

AREA SCHEDULE:
TOTAL SITE AREA: 1400 SQM

NEW UNDERCOVER AREA ON LOT 1
RP600326
(OVER EXISTING IMPERVIOUS AREA):
BUILDING HEIGHT (PROP. UNDERCOVER
AREA): 4800MM
NEW HOTEL EXTENSION GFA: 226 SQM
NEW UNDERCOVER AREA: 285 SQM
NEW SITE COVER: 331 SQM
EXISTING SITE COVER: 621 SQM
TOTAL SITE COVER: 952 (68% OF SITE AREA)
LANDSCAPING: 11 SQM

NEW CAR PARK ON LOT 2 RP600326:
NO. OF CAR PARKS: 11
IMPERVIOUS AREA: 396.5 SQM
LANDSCAPING: 51.5 SQM

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

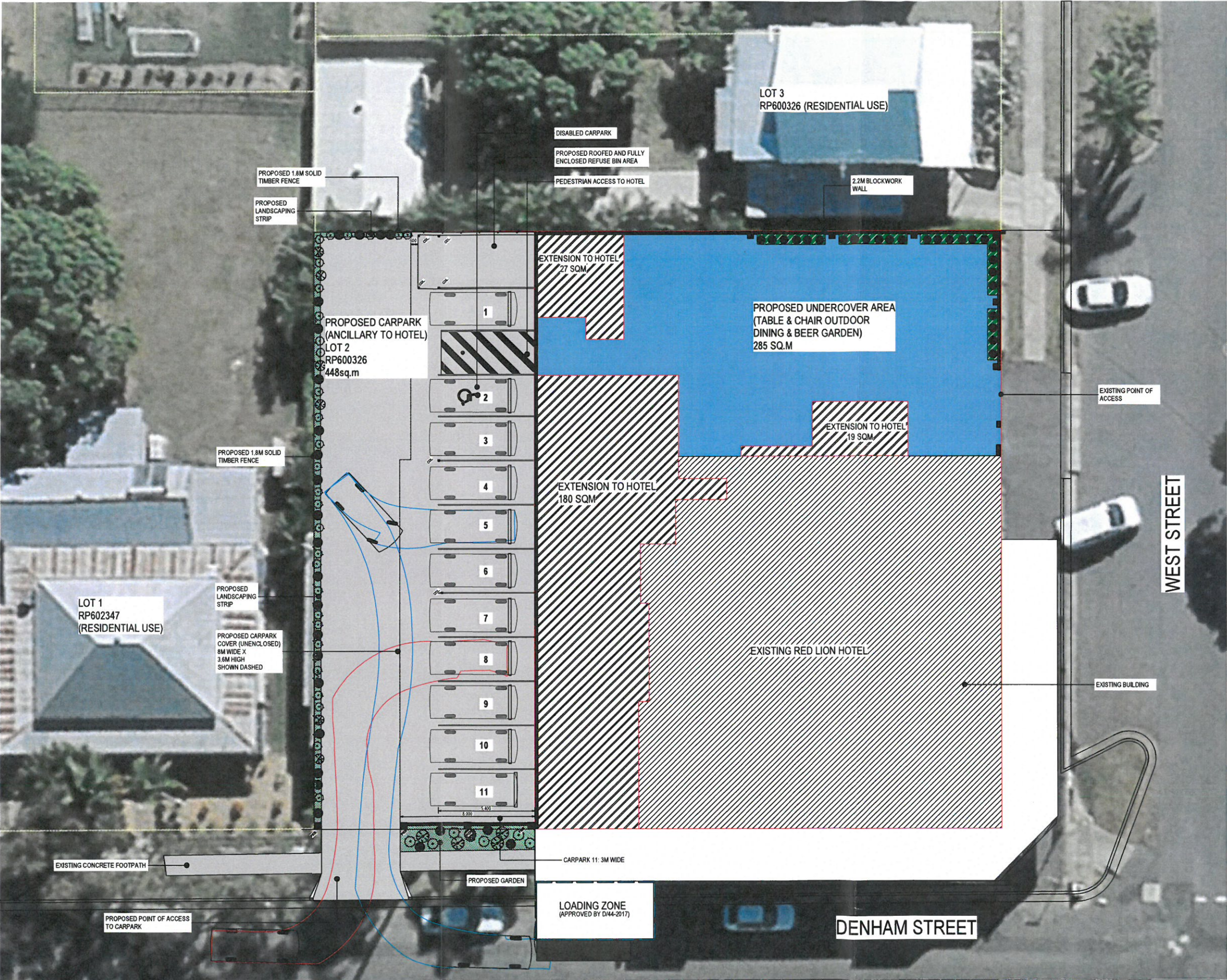
11 October 2018

DATE

These plans are approved subject to the current
conditions of approval associated with

Development Permit No.: D/125-2017

Dated: 22 February 2018



- LEGEND
- EXISTING ROOF AREA
 - PROPOSED HOTEL EXTENSION
 - PROPOSED ROOF AREA



Lotus
Interior Design & Project Management
47 Ferguson Street
Allentown, QLD 4700
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ABN 83 254 142 806

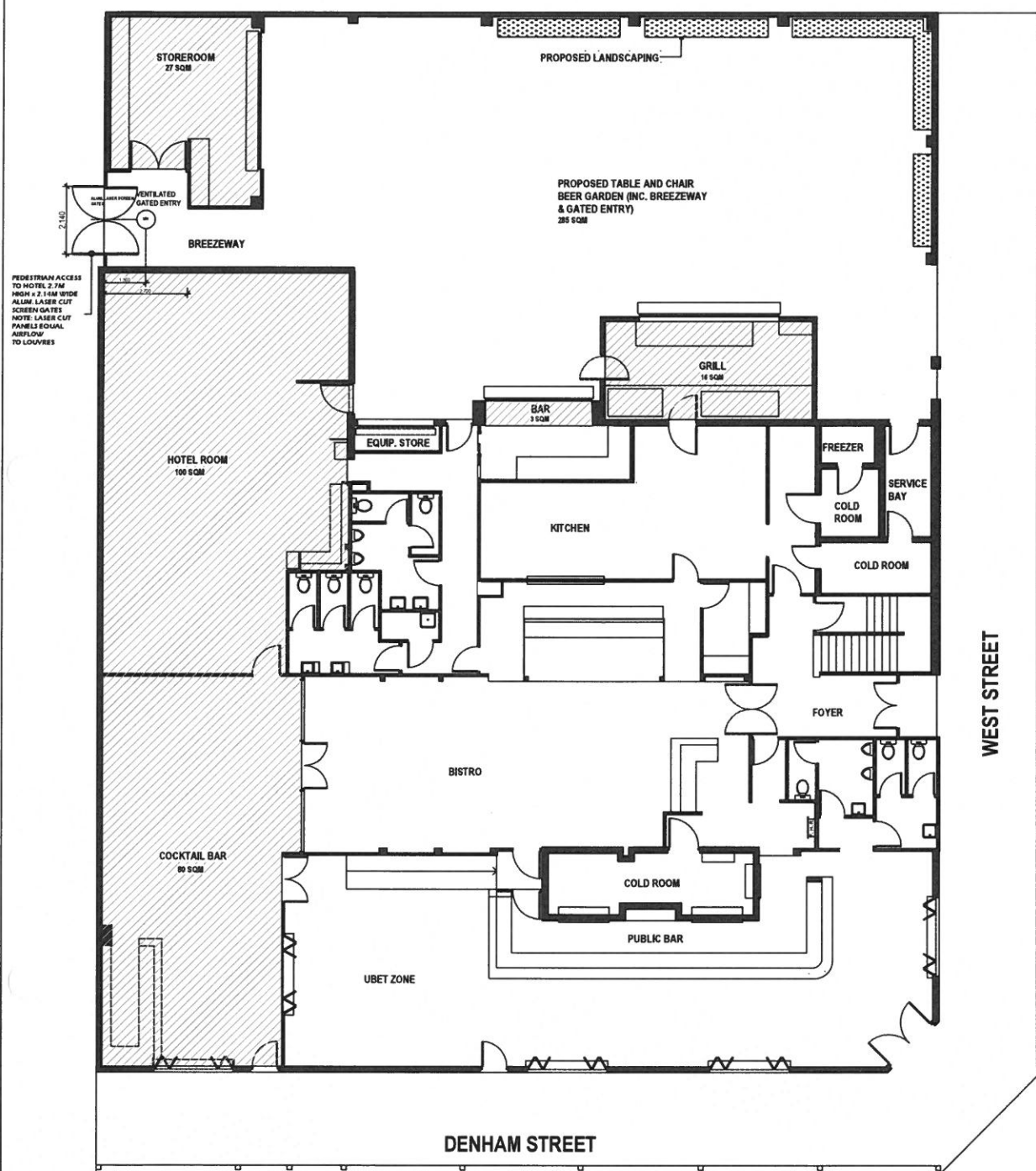


PROPOSED SITE PLAN

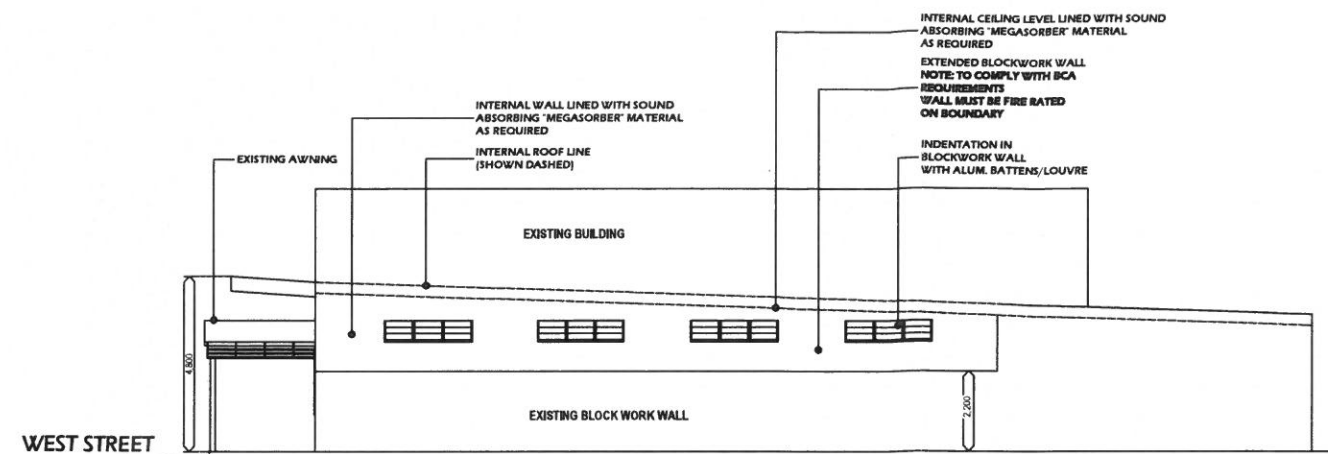
138 & 140 DENHAM STREET
ALLENSTOWN
LOTS 1 & 2: RP600326



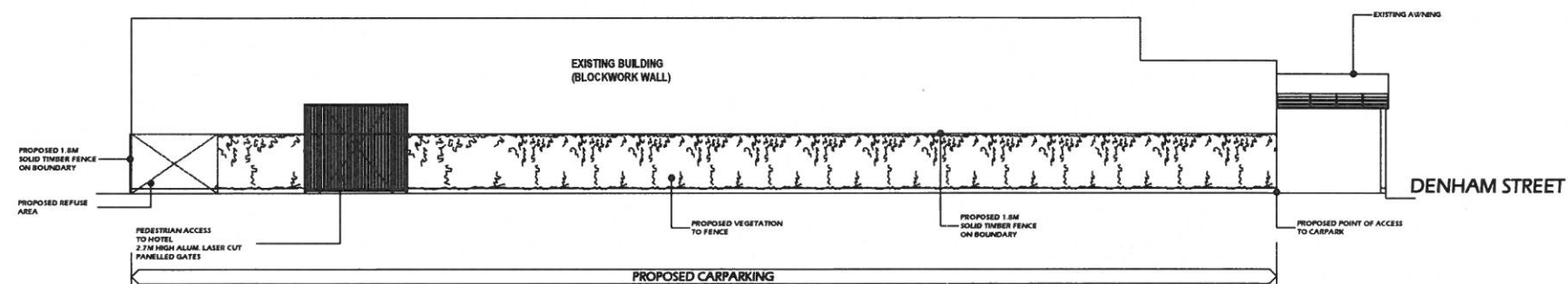
CLIENT:	RED LION HOTEL
TITLE:	PROPOSED SITE PLAN
ADDRESS:	138 & 140 DENHAM STREET ALLENSTOWN
06/09/18	REV: F



