



Goodyear
Proposed Industrial Warehouse
Lot 205 / 60 Stapylton Jacobs Well Road
Stapylton

ACOUSTIC REPORT



Client:
Fraser's Property

Reference:
2021559 R01D Goodyear Stapylton Jacobs Well Yatala ENV.docx

Date Issued:
20 January 2022

Document Information

Contact Details

Acoustic Works
Unit 2/8 Castlemaine Street
Coorparoo QLD 4151
(07) 3393 2222
ABN: 56 157 965 056

PO Box 1271
Coorparoo DC
QLD 4151

Greg Pearce
Email: gpearce@acousticworks.com.au

Mark Enersen
Email: menersen@acousticworks.com.au

Report Register

Date	Revision	Author	Reviewer
05/11/2021	R01A	Michael Gunning	Greg Pearce
29/11/2021	R01B	Michael Gunning	Greg Pearce
29/11/2021	R01C	Michael Gunning	Greg Pearce
20/01/2022	R01D	Michael Gunning	Greg Pearce

Disclaimer

Reports produced by Acoustic Works are prepared for a particular Client's objective and are based on a specific scope, conditions and limitations, as agreed between Acoustic Works and the Client. Under no circumstances shall information and/or report(s) prepared by Acoustic Works be used by other parties other than the Client without first obtaining written permission from Acoustic Works.

TABLE OF CONTENTS

1.Introduction	4
2.Site Description	4
2.1 Site Location	4
2.2 Proposal	5
2.3 Acoustic Environment	5
3.Equipment	5
4.Receivers and Noise Monitoring	6
4.1 Receiver Locations.....	6
4.2 Unattended Ambient Noise Monitoring.....	7
5.Measured Noise Levels	7
5.1 Ambient Noise Levels.....	7
6.Noise Criteria.....	8
6.1 Environmental Noise Criteria.....	8
6.1.1 Acoustic Quality Objectives.....	8
6.1.2 Background Creep	8
7.Onsite Activities	9
7.1 Methodology	9
7.2 Source Sound Power Levels.....	9
7.3 Predicted Noise Levels	9
7.3.1 Background Creep Criteria	9
7.3.2 Acoustic Quality Objectives.....	10
7.4 Noise Contour Maps.....	10
8.Recommendations.....	14
8.1 Onsite Activities.....	14
8.1.1 Onsite Mechanical Plant	14
9.Conclusion	15
10. Appendices	16
10.1 Development Plans.....	16
10.2 Noise Monitoring Charts	20

TABLE INDEX

<i>Table 1: Measured ambient noise levels – all time periods.....</i>	<i>7</i>
<i>Table 2: Acoustic Quality Objectives at Noise Sensitive Properties.....</i>	<i>8</i>
<i>Table 3: Background creep noise limits</i>	<i>8</i>
<i>Table 4: Itemised Noise Sources.....</i>	<i>9</i>
<i>Table 5: Predicted noise levels - Background Creep LAeq 15min.....</i>	<i>9</i>
<i>Table 6: Predicted noise levels - Acoustic Quality Objectives 1 hour.....</i>	<i>10</i>

FIGURE INDEX

<i>Figure 1: Site Location (Not to Scale).....</i>	<i>4</i>
<i>Figure 2: Receivers and Noise Monitoring Location</i>	<i>6</i>
<i>Figure 3: Predicted Noise Levels - LAeq,1h,Day</i>	<i>10</i>
<i>Figure 4: Predicted Noise Levels - LAeq,1h,Evening</i>	<i>11</i>
<i>Figure 5: Predicted Noise Levels - LAeq,1h,Night</i>	<i>11</i>
<i>Figure 6: Predicted Noise Levels - LAeq,15m,Day</i>	<i>12</i>
<i>Figure 7: Predicted Noise Levels - LAeq,15m,Evening</i>	<i>12</i>
<i>Figure 8: Predicted Noise Levels - LAeq,15m,Night</i>	<i>13</i>

1. Introduction

This report is in response to a request by Frasers Property for an environmental noise assessment of a proposed warehouse to be located on Lot 205 of the Vantage Yatala subdivision, located at 60 Stapylton Jacobs Well Road, Stapylton. To facilitate the assessment, unattended noise monitoring was conducted in the vicinity of nearby residence to establish the criteria for onsite activities. Based on the data obtained, onsite activities were assessed to surrounding sensitive receivers with recommendations for acoustic treatments specified in this report.

2. Site Description

2.1 Site Location

The proposed site is described by the following:

60 Stapylton Jacobs Well Road, Stapylton
Part of Lot 501 on SP295994

Refer to Figure 1 for site location.

Figure 1: Site Location (Not to Scale)



A comprehensive site survey was conducted on the 17th October 2021 and identified the following:

- a) The site is currently vacant.
- b) The surrounding area consists primarily of industrial/commercial land uses.
- c) Single storey and highset dwellings are located adjacent the western site boundary.
- d) Stapylton Jacobs Well Road separates the subdivision from agricultural/rural residential land uses to the northwest.
- e) A new access road is located adjacent the northern, eastern and southern site boundaries.
- f) The Pacific Motorway is located approximately 430m southwest of the site.

2.2 Proposal

The proposal is to construct a warehouse/industrial development on Lot 205 of the Vantage Yatala subdivision as follows:

- Total site area of 42,669m².
- Warehouse with total area of 25,000m² (including warehouse office of 50m² and amenities)
- Office building with total area of 520m²
- Car park with 63 spaces.
- Proposed 24/7 hours of operation.

Refer to the Appendix for development plans.

2.3 Acoustic Environment

The surrounding area is primarily affected by existing industrial/commercial activities in the area and road traffic noise from Stapylton Jacobs Well Road and the Pacific Motorway.

3. Equipment

The following equipment was used to record noise levels:

- Rion NL42 Environmental Noise Monitor
- BSWA Technology Co. Ltd Sound Calibrator

The Environmental Noise Monitor holds current NATA Laboratory Certification and was field calibrated before and after the monitoring period, with no significant drift from the reference signal recorded.

4. Receivers and Noise Monitoring

4.1 Receiver Locations

The nearest residential receiver locations were identified as follows;

1. Single storey and highset dwellings fronting Cedar Drive to the west.
2. Highset dwelling at 33 Stapylton Jacobs Well Road to the northwest.
3. Residential land uses at Hillside Drive to the north.

These locations were chosen as being representative of the nearest residential receivers to the proposed development. Refer to Figure 2 for receiver locations.

Figure 2: Receivers and Noise Monitoring Location



4.2 Unattended Ambient Noise Monitoring

A Rion NL42 environmental noise monitor was placed onsite at 60 Stapylton Jacobs Well Road to measure existing ambient noise levels. The monitor was located in a free field position with the microphone approximately 1.4 metres above ground surface level. The noise monitor was set to record noise levels between the 11th and 24th October 2019.

The environmental noise monitor was set to record noise levels in "A" Weighting, Fast response using 15 minute statistical intervals. Ambient noise monitoring was conducted generally in accordance with Australian Standard AS1055:2018 *Acoustics – Description and measurement of environmental noise*. For the unattended noise monitoring location refer to Figure 2.

5. Measured Noise Levels

The following table presents the results from the unattended noise survey. Any periods of inclement weather or extraneous noise were omitted from the measurements prior to determining the results.

5.1 Ambient Noise Levels

The measured ambient noise levels measured at the monitoring location are as follows;

Table 1: Measured ambient noise levels – all time periods

Day	Date	L90 dB(A)		
		Day	Evening	Night
Saturday	12/10/19	53	50	45
Sunday	13/10/19	48	47	46
Monday	14/10/19	50	53	48
Tuesday	15/10/19	51	56	49
Wednesday	16/10/19	52	52	52
Thursday	17/10/19	53	55	52
Friday	18/10/19	48	50	50
Saturday	19/10/19	45	53	46
Sunday	20/10/19	49	47	46
Monday	21/10/19	49	48	46
Tuesday	22/10/19	48	49	49
Wednesday	23/10/19	47	47	49
Overall value		49	51	48

Refer to the appendix for graphical representation.

6. Noise Criteria

6.1 Environmental Noise Criteria

The noise criteria as applied by City of Gold Coast are as follows;

6.1.1 Acoustic Quality Objectives

Table 2 presents the acoustic quality objectives at noise sensitive receptors as detailed in Schedule 1 of the Environmental Protection Policy (Noise) 2008.

Table 2: Acoustic Quality Objectives at Noise Sensitive Properties

Sensitive Receptor	Time of Day	Acoustic Quality Objectives, dB(A)		
		$L_{Aeq,adj,1hr}$	$L_{A10,adj,1hr}$	$L_{A1,adj,1hr}$
Dwelling (outdoors)	Day and Evening (7am – 10pm)	50	55	65
Dwelling (Indoors)	Day and Evening (7am – 10pm)	35	40	45
	Night (10pm – 7am)	30	35	40

6.1.2 Background Creep

The Background Creep criteria are as follows;

Time-varying noise:

$$L_{Aeq,adj,T} \leq \text{Ambient } L_{A90,T} + 5\text{dB(A)}$$

Steady-state noise:

$$L_{A90,T} \leq \text{Ambient } L_{A90,T}$$

The time period (T) is a time interval of at least 15 minutes, or if the noise continues for less than 15 minutes, the duration of the noise source.

Based on the results of ambient noise monitoring, the project specific background creep noise limits are shown in Table 3.

Table 3: Background creep noise limits

Time Period	Noise Level Limits SPL dBA	
	$L_{Aeq,adj,T}$	$L_{A90,T}$
Day 7am – 6pm	54	49
Evening 6pm – 10pm	56	51
Night 10pm – 7am	53	48

7. Onsite Activities

7.1 Methodology

Noise associated with the development was assessed using 3D SoundPLAN modelling generated in accordance with ISO 9613-2:1996 *Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation*, showing the predicted worst-case 15 minute noise impacts associated with typical warehouse activities such as trucks, forklifts, reverse alarms, mechanical plant and carpark activities. Barrier screening, topographical screening, air absorption and ground absorption were calculated in accordance with ISO 9613-2. Predictions also include corrections for the prevailing meteorological conditions in accordance with ISO 9613-2: 1996.

7.2 Source Sound Power Levels

Source sound power levels associated with normal operation was assessed based on previous measurements of similar activities and are presented in Section 8.

