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Application Details	
Application Type	Development Permit – Material Change of Use
Defined Use	Hotel
Street Address	2 Logan Road, Woolloongabba
Client	Stickybeak Wine Bar
Local Government Area	Brisbane City Council
Date	July 2024

In support of an application for

Material Change of Use (MCU) - Noise Impact Assessment

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2024/1546

Date: 19 November 2024



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Limitations

This report was prepared for the sole use of Stickybeak Wine Bar in accordance with generally accepted consulting practice. No other warranty, expressed or implied, is made as to the professional advice included in this report. This report has not been prepared for use by parties other than the client, the owner and their respective consulting advisors. It may not contain sufficient information for the purposes of other parties or for other uses. It is recommended that any works planned by others and relating specifically to the content of this report be reviewed by JT Environmental Pty Ltd to verify that the intent of our recommendations is properly reflected in the final design. To the best of our knowledge, information contained in this report is accurate at the date of issue.

Document Status					
Rev No.	Author	Reviewer	Approved for Issue		
			Name	Signature	Date
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1.0 EXECUTIVE SUMMARY

1.1 SITE DETAILS

Local Government Authority:	Brisbane City Council
Address of Site:	2 Logan Road, Woolloongabba
Client:	Stickybeak Wine Bar

1.2 APPLICATION DETAILS

Contact Person:	Tyson Dodd
Our Reference:	JT2291

2.0 INTRODUCTION

JT Environmental has been commissioned by Stickybeak Wine Bar to prepare a Noise Impact Assessment, to support a Development Application for a Material Change of Use (MCU) for the purpose of a Hotel use.

- 48 external upstairs with 10 in open external upstairs area and approx. 4 enclosed upstairs area
- 12 seated in the ground level outdoor Dining area

As demonstrated by the acoustic modelling will demonstrate, the use of the premise as a wine bar type usage for 120 patrons on-site is appropriate. Key points of the proposal:

- **4 tables provided to the Dining area Logan Road frontage at ground level and 3 upper level as demonstrated in the site plans. Located under the external awning;**
- **No live entertainment proposed demonstrated by the internal floor layout provided only background music commensurate with the target patrons with speakers located internally;**
- **Only permanently mounted background music speakers proposed with max 70dB(A) @ 1m to accommodate business type;**
- **Wine bar type usage as highlighted by the site plans;**

This report demonstrates that acoustic levels from this building are appropriate for the standard centre activities in accordance with the Brisbane City Council 2014 City Plan and Liquor Licence requirements.

The Plan Layout of the proposed MCU is presented in **Appendix A**.

The intent of this NIA is to provide direction to ensure that the proposed development operated in a manner that will achieve internal noise levels where appropriate for BCC City Plan 2014 code compliance for Mixed Use Zone considering the locality for proposed and adjoining sensitive receptors. Further to the BCC Criterion consideration of the Office of Liquor and Gaming Regulations (OLGR) Noise criteria of 75dB(A) will significantly be achieved given the use. Pen3D2000 modelling determination will be run with the point source as per the OLGR emission for resultant sensitive receptor exposure.

This NIA seeks to assess –

- Ambient noise levels;
- Noise control measures to ensure compliance with BCC criterion from patron noise - operations extended to 12am for internal patron usage.

This assessment has been conducted with reference to Australian Standard AS 1055:1997 *Description and Measurement of Environmental Noise* Parts 1, 2 and 3 and in accordance with the Queensland Environmental Protection (Noise) Policy 2019 [EPP(Noise)], the Environmental Protection Agency (EPA) Noise Measurement Manual (2000) and the Environmental Protection Agency's EcoAccess Guideline "Planning for Noise Control" (EcoAccess).

3.1 LIMITATIONS OF THE NIA

It is stressed that this NIA does not negate the need for site Owner/s, owner of the development to implement the recommendations of this report. The recommendations provided are to be implemented on site not only to gain the relevant development permits or approvals but to ensure that the site will maintain an appropriate level of environmental performance and most importantly, acoustic amenity. Further, compliance with this NIA does not necessarily exempt the operators from prosecution or ensure compliance with legislation.

3.0 SITE DESCRIPTION

4.1 SURROUNDING LAND USES



Figure 1: Outline of the site – Source: BCC



Figure 2: Outline of the site with aerial – Source: BCC

4.2 CLASSIFICATION AND ZONING

This site is zoned as District Centre with the nearest residential across Logan Road being the Mixed use with specific uses surrounding the site in addition to residential uses and approved uses.

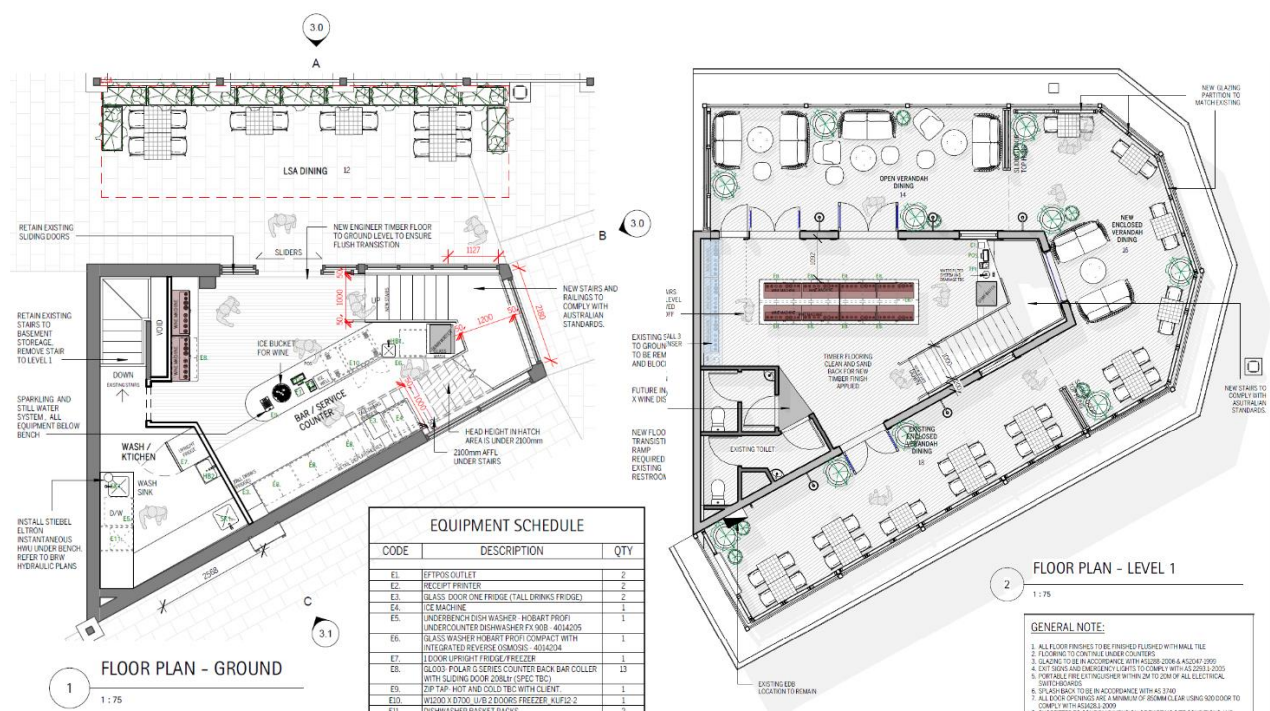


Figure 3: Proposed site floor plan – Source: Stickybeak Win and Bar

4.0 EXISTING PREMISE

The existing building is an irregular shape on the very corner of the proposal. The site is of solid facades with appropriately constructed for the proposed development which will serve to provide significant attenuation for the extension of the operational hours to 12am further justified by the ambient noise in the locality, dominated by traffic generated noise. As the proposal is for a wine bar type use dining area for the upmarket type patronage and use is considerate of the surrounding uses.

While it is noted that there are some “Sensitive receptor” to the west across Logan Road they are not subject to the same amenity criterion being within a Mixed-Use zone according to City Plan 2014. Consequently, the intrusive noise levels are current background + 5dB(A) and the acoustic amenity criterion is 55dB(A) daytime and 50dB(A) evening/night-time within the dwelling.

A detailed ambient monitoring regime has been completed for the locality at the zone.

5.0 EQUIPMENT AND PROCEDURES

6.1 INSTRUMENTATION

JT Environmental has conducted evening sampling on-site to determine the current extent of noise emissions from the subject site and in particular the roof mounted exhaust point source.

This was conducted with the following instruments were used to measure environmental noise impact levels.

- Norsonic 131 (Type 1) Noise Logger– Field Calibration of 94.3dB(A) prior to sampling and 94.1dB(A) post samplings
- Rion NC 73 Calibrator

The operation of the sound level measuring equipment was field calibrated to the reference signal and checked at the end of each measurement session to ensure it was within 0.5dB of the reference signal. All instrumentation used in this assessment hold a current calibration certificate from a certified NATA calibration laboratory.