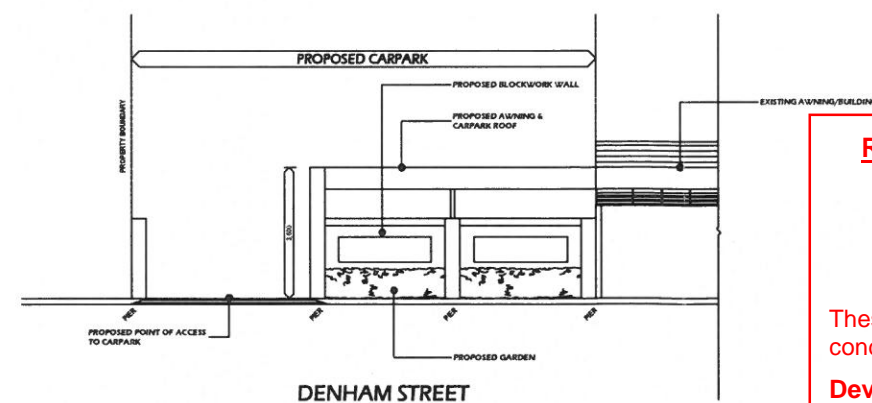
PROPOSED RED LION FLOOR PLAN



RED LION NORTH ELEVATION



RED LION WEST ELEVATION



RED LION SOUTH ELEVATION

ROCKHAMPTON REGIONAL COUNCIL

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ABN 83 254 142 806

FLOOR PLAN & ELEVATIONS

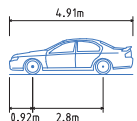
**138 & 140 DENHAM STREET
ALLENSTOWN
LOTS 1 & 2: RP600326**



CLIENT: RED LION HOTEL
TITLE: FLOOR PLAN & ELEVATIONS
ADDRESS: 138 & 140 DENHAM STREET
ALLENSTOWN

06/09/18

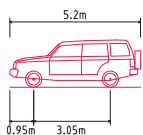
REV: F



OVERALL LENGTH 4.910m
OVERALL WIDTH 1.870m
OVERALL BODY HEIGHT 1.421m
MIN BODY GROUND CLEARANCE 0.159m
TRACK WIDTH 1.770m
LOCK-TO-LOCK TIME 4.00s
CURB TO CURB TURNING RADIUS 5.750m

B85 VEHICLE (REALISTIC MIN RADIUS)

SCALE 1:100(A1) 1:200(A3)



OVERALL LENGTH 5.200m
OVERALL WIDTH 1.940m
OVERALL BODY HEIGHT 1.878m
MIN BODY GROUND CLEARANCE 0.272m
TRACK WIDTH 1.840m
LOCK-TO-LOCK TIME 4.00s
CURB TO CURB TURNING RADIUS 6.250m

B99 VEHICLE (REALISTIC MIN RADIUS)

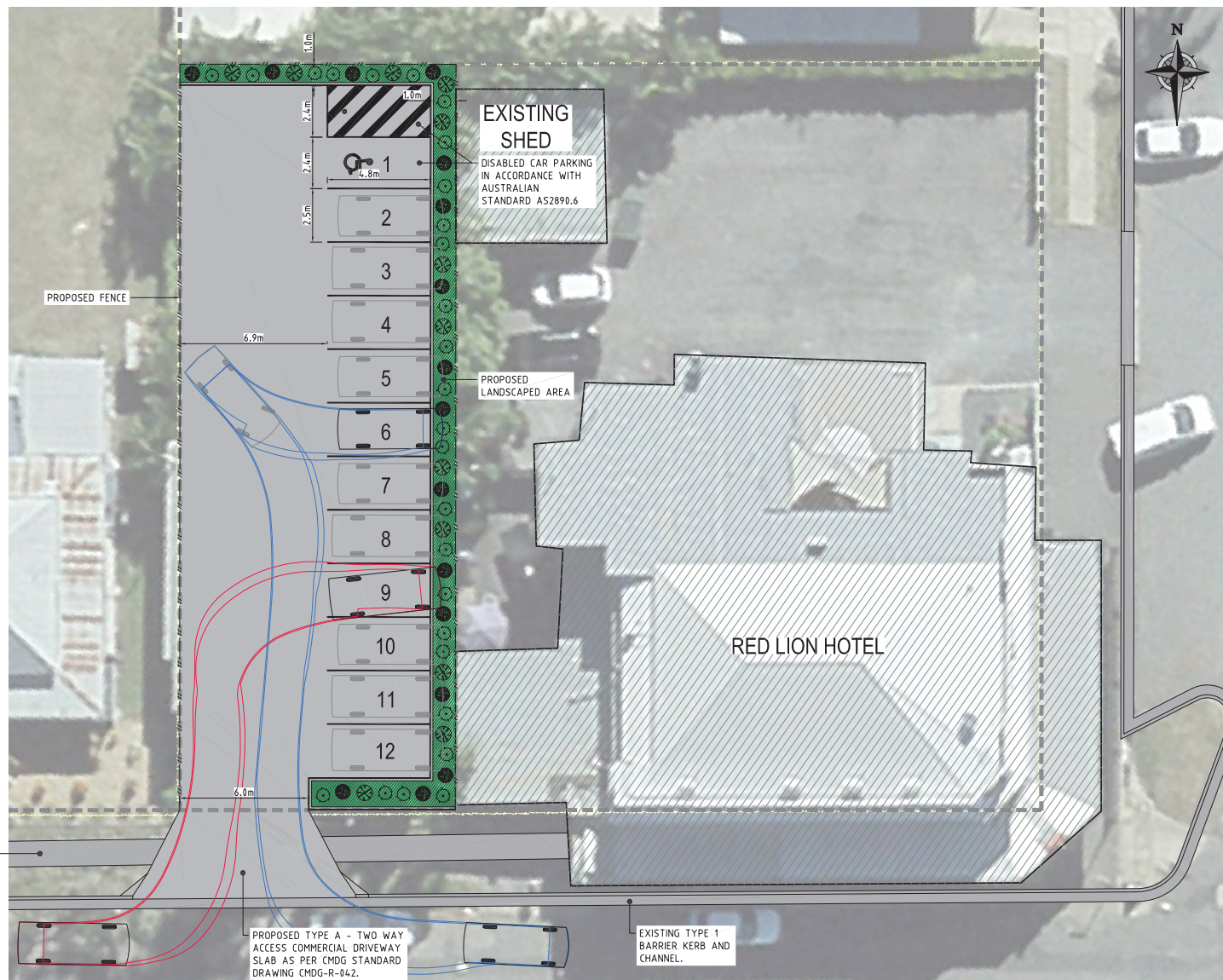
SCALE 1:100(A1) 1:200(A3)

ROCKHAMPTON REGIONAL COUNCIL

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These plans are approved subject to the current conditions of approval associated with **Development Permit No.: D/125-2017**

Dated: 22 February 2018



PLAN
SCALE 1:100(A1) 1:200(A3)

INFORMATION ONLY

SURVEYOR		BY		DATE		CLIENT		PREPARED BY		CLIENT	
NA						RED LION PROPERTY HOLDINGS PTY LTD		mcmurtrie		RED LION PROPERTY HOLDINGS PTY LTD	
ADDRESS:						HOLDINGS PTY LTD		CONSULTING ENGINEERS		PROJECT	
										RED LION PROPOSED CARPARK	
CO-ORDINATE DATUM										TITLE	
										PROPOSED CARPARK AND SWEEP PATH ANALYSIS	
HEIGHT DATUM										SHEET 1 OF 1	
										DRAWING NUMBER	
										A1 0071718-SK-0001	
										REVISION	
										A	



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ROCKHAMPTON REGIONAL COUNCIL

APPROVED PLANS

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/125-2017

Dated: 22 February 2018

NOISE IMPACT ASSESSMENT

Proposed Beer Garden

Red Lion Hotel

138 Denham St, Allenstown, Rockhampton

QLD 4700

Date: 25 September 2017

Number of Pages: 22 (inc.)

DOCUMENT CONTROL

Rev No.	Issue Date	Revision Description	Author	Review
0	25/09/2017	Noise Impact Assessment	MF	MF

CLIENT

Report Issued	Attention	Phone	Email
Red Lion Holdings	Manager	0418 799 825	rob@thecarrgroup.com.au

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Recommendations made in this report are intended to resolve acoustical problems only. We make no claim of expertise in other areas and draw your attention to the possibility that our recommendations may not meet the structural, fire, thermal, or other aspects of building construction

We encourage clients to check with us before using materials or equipment that are alternative to those specified in our acoustical report.

The integrity of acoustic structures is very dependent on installation techniques. For example, a small crack between the top of a wall and a ceiling can reduce the effective sound transmission loss of a wall from R_w 50 to R_w 40. Therefore, the use of contractors that are experienced in acoustic construction is encouraged. Furthermore, two insulation products may have the same thermal R rating but the sound absorption of one may be entirely deficient, therefore the use of materials and equipment that are supported by acoustic laboratory test data is encouraged.

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1 INTRODUCTION AND SITE DESCRIPTION

Alpha Acoustics Pty Ltd has been engaged to provide a noise impact assessment of the proposed beer garden at the licensed premise, Red Lion Hotel, located at 138 Denham St, Allenstown QLD 4700.

Potential noise impacts are assessed in accordance with the noise criteria set out in the Acoustic Quality Objectives of the Environmental Protection (Noise) Policy 2008 (EPP Noise).

Scope of Work

- Inspect the site and environs
- Measure the background noise levels at nominated sensitive receivers
- Establish acceptable noise level criterion
- Quantify noise emissions from premises at the nominated residences
- Prepare a Noise Impact Report

Figure 1.1 Street View of Red Lion Hotel Rockhampton (Google Maps)



2 PROJECT DESCRIPTION

The main noise sources at the proposed beer garden include:

- People talking
- Amplified entertainment music
- Mechanical plant noise

Table 2.1 Receiver Assessment Locations

Receiver ID	Receiver Type	Receiver Address
ML2	Residential	148 West Street
ML3	Residential	129 West Street

Background noise was measured in octave bands at the sensitive assessment locations. During the background noise measurements, the venue was not operating. Figure 2.1 below displays the venue and surrounds.

Table 2.2 Venue Operational Hours

Operational Days	Open	Close
Monday – Sunday	10:00	00:00

Figure 2.1 Location Map 138 Denham St, Allenstown (Google Earth)



3 NOISE SURVEY AND INSTRUMENTATION

All instrument systems had been laboratory calibrated using instrumentation traceable to Australian National Standards and certified within the last two years thus conforming to Australian Standards. The measurement system was also calibrated prior to and after the noise survey. Calibration drift was found to be less than 0.3 dB during attended measurements. No adjustments for instrument drift during the measurement period were warranted.

Table 3.1 Noise Instrumentation

Description	Model No.	Serial No.
Modular Precision Sound Analyser	B&K 2260	245 9227
Condenser Microphone 0.5" diameter	B&K 4189	245 8107
Acoustical Calibrator	B&K 4231	267 1553
Microphone Windscreen	Acoustically transparent foam	

The Bruel & Kjaer 2260 Sound Analyser is a real-time precision integrating sound level meter with octave and third octave filters that samples noise at a rate of 10 samples per second. Measurements are stored as L_{eq} , L_1 , L_{10} , L_{50} and L_{90} statistical data at 15 minute intervals (longer or shorter intervals optional) over the desired monitoring period.

