

## Executive Summary

### Construction Traffic

The proposed traffic access routes to construction sites is via arterial, sub-arterial or local roads which all have significant daytime flows. The additional daytime construction traffic is not predicted to result in a noticeable change in traffic noise levels on these access routes.

Night-time spoil removal may be required at some sites, however as access is generally via arterial and sub-arterial roads with moderate night-time flows, the additional heavy vehicles movements result in a minor increase in traffic noise levels on the public road network. Whilst the maximum noise levels associated with truck movements exceed the background + 15 dB sleep disturbance screening criterion at most locations, the maximum noise levels will be similar to other heavy vehicles using the public road network. At Chatswood, Crows Nest, and Victoria Cross, site access is via a local road with low night-time flows and a resultant sleep disturbance risk. Unless compliance with the road traffic noise criteria can be achieved, night-time heavy vehicles movements on local roads at these sites would be restricted.

The maximum noise levels associated with on site truck movements can potentially cause awakening reactions (or sleep disturbance) at nearby residences. At each of the TBM and underground station sites, it is anticipated that truck movements would be required during night-time periods. At these sites, with the exception of those in the CBD, maximum noise levels from on site truck movements are predicted to exceed the background + 15 dB sleep disturbance screening criterion at the nearest residences.

THIS IS A VOLUNTARY GUIDELINE ONLY, AND OUR EXPERIENCE HAS BEEN THAT IT IS TOTALLY DISREGARDED BY THE RAIL OPERATORS

### Operational Airborne Noise - Surface Tracks

Airborne noise created by train operations on surface track requires the assessment of noise impacts against the noise trigger levels defined in the NSW EPA Rail Infrastructure Noise Guideline (2013). If these trigger levels are exceeded, consideration of noise mitigation for existing sensitive receivers, both at opening and at an indicative time in the future (taken to be 10 years after opening), is required.

The introduction of the new rail lines associated with the project would result in rail tracks being closer to the adjacent receivers than the existing case in some areas. Furthermore, the project would also result in a considerable increase in the total number of trains operating within the rail corridor. In the opening 2024 timeframe the project would more than double the number of trains operating, whilst in the future 2034 timeframe the project would result in an increase of over 108%.

The project proposes to include several noise abatement elements in the base case design. The base case noise mitigation options include rail dampers and deck absorption on slab track in the region of the Chatswood Dive, and increasing the height of existing noise barriers on the up and down sides of the rail corridor at several locations between Nelson Street, Chatswood and Albert Avenue, Chatswood

With the inclusion of the base case mitigation options, noise modelling indicates the potential for exceedances of the noise trigger levels at one sensitive receiver building adjacent the proposed surface track at Chatswood. No exceedances of noise trigger levels are predicted for sensitive receivers surrounding the Marrickville dive structure.

Residual impacts at the multistorey residential apartment building at Chatswood may require consideration of property treatments if detailed design studies determine alternative controls are not feasible and reasonable.

THIS IS 1-3 GORDON AVENUE, AND IT IS UNACCEPTABLE.

**Table 23 Predicted Noise Level Exceedances at Chatswood Dive Site**

Receiver Area	Scenario															
	Enabling Works	Track Works	Earthworks	Acoustic Shed Construction	Tunnelling with Shed									Fitout		
	Day	Day	Day	DOOH	Day	DOOH	Eve	Night	Sleep	Day	DOOH	Eve	Night	Sleep		
A – Church to the south west on the Pacific Highway	2	2	1	0	1	0	0	0	0	0	0	0	0	0	0	
B – Residential receivers to the west on the Pacific Highway	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	
B – Commercial receivers to the west on the Pacific Hwy.	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
<b>C – Residential receivers to the north on Nelson Street</b>	<b>3</b>	<b>3</b>	<b>3</b>	<b>1</b>	<b>3</b>	<b>1</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>		
C – Commercial receivers to the north on Nelson Street	3	3	2	0	1	0	0	0	0	0	0	0	0	0	0	
C – Active Recreation to the north, west of the railway line	3	3	2	0	1	0	0	0	0	0	0	0	0	0	0	
D – Active Recreation to the north, east of the railway line	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	
D – Residential receivers to the east, east of the railway line	3	3	3	1	3	0	1	2	0	0	0	0	0	0	0	
E – Residential receivers to the east, east of the railway line	3	3	3	1	2	1	1	2	1	0	0	0	1	0		
F – Residential receivers to the south on Mowbray Road	3	3	3	1	3	2	2	2	1	0	1	1	1	0		
F – Commercial receivers to the south on Mowbray Road	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	
F – Industrial receivers to the south on Mowbray Road	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	

