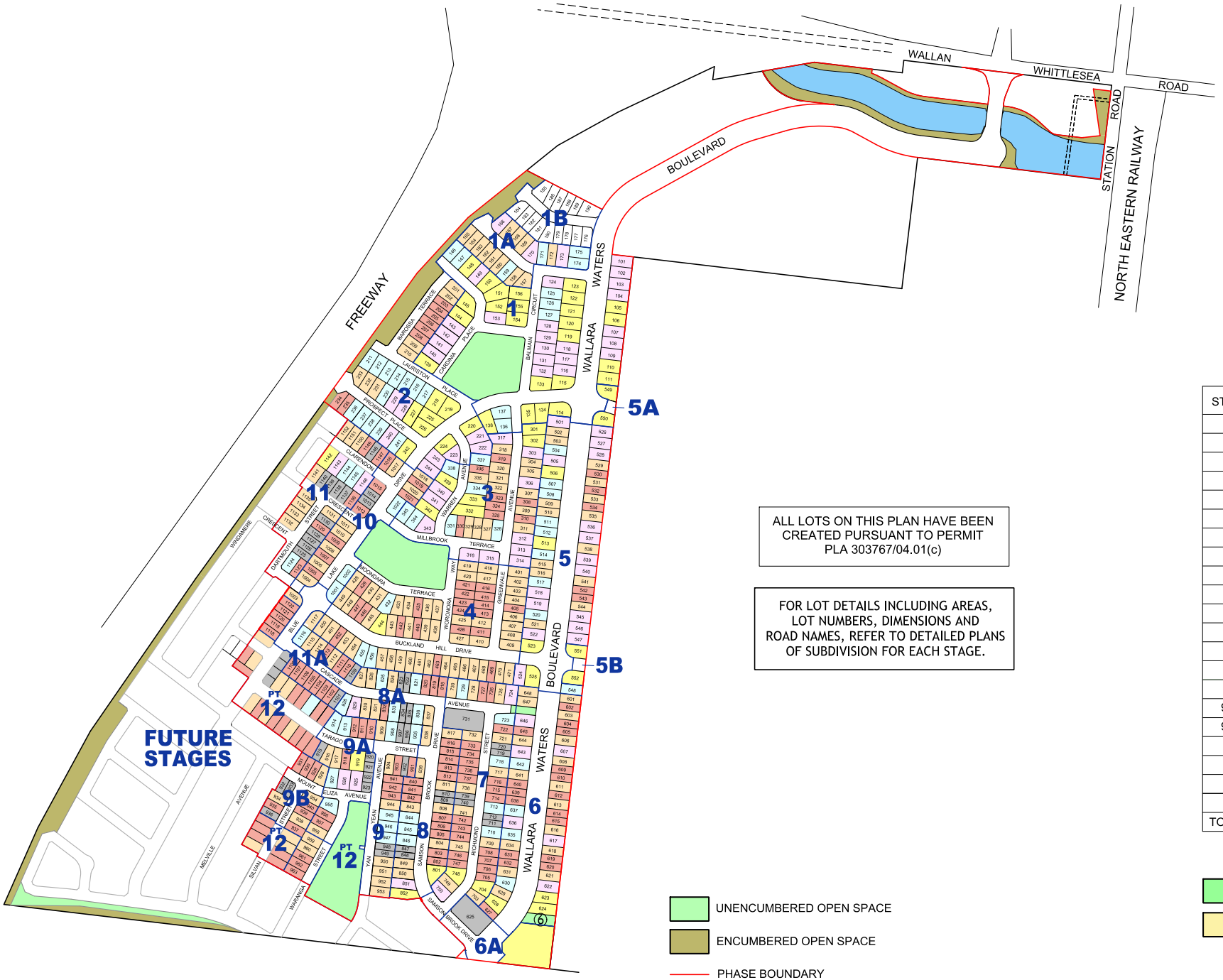
- Stages 10, 11 and 12
- The portion of the Future Stages area not shown as the area requiring further investigation in Appendix G.

Compliance for future stages is uncertain within a narrow strip shown as the area requiring further investigation in Appendix G. Noncompliance is clearly indicated in the southwest corner of the future stages. It is recommended that detailed noise measurements be conducted in these areas to eliminate uncertainty prior to development.

APPENDIX A ACOUSTIC TERMS AND SYMBOLS

dB	Unit of overall noise level, in decibels
L_{A10}	The noise level exceeded for 10% of the measurement period. This is commonly referred to as the average maximum noise level. The 'A' indicates that the sound has been filter in a manner that approximates the average human hearing response.
$L_{A10(18h)}$	The arithmetic average of the 18 one-hour L_{A10} measurements (or predictions) between 6am and midnight.
L_{Aeq}	The equivalent continuous sound level. This is referred to as the equivalent noise level and can be considered to be an average over the measurement interval. The 'A' indicates that the sound has been filter in a manner that approximates the average human hearing response.
$L_{Aeq,8h}$	The L_{Aeq} noise level measured over an 8-hour period. For road traffic noise measurements in Victoria, the 8-hour period is 10pm the previous day to 6am on the given day. The 'A' indicates that the sound has been filter in a manner that approximates the average human hearing response.
$L_{Aeq,15h}$	The L_{Aeq} noise level measured over a 16-hour period. For road traffic noise measurements, the 16-hour period is 6am-10pm in Victoria. The 'A' indicates that the sound has been filter in a manner that approximates the average human hearing response.

APPENDIX B PHASE ONE OF WALLARA WATERS



LOT AREA
<400m² & UNITS
400m² to 449m²
450m² to 549m²
550m² to 599m²
600m² to 649m²
650m² Plus

STAGE	NUMBER OF RESIDENTIAL LOTS
1	54
1A	19
1B	POSSIBLE DISPLAY HOMES
2	44
3	45
4	71
5	48
5A	2
5B	2
6	46
6A	1
7	48
8	32
8A	20
9	22
9A	21
9B	19
10	22
11	30
11A	22
12	32
TOTAL	600

ALL LOTS ON THIS PLAN HAVE BEEN CREATED PURSUANT TO PERMIT PLA 303767/04.01(c)

FOR LOT DETAILS INCLUDING AREAS, LOT NUMBERS, DIMENSIONS AND ROAD NAMES, REFER TO DETAILED PLANS OF SUBDIVISION FOR EACH STAGE.

UNENCUMBERED OPEN SPACE

ENCUMBERED OPEN SPACE

PHASE BOUNDARY

STAGE BOUNDARIES

COMPLETED STAGES = 493 LOTS

UNDER CONSTRUCTION

PROPOSED SUBDIVISION PHASE 1

WALLARA WATERS, WALLAN

REF 20569
VERSION AB

DATE 07/10/2016

G:\20569\Dgn\Current\Dev Plans from 06-09\Phase 1\1EDP1AB.dgn

100 0 50 100 150 200

SCALE 1: 3000 SHEET A1

LEVEL 6
440 ELIZABETH STREET
MELBOURNE VIC 3000
(03) 8660 3000
SURVEY@REEDSCONSULTING.COM.AU
WWW.REEDSCONSULTING.COM.AU

REEDS CONSULTING

APPENDIX C ROAD TRAFFIC NOISE CRITERIA

C1 Internal noise levels

Australian Standard 2107-2016 *Acoustics - Recommended design sound levels and reverberation times for building interiors* provides recommendations for acceptable internal noise levels. Table 9 shows the recommended internal design sound levels stated in AS2107 for "*houses and apartments in inner city areas or entertainment districts or near major roads*", which is considered to be applicable to the proposed development.

Table 8: AS2107 recommended internal noise levels

Area	Recommended design sound level range, dB L_{Aeq}
Living areas	35-45
Sleeping areas	35-40
Work areas	35-45
Apartment common areas (eg, lobbies)	45-50

Compliance with the lower level is preferred, but compliance with the maximum noise level is considered to be acceptable.

AS2107 does not specify the measurement procedure to determine whether compliance has been achieved but does state the following:

> *In situations where traffic (or other) noise levels may vary widely over a 24-hour period, measurements to assess compliance with this Standard should be taken at the relevant time according to the area of occupancy or activity in the building.*

Given the above, it could be argued that compliance measurements for bedrooms should be made during the period between 2200-0700 hrs (commonly referred to as the night period), although this does not allow for those occupants who may be shift workers or such like that may have a requirement to sleep during the day. For living and dining rooms, the compliance measurement should be made during the period between 0700-2200 hrs (commonly referred to as the day/evening period).

Further, AS2107 does not specify the noise measurement duration. It is recommended that compliance generally be assessed based on the typical worst-case 15-minute L_{Aeq} noise level throughout the relevant time period (eg, night-time for bedrooms).

Higher quality developments should obviously aim to achieve lower levels of traffic noise intrusion. MDA's project experience shows that if internal noise levels in bedrooms or living areas exceed an hourly average of approximately 40 dB L_{Aeq} that the level of occupant dissatisfaction is likely to be relatively high.

An internal level of 35 dB L_{Aeq} within bedrooms at night, and 40 dB L_{Aeq} in other habitable spaces are consistent with the new *Better Apartments Design Standards*[1], due to come into effect in March 2017 when they are implemented in the Victoria Planning Provisions and all planning schemes. While these standards relate specifically to apartments, we understand VicRoads has adopted the recommendations for separate houses for some developments.

[1] State of Victoria Department of Environment, Land, Water & Planning, *Better Apartments Design Standards – New apartment design standards for Victoria*, December 2016.

APPENDIX D NOISE LOGGER LOCATIONS – 2005

THE WALLAN ESTATE

Site layout showing monitor locations

27 May 2005

Legend

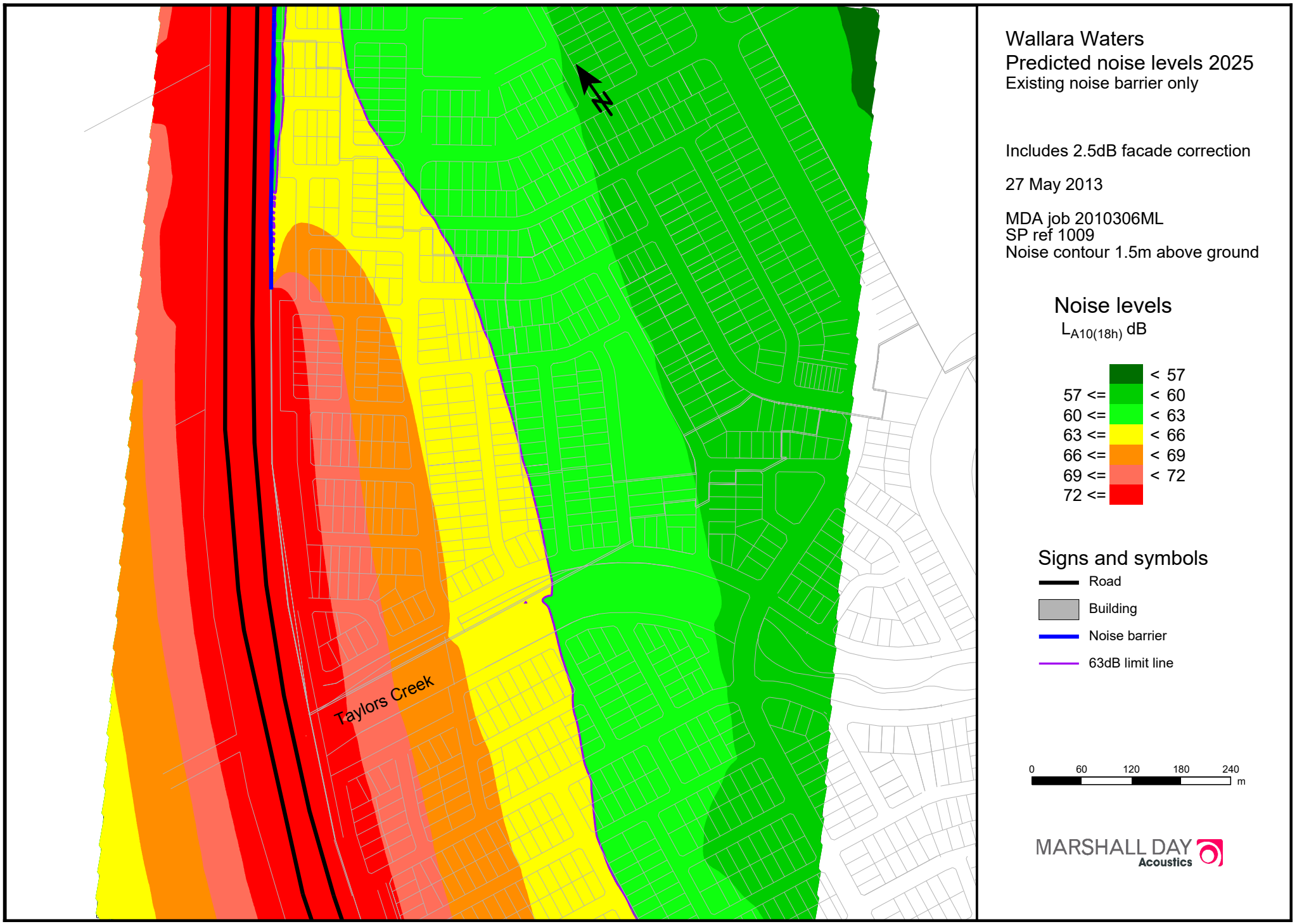
Road

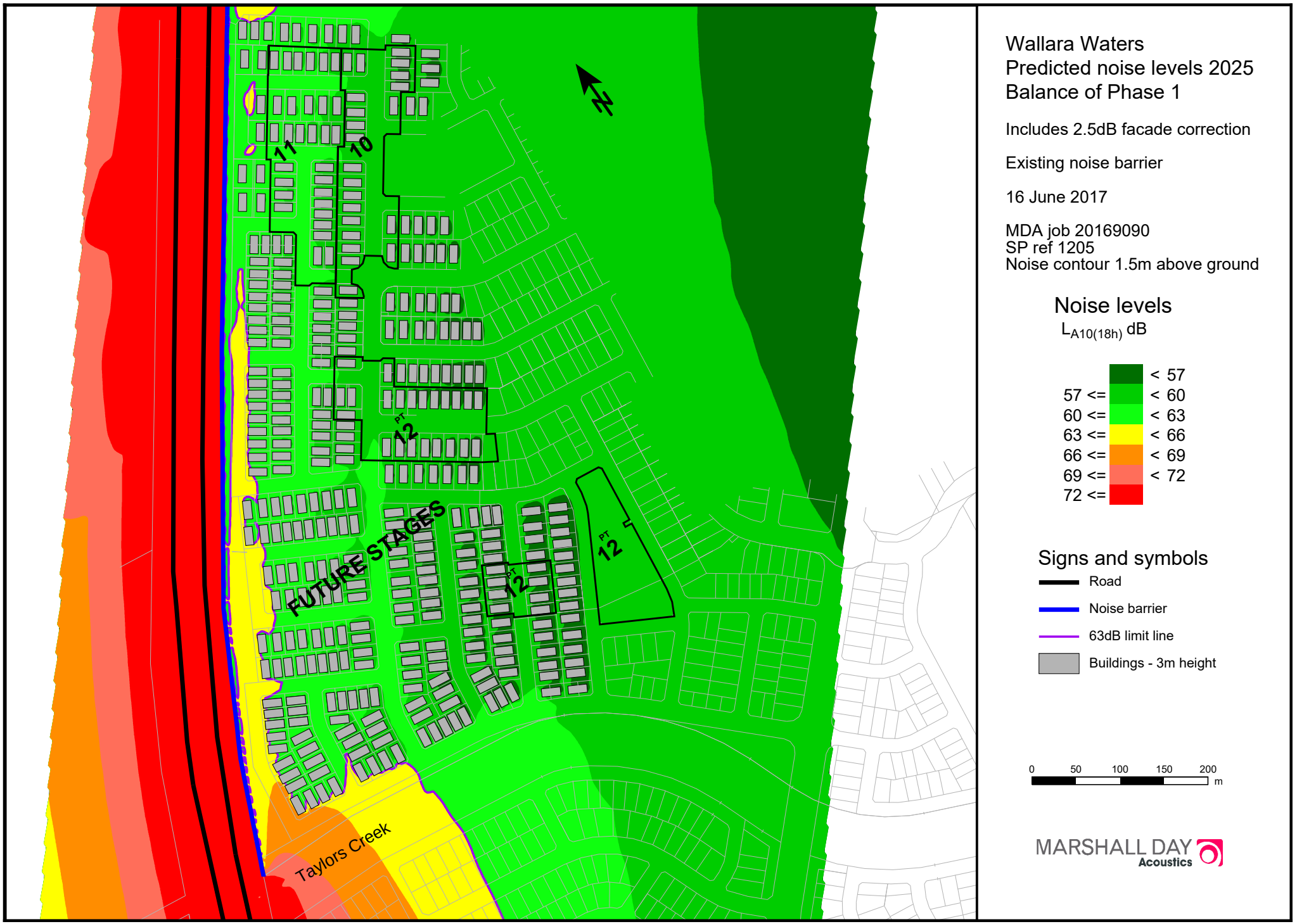
Monito

Scale 1:13000

0 50100 200 300 400 m

APPENDIX E NOISE LEVEL CONTOURS – 2025


Taylors Creek
N
Wallara Waters
Predicted noise levels 2025
Existing noise barrier only
Includes 2.5dB facade correction
27 May 2013
MDA job 2010306ML
SP ref 1009
Noise contour 1.5m above ground
Noise levels
$L_{A10(18h)}$ dB
< 57
57 <= < 60
60 <= < 63
63 <= < 66
66 <= < 69
69 <= < 72
72 <=
Signs and symbols
Road
Building
Noise barrier
63dB limit line
0 60 120 180 240 m
MARSHALL DAY Acoustics



Wallara Waters
Predicted noise levels 2025
Balance of Phase 1

Includes 2.5dB facade correction

Existing noise barrier

16 June 2017

MDA job 20169090
SP ref 1205
Noise contour 1.5m above ground

Noise levels

$L_{A10(18h)}$ dB

	< 57
57 <=	< 60
60 <=	< 63
63 <=	< 66
66 <=	< 69
69 <=	< 72
72 <=	

Signs and symbols

- Road
- Noise barrier
- 63dB limit line
- Buildings - 3m height

0 50 100 150 200 m

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APPENDIX F MEASURED NOISE LEVELS – NOVEMBER 2016

Measured noise levels, dB $L_{A10(18h)}$

Date	Location 1	Location 2	Location 3	Weather conditions	Wind direction
Wednesday, 9 November 2016	58.9	58.3	59.3	Borderline	S
Thursday, 10 November 2016	57.8	57.1	58.8	Acceptable	S
Friday, 11 November 2016	55.1	54.7	57.3	Acceptable	S, changing to N around 12pm
Saturday, 12 November 2016	59.5	58.4	61.4	Too windy	N
Sunday, 13 November 2016	59.1	57.6	60.5	Too windy	N
Monday, 14 November 2016	59.8	58.5	61.3	Too windy	S-SW
Tuesday, 15 November 2016	59.2	58.6	60.5	Borderline	SSW
Wednesday, 16 November 2016	55.8	55.2	57.8	Acceptable	S
Thursday, 17 November 2016	59.3	58.5	61.1	Too windy	N
Friday, 18 November 2016	56.7	55.9	58.3	Borderline	S
Saturday, 19 November 2016	52.9	52.4	55.3	Borderline	S
Sunday, 20 November 2016	54.0	53.5	55.8	Acceptable	N
Monday, 21 November 2016	60.4	59.9	61.3	Too windy	N
Tuesday, 22 November 2016	56.3	55.9	58.9	Rain	S
Average on acceptable weekdays	56.3	55.7	58.0		

Measured noise levels, dB $L_{Aeq,8h}$

Date	Location 1	Location 2	Location 3	Weather condtions	Wind direction
Thursday, 10 November 2016	55.5	55.3	56.4	Acceptable	S
Friday, 11 November 2016	56.1	55.8	57.2	Acceptable	S
Saturday, 12 November 2016	50.7	49.9	52.3	Too windy	N
Sunday, 13 November 2016	51.8	50.4	53.2	Too windy	N
Monday, 14 November 2016	56.6	54.9	57.4	Too windy	S-SW
Tuesday, 15 November 2016	54.5	53.9	55.7	Borderline	SSW
Wednesday, 16 November 2016	54.1	53.2	55.1	Acceptable	S
Thursday, 17 November 2016	55.2	54.8	56.6	Too windy	N
Friday, 18 November 2016	52.8	52.1	54.1	Borderline	S
Saturday, 19 November 2016	51.1	50.3	52.6	Borderline	S
Sunday, 20 November 2016	50.8	50.4	51.6	Acceptable	N
Monday, 21 November 2016	52.8	52.0	54.3	Too windy	N
Tuesday, 22 November 2016	52.1	51.8	53.8	Rain	S
Average on acceptable weekdays	55.2	54.8	56.2		

Measured noise levels, dB $L_{Aeq,16h}$

Date	Location 1	Location 2	Location 3	Weather condtions	Wind direction
Wednesday, 9 November 2016	56.8	56.2	57.6	Borderline	S
Thursday, 10 November 2016	55.8	55.0	56.7	Acceptable	S
Friday, 11 November 2016	54.3	54.5	56.4	Acceptable	S, changing to N around 12pm
Saturday, 12 November 2016	58.4	57.5	60.4	Too windy	N
Sunday, 13 November 2016	57.2	55.8	58.6	Too windy	N
Monday, 14 November 2016	57.8	56.5	59.3	Too windy	S-SW
Tuesday, 15 November 2016	56.8	56.2	58.2	Borderline	SSW
Wednesday, 16 November 2016	53.8	53.2	55.6	Acceptable	S
Thursday, 17 November 2016	57.3	56.6	59.2	Too windy	N
Friday, 18 November 2016	54.7	53.9	56.2	Borderline	S
Saturday, 19 November 2016	50.6	51.1	52.8	Borderline	S
Sunday, 20 November 2016	51.9	51.3	53.8	Acceptable	N
Monday, 21 November 2016	58.6	58.0	59.1	Too windy	N
Tuesday, 22 November 2016	54.5	54.0	56.8	Rain	S
Average on acceptable weekdays	54.6	54.2	56.3		

Logger Measurements - Location 1

MARSHALL DAY Acoustics

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Wednesday, 09 November 2016
Weather during Measurement:
Notes:
L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	59	49	88	
18-hr (0600-0000)	57	59	50	88	
Day 16-hr (0600-2200)	57	59	50	88	
Night 8-hr (2200-0600)	56	58	48	75	
Lday (0700-1800)	57	59	50	88	
Levening (1800-2200)	56	59	50	67	
Lnight (2200-0700)	56	59	49	75	
LDN	62				
LDEN	63				
00:00 - 01:00	52	56	39	67	
01:00 - 02:00	51	55	40	65	
02:00 - 03:00	51	55	42	67	
03:00 - 04:00	53	57	46	66	
04:00 - 05:00	57	60	51	68	
05:00 - 06:00	60	62	55	76	
06:00 - 07:00	59	62	52	78	
07:00 - 08:00	59	61	50	88	
08:00 - 09:00	59	62	52	76	
09:00 - 10:00	59	61	50	82	
10:00 - 11:00	57	60	49	74	
11:00 - 12:00	56	58	50	84	
12:00 - 13:00	57	59	49	80	
13:00 - 14:00	57	60	50	77	
14:00 - 15:00	54	55	49	74	
15:00 - 16:00	54	56	50	65	
16:00 - 17:00	55	57	51	67	
17:00 - 18:00	55	58	50	70	
18:00 - 19:00	56	59	51	67	
19:00 - 20:00	55	58	50	66	
20:00 - 21:00	55	57	49	66	
21:00 - 22:00	57	61	50	67	
22:00 - 23:00	56	59	49	66	
23:00 - 24:00	54	58	46	67	

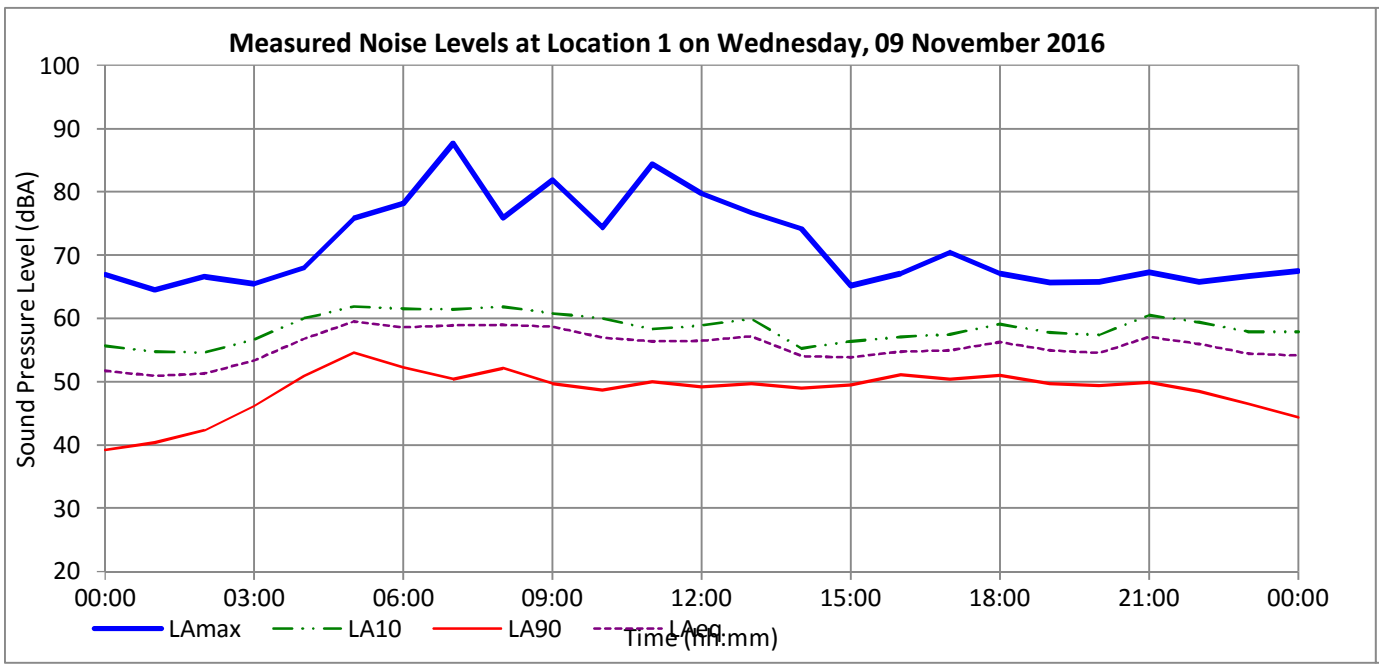
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Wednesday, 09 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	54	55	49	65
	Average	57	59	50	76
	Highest	59	62	52	88
Evening (1800-2200)	Lowest	55	57	49	66
	Average	56	59	50	66
	Highest	57	61	51	67
Night (2200-0700)	Lowest	53	57	44	65
	Average	56	59	49	68
	Highest	59	61	55	75

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	56 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Thursday, 10 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	49	78	
18-hr (0600-0000)	56	58	49	78	
Day 16-hr (0600-2200)	56	58	50	78	
Night 8-hr (2200-0600)	56	59	48	79	
Lday (0700-1800)	55	57	49	78	
Levening (1800-2200)	58	61	51	72	
Lnight (2200-0700)	56	59	49	79	
LDN	62				
LDEN	63				
00:00 - 01:00	54	58	44	68	
01:00 - 02:00	55	59	45	70	
02:00 - 03:00	53	57	46	65	
03:00 - 04:00	54	57	49	66	
04:00 - 05:00	56	59	52	66	
05:00 - 06:00	59	61	55	75	
06:00 - 07:00	58	60	53	75	
07:00 - 08:00	57	60	47	77	
08:00 - 09:00	56	59	50	73	
09:00 - 10:00	56	58	51	75	
10:00 - 11:00	55	57	47	78	
11:00 - 12:00	56	58	50	75	
12:00 - 13:00	55	58	50	72	
13:00 - 14:00	53	55	48	74	
14:00 - 15:00	52	55	49	63	
15:00 - 16:00	51	54	46	65	
16:00 - 17:00	52	55	48	69	
17:00 - 18:00	53	56	49	68	
18:00 - 19:00	56	59	51	66	
19:00 - 20:00	58	61	52	71	
20:00 - 21:00	59	62	52	72	
21:00 - 22:00	56	59	49	68	
22:00 - 23:00	54	58	47	65	
23:00 - 24:00	54	58	45	67	