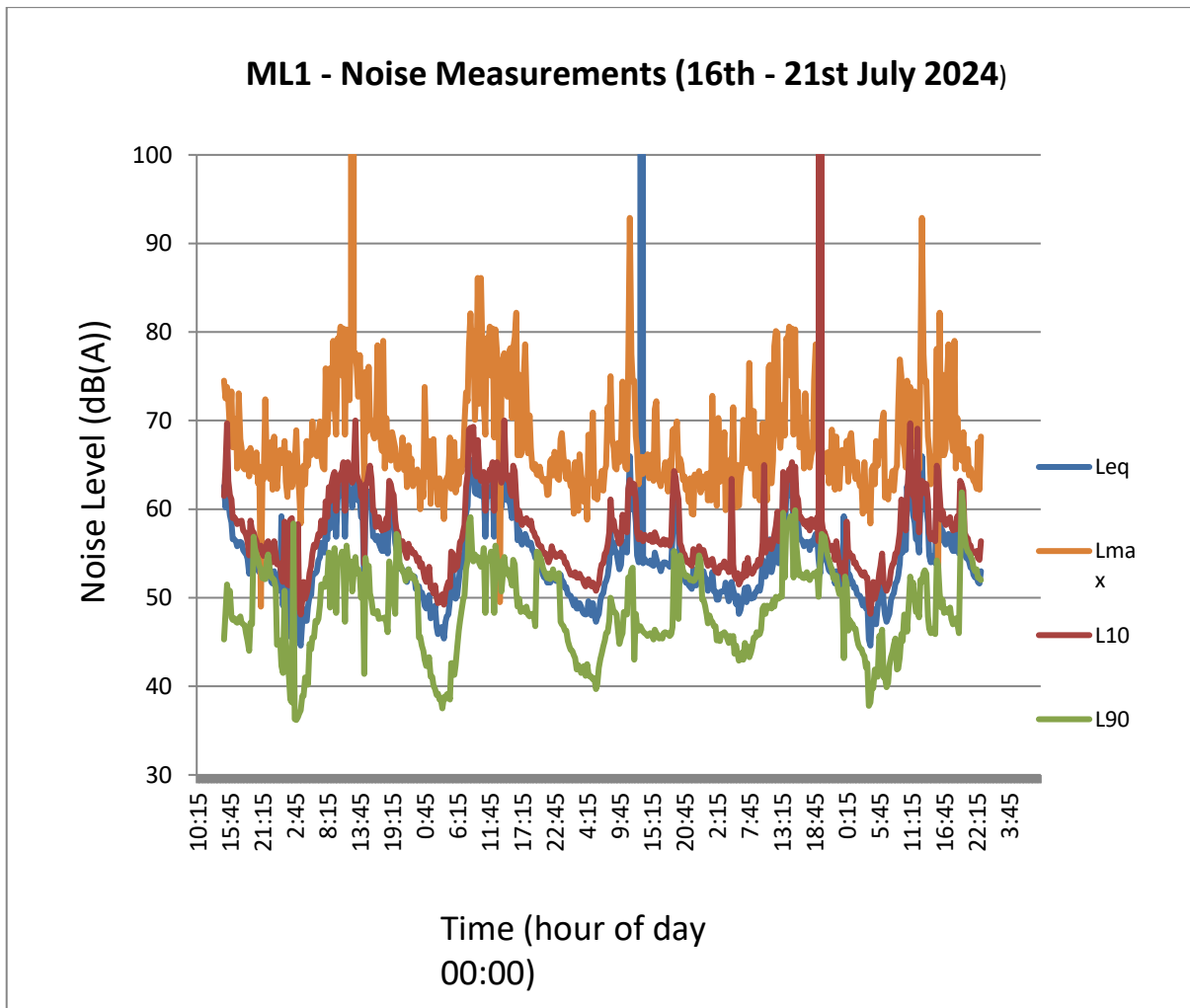
6.2 MEASUREMENT PROCEDURE

This site was chosen as it is the closest line of site point to the proposed use of the premise. Additionally, attended sampling monitoring was also conducted to provide the acoustic environment data for the 10-midnight periods as being applied for. **Table 1** in the following section provides the average statistical noise levels recorded by the noise level meter during the on-site monitoring.

Table 1: Ambient monitoring at ML1.

Parameter	Period	Recorded Noise Levels
Lmax	Daytime (7am-6pm)	73.6
	Evening (6pm-10pm)	66.1
	Nighttime (10pm-7am)	64.3
L10	Daytime (7am-6pm)	59.9
	Evening (6pm-10pm)	62.8
	18 Hour	60.1
	Nighttime (10pm-6am)	53.4
L90	Daytime (7am-6pm)	49.7
	Evening (6pm-10pm)	51.6
	Nighttime (10pm-7am)	45.7

Leq	Daytime (7am-6pm)	55.3
	Evening (6pm-10pm)	56.5
	Nighttime (10pm-7am)	50.4



6.0 NOISE PLANNING CRITERIA

7.1 MIXED USE ZONE OF CLOSEST RESIDENTIAL AREA TO THE WEST

The Brisbane City Plan 2014 provides the relevant criteria for the noise criteria within the centre or mixed-use zone code to ensure that the amenity for the locality is not detracted from as a result of development. PO1 (b) provides the relevant tables to be referred when meeting with the AO1.1 of this code – specifically to ensure development outside of the 6am to 10pm limited hours does not impact on a dwelling or sensitive use in the locality (**table 2**).

The performance outcomes and acceptable solutions have been addressed and compliance with the AO1.1 demonstrated through on-site ambient monitoring and attenuation calculations to ensure that surrounding uses are not affected by audible noise.

Intrusive noise criteria

Therefore with reference to table 9.3.3.3.F and H of the centre or mixed use code the following noise (planning) criteria is to be applied and achieved for the proposed extended operation hours on-site from the monitored ambient data:

- Day (11hr) – 55.3dB(A) +5 = 60.3dB(A) $L_{Aeq,adj,T}$ external
- Evening (4hr) – 56.5dB(A) + 5= 61.5dB(A) $L_{Aeq,adj,T}$ external
- Night (9hr) – 50.4dB(A) + 5 = 55.4dB(A) $L_{Aeq,adj,T}$ external

Acoustic Amenity Criteria:

- Day (11hr) – 55dB(A)
- Evening (4hr) – 50dB(A)
- Night (9hr) –45dB(A)
- **Table 1:** Ambient monitoring at ML1.

Night-time noise criteria is to be achieved for the proposed extended operation hours for the average of the highest 15 single L_{Amax} events over a given night (10pm-7am), is not to exceed **60dB(A)** external to a sensitive use. Average night-time ambient noise monitoring (T-15min) was identified as 64.3dB(A) L_{max} which confirms the traffic noise emissions within the immediate location of the intersection of Logan Road.

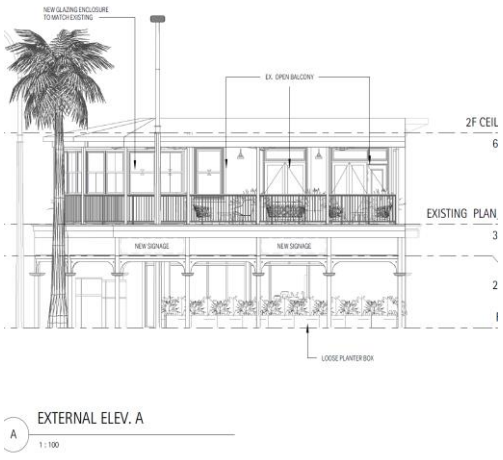
The absolute highest L_{Amax} event over a given night (10pm-7am) is not greater than the **70dB(A)** external to a sensitive use within the mixed use zone:

Table 9.3.3.3.A—Criteria for self-assessable and assessable development

Performance outcomes	Acceptable outcomes	JT Response

Section A—If for self-assessable or assessable development		
PO1 Development: (a) has hours of operation which are controlled so that the use does not detrimentally impact on the amenity of adjoining residents; (b) where not located in a Special entertainment precinct identified in a neighborhood plan, does not result in noise emissions that exceed the (c) noise (planning) criteria in Table 9.3.3.F (d) low frequency noise criteria in Table 9.3.3.3.G (e) and night-time noise criteria in Table 9.3.3.3.H in a sensitive zone or a nearby sensitive use.	AO1.1 Development: (a) for accommodation activities, dwelling unit or emergency services has unlimited hours of operation; (b) for a club, if licensed, function facility, hotel or nightclub entertainment facility does not generate noise which is clearly audible and detectable, or impacts on the amenity of a resident, in a dwelling or other sensitive use; Note—Development for a club, if licensed, function facility, hotel or nightclub entertainment facility is not expected to achieve this outcome. c. for any other use: i. where in the Principal centre zone or Major centre zone has unlimited hours of operation; ii. where in the District centre zone, Neighborhood centre zone or Mixed-use zone: (A) has hours of operation, including for deliveries, which are limited to 6am to 10pm; or (B) does not generate noise which is clearly audible and disturbing in	Given the extended hours of operation proposed (12-midnight), like existing Hotels within the Woolloongabba area the extensive background noise levels from road traffic and other noise sources provides high background levels. Only background music is proposed to address the BCC criterion. The ambient environment at this location has multiple retail uses including restaurants and outdoor dining which already occur to midnight. Furthermore, the locality is also exposed to significant transportation noise from Logan Road. i. As the site is located within a mixed-use zone hours of operation which result in no consideration of emissions is to 10pm. The proposed MCU proposes to operate to 12am. To note that this is an existing food premise. ii. External noise sources will include patrons within the external dining area (4 Tables ground level 3 on the upper level external). The external dining location has no speakers causing MUSIC. JT Environmental has conducted a predictive model to account for the external dining without façade attenuation. Internal and external dining (licensed premise) has been considered and any liquor licensing will be administered by OLGR. OLGR criterion will be achieved with no live entertainment proposed. Modelling of the external dining area and the open western façade for external dining has

	a dwelling or other sensitive use; (i) where in any other zone: (ii) A. has hours of operation, including for deliveries, which are limited to 6am to 8pm; or (iii) b. does not generate noise which is clearly audible and disturbing in a dwelling or other sensitive use.	demonstrated that the result external noise levels will not be clearly audible or disturbing. This is confirmed with an assessment of the monitoring data for this time period of ambient noises. Furthermore, the line of sight is intervened by the awning areas and the height of the premise western façade has not been modelled, demonstrating appropriate compliance with amenity criterion.
	AO1.2 Development ensures mechanical plant or equipment is acoustically screened from an adjoining sensitive use	Confirmed and previously addressed. There is no new plant and or equipment that will potentially cause impacts above the existing high background levels. NOTE for BCC, no new plant or equipment proposed for the roof. Mechanical Plant is to achieve a level of no more than 70SWL otherwise additional screening/mitigation is required.
PO7 Development mitigates impacts on residential amenity in or adjoining the building through: (a) providing an outdoor dining area that is appropriately located; (b) ensuring external dining and entertainment areas are visually and acoustically screened from an adjoining dwelling.	AO7 Development provides for external dining or entertainment areas to be: (a) located in or directly adjacent to the public realm; (b) visually and acoustically screened from an adjoining dwelling.	Response: a. Achieved. The external dining area is provided to the Logan Road frontage being the noisiest frontage for the locality will not serve to cause noise impact above the current background levels. b. The external dining area has the façade of the subject site intervening the line of site of the external dining area. This together with the proposed roof screens the external dining from the new building to the south. Given that the awning area is also incorporating a footpath thoroughfare, solid screening to the southern edge of the external dining is not proposed.