**Legend**

Category 0	Category 1	Category 2	Category 3
NML Compliance	NML exceedance of less than 10 dB	NML exceedance of between 10 dB and 20 dB	NML exceedance of more than 20 dB

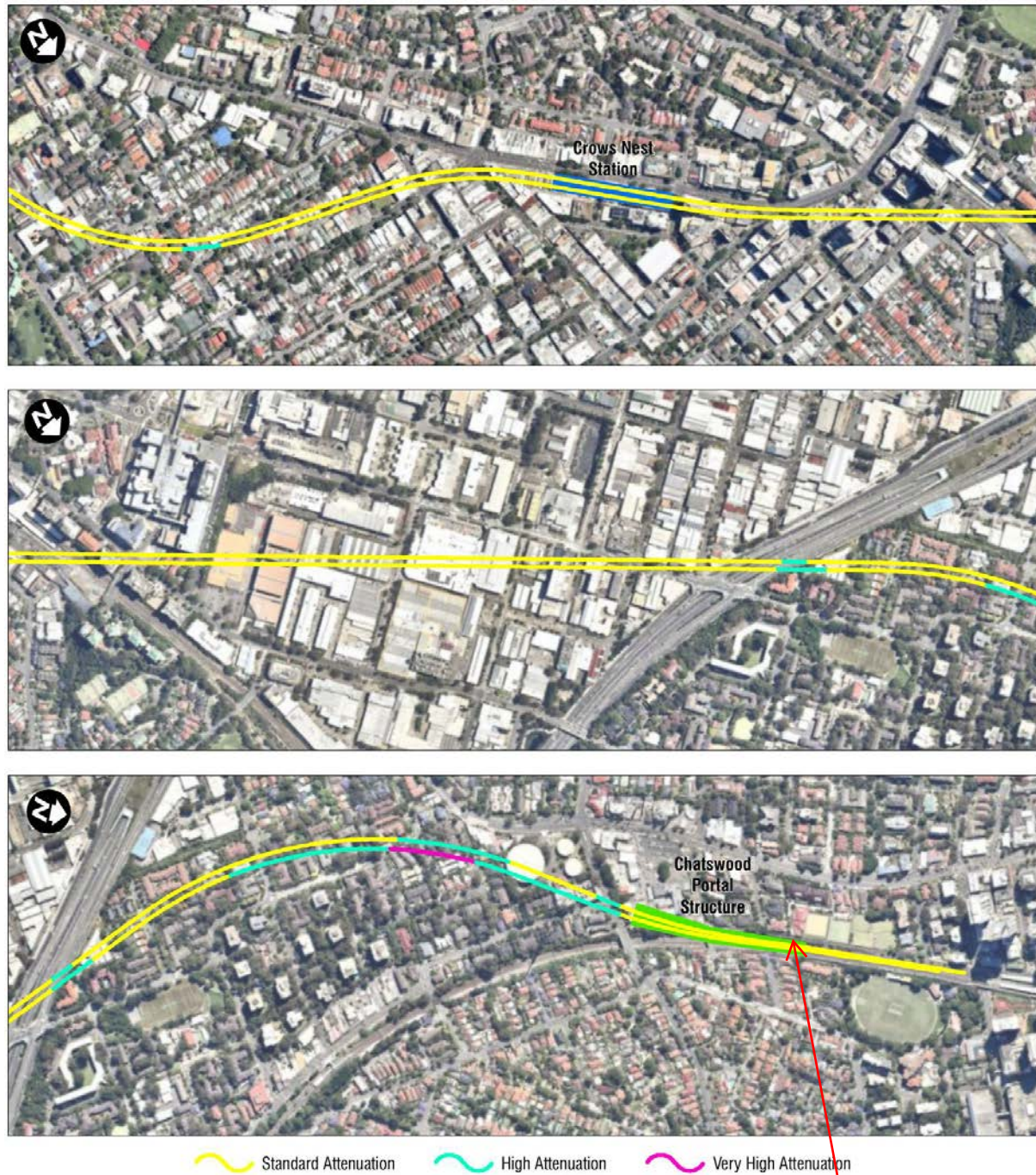
**Discussion**

The preliminary findings of the construction noise impact assessment at Chatswood indicate:

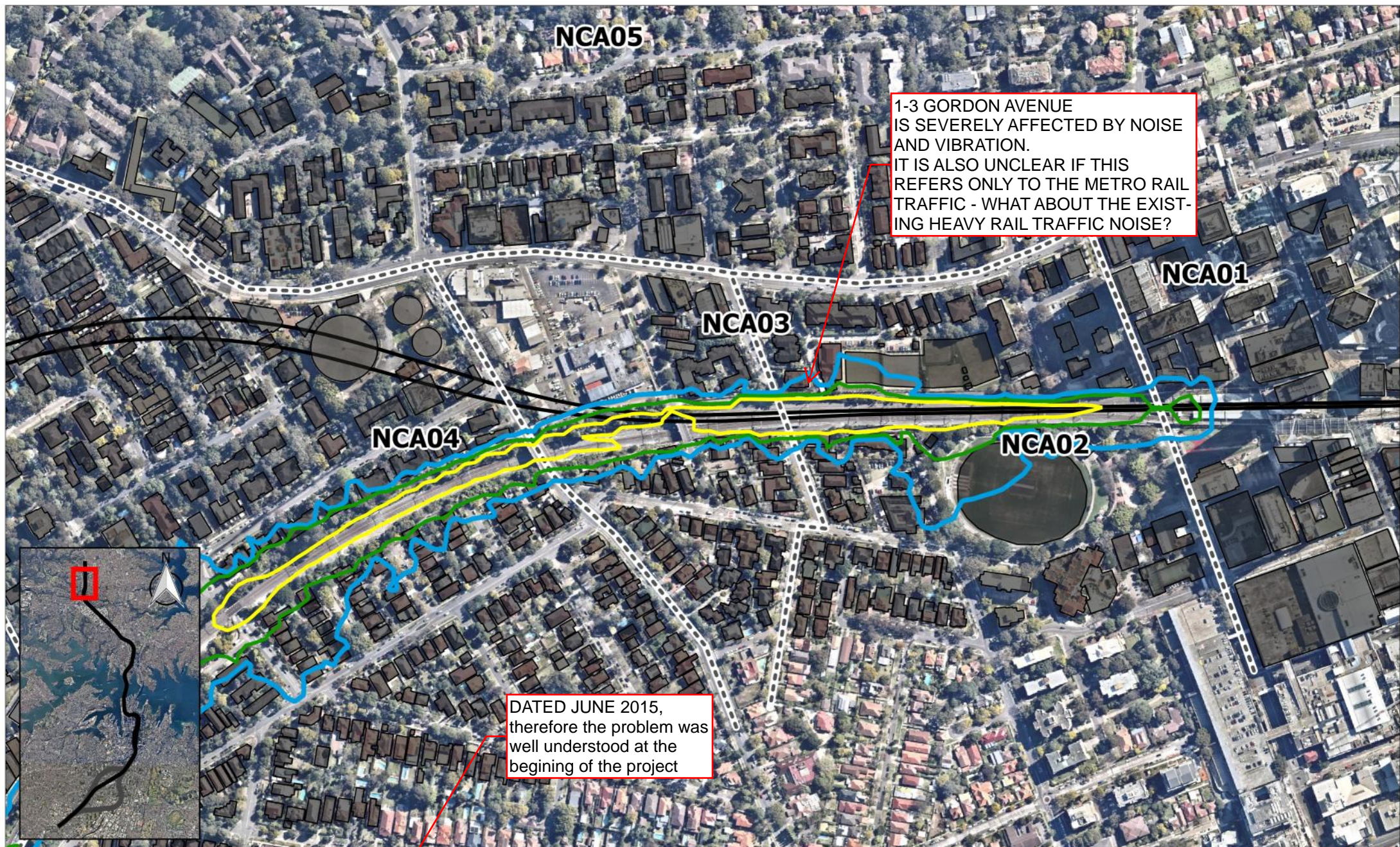
- The predicted noise levels for enabling works indicate high exceedances of more than 20 dB of the NMLs at residential receivers in Area C, D, E and F and at the commercial receivers and active recreation of in Area C. Moderate exceedances of more than 10 dB are predicted for the church in Area A, and at the residential and commercial receivers in Area B. Minor exceedances are predicted at the active recreation Area D. These are a direct result of the relative close proximity of receivers to the construction activities and the absence of any appreciable shielding between sites and receivers.
- During track works predicted noise levels indicate high exceedances of more than 20 dB of the NMLs at residential receivers in Area C, D, E and F and at the commercial receivers and active recreation of Area C. Moderate exceedances of more than 10 dB are at the church and at the active recreation Area D.

