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20140002.1/1105/R0/TT

5 November 2014

Brookfield Multiplex

ATTN: PAUL COUANI

South-East Regional Hospital - Bega - Proposed After Hours Construction Work (Materials Deliveries) - Acoustic Advice

1 INTRODUCTION

Acoustic Logic Consultancy has been engaged to conduct an assessment of after-hours construction works which are proposed at the South-East Regional Hospital Site (the Bega Hospital).

In this report we will:

- Identify currently approved hours of construction and the proposed change in these hours.
- Identify the works to be undertaken during proposed extended hours.
- Determine noise emission goals for construction work based on EPA Interim Construction Noise Guidelines.
- Determine whether the proposed works will comply with noise emission requirements at nearby development and recommend noise management controls to ensure that noise impacts are minimised.

2 CURRENTLY APPROVED HOURS

Currently approved hours of work are as follows:

- 7am to 6pm (Monday to Friday).

SYDNEY

A: 9 Sarah St Mascot NSW 2020

T: (02) 8339 8000

F: (02) 8338 8399

SYDNEY MELBOURNE BRISBANE CANBERRA

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- 8am to 5pm on Saturday).

3 PROPOSED CHANGE IN WORK HOURS AND WORKS TO BE UNDERTAKEN

It is proposed that delivery of material to the site (and unloading of trucks) be conducted outside of the currently approved hours. The proposed additional work hours are:

- 6pm-10pm Monday to Fridays.
- 7am-8am Saturday.
- 5pm-6pm Saturday.
- 7am-3pm Sunday.

Vehicles will entry/exit the site via the Tathra Road driveway. Vehicles will enter and leave the site from the south of the Tathra Road driveway, minimising traffic movement through residential areas.

Up to one delivery every 30 minutes is anticipated during peak periods.

Loading/unloading will be done in a material handling area approximately 220m east of Tathra Road, and 350m from the nearest residences.

See appendix 1 for a aerial photo of the site and surrounding properties and a plan of vehicle movement/materials handling areas.

4 NOISE SENSITIVE RECEIVERS

Noise sensitive development to the Bega Hospital site are as follows:

- Residences on Tathra Road, approximately 200m to the north of the access driveway and 325m from the material handling area.
- Residences at Glen Mia Drive, approximately 100m to the west of the access driveway and 300m from the material handling area.
- Residence at Boundary Road, approximately 500m to the south of the access driveway and 400m from the material handling area.

See appendix 1 for aerial photo showing receiver locations.

5 ACOUSTIC CRITERIA

Construction noise is typically assessed with reference to the requirements of the EPA Interim Construction Noise Guidelines.

EPA guidelines typically target that construction noise not exceed ambient noise levels by more than 10dB(A)_{Leq(15min)} at nearby residential development.

For work outside of standard construction hours (as is the case in this proposal), the EPA allows a noise emission of only 5dB(A)_{Leq(15min)} above the background noise level.

A survey of ambient noise was conducted by SLR acoustics at project approval stage (*Bega Hospital Development – Acoustic Performance Specification* dated March 2013). A survey of ambient noise levels and the corresponding noise emission goals for after-hours works are as follows:

Table 1 – Background Noise Level and Noise Emission Goals

Residence Location	Time of Day	Background Noise Level dB(A)_{L₉₀}	Allowable Noise Emission (BG+5dB(A)_{Leq(15min)})
Tathra Road	6pm-10pm (Weekdays)	30	35
	7am-8am (Saturdays)	32	37
	5pm-6pm (Saturdays)	32	37
	7am-3pm (Sunday)	32	37
Glen Mia Drive	6pm-10pm (Weekdays)	30	35
	7am-8am (Saturdays)	35	40
	5pm-6pm (Saturdays)	35	40
	7am-3pm (Sunday)	35	40
Boundary Road	6pm-10pm (Weekdays)	30	35
	7am-8am (Saturdays)	35	40
	5pm-6pm (Saturdays)	35	40
	7am-3pm (Sunday)	35	40

6 NOISE EMISSION ASSESSMENT/COMMENTARY

Primary noise sources associated with the additional works are:

- Noise from trucks driving within the site, to and from the material handling area.
- Noise created during loading/unloading of trucks. We note that it is not proposed to use a crane for unloading. Material handling will be done either manually or using a forklift.

