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Low Frequency Music Noise Prediction

Northbridge Entertainment Precinct

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Prepared for:

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1 INTRODUCTION

Northbridge is a vibrant entertainment district which offers a diverse mix of music venues, contributing significantly to Perth's cultural diversity and economic prosperity. Northbridge is also experiencing significant urban development, with an increasing trend towards 'mixed use' high-density city living.

This mix of land uses has the potential to increase noise complaints, and a balance needs to be found between protecting residents' health and amenity while ensuring the viability of entertainment venues.

It is understood the City of Perth has advocated for reforms to help maintain the unique character of Northbridge as the State's premier entertainment precinct. The State Government is committed to exploring reforms that aim to support existing music venues and Western Australia's cultural industries that create employment opportunities, particularly for young Western Australians.

The City of Perth has referred an amendment to City Planning Scheme No.2 (Amendment No. 41, referred to as the Amendment) to the EPA for assessment. The amendment introduces a Special Control Area that establishes a Northbridge Special Entertainment Precinct (SEP). The Northbridge SEP is to consist of two areas designated as the Core and the Frame and sets out entertainment venue emission levels to be met at 1 metre from each venue located in those areas.

This report presents the methodology and prediction of the cumulative noise impacts from existing entertainment venues to existing residential buildings, with the assumption that all venues within the Northbridge SEP emit the maximum levels that are proposed in the Amendment. As the final form of the Scheme is not yet fixed, noise modelling was undertaken for various scenarios, one of which includes a 'grandfather' clause for existing venues in the Frame.

As entertainment venue noise contains significant low frequency content the amendment seeks to limit the low frequency emissions at the venue. Therefore of particular interest in this study is the impact of the low frequency noise being received at noise sensitive premises.

It is understood that subsequent calculation of the long-term health impact of noise on residences will be undertaken by others such that low frequency noise level distribution data incorporating all affected residential households is required. Therefore, it is noted that only residential households and long-term student accommodation have been included in the assessment and short stay accommodation was excluded (e.g. hotel or serviced apartments).

The Core and Frame areas considered in this study are shown on *Figure 1-1* to *Figure 1-3*. *Figure 1-2* shows those existing venues captured by the 'grandfather' clause and *Figure 1-3* shows a proposed Transition area located between the Core and Frame areas.

Also, at the request of DWER, the Preliminary Scenarios have been renumbered between this version of the report (20025401-01b) and previous versions as detailed in *Table 1-1*.

Table 1-1 Preliminary Scenario Number Update

Current Scenario Number	Previous Scenario Number
Scenario A	Scenario 4a
Scenario B	Scenario 4b
Scenario C	Scenario 4c

Northbridge Entertainment Precinct - Proposed Core and Frame Areas Map1 (For Scenarios A and B)

Figure 1-1

Signs and symbols

Proposed Core Boundary

Proposed Frame Boundary

Length Scale 1:5000

0 25 50 100 150 m

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Northbridge Entertainment Precinct - Proposed Core and Frame Areas Map 2 (For Scenario C)

Figure 1-2

Signs and symbols

Proposed Core Boundary

Proposed Frame Boundary

Length Scale 1:5000

0 25 50 100 150 m

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Northbridge Entertainment Precinct - Proposed Core, Transition and Frame Areas Map 3 (For Scenarios 3, 3a, 3b, 6 and 6a)

Figure 1-3

Signs and symbols

Proposed Core Boundary

Proposed Frame Boundary

Proposed Transition Boundary

Length Scale 1:5000

0 25 50 100 150 m

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2 METHODOLOGY

2.1 Venues Identification

The name and location of the venues to be considered in this study were provided by the City of Perth in table format, which is reproduced in *Table 2-1* and *Table 2-2* for venues within the Core and Frame areas identified in *Figure 1-1* (Map 1 for Scenarios A and B).

Table 2-1 Venues in Map 1 Core Area

ID	Venue Name	Venue Address
V1	AIR NIGHT CLUB	139-147 James Street
V2	AN SIBIN PUB	139-147 James Street
V3	BAR SHANGHAI	123 James Street
V4	BRASS MONKEY	209 William Street
V5	BUTTERFLY 73	73 Francis Street
V6	COCONUT GROVE TAVERN	161 James Street
V7	CONNECTIONS NIGHT CLUB	81 James Street
V8	CROWN KARAOKE	Shop 11/60-66 Roe Street
V9	DRAGON PALACE CHINESE RESTAURANT & KTV	66-72 Francis Street
V10	EMPYREAN THEATRE	12 Lake Street
V11	EZRA POUND	189-199 William Street
V12	FRISK ESPRESSO	Unit 1-31/103-105 Francis Street
V13	GALAXY LOUNGE	65 Francis Street
V14	GEISHA BAR	135A James Street
V15	HENRY SUMMER	69 Aberdeen Street
V16	HIT STUDIO KARAOKE BAR	64 Francis Street
V17	HOLEY MOLEY GOLF CLUB	53 Lake Street
V18	ICE CREAM FACTORY	92-98 Roe Street
V19	IDARTS NIX	101 James Street
V20	JACK RABBIT SLIM'S	133 Aberdeen Street
V21	KARA KARAOKE	21B Lake Street
V22	LIBRARY NIGHTCLUB	65-69 Lake Street

ID	Venue Name	Venue Address
V23	MINT NIGHT CLUB	139-147 James Street
V24	MIRAGE PALACE KARAOKE	88 James Street
V25	MUSTANG BAR	46 Lake Street
V26	NORTHBRIDGE BREWING COMPANY	44 Lake Street
V27	PARADISE KARAOKE BAR	108-110 Francis Street
V28	PARAMOUNT NIGHTCLUB	163 James Street
V29	PATRIOT'S SPORTS BAR	215 William Street
V30	RAPTURE NIGHTCLUB	78 James Street
V31	ROSIE O'GRADY'S PUB	205 James Street
V32	SNEAKY TONY'S	Ground FLR Unit 1/38 Roe Street
V33	SUBARU KARAOKE RESTAURANT	1st Floor, 74 Francis Street
V34	THE REPUBLIC NIGHTCLUB	66 Lake Street
V35	THE STANDARD - PERTH	28 Roe Street
V36	THE WILLIAM STREET BIRD	167-181 William Street
V37	TIKI AS FK	91a James Street
V38	UNIVERSAL BAR	221 William Street
V39	UTOPIA KARAOKE	Shop 14, 109 James Street
V40	VOODOO LOUNGE & ROCKET ROOM	174-176 James Street
V41	YOUNG LOVE MESS HALL	175 William Street
V42	THE BOSTON	205 James Street

Table 2-2 Venues in Map 1 Frame Area

ID	Venue Name	Venue Address
VF1	ABERDEEN HOTEL	84 Aberdeen Street
VF2	COURT HOTEL	50 Beaufort Street
VF3	MARKET GROUNDS	10 Telethon Avenue
VF4	MECHANICS INSTITUTE BAR	218-222 William Street
VF5	METRO CITY	146 Roe Street

ID	Venue Name	Venue Address
VF6	NEVERMIND SMALLCLUB	108-114 Aberdeen Street
VF7	NORTHBRIDGE SOCIAL (Alabama Song)	232 William Street
VF8	PALACE ARCADE	84 Beaufort Street
VF9	PERTH ARENA	700 Wellington Street
VF10	PICA	51 James Street
VF11	SHY JOHN YUM CHA & BREWERY	Unit 1GN/420 Wellington Street
VF12	STATE THEATRE CENTRE	174-192 William Street
VF13	THE BLUE ROOM	53 James Street
VF14	THE PENTHOUSE CLUB PERTH	230 William Street
VF15	THE RECHABITE	224 William Street
VF16	THE SHOE BAR & CAFE	Unit 7GS/420 Wellington Street
VF17	VARSITY NORTHBRIDGE	94 Aberdeen Street
VF18	Lot 20	198-206 William Street

2.2 Residential Premises and Household Identification

Residential premises potentially affected by low frequency noise were identified using a combination of publicly available data including aerial photography (e.g. eSpatial website from Department of Planning, Lands and Heritage, Google Maps), land use planning maps and real estate and properties website www.domain.com.au. The latter was used to also estimate the number of households in each residential building. In addition, the City of Perth also provided lists describing the use of individual premises within the Frame and Core areas. Following discussions with DWER it is noted that short-term residential uses such as hotels or serviced apartments were excluded from the count. However, long-term stay accommodation such as dedicated student housing (89 Stirling Street) or other boarding house types were included (137 Newcastle Street).

For each residential building identified, and based on the estimated number of households, point receivers were located on each façade and at 1.5 metres above a residential floor level so that, as far as practicable, each point receiver represented the same number of households per point receiver. A similar approach was used for multi-storey apartment buildings located outside of the Frame area. This is illustrated in *Figure 2-1* for the residences at 3 to 13 Shenton Street. The figure shows an overlay of the 3D aerial view from *Google View* and the corresponding 3D view from the noise model. The yellow dots represent the point receivers on the facades of the buildings. In this instance, the tallest building is a seven storey (including ground level) building at 9 Shenton Street, which has two apartments/households per storey therefore, each point receiver represents 2 households. At 3-5 Shenton Street, each point receiver also represents two households however, in this case, each household is vertically stacked and the highest noise level between ground floor and upper floor was used in subsequent analysis. In some instances, point receivers were located on more than one side of the residential building, resulting in two or more point receivers representing only one household. During the data analysis phase, this was accounted for manually by using the highest noise level for that household.

It is noted that in the case of individual single storey houses outside the Core/Frame area, it was not practicable to assign receivers to all various facades given the number of buildings potentially affected. Therefore, in this case the number of affected households was determined by counting each house located within the ground level noise contours for each scenario (i.e. *Figure 4-7*, *Figure 4-11* and *Figure 4-15*).

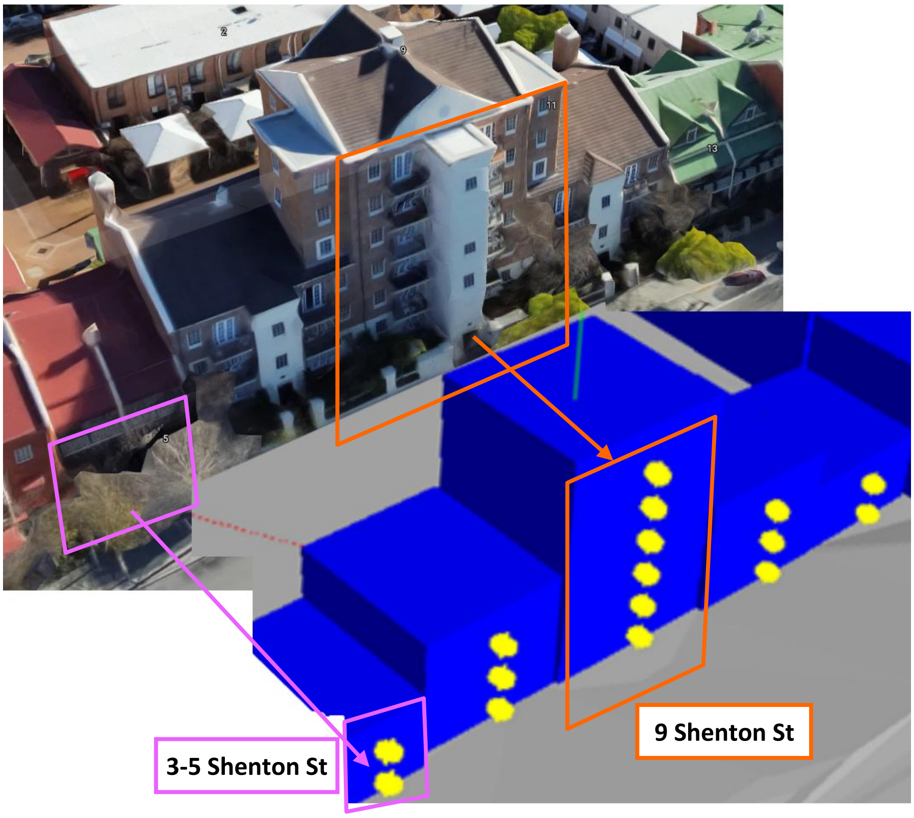


Figure 2-1 Point Receivers At 3-11 Shenton Street

Figure 2-2 shows the location of the houses and apartments located within the Core and Frame areas based on Map 1. It is noted that with Map 2 the north-west corner of the Frame area has reduced to exclude residential properties west of, and along, Shenton Street and Palmerston Street.

Outside of the Frame area, the land north of Newcastle Street (City of Vincent) is mostly residential. To the south and west, residential properties were also identified in West Perth and along Malcolm Street and Mount Street. This is shown in *Figure 2-3*. However as detailed in *Section 4*, only those residential properties within 67 dB $L_{eq\ 63\ Hz}$ contours were considered as being exposed to low frequency music noise during the data analysis.

Table 2-3 presents the estimated number of households within the Core and Frame areas used in the modelling for reference. Those cells highlighted in light orange indicate the households are located in the Core area.

Table 2-3 Estimated Number of Households Within Core and Frame

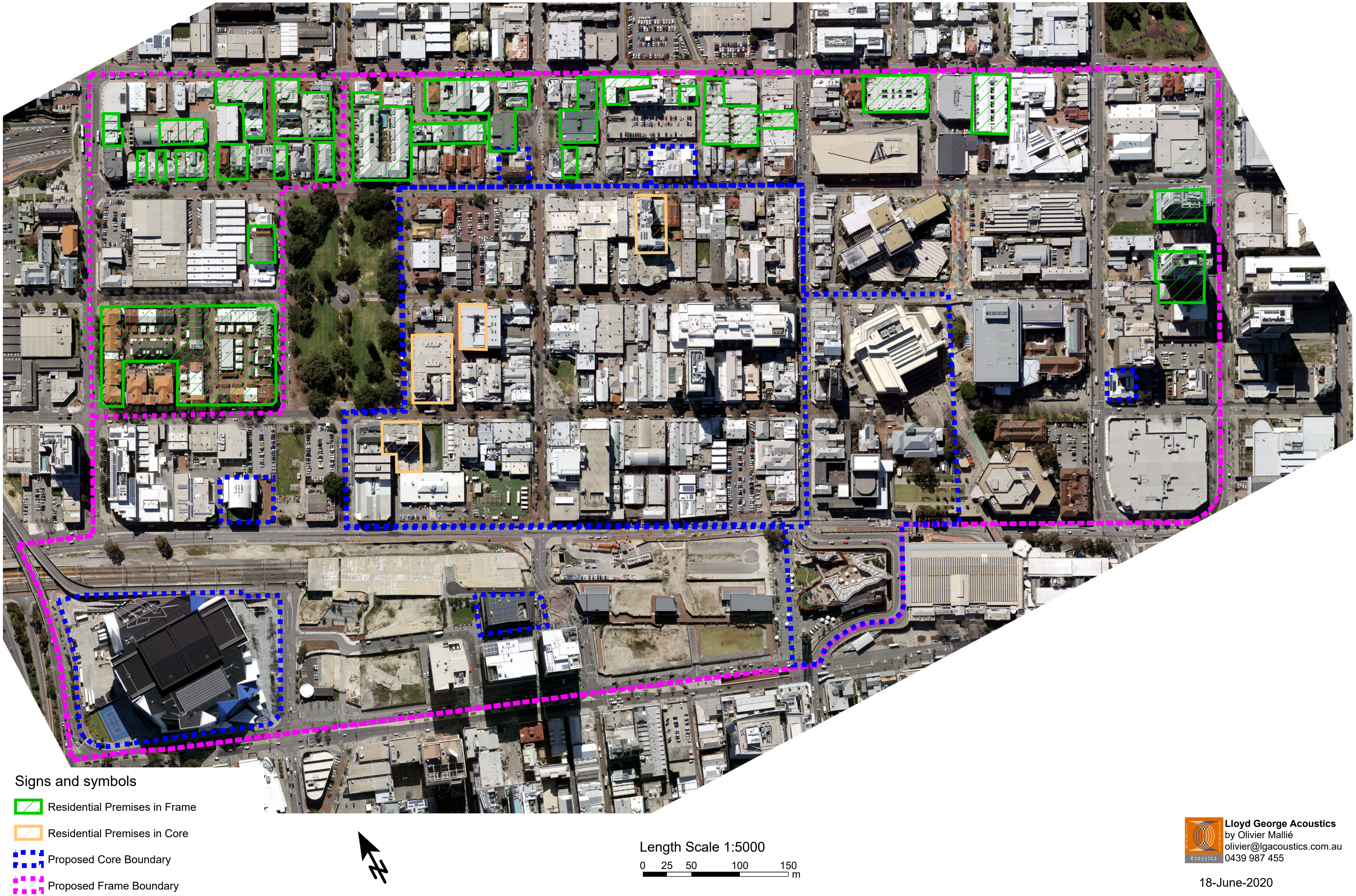
Address	Households	Address	Households
2-4 Little Shenton Lane	2	45 Shenton Street	6
3-5 Shenton Street	2	48 Fitzgerald Street	36
5 Davies Street	1	84 Fitzgerald Street	6
6-8 Kakulas Crescent	2	87 Aberdeen Street	1
6-8 Little Shenton Lane	2	87 Lake Street	1
6-12 Serich Lane	23	89 Aberdeen Street	68
6 Davies Street	1	89 Lake Street	12
7-11 Shenton Street	18	89 Stirling Street*	573
7 Davies Street	1	98 Lake Street	18
7 Errichetti Place	24	102 Aberdeen Street	1
8 Davies Street	1	103 Francis Street	31
9 Davies Street	1	105 Stirling Street	130
10-12 Little Shenton Lane	2	134-136 Aberdeen Street	66
10 Davies Street	1	137 Newcastle Street*	33
10 Kakulas Crescent	1	145 Newcastle Street	24
12 Kakulas Crescent	1	154 Aberdeen Street	8
13-15 Shenton Street	2	160 Aberdeen Street	4
14-16 Little Shenton Lane	2	164 Aberdeen Street	6
14 Kakulas Crescent	1	166 Aberdeen Street	1
15 Palmerston Street	1	170 Aberdeen Street	1
16 Kakulas Crescent	1	172 Aberdeen Street	1
17 Palmerston Street	1	174 Aberdeen Street	1
17 Shenton Street	6	178 Aberdeen Street	1
17A-B John Street	9	182 James Street	16
18 Kakulas Crescent	1	184 Aberdeen Street	1
19 John Street	8	191 James Street	42
19 Palmerston Street	1	218-220 James Street	18
21 Palmerston Street	3	219-223 Newcastle Street	3
21 John Street	18	226 James Street	4
21 Little Shenton Lane	6	227 Newcastle Street	8

Address	Households	Address	Households
22 Palmerston Street	1	241 Newcastle Street	18
23 John Street	11	255 Newcastle Street	6
23 Little Shenton Lane	1	269 Newcastle Street	4
25 Little Shenton Lane	1	283 Newcastle Street	6
27 Little Shenton Lane	1	289 Newcastle Street	1
29 Little Shenton Lane	1	305 William Street	3
31 Little Shenton Lane	1	321 Newcastle Street	8
43 Shenton Street	15	323-335 Newcastle Street	24

* Long-term accommodation

Northbridge Entertainment Precinct - Residences Within Core and Frame Areas

Figure 2-2



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Northbridge Entertainment Precinct - Residences Outside of Core and Frame Areas

Figure 2-3

Signs and symbols

- Proposed Core Boundary
- Proposed Frame Boundary
- Residential Premises in Core
- Residential Premises in Frame
- Residential Premises Outside Core/Frame
- Cadastre

N

Length Scale 1:14000

0 50 100 200 300 m

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3 NOISE MODELLING

Computer modelling has been used to predict noise levels at various receivers. The software used was *SoundPLAN 8.1* with the ISO 9613 (ISO 17534-3 improved method) algorithms selected. These algorithms have been selected as they include the influence of wind. 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.

Table 3-1 Modelling Meteorological Conditions

Parameter	Night (1900-0700)
Temperature (^{o}C)	15
Humidity (%)	50
Wind Speed (m/s)	Up to 5
Wind Direction*	All

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

3.2 Topographical Data

Topographical data was based on data provided by the City of Perth and DWER in the form of elevation contours, kerb absolute heights and buildings foot print containing elevation data.

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). In this instance, a value of 0 has been used across the study area, except for large areas of grass (i.e. public open spaces) where a value of 1 was used.

3.4 Buildings And Receivers

The building outlines, base elevation and top ridge / highest elevation were provided by DWER. This data was used to locate each building and determine the building height.

It is noted the data set was not fully up to date resulting in various buildings requiring manual input or adjustment based on site observations, aerial photography, estimated number of floors and floor heights.

Combining the topographical data, venue data and other building data resulted in a large 3-dimensional model extending from the Perth CBD to the Swan River to the south and east, Vincent Street to the north and Thomas Street to the west.

An image of the model is shown in *Figure 3-1* with the venues highlighted in red.

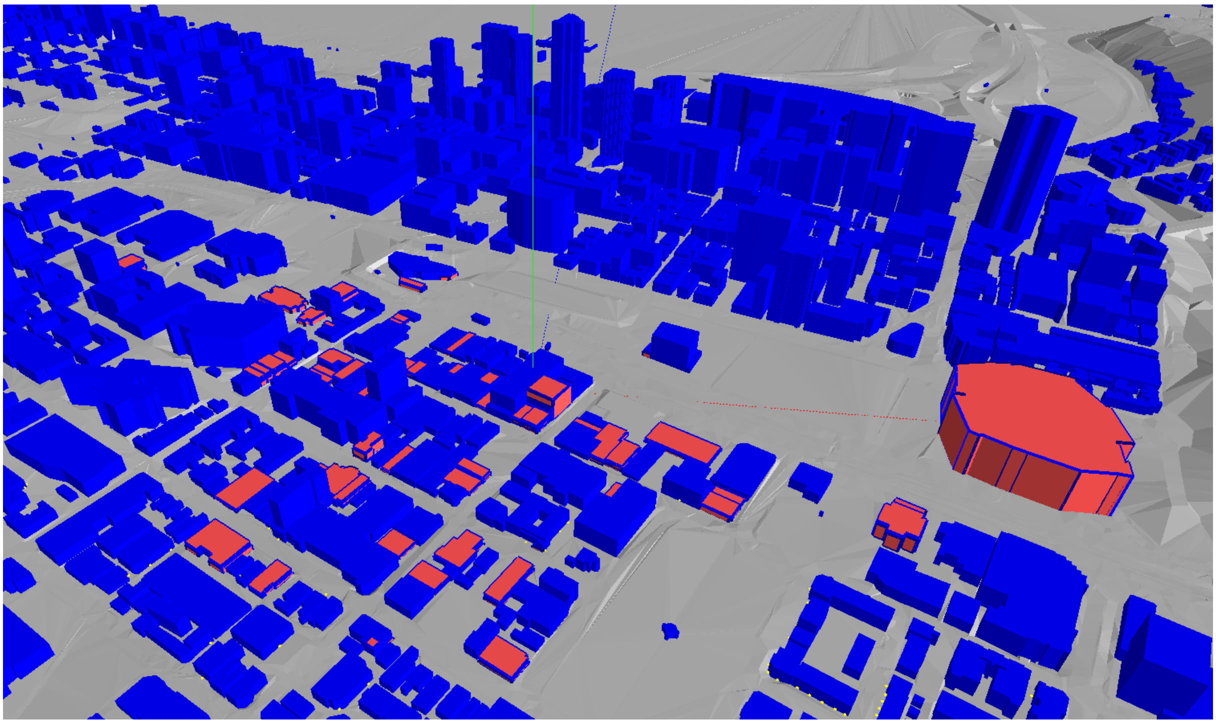


Figure 3-1 North Elevation of 3D Model (Northbridge Area)

3.5 Venues Noise Levels

Most of the venues listed in *Section 2.1* are stand-alone premises with noise being emitted from the walls and the roof. However in some instances, such as with the Frisk Espresso or Palace Arcade venues, another premises is located above such that noise was considered to breakout from the walls only. Also, some venues were noted to have open courtyards and these were also included in the model. Facades, roof and open courtyard(s) were modelled as area noise sources to represent noise break out.

The source levels are based on the generic spectra provided by *Department of Water and Environmental Regulation* (DWER), which represent L_{eq} sound pressure levels at 1 metre from the venue building for each scenario. The sound pressure level was converted into a sound power level per square-metre for easier input into the noise model. It is noted that as a worst-case scenario, all un-obstructed facades were assumed to emit noise even if it is a concrete wall or solid roof. This allows for a degree of 'future proofing' as under the proposed Amendment a venue could incorporate an opening or operable glazing in an existing concrete wall, or create an open courtyard, and still emit noise levels at 1 metre that are within the proposed limit. The generic spectra are reproduced in *Table 3-2* and a full list of sound power levels used in the model is provided in *Appendix A* for the noise emission scenarios A to C.

Table 3-2 Generic Spectra For Source Levels, dB(L)

Frequency [Hz]	In CORE All Scenarios	Map 1		Map 2
		In FRAME (Sc. A)	In FRAME (Sc. B)	In FRAME (Sc. C)
12.5	62.4	57.4	46.4	62.4
16	63.1	58.1	47.1	63.1
20	65.0	60.0	49.0	65.0
25	68.3	63.3	52.3	68.3
31.5	73.5	68.5	57.5	73.5
40	84.3	79.3	68.3	84.3
50	91.4	86.4	75.4	91.4
63	91.0	86.0	75.0	91.0
80	87.4	82.4	71.4	87.4
100	82.8	77.8	66.8	82.8
125	80.2	75.2	64.2	80.2
160	77.0	72.0	61.0	77.0
200	76.1	71.1	60.1	76.1
250	74.5	69.5	58.5	74.5
315	73.0	68.0	57.0	73.0
400	72.4	67.4	56.4	72.4
500	73.9	68.9	57.9	73.9
630	74.0	69.0	58.0	74.0
800	72.5	67.5	56.5	72.5
1000	70.3	65.3	54.3	70.3
1250	69.0	64.0	53.0	69.0
1600	68.1	63.1	52.1	68.1
2000	66.1	61.1	50.1	66.1
2500	64.6	59.6	48.6	64.6
3150	62.2	57.2	46.2	62.2
4000	59.4	54.4	43.4	59.4
5000	55.3	50.3	39.3	55.3
6300	52.6	47.6	36.6	52.6
8000	50.4	45.4	34.4	50.4
10000	47.0	42.0	31.0	47.0
12500	42.3	37.3	26.3	42.3
16000	36.7	31.7	20.7	36.7
20000	32.5	27.5	16.5	32.5

4 PRELIMINARY SCENARIOS

Three initial noise emissions scenarios defined as ‘A’, ‘B’ and ‘C’ were modelled as follows:

- **Scenario A** – With reference to Map 1, all venues within the Core are assumed to emit noise levels up to 95 dB $L_{eq\ 63\ Hz}$, while all venues within the Frame emitting noise levels up to 90 dB Leq 63 Hz.
- **Scenario B** – With reference to Map 1, all venues within the Core are assumed to emit noise levels up to 95 dB $L_{eq\ 63\ Hz}$, while all venues within the Frame emitting noise levels up to 79 dB Leq 63 Hz.
- **Scenario C** – With reference to Map 2, all venues within the Core and Frame are assumed to emit noise levels up to 95 dB $L_{eq\ 63\ Hz}$.

Based on the Scope of Works for the project the following deliverable were produced:

A. Noise contour maps of dB(A) and dB(C) noise levels at 1.5 m above ground level for Scenarios A, B and C.

These are shown on *Figure 4-1* to *Figure 4-6* along with the location of all the venues.

B. Noise contour maps of the linear 63 Hz octave band L_{eq} (dB $L_{eq\ 63\ Hz}$) at various heights above ground to capture all residential houses within the proposed Core and Frame areas, as well as extending into the adjacent areas for Scenarios A, B and C.

These are shown on *Figure 4-7 to Figure 4-18*.

C. Produce tables and charts of one-third octave and one octave spectra of the linear L_{eq} levels received at 1.5 m above ground height for representative noise-sensitive houses or apartment buildings within the proposed Core and Frame areas for Scenarios A, B and C.

The tabulated data is presented in *Appendix B* and the receiver locations shown on *Figure 4-19* along with charts of the 1/3 band data at key locations.

D. Generate histograms and tables for number of households receiving $L_{Leq\ 63\ Hz}$ levels at the façade of their building for scenarios A, B and C. Within practical limitations, the data is to be presented separately and combined for households -

- Within the Core of the SEP
- Within the Frame of the SEP; and
- Outside the SEP but within the 67 dB $L_{eq\ 63Hz}$ contour. The 67 dB $L_{eq\ 63\ Hz}$ contour limit was chosen by DWER since at this level outside, previous modelling, undertaken by others, has shown that the preferred internal criteria of 47 dB $L_{eq\ 63Hz}$ can be achieved with typical apartment construction using 10.38 mm laminated windows. However, it should be noted that existing noise sensitive premises, especially outside the Northbridge area, would consist of a wide range of window frame and glazing possibilities with large variations in transmission loss.

The distribution of households exposed to low frequency noise are presented in *Figure 4-20* to *Figure 4-22* in 5 dB intervals. This interval was considered adequate given the accuracy of the prediction algorithm, topographical data and building shape and elevation data.

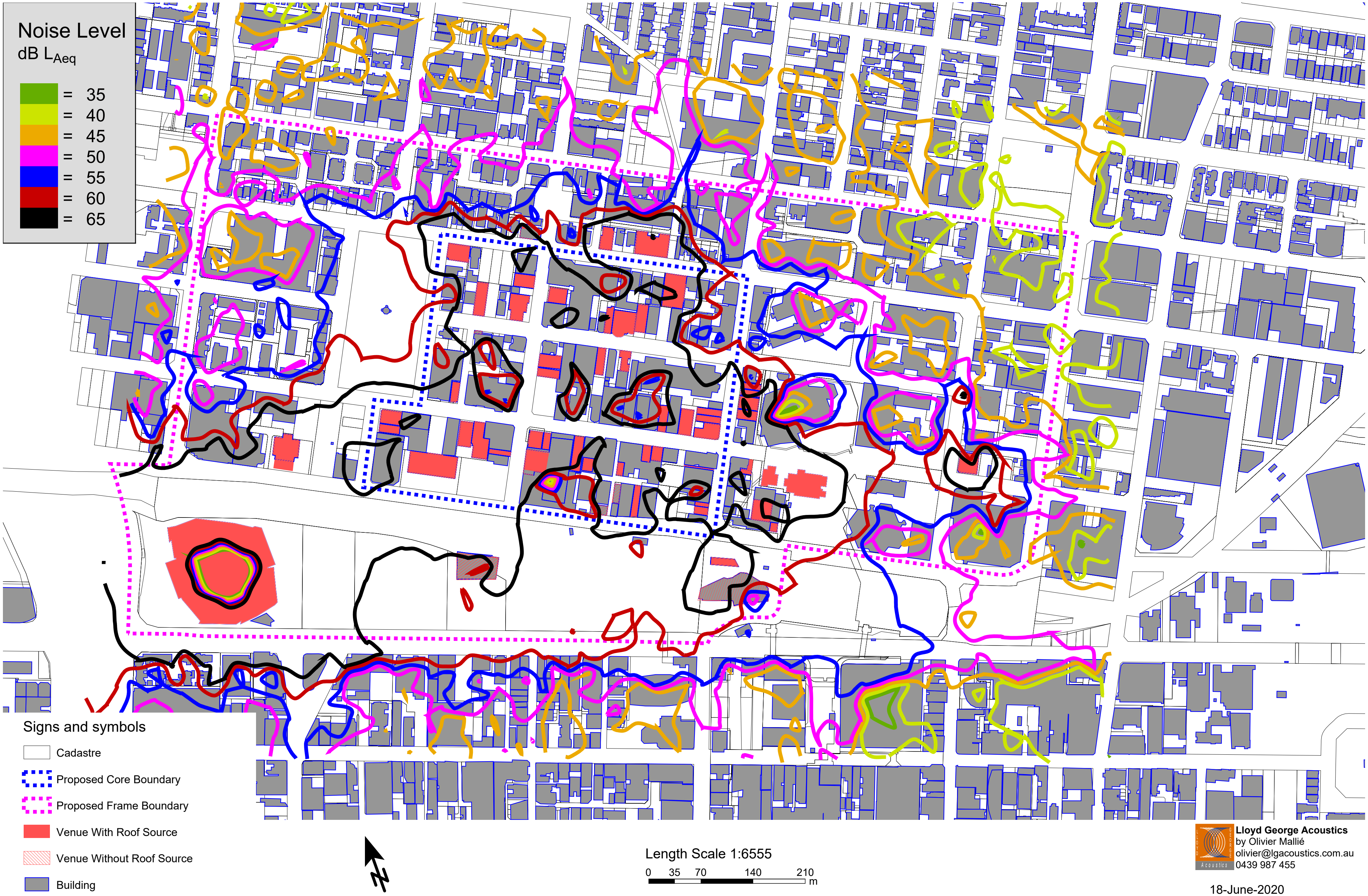
It is noted that those residences outside of the SEP exposed to levels of 67-70 dB $L_{eq\ 63\ Hz}$ are included in the 65-70 dB range. However, those households exposed to levels below 67 dB $L_{eq\ 63\ Hz}$ have not been presented as the range for consideration was limited by DWER to households within the 67 dB $L_{eq\ 63\ Hz}$ contour.

Furthermore with regards to scenario C (*Figure 4-22*), it is noted the increase in number of affected households outside the Frame Area compared to scenarios A (*Figure 4-20*) and B (*Figure 4-21*) is mostly due to the fact that a large number of households previously within Map 1 Frame area are now counted as being outside of the proposed Map 2 Frame area i.e. households west of Shenton Street and Palmerston Street.