Table 4: Itemised Noise Sources

Source Description	Source type	Sound Power L_W	Sound Power L_{Wmax}^*	Source Height above ground RL (m)
Truck Passby	Line	67dBA/m	93dBA	1
Truck Venting Airbrake	Point	110dBA	113dBA	2.5
Truck Door Closure	Point	92dBA	93dBA	2.5
Truck Reversing including alarm	Line	78dBA/m	104dBA	2.5
Truck Starting	Point	97dBA	101dBA	1
Forklift activities including reverse alarm	Line	62dBA/m	104dBA	1
Waste Collection	Point	95dBA	102dBA	2.5
Indoor Forklift activities	Area	65dBA/m ²	107dBA	N/A
Mechanical Plant Deck	Point	77dBA	79dBA	1
Car starting	Point	84dBA	86dBA	0.5
Car door closure	Point	83dBA	86dBA	0.5
Car driving on asphalt	Line	58dBA/m	80dBA	0.5

All activities include corrections for tonality and impulsiveness as per AS1055:2018, where applicable.

7.3 Predicted Noise Levels

7.3.1 Background Creep Criteria

Predicted noise levels for the site, utilising the data in Section 7.2, are presented in Table 5 and compared to the Background Creep criteria. A noise contour map for the site is presented in Section 7.4.

Table 5: Predicted noise levels - Background Creep LAeq 15min

Receiver	Predicted Noise Level, dB(A) Leq, 15min			Leq Compliance		
	Day	Evening	Night	Day	Evening	Night
Criteria				54	56	53
1. Cedar Drive (west)	45	43	40	Yes	Yes	Yes
2. 33 Stapylton Jacobs Well Rd (northwe:	39	37	34	Yes	Yes	Yes
3. Hillside Drive (northeast)	37	35	32	Yes	Yes	Yes

Compliance is predicted with the Background Creep criteria for the 24 hour operation of the site on the condition the recommendations in Section 8 are implemented.

7.3.2 Acoustic Quality Objectives

Predicted noise levels for the modelled scenario, compared to the Acoustic Quality Objectives, are presented in Table 6. A noise contour map for the site is presented in Section 7.4.

Table 6: Predicted noise levels - Acoustic Quality Objectives 1 hour

Receiver	Predicted Noise Level, dB(A) Leq, 1 hour			Predicted Noise Level, dB(A) L10, 1 hour			Predicted Noise Level, dB(A) L01, 1 hour			Leq Compliance			LA10 Compliance			LA01 Compliance		
	External	Int. Day/Eve	Int. Night	External	Int. Day/Eve	Internal	External	Int. Day/Eve	Internal	Day/Eve	Night	Internal	Day/Eve	Night	Internal	Day/Eve	Night	Internal
Criteria																		
1. Cedar Drive (west)	40	30	24	44	34	28	48	38	32	50	35	30	55	40	35	65	45	40
2. 33 Stapylton Jacobs Well Rd (northwest)	34	24	17	37	27	21	42	32	25	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
3. Hillside Drive (northeast)	32	22	16	35	25	20	40	30	24	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Compliance is predicted with the Acoustic Quality Objectives for the proposed 24/7 operation for the site on the condition the recommendations in Section 8 are implemented.

7.4 Noise Contour Maps

A noise contour map for the development, utilising the noise data in Section 7.2, is presented in Figure 3.

