PCU52664

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Attention: Ms Megan Fu

Dear Mr Gibson

I refer to the State Significant Development Application, Environmental Impact Statement (EIS) and accompanying information provided for the Parkes Hospital Redevelopment (Ref: SSD 6107) received by the Environment Protection Authority (EPA) on 12 March 2014.

The EPA has reviewed the information in the EIS and has determined that it is able to support the proposed redevelopment of the Parkes Hospital subject to the Department of Planning and infrastructure (DoPI) incorporating the recommended conditions of consent as outlined in **Attachment A**.

Should you have any further enquiries regarding this matter please contact Ramya Gowda at the Dubbo Office of the EPA by telephoning (02) 6883 5330.

Yours sincerely

11/04/14

BRADLEY TANSWELL
Acting Head Far West Operations
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Encl: Attachment A – Proposed Recommended Conditions of Consent

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ATTACHMENT A

Proposed Recommended Conditions of Consent

BACKGROUND

The EPA has reviewed the EIS (JBA 2014), *Environmental Acoustic Assessment* (EAA, Wood & Grieve Engineers 2014) and *Construction Noise and Vibration Management Plan* (CNVMP, Wood & Grieve Engineers 2014a) as they relate to the noise and vibration impacts of the construction and operation of the Parkes Hospital Redevelopment.

The proposal is to construct a replacement hospital for Parkes on Crown land immediately east of the Newell Highway and approximately 1.1km south of the Broken Hill railway line.

Criteria Derivation and Sensitive Receivers

The EAA derived Rating Background Levels (RBL) at residential receivers of 35 dBA for the daytime period, 36 dBA for the evening and 31 dBA for the night time, based on two weeks of unattended monitoring. The EAA assumed, based on short-term attended monitoring, that existing industrial noise sources did not influence the measured $L_{eq(period)}$ so that no adjustment to amenity criteria was necessary. The EPA accepts this assumption.

The derived RBL were used to propose the construction Noise Management Levels (NML) in Table 1 and the operational Project Specific Noise Levels (PSNL) in Table 2. An operational sleep disturbance criteria for residential receivers of $L_{A1(1min)}$ 46 dBA was also adopted in the EAA.

Table 1 - Construction NML (dBA) proposed in the CNVMP.

Receiver type	Standard hours	Outside standard hours
Residential $L_{eq(15min)}$	45	40[a]
Commercial (Light Industry, L_{eq} when in use)	Not specified	Not specified

Note:

a. The EPA discussed the out of hours NML with the author of the EAA on 8 April 2014, and the author suggested that the NML was mistakenly derived as RBL + 10 dBA and should be $L_{eq(15min)}$ 35 dBA (O Gaussen, pers. comm., 8 April 2014).

Table 2 - Operational PSNL (dBA) proposed in the EAA.

Receiver type	Day	Evening	Night
Residential $L_{eq(15min)}$	40	41	36
Commercial (Light Industry, L_{eq} when in use)	65[a]	65[a]	65[a]

Note:

b. The EAA assumed a negligible existing industrial noise contribution at "commercial" receiver locations.

The EAA incorrectly applied the local roads criteria from the RNP to road traffic noise generated by the Newell Highway. The correct criteria would be for "Existing residences affected by additional traffic on existing freeways/arterial/sub-arterial roads generated by land use developments" ($L_{Aeq(day)}$ 60 dB and $L_{Aeq(night)}$ 55 dB).

The EAA assumed that 15 minute measurements were representative of $L_{eq(1hour)}$ road traffic noise measurements, which in turn were representative of $L_{eq(period)}$ (day or night) measurements. The measured existing road traffic noise levels were then used to calculate that 21,055 vehicles per day use the section of the Newell Highway in the area

of interest. This is significantly higher than the Annual Average Daily Traffic (AADT) figures reported by Roads and Maritime Services on their website.

Impact Assessment

In assessing the impact of helicopter arrivals to and departures from the hospital, the EAA assumed that a typical residential building attenuated noise from external to internal levels by 25 dBA. This differs from the common practise of between 10 dBA for open windows and 20 dBA for closed windows.

The EPA understands that Airservices Australia through delegation of powers by the Commonwealth of Australia are responsible for regulating noise impacts from aircraft movements, but the use of a 25 dBA "typical" attenuation by a residential building indicates a potential issue with any other internal predictions which might be made for this proposal.

The EAA did not consider meteorological effects. However, the nearest sensitive receivers are close to the proposed hospital site so meteorological conditions may not significantly affect received noise levels. The EAA provided an indicative prediction of noise impacts from the proposal on sensitive receivers, which will need to be refined and expanded during the detailed design of the proposal.