THIS INCLUDES 1-3  
GORDON AVENUE

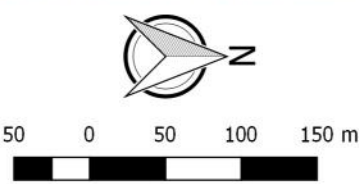
Figure 37 Extent of Proposed Track Forms - Crows Nest Station to Chatswood Tunnel Portal







Project No.:	610.15326
Date:	15/06/2015
Drawn by:	DS
Scale:	1:6,976
Sheet Size:	@A4
Projection:	GDA 1994 MGA Zone 56



— Proposed Alignment  
— Existing Noise Barriers

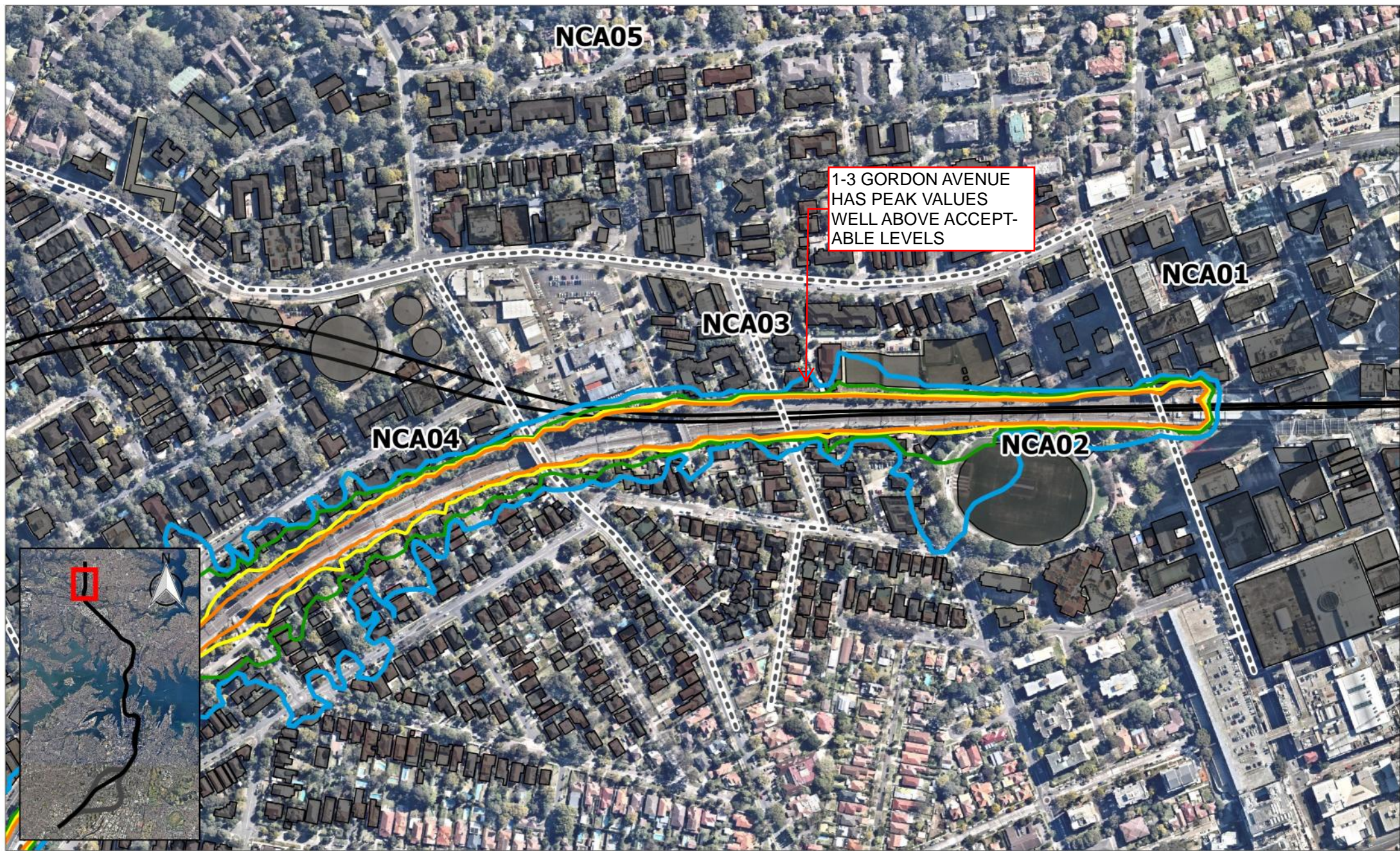
**Night-time Noise Contours**

55 dBA LAeq(9hr)	65 dBA LAeq(9hr)
60 dBA LAeq(9hr)	70 dBA LAeq(9hr)

Assessed Receivers

**Notes:**  
\* Noise contour grid spacing: 10m  
\* Noise contour height above ground: 4.5m





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50 0 50 100 150 m

— Proposed Alignment  
— Existing Noise Barriers

**Maximum Noise Contours**

75 dBA L<sub>max</sub>  
80 dBA L<sub>max</sub>

Assessed Receivers

85 dBA L<sub>max</sub>  
90 dBA L<sub>max</sub>

Notes:  
\* Noise contour grid spacing: 10m  
\* Noise contour height above ground: 4.5m

Jacobs Group (Australia) Pty Limited

Sydney Metro Chatswood to Sydenham

2034 Maximum L<sub>max</sub> Noise Contours  
With Project

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**Legend**

