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Environmental Noise Assessment

Mad Manhattan, Butler Central
#150 Camborne Parkway, Butler

Reference: 18094638-01.docx

Prepared for:
NY Grill and Pizza Pty Ltd

Report: 18094638-01.docx

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Date:	Rev	Description	Prepared By	Verified
15-Oct-18	-	Issued to Client	Olivier Mallié	Terry George

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1 INTRODUCTION

Lloyd George Acoustics was appointed to assess the noise impact from changing the use of the Mad Manhattan tenancy from Restaurant to Tavern.

The premises are within the Butler Central commercial complex located on the corner of Exmouth Drive and Butler Boulevard in Butler, as show on *Figure 1.1*.

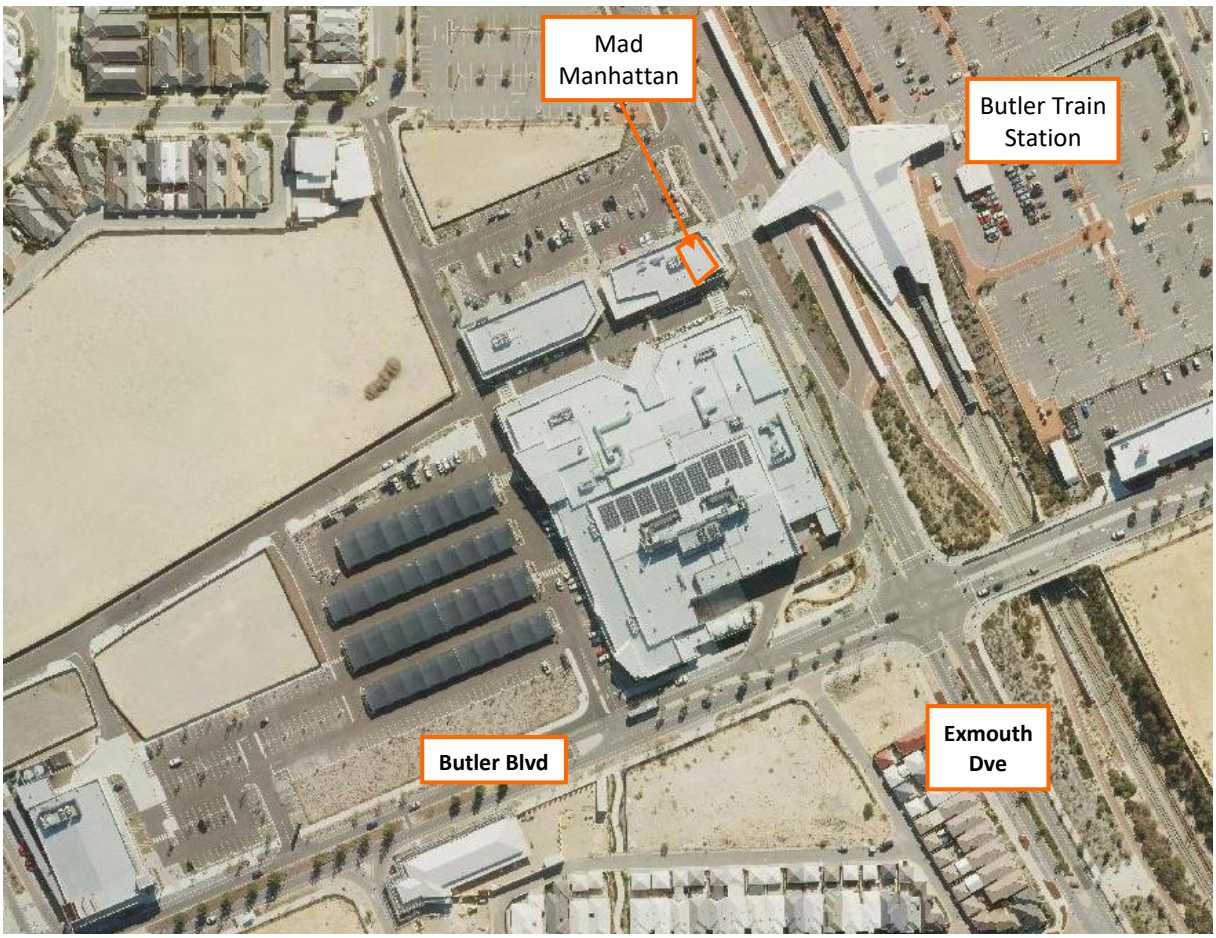


Figure 1-1 Project Locality

It is noted the development is surrounded by commercial premises and car parking areas. Residential areas are located approximately 120 metres to the west and 220 metres to the east across the Butler Station car park.

The proposed hours of operations for the Tavern are:

- Monday to Wednesday, 2.30pm to 10.00pm
- Thursday, 2.30pm to 12.00am
- Friday and Saturday, 11.30pm to 12am, and
- Sunday 11.30am to 10pm.

The premises can accommodate up to 280 patrons.

This report presents the prediction and assessment of the noise emissions from patrons and music within the bar, as well as car doors closing in car parking bays closest to receivers. As the proposed tavern is part of a larger commercial complex already comprising mechanical plant, the noise emissions from the mechanical plant were not specifically considered, as this is assumed to have been assessed at DA stage for the whole commercial complex. It is understood no plant will be added to the building as part of the proposed tavern development.

Appendix A shows the development plans used as a basis for this assessment.

Appendix C contains a description of some of the terminology used throughout this report.

2 CRITERIA

Environmental noise in Western Australia is governed by the *Environmental Protection Act 1986*, through the *Environmental Protection (Noise) Regulations 1997* (the Regulations).

Regulation 7 defines the prescribed standard for noise emissions as follows:

"7. (1) Noise emitted from any premises or public place when received at other premises –

(a) Must not cause or significantly contribute to, a level of noise which exceeds the assigned level in respect of noise received at premises of that kind; and

(b) Must be free of –

i. tonality;

ii. impulsiveness; and

iii. modulation,

when assessed under regulation 9"

A "…noise emission is taken to significantly contribute to a level of noise if the noise emission … exceeds a value which is 5 dB below the assigned level…"

Tonality, impulsiveness and modulation are defined in Regulation 9. Noise is to be taken to be free of these characteristics if:

(a) The characteristics cannot be reasonably and practicably removed by techniques other than attenuating the overall level of noise emission; and

(b) The noise emission complies with the standard prescribed under regulation 7 after the adjustments of *Table 2-1* are made to the noise emission as measured at the point of reception.

Table 2-1 Adjustments Where Characteristics Cannot Be Removed

Where Noise Emission is Not Music			Where Noise Emission is Music	
Tonality	Modulation	Impulsiveness	No Impulsiveness	Impulsiveness
+ 5 dB	+ 5 dB	+ 10 dB	+ 10 dB	+ 15 dB

Note: The above are cumulative to a maximum of 15dB.

The baseline assigned levels (prescribed standards) are specified in Regulation 8 and are shown in *Table 2-2*.

Table 2-2 Baseline Assigned Noise Levels

Premises Receiving Noise	Time Of Day	Assigned Level (dB)		
		L_{A10}	L_{A1}	L_{Amax}
Noise sensitive premises: highly sensitive area[1]	0700 to 1900 hours Monday to Saturday (Day)	45 + influencing factor	55 + influencing factor	65 + influencing factor
	0900 to 1900 hours Sunday and public holidays (Sunday)	40 + influencing factor	50 + influencing factor	65 + influencing factor
	1900 to 2200 hours all days (Evening)	40 + influencing factor	50 + influencing factor	55 + influencing factor
	2200 hours on any day to 0700 hours Monday to Saturday and 0900 hours Sunday and public holidays (Night)	35 + influencing factor	45 + influencing factor	55 + influencing factor
Noise sensitive premises: any area other than highly sensitive area	All hours	60	75	80
Commercial	All hours	60	75	80

1. ***highly sensitive area*** means that area (if any) of noise sensitive premises comprising —
   (a) a building, or a part of a building, on the premises that is used for a noise sensitive purpose; and
   (b) any other part of the premises within 15 metres of that building or that part of the building.

The zoning of the land within, and surrounding, Butler Central is 'Urban Development' according to the City of Wanneroo Planning Scheme No. 2, which implies a mix of residential and commercial land uses. The Butler District Centre Activity Centre Structure Plan (plan 885-809B-01 dated 29 May 2018, refer *Appendix B*) defines various precincts in the area, noting the planning requirements for Precinct D is for residential only, whereas the other precincts allow for commercial developments as well. As such, established residences and all Precinct D land were considered residential for the purpose of the influencing factor calculation, while other land uses were considered as commercial. *Figure 2-1* shows a map with the zoning used as well as the location of the receivers considered in this assessment.

The influencing factor applicable at the nearest noise sensitive premises is presented in *Table 2-3*. No traffic volume data is available for local roads surrounding the premises e.g. Camborne Parkway or Butler Boulevard. The transport factor was therefore considered to be 0 dB at all sensitive receivers i.e. all roads within 100 metres of receivers carry less than 6,000 vehicles per day (as Monday to Friday average).