		 The building walls, line of site and the proposed awning prevent line of sight to the future residential units. PEN3D2000 modelling has demonstrates this.
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Noise Planning Criteria:

Criteria location	Intrusive noise criteria			Acoustic amenity criteria		
	Day, evening and night $L_{Aeq,adj,T}$ are not greater than the RBL plus the value in this column for the relevant criteria location, where T equals: - day – 11hr - evening – 4hr - night – 9hr			Day, evening and night $L_{Aeq,adj,T}$ are not greater than the values in the columns below for the relevant criteria location, where T equals: - day – 11hr - evening – 4hr - night – 9hr		
	Day	Evening	Night	Day	Evening	Night
At a sensitive use in the Mixed-use zone	5dB(A)			60dB(A)	55dB(A)	50dB(A)
Measured at ML1 RBL 10pm-12am	44.7	+5	49.7			
Measured at ML1 RBL 10pm-12am	44.6	+5	49.5			
Measured at ML1 RBL 10pm-12am	47.3	+5	52.3			
Measured at ML1 RBL 10pm-12am	48.4	+5	53.4			
Measured at ML1 RBL 10pm-12am removed as evident road works						
Adopted RBL Night-time	46.2		51.2			

Highest modelled façade noise level from external and internal = background music and additional 2 x 30 pax internal was =	27.3dB(A)@RL3-6
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Table 9.3.3.3.H—Night-time noise criteria

Criteria location	Where the existing $L_{Aeq,9hr\ night}$ at the criteria location is:	Average of the highest 15 single L_{Amax} events over a given night (10pm–7am) period is not greater than the following values at the relevant criteria location	The absolute highest single L_{Amax} event over a given night (10pm–7am) period is not greater than the following values at the relevant criteria location
External to a sensitive use located in a: Principal centre zone; Major centre zone; District centre zone; Neighbourhood centre zone; Specialised centre zone; Mixed use zone; Rural zone; Rural residential zone; Township zone.	Not applicable	65dB(A)	70dB(A)

AO1.1-AO1.2/PO1 of the Centre or mixed-use code:

AO1.1:

(iv) where in the District centre zone, Neighborhood centre zone or Mixed-use zone:

(C) has hours of operation, including for deliveries, which are limited to 6am to 10pm; or

Operational hours are to 12am. Deliveries will be restricted to 6am-6pm.

(D) does not generate noise which is clearly audible and disturbing in a dwelling or other sensitive use;

- **PEN3D2000 modelling has been conducted for the proposed table positions as detailed in the site plans.**
- **Receptor locations have been modelled as the façade of the receptors to the west of Logan Road.**
- **“clearly audible and disturbing in a dwelling” – highest external exposure for modelled (all external tables occupied) receptors was level 1-7 of the**

residential/short-term accommodation building . This does NOT account for balustrade for balconies and is EXTERNAL to the units – 27.3dB(A) Leq.

- Adopted average RBL 10pm-12am = 43.2dB(A)+5dB(A) = 48.2dB(A).
- This demonstrates that the external dining will not be audible and disturbing in the adjoining unit dwellings.

AO1.2: Development ensures mechanical plant or equipment is acoustically screened from an adjoining sensitive use:

Conditioning for Plant and Equipment can be completed. Once any additional plant/equipment is known, direct monitoring to confirm no exceedance of background levels will be applied. Any additional screening can be provided to BCC as proof of fulfillment. Plant modelled at 70dB(A) SPL. Plant to be screened to achieve.

An inspection of the existing site of the premise has identified that the wall is a fire rated wall with core filled block work.

There are numerous examples of food & drink outlets in the immediate locality (particularly in the *Woolloongabba Antique Precinct*) that have extended hours of operation (i.e. operating after 10pm). Given the proposal will occur within an existing built form and will have hours of operation that are controlled, there are no adverse or detrimental impacts on the adjoining residential property. Therefore, compliance with performance outcome PO1 of the Centre or mixed-use code is achieved.

Table 9.3.3.3.G—Low frequency noise criteria

Criteria location	Day (7am-6pm) L _{Ceq,adj,11hr} is not greater than the following values at the relevant criteria location	Evening (6pm-10pm) L _{Ceq,adj,4hr} is not greater than the following values at the relevant criteria location	Night (10pm-7am) L _{Ceq,adj,9hr} is not greater than the following values at the relevant criteria location
At a sensitive use in the Mixed use zone	75dB(C)	75dB(C)	70dB(C)
			ACHIEVED

As can be seen in section 8.1

7.0 MEASURED NOISE LEVELS

8.1 MEASURED SOURCE NOISE LEVELS

The maximum-recorded (worst-case scenario) source noise levels were calculated at 3-metres from the internal speakers by this consultancy. The external ambient background noise levels have been established at the northern boundary for security at ML1. The Octave band sampling was determined for the worst-case scenario with fluctuations across the Octave Band levels.

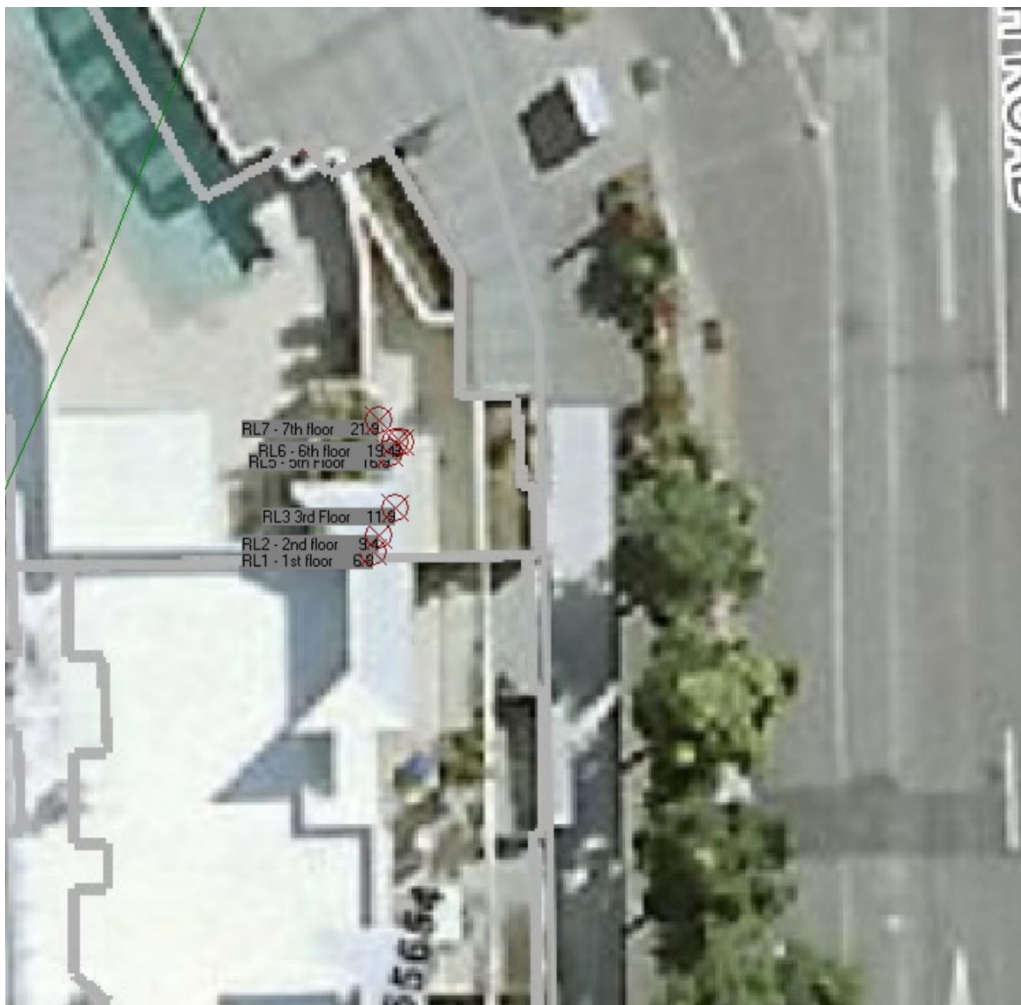


Figure 5: Identified receptor locations.

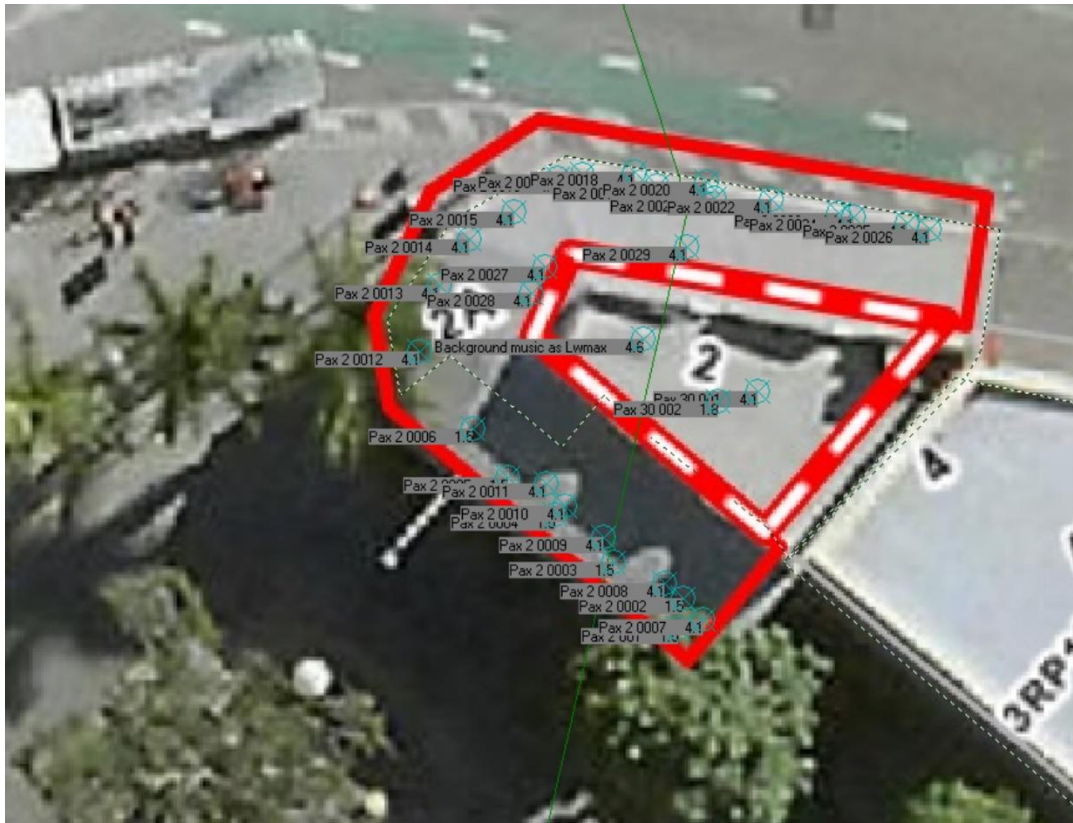


Figure 5.1: Identified noise source locations.