- One Storey Receiver
- >One Storey Receiver
- Shaft Locations

**Exceedances Legend**

- Other (NML Exceedance 0 to 10 dB)
- Other (NML Exceedance 10 to 20 dB)
- Other (NML Exceedance 20 to 25 dB)
- Other (NML Exceedance > 25 dB)

**Exceedances**

- Residential (NML Exceedance 0 to 10 dB)
- Residential (NML Exceedance 10 to 20 dB)
- Residential (NML Exceedance 20 to 25 dB)
- Residential (NML Exceedance > 25 dB)

JACO BARONS ENGINEERING Pty Ltd

Sydney Metro Chatswood to Sydenham

Ground-borne Noise Assessment  
Playing time  
Chatswood  
Barangaroo Station & Argyle Street





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**Legend**

- One Storey Receiver
- >One Storey Receiver
- Station Locations

**Exceedances Legend**

- Residential (NML Exceedance 10 to 20 dB)
- Residential (NML Exceedance 20 to 30 dB)
- Residential (NML Exceedance > 30 dB)

**Exceedances**

Station Locations

One Storey Receiver

>One Storey Receiver



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**Sydney Metro Chatswood to Sydenham**

Ground Borne Noise Assessment  
Nighttime  
Chatswood

Barangaroo Station & Argyle Street