4 MEASURED BACKGROUND NOISE LEVELS

To assess the severity of a possible environmental noise problem in a residential or commercial area it is necessary to measure the background noise level at the times and locations of worst possible annoyance. The lower the background noise level, the more perceptible the intrusive noise becomes and the more potentially annoying.

The L_{90} background noise level is a statistical measure of the sound pressure level that is exceeded for 90% of the measuring period (typically 15 minutes).

The times of worst possible annoyance are likely to be during the evening and night time operation of the venue when ambient noise levels are typically at their lowest.

The background sound pressure levels used in this assessment were based on attended measurements taken on Monday 21st August 2017 (see Figure 4.1 below for measurement locations). Noise measurements were taken at the background noise measurement location(s) with the octave band centre frequency results (where applicable) of those measurements.

Figure 4.1 Background Level Receivers – Noise Measurement Locations



Table 4.1 Background L₉₀ Noise Levels

ID	Location of Measurement	Time	Background Noise Levels L ₉₀ at Octave Band Centre Frequencies (Hz)						
			dB(A)	63	125	250	500	1k	2k
Day and Evening									
ML2	148 West Street	10:00 – 22:00	34	45	41	34	31	30	23
ML3	129 West Street	10:00 – 22:00	34	45	41	34	31	30	23
Night Time									
ML2	148 West Street	22:00 – 00:00	36	46	43	37	33	31	25
ML3	129 West Street	22:00 – 00:00	35	44	42	37	32	31	24

Table 4.2 Meteorological Conditions During Testing

Meteorological Parameter	Monday 21 st August 2017 Weather Conditions	Suitable for Testing
Skies	Clear	Yes
Temperature	15 °C	Yes
Humidity	39 %	Yes
Wind Speed	0 - 1 m/s	Yes
Precipitation	0 mm	Yes

Atmospheric conditions were ideal for noise monitoring. Noise measurements were therefore considered reliable and typical for the receptor area.

5 ACCEPTABLE NOISE LEVELS

5.1 Environmental Protection (Noise) Policy

The Acoustic Quality Objectives and the Background Creep requirements of the Environmental Protection (Noise) Policy 2008 (EPP Noise) have been used as the assessment criteria for the development. Operational activities for the proposed use have been assessed against the Acoustic Quality Objectives as shown in **Table 5.1**.

Table 5.1: Acoustic Quality Objectives of EPP Noise

Sensitive Receptor	Time of Day	Acoustic Quality Objective (Measured at the Receptor) dB(A)			Environmental Value
		L _{Aeq,adj,1hr}	L _{A10,adj,1hr}	L _{A01,adj,1hr}	
Dwellings (for outdoors)	Daytime and evening (7am to 10pm)	50	55	65	Health and wellbeing
Dwellings (for indoors)	Daytime and evening (7am to 10pm)	35	40	45	Health and wellbeing
Dwellings (for indoors)	Night-time (10pm to 7am)	30	35	40	Health and wellbeing in relation to the ability to sleep
Commercial and retail activity	When activity is open for business	45			Health and wellbeing in relation to the ability to converse

Introduced plant have the potential to increase background noise levels in the area. These have been assessed against the Background Creep requirements of EPP Noise.

To the extent that it is reasonable to do so, noise from an activity must not be:

- For continuous noise (e.g. fan noise) – Measured by L_{A90,T} more than nil dB(A) greater than the existing acoustic environment measured by L_{A90,T}.
- For noise that varies over time (i.e. vehicle movements) – Measured by L_{Aeq,adj,T} more than 5 dB(A) greater than the existing acoustic environment measured by L_{A90,T}.

Noise emission limits for the control of background creep, based on measured background levels are shown in **Table 5.2** below.

Table 5.2: Background creep requirements of EPP Noise

Time of Day	Measured Background Level LA90 dB(A) At ML2	Permitted Noise Emission dB(A)	
		Continuously Operating Plant LA90,T	Time Varying Noise LAeq,adj,T
Daytime (7am to 6pm)	34	34	39
Evening (6pm to 10pm)	34	34	39
Night (10pm to 7am)	34*	34	39

The daytime background noise level is used to assess night time levels as the daytime background noise level was 1 dB(A) less than the night time background noise level.

5.2 Project Specific Noise Criteria

Considering the criteria discussion above, the project specific noise criteria is summarised in **Table 5.3.3** below.

Table 5.3.3: Project Specific Noise Levels

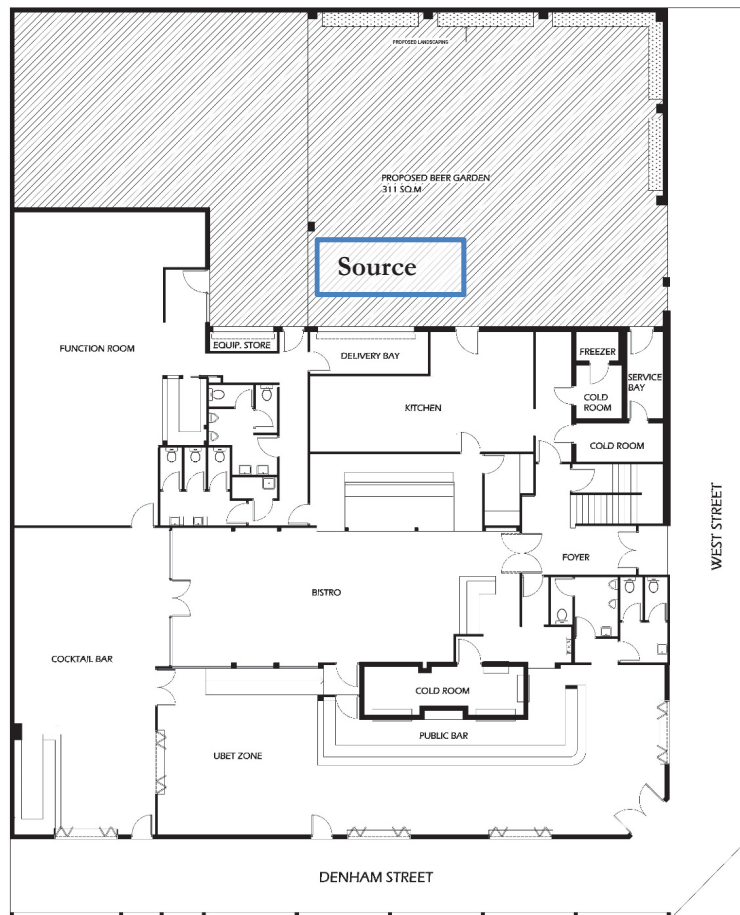
Time of Day	Recommended Noise Limits dB(A)	
	Continuously Operating Plant LA90,T	Time Varying Noise LAeq,adj,T
Daytime and evening (7am to 10pm)	n/a	34+5= 39 dB(A) Leq (Outdoors)
Night-time (10pm to 7am) ¹	n/a	30+5 = 35 dB(A) Leq (outdoors)

Note 1: A conservative 5 dB(A) inside to outside building façade correction has been applied.

6 NOISE EMISSIONS

The major sources of noise at the proposed beer garden of the Red Lion Hotel could be amplified entertainment music inside the bar area and people noise in the outdoor areas. Figure 6.1 show the site plans including the measurement source.

Figure 6.1 Site Plan of Red Lion Hotel



6.1 Patron Noise, Amplified Music Noise Emissions

The proposed beer garden operations have been measured (simulated patron, measured amplified music) and assessed to determine the noise impact from the operation of the proposed beer garden. The measurement was taken at 3 metres from the live music speaker. The speakers were played at their maximum output levels for testing purposes as shown in Table 6.1 below.

Table 6.1 SPL of Amplified Music at 3m from Sound Source

ID	Sound Source	Octave Band Frequency (Hz)						L ₁₀ dB(C)	L ₁₀ dB(A)
		63	125	250	500	1k	2k		
1	Proposed Beer Garden	84	91	84	83	72	81	93	85

6.2 Normalisation Moderated Outputs

6.2.1 Daytime and Evening Assessment

Table 6.2 below shows the noise emissions at the receiver locations during the daytime and evening period with the venue operating. Noise measurements were taken at all eight receiver locations for each of the seven sources. However, to reduce the complexity of the report, the two worst case receivers were selected for each source for doors closed scenarios and one live music source in doors open scenarios.

Table 6.2 Daytime and Evening Assessment of Source 1 – Beer Garden

Music and DOSA Patrons									
	Assessment Location - ML2 - 148 West Street								
Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
(A-B) (Moderator - Source)	21	18	16	16	24	14			
Intrusive Levels at Worst affected site L10	64	68	58	57	44	45	70	70	57
barrier effect of wall / glazing	7	8	10	12	15	18			
(C+D) (Normalised intrusion level at affected site)	79	78	64	60	53	41	82	81	65
Background at worst affected site L90	45	41	34	31	30	23	47	46	34
(E-F) exceedance of backgrounds									31
Maximum allowable tolerance above background									5
Exceedance of tolerance									26
max exceedance									26
Recommended Source Level	84	dB(C)							76

	Assessment Location - ML3 - 129 West Street								
Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
(A-B) (Moderator - Source)	21	18	16	16	24	14			
Intrusive Levels at Worst affected site L10	62	63	53	51	46	46	66	65	54
barrier effect of wall / glazing	5	5	6	7	8	10			
(C+D) (Normalised intrusion level at affected site)	78	76	63	61	62	51	80	80	66
Background at worst affected site L90	45	41	34	31	30	23	47	46	34
(E-F) exceedance of backgrounds									32
Maximum allowable tolerance above background									5
Exceedance of tolerance									27
max exceedance									27
Recommended Source Level	83	dB(C)							75

*Note: The results are based on a under roof absorption and glass louvre windows closed between the north western wall and roof. See Recommendations in Section 7 below.

6.2.2 Night Time Assessment

Table 6.3 below shows the noise emissions at the receiver locations for doors closed during the night time assessment period with the venue operating.