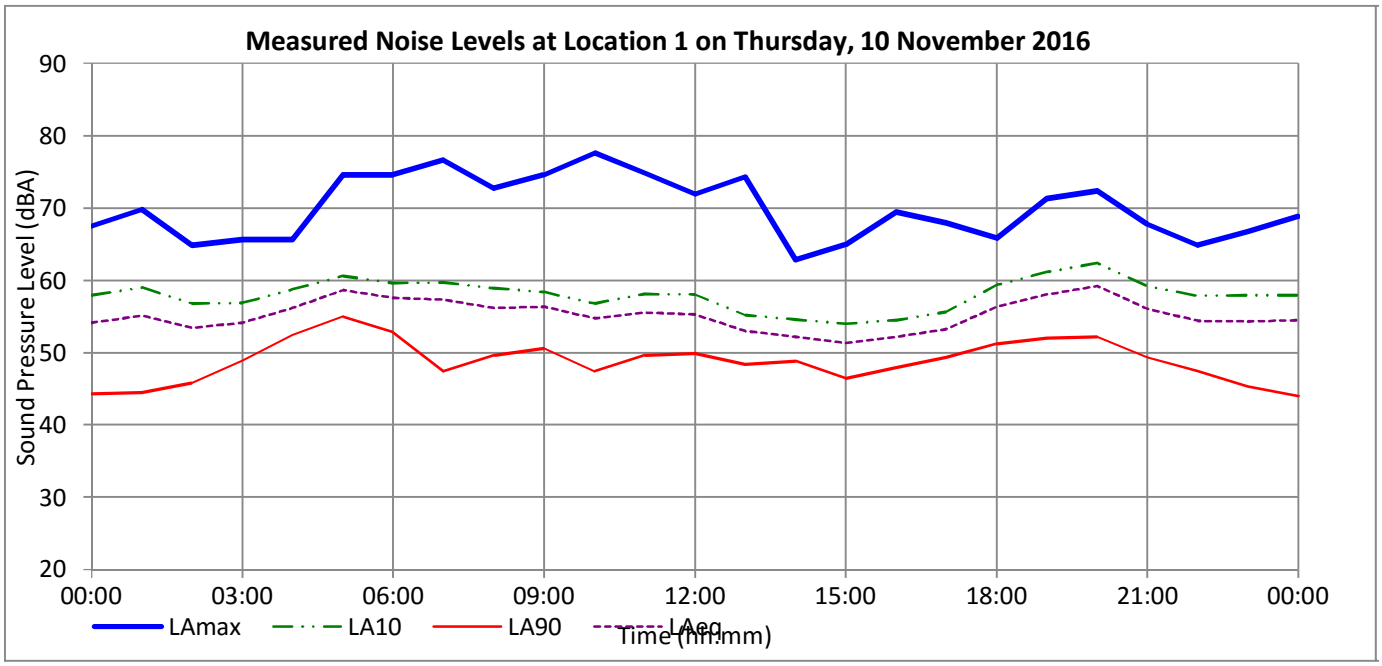
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Thursday, 10 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	51	54	46	63
	Average	55	57	49	72
	Highest	57	60	51	78
Evening (1800-2200)	Lowest	56	59	49	66
	Average	58	61	51	69
	Highest	59	62	52	72
Night (2200-0700)	Lowest	53	57	44	65
	Average	56	59	49	69
	Highest	59	61	56	79

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	56 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	58 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 1

MARSHALL DAY Acoustics

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Friday, 11 November 2016
Weather during Measurement:
Notes:
L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	55	56	48	79	
18-hr (0600-0000)	54	55	47	77	
Day 16-hr (0600-2200)	54	55	48	77	
Night 8-hr (2200-0600)	51	53	42	67	
Lday (0700-1800)	52	53	46	77	
Levening (1800-2200)	58	60	52	71	
Lnight (2200-0700)	51	53	43	67	
LDN	58				
LDEN	60				
00:00 - 01:00	55	58	44	69	
01:00 - 02:00	53	57	44	70	
02:00 - 03:00	54	58	46	68	
03:00 - 04:00	57	60	51	79	
04:00 - 05:00	58	60	54	72	
05:00 - 06:00	59	61	56	67	
06:00 - 07:00	56	58	52	65	
07:00 - 08:00	53	56	49	66	
08:00 - 09:00	53	53	46	77	
09:00 - 10:00	50	52	45	68	
10:00 - 11:00	48	50	44	59	
11:00 - 12:00	48	50	44	61	
12:00 - 13:00	48	50	44	68	
13:00 - 14:00	49	52	45	62	
14:00 - 15:00	54	57	49	67	
15:00 - 16:00	51	53	47	66	
16:00 - 17:00	52	54	47	61	
17:00 - 18:00	56	59	48	66	
18:00 - 19:00	59	61	56	68	
19:00 - 20:00	59	61	54	68	
20:00 - 21:00	56	59	51	67	
21:00 - 22:00	56	60	47	71	
22:00 - 23:00	53	57	46	67	
23:00 - 24:00	49	52	43	60	

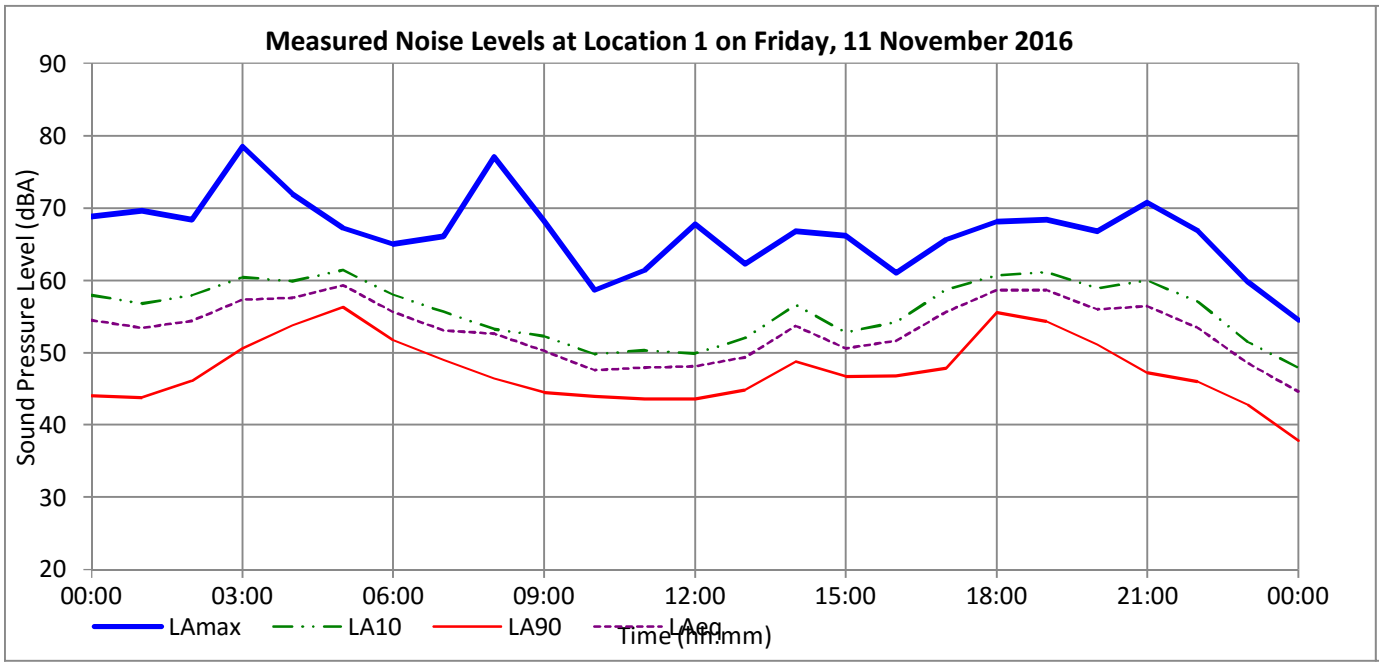
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Friday, 11 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	48	50	44	59
	Average	52	53	46	66
	Highest	56	59	49	77
Evening (1800-2200)	Lowest	56	59	47	67
	Average	58	60	52	69
	Highest	59	61	56	71
Night (2200-0700)	Lowest	45	48	36	55
	Average	51	53	43	63
	Highest	55	57	50	67

$L_{Aeq\ 24\text{-}hr}$	55 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	51 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	55 dB
L_{DN}	58 dB
L_{DEN}	60 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Saturday, 12 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	58	48	73	
18-hr (0600-0000)	58	59	51	73	
Day 16-hr (0600-2200)	58	60	52	73	
Night 8-hr (2200-0600)	52	54	38	75	
Lday (0700-1800)	59	62	54	73	
Levening (1800-2200)	54	57	47	68	
Lnight (2200-0700)	53	55	39	75	
LDN	61				
LDEN	61				
00:00 - 01:00	45	48	38	55	
01:00 - 02:00	47	50	39	63	
02:00 - 03:00	48	52	36	63	
03:00 - 04:00	50	53	40	60	
04:00 - 05:00	51	54	45	63	
05:00 - 06:00	54	57	49	67	
06:00 - 07:00	55	57	50	67	
07:00 - 08:00	57	59	52	69	
08:00 - 09:00	57	60	53	69	
09:00 - 10:00	57	60	54	71	
10:00 - 11:00	58	61	55	68	
11:00 - 12:00	59	62	53	70	
12:00 - 13:00	60	63	56	72	
13:00 - 14:00	61	64	55	72	
14:00 - 15:00	61	64	57	72	
15:00 - 16:00	61	64	56	72	
16:00 - 17:00	60	63	56	73	
17:00 - 18:00	59	62	53	73	
18:00 - 19:00	56	59	50	68	
19:00 - 20:00	55	58	48	68	
20:00 - 21:00	54	57	45	67	
21:00 - 22:00	51	55	42	65	
22:00 - 23:00	50	53	41	64	
23:00 - 24:00	48	51	39	64	

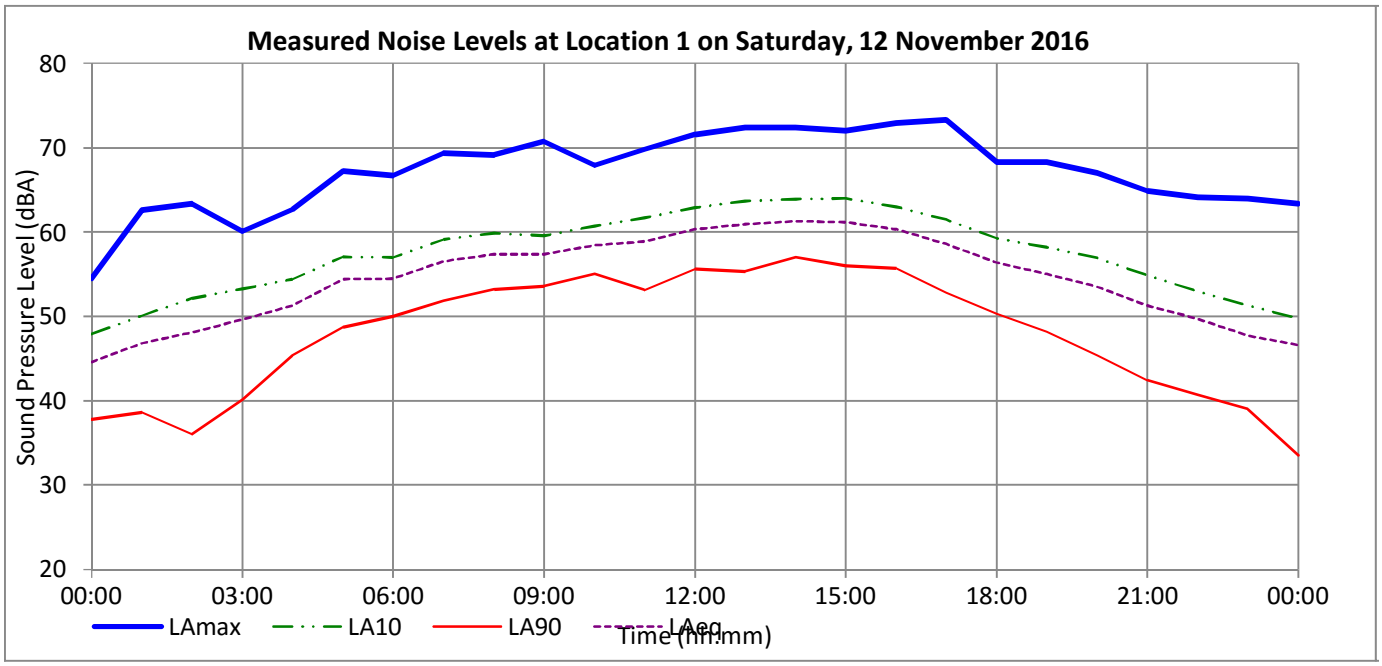
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 12 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	57	59	52	68
	Average	59	62	54	71
	Highest	61	64	57	73
Evening (1800-2200)	Lowest	51	55	42	65
	Average	54	57	47	67
	Highest	56	59	50	68
Night (2200-0700)	Lowest	47	50	32	63
	Average	53	55	39	68
	Highest	57	60	51	75

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	58 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	61 dB
L_{DEN}	61 dB



Logger Measurements - Location 1

MARSHALL DAY Acoustics

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Sunday, 13 November 2016
Weather during Measurement:
Notes:
L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	48	82	
18-hr (0600-0000)	57	59	51	82	
Day 16-hr (0600-2200)	57	59	52	82	
Night 8-hr (2200-0600)	57	59	48	73	
Lday (0700-1800)	58	60	53	82	
Levening (1800-2200)	54	57	49	68	
Lnight (2200-0700)	57	59	49	74	
LDN	64				
LDEN	64				
00:00 - 01:00	47	50	34	63	
01:00 - 02:00	47	51	32	67	
02:00 - 03:00	48	52	33	67	
03:00 - 04:00	52	55	37	75	
04:00 - 05:00	55	59	42	71	
05:00 - 06:00	56	60	48	72	
06:00 - 07:00	57	60	51	69	
07:00 - 08:00	58	61	53	82	
08:00 - 09:00	59	61	53	80	
09:00 - 10:00	59	62	56	72	
10:00 - 11:00	59	61	55	68	
11:00 - 12:00	57	59	54	67	
12:00 - 13:00	54	57	51	64	
13:00 - 14:00	53	56	50	65	
14:00 - 15:00	57	61	50	71	
15:00 - 16:00	59	61	54	78	
16:00 - 17:00	59	61	56	71	
17:00 - 18:00	58	60	54	68	
18:00 - 19:00	56	58	51	67	
19:00 - 20:00	53	56	48	68	
20:00 - 21:00	54	57	48	66	
21:00 - 22:00	55	57	49	67	
22:00 - 23:00	55	58	48	73	
23:00 - 24:00	53	57	46	68	

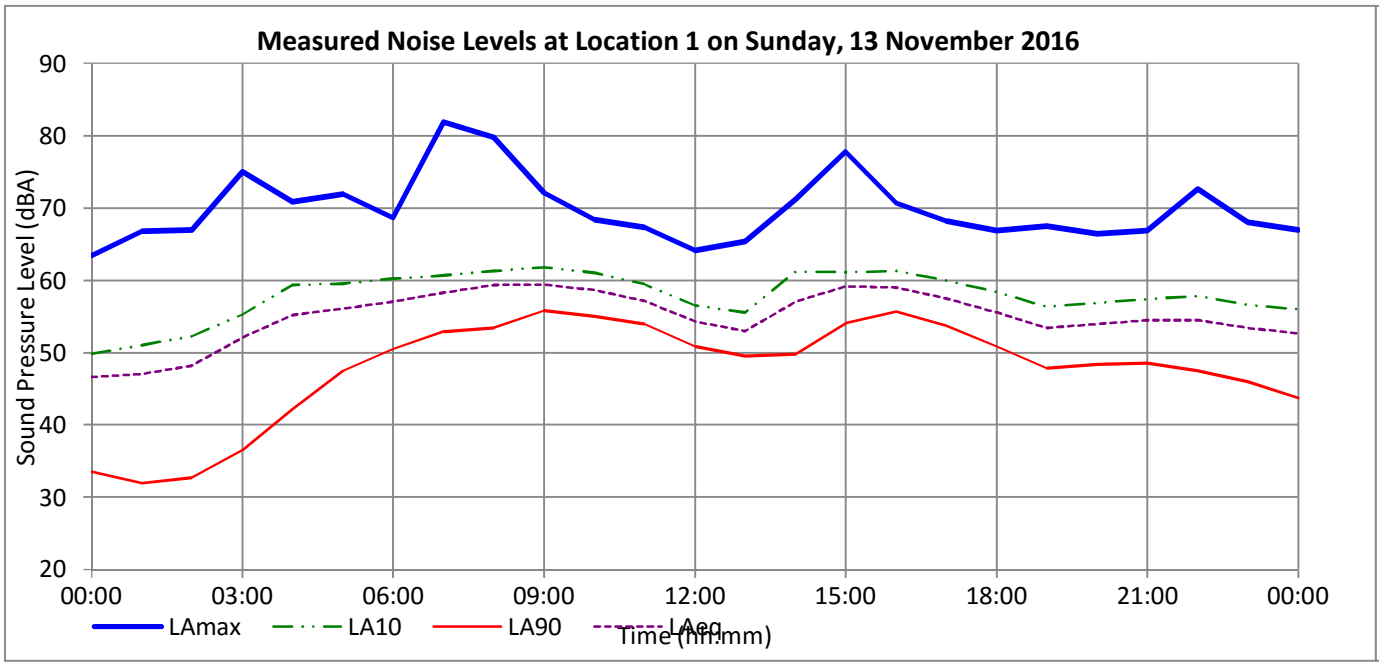
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 13 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	53	56	50	64
	Average	58	60	53	72
	Highest	59	62	56	82
Evening (1800-2200)	Lowest	53	56	48	66
	Average	54	57	49	67
	Highest	56	58	51	68
Night (2200-0700)	Lowest	53	56	44	67
	Average	57	59	49	70
	Highest	61	64	57	74

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	57 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	64 dB
L_{DEN}	64 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Monday, 14 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	60	52	78	
18-hr (0600-0000)	58	60	52	78	
Day 16-hr (0600-2200)	58	60	53	78	
Night 8-hr (2200-0600)	55	57	47	71	
Lday (0700-1800)	58	60	54	78	
Levening (1800-2200)	56	59	50	68	
Lnight (2200-0700)	55	58	48	71	
LDN	62				
LDEN	62				
00:00 - 01:00	53	56	44	67	
01:00 - 02:00	54	58	44	70	
02:00 - 03:00	55	59	47	69	
03:00 - 04:00	56	60	49	71	
04:00 - 05:00	59	62	53	69	
05:00 - 06:00	61	64	57	72	
06:00 - 07:00	61	63	56	74	
07:00 - 08:00	60	62	55	71	
08:00 - 09:00	60	62	55	72	
09:00 - 10:00	60	62	56	78	
10:00 - 11:00	59	61	55	70	
11:00 - 12:00	58	61	55	71	
12:00 - 13:00	58	60	54	69	
13:00 - 14:00	58	60	54	70	
14:00 - 15:00	57	59	53	68	
15:00 - 16:00	57	59	53	67	
16:00 - 17:00	56	58	52	68	
17:00 - 18:00	56	59	52	68	
18:00 - 19:00	56	58	51	66	
19:00 - 20:00	55	58	50	67	
20:00 - 21:00	55	59	49	68	
21:00 - 22:00	56	59	50	67	
22:00 - 23:00	55	59	49	69	
23:00 - 24:00	53	57	46	68	

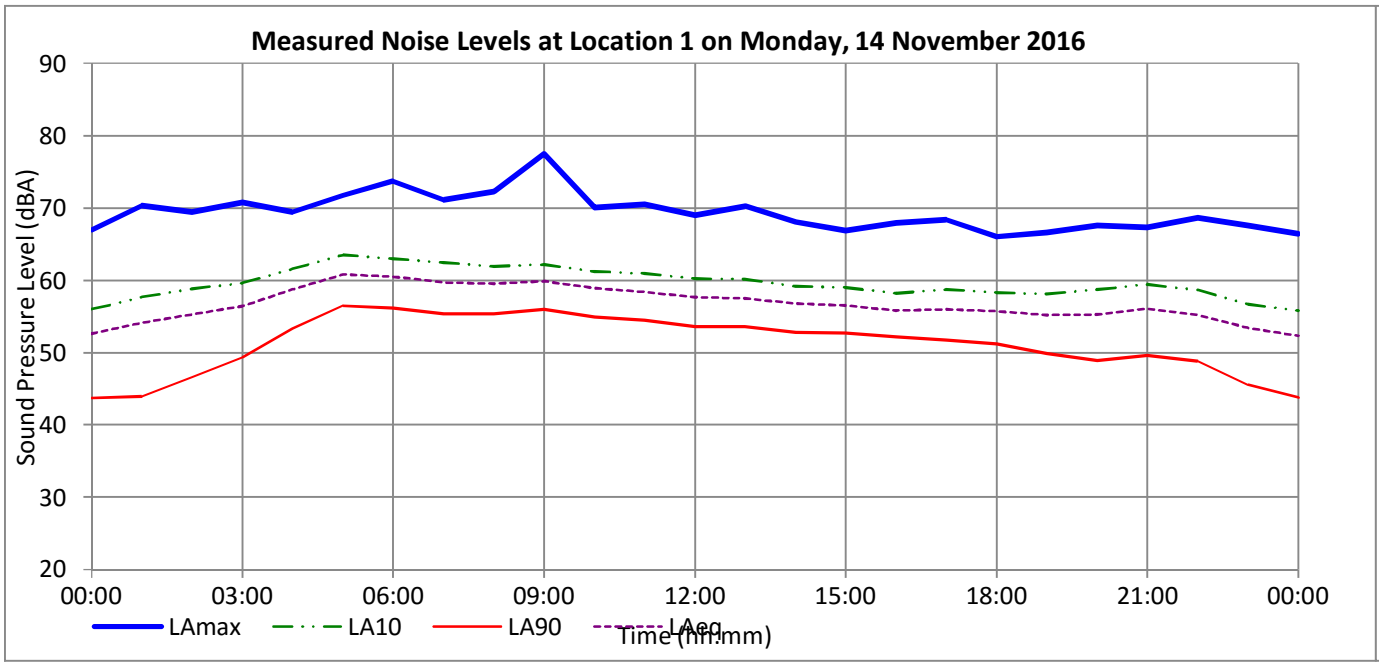
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 14 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	56	58	52	67
	Average	58	60	54	70
	Highest	60	62	56	78
Evening (1800-2200)	Lowest	55	58	49	66
	Average	56	59	50	67
	Highest	56	59	51	68
Night (2200-0700)	Lowest	52	56	43	65
	Average	55	58	48	67
	Highest	58	60	54	71

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	58 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	55 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	60 dB
L_{DN}	62 dB
L_{DEN}	62 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Tuesday, 15 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	59	51	71	
18-hr (0600-0000)	57	59	52	70	
Day 16-hr (0600-2200)	57	59	52	70	
Night 8-hr (2200-0600)	54	56	46	78	
Lday (0700-1800)	57	59	53	70	
Levening (1800-2200)	57	60	51	68	
Lnight (2200-0700)	54	56	47	78	
LDN	61				
LDEN	62				
00:00 - 01:00	52	56	44	66	
01:00 - 02:00	52	56	43	66	
02:00 - 03:00	53	56	46	65	
03:00 - 04:00	53	56	47	66	
04:00 - 05:00	57	59	52	68	
05:00 - 06:00	58	60	54	71	
06:00 - 07:00	57	60	54	68	
07:00 - 08:00	57	60	53	68	
08:00 - 09:00	56	59	52	67	
09:00 - 10:00	57	60	53	68	
10:00 - 11:00	56	59	52	68	
11:00 - 12:00	56	59	52	68	
12:00 - 13:00	56	59	52	66	
13:00 - 14:00	56	59	52	68	
14:00 - 15:00	57	60	53	67	
15:00 - 16:00	58	61	53	68	
16:00 - 17:00	57	60	53	70	
17:00 - 18:00	58	60	54	69	
18:00 - 19:00	56	58	50	65	
19:00 - 20:00	57	60	52	65	
20:00 - 21:00	57	60	53	68	
21:00 - 22:00	57	60	51	68	
22:00 - 23:00	55	58	49	66	
23:00 - 24:00	53	56	45	64	

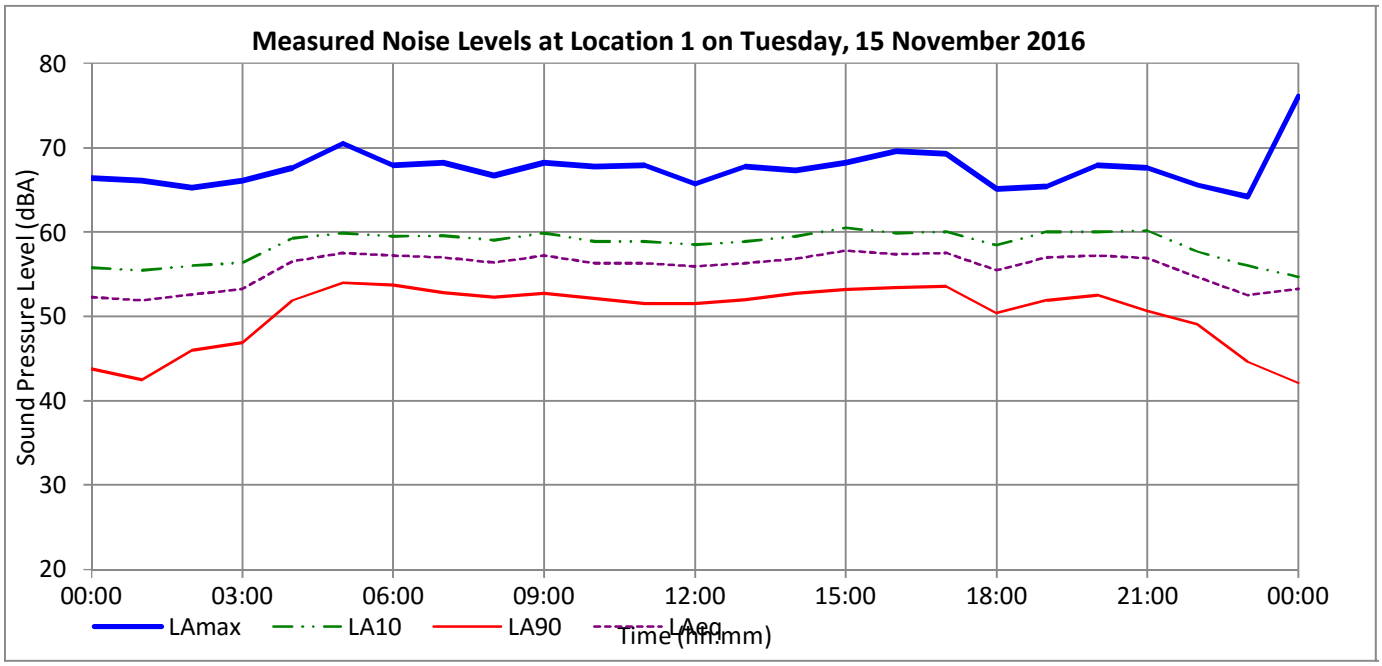
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Tuesday, 15 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	56	59	52	66
	Average	57	59	53	68
	Highest	58	61	54	70
Evening (1800-2200)	Lowest	56	58	50	65
	Average	57	60	51	67
	Highest	57	60	53	68
Night (2200-0700)	Lowest	50	53	41	64
	Average	54	56	47	68
	Highest	57	59	53	78

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	54 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	61 dB
L_{DEN}	62 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Wednesday, 16 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	54	56	48	78	
18-hr (0600-0000)	54	56	48	72	
Day 16-hr (0600-2200)	54	55	48	68	
Night 8-hr (2200-0600)	55	58	49	72	
Lday (0700-1800)	52	54	47	68	
Levening (1800-2200)	56	59	52	68	
Lnight (2200-0700)	55	58	49	75	
LDN	61				
LDEN	62				
00:00 - 01:00	53	55	42	76	
01:00 - 02:00	54	53	41	78	
02:00 - 03:00	50	53	42	64	
03:00 - 04:00	52	55	46	64	
04:00 - 05:00	56	59	51	67	
05:00 - 06:00	57	59	53	67	
06:00 - 07:00	57	59	53	68	
07:00 - 08:00	56	58	52	65	
08:00 - 09:00	54	57	51	64	
09:00 - 10:00	54	56	50	65	
10:00 - 11:00	51	54	44	68	
11:00 - 12:00	48	51	43	61	
12:00 - 13:00	48	51	43	60	
13:00 - 14:00	48	51	44	61	
14:00 - 15:00	49	52	44	62	
15:00 - 16:00	50	53	46	65	
16:00 - 17:00	52	54	48	64	
17:00 - 18:00	53	55	48	65	
18:00 - 19:00	56	59	52	65	
19:00 - 20:00	56	58	52	65	
20:00 - 21:00	56	59	52	68	
21:00 - 22:00	57	60	51	68	
22:00 - 23:00	58	61	51	72	
23:00 - 24:00	55	58	48	68	

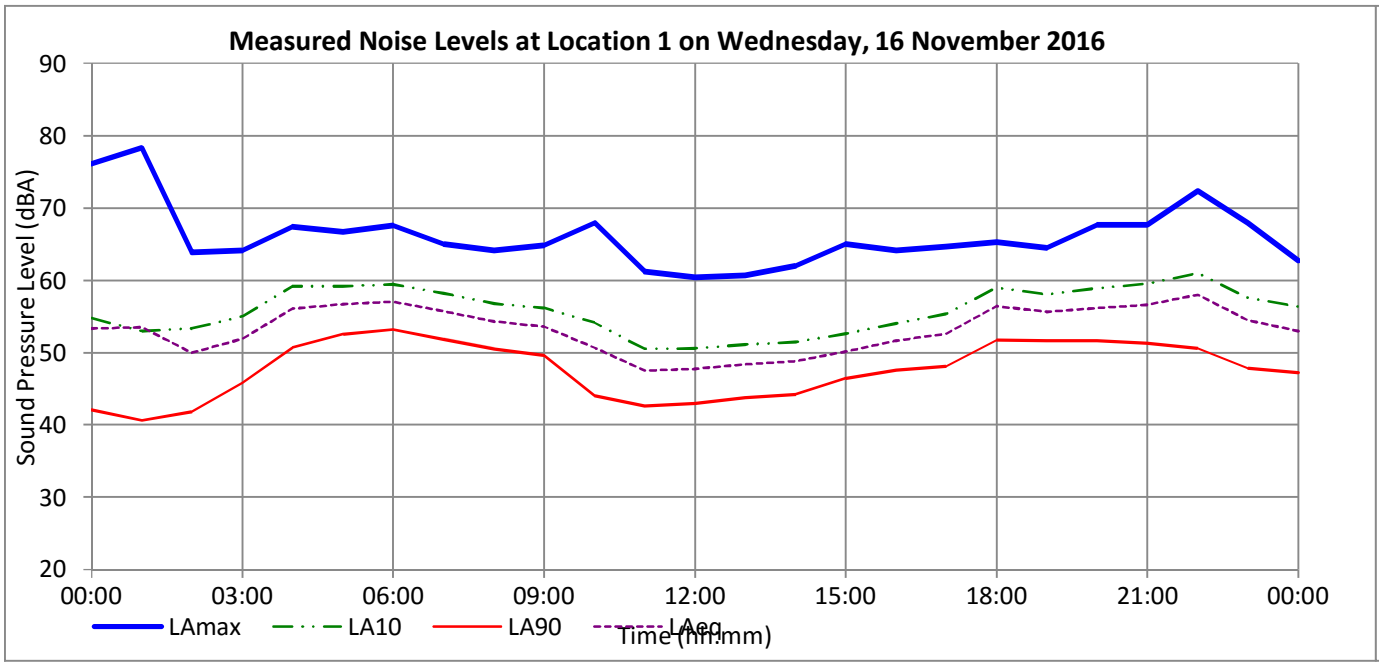
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Wednesday, 16 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	48	51	43	60
	Average	52	54	47	64
	Highest	56	58	52	68
Evening (1800-2200)	Lowest	56	58	51	65
	Average	56	59	52	66
	Highest	57	60	52	68
Night (2200-0700)	Lowest	53	56	46	63
	Average	55	58	49	68
	Highest	58	61	53	75