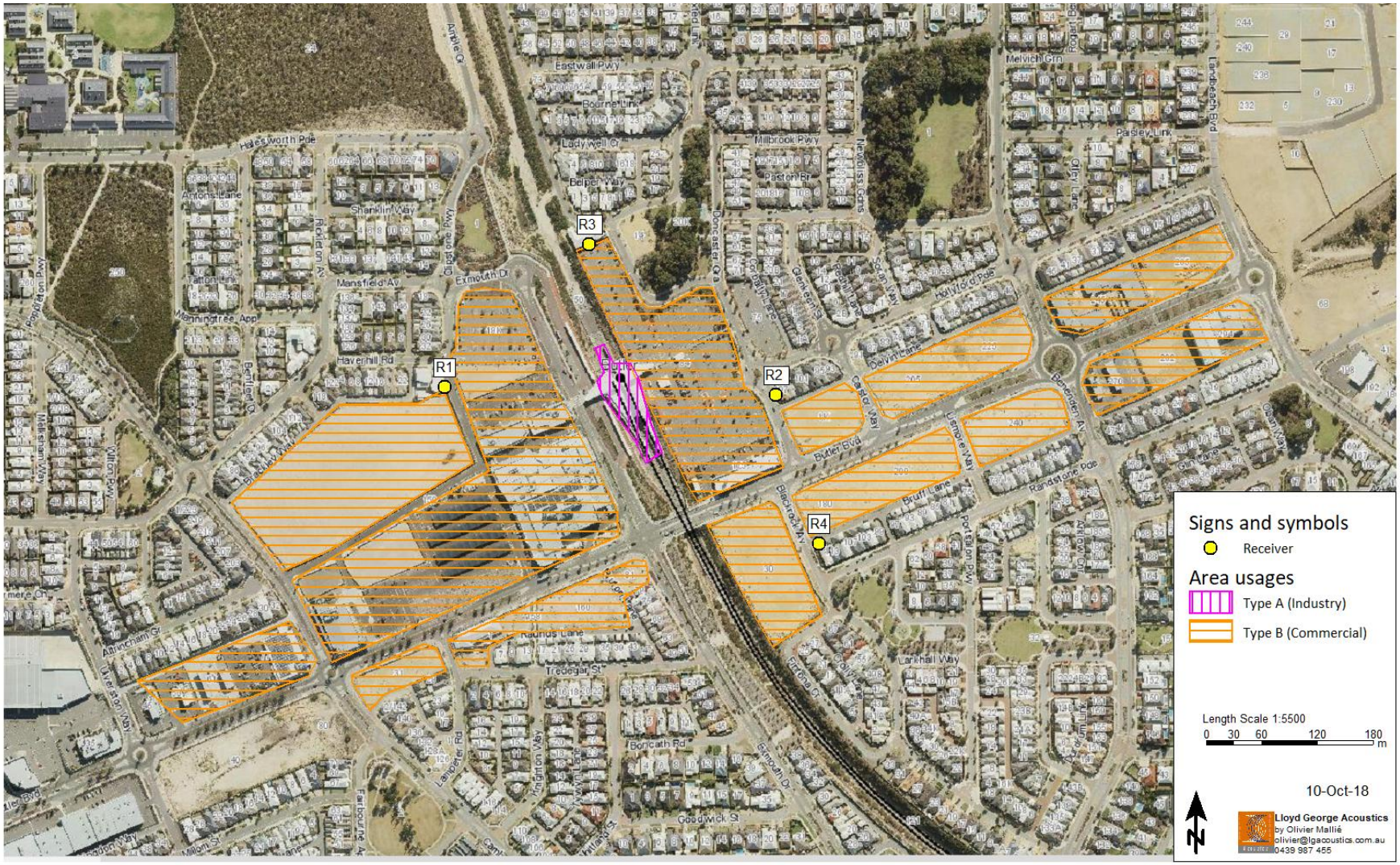


Figure 2-1 Land Use Map and Receiver Locations

Table 2-3 Influencing Factor Calculation

Description	Within 100 metre Radius	Within 450 metre Radius	Total
Industrial Land			
R1 to R4	1 %	0 %	0.1 dB
Commercial Land			
R1	58 %	23 %	4.0 dB
R2	35 %	22 %	2.8 dB
R3	13 %	15 %	1.4 dB
R3	43 %	21 %	3.2 dB
Transport Factor At R1 to R4			**0 dB**
Total			**R1, 4 dB** **R2, 3 dB** **R3, 2 dB** **R4, 3 dB**

Given the proposed operating hours, and based on the baseline noise levels in *Table 2-2,* the night-time assigned noise levels are the most critical, and are:

- **39 dB L_{A10} and 59 dB L_{Amax} at R1**
- **38 dB L_{A10} and 58 dB L_{Amax} at R2 and R4**
- **37 dB L_{A10} and 57 dB L_{Amax} at R3**

It is noted that assigned noise levels are also applicable at the surrounding commercial premises, the closest being located to the south across the access road. Both are cafe style premises which open seven days a week until 5pm. For commercial premises though the applicable assigned noise levels are the same regardless of time of day, and are 60 dB L_{A10} and 80 dB L_{Amax}.

It must be noted the assigned noise levels above apply outside the receiving premises and at a point at least 3 metres away from any substantial reflecting surfaces. Given the close proximity of existing buildings and fences, the noise emissions were assessed at a point 1 metre away from building facades and a -2 dB adjustment was made to the predicted noise levels to account for reflected noise.

2.1 Waste Collection and Site Cleaning (Specified Works)

Regulation 14A prescribes that the noise emissions from activities such as the collection of waste, landscaped area maintenance and car park cleaning, can be exempt from having to comply with regulation 7, provided they are undertaken in accordance with regulation 14A(2) as follows:

- during daytime hours, defined as:
  - 07:00 to 19:00 Monday to Saturday (excluding public holiday), or
  - 09:00 to 19:00 on a Sunday or public holiday
- in the quietest reasonable and practicable manner; and
- using the quietest equipment reasonably available.

In the case where specified works are to be carried outside daytime hours and their noise emissions are likely not to comply with regulation 7, the works also need to be carried out according to a Noise Management Plan which has been approved by the local government authority CEO.

3 METHODOLOGY

Computer modelling has been used to predict noise levels at each nearby receiver. The software used was *SoundPLAN 8.0* with the CONCAWE algorithms selected. These algorithms have been selected as they include the influence of wind and atmospheric stability. Input data required in the model are:

- Meteorological Information;
- Topographical data;
- Ground Absorption; and
- Source sound power levels.

3.1 Meteorological Information

Meteorological information utilised is provided in *Table 3-1* and is considered to represent worst-case conditions for noise propagation. At wind speeds greater than those shown, sound propagation may be further enhanced, however background noise from the wind itself and from local vegetation is likely to be elevated and dominate the ambient noise levels.

It is generally considered that compliance with the assigned noise levels needs to be demonstrated for 98% of the time, during the day and night periods, for the month of the year in which the worst-case weather conditions prevail. In most cases, the weather conditions summarised below occur for more than 2% of the time and therefore must be satisfied.

Table 3-1 Modelling Meteorological Conditions

Parameter	Evening and Night (1900-0700)
Temperature (^{o}C)	15
Humidity (%)	50
Wind Speed (m/s)	3
Wind Direction*	All
Pasquil Stability Factor	F

* Note that the modelling package used allows for all wind directions to be modelled simultaneously.

3.2 Topographical Data

Topographical data was based on that publicly available from *GoogleEarth* in the form of spot heights, noting the topography is relatively flat with no significant natural/manmade features between sources and receivers.

Buildings were also included in the model as they can provide barrier effects in the same way as a hill or noise wall. Most residential buildings in the vicinity are single storey and were modelled at 3.5 metres high. Receivers R1 and R3 are double storey and were modelled at 6.5 metres high and with a floor height of 3 metres. Receivers were located 1.5 metres above floor level in all cases.

3.3 Ground Absorption

Ground absorption varies from a value of 0 to 1, with 0 being for an acoustically reflective ground (e.g. water or bitumen) and 1 for acoustically absorbent ground (e.g. grass, sand). In this instance, a value of 0.0 has been used across the study area, with the exception of currently vacant lots, where a value 0f 1.0 has been used.

3.4 Tavern Construction

From the development plans and elevations the following was assumed for the building construction and resulting performance of the external fabric for the Tavern:

- External glazing is fixed glass in commercial frames. All glazing is taken to be 10 mm thick and therefore achieving a minimum acoustic rating of R_w (C_{tr}) of 34 (-3).
- South entry door construction assumed to comprise brush seals and 6 mm thick glazing, and therefore achieving at least R_w (C_{tr}) of 31 (-2).
- External walls are 150mm precast masonry and will therefore achieve an acoustic rating of $R_w + C_{tr}$ over 50.
- Tavern roof is pitched sheet metal with insulation under the purlins. Ceiling within the tavern is at 4.1 metres above ground and is flush plasterboard suspended from structure above. Construction is assumed to achieve a minimum acoustic rating of R_w (C_{tr}) of 44 (-11).

3.5 Source Sound Levels

Sound levels used in the modelling are based on measurements undertaken at similar licensed venues with an emphasis on food/dining. An internal reverberant sound pressure level of 90 dB(A) was determined based on up to 280 patrons occupying the space and background DJ music being played (refer *Table 3-2*) in the bar. Given the nature of the space, the internal noise levels are taken to be dominated by patron noise but with background DJ music contributing to the lower frequency noise level, as shown in *Table 3-2*.

The sources noise levels used in the modelling are provided in *Table 3-2*.

Table 3-2 Noise Levels Used in Modelling

Description	Octave Band Centre Frequency (Hz)							Overall dB(A)
	63	125	250	500	1k	2k	4k	
Overall Tavern Internal Noise Levels, $L_{p,reverb}$	80	89	81	86	86	83	76	**90**
Patrons	*71*	*82*	*86*	*88*	*81*	*78*	*75*	***88***
Music	*79*	*88*	*87*	*87*	*80*	*75*	*70*	***87***
Car door closing (L_{Amax}), L_p at 1m	88	86	81	73	70	64	62	**77**

With regards to the above, please note the following:

- Internal bar levels are modelled as reverberant sound pressure on various building elements e.g. walls and glazing. The software then calculates the sound power level for each element based on this reverberant sound pressure and the size and transmission loss of the element.
- The car door closing was modelled as a point source located 1 metre above car park level.

4 RESULTS

The noise levels from patrons and music noise breaking out of the various external elements (roof, glazed facade and entry door) were predicted at each receiver.

Noise levels from car doors closing associated with the proposal were also predicted for cars assumed parked at two locations: in the western end of the commercial centre car park, and in the eastern most car bay just south of the Tavern. It is noted the other parking areas are not associated with the commercial centre and are located further away from the proposed tavern. As such, the selected locations are considered to represent a worst-case parking scenario for patrons attending the tavern and parking close by.

The results of the noise modelling are presented in *Table 4-1*. *Figures 4-1* to *4-3* also show the predicted noise levels as contours maps at ground level, as well as the location of each receiver.

It can be seen that with the entry door left open, noise levels can increase significantly at the receivers to the south.