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario A (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 90 dB $L_{eq\ 63\ Hz}$)

Figure 4-1



Length Scale 1:6555

0 35 70 140 210 m

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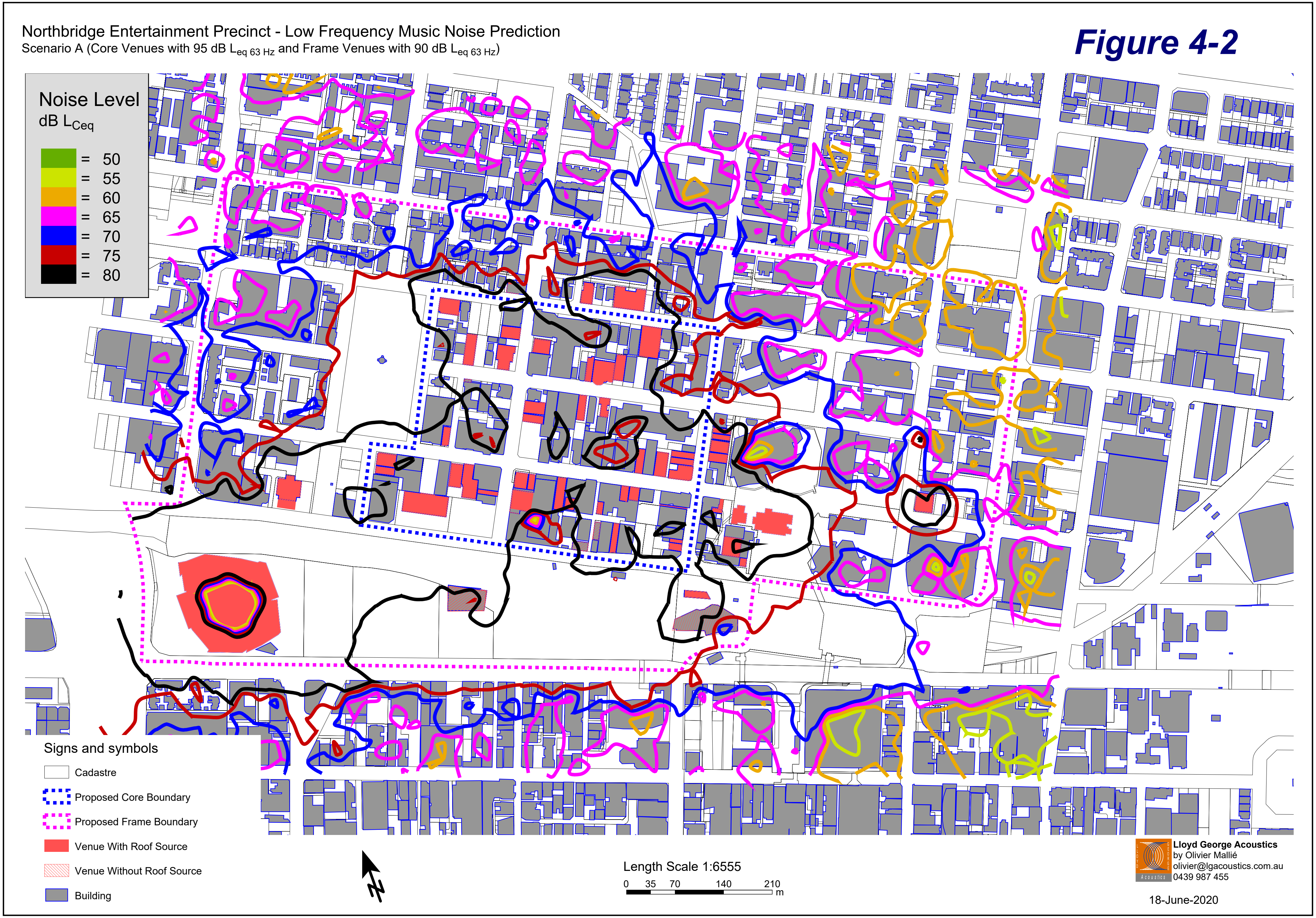
Figure 4-2



Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario A (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 90 dB $L_{eq\ 63\ Hz}$)
Figure 4-2
Noise Level
dB L_{Ceq}
= 50
= 55
= 60
= 65
= 70
= 75
= 80
Signs and symbols
Cadastre
Proposed Core Boundary
Proposed Frame Boundary
Venue With Roof Source
Venue Without Roof Source
Building
N
Length Scale 1:6555
0 35 70 140 210
m
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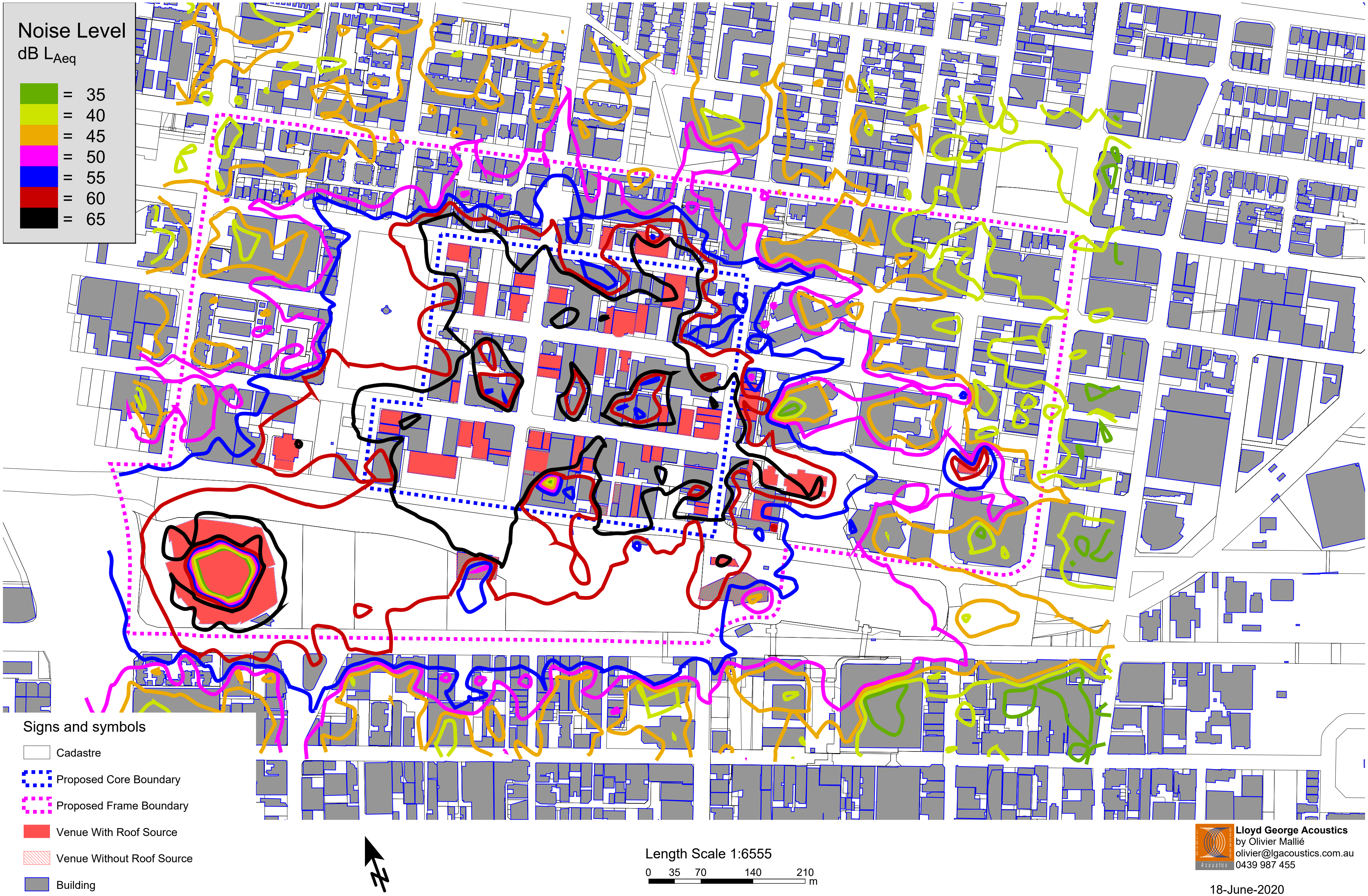
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario B (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$)

Figure 4-3



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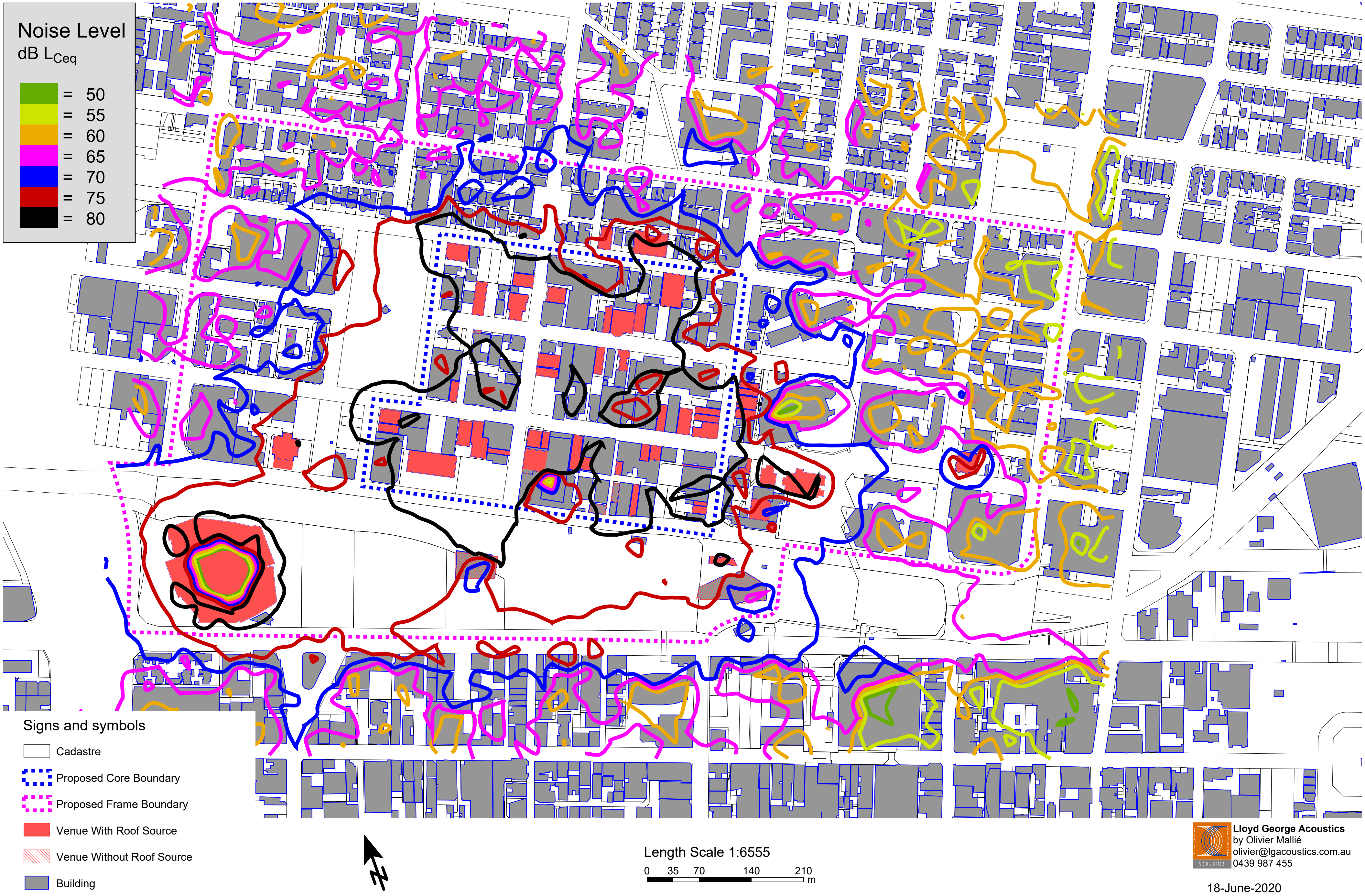
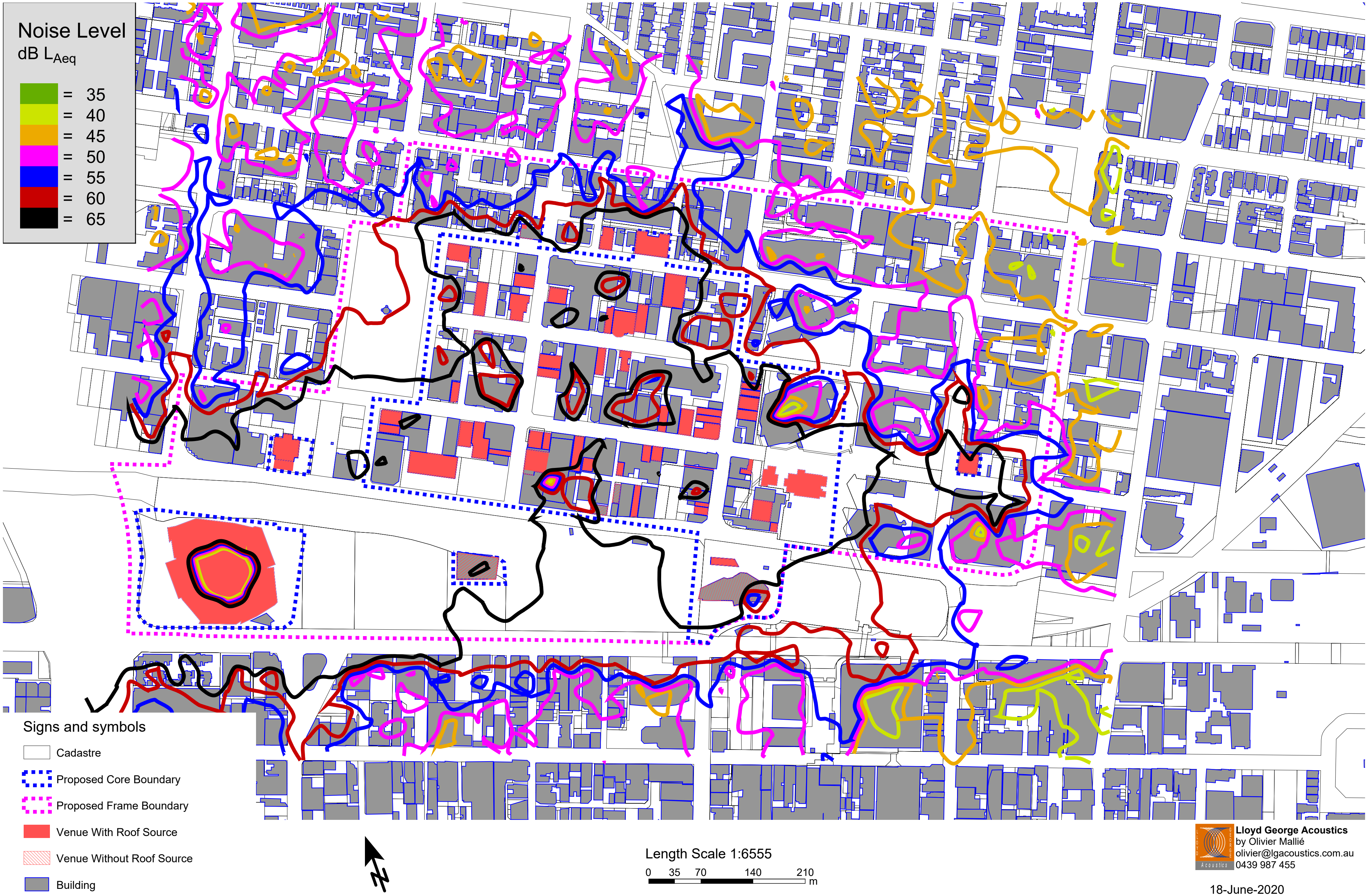
Scenario B (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$)

Figure 4-4



Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario C (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$)

Figure 4-5



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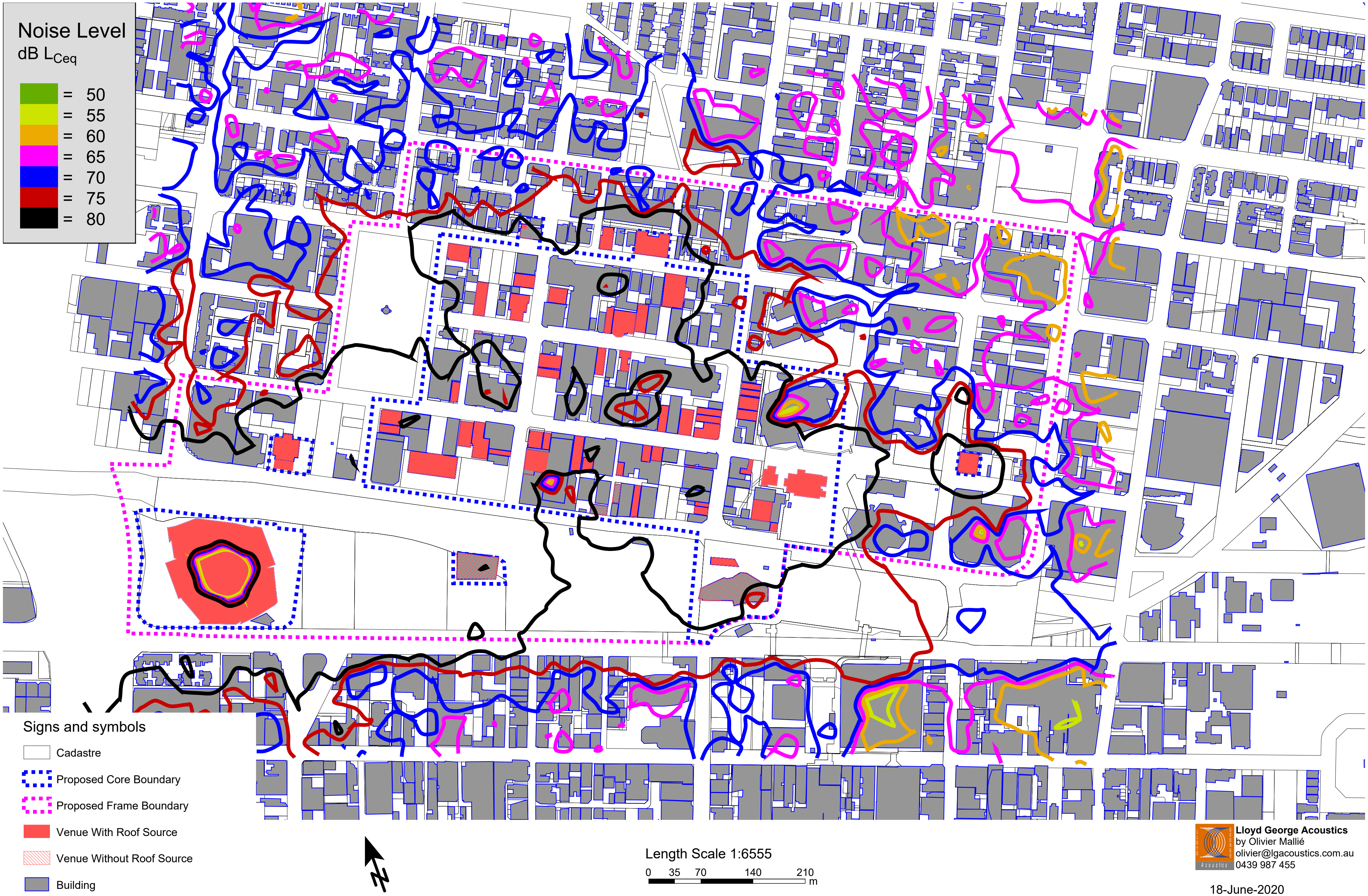
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario C (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$)

Figure 4-6



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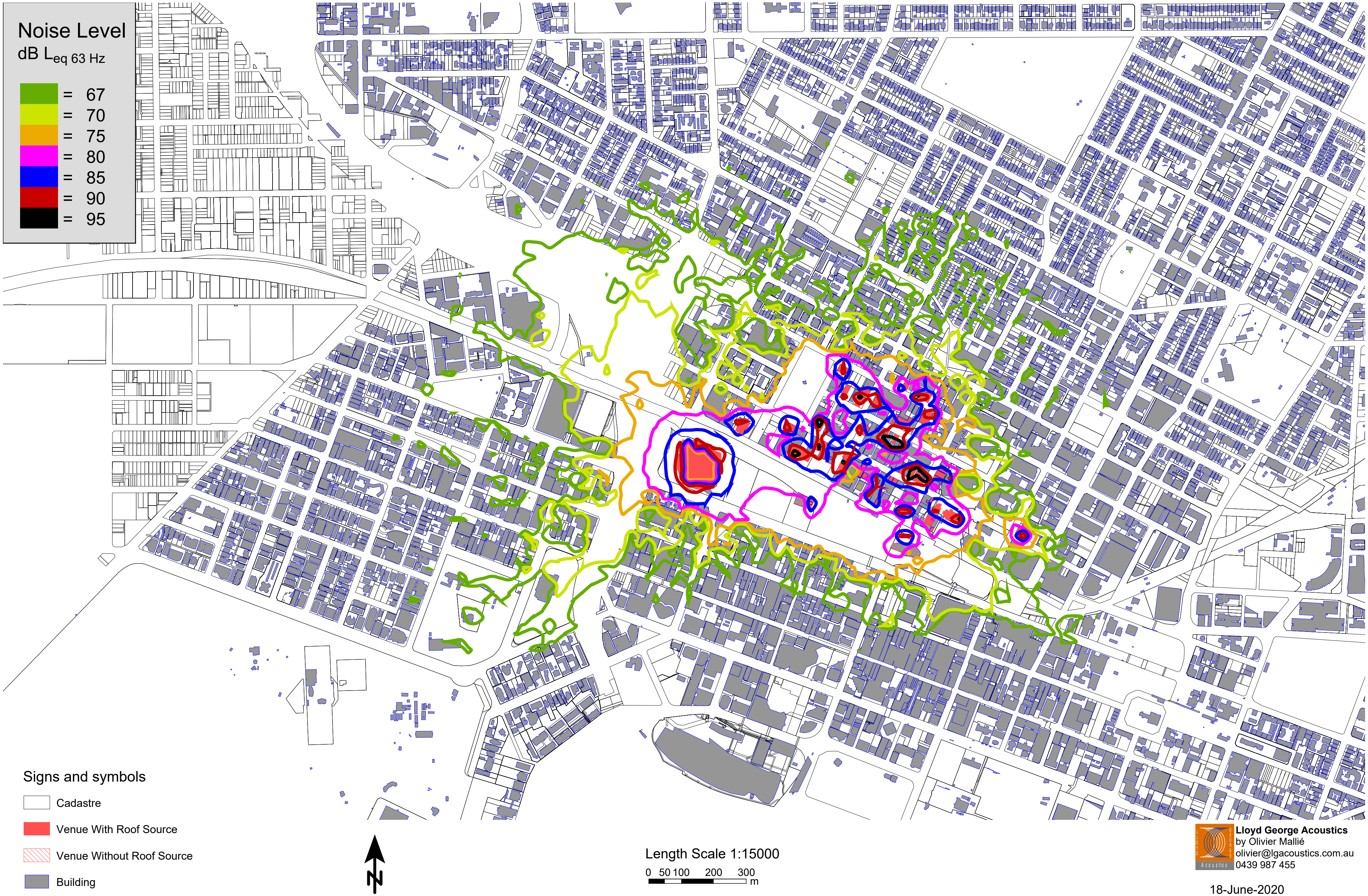
18-June-2020

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario A (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 90 dB $L_{eq\ 63\ Hz}$) at 1.5 m AGL (GF)

Figure 4-7



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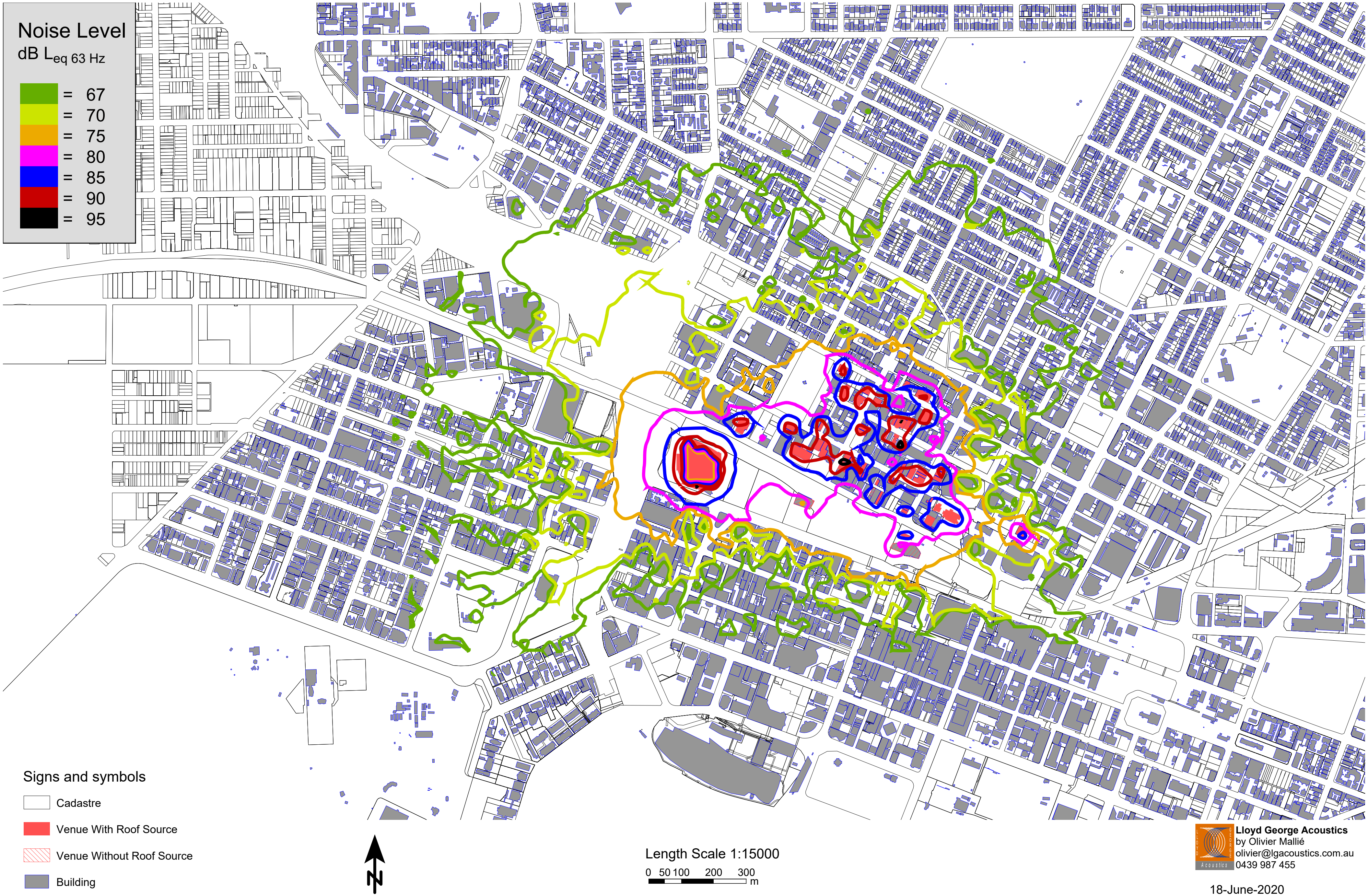
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario A (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 90 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 4-8



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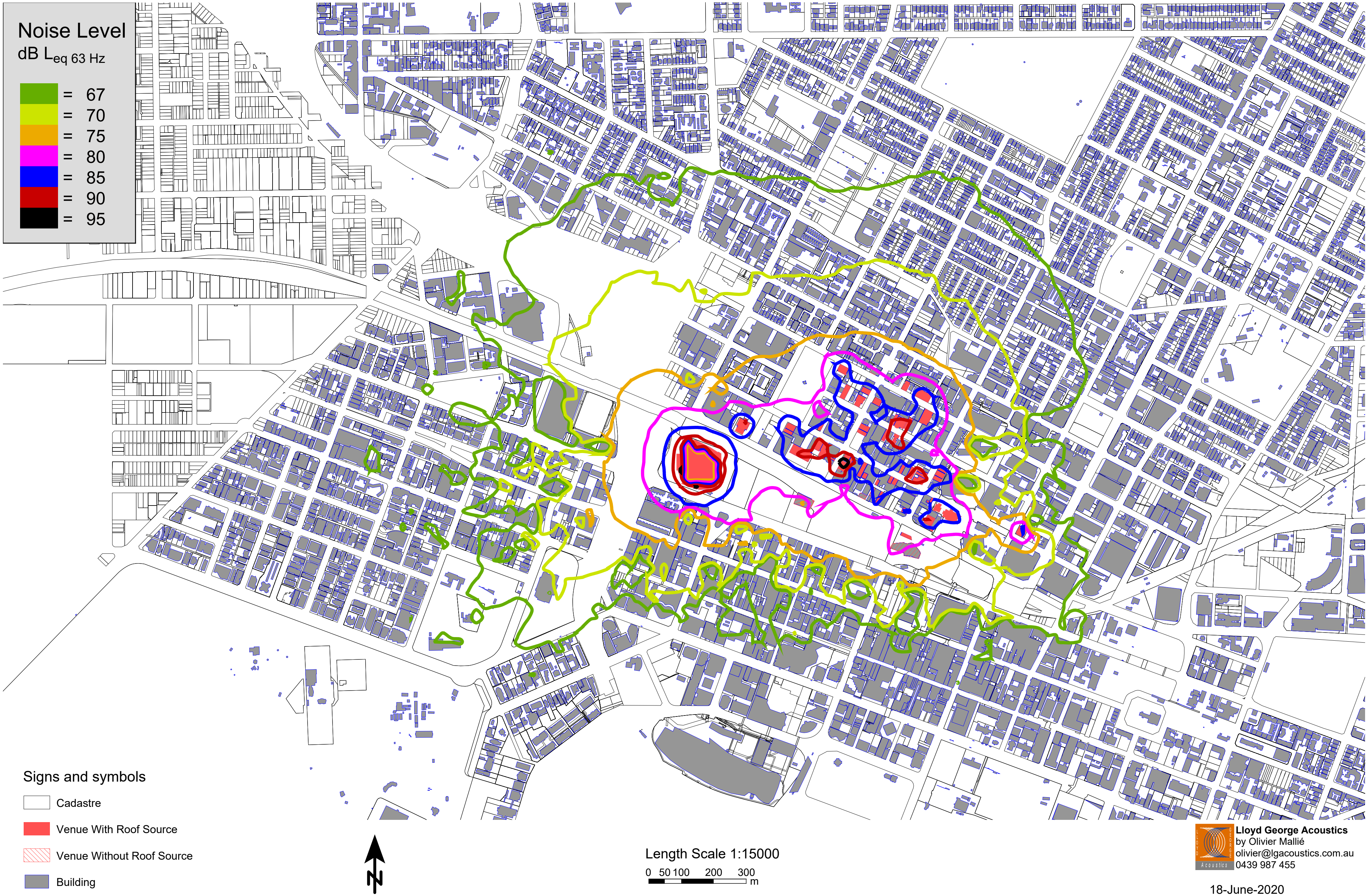
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario A (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 90 dB $L_{eq\ 63\ Hz}$) at 19.5 m AGL (FL6)

Figure 4-9



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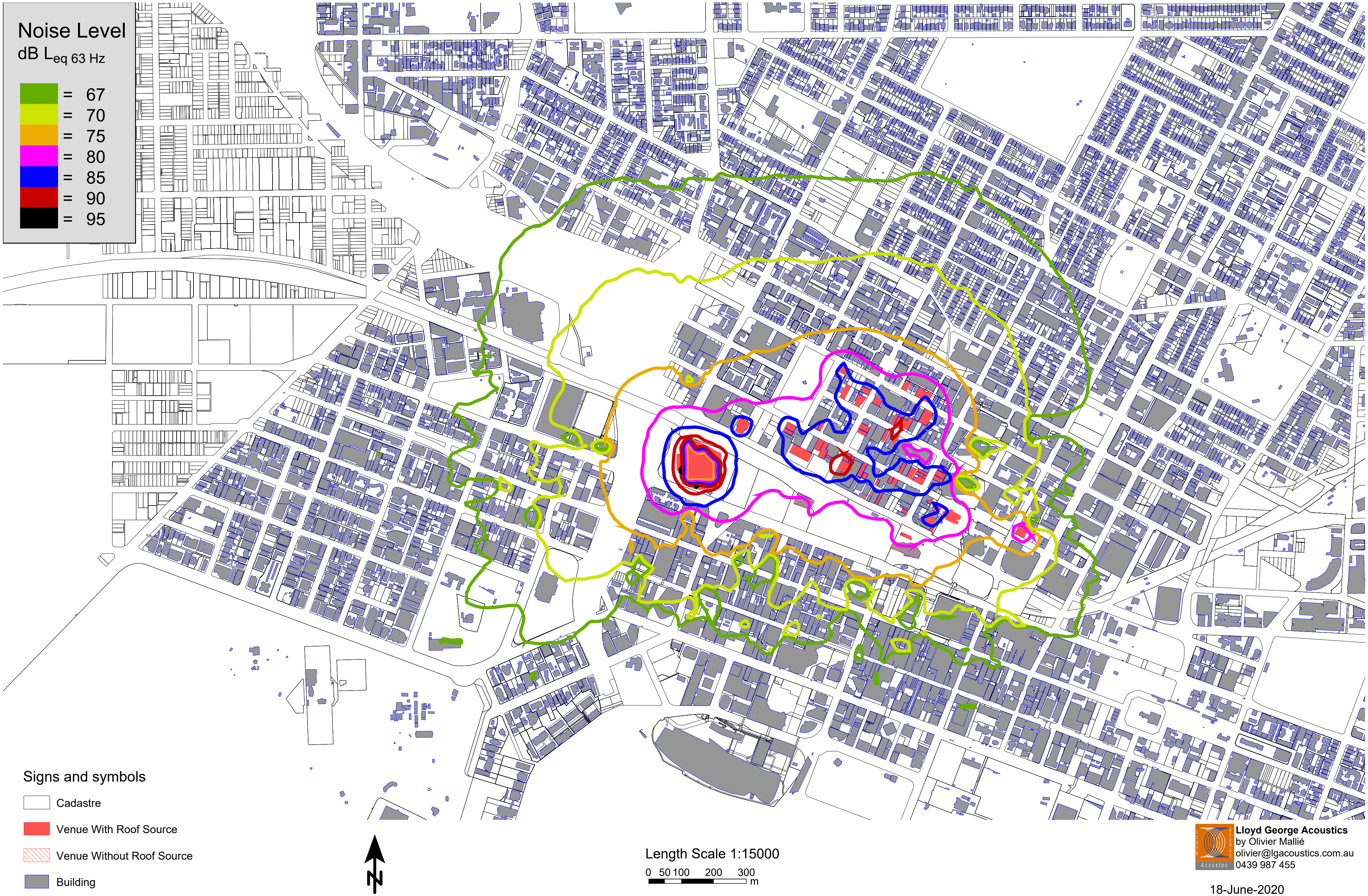
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario A (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 90 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 4-10



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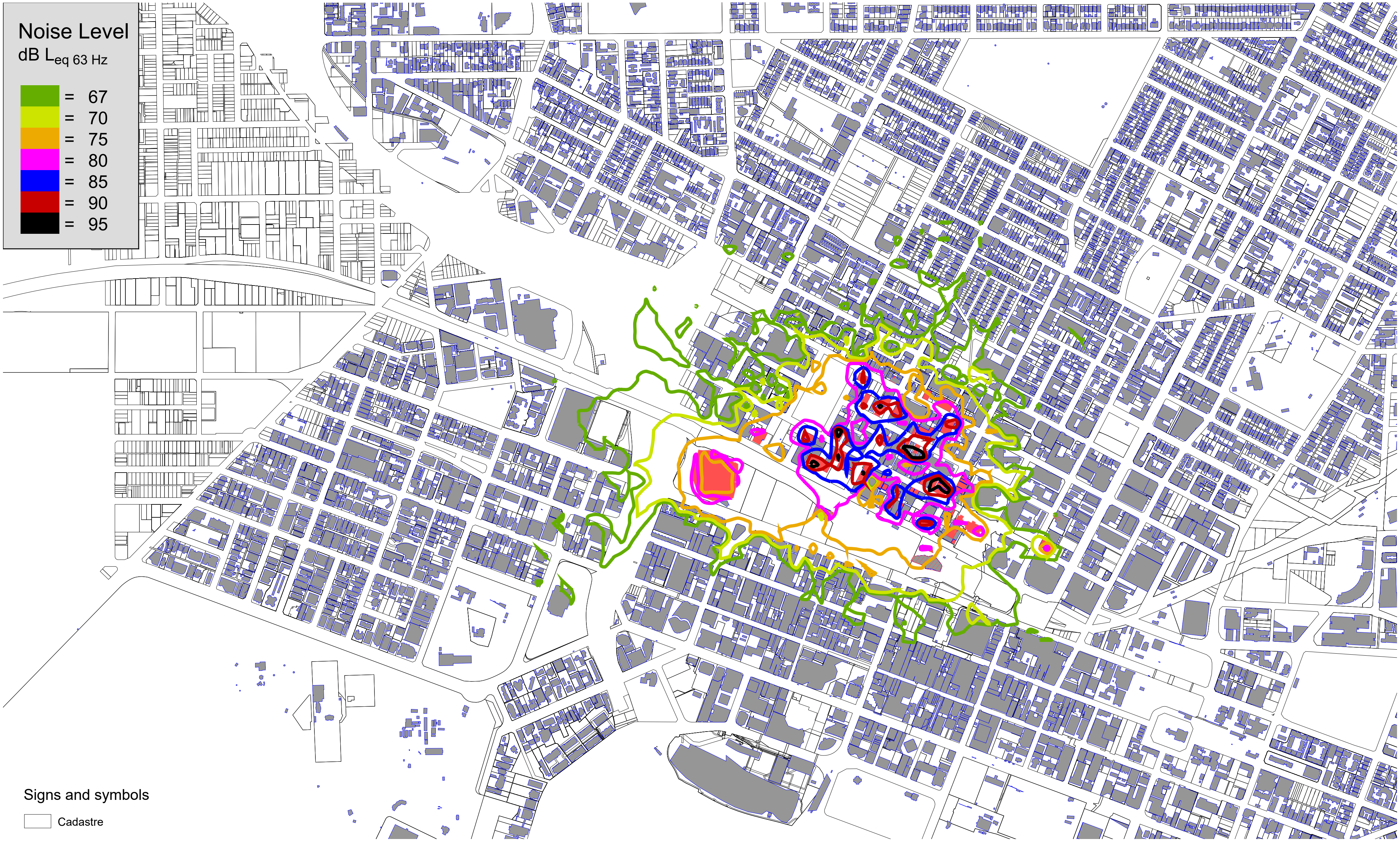
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario B (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$) at 1.5 m AGL (GF)

Figure 4-11



Noise Level

dB $L_{eq\ 63\ Hz}$

- = 67
- = 70
- = 75
- = 80
- = 85
- = 90
- = 95

Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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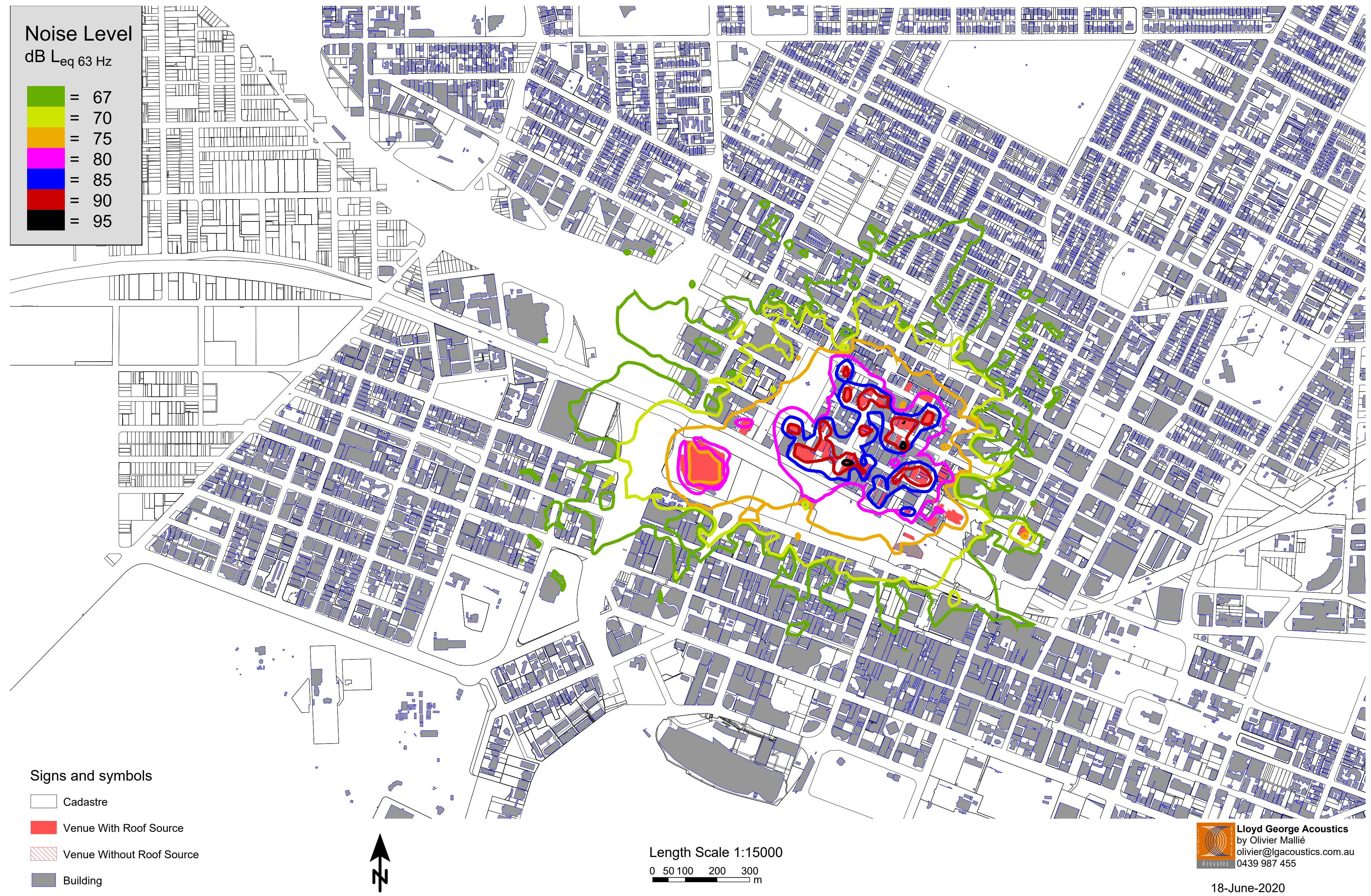
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