Figure 3: Predicted Noise Levels - LAeq,1h,Day

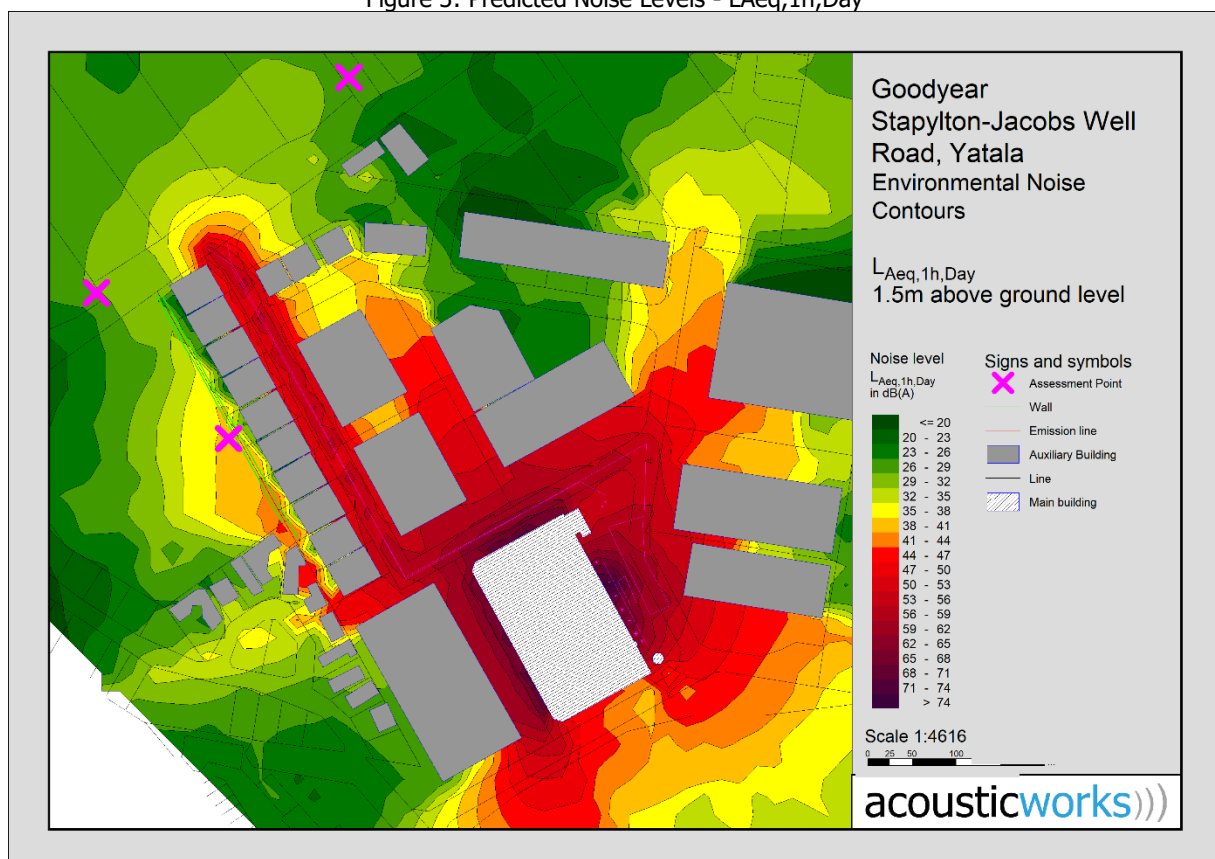


Figure 4: Predicted Noise Levels - LAeq,1h,Evening

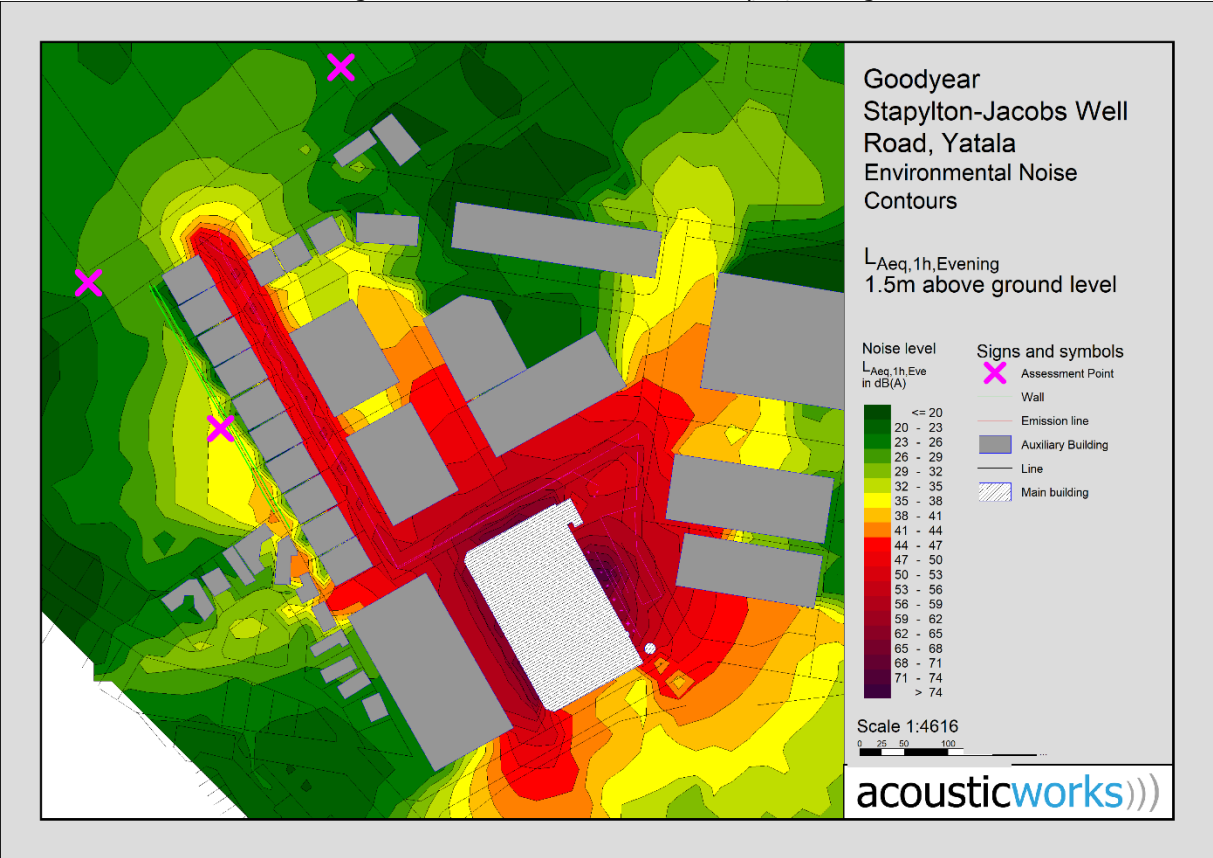


Figure 5: Predicted Noise Levels - LAeq,1h,Night

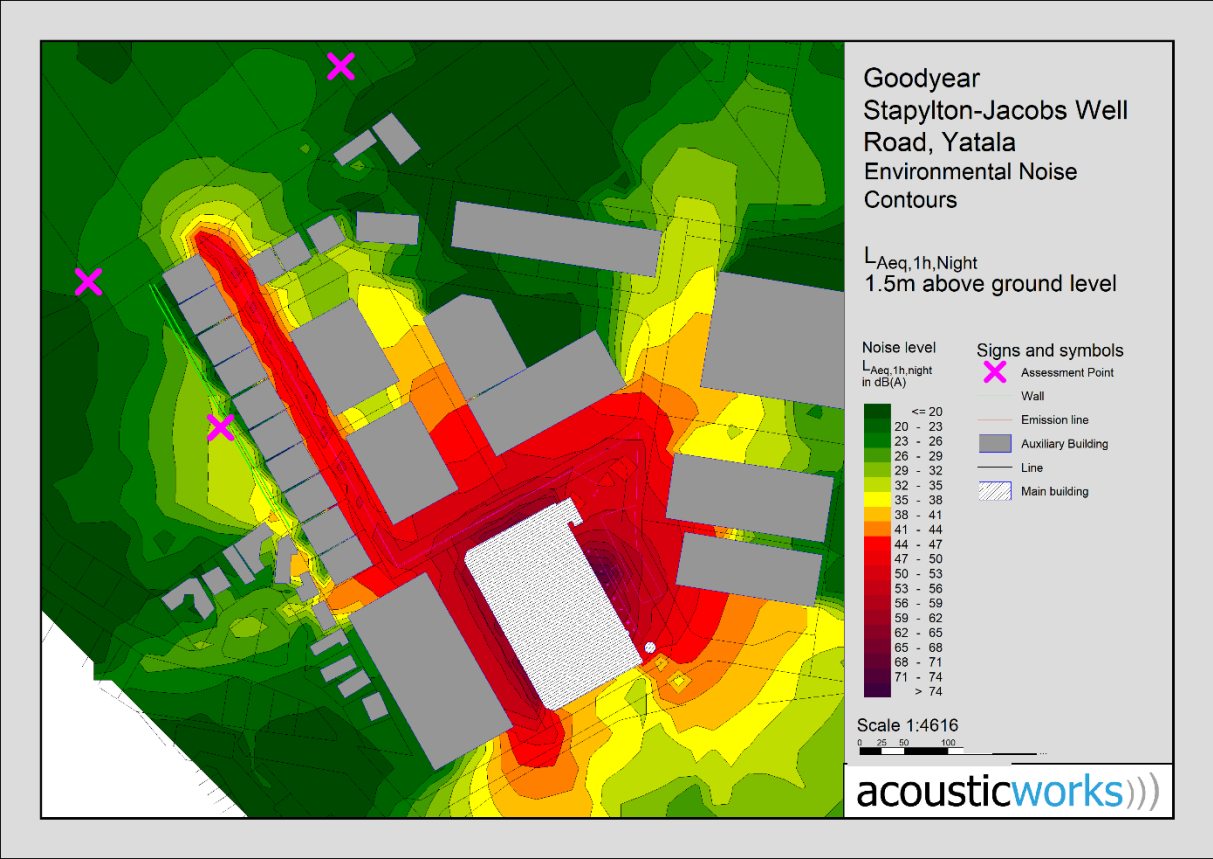


Figure 6: Predicted Noise Levels - LAeq,15m,Day

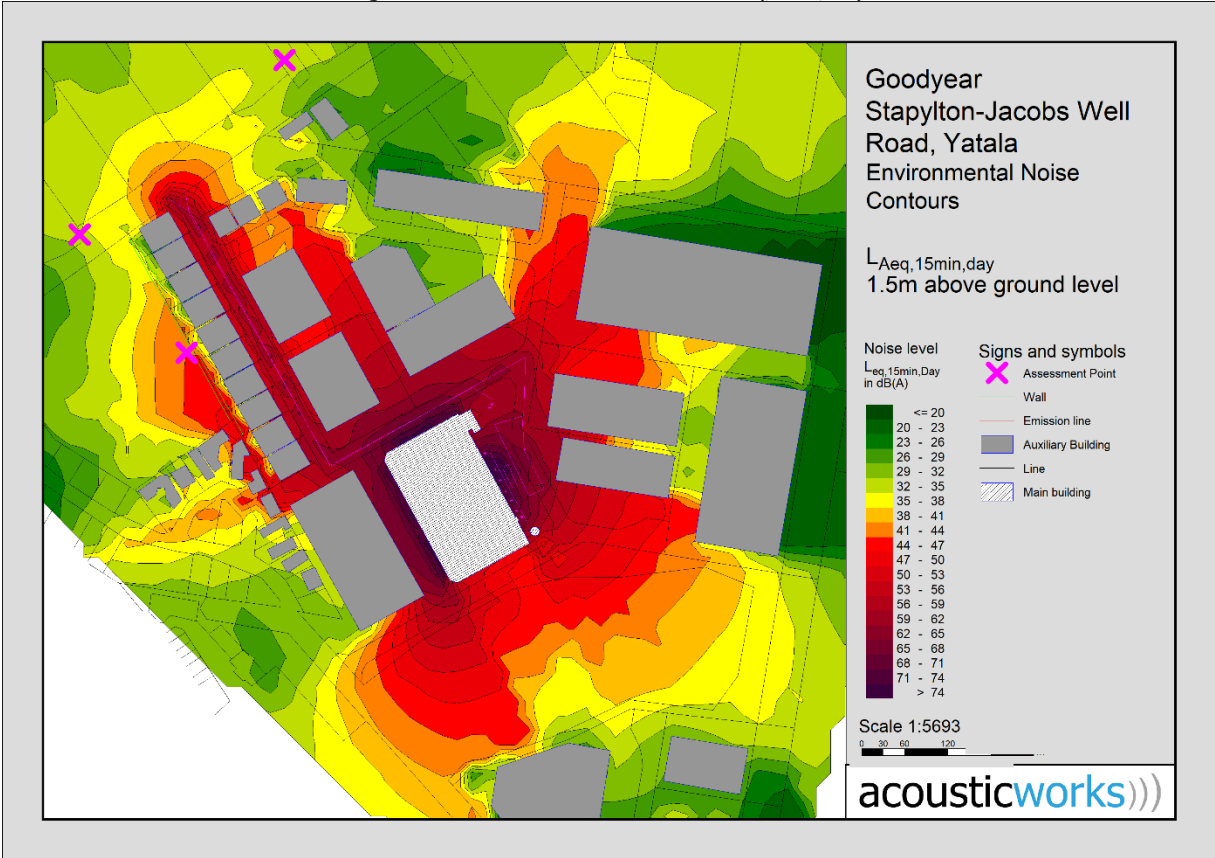


Figure 7: Predicted Noise Levels - LAeq,15m,Evening

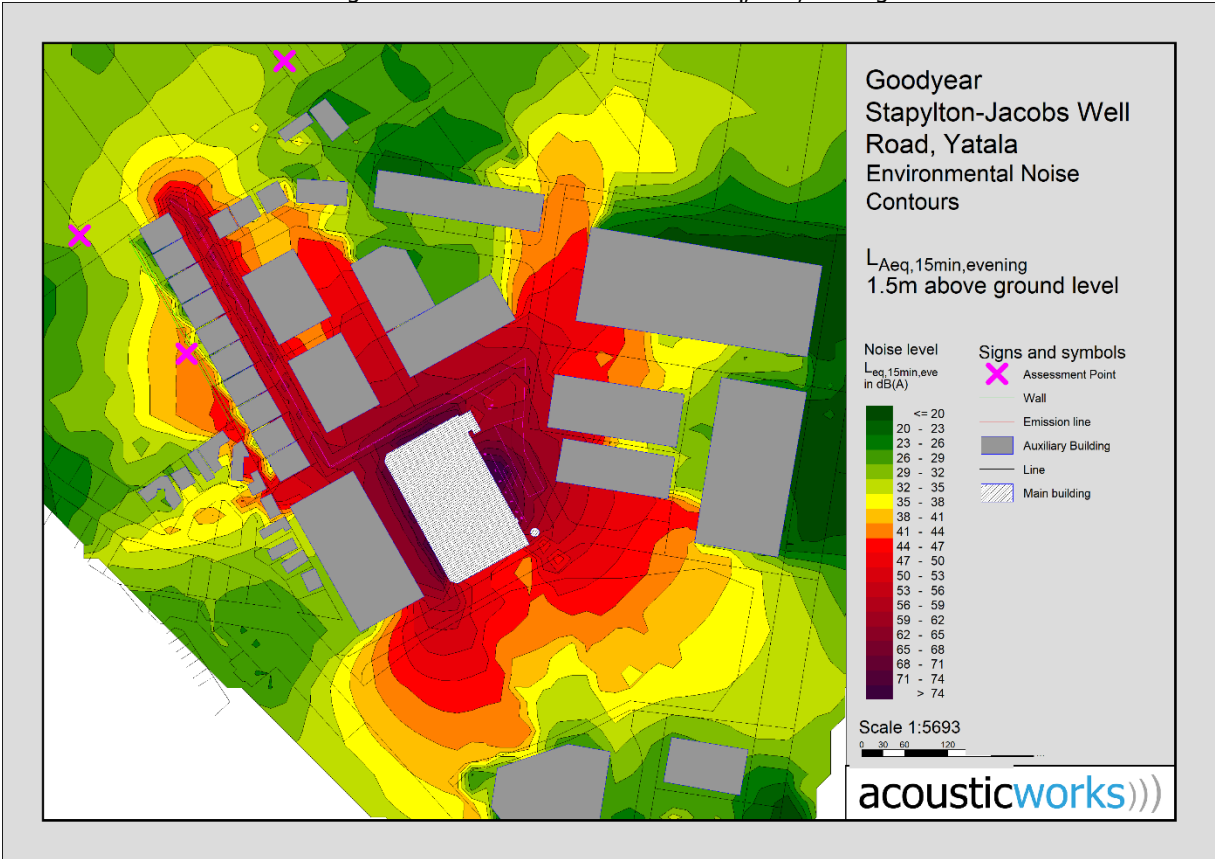
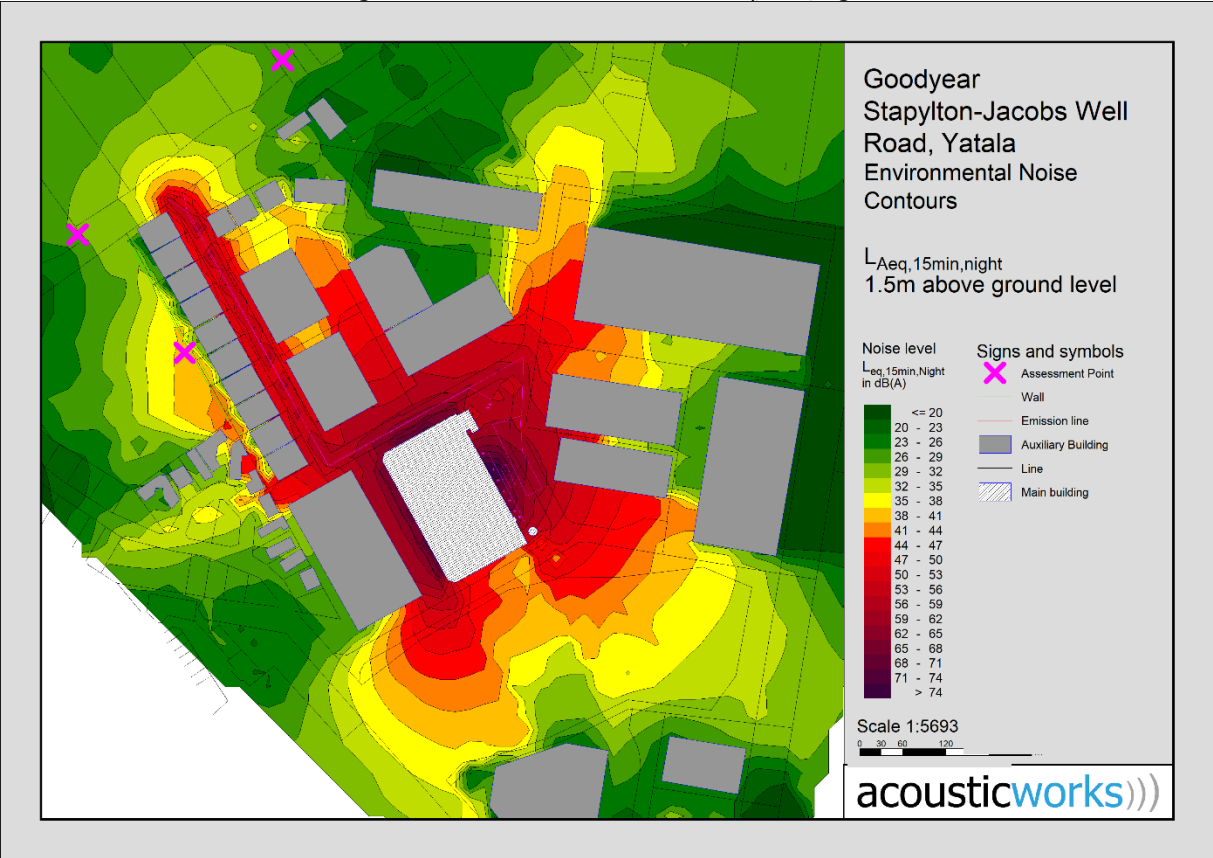