Noise emissions are predicted based on the following assumptions:

- There is, on average, no more than one entry/exist movement to/from the site in any 15 minute period.
- The forklift will potentially operate continuously during unloading.
- Typical equipment/activity sound power levels as follows:

Table 2 – Typical Equipment Sound Power Levels

EQUIPMENT /PROCESS	SOUND POWER LEVEL dB(A)_{Leq}
Delivery Truck (rigid truck)	100
Materials Handling (Forklift)	94

Prediction of construction noise at the nearest residences are presented below:

Table 3 – Noise Emission Assessment

Residence Location	Activity	Predicted Noise Emission dB(A)_{Leq(15min)}	Allowable Noise Emission dB(A)_{Leq(15min)}*	Comment
Tathra Road	Truck Entry/Exist movement from Site	34	35-37	Complies
	Material Handling	32	35-37	Complies
Glen Mia Drive	Truck Entry/Exist movement from Site	33	35-40	Complies
	Material Handling	34	35-40	Complies
Boundary Road	Truck Entry/Exist movement from Site	32	35-40	Complies
	Material Handling	<30	35-40	Complies

*Refer to table 1 for noise emission goals.

Noise emissions are predicted to comply with acoustic requirements.

Provided that deliveries are (on average) no more frequent than once per 30 minutes and provided that material handling is limited to the designated area, noise emissions as a result of the proposed after hours material deliveries will comply with EPA construction noise guidelines at all nearby residences.

7 CONCLUSION

Acoustic Logic have conducted a review of likely noise generation as a result of proposed material deliveries to the site outside of currently permitted hours of construction. The proposed works are limited to truck movement to/from the site and material handling (using forklift) in a designated area.

Provided that the noise management techniques identified in section 6 of this report are adopted, construction noise will be controlled to levels compliant with EPA guidelines for after-hours construction.

We trust this information is satisfactory. Please contact us should you have any further queries.

Yours faithfully,

A handwritten signature in black ink, appearing to read 'T. Taylor', is positioned above the printed name.