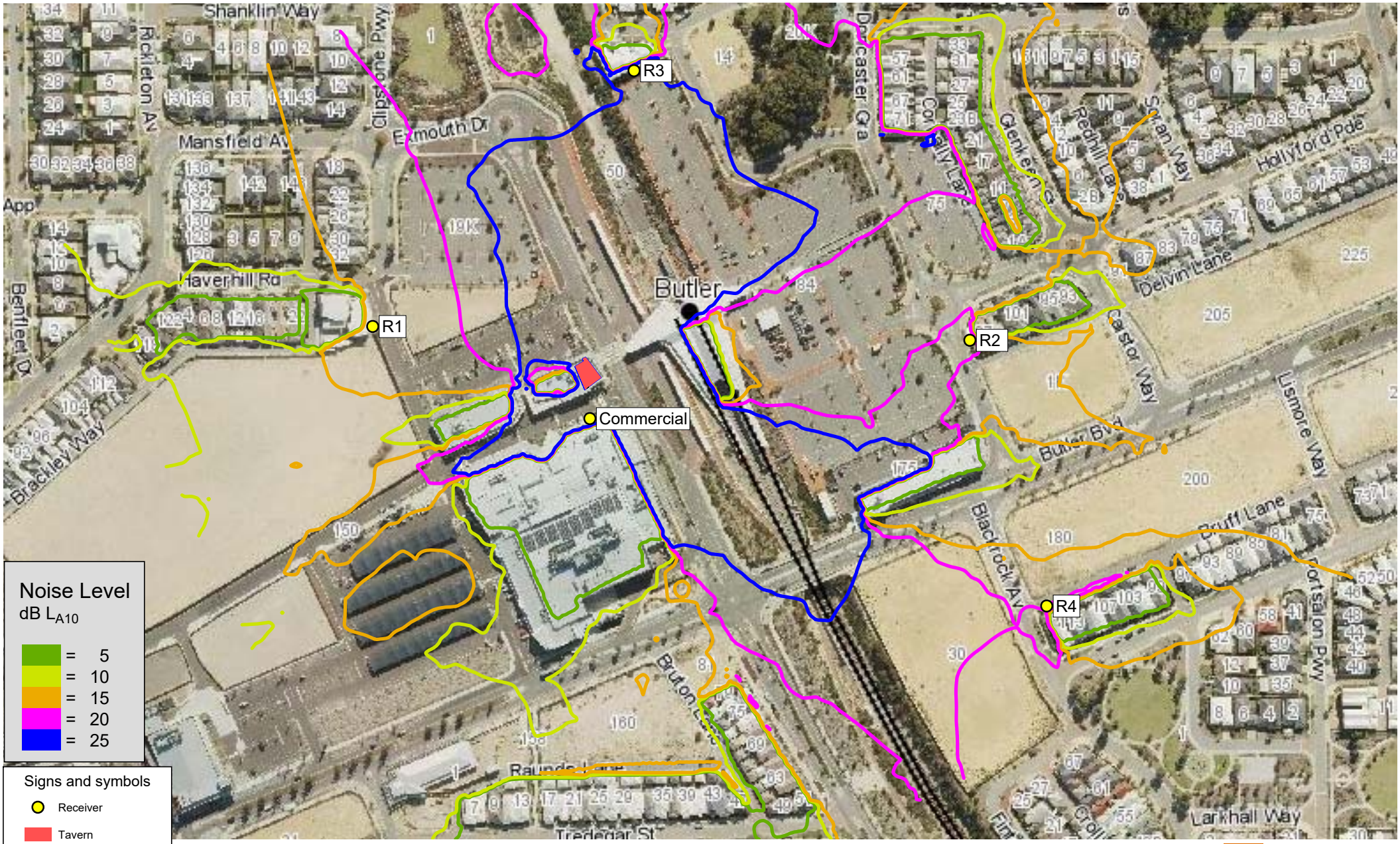
Table 4-1 Predicted Noise Levels

Receiver	Orientation	Bar Noise Entry Door Closed dB L_{A10}	Bar Noise Entry Door Open dB L_{A10}	Car Door dB L_{Amax}
R1, Ground Floor	E	16	30	51
R1, Upper Floor	E	17	31	51
R2	SW	20	40	30
R3	S	24	41	37
R3	S	24	41	37
R4	NW	19	40	33
Commercial	N	39	64	59

Mad Manhattan Tavern - Tavern Noise (Patrons and Music) With Entry Door Closed

Tenancy 25, Butler Central, #150 Camborne Avenue, Butler

Figure 4-1



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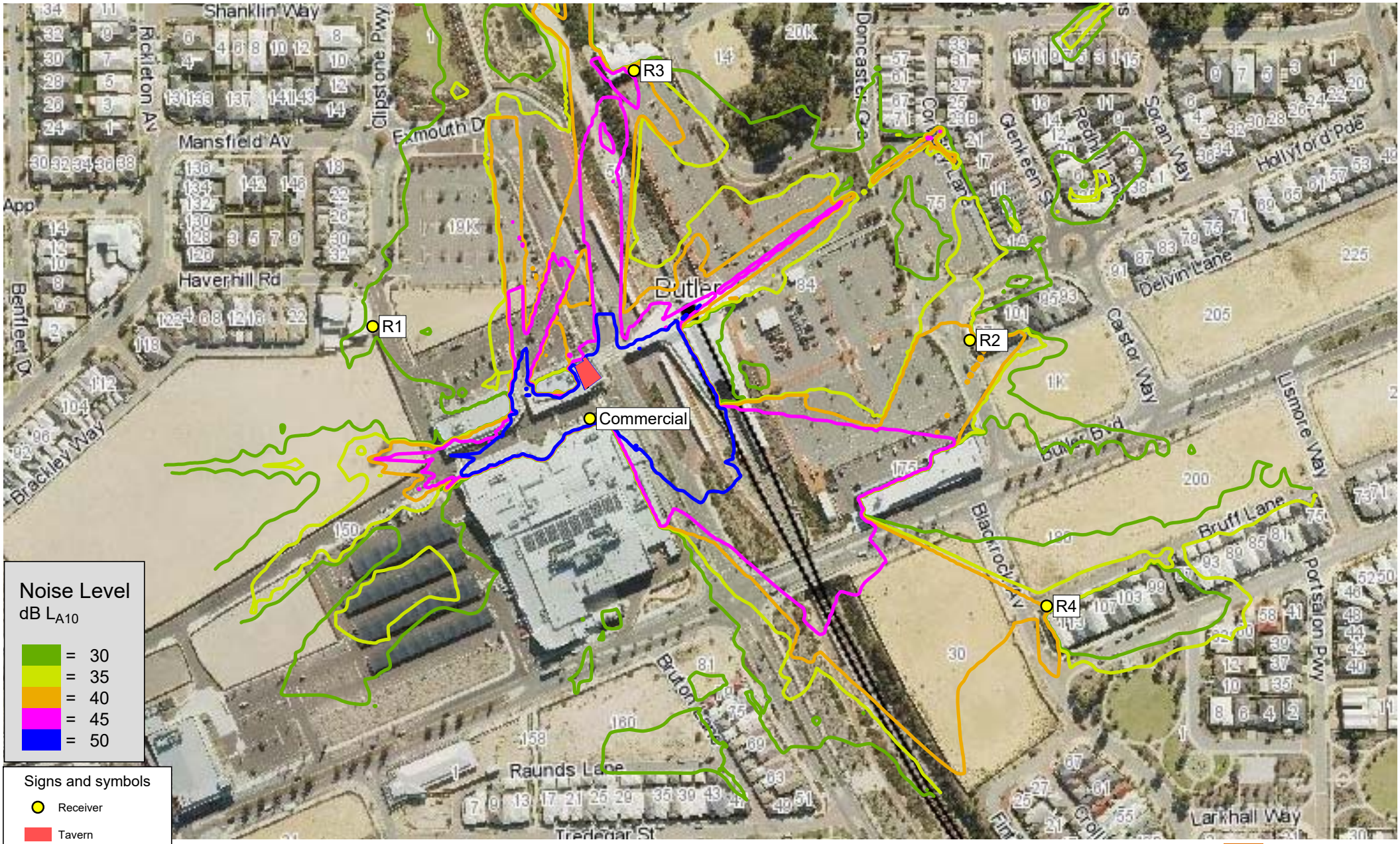
12-Oct-18

Mad Manhattan Tavern - Tavern Noise (Patrons and Music) With Entry Door Open
Tenancy 25, Butler Central, #150 Camborne Avenue, Butler

Figure 4-2



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12-Oct-18

Mad Manhattan Tavern - Car Door Closing in Carpark
Tenancy 25, Butler Central, #150 Camborne Avenue, Butler

Figure 4-3

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12-Oct-18

5 ASSESSMENT

5.1 Tavern Noise

The predicted noise levels are below 25 dB(A) at all receivers with the entry door fully closed, and therefore will comply with the L_{A10} night-time assigned noise levels at all receivers. In a case where the double door is open, noise levels up to 41 dB(A) are predicted at the receivers to the south. Such level alone would not comply with the night-time assigned noise levels and once adjusted by +10 dB for music (refer *Table 2-1*) if applicable, compliance even with the daytime L_{A10} would not be achieved. As such, the entry door should be left closed when not in use (i.e. door not to be propped open at any time) and fitted with automatic door closers.

Keeping the door closed when not in use is also required to minimise noise break out to the commercial premises opposite, some of which have alfresco areas.

5.2 Car Doors Closing

The receiver potentially most impacted by car door closing noise is R1, as it is a double storey building and is located relatively close to the car parking area. Noise from car doors closing would be considered impulsive at this receiver, especially at night-time when background noise levels are expected to be relatively low. As such, the predicted noise levels should be adjusted by +10 dB for impulsiveness (refer *Table 2-1*), resulting in an assessable level of 61 dB L_{Amax}. This would result in an exceedence of 2 dB of the night-time assigned level of 59 dB L_{Amax}. As such to minimise the impact from car door closing onto R1, patrons of the tavern should be encouraged to park in the eastern side of the car park i.e. closest to the building, or in the parking bays located south of the building, after 10pm.

At the other receivers, the predicted noise levels are 37 dB L_{Amax} or less. Receivers R2 to R4 are also 200 metres or more away from the commercial centre car parks, and therefore impulsiveness is not considered to be present. Compliance is therefore achieved at all times at these receivers.

Compliance would also be achieved at all times at the commercial receiver opposite the tavern.

5.3 Waste Collection

Waste collection is an activity already occurring on site, however the following best practices should be implemented by the tavern in order to minimise the noise impact from the tavern's waste management and collection:

- Glass not be emptied in the bins after 7pm,
- Waste collections should occur during the daytime period as defined in the Regulations,
- Tonal reversing beepers should be avoided as such devices are known to cause annoyance. Less intrusive alternatives include broadband noise reversing alarms.