Figure 8: Predicted Noise Levels - LAeq,15m,Night



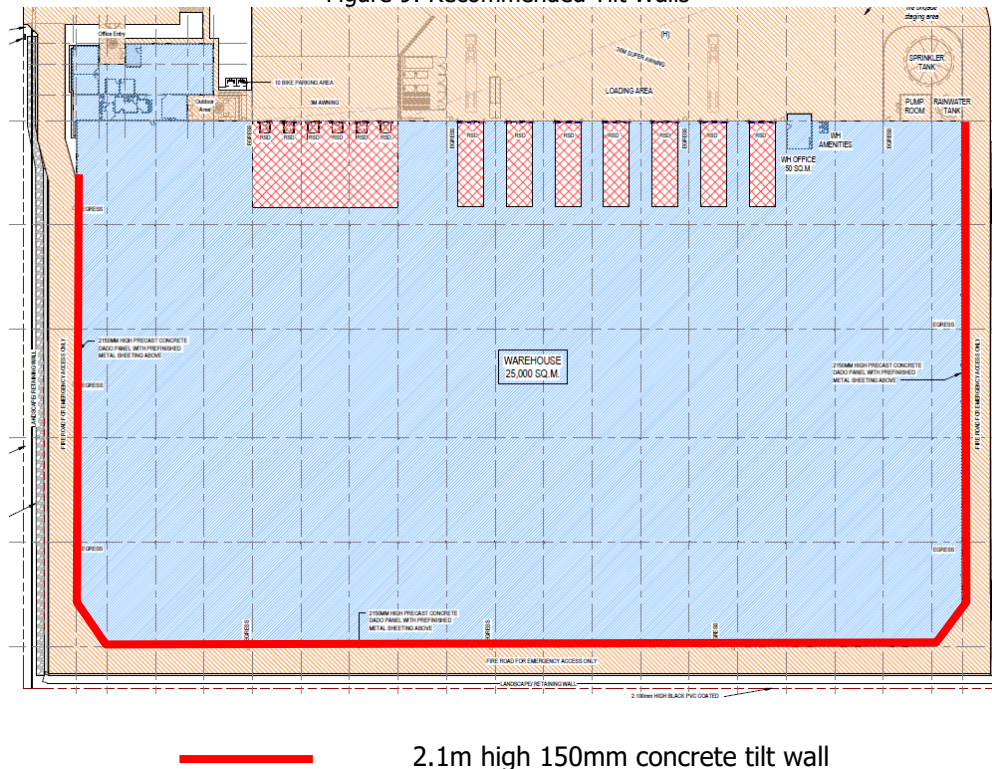
8. Recommendations

8.1 Onsite Activities

Compliance is predicted for the proposed 24/7 operation for the site on the condition the following recommendations are implemented:

- The warehouse shall incorporate 150mm thick tilt walls for building facades facing northwest, southwest and southeast to a minimum height of 2.1 metres.

Figure 9: Recommended Tilt Walls



8.1.1 Onsite Mechanical Plant

No information regarding any new mechanical services was available at the time of the assessment. We recommend that any new mechanical plant is designed to comply with the criteria stated in Section 6.1.2 with an assessment by qualified acoustic consultant to be conducted prior to installation.

9. Conclusion

An environmental noise assessment was conducted for the proposed warehouse/industrial development at 60 Stapylton Jacobs Well Road, Yatala. On the condition the recommendations detailed in Section 8 are implemented, compliance is predicted with City of Gold Coast assessment criteria.

If you should have any queries please do not hesitate to contact us.

Report Prepared By



Michael Gunning M.ArchSci
Acoustic Consultant

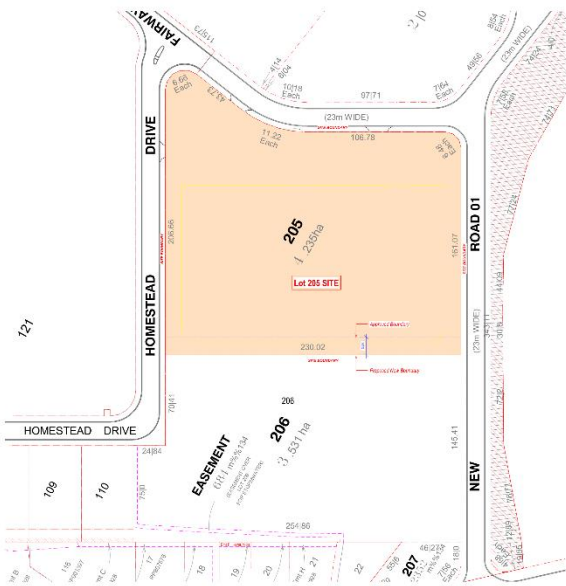
acousticworks)))

10. Appendices

10.1 Development Plans

PROPOSED SEPCULATIVE WAREHOUSE FACILITY

VANTAGE YATALA LOT 205, STAPYLTON JACOBS WELL ROAD, STAPYLTON QLD 4207



1 Site Location Plan



2 Vicinity Map

211011-DA-A000 - P2



PROPOSED GOODYEAR WAREHOUSE FACILITY

Site	205
Lot	205
Area	2.33ha

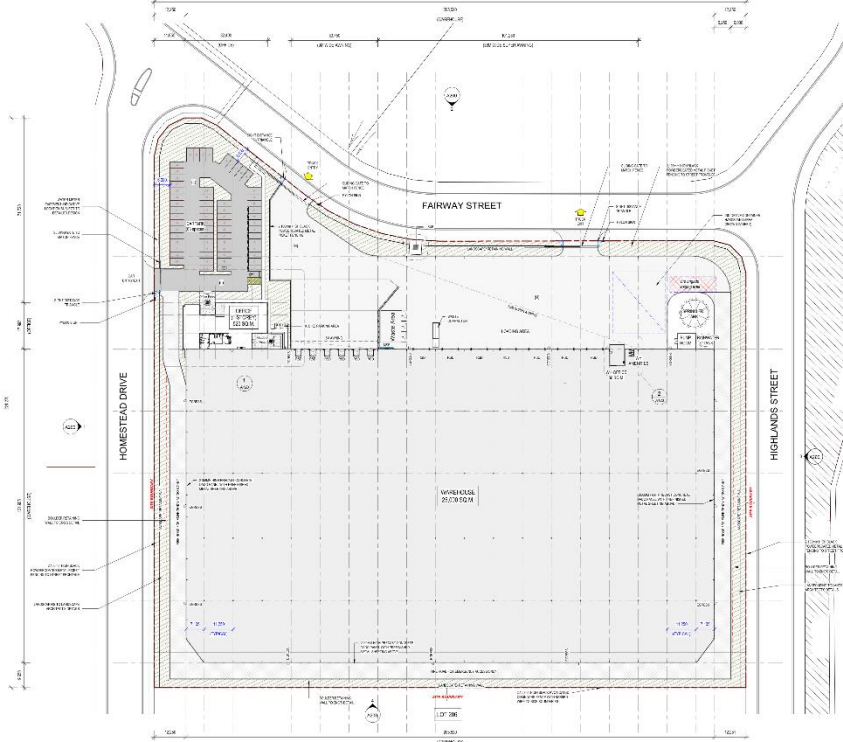
Client	Goodyear
Project	Warehouse Facility
Location	Stapylton, QLD

Prepared by	hla architects
Checked by	hla architects
Date	21/10/21

Scale	1:1000
North	North Arrow
Notes	See Development Application



DEVELOPMENT APPLICATION



1 Site & Facilities Floor Plan

DEVELOPMENT VALUE	
Lot Area	2.33ha
Building Area	10,000sqm
Parking Area	100 spaces
Access Road	100m
Perimeter Fence	1000m
Site Works	100,000
Professional Fees	10,000
Other Costs	10,000
Total	130,000