Acoustic Logic Consultancy Pty Ltd
Thomas Taylor

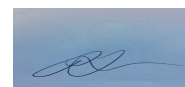
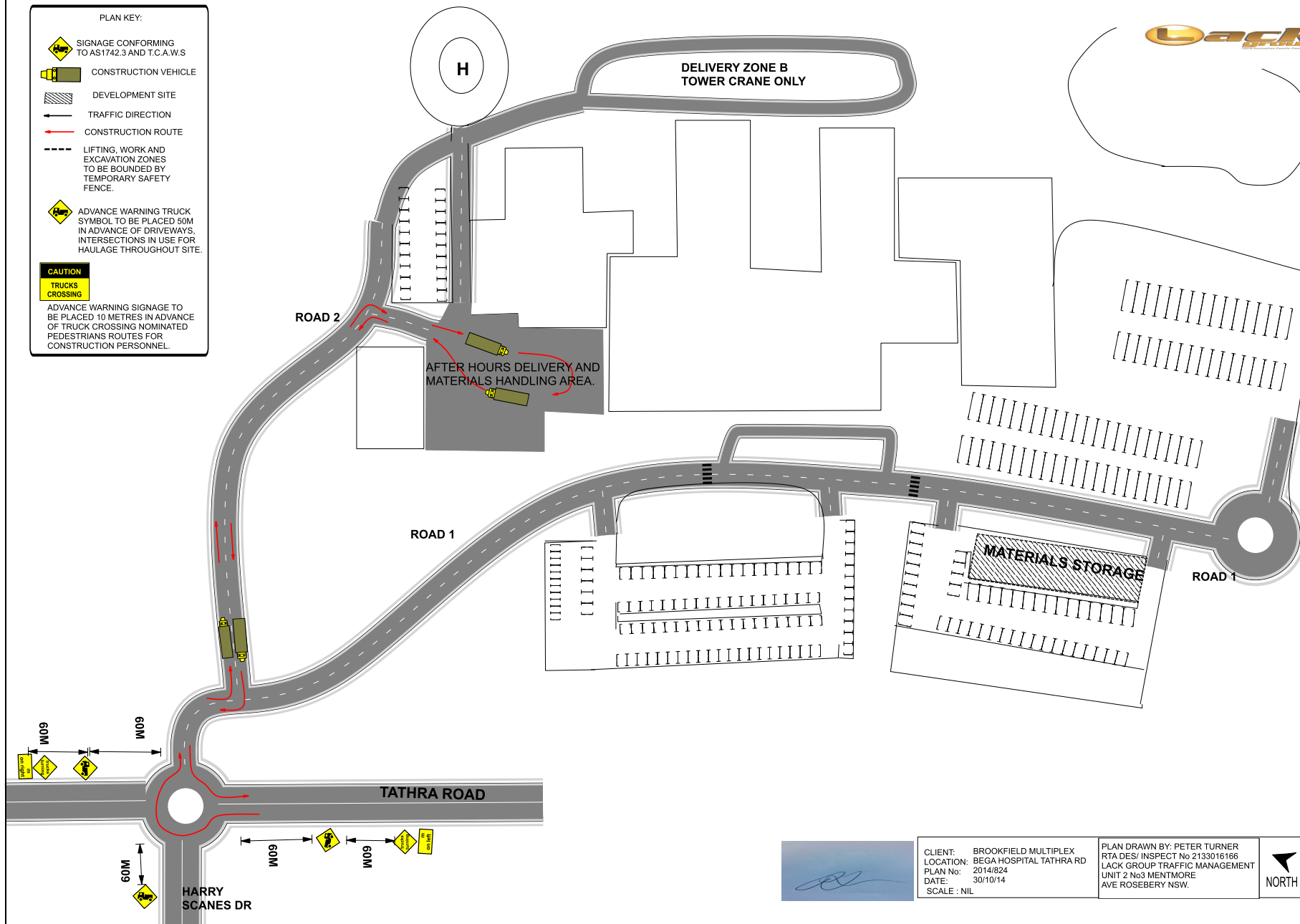
Appendix 1 - Aerial photo of site and noise receivers.





PLAN KEY:

- SIGNAGE CONFORMING TO AS1742.3 AND T.C.A.W.S
- CONSTRUCTION VEHICLE
- DEVELOPMENT SITE
- TRAFFIC DIRECTION
- CONSTRUCTION ROUTE
- LIFTING, WORK AND EXCAVATION ZONES TO BE BOUNDED BY TEMPORARY SAFETY FENCE.
- ADVANCE WARNING TRUCK SYMBOL TO BE PLACED 50M IN ADVANCE OF DRIVEWAYS, INTERSECTIONS IN USE FOR HAULAGE THROUGHOUT SITE.
- CAUTION TRUCKS CROSSING**
ADVANCE WARNING SIGNAGE TO BE PLACED 10 METRES IN ADVANCE OF TRUCK CROSSING NOMINATED PEDESTRIANS ROUTES FOR CONSTRUCTION PERSONNEL.



CLIENT: BROOKFIELD MULTIPLEX
 LOCATION: BEGA HOSPITAL TATHRA RD
 PLAN No: 2014/824
 DATE: 30/10/14
 SCALE: NIL

PLAN DRAWN BY: PETER TURNER
 RTA DES/ INSPECT No 2133016166
 LACK GROUP TRAFFIC MANAGEMENT
 UNIT 2 No3 MENTMORE
 AVE ROSEBERY NSW.