$L_{Aeq\ 24\text{-}hr}$	54 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	55 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	56 dB
L_{DN}	61 dB
L_{DEN}	62 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Thursday, 17 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	59	51	78	
18-hr (0600-0000)	57	59	52	78	
Day 16-hr (0600-2200)	57	60	53	78	
Night 8-hr (2200-0600)	53	56	46	69	
Lday (0700-1800)	58	60	53	78	
Levening (1800-2200)	56	59	51	72	
Lnight (2200-0700)	53	56	46	72	
LDN	60				
LDEN	61				
00:00 - 01:00	53	56	47	63	
01:00 - 02:00	54	57	47	69	
02:00 - 03:00	54	58	46	66	
03:00 - 04:00	54	57	46	66	
04:00 - 05:00	55	58	50	66	
05:00 - 06:00	57	59	53	65	
06:00 - 07:00	55	57	51	75	
07:00 - 08:00	56	58	51	78	
08:00 - 09:00	57	59	52	66	
09:00 - 10:00	58	60	54	71	
10:00 - 11:00	57	60	53	67	
11:00 - 12:00	57	60	53	69	
12:00 - 13:00	57	60	53	69	
13:00 - 14:00	58	61	53	76	
14:00 - 15:00	59	61	54	68	
15:00 - 16:00	59	62	55	70	
16:00 - 17:00	59	61	54	67	
17:00 - 18:00	58	61	54	67	
18:00 - 19:00	57	60	54	72	
19:00 - 20:00	57	60	53	68	
20:00 - 21:00	56	59	51	66	
21:00 - 22:00	54	58	46	65	
22:00 - 23:00	53	57	46	64	
23:00 - 24:00	52	55	43	64	

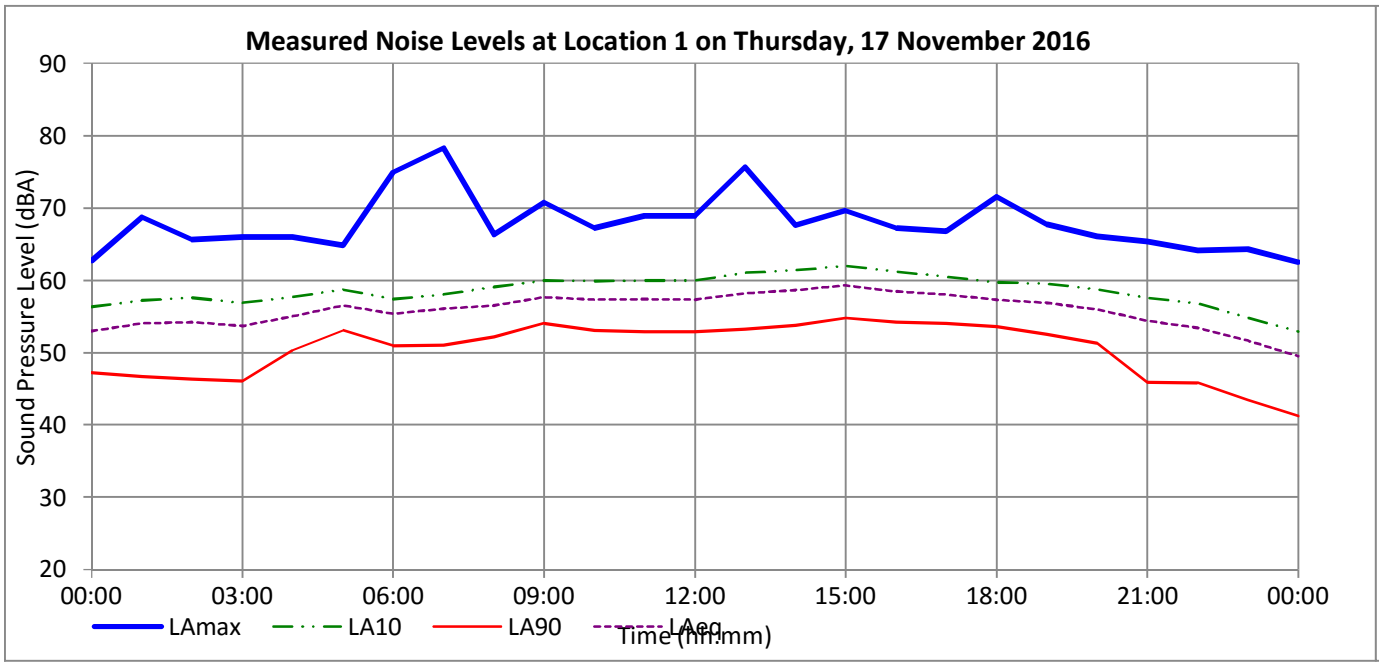
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Thursday, 17 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	56	58	51	66
	Average	58	60	53	70
	Highest	59	62	55	78
Evening (1800-2200)	Lowest	54	58	46	65
	Average	56	59	51	68
	Highest	57	60	54	72
Night (2200-0700)	Lowest	50	53	41	63
	Average	53	56	46	65
	Highest	55	57	52	72

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	53 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	60 dB
L_{DEN}	61 dB



Logger Measurements - Location 1

MARSHALL DAY Acoustics

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Friday, 18 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	54	56	49	78	
18-hr (0600-0000)	55	57	50	78	
Day 16-hr (0600-2200)	55	57	50	78	
Night 8-hr (2200-0600)	51	54	43	66	
Lday (0700-1800)	54	56	50	78	
Levening (1800-2200)	56	59	51	68	
Lnight (2200-0700)	51	54	43	68	
LDN	58				
LDEN	60				
00:00 - 01:00	50	53	41	63	
01:00 - 02:00	53	57	44	66	
02:00 - 03:00	52	55	45	69	
03:00 - 04:00	52	55	46	63	
04:00 - 05:00	53	56	48	64	
05:00 - 06:00	55	57	52	63	
06:00 - 07:00	54	56	50	72	
07:00 - 08:00	55	57	51	73	
08:00 - 09:00	53	57	46	72	
09:00 - 10:00	51	52	45	73	
10:00 - 11:00	54	57	49	72	
11:00 - 12:00	55	57	51	72	
12:00 - 13:00	54	56	50	72	
13:00 - 14:00	54	55	49	76	
14:00 - 15:00	54	56	50	67	
15:00 - 16:00	55	57	52	78	
16:00 - 17:00	55	57	52	69	
17:00 - 18:00	55	57	52	63	
18:00 - 19:00	56	58	52	66	
19:00 - 20:00	57	60	52	68	
20:00 - 21:00	56	59	50	68	
21:00 - 22:00	55	58	50	66	
22:00 - 23:00	54	57	48	66	
23:00 - 24:00	51	55	43	66	

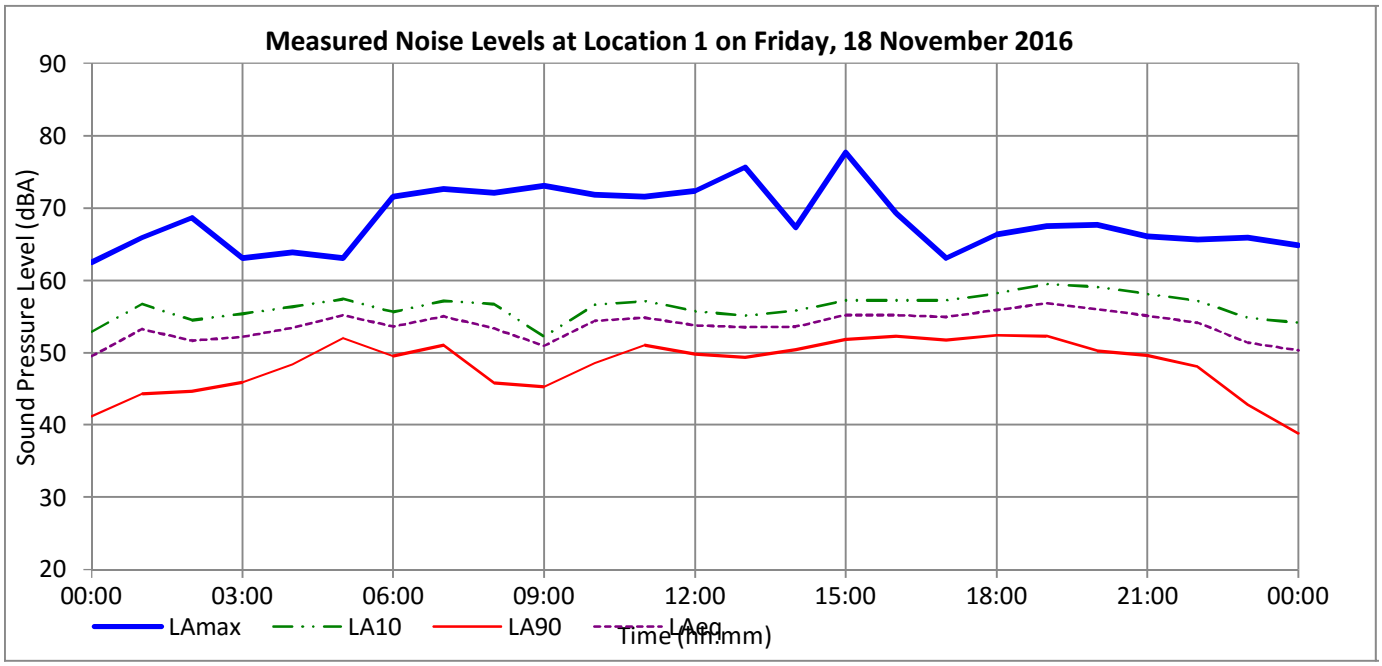
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Friday, 18 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	51	52	45	63
	Average	54	56	50	72
	Highest	55	57	52	78
Evening (1800-2200)	Lowest	55	58	50	66
	Average	56	59	51	67
	Highest	57	60	52	68
Night (2200-0700)	Lowest	47	51	39	60
	Average	51	54	43	64
	Highest	54	57	48	68

$L_{Aeq\ 24\text{-}hr}$	54 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	55 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	51 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	57 dB
L_{DN}	58 dB
L_{DEN}	60 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Saturday, 19 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	51	53	45	72	
18-hr (0600-0000)	51	53	45	72	
Day 16-hr (0600-2200)	51	53	46	72	
Night 8-hr (2200-0600)	51	53	42	70	
Lday (0700-1800)	50	52	45	70	
Levening (1800-2200)	52	55	46	72	
Lnight (2200-0700)	51	53	42	70	
LDN	57				
LDEN	58				
00:00 - 01:00	50	54	39	65	
01:00 - 02:00	50	54	40	64	
02:00 - 03:00	47	51	39	60	
03:00 - 04:00	50	54	40	64	
04:00 - 05:00	51	54	45	62	
05:00 - 06:00	52	55	48	66	
06:00 - 07:00	52	54	48	68	
07:00 - 08:00	51	54	48	66	
08:00 - 09:00	50	53	46	61	
09:00 - 10:00	49	52	45	65	
10:00 - 11:00	49	51	44	66	
11:00 - 12:00	47	49	43	66	
12:00 - 13:00	48	51	44	61	
13:00 - 14:00	48	51	44	62	
14:00 - 15:00	48	51	45	64	
15:00 - 16:00	49	51	46	70	
16:00 - 17:00	51	54	47	65	
17:00 - 18:00	51	53	46	62	
18:00 - 19:00	53	56	48	72	
19:00 - 20:00	54	57	48	64	
20:00 - 21:00	52	55	47	63	
21:00 - 22:00	51	54	43	65	
22:00 - 23:00	51	54	45	66	
23:00 - 24:00	51	54	44	62	

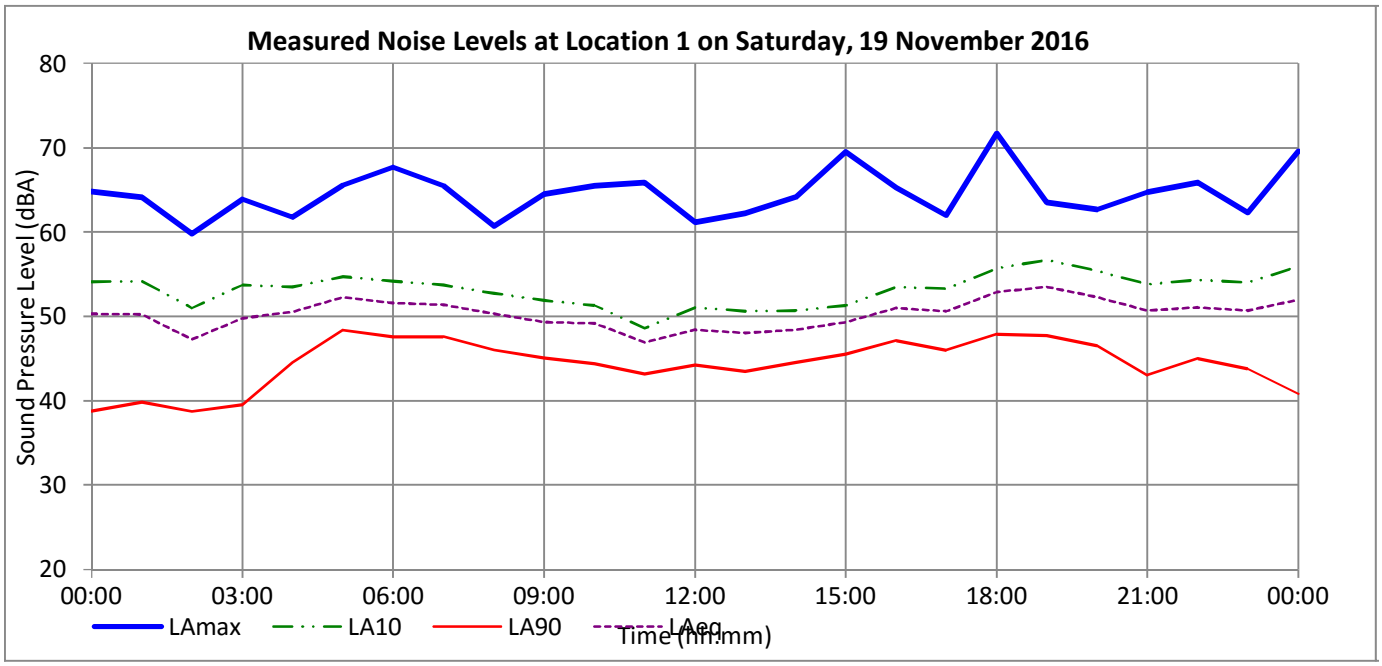
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 19 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	47	49	43	61
	Average	50	52	45	64
	Highest	51	54	48	70
Evening (1800-2200)	Lowest	51	54	43	63
	Average	52	55	46	66
	Highest	54	57	48	72
Night (2200-0700)	Lowest	45	49	34	60
	Average	51	53	42	64
	Highest	53	57	48	70

$L_{Aeq\ 24\text{-}hr}$	51 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	51 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	51 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	53 dB
L_{DN}	57 dB
L_{DEN}	58 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Sunday, 20 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	52	54	45	72	
18-hr (0600-0000)	52	54	47	72	
Day 16-hr (0600-2200)	52	54	47	72	
Night 8-hr (2200-0600)	53	55	43	70	
Lday (0700-1800)	52	54	47	70	
Levening (1800-2200)	53	56	48	72	
Lnight (2200-0700)	54	55	44	76	
LDN	60				
LDEN	61				
00:00 - 01:00	52	56	41	70	
01:00 - 02:00	45	49	36	67	
02:00 - 03:00	45	49	34	61	
03:00 - 04:00	50	54	39	63	
04:00 - 05:00	53	57	46	64	
05:00 - 06:00	53	56	48	63	
06:00 - 07:00	49	51	46	60	
07:00 - 08:00	48	50	45	62	
08:00 - 09:00	49	51	44	62	
09:00 - 10:00	51	54	47	63	
10:00 - 11:00	52	54	48	64	
11:00 - 12:00	52	54	48	62	
12:00 - 13:00	53	56	49	64	
13:00 - 14:00	53	56	48	64	
14:00 - 15:00	52	55	49	63	
15:00 - 16:00	53	56	49	63	
16:00 - 17:00	51	54	47	70	
17:00 - 18:00	49	52	46	60	
18:00 - 19:00	53	55	49	63	
19:00 - 20:00	52	55	48	65	
20:00 - 21:00	54	56	48	65	
21:00 - 22:00	54	57	47	72	
22:00 - 23:00	50	54	43	64	
23:00 - 24:00	49	53	40	66	

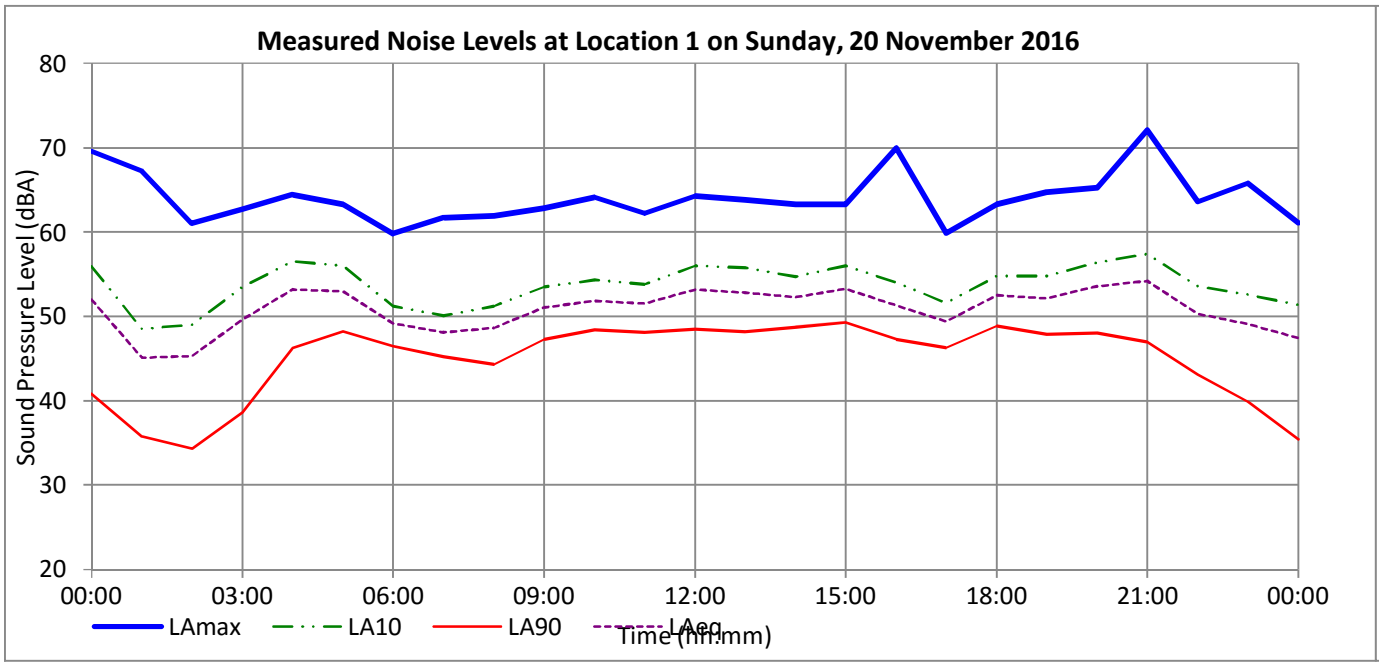
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 20 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	48	50	44	60
	Average	52	54	47	63
	Highest	53	56	49	70
Evening (1800-2200)	Lowest	52	55	47	63
	Average	53	56	48	66
	Highest	54	57	49	72
Night (2200-0700)	Lowest	47	51	35	61
	Average	54	55	44	67
	Highest	60	62	55	76

$L_{Aeq\ 24\text{-}hr}$	52 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	52 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	53 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	54 dB
L_{DN}	60 dB
L_{DEN}	61 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Monday, 21 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	59	50	77	
18-hr (0600-0000)	58	60	52	77	
Day 16-hr (0600-2200)	59	61	53	77	
Night 8-hr (2200-0600)	52	55	44	67	
Lday (0700-1800)	59	62	54	77	
Levening (1800-2200)	55	58	49	70	
Lnight (2200-0700)	53	55	45	75	
LDN	61				
LDEN	61				
00:00 - 01:00	47	51	35	61	
01:00 - 02:00	48	52	37	61	
02:00 - 03:00	49	52	39	66	
03:00 - 04:00	54	57	45	69	
04:00 - 05:00	56	59	50	70	
05:00 - 06:00	57	60	53	68	
06:00 - 07:00	60	62	55	76	
07:00 - 08:00	61	63	55	75	
08:00 - 09:00	61	64	56	77	
09:00 - 10:00	61	63	56	74	
10:00 - 11:00	60	63	55	74	
11:00 - 12:00	60	62	55	75	
12:00 - 13:00	58	61	54	74	
13:00 - 14:00	57	60	52	71	
14:00 - 15:00	59	61	53	73	
15:00 - 16:00	56	58	52	71	
16:00 - 17:00	56	59	50	73	
17:00 - 18:00	60	63	55	75	
18:00 - 19:00	56	59	50	70	
19:00 - 20:00	57	60	51	70	
20:00 - 21:00	53	56	47	65	
21:00 - 22:00	55	58	48	68	
22:00 - 23:00	55	58	48	67	
23:00 - 24:00	52	56	44	63	

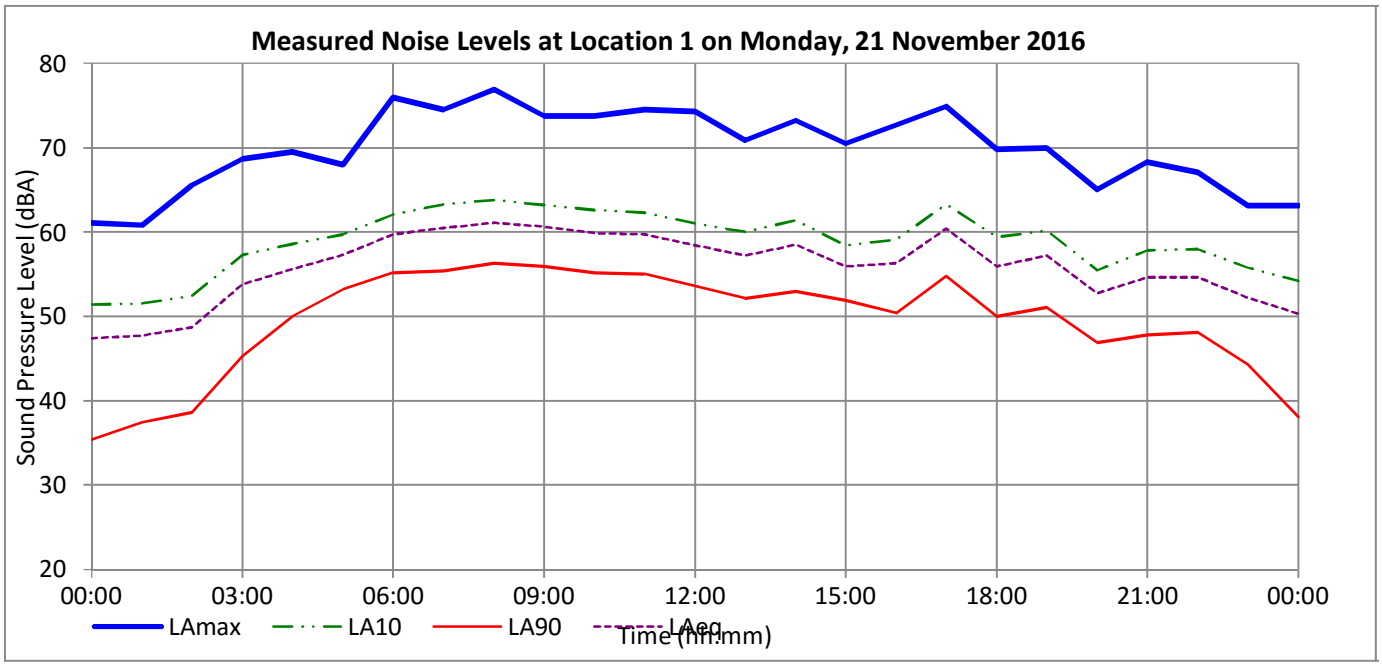
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 21 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	56	58	50	71
	Average	59	62	54	74
	Highest	61	64	56	77
Evening (1800-2200)	Lowest	53	56	47	65
	Average	55	58	49	68
	Highest	57	60	51	70
Night (2200-0700)	Lowest	48	51	38	56
	Average	53	55	45	64
	Highest	56	59	51	75

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	59 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	60 dB
L_{DN}	61 dB
L_{DEN}	61 dB



Logger Measurements - Location 1

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Tuesday, 22 November 2016
Weather during Measurement:
Notes: L10 values have been arthimetically averaged

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	54	56	48	75	
18-hr (0600-0000)	54	56	49	75	
Day 16-hr (0600-2200)	54	57	50	75	
Night 8-hr (2200-0600)	52	54	45	63	
Lday (0700-1800)	55	57	51	67	
Levening (1800-2200)	53	56	49	67	
Lnight (2200-0700)	52	54	46	70	
LDN	59				
LDEN	60				
00:00 - 01:00	50	54	38	63	
01:00 - 02:00	48	52	40	61	
02:00 - 03:00	49	52	41	59	
03:00 - 04:00	48	51	42	56	
04:00 - 05:00	52	55	47	67	
05:00 - 06:00	56	59	51	67	
06:00 - 07:00	56	58	51	75	
07:00 - 08:00	54	57	50	65	
08:00 - 09:00	57	60	53	66	
09:00 - 10:00	54	56	50	67	
10:00 - 11:00	53	55	50	62	
11:00 - 12:00	55	57	51	66	
12:00 - 13:00	54	56	50	63	
13:00 - 14:00	55	57	51	64	
14:00 - 15:00	54	56	49	65	
15:00 - 16:00	55	57	51	63	
16:00 - 17:00	55	58	52	65	
17:00 - 18:00	54	57	50	63	
18:00 - 19:00	54	56	50	63	
19:00 - 20:00	54	57	50	64	
20:00 - 21:00	53	56	48	64	
21:00 - 22:00	53	56	47	67	
22:00 - 23:00	50	54	45	61	
23:00 - 24:00	49	52	42	62	

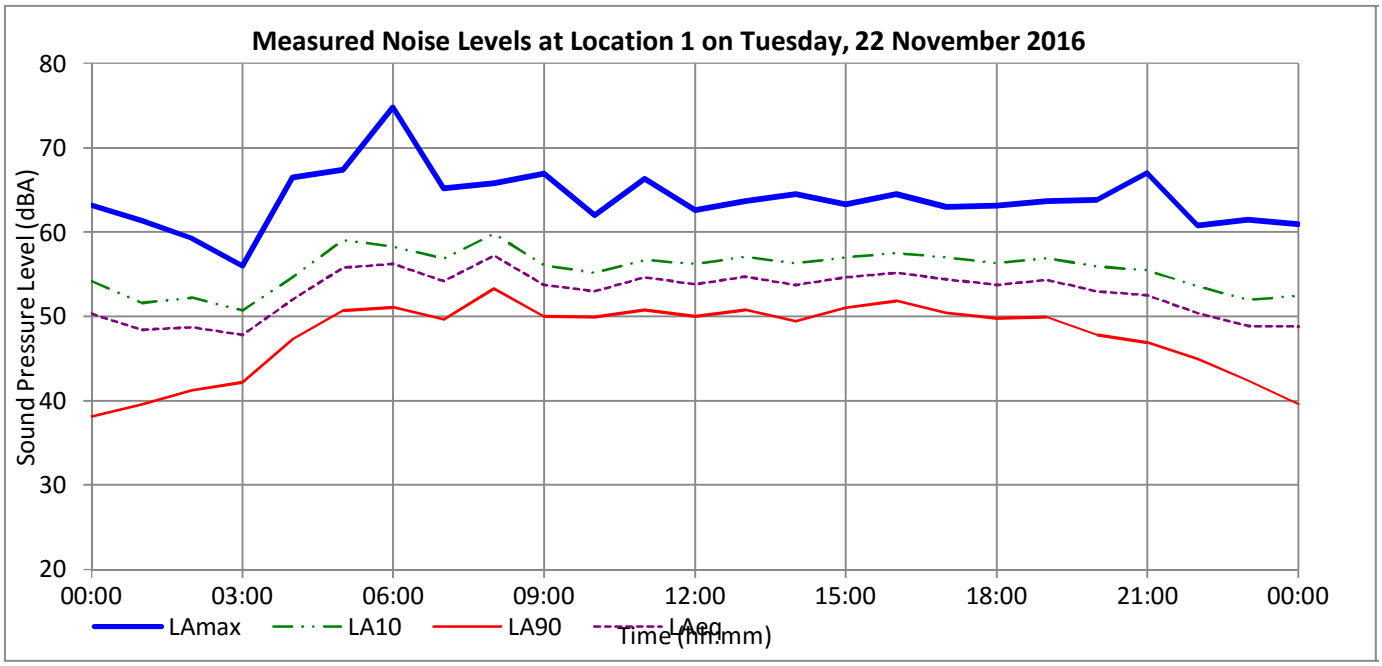
Logger Measurements - Location 1

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 1 NL31-2 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Tuesday, 22 November 2016
Weather during Measurement:	
Notes:	L10 values have been arthimetically averaged

