

30 July 2020

Reference: 1018022 L04A Mamre Road Kemp's Creek ENV Report amendment summary.doc

Frasers Property Industrial Constructions Pty Ltd
Paul Solomon
Level 3, 1C Homebush Bay Drive
Rhodes, NSW 2138

Dear Paul,

RE: Mamre Road, Kemp's Creek- Summary of acoustic report amendments

This letter is in response to a request by Frasers Property Pty Ltd for a summary of amendments made to the acoustic report since revision *R01AB* for the proposed warehouse development (ref: 1018022 *R01AB Mamre Road Kemp's Creek ENV, dated 15 June 2020*). The changes listed below have been applied to the revised acoustic report (ref: 1018022 *R01AC Mamre Road Kemp's Creek ENV, dated 30 July 2020*).

Section 3.2 Proposal

The proposal has been updated to reflect the revised Masterplan.

Section 7 Noise Criteria

The noise criteria now includes the WSEA reference to aircraft noise.

Section 8 Environmental Assessment

The environmental assessment has been updated to reflect the revised Masterplan.

Section 10 Aircraft Noise Assessment

An aircraft noise assessment was conducted to determine the maximum noise impacts predicted to the development site.

Section 12 Appendices

Development plans have been updated to reflect the Masterplan.

We trust that this information meets with your current requirements. Should you have any queries please do not hesitate to contact Acoustic Works.

Yours faithfully,



Matthew Bechara
Acoustic Consultant

acousticworks)))



State Significant Development Application for a proposed
Warehouse, Logistics and Facilities Hub Development
657 – 769 Mamre Road
Kemps Creek

ACOUSTIC REPORT



Client:

Frasers Property and Altis Property Partners

Reference:

1018022 R01AF Mamre Road Kemp's Creek ENV.docx

Date Issued:

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Date	Revision	Author	Reviewer
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08/04/20	R01X	Greg Pearce	Greg Pearce
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1. Executive Summary

The following report is in response to a request by Frasers Property Australia and Altis Property Partners for an environmental noise assessment for a State Significant Development Application for a proposed warehouse, logistics and facilities hub development located at 657-769 Mamre Road, Kemps Creek. The purpose of the assessment is to determine if the proposed development layout is acoustically viable and what acoustic measures, if any, are necessary.

The environmental noise assessment was conducted in accordance with Penrith City Council requirements and the NSW Department of Planning and Environment's Secretary's Environmental Assessment Requirements (SEARs) (Application Reference: *SSD 9522*) which requires the following matters to be addressed:

Noise and Vibration – including:

- *A quantitative noise and vibration impact assessment undertaken by a suitably qualified person in accordance with the relevant Environment Protection Authority guidelines and including assessment of nearby sensitive receivers.*
- *Cumulative impacts of other developments*
- *Details of proposed mitigation, management and monitoring measures.*

Section 7 of the report outlines the relevant noise and vibration criteria applicable to the site with Sections 8 and 9 providing an assessment of potential impacts at sensitive receivers. The assessment considers the cumulative impact of all stages of the proposed development to sensitive receivers in the vicinity of site. Our assessment concludes that the proposed masterplan for warehouses and logistic hub is satisfactory with the provided recommendations. The review indicates that the current stage proposed of the master plan is considered viable with recommendations provided in Section 11 for the 24 hour operation of the site.

2. Introduction

The following report is in response to a request by Frasers Property Australia and Altis Property Partners for an environmental noise assessment for a State Significant Development Application for a proposed warehouse, logistics and facilities hub development to be located at 657-769 Mamre Road, Kemps Creek. The environmental noise assessment was conducted in accordance with Penrith City Council requirements and the NSW Department of Planning, Industry and Environment's *Secretary's Environmental Assessment Requirements* (SEARs). To facilitate the assessment, unattended noise monitoring was conducted in the vicinity of nearby sensitive receivers to establish the criteria for onsite activities.

3. Site Description

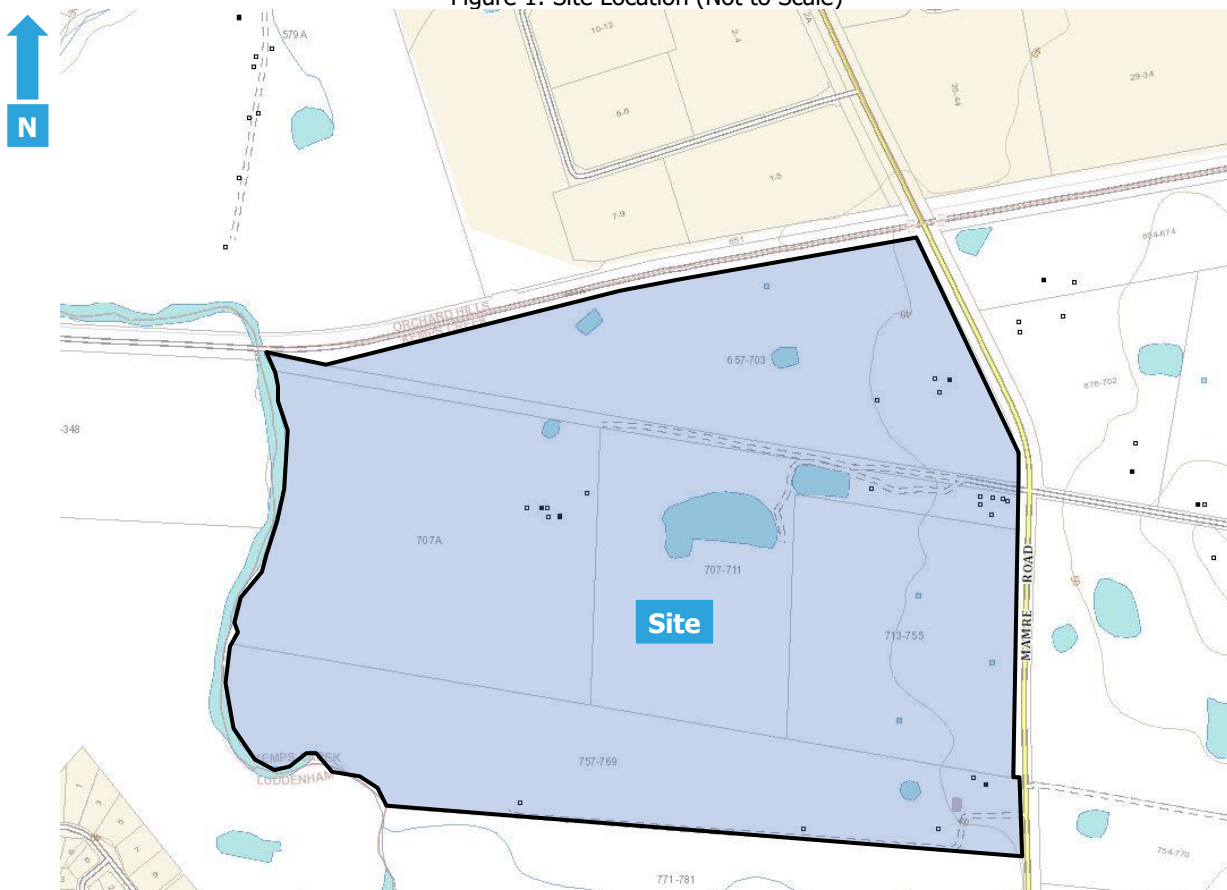
3.1 Site Location

The site is described by the following:

657-769 Mamre Road, Kemps Creek
Lot 34 DP1118173
Lot X DP421633
Lot Y DP421633
Lot 22 DP258414
Lot 1 DP1018318

Refer to Figure 1 for site location.

Figure 1: Site Location (Not to Scale)