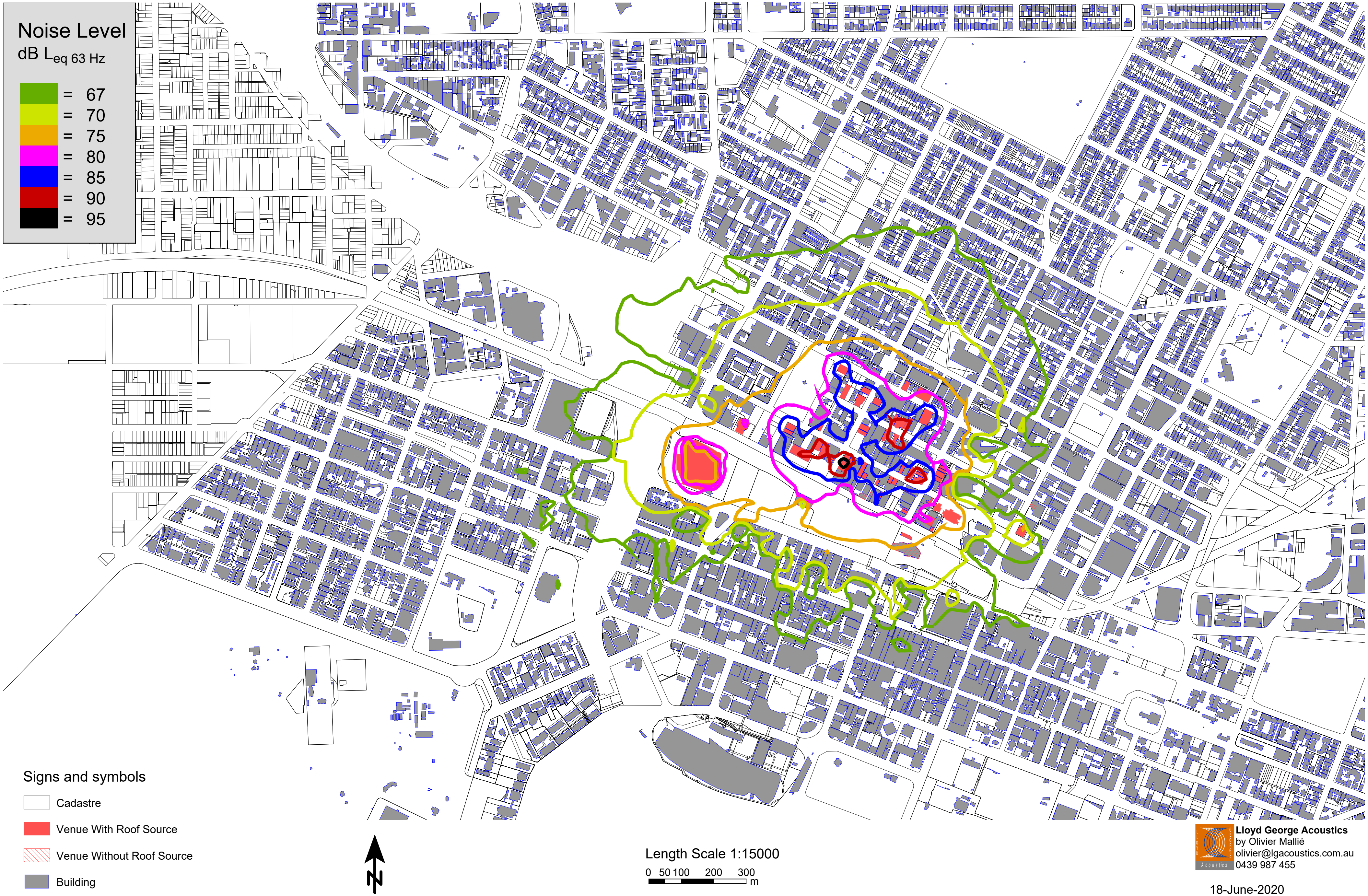
Scenario B (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 4-12



Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario B (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$) at 19.5 m AGL (FL6)

Figure 4-13



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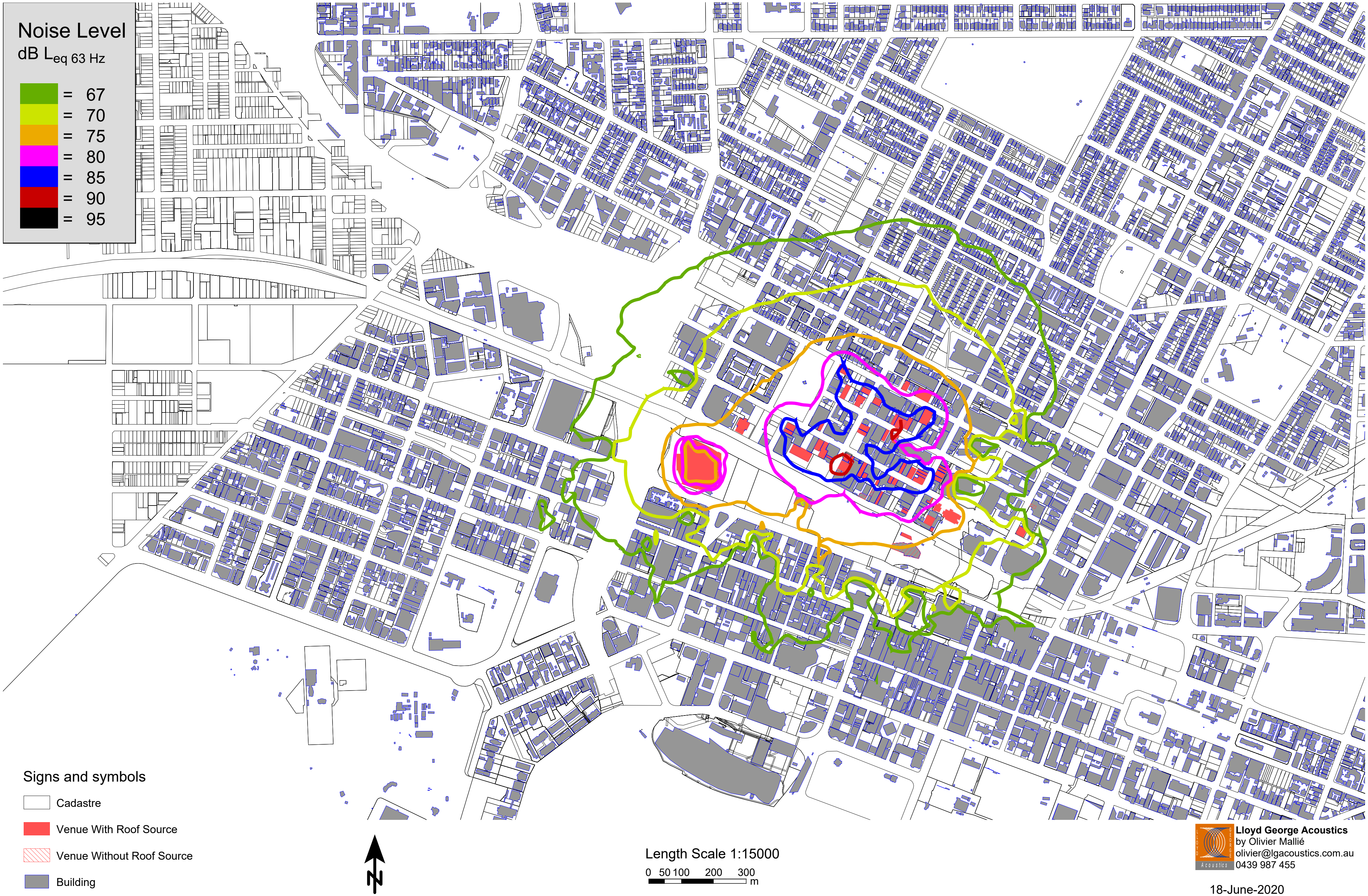
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario B (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 4-14



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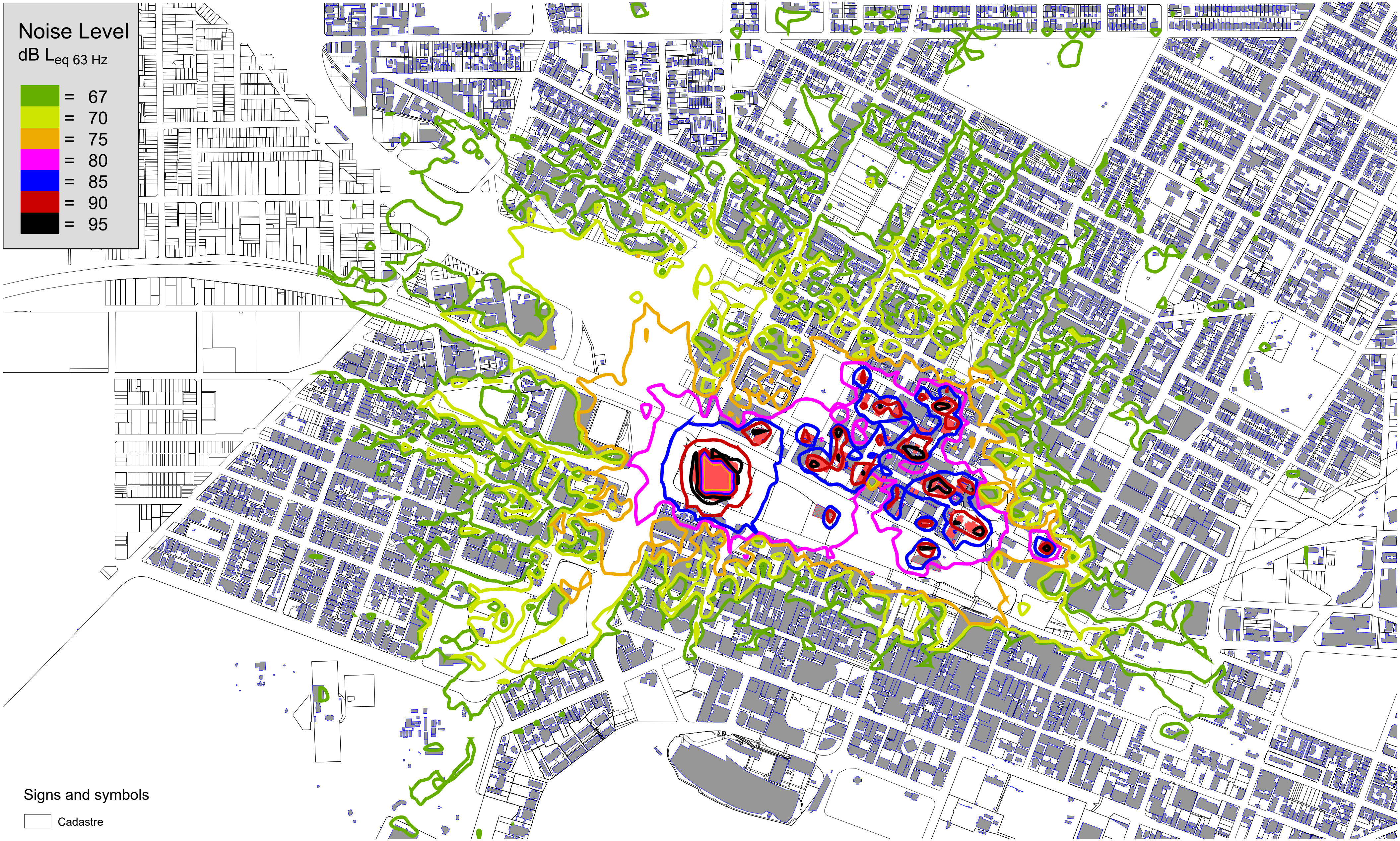
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario C (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$) Noise Levels at 1.5 m AGL (GF)

Figure 4-15



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

Length Scale 1:15000

0 50 100 200 300 m

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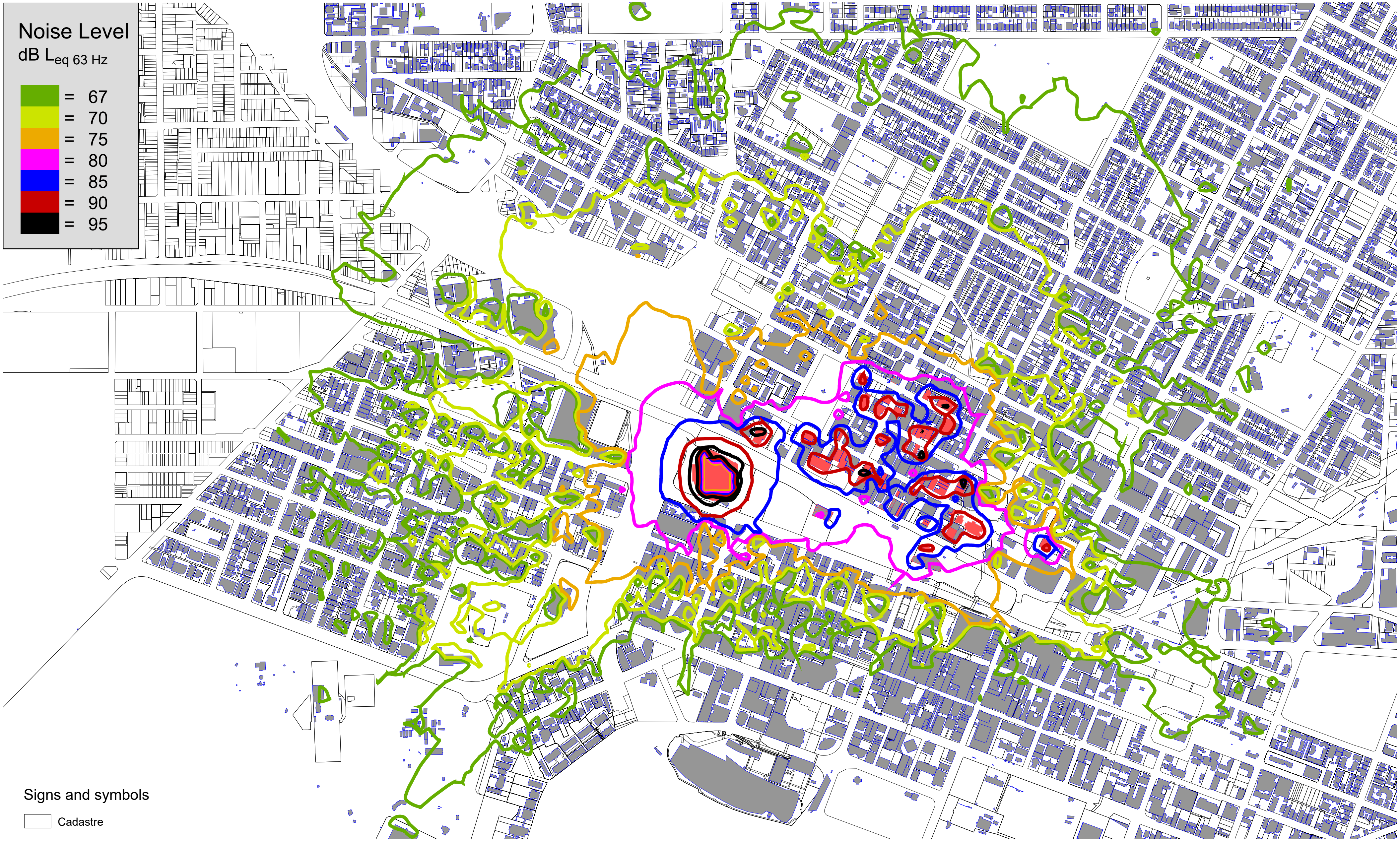
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario C (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$) Noise Levels at 10.5 m AGL (FL 3)

Figure 4-16



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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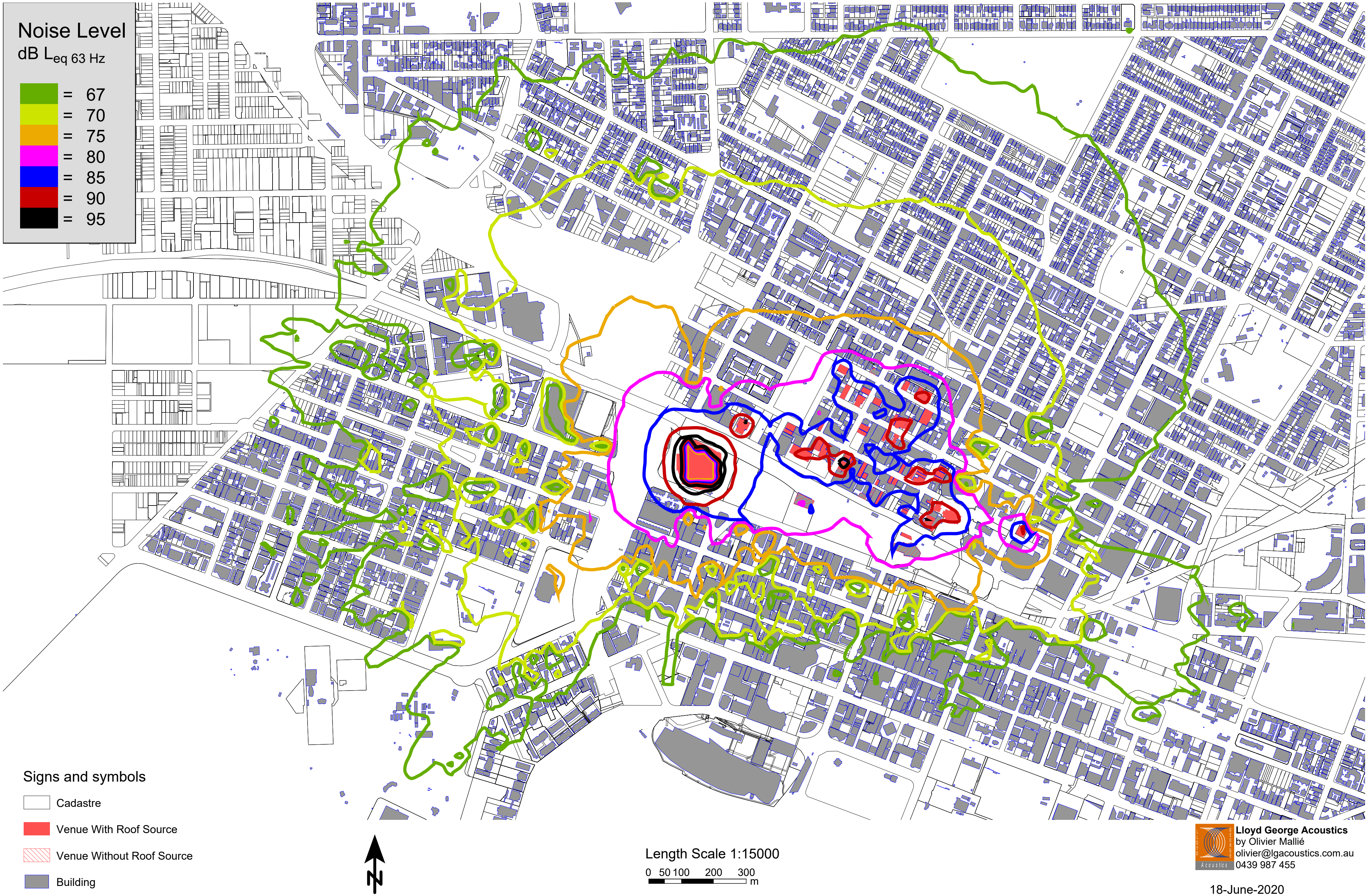
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario C (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$) Noise Levels at 19.5 m AGL (FL 6)

Figure 4-17



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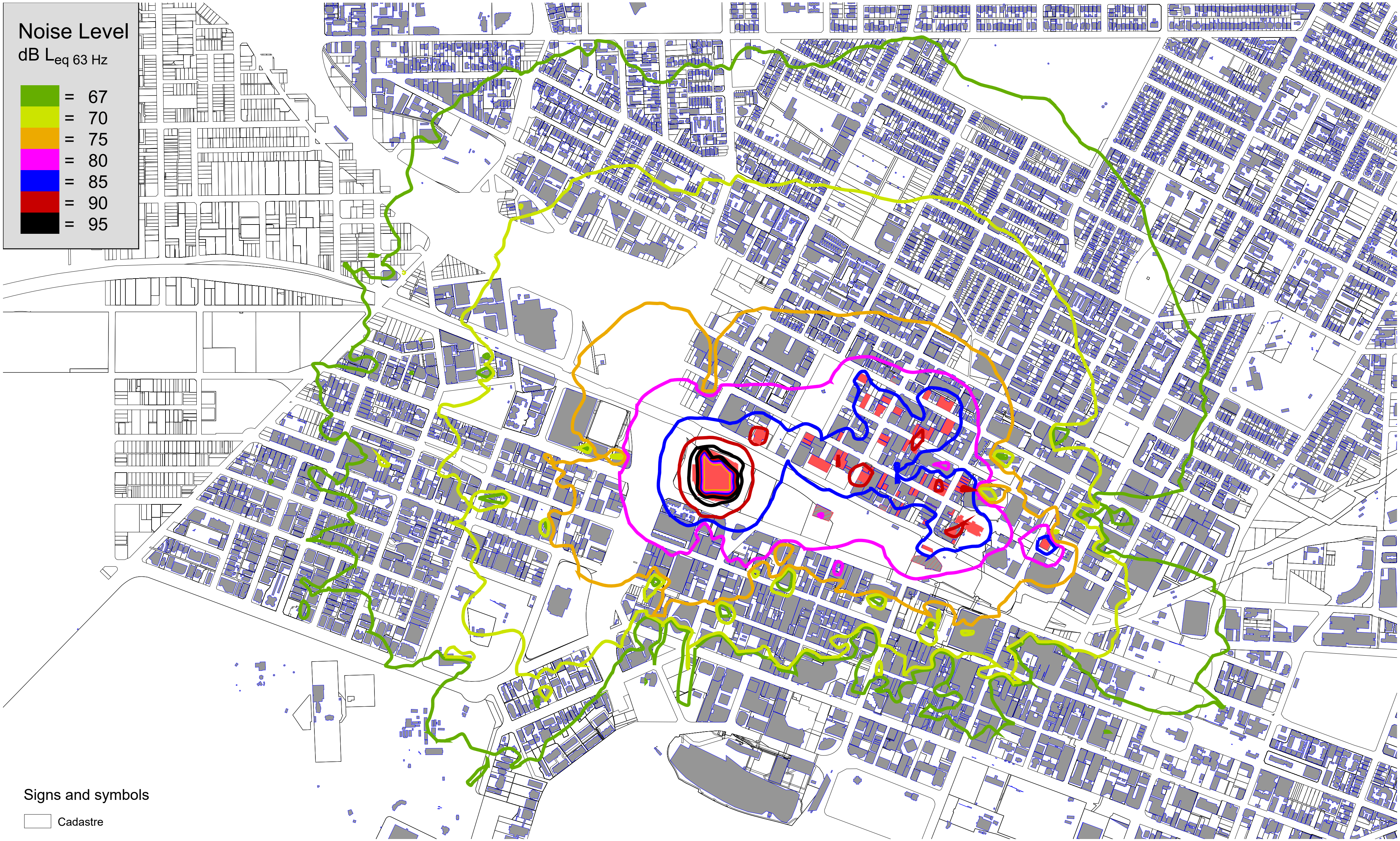
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario C (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$) Noise Levels at 28.5 m AGL (FL 9)

Figure 4-18



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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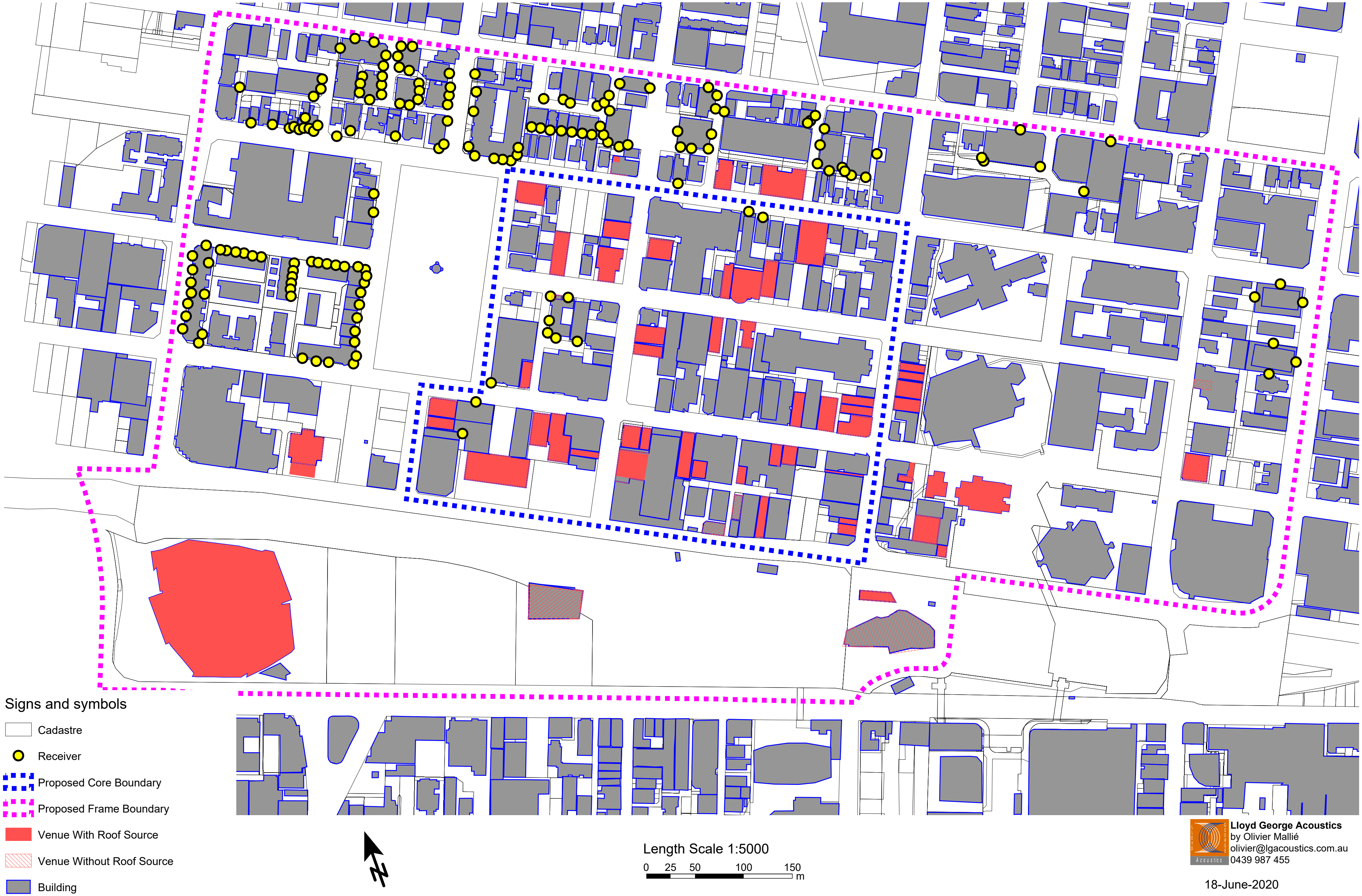
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Ground Level Receiver Locations for Deliverable C

Figure 4-19



Signs and symbols

- Cadastre
- Receiver
- Proposed Core Boundary
- Proposed Frame Boundary
- Venue With Roof Source
- Venue Without Roof Source
- Building

Length Scale 1:5000

0 25 50 100 150 m

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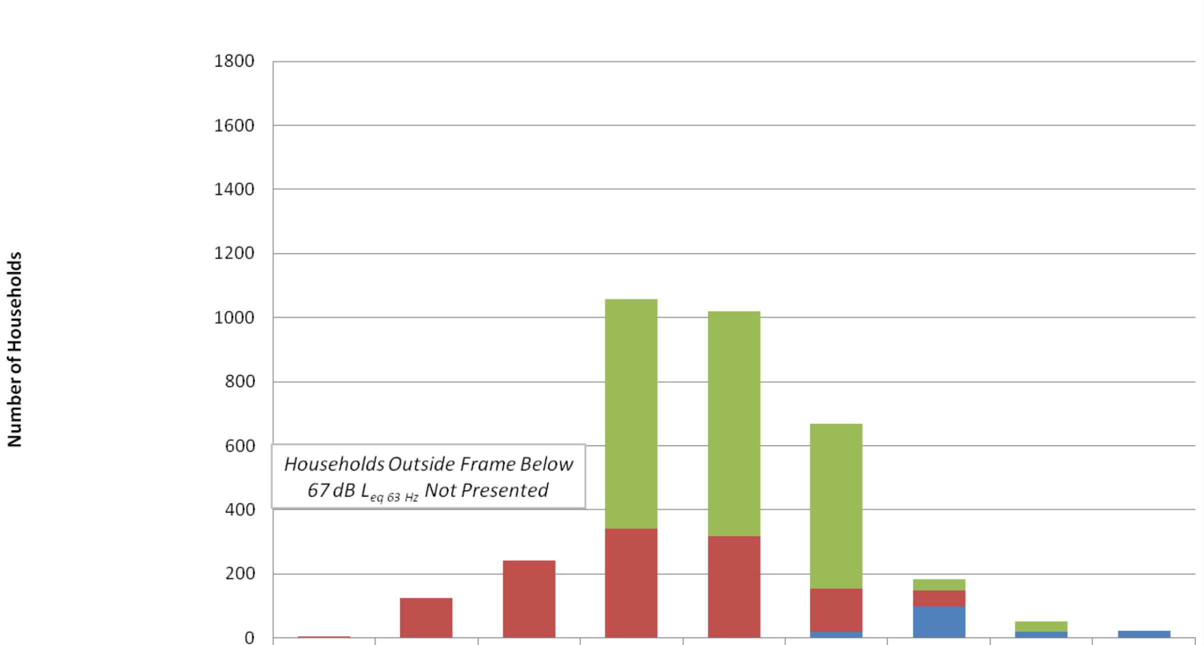
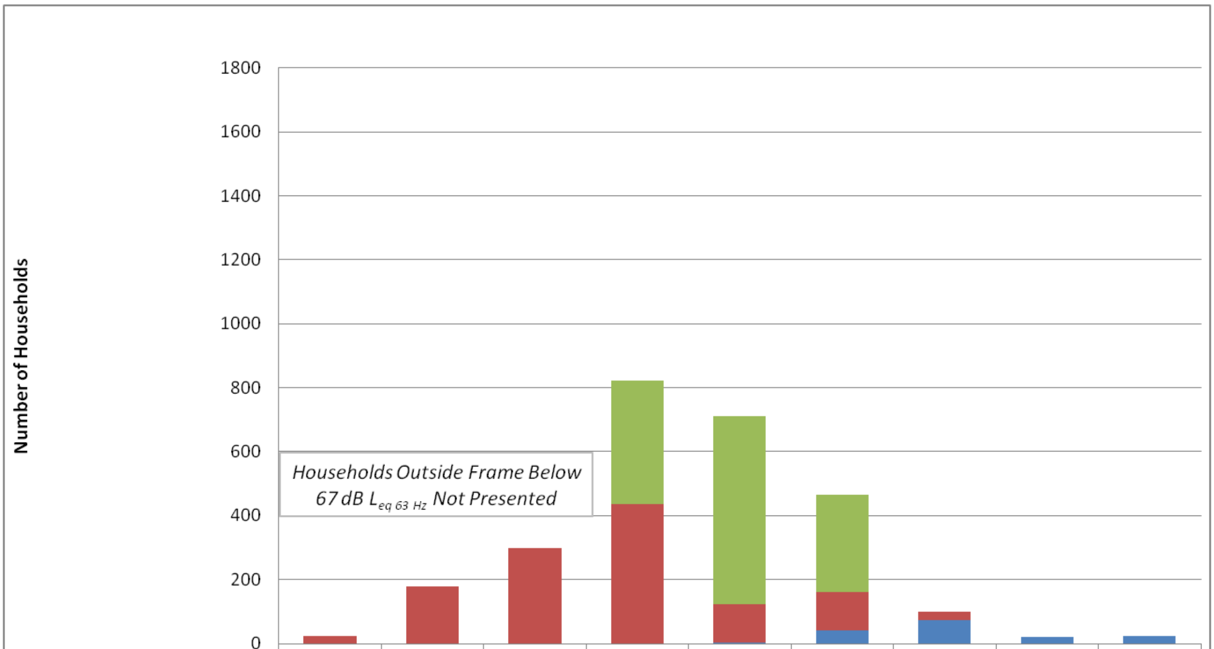


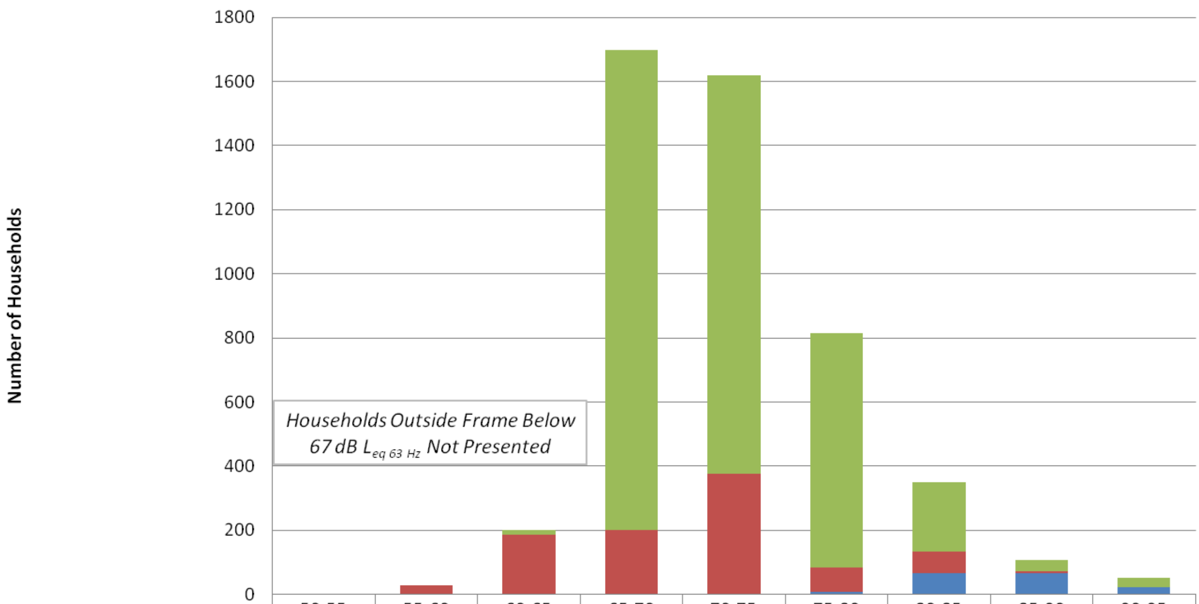
	50-55 dB 63 Hz	55-60 dB 63 Hz	60-65 dB 63 Hz	65-70 dB 63 Hz	70-75 dB 63 Hz	75-80 dB 63 Hz	80-85 dB 63 Hz	85-90 dB 63 Hz	90-95 dB 63 Hz
Households Outside Frame	0	0	0	716	702	515	36	30	0
Households in Frame	2	123	242	341	318	133	49	0	0
Households in Core	0	0	0	0	0	19	98	20	21

Figure 4-20 Estimated Number of Households Exposed to 63 Hz, Scenario A



	50-55 dB 63 Hz	55-60 dB 63 Hz	60-65 dB 63 Hz	65-70 dB 63 Hz	70-75 dB 63 Hz	75-80 dB 63 Hz	80-85 dB 63 Hz	85-90 dB 63 Hz	90-95 dB 63 Hz
Households Outside Frame	0	0	0	386	589	302	0	0	0
Households in Frame	24	180	299	437	121	120	27	0	0
Households in Core	0	0	0	0	2	42	72	20	22

Figure 4-21 Estimated Number of Households Exposed to 63 Hz, Scenario B



	50-55 dB 63 Hz	55-60 dB 63 Hz	60-65 dB 63 Hz	65-70 dB 63 Hz	70-75 dB 63 Hz	75-80 dB 63 Hz	80-85 dB 63 Hz	85-90 dB 63 Hz	90-95 dB 63 Hz
Households Outside Frame	0	0	13	1499	1244	732	217	36	30
Households in Frame	0	27	186	199	376	78	68	5	0
Households in Core	0	0	0	0	0	6	65	66	21

Figure 4-22 Estimated Number of Households Exposed to 63 Hz, Scenario C

5 ADDITIONAL SCENARIOS

Following DWER's requests in July and August 2020, an additional 7 scenarios were modelled. All scenarios were based on the previously developed noise model, with the exception of scenario 7, where two additional venues were included: The Art Gallery (roof noise emissions only) and the new WA Museum (roof and facades of all buildings).

Table 5-1 presents the list of the venues included and the modelling inputs for each scenario that is, the permitted noise levels in the 63 Hz octave band (1m from façade / roof).

Figure 5-1 to *Figure 5-14* present the results of the modelling in the form of noise contours at 10.5 (FL 3) and 28.5 (FL 9) metres above ground. It should be noted that *Figure 5-2a* represents scenario 1, *Figure 5-6a* and *Figure 5-6b* scenario 3 and *Figure 5-12a* scenario 6, all modelled at 28.5 (FL9) metres above ground but with the Perth Arena excluded from the modelling.