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	53	55	49	62
	Average	55	57	51	64
	Highest	57	60	53	67
Evening (1800-2200)	Lowest	53	56	47	63
	Average	53	56	49	64
	Highest	54	57	50	67
Night (2200-0700)	Lowest	47	51	40	58
	Average	52	54	46	62
	Highest	56	58	52	70

$L_{Aeq\ 24\text{-}hr}$	54 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	56 dB
L_{DN}	59 dB
L_{DEN}	60 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Wednesday, 09 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	48	83	
18-hr (0600-0000)	56	58	49	83	
Day 16-hr (0600-2200)	56	58	49	83	
Night 8-hr (2200-0600)	55	58	48	74	
Lday (0700-1800)	56	58	49	83	
Levening (1800-2200)	55	58	49	68	
Lnight (2200-0700)	55	58	48	74	
LDN	62				
LDEN	63				
00:00 - 01:00	50	54	38	65	
01:00 - 02:00	50	54	40	64	
02:00 - 03:00	50	53	42	66	
03:00 - 04:00	52	55	45	67	
04:00 - 05:00	56	59	50	68	
05:00 - 06:00	59	61	54	83	
06:00 - 07:00	58	61	52	77	
07:00 - 08:00	58	61	50	83	
08:00 - 09:00	60	62	52	83	
09:00 - 10:00	58	60	49	78	
10:00 - 11:00	57	60	49	77	
11:00 - 12:00	56	59	50	75	
12:00 - 13:00	56	58	48	72	
13:00 - 14:00	57	59	49	77	
14:00 - 15:00	54	55	48	76	
15:00 - 16:00	53	55	49	63	
16:00 - 17:00	54	56	50	65	
17:00 - 18:00	54	56	49	66	
18:00 - 19:00	55	58	50	65	
19:00 - 20:00	54	57	49	65	
20:00 - 21:00	54	57	48	65	
21:00 - 22:00	57	60	49	68	
22:00 - 23:00	55	59	48	66	
23:00 - 24:00	54	58	46	67	

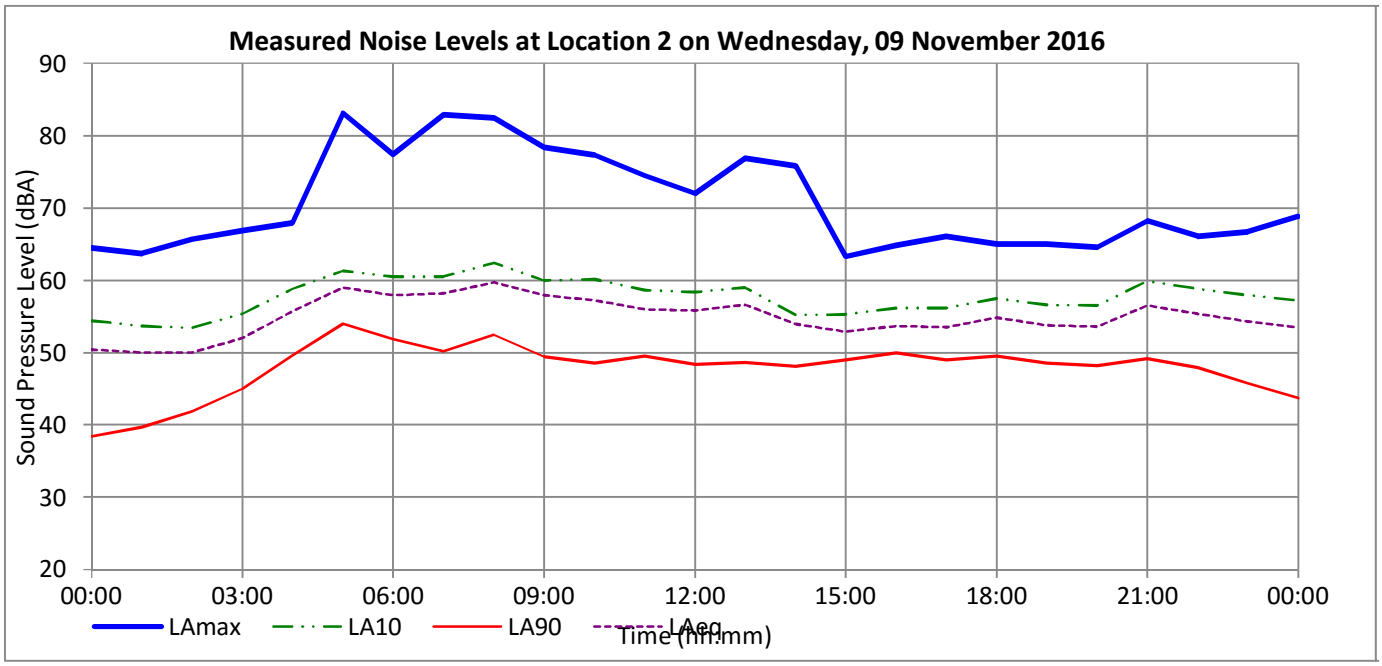
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Wednesday, 09 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	53	55	48	63
	Average	56	58	49	74
	Highest	60	62	52	83
Evening (1800-2200)	Lowest	54	57	48	65
	Average	55	58	49	66
	Highest	57	60	50	68
Night (2200-0700)	Lowest	53	56	44	66
	Average	55	58	48	69
	Highest	58	61	55	74

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	55 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	58 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Thursday, 10 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	55	57	48	80	
18-hr (0600-0000)	55	57	48	80	
Day 16-hr (0600-2200)	55	57	49	80	
Night 8-hr (2200-0600)	56	58	48	78	
Lday (0700-1800)	54	56	48	80	
Levening (1800-2200)	57	60	50	70	
Lnight (2200-0700)	56	58	48	78	
LDN	62				
LDEN	63				
00:00 - 01:00	54	57	44	69	
01:00 - 02:00	55	59	45	70	
02:00 - 03:00	53	56	45	68	
03:00 - 04:00	54	57	48	66	
04:00 - 05:00	56	59	52	67	
05:00 - 06:00	58	61	55	74	
06:00 - 07:00	57	59	52	74	
07:00 - 08:00	55	57	46	74	
08:00 - 09:00	56	58	48	75	
09:00 - 10:00	55	58	50	80	
10:00 - 11:00	54	56	46	75	
11:00 - 12:00	55	57	49	77	
12:00 - 13:00	55	58	50	74	
13:00 - 14:00	53	55	48	74	
14:00 - 15:00	52	55	48	63	
15:00 - 16:00	51	54	45	71	
16:00 - 17:00	52	55	47	67	
17:00 - 18:00	53	56	49	65	
18:00 - 19:00	55	58	51	65	
19:00 - 20:00	57	60	51	68	
20:00 - 21:00	58	62	51	70	
21:00 - 22:00	55	59	48	70	
22:00 - 23:00	54	57	46	64	
23:00 - 24:00	53	57	44	66	

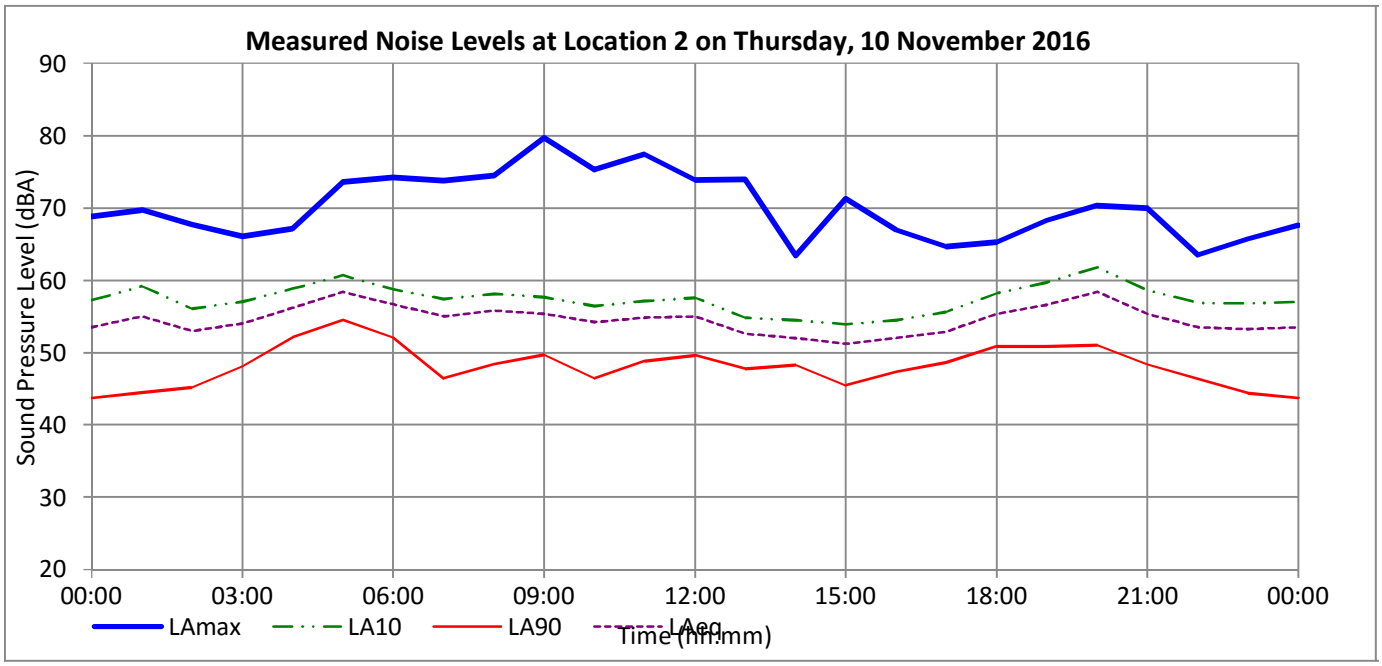
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Thursday, 10 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	51	54	45	63
	Average	54	56	48	72
	Highest	56	58	50	80
Evening (1800-2200)	Lowest	55	58	48	65
	Average	57	60	50	68
	Highest	58	62	51	70
Night (2200-0700)	Lowest	52	56	43	64
	Average	56	58	48	68
	Highest	60	62	56	78

$L_{Aeq\ 24\text{-}hr}$	55 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	55 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	56 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	57 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Friday, 11 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	55	56	47	78	
18-hr (0600-0000)	54	55	47	74	
Day 16-hr (0600-2200)	54	55	48	74	
Night 8-hr (2200-0600)	50	52	41	70	
Lday (0700-1800)	51	52	45	74	
Levening (1800-2200)	58	61	53	70	
Lnight (2200-0700)	50	52	42	70	
LDN	58				
LDEN	60				
00:00 - 01:00	54	57	44	68	
01:00 - 02:00	52	56	43	65	
02:00 - 03:00	54	58	46	67	
03:00 - 04:00	57	60	50	78	
04:00 - 05:00	58	60	54	69	
05:00 - 06:00	60	62	56	67	
06:00 - 07:00	56	59	52	65	
07:00 - 08:00	53	56	48	73	
08:00 - 09:00	51	53	46	71	
09:00 - 10:00	49	52	43	69	
10:00 - 11:00	46	47	42	63	
11:00 - 12:00	46	48	42	62	
12:00 - 13:00	47	48	42	74	
13:00 - 14:00	48	50	43	64	
14:00 - 15:00	54	57	48	67	
15:00 - 16:00	50	52	46	68	
16:00 - 17:00	52	54	48	63	
17:00 - 18:00	56	59	50	66	
18:00 - 19:00	60	62	56	69	
19:00 - 20:00	60	62	55	70	
20:00 - 21:00	56	59	51	67	
21:00 - 22:00	57	60	50	68	
22:00 - 23:00	54	57	45	70	
23:00 - 24:00	47	50	41	58	

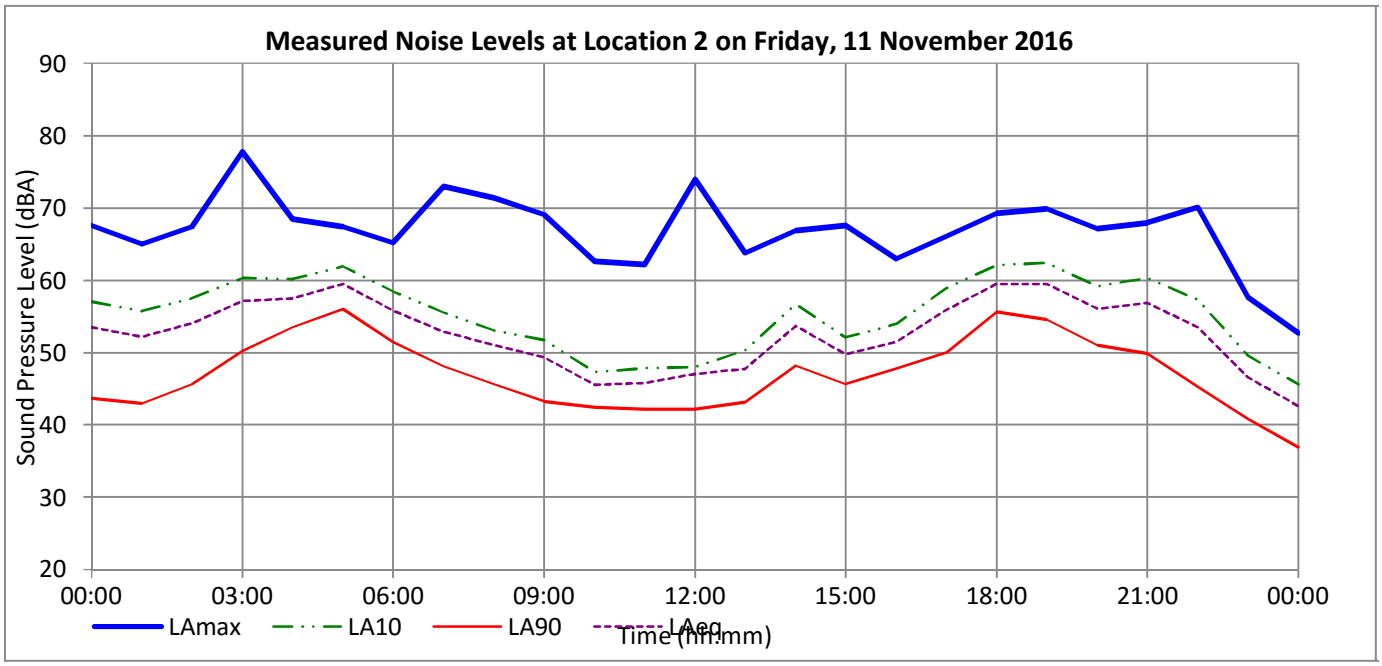
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Friday, 11 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	46	47	42	62
	Average	51	52	45	67
	Highest	56	59	50	74
Evening (1800-2200)	Lowest	56	59	50	67
	Average	58	61	53	69
	Highest	60	62	56	70
Night (2200-0700)	Lowest	43	46	36	53
	Average	50	52	42	63
	Highest	54	57	49	70

$L_{Aeq\ 24\text{-}hr}$	55 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	50 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	55 dB
L_{DN}	58 dB
L_{DEN}	60 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 12 November 2016
Weather during Measurement:	
Notes:	

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	57	48	72	
18-hr (0600-0000)	57	58	51	72	
Day 16-hr (0600-2200)	57	59	52	72	
Night 8-hr (2200-0600)	50	53	37	73	
Lday (0700-1800)	58	61	54	72	
Levening (1800-2200)	54	57	46	70	
Lnight (2200-0700)	51	53	39	73	
LDN	59				
LDEN	60				
00:00 - 01:00	43	46	37	53	
01:00 - 02:00	46	49	38	65	
02:00 - 03:00	47	51	36	64	
03:00 - 04:00	49	53	40	62	
04:00 - 05:00	51	54	46	62	
05:00 - 06:00	53	56	48	66	
06:00 - 07:00	53	56	49	65	
07:00 - 08:00	55	58	51	65	
08:00 - 09:00	56	59	52	67	
09:00 - 10:00	57	59	53	66	
10:00 - 11:00	58	60	54	71	
11:00 - 12:00	58	61	54	72	
12:00 - 13:00	60	62	56	72	
13:00 - 14:00	60	62	56	70	
14:00 - 15:00	60	62	56	72	
15:00 - 16:00	60	62	55	72	
16:00 - 17:00	59	62	55	71	
17:00 - 18:00	58	60	53	68	
18:00 - 19:00	56	59	51	69	
19:00 - 20:00	55	58	48	70	
20:00 - 21:00	53	56	45	67	
21:00 - 22:00	50	54	41	66	
22:00 - 23:00	49	52	40	64	
23:00 - 24:00	46	50	39	64	

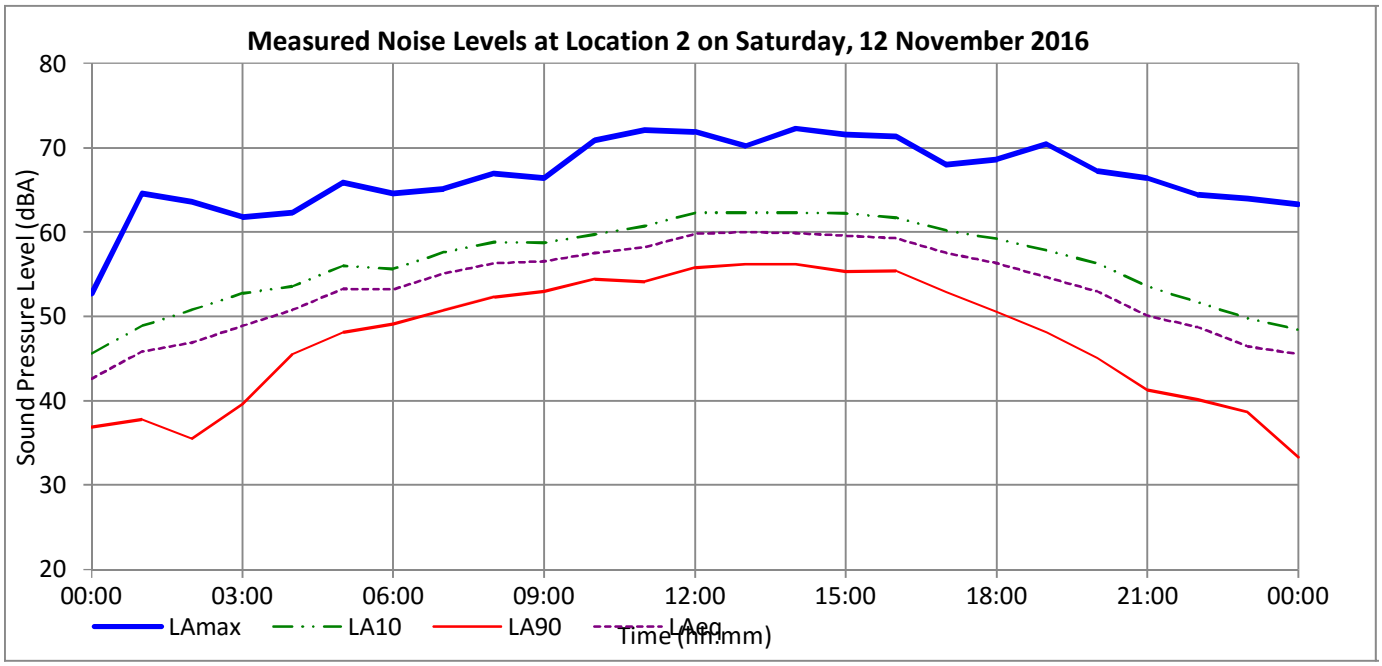
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 12 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	58	51	65
	Average	58	61	54	70
	Highest	60	62	56	72
Evening (1800-2200)	Lowest	50	54	41	66
	Average	54	57	46	68
	Highest	56	59	51	70
Night (2200-0700)	Lowest	46	48	32	62
	Average	51	53	39	67
	Highest	56	59	49	73

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	50 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	58 dB
L_{DN}	59 dB
L_{DEN}	60 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Sunday, 13 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	55	56	47	79	
18-hr (0600-0000)	56	58	50	79	
Day 16-hr (0600-2200)	56	58	51	79	
Night 8-hr (2200-0600)	55	57	47	70	
Lday (0700-1800)	57	59	52	79	
Levening (1800-2200)	53	55	47	65	
Lnight (2200-0700)	56	58	48	70	
LDN	62				
LDEN	62				
00:00 - 01:00	46	48	33	63	
01:00 - 02:00	46	50	32	62	
02:00 - 03:00	47	51	32	68	
03:00 - 04:00	51	54	35	73	
04:00 - 05:00	54	57	42	70	
05:00 - 06:00	55	58	47	69	
06:00 - 07:00	56	59	49	69	
07:00 - 08:00	57	60	52	77	
08:00 - 09:00	58	60	52	78	
09:00 - 10:00	58	60	55	70	
10:00 - 11:00	57	59	54	69	
11:00 - 12:00	56	58	52	66	
12:00 - 13:00	53	55	49	67	
13:00 - 14:00	52	55	48	66	
14:00 - 15:00	56	60	49	68	
15:00 - 16:00	58	60	53	79	
16:00 - 17:00	58	60	54	67	
17:00 - 18:00	56	58	52	70	
18:00 - 19:00	54	57	49	65	
19:00 - 20:00	52	54	46	63	
20:00 - 21:00	52	55	47	64	
21:00 - 22:00	53	56	47	64	
22:00 - 23:00	53	56	46	64	
23:00 - 24:00	52	55	43	66	

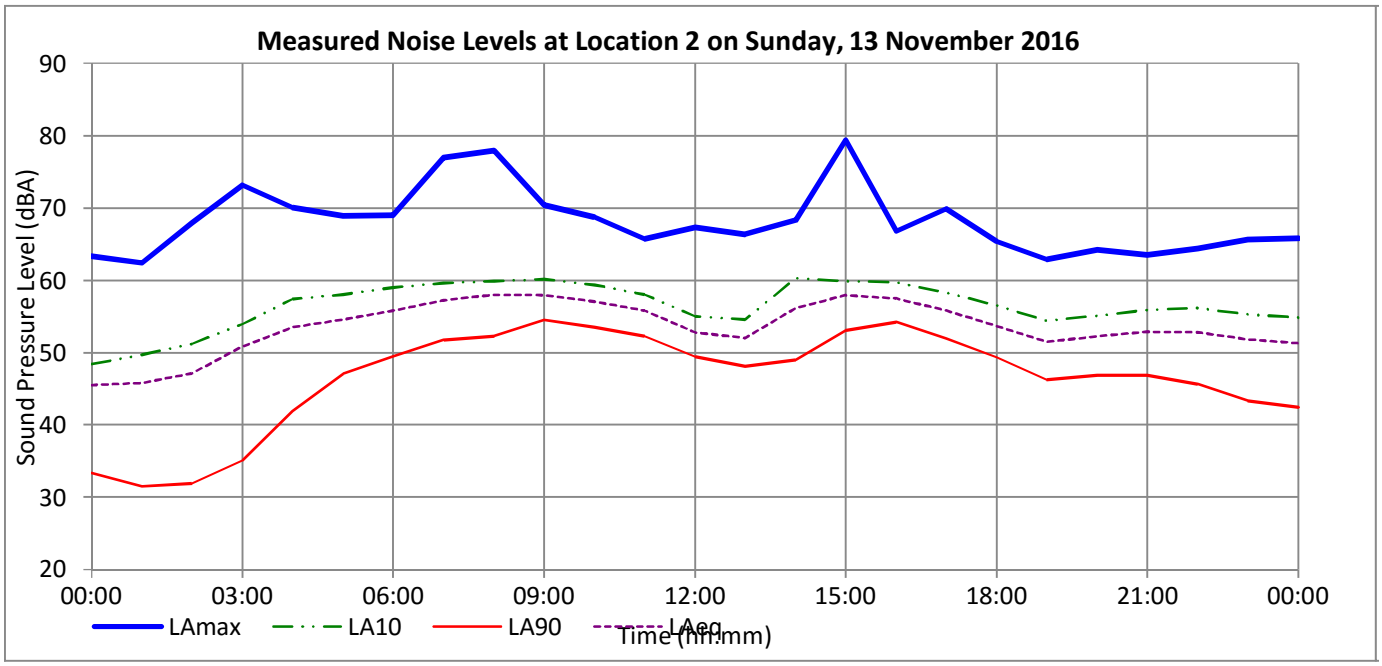
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 13 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	52	55	48	66
	Average	57	59	52	71
	Highest	58	60	55	79
Evening (1800-2200)	Lowest	52	54	46	63
	Average	53	55	47	64
	Highest	54	57	49	65
Night (2200-0700)	Lowest	51	55	42	64
	Average	56	58	48	67
	Highest	59	62	55	70

$L_{Aeq\ 24\text{-}hr}$	55 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	55 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	58 dB
L_{DN}	62 dB
L_{DEN}	62 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Monday, 14 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	50	74	
18-hr (0600-0000)	56	59	51	74	
Day 16-hr (0600-2200)	56	59	52	74	
Night 8-hr (2200-0600)	54	57	47	68	
Lday (0700-1800)	57	59	52	74	
Levening (1800-2200)	54	57	49	69	
Lnight (2200-0700)	54	57	47	68	
LDN	61				
LDEN	62				
00:00 - 01:00	51	55	42	66	
01:00 - 02:00	53	57	42	67	
02:00 - 03:00	53	57	44	68	
03:00 - 04:00	55	58	48	68	
04:00 - 05:00	57	60	52	67	
05:00 - 06:00	59	62	55	70	
06:00 - 07:00	59	61	55	68	
07:00 - 08:00	58	61	55	69	
08:00 - 09:00	59	61	55	70	
09:00 - 10:00	59	61	55	74	
10:00 - 11:00	58	60	54	70	
11:00 - 12:00	57	60	53	72	
12:00 - 13:00	56	59	52	68	
13:00 - 14:00	56	59	52	67	
14:00 - 15:00	55	57	51	65	
15:00 - 16:00	55	57	51	69	
16:00 - 17:00	55	57	51	65	
17:00 - 18:00	55	57	50	66	
18:00 - 19:00	55	57	50	65	
19:00 - 20:00	54	57	49	64	
20:00 - 21:00	54	57	48	69	
21:00 - 22:00	55	58	48	66	
22:00 - 23:00	55	58	48	67	
23:00 - 24:00	53	56	45	65	

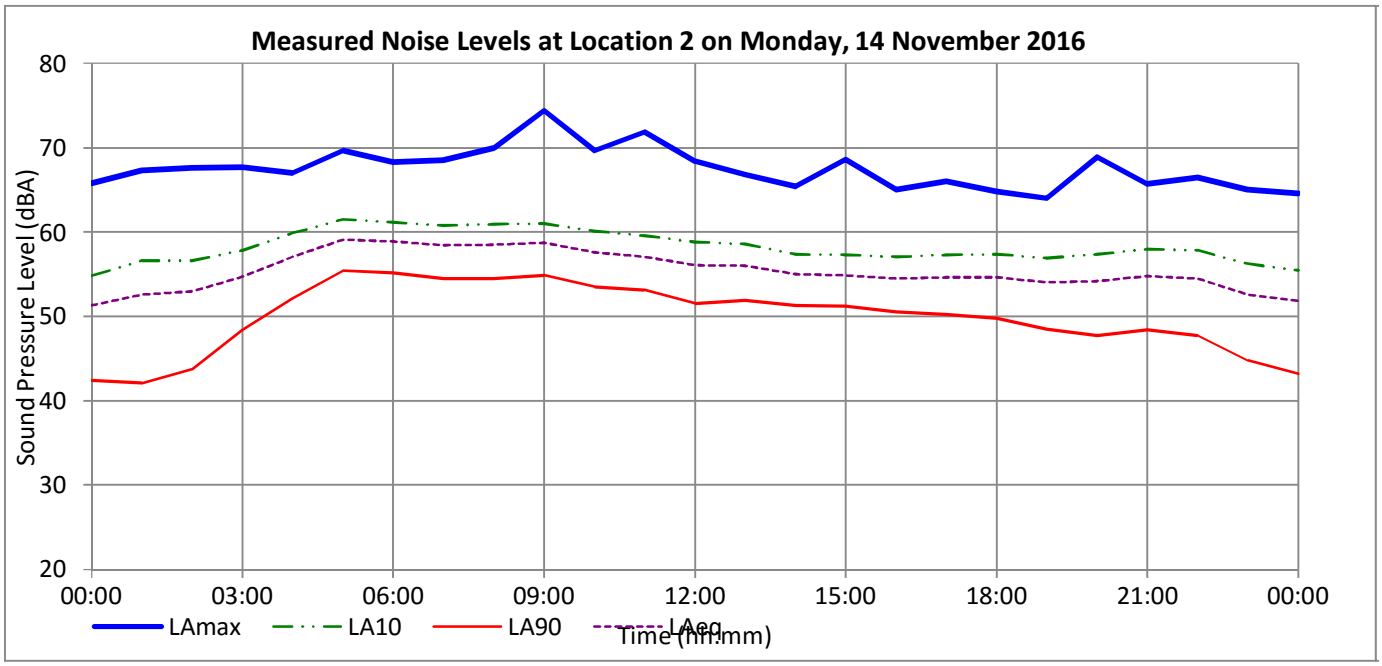
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 14 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	57	50	65
	Average	57	59	52	69
	Highest	59	61	55	74
Evening (1800-2200)	Lowest	54	57	48	64
	Average	54	57	49	66
	Highest	55	58	50	69
Night (2200-0700)	Lowest	51	55	42	65
	Average	54	57	47	66
	Highest	57	59	53	68