Table 6.3 Night Time Assessment of Source 1 – Beer Garden (Doors Closed)

Assessment Location - ML2 - 148 West Street									
Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
(A-B) (Moderator - Source)	21	18	16	16	24	14			
Intrusive Levels at Worst affected site L10	64	68	58	57	44	45	70	70	57
barrier effect of wall / glazing	7	8	10	12	15	18			
(C+D) (Normalised intrusion level at affected site)	79	78	64	60	53	41	82	81	65
Background at worst affected site L90	45	41	34	31	30	23	47	46	34
(E-F) exceedance of backgrounds									31
Maximum allowable tolerance									1
Exceedance of tolerance									30
max exceedance									30
Recommended Source Level	80	dB(C)							72

Assessment Location - ML3 - 129 West Street									
Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
Normalisation Moderator	105	109	100	99	96	95	111	111	102
Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
(A-B) (Moderator - Source)	21	18	16	16	24	14			
Intrusive Levels at Worst affected site L10	62	63	53	51	46	46	66	65	54
barrier effect of wall / glazing	5	5	6	7	8	10			
(C+D) (Normalised intrusion level at affected site)	78	76	63	61	62	51	80	80	66
Background at worst affected site L90	45	41	34	31	30	23	47	46	34
(E-F) exceedance of backgrounds									32
Maximum allowable tolerance above background									1
Exceedance of tolerance									31
max exceedance									31
Recommended Source Level	79	dB(C)							71

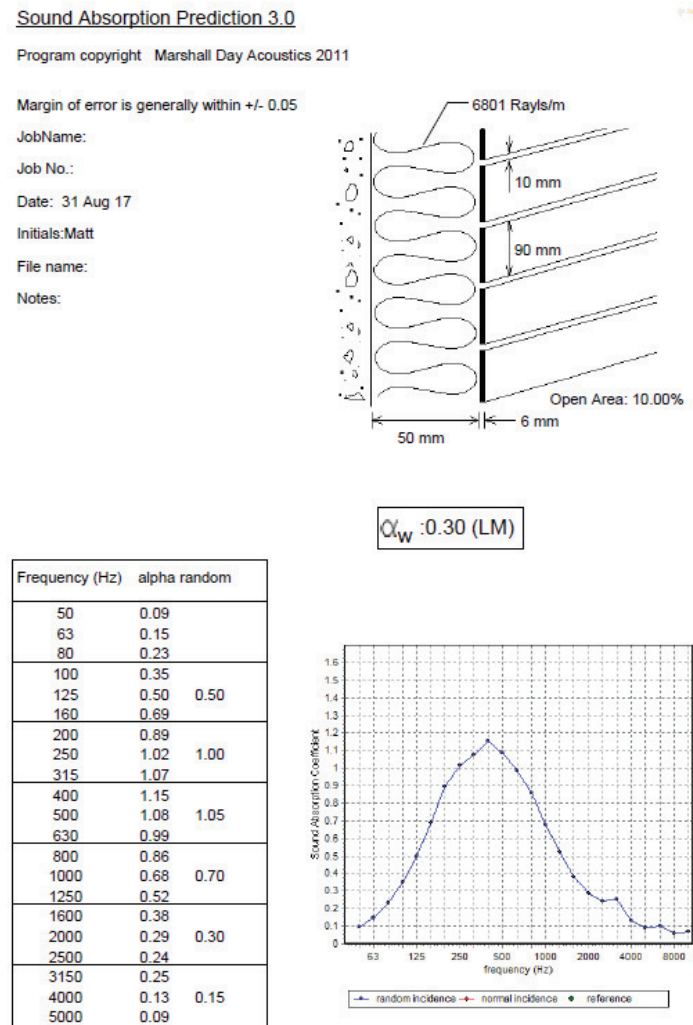
7 RECOMMENDATIONS

Noise emissions from the operation of the proposed beer garden, including amplified music and patrons talking are shown to comply with the noise criteria at the nearest residential receivers under the following conditions.

7.1 Required Noise Controls

The outdoor Beer Garden is to have the entire under roof treated with acoustic absorption. This can be achieved using an acoustic insulation product with an NRC 0.7 such as 50mm thick, 24kg/m³ acoustic insulation held in place with a perforated material min 11% open area or using timber slats with open gaps between the timbers (minimum 10mm gap).

Figure 7.1 Insul Model Output – Absorption Barrier



Additionally, 5mm thick glass louvres (min Rw 25) should be installed above the block wall to the roof along the entire boundary between the venue and 148 West Street.

Figure 7.2 Insul Model Output – Acoustic Glazing Design

Sound Insulation Prediction (v9.0.3)

Program copyright Marshall Day Acoustics 2017

- Key No: 0698

Job Name:

Job No.:

Date: 31/08/2017

File Name:

Initials: Matt



Notes:



Rw 31 dB
C -1 dB
Ctr -2 dB
Dntw 33 dB
[V50m3] [A11m2]

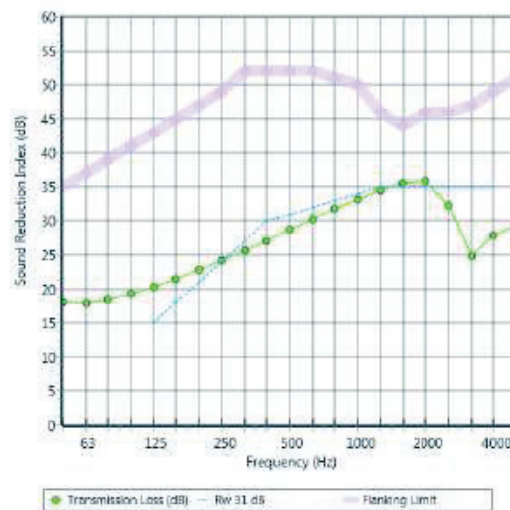
Panel Size = 2.0 m x 1.5 m

Partition surface mass = 29.8 kg/m²

System description

Panel 1 → 1 x 5.0 mm Glass (ρ:2430 kg/m³, E:52GPa, η:0.02, ps:12.2 kg/m², fc:2798 Hz)

freq.(Hz)	TL(dB)	TL(dB)
50	18	
63	18	18
80	18	
100	19	
125	20	20
160	21	
200	23	
250	24	24
315	26	
400	27	
500	29	28
630	30	
800	32	
1000	33	33
1250	35	
1600	36	
2000	36	34
2500	32	
3150	25	
4000	28	27
5000	29	



7.2 Daytime (10:00am to 10:00pm) Noise Limits

Daytime operation of the venue 10:00am to 10:00pm including in house amplified music should have the following restrictions:

Table 7.1 Daytime and Evening Noise Limit Summary

Source ID	Sound Source	Not to Exceed	
		SPL dB(C) Fast Response at 3m from speaker	Doors Open/Closed
1	Proposed Beer Garden	83	-

7.3 Night Time (10:00pm to 12:00am) Noise Limits

Night time and evening operation of the venue (10:00pm to 12:00am) including in house amplified music should have the following restrictions:

Table 7.2 Night Time Noise Limit Summary

Source ID	Sound Source	Not to Exceed	
		SPL dB(C) Fast Response at 3m from speaker	Doors Open/Closed
1	Proposed Beer Garden	79	-

7.4 General Administrative Controls

- Rubbish should be placed into the garbage skip bins (particularly glass bottles) during the daytime hours to minimise any potential noise annoyance during the night.
- All deliveries to the venue should be made during daytime hours to minimise any potential noise annoyance during the night.

8 NOISE IMPACT STATEMENT

Measurements and calculations show that, noise emissions from the operation of proposed beer garden at the Red Lion Hotel, located at 138 Denham St, Allenstown, Rockhampton QLD 4700, will comply with the set noise criteria outlined in this report for the time of operation **provided the recommendations in Section 7 of this report are implemented in full.**



MATTHEW FISHBURN BE(Mech) Hons, MAAS, MIEAust, CPEng, RPEQ [14356]

Principal Consulting Acoustical Engineer

ALPHA ACOUSTICS

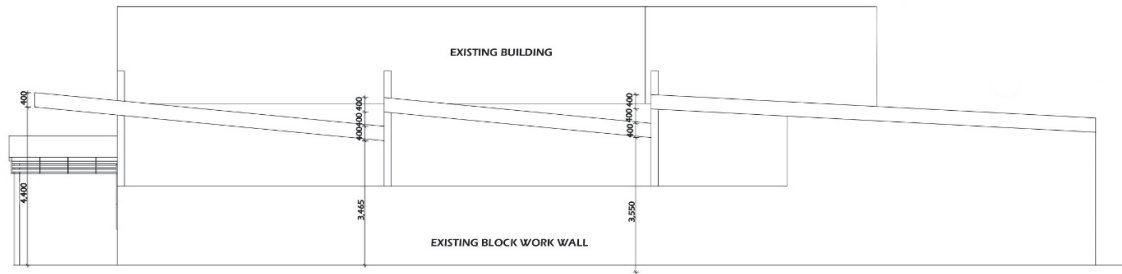
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9 APPENDIX A – VENUE PLANS

Side Elevation



Architectural Design – Front Elevation



Architectural Design – from intersection of Denham and West Street



Architectural Design – from Denham Street



10 APPENDIX B – GLOSSARY OF ACOUSTIC TERMS

The following is a brief description of the technical terms used to describe traffic noise to assist in understanding the technical issues presented in this document.

Event maximum sound pressure level ($L_{A\%,adj,T}$), L_{01}

The L_{01} level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15-minute interval. L_{01} is an appropriate level to characterise single events, such as from impulsive or distinctive pass-by noise. In this Report, the measured L_{01} levels for day/evening/night are not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is found at the 90th percentile (L_{10} of L_{01} sample) in the interval is recorded as its “ L_{01} ” level. The level can be adjusted for tonality or impulsiveness.

Average maximum sound pressure level ($L_{A\%,adj,T}$), L_{10}

The “ L_{10} ” level is an indicator of “steady-state” noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The L_{10} level is calculated as the noise level equalled and exceeded for 10% the measurement time, for example 90 seconds in any 15-minute interval. The measured L_{10} time-intervals for day/evening/night are arithmetically averaged to present the “average maximum” levels of the environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

Background sound pressure level ($L_{A90,T}$), L_{90}

Commonly called the “ L_{90} ” or “background” level and is an indicator of the quietest times of day, evening or night. The L_{90} level is calculated as the noise level equalled and exceeded for 90% the measurement time. The measured L_{90} time-intervals are arithmetically averaged to present the “average background” levels of the environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The level is not adjusted for tonality or impulsiveness.

Equivalent Continuous or time average sound pressure level ($L_{Aeq,T}$), L_{eq}

Commonly called the “ L_{eq} ” level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The level can be adjusted for tonality.

Façade-adjusted level

A sound level that is measured at a distance of 1.0 metre from a wall or façade. The level is nominally 2.5 dB higher than the free-field level.

Free-field level

A sound level that is measured at a distance of more than 3.5 metres from a wall or façade.

Weighted Sound Reduction Index, R_w

A single number value used to compare the sound reduction index of building elements. Similar to the Sound Transmission Class (STC) rating that is still in common use. R_w and STC are not identical though may be considered, for most applications, as being interchangeable. A high R_w indicates high sound reduction.



OXFORD STREET

ACCESS TO OXFORD STREET

WEST STREET

DENHAM STREET

PROPOSED CARPARK

1
RP602347

EXISTING HOTEL

100
SP300289

NOTES:

1. EXISTING HOTEL GROUND FLOOR AREA - 896m²
2. PROPOSED HOTEL ROOM AREA - 180m²
3. 11 EXISTING CAR PARKS TO BE REPLACED WITH 20 NEW PARKING SPACES.

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

10 August 2021

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/125-2017

Dated: 22 February 2018

DRAWN KB DATE 01/2021

DESIGN NG DATE 01/2021



HARTECS GROUP
NGA ENGINEERING
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ROCKHAMPTON

AUTHORISED FOR ISSUE: *M. Anderson* RPEQ 2393 DATE 01/2021

RED LION PROPERTY HOLDINGS P/L

RED LION HOTEL

138 & 142 DENHAM STREET, ALLENSTOWN
CHANGE APPLICATION
LAYOUT PLAN

FILE NO
1093-001

JOB NO
1093

SCALE 0 1:500 HORZ. 10 AT A3 SIZE

DRAWING NUMBER 1093-MCU1 ISSUE SHEET NO. B 1

78 SQM OF VERTICAL GARDEN TO 1.8M HIGH BOUNDARY FENCE:

Dated: 22 February 2018



1093-MCU4
ISSUE A



STORMWATER NOTES
1. GRADE PAVEMENTS TO GARDENS

CARPARK PLAN
1. USER CLASS 2
2. B85 TURN TEMPLATE TO AS2890.1

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

10 August 2021

DATE

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Development Permit No.: D/125-2017

Dated: 22 February 2018

LOCKABLE SLIDING GATE

PROPOSED 1.8M SCREEN TIMBER FENCE - DOUBLE LAPPED AND CAPPED.