Table 5-1 Summary of Modelling Assumptions for each Scenario

Scenario	1	1a	2	3	3a	3b	4	5	6	6a	7
Venue	Permissible Noise Level, dB 63 Hz @ 1m										
AIR NIGHT CLUB	85	85	85	90	90	90	90	90	95	95	95
AN SIBIN PUB	85	85	85	90	90	90	90	90	95	95	95
BAR SHANGHAI	85	85	85	90	90	90	90	90	95	95	95
BRASS MONKEY	85	85	85	90	90	90	90	90	95	95	95
BUTTERFLY 73	85	85	85	90	90	90	90	90	95	95	95
COCONUT GROVE TAVERN	85	85	85	90	90	90	90	90	95	95	95
CONNECTIONS NIGHT CLUB	85	85	85	90	90	90	90	90	95	95	95
CROWN KARAOKE	85	85	85	90	90	90	90	90	95	95	95
DRAGON PALACE CHINESE RESTAURANT & KTV	85	85	85	90	90	90	90	90	95	95	95
EMPYREAN THEATRE	85	85	85	90	90	90	90	90	95	95	95
EZRA POUND	85	85	85	90	90	90	90	90	95	95	95
FRISK ESPRESSO	85	85	85	90	90	90	90	90	95	95	95
GALAXY LOUNGE	85	85	85	90	90	90	90	90	95	95	95

Scenario	1	1a	2	3	3a	3b	4	5	6	6a	7
Venue	Permissible Noise Level, dB 63 Hz @ 1m										
GEISHA BAR	85	85	85	90	90	90	90	90	95	95	95
HENRY SUMMER	85	85	85	90	90	90	90	90	95	95	95
HIT STUDIO KARAOKE BAR	85	85	85	90	90	90	90	90	95	95	95
HOLEY MOLEY GOLF CLUB	85	85	85	90	90	90	90	90	95	95	95
ICE CREAM FACTORY	85	85	85	90	90	90	90	90	95	95	95
IDARTS NIX	85	85	85	90	90	90	90	90	95	95	95
JACK RABBIT SLIM'S	85	85	85	90	90	90	90	90	95	95	95
KARA KARAOKE	85	85	85	90	90	90	90	90	95	95	95
LIBRARY NIGHTCLUB	85	85	85	90	90	90	90	90	95	95	95
MINT NIGHT CLUB	85	85	85	90	90	90	90	90	95	95	95
MIRAGE PALACE KARAOKE	85	85	85	90	90	90	90	90	95	95	95
MUSTANG BAR	85	85	85	90	90	90	90	90	95	95	95
NORTHBRIDGE BREWING COMPANY	85	85	85	90	90	90	90	90	95	95	95
PARADISE KARAOKE BAR	85	85	85	90	90	90	90	90	95	95	95
PARAMOUNT NIGHTCLUB	85	85	85	90	90	90	90	90	95	95	95
PATRIOT'S SPORTS BAR	85	85	85	90	90	90	90	90	95	95	95
RAPTURE NIGHTCLUB	85	85	85	90	90	90	90	90	95	95	95
ROSIE O'GRADY'S PUB	85	85	85	90	90	90	90	90	95	95	95
SNEAKY TONY'S	85	85	85	90	90	90	90	90	95	95	95
SUBARU KARAOKE RESTAURANT	85	85	85	90	90	90	90	90	95	95	95
THE REPUBLIC NIGHTCLUB	85	85	85	90	90	90	90	90	95	95	95

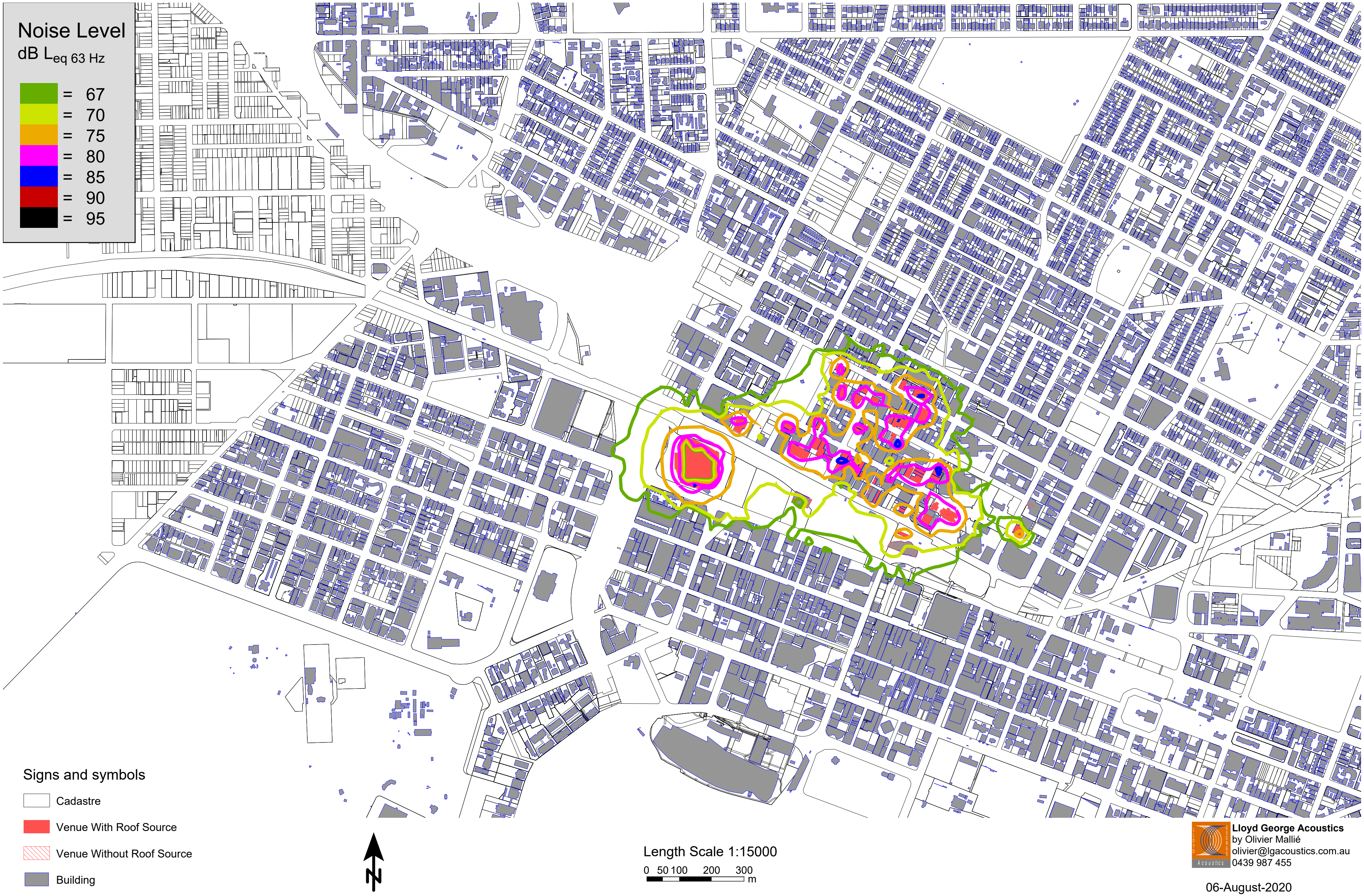
Scenario	1	1a	2	3	3a	3b	4	5	6	6a	7
Venue	Permissible Noise Level, dB 63 Hz @ 1m										
THE STANDARD - PERTH	85	85	85	90	90	90	90	90	95	95	95
THE WILLIAM STREET BIRD	85	85	85	90	90	90	90	90	95	95	95
TIKI AS FK	85	85	85	90	90	90	90	90	95	95	95
UNIVERSAL BAR	85	85	85	90	90	90	90	90	95	95	95
UTOPIA KARAOKE	85	85	85	90	90	90	90	90	95	95	95
VOODOO LOUNGE & ROCKET ROOM	85	85	85	90	90	90	90	90	95	95	95
YOUNG LOVE MESS HALL	85	85	85	90	90	90	90	90	95	95	95
ABERDEEN HOTEL	85	85	85	90	90	90	90	90	95	95	95
COURT HOTEL	80	80	80	90	90	90	90	80	95	95	95
MARKET GROUNDS	80	80	80	80	80	79	80	80	80	80	95
MECHANICS INSTITUTE BAR	85	85	85	90	90	90	90	90	95	95	95
METRO CITY	80	80	80	90	90	90	90	80	95	95	95
NEVERMIND SMALLCLUB	85	85	85	90	90	90	90	90	95	95	95
NORTHBRIDGE SOCIAL	85	85	85	90	90	90	90	90	95	95	95
PALACE ARCADE	80	80	80	80	80	79	80	80	80	80	95
PERTH ARENA	80	N/A	80	80	N/A	N/A	80	80	80	N/A	95
PICA	85	85	80	90	90	90	80	80	95	95	95
SHY JOHN YUM CHA & BREWERY	80	80	80	80	80	79	80	80	80	80	95
STATE THEATRE CENTRE	85	85	80	90	90	90	80	80	95	95	95
THE BLUE ROOM	85	85	80	90	90	90	80	80	95	95	95
THE PENTHOUSE CLUB PERTH	85	85	85	90	90	90	90	90	95	95	95

Scenario	1	1a	2	3	3a	3b	4	5	6	6a	7
Venue	Permissible Noise Level, dB 63 Hz @ 1m										
THE RECHABITE	85	85	85	90	90	90	90	90	95	95	95
THE SHOE BAR & CAFE	80	80	80	80	80	79	80	80	80	80	95
VARSITY NORTHBRIDGE	85	85	85	90	90	90	90	90	95	95	95
LOT TWENTY	85	85	85	90	90	90	90	90	95	95	95
ART GALLERY ROOF SPACE	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95
MUSEUM	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	95

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 1 (Core Venues with 85 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 5-1



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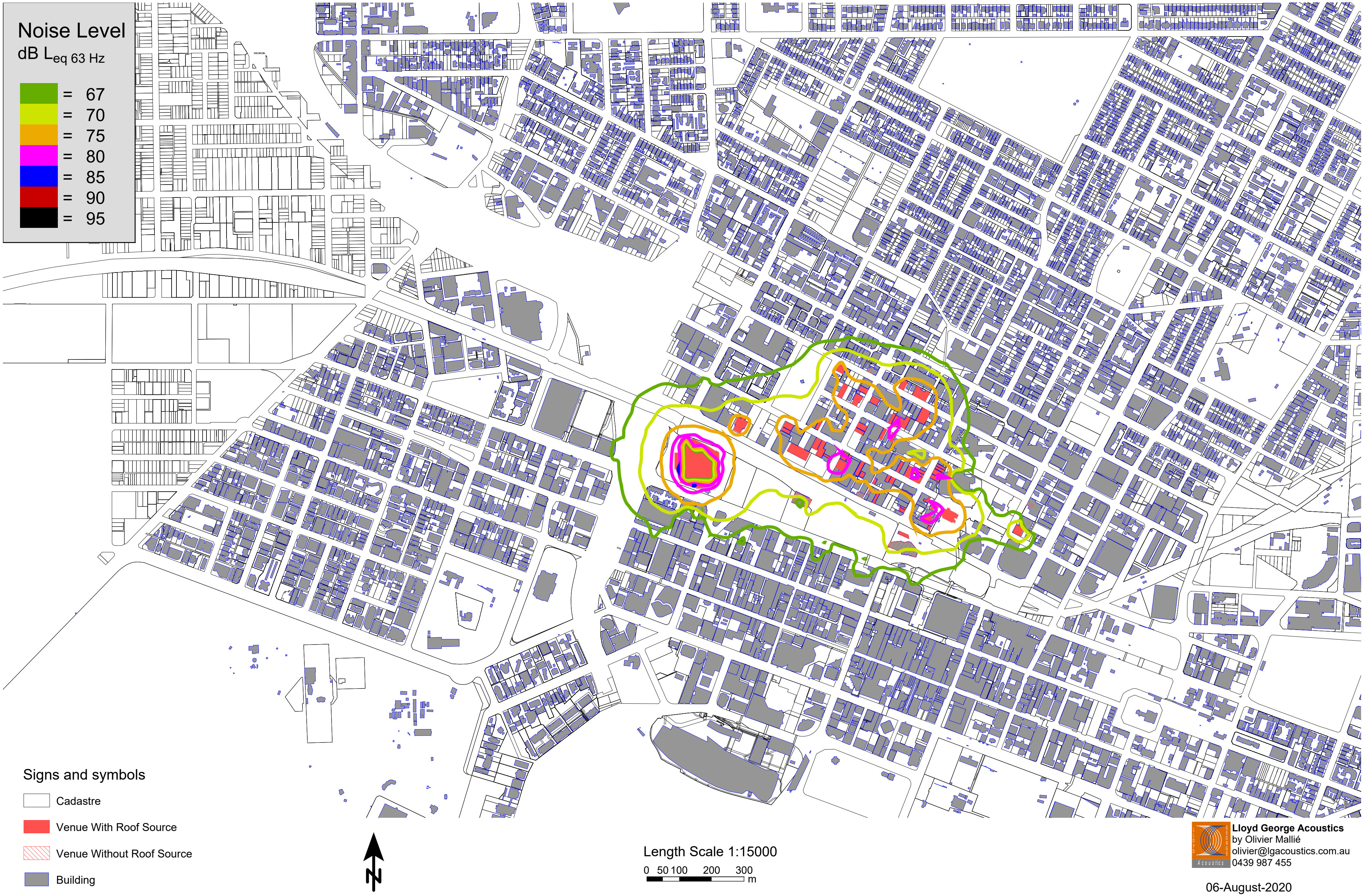
06-August-2020

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 1 (Core Venues with 85 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-2



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Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario 1a (Core Venues with 85 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-2a

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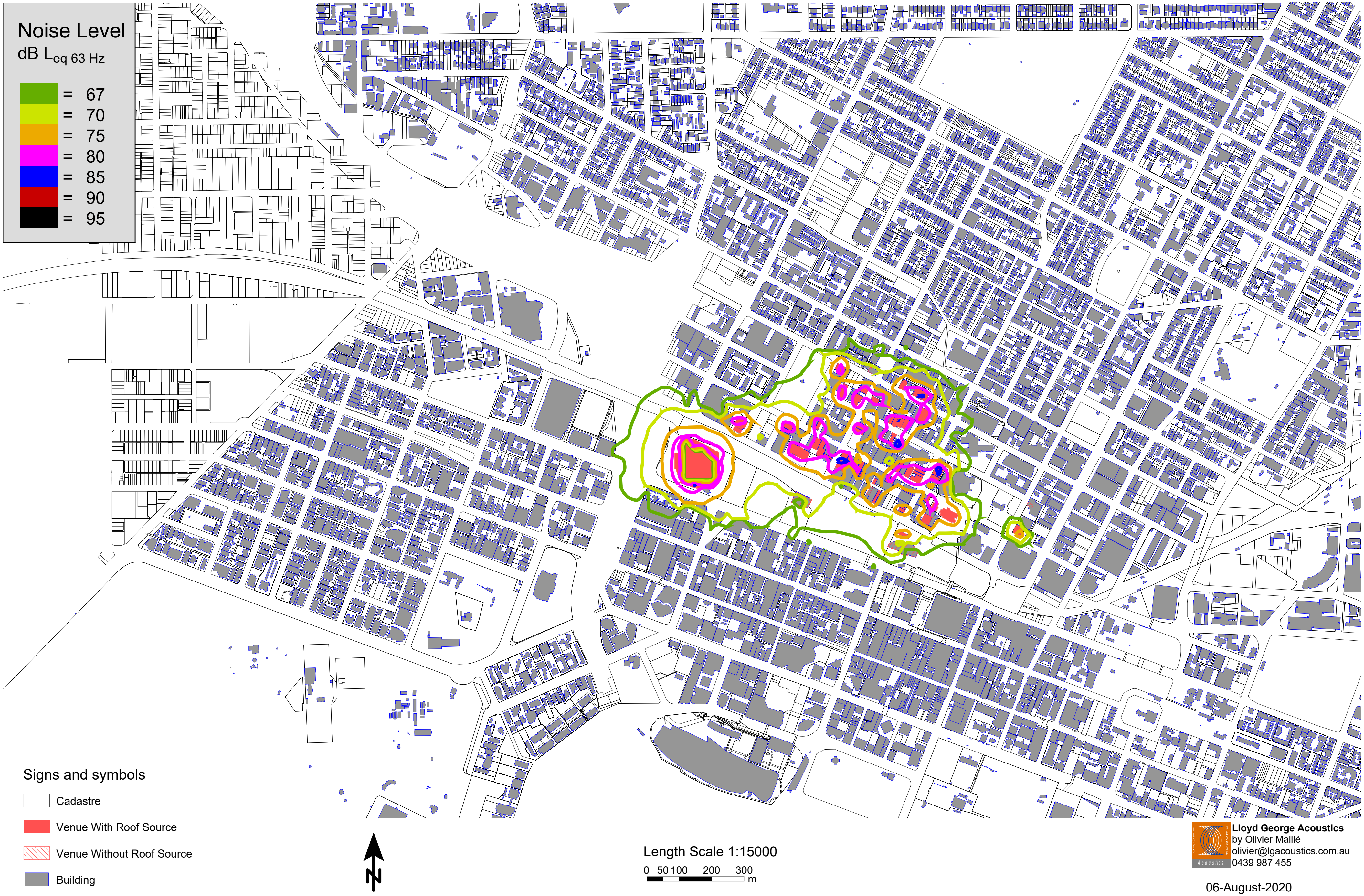
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 2 (Core Venues with 85 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

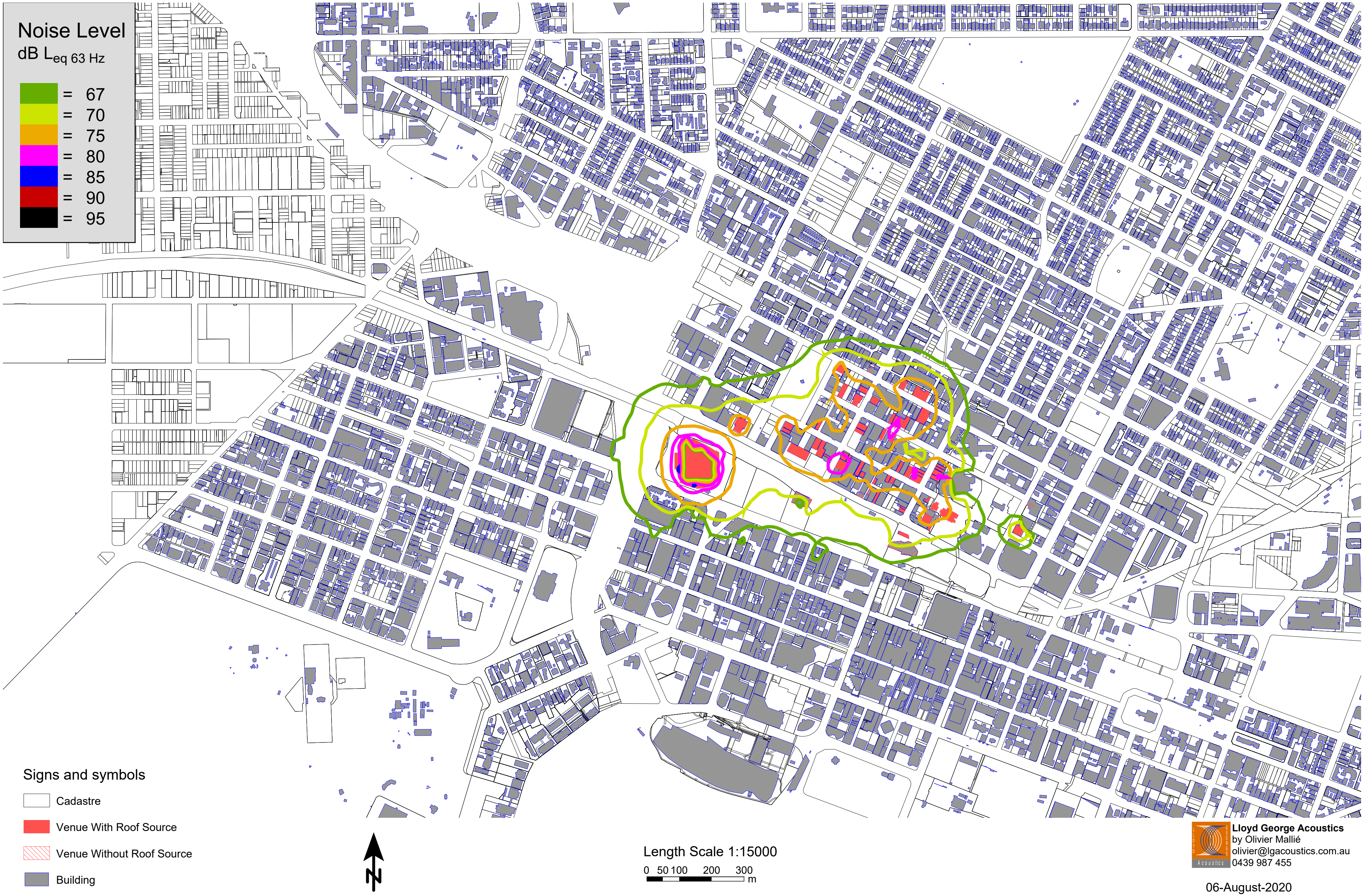
Figure 5-3



Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 2 (Core Venues with 85 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-4



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Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario 3 (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 5-5

Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000
0 50 100 200 300 m

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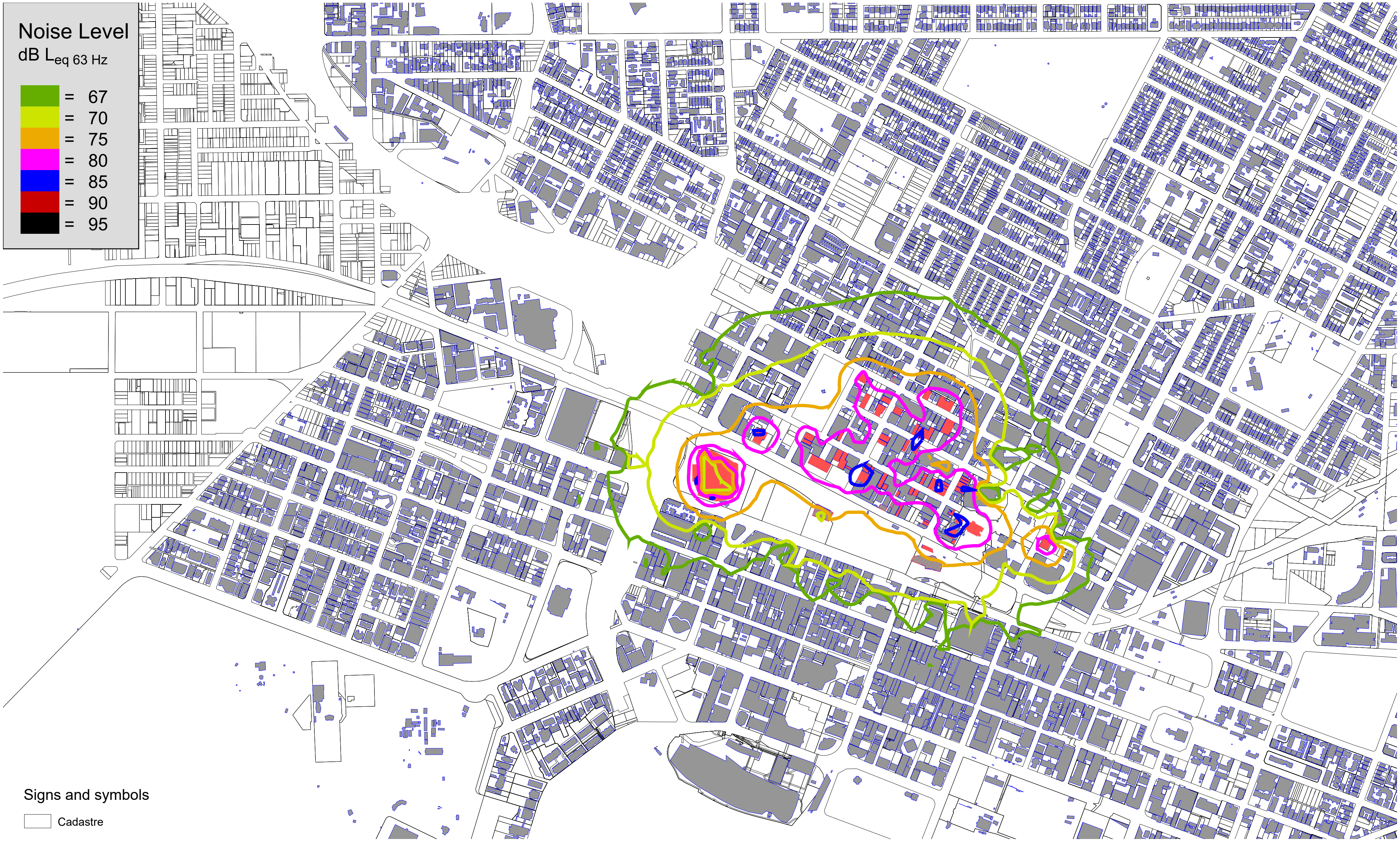
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 3 (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-6



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 3a (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-6a

Noise Level

dB $L_{eq\ 63\ Hz}$

= 67

= 70

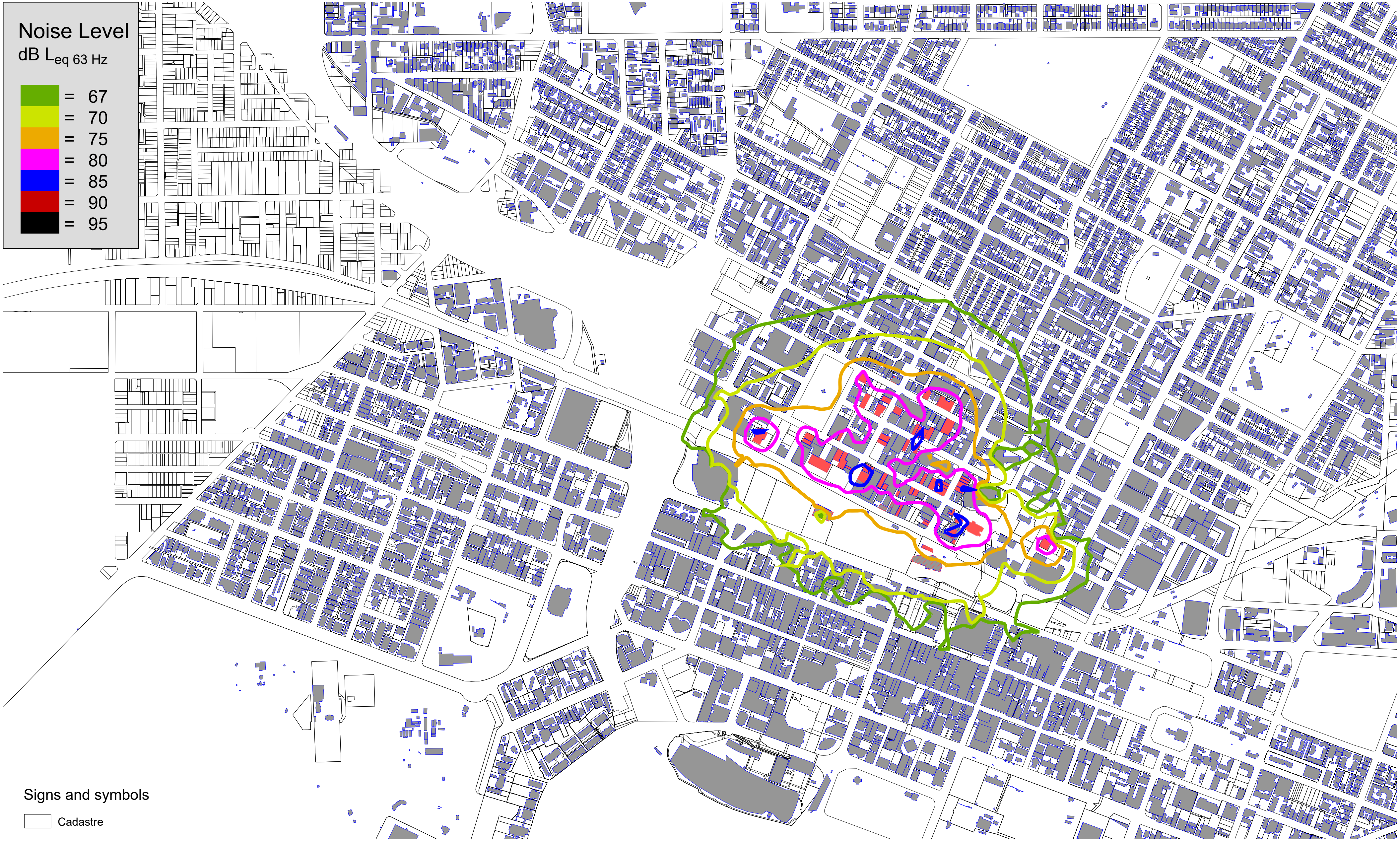
= 75

= 80

= 85

= 90

= 95



Signs and symbols

Cadastre

Venue With Roof Source

Venue Without Roof Source

Building

N

Length Scale 1:15000

0 50 100 200 300 m

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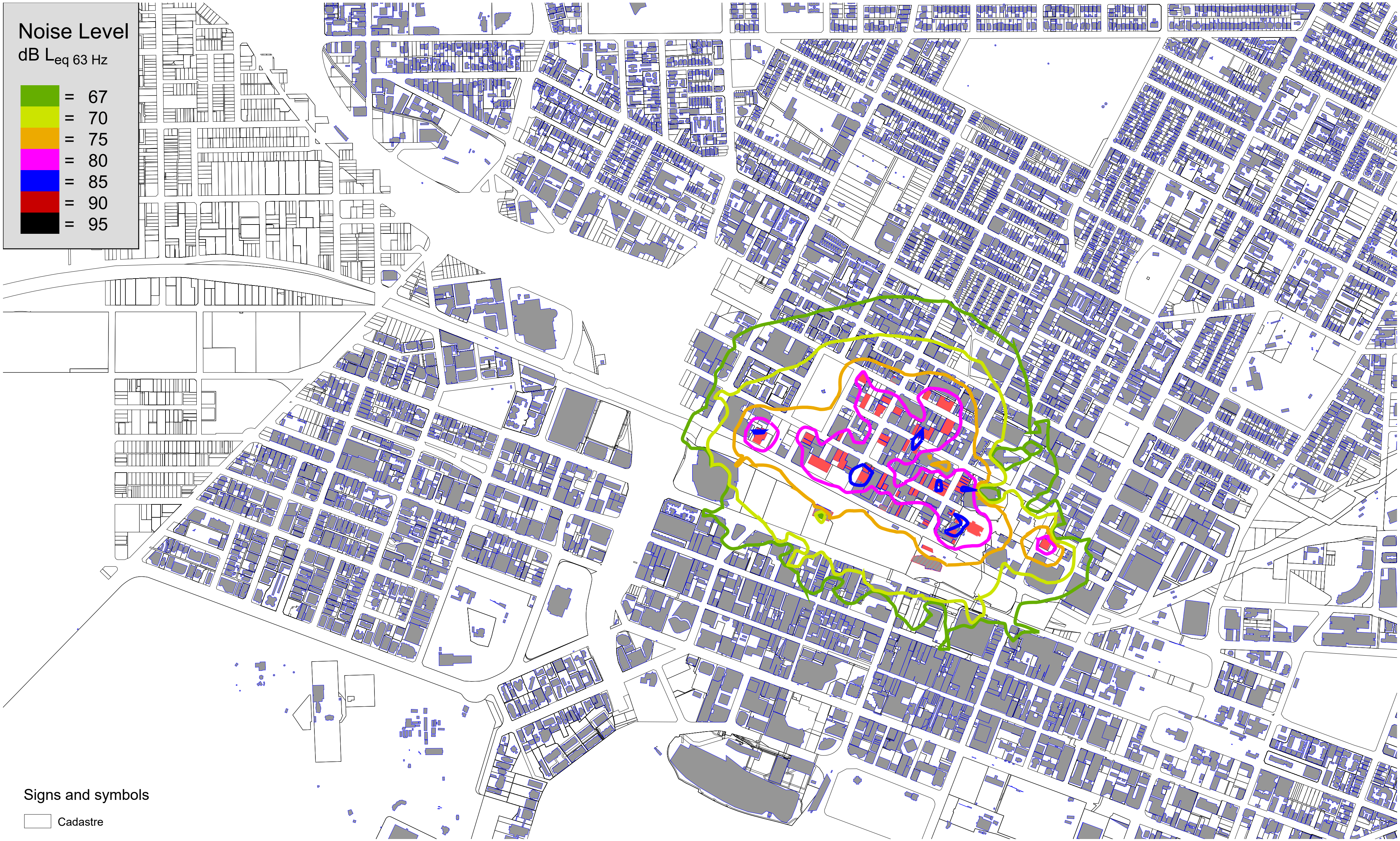
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 3b (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 79 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-6b



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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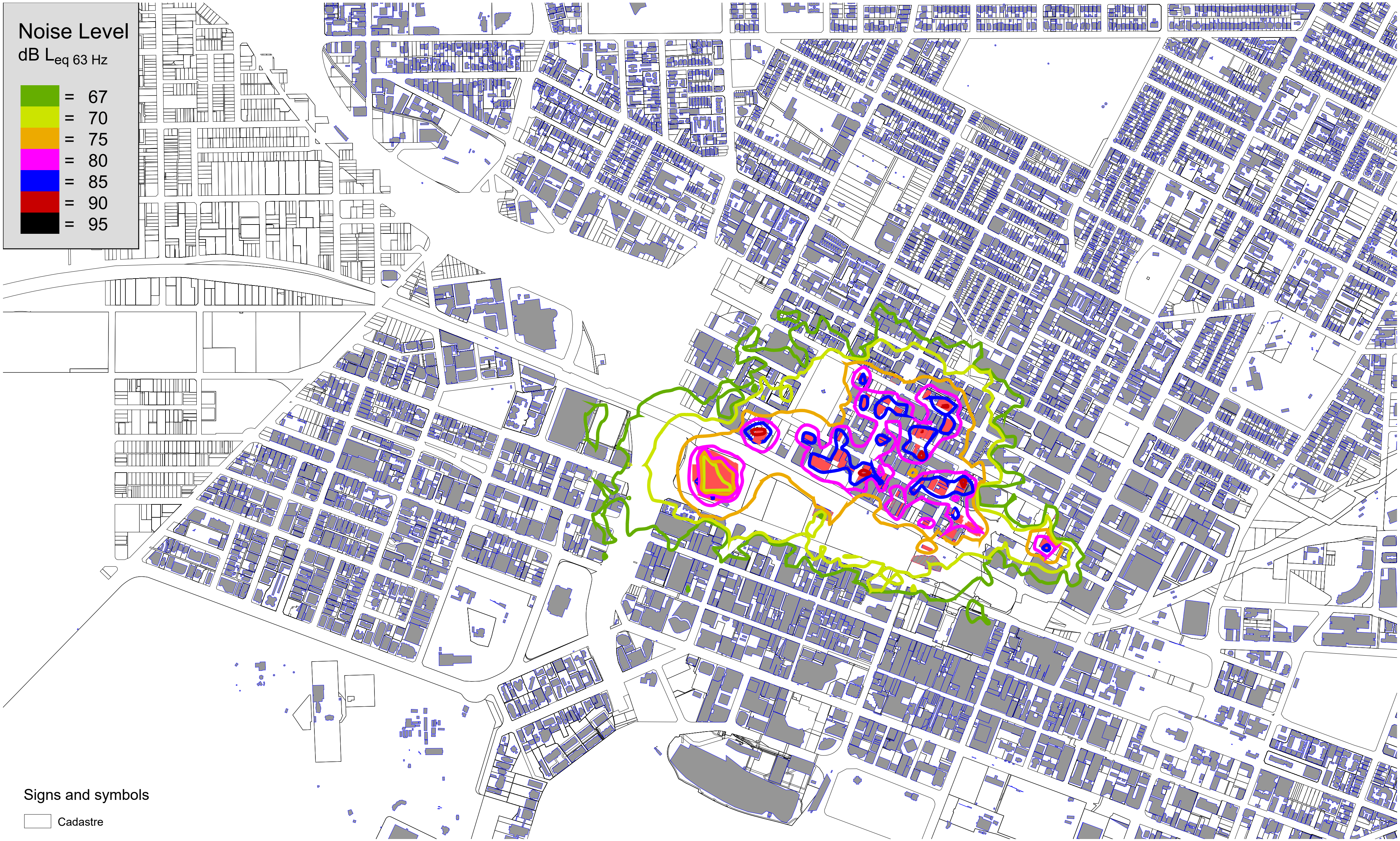
16-September-2020

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 4 (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 5-7



Signs and symbols

Cadastre

Venue With Roof Source

Venue Without Roof Source

Building

N

Length Scale 1:15000

0 50 100 200 300 m

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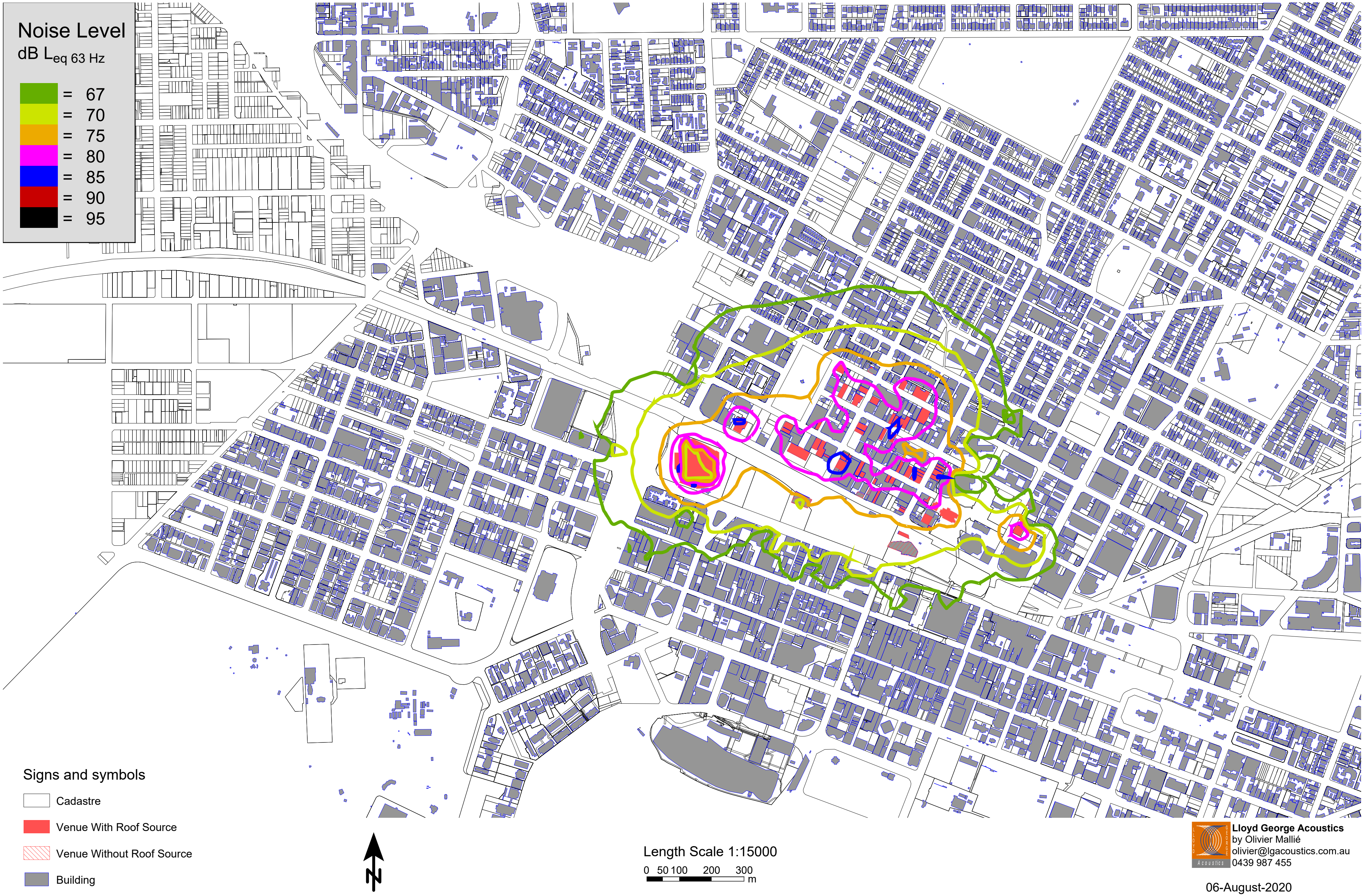
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 4 (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-8