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	54 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	61 dB
L_{DEN}	62 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Tuesday, 15 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	50	78	
18-hr (0600-0000)	56	59	51	78	
Day 16-hr (0600-2200)	56	59	52	78	
Night 8-hr (2200-0600)	53	55	45	78	
Lday (0700-1800)	56	59	52	78	
Levening (1800-2200)	56	59	50	67	
Lnight (2200-0700)	54	56	46	78	
LDN	61				
LDEN	61				
00:00 - 01:00	52	56	43	65	
01:00 - 02:00	51	55	42	67	
02:00 - 03:00	52	56	45	66	
03:00 - 04:00	53	56	46	66	
04:00 - 05:00	56	59	51	66	
05:00 - 06:00	57	59	53	68	
06:00 - 07:00	56	58	53	67	
07:00 - 08:00	56	59	52	69	
08:00 - 09:00	55	58	51	67	
09:00 - 10:00	56	59	52	78	
10:00 - 11:00	56	58	51	69	
11:00 - 12:00	56	58	51	68	
12:00 - 13:00	55	58	51	70	
13:00 - 14:00	56	58	51	74	
14:00 - 15:00	56	59	52	69	
15:00 - 16:00	58	61	53	68	
16:00 - 17:00	58	60	53	68	
17:00 - 18:00	58	60	54	68	
18:00 - 19:00	55	58	50	65	
19:00 - 20:00	56	59	51	65	
20:00 - 21:00	56	59	51	67	
21:00 - 22:00	56	59	50	66	
22:00 - 23:00	55	58	49	66	
23:00 - 24:00	52	55	44	62	

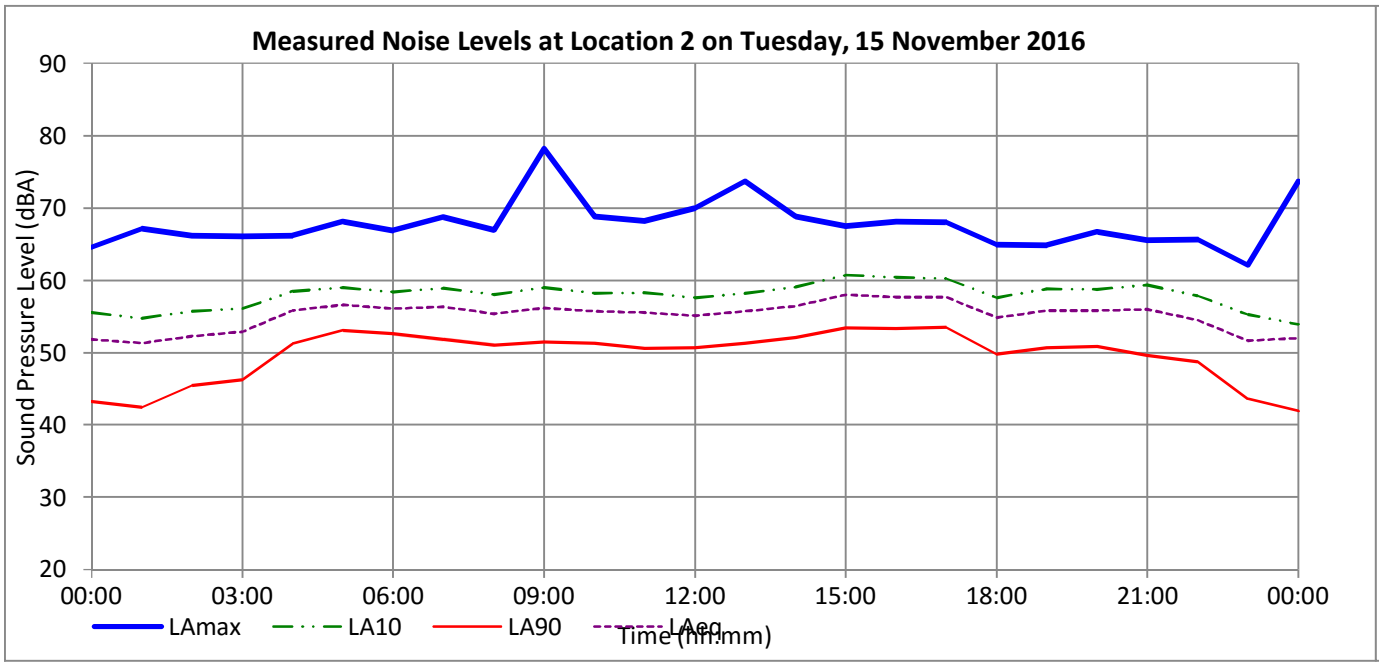
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Tuesday, 15 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	58	51	67
	Average	56	59	52	70
	Highest	58	61	54	78
Evening (1800-2200)	Lowest	55	58	50	65
	Average	56	59	50	65
	Highest	56	59	51	67
Night (2200-0700)	Lowest	49	52	40	61
	Average	54	56	46	67
	Highest	56	59	52	78

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	53 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	61 dB
L_{DEN}	61 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Wednesday, 16 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	54	55	47	78	
18-hr (0600-0000)	54	55	48	72	
Day 16-hr (0600-2200)	53	55	47	68	
Night 8-hr (2200-0600)	55	57	48	72	
Lday (0700-1800)	51	53	46	68	
Levening (1800-2200)	56	59	51	67	
Lnight (2200-0700)	55	57	48	73	
LDN	61				
LDEN	62				
00:00 - 01:00	52	54	42	74	
01:00 - 02:00	53	52	40	78	
02:00 - 03:00	49	52	41	61	
03:00 - 04:00	51	54	45	63	
04:00 - 05:00	55	58	50	65	
05:00 - 06:00	56	58	51	66	
06:00 - 07:00	56	59	52	65	
07:00 - 08:00	55	57	51	68	
08:00 - 09:00	54	56	50	65	
09:00 - 10:00	53	55	49	62	
10:00 - 11:00	50	54	43	68	
11:00 - 12:00	46	49	42	60	
12:00 - 13:00	46	49	42	62	
13:00 - 14:00	48	50	43	60	
14:00 - 15:00	47	50	43	60	
15:00 - 16:00	50	52	45	62	
16:00 - 17:00	51	54	47	61	
17:00 - 18:00	52	55	48	62	
18:00 - 19:00	56	59	51	64	
19:00 - 20:00	55	58	51	62	
20:00 - 21:00	56	59	51	67	
21:00 - 22:00	56	60	51	67	
22:00 - 23:00	58	62	51	72	
23:00 - 24:00	54	58	47	68	

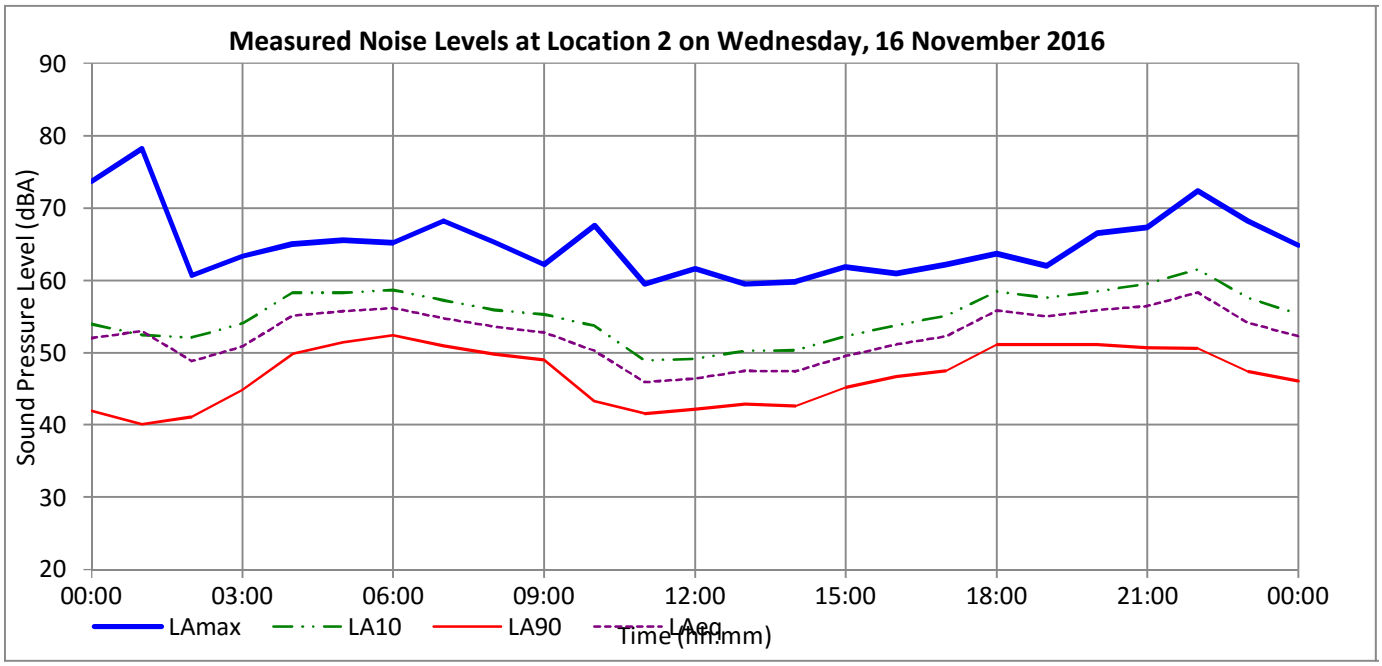
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Wednesday, 16 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	46	49	42	60
	Average	51	53	46	63
	Highest	55	57	51	68
Evening (1800-2200)	Lowest	55	58	51	62
	Average	56	59	51	65
	Highest	56	60	51	67
Night (2200-0700)	Lowest	52	55	46	64
	Average	55	57	48	67
	Highest	58	62	52	73

$L_{Aeq\ 24\text{-}hr}$	54 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	53 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	55 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	55 dB
L_{DN}	61 dB
L_{DEN}	62 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Thursday, 17 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	50	75	
18-hr (0600-0000)	56	59	51	75	
Day 16-hr (0600-2200)	57	59	52	75	
Night 8-hr (2200-0600)	52	55	45	70	
Lday (0700-1800)	57	59	52	75	
Levening (1800-2200)	56	59	51	66	
Lnight (2200-0700)	52	55	46	74	
LDN	60				
LDEN	61				
00:00 - 01:00	52	55	46	65	
01:00 - 02:00	53	56	46	64	
02:00 - 03:00	54	57	46	65	
03:00 - 04:00	53	56	46	64	
04:00 - 05:00	55	57	50	65	
05:00 - 06:00	56	58	52	67	
06:00 - 07:00	55	57	50	73	
07:00 - 08:00	55	57	50	75	
08:00 - 09:00	56	58	52	73	
09:00 - 10:00	56	59	53	66	
10:00 - 11:00	56	59	52	68	
11:00 - 12:00	56	59	52	67	
12:00 - 13:00	56	59	52	66	
13:00 - 14:00	57	60	52	73	
14:00 - 15:00	58	61	53	69	
15:00 - 16:00	59	61	54	71	
16:00 - 17:00	58	61	54	68	
17:00 - 18:00	57	60	54	66	
18:00 - 19:00	57	59	53	66	
19:00 - 20:00	57	60	52	65	
20:00 - 21:00	56	59	51	66	
21:00 - 22:00	54	57	46	65	
22:00 - 23:00	53	56	45	66	
23:00 - 24:00	51	55	43	64	

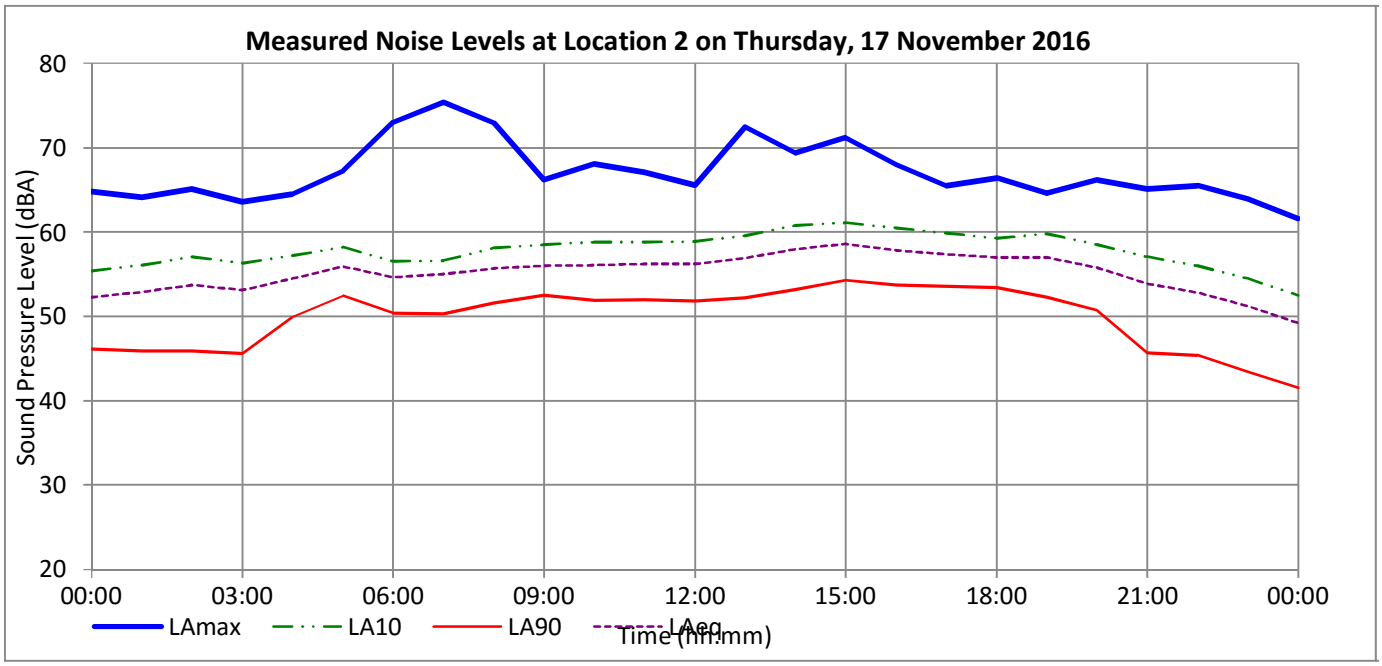
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Thursday, 17 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	57	50	66
	Average	57	59	52	69
	Highest	59	61	54	75
Evening (1800-2200)	Lowest	54	57	46	65
	Average	56	59	51	66
	Highest	57	60	53	66
Night (2200-0700)	Lowest	49	53	42	60
	Average	52	55	46	65
	Highest	54	57	51	74

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	60 dB
L_{DEN}	61 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Friday, 18 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	53	56	48	79	
18-hr (0600-0000)	54	56	48	79	
Day 16-hr (0600-2200)	54	56	49	79	
Night 8-hr (2200-0600)	50	53	42	67	
Lday (0700-1800)	54	55	48	79	
Levening (1800-2200)	55	58	50	66	
Lnight (2200-0700)	50	53	42	67	
LDN	58				
LDEN	59				
00:00 - 01:00	49	53	42	62	
01:00 - 02:00	53	57	44	70	
02:00 - 03:00	50	54	43	63	
03:00 - 04:00	51	54	45	65	
04:00 - 05:00	52	55	47	60	
05:00 - 06:00	54	57	51	62	
06:00 - 07:00	53	55	49	74	
07:00 - 08:00	54	56	50	70	
08:00 - 09:00	53	56	44	73	
09:00 - 10:00	50	51	43	73	
10:00 - 11:00	54	56	46	70	
11:00 - 12:00	55	57	51	68	
12:00 - 13:00	53	55	48	72	
13:00 - 14:00	53	55	48	73	
14:00 - 15:00	52	55	47	66	
15:00 - 16:00	55	56	51	79	
16:00 - 17:00	55	57	52	66	
17:00 - 18:00	54	57	51	64	
18:00 - 19:00	55	57	52	66	
19:00 - 20:00	55	58	51	64	
20:00 - 21:00	55	58	49	66	
21:00 - 22:00	54	57	49	66	
22:00 - 23:00	53	56	47	67	
23:00 - 24:00	50	54	42	63	

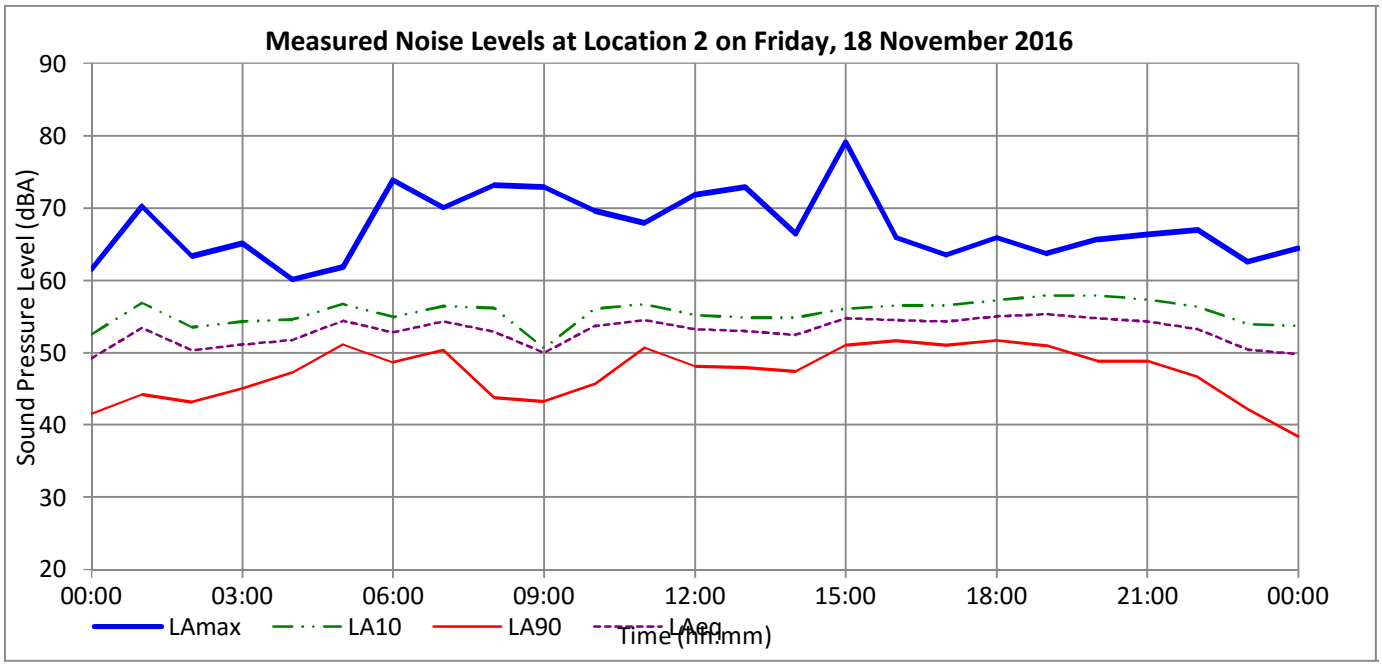
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Friday, 18 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	50	51	43	64
	Average	54	55	48	70
	Highest	55	57	52	79
Evening (1800-2200)	Lowest	54	57	49	64
	Average	55	58	50	65
	Highest	55	58	52	66
Night (2200-0700)	Lowest	47	51	38	60
	Average	50	53	42	63
	Highest	53	56	48	67

$L_{Aeq\ 24\text{-}hr}$	53 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	50 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	56 dB
L_{DN}	58 dB
L_{DEN}	59 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Saturday, 19 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	51	52	44	95	
18-hr (0600-0000)	51	52	45	95	
Day 16-hr (0600-2200)	51	52	45	95	
Night 8-hr (2200-0600)	50	53	41	68	
Lday (0700-1800)	51	51	44	95	
Levening (1800-2200)	52	55	47	66	
Lnight (2200-0700)	50	53	42	68	
LDN	57				
LDEN	58				
00:00 - 01:00	50	54	38	64	
01:00 - 02:00	49	53	39	62	
02:00 - 03:00	47	51	38	60	
03:00 - 04:00	49	53	39	60	
04:00 - 05:00	50	53	44	62	
05:00 - 06:00	52	54	48	67	
06:00 - 07:00	51	54	47	63	
07:00 - 08:00	58	54	47	95	
08:00 - 09:00	50	53	46	66	
09:00 - 10:00	49	52	44	65	
10:00 - 11:00	49	51	44	75	
11:00 - 12:00	46	48	42	72	
12:00 - 13:00	48	51	43	64	
13:00 - 14:00	48	50	43	71	
14:00 - 15:00	48	50	43	64	
15:00 - 16:00	49	51	45	65	
16:00 - 17:00	50	53	46	60	
17:00 - 18:00	50	53	45	65	
18:00 - 19:00	52	55	47	66	
19:00 - 20:00	53	56	47	66	
20:00 - 21:00	51	54	46	62	
21:00 - 22:00	51	54	46	61	
22:00 - 23:00	51	54	45	63	
23:00 - 24:00	50	53	43	64	

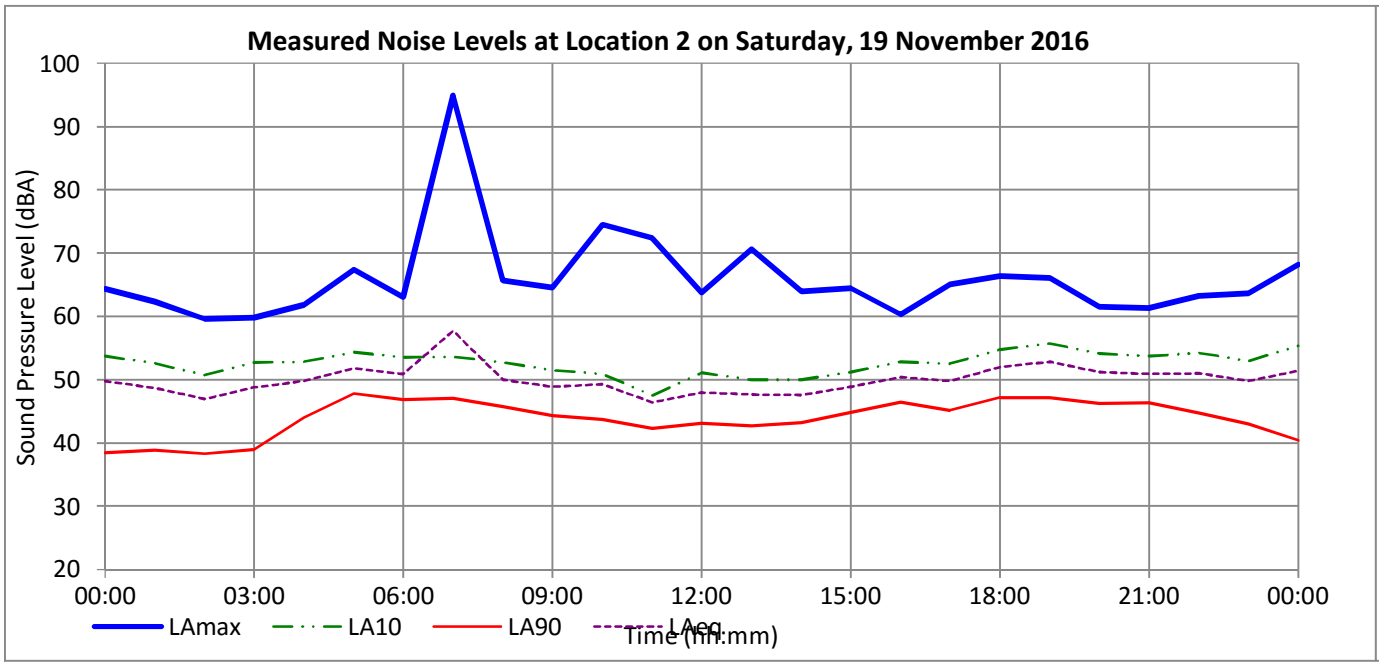
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 19 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	46	48	42	60
	Average	51	51	44	69
	Highest	58	54	47	95
Evening (1800-2200)	Lowest	51	54	46	61
	Average	52	55	47	64
	Highest	53	56	47	66
Night (2200-0700)	Lowest	44	48	34	62
	Average	50	53	42	64
	Highest	53	56	48	68

$L_{Aeq\ 24\text{-}hr}$	51 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	51 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	50 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	52 dB
L_{DN}	57 dB
L_{DEN}	58 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 20 November 2016
Weather during Measurement:	
Notes:	

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	51	53	45	72	
18-hr (0600-0000)	51	53	46	72	
Day 16-hr (0600-2200)	51	54	47	72	
Night 8-hr (2200-0600)	52	54	42	68	
Lday (0700-1800)	51	53	47	70	
Levening (1800-2200)	53	55	47	72	
Lnight (2200-0700)	54	55	43	72	
LDN	60				
LDEN	60				
00:00 - 01:00	51	55	40	68	
01:00 - 02:00	44	48	35	62	
02:00 - 03:00	45	49	34	62	
03:00 - 04:00	49	54	38	63	
04:00 - 05:00	53	56	46	65	
05:00 - 06:00	53	56	48	65	
06:00 - 07:00	50	52	46	62	
07:00 - 08:00	48	50	45	64	
08:00 - 09:00	48	51	43	64	
09:00 - 10:00	51	53	47	70	
10:00 - 11:00	51	54	48	65	
11:00 - 12:00	51	53	47	64	
12:00 - 13:00	52	55	48	64	
13:00 - 14:00	52	55	48	63	
14:00 - 15:00	51	54	48	61	
15:00 - 16:00	53	56	48	63	
16:00 - 17:00	51	54	47	63	
17:00 - 18:00	49	51	45	62	
18:00 - 19:00	52	54	48	62	
19:00 - 20:00	52	54	47	61	
20:00 - 21:00	53	56	48	65	
21:00 - 22:00	54	57	46	72	
22:00 - 23:00	49	53	42	64	
23:00 - 24:00	48	52	39	62	

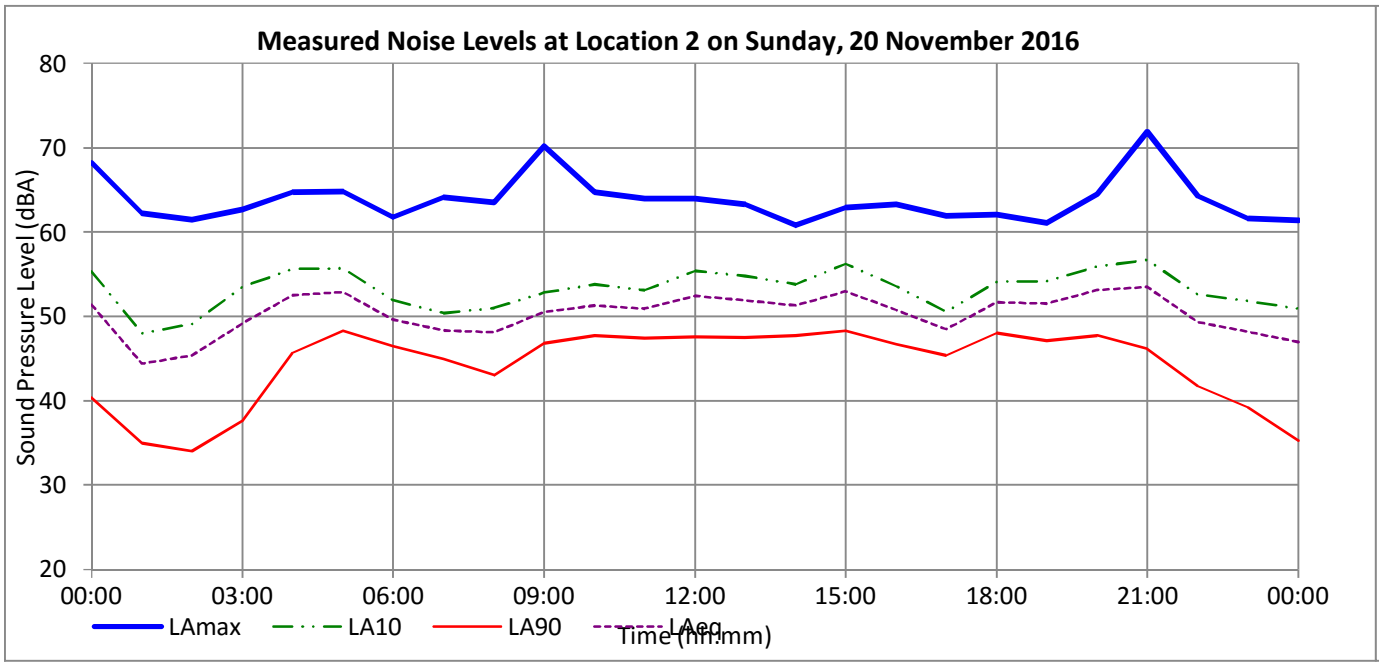
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 20 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	48	50	43	61
	Average	51	53	47	64
	Highest	53	56	48	70
Evening (1800-2200)	Lowest	52	54	46	61
	Average	53	55	47	65
	Highest	54	57	48	72
Night (2200-0700)	Lowest	47	51	35	60
	Average	54	55	43	65
	Highest	59	61	54	72