Source Noise levels adopted from Hayne et Al, 2011.

Sources						
	Leq	Sound press	Lwmax	RW Adjusted	Lweq	RW Adjusted
2 Pax Outdoor tables only	49.3	60	84.3			
30Pax	74		97.2	62.2	86.1	51.1
40Pax	76.6		98.6	63.6	88	53
DOSA		93.7				
Plant roof	61		69			
Background music			70	35		

For the purposes of the assessment the tables have been established with 2 Pax sources, with an additional 2 x 30pax source (1 on each level) to account for internal standing foot traffic.

8.0 ASSESSMENT OF NOISE IMPACT FOR OLGR

PEN3D2000 MODELLING SOFTWARE AND SUITABILITY

A digital terrain noise model of the site and surroundings has been developed using PEN3D. The PEN3D General Prediction Model (GPM) is based on the method documented by Bies & Hansen (1988 pages 117, 127). The implementation is a more complex variation of the approach to sound propagation described in Concawe. Concawe is one of the most commonly used methodologies to predict outdoor noise propagation from industrial sites. PEN also draws on aspects from ISO 9613-2. The PEN3D software was originally developed in 1993 and has been in constant development and review since. The basic equation adopted by the GPM is:

$$L_p = L_w - 20 \log_{10}(r) - 10 \log_{10}(4\pi) + AE$$

Where

L_p is the sound pressure level at an observer

L_w is the sound power level of the source, in octave bands from 63 Hz to 8kHz
 $20 \log_{10}(r) + 10 \log_{10}(4\pi)$ is the distance attenuation (spherical)
 AE is the excess attenuation factors.

The excess attenuation factors AE comprise:

$$AE = A_a + A_g + A_m + A_b + A_f$$

Where:

A_a = Excess attenuation due to air absorption from Sunderland et. al.

A_g = Excess attenuation due to ground reflection

A_m = Excess attenuation due to meteorological effects

A_b = Excess attenuation due to barriers

A_f = Excess attenuation due to forests.

PEN is a sophisticated environmental noise model incorporating a 3D terrain model that permits accurate representation of the ground, ground cover, tree zones, mounds, barriers and weather conditions. PEN calculates a curved noise path based on surface friction, vertical temperature gradients and wind speed. All the noise calculations are based on this curved path. A finite differences approximation method is used to calculate the curved path. The curvature of the path determines the meteorology corrections. The meteorology corrections are frequency and distance dependent and are limited to +12 dB (downwind at night) and -7 dB (upwind and during the day) similar to the Concawe Category 1 and Category 6 meteorological corrections.

The excess attenuation due to ground reflection is obtained by combining the direct wave and the reflected wave incoherently, that is the energy from the ground wave is added to the direct wave. The ground reflection attenuation (or ground effects) will be between 0 and -3dB (a negative value is an increase in noise levels) for all cases. This contrasts with the coherent reflection approach. The coherent approach is considered to be an “exact” method. For those situations where the source and receiver are located close to the same very hard reflecting plane and the path difference between the direct path and the reflected path is small, then the addition of the reflected wave and the direct wave will result in 6 dB increases rather than a 3 dB increase. However, at large distances the sound pressure level reduces at 12 dB per doubling with the coherent model (not 6 dB as per the incoherent model). This approach, while “exact”, is dubious as DTM models are neither of sufficient accuracy nor can noise models truly account for the effects of atmospheric turbulence.

Other methods such as the Nordic method or ISO 9613-2 divide the region between the source and receiver into three zones, and those zones closest to the source and to the receiver can potentially have higher absorption values. Consequently, if a noise source was measured say at a distance of 30 m and the sound power level is calculated by the commonly adopted formula $PWL = SPL + 10\log_{10}(2 \pi r^2)$ then the calculations using the PEN3D methodology would remain conservatively high for all distances.

The ground reflection (or ground effects) is a complex calculation using the flow resistivity for the surface likely to provide the ground reflection and the likely angle of incidence of the reflected wave to the ground. In those instances where the ground is highly absorptive the excess correction will approach zero. For those surfaces which are highly reflective the correction will be -3dB, i.e. will lead to an increase in noise levels of 3dB(A) (simulates hemispherical propagation).

While there are numerous methods to calculate ground effect (some of which providing significant attenuation (reduction of noise levels)), the PEN implementation is one of the more conservative estimates of ground effect in the far field. In the opinion of Bies & Hansen 1988, “as the distance from the source or frequency increases, the incoherent model will become more appropriate”.

The theoretical approach to meteorology implies that PEN is likely to provide more significant corrections than other models. Thus, at night or during downwind predictions, the PEN calculations are likely to result in conservatively high results.

The likely barrier attenuations are calculated for four possible curved paths, namely:

- source, to the top of barrier then to the receiver;
- source, reflection from ground (source side), top of barrier, receiver;
- source, top of barrier, reflection from ground (receiver side), receiver, and;
- source, reflection from ground (source side), top of barrier, reflection from ground (receiver side), receiver.

These are combined to obtain effective barrier attenuation. In the situation where the source and receiver are well above the ground and the barrier just intercepts line-of-sight then the barrier effect will be 5 dB(A). However, if the source and receiver are close to the ground and the noise barrier just intercepts line of sight (a pebble) the barrier effect will tend to zero. Once the most likely curved path has been calculated, the method determines if it intercepts any tree zones within the digital terrain model. If the curved noise path travels in the lower 75% of the tree zone then the full excess attenuation is applied for the distance travelled in the tree zone. If the curved noise path travels in the upper 25% of the tree zone then:

Potentially tree zones can provide extremely high attenuations if the coverage of tree zones are large. However, in practice, the curved path adopted in the PEN methodology usually results in the noise rays passing above the tree zones (at night or during downwind conditions) and only intercepting tree zones if they exist on the tops of hills or whenever the noise ray approaches the ground. Tree zones can potentially provide higher than expected attenuations during calm neutral conditions.

9.1 EXTERNAL DINING NOISE EMISSIONS

Modelling assumptions for the proposed Hotel usage (120-patrons including 10 external at 5 tables):

1. Noise Sources: 7 external dining tables (4 on lower level and 3 on upper open veranda) have been modelled at the designated external dining area to Logan Road.
2. Receptors: 7 receptors (1 for each floor) vertical at the closest point of the apartment/short-term accommodation building located to the south-east of the site have been modelled. The modelling output demonstrates the height of the receptor at each floor level (6.8m, 9.4, 11.9, 14.4, 16.9, 19.4m, 21.9m).
3. **No** reduction/correction for solid balustrade at the receptors has been included and as PEN3D2000 includes FC (façade corrected levels) for receptors the modelling results are external to the façade.
4. There is **NO** correction for roofed covers (horizontal screening awning) to the external dining area as PEN3D2000 does not provide for horizontal acoustic screening.

Resultant emissions per source at each receptor - Leqt - 120pax + background Music

Pen3D2000 V 1.10.0

Project Code:JB...

Project Description:Noise assessment of ...

File:C:\Users\User\JT Environmental Dropbox\Tyson Dodd\JT2291 - 2 Logan Road, Woolloongabba\Latest All emissions 120 Pax.PEN

File Description:Data file covering area

Thursday 01 Aug, 2024 at 07:51:52

Environmental Calculations

All point and line sources included. Line source segmentation angle: 10 degrees. Calculations for specified meteorology.

Noise level results are the logarithmic addition of all the noise sources

Noise level results incorporate the incoherent ground reflection algorithm

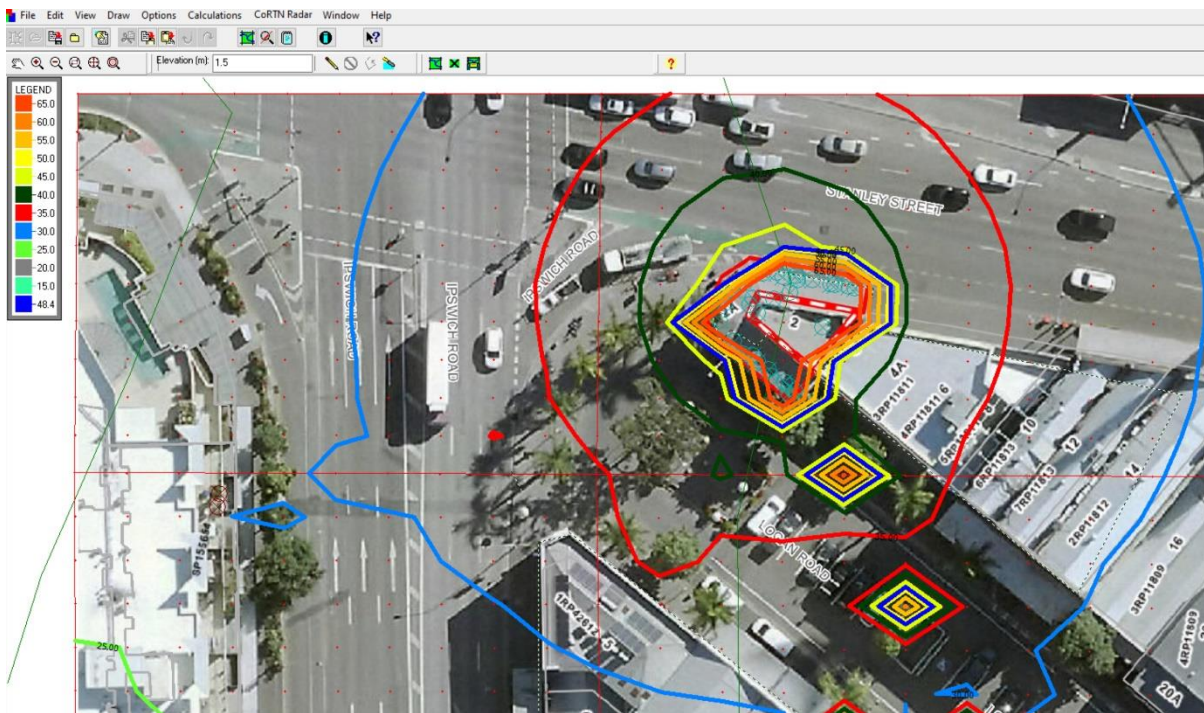
Meteorology :