6 CONCLUSIONS

Based on the assessment undertaken, it is noted that compliance with the Regulations can be achieved at all times by implementing the following management practices:

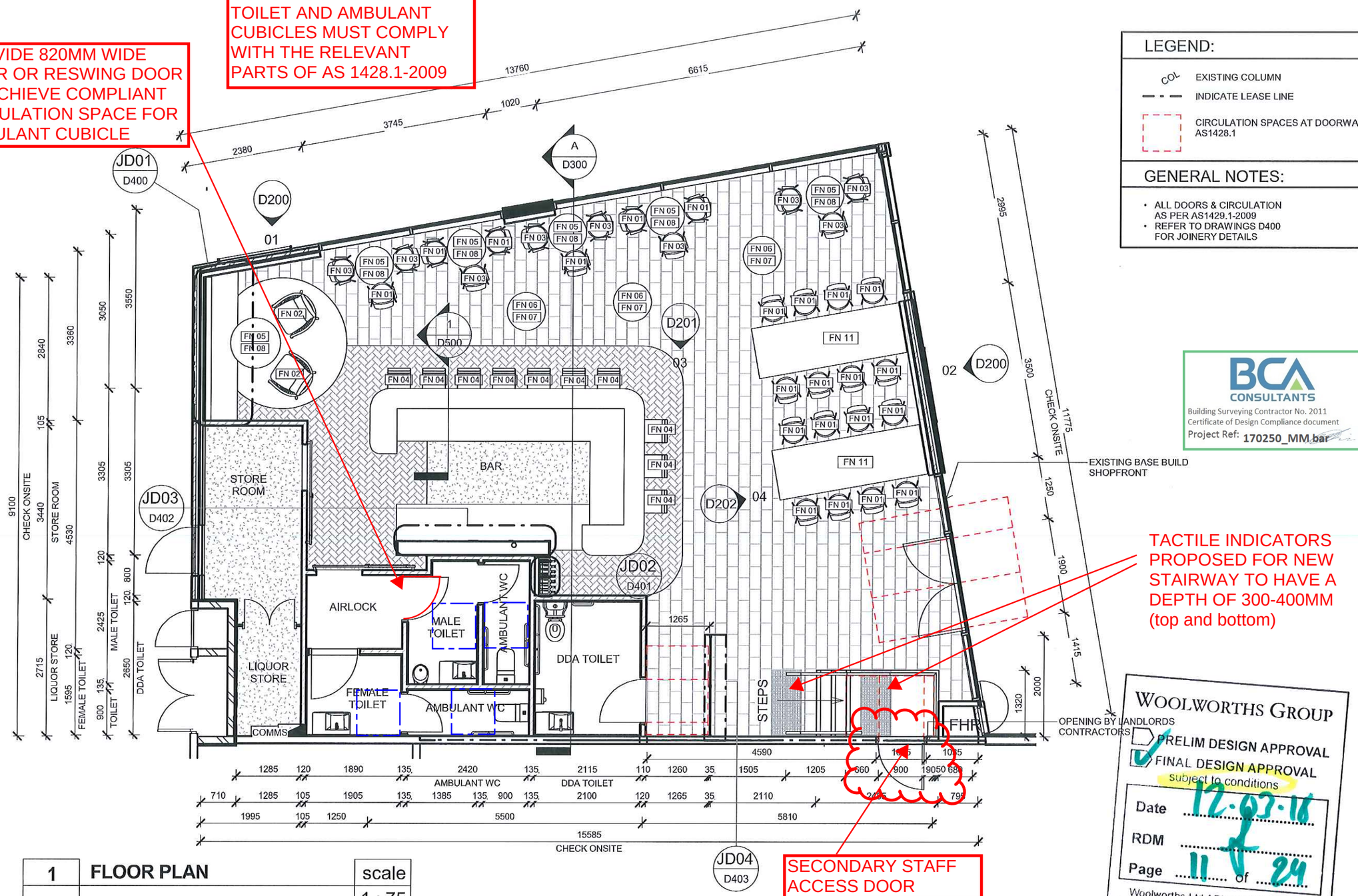
- Entry door to be kept closed when not in use i.e. not to be propped open. A self-closing mechanism could be fitted to ensure the door is also not inadvertently left open and also manned by security personnel;
- Patrons driving to and parking at the tavern should park as close to the building as possible after 10pm (which is likely to occur naturally in any case);
- Tavern management to remind patrons to be mindful of residential areas nearby;
- Glass should not be emptied in outdoor bins after 7pm; and
- Doors located in the north wall to also be kept closed when not in use.

Appendix A

Plans and Elevations

CONSTRUCTION OF DDA TOILET AND AMBULANT CUBICLES MUST COMPLY WITH THE RELEVANT PARTS OF AS 1428.1-2009

PROVIDE 820MM WIDE DOOR OR RESWING DOOR TO ACHIEVE COMPLIANT CIRCULATION SPACE FOR AMBULANT CUBICLE



TACTILE INDICATORS PROPOSED FOR NEW STAIRWAY TO HAVE A DEPTH OF 300-400MM (top and bottom)

SECONDARY STAFF ACCESS DOOR

LEGEND:

- COL — EXISTING COLUMN
- INDICATE LEASE LINE
- CIRCULATION SPACES AT DOORWAY TO AS1428.1

GENERAL NOTES:

- ALL DOORS & CIRCULATION AS PER AS1429.1-2009
- REFER TO DRAWINGS D400 FOR JOINERY DETAILS

BCA CONSULTANTS
Building Surveying Contractor No. 2011
Certificate of Design Compliance document
Project Ref: 170250_MM.bar

WOOLWORTHS GROUP
PRELIM DESIGN APPROVAL
FINAL DESIGN APPROVAL
subject to conditions
Date 12.03.18
RDM
Page 11 of 24
Woolworths Ltd ABN 88 000 014 675

ISSUE: FOR BUILDING PERMIT
CLIENT APPROVAL: _____ DATE: _____

1 **FLOOR PLAN** scale 1 : 75

GENERAL NOTES
1. CONFIRM ALL RELEVANT DIMENSIONS, LEVELS AND DETAILS ON SITE PRIOR TO COMMENCEMENT OF WORK. REPORT ALL DISCREPANCIES BETWEEN THE DOCUMENTATION AND THE SITE CONDITIONS TO THE DESIGNER PRIOR TO THE START OF WORK.
2. CONSTRUCTION TO COMPLY WITH ALL RELEVANT BUILDING CODES FOR THE STATE/COMMONWEALTH. THE BUILDER SHALL BE RESPONSIBLE FOR FAMILIARIZING THEMSELVES WITH SUCH CODES/REGULATIONS.
3. USE FIGURED DIMENSIONS. DO NOT SCALE THE DRAWINGS.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION INCLUDING OTHER DRAWINGS, WRITTEN SPECIFICATION ETC.
5. BUILDER TO PROVIDE ALL SITE HOARDING / FENCING AS MAY BE REQUIRED BY THE SHOPPING CENTRE MANAGEMENT, TENANCY CO-ORDINATORS AND OR OTHER AUTHORITIES.
6. BUILDER TO FAMILIARIZE THEMSELVES WELL ALL SHOPPING CENTRE/TENANCY FITOUT GUIDELINES AND COMPLY WITH SUCH DOCUMENTS.
7. BUILDER TO ADMINISTER FIRE AND MECHANICAL SERVICES CONTRACTORS UNLESS ADVISED OTHERWISE.
8. BUILDER TO ALLOW FOR ALL SITE ALLOWANCES.
9. BUILDER TO PROVIDE TO THE DESIGNER/PROPRIETOR, A COPY OF ALL REPORTS/CERTIFICATES REQUIRED BY THE SHOPPING CENTRE MANAGEMENT / CENTRE GUIDELINES AND / TENANCY CO-ORDINATORS AND / OR AUTHORITIES.

GENERAL CONSTRUCTION - WET AREAS / FOOD TENANCY
1. ALL CARCASS WORK IN WET AREAS (AND SURROUNDINGS) TO BE HMR (MINIMUM) BOARD.
2. ALL COUNTER TOP SUBSTRATES IN WET AREAS (INCLUDING SERVICE COUNTERS ETC) TO BE HMR MINIMUM PARTICLE BOARD.
3. TILES IN WET AREAS TO BE WATERPROOFED AS STANDARD PRACTICE. TILES TO HAVE EPOXY GROUT. WATERPROOFING MEMBRANES FOR EXTERNAL ABOVE GROUND USE TO COMPLY WITH AS4654 PART 1 & 2.
4. BUILDER TO ALLOW FOR FULL CONNECTION/COMMISSIONING OF ALL SERVICES/EQUIPMENT UNLESS NOTED OTHERWISE.
5. BUILDER TO LIAISE DIRECTLY WITH CONTRACTORS TO ENSURE ALL CUT OUT SIZES, TRIMS, PANELS, FASCIAS ETC ARE CORRECT FOR ALL EQUIPMENT. PROVIDE TEMPLATES WHERE REQUIRED. SAME TO APPLY FOR ALL CABINET WORK FIXED TO SISTEEL SUPPORT FRAMES.
6. WHERE FITOUT INVOLVED FOOD PREPARATION, AND AS REQUIRED BY HEALTH REGULATIONS, PROVIDE 100KLY FILLED MINERAL FIBRE INSULATION TO ALL WALLS AND CAVITIES.
7. PROVIDE MINIMUM CLEARANCES AS DETAILED WITHIN HEALTH REGULATIONS / CODES & OTHER RELEVANT DOCUMENTS

GENERAL STRUCTURAL NOTES
THE STRUCTURAL INTEGRITY OF BULKHEADS, FLOOR TOPPINGS, CHASINGS IN CONC. FLOORS, ADDITIONAL STRUCTURAL BEAMS/COLUMNS, ETC IS THE RESPONSIBILITY OF THE BUILDER. NOTE: LESSEE'S SHOP FRONT, SIGNAGE & BULKHEADS TO BE SUPPORTED INDEPENDENTLY OF THE LESSORS WALL/CEILING/GRID STRUCTURES/SERVICES. BUILDER TO PROVIDE A STRUCTURAL ENGINEERS CERTIFICATE OF COMPLIANCE TO THE DESIGNER & OR TENANCY CO-ORDINATOR ON COMPLETION OF THE FITOUT

GENERAL SERVICES
SERVICES INDICATED ON DRAWINGS ARE INDICATIVE SHOW QUANTITY ONLY (NOT ACTUAL LOCATION OR HAC TION TO COMMENCEMENT OF WORKS ON SITE WITH PROPRIETOR FROM TO COMMENCEMENT. REPORT ALL DISCREPANCIES TO THE DESIGNER & OR TENANCY CO-ORDINATOR & PROPRIETOR.