$L_{Aeq\ 24\text{-}hr}$	51 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	51 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	53 dB
L_{DN}	60 dB
L_{DEN}	60 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 21 November 2016
Weather during Measurement:	
Notes:	

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	59	49	79	
18-hr (0600-0000)	58	60	51	79	
Day 16-hr (0600-2200)	58	60	52	79	
Night 8-hr (2200-0600)	52	54	44	69	
Lday (0700-1800)	59	61	53	79	
Levening (1800-2200)	55	58	49	70	
Lnight (2200-0700)	52	54	44	71	
LDN	60				
LDEN	61				
00:00 - 01:00	47	51	35	61	
01:00 - 02:00	47	51	37	60	
02:00 - 03:00	48	52	38	66	
03:00 - 04:00	53	56	44	65	
04:00 - 05:00	55	58	49	66	
05:00 - 06:00	57	59	52	68	
06:00 - 07:00	59	61	54	72	
07:00 - 08:00	60	62	54	79	
08:00 - 09:00	61	63	55	77	
09:00 - 10:00	60	62	55	74	
10:00 - 11:00	59	62	54	73	
11:00 - 12:00	59	62	54	74	
12:00 - 13:00	57	60	52	72	
13:00 - 14:00	56	59	51	77	
14:00 - 15:00	58	61	52	73	
15:00 - 16:00	55	57	51	65	
16:00 - 17:00	55	57	49	71	
17:00 - 18:00	61	63	55	73	
18:00 - 19:00	56	59	50	70	
19:00 - 20:00	57	60	51	69	
20:00 - 21:00	53	56	47	66	
21:00 - 22:00	54	58	48	65	
22:00 - 23:00	55	58	48	66	
23:00 - 24:00	52	56	44	64	

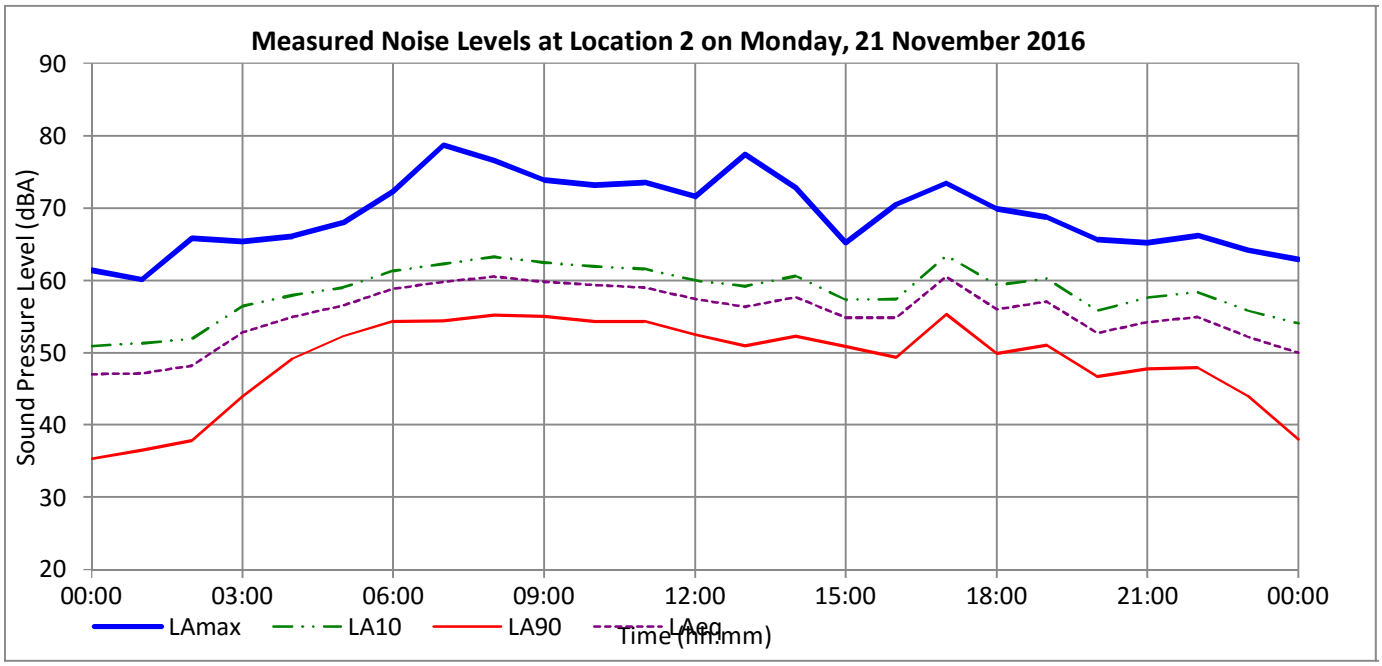
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 21 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	57	49	65
	Average	59	61	53	73
	Highest	61	63	55	79
Evening (1800-2200)	Lowest	53	56	47	65
	Average	55	58	49	67
	Highest	57	60	51	70
Night (2200-0700)	Lowest	46	49	38	56
	Average	52	54	44	64
	Highest	56	58	51	71

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	58 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	60 dB
L_{DN}	60 dB
L_{DEN}	61 dB



Logger Measurements - Location 2

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Tuesday, 22 November 2016
Weather during Measurement:	
Notes:	

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	53	55	47	78	
18-hr (0600-0000)	54	56	49	78	
Day 16-hr (0600-2200)	54	56	50	78	
Night 8-hr (2200-0600)	51	53	44	63	
Lday (0700-1800)	54	56	50	78	
Levening (1800-2200)	53	56	48	64	
Lnight (2200-0700)	52	54	45	68	
LDN	59				
LDEN	59				
00:00 - 01:00	50	54	38	63	
01:00 - 02:00	48	52	39	62	
02:00 - 03:00	48	52	40	58	
03:00 - 04:00	46	49	41	56	
04:00 - 05:00	51	54	47	64	
05:00 - 06:00	55	58	50	69	
06:00 - 07:00	56	58	51	71	
07:00 - 08:00	53	56	48	63	
08:00 - 09:00	57	59	53	67	
09:00 - 10:00	53	56	50	63	
10:00 - 11:00	53	55	50	78	
11:00 - 12:00	54	56	50	65	
12:00 - 13:00	53	56	50	63	
13:00 - 14:00	54	56	50	63	
14:00 - 15:00	53	56	49	63	
15:00 - 16:00	54	56	50	66	
16:00 - 17:00	54	57	51	65	
17:00 - 18:00	54	56	50	70	
18:00 - 19:00	53	56	49	62	
19:00 - 20:00	54	56	50	63	
20:00 - 21:00	53	56	47	63	
21:00 - 22:00	52	56	46	64	
22:00 - 23:00	50	53	43	60	
23:00 - 24:00	47	51	40	62	

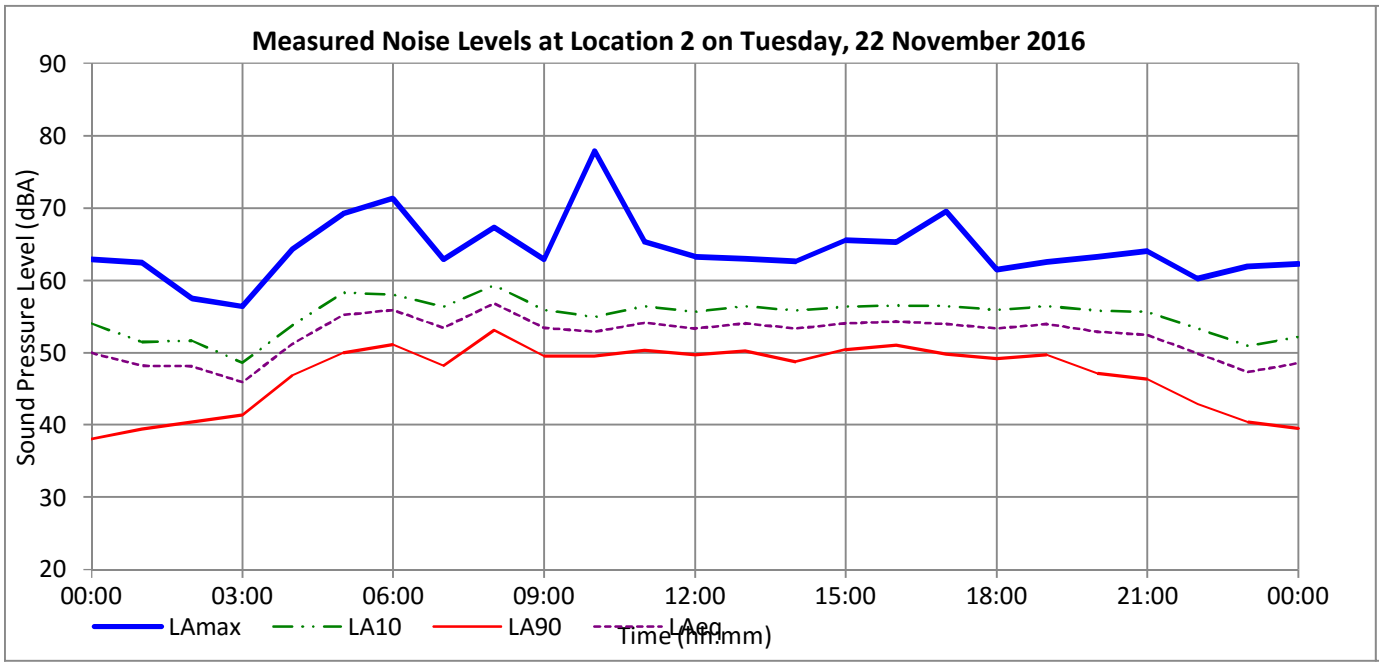
Logger Measurements - Location 2

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 2 NL31-3 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Tuesday, 22 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	53	55	48	63
	Average	54	56	50	66
	Highest	57	59	53	78
Evening (1800-2200)	Lowest	52	56	46	62
	Average	53	56	48	63
	Highest	54	56	50	64
Night (2200-0700)	Lowest	46	49	40	57
	Average	52	54	45	62
	Highest	56	59	52	68

$L_{Aeq\ 24\text{-}hr}$	53 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	51 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	56 dB
L_{DN}	59 dB
L_{DEN}	59 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Wednesday, 09 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	59	50	100	
18-hr (0600-0000)	57	59	51	100	
Day 16-hr (0600-2200)	58	59	51	100	
Night 8-hr (2200-0600)	56	59	49	69	
Lday (0700-1800)	57	59	51	89	
Levening (1800-2200)	57	60	51	70	
Lnight (2200-0700)	56	59	49	69	
LDN	63				
LDEN	64				
00:00 - 01:00	53	57	39	69	
01:00 - 02:00	52	56	41	66	
02:00 - 03:00	52	56	43	66	
03:00 - 04:00	54	58	47	67	
04:00 - 05:00	58	61	52	68	
05:00 - 06:00	60	61	55	84	
06:00 - 07:00	63	60	54	100	
07:00 - 08:00	60	62	53	83	
08:00 - 09:00	58	60	53	75	
09:00 - 10:00	56	58	51	78	
10:00 - 11:00	55	58	50	65	
11:00 - 12:00	56	58	51	89	
12:00 - 13:00	55	58	49	78	
13:00 - 14:00	56	58	51	70	
14:00 - 15:00	56	58	51	76	
15:00 - 16:00	56	59	52	68	
16:00 - 17:00	57	60	53	68	
17:00 - 18:00	57	60	52	72	
18:00 - 19:00	58	60	52	68	
19:00 - 20:00	57	59	51	67	
20:00 - 21:00	56	59	51	66	
21:00 - 22:00	58	61	51	70	
22:00 - 23:00	57	60	50	67	
23:00 - 24:00	56	59	47	67	

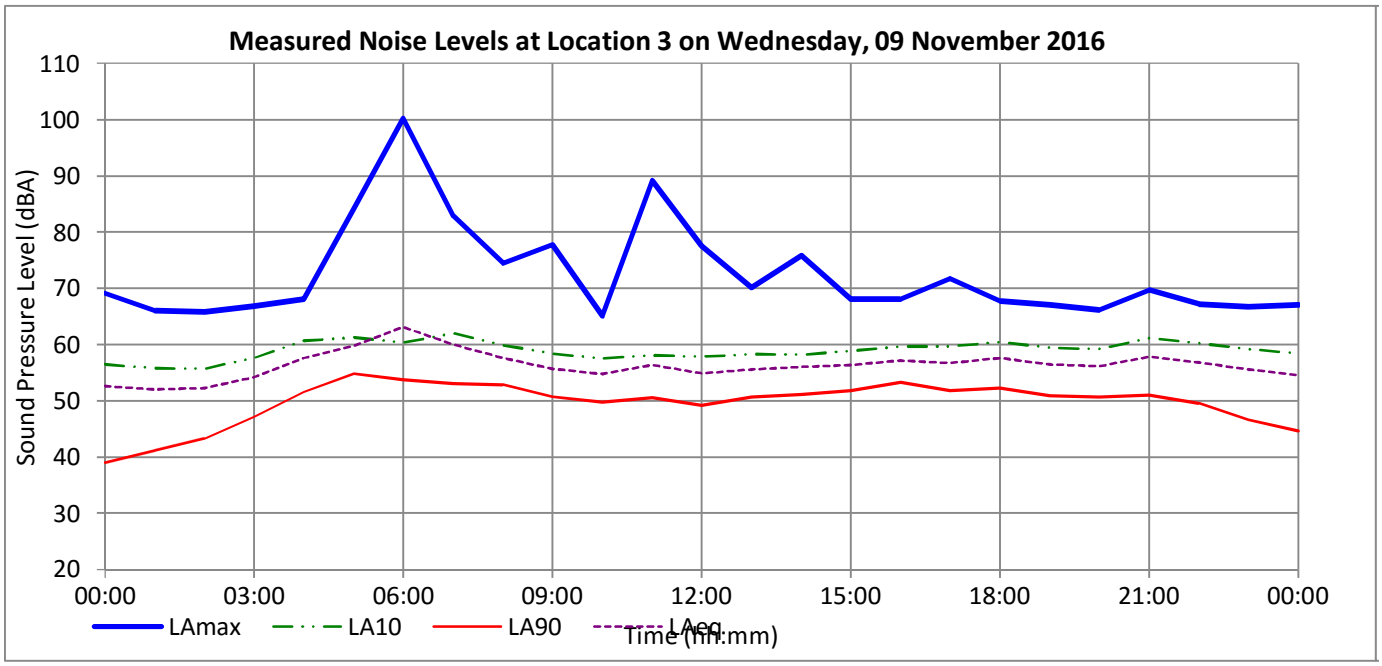
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Wednesday, 09 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	58	49	65
	Average	57	59	51	75
	Highest	60	62	53	89
Evening (1800-2200)	Lowest	56	59	51	66
	Average	57	60	51	68
	Highest	58	61	52	70
Night (2200-0700)	Lowest	54	58	45	66
	Average	56	59	49	67
	Highest	59	61	56	69

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	58 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	56 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	63 dB
L_{DEN}	64 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Thursday, 10 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	59	50	90	
18-hr (0600-0000)	57	59	51	90	
Day 16-hr (0600-2200)	57	59	51	90	
Night 8-hr (2200-0600)	57	60	49	74	
Lday (0700-1800)	56	58	51	90	
Levening (1800-2200)	59	62	52	72	
Lnight (2200-0700)	57	60	50	74	
LDN	63				
LDEN	64				
00:00 - 01:00	55	58	45	67	
01:00 - 02:00	56	60	45	69	
02:00 - 03:00	54	58	46	66	
03:00 - 04:00	55	58	49	67	
04:00 - 05:00	58	60	54	68	
05:00 - 06:00	59	61	56	67	
06:00 - 07:00	57	59	53	69	
07:00 - 08:00	54	56	49	64	
08:00 - 09:00	55	58	51	67	
09:00 - 10:00	58	59	52	90	
10:00 - 11:00	54	56	49	71	
11:00 - 12:00	57	59	51	88	
12:00 - 13:00	57	59	52	84	
13:00 - 14:00	55	57	51	68	
14:00 - 15:00	55	58	51	65	
15:00 - 16:00	54	57	49	67	
16:00 - 17:00	55	58	51	69	
17:00 - 18:00	56	59	52	66	
18:00 - 19:00	58	60	53	68	
19:00 - 20:00	58	61	53	70	
20:00 - 21:00	61	64	53	72	
21:00 - 22:00	57	60	51	70	
22:00 - 23:00	56	59	49	66	
23:00 - 24:00	55	59	46	65	

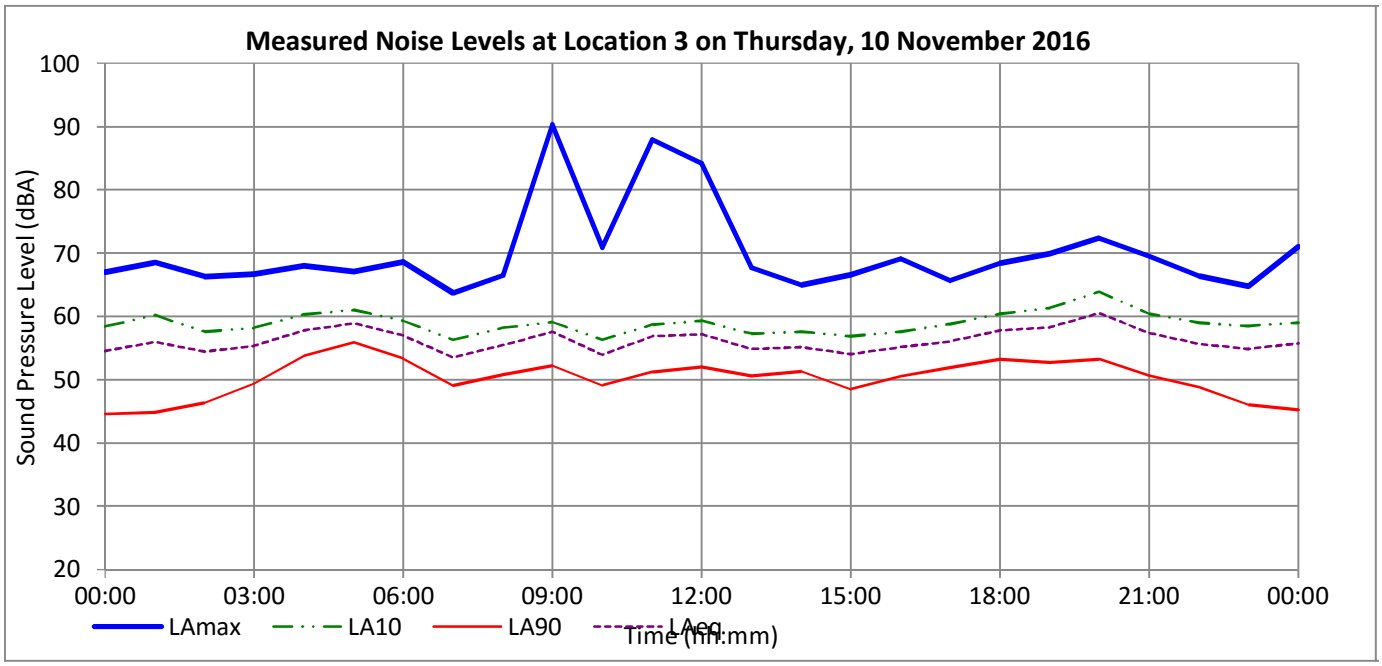
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Thursday, 10 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	54	56	49	64
	Average	56	58	51	73
	Highest	58	59	52	90
Evening (1800-2200)	Lowest	57	60	51	68
	Average	59	62	52	70
	Highest	61	64	53	72
Night (2200-0700)	Lowest	54	57	44	65
	Average	57	60	50	69
	Highest	60	62	57	74

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	57 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	63 dB
L_{DEN}	64 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Friday, 11 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	58	49	75	
18-hr (0600-0000)	56	57	49	75	
Day 16-hr (0600-2200)	56	57	50	75	
Night 8-hr (2200-0600)	52	55	43	69	
Lday (0700-1800)	54	55	48	75	
Levening (1800-2200)	60	63	54	73	
Lnight (2200-0700)	53	55	44	74	
LDN	60				
LDEN	62				
00:00 - 01:00	56	59	45	71	
01:00 - 02:00	54	57	44	68	
02:00 - 03:00	56	60	47	67	
03:00 - 04:00	59	62	52	74	
04:00 - 05:00	59	61	55	71	
05:00 - 06:00	60	62	57	69	
06:00 - 07:00	56	59	53	67	
07:00 - 08:00	56	59	52	75	
08:00 - 09:00	54	56	49	67	
09:00 - 10:00	52	54	46	71	
10:00 - 11:00	50	53	45	62	
11:00 - 12:00	49	52	45	63	
12:00 - 13:00	49	52	45	64	
13:00 - 14:00	51	54	46	65	
14:00 - 15:00	56	59	51	70	
15:00 - 16:00	52	54	48	70	
16:00 - 17:00	54	56	50	63	
17:00 - 18:00	58	61	53	66	
18:00 - 19:00	61	64	57	71	
19:00 - 20:00	61	64	56	70	
20:00 - 21:00	58	61	52	69	
21:00 - 22:00	60	63	52	73	
22:00 - 23:00	55	59	46	69	
23:00 - 24:00	49	53	43	60	

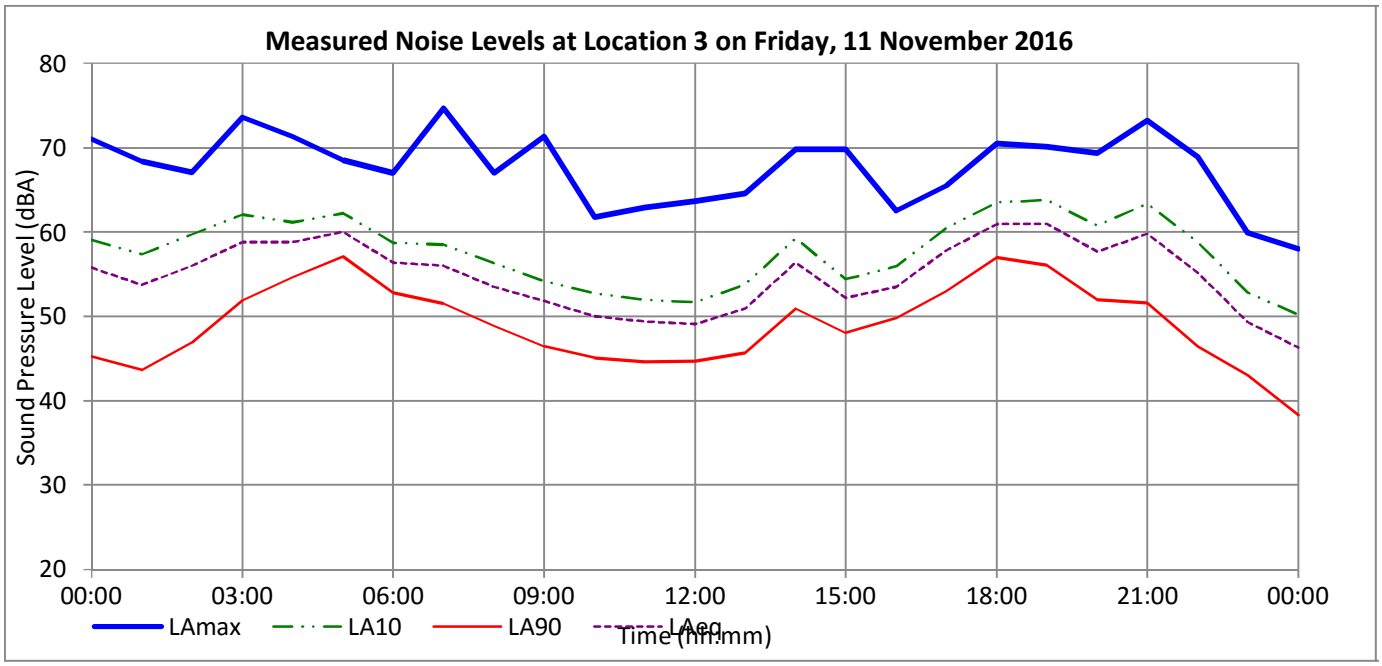
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Friday, 11 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	49	52	45	62
	Average	54	55	48	67
	Highest	58	61	53	75
Evening (1800-2200)	Lowest	58	61	52	69
	Average	60	63	54	71
	Highest	61	64	57	73
Night (2200-0700)	Lowest	46	50	36	58
	Average	53	55	44	66
	Highest	56	59	51	74

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	57 dB
L_{DN}	60 dB
L_{DEN}	62 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Saturday, 12 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	59	60	50	75	
18-hr (0600-0000)	60	61	53	75	
Day 16-hr (0600-2200)	60	62	54	75	
Night 8-hr (2200-0600)	53	55	39	77	
Lday (0700-1800)	61	64	57	75	
Levening (1800-2200)	57	60	48	72	
Lnight (2200-0700)	54	56	41	77	
LDN	62				
LDEN	63				
00:00 - 01:00	46	50	38	58	
01:00 - 02:00	47	51	39	61	
02:00 - 03:00	50	54	36	67	
03:00 - 04:00	51	55	41	68	
04:00 - 05:00	53	56	47	67	
05:00 - 06:00	56	59	51	68	
06:00 - 07:00	56	59	51	74	
07:00 - 08:00	58	60	53	68	
08:00 - 09:00	59	62	55	69	
09:00 - 10:00	60	62	56	73	
10:00 - 11:00	60	63	57	72	
11:00 - 12:00	61	64	56	75	
12:00 - 13:00	63	65	59	75	
13:00 - 14:00	63	65	59	74	
14:00 - 15:00	63	65	59	75	
15:00 - 16:00	63	65	58	73	
16:00 - 17:00	62	65	58	73	
17:00 - 18:00	61	64	55	72	
18:00 - 19:00	59	62	53	72	
19:00 - 20:00	58	61	50	70	
20:00 - 21:00	56	59	47	70	
21:00 - 22:00	53	57	44	67	
22:00 - 23:00	51	55	42	65	
23:00 - 24:00	49	53	40	65	

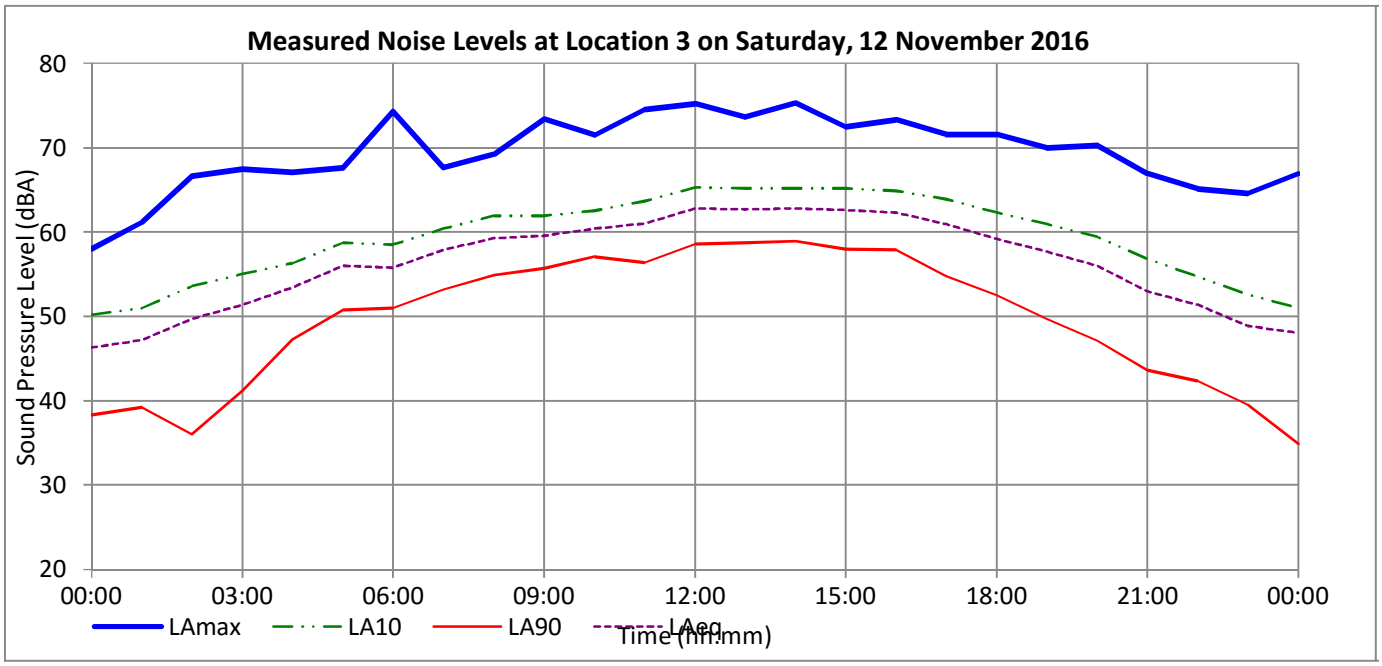
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 12 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	58	60	53	68
	Average	61	64	57	73
	Highest	63	65	59	75
Evening (1800-2200)	Lowest	53	57	44	67
	Average	57	60	48	70
	Highest	59	62	53	72
Night (2200-0700)	Lowest	48	51	33	65
	Average	54	56	41	70
	Highest	59	62	52	77