PROPOSED GOODYEAR WAREHOUSE FACILITY

Site	205
Lot	205
Area	2.33ha

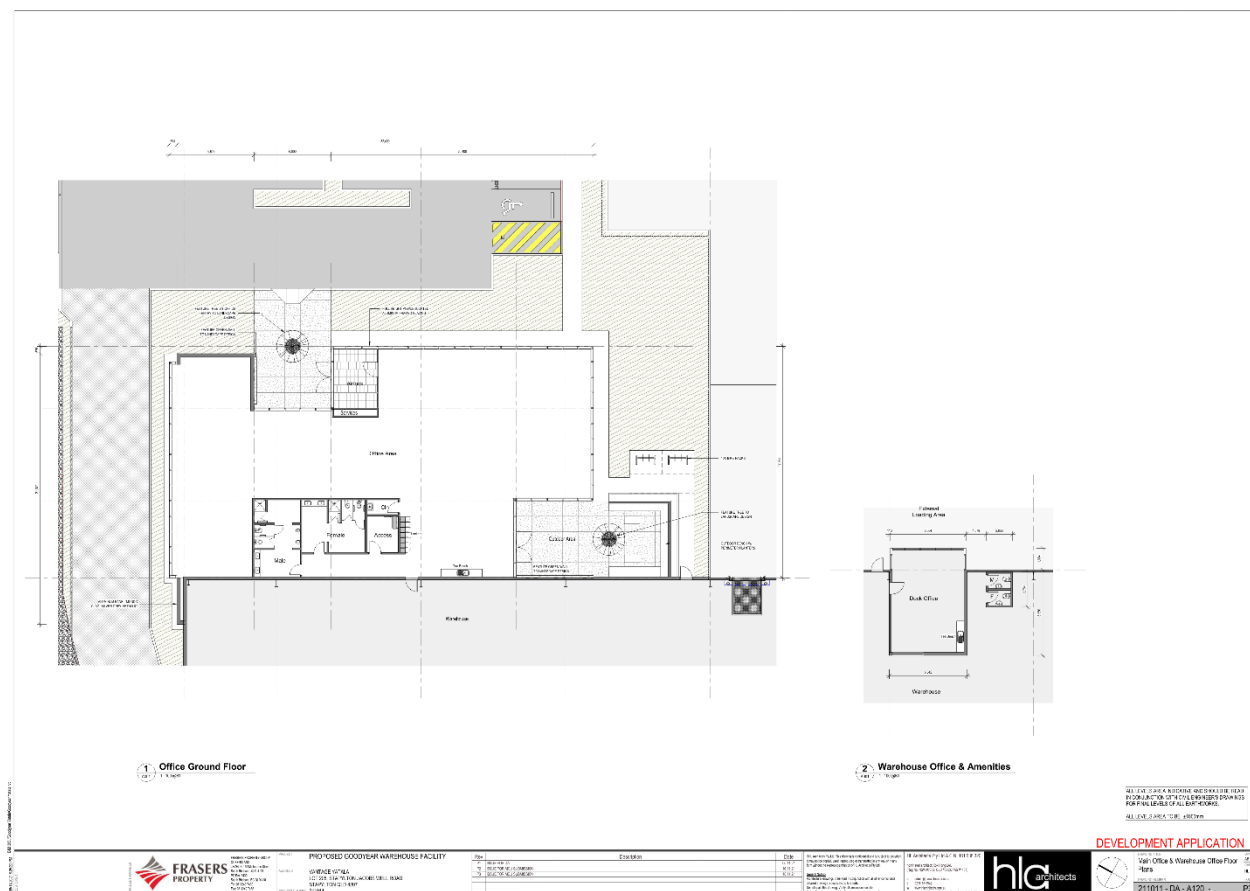
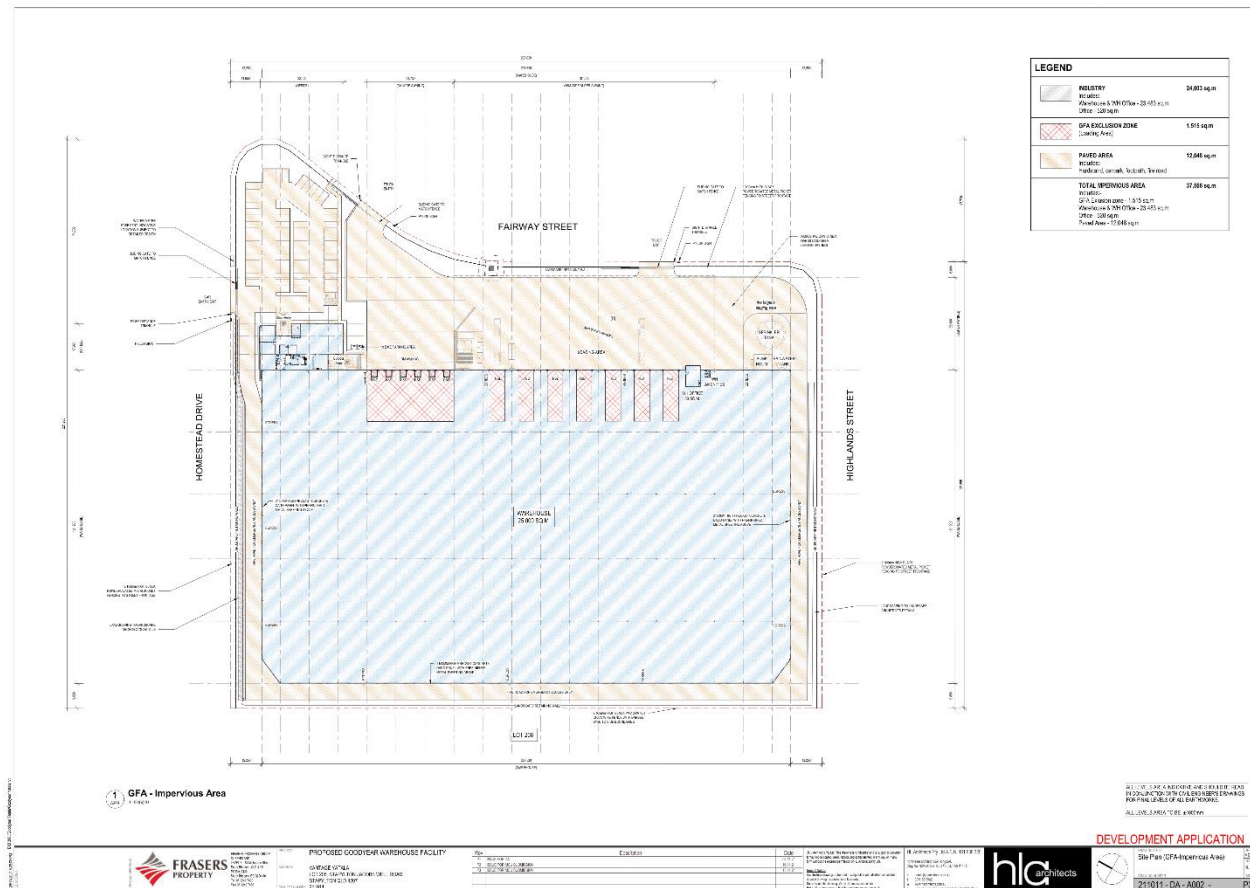
Client	Goodyear
Project	Warehouse Facility
Location	Stapylton, QLD

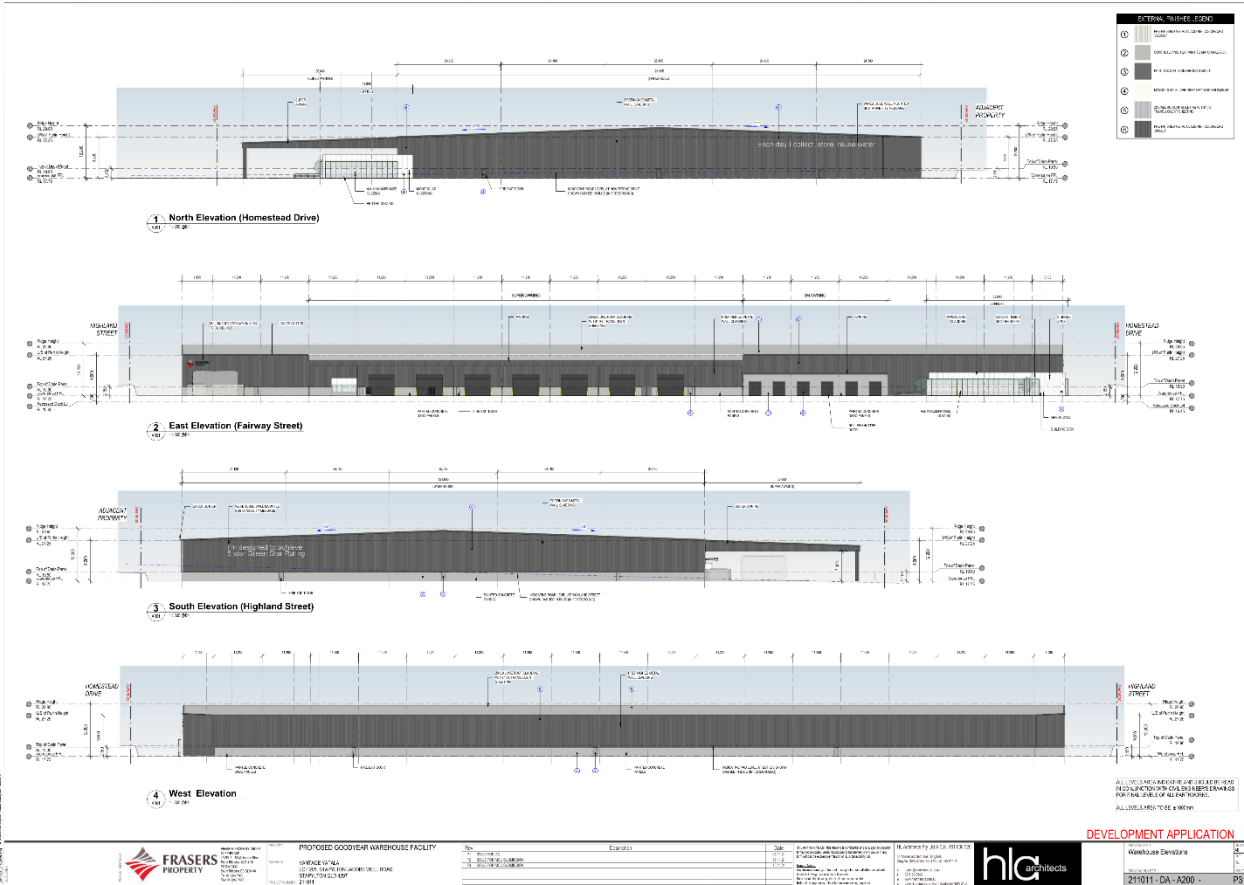
Prepared by	hla architects
Checked by	hla architects
Date	21/10/21