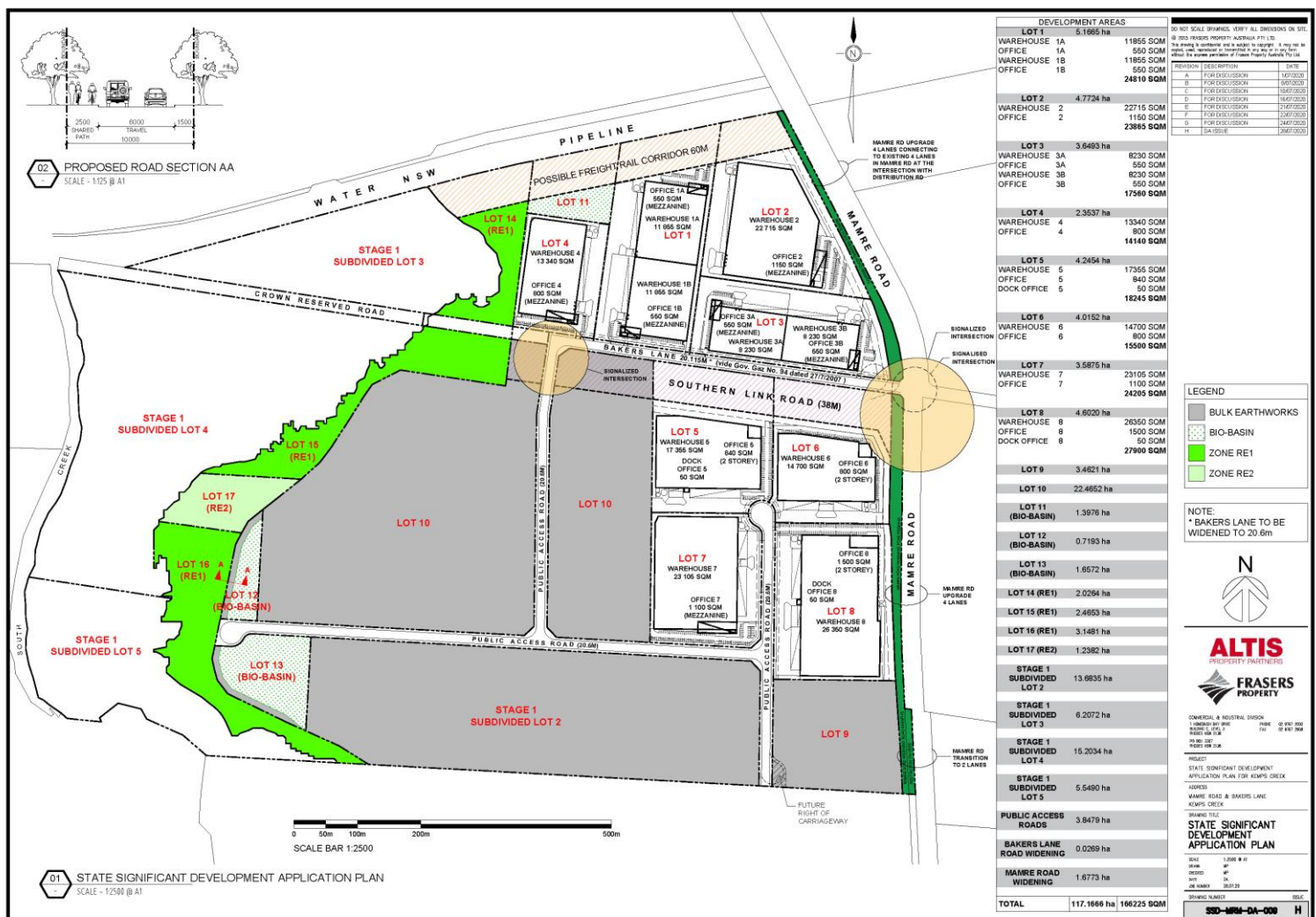
A comprehensive site survey was conducted on the 11th April 2018 which identified the following:

- Single storey residential dwellings currently occupy the site.
- Mamre Road bounds the site to the east separating the development from rural residential land uses, located approximately 165m from the eastern site boundary.
- A single storey rural residential dwelling bounds the site to the south.
- Single storey residential dwellings are located south west of the site in Luddenham.
- Warehouses are currently being constructed adjacent the northern site boundary.

3.2 Proposal

The proposal seeks to construct warehouses with the current master plan for development consisting of the following:

Figure 2: Stage 1 – Site layout



Lot 1

- Lot area of 5.1665ha.
- Building area of 24,810m² with two warehouse and dedicated offices.
- Site access via Bakers Lane off Mamre Road.

Lot 2

- Lot area of 4.7724ha.
- Building area of 23,865m² with a warehouse and dedicated office.
- Site access via Bakers Lane off Mamre Road.

Lot 3

- Lot area of 3.6493ha.
- Building area of 17,560m² with two warehouses and dedicated offices.
- Site access via Bakers Lane off Mamre Road.

Lot 4

- Lot area of 2.3537ha.
- Building area of 14,140m² with a warehouse and dedicated office.
- Site access via Bakers Lane off Mamre Road.

Lot 5

- Lot area of 4.2454ha.
- Building area of 18,245m² with a warehouse and two dedicated offices.
- Site access via Access Road linked to Mamre Road.

Lot 6

- Lot area of 4.0152ha.
- Building area of 15,500m² with a warehouse and dedicated office.
- Site access via Access Road linked to Mamre Road.

Lot 7

- Lot area of 3.5875ha.
- Building area of 24,205m² with a warehouse and dedicated office.
- Site access via Bakers Lane off Mamre Road.

Lot 8

- Lot area of 4.6020ha.
- Building area of 27,900m² with a warehouse and two dedicated offices.
- Site access via Access Road linked to Mamre Road.

Lot 9

- Lot area of 3.4621ha.

Lot 10

- Lot area of 22.4652ha.

Lot 11

- Lot area of 1.3976ha.

Lot 12

- Lot area of 0.7193ha.

Lot 13

- Lot area of 1.6572ha.

Lot 14

- Lot area of 2.0264ha.

Lot 15 (RE2)

- Lot area of 2.4653ha.

Lot 16

- Lot area of 6.2072ha.

Lot 17

- Lot area of 15.2034ha.

Lot 18

- Lot area of 5.5490ha.

Note if the site layouts change, further assessment may be required to determine the viability of the development site for 24 hour operation.

3.3 Acoustic Environment

The surrounding area is primarily affected by road traffic from Mamre Road and potentially noise from existing nearby commercial/industrial activities.

4. Equipment

The following equipment was used to record noise levels:

- Norsonics 140 sound level meter
- Two Rion NL42 Environmental Noise Monitors (SN# 00175548 & SN#01259207))
- Pulsar Model 105 Ltd Sound Calibrator (SN # 57417)

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

5. Receivers and Noise Monitoring Locations

5.1 Receiver Locations

The nearest sensitive receiver locations were identified as follows;

1. Single storey residential dwellings are located south west of the site at Medinah Avenue, Luddenham.
2. A single storey residential dwelling is located east of the site at 654-674 Mamre Road, Kemps Creek.
3. A single storey residential dwelling is located east of the site at 676-702 Mamre Road, Kemps Creek.
4. A single storey residential dwelling is located east of the site at 706-752 Mamre Road, Kemps Creek.
5. A single storey residential dwelling is located east of the site at 754-770 Mamre Road, Kemps Creek.
6. A single storey residential dwelling is located south of the site at 771-781 Mamre Road, Kemps Creek.
7. Residential dwellings are located north of the site at 579 Mamre Road, Orchard Hills.
- A. Industrial/warehouses are currently being constructed north of the site at Mamre Road, Orchard Hills.

These locations were chosen as being representative of the nearest sensitive receivers to the proposed development. Refer to Figure 3 for these locations.

Figure 3: Receiver and noise monitoring locations



5.2 Unattended Noise Monitoring

Rion NL42 environmental noise monitors were placed at 8 Medinah Avenue, Luddenham and 676-702 Mamre Road, Kemps Creek to measure ambient noise levels. The monitors were located in free field positions with the microphones approximately 1.4 metres above ground surface level. The noise monitors were set to record noise levels between the 11th and 19th April 2018.

Both environmental noise monitors were set to record noise levels in "A" weighting, Fast response using 15 minute statistical intervals. Ambient noise monitoring was conducted in accordance with Australian Standard AS1055:1997 *Acoustics – Description and measurement of environmental noise*. For the unattended noise monitoring locations refer to Figure 3.

Weather conditions were fine for the majority of the monitoring period, with some periods of intermittent wind and rain which had no effect on the measured data.

6. Existing background noise levels

The following tables present the measured existing ambient noise levels from the unattended noise survey. Any periods of inclement weather or extraneous noise are omitted from the measured data prior to determining the overall results.

6.1 Meteorological conditions

Meteorological observations during the unattended noise monitoring survey were obtained from the Bureau of Meteorology website (<http://www.bom.gov.au/climate/data/>), shown in Table 1 below.

Table 1: Meteorological conditions – Horsley Park

Day	Date	Rainfall (mm)	Wind			
			9am		3pm	
			Speed (km/h)	Direction	Speed (km/h)	Direction
Wednesday	11/04/2018	0	11	N	4	NNE
Thursday	12/04/2018	0	2	NW	15	NW
Friday	13/04/2018	0	11	NNW	15	N
Saturday	14/04/2018	0	19	NNW	31	NW
Sunday	15/04/2018	0.2	24	WNW	20	WNW
Monday	16/04/2018	0	4	N	11	WSW
Tuesday	17/04/2018	0	6	WSW	20	ESE
Wednesday	18/04/2018	0	2	NW	11	E
Thursday	19/04/2018	0	4	WNW	Calm	Calm

6.2 Ambient background noise level

The measured rating background noise levels (RBL) were determined in accordance with the NSW Noise Policy for Industry with levels for the different monitoring locations presented in Table 2.

Table 2: Measured L90 noise levels

Day	Date	Receiver 1			Receivers 2 to 7		
		Background L90 dB(A)			Background L90 dB(A)		
		Day	Evening	Night	Day	Evening	Night
Wednesday	11/04/2018	-	36.1	35.4	-	44.2	38.4
Thursday	12/04/2018	-	32.4	30.4	44.3	47.3	46.9
Friday	13/04/2018	-	33.4	28.0	47.1	46.4	45.4
Saturday	14/04/2018	37.5	33.2	28.4	47.5	45.9	44.1
Sunday	15/04/2018	37.7	28.7	23.6	45.6	37.5	33.5
Monday	16/04/2018	35.0	31.8	24.7	39.9	40.0	33.1
Tuesday	17/04/2018	36.1	30.3	26.8	38.0	36.3	28.8
Wednesday	18/04/2018	36.3	34.8	32.0	41.8	41.6	36.0
RBL		36	33	28	44	43	37

Note Receiver 1 daytime periods on 12th and 13th April 2018 were affected by extraneous noise and were omitted from the measured data.