$L_{Aeq\ 24\text{-}hr}$	59 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	60 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	53 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	61 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Sunday, 13 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	58	59	49	81	
18-hr (0600-0000)	58	61	52	81	
Day 16-hr (0600-2200)	59	61	53	81	
Night 8-hr (2200-0600)	57	60	48	74	
Lday (0700-1800)	59	61	55	81	
Levening (1800-2200)	56	59	50	68	
Lnight (2200-0700)	58	60	49	74	
LDN	65				
LDEN	65				
00:00 - 01:00	48	51	35	67	
01:00 - 02:00	49	53	33	69	
02:00 - 03:00	50	54	34	69	
03:00 - 04:00	54	57	37	77	
04:00 - 05:00	56	61	44	77	
05:00 - 06:00	58	61	49	72	
06:00 - 07:00	59	62	52	71	
07:00 - 08:00	60	63	54	77	
08:00 - 09:00	61	63	55	81	
09:00 - 10:00	61	63	57	73	
10:00 - 11:00	60	62	56	69	
11:00 - 12:00	58	61	55	67	
12:00 - 13:00	55	57	51	64	
13:00 - 14:00	56	58	52	69	
14:00 - 15:00	59	64	53	70	
15:00 - 16:00	60	62	56	79	
16:00 - 17:00	60	62	57	69	
17:00 - 18:00	59	61	55	71	
18:00 - 19:00	57	60	52	68	
19:00 - 20:00	55	58	49	67	
20:00 - 21:00	55	58	49	66	
21:00 - 22:00	56	59	49	68	
22:00 - 23:00	56	59	46	69	
23:00 - 24:00	54	58	45	71	

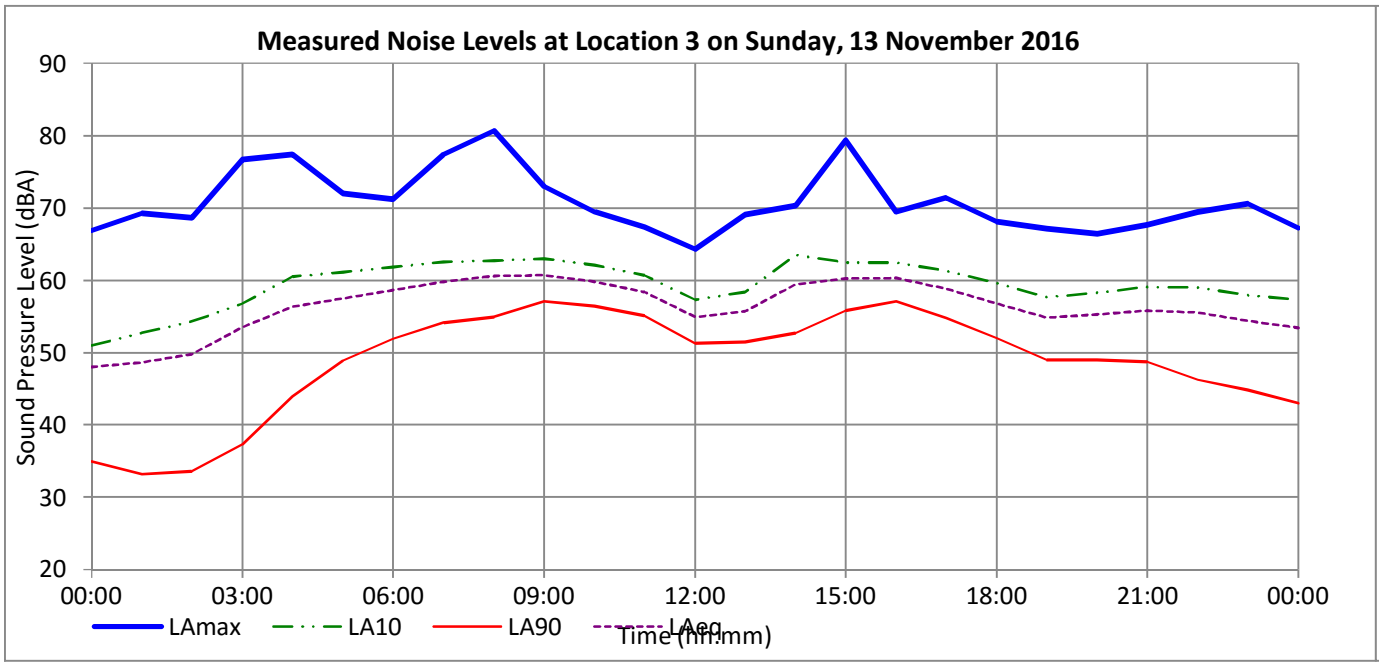
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 13 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	55	57	51	64
	Average	59	61	55	72
	Highest	61	64	57	81
Evening (1800-2200)	Lowest	55	58	49	66
	Average	56	59	50	67
	Highest	57	60	52	68
Night (2200-0700)	Lowest	53	57	43	67
	Average	58	60	49	71
	Highest	62	64	57	74

$L_{Aeq\ 24\text{-}hr}$	58 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	59 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	57 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	61 dB
L_{DN}	65 dB
L_{DEN}	65 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Monday, 14 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	59	61	52	74	
18-hr (0600-0000)	59	61	53	74	
Day 16-hr (0600-2200)	59	62	54	74	
Night 8-hr (2200-0600)	56	58	48	71	
Lday (0700-1800)	60	62	55	74	
Levening (1800-2200)	57	60	51	73	
Lnight (2200-0700)	56	59	49	71	
LDN	63				
LDEN	64				
00:00 - 01:00	53	57	43	67	
01:00 - 02:00	55	59	43	71	
02:00 - 03:00	55	59	45	68	
03:00 - 04:00	57	61	49	72	
04:00 - 05:00	60	63	54	72	
05:00 - 06:00	62	64	57	74	
06:00 - 07:00	62	64	57	72	
07:00 - 08:00	61	64	57	71	
08:00 - 09:00	61	64	57	71	
09:00 - 10:00	61	64	57	74	
10:00 - 11:00	60	63	56	73	
11:00 - 12:00	60	62	56	73	
12:00 - 13:00	59	62	54	72	
13:00 - 14:00	59	62	55	70	
14:00 - 15:00	58	61	54	71	
15:00 - 16:00	58	61	54	68	
16:00 - 17:00	58	61	53	69	
17:00 - 18:00	58	60	53	69	
18:00 - 19:00	58	60	52	67	
19:00 - 20:00	57	60	51	67	
20:00 - 21:00	57	60	50	73	
21:00 - 22:00	57	60	51	68	
22:00 - 23:00	56	60	49	68	
23:00 - 24:00	54	58	46	65	

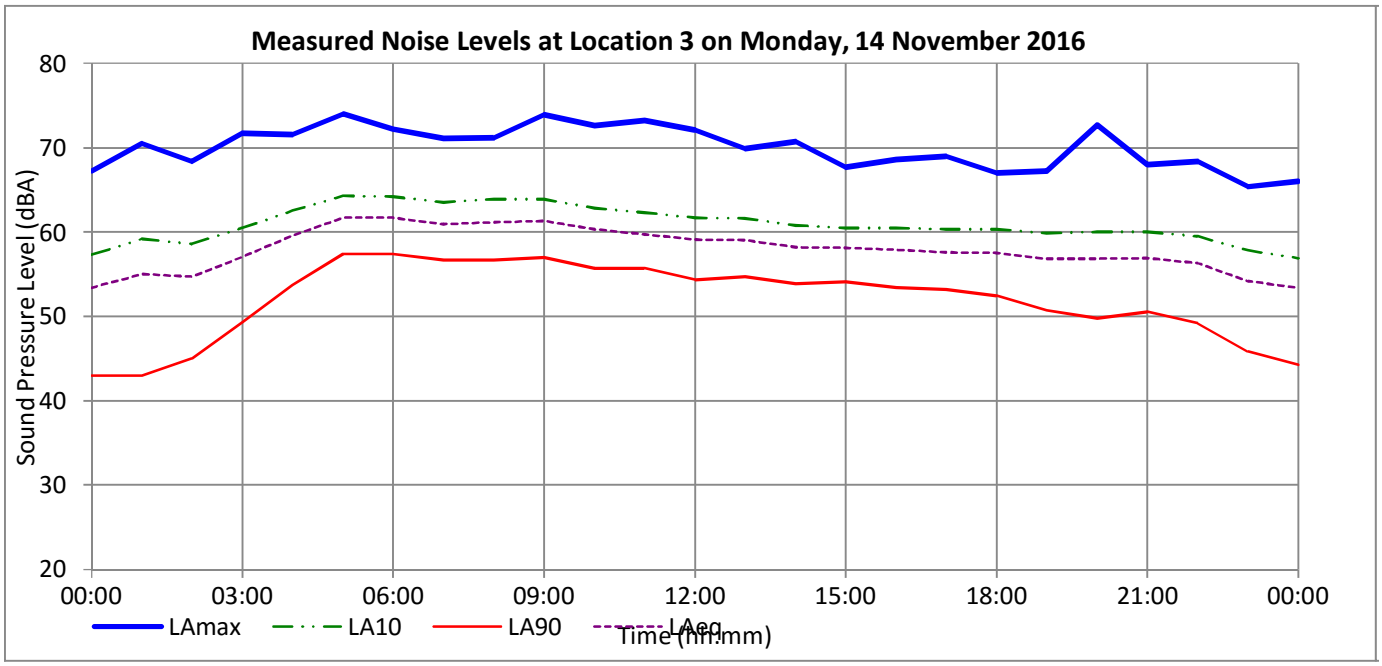
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 14 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	58	60	53	68
	Average	60	62	55	71
	Highest	61	64	57	74
Evening (1800-2200)	Lowest	57	60	50	67
	Average	57	60	51	69
	Highest	58	60	52	73
Night (2200-0700)	Lowest	53	57	43	65
	Average	56	59	49	67
	Highest	59	61	55	71

$L_{Aeq\ 24\text{-}hr}$	59 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	59 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	56 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	61 dB
L_{DN}	63 dB
L_{DEN}	64 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Tuesday, 15 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	57	60	52	71	
18-hr (0600-0000)	58	60	53	71	
Day 16-hr (0600-2200)	58	61	53	71	
Night 8-hr (2200-0600)	55	57	47	79	
Lday (0700-1800)	58	61	54	71	
Levening (1800-2200)	58	60	52	68	
Lnight (2200-0700)	56	58	48	79	
LDN	62				
LDEN	63				
00:00 - 01:00	53	57	44	66	
01:00 - 02:00	53	57	43	66	
02:00 - 03:00	54	57	47	65	
03:00 - 04:00	55	58	48	71	
04:00 - 05:00	58	60	53	69	
05:00 - 06:00	59	61	55	67	
06:00 - 07:00	58	60	55	69	
07:00 - 08:00	58	61	54	69	
08:00 - 09:00	58	61	53	67	
09:00 - 10:00	58	61	54	70	
10:00 - 11:00	58	61	53	70	
11:00 - 12:00	58	61	53	69	
12:00 - 13:00	57	60	53	68	
13:00 - 14:00	58	60	54	67	
14:00 - 15:00	59	61	54	69	
15:00 - 16:00	60	62	55	71	
16:00 - 17:00	59	62	55	71	
17:00 - 18:00	59	62	55	69	
18:00 - 19:00	57	60	52	67	
19:00 - 20:00	58	61	53	67	
20:00 - 21:00	58	61	53	67	
21:00 - 22:00	58	61	51	68	
22:00 - 23:00	56	59	50	65	
23:00 - 24:00	53	57	45	66	

Logger Measurements - Location 3

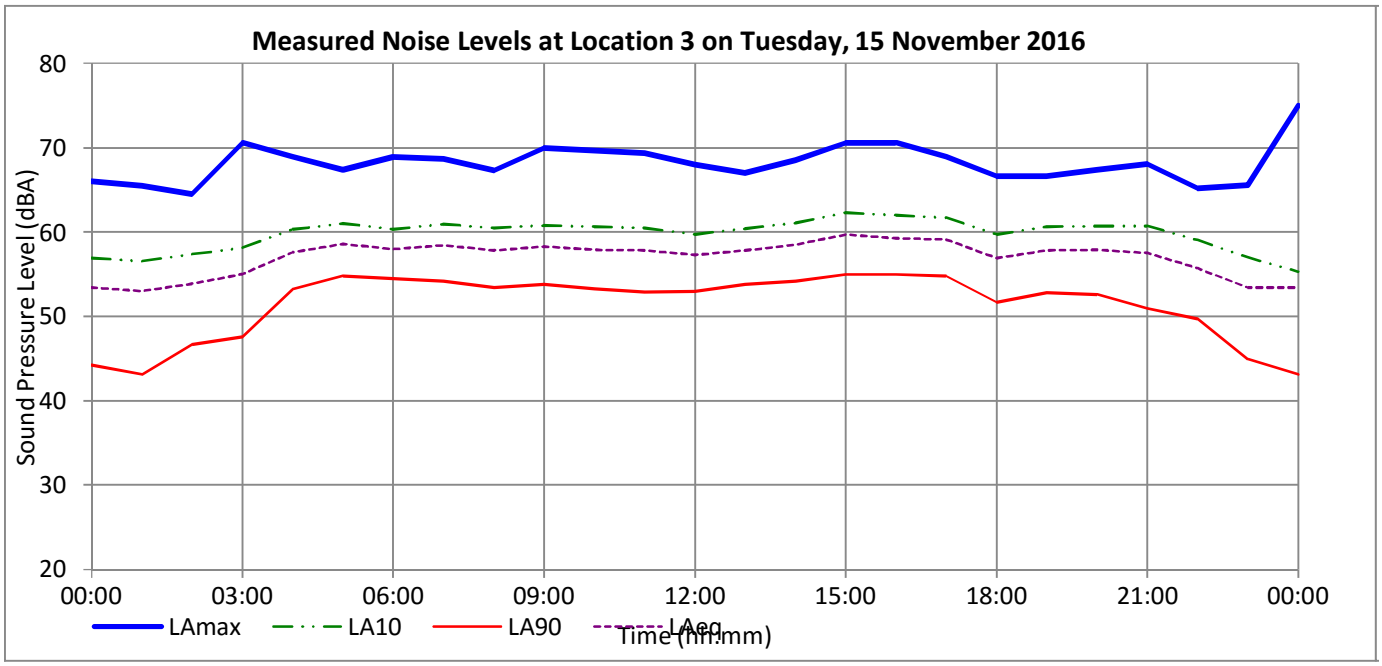
Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary

Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Tuesday, 15 November 2016
Weather during Measurement:
Notes:

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	57	60	53	67
	Average	58	61	54	69
	Highest	60	62	55	71
Evening (1800-2200)	Lowest	57	60	51	67
	Average	58	60	52	67
	Highest	58	61	53	68
Night (2200-0700)	Lowest	52	54	41	64
	Average	56	58	48	69
	Highest	58	61	54	79

$L_{Aeq\ 24\text{-}hr}$	57 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	58 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	55 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	60 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Wednesday, 16 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	49	79	
18-hr (0600-0000)	56	58	50	77	
Day 16-hr (0600-2200)	56	58	50	71	
Night 8-hr (2200-0600)	57	59	49	77	
Lday (0700-1800)	54	56	48	70	
Levening (1800-2200)	58	61	53	71	
Lnight (2200-0700)	57	59	50	77	
LDN	63				
LDEN	64				
00:00 - 01:00	53	55	43	75	
01:00 - 02:00	54	54	41	79	
02:00 - 03:00	52	55	42	65	
03:00 - 04:00	53	57	47	64	
04:00 - 05:00	57	60	52	69	
05:00 - 06:00	58	60	54	67	
06:00 - 07:00	58	61	54	69	
07:00 - 08:00	57	60	53	66	
08:00 - 09:00	56	59	53	65	
09:00 - 10:00	56	58	52	66	
10:00 - 11:00	53	56	47	70	
11:00 - 12:00	50	53	44	66	
12:00 - 13:00	50	53	44	63	
13:00 - 14:00	51	53	46	63	
14:00 - 15:00	51	54	46	63	
15:00 - 16:00	53	56	48	64	
16:00 - 17:00	54	57	50	66	
17:00 - 18:00	56	59	51	67	
18:00 - 19:00	58	61	53	67	
19:00 - 20:00	57	60	53	66	
20:00 - 21:00	58	60	52	71	
21:00 - 22:00	58	61	52	69	
22:00 - 23:00	60	63	52	77	
23:00 - 24:00	54	57	48	68	

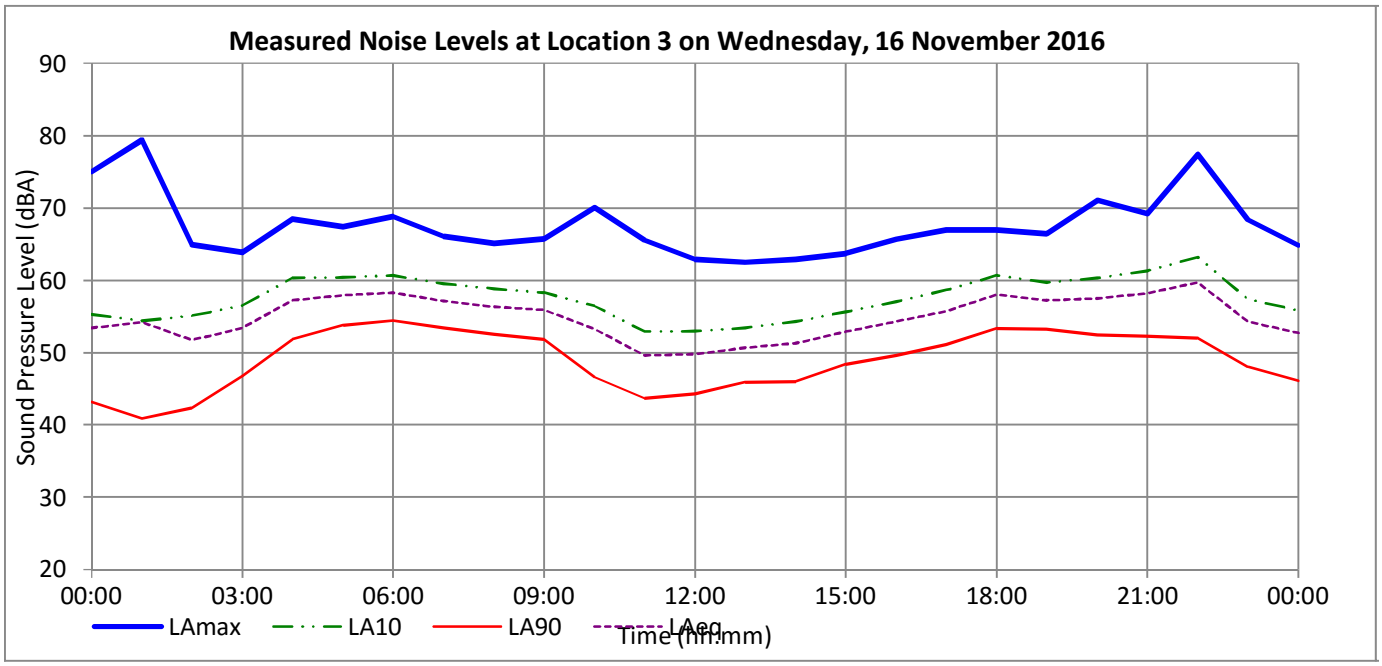
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Wednesday, 16 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	50	53	44	63
	Average	54	56	48	65
	Highest	57	60	53	70
Evening (1800-2200)	Lowest	57	60	52	66
	Average	58	61	53	68
	Highest	58	61	53	71
Night (2200-0700)	Lowest	53	56	46	65
	Average	57	59	50	69
	Highest	60	63	55	77

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	57 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	58 dB
L_{DN}	63 dB
L_{DEN}	64 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Thursday, 17 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	58	61	52	77	
18-hr (0600-0000)	59	61	53	77	
Day 16-hr (0600-2200)	59	62	54	77	
Night 8-hr (2200-0600)	54	57	47	70	
Lday (0700-1800)	59	62	55	77	
Levening (1800-2200)	59	62	53	71	
Lnight (2200-0700)	54	57	47	70	
LDN	62				
LDEN	63				
00:00 - 01:00	53	56	46	65	
01:00 - 02:00	56	59	48	71	
02:00 - 03:00	56	59	47	68	
03:00 - 04:00	56	59	48	68	
04:00 - 05:00	57	60	52	66	
05:00 - 06:00	58	61	55	68	
06:00 - 07:00	56	58	53	69	
07:00 - 08:00	56	59	52	69	
08:00 - 09:00	58	61	54	68	
09:00 - 10:00	58	61	54	69	
10:00 - 11:00	59	62	55	68	
11:00 - 12:00	59	62	54	70	
12:00 - 13:00	59	62	54	69	
13:00 - 14:00	60	62	55	77	
14:00 - 15:00	61	64	56	72	
15:00 - 16:00	61	64	57	71	
16:00 - 17:00	61	63	57	68	
17:00 - 18:00	60	63	56	68	
18:00 - 19:00	60	62	56	71	
19:00 - 20:00	60	63	55	70	
20:00 - 21:00	59	62	53	69	
21:00 - 22:00	56	60	48	70	
22:00 - 23:00	55	58	47	66	
23:00 - 24:00	53	57	46	64	

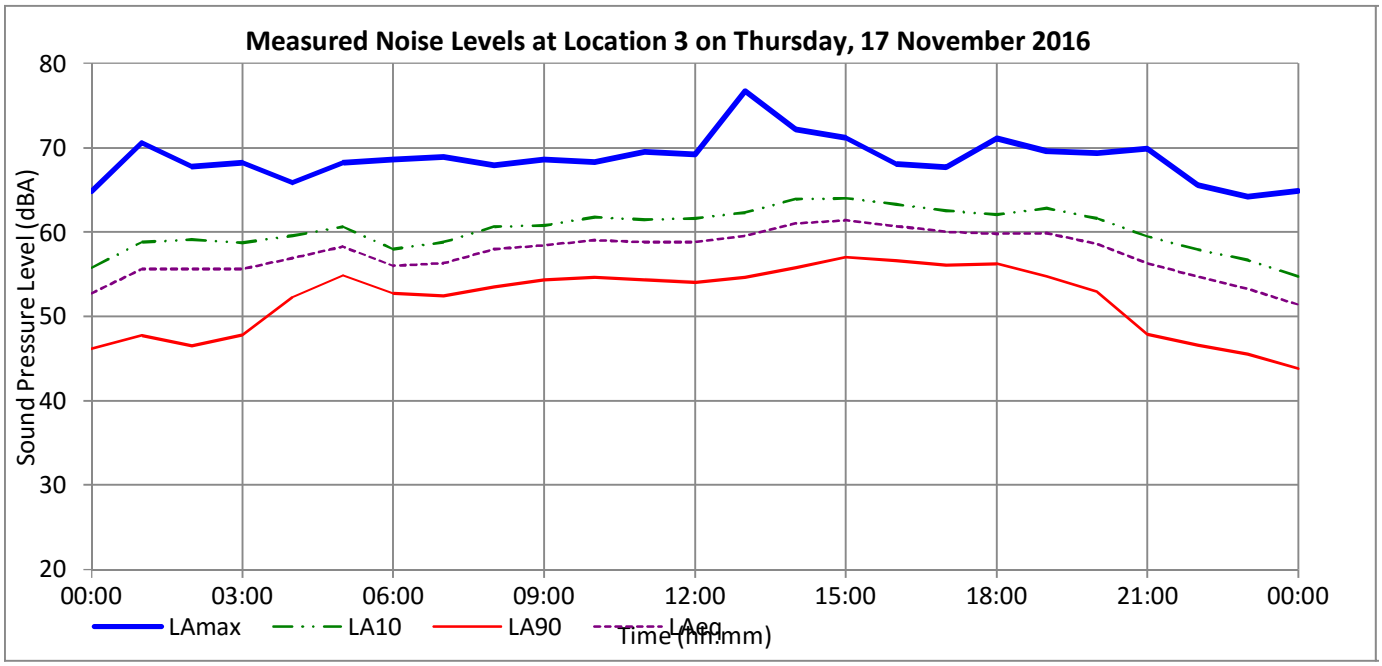
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Thursday, 17 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	56	59	52	68
	Average	59	62	55	70
	Highest	61	64	57	77
Evening (1800-2200)	Lowest	56	60	48	69
	Average	59	62	53	70
	Highest	60	63	56	71
Night (2200-0700)	Lowest	51	55	44	62
	Average	54	57	47	65
	Highest	57	59	53	70

$L_{Aeq\ 24\text{-}hr}$	58 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	59 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	54 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	61 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Friday, 18 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	50	70	
18-hr (0600-0000)	56	58	51	69	
Day 16-hr (0600-2200)	56	58	52	69	
Night 8-hr (2200-0600)	53	56	44	70	
Lday (0700-1800)	56	58	51	69	
Levening (1800-2200)	57	60	52	68	
Lnight (2200-0700)	53	56	44	70	
LDN	60				
LDEN	61				
00:00 - 01:00	51	55	44	65	
01:00 - 02:00	55	58	45	70	
02:00 - 03:00	52	55	45	65	
03:00 - 04:00	53	57	47	65	
04:00 - 05:00	54	57	50	62	
05:00 - 06:00	57	59	53	64	
06:00 - 07:00	55	57	51	63	
07:00 - 08:00	56	59	53	64	
08:00 - 09:00	54	58	47	66	
09:00 - 10:00	51	53	46	62	
10:00 - 11:00	56	58	50	65	
11:00 - 12:00	57	59	53	67	
12:00 - 13:00	55	58	51	68	
13:00 - 14:00	55	57	52	63	
14:00 - 15:00	56	58	51	66	
15:00 - 16:00	57	59	54	66	
16:00 - 17:00	58	60	55	69	
17:00 - 18:00	57	60	54	67	
18:00 - 19:00	58	60	54	66	
19:00 - 20:00	57	60	53	67	
20:00 - 21:00	57	60	51	68	
21:00 - 22:00	56	59	51	65	
22:00 - 23:00	55	58	49	67	
23:00 - 24:00	52	56	43	65	

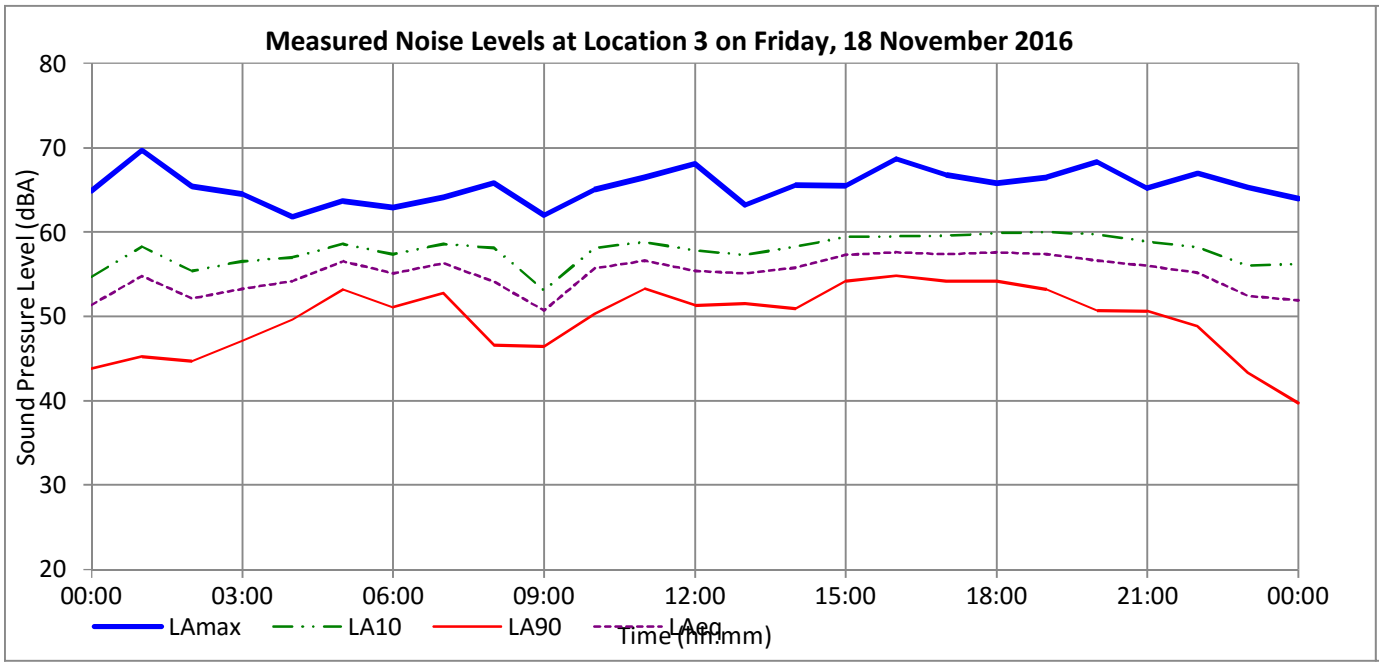
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Friday, 18 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	51	53	46	62
	Average	56	58	51	66
	Highest	58	60	55	69
Evening (1800-2200)	Lowest	56	59	51	65
	Average	57	60	52	66
	Highest	58	60	54	68
Night (2200-0700)	Lowest	50	53	40	62
	Average	53	56	44	65
	Highest	55	58	49	70

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	56 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	53 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	58 dB
L_{DN}	60 dB
L_{DEN}	61 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 19 November 2016
Weather during Measurement:	
Notes:	