Wind speed 0.0 (m/s) Wind direction 0 Mast height 10.0 (m)

Temperature 20.0 (C) Temperature Gradient 0.0 (C/100m) Humidity 50.0 (%)

Surface Roughness of terrain 0.023000000 (m) Zero plane offset 0.080000000 (m)

Receptor	X Posn	Y Posn	Height	Noise Level
	(m)	(m)	(m)	(dB(A))
RL1 - 1st floor	503528.5	6959641.0	6.8	27.2
RL2 - 2nd floor	503528.7	6959641.5	9.4	27.2
RL3 3rd Floor	503529.1	6959642.2	11.9	27.3
RL4 - 4th Floor	503529.3	6959643.9	14.9	27.3
RL5 - 5th Floor	503529.0	6959643.6	16.9	27.3
RL6 - 6th floor	503529.1	6959643.9	19.4	27.3
RL7 - 7th floor	503528.7	6959644.5	21.9	27.0



9.4 EXTERNAL PLANT OR EQUIPMENT

The precise scale of the fixed plant (if additional is required) and equipment is currently unknown given that this project is at the DA stage however given the recent inspection of the premises, it is expected that additional screening can be facilitated where necessary. However, where additional fixed plant and equipment are to be installed, it requires an assessment in accordance with the AS2107 methodology. The criteria in this regard are: The maximum recommended design sound levels stated in Table 1 of AS2107. BCC criterion of background +5/3, is not appropriate given this type of equipment operates on a L_{eq} noise emission parameter.

Assuming that any fixed plant and equipment may be required to operate at any time, from Table 1 of AS2107 the minimum design sound level to be achieved at the nearest residential area this office has adopted 40dB (A) L_{eq} internal, being that for sleeping areas for houses and apartments near major noise sources. Given that ambient noise monitoring conducted at the closest receptors, it is apparent that the L_{eq} noise levels in the locality are sufficient for the location and the existing uses within the vicinity.

As for the night-time and sleeping area assessments where equipment has been left on, the specific construction of the nearest residences is not known from a façade reduction calculation. However a maximum 5-dB (A)-noise transmission loss through the façade must be assumed through an open window. HOWEVER for clarity and worst-case scenario documentation, it is important to note that the locality, in which the proposal is located, is already exposed to high levels of background noise levels. The current external L_{eq} levels

during the night-time are in the order of 49 dB(A) L_{eq} . Therefore, the criterion noise level to be achieved is 45 dB (A) external to the nearest residence.

Given the separation distance from the nearest part of the centre for where fixed plant and equipment may be located, to the adjacent residences, the following provides advice on the level of noise emission to be achieved for fixed plant and equipment.

Distance separation to the nearest receptor: 50-metres (r_2) from the closest possible roof top location

Noise loss over distance: $44\text{-dB (A)} = (\text{from } 10\log(4.\pi.r_2) - \text{Screening reduction for line of sight} - 4\text{db(A)})$

Criterion Noise Level external: 40-dB (A)

Therefore, fixed plant and equipment noise level should not exceed:

$44 + 40 = 84\text{ dB (A) SWL}$ – combined resultant noise level from all required fixed plant or equipment, not a single component noise level. There are numerous air conditioners etc on the market at the moment that is generally able to achieve the abovementioned criterion of 84-dB (A) SWL, however it is recommended that external roof top plant be limited to 70dB(A) SWL.

Recommended conditioning of roof plant to be 70dB(A) L_{eq} for monitoring purposes.

Furthermore, where roof mounted plant and equipment are not able to achieve this component level, additional screening is required in the form of screening enclosures on 4-sides. Combinations of screening can be utilised where required with the use of reverberation reducing rubber mounts and perforated screening panels, of where located internally and additional attenuation is required and appropriate enclosure with sound reduction capabilities. This is to be established at the prior to commencement of use and certification of the abovementioned emissions criterion from JT Environmental can be provided to BCC through Proof of Fulfilment.

9.0 CONCLUSIONS

For the application at 2 Logan Road for a hotel use with a wine bar style patronage proposed. Stickybeak Wine Bar proposed to be this tenant will operate to 12am with the high-end patronage provided for with dining. 7 external tables will be utilised with an additional 11-12 in the enclosed upper area dining proposed after 10pm to 12am. A modelling allowance has also provided for a 30Pax of patrons at the bar for tasting etc with a total of 120Pax modelled for the site.

10.0 RECOMMENDATIONS

This Noise Impact Assessment has been prepared to determine the operational noise levels that the building façade can attenuate to achieve the external noise criteria of Background +5dB(A) L10 fast response and associated existing background noise levels.

However, based on the experience of this consultancy and the modelling regime employed the following recommendations for the operational noise levels is made.

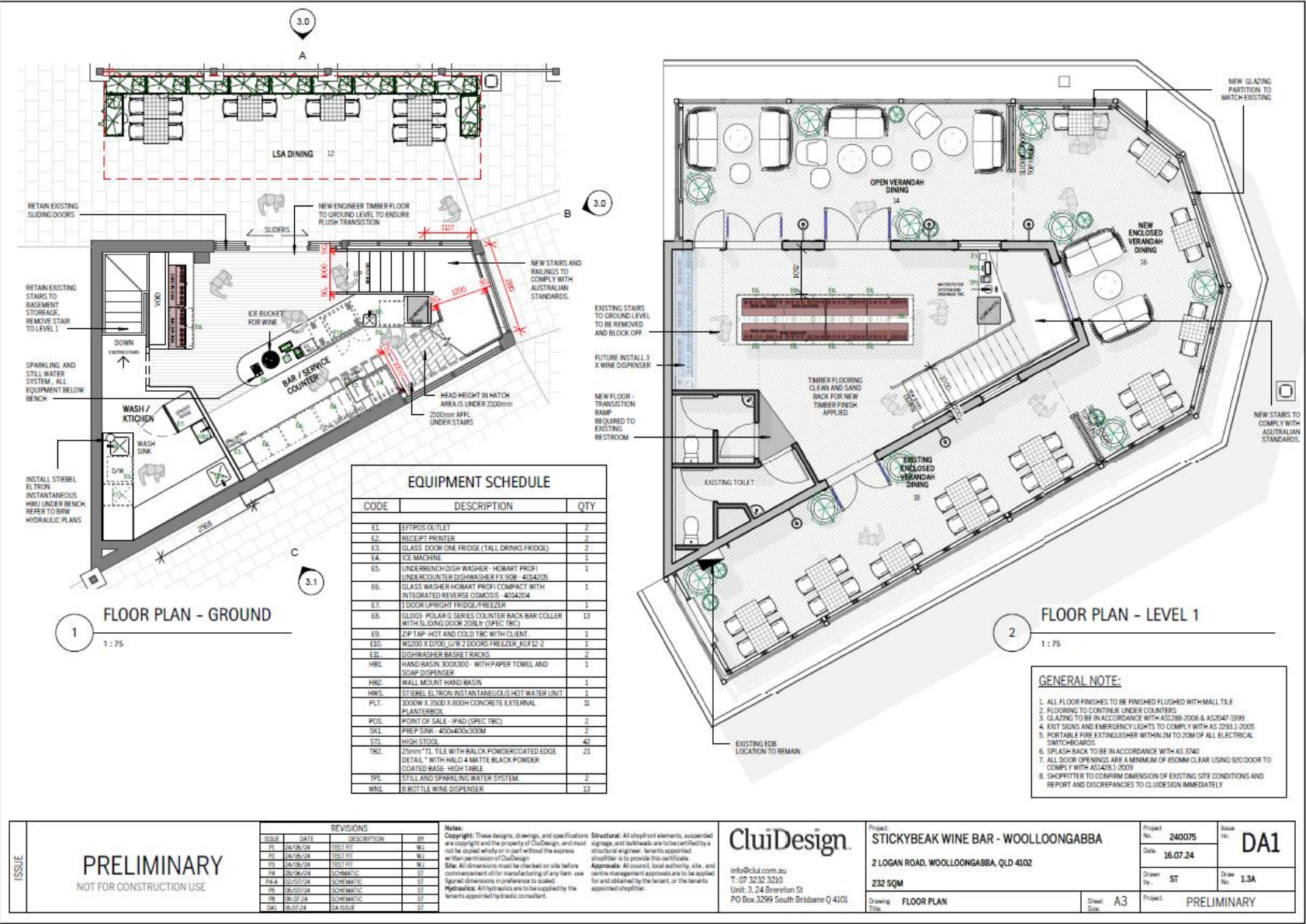
PEN3D2000 modelling presented for the external dining proposed with this application indicated compliance with the code being “**not clearly audible and disturbing in a dwelling**” in addition to the existing plant and equipment and identification of the max required emission level for any future plant and equipment for the extended operation hours from 10pm to 12 midnight. The criteria from the centre or mixed-use zone code have been presented below.