Scale	1:1000
North	North Arrow
Notes	See Development Application

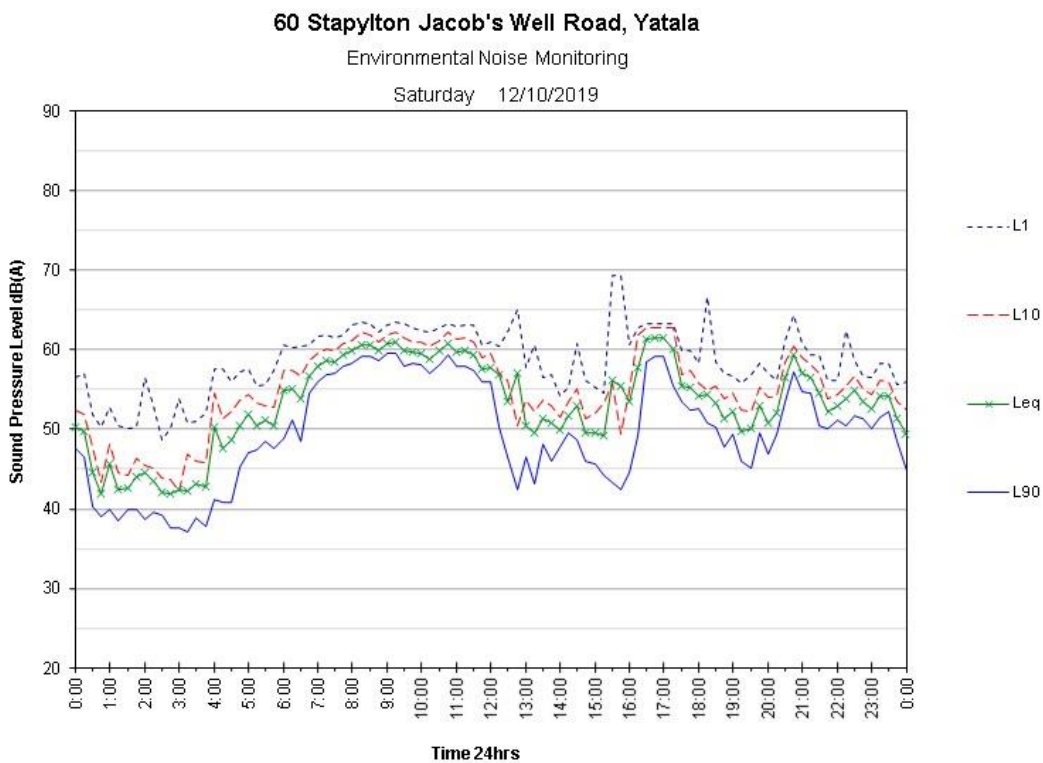
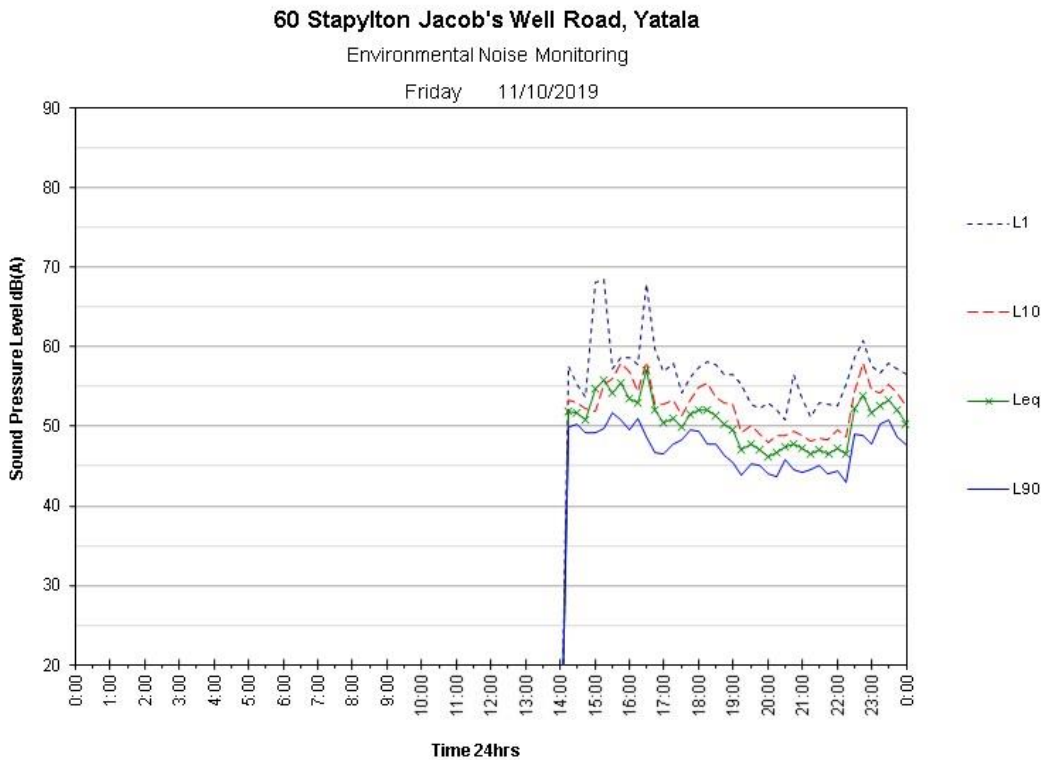