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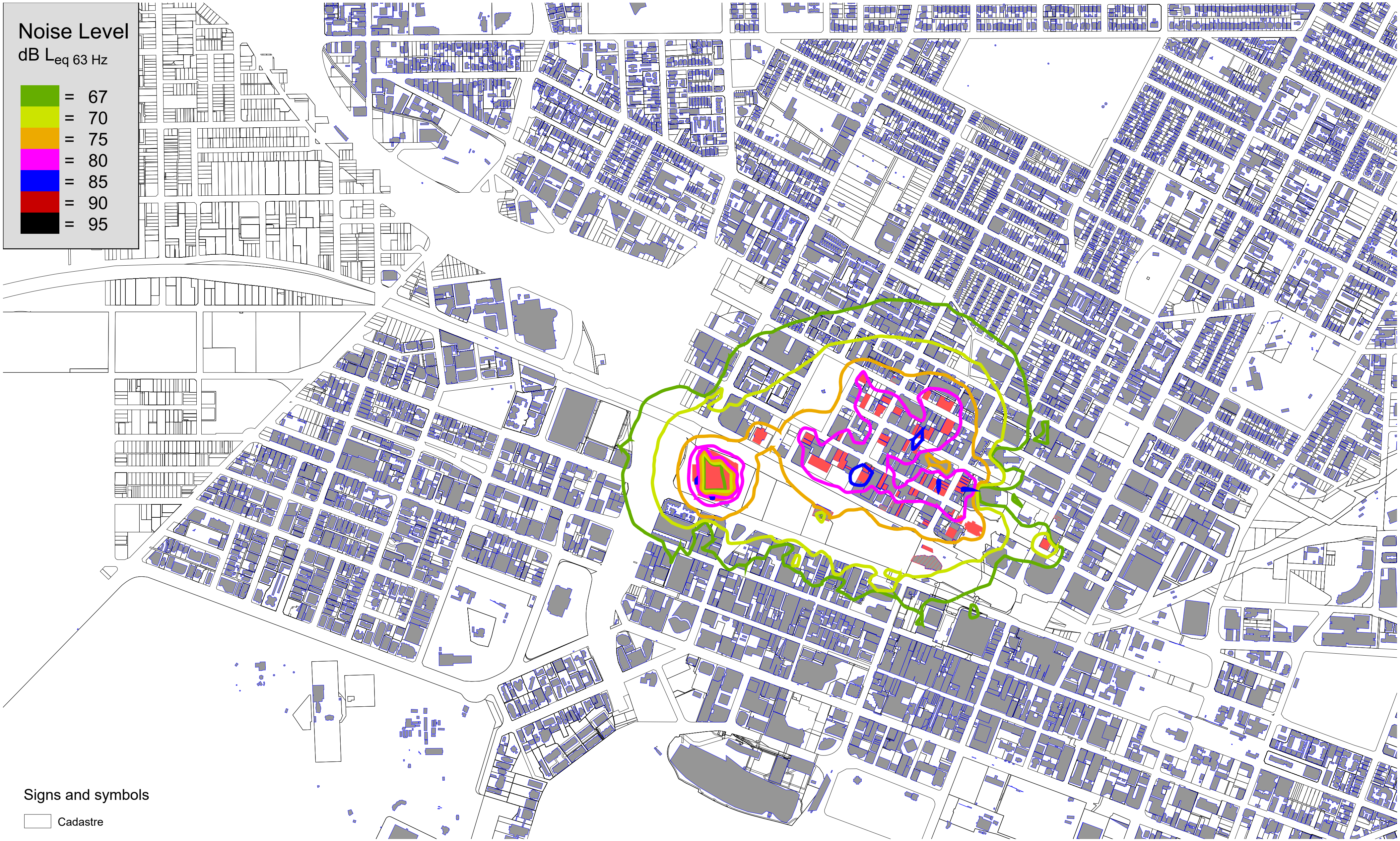
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 5 (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 5-9



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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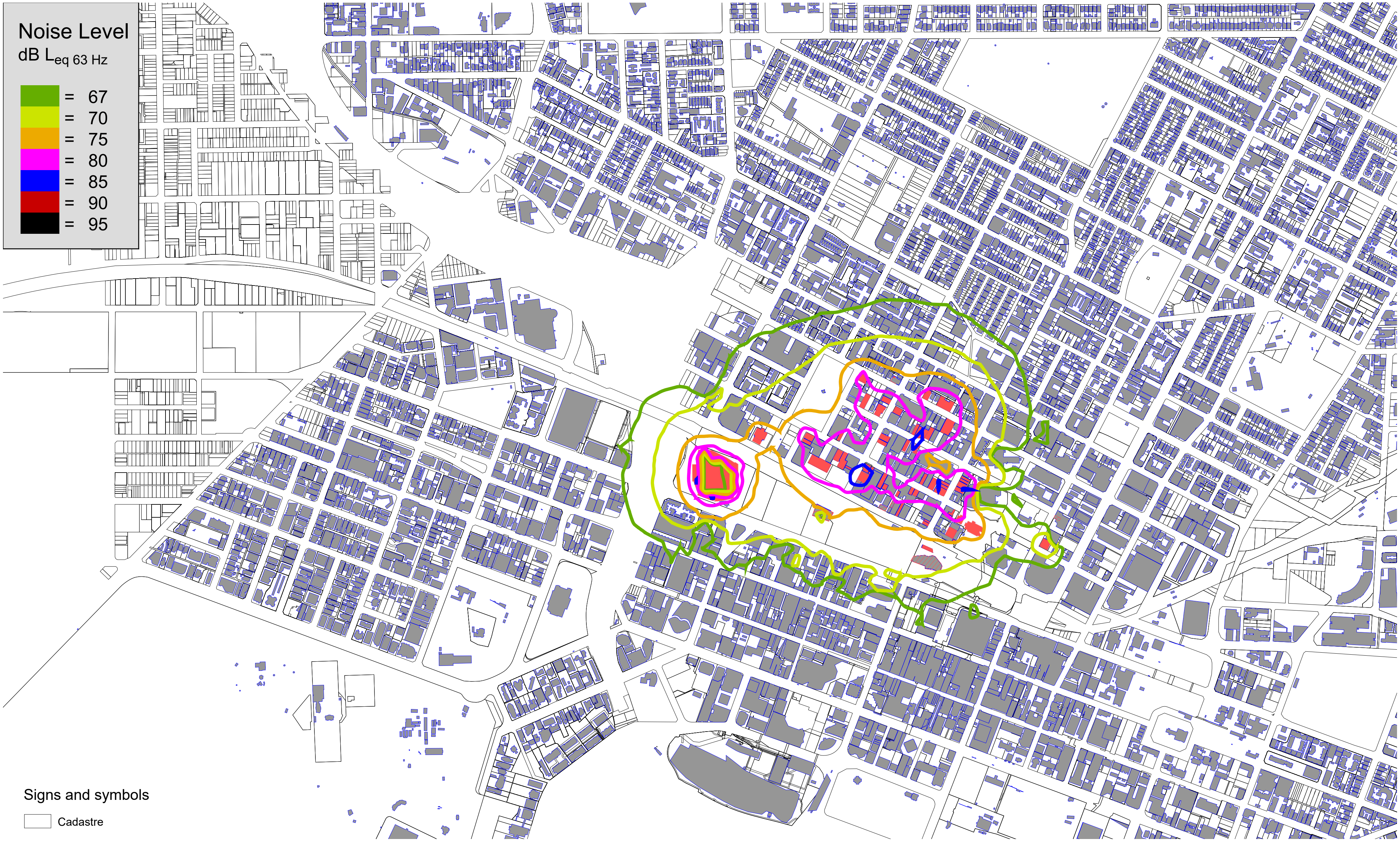
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 5 (Core Venues with 90 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-10



Signs and symbols

- Cadastre
- Venue With Roof Source
- Venue Without Roof Source
- Building

N

Length Scale 1:15000

0 50 100 200 300 m

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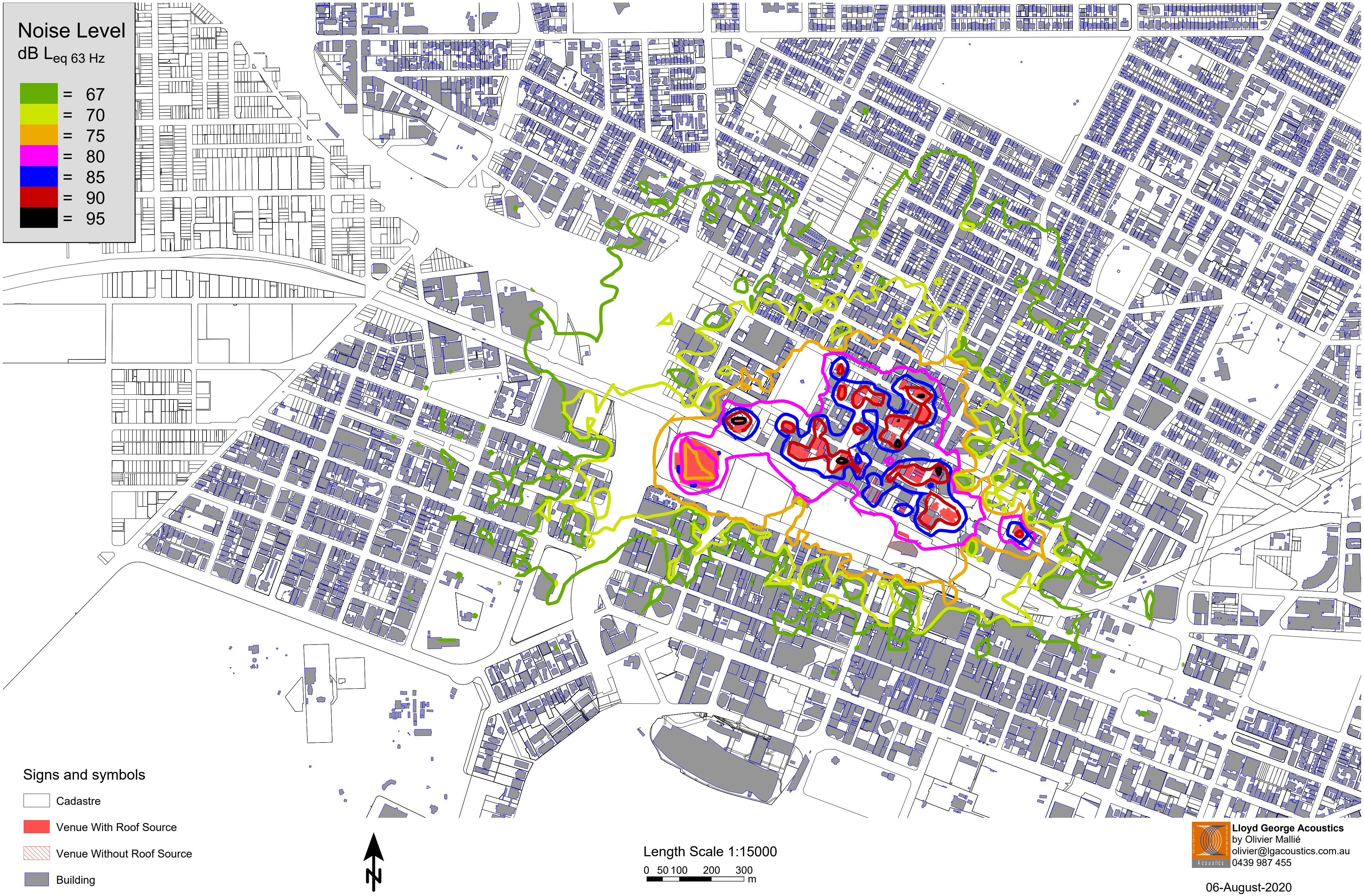
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction
Scenario 6 (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 5-11



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Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 6 (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-12

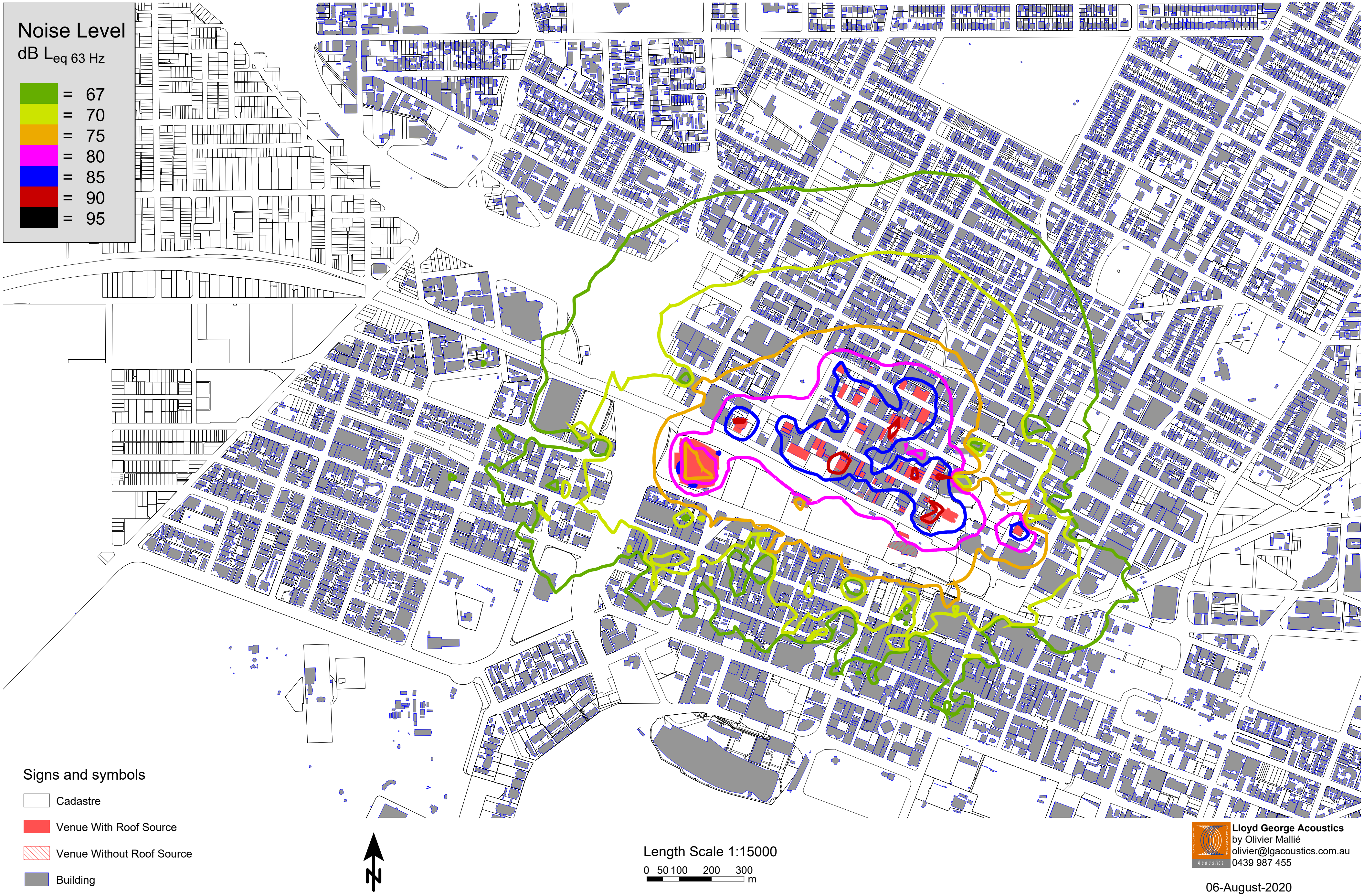

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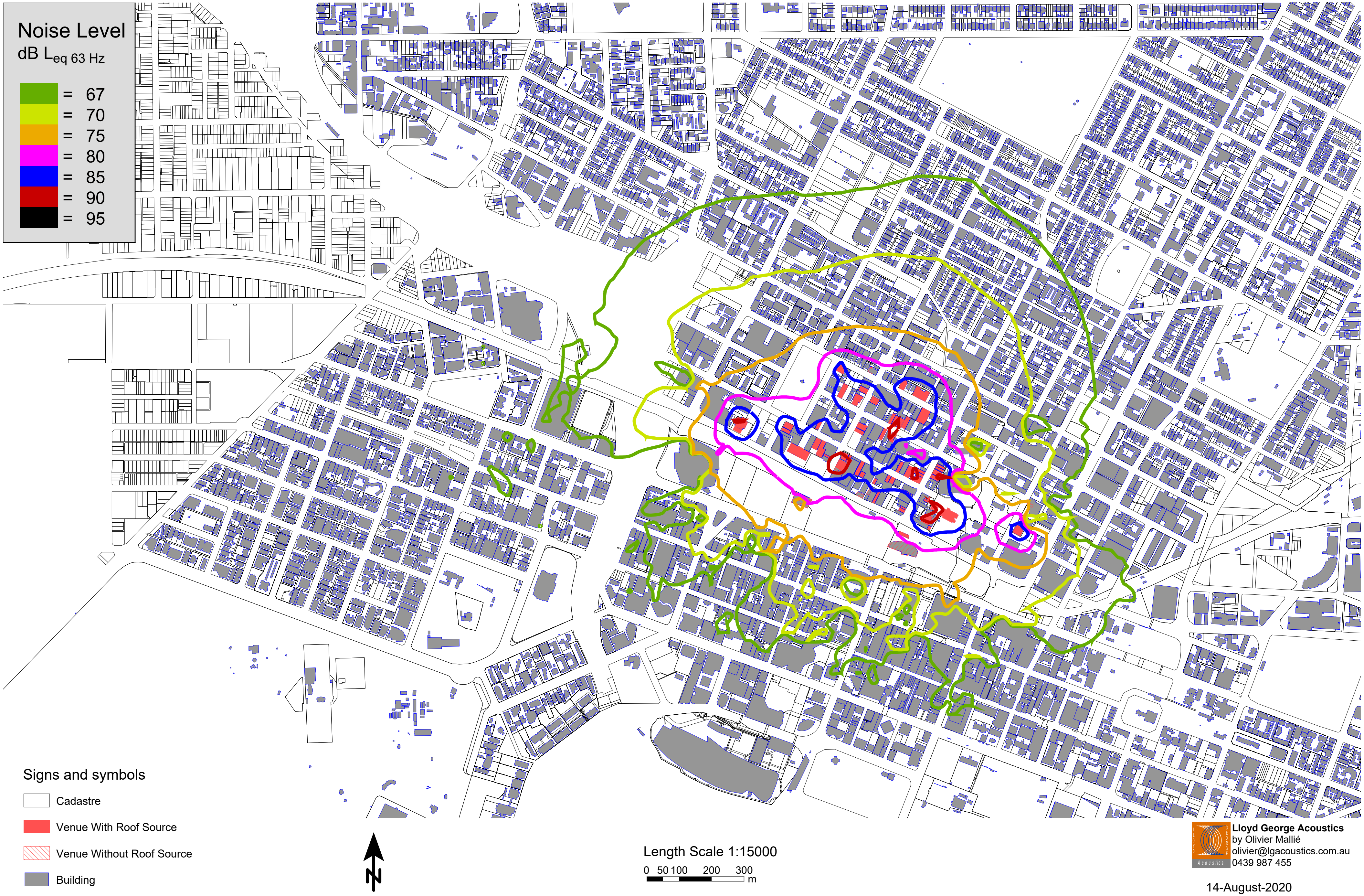
Figure 5-12a

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 6a (Core Venues with 95 dB $L_{eq\ 63\ Hz}$ and Frame Venues with 80 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)



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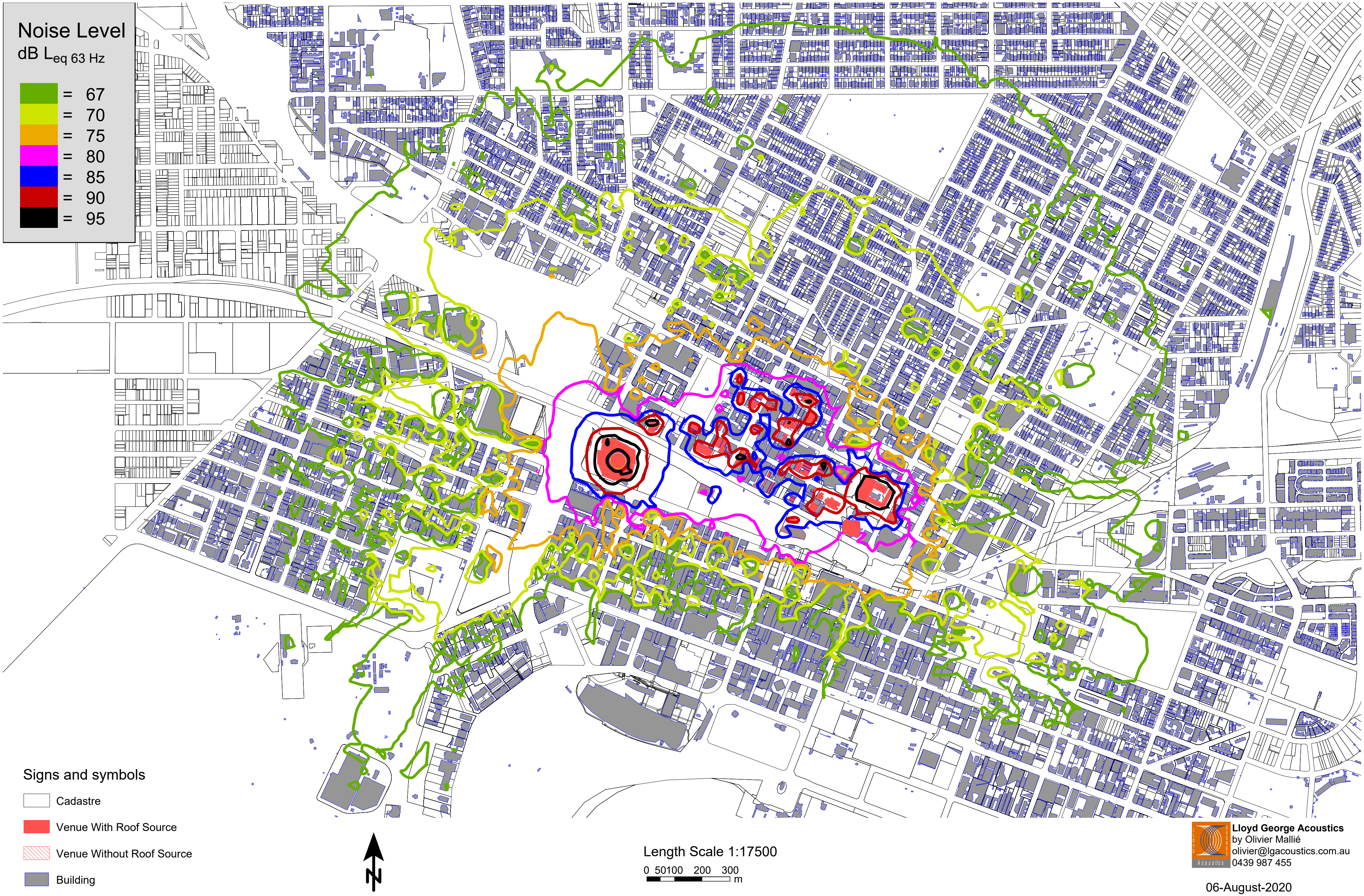
14-August-2020

Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 7 (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$) at 10.5 m AGL (FL3)

Figure 5-13



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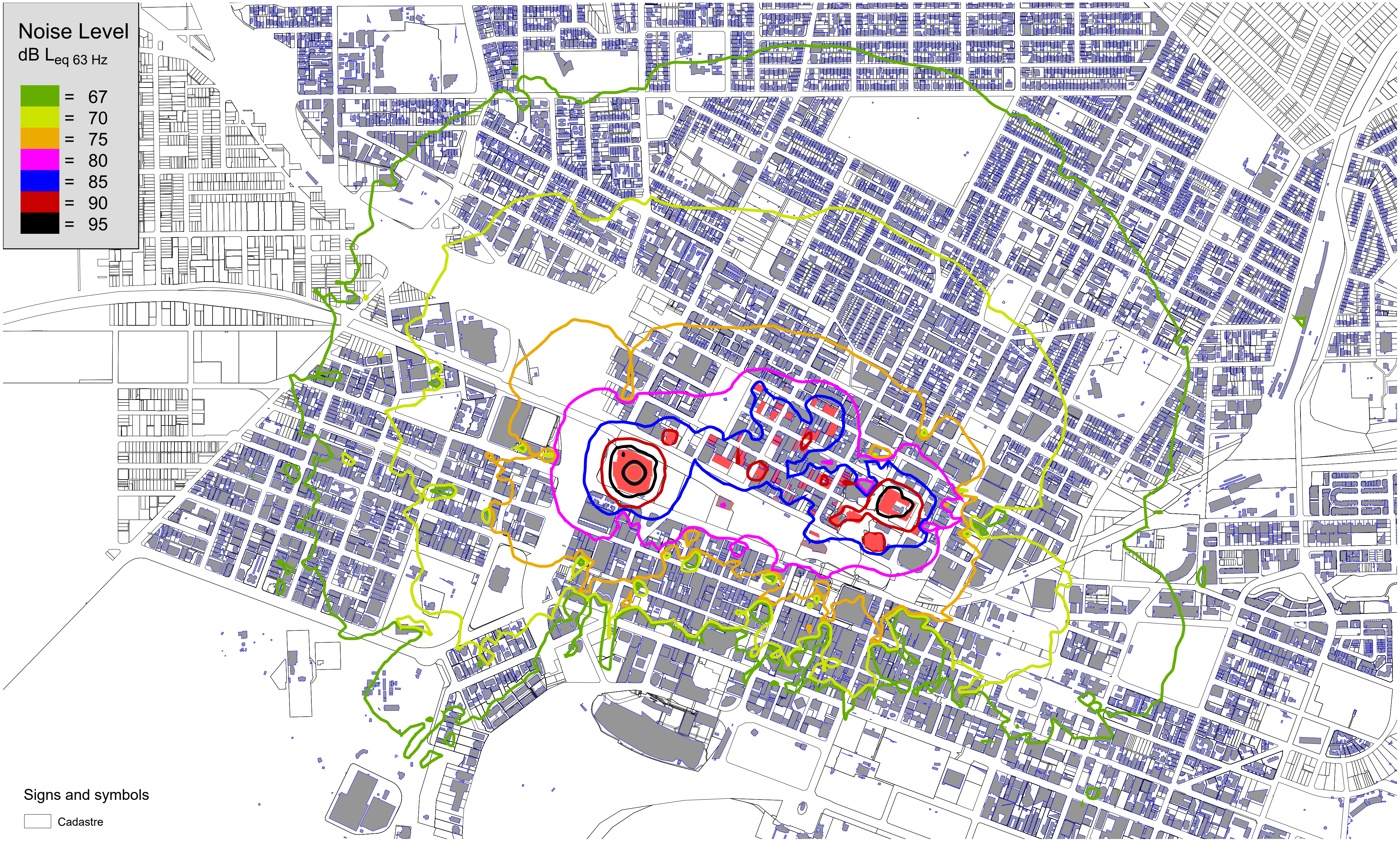
Northbridge Entertainment Precinct - Low Frequency Music Noise Prediction

Scenario 7 (Core and Frame Venues with 95 dB $L_{eq\ 63\ Hz}$) at 28.5 m AGL (FL9)

Figure 5-14



Signs and symbols

Cadastre

Venue With Roof Source

Venue Without Roof Source

Building

N

Length Scale 1:17500

0 50100 200 300 m

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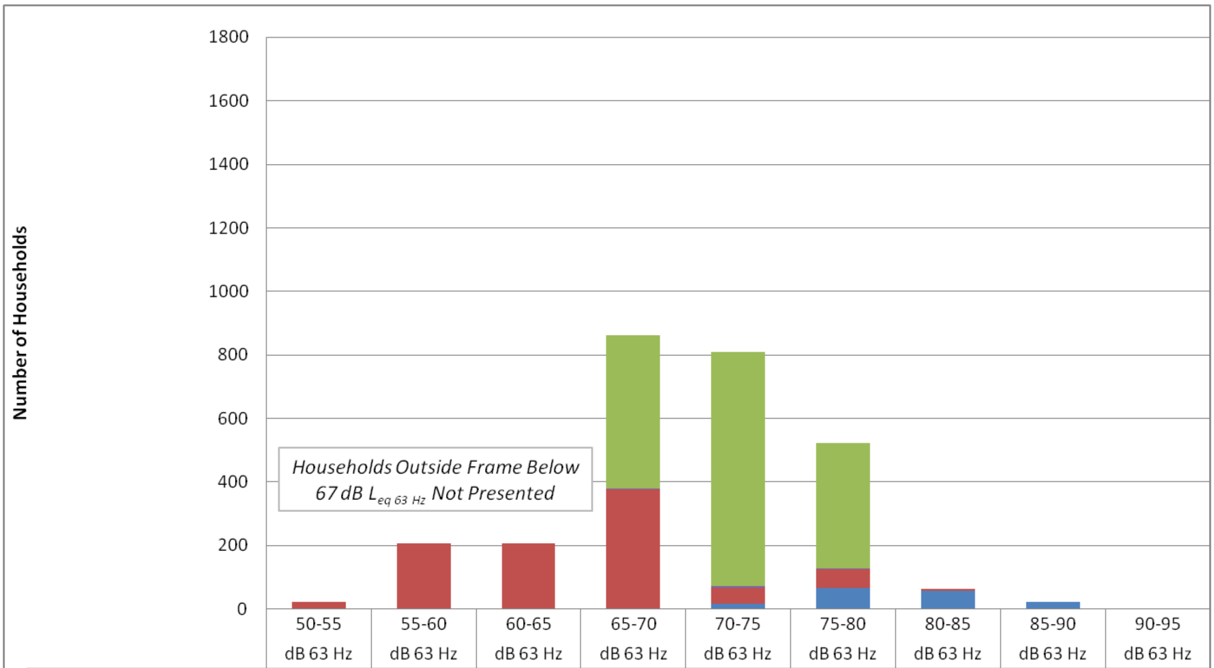
Finally, a histogram and table for number of households receiving L_{Leq} 63 Hz levels at the façade of their building were created for scenario 3b, and is presented in *Figure 5-15*. Similar to the data presented in *Section 4.1,* the distribution of households exposed to low frequency noise is presented in 5 dB intervals.

It is noted that those residences outside of the SEP exposed to levels of 67-70 dB L_{eq} 63 Hz are included in the 65-70 dB range. However, those households exposed to levels below 67 dB L_{eq} 63 Hz have not been presented as the range for consideration was limited by DWER to households within the 67 dB L_{eq} 63 Hz contour.



	50-55 dB 63 Hz	55-60 dB 63 Hz	60-65 dB 63 Hz	65-70 dB 63 Hz	70-75 dB 63 Hz	75-80 dB 63 Hz	80-85 dB 63 Hz	85-90 dB 63 Hz	90-95 dB 63 Hz
Households Outside Frame	0	0	0	482	737	396	0	0	0
Households in Transition	0	0	0	4	6	2	0	0	0
Households in Frame	23	206	207	376	50	60	5	0	0
Households in Core	0	0	0	0	15	65	57	21	0

Figure 5-15 Estimated Number of Households Exposed to 63 Hz, Scenario 3b

Appendix A

Venues Sound Power Levels (Scenarios A to C)

Venue-Source Group	Octave Band Centre Frequency (Hz)											Overall dB(A)
	16	31	63	125	250	500	1k	2k	4k	8k	16k	
Venues in Core (All Scenarios)												
V1-Roof	92.0	108.4	118.6	109.0	103.1	101.9	99.2	94.9	88.2	78.9	67.3	119.7
V1-Walls	83.2	99.5	109.8	100.2	94.3	93.0	90.4	86.0	79.4	70.1	58.5	110.8
V2-Walls	84.4	100.7	111.0	101.4	95.5	94.2	91.6	87.3	80.6	71.3	59.7	112.1
V3-North	81.6	97.9	108.2	98.6	92.7	91.5	88.8	84.5	77.8	68.5	56.9	109.3
V3-Roof	93.8	110.1	120.4	110.8	104.9	103.7	101.0	96.7	90.0	80.7	69.1	121.5
V4-Roof (and Outdoor Area)	93.7	110.0	120.3	110.7	104.8	103.5	100.9	96.5	89.9	80.6	69.0	121.3
V4-Walls	91.5	107.8	118.1	108.4	102.5	101.3	98.7	94.3	87.6	78.4	66.7	119.1
V5-Roof	92.0	108.3	118.6	109.0	103.1	101.9	99.2	94.9	88.2	78.9	67.3	119.7
V5-Walls	88.2	104.6	114.9	105.2	99.3	98.1	95.5	91.1	84.4	75.2	63.5	115.9
V6-Roof	95.5	111.8	122.1	112.5	106.6	105.3	102.7	98.3	91.6	82.4	70.8	123.1
V6-Walls	88.9	105.3	115.5	105.9	100.0	98.8	96.1	91.8	85.1	75.8	64.2	116.6
V7-Roof	90.3	106.6	116.9	107.3	101.4	100.2	97.5	93.2	86.5	77.2	65.6	118.0
V7-Walls	83.9	100.2	110.5	100.9	95.0	93.8	91.1	86.8	80.1	70.8	59.2	111.6
V8-Walls	84.8	101.1	111.4	101.7	95.8	94.6	92.0	87.6	80.9	71.7	60.0	112.4
V9-Roof	95.7	112.0	122.3	112.7	106.8	105.5	102.9	98.6	91.9	82.6	71.0	123.4
V9-Walls	90.7	107.0	117.3	107.7	101.8	100.5	97.9	93.5	86.8	77.6	66.0	118.3
V10-Roof	94.9	111.2	121.5	111.8	105.9	104.7	102.1	97.7	91.0	81.8	70.2	122.5
V11-Roof	86.1	102.4	112.7	103.0	97.1	95.9	93.3	88.9	82.2	73.0	61.4	113.7
V11-Walls	78.5	94.8	105.1	95.5	89.6	88.4	85.7	81.4	74.7	65.4	53.8	106.2
V12-Walls	81.7	98.0	108.3	98.7	92.8	91.6	88.9	84.6	77.9	68.6	57.0	109.4
V13-Roof	91.0	107.4	117.6	108.0	102.1	100.9	98.2	93.9	87.2	78.0	66.3	118.7
V13-Walls	94.5	110.8	121.1	111.4	105.5	104.3	101.7	97.3	90.6	81.4	69.8	122.1
V14-Roof	89.2	105.6	115.9	106.2	100.3	99.1	96.4	92.1	85.4	76.2	64.5	116.9
V14-Walls	81.0	97.3	107.6	97.9	92.0	90.8	88.2	83.8	77.1	67.9	56.3	108.6
V15-Walls	88.7	105.1	115.4	105.7	99.8	98.6	95.9	91.6	84.9	75.7	64.0	116.4

Venue-Source Group	Octave Band Centre Frequency (Hz)											Overall dB(A)
	16	31	63	125	250	500	1k	2k	4k	8k	16k	
V16-Roof	93.3	109.6	119.9	110.2	104.3	103.1	100.5	96.1	89.4	80.2	68.5	120.9
V16-Walls	85.2	101.5	111.8	102.1	96.2	95.0	92.4	88.0	81.3	72.1	60.5	112.8
V17-Roof	94.8	111.1	121.4	111.8	105.9	104.6	102.0	97.7	91.0	81.7	70.1	122.5
V17-Walls	89.9	106.3	116.5	106.9	101.0	99.8	97.1	92.8	86.1	76.8	65.2	117.6
V18-Walls	92.0	108.3	118.6	109.0	103.1	101.9	99.2	94.9	88.2	78.9	67.3	119.7
V19-Roof	87.9	104.2	114.5	104.8	98.9	97.7	95.1	90.7	84.0	74.8	63.2	115.5
V19-Walls	84.7	101.0	111.3	101.6	95.8	94.5	91.9	87.5	80.8	71.6	60.0	112.3
V20-Roof	94.0	110.3	120.6	110.9	105.1	103.8	101.2	96.8	90.1	80.9	69.3	121.6
V20-Walls	89.6	105.9	116.2	106.6	100.7	99.4	96.8	92.4	85.7	76.5	64.9	117.2
V21-Roof	88.8	105.2	115.4	105.8	99.9	98.7	96.0	91.7	85.0	75.7	64.1	116.5
V21-SE wall	78.8	95.1	105.4	95.7	89.8	88.6	86.0	81.6	74.9	65.7	54.1	106.4
V22-Roof	92.7	109.0	119.3	109.6	103.7	102.5	99.9	95.5	88.8	79.6	68.0	120.3
V22-Walls	85.9	102.2	112.5	102.9	97.0	95.8	93.1	88.8	82.1	72.8	61.2	113.6
V23-Entry	76.4	92.7	103.0	93.3	87.4	86.2	83.6	79.2	72.5	63.3	51.7	104.0
V24-Roof	92.0	108.3	118.6	109.0	103.1	101.8	99.2	94.9	88.2	78.9	67.3	119.7
V24-South wall	81.3	97.6	107.9	98.2	92.3	91.1	88.5	84.1	77.4	68.2	56.5	108.9
V25-Roof	93.1	109.5	119.8	110.1	104.2	103.0	100.3	96.0	89.3	80.1	68.4	120.8
V25-Walls	84.8	101.1	111.4	101.7	95.9	94.6	92.0	87.6	80.9	71.7	60.1	112.4
V26-Walls	89.7	106.0	116.3	106.6	100.7	99.5	96.9	92.5	85.8	76.6	64.9	117.3
V27-Roof	94.1	110.4	120.7	111.1	105.2	103.9	101.3	97.0	90.3	81.0	69.4	121.8
V27-Walls	91.5	107.8	118.1	108.4	102.5	101.3	98.7	94.3	87.6	78.4	66.8	119.1
V28-Roof	93.5	109.9	120.2	110.5	104.6	103.4	100.7	96.4	89.7	80.5	68.8	121.2
V28-Walls	90.4	106.7	117.0	107.3	101.5	100.2	97.6	93.2	86.5	77.3	65.7	118.0
V29-Roof	90.6	106.9	117.2	107.6	101.7	100.4	97.8	93.5	86.8	77.5	65.9	118.3
V29-Walls	83.0	99.3	109.6	100.0	94.1	92.8	90.2	85.9	79.2	69.9	58.3	110.7
V30-Roof	93.7	110.0	120.3	110.6	104.7	103.5	100.9	96.5	89.8	80.6	69.0	121.3