FUTURE OUTDOOR STORAGE AREA

3.600

2.500

19

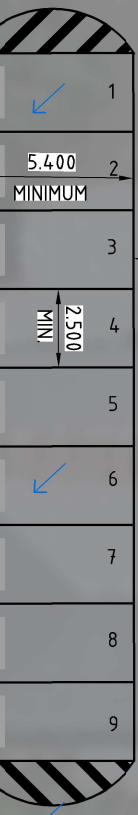
5.400

20

5.400

MINIMUM

MINIMUM



EXISTING RED LION HOTEL

WEST STREET

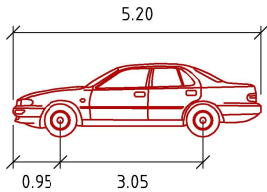
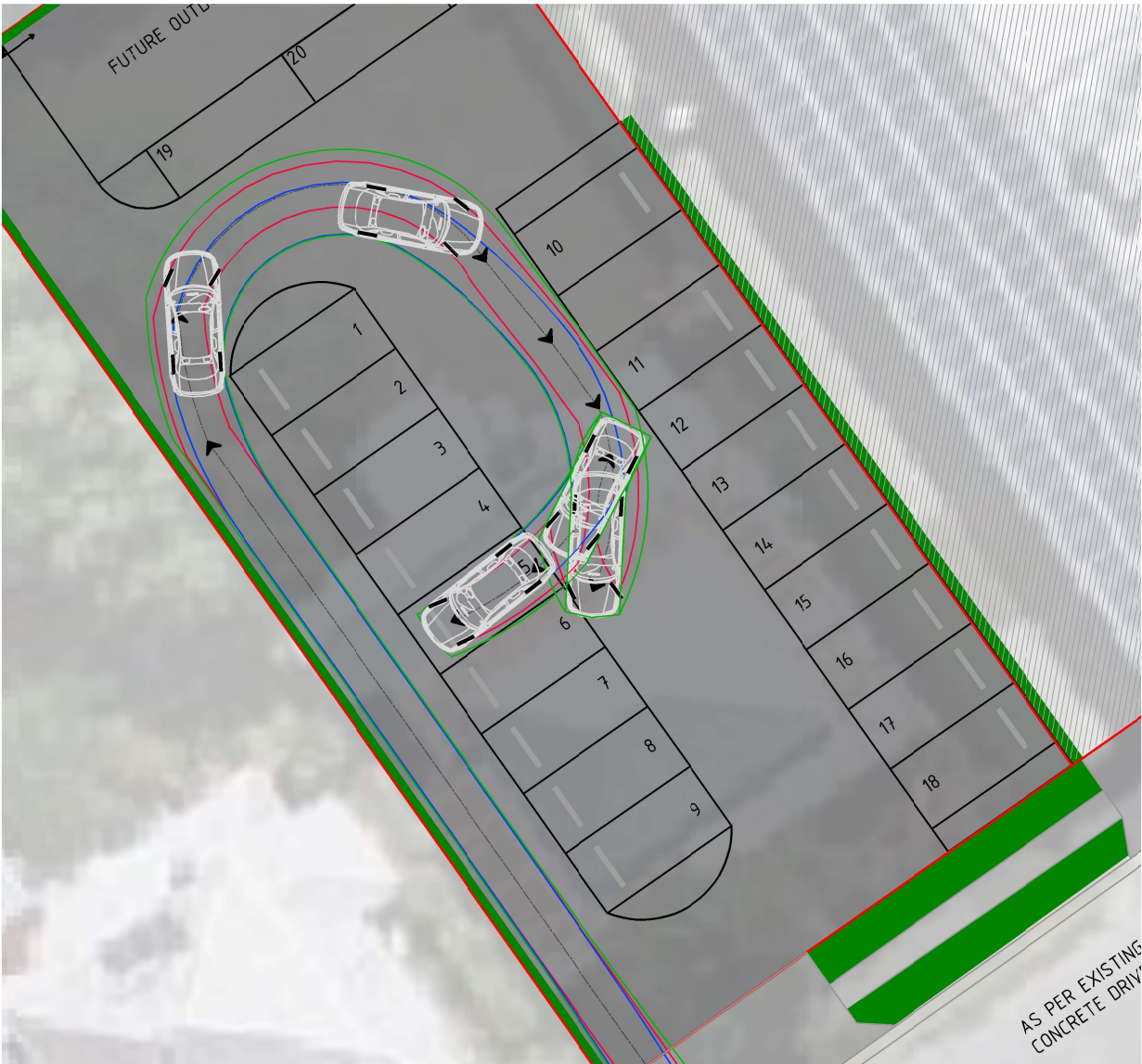
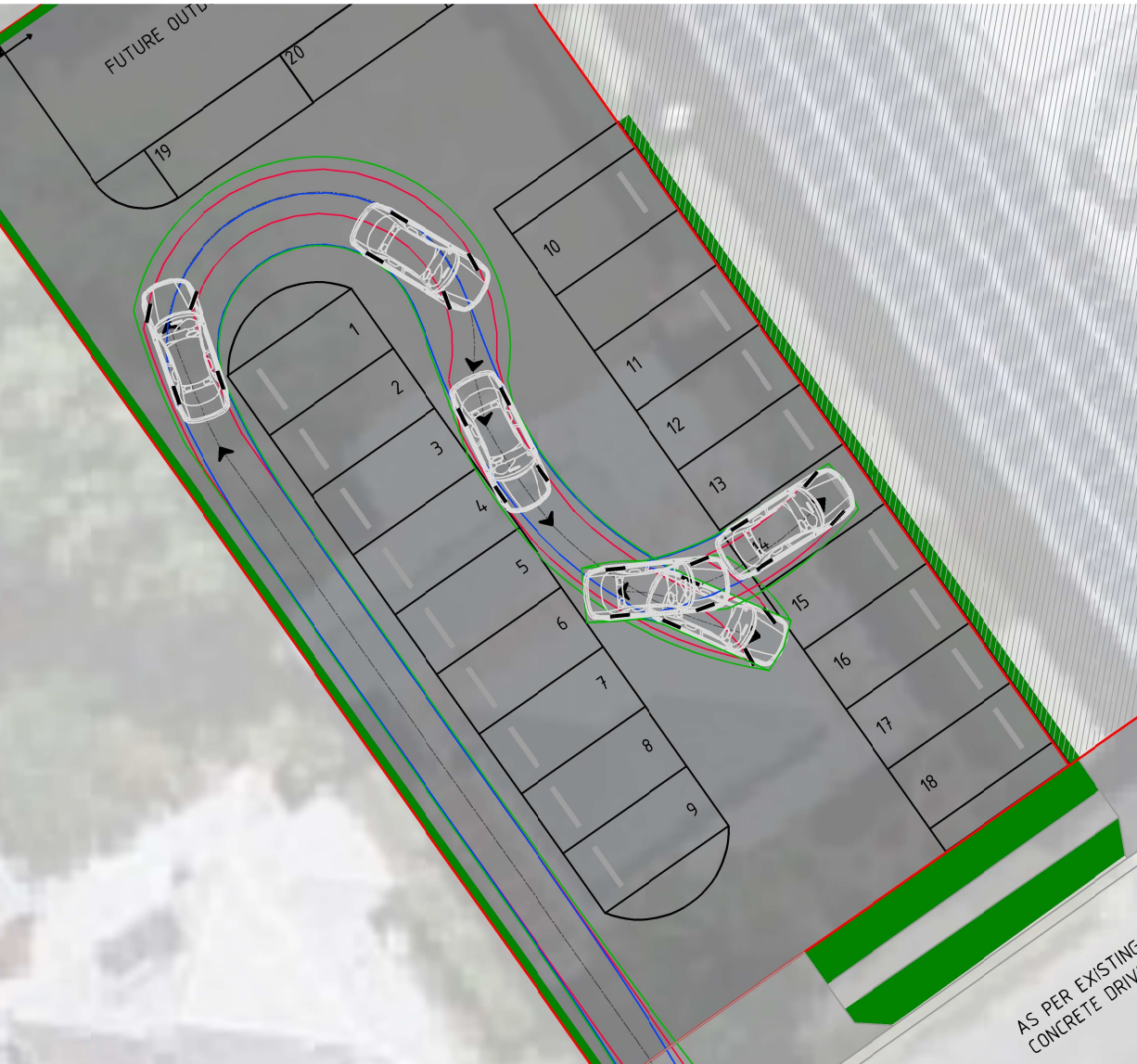
EXISTING POWER POLE.

AS PER EXISTING CONCRETE DRIVEWAY.

EXISTING CONCRETE DRIVEWAY.

DENHAM STREET

DRAWN	KB	DATE	01/2021
DESIGN	NG	DATE	01/2021
 ABN 271 158 351 663 PH: 1300 230 195 EMAIL: admin@hartecs.com.au			
HARTECS GROUP NGA ENGINEERING ABN 27 158 351 663 PH: 1300 220195 EMAIL: admin@hartecs.com.au ROCKHAMPTON			
AUTHORISED FOR ISSUE  RPEQ 2393 DATE 01/2021			
RED LION PROPERTY HOLDINGS P/L			
RED LION HOTEL			
138 & 142 DENHAM STREET, ALLENSTOWN			
CHANGE APPLICATION			
STORMWATER MANAGEMENT			
PLAN			
FILE NO 1093-02			
JOB NO 1093			
SCALE 0 1:250 HORZ. 5 AT A3 SIZE			
DRAWING NUMBER 1093-MCU2		ISSUE SHEET NO. B 2	



PASSENGER-CAR AS2890 B85

	METERS
WIDTH	: 1.94
TRACK	: 1.84
LOCK TO LOCK TIME	: 6.0
STEERING ANGLE	: 33.6

- FRONT WHEEL TRACK
- REAR WHEEL TRACK
- BODY TRACK

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

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 ABN 271 158 351 663 PH: 1300 220 195 EMAIL: admin@hartecsnga.com.au			
HARTECS GROUP NGA ENGINEERING ABN 27 158 351 663 PH: 1300 220195 EMAIL: admin@hartecs.com.au ROCKHAMPTON			
AUTHORISED FOR ISSUE  RPEQ 2393 DATE 01/2021			
RED LION PROPERTY HOLDINGS P/L RED LION HOTEL 138 & 142 DENHAM STREET, ALLENSTOWN CHANGE APPLICATION TURN TEMPLATES			
FILE NO 1093-03			
JOB NO 1093			
SCALE 0 1:250 HORZ. 5 A3 SIZE			
DRAWING NUMBER 1093-MCU3		ISSUE B	SHEET NO. 3

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

10 August 2021

DATE

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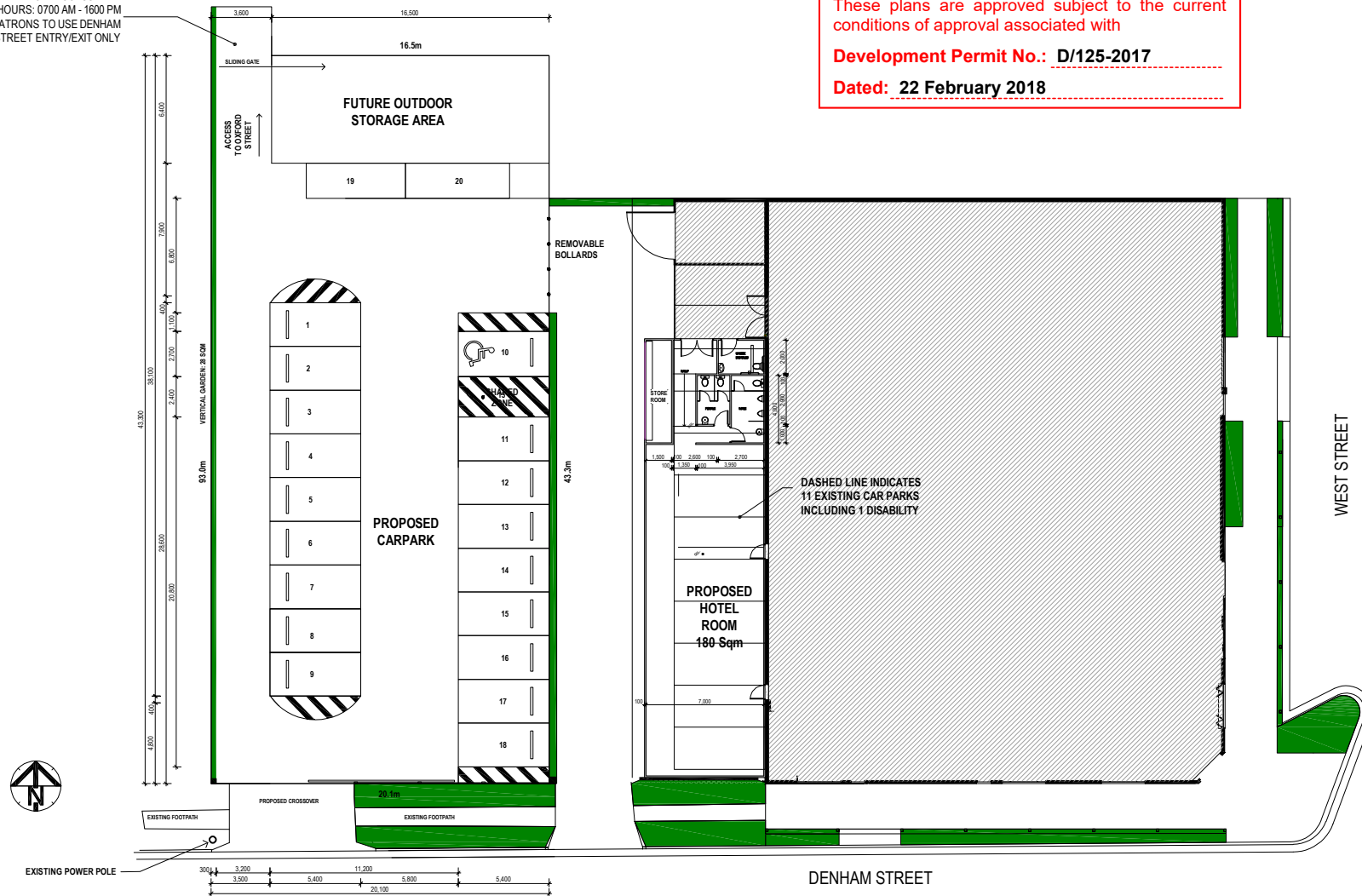
Development Permit No.: D/125-2017