F4.12 KITCHEN LOCAL EXHAUST VENTILATION
A COMMERCIAL KITCHEN MUST BE PROVIDED WITH A KITCHEN EXHAUST HOOD COMPLYING WITH AS1670 1668.1 AND AS1668.2 WHERE -
(a) ANY COOKING APPARATUS HAS - (i) A TOTAL MAXIMUM ELECTRICAL POWER INPUT EXCEEDING 8 kW; OR (ii) A TOTAL GAS POWER INPUT EXCEEDING 29 MJ/h; OR
(b) THE TOTAL MAXIMUM POWER INPUT TO MORE THAN ONE APPARATUS EXCEEDS -
(i) 8.5 kW ELECTRICAL POWER; OR
(ii) 1.8 MJ GAS, PER M2 OF FLOOR AREA OF THE ROOM OR ENCLOSURE.

IMPORTANT:
ALL FURNITURE, FINISHES, LIGHTING AND EQUIPMENT ORDERS ARE TO BE PLACED WITHIN **SEVEN** DAYS OF CONTRACT FINALISATION WITH THE CLIENT, TO ENSURE STOCK IS AVAILABLE. PLEASE NOTE THAT SOME STOCK ITEMS MAY HAVE DELIVERY LEAD TIMES IN EXCESS OF 8 WEEKS. CONTRACTOR TO ENSURE LEAD TIMES ALIGN WITH THE PROJECT SCHEDULE, AND TO NOTIFY DECOR CONSULTANT WITHIN THE **SEVEN** DAY ORDERING PERIOD OF ANY DISCREPENCIES. CONTRACTOR TO PROVIDE EVIDENCE OF ORDERS TO DECOR CONSULTANT ALSO WITHIN THE **SEVEN** DAY TIMEFRAME.

Rev.	Date	Issue	Issued To
B	27.02.18	ISSUE FOR BUILDING PERMIT	CLIENT
A	20.02.18	ISSUE FOR BUILDING PERMIT	CLIENT

MAD MANHATTAN
TENANCY 25, BUILDING 4
BRIGHTON ROAD, BUTLER CENTRAL

FOH Area: m²	BOH Area: m²	TOTAL Area: 154m²

Drawing Title: FLOOR PLAN

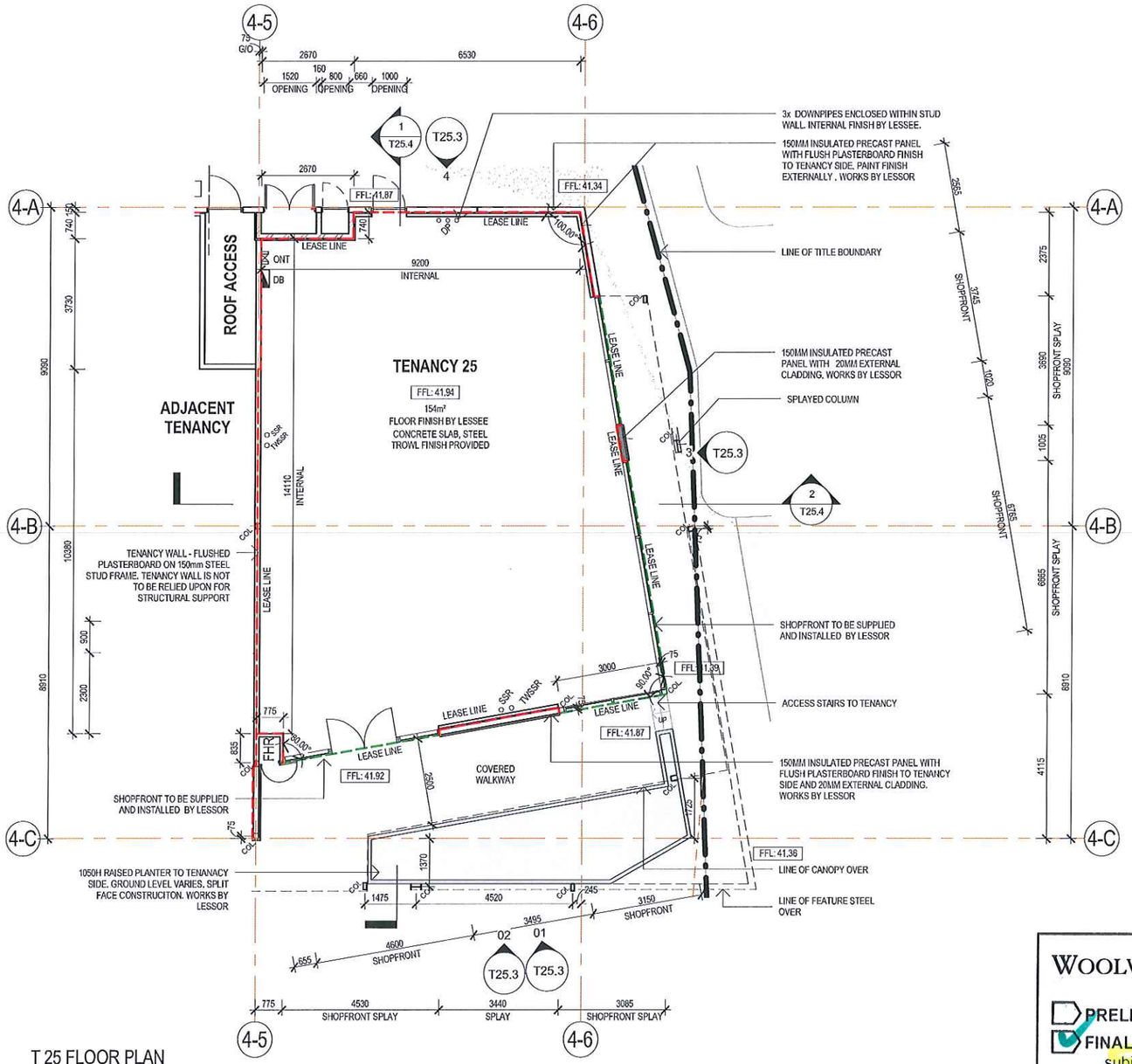
Drawn: MW	Date: 27.02.2018	Drawing No: D100	Job No: 6246
Paper Size: A3	Scale: 1:75		Revision: B

work shop dine
U2, 87 - 89 South Terrace
Fremantle WA 6160
t: (08) 6365 4831
w: workshopdine.com.au

2/11/2017 3:48:33 PM

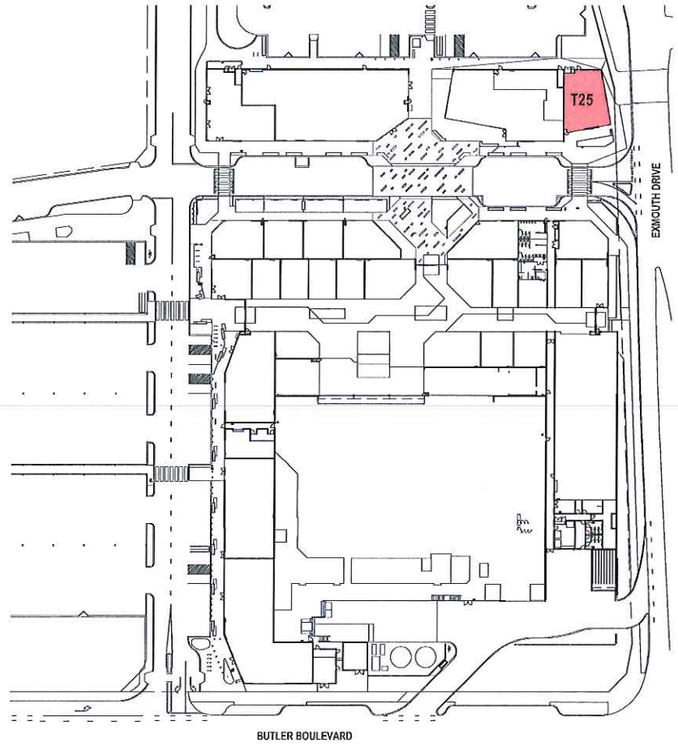
Rev	Amendment	Date
A	TENANCY ISSUE	02.11.17

BCA CONSULTANTS
Building Surveying Contractor No. 2011
Certificate of Design Compliance document
Project Ref: 170250_MM.bar



T 25 FLOOR PLAN

1 : 100



T25 LOCATION PLAN

1 : 1000

WOOLWORTHS GROUP

PRELIM DESIGN APPROVAL

FINAL DESIGN APPROVAL
subject to conditions

Date 12.3.18

RDM

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Woolworths Ltd ABN 88 000 014 675

LEGEND

	ONT / COMMS INSTALLATION
	TENANCY DISTRIBUTION BOARD
SSR	SEALED SHOP RISER FLOOR WASTE
TWSR	SEALED SHOP RISER GREASY FLOOR WASTE
DPJ	PLATE DOWEL JOINT. 40x4mm SAW CUT