Venue-Source Group	Octave Band Centre Frequency (Hz)											Overall dB(A)
	16	31	63	125	250	500	1k	2k	4k	8k	16k	
V30-Walls	92.0	108.3	118.6	108.9	103.0	101.8	99.2	94.8	88.1	78.9	67.3	119.6
V31-Roof	92.9	109.3	119.5	109.9	104.0	102.8	100.1	95.8	89.1	79.8	68.2	120.6
V31-Walls	90.0	106.3	116.6	106.9	101.0	99.8	97.1	92.8	86.1	76.9	65.2	117.6
V32-Walls	85.9	102.2	112.5	102.9	97.0	95.7	93.1	88.7	82.1	72.8	61.2	113.5
V33-Roof	91.2	107.5	117.8	108.2	102.3	101.1	98.4	94.1	87.4	78.1	66.5	118.9
V33-Walls	87.1	103.4	113.7	104.1	98.2	97.0	94.3	90.0	83.3	74.0	62.4	114.8
V34-Roof	92.8	109.1	119.4	109.8	103.9	102.7	100.0	95.7	89.0	79.7	68.1	120.5
V34-Walls	86.9	103.3	113.5	103.9	98.0	96.8	94.1	89.8	83.1	73.8	62.2	114.6
V35-Roof	91.7	108.0	118.3	108.7	102.8	101.5	98.9	94.6	87.9	78.6	67.0	119.4
V35-Walls	83.7	100.1	110.3	100.7	94.8	93.6	90.9	86.6	79.9	70.6	59.0	111.4
V36-East wall	78.1	94.5	104.7	95.1	89.2	88.0	85.3	81.0	74.3	65.1	53.4	105.8
V36-Roof	86.1	102.5	112.7	103.1	97.2	96.0	93.3	89.0	82.3	73.0	61.4	113.8
V37-Roof	90.0	106.3	116.6	107.0	101.1	99.9	97.2	92.9	86.2	76.9	65.3	117.7
V38-Roof	90.6	106.9	117.2	107.6	101.7	100.4	97.8	93.5	86.8	77.5	65.9	118.3
V38-Walls	83.0	99.3	109.6	100.0	94.1	92.8	90.2	85.9	79.2	69.9	58.3	110.7
V39-Roof	89.9	106.3	116.5	106.9	101.0	99.8	97.1	92.8	86.1	76.8	65.2	117.6
V40-Roof	90.4	106.7	117.0	107.3	101.4	100.2	97.5	93.2	86.5	77.3	65.6	118.0
V40-Walls	88.9	105.2	115.5	105.9	100.0	98.8	96.1	91.8	85.1	75.8	64.2	116.6
V41-Walls	83.7	100.0	110.3	100.7	94.8	93.6	90.9	86.6	79.9	70.6	59.0	111.4
V42-Roof	90.8	107.1	117.4	107.7	101.8	100.6	98.0	93.6	86.9	77.7	66.0	118.4
Venues in Frame – Scenario C (Apply -5 dB for Scenario A and -16 dB for Scenario B)												
VF1-Roof	97.0	113.3	123.6	113.9	108.0	106.8	104.2	99.8	93.1	83.9	72.2	**124.6**
VF1-Walls	94.8	111.1	121.4	111.8	105.9	104.7	102.0	97.7	91.0	81.7	70.1	**122.5**
VF2-Roof	94.2	110.6	120.9	111.2	105.3	104.1	101.4	97.1	90.4	81.2	69.5	**121.9**
VF2-Walls	92.4	108.8	119.1	109.4	103.5	102.3	99.6	95.3	88.6	79.4	67.7	**120.1**
VF3-Walls	90.4	106.8	117.1	107.4	101.5	100.3	97.7	93.3	86.6	77.4	65.7	**118.1**

Venue-Source Group	Octave Band Centre Frequency (Hz)											Overall dB(A)
	16	31	63	125	250	500	1k	2k	4k	8k	16k	
VF4-Roof	91.3	107.6	117.9	108.3	102.4	101.2	98.5	94.2	87.5	78.2	66.6	**119.0**
VF4-Walls	86.5	102.8	113.1	103.5	97.6	96.3	93.7	89.4	82.7	73.4	61.8	**114.1**
VF5-Open Yard	89.3	105.6	115.9	106.2	100.4	99.1	96.5	92.1	85.4	76.2	64.6	**116.9**
VF5-Roof	96.0	112.4	122.7	113.0	107.1	105.9	103.2	98.9	92.2	83.0	71.3	**123.7**
VF5-Walls	97.2	113.5	123.8	114.1	108.2	107.0	104.4	100.0	93.3	84.1	72.4	**124.8**
VF6-Roof	82.3	98.7	109.0	99.3	93.4	92.2	89.5	85.2	78.5	69.3	57.6	**110.0**
VF6-Walls	85.1	101.4	111.7	102.0	96.1	94.9	92.3	87.9	81.2	72.0	60.4	**112.7**
VF7-Roof	88.9	105.2	115.5	105.9	100.0	98.7	96.1	91.8	85.1	75.8	64.2	**116.6**
VF7-Walls	85.5	101.8	112.1	102.4	96.5	95.3	92.6	88.3	81.6	72.4	60.7	**113.1**
VF8-Palace Arcade	79.9	96.3	106.5	96.9	91.0	89.8	87.1	82.8	76.1	66.8	55.2	**107.6**
VF9-Roof	108.1	124.4	134.7	125.0	119.1	117.9	115.3	110.9	104.2	95.0	83.3	**135.7**
VF9-Walls	109.8	126.2	136.4	126.8	120.9	119.7	117.0	112.7	106.0	96.7	85.1	**137.5**
VF10-Roof	97.8	114.1	124.4	114.7	108.8	107.6	104.9	100.6	93.9	84.7	73.0	**125.4**
VF10-Walls	96.9	113.3	123.6	113.9	108.0	106.8	104.1	99.8	93.1	83.9	72.2	**124.6**
VF11-Roof	91.1	107.4	117.7	108.1	102.2	101.0	98.3	94.0	87.3	78.0	66.4	**118.8**
VF12-Roof	94.3	110.6	120.9	111.2	105.3	104.1	101.5	97.1	90.4	81.2	69.5	**121.9**
VF12-Roof (Rehearsal)	86.6	102.9	113.2	103.5	97.6	96.4	93.8	89.4	82.7	73.5	61.8	**114.2**
VF12-Walls	93.5	109.8	120.1	110.5	104.6	103.4	100.7	96.4	89.7	80.4	68.8	**121.2**
VF13-Roof	92.4	108.8	119.0	109.4	103.5	102.3	99.6	95.3	88.6	79.3	67.7	**120.1**
VF13-Walls	93.8	110.1	120.4	110.8	104.9	103.7	101.0	96.7	90.0	80.7	69.1	**121.5**
VF14-Roof	88.9	105.2	115.5	105.9	100.0	98.7	96.1	91.8	85.1	75.8	64.2	**116.6**
VF15- Roof	92.3	108.6	118.9	109.3	103.4	102.1	99.5	95.1	88.5	79.2	67.6	**119.9**
VF15-Walls	88.8	105.1	115.4	105.8	99.9	98.7	96.0	91.7	85.0	75.7	64.1	**116.5**
VF16-Walls	90.8	107.2	117.5	107.8	101.9	100.7	98.0	93.7	87.0	77.8	66.1	**118.5**
VF17-Roof	92.7	109.0	119.3	109.7	103.8	102.6	99.9	95.6	88.9	79.6	68.0	**120.4**

Venue-Source Group	Octave Band Centre Frequency (Hz)											Overall dB(A)
	16	31	63	125	250	500	1k	2k	4k	8k	16k	
VF18-Courtyard	83.1	99.4	109.7	100.0	94.1	92.9	90.3	85.9	79.2	70.0	58.4	**110.7**
VF18-Roof	85.5	101.9	112.2	102.5	96.6	95.4	92.7	88.4	81.7	72.5	60.8	**113.2**
VF-18 Walls	86.1	102.4	112.7	103.0	97.1	95.9	93.3	88.9	82.2	73.0	61.3	**113.7**

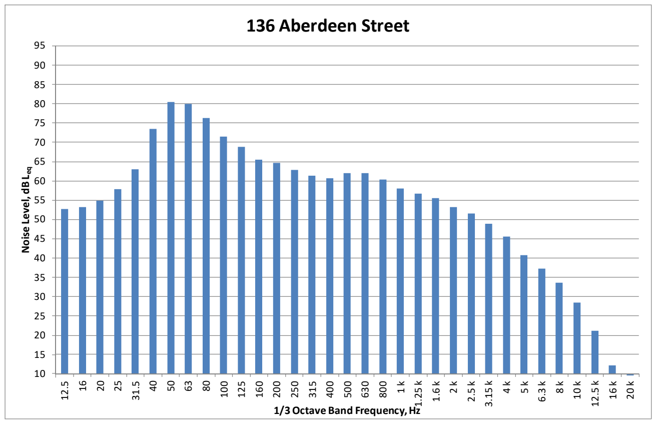
Appendix B

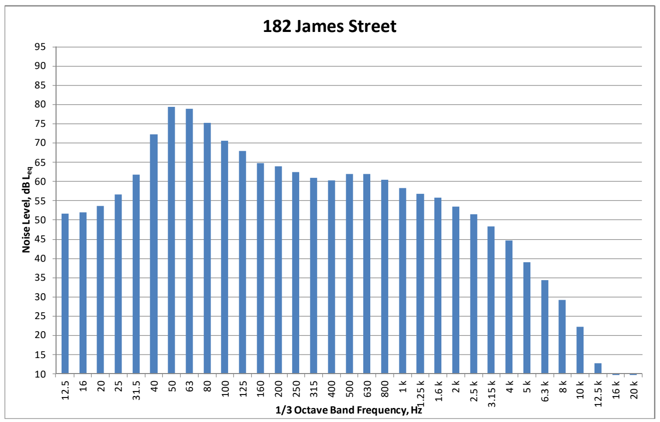
Tabulated Noise Levels (Deliverable C)

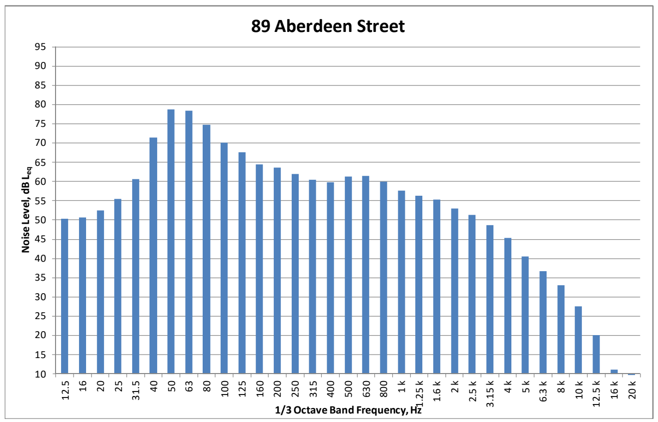
Scenario A

Receiver	dB(L)	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400
3-5 Shenton Street	**79.2**	46.4	46.5	49.5	52.5	57.4	68.1	74.9	74.3	70.6	64.6	61.8	58.3	56.0	54.4	52.7	52.4
5-9 Davies Street	**70.5**	41.3	41.9	43.1	45.8	50.2	60.2	66.6	65.4	61.1	55.4	52.1	48.6	47.4	45.1	43.3	42.1
6-8 Kakulas Crescent	**78.4**	47.8	48.1	49.6	52.3	57.4	67.9	74.4	73.4	69.0	63.6	60.3	56.6	55.6	53.5	51.5	50.3
6-10 Davies Street	**72.7**	42.4	42.6	44.0	46.8	51.5	61.9	68.6	67.7	63.5	58.1	54.8	51.0	49.6	47.4	45.3	44.1
6-12 Serich Lane	**71.2**	41.9	42.3	43.7	46.4	50.9	61.0	67.3	66.1	61.7	55.8	52.4	48.2	46.4	43.9	41.4	39.9
7-11 Shenton Street	**78.9**	47.7	48.0	49.5	52.5	57.4	67.9	74.7	74.0	70.2	63.9	61.0	57.7	55.3	53.6	52.0	51.8
7 Errichetti Place	**84.8**	51.7	52.4	54.2	57.4	62.5	73.1	80.2	79.7	76.0	71.4	68.7	65.5	64.6	62.9	61.4	60.8
10 Kakulas Crescent	**76.3**	46.9	46.8	48.6	51.3	55.8	66.0	72.3	71.0	66.7	61.4	58.3	54.7	53.5	53.4	52.1	51.4
12 Kakulas Crescent	**75.0**	47.6	47.4	48.2	50.4	54.9	64.8	70.9	69.6	66.1	60.9	57.5	53.6	52.0	49.9	47.7	46.4
13-15 Shenton Street	**77.9**	45.1	45.3	48.0	51.4	56.5	67.0	73.7	73.0	69.1	62.4	59.5	56.0	54.0	52.2	50.5	50.1
14 Kakulas Crescent	**77.1**	48.5	48.5	49.6	52.0	56.6	66.7	73.1	72.0	67.7	62.5	59.4	55.6	54.4	52.2	50.3	49.2
15 Palamerston Street	**72.2**	44.0	44.1	45.2	47.8	52.2	62.2	68.4	67.1	62.6	56.4	53.0	49.2	47.5	45.4	43.1	41.9
16-18 Kakulas Crescent	**76.6**	48.2	48.2	49.4	51.6	56.1	66.2	72.5	71.5	67.5	62.1	58.6	54.6	52.9	50.8	49.3	48.4
17 Palamerston Street	**71.8**	43.5	43.6	44.8	47.4	51.8	61.8	68.0	66.6	62.4	56.1	52.6	48.6	47.2	45.3	43.2	42.2
17 Shenton Street	**77.4**	45.1	46.0	47.7	50.9	55.8	66.2	73.1	72.6	68.8	61.9	59.1	55.5	53.5	51.6	49.9	49.6
17A-B John Street	**71.8**	41.9	42.0	43.3	46.1	50.7	61.0	67.6	66.6	62.6	56.7	54.7	53.4	52.2	50.1	48.2	47.3
19 Palamerston Street	**71.5**	43.2	43.3	44.5	47.0	51.4	61.4	67.7	66.4	62.0	55.9	52.3	48.3	47.2	45.3	43.4	42.3
21 Palmerston Street	**70.4**	41.2	41.1	42.3	45.2	50.2	60.2	66.4	65.1	61.4	55.7	52.3	48.2	46.6	44.8	42.5	41.4
22 Palmerston Street	**69.8**	40.6	40.5	41.6	44.3	48.8	59.0	65.6	64.7	60.8	55.1	52.4	49.0	48.6	47.3	45.8	45.1
23 John Street	**74.0**	44.4	44.8	46.1	48.8	53.4	63.6	70.0	68.9	64.6	59.1	55.8	52.0	50.9	49.1	47.4	46.3
43 Shenton Street	**76.8**	46.2	46.3	47.8	50.7	55.5	65.9	72.6	71.9	68.1	60.8	57.8	54.4	51.9	50.2	48.5	48.3
45 Shenton Street	**76.4**	45.8	45.9	47.4	50.3	55.1	65.5	72.2	71.5	67.8	60.6	57.7	54.4	52.1	50.4	48.6	48.5
48 Fitzegerald Street	**72.7**	42.9	42.9	44.0	46.7	51.3	61.7	68.5	67.6	63.5	58.4	55.2	51.7	50.5	48.5	46.6	45.7
84 Fitzgerald Street	**70.6**	40.0	40.2	41.6	44.3	49.0	59.9	66.5	65.5	61.4	55.9	53.4	49.6	48.2	46.1	44.0	43.4
87 Aberdeen Street	**83.1**	50.1	50.2	51.6	54.6	59.5	70.1	78.3	78.3	74.8	70.3	67.6	64.3	63.3	61.7	60.0	59.3
89 Aberdeen Street	**83.4**	50.3	50.7	52.4	55.5	60.6	71.5	78.7	78.3	74.8	70.1	67.6	64.4	63.6	62.0	60.5	59.8
89 Stirling Street	**64.3**	28.3	27.9	28.7	30.9	41.0	53.8	60.4	59.3	55.0	49.8	46.5	42.6	41.1	38.8	36.6	35.4
98 Lake Street	**79.4**	48.4	48.4	49.8	52.6	57.3	67.7	74.4	74.2	71.0	66.6	64.2	61.1	60.3	58.8	57.3	56.6
101 Francis Street	**77.8**	50.5	50.5	51.5	53.5	57.8	67.6	73.7	72.6	68.8	63.3	60.0	56.0	54.4	52.2	50.0	48.7
102 Aberdeen Street	**78.0**	48.0	48.2	49.5	52.3	56.9	67.1	73.6	72.6	68.6	64.6	62.0	58.7	57.9	56.2	54.5	53.8
103 Francis Street	**95.1**	61.8	62.4	64.2	67.4	72.6	83.3	90.4	90.0	86.4	81.7	79.1	75.9	75.0	73.4	71.9	71.3
105 Stirling Street	**64.7**	36.8	36.9	38.1	40.5	44.7	54.6	60.7	59.4	55.0	49.5	46.1	42.1	40.9	38.7	37.0	35.9
134 Aberdeen Street	**72.5**	42.5	42.5	43.8	46.4	51.1	61.5	68.2	67.5	63.8	57.3	54.6	51.2	49.5	47.9	46.3	46.0
136 Aberdeen Street	**85.1**	52.7	53.2	54.8	57.9	62.9	73.5	80.5	80.0	76.2	71.5	68.9	65.6	64.6	62.9	61.3	60.6
145 Newcastle Street	**70.5**	41.8	41.8	43.0	45.6	50.1	60.2	66.6	65.4	61.0	55.7	52.3	48.4	46.8	44.6	42.7	41.5
154 Aberdeen Street	**78.3**	46.1	46.7	48.4	51.5	56.4	66.9	73.8	73.4	69.6	64.4	61.6	58.3	57.2	55.4	53.9	53.2
160 Aberdeen Street	**75.9**	44.7	44.8	46.2	49.1	53.9	64.6	71.6	71.0	67.1	61.6	58.6	55.1	53.7	51.9	50.1	49.4
164 Aberdeen Street	**75.2**	43.8	44.2	45.8	48.7	53.7	64.1	70.9	70.3	66.5	60.8	58.0	54.5	53.5	51.7	50.0	49.3
166 Aberdeen Street	**73.5**	43.3	43.2	44.5	47.3	52.1	62.5	69.1	68.5	64.6	59.2	56.5	53.0	51.7	49.8	48.4	47.5
170 Aberdeen Street	**74.2**	42.4	42.3	44.6	47.9	52.8	63.2	69.9	69.1	65.2	59.7	56.9	53.6	52.3	50.5	48.6	47.8
172 Aberdeen Street	**73.6**	42.3	42.1	43.6	46.5	52.1	62.5	69.3	68.7	64.7	59.4	56.4	53.0	51.7	49.8	48.0	47.0
174 Aberdeen Street	**72.1**	41.7	41.5	42.9	45.7	50.4	61.3	67.9	67.1	63.3	57.7	54.6	51.0	49.8	47.8	45.8	44.9
178 Aberdeen Street	**72.4**	41.4	41.3	42.7	45.5	50.9	61.4	68.2	67.3	63.4	57.8	55.8	52.3	51.1	49.2	47.5	46.8
182 James Street	**84.0**	51.7	52.0	53.7	56.7	61.7	72.3	79.4	78.9	75.3	70.6	68.0	64.8	63.9	62.4	60.9	60.3
184 Aberdeen Street	**70.5**	40.2	40.4	41.7	44.4	49.0	59.2	66.5	65.5	61.3	55.7	52.5	48.7	47.1	45.0	42.8	41.5
191 James Street	**85.0**	52.7	52.9	54.5	57.7	63.1	73.6	80.5	79.8	76.2	71.6	68.9	65.6	64.4	62.8	61.3	60.7
218-220 James Street	**81.0**	48.1	48.4	50.0	53.5	58.8	69.5	76.5	75.9	72.2	67.3	64.7	61.6	60.7	59.2	57.7	57.1
219-223 Newcastle Street	**76.9**	46.2	46.1	47.5	50.4	55.2	65.7	72.5	71.8	67.9	63.1	60.2	56.8	55.7	54.0	52.3	52.3
227 Newcastle Street	**74.8**	44.2	45.6	47.0	49.8	54.3	64.3	70.7	69.4	64.9	59.4	58.9	56.4	55.5	53.9	52.3	51.5
241 Newcastle Street	**73.1**	44.1	44.2	45.5	47.8	52.3	62.4	68.7	67.6	64.4	59.9	57.0	53.7	52.6	50.8	49.2	48.3
255 Newcastle Street	**75.6**	45.2	45.5	46.8	49.6	54.3	64.6	71.3	70.5	66.5	61.5	58.6	55.1	54.0	52.2	50.6	50.1
269 Newcastle Street	**74.8**	44.5	44.8	46.2	48.9	53.6	63.8	70.5	69.6	65.8	60.8	57.7	54.2	53.0	51.4	50.1	49.3
279 Newcastle Street	**74.6**	45.8	45.9	47.1	49.7	54.2	64.3	70.6	69.4	65.0	59.5	56.2	52.4	51.2	49.3	47.2	46.3
283 Newcastle Street	**74.8**	46.6	46.6	47.6	50.1	54.6	64.7	70.9	69.6	65.1	59.6	56.6	52.7	51.5	49.6	47.4	46.2
289 Newcastle Street	**72.4**	44.4	44.2	45.2	47.7	52.0	61.9	68.3	67.3	63.2	57.7	54.4	50.3	48.6	46.6	44.9	43.5
305 William Street	**70.3**	42.8	42.6	43.5	45.8	50.0	59.8	65.9	65.3	60.8	56.5	54.6	50.9	49.4	47.0	44.7	43.3
321 Newcastle Street	**69.4**	41.7	41.7	42.8	45.3	49.5	59.4	65.5	64.2	59.7	53.8	51.2	47.1	45.3	43.1	40.9	39.4
323-335 Newcastle Street	**68.8**	39.6	40.1	41.5	44.0	48.5	58.6	64.8	63.7	59.3	53.4	50.0	45.9	44.3	42.4	40.1	38.8

Receiver	500	630	800	1 k	1.25 k	1.6 k	2 k	2.5 k	3.15 k	4 k	5 k	6.3 k	8 k	10 k	12.5 k	16 k	20 k
3-5 Shenton Street	53.9	54.0	53.5	51.2	49.8	48.7	46.1	43.9	40.3	35.7	29.2	23.1	16.0	5.7	-8.5	-26.5	-45.9
5-9 Davies Street	43.3	43.7	41.6	38.9	36.9	35.0	31.7	28.3	23.3	16.7	7.6	-1.6	-11.9	-25.8	-44.2	-67.4	-5.0
6-8 Kakulas Crescent	51.1	50.6	48.5	45.7	43.8	42.2	39.5	37.7	34.4	30.3	25.6	21.5	16.5	9.2	-0.9	-13.5	-26.2
6-10 Davies Street	44.9	44.4	42.3	39.5	37.6	35.7	32.0	28.1	22.2	14.5	4.0	-6.5	-18.7	-34.8	-56.4	-5.0	-5.0
6-12 Serich Lane	41.8	40.9	39.1	36.6	34.1	31.7	27.7	23.5	17.5	9.6	-1.4	-13.2	-27.5	-47.2	-73.6	-5.0	1.2
7-11 Shenton Street	53.2	53.3	52.8	50.5	49.0	48.0	45.5	43.2	39.4	34.8	28.1	21.8	14.4	3.6	-11.2	-30.0	-50.4
7 Errichetti Place	62.3	62.4	60.9	58.7	57.4	56.4	54.3	52.6	49.9	46.8	42.2	38.7	35.5	30.7	24.2	16.3	9.5
10 Kakulas Crescent	52.4	52.0	50.1	47.4	45.6	44.3	41.7	39.5	36.2	32.2	26.6	21.8	16.7	9.2	-1.1	-13.9	-27.0
12 Kakulas Crescent	47.0	46.3	44.1	41.4	39.5	37.9	35.0	32.6	28.9	24.1	17.6	11.8	5.5	-3.1	-14.4	-28.4	-42.5
13-15 Shenton Street	51.4	51.3	50.4	48.0	46.3	45.1	42.4	39.9	36.0	31.0	23.7	16.4	7.7	-4.9	-22.1	-44.0	-68.3
14 Kakulas Crescent	50.1	49.7	47.7	45.4	44.2	43.0	40.3	37.9	34.2	29.7	23.3	17.2	10.2	0.3	-12.7	-28.1	-43.1
15 Palamerston Street	42.7	42.2	40.1	37.4	35.4	33.7	30.5	28.2	23.4	17.1	8.8	0.8	-7.7	-19.4	-35.0	-54.7	-5.0
16-18 Kakulas Crescent	49.1	48.4	46.3	44.2	42.6	41.2	38.3	35.8	31.9	27.3	20.8	14.7	7.9	-1.6	-13.9	-27.9	-40.7
17 Palamerston Street	43.2	42.6	40.7	38.0	36.0	34.3	31.4	28.8	23.8	17.4	8.6	0.1	-8.9	-20.9	-37.2	-57.6	-5.0
17 Shenton Street	50.8	50.7	50.0	47.4	45.8	44.5	42.1	39.6	35.7	30.6	23.2	15.7	6.8	-6.1	-24.1	-47.0	-72.3
17A-B John Street	48.4	48.1	46.4	43.8	41.6	39.7	36.3	32.8	27.4	20.4	10.0	-1.5	-15.6	-34.0	-57.3	-85.5	0.0
19 Palamerston Street	43.3	42.9	41.0	38.3	36.4	34.9	32.1	28.7	23.7	17.2	8.1	-0.6	-9.9	-22.4	-39.1	-60.2	-5.0
21 Palmerston Street	42.4	41.9	39.9	37.1	35.2	33.3	30.2	26.8	21.8	15.3	6.3	-2.4	-12.1	-25.1	-43.0	-65.6	-5.0
22 Palmerston Street	46.4	46.4	44.5	41.8	40.3	38.3	34.6	30.7	24.9	17.3	7.6	-1.4	-10.9	-23.7	-40.7	-61.8	-84.8
23 John Street	47.8	47.5	45.5	42.7	40.7	38.9	35.6	32.5	27.7	21.3	12.3	2.8	-8.1	-22.4	-41.1	-64.5	-90.3
43 Shenton Street	49.6	49.5	49.2	46.8	45.3	44.1	41.6	39.2	35.3	30.1	22.5	14.6	4.9	-9.0	-27.9	-51.8	-5.0
45 Shenton Street	49.8	49.6	49.2	46.8	45.2	44.0	41.2	38.7	34.8	29.7	22.0	14.2	4.6	-9.0	-27.6	-51.2	-5.0
48 Fitzegerald Street	46.8	46.6	45.0	42.6	40.8	39.1	36.1	33.1	28.4	22.2	13.2	3.3	-9.0	-25.2	-44.5	-67.5	0.0
84 Fitzgerald Street	44.3	43.9	41.7	38.7	36.5	34.1	30.4	26.1	19.5	10.3	-3.3	-19.2	-38.8	-64.4	-98.0	1.2	1.2
87 Aberdeen Street	60.8	60.8	59.3	56.9	55.5	54.5	52.3	50.5	47.8	44.5	39.7	36.0	32.3	27.0	19.6	10.8	2.6
89 Aberdeen Street	61.3	61.4	59.9	57.6	56.3	55.3	53.1	51.3	48.6	45.4	40.5	36.7	33.1	27.6	20.2	11.1	2.8
89 Stirling Street	36.3	36.3	34.2	31.2	28.9	26.7	22.9	18.9	13.4	6.7	-1.9	-10.0	-19.2	-32.0	0.0	0.0	0.0
98 Lake Street	58.1	58.1	56.4	54.1	52.6	51.5	49.2	47.3	44.5	41.0	36.0	32.2	28.4	23.1	15.9	7.3	-0.5
101 Francis Street	49.6	49.1	47.1	44.5	42.7	41.3	38.8	36.5	33.1	28.8	22.7	17.2	11.2	2.9	-8.2	-21.7	-5.0
102 Aberdeen Street	55.1	55.1	53.6	51.4	50.2	49.2	46.9	45.0	41.7	37.8	31.9	26.8	21.5	14.3	5.1	-5.9	-16.2
103 Francis Street	72.8	72.9	71.4	69.1	67.8	66.9	64.9	63.4	60.9	58.1	53.9	51.1	48.8	45.3	40.4	34.6	30.2
105 Stirling Street	36.9	36.7	34.8	32.0	30.0	27.9	24.4	20.5	14.8	7.3	-2.5	-11.8	-21.8	-35.0	0.0	0.0	0.0
134 Aberdeen Street	47.3	47.2	46.4	43.7	41.9	40.2	36.8	33.3	27.9	21.1	12.7	5.7	-0.8	-9.5	-20.9	-35.1	-49.6
136 Aberdeen Street	62.0	62.0	60.4	58.1	56.6	55.5	53.3	51.6	48.8	45.5	40.8	37.2	33.6	28.4	21.1	12.2	4.0
145 Newcastle Street	42.4	41.8	39.7	36.8	34.6	32.7	29.3	26.0	21.0	14.6	5.6	-4.1	-15.9	-32.3	-54.4	-82.5	-113.9
154 Aberdeen Street	54.7	54.8	53.3	50.8	49.3	48.0	45.5	43.4	39.9	35.7	29.5	23.7	17.1	7.5	-5.6	-22.1	-39.6
160 Aberdeen Street	51.0	50.8	49.2	46.7	44.9	43.4	40.7	38.1	34.0	28.7	21.2	13.7	4.8	-8.1	-25.6	-47.8	-5.0
164 Aberdeen Street	50.6	50.6	48.7	46.1	44.5	42.9	39.9	37.0	32.5	26.8	18.6	10.0	-0.7	-16.3	-37.8	-5.0	-5.0
166 Aberdeen Street	48.7	48.4	46.7	44.2	42.4	40.9	38.0	35.3	30.9	25.3	17.2	8.2	-3.2	-19.7	-42.3	-5.0	-5.0
170 Aberdeen Street	49.1	48.8	47.2	44.6	43.0	41.6	38.9	36.2	31.7	25.8	17.2	7.6	-4.6	-22.4	-47.0	-5.0	-5.0
172 Aberdeen Street	49.4	49.2	47.5	45.0	43.3	42.0	38.9	35.7	31.0	24.8	15.8	5.7	-7.1	-25.9	-51.7	-5.0	1.2
174 Aberdeen Street	46.0	45.7	43.9	41.5	39.9	38.5	35.6	32.5	27.8	21.6	12.3	1.9	-11.5	-31.0	-58.1	-5.0	1.2
178 Aberdeen Street	48.1	47.8	46.1	43.4	41.6	40.1	36.9	33.9	29.1	22.9	13.4	2.5	-11.8	-32.7	-61.7	-5.0	1.2
182 James Street	61.9	61.9	60.5	58.3	56.7	55.7	53.4	51.5	48.4	44.6	39.0	34.3	29.3	22.2	12.7	1.3	-9.5
184 Aberdeen Street	42.1	41.4	39.2	38.8	36.7	34.8	31.4	28.0	22.8	15.8	5.4	-6.6	-22.5	-45.4	-77.1	-5.0	1.2
191 James Street	62.1	62.0	60.2	57.7	55.9	54.5	52.0	50.0	46.9	43.4	38.2	34.2	30.2	24.3	16.3	6.6	-2.5
218-220 James Street	58.6	58.7	57.1	54.7	53.1	51.9	49.4	47.2	43.8	39.5	33.3	27.6	21.3	11.9	-1.0	-17.2	-34.3
219-223 Newcastle Street	54.0	54.0	52.3	49.8	48.3	47.0	44.6	42.5	39.4	35.5	30.0	25.3	20.3	13.2	3.4	-8.6	-20.6
227 Newcastle Street	52.7	52.5	50.7	48.3	46.8	45.4	42.9	40.8	37.7	33.8	28.1	23.2	17.9	10.2	-0.3	-13.4	-26.8
241 Newcastle Street	49.4	49.2	47.5	45.0	43.4	42.1	39.7	37.5	34.2	30.1	24.3	19.3	13.9	6.1	-4.5	-17.8	-31.3
255 Newcastle Street	51.4	51.2	49.6	47.2	45.5	44.2	41.6	39.6	36.2	32.1	26.1	20.9	15.2	7.1	-3.8	-17.3	-31.1
269 Newcastle Street	50.5	50.3	48.4	45.7	43.9	42.3	39.8	37.1	33.1	27.6	19.7	11.7	2.4	-10.8	-28.4	-49.4	-69.5
279 Newcastle Street	47.6	47.5	45.8	43.6	41.8	40.3	37.5	34.9	31.0	26.0	18.5	11.0	1.9	-10.6	-25.6	-40.8	-54.8
283 Newcastle Street	46.8	46.0	43.7	40.7	38.4	36.5	33.4	30.5	26.3	21.2	13.9	7.1	-0.4	-10.8	-24.8	-42.2	-60.6
289 Newcastle Street	44.5	44.0	41.7	38.8	36.7	34.8	31.6	28.5	24.2	18.8	11.3	4.5	-3.0	-13.3	-27.0	-44.0	-61.9
305 William Street	44.0	43.4	41.3	38.4	36.4	34.7	31.7	28.9	24.7	19.5	12.3	5.6	-1.7	-11.9	-25.5	-42.1	-59.3
321 Newcastle Street	40.2	39.5	37.3	34.6	33.0	31.2	27.9	24.5	19.5	13.1	4.1	-5.0	-16.0	-31.3	-51.9	-78.0	-5.0
323-335 Newcastle Street	39.9	40.5	38.3	35.3	33.1	31.1	27.6	24.1	18.8	11.7	2.0	-8.2	-20.7	-37.9	-61.0	-5.0	1.2