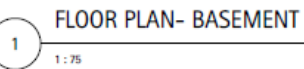
*Night-time noise criteria is to be achieved for the proposed extended operation hours for the average of the highest 15 single L_{Amax} events over a given night (10pm-7am), is not to exceed **65dB(A)** external to a sensitive use. - **Complies***

*The absolute highest L_{Amax} event over a given night (10pm-7am) is not greater than the **70dB(A)** external to a sensitive use within the neighbourhood centre zone: - **Complies***

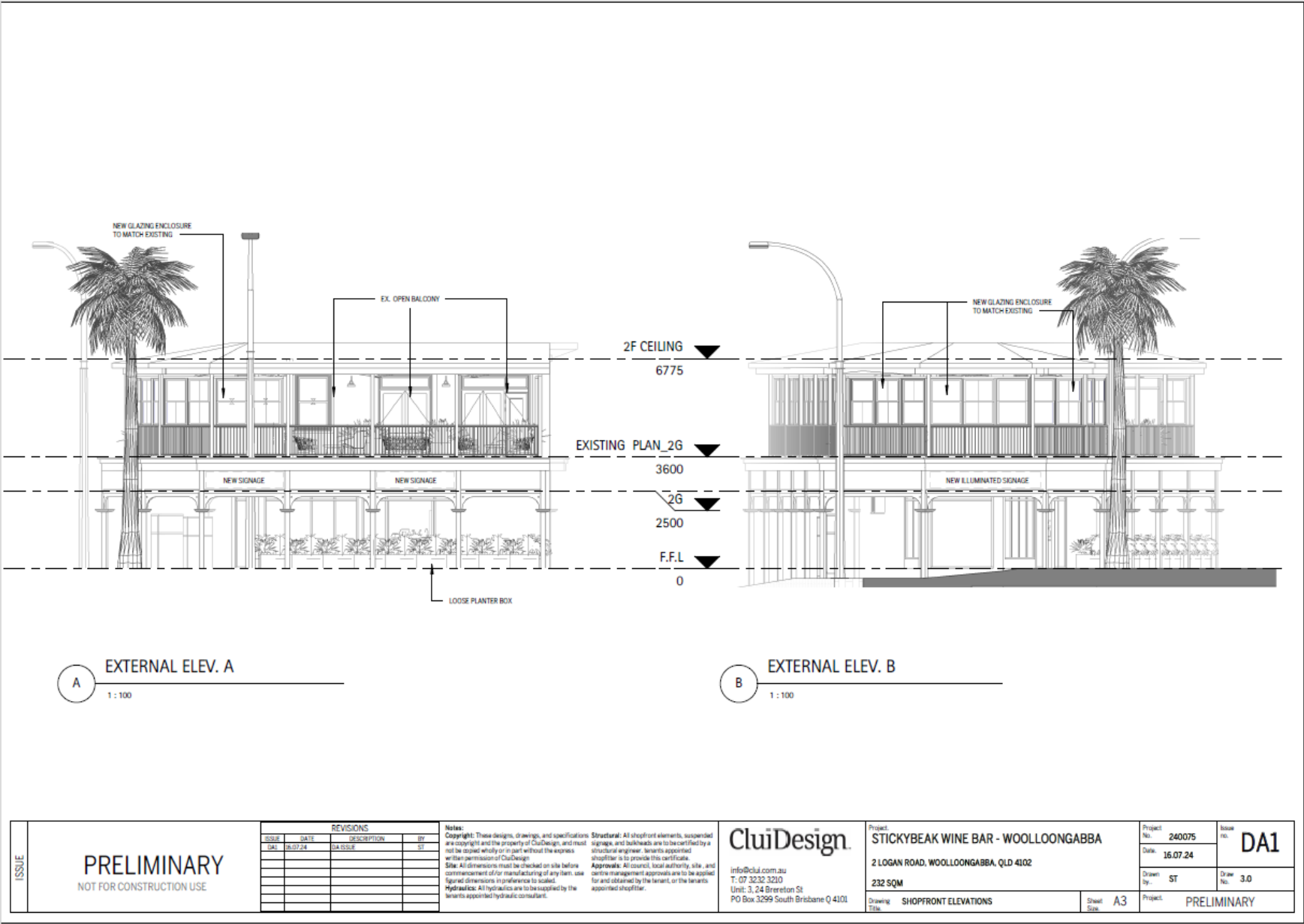
No live entertainment is proposed but background levels conducive to the proposed. Modelled speaker levels @ 1m of L_{max} 70dB(A) for monitoring purposes.

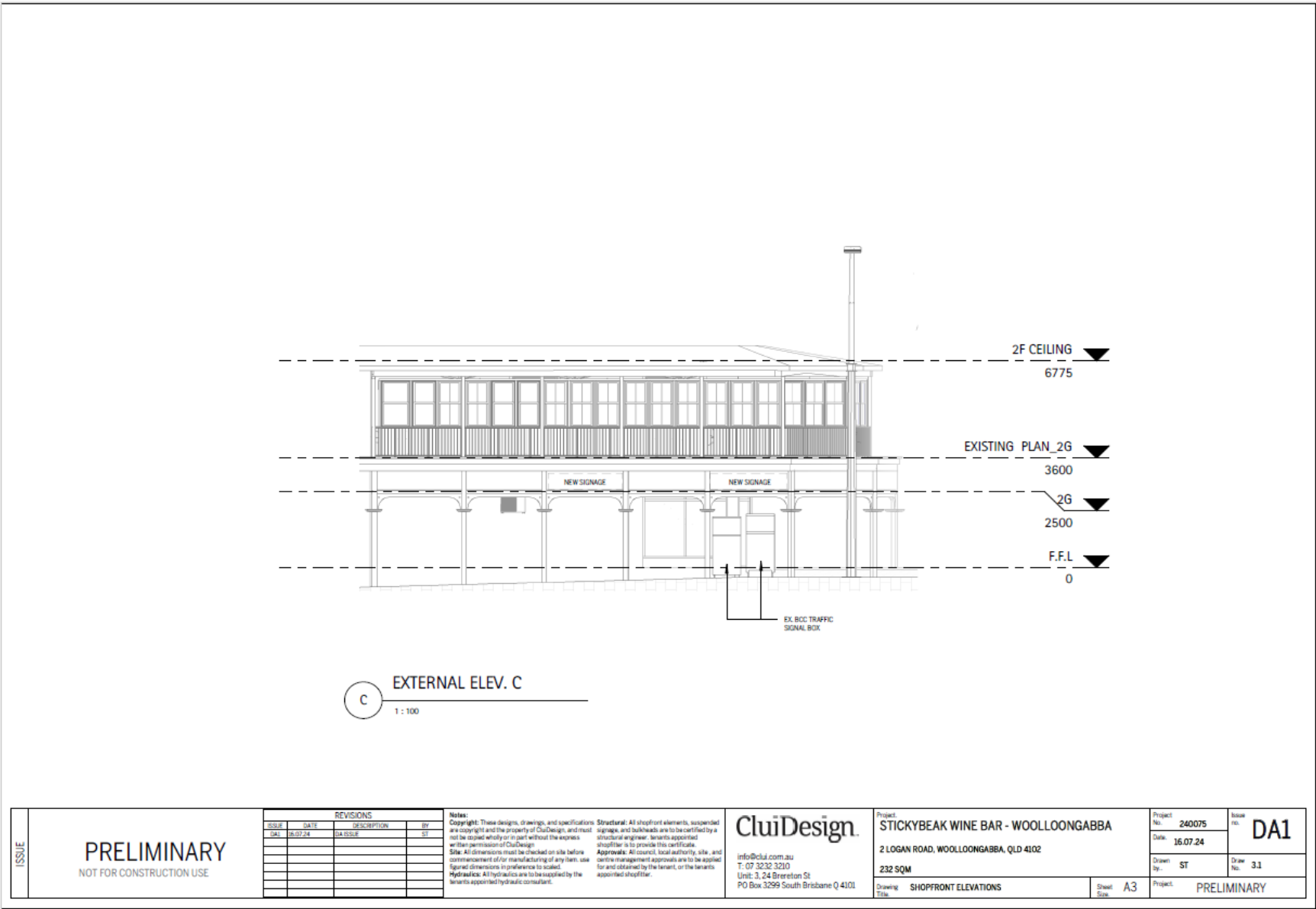
11.0	APPENDIX
12.1	APPENDIX A – SITE PLANS