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	53	55	46	70	
18-hr (0600-0000)	53	55	48	68	
Day 16-hr (0600-2200)	53	55	48	68	
Night 8-hr (2200-0600)	52	54	43	69	
Lday (0700-1800)	52	55	47	68	
Levening (1800-2200)	54	57	49	68	
Lnight (2200-0700)	52	54	43	69	
LDN	58				
LDEN	59				
00:00 - 01:00	52	56	40	64	
01:00 - 02:00	51	55	40	65	
02:00 - 03:00	50	53	40	64	
03:00 - 04:00	51	55	41	64	
04:00 - 05:00	53	56	47	62	
05:00 - 06:00	54	57	49	70	
06:00 - 07:00	54	56	49	67	
07:00 - 08:00	54	57	50	66	
08:00 - 09:00	53	56	49	66	
09:00 - 10:00	52	55	47	68	
10:00 - 11:00	52	55	46	67	
11:00 - 12:00	49	52	45	66	
12:00 - 13:00	51	54	46	63	
13:00 - 14:00	51	54	46	65	
14:00 - 15:00	51	53	46	65	
15:00 - 16:00	52	55	48	66	
16:00 - 17:00	54	57	50	66	
17:00 - 18:00	53	56	49	66	
18:00 - 19:00	55	57	50	68	
19:00 - 20:00	55	58	49	66	
20:00 - 21:00	53	56	48	63	
21:00 - 22:00	53	56	48	64	
22:00 - 23:00	53	56	46	66	
23:00 - 24:00	51	54	44	64	

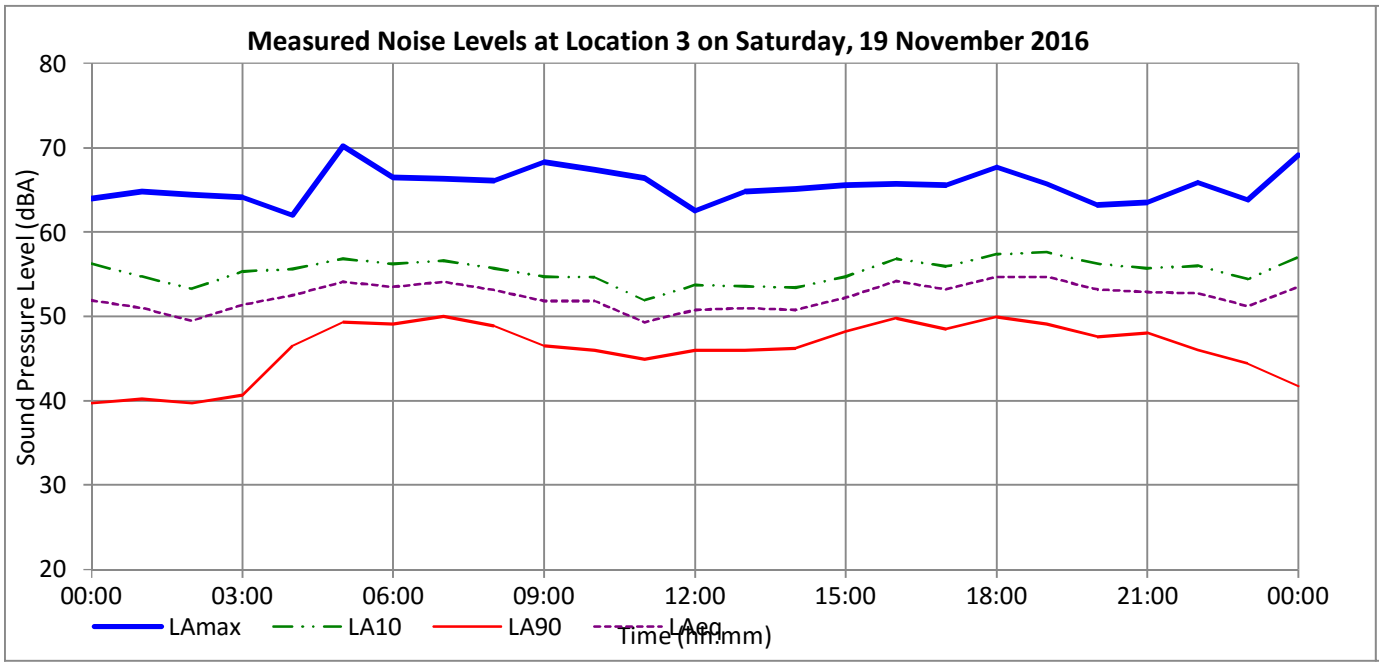
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Saturday, 19 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	49	52	45	63
	Average	52	55	47	66
	Highest	54	57	50	68
Evening (1800-2200)	Lowest	53	56	48	63
	Average	54	57	49	65
	Highest	55	58	50	68
Night (2200-0700)	Lowest	46	50	35	62
	Average	52	54	43	64
	Highest	54	57	49	69

$L_{Aeq\ 24\text{-}hr}$	53 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	53 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	52 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	55 dB
L_{DN}	58 dB
L_{DEN}	59 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Sunday, 20 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	53	55	47	70	
18-hr (0600-0000)	54	56	48	70	
Day 16-hr (0600-2200)	54	56	49	70	
Night 8-hr (2200-0600)	54	57	44	69	
Lday (0700-1800)	53	55	49	68	
Levening (1800-2200)	55	58	50	70	
Lnight (2200-0700)	55	57	45	79	
LDN	62				
LDEN	62				
00:00 - 01:00	54	57	42	69	
01:00 - 02:00	46	50	37	63	
02:00 - 03:00	47	51	35	64	
03:00 - 04:00	51	55	40	63	
04:00 - 05:00	53	56	48	63	
05:00 - 06:00	53	56	49	62	
06:00 - 07:00	51	53	47	62	
07:00 - 08:00	50	52	46	63	
08:00 - 09:00	50	53	46	68	
09:00 - 10:00	53	55	49	63	
10:00 - 11:00	54	56	50	63	
11:00 - 12:00	53	55	50	64	
12:00 - 13:00	55	58	50	66	
13:00 - 14:00	54	56	50	65	
14:00 - 15:00	54	57	50	65	
15:00 - 16:00	56	59	51	65	
16:00 - 17:00	53	56	50	66	
17:00 - 18:00	52	54	49	61	
18:00 - 19:00	55	57	51	64	
19:00 - 20:00	54	56	50	64	
20:00 - 21:00	56	59	51	68	
21:00 - 22:00	56	59	48	70	
22:00 - 23:00	52	56	44	68	
23:00 - 24:00	51	54	41	65	

Logger Measurements - Location 3

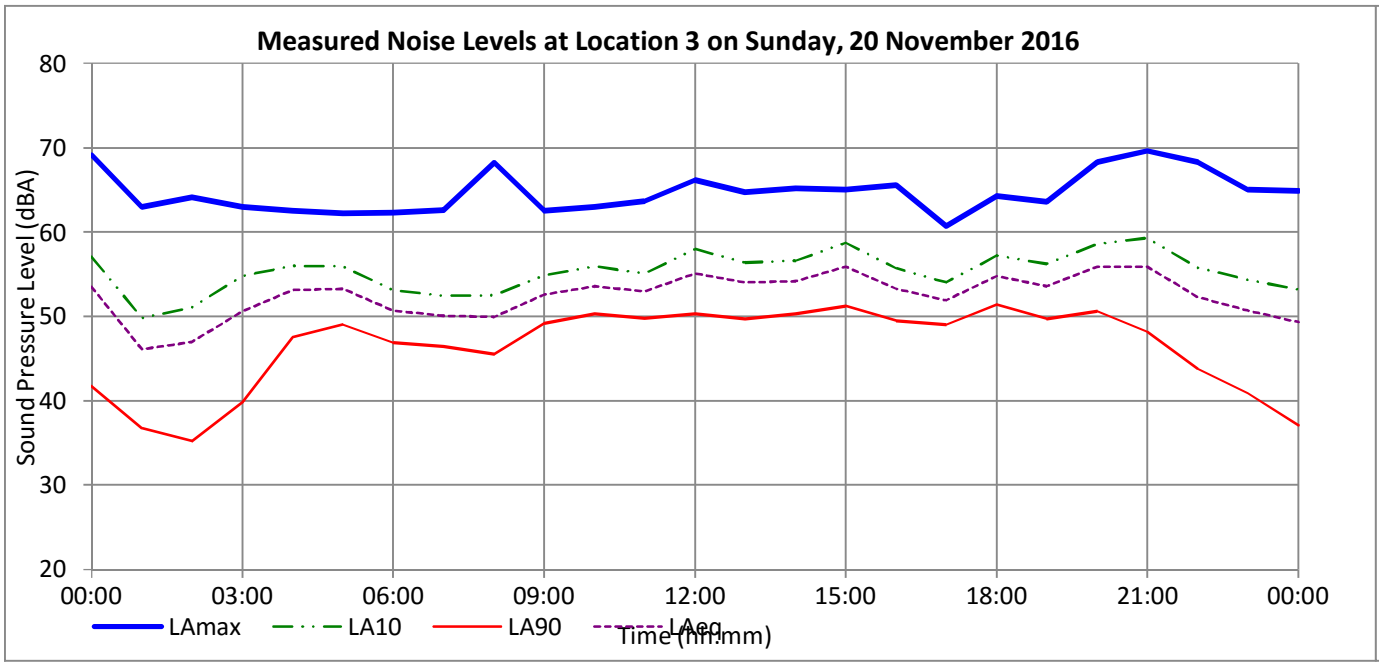
Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Sunday, 20 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	50	52	46	61
	Average	53	55	49	64
	Highest	56	59	51	68
Evening (1800-2200)	Lowest	54	56	48	64
	Average	55	58	50	66
	Highest	56	59	51	70
Night (2200-0700)	Lowest	49	53	37	65
	Average	55	57	45	68
	Highest	59	62	55	79

$L_{Aeq\ 24\text{-}hr}$	53 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	54 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	54 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	56 dB
L_{DN}	62 dB
L_{DEN}	62 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary

Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 21 November 2016
Weather during Measurement:	
Notes:	

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	58	60	51	80	
18-hr (0600-0000)	59	61	53	80	
Day 16-hr (0600-2200)	59	62	54	80	
Night 8-hr (2200-0600)	54	56	46	67	
Lday (0700-1800)	60	62	55	80	
Levening (1800-2200)	57	60	51	70	
Lnight (2200-0700)	54	57	46	67	
LDN	62				
LDEN	63				
00:00 - 01:00	49	53	37	65	
01:00 - 02:00	50	54	38	68	
02:00 - 03:00	51	55	39	66	
03:00 - 04:00	55	59	46	69	
04:00 - 05:00	57	61	51	68	
05:00 - 06:00	59	61	54	69	
06:00 - 07:00	59	62	55	79	
07:00 - 08:00	60	62	56	71	
08:00 - 09:00	60	63	56	76	
09:00 - 10:00	60	63	56	73	
10:00 - 11:00	60	63	55	74	
11:00 - 12:00	60	63	56	72	
12:00 - 13:00	58	61	54	68	
13:00 - 14:00	58	61	53	68	
14:00 - 15:00	60	63	55	72	
15:00 - 16:00	57	60	53	67	
16:00 - 17:00	58	61	52	74	
17:00 - 18:00	63	65	56	80	
18:00 - 19:00	57	60	52	68	
19:00 - 20:00	59	63	53	70	
20:00 - 21:00	55	58	49	67	
21:00 - 22:00	56	60	50	69	
22:00 - 23:00	56	60	49	67	
23:00 - 24:00	54	57	46	64	

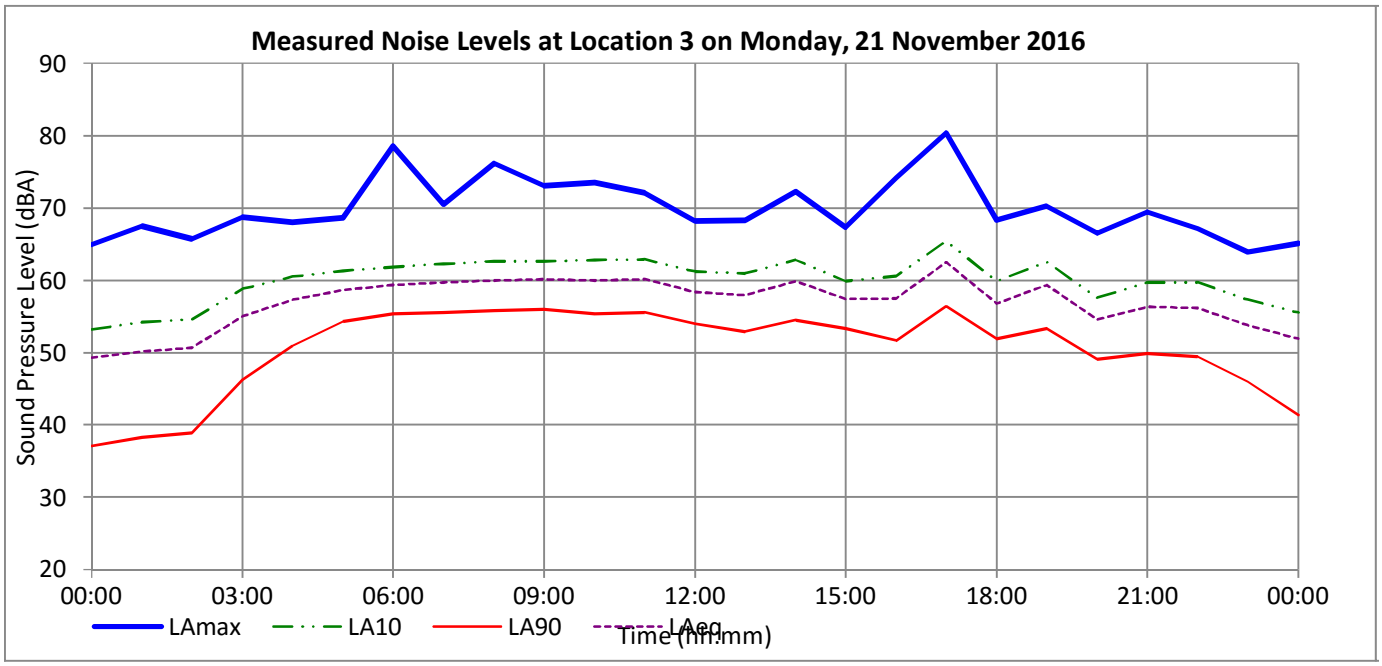
Logger Measurements - Location 3

Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Monday, 21 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	57	60	52	67
	Average	60	62	55	72
	Highest	63	65	56	80
Evening (1800-2200)	Lowest	55	58	49	67
	Average	57	60	51	69
	Highest	59	63	53	70
Night (2200-0700)	Lowest	50	53	41	60
	Average	54	57	46	64
	Highest	57	60	53	67

$L_{Aeq\ 24\text{-}hr}$	58 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	59 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	54 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	61 dB
L_{DN}	62 dB
L_{DEN}	63 dB



Logger Measurements - Location 3

Date: Wednesday, 12 April 2017
File name: D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number: 20161123
Job name: Wallara Waters
Initials: NH
Measurement Date: Tuesday, 22 November 2016
Weather during Measurement:
Notes:

MEASURED NOISE LEVELS SHEET

Noise Level, dB	L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}	NOTES
24-hour	56	58	50	71	
18-hr (0600-0000)	56	59	52	71	
Day 16-hr (0600-2200)	57	59	52	71	
Night 8-hr (2200-0600)	54	57	47	67	
Lday (0700-1800)	57	59	53	71	
Levening (1800-2200)	56	59	51	66	
Lnight (2200-0700)	55	57	47	67	
LDN	62				
LDEN	62				
00:00 - 01:00	52	56	41	65	
01:00 - 02:00	50	54	42	62	
02:00 - 03:00	51	55	43	61	
03:00 - 04:00	50	53	43	60	
04:00 - 05:00	54	57	49	63	
05:00 - 06:00	57	60	52	66	
06:00 - 07:00	57	59	53	65	
07:00 - 08:00	57	59	52	66	
08:00 - 09:00	59	61	55	67	
09:00 - 10:00	56	59	52	65	
10:00 - 11:00	56	58	52	64	
11:00 - 12:00	57	59	53	67	
12:00 - 13:00	57	59	53	71	
13:00 - 14:00	57	59	53	67	
14:00 - 15:00	57	59	52	67	
15:00 - 16:00	57	60	54	68	
16:00 - 17:00	58	60	54	68	
17:00 - 18:00	57	60	53	65	
18:00 - 19:00	57	59	52	65	
19:00 - 20:00	57	60	52	66	
20:00 - 21:00	56	59	50	66	
21:00 - 22:00	55	58	49	66	
22:00 - 23:00	54	57	46	65	
23:00 - 24:00	51	55	44	65	

Logger Measurements - Location 3

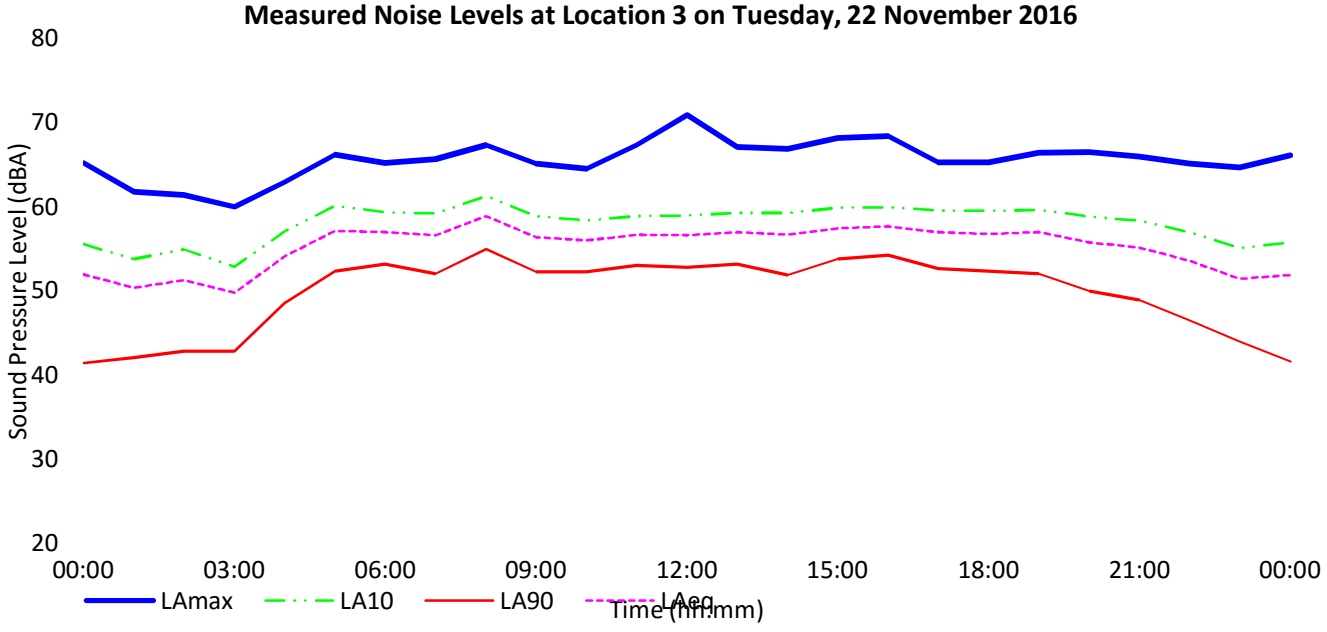
Date:	Wednesday, 12 April 2017
File name:	D:\zz Sync folders\20169090 Wallara Waters Phase 2 compliance\03 Survey Data & Measurements\20161123 Noise survey\[Loc 3 NL31-1 revised.xlsx]Logger_Summary
Job number:	20161123
Job name:	Wallara Waters
Initials:	NH
Measurement Date:	Tuesday, 22 November 2016
Weather during Measurement:	
Notes:	

SUMMARY SHEET

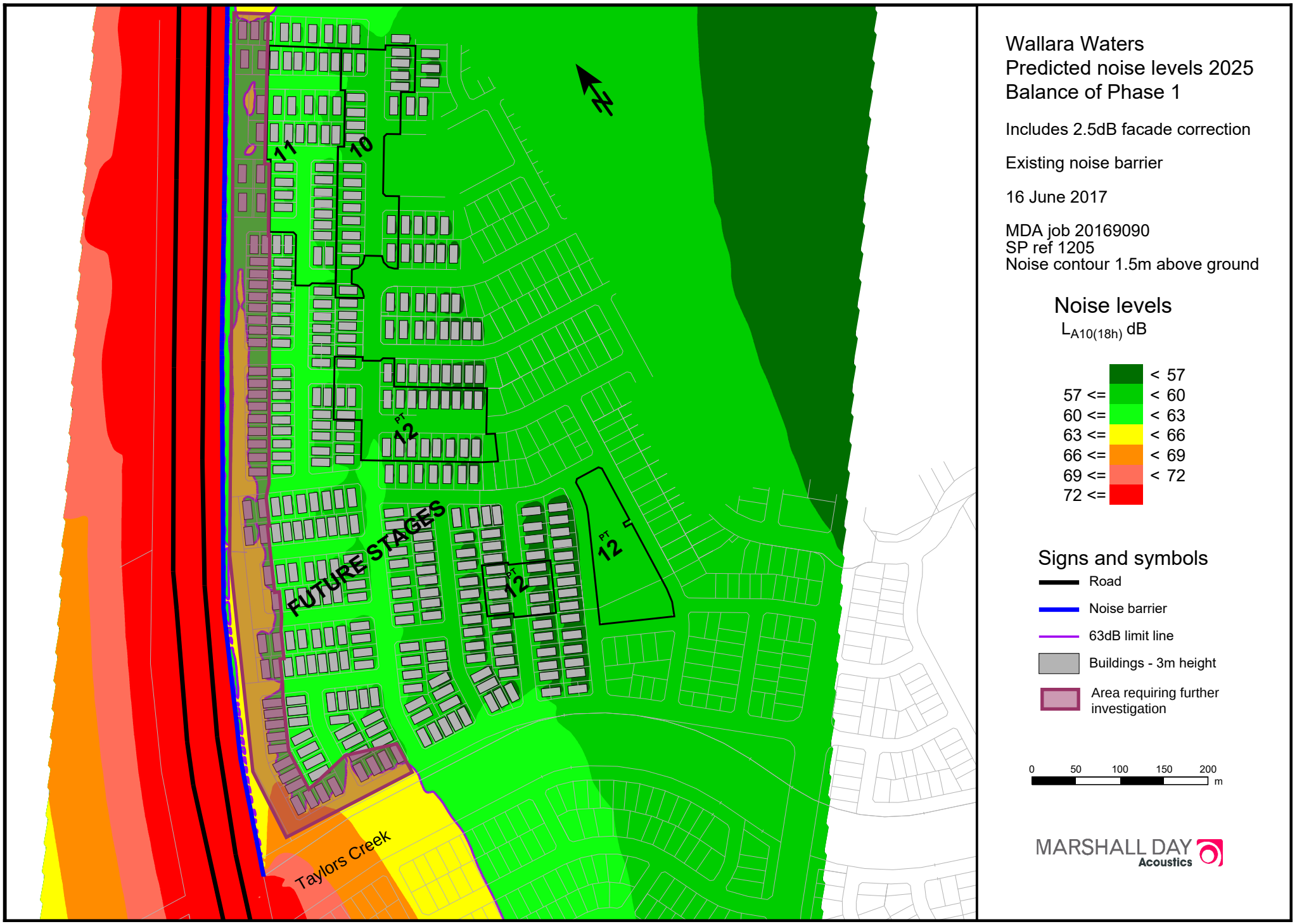
Noise Level, dB		L_{Aeq}	L_{A10}	L_{A90}	L_{Amax}
Day (0700-1800)	Lowest	56	58	52	64
	Average	57	59	53	67
	Highest	59	61	55	71
Evening (1800-2200)	Lowest	55	58	49	65
	Average	56	59	51	66
	Highest	57	60	52	66
Night (2200-0700)	Lowest	49	53	42	61
	Average	55	57	47	65
	Highest	58	60	54	67

$L_{Aeq\ 24\text{-}hr}$	56 dB
$L_{Aeq\ 16\text{-}hr\ (0600\text{-}2200)}$	57 dB
$L_{Aeq\ 8\text{-}hr\ (2200\text{-}0600)}$	54 dB
$L_{A10\ 18\text{-}hr\ (0600\text{-}0000)}$	59 dB
L_{DN}	62 dB
L_{DEN}	62 dB

Measured Noise Levels at Location 3 on Tuesday, 22 November 2016



APPENDIX G HOUSE LOTS WITH PREDICTED NOISE LEVELS BELOW VICROADS' LIMIT



Wallara Waters
Predicted noise levels 2025
Balance of Phase 1

Includes 2.5dB facade correction

Existing noise barrier

16 June 2017

MDA job 20169090
SP ref 1205
Noise contour 1.5m above ground

Noise levels

$L_{A10(18h)}$ dB

	< 57
57 <=	< 60
60 <=	< 63
63 <=	< 66
66 <=	< 69
69 <=	< 72
72 <=	

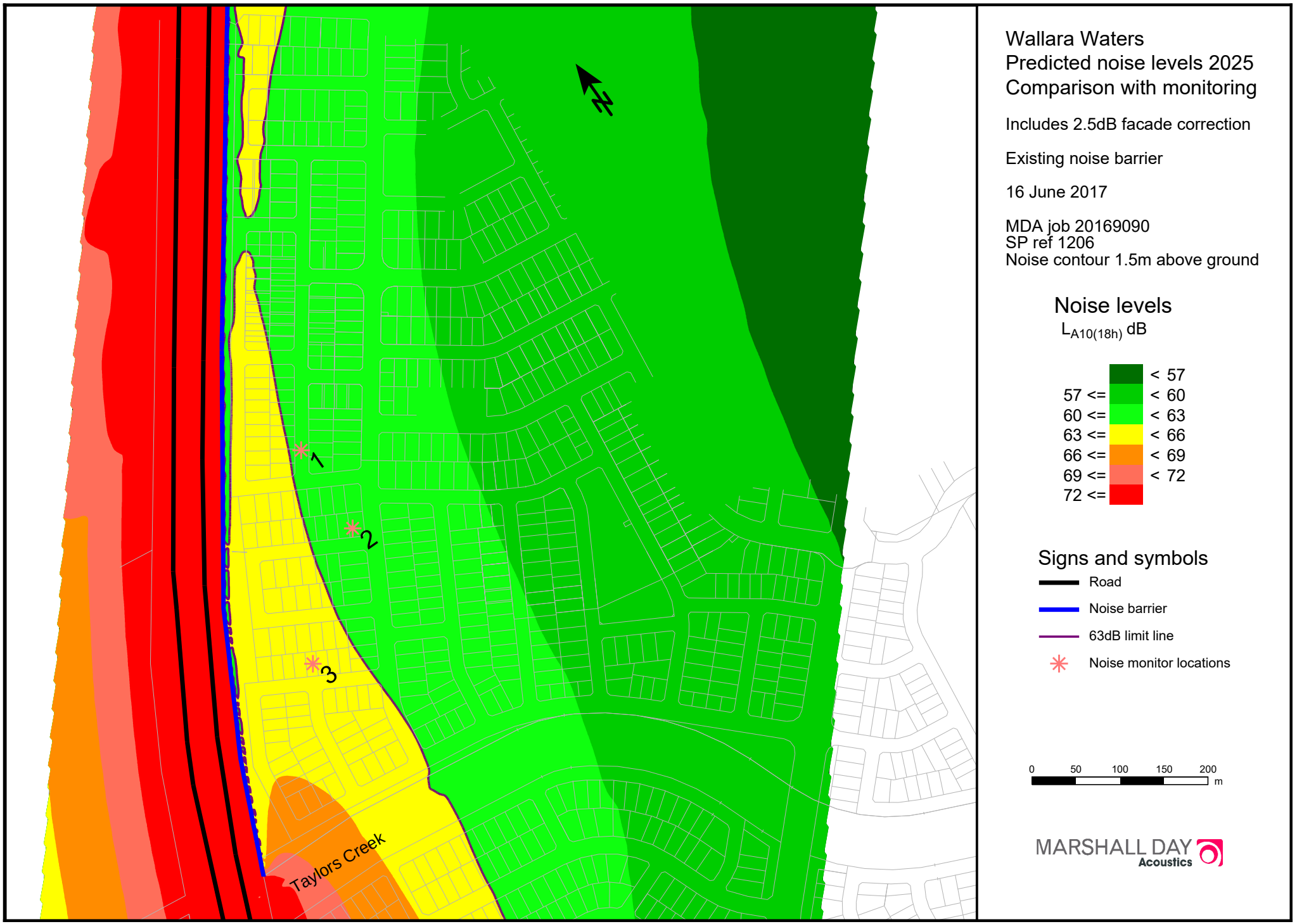
Signs and symbols

- Road
- Noise barrier
- 63dB limit line
- Buildings - 3m height
- Area requiring further investigation

0 50 100 150 200 m

MARSHALL DAY Acoustics

APPENDIX H NOISE CONTOURS WITH 2016 NOISE MONITORING LOCATIONS



Wallara Waters
Predicted noise levels 2025
Comparison with monitoring

Includes 2.5dB facade correction

Existing noise barrier

16 June 2017

MDA job 20169090
SP ref 1206
Noise contour 1.5m above ground

Noise levels

$L_{A10(18h)}$ dB

	< 57
57 <=	< 60
60 <=	< 63
63 <=	< 66
66 <=	< 69
69 <=	< 72
72 <=	

Signs and symbols

- Road
- Noise barrier
- 63dB limit line
- Noise monitor locations

0 50 100 150 200 m

MARSHALL DAY Acoustics