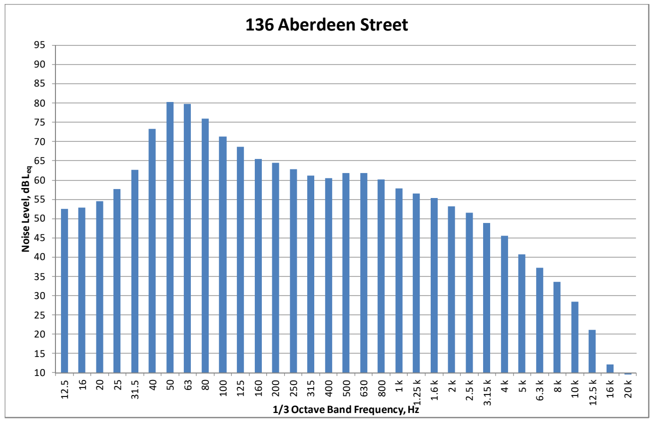


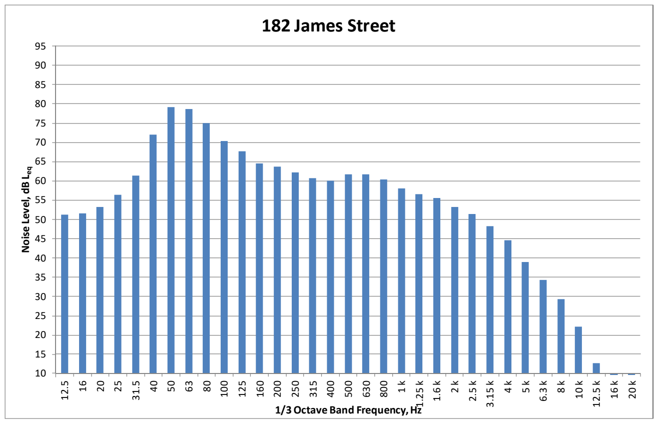


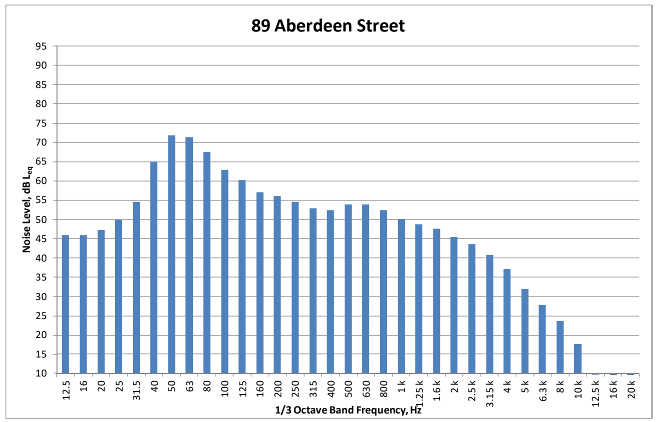


Scenario B

Receiver	dB(L)	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1 k	1.25 k	1.6 k	2 k	2.5 k	3.15 k	4 k	5 k	6.3 k	8 k	10 k	12.5 k	16 k	20 k
3-5 Shenton Street	**78.8**	45.4	45.5	48.7	51.9	56.9	67.5	74.4	73.8	70.1	64.0	61.3	57.9	55.6	54.0	52.4	52.2	53.7	53.8	53.4	51.1	49.7	48.6	46.0	43.8	40.2	35.7	29.2	23.1	16.0	5.7	-8.5	-26.5	-45.9
5-9 Davies Street	**68.3**	40.0	40.1	41.3	43.8	48.2	58.1	64.4	63.2	58.9	53.0	49.7	45.9	44.6	42.3	40.8	39.5	41.0	42.0	40.1	37.5	35.6	33.9	30.8	27.7	22.8	16.5	7.5	-1.6	-11.9	-25.8	-44.2	-67.4	-16.0
6-8 Kakulas Crescent	**78.1**	47.4	47.7	49.2	51.9	56.9	67.5	74.0	73.0	68.6	63.2	59.9	56.2	55.2	53.1	51.1	49.9	50.7	50.2	48.2	45.4	43.5	42.0	39.3	37.6	34.3	30.3	25.6	21.5	16.5	9.2	-0.9	-13.5	-26.2
6-10 Davies Street	**70.3**	40.7	40.9	42.2	44.8	49.4	59.7	66.4	65.3	61.0	55.2	51.7	47.7	46.0	43.6	41.3	39.9	40.7	40.0	37.9	35.2	34.0	32.4	29.0	25.4	20.0	13.1	3.4	-6.7	-18.7	-34.8	-56.4	-16.0	-16.0
6-12 Serich Lane	**69.7**	40.5	40.8	42.3	44.9	49.5	59.6	65.9	64.7	60.3	54.2	50.7	46.6	44.7	42.2	39.7	38.3	39.0	38.1	36.9	34.9	32.5	30.2	26.3	22.3	16.5	8.9	-1.9	-13.4	-27.6	-47.2	-73.6	-16.0	0.1
7-11 Shenton Street	**78.4**	46.9	47.2	48.8	51.8	56.8	67.3	74.1	73.5	69.8	63.4	60.6	57.3	54.9	53.3	51.7	51.6	53.0	53.1	52.7	50.4	48.9	47.9	45.4	43.1	39.4	34.8	28.1	21.8	14.4	3.6	-11.2	-30.0	-50.4
7 Errichetti Place	**78.4**	47.1	47.4	48.9	52.0	56.9	67.2	74.0	73.4	69.5	64.6	61.9	58.5	57.6	55.7	54.1	53.5	55.0	55.1	53.6	51.3	49.8	48.7	46.4	44.5	41.5	38.1	33.1	29.2	25.4	20.2	13.4	5.4	-1.5
10 Kakulas Crescent	**75.7**	46.5	46.3	48.2	50.8	55.3	65.4	71.7	70.4	66.1	60.9	57.8	54.0	52.8	52.8	51.5	50.8	51.9	51.5	49.6	47.0	45.3	44.0	41.5	39.4	36.1	32.2	26.6	21.8	16.7	9.2	-1.1	-13.9	-27.0
12 Kakulas Crescent	**74.3**	47.2	46.9	47.7	49.9	54.3	64.2	70.3	68.9	65.5	60.1	56.8	52.9	51.3	49.3	47.1	45.7	46.3	45.6	43.5	40.8	39.0	37.4	34.6	32.2	28.6	23.9	17.4	11.6	5.3	-3.3	-14.7	-28.7	-42.8
13-15 Shenton Street	**77.4**	44.2	44.5	47.4	50.8	55.9	66.4	73.2	72.5	68.7	61.9	59.1	55.6	53.6	51.9	50.3	49.9	51.2	51.1	50.3	47.9	46.2	45.0	42.3	39.8	35.9	31.0	23.7	16.4	7.7	-4.9	-22.1	-44.0	-68.3
14 Kakulas Crescent	**76.7**	48.0	48.1	49.2	51.5	56.1	66.2	72.6	71.5	67.2	62.1	59.0	55.3	54.1	51.9	50.0	48.9	49.8	49.4	47.4	45.2	44.0	42.8	40.2	37.8	34.1	29.6	23.2	17.1	10.1	0.1	-13.1	-28.8	-44.6
15 Palamerston Street	**71.6**	43.3	43.4	44.6	47.2	51.6	61.6	67.8	66.5	62.1	55.8	52.3	48.3	46.7	44.7	42.4	41.3	42.1	41.6	39.6	36.9	35.0	33.3	30.2	28.0	23.2	17.0	8.7	0.8	-7.7	-19.4	-35.0	-54.7	-16.0
16-18 Kakulas Crescent	**76.0**	47.7	47.7	48.8	51.1	55.5	65.6	71.9	70.9	66.9	61.4	57.9	53.9	52.2	50.2	48.7	47.7	48.4	47.7	45.6	43.6	42.1	40.8	38.0	35.5	31.7	27.1	20.6	14.4	7.4	-2.4	-15.5	-31.3	-46.7
17 Palamerston Street	**71.3**	43.0	43.1	44.3	46.8	51.2	61.2	67.4	66.1	61.9	55.6	52.1	48.1	46.7	44.9	42.8	41.8	42.8	42.3	40.4	37.7	35.7	34.0	31.2	28.6	23.7	17.3	8.5	0.1	-8.9	-20.9	-37.2	-57.6	-16.0
17 Shenton Street	**76.9**	44.2	45.2	46.9	50.3	55.2	65.7	72.6	72.1	68.4	61.4	58.6	55.1	53.0	51.2	49.6	49.3	50.6	50.5	49.8	47.3	45.7	44.4	42.0	39.5	35.6	30.6	23.2	15.7	6.8	-6.1	-24.1	-47.0	-72.3
17A-B John Street	**70.8**	40.6	40.8	42.2	45.0	49.7	60.0	66.6	65.7	61.8	55.8	53.2	49.9	48.6	46.3	44.4	43.5	44.6	44.4	43.0	40.2	38.0	36.1	32.7	29.2	24.1	17.3	7.3	-3.6	-17.3	-36.2	-60.7	-90.5	0.0
19 Palamerston Street	**71.0**	42.6	42.7	43.9	46.5	50.9	60.9	67.1	65.8	61.5	55.3	51.8	47.8	46.5	44.6	42.8	41.8	42.7	42.4	40.5	37.8	35.9	34.5	31.8	28.5	23.5	17.1	8.0	-0.6	-9.9	-22.4	-39.1	-60.2	-16.0
21 Palmerston Street	**69.7**	40.3	40.2	41.3	44.3	49.4	59.5	65.7	64.4	60.7	54.9	51.5	47.5	45.9	44.0	41.8	40.8	41.8	41.4	39.4	36.6	34.7	32.9	29.8	26.5	21.6	15.1	6.2	-2.5	-12.1	-25.1	-43.0	-65.6	-16.0
22 Palmerston Street	**66.3**	38.8	38.5	39.5	41.8	46.0	56.0	62.3	61.1	57.0	50.6	47.4	43.6	44.5	43.5	42.1	41.3	42.3	42.0	40.0	37.3	35.4	33.7	30.4	27.1	22.1	15.7	7.0	-1.5	-10.9	-23.7	-40.7	-61.8	-84.8
23 John Street	**71.1**	42.2	42.7	43.9	46.6	51.0	61.0	67.2	66.0	61.4	55.4	51.9	47.8	47.1	45.6	44.0	42.9	43.7	43.0	40.8	37.8	35.6	33.7	30.3	26.9	21.8	15.2	5.7	-4.3	-16.0	-31.4	-51.1	-75.1	-101.2
43 Shenton Street	**76.4**	45.7	45.9	47.4	50.2	55.1	65.5	72.2	71.5	67.7	60.4	57.4	54.0	51.6	49.9	48.2	48.0	49.4	49.3	49.0	46.6	45.1	44.0	41.5	39.1	35.2	30.1	22.5	14.6	4.9	-9.0	-27.9	-51.8	-16.0
45 Shenton Street	**76.0**	45.3	45.4	46.9	49.8	54.6	65.0	71.8	71.1	67.4	60.2	57.3	54.0	51.8	50.1	48.3	48.2	49.5	49.4	49.0	46.6	45.0	43.8	41.1	38.6	34.7	29.6	22.0	14.2	4.6	-9.0	-27.6	-51.2	-16.0
48 Fitzegerald Street	**70.9**	40.2	40.4	41.7	44.5	49.3	59.7	66.5	65.8	62.0	56.9	53.9	50.6	49.5	47.6	45.8	45.0	46.2	46.1	44.5	42.0	40.2	38.6	35.6	32.5	27.7	21.4	12.2	1.9	-11.3	-30.3	-53.8	-78.4	0.0
84 Fitzgerald Street	**68.6**	38.3	38.4	39.7	42.3	46.8	58.1	64.6	63.5	59.2	53.4	50.1	46.2	44.5	42.2	39.9	38.7	39.4	38.7	36.3	33.1	30.6	28.2	24.2	20.0	13.6	5.0	-7.5	-21.7	-39.8	-64.7	-98.1	0.1	0.1
87 Aberdeen Street	**78.3**	47.9	47.7	48.9	51.7	56.3	66.5	74.0	73.3	69.4	64.4	61.5	58.0	56.9	55.2	53.5	52.8	54.2	54.1	52.4	50.1	48.5	47.4	45.1	43.2	40.3	36.8	31.6	27.5	23.3	17.4	9.6	0.3	-8.1
89 Aberdeen Street	**76.4**	45.9	46.0	47.3	49.9	54.6	65.1	71.9	71.3	67.6	62.8	60.3	57.0	56.1	54.5	53.0	52.4	53.9	53.9	52.4	50.2	48.8	47.7	45.4	43.6	40.7	37.2	32.1	27.9	23.7	17.6	9.7	0.3	-8.1
89 Stirling Street	**60.8**	24.4	24.0	24.8	27.1	39.4	50.5	56.8	55.7	51.4	46.1	42.8	39.0	37.7	35.5	33.5	32.5	33.5	33.3	31.3	28.4	26.2	24.0	20.0	15.5	8.7	-0.2	-11.5	-20.8	-30.2	-43.0	0.0	0.0	0.0
98 Lake Street	**75.0**	45.3	45.4	46.7	49.4	54.0	64.1	70.5	69.9	66.2	61.3	58.4	55.0	54.0	51.9	50.1	49.2	50.2	49.9	48.1	45.3	43.6	42.2	39.6	37.4	34.3	30.6	25.3	21.3	17.4	12.1	4.9	-3.7	-11.5
101 Francis Street	**77.6**	50.3	50.2	51.3	53.2	57.5	67.3	73.4	72.4	68.6	63.1	59.7	55.7	54.1	51.8	49.6	48.4	49.3	48.8	46.8	44.2	42.5	41.1	38.6	36.4	33.0	28.8	22.7	17.2	11.2	2.9	-8.2	-21.7	-15.9
102 Aberdeen Street	**75.9**	46.7	46.8	48.1	50.8	55.3	65.4	71.7	70.5	66.3	62.0	59.1	55.6	54.6	52.6	50.8	50.0	51.4	51.4	49.8	47.7	46.4	45.6	43.3	41.4	37.9	33.5	26.9	20.8	14.1	5.4	-5.0	-16.5	-27.1
103 Francis Street	**95.1**	61.8	62.4	64.2	67.4	72.6	83.3	90.4	90.0	86.4	81.7	79.1	75.9	75.0	73.4	71.9	71.3	72.8	72.9	71.4	69.1	67.8	66.9	64.9	63.4	60.9	58.1	53.9	51.1	48.8	45.3	40.4	34.6	30.2
105 Stirling Street	**62.6**	34.6	34.8	36.1	38.5	42.7	52.6	58.7	57.4	53.0	47.5	44.1	40.1	38.7	36.5	34.8	33.7	34.8	34.7	32.8	30.1	28.0	25.9	22.2	18.0	11.5	2.8	-9.6	-21.8	-32.7	-46.0	0.0	0.0	0.0
134 Aberdeen Street	**69.3**	41.2	41.0	42.1	44.5	48.9	59.0	65.4	64.2	60.2	53.5	50.2	46.4	44.9	43.2	41.4	40.8	42.0	41.8	40.7	38.1	36.4	35.0	32.0	29.1	24.7	19.2	12.0	5.5	-0.8	-9.5	-20.9	-35.1	-49.6
136 Aberdeen Street	**84.9**	52.5	52.9	54.6	57.7	62.7	73.3	80.3	79.8	76.0	71.3	68.7	65.4	64.5	62.8	61.2	60.5	61.9	61.9	60.2	57.9	56.5	55.4	53.2	51.5	48.8	45.5	40.8	37.2	33.6	28.4	21.1	12.2	4.0
145 Newcastle Street	**68.7**	40.5	40.5	41.6	44.2	48.6	58.5	64.8	63.5	59.0	53.6	50.1	46.2	44.6	42.5	40.7	39.5	40.5	40.0	38.0	35.3	33.2	31.3	28.1	24.8	19.9	13.4	4.2	-5.5	-17.3	-33.6	-55.5	-83.4	-114.7
154 Aberdeen Street	**78.1**	45.6	46.3	48.1	51.1	56.0	66.6	73.5	73.1	69.3	64.2	61.4	58.1	57.0	55.3	53.8	53.1	54.6	54.7	53.1	50.7	49.2	47.9	45.4	43.3	39.9	35.7	29.5	23.7	17.1	7.5	-5.6	-22.1	-39.6
160 Aberdeen Street	**74.8**	43.8	43.8	45.3	48.2	53.0	63.4	70.4	69.8	66.0	60.3	57.4	53.9	52.6	50.9	49.2	48.6	50.1	50.0	48.5	46.1	44.4	42.9	40.2	37.8	33.8	28.6	21.2	13.7	4.8	-8.1	-25.6	-47.8	-16.0
164 Aberdeen Street	**73.6**	42.5	42.8	44.3	47.3	52.2	62.6	69.3	68.7	64.9	58.9	56.0	52.6	51.8	50.1	48.4	47.9	49.3	49.4	47.6	45.1	43.7	42.2	39.3	36.5	32.2	26.7	18.6	10.0	-0.7	-16.3	-37.8	-16.0	-16.0
166 Aberdeen Street	**72.8**	42.5	42.3	43.6	46.5	51.3	61.7	68.4	67.8	64.0	58.6	55.7	52.3	51.1	49.3	47.6	46.8	48.1	47.9	46.2	43.7	42.0	40.6	37.8	35.1	30.8	25.3	17.2	8.2	-3.2	-19.7	-42.3	-16.0	-16.0
170 Aberdeen Street	**73.5**	41.5	41.3	43.7	47.1	52.0	62.5	69.2	68.5	64.6	59.1	56.3	53.0	51.8	49.9	48.1	47.4	48.7	48.5	46.9	44.4	42.8	41.5	38.8	36.1	31.7	25.8	17.2	7.6	-4.6	-22.4	-47.0	-16.0	-16.0
172 Aberdeen Street	**71.3**	41.1	40.8	42.2	45.0	49.9	60.2	67.0	66.4	62.4	56.7	53.8	50.4	49.2	47.3	45.5	44.6	47.8	47.7	46.1	43.7	42.2	41.1	38.2	35.1	30.6	24.6	15.7	5.7	-7.1	-25.9	-51.7	-16.0	0.1
174 Aberdeen Street	**70.7**	40.6	40.4	41.7	44.6	49.3	59.8	66.4	65.6	62.0	56.3	53.3	49.9	48.8	46.8	45.0	44.2	45.3	45.1	43.3	41.0	39.4	38.1	35.3	32.3	27.7	21.5	12.3	1.9	-11.5	-31.0	-58.1	-16.0	0.1
178 Aberdeen Street	**71.1**	40.3	40.1	41.5	44.3	49.2	59.9	66.7	65.9	62.1	56.4	54.8	51.4	50.3	48.5	46.9	46.3	47.6	47.4	45.8	43.1	41.4	39.9	36.8	33.8	29.0	22.9	13.4	2.5	-11.8	-32.7	-61.7	-16.0	0.1
182 James Street	**83.7**	51.3	51.6	53.3	56.3	61.4	72.0	79.1	78.6	75.0	70.3	67.7	64.6	63.7	62.2	60.7	60.1	61.7	61.7	60.3	58.1	56.6	55.6	53.3	51.4	48.3	44.6	39.0	34.3	29.3	22.2	12.7	1.3	-9.5
184 Aberdeen Street	**68.5**	38.8	39.0	40.3	43.0	47.6	57.8	64.4	63.5	59.3	53.6	50.5	46.7	45.3	43.3	41.2	40.0	40.7	40.0	37.9	38.2	36.2	34.3	31.0	27.7	22.5	15.6	5.3	-6.7	-22.5	-45.4	-77.1	-16.0	0.1
191 James Street	**84.9**	52.4	52.7	54.3	57.5	62.9	73.5	80.4	79.7	76.1	71.5	68.8	65.5	64.4	62.8	61.3	60.6	62.0	61.9	60.1	57.6	55.8	54.5	52.0	50.0	46.9	43.4	38.2	34.2	30.2	24.3	16.3	6.6	-2.5
218-220 James Street	**79.2**	46.1	46.2	47.7	51.5	57.0	67.7	74.7	74.1	70.4	65.5	62.7	59.5	58.5	57.0	55.5	54.9	56.4	56.5	54.9	52.5	50.9	49.8	47.3	45.2	41.8	37.7	31.5	25.8	19.3	9.7	-3.4	-20.0	-37.6
219-223 Newcastle Street	**74.0**	44.5	44.1	45.4	48.2	52.9	63.2	69.8	69.0	64.9	59.8	56.9	53.4	52.2	50.2	48.5	47.8	49.2	49.0	47.2	44.7	43.1	41.6	38.9	36.4	32.6	27.9	21.3	15.6	9.9	2.4	-7.5	-19.6	-31.6
227 Newcastle Street	**72.1**	42.0	43.4	44.7	47.4	51.8	61.8	68.2	66.9	62.4	56.9	54.1	50.5	49.4	48.0	47.0	46.0	47.0	46.7	44.8	42.2	40.9	39.5	36.8	34.3	30.7	26.1	19.6	13.7	7.6	-0.5	-11.2	-24.4	-37.8
241 Newcastle Street	**70.9**	42.3	42.4	43.6	46.0	50.4	60.4	66.7	65.5	61.8	57.0	53.7	50.0	48.6	46.4	44.7	43.6	44.5	44.1	42.1	39.4	37.5	35.9	33.0	30.3	26.3	21.4	14.8	9.0	3.2	-4.8	-15.5	-28.8	-42.3
255 Newcastle Street	**72.2**	42.7	42.9	44.1	46.8	51.5	61.6	68.1	67.2	63.0	57.8	54.6	50.8	49.5	47.6	45.8	45.1	46.1	45.8	43.8	41.0	39.0	37.4	34.3	31.7	27.7	22.9	16.3	10.4	4.4	-3.9	-14.8	-28.3	-42.1
269 Newcastle Street	**74.1**	43.7	43.9	45.3	48.1	52.8	63.1	69.9	69.1	65.2	60.2	57.1	53.6	52.3	50.8	49.2	48.3	49.6	49.5	47.6	45.0	43.3	41.8	39.3	36.7	32.8	27.3	19.4	11.4	2.0	-11.3	-29.5	-52.4	-76.7
279 Newcastle Street	**73.9**	45.0	45.2	46.4	49.0	53.5	63.7	70.0	68.8	64.4	58.9	55.6	51.7	50.5	48.5	46.4	45.6	47.0	47.0	45.3	43.2	41.4	40.0	37.2	34.7	30.8	25.8	18.3	10.7	1.5	-11.7	-29.2	-48.8	-65.2
283 Newcastle Street	**74.1**	46.2	46.0	47.0	49.5	54.0	64.0	70.2	68.9	64.4	58.8	55.9	52.0	50.8	49.0	46.8	45.6	46.2	45.4	43.1	40.1	37.9	35.9	32.9	30.1	26.0	20.9	13.7	6.9	-0.6	-11.1	-25.2	-42.8	-61.4
289 Newcastle Street	**71.5**	43.8	43.6	44.5	47.0	51.3	61.2	67.4	66.5	62.5	57.0	53.6	49.5	47.8	45.9	44.3	42.9	43.6	43.1	40.8	37.8	35.9	34.1	31.0	28.0	23.8	18.5	11.1	4.3	-3.2	-13.5	-27.1	-44.1	-62.0
305 William Street	**69.1**	41.6	41.4	42.4	44.7	49.0	58.8	64.8	63.9	59.3	55.2	53.6	50.0	48.5	46.1	43.8	42.4	43.1	42.5	40.3	37.4	35.3	33.6	30.5	27.6	23.3	17.9	10.3	3.3	-4.5	-15.2	-29.3	-46.9	-65.2
321 Newcastle Street	**68.2**	40.6	40.6	41.7	44.2	48.4	58.3	64.4	63.0	58.5	52.6	49.4	45.4	43.6	41.4	39.2	37.8	38.7	38.1	36.0	33.4	32.1	30.4	27.2	24.0	19.1	12.8	4.0	-5.1	-16.0	-31.3	-51.9	-78.0	-16.0
323-335 Newcastle Street	**68.2**	38.7	39.3	40.8	43.4	47.9	58.0	64.3	63.2	58.7	52.9	49.5	45.4	43.7	41.9	39.6	38.3	39.2	39.9	37.7	34.7	32.5	30.5	27.1	23.6	18.4	11.5	1.9	-8.3	-20.7	-37.9	-61.0	-16.0	0.1

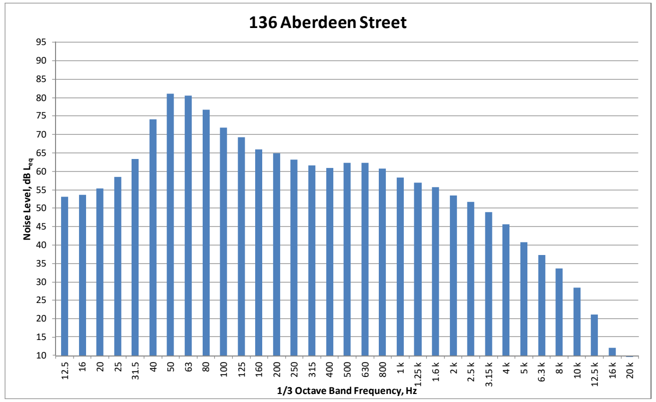


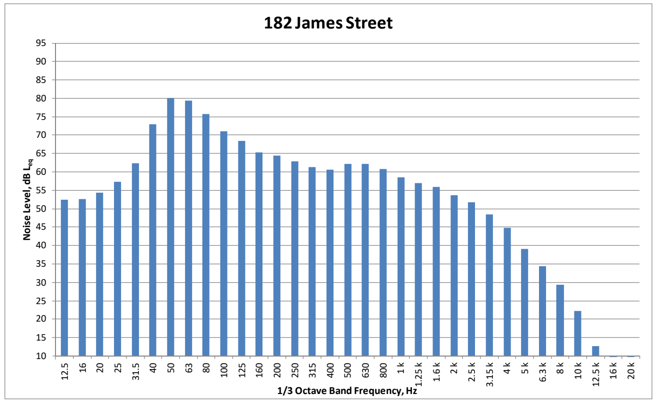


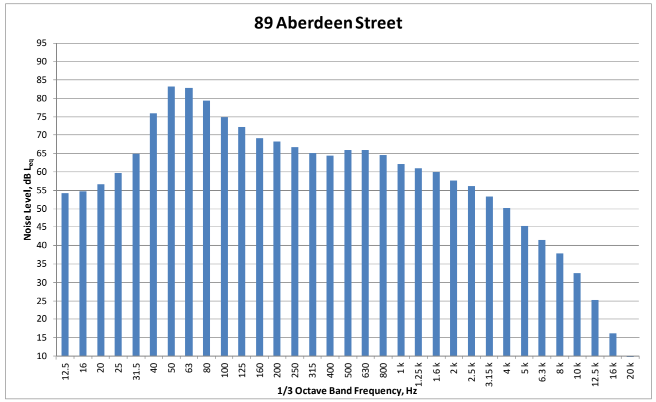


Scenario C

Receiver	dB(L)	12.5	16	20	25	31.5	40	50	63	80	100	125	160	200	250	315	400	500	630	800	1 k	1.25 k	1.6 k	2 k	2.5 k	3.15 k	4 k	5 k	6.3 k	8 k	10 k	12.5 k	16 k	20 k
3-5 Shenton Street	**80.1**	48.2	48.3	50.8	53.7	58.5	69.1	75.8	75.2	71.4	65.6	62.7	59.1	56.9	55.0	53.3	52.9	54.3	54.3	53.8	51.5	50.0	48.9	46.2	44.0	40.4	35.8	29.3	23.2	16.1	5.7	-8.5	-26.5	-45.9
5-9 Davies Street	**73.4**	43.4	44.4	45.7	48.4	53.0	63.0	69.4	68.3	64.0	58.4	55.1	51.7	50.7	48.3	46.3	45.2	46.2	46.2	44.0	41.1	38.9	36.8	33.2	29.6	24.1	17.2	7.8	-1.5	-11.9	-25.8	-44.2	-67.4	0.0
6-8 Kakulas Crescent	**79.2**	48.6	48.9	50.4	53.1	58.2	68.7	75.2	74.2	69.8	64.3	61.0	57.3	56.3	54.3	52.4	51.1	51.9	51.3	49.2	46.3	44.3	42.7	39.8	37.9	34.5	30.4	25.7	21.5	16.5	9.2	-0.9	-13.5	-26.2
6-10 Davies Street	**75.6**	44.9	45.2	46.6	49.5	54.3	64.7	71.4	70.7	66.6	61.4	58.3	54.6	53.3	51.1	49.1	47.9	48.8	48.4	46.3	43.4	41.3	39.1	35.3	31.2	25.0	16.7	5.3	-6.1	-18.6	-34.8	-56.4	0.0	0.0
6-12 Serich Lane	**73.5**	44.2	44.5	45.9	48.6	53.1	63.2	69.6	68.4	64.0	58.2	54.8	50.6	48.9	46.3	43.8	42.3	45.0	44.1	41.9	39.1	36.5	34.0	29.9	25.5	19.2	11.0	-0.5	-12.7	-27.4	-47.1	-73.6	0.0	3.0
7-11 Shenton Street	**79.9**	49.1	49.3	50.7	53.8	58.7	69.0	75.7	74.9	71.0	64.7	61.9	58.4	56.0	54.2	52.5	52.2	53.5	53.6	53.0	50.7	49.2	48.1	45.6	43.3	39.5	34.9	28.2	21.9	14.5	3.6	-11.2	-30.0	-50.4
7 Errichetti Place	**89.2**	55.8	56.6	58.4	61.7	66.8	77.5	84.6	84.2	80.5	75.9	73.3	70.1	69.2	67.5	66.1	65.5	67.0	67.1	65.6	63.4	62.1	61.0	59.0	57.3	54.7	51.6	47.1	43.6	40.4	35.7	29.2	21.3	14.5
10 Kakulas Crescent	**77.3**	47.8	47.7	49.4	52.2	56.8	67.0	73.3	72.0	67.9	62.6	59.4	56.1	54.7	54.4	53.1	52.4	53.4	52.9	50.9	48.2	46.3	44.8	42.1	39.8	36.3	32.3	26.7	21.8	16.7	9.2	-1.1	-13.9	-27.0
12 Kakulas Crescent	**76.3**	48.5	48.3	49.2	51.6	56.0	66.0	72.2	70.8	67.3	62.3	58.9	55.0	53.4	51.2	49.0	47.6	48.3	47.6	45.4	42.6	40.6	38.9	35.9	33.2	29.4	24.6	18.0	12.2	5.9	-2.6	-13.9	-27.9	-41.9
13-15 Shenton Street	**78.8**	46.6	46.8	49.2	52.4	57.5	68.0	74.7	73.8	69.8	63.3	60.3	56.7	54.6	52.8	51.0	50.5	51.7	51.6	50.7	48.3	46.6	45.3	42.6	40.0	36.1	31.1	23.8	16.5	7.7	-4.9	-22.1	-44.0	-68.3
14 Kakulas Crescent	**78.0**	49.4	49.4	50.5	53.0	57.6	67.7	74.0	72.9	68.5	63.3	60.0	56.2	54.9	52.7	50.8	49.8	50.7	50.3	48.3	45.9	44.6	43.3	40.6	38.1	34.3	29.8	23.4	17.4	10.5	0.8	-11.9	-26.7	-40.9
15 Palamerston Street	**73.4**	45.3	45.4	46.4	49.0	53.4	63.3	69.5	68.2	63.8	57.6	54.4	50.7	49.0	46.7	44.3	43.1	43.8	43.2	41.1	38.3	36.3	34.4	31.2	28.7	23.7	17.4	8.9	0.9	-7.6	-19.4	-35.0	-54.7	0.0
16-18 Kakulas Crescent	**77.8**	49.1	49.2	50.4	52.8	57.2	67.3	73.7	72.6	68.7	63.3	59.9	55.9	54.2	52.1	50.5	49.7	50.5	49.8	47.5	45.2	43.4	41.9	38.9	36.3	32.4	27.8	21.3	15.3	8.8	-0.2	-11.5	-24.3	-36.3
17 Palamerston Street	**72.8**	44.6	44.7	45.9	48.4	52.8	62.8	69.0	67.6	63.3	57.1	53.6	49.5	48.2	46.2	44.0	42.9	43.8	43.3	41.4	38.6	36.6	34.8	31.9	29.1	24.1	17.6	8.7	0.2	-8.8	-20.9	-37.2	-57.6	0.0
17 Shenton Street	**78.3**	46.7	47.4	49.0	52.1	56.9	67.3	74.1	73.5	69.6	62.9	60.0	56.3	54.3	52.3	50.6	50.1	51.3	51.1	50.3	47.7	46.1	44.8	42.3	39.7	35.8	30.7	23.3	15.8	6.8	-6.1	-24.1	-47.0	-72.3
17A-B John Street	**73.6**	43.9	43.9	45.3	48.0	52.5	62.7	69.2	68.2	64.2	58.4	56.9	57.0	55.8	53.8	52.0	51.0	52.1	51.9	50.0	47.4	45.3	43.4	39.9	36.4	31.0	23.8	13.2	1.3	-13.1	-31.2	-53.7	-81.3	0.0
19 Palamerston Street	**72.6**	44.4	44.4	45.6	48.1	52.5	62.5	68.7	67.4	63.0	56.9	53.3	49.3	48.6	46.5	44.6	43.4	44.3	43.9	41.9	39.2	37.2	35.6	32.6	29.2	24.0	17.4	8.2	-0.5	-9.8	-22.4	-39.1	-60.2	0.0
21 Palmerston Street	**71.8**	42.7	42.6	43.9	46.8	51.6	61.6	67.8	66.4	62.8	57.3	53.8	49.6	47.9	46.2	43.9	42.7	43.5	43.0	40.9	38.0	36.0	34.1	30.9	27.4	22.3	15.6	6.5	-2.3	-12.0	-25.1	-43.0	-65.6	0.0
22 Palmerston Street	**73.5**	43.1	43.1	44.5	47.3	52.0	62.4	69.1	68.4	64.5	59.1	56.6	53.3	52.5	51.0	49.5	48.9	50.3	50.4	48.5	45.8	44.4	42.3	38.5	34.4	28.1	19.7	8.7	-1.0	-10.8	-23.6	-40.7	-61.8	-84.8
23 John Street	**77.3**	47.3	47.7	49.0	51.8	56.4	66.7	73.2	72.3	68.1	62.8	59.6	55.8	54.6	52.7	51.0	49.9	51.7	51.5	49.6	46.8	44.8	43.1	39.9	36.8	32.0	25.8	16.8	7.4	-3.4	-17.5	-36.2	-59.5	-85.3
43 Shenton Street	**77.5**	47.1	47.3	48.7	51.5	56.3	66.7	73.4	72.6	68.7	61.6	58.5	55.0	52.6	50.8	49.1	48.8	50.1	50.0	49.6	47.1	45.6	44.4	41.8	39.4	35.4	30.2	22.6	14.7	4.9	-9.0	-27.9	-51.8	0.0
45 Shenton Street	**77.2**	46.8	46.9	48.3	51.3	56.0	66.3	73.1	72.3	68.5	61.5	58.5	55.1	52.8	51.0	49.2	49.0	50.3	50.1	49.7	47.2	45.6	44.3	41.5	38.9	35.0	29.8	22.1	14.3	4.6	-9.0	-27.6	-51.2	0.0
48 Fitzegerald Street	**75.2**	46.0	46.0	47.0	49.5	53.9	64.5	71.2	70.2	65.9	60.6	57.3	53.6	52.2	50.0	48.0	46.9	48.0	47.8	46.1	43.6	41.8	40.3	37.3	34.3	29.6	23.6	14.8	5.4	-6.0	-21.0	-39.6	-62.5	0.0
84 Fitzgerald Street	**73.4**	42.5	42.8	44.2	47.1	51.8	62.5	69.2	68.3	64.2	58.9	56.9	53.2	51.9	49.9	47.9	47.4	48.5	48.1	46.0	43.1	40.8	38.5	34.8	30.6	23.9	14.5	0.5	-16.2	-37.1	-63.7	-97.8	3.0	3.0
87 Aberdeen Street	**87.2**	53.0	53.2	54.8	57.9	63.0	73.7	82.2	82.5	79.1	74.6	72.0	68.8	67.8	66.2	64.5	63.8	65.3	65.3	63.8	61.5	60.1	59.1	57.0	55.2	52.5	49.2	44.4	40.8	37.2	31.8	24.5	15.7	7.6
89 Aberdeen Street	**88.0**	54.2	54.8	56.6	59.8	65.0	76.0	83.2	82.9	79.4	74.8	72.3	69.1	68.3	66.7	65.2	64.5	66.0	66.1	64.6	62.3	61.0	60.0	57.8	56.0	53.3	50.1	45.3	41.6	38.0	32.5	25.1	16.1	7.8
89 Stirling Street	**68.0**	32.1	31.7	32.4	34.6	43.4	57.4	64.0	63.0	58.7	53.5	50.2	46.3	44.7	42.3	40.1	38.8	39.5	39.7	37.5	34.4	32.1	29.9	26.2	22.5	17.4	11.2	2.9	-5.0	-14.2	-27.0	0.0	0.0	0.0
98 Lake Street	**83.4**	51.7	51.7	53.1	56.1	60.9	71.4	78.2	78.2	75.1	70.9	68.5	65.6	64.8	63.3	61.9	61.3	62.8	62.8	61.2	58.9	57.5	56.4	54.0	52.2	49.4	46.0	41.0	37.2	33.4	28.1	20.9	12.3	4.5
101 Francis Street	**78.3**	50.9	50.9	52.0	54.0	58.3	68.1	74.2	73.1	69.3	63.8	60.5	56.6	55.1	52.9	50.6	49.4	50.3	49.7	47.7	45.0	43.2	41.7	39.1	36.8	33.2	28.9	22.7	17.2	11.2	2.9	-8.2	-21.7	0.0
102 Aberdeen Street	**80.8**	50.1	50.3	51.7	54.5	59.3	69.6	76.3	75.3	71.5	67.7	65.4	62.2	61.4	59.8	58.2	57.5	58.9	58.9	57.4	55.2	53.9	52.9	50.6	48.7	45.5	41.7	36.1	31.2	26.2	19.2	10.0	-0.9	-11.2
103 Francis Street	**95.1**	61.8	62.4	64.2	67.4	72.6	83.3	90.4	90.0	86.4	81.7	79.1	75.9	75.0	73.4	71.9	71.3	72.8	72.9	71.4	69.1	67.8	66.9	64.9	63.4	60.9	58.1	53.9	51.1	48.8	45.3	40.4	34.6	30.2
105 Stirling Street	**67.4**	39.6	39.6	40.8	43.2	47.5	57.4	63.5	62.2	57.6	52.1	48.8	44.9	43.8	41.5	39.8	38.7	39.6	39.4	37.4	34.7	32.6	30.7	27.2	23.6	18.2	11.3	2.1	-6.9	-16.8	-30.0	0.0	0.0	0.0
134 Aberdeen Street	**75.9**	44.6	44.8	46.2	49.1	53.9	64.6	71.5	71.0	67.4	61.1	58.6	55.3	53.5	51.9	50.4	50.2	51.5	51.5	50.7	48.1	46.2	44.4	41.0	37.2	31.4	23.8	14.0	6.0	-0.7	-9.5	-20.9	-35.1	-49.6
136 Aberdeen Street	**85.5**	53.2	53.6	55.3	58.4	63.4	74.0	81.0	80.5	76.7	71.8	69.2	65.9	64.9	63.2	61.6	60.9	62.3	62.3	60.7	58.4	56.9	55.8	53.5	51.7	48.9	45.6	40.8	37.2	33.6	28.4	21.1	12.2	4.0
145 Newcastle Street	**73.1**	43.8	43.9	45.2	47.9	52.5	62.6	69.1	68.1	63.8	58.5	55.1	51.2	49.6	47.4	45.5	44.2	45.1	44.4	42.2	39.1	36.8	34.7	31.3	27.9	22.9	16.6	7.8	-1.9	-13.7	-30.3	-52.6	-80.8	-112.4
154 Aberdeen Street	**78.9**	47.0	47.6	49.2	52.2	57.0	67.6	74.4	73.9	70.1	64.8	62.0	58.7	57.5	55.7	54.2	53.5	55.0	55.1	53.6	51.2	49.6	48.3	45.7	43.5	40.0	35.7	29.5	23.7	17.1	7.5	-5.6	-22.1	-39.6
160 Aberdeen Street	**77.9**	46.2	46.4	47.8	50.7	55.5	66.6	73.6	72.9	69.0	63.6	60.6	57.0	55.6	53.6	51.7	51.0	52.6	52.4	50.6	48.0	46.1	44.4	41.5	38.7	34.3	28.8	21.3	13.7	4.8	-8.1	-25.6	-47.8	0.0
164 Aberdeen Street	**77.6**	46.0	46.4	48.0	51.0	55.9	66.5	73.2	72.6	68.8	63.5	60.6	57.2	56.0	54.1	52.3	51.5	52.7	52.5	50.6	47.8	46.1	44.3	41.0	37.9	33.1	27.2	18.7	10.0	-0.7	-16.3	-37.8	0.0	0.0
166 Aberdeen Street	**74.8**	44.7	44.7	46.0	48.9	53.6	63.9	70.5	69.7	65.8	60.4	57.9	54.2	52.9	50.9	50.0	48.9	49.9	49.6	47.7	45.1	43.1	41.5	38.5	35.6	31.1	25.5	17.3	8.2	-3.2	-19.7	-42.3	0.0	0.0
170 Aberdeen Street	**75.4**	44.1	44.1	46.2	49.4	54.2	64.6	71.2	70.4	66.4	61.0	58.0	54.8	53.4	51.5	49.5	48.6	49.8	49.5	47.7	45.1	43.3	41.9	39.1	36.3	31.8	25.9	17.2	7.6	-4.6	-22.4	-47.0	0.0	0.0
172 Aberdeen Street	**76.6**	44.2	44.2	45.7	48.7	55.0	65.4	72.2	71.6	67.6	62.5	59.5	56.1	54.7	52.8	51.0	50.0	51.8	51.6	49.7	47.0	45.1	43.5	40.1	36.7	31.7	25.2	15.9	5.8	-7.1	-25.9	-51.7	0.0	3.0
174 Aberdeen Street	**74.3**	43.4	43.4	44.7	47.6	52.2	63.7	70.2	69.3	65.3	59.8	56.6	52.9	51.6	49.4	47.4	46.3	47.2	46.8	44.9	42.3	40.7	39.1	36.1	32.9	28.1	21.8	12.4	2.0	-11.5	-31.0	-58.1	0.0	3.0
178 Aberdeen Street	**74.5**	43.2	43.2	44.6	47.4	53.3	63.7	70.4	69.4	65.4	59.8	57.5	53.9	52.6	50.5	48.6	47.8	48.9	48.5	46.7	43.9	42.1	40.4	37.2	34.1	29.2	23.0	13.5	2.5	-11.8	-32.7	-61.7	0.0	3.0
182 James Street	**84.6**	52.4	52.7	54.4	57.4	62.4	73.0	80.0	79.4	75.8	71.1	68.5	65.3	64.4	62.8	61.3	60.7	62.2	62.2	60.8	58.6	57.1	56.0	53.6	51.7	48.5	44.7	39.1	34.3	29.3	22.2	12.7	1.3	-9.5
184 Aberdeen Street	**73.1**	42.4	42.6	43.9	46.6	51.2	61.4	69.2	68.2	63.9	58.4	55.1	51.4	49.7	47.4	45.1	43.7	44.3	43.6	41.2	39.9	37.8	35.8	32.2	28.7	23.3	16.2	5.7	-6.5	-22.4	-45.3	-77.1	0.0	3.0
191 James Street	**85.2**	53.2	53.4	54.9	58.1	63.4	73.9	80.8	80.0	76.4	71.7	69.0	65.7	64.5	62.9	61.4	60.8	62.2	62.1	60.3	57.8	56.0	54.6	52.1	50.1	47.0	43.4	38.2	34.2	30.2	24.3	16.3	6.6	-2.5
218-220 James Street	**83.6**	50.9	51.2	52.8	56.2	61.4	72.1	79.0	78.5	74.8	69.9	67.4	64.3	63.5	62.2	60.7	60.1	61.6	61.6	59.9	57.5	55.9	54.7	52.1	49.9	46.4	42.1	35.9	30.2	23.9	14.7	2.0	-14.0	-30.8
219-223 Newcastle Street	**80.2**	48.7	48.8	50.3	53.2	58.1	68.7	75.7	75.1	71.3	66.5	63.8	60.4	59.3	57.7	56.1	56.3	58.2	58.2	56.4	54.0	52.5	51.3	48.9	47.0	43.9	40.2	34.8	30.2	25.3	18.2	8.4	-3.6	-15.6
227 Newcastle Street	**78.0**	47.1	48.4	49.9	52.8	57.3	67.4	73.7	72.5	68.0	62.5	63.1	60.8	59.9	58.2	56.6	55.8	57.0	56.8	55.1	52.7	51.1	49.8	47.4	45.3	42.3	38.4	32.9	28.1	22.8	15.2	4.7	-8.4	-21.8
241 Newcastle Street	**76.0**	46.7	46.8	48.1	50.4	55.0	65.0	71.5	70.3	67.5	63.2	60.5	57.5	56.4	54.8	53.2	52.3	53.6	53.4	51.8	49.4	47.8	46.6	44.2	42.2	38.9	34.9	29.2	24.2	18.9	11.1	0.5	-12.8	-26.3
255 Newcastle Street	**79.1**	48.3	48.6	50.0	52.8	57.6	68.0	74.8	74.1	70.1	65.2	62.4	59.1	58.0	56.2	54.7	54.3	55.6	55.5	53.9	51.6	50.0	48.8	46.3	44.3	41.0	37.0	31.0	25.8	20.2	12.1	1.2	-12.3	-26.1
269 Newcastle Street	**75.9**	46.1	46.4	47.7	50.4	55.0	65.1	71.7	70.7	67.1	62.1	59.0	55.5	54.3	52.5	51.6	51.0	52.1	51.9	49.8	47.1	45.1	43.4	40.6	37.8	33.6	28.1	20.2	12.4	3.2	-9.6	-26.5	-46.1	-64.9
279 Newcastle Street	**75.8**	47.1	47.2	48.4	51.0	55.5	65.6	71.8	70.6	66.2	60.8	57.5	53.7	52.6	50.7	48.8	47.7	48.8	48.6	46.8	44.4	42.5	41.0	38.0	35.4	31.4	26.3	18.9	11.5	2.8	-8.7	-21.9	-36.1	-49.9
283 Newcastle Street	**76.1**	47.5	47.6	48.8	51.3	55.9	65.9	72.2	71.0	66.5	61.0	57.9	53.9	52.7	50.8	48.6	47.3	48.1	47.3	44.9	41.8	39.5	37.5	34.3	31.3	27.0	21.7	14.4	7.6	0.1	-10.2	-24.0	-41.2	-59.2
289 Newcastle Street	**73.8**	45.6	45.4	46.5	49.0	53.3	63.3	69.8	68.8	64.6	59.0	55.8	51.7	50.0	47.8	46.2	44.8	46.0	45.5	43.4	40.4	38.3	36.2	32.8	29.5	24.9	19.4	11.8	4.9	-2.7	-13.0	-26.7	-43.7	-61.7
305 William Street	**72.4**	44.7	44.5	45.4	47.7	51.8	61.5	67.8	67.5	63.2	58.6	56.4	52.6	51.0	48.5	46.2	44.8	45.6	45.1	43.0	40.2	38.2	36.5	33.6	30.9	26.9	21.9	15.0	8.6	1.5	-8.4	-21.7	-38.0	-54.9
321 Newcastle Street	**72.6**	42.4	42.5	43.9	46.6	51.4	61.7	68.3	67.4	63.3	59.9	57.1	53.7	52.3	50.2	48.1	46.8	47.7	46.9	44.6	41.4	38.9	36.5	32.6	28.3	22.0	14.2	3.8	-6.3	-18.1	-34.4	-56.0	-83.3	0.0
323-335 Newcastle Street	**70.9**	40.2	40.4	41.8	44.6	49.4	59.8	66.5	65.9	61.9	56.9	54.0	50.5	49.4	47.6	46.8	45.9	47.1	46.7	44.7	41.7	39.3	37.0	32.9	28.4	21.4	11.9	-1.4	-15.5	-30.4	-50.1	-76.6	0.0	3.0