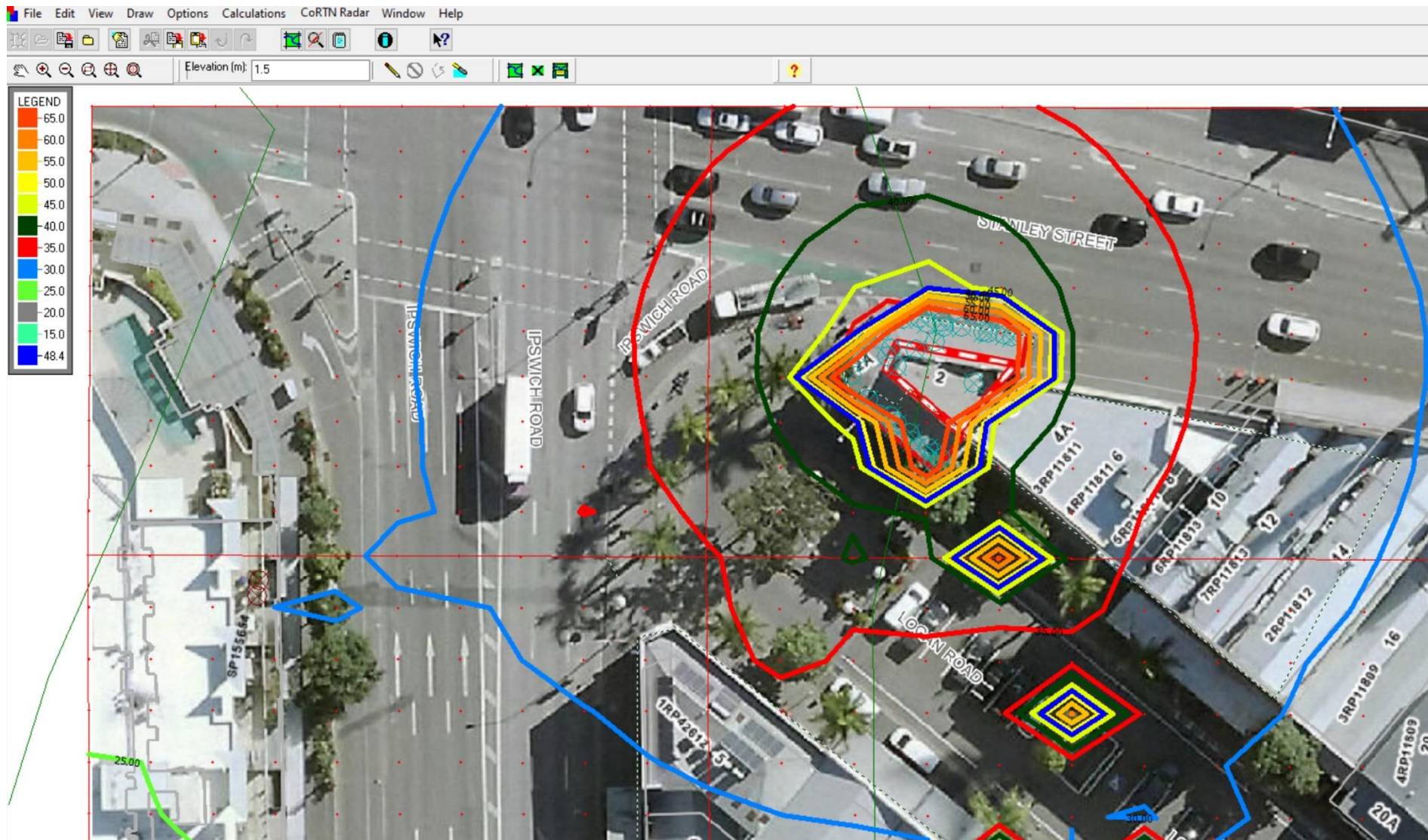


Noise Impact Assessment – 2 Logan Road, Woolloongabba





12.2 APPENDIX B – PEN3D2000 NOISE CONTOURS



12.3 APPENDIX C – PEN3D2000 OUTPUT FILES

Resultant emissions per source at each receptor - Leqt

Pen3D2000 V 1.10.0

Project Code:JB...

Project Description:Noise assessment of ...

File:C:\Users\User\JT Environmental Dropbox\Tyson Dodd\JT2291 - 2 Logan Road, Woolloongabba\Latest All emissions 120 Pax.PEN

File Description:Data file covering area

Thursday 01 Aug, 2024 at 07:52:28

Environmental Calculations

All point and line sources included. Line source segmentation angle: 10 degrees. Calculations for specified meteorology.

Noise level results are the logarithmic addition of all the noise sources

Noise level results incorporate the incoherent ground reflection algorithm

Meteorology :

Wind speed 0.0 (m/s) Wind direction 0 Mast height 10.0 (m)

Temperature 20.0 (C) Temperature Gradient 0.0 (C/100m) Humidity 50.0 (%)

Surface Roughness of terrain 0.023000000 (m) Zero plane offset 0.080000000 (m)

Receptor	X Posn	Y Posn	Height	Noise Level
	(m)	(m)	(m)	(dB(A))
RL1 - 1st floor	503528.5	6959641.0	6.8	27.2
Source	X Posn	Y Posn	Height	Noise Level
	(m)	(m)	(m)	(dB(A))
Pax 2 001	503593.9	6959645.7	1.5	2.3
Pax 2 0002	503594.0	6959646.6	1.5	2.3
Pax 2 0003	503592.0	6959647.6	1.5	2.5
Pax 2 0004	503590.3	6959649.0	1.5	2.7
Pax 2 0005	503589.0	6959650.1	1.5	2.9
Pax 2 0006	503587.9	6959651.6	1.5	3.0
Pax 2 0007	503594.6	6959645.9	4.1	2.1
Pax 2 0008	503593.5	6959647.0	4.1	2.2
Pax 2 0009	503591.7	6959648.4	4.1	2.5
Pax 2 0010	503590.6	6959649.3	4.1	2.6
Pax 2 0011	503590.1	6959650.0	4.1	2.7
Pax 2 0012	503586.4	6959653.8	4.1	-24.0
Pax 2 0013	503587.0	6959655.8	4.1	-24.0
Pax 2 0014	503587.9	6959657.1	4.1	-24.2
Pax 2 0015	503589.2	6959657.9	4.1	-24.2
Pax 2 0016	503590.5	6959658.9	4.1	-24.4
Pax 2 0017	503591.2	6959659.0	4.1	-24.3
Pax 2 0018	503592.8	6959659.0	4.1	-24.0
Pax 2 0019	503593.4	6959658.6	4.1	-23.8
Pax 2 0020	503594.9	6959658.7	4.1	-23.7
Pax 2 0021	503595.1	6959658.2	4.1	-23.6
Pax 2 0022	503596.8	6959658.2	4.1	-23.4
Pax 2 0023	503598.7	6959657.7	4.1	-23.2
Pax 2 0024	503599.1	6959657.6	4.1	-23.2
Pax 2 0025	503600.7	6959657.4	4.1	-23.1
Pax 2 0026	503601.4	6959657.2	4.1	-23.1

	Pax 2 0027	503590.1	6959656.3	4.1	-23.8	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.8	
	Pax 2 0029	503594.3	6959656.8	4.1	-23.5	
	Pax 30 001	503596.3	6959652.6	4.1	-0.3	
	Pax 30 002	503595.1	6959652.3	1.8	27.0	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.9	
	Receptor	X Posn	Y Posn	Height		Noise Level
		(m)	(m)	(m)		(dB(A))
	RL2 - 2nd floor	503528.7	6959641.5	9.4		27.2
	Source	X Posn	Y Posn	Height	Noise Level	
		(m)	(m)	(m)	(dB(A))	
	Pax 2 001	503593.9	6959645.7	1.5	2.1	
	Pax 2 0002	503594.0	6959646.6	1.5	2.1	
	Pax 2 0003	503592.0	6959647.6	1.5	2.4	
	Pax 2 0004	503590.3	6959649.0	1.5	2.6	
	Pax 2 0005	503589.0	6959650.1	1.5	2.8	
	Pax 2 0006	503587.9	6959651.6	1.5	2.9	
	Pax 2 0007	503594.6	6959645.9	4.1	2.0	
	Pax 2 0008	503593.5	6959647.0	4.1	2.2	
	Pax 2 0009	503591.7	6959648.4	4.1	2.4	
	Pax 2 0010	503590.6	6959649.3	4.1	2.5	
	Pax 2 0011	503590.1	6959650.0	4.1	2.6	
	Pax 2 0012	503586.4	6959653.8	4.1	-23.9	
	Pax 2 0013	503587.0	6959655.8	4.1	-24.0	
	Pax 2 0014	503587.9	6959657.1	4.1	-24.2	
	Pax 2 0015	503589.2	6959657.9	4.1	-24.2	
	Pax 2 0016	503590.5	6959658.9	4.1	-24.4	
	Pax 2 0017	503591.2	6959659.0	4.1	-24.2	
	Pax 2 0018	503592.8	6959659.0	4.1	-23.9	
	Pax 2 0019	503593.4	6959658.6	4.1	-23.8	
	Pax 2 0020	503594.9	6959658.7	4.1	-23.6	
	Pax 2 0021	503595.1	6959658.2	4.1	-23.5	
	Pax 2 0022	503596.8	6959658.2	4.1	-23.3	
	Pax 2 0023	503598.7	6959657.7	4.1	-23.0	
	Pax 2 0024	503599.1	6959657.6	4.1	-23.0	
	Pax 2 0025	503600.7	6959657.4	4.1	-22.9	
	Pax 2 0026	503601.4	6959657.2	4.1	-22.9	
	Pax 2 0027	503590.1	6959656.3	4.1	-23.7	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.7	
	Pax 2 0029	503594.3	6959656.8	4.1	-23.4	
	Pax 30 001	503596.3	6959652.6	4.1	-0.2	
	Pax 30 002	503595.1	6959652.3	1.8	27.0	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.8	
	Receptor	X Posn	Y Posn	Height		Noise Level
		(m)	(m)	(m)		(dB(A))
	RL3 3rd Floor	503529.1	6959642.2	11.9		27.3
	Source	X Posn	Y Posn	Height	Noise Level	
		(m)	(m)	(m)	(dB(A))	
	Pax 2 001	503593.9	6959645.7	1.5	2.1	
	Pax 2 0002	503594.0	6959646.6	1.5	2.1	
	Pax 2 0003	503592.0	6959647.6	1.5	2.3	
	Pax 2 0004	503590.3	6959649.0	1.5	2.6	
	Pax 2 0005	503589.0	6959650.1	1.5	2.7	
	Pax 2 0006	503587.9	6959651.6	1.5	2.9	
	Pax 2 0007	503594.6	6959645.9	4.1	2.0	
	Pax 2 0008	503593.5	6959647.0	4.1	2.2	
	Pax 2 0009	503591.7	6959648.4	4.1	2.4	
	Pax 2 0010	503590.6	6959649.3	4.1	2.6	