Dated: 22 February 2018

NOTES:

EXISTING HOTEL GFA: 896 SQM
PROPOSED HOTEL ROOM: 180 SQM
11 EXISTING CARPARKS INC. 1 DISABILITY
9 PROPOSED CARPARKS

GATED SERVICE VEHICLE ACCESS LANE
OPERATIONAL HOURS: 0700 AM - 1600 PM
HOTEL PATRONS TO USE DENHAM
STREET ENTRY/EXIT ONLY



ARCHITECTS DETAILS

1093-MCU4
ISSUE B



ALPHA
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NOISE IMPACT ASSESSMENT

Proposed Alfresco Area

Red Lion Hotel

138 Denham St, Allenstown, Rockhampton

QLD 4700

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

10 August 2021

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/125-2017

Dated: 22 February 2018

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Number of Pages: 20 (inc.)

DOCUMENT CONTROL

Rev No.	Issue Date	Revision Description	Author	Review
0	20/06/2021	Noise Impact Assessment	MF	MF
1	21/06/2021	Update Plans	MF	MF

CLIENT

Report Issued	Attention	Phone	Email
Red Lion Holdings	Rob Carr	0418 799 825	rob@thecarrgroup.com.au

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Recommendations made in this report are intended to resolve acoustical problems only. We make no claim of expertise in other areas and draw your attention to the possibility that our recommendations may not meet the structural, fire, thermal, or other aspects of building construction

We encourage clients to check with us before using materials or equipment that are alternative to those specified in our acoustical report.

The integrity of acoustic structures is very dependent on installation techniques. For example, a small crack between the top of a wall and a ceiling can reduce the effective sound transmission loss of a wall from R_w 50 to R_w 40. Therefore, the use of contractors that are experienced in acoustic construction is encouraged. Furthermore, two insulation products may have the same thermal R rating but the sound absorption of one may be entirely deficient, therefore the use of materials and equipment that are supported by acoustic laboratory test data is encouraged.

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1 INTRODUCTION AND SITE DESCRIPTION

Alpha Acoustics Pty Ltd has been engaged to provide a noise impact assessment of the Proposed Outdoor Alfresco Area (Stage 2) at the licensed premise, Red Lion Hotel, located at 138 Denham St, Allenstown QLD 4700.

Potential noise impacts are assessed in accordance with the noise criteria set out in the Acoustic Quality Objectives of the Environmental Protection (Noise) Policy 2008 (EPP Noise).

Scope of Work

- Inspect the site and environs
- Measure the background noise levels at nominated sensitive receivers
- Establish acceptable noise level criterion
- Quantify noise emissions from premises at the nominated residences
- Prepare a Noise Impact Report

Figure 1.1 Street View of Red Lion Hotel Rockhampton (Google Maps)



2 PROJECT DESCRIPTION

The main noise sources at the proposed carpark and outdoor alfresco area include:

- People talking
- Amplified entertainment music
- Mechanical plant noise

Table 2.1 Receiver Assessment Locations

Receiver ID	Receiver Type	Receiver Address
ML2	Residential	148 West Street
ML8	Residential	144 Denham Street

Background noise was measured in octave bands at the sensitive assessment locations. During the background noise measurements, the venue was not operating. Figure 2.1 below displays the venue and surrounds.

Table 2.2 Venue Operational Hours

Operational Days	Open	Close
Monday – Sunday	10:00	00:00

Figure 2.1 Location Map 138 Denham St, Allenstown (Google Earth)



3 NOISE SURVEY AND INSTRUMENTATION

All instrument systems had been laboratory calibrated using instrumentation traceable to Australian National Standards and certified within the last two years thus conforming to Australian Standards. The measurement system was also calibrated prior to and after the noise survey. Calibration drift was found to be less than 0.3 dB during attended measurements. No adjustments for instrument drift during the measurement period were warranted.

Table 3.1 Noise Instrumentation

Description	Model No.	Serial No.
Modular Precision Sound Analyser	B&K 2260	245 9227
Condenser Microphone 0.5" diameter	B&K 4189	245 8107
Acoustical Calibrator	B&K 4231	267 1553
Microphone Windscreen	Acoustically transparent foam	

The Bruel & Kjaer 2260 Sound Analyser is a real-time precision integrating sound level meter with octave and third octave filters that samples noise at a rate of 10 samples per second. Measurements are stored as L_{eq} , L_1 , L_{10} , L_{50} and L_{90} statistical data at 15 minute intervals (longer or shorter intervals optional) over the desired monitoring period.

4 MEASURED BACKGROUND NOISE LEVELS

To assess the severity of a possible environmental noise problem in a residential or commercial area it is necessary to measure the background noise level at the times and locations of worst possible annoyance. The lower the background noise level, the more perceptible the intrusive noise becomes and the more potentially annoying.

The L_{90} background noise level is a statistical measure of the sound pressure level that is exceeded for 90% of the measuring period (typically 15 minutes).

The times of worst possible annoyance are likely to be during the evening and night time operation of the venue when ambient noise levels are typically at their lowest.

The background sound pressure levels used in this assessment were based on attended measurements taken on Monday 21st August 2017 (see Figure 4.1 below for measurement locations). Noise measurements were taken at the background noise measurement location(s) with the octave band centre frequency results (where applicable) of those measurements.

Figure 4.1 Background Level Receivers – Noise Measurement Locations



Table 4.1 Background L₉₀ Noise Levels

ID	Location of Measurement	Time	Background Noise Levels L ₉₀ at Octave Band Centre Frequencies (Hz)						
			dB(A)	63	125	250	500	1k	2k
Day and Evening									
ML2	148 West Street	10:00 – 22:00	34	45	41	34	31	30	23
ML8	144 Denham Street	10:00 – 22:00	34	41	37	30	29	29	29
Night Time									
ML2	148 West Street	22:00 – 00:00	36	46	43	37	33	31	25
ML8	144 Denham Street	22:00 – 00:00	35	44	42	37	33	31	25

Table 4.2 Meteorological Conditions During Testing

Meteorological Parameter	Monday 21 st August 2017 Weather Conditions	Suitable for Testing
Skies	Clear	Yes
Temperature	15 °C	Yes
Humidity	39 %	Yes
Wind Speed	0 - 1 m/s	Yes
Precipitation	0 mm	Yes

Atmospheric conditions were ideal for noise monitoring. Noise measurements were therefore considered reliable and typical for the receptor area.

5 ACCEPTABLE NOISE LEVELS

5.1 Environmental Protection (Noise) Policy

The Acoustic Quality Objectives and the Background Creep requirements of the Environmental Protection (Noise) Policy 2008 (EPP Noise) have been used as the assessment criteria for the development. Operational activities for the proposed use have been assessed against the Acoustic Quality Objectives as shown in **Table 5.1**.

Table 5.1: Acoustic Quality Objectives of EPP Noise

Sensitive Receptor	Time of Day	Acoustic Quality Objective (Measured at the Receptor) dB(A)			Environmental Value
		LAeq,adj,1hr	LA10,adj,1hr	LA01,adj,1hr	
Dwellings (for outdoors)	Daytime and evening (7am to 10pm)	50	55	65	Health and wellbeing
Dwellings (for indoors)	Daytime and evening (7am to 10pm)	35	40	45	Health and wellbeing
Dwellings (for indoors)	Night-time (10pm to 7am)	30	35	40	Health and wellbeing in relation to the ability to sleep
Commercial and retail activity	When activity is open for business	45			Health and wellbeing in relation to the ability to converse

Introduced plant have the potential to increase background noise levels in the area. These have been assessed against the Background Creep requirements of EPP Noise.

To the extent that it is reasonable to do so, noise from an activity must not be:

- For continuous noise (e.g. fan noise) – Measured by LA90,T more than nil dB(A) greater than the existing acoustic environment measured by LA90,T.
- For noise that varies over time (i.e. vehicle movements) – Measured by LAeq,adj,T more than 5 dB(A) greater than the existing acoustic environment measured by LA90,T.

Noise emission limits for the control of background creep, based on measured background levels are shown in **Table 5.2** below.

Table 5.2: Background creep requirements of EPP Noise

Time of Day	Measured Background Level LA90 dB(A) At ML2	Permitted Noise Emission dB(A)	
		Continuously Operating Plant LA90,T	Time Varying Noise LAeq,adj,T
Daytime (7am to 6pm)	34	34	39
Evening (6pm to 10pm)	34	34	39
Night (10pm to 7am)	34*	34	39

The daytime background noise level is used to assess night time levels as the daytime background noise level was 1 dB(A) less than the night time background noise level.

5.2 Sleep Disturbance

The World Health Organisation (WHO) set out a Sleep disturbance noise criteria in the “WHO Guidelines for community noise”. Table 1 of that guideline establishes that sleep disturbance can occur **inside bedrooms** when the maximum noise level is at L_{Amax} 45 dB(A) (10pm to 7am). In practice, with a bedroom window open, this internal noise level will be equivalent to an outside maximum noise level of L_{Amax} 50 to 55 dB(A) [depending on building construction].

5.3 Project Specific Noise Criteria

Considering the criteria discussion above, the project specific noise criteria is summarised in **Table 5.3.3** below.