The night time background level for Receiver 1 is below the minimum RBL as defined in the NSW Noise Policy for Industry (2017), therefore an RBL of 30dBA is applied in accordance with the policy for the night time period.

6.3 Attended Noise Measurements

When the unattended noise monitors were placed at the sensitive receivers, attended noise measurements were attempted of the existing activities in the area. Due to the inaudibility of industrial and commercial activities, unattended monitoring was used to determine the existing noise environment.

7. Noise Criteria

The relevant noise criteria have been determined in consultation with Penrith City Council requirements, Secretary's Environmental Assessment Requirements and the NSW Noise Policy for Industry 2017.

7.1 Penrith City Council

The site is located within Penrith City Council local government area with the land classified as future industrial land. Penrith City Council's Development Control Plan 2014 states the following in relation to noise;

"6.4 Environmental Quality

6.4.1 Noise Pollution

A. Objectives

- a) To establish design criteria for noise emissions from industrial or other employment-generating development;*
- b) To establish acoustic environmental goals for existing and future adjacent residential areas; and*
- c) to establish noise contributions for individual allotments within the employment zones when related to residential boundaries.*

B. Controls

- 1) Any machinery or activity considered to produce noise emissions from a premise shall be adequately sound-proofed so that noise emissions are in accordance with the provisions of the Protection of the Environment Operations Act 1997.*
- 2) The use of mechanical plant and equipment may be restricted in the Northern Area (Figure E6.1). Developers in all areas should ensure through design of their development that no offensive noise is emitted.*
- 3) Where it is considered likely that a development will not create any adverse impact on nearby rural or residential areas, a noise impact statement from a qualified acoustical engineer will be required to be submitted to Council for consideration with the Development Application. A noise impact statement will need to demonstrate that the proposed development will not create any adverse impact.*
- 4) All development shall comply with the requirements of relevant Australian Standards and State Government policies and guidelines relating to Noise.*
- 5) the acoustic criteria adopted by this section will be implemented in the following manner:*

Erection of Buildings

- 1) An acoustic design report shall be required for developments that are likely to generate high noise levels and for development in the area immediately adjoining residential areas. The acoustic design report should refer to the relevant Australian Standards and State Government policies and guidelines relating to Noise.*
- 2) If an acoustic design report is not required at the Development Application stage, conditions will be imposed as part of the development consent which requires compliance with the relevant Australian Standards and State Government policies and guidelines relating*

to noise. Applicants must have regard to the criteria and demonstrate a standard of acoustic treatment for the building to comply with such criteria

3) It is essential that potential developers investigate noise amelioration features to be included in building design, which will assist in achieving compliance with Council's acoustic criteria. Having regard to the surrounding topography, it is critical that the roof element of all buildings be acoustically capable of controlling potential breakout noise."

7.2 State Environmental Planning Policy Western Sydney Employment Area 2009

Clauses 23 and 33D of the State Environmental Planning Policy for Western Sydney Employment Area state the following in relation to noise:

"Clause 23

(2) The consent authority must not grant consent to development on land to which this clause applies unless it is satisfied that –

...

(d) noise generation from fixed sources or motor vehicles associated with the development will be effectively insulated or otherwise minimised, and

(e) the development will not otherwise cause nuisance to residents, by way of hours of operation, traffic movement, parking, headlight glare, security lighting or the like.

...

Clause 33D

(3) Before determining a development application for development to which this clause applies, the consent authority—

(a) must consider whether the development will result in an increase in the number of dwellings or people affected by aircraft noise, and

(b) must consider the location of the development in relation to the criteria set out in Table 2.1 (Building Site Acceptability Based on ANEF Zones) in AS 2021:2015, and

(c) must be satisfied that the development will meet the indoor design sound levels set out in Table 3.3 (Indoor Design Sound Levels for Determination of Aircraft Noise Reduction) in AS 2021:2015."

Further reference is made to AS 2021:2015

7.3 AS 2021:2015

With regard to requirement 3b of SEPP WSEA 2009 Clause 33D, Table 2.1 of AS 2021:2015 specifies the following requirements for building siting in relation to ANEF contours:

Table 3: Building Siting in relation to Aircraft noise

Building type	ANEF zone of site		
	Acceptable	Conditionally acceptable	Unacceptable
Light industrial	Less than 30 ANEF	30 to 40 ANEF	Greater than 40 ANEF
Other industrial	Acceptable in all ANEF zones		

Table 3.3 of AS 2021:2015 sets limits for noise intrusion when a new development is located in an area within the ANEF (Aircraft Noise Exposure Forecast) contour 20 and 25:

Table 4: Indoor sound design levels for aircraft noise

Building type and activity	Indoor design sound level dB(A)
Commercial buildings, offices and shops	
Drafting, open offices	65
Industrial	
Inspection, analysis, precision work	75
Light machinery, assembly, bench work	80

The site is located outside of the 20-25 ANEF Contour for Western Sydney Airport.

7.4 Secretary's Environmental Assessment Requirements (SEARs)

The Secretary's Environmental Assessment Requirements (SEARs) outline the requirements for the construction and operational use of the proposed development. Section 4.11 of SEARs 2015 states the following;

"Noise and Vibration – Amenity

- 1. The Proponent must assess construction and operational noise vibration guidelines. The assessment must include consideration of impacts to sensitive receivers including small businesses, and include consideration of sleep disturbance and, as relevant, the characteristics of noise and vibration (for example, low frequency noise).*
- 2. The Proponent must demonstrate that blast impacts are capable of complying with the current guidelines, if blasting is required.'*

As a specific criterion is not specified, further reference was made to *Assessing Vibration: A Technical Guide 2006*, the *NSW Noise Policy for Noise*, *NSW Road Noise Policy* and the *NSW Interim Construction Guideline*.

7.5 Assessing Vibration: A Technical Guideline 2006

7.5.1 Types of vibration

There are three types of vibration as classified in the guide;

- Continuous - vibration continues uninterrupted for a defined period (usually throughout daytime and/or night-time). This type of vibration is assessed on the basis of weighted RMS (root mean squared) acceleration values.
- Impulsive - rapid build up to a peak followed by a damped decay that may or may not involve several cycles. The duration is short, typically less than 2 seconds. Impulsive vibration (no more than three occurrences in an assessment period) is assessed on the basis of acceleration values.
- Intermittent - interrupted periods of continuous (e.g. a drill) or repeated periods of impulsive vibration (e.g. a pile driver), or continuous vibration that varies significantly in magnitude. Assessed on the basis of vibration dose values.

7.5.2 Acceptable values for continuous and impulsive vibration (1-80Hz)

The relevant criteria for continuous and impulsive vibration are as follows;

Table 5: Preferred weighted RMS vibration acceleration values

Type	Location	Assessment period	Preferred values m/s ²		Maximum values m/s ²	
			z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous vibration	Critical areas	Day or night time	0.005	0.0036	0.01	0.0072
	Residences	Day time	0.01	0.0071	0.02	0.014
		Night time	0.007	0.005	0.014	0.01
	Offices, schools, educational institutions and places of worship	Day or night time	0.02	0.014	0.04	0.028
	Workshops	Day or night time	0.04	0.029	0.08	0.058
Impulsive vibration	Critical areas	Day or night time	0.005	0.0036	0.01	0.0072
	Residences	Day time	0.3	0.21	0.6	0.42
		Night time	0.1	0.071	0.2	0.14
	Offices, schools, educational institutions and places of worship	Day or night time	0.64	0.46	1.28	0.92
	Workshops	Day or night time	0.64	0.46	1.28	0.92

7.5.3 Acceptable values for intermittent vibration

Intermittent vibration is assessed using the vibration dose value (VDV) root-mean-quad method. VDV accumulates the vibration energy received over the daytime and night-time periods. The vibration dose methodology is as per standard BS 6472–1992.

7.6 Noise Policy for Industry

Assessment of noise in accordance with NSW Noise Policy for Industry (2017) has two main components: intrusiveness and amenity criteria. These are compared to each other (after conversion of amenity noise level to LAeq,15min equivalent level) to determine the overall project noise trigger level.

7.6.1 Intrusiveness noise level

The intrusiveness noise level is based on the $L_{Aeq}(15 \text{ min})$ associated with commercial activity being less than or equal to the measured L_{A90} Rating Background Level + 5dB as per section 2.3 of the policy. A modifying factor should also be added where appropriate to allow for tonality, impulsiveness, and intermittency or low frequency effects.

7.6.2 Amenity noise level

The amenity noise level is determined in accordance with Section 2.3 of the policy based on the land use and relevant noise criteria specified in Tables 2.3 and 2.2 respectively.

The NSW Noise Policy for Industry sets out acceptable noise levels for various locations. Under the policy the receivers 1 to 7 would be most likely assessed against the 'rural' criteria and receiver A would be assessed against the 'industrial premises' criteria.