The CNVMP provided internal predictions of construction noise to compare to NML, assuming that the typical attenuation of a residential building is represented by a single 6mm glass panel. The stated results were up to $L_{A,av,max}$ 44 dBA (1 dBA below the NML), so converted back to external levels will be above the NML but below the "highly affected" level in the ICNG.

Criteria Derivation and Sensitive Receivers

The EAA did not identify the Crown Reserve (for "community forest purposes"), immediately south of the proposed hospital, as a sensitive receiver. If it were considered as a sensitive receiver the "passive recreation" acceptable amenity level of L_{eq} 50 dBA (when in use) would apply.

Residential receivers to the south of the proposed hospital were not considered as sensitive receivers. As the noise environment in the locality of the proposal appears to be largely driven by road traffic on the Newell Highway, it is likely that the noise environment at these receivers is similar to that at receivers to the north and east of the proposal and therefore the same PSNL could be applied.

The evening period PSNL should be amended to be no greater than the daytime period PSNL, as recommended by the *Application notes – NSW industrial noise policy* (EPA 2013).

Road Traffic Noise

Using the Calculation of Road Traffic Noise (CoRTN) algorithm the EPA calculated the "existing" road traffic noise from the Newell Highway based on the 2005 AADT and the following assumptions:

1. The difference between the reported AADT (5153) and axle pair (6863) counts is due to heavy vehicles, and 2.5 axle pair heavy combination vehicles are representative of heavy vehicles using the highway;
2. 90% of traffic occurs during the day time;
3. The percentage of heavy vehicles during the night time is 90% and the resulting percentage of heavy vehicles during the day time is 15%;
4. The highway is flat and perfectly reflective in the area of interest;
5. All vehicles on the highway travel at a constant speed of 80 km/h; and

6. Road traffic noise from the highway attenuates at 3 dB per doubling of distance, by semicircular spreading only.

The CoRTN predicted an $L_{10(1hour)}$ road traffic noise level from the Newell Highway of 70 dBA at 10 metres from the outer lane marking during both the day and night time. This is approximately $L_{eq(1hour)}$ 67 dBA at 10 metres and $L_{eq(1hour)}$ 55 dBA (the RNP night time criteria for traffic generated on arterial roads by new development) at 160 metres. This indicates that the RNP criteria are already exceeded at a large number of residential receiver locations adjacent to the Newell Highway so the 2 dBA relative increase criterion applies.

The CoRTN predicted that an extra 80 vehicles per hour as suggested in the EAA will result in a 1 dBA increase to the $L_{10(1hour)}$, which implies also a 1 dBA increase to the $L_{eq(1hour)}$. This indicates that although road traffic noise levels are already exceeded, the contribution of the proposal to road traffic noise from the Newell Highway will be negligible.

Construction Noise

A revised CNVMP is justified by the level of impact predicted in the CNVMP. Rather than an internal "average maximum" prediction, the mitigation measures proposed in the CNVMP should be based on external reasonable maximum $L_{Aeq(15min)}$ predictions.

Recommended Conditions of Consent

The EPA recommends that Department of Planning & Infrastructure (DoPI) incorporates the following conditions of consent.

The EPA has reviewed the EIS, EAA and CNVMP and considers that residences to the south of the proposed development and the Crown Reserve adjacent to the proposal should be considered as sensitive receivers.

Recommended Condition of Consent

The EPA recommends that in this case, approval is given for the proposal based on it being designed, constructed and operated to meet the Project Specific Noise Levels (PSNL) in Table 3. The evening period PSNL for residential receivers has been revised from the version presented in the EAA to be no greater than the daytime period PSNL, as suggested by the Application notes – NSW industrial noise policy (EPA 2013).

Table 3 - Operational PSNL (dBA) proposed by the EPA.

Receiver type	*Day*	*Evening*	*Night*
Residential $L_{eq(15min)}$	*40*	*40*	*36*
Passive Recreation (Crown Reserve, L_{eq} when in use)	*50*	*50*	*50*
Commercial (Light Industry, L_{eq} when in use)	*65*	*65*	*65*

Recommended Condition of Consent

A revised CNVMP must be prepared and implemented for the project prior to the commencement of construction or operation. The EPA has discussed the out of hours Noise Management Level (NML) at residential receivers with the author of the EAA on 8 April 2014, and agreed that the out of hours NML at residential receivers should be $L_{eq(15min)}$ 36 dBA.

Rather than an internal "average maximum" prediction, the mitigation measures proposed in the revised CNVMP should be based on reasonable maximum external $L_{Aeq(15min)}$ predictions.