BROLA FALCONER
9/300 Rokeby Road, Subiaco, Western Australia 6008
Telephone : 08 9382 0303 Facsimile : 08 9223 2440
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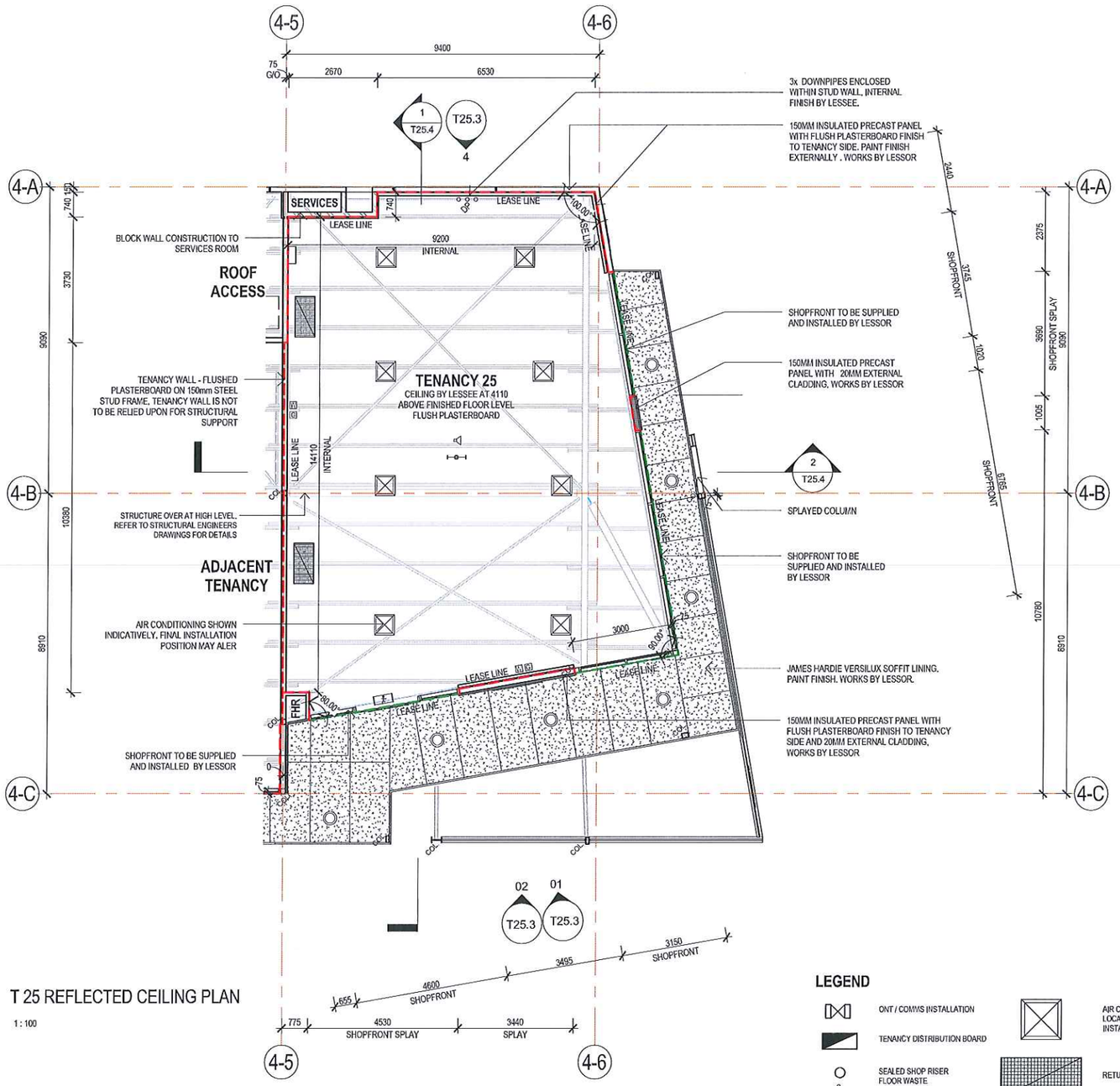
BUTLER CENTRAL
BUTER BOULEVARD,
BRIGHTON

T 25 LOCATION & FLOOR PLAN

Scale	As indicated
Drawn	RM
Date	NOV 2017
Job No.	2016044
Dwg No.	3064 T25.1 Rev. A

A2 SHEET

Rev	Amendment	Date
A	TENANCY ISSUE	02.11.17



T 25 REFLECTED CEILING PLAN

1 : 100

LEGEND

- ONT / COMMS INSTALLATION
- TENANCY DISTRIBUTION BOARD
- SSR — SEALED SHOP RISER FLOOR WASTE
- TRSR — SEALED SHOP RISER GREASY FLOOR WASTE
- DPJ — PLATE DOWEL JOINT. 40x4mm SAW CUT
- AIR CONDITIONING VENT. NOMINAL LOCATION, TO BE CONFIRMED AND INSTALLED BY LESSOR
- RETURN AIR GRILLE
- AP — ACCESS PANEL REQUIRED. TO BE INSTALLED BY LESSEE
- G W — GAS AND WATER SUPPLY
- SPEAKER
- SMOKE DETECTOR
- EMERGENCY LIGHT
- EXIT SIGN, TO BE INSTALLED IN CEILING BY TENANT
- FIRE SPRINKLER. CAPPED ABOVE CEILING LEVEL
- DOWNLIGHT IN AWNING

NOTE

ALL SERVICES LOCATIONS ARE TO BE VERIFIED ON SITE BY THE LESSEE PRIOR TO DETAILED DESIGN

WOOLWORTHS GROUP

☑ PRELIM DESIGN APPROVAL
☑ FINAL DESIGN APPROVAL
subject to conditions

Date 12.03.18
RDM
Page 4 of 24

Woolworths Ltd ABN 88 000 014 675

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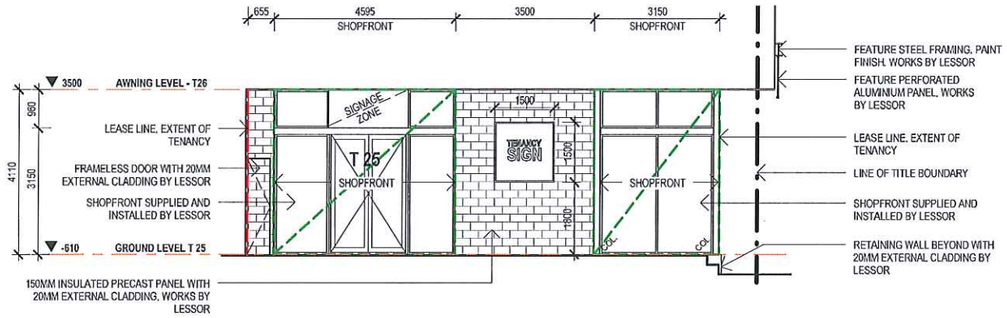
BUTER BOULEVARD,
BRIGHTON

T 25 REFLECTED CEILING PLAN

Scale As indicated
Drawn RM
Date NOV 2017
Job No. 2016044
Dwg No. **3064 T25.2** Rev. **A** A2 SHEET



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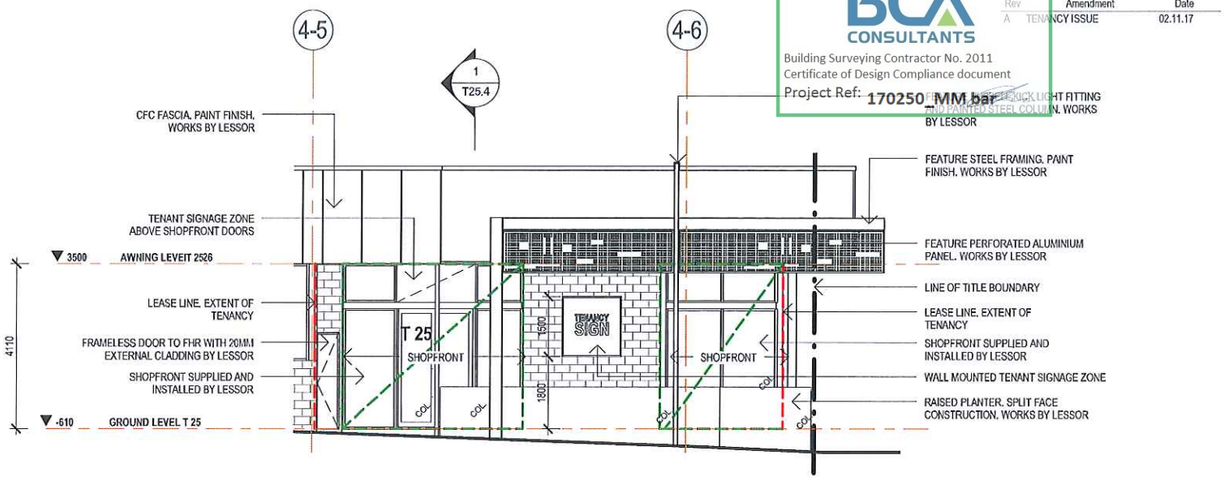

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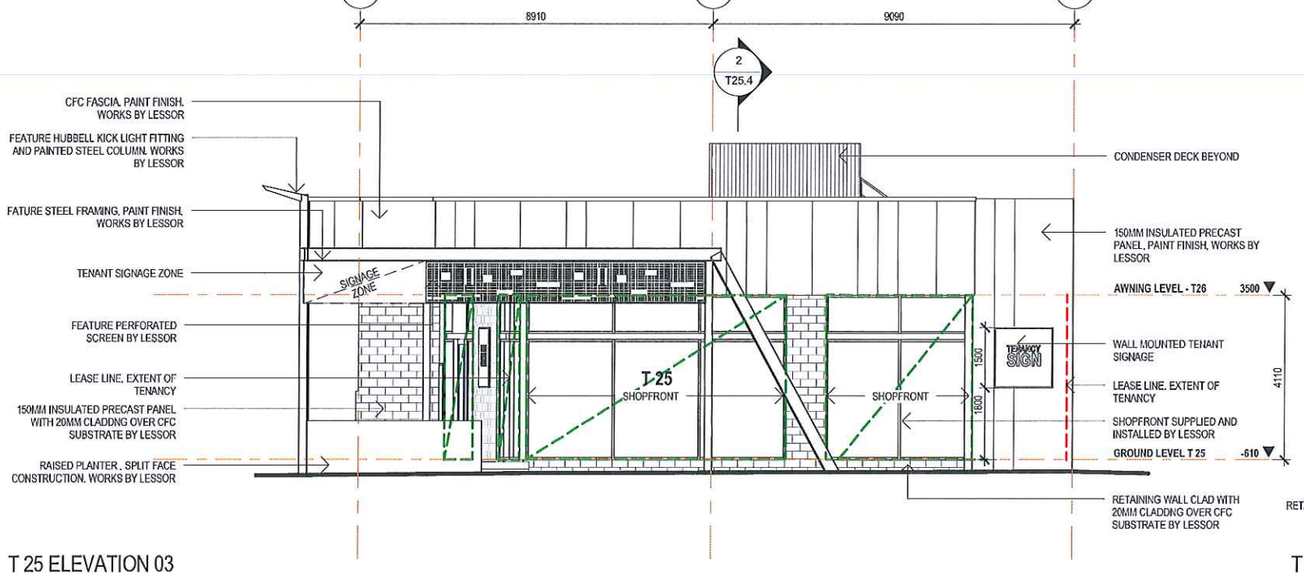

