

24/3/2020

TG988-14F01 Response to Queries (r3)

Department of Planning, Industry and Environment  
4 Parramatta Square, 122 Darcy Street  
Parramatta NSW 2150

Dear Sir/Madam,

## **One Sydney Harbour, Building R5 Barangaroo South - Section 4.55(2) Modification Application for State Significant Development 6966 - Response to Authority Queries**

This letter has been prepared to address comments raised by City of Sydney Council and the Department of Planning, Industry and Environment regarding a proposed modification to State Significant Development 6966.

The One Sydney Harbour Building R5 development consists of a residential tower with retail on ground floor (and one further retail unit on Level P1).

The proposed modification consists of the inclusion of two additional Key Worker Housing Units on Level P1, amongst other items.

Comments raised and our response is presented below.

### **City of Sydney Council Comments