Table 5.3.3: Project Specific Noise Levels

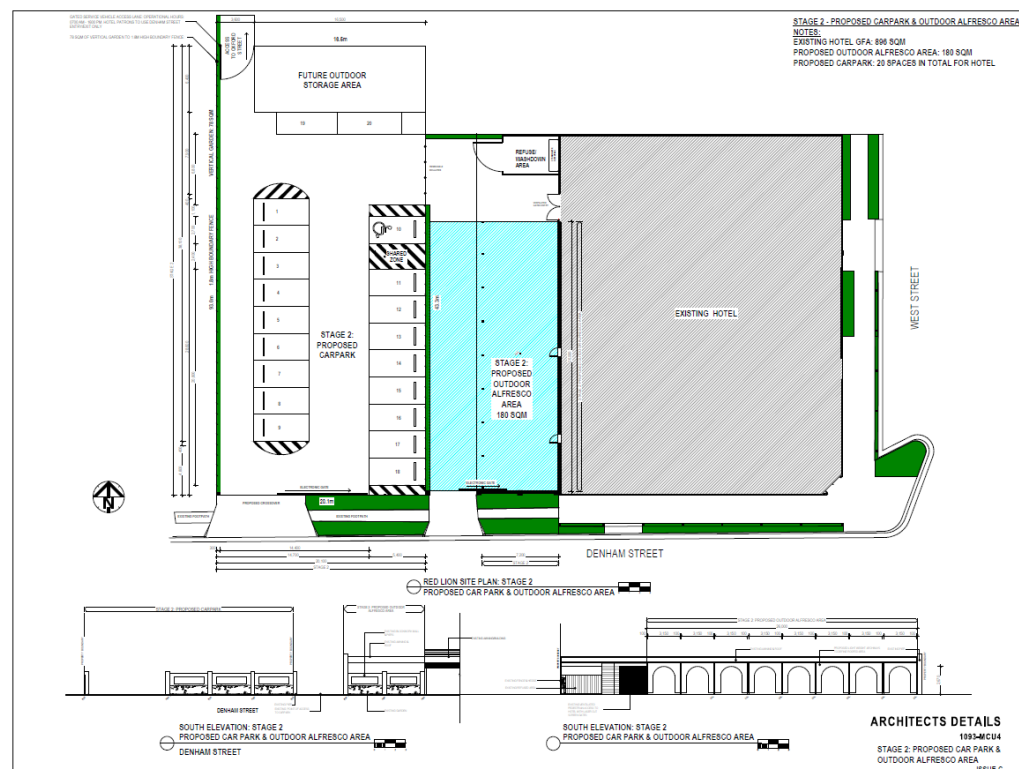
Time of Day	Recommended Noise Limits dB(A)		
	Continuously Operating Plant LA90,T	Time Varying Noise LAeq,adj,T	LAMax Sleep Disturbance
Daytime and evening (7am to 10pm)	n/a	34+5= 39 dB(A) Leq (Outdoors)	n/a
Night-time (10pm to 7am) ¹	n/a	30+5 = 35 dB(A) Leq (outdoors)	50 dBA ¹

Note 1: A conservative 5 dB(A) inside to outside building façade correction has been applied.

6 NOISE EMISSIONS

The major sources of noise at the proposed beer garden of the Red Lion Hotel could be amplified entertainment music inside the bar area and people noise in the outdoor areas. Figure 6.1 show the site plans including the measurement source.

Figure 6.1 Site Plan of Red Lion Hotel (Proposed Alfresco Area Shaded in Blue)



6.1 Patron Noise, Amplified Music Noise Emissions

The proposed beer garden operations have been modelled in our previous report Ref: *J1875 -2 - Noise Impact Assessment - The Red Lion (Rev 0)* (simulated patron, simulated amplified music, simulated carparking activities) and assessed to determine the noise impact from the operation of the proposed Outdoor Alfresco Area.

The speaker noise emissions from previous projects are shown in Table 6.1 below.

Table 6.1 SPL of Amplified Music at 3m from propsed Sound Source

ID	Sound Source	Octave Band Frequency (Hz)						L ₁₀ dB(C)	L ₁₀ dB(A)
		63	125	250	500	1k	2k		
1	Proposed Alfresco Area	84	91	84	83	72	81	93	85

6.2 Normalisation Moderated Outputs

6.2.1 Daytime and Evening Assessment

Table 6.2.1 below shows the noise emissions at the receiver locations during the daytime and evening period with the venue operating.

Table 6.2.1 Daytime and Evening Assessment of Alfresco Area

		Assessment Location - ML2 - 148 West Street								
	Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
A	Normalisation Moderator	105	109	100	99	96	95	111	111	102
B	Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
C	(A-B) (Moderator - Source)	21	18	16	16	24	14			
D	Intrusive Levels at Worst affected site L10	46	53	48	47	38	47	56	56	51
	barrier effect / Distance attenuation	7	8	11	13	15	18			
E	(C+D) (Normalised intrusion level at affected site)	60	63	52	50	47	43	66	65	53
F	Background at worst affected site L90	45	41	34	31	30	23	47	46	34
G	(E-F) exceedance of backgrounds									19
H	Maximum allowable tolerance above background									5
I	Exceedance of tolerance									14
	max exceedance									14
Recommended Source Level		96 dB(C)								

		Assessment Location - ML8 - 144 Denham Street								
	Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
A	Normalisation Moderator	105	109	100	99	96	95	111	111	102
B	Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
C	(A-B) (Moderator - Source)	21	18	16	16	24	14			
D	Intrusive Levels at Worst affected site L10	51	59	55	53	42	51	62	62	55
	barrier effect / Distance attenuation	5	5	6	6	8	9			
E	(C+D) (Normalised intrusion level at affected site)	67	72	64	63	58	56	74	74	65
F	Background at worst affected site L90	45	41	34	31	30	23	47	46	34
G	(E-F) exceedance of backgrounds									30
H	Maximum allowable tolerance above background									5
I	Exceedance of tolerance									25
	max exceedance									25
Recommended Source Level		85 dB(C)								

6.2.2 Night Time Assessment

Table 6.2.2 below shows the noise emissions at the receiver locations for during the night time assessment period with the venue operating.

Table 6.2.2 Night Time Assessment of the Alfresco Area

		Assessment Location - ML2 - 148 West Street								
	Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
A	Normalisation Moderator	105	109	100	99	96	95	111	111	102
B	Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
C	(A-B) (Moderator - Source)	21	18	16	16	24	14			
D	Intrusive Levels at Worst affected site L10	46	53	48	47	38	47	56	56	51
	barrier effect / Distance attenuation	7	8	11	13	15	18			
E	(C+D) (Normalised intrusion level at affected site)	60	63	52	50	47	43	66	65	53
F	Background at worst affected site L90	45	41	34	31	30	23	47	46	34
G	(E-F) exceedance of backgrounds									19
H	Maximum allowable tolerance									1
I	Exceedance of tolerance									18
	max exceedance									18
Recommended Source Level		92	dB(C)							84

		Assessment Location - ML8 - 144 Denham Street								
	Hz	63	125	250	500	1000	2000	dB lin	dB(C)	dB(A)
A	Normalisation Moderator	105	109	100	99	96	95	111	111	102
B	Source L10 (3m from source)	84	91	84	83	72	81	93	93	85
C	(A-B) (Moderator - Source)	21	18	16	16	24	14			
D	Intrusive Levels at Worst affected site L10	51	59	55	53	42	51	62	62	55
	barrier effect / Distance attenuation	3	3	4	4	8	9			
E	(C+D) (Normalised intrusion level at affected site)	69	74	66	65	58	56	76	76	66
F	Background at worst affected site L90	45	41	34	31	30	23	47	46	34
G	(E-F) exceedance of backgrounds									32
H	Maximum allowable tolerance above background									1
I	Exceedance of tolerance									31
	max exceedance									31
Recommended Source Level		79	dB(C)							71

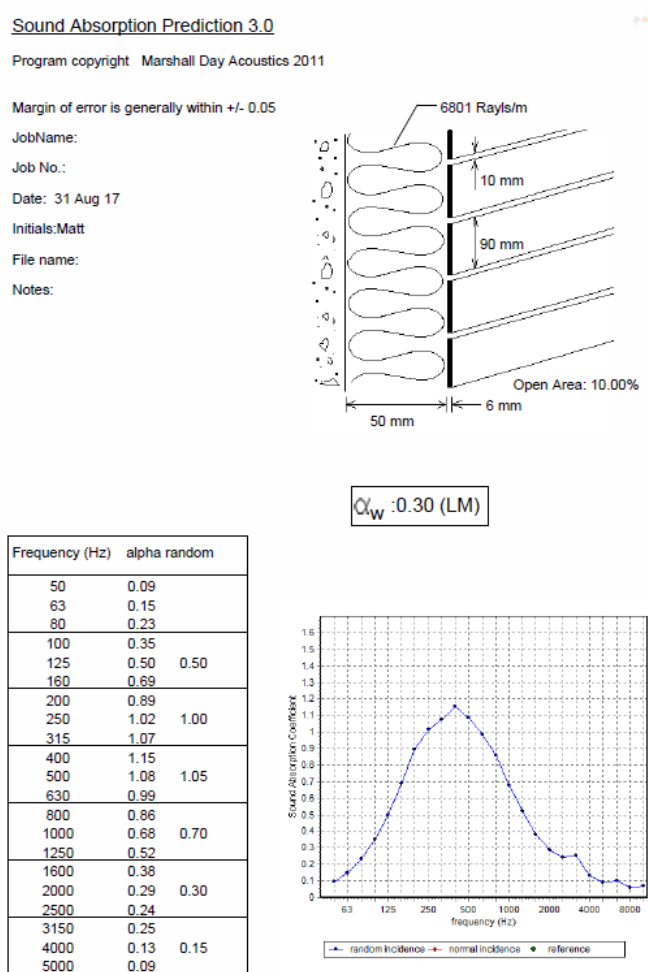
7 RECOMMENDATIONS

Noise emissions from the operation of the proposed Alfresco Area, including amplified music and patrons talking are shown to comply with the noise criteria at the nearest residential receivers under the following conditions.

7.1 Alfresco Area Noise Controls

The outdoor alfresco area is to have the entire under roof treated with acoustic absorption. This can be achieved using an acoustic insulation product with an NRC 0.7 such as 50mm thick, 24kg/m³ acoustic insulation held in place with a perforated material min 11% open area or using timber slats with open gaps between the timbers (minimum 10mm gap).

Figure 7.1 Insul Model Output – Roof Absorption Barrier



7.2 Daytime (10:00am to 10:00pm) Noise Limits

Daytime operation of the venue 10:00am to 10:00pm including in house amplified music should have the following restrictions:

Table 7.1 Daytime and Evening Noise Limit Summary

Source ID	Sound Source	Not to Exceed	
		SPL dB(C) Fast Response at 3m from speaker	Doors Open/Closed
1	Proposed Alfresco Area	77	-

7.3 Night Time (10:00pm to 12:00am) Noise Limits

Night time and evening operation of the venue (10:00pm to 12:00am) should have the following restrictions:

Table 7.2 Night Time Noise Limit Summary

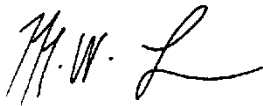
Source ID	Sound Source	Not to Exceed	
		SPL dB(C) Fast Response at 3m from speaker	Doors Open/Closed
1	Proposed Alfresco Area	71	-

7.4 General Administrative Controls

- Rubbish should be placed into the garbage skip bins (particularly glass bottles) during the daytime hours to minimise any potential noise annoyance during the night.
- All deliveries to the venue should be made during daytime hours to minimise any potential noise annoyance during the night.