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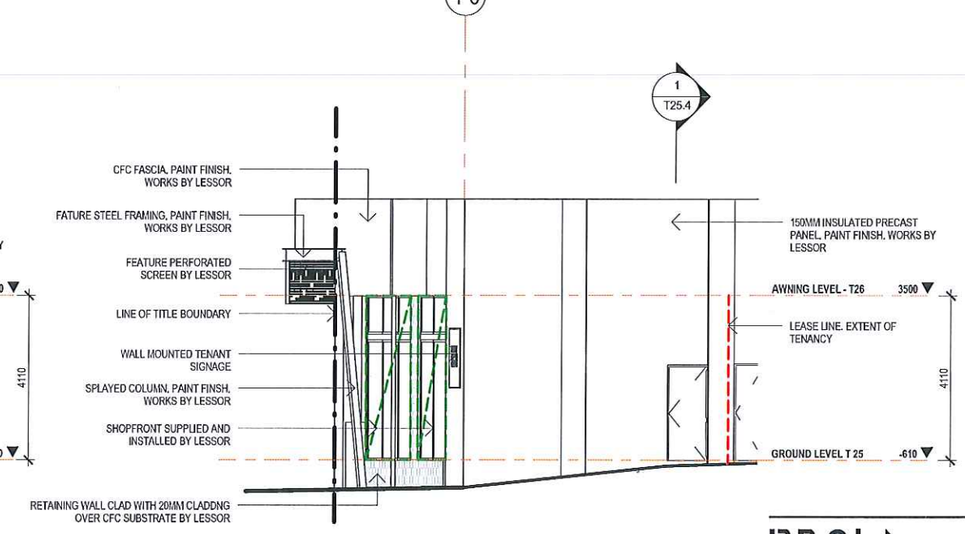

T 25 ELEVATION 04

1 : 100

BCA CONSULTANTS
Building Surveying Contractor No. 2011
Certificate of Design Compliance document
Project Ref: 170250_MM.bar

Rev	Amendment	Date
A	TENANCY ISSUE	02.11.17

WOOLWORTHS GROUP

PRELIM DESIGN APPROVAL

FINAL DESIGN APPROVAL
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Date 17.05.18

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Page 5 of 24

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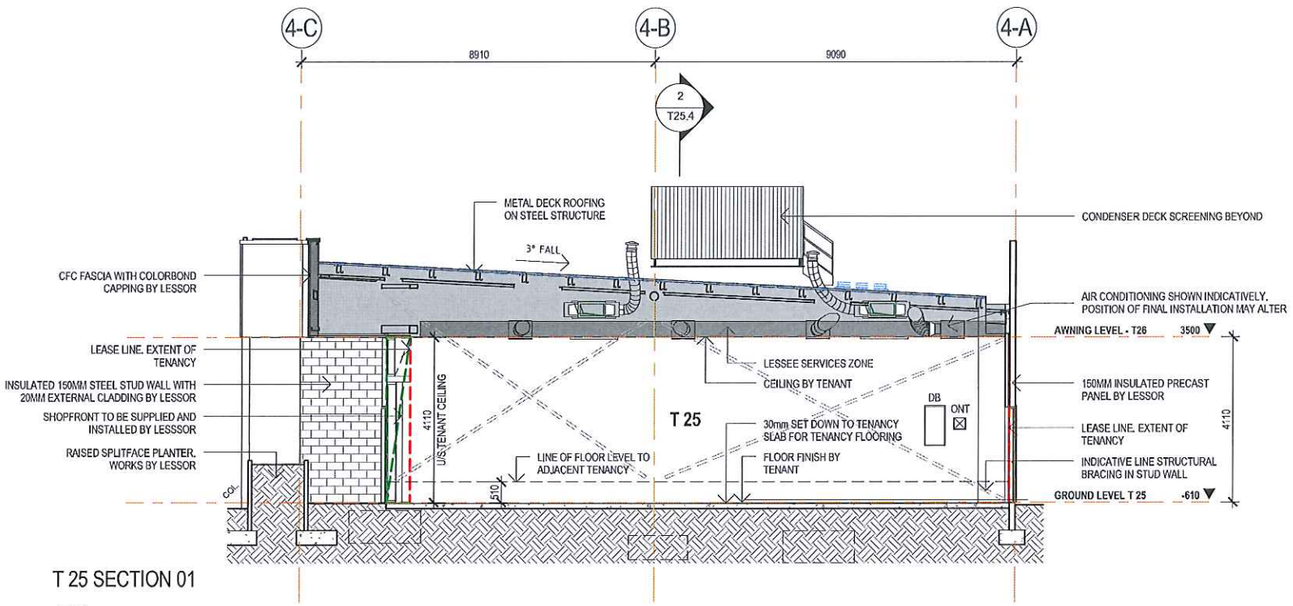
T 25 ELEVATIONS

Scale 1 : 100
Drawn RM
Date NOV 2017
Job No. 2016044
Dwg No. **3064 T25.3** Rev: **A** A2 SHEET



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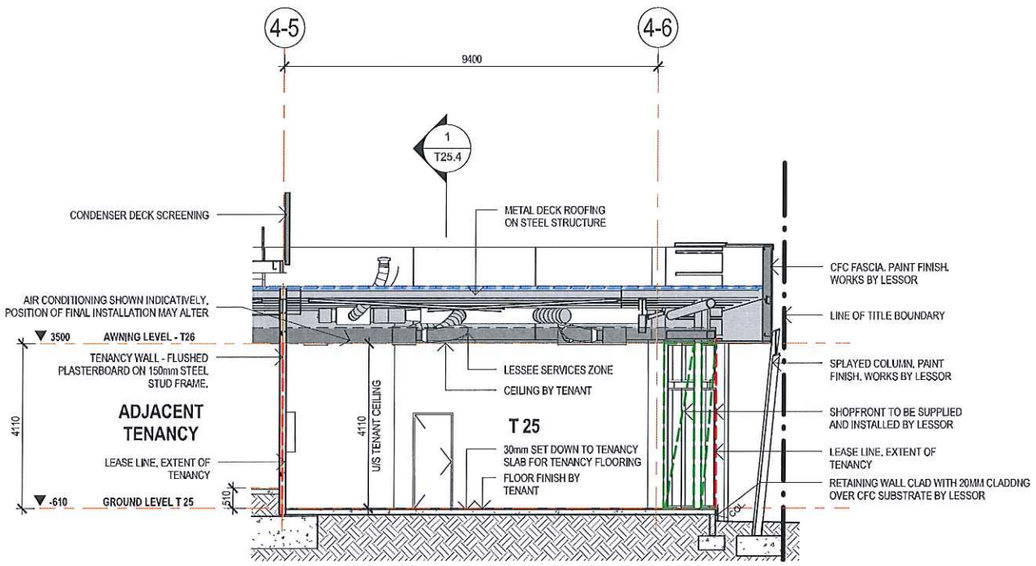

T 25 SECTION 02

1 : 100

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Building Surveying Contractor No. 2011
Certificate of Design Compliance document
Project Ref: 170250_MM.bar

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Rev	Amendment	Date
A	TENANCY ISSUE	02.11.17

WOOLWORTHS GROUP
PRELIM DESIGN APPROVAL
FINAL DESIGN APPROVAL
subject to conditions
Date 12.03.18
RDM
Page 6 of 24
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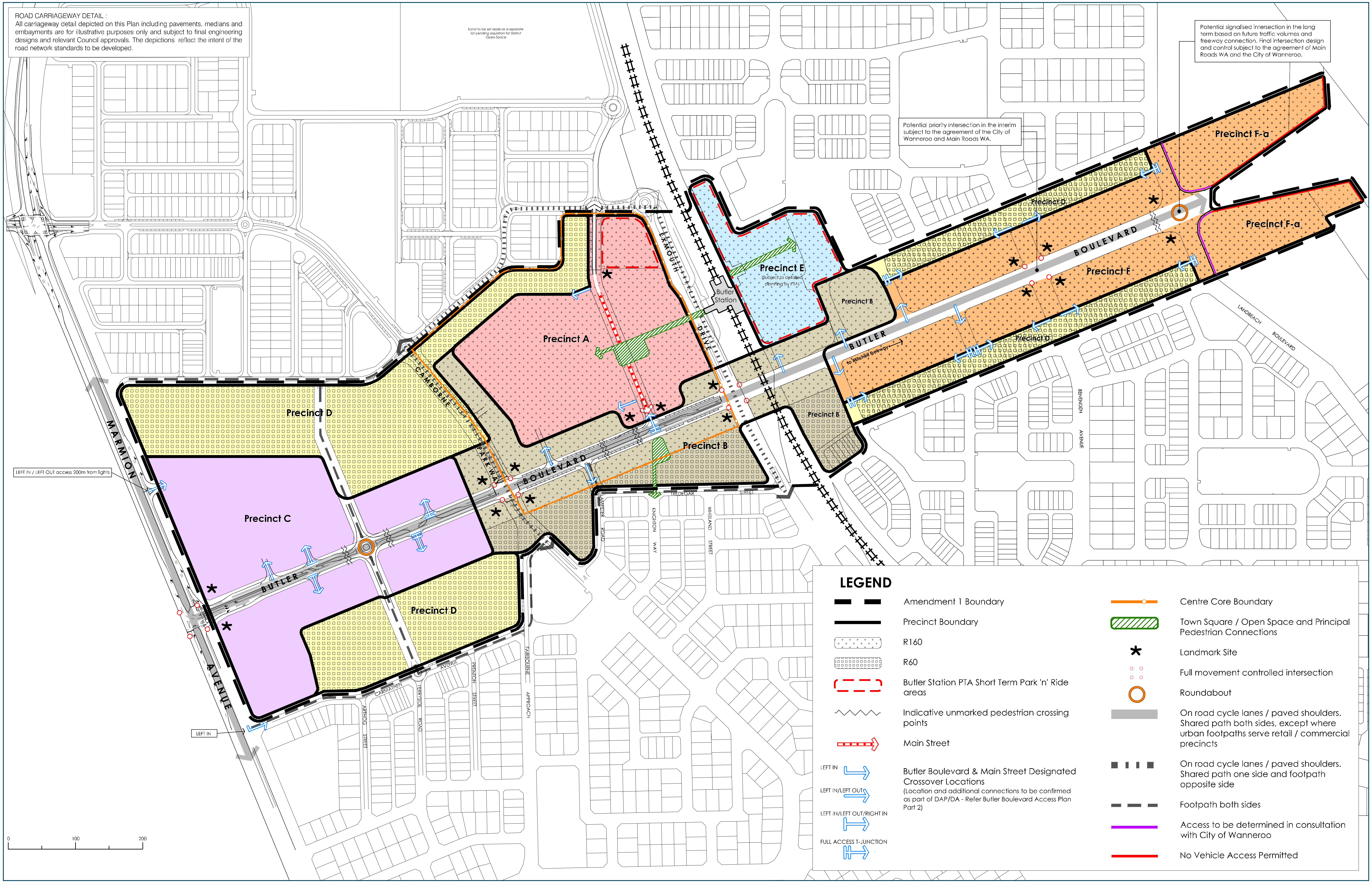
BRIGHTON