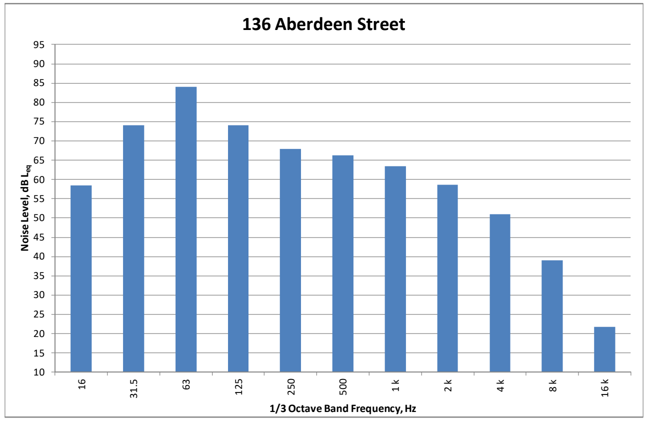


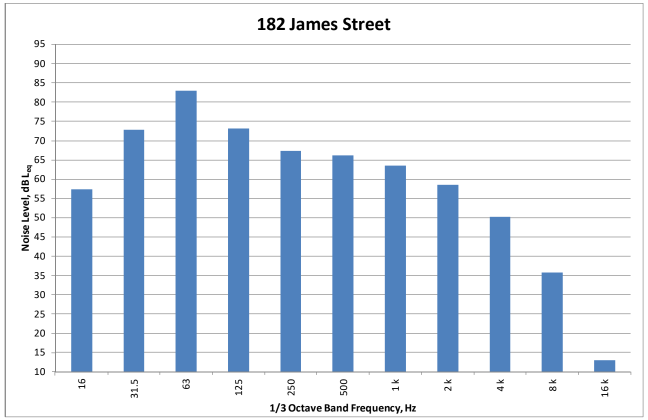


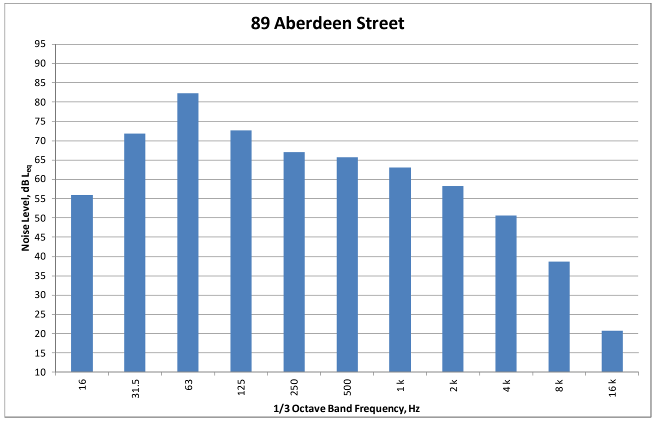


Scenario A

Receiver	dB(L)	16	31.5	63	125	250	500	1 k	2 k	4 k	8 k	16 k
3-5 Shenton Street	**79.2**	52.5	68.5	78.4	67.0	59.4	58.2	56.5	51.4	41.7	23.9	-8.4
5-9 Davies Street	**70.5**	46.9	60.8	69.7	57.6	50.4	47.9	44.4	37.3	24.2	-1.2	1.2
6-8 Kakulas Crescent	**78.4**	53.3	68.4	77.6	65.8	58.6	55.5	51.2	45.0	36.2	22.9	0.7
6-10 Davies Street	**72.7**	47.9	62.4	71.8	60.3	52.5	49.3	45.0	37.7	22.9	-6.2	1.2
6-12 Serich Lane	**71.2**	47.5	61.5	70.4	57.9	49.1	45.7	41.9	33.6	18.2	-13.1	1.2
7-11 Shenton Street	**78.9**	53.2	68.4	78.1	66.3	58.6	57.6	55.9	50.8	41.0	22.6	-4.0
7 Errichetti Place	**84.8**	57.7	73.6	83.7	74.0	67.9	66.7	64.0	59.5	52.1	40.9	25.0
10 Kakulas Crescent	**76.3**	52.3	66.5	75.3	63.8	57.8	56.7	52.9	47.0	38.0	23.2	-0.9
12 Kakulas Crescent	**75.0**	52.5	65.3	74.0	63.1	55.0	51.4	46.8	40.5	30.4	12.8	-14.2
13-15 Shenton Street	**77.8**	51.1	67.4	77.1	64.8	57.2	55.8	53.3	47.7	37.4	17.0	-4.9
14 Kakulas Crescent	**77.1**	53.7	67.3	76.2	64.8	57.4	54.5	50.8	45.6	35.8	18.0	-12.6
15 Palamerston Street	**72.2**	49.3	62.7	71.4	58.6	50.4	47.0	42.8	36.2	24.4	1.4	1.2
16-18 Kakulas Crescent	**76.6**	53.4	66.7	75.7	64.2	56.1	53.4	49.3	43.7	33.5	15.6	-13.7
17 Palamerston Street	**71.9**	48.8	62.3	71.0	58.2	50.4	47.5	43.4	36.8	24.8	0.6	1.2
17 Shenton Street	**77.4**	51.2	66.7	76.7	64.3	56.6	55.1	52.9	47.3	37.1	16.3	-4.9
17A-B John Street	**71.8**	47.2	61.5	70.8	59.9	55.2	52.7	49.1	41.9	28.3	-1.4	1.2
19 Palamerston Street	**71.5**	48.5	61.9	70.7	58.0	50.4	47.7	43.8	37.3	24.7	-0.1	1.2
21 Palmerston Street	**70.4**	46.3	60.8	69.5	57.9	49.7	46.8	42.6	35.7	22.7	-1.9	1.2
22 Palmerston Street	**69.9**	45.7	59.6	68.9	57.6	52.2	50.8	47.4	40.3	25.7	-0.9	1.2
23 John Street	**74.0**	50.0	64.1	73.1	61.3	54.1	52.1	48.2	41.2	28.7	3.2	1.2
43 Shenton Street	**76.8**	51.6	66.4	76.1	63.2	55.2	53.9	52.2	46.9	36.7	15.1	-5.0
45 Shenton Street	**76.5**	51.2	66.0	75.7	63.0	55.4	54.2	52.2	46.6	36.1	14.7	-5.0
48 Fitzegerald Street	**72.7**	48.1	62.3	71.8	60.7	53.5	51.1	47.9	41.6	29.4	3.5	1.2
84 Fitzgerald Street	**70.6**	45.4	60.4	69.8	58.4	51.2	48.6	44.3	36.1	20.1	-19.2	1.2
87 Aberdeen Street	**83.1**	55.5	70.5	82.1	72.8	66.7	65.1	62.3	57.6	49.9	37.9	20.2
89 Aberdeen Street	**83.4**	56.0	71.9	82.3	72.7	67.0	65.7	63.0	58.3	50.7	38.7	20.7
89 Stirling Street	**64.3**	33.1	54.1	63.5	52.0	44.0	40.8	36.7	28.7	14.3	0.5	1.2
98 Lake Street	**79.4**	53.7	68.2	78.2	69.3	63.7	62.4	59.5	54.5	46.5	34.1	16.6
101 Francis Street	**77.8**	55.6	68.2	77.0	65.5	57.3	53.9	49.9	44.1	34.8	18.3	-3.2
102 Aberdeen Street	**78.0**	53.4	67.6	76.8	67.2	61.2	59.5	56.8	52.1	43.5	28.1	5.5
103 Francis Street	**95.0**	67.7	83.8	94.0	84.3	78.4	77.1	74.5	70.1	63.3	53.8	41.8
105 Stirling Street	**64.7**	42.1	55.2	63.8	51.6	43.9	41.3	37.5	30.1	15.5	-11.3	1.2
134 Aberdeen Street	**72.5**	47.8	62.0	71.6	59.9	52.8	51.6	49.2	42.4	28.8	6.7	-4.9
136 Aberdeen Street	**85.0**	58.4	74.1	84.0	74.1	67.9	66.3	63.5	58.6	50.9	39.1	21.7
145 Newcastle Street	**70.5**	47.0	60.8	69.7	57.9	49.8	46.7	42.3	34.9	22.0	-3.8	1.2
154 Aberdeen Street	**78.3**	52.0	67.4	77.4	66.9	60.4	59.1	56.3	50.8	41.6	24.7	-2.2
160 Aberdeen Street	**76.0**	50.1	65.1	75.1	64.0	56.9	55.3	52.1	46.1	35.2	14.3	-5.0
164 Aberdeen Street	**75.2**	49.5	64.6	74.4	63.3	56.8	55.0	51.5	45.3	33.7	10.4	1.2
166 Aberdeen Street	**73.5**	48.5	62.9	72.6	61.7	54.9	53.0	49.6	43.5	32.1	8.5	1.2
170 Aberdeen Street	**74.1**	48.0	63.7	73.3	62.2	55.5	53.4	50.0	44.2	32.8	7.9	1.2
172 Aberdeen Street	**73.7**	47.5	63.0	72.8	61.8	54.9	53.5	50.4	44.3	32.0	5.9	1.2
174 Aberdeen Street	**72.1**	46.8	61.7	71.3	60.0	52.9	50.3	46.8	40.9	28.8	2.1	1.2
178 Aberdeen Street	**72.4**	46.6	61.9	71.5	60.6	54.3	52.4	48.9	42.5	30.2	2.7	1.2
182 James Street	**84.0**	57.3	72.8	83.0	73.2	67.3	66.2	63.6	58.6	50.3	35.7	13.1
184 Aberdeen Street	**70.5**	45.6	59.8	69.7	57.9	50.1	46.5	43.1	37.1	23.7	-6.4	1.2
191 James Street	**85.0**	58.2	74.1	84.0	74.1	67.8	66.5	63.1	57.3	48.9	36.0	16.8
218-220 James Street	**81.0**	53.7	70.0	80.0	69.9	64.2	63.0	60.0	54.7	45.4	28.7	-0.9
219-223 Newcastle Street	**76.9**	51.4	66.2	75.9	65.5	59.0	58.3	55.2	49.8	41.2	26.7	3.7
227 Newcastle Street	**74.8**	50.5	64.9	73.7	63.2	58.9	57.0	53.6	48.3	39.4	24.5	-0.1
241 Newcastle Street	**73.1**	49.4	62.9	72.0	62.3	55.8	53.8	50.4	44.9	36.0	20.6	1.4
255 Newcastle Street	**75.6**	50.7	65.2	74.7	63.9	57.3	55.7	52.5	47.0	38.0	22.0	1.6
269 Newcastle Street	**74.8**	50.0	64.3	73.9	63.1	56.4	54.9	51.1	45.0	34.3	12.2	-28.3
279 Newcastle Street	**74.6**	51.1	64.8	73.7	61.7	54.3	51.9	48.9	42.9	32.4	11.6	-25.4
283 Newcastle Street	**74.8**	51.7	65.2	73.9	61.9	54.5	51.1	46.2	38.9	27.7	7.9	-5.0
289 Newcastle Street	**72.4**	49.4	62.5	71.5	59.9	51.7	48.8	44.3	37.2	25.5	5.3	-5.0
305 William Street	**70.3**	47.8	60.4	69.3	59.4	52.2	48.3	43.9	37.1	26.0	6.4	-25.4
321 Newcastle Street	**69.4**	46.9	60.0	68.5	56.3	48.2	44.5	40.1	33.4	20.5	-4.7	1.2
323-335 Newcastle Street	**68.8**	45.3	59.1	67.9	55.5	47.3	44.6	40.9	33.2	19.6	-8.0	1.2

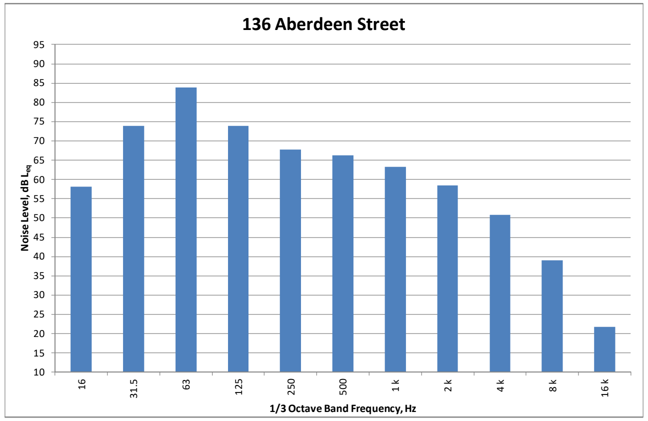


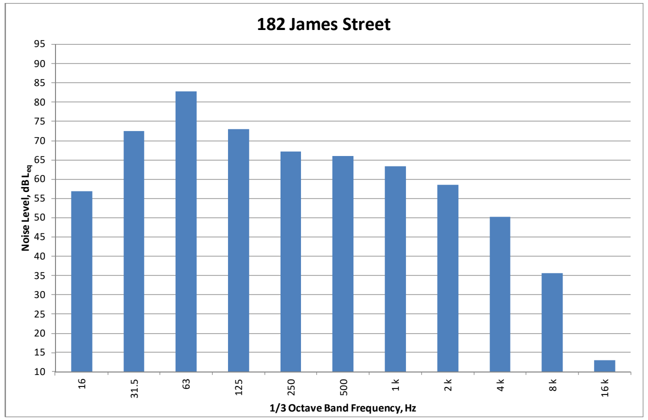


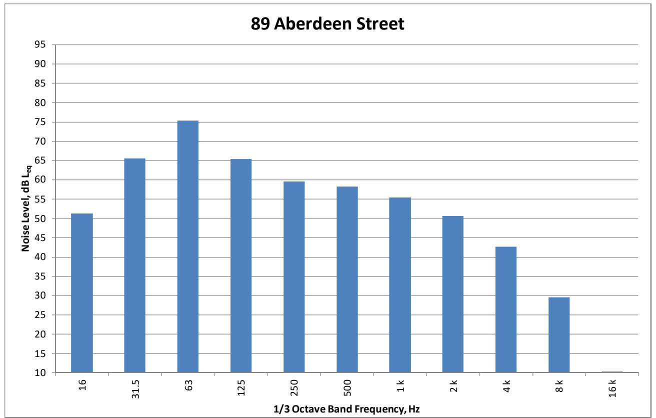


Scenario B

Receiver	dB(L)	16	31.5	63	125	250	500	1 k	2 k	4 k	8 k	16 k
3-5 Shenton Street	**78.8**	51.6	68.0	77.9	66.5	59.0	58.0	56.4	51.3	41.7	23.9	-8.4
5-9 Davies Street	**68.3**	45.2	58.7	67.5	55.2	47.6	45.7	43.0	36.3	23.8	-1.2	0.1
6-8 Kakulas Crescent	**78.1**	53.0	68.0	77.2	65.4	58.2	55.1	50.9	44.8	36.1	22.9	-0.6
6-10 Davies Street	**70.3**	46.1	60.3	69.5	57.3	48.8	45.0	40.8	34.6	20.9	-6.4	0.1
6-12 Serich Lane	**69.7**	46.0	60.1	69.0	56.3	47.4	43.3	39.9	32.2	17.2	-13.3	0.1
7-11 Shenton Street	**78.4**	52.5	67.8	77.6	65.9	58.3	57.4	55.8	50.7	41.0	22.6	-9.9
7 Errichetti Place	**78.5**	52.6	67.8	77.5	67.1	60.8	59.4	56.6	51.7	43.6	31.1	14.2
10 Kakulas Crescent	**75.7**	51.9	66.0	74.8	63.2	57.2	56.2	52.5	46.8	37.9	23.2	-0.9
12 Kakulas Crescent	**74.3**	52.0	64.7	73.4	62.3	54.3	50.7	46.2	40.0	30.1	12.6	-14.5
13-15 Shenton Street	**77.4**	50.4	66.9	76.6	64.3	56.9	55.6	53.2	47.6	37.3	17.0	-15.0
14 Kakulas Crescent	**76.6**	53.3	66.8	75.7	64.4	57.1	54.2	50.5	45.5	35.7	17.9	-13.0
15 Palamerston Street	**71.6**	48.6	62.1	70.8	57.9	49.7	46.5	42.3	35.8	24.2	1.4	0.1
16-18 Kakulas Crescent	**75.9**	52.9	66.1	75.1	63.5	55.4	52.7	48.8	43.4	33.3	15.3	-15.4
17 Palamerston Street	**71.4**	48.3	61.8	70.5	57.7	49.9	47.1	43.1	36.6	24.7	0.6	0.1
17 Shenton Street	**77.0**	50.4	66.2	76.2	63.8	56.2	54.9	52.7	47.2	37.0	16.3	-15.4
17A-B John Street	**70.7**	46.0	60.5	69.9	58.4	51.5	48.9	45.6	38.3	25.0	-3.5	0.1
19 Palamerston Street	**71.0**	47.9	61.4	70.1	57.4	49.7	47.1	43.3	37.0	24.5	-0.1	0.1
21 Palmerston Street	**69.7**	45.4	60.0	68.8	57.1	49.0	46.2	42.1	35.3	22.5	-2.0	0.1
22 Palmerston Street	**66.4**	43.7	56.6	65.5	52.9	48.2	46.7	42.8	35.9	23.1	-1.0	0.1
23 John Street	**71.1**	47.8	61.5	70.3	57.5	50.5	47.9	43.3	35.9	22.8	-4.0	0.1
43 Shenton Street	**76.5**	51.2	66.0	75.7	62.8	54.9	53.7	52.0	46.8	36.6	15.1	-15.7
45 Shenton Street	**76.1**	50.7	65.6	75.3	62.6	55.1	53.9	52.0	46.5	36.0	14.7	-15.7
48 Fitzegerald Street	**70.8**	45.6	60.3	69.9	59.3	52.6	50.5	47.4	41.0	28.7	2.1	0.1
84 Fitzgerald Street	**68.6**	43.6	58.6	67.8	55.6	47.4	43.7	38.7	30.1	14.2	-21.6	0.1
87 Aberdeen Street	**78.3**	53.0	67.0	77.4	66.9	60.2	58.5	55.5	50.4	42.3	29.2	10.1
89 Aberdeen Street	**76.4**	51.2	65.5	75.4	65.4	59.5	58.2	55.5	50.7	42.7	29.6	10.2
89 Stirling Street	**60.8**	29.2	50.8	59.9	48.3	40.7	37.9	33.9	25.9	9.3	0.0	0.1
98 Lake Street	**75.0**	50.7	64.6	74.0	63.8	57.1	54.5	50.8	45.0	36.2	23.2	6.6
101 Francis Street	**77.6**	55.4	67.9	76.7	65.2	57.0	53.6	49.6	43.9	34.7	18.3	-7.4
102 Aberdeen Street	**75.9**	52.0	65.9	74.8	64.4	57.8	55.7	53.0	48.5	39.5	21.7	-4.6
103 Francis Street	**95.0**	67.7	83.8	94.0	84.3	78.4	77.1	74.5	70.1	63.3	53.8	41.8
105 Stirling Street	**62.7**	40.0	53.2	61.8	49.6	41.7	39.2	35.5	27.9	12.1	-21.3	0.1
134 Aberdeen Street	**69.3**	46.2	59.5	68.5	55.7	48.1	46.3	43.6	37.4	26.0	6.6	-14.8
136 Aberdeen Street	**84.8**	58.2	73.8	83.8	73.9	67.8	66.2	63.3	58.5	50.9	39.1	21.7
145 Newcastle Street	**68.7**	45.7	59.1	67.8	55.7	47.7	44.8	40.7	33.6	20.8	-5.2	0.1
154 Aberdeen Street	**78.1**	51.6	67.1	77.1	66.7	60.3	59.0	56.1	50.7	41.6	24.7	-5.1
160 Aberdeen Street	**74.8**	49.1	63.9	73.9	62.7	55.9	54.4	51.5	45.6	35.1	14.3	-15.5
164 Aberdeen Street	**73.6**	48.1	63.1	72.8	61.3	55.1	53.7	50.5	44.7	33.4	10.4	0.1
166 Aberdeen Street	**72.8**	47.6	62.1	71.9	61.0	54.3	52.4	49.1	43.2	32.0	8.5	0.1
170 Aberdeen Street	**73.5**	47.1	62.9	72.6	61.6	54.9	53.0	49.8	44.1	32.8	7.9	0.1
172 Aberdeen Street	**71.3**	46.2	60.7	70.5	59.2	52.4	51.7	49.1	43.6	31.7	5.9	0.1
174 Aberdeen Street	**70.7**	45.7	60.2	69.8	58.7	51.9	49.7	46.3	40.6	28.7	2.1	0.1
178 Aberdeen Street	**71.1**	45.5	60.3	70.1	59.4	53.6	51.9	48.6	42.3	30.1	2.7	0.1
182 James Street	**83.8**	57.0	72.5	82.7	72.9	67.1	66.0	63.4	58.5	50.2	35.7	13.0
184 Aberdeen Street	**68.5**	44.2	58.4	67.7	55.9	48.3	45.0	42.3	36.6	23.4	-6.5	0.1
191 James Street	**84.9**	58.0	74.0	83.9	74.0	67.8	66.4	63.0	57.3	48.9	36.0	16.8
218-220 James Street	**79.2**	51.5	68.2	78.2	68.0	62.0	60.8	57.8	52.6	43.5	26.8	-3.3
219-223 Newcastle Street	**74.0**	49.5	63.7	73.1	62.2	55.3	53.4	50.1	44.2	34.1	16.8	-7.2
227 Newcastle Street	**72.1**	48.3	62.4	71.2	59.4	53.0	51.3	47.7	42.1	32.2	14.9	-11.0
241 Newcastle Street	**70.8**	47.5	61.0	69.8	59.2	51.6	48.9	44.8	38.4	27.8	10.1	0.1
255 Newcastle Street	**72.2**	48.0	62.2	71.4	60.1	52.7	50.5	46.5	39.8	29.2	11.5	0.1
269 Newcastle Street	**74.2**	49.1	63.6	73.3	62.5	55.7	54.0	50.4	44.5	34.0	11.9	-29.5
279 Newcastle Street	**73.9**	50.3	64.2	73.1	61.1	53.5	51.3	48.4	42.6	32.2	11.3	-29.1
283 Newcastle Street	**74.0**	51.2	64.5	73.2	61.2	53.9	50.5	45.6	38.4	27.4	7.7	-15.5
289 Newcastle Street	**71.6**	48.7	61.7	70.7	59.2	51.0	48.0	43.4	36.5	25.1	5.1	-15.7
305 William Street	**69.1**	46.6	59.3	68.0	58.2	51.3	47.4	42.9	36.0	24.6	4.0	-29.3
321 Newcastle Street	**68.3**	45.8	58.9	67.4	54.9	46.5	43.0	38.9	32.7	20.1	-4.8	0.1
323-335 Newcastle Street	**68.2**	44.5	58.5	67.4	55.0	46.8	44.0	40.3	32.7	19.3	-8.1	0.1

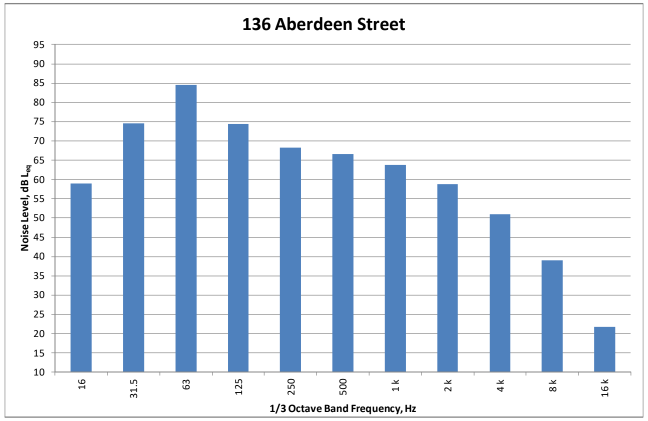


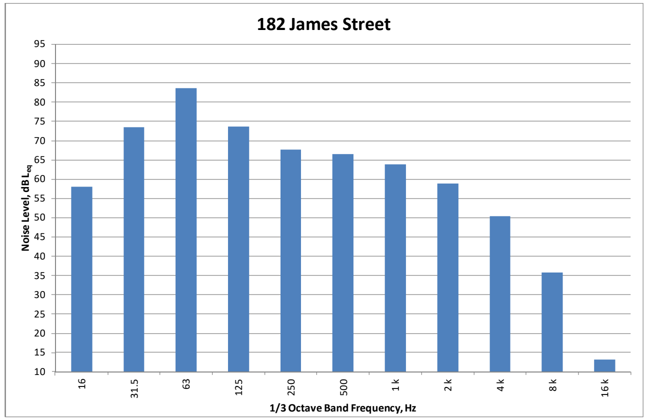


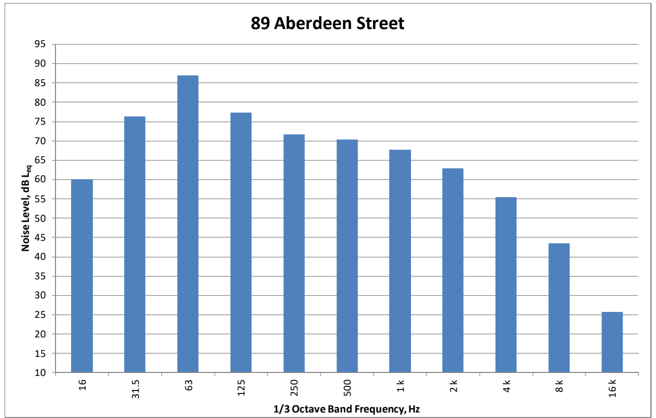


Scenario C

Receiver	dB(L)	16	31.5	63	125	250	500	1 k	2 k	4 k	8 k	16 k
3-5 Shenton Street	**80.2**	54.0	69.6	79.3	68.0	60.1	58.6	56.8	51.6	41.9	24.0	-8.4
5-9 Davies Street	**73.4**	49.4	63.6	72.5	60.6	53.6	50.7	46.6	39.0	25.0	-1.1	3.0
6-8 Kakulas Crescent	**79.2**	54.1	69.2	78.4	66.5	59.4	56.2	51.8	45.4	36.3	22.9	2.7
6-10 Davies Street	**75.6**	50.4	65.2	74.8	63.7	56.3	53.2	48.9	41.2	25.7	-5.8	3.0
6-12 Serich Lane	**73.5**	49.7	63.8	72.7	60.3	51.6	48.7	44.5	35.8	19.8	-12.6	3.0
7-11 Shenton Street	**79.9**	54.6	69.5	79.1	67.2	59.3	57.9	56.1	50.9	41.1	22.7	0.3
7 Errichetti Place	**89.2**	61.8	78.0	88.2	78.5	72.5	71.4	68.7	64.2	56.9	45.8	30.0
10 Kakulas Crescent	**77.3**	53.2	67.5	76.4	64.9	58.9	57.7	53.7	47.5	38.1	23.2	-0.9
12 Kakulas Crescent	**76.2**	53.5	66.5	75.3	64.5	56.3	52.6	48.0	41.3	30.9	13.2	-13.7
13-15 Shenton Street	**78.7**	52.5	68.5	77.9	65.6	57.8	56.1	53.6	47.9	37.5	17.1	0.0
14 Kakulas Crescent	**78.0**	54.6	68.2	77.1	65.5	57.9	55.1	51.3	45.9	35.9	18.2	-11.8
15 Palamerston Street	**73.4**	50.5	63.9	72.5	59.8	51.8	48.2	43.8	36.8	24.7	1.5	3.0
16-18 Kakulas Crescent	**77.7**	54.4	67.9	76.9	65.4	57.3	54.8	50.5	44.4	34.0	16.3	-11.2
17 Palamerston Street	**72.8**	49.9	63.3	72.0	59.2	51.2	48.1	44.0	37.3	25.1	0.7	3.0
17 Shenton Street	**78.3**	52.6	67.8	77.6	65.3	57.4	55.6	53.2	47.5	37.2	16.3	0.0
17A-B John Street	**73.6**	49.2	63.2	72.4	62.3	59.0	56.4	52.7	45.6	31.8	1.4	3.0
19 Palamerston Street	**72.5**	49.6	63.0	71.7	59.0	51.7	48.7	44.7	38.0	25.0	0.0	3.0
21 Palmerston Street	**71.8**	47.9	62.1	70.9	59.4	51.1	47.9	43.6	36.4	23.2	-1.8	3.0
22 Palmerston Street	**73.5**	48.4	62.9	72.5	61.7	56.0	54.7	51.4	44.3	28.8	-0.6	3.0
23 John Street	**77.3**	52.8	67.2	76.4	65.0	57.8	55.9	52.3	45.4	33.1	7.8	3.0
43 Shenton Street	**77.6**	52.5	67.2	76.8	64.0	55.8	54.4	52.6	47.2	36.8	15.2	0.0
45 Shenton Street	**77.3**	52.2	66.9	76.5	63.8	56.1	54.7	52.6	47.0	36.2	14.8	0.0
48 Fitzegerald Street	**75.2**	51.1	65.0	74.4	62.8	55.1	52.3	49.0	42.7	30.7	5.7	3.0
84 Fitzgerald Street	**73.3**	48.0	63.0	72.4	61.7	55.0	52.8	48.6	40.5	24.4	-16.2	3.0
87 Aberdeen Street	**87.2**	58.5	74.2	86.2	77.2	71.2	69.6	66.9	62.2	54.6	42.7	25.1
89 Aberdeen Street	**87.9**	60.1	76.4	86.9	77.4	71.7	70.4	67.7	63.0	55.4	43.6	25.7
89 Stirling Street	**68.0**	36.8	57.6	67.2	55.7	47.5	44.2	40.0	31.9	18.5	1.3	3.0
98 Lake Street	**83.4**	57.0	71.8	82.1	73.6	68.2	67.1	64.3	59.4	51.4	39.1	21.5
101 Francis Street	**78.4**	56.1	68.7	77.5	66.0	58.0	54.6	50.4	44.4	34.9	18.3	0.6
102 Aberdeen Street	**80.8**	55.5	70.1	79.6	70.4	64.8	63.2	60.5	55.8	47.4	32.6	10.4
103 Francis Street	**95.1**	67.7	83.8	94.0	84.3	78.4	77.1	74.5	70.1	63.3	53.8	41.8
105 Stirling Street	**67.4**	44.8	57.9	66.5	54.3	46.8	44.0	40.1	32.9	19.1	-6.4	3.0
134 Aberdeen Street	**75.9**	50.1	65.0	75.1	63.7	56.9	55.9	53.5	46.6	32.1	7.0	0.0
136 Aberdeen Street	**85.5**	58.9	74.5	84.5	74.4	68.2	66.6	63.8	58.8	51.0	39.1	21.7
145 Newcastle Street	**73.1**	49.1	63.2	72.3	60.7	52.6	49.4	44.7	36.9	23.9	-1.6	3.0
154 Aberdeen Street	**78.9**	52.8	68.0	78.0	67.3	60.8	59.4	56.6	51.0	41.7	24.7	1.1
160 Aberdeen Street	**77.9**	51.7	67.0	77.1	66.0	58.7	56.8	53.4	46.9	35.5	14.3	0.0
164 Aberdeen Street	**77.6**	51.6	66.9	76.7	65.9	59.2	57.0	53.3	46.6	34.2	10.4	3.0
166 Aberdeen Street	**74.8**	50.0	64.4	73.9	62.9	56.2	54.3	50.5	44.0	32.3	8.5	3.0
170 Aberdeen Street	**75.4**	49.7	65.1	74.5	63.4	56.5	54.1	50.5	44.4	32.9	7.9	3.0
172 Aberdeen Street	**76.6**	49.6	65.9	75.7	64.9	57.9	56.0	52.4	45.7	32.7	6.0	3.0
174 Aberdeen Street	**74.3**	48.7	64.0	73.5	62.1	54.6	51.6	47.7	41.5	29.1	2.1	3.0
178 Aberdeen Street	**74.5**	48.5	64.2	73.7	62.5	55.7	53.2	49.4	42.8	30.3	2.7	3.0
182 James Street	**84.6**	58.0	73.5	83.6	73.7	67.8	66.5	63.9	58.9	50.4	35.7	13.2
184 Aberdeen Street	**73.1**	47.8	61.9	72.4	60.7	52.6	48.7	44.7	37.9	24.2	-6.3	3.0
191 James Street	**85.2**	58.7	74.4	84.2	74.2	67.9	66.6	63.2	57.4	48.9	36.0	16.9
218-220 James Street	**83.6**	56.5	72.5	82.6	72.6	67.0	65.9	62.8	57.4	48.1	31.3	2.1
219-223 Newcastle Street	**80.2**	54.1	69.2	79.2	69.0	62.8	62.4	59.4	54.2	45.8	31.6	8.7
227 Newcastle Street	**78.0**	53.4	67.9	76.8	67.0	63.2	61.3	58.0	52.7	44.1	29.4	4.9
241 Newcastle Street	**76.0**	52.0	65.6	74.8	65.7	59.7	58.0	54.8	49.4	40.7	25.5	3.4
255 Newcastle Street	**79.1**	53.8	68.5	78.2	67.6	61.3	59.9	56.9	51.6	42.8	27.0	3.8
269 Newcastle Street	**76.0**	51.6	65.7	75.0	64.4	57.7	56.5	52.5	46.0	34.8	12.9	-26.4
279 Newcastle Street	**75.8**	52.4	66.1	74.9	63.0	55.7	53.1	49.7	43.5	32.8	12.1	-21.7
283 Newcastle Street	**76.1**	52.8	66.5	75.2	63.3	55.7	52.3	47.4	39.9	28.3	8.4	0.0
289 Newcastle Street	**73.8**	50.6	63.8	73.0	61.3	53.0	50.3	45.9	38.4	26.2	5.7	0.0
305 William Street	**72.4**	49.7	62.1	71.4	61.3	53.8	49.9	45.6	39.0	28.3	9.4	-21.6
321 Newcastle Street	**71.3**	48.7	61.8	70.4	58.5	50.7	46.7	42.0	34.8	21.2	-4.6	3.0
323-335 Newcastle Street	**69.9**	46.7	60.3	69.0	56.7	48.3	45.9	42.2	34.3	20.3	-7.9	3.0
		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0







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.

C-Weighting
A C-weighted noise level has been filtered in such a way as to represent the way in which the human ear perceives sound at high noise levels (above approximately 80 dB). This weighting does not attenuate lower frequencies as much as the A-weighting and therefore better reflects the low frequency or bass component of a sound. The C-weighted level is described as L_C dB.

Z or Linear Weighting
An Z-weighted, or 'linear', noise level has not filtered in any way and therefore does not necessarily represent the way in which the human ear perceives sound at a nominated frequency. A Z-weighted sound level is described as L_L 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.

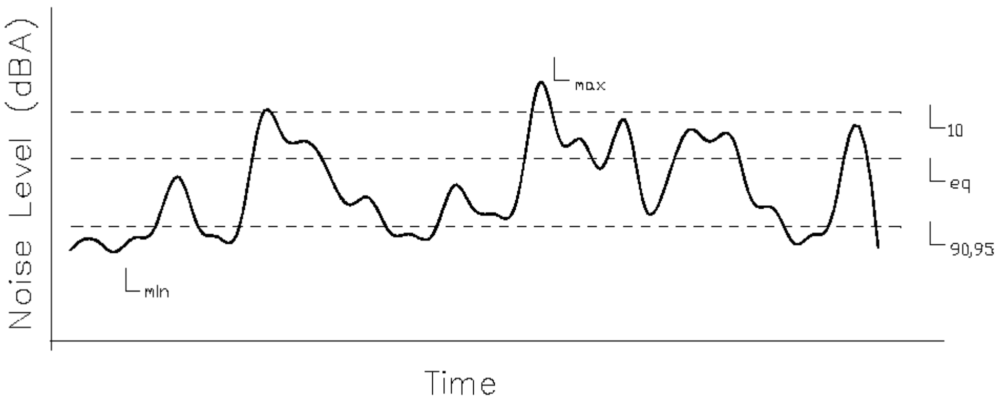
Sound Pressure Level (L_p)
The sound pressure level of a noise source is dependent upon its surroundings, being influenced by distance, ground absorption, topography, meteorological conditions etc and is what the human ear actually hears. Using the electric heater analogy above, the heat will vary depending 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_{eq}
The equivalent steady state 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.

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.

One-Octave Band
Means a band of frequencies spanning one full octave and having a centre frequency between 63 Hz and 16 000 Hz inclusive.

Chart of Noise Level Descriptors



Typical Noise Levels