8 NOISE IMPACT STATEMENT

Measurements and calculations show that, noise emissions from the operation of proposed Alfresco Area at the Red Lion Hotel, located at 138 Denham St, Allenstown, Rockhampton QLD 4700, should comply with the set noise criteria outlined in this report for the time of operation **provided the recommendations in Section 7 of this report are implemented in full.**



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ALPHA ACOUSTICS

(Member firm of the Association of Australian Acoustical Consultants)

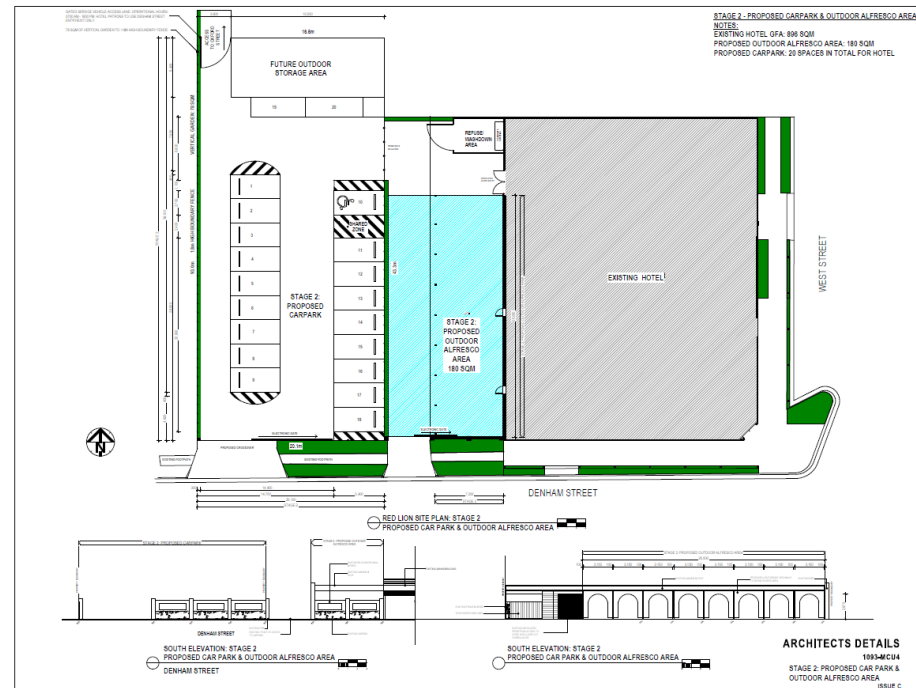
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9 APPENDIX A – VENUE PLANS

Site Map – Proposed Alfresco Area in Blue



Site Location Overlay



ARCHITECTS DETAILS

1093-MCU4

ISSUE A

10M 45° FENCE TO WESTERN DELEGATE

PROPERTY BOUNDARY

EXISTING FENCE

EXISTING POINT OF ACCESS TO BACKYARD

EXISTING 10' DECKING

RED LION SOUTH ELEVATION

DENHAM STREET

0 1 2 3

10 APPENDIX B – GLOSSARY OF ACOUSTIC TERMS

The following is a brief description of the technical terms used to describe traffic noise to assist in understanding the technical issues presented in this document.

Event maximum sound pressure level ($L_{A\%,adj,T}$), L_{01}

The L_{01} level is calculated as the noise level equalled and exceeded for 1% of the measurement time, for example 9 seconds in any 15-minute interval. L_{01} is an appropriate level to characterise single events, such as from impulsive or distinctive pass-by noise. In this Report, the measured L_{01} levels for day/evening/night are not averaged but are arranged from low to high in the relevant day/evening/night interval and the value that is found at the 90th percentile (L_{10} of L_{01} sample) in the interval is recorded as its “ L_{01} ” level. The level can be adjusted for tonality or impulsiveness.

Average maximum sound pressure level ($L_{A\%,adj,T}$), L_{10}

The “ L_{10} ” level is an indicator of “steady-state” noise or intrusive noise conditions from traffic, music and other relatively non-impulsive noise sources. The L_{10} level is calculated as the noise level equalled and exceeded for 10% the measurement time, for example 90 seconds in any 15-minute interval. The measured L_{10} time-intervals for day/evening/night are arithmetically averaged to present the “average maximum” levels of the environment for day/evening/night. The level can be adjusted for tonality or impulsiveness.

Background sound pressure level ($L_{A90,T}$), L_{90}

Commonly called the “ L_{90} ” or “background” level and is an indicator of the quietest times of day, evening or night. The L_{90} level is calculated as the noise level equalled and exceeded for 90% the measurement time. The measured L_{90} time-intervals are arithmetically averaged to present the “average background” levels of the environment for day/evening/night. The level is recorded in the absence of any noise under investigation. The level is not adjusted for tonality or impulsiveness.

Equivalent Continuous or time average sound pressure level ($L_{Aeq,T}$), L_{eq}

Commonly called the “ L_{eq} ” level it is the logarithmic average noise level from all sources far and near. The maximum 1-hour levels within the day/evening/night time intervals are referenced for building design. The level can be adjusted for tonality.

Façade-adjusted level

A sound level that is measured at a distance of 1.0 metre from a wall or facade. The level is nominally 2.5 dB higher than the free-field level.

Free-field level

A sound level that is measured at a distance of more than 3.5 metres from a wall or facade.

Weighted Sound Reduction Index, R_w

A single number value used to compare the sound reduction index of building elements. Similar to the Sound Transmission Class (STC) rating that is still in common use. R_w and STC are not identical though may be considered, for most applications, as being interchangeable. A high R_w indicates high sound reduction.

ROCKHAMPTON REGIONAL COUNCIL

AMENDED PLANS APPROVED

10 August 2021

DATE

These plans are approved subject to the current conditions of approval associated with

Development Permit No.: D/125-2017

Dated: 22 February 2018

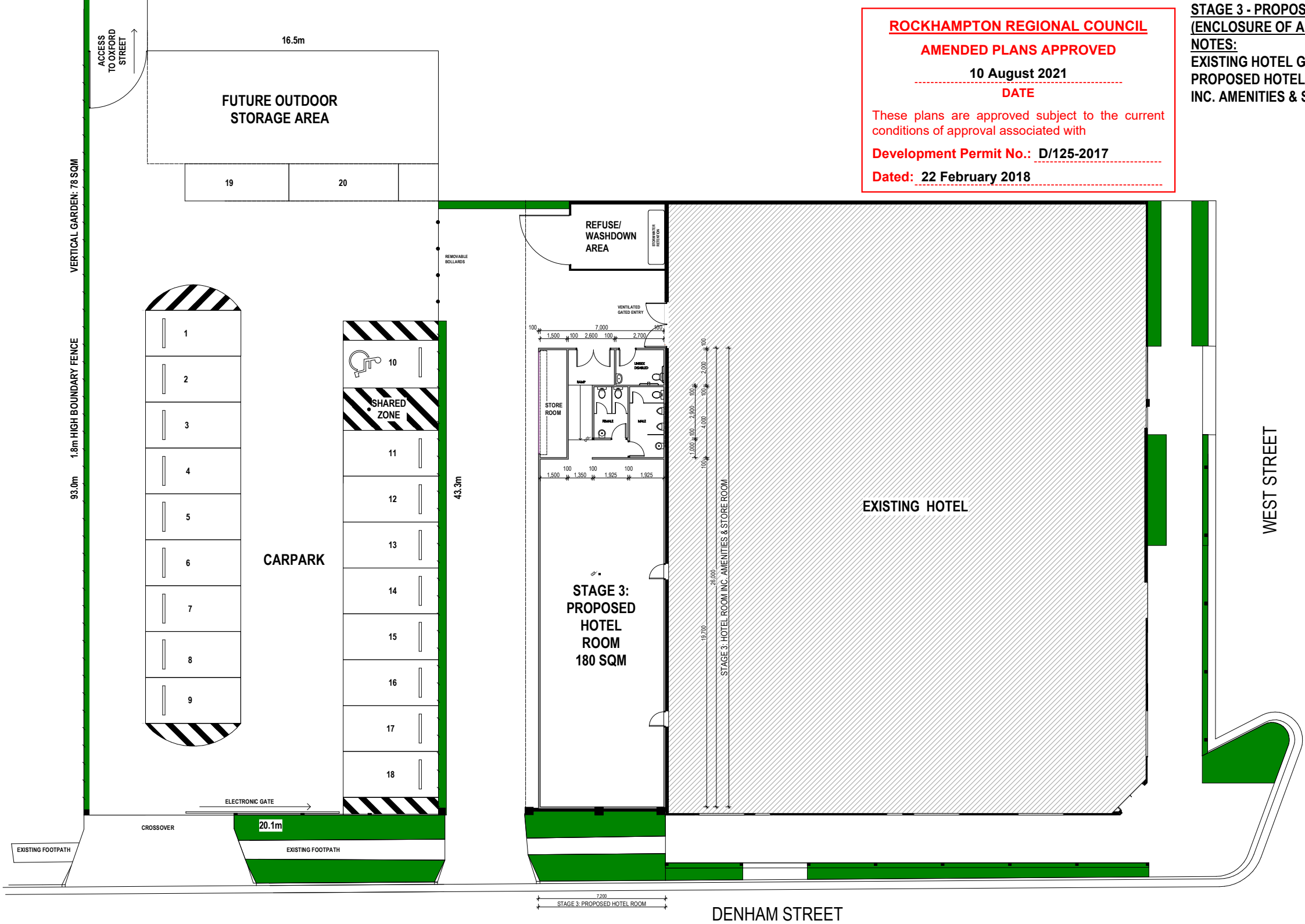
STAGE 3 - PROPOSED HOTEL ROOM
(ENCLOSURE OF ALFRESCO AREA)

NOTES:

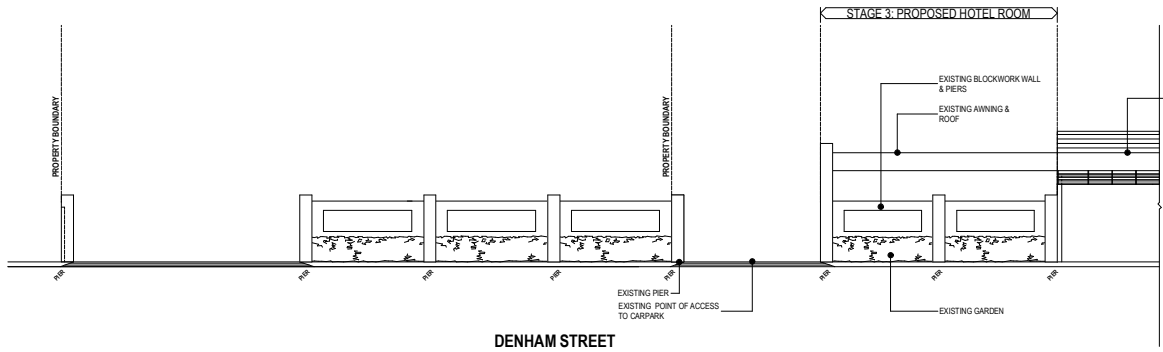
EXISTING HOTEL GFA: 896 SQM

PROPOSED HOTEL ROOM

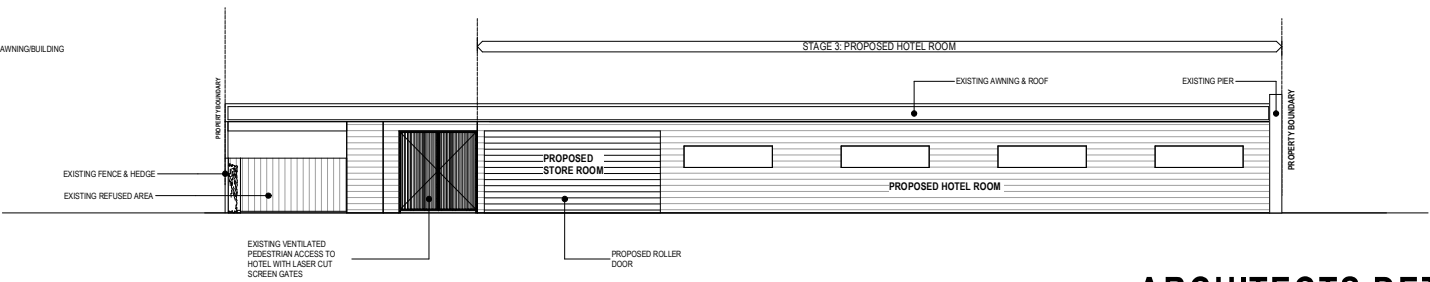
INC. AMENITIES & STORE ROOM: 180 SQM



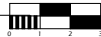
RED LION SITE PLAN: STAGE 3 PROPOSED HOTEL ROOM (ENCLOSURE OF ALFRESCO AREA)



SOUTH ELEVATION: STAGE 3 PROPOSED HOTEL ROOM
DENHAM STREET



WEST ELEVATION: STAGE 3 PROPOSED HOTEL ROOM



ARCHITECTS DETAILS

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STAGE 3: PROPOSED HOTEL ROOM

ISSUE C