T 25 SECTIONS

Scale 1 : 100
Drawn RM
Date NOV 2017
Job No. 2016044
Dwg No. 3064 T25.4 Rev: A2 SHEET

Appendix B

Butler District Centre Activity Centre Structure Plan


ROAD CARRIAGEWAY DETAIL :
All carriageway detail depicted on this Plan including pavements, medians and embayments are for illustrative purposes only and subject to final engineering designs and relevant Council approvals. The depictions reflect the intent of the road network standards to be developed.
Potential signalised intersection in the long term based on future traffic volumes and freeway connection. Final intersection design and control subject to the agreement of Main Roads WA and the City of Wanneroo.
Potential priority intersection in the interim subject to the agreement of the City of Wanneroo and Main Roads WA.
Precinct A
Precinct B
Precinct C
Precinct D
Precinct E
Precinct F
Precinct F-a
Butler Station
EXMOUTH DRIVE
CAMBORNE PARKWAY
BUTLER BOULEVARD
MARMION AVENUE
to Mitchell Freeway
LEFT IN / LEFT OUT access 200m from lights
LEFT IN
LANDBEACH BOULEVARD
BENENDON AVENUE
CARMATHEN AVENUE
PRENTON STREET
FAIRBOURNE APPROACH
KNIGHTON WAY
WHITLAND STREET
ARTHOG STREET
FERRYSIDE ROAD
0 100 200
LEGEND
Amendment 1 Boundary
Precinct Boundary
R160
R60
Butler Station PTA Short Term Park 'n' Ride areas
Indicative unmarked pedestrian crossing points
Main Street
LEFT IN
LEFT IN/LEFT OUT
LEFT IN/LEFT OUT/RIGHT IN
FULL ACCESS T-JUNCTION
Butler Boulevard & Main Street Designated Crossover Locations
(Location and additional crossovers to be confirmed as part of DAP/DA - Refer Butler Boulevard Access Plan Part 2)
Centre Core Boundary
Town Square / Open Space and Principal Pedestrian Connections
Landmark Site
Full movement controlled intersection
Roundabout
On road cycle lanes / paved shoulders. Shared path both sides, except where urban footpaths serve retail / commercial precincts
On road cycle lanes / paved shoulders. Shared path one side and footpath opposite side
Footpath both sides
Access to be determined in consultation with City of Wanneroo
No Vehicle Access Permitted

CLE
TOWN PLANNING + DESIGN

BUTLER DISTRICT CENTRE ACTIVITY CENTRE STRUCTURE PLAN No. 87

Consolidated Agreed Structure Plan including Amendment No. 3

City of Wanneroo

plan no: **885-809B-01**

date: 29 May 2018

scale: 1:5000 @A3

Appendix C

Terminology

The following is an explanation of the terminology used throughout this report.

Decibel (dB)
The decibel is the unit that describes the sound pressure and sound power levels of a noise source. It is a logarithmic scale referenced to the threshold of hearing.

A-Weighting
An A-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound. This weighting reflects the fact that the human ear is not as sensitive to lower frequencies as it is to higher frequencies. An A-weighted sound level is described as L_A dB.

Sound Power Level (L_w)
Under normal conditions, a given sound source will radiate the same amount of energy, irrespective of its surroundings, being the sound power level. This is similar to a 1kW electric heater always radiating 1kW of heat. The sound power level of a noise source cannot be directly measured using a sound level meter but is calculated based on measured sound pressure levels at known distances. Noise modelling incorporates source sound power levels as part of the input data.

Sound Pressure Level (L_p)
The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending upon where the heater is located, just as the sound pressure level will vary depending on the surroundings. Noise modelling predicts the sound pressure level from the sound power levels taking into account ground absorption, barrier effects, distance etc.

L_{ASlow}
This is the noise level in decibels, obtained using the A frequency weighting and the S (Slow) time weighting as specified in IEC 61672-1:2002. Unless assessing modulation, all measurements use the slow time weighting characteristic.

L_{AFast}
This is the noise level in decibels, obtained using the A frequency weighting and the F (Fast) time weighting as specified in IEC 61672-1:2002. This is used when assessing the presence of modulation only.

L_{APeak}
This is the greatest absolute instantaneous sound pressure in decibels using the A frequency weighting as specified in IEC 61672-1:2002.

L_{Amax}
An L_{Amax} level is the maximum A-weighted noise level during a particular measurement.

L_{A1}
An L_{A1} level is the A-weighted noise level which is exceeded for one percent of the measurement period and is considered to represent the average of the maximum noise levels measured.

L_{A10}
An L_{A10} level is the A-weighted noise level which is exceeded for 10 percent of the measurement period and is considered to represent the "*intrusive*" noise level.

L_{Aeq}
The equivalent steady state A-weighted sound level ("equal energy") in decibels which, in a specified time period, contains the same acoustic energy as the time-varying level during the same period. It is considered to represent the "average" noise level.

L_{A90}
An L_{A90} level is the A-weighted noise level which is exceeded for 90 percent of the measurement period and is considered to represent the "*background*" noise level.

One-Third-Octave Band
Means a band of frequencies spanning one-third of an octave and having a centre frequency between 25 Hz and 20 000 Hz inclusive.

L_{Amax} assigned level
Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded at any time.

L_{A1} assigned level
Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded for more than 1% of the representative assessment period.

L_{A10} assigned level
Means an assigned level which, measured as a $L_{A\ Slow}$ value, is not to be exceeded for more than 10% of the representative assessment period.

Tonal Noise
A tonal noise source can be described as a source that has a distinctive noise emission in one or more frequencies. An example would be whining or droning. The quantitative definition of tonality is:

the presence in the noise emission of tonal characteristics where the difference between -

(a) the A-weighted sound pressure level in any one-third octave band; and

(b) the arithmetic average of the A-weighted sound pressure levels in the 2 adjacent one-third octave bands,

is greater than 3 dB when the sound pressure levels are determined as $L_{Aeq,T}$ levels where the time period T is greater than 10% of the representative assessment period, or greater than 8 dB at any time when the sound pressure levels are determined as $L_{A\ Slow}$ levels.

This is relatively common in most noise sources.

Modulating Noise
A modulating source is regular, cyclic and audible and is present for at least 10% of the measurement period. The quantitative definition of modulation is:

a variation in the emission of noise that —

(a) is more than 3 dB $L_{A\ Fast}$ or is more than 3 dB $L_{A\ Fast}$ in any one-third octave band;

(b) is present for at least 10% of the representative.

Impulsive Noise
An impulsive noise source has a short-term banging, clunking or explosive sound. The quantitative definition of impulsiveness is:

a variation in the emission of a noise where the difference between $L_{A\ peak}$ and $L_{A\ Max\ slow}$ is more than 15 dB when determined for a single representative event;

Major Road
Is a road with an estimated average daily traffic count of more than 15,000 vehicles.

Secondary / Minor Road
Is a road with an estimated average daily traffic count of between 6,000 and 15,000 vehicles.

Influencing Factor (IF)

$$= \frac{1}{10}(\%\ \text{Type A}_{100} + \%\ \text{Type A}_{450}) + \frac{1}{20}(\%\ \text{Type B}_{100} + \%\ \text{Type B}_{450})$$

where:

$\%\ \text{Type A}_{100}$ = the percentage of industrial land within a100m radius of the premises receiving the noise

$\%\ \text{Type A}_{450}$ = the percentage of industrial land within a 450m radius of the premises receiving the noise

$\%\ \text{Type B}_{100}$ = the percentage of commercial land within a100m radius of the premises receiving the noise

$\%\ \text{Type B}_{450}$ = the percentage of commercial land within a 450m radius of the premises receiving the noise

+ Traffic Factor (maximum of 6 dB)

= 2 for each secondary road within 100m

= 2 for each major road within 450m

= 6 for each major road within 100m

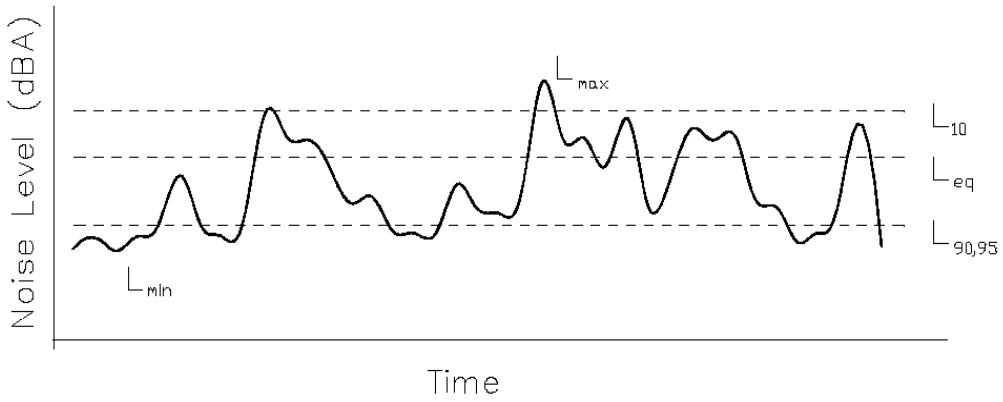
Representative Assessment Period
Means a period of time not less than 15 minutes, and not exceeding four hours, determined by an inspector or authorised person to be appropriate for the assessment of a noise emission, having regard to the type and nature of the noise emission.

Background Noise
Background noise or residual noise is the noise level from sources other than the source of concern. When measuring environmental noise, residual sound is often a problem. One reason is that regulations often require that the noise from different types of sources be dealt with separately. This separation, e.g. of traffic noise from industrial noise, is often difficult to accomplish in practice. Another reason is that the measurements are normally carried out outdoors. Wind-induced noise, directly on the microphone and indirectly on trees, buildings, etc., may also affect the result. The character of these noise sources can make it difficult or even impossible to carry out any corrections.

Ambient Noise
Means the level of noise from all sources, including background noise from near and far and the source of interest.

Specific Noise
Relates to the component of the ambient noise that is of interest. This can be referred to as the noise of concern or the noise of interest.

Chart of Noise Level Descriptors



Typical Noise Levels