	Pax 2 0011	503590.1	6959650.0	4.1	2.7	
	Pax 2 0012	503586.4	6959653.8	4.1	-23.8	
	Pax 2 0013	503587.0	6959655.8	4.1	-23.9	
	Pax 2 0014	503587.9	6959657.1	4.1	-24.1	
	Pax 2 0015	503589.2	6959657.9	4.1	-24.0	
	Pax 2 0016	503590.5	6959658.9	4.1	-24.3	
	Pax 2 0017	503591.2	6959659.0	4.1	-24.1	
	Pax 2 0018	503592.8	6959659.0	4.1	-23.8	
	Pax 2 0019	503593.4	6959658.6	4.1	-23.6	
	Pax 2 0020	503594.9	6959658.7	4.1	-23.4	
	Pax 2 0021	503595.1	6959658.2	4.1	-23.3	
	Pax 2 0022	503596.8	6959658.2	4.1	-23.0	
	Pax 2 0023	503598.7	6959657.7	4.1	-22.7	
	Pax 2 0024	503599.1	6959657.6	4.1	-22.7	
	Pax 2 0025	503600.7	6959657.4	4.1	-22.6	
	Pax 2 0026	503601.4	6959657.2	4.1	-22.6	
	Pax 2 0027	503590.1	6959656.3	4.1	-23.6	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.6	
	Pax 2 0029	503594.3	6959656.8	4.1	-23.2	
	Pax 30 001	503596.3	6959652.6	4.1	-0.4	
	Pax 30 002	503595.1	6959652.3	1.8	27.1	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.6	
	Receptor	X Posn	Y Posn	Height		Noise Level
		(m)	(m)	(m)		(dB(A))
	RL4 - 4th Floor	503529.3	6959643.9	14.9		27.3
	Source	X Posn	Y Posn	Height	Noise Level	
		(m)	(m)	(m)	(dB(A))	
	Pax 2 001	503593.9	6959645.7	1.5	2.0	
	Pax 2 0002	503594.0	6959646.6	1.5	2.0	
	Pax 2 0003	503592.0	6959647.6	1.5	2.3	
	Pax 2 0004	503590.3	6959649.0	1.5	2.5	
	Pax 2 0005	503589.0	6959650.1	1.5	2.7	
	Pax 2 0006	503587.9	6959651.6	1.5	2.8	
	Pax 2 0007	503594.6	6959645.9	4.1	2.0	
	Pax 2 0008	503593.5	6959647.0	4.1	2.2	
	Pax 2 0009	503591.7	6959648.4	4.1	2.4	
	Pax 2 0010	503590.6	6959649.3	4.1	2.6	
	Pax 2 0011	503590.1	6959650.0	4.1	2.7	
	Pax 2 0012	503586.4	6959653.8	4.1	-23.7	
	Pax 2 0013	503587.0	6959655.8	4.1	-23.8	
	Pax 2 0014	503587.9	6959657.1	4.1	-24.0	
	Pax 2 0015	503589.2	6959657.9	4.1	-24.0	
	Pax 2 0016	503590.5	6959658.9	4.1	-24.2	
	Pax 2 0017	503591.2	6959659.0	4.1	-24.1	
	Pax 2 0018	503592.8	6959659.0	4.1	-23.7	
	Pax 2 0019	503593.4	6959658.6	4.1	-23.5	
	Pax 2 0020	503594.9	6959658.7	4.1	-23.3	
	Pax 2 0021	503595.1	6959658.2	4.1	-23.1	
	Pax 2 0022	503596.8	6959658.2	4.1	-22.8	
	Pax 2 0023	503598.7	6959657.7	4.1	-22.5	
	Pax 2 0024	503599.1	6959657.6	4.1	-22.4	
	Pax 2 0025	503600.7	6959657.4	4.1	-22.2	
	Pax 2 0026	503601.4	6959657.2	4.1	-22.1	
	Pax 2 0027	503590.1	6959656.3	4.1	-23.5	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.4	
	Pax 2 0029	503594.3	6959656.8	4.1	-23.0	
	Pax 30 001	503596.3	6959652.6	4.1	-0.2	
	Pax 30 002	503595.1	6959652.3	1.8	27.2	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.5	
	Receptor	X Posn	Y Posn	Height		Noise

						Level
		(m)	(m)	(m)		(dB(A))
	RL5 - 5th Floor	503529.0	6959643.6	16.9		27.3
	Source	X Posn	Y Posn	Height	Noise Level	
		(m)	(m)	(m)	(dB(A))	
	Pax 2 001	503593.9	6959645.7	1.5	1.9	
	Pax 2 0002	503594.0	6959646.6	1.5	1.9	
	Pax 2 0003	503592.0	6959647.6	1.5	2.2	
	Pax 2 0004	503590.3	6959649.0	1.5	2.4	
	Pax 2 0005	503589.0	6959650.1	1.5	2.6	
	Pax 2 0006	503587.9	6959651.6	1.5	2.7	
	Pax 2 0007	503594.6	6959645.9	4.1	2.0	
	Pax 2 0008	503593.5	6959647.0	4.1	2.1	
	Pax 2 0009	503591.7	6959648.4	4.1	2.4	
	Pax 2 0010	503590.6	6959649.3	4.1	2.5	
	Pax 2 0011	503590.1	6959650.0	4.1	2.6	
	Pax 2 0012	503586.4	6959653.8	4.1	-23.8	
	Pax 2 0013	503587.0	6959655.8	4.1	-23.8	
	Pax 2 0014	503587.9	6959657.1	4.1	-24.0	
	Pax 2 0015	503589.2	6959657.9	4.1	-24.0	
	Pax 2 0016	503590.5	6959658.9	4.1	-24.3	
	Pax 2 0017	503591.2	6959659.0	4.1	-24.1	
	Pax 2 0018	503592.8	6959659.0	4.1	-23.7	
	Pax 2 0019	503593.4	6959658.6	4.1	-23.5	
	Pax 2 0020	503594.9	6959658.7	4.1	-23.2	
	Pax 2 0021	503595.1	6959658.2	4.1	-23.0	
	Pax 2 0022	503596.8	6959658.2	4.1	-22.7	
	Pax 2 0023	503598.7	6959657.7	4.1	-22.3	
	Pax 2 0024	503599.1	6959657.6	4.1	-22.2	
	Pax 2 0025	503600.7	6959657.4	4.1	-22.0	
	Pax 2 0026	503601.4	6959657.2	4.1	-21.9	
	Pax 2 0027	503590.1	6959656.3	4.1	-23.5	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.5	
	Pax 2 0029	503594.3	6959656.8	4.1	-22.9	
	Pax 30 001	503596.3	6959652.6	4.1	-0.2	
	Pax 30 002	503595.1	6959652.3	1.8	27.1	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.5	
	Receptor	X Posn	Y Posn	Height		Noise Level
		(m)	(m)	(m)		(dB(A))
	RL6 - 6th floor	503529.1	6959643.9	19.4		27.3
	Source	X Posn	Y Posn	Height	Noise Level	
		(m)	(m)	(m)	(dB(A))	
	Pax 2 001	503593.9	6959645.7	1.5	1.9	
	Pax 2 0002	503594.0	6959646.6	1.5	1.9	
	Pax 2 0003	503592.0	6959647.6	1.5	2.2	
	Pax 2 0004	503590.3	6959649.0	1.5	2.4	
	Pax 2 0005	503589.0	6959650.1	1.5	2.6	
	Pax 2 0006	503587.9	6959651.6	1.5	2.7	
	Pax 2 0007	503594.6	6959645.9	4.1	2.0	
	Pax 2 0008	503593.5	6959647.0	4.1	2.1	
	Pax 2 0009	503591.7	6959648.4	4.1	2.4	
	Pax 2 0010	503590.6	6959649.3	4.1	2.5	
	Pax 2 0011	503590.1	6959650.0	4.1	2.6	
	Pax 2 0012	503586.4	6959653.8	4.1	-23.7	
	Pax 2 0013	503587.0	6959655.8	4.1	-23.8	
	Pax 2 0014	503587.9	6959657.1	4.1	-24.0	
	Pax 2 0015	503589.2	6959657.9	4.1	-24.0	
	Pax 2 0016	503590.5	6959658.9	4.1	-24.2	
	Pax 2 0017	503591.2	6959659.0	4.1	-24.1	
	Pax 2 0018	503592.8	6959659.0	4.1	-23.6	

	Pax 2 0019	503593.4	6959658.6	4.1	-23.3	
	Pax 2 0020	503594.9	6959658.7	4.1	-23.0	
	Pax 2 0021	503595.1	6959658.2	4.1	-22.9	
	Pax 2 0022	503596.8	6959658.2	4.1	-22.5	
	Pax 2 0023	503598.7	6959657.7	4.1	-21.9	
	Pax 2 0024	503599.1	6959657.6	4.1	-21.8	
	Pax 2 0025	503600.7	6959657.4	4.1	-21.6	
	Pax 2 0026	503601.4	6959657.2	4.1	-21.5	
	Pax 2 0027	503590.1	6959656.3	4.1	-23.4	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.4	
	Pax 2 0029	503594.3	6959656.8	4.1	-22.7	
	Pax 30 001	503596.3	6959652.6	4.1	-0.2	
	Pax 30 002	503595.1	6959652.3	1.8	27.2	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.3	
	Receptor	X Posn	Y Posn	Height		Noise Level
		(m)	(m)	(m)		(dB(A))
	RL7 - 7th floor	503528.7	6959644.5	21.9		27.0
	Source	X Posn	Y Posn	Height	Noise Level	
		(m)	(m)	(m)	(dB(A))	
	Pax 2 001	503593.9	6959645.7	1.5	1.8	
	Pax 2 0002	503594.0	6959646.6	1.5	1.8	
	Pax 2 0003	503592.0	6959647.6	1.5	2.1	
	Pax 2 0004	503590.3	6959649.0	1.5	2.3	
	Pax 2 0005	503589.0	6959650.1	1.5	2.5	
	Pax 2 0006	503587.9	6959651.6	1.5	2.6	
	Pax 2 0007	503594.6	6959645.9	4.1	1.9	
	Pax 2 0008	503593.5	6959647.0	4.1	2.0	
	Pax 2 0009	503591.7	6959648.4	4.1	2.3	
	Pax 2 0010	503590.6	6959649.3	4.1	2.4	
	Pax 2 0011	503590.1	6959650.0	4.1	2.5	
	Pax 2 0012	503586.4	6959653.8	4.1	-23.8	
	Pax 2 0013	503587.0	6959655.8	4.1	-23.9	
	Pax 2 0014	503587.9	6959657.1	4.1	-24.0	
	Pax 2 0015	503589.2	6959657.9	4.1	-24.0	
	Pax 2 0016	503590.5	6959658.9	4.1	-24.3	
	Pax 2 0017	503591.2	6959659.0	4.1	-24.1	
	Pax 2 0018	503592.8	6959659.0	4.1	-23.6	
	Pax 2 0019	503593.4	6959658.6	4.1	-23.3	
	Pax 2 0020	503594.9	6959658.7	4.1	-22.9	
	Pax 2 0021	503595.1	6959658.2	4.1	-22.7	
	Pax 2 0022	503596.8	6959658.2	4.1	-22.3	
	Pax 2 0023	503598.7	6959657.7	4.1	-21.7	
	Pax 2 0024	503599.1	6959657.6	4.1	-21.6	
	Pax 2 0025	503600.7	6959657.4	4.1	-21.2	
	Pax 2 0026	503601.4	6959657.2	4.1	-21.0	
	Pax 2 0027	503590.1	6959656.3	4.1	-23.4	
	Pax 2 0028	503589.7	6959655.5	4.1	-23.3	
	Pax 2 0029	503594.3	6959656.8	4.1	-22.6	
	Pax 30 001	503596.3	6959652.6	4.1	-0.2	
	Pax 30 002	503595.1	6959652.3	1.8	26.9	
	Background music as Lwmax	503592.9	6959654.1	4.6	-2.3	