As defined in the policy rural category is an area that is dominated by natural sounds, having little or no road traffic noise and generally characterised by low background noise levels.

7.6.3 Modifying factors

The NSW Noise Policy for Industry includes correction factors such as tonal noise, low-frequency noise, intermittent noise and duration. Where two or more modifying factors are present, the maximum adjustment to a noise source level is 10dBA (excluding duration correction).

7.7 Project noise trigger level

To determine the project trigger noise level, the amenity noise level must first be standardised to and equivalent LAeq 15min in order to compare to the intrusiveness noise level. This is done in accordance with Section 2.2 of the policy as follows;

$$L_{Aeq,15min} = L_{Aeq, period} + 3dB$$

Therefore, based on the measured data presented in Section 6, the project specific noise limits are determined.

7.7.1 Intrusiveness noise criteria

The intrusiveness noise levels are as follows;

Table 6: Intrusiveness noise levels

Time period	Receivers 1	Receivers 2 to 7	Receiver A
	Criteria $L_{eq(15min)}$ dB(A)	Criteria $L_{eq(15min)}$ dB(A)	Criteria $L_{eq(15min)}$ dB(A)
Day (7am-6pm Mon-Sat; 8am-6pm Sun)	41	49	N/A
Evening (6pm-10pm)	38	48	N/A
Night (10pm-7am Sun-Fri, 10pm-8am Sat)	35	42	N/A

*N/A: Intrusive noise criteria does not apply for industrial receivers.

7.7.2 Amenity criteria

Based on Section 2.4 of the policy, the amenity noise levels are as follows;

Table 7: Amenity noise levels

Time period	Receiver 1	Receivers 2 to 7	Receiver A
	Criteria $L_{eq(15min)}$ dB(A)	Criteria $L_{eq(15min)}$ dB(A)	Criteria $L_{eq(15min)}$ dB(A)
Day	48	48	70
Evening	43	43	70
Night	38	38	70

7.7.3 Project specific noise criteria

The project noise trigger level is the lower (that is, the most stringent) value of the intrusiveness and amenity noise levels. Therefore the project noise trigger levels are as follows:

Table 8: Project criteria

Time period	Receiver 1	Receivers 2 to 7	Receiver A
	Criteria $L_{eq(15min)}$ dB(A)	Criteria $L_{eq(15min)}$ dB(A)	Criteria $L_{eq(15min)}$ dB(A)
Day	41	48	70
Evening	38	43	70
Night	35	38	70

7.7.4 Sleep Disturbance

The potential for sleep disturbance from maximum noise level events from premises during the night-time period needs to be considered. Sleep disturbance is considered to be both awakenings and disturbance to sleep stages.

Where the subject development/premises night-time noise levels at a residential location exceed:

- $L_{Aeq,15min}$ 40 dB(A) or the prevailing RBL plus 5 dB, whichever is the greater, and/or
- L_{AFmax} 52 dB(A) or the prevailing RBL plus 15 dB, whichever is the greater,

a detailed maximum noise level event assessment should be undertaken.

7.8 NSW Road Noise Policy 2008

The NSW Road Noise Policy outlines the criteria for any increase in the total traffic noise level at the location due to a proposed project or traffic generating development. As Mamre Road is an arterial road the following criteria applies:

Table 9: Relative increase criteria for residential land uses

Road Category	Type of project/development	Total traffic noise level increase – dB(A)	
		Day (7am to 10pm)	Night (10pm to 7am)
Freeway/arterial/sub-arterial roads and transitways	New road corridor/redevelopment of existing road/land use development with the potential to generate additional traffic on existing road	Existing traffic $L_{Aeq(15hr)} + 12dB$ (external)	Existing traffic $L_{Aeq(9hr)} + 12dB$ (external)

8. Environmental Assessment

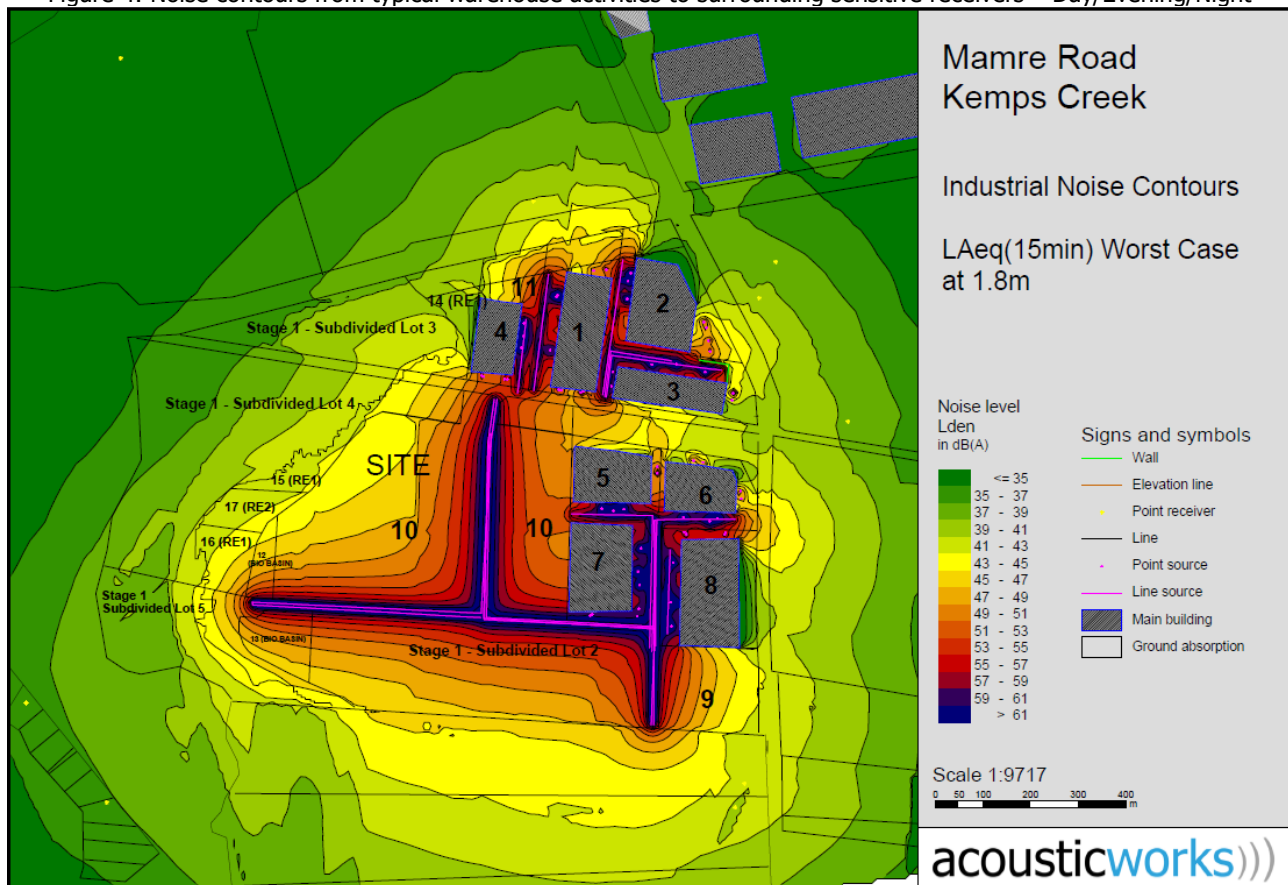
8.1 Onsite Activities

Noise associated with the proposal was assessed based on previous measurements of similar activities. The calculations assume that the nominated activities are located at a representative point within the development site to each receiver location. Any relevant shielding or building transmission loss is taken into account for these activities.

The 3D SoundPLAN modelling in Figure 4 shows the predicted worst case 15 minute noise impacts based on typical warehouse activities such as trucks, forklifts, reverse alarms, car park activities.

Vehicle movements were based 5 cars and 1 truck per warehouse every 15 minutes over 24 hours. If manufacturing or factory production is proposed, additional individual acoustic assessment may be required to ensure that proposed warehouse building construction will adequately attenuate internal noise sources.

Figure 4: Noise contours from typical warehouse activities to surrounding sensitive receivers – Day/Evening/Night



The predicted noise impacts at the receiver locations are as follows:

Table 10: Predicted Noise Impacts

Receiver	$L_{eq(15min)}$ dB(A)	Criteria day/evening/night	Complies (yes/no)
1: Medinah Avenue	30	41/38/35	Yes
2: 654-674 Mamre Road	32	48/43/38	Yes
3: 676-702 Mamre Road	34	48/43/38	Yes
4: 706-752 Mamre Road	31	48/43/38	Yes
5: 754-770 Mamre Road	27	48/43/38	Yes
6: 771-781 Mamre Road	35	48/43/38	Yes
7: 579 Mamre Road	24	48/43/38	Yes
A: Industrial/warehouses (north)	35	70	Yes

Compliance is predicted with the assessment criteria detailed Section 7.7.3 for the 24 hour operation of the site on the condition the recommendations in Section 11 are implemented.

9. Road Traffic Noise

The existing annual average daily traffic volume for Mamre Road is approximately 20,000 vehicles per day. In accordance with the RTA *Guide to Traffic Generating Developments*, the proposed warehouse development is predicted to produce an additional 4,388 vehicle movements per day.