DEVELOPMENT APPLICATION





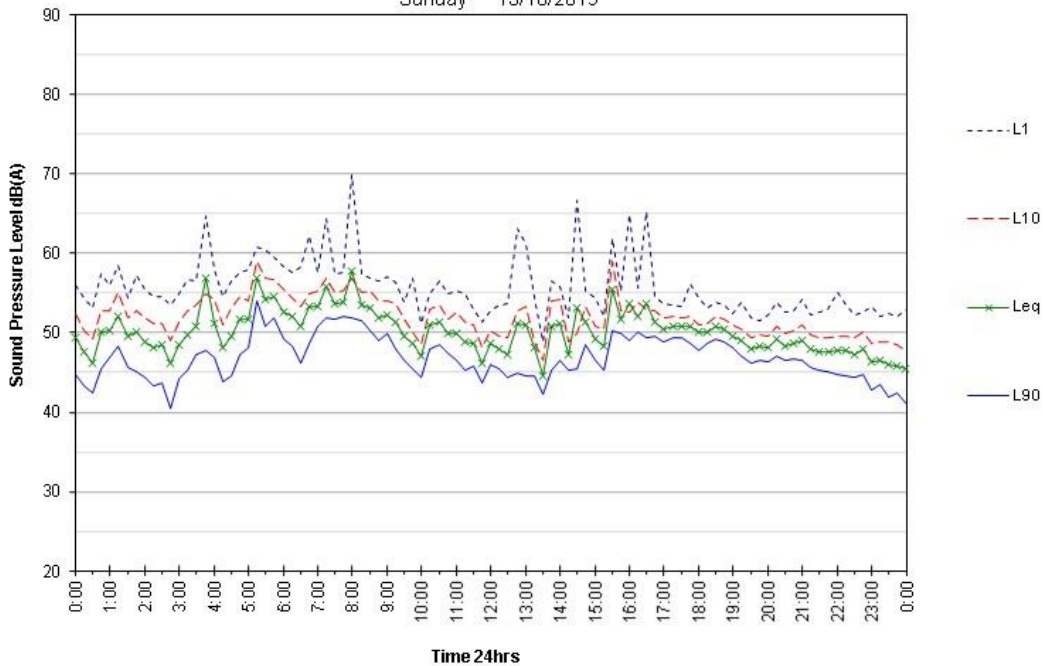
10.2 Noise Monitoring Charts



60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

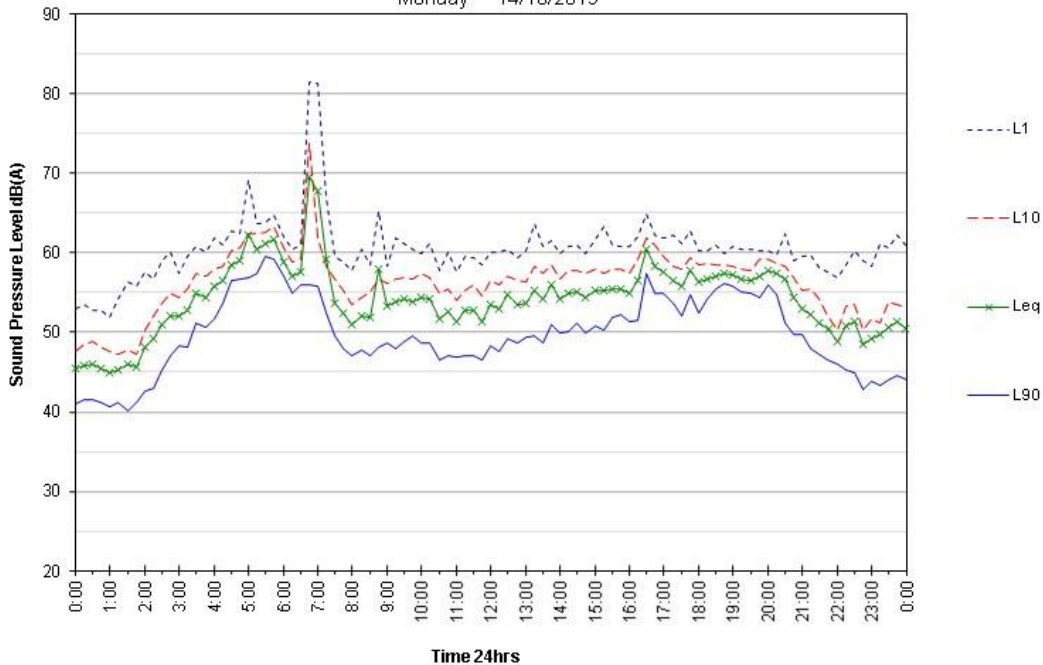
Sunday 13/10/2019

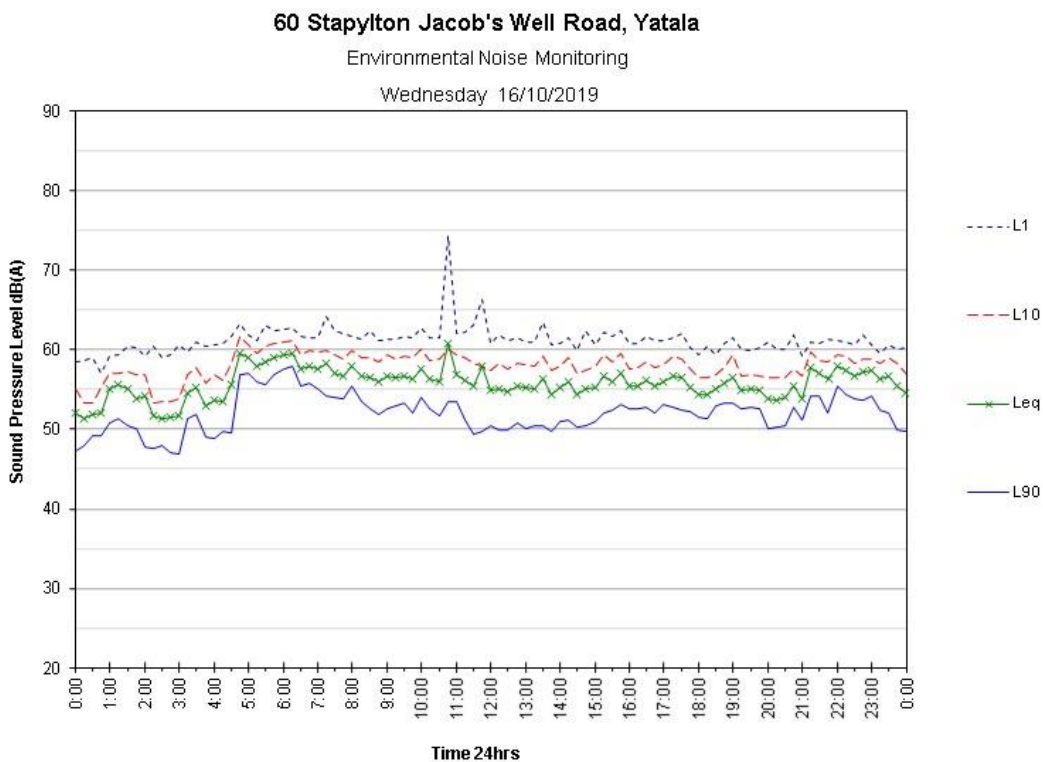
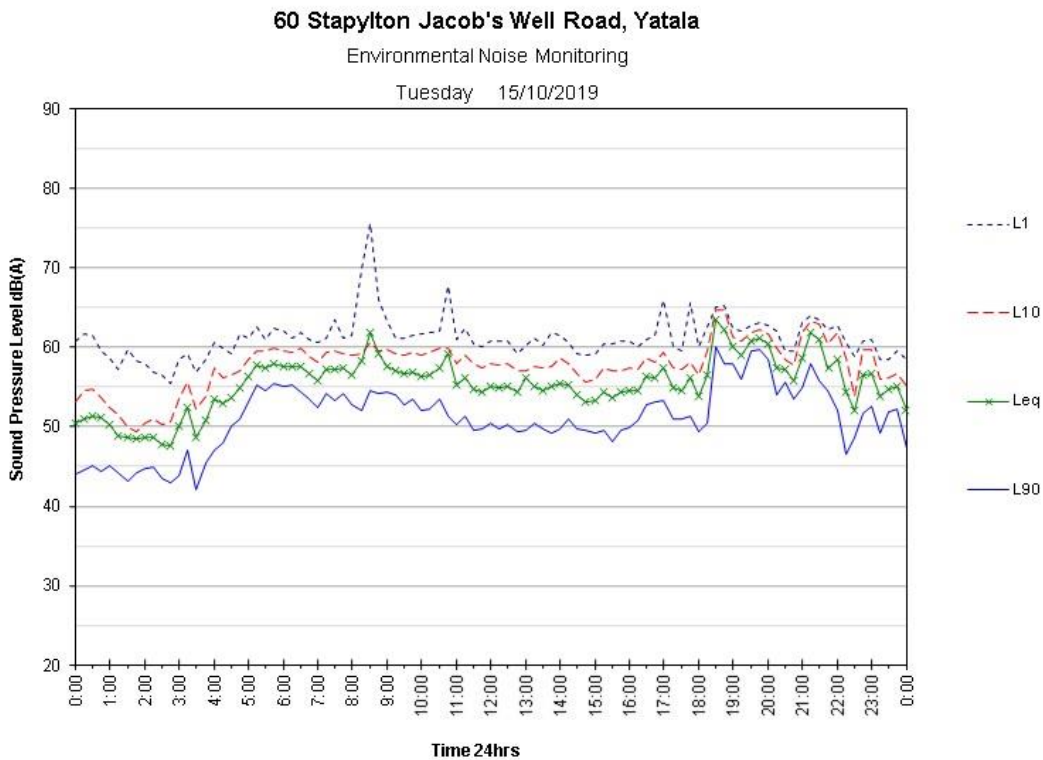


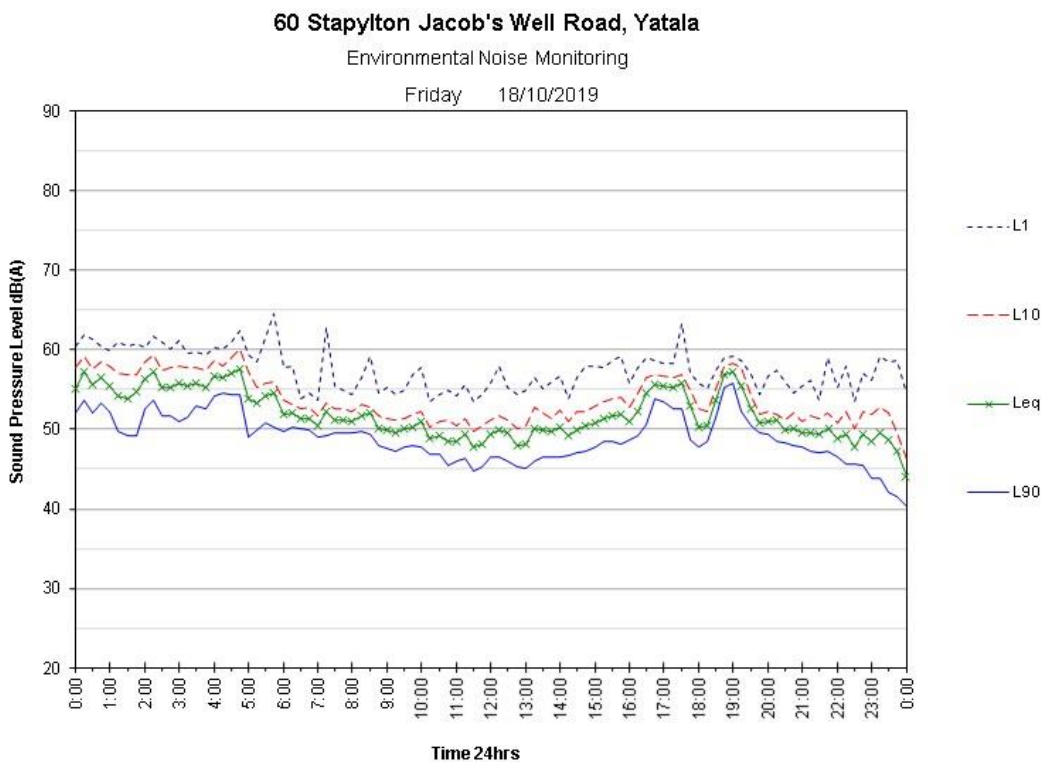
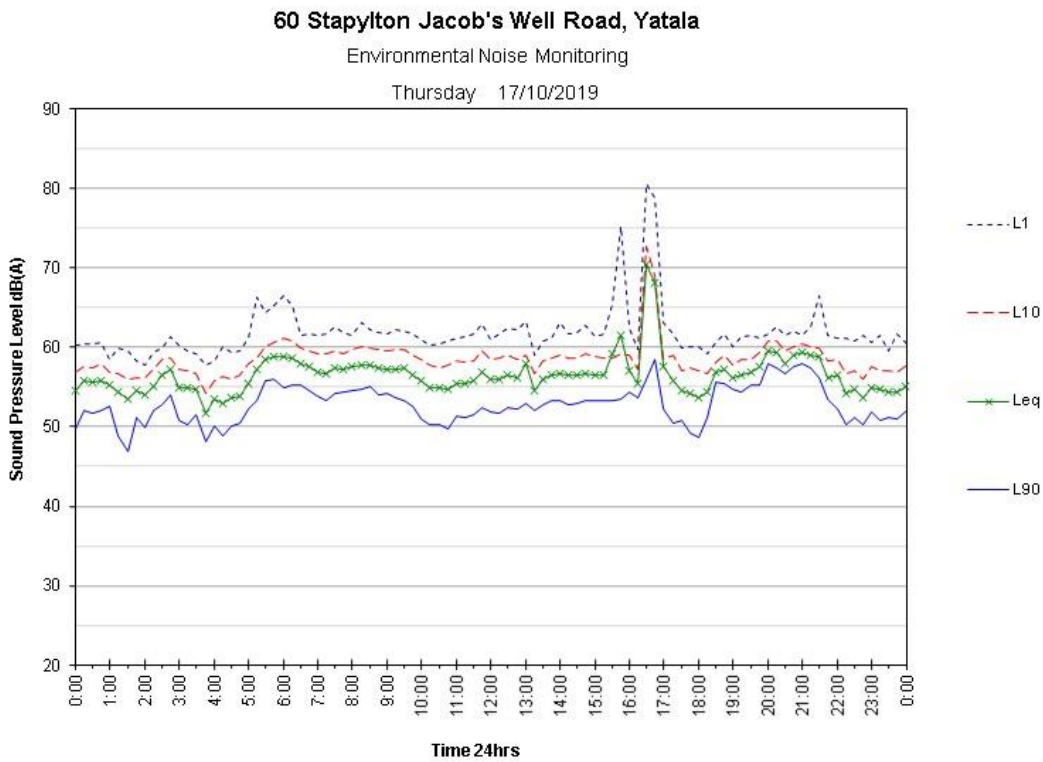
60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