Therefore, based on the available information, the predicted increase in daily $L_{Aeq(15hr)}$ for receivers near Mamre Road is calculated to be 0.86dB(A) due to traffic generation by the proposed development, which complies with the criterion of +12dB(A) as outlined in Section 7.8.

10. Aircraft Noise Assessment

10.1 Site location

The site is located outside of the Western Sydney Airport ANEF 2030 contours.

10.2 Site coordinates

The following dimensions have been determined in accordance with AS2021:2015;

Table 11: Site coordinates runway

Description	Dimension (m)
DS, sideline distance	1298
DL, landing distance	6174
DT, takeoff distance	9874
HS, elevation of site	40
HA, elevation of airport	80

10.3 Aircraft noise levels – AS2021:2015

Using the site coordinates, the noise levels for the various types of aircraft are calculated in

Table 12: Aircraft noise levels – AS2021:2015 Runway 16R/34L

Model	Representative aircraft	Noise level dBA L _{max} (slow)	
		Departure	Arrival
A319-115	Airbus A319-131	62	55
A320-231	Airbus A320-232	61	56
A321-231	Airbus A321-232	63	56
A330-202	Airbus A330-301	69	60
A330-303	Airbus A330-301	69	60
A340-642	Airbus A340-642	66	61
A380-842 (Short haul)	Airbus A380-841 (Short haul)	67	60
A380-842 (Long haul)	Airbus A380-841 (Long haul)	68	60
737-3YO	Boeing 737-300	68	57
737-476	Boeing 737-400	68	58
737-8FE	Boeing 737-800	68	60
747-438 (Short haul)	747-400 (Short haul)	71	64
747-438 (Long haul)	747-400 (Long haul)	72	64
DHC-6 SERIES 300	Bombardier Dash 6	62	60

Model	Representative aircraft	Noise level dBA L _{max} (slow)	
		Departure	Arrival
EMB-110P1	Bombardier Dash 6	62	60
SA226-TC	Bombardier Dash 6	62	60
SA227-DC	Bombardier Dash 6	62	60
DHC-8-102	Bombardier Dash 8-100	48	48
DHC-8-202	Bombardier Dash 8-300	50	48
DHC-8-315	Bombardier Dash 8-300	50	48
DHC-8-402	Bombardier Dash 8-300	50	48
340B	Saab 340	57	55
Maximum noise level		72	64
		72	

Based on the highest predicted impact of L_{max} 72dBA, no further treatment to the building façade would be required to comply with AS2021:2015 internal assessment requirements.

11. Recommendations

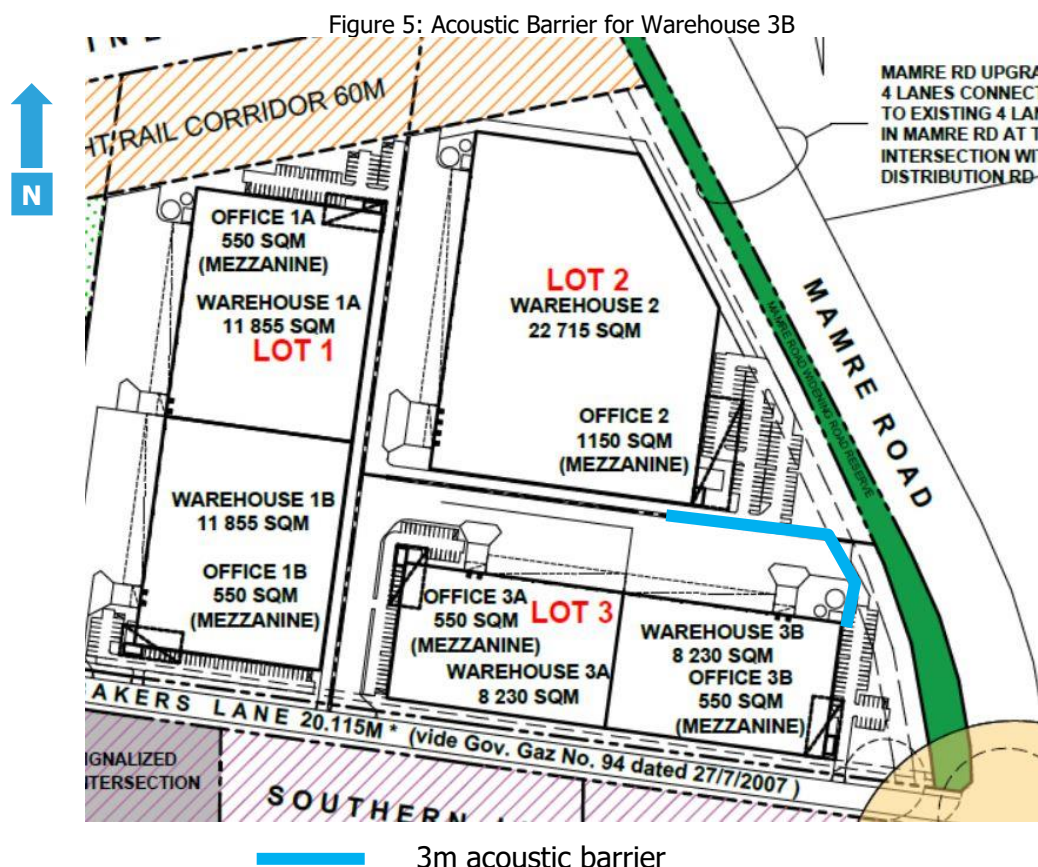
11.1 Construction Noise & Vibration

A construction noise and vibration management plan has been provided for the development as a separate document (report reference: *1018022 R02C Mamre Road Kemp's Creek NMP*) in accordance with the *NSW Interim Construction Guideline*. Accordingly, the Construction Noise and Vibration Management Plan satisfactorily addresses and considers the potential noise impacts during the construction phase of the proposed development.

11.2 Operational Noise & Vibration

The review indicates that 24 hour operation of the site is viable on the condition the following recommendations are adopted:

- Construct an acoustic barrier (approximately 3m high) at the eastern end of the loading dock area for Lot 3 (Warehouse 3B) as shown in Figure 5. The height of the barrier shall be 3m above the finished driveway level and be constructed using lapped timber (minimum 40% overlap), masonry, fibre cement sheet, Hebel, Perspex, plywood, or other material with a minimum surface density of 10kg/m². The barrier shall be free of gaps and holes.



Acoustic Works was advised that the client will implement landscaping around the proposed acoustic barrier. If child care centre, bars, manufacturing, workshops or factory production is proposed for any of the warehouses then additional individual acoustic assessments may be required to ensure that proposed warehouse building construction will adequately attenuate internal noise sources.

11.2.1 Onsite Mechanical Plant

No information regarding mechanical services was available at the time of the assessment. Any new mechanical plant shall be designed to comply with the criteria nominated in section 7 of this report.

Based on the ambient noise levels measured at the nearest sensitive receiver (refer to Section 7) and separation distances, mechanical plants located on the plant deck of each warehouse will require a combined sound power level that does not exceed 75.9dBA for each warehouse. With most development the number of mechanical plant units is predicted to exceed 1, therefore as a guide, Table 13 nominates specific noise levels dependent on the number of units.

Table 13: Mechanical plant maximum sound power level

Number of mechanical plants per warehouse	Maximum Sound Power Level dBA
1	75.9
2	72.9
3	71.4
4	69.9
8	66.9

We recommend that once plant selection are finalised, an assessment by qualified acoustic consultant be conducted prior to installation to determine any requirements for acoustic treatments to mechanical plant.

11.2.2 Vibration

Vibration associated with truck activity is predicted to comply with the relevant NSW guidelines at the nearest sensitive receivers. We recommend that any vibrating equipment used onsite is adequately isolated to prevent vibration issues to nearby receivers or reviewed by a qualified acoustic consultant.

11.2.3 Sleep Disturbance

On the condition the applicable noise criteria outlined in Section 7.7.3 is implemented, then compliance is predicted with the Sleep Disturbance criteria.

11.2.4 NSW Road Noise Policy – Traffic Generation

The traffic generation from the proposed development is predicted to be approximately 4,388 vehicles per day. Based on the existing traffic volumes on Mamre Road, this increase in traffic volume is not predicted to exceed the criteria nominated in Section 7.8.

11.2.5 Aircraft Noise

Based on the predicted noise impacts presented in Section 10, no further treatments would be required.

12. Conclusion

A noise assessment was conducted for a State Significant Development Application for a proposed warehouse, logistics and facilities hub development to be located at 657-769 Mamre Road, Kemps Creek. Based on the results of the investigation, the application for the masterplan is predicted to be acoustically satisfactory for the 24 hour operation of the site on the condition the recommendations in Section 11 are implemented.

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

Report Prepared By



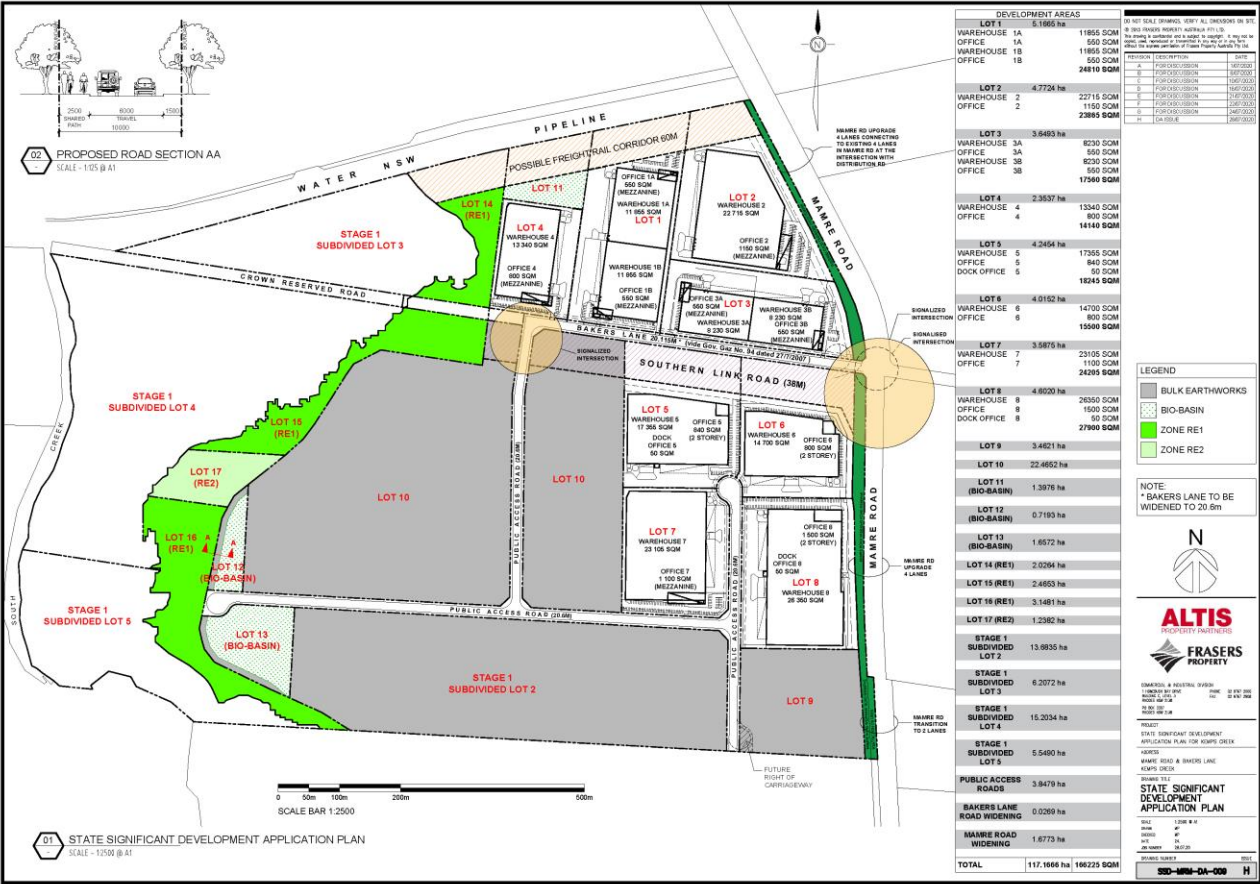
GREG PEARCE B.Eng (Mech)

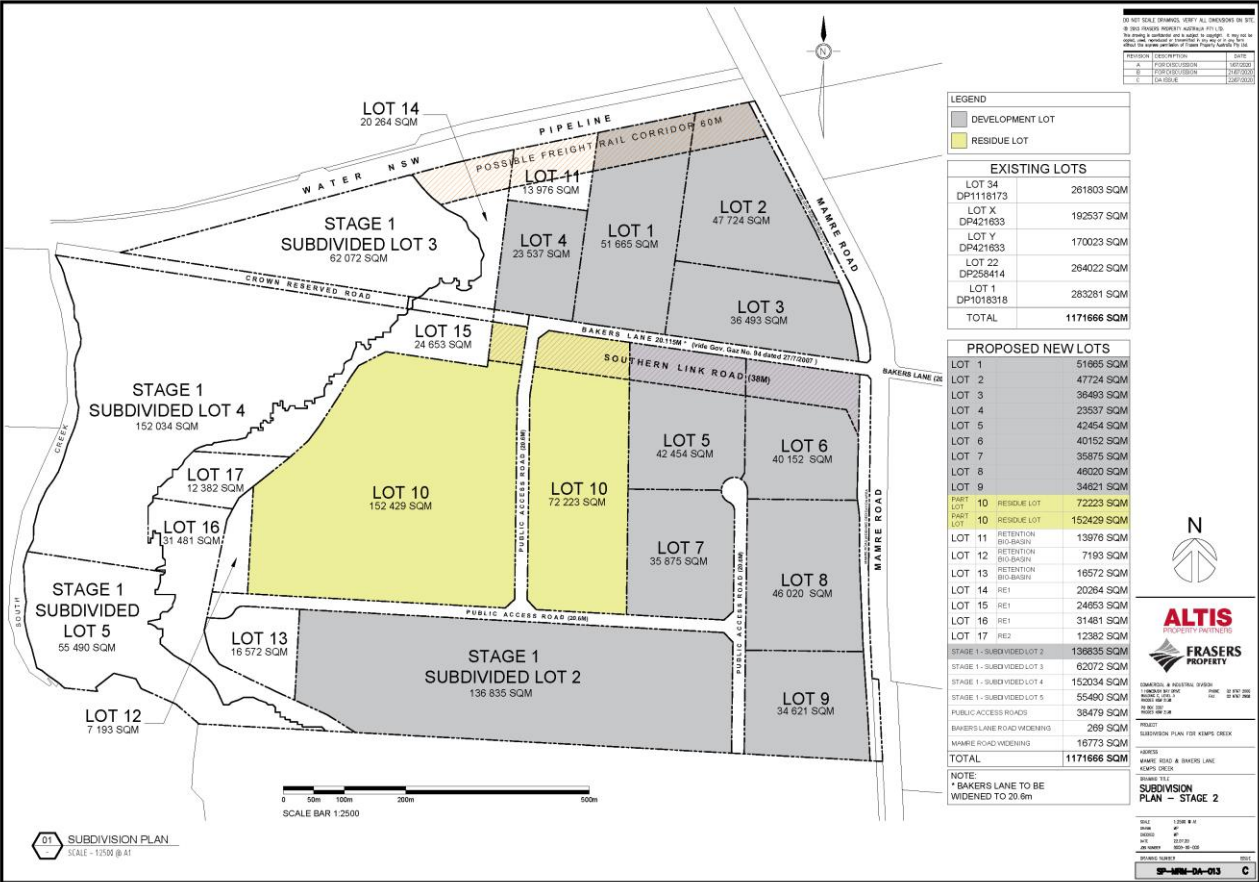
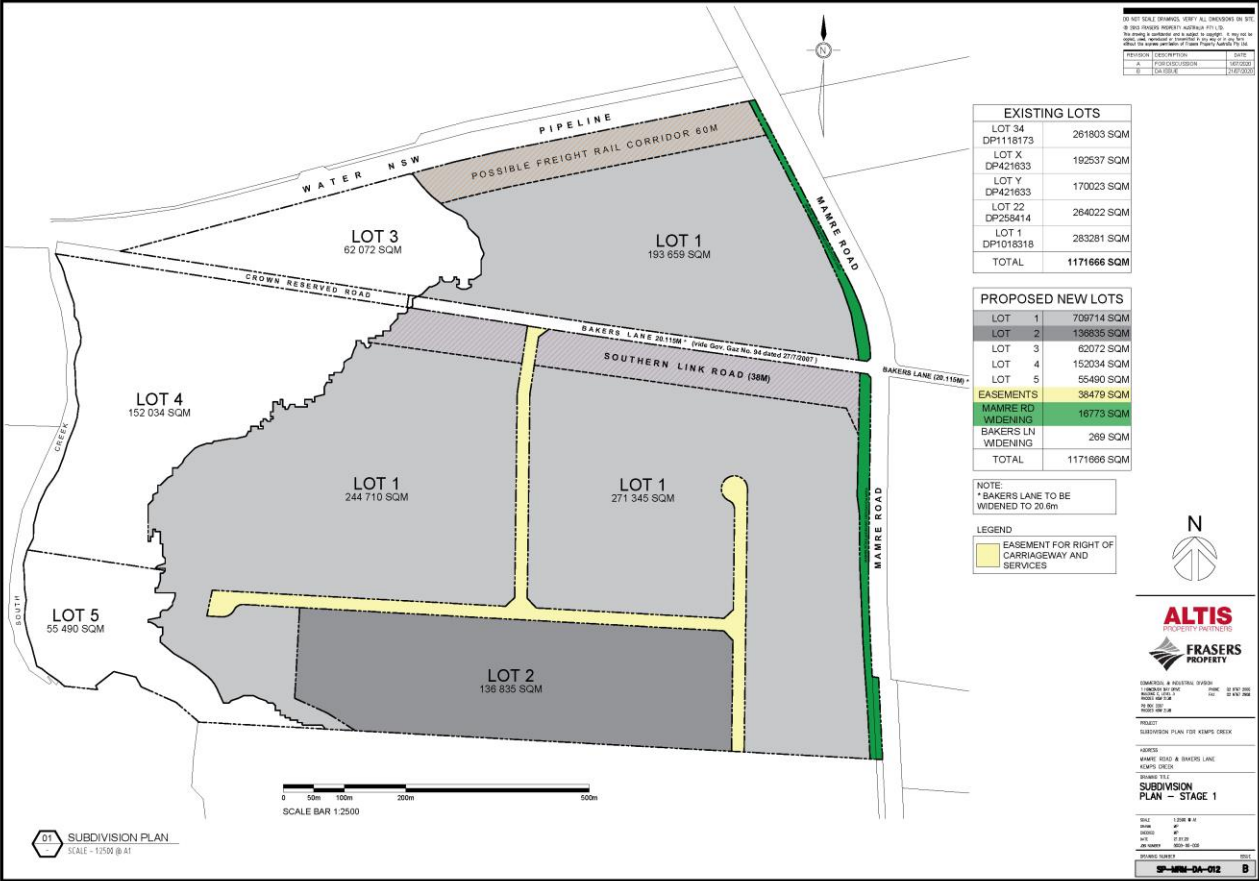
Director

acousticworks)))

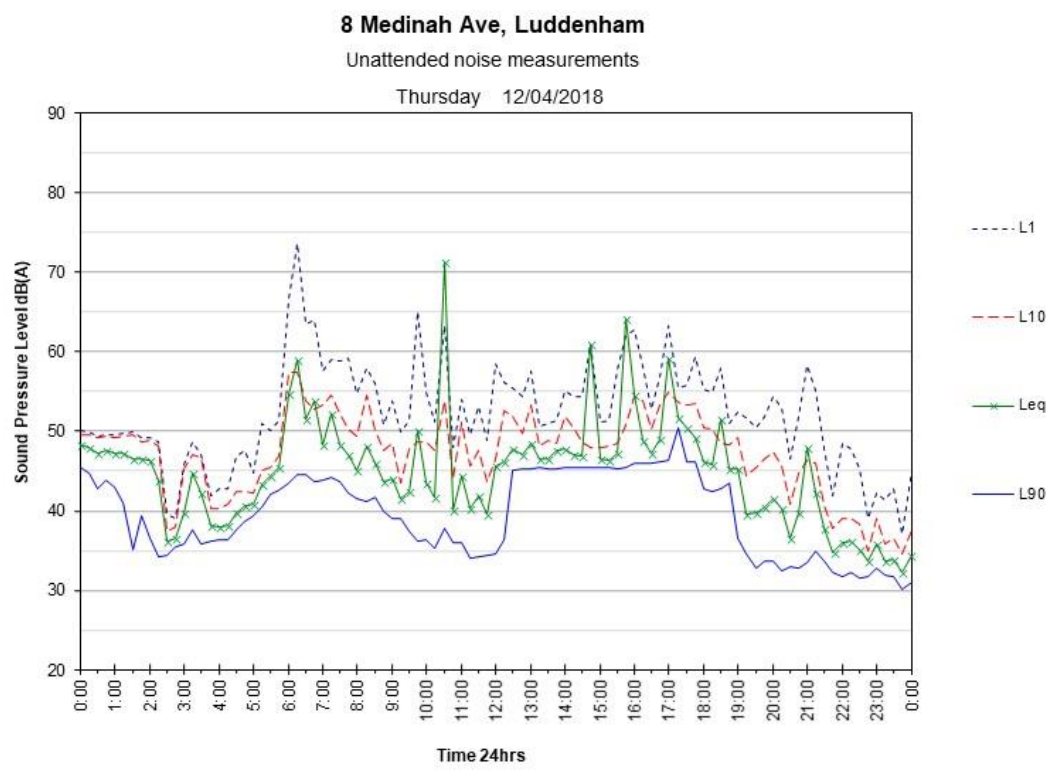
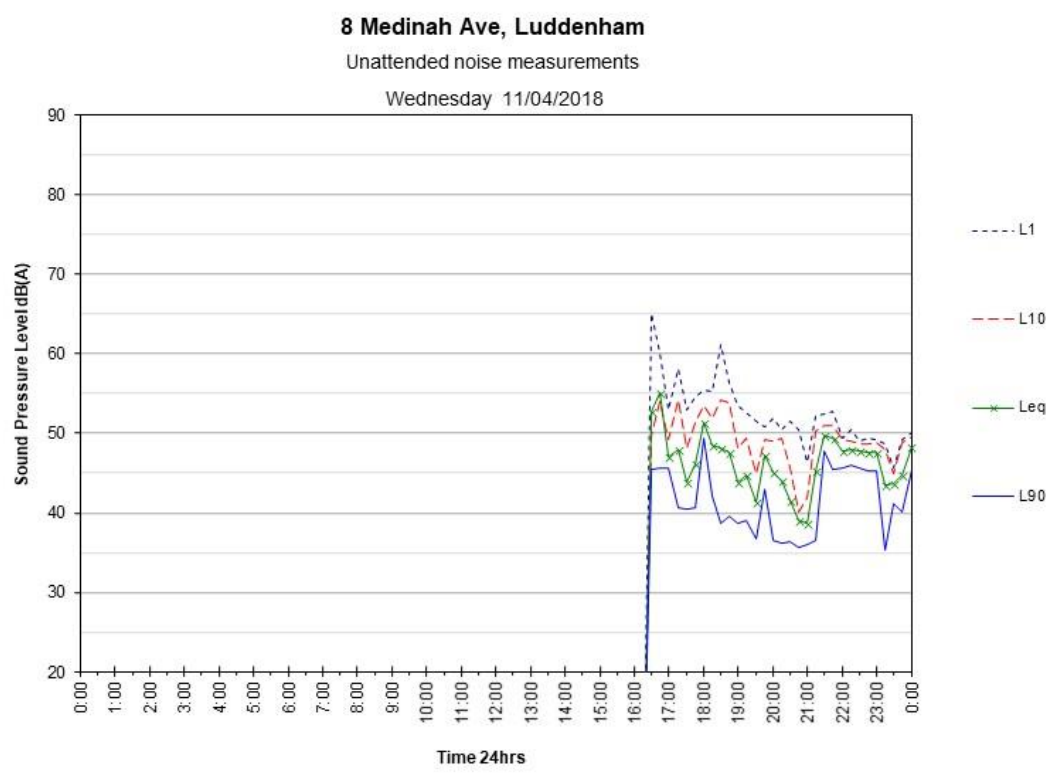
13. Appendices

13.1 Development Plans

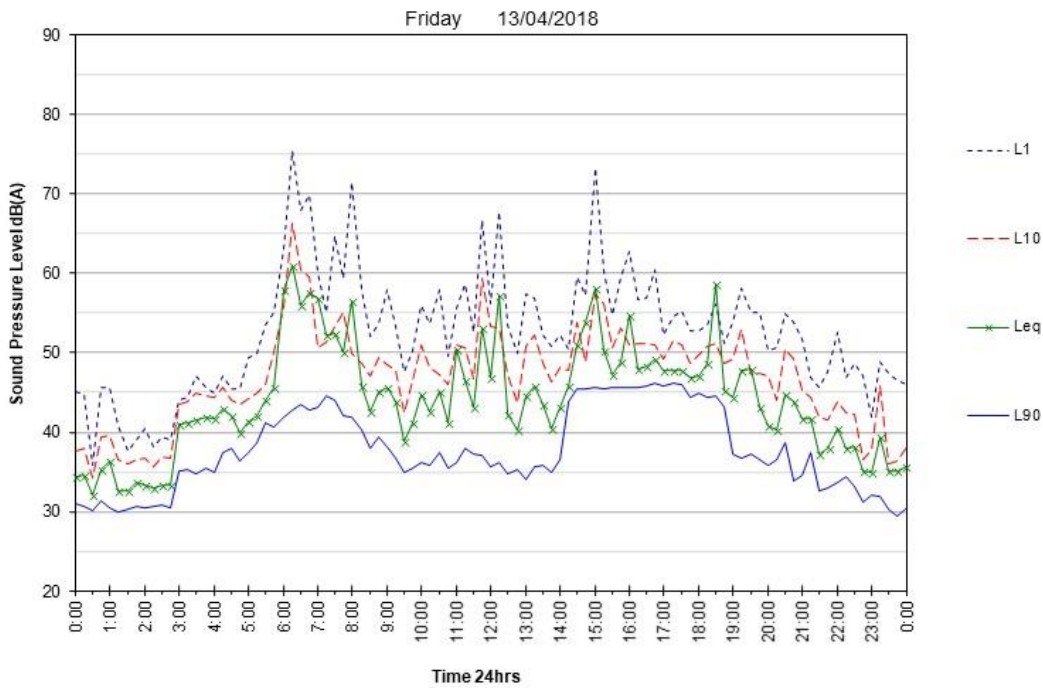




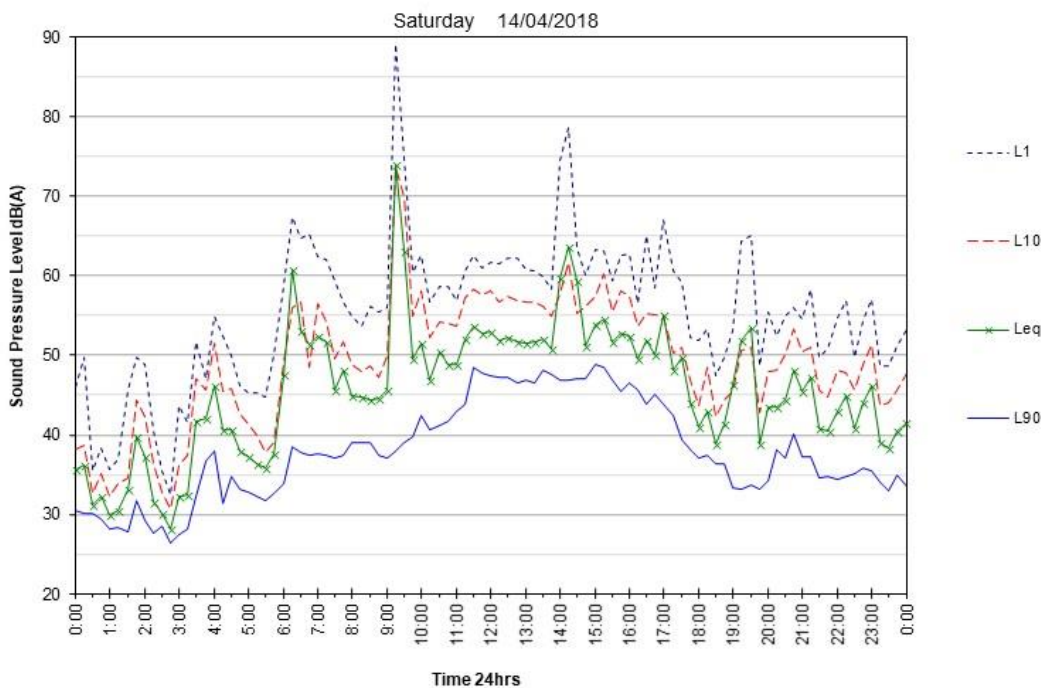
13.2 Noise Monitoring Charts



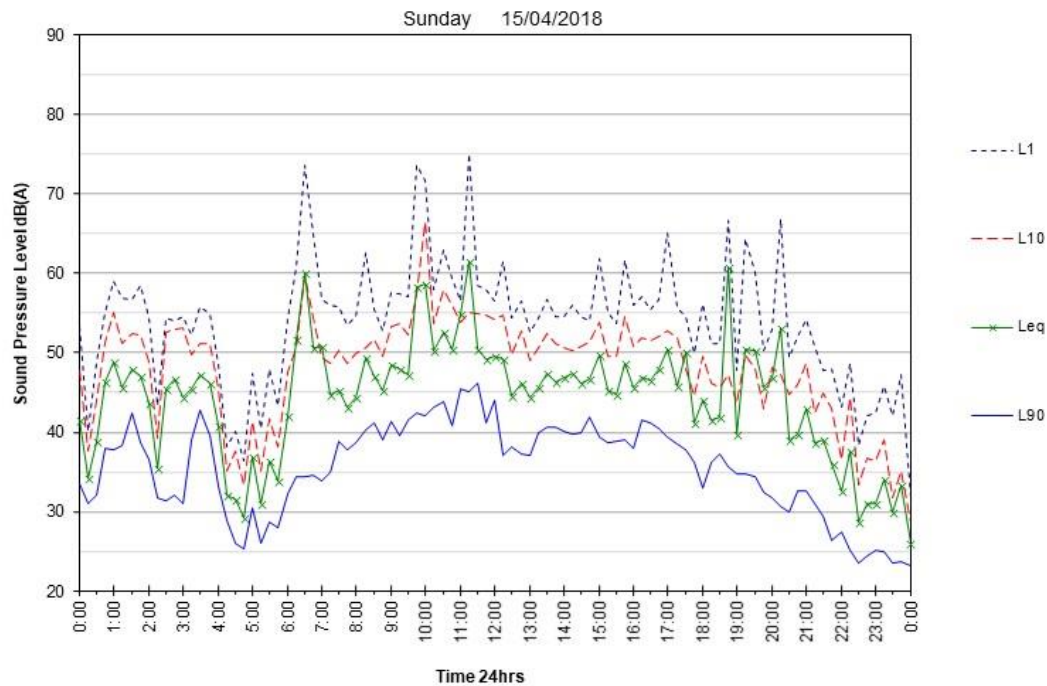
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Unattended noise measurements



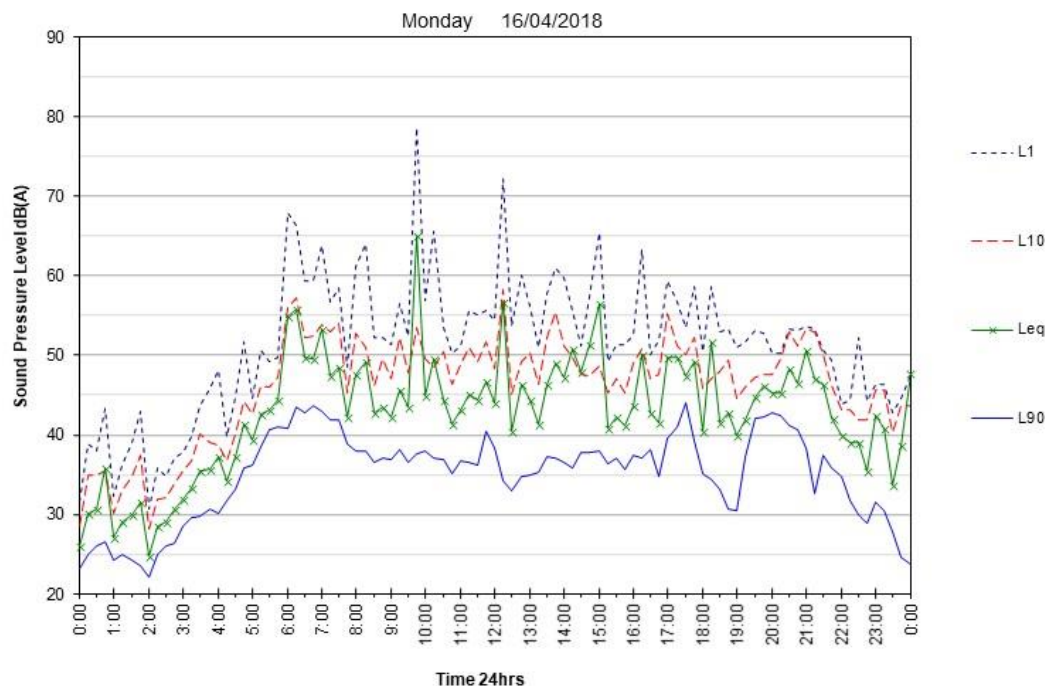
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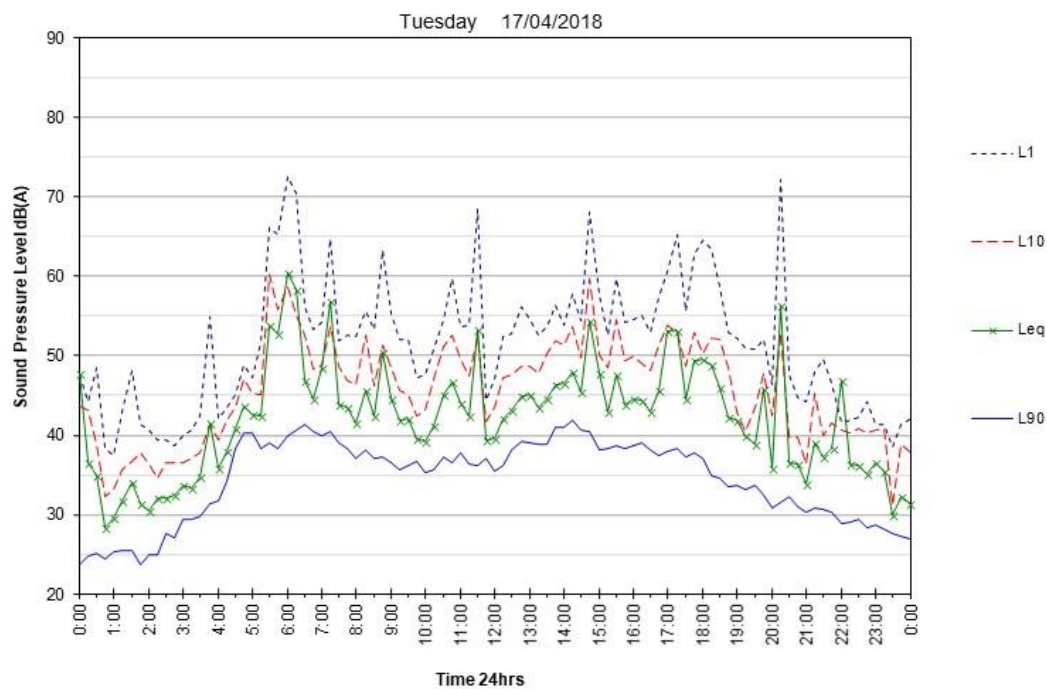
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