Monday 14/10/2019



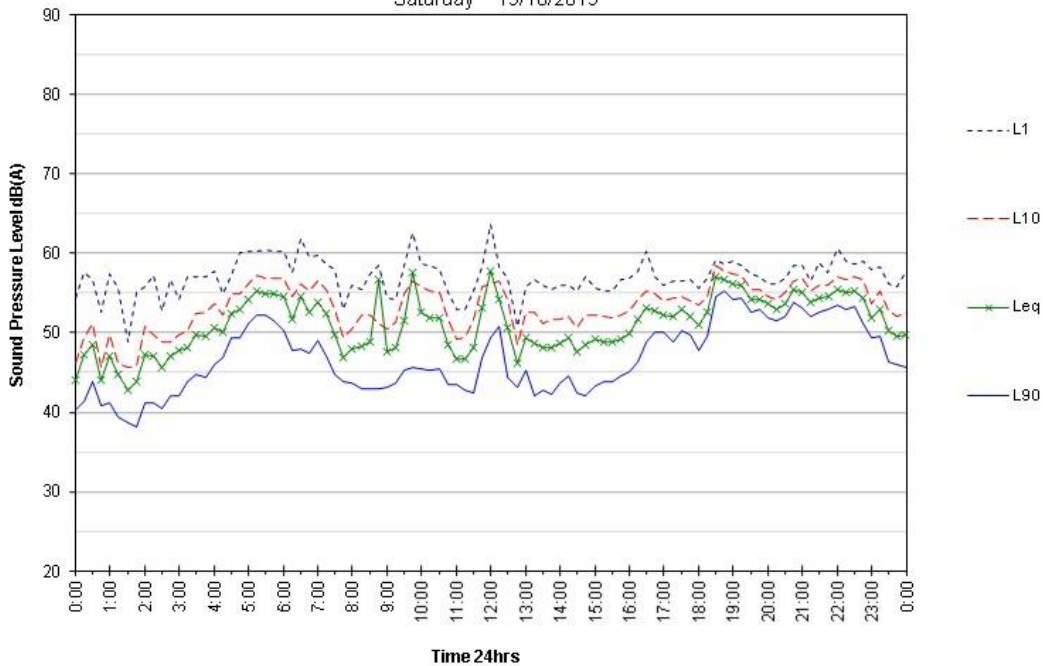




60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

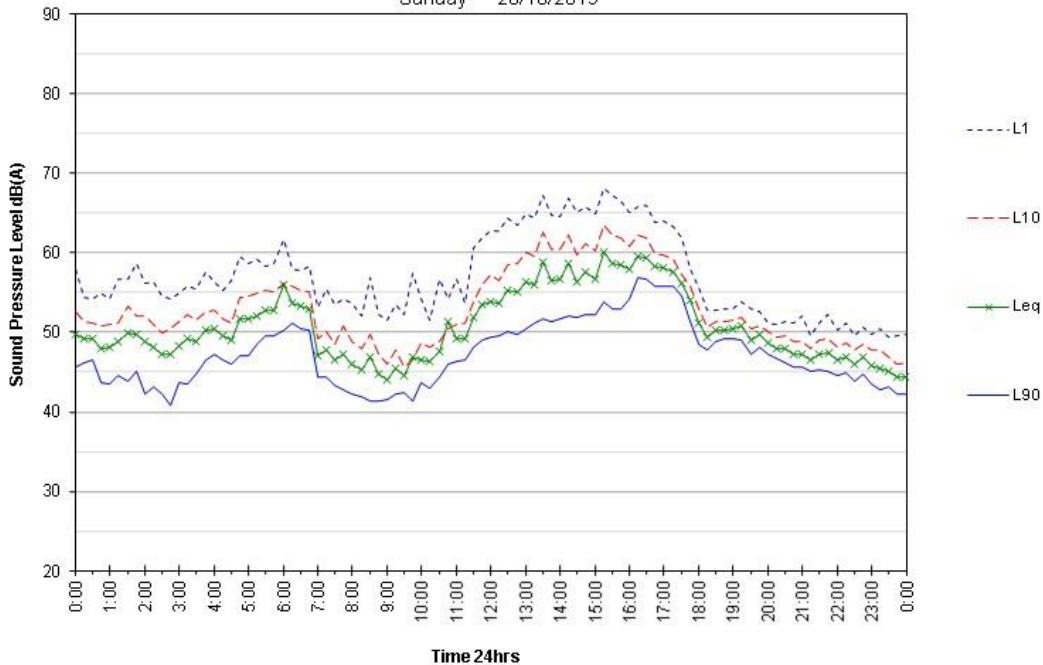
Saturday 19/10/2019



60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

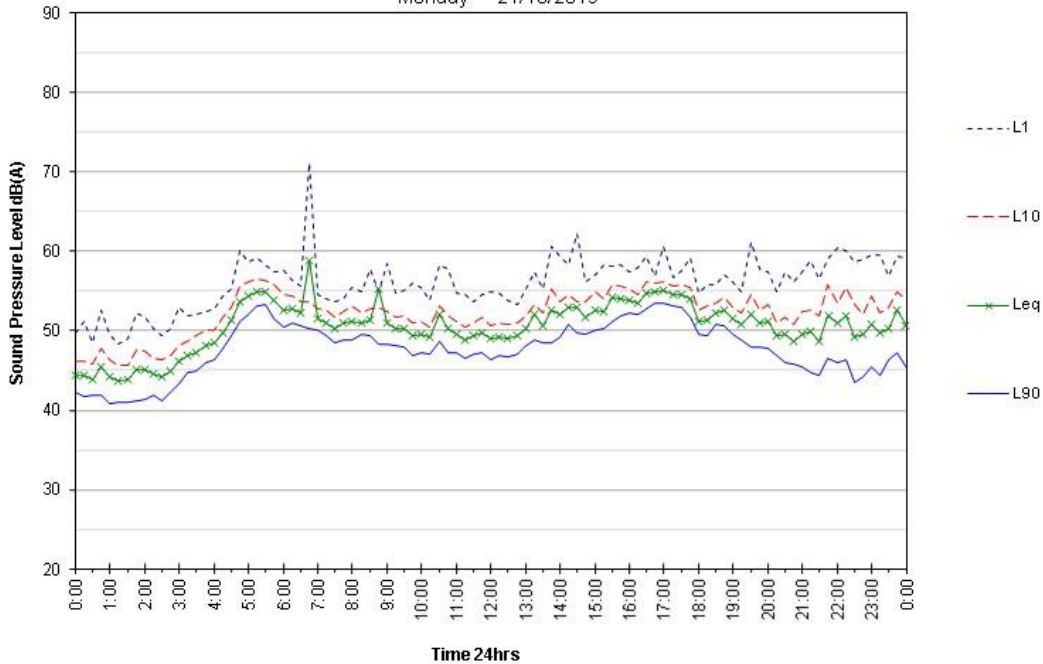
Sunday 20/10/2019



60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

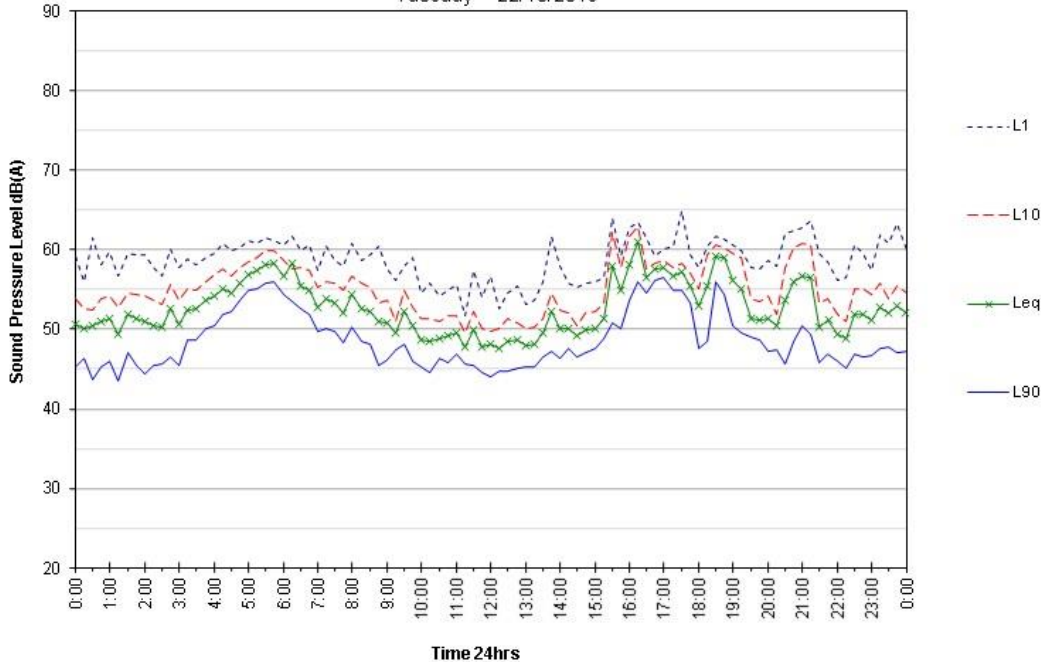
Monday 21/10/2019



60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

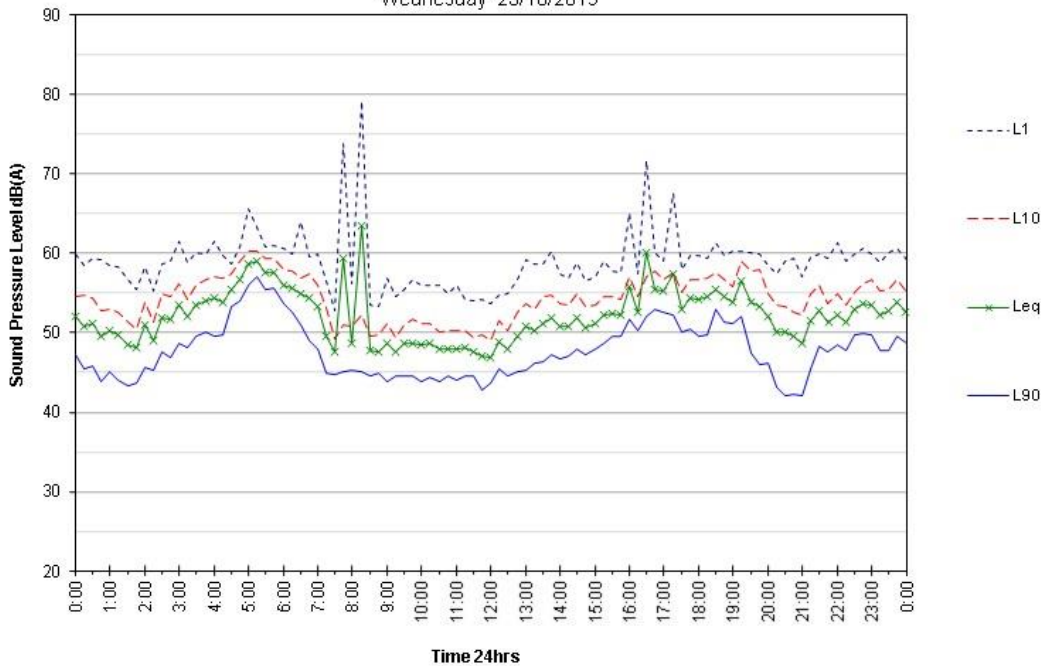
Tuesday 22/10/2019



60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

Wednesday 23/10/2019



60 Stapylton Jacob's Well Road, Yatala

Environmental Noise Monitoring

Thursday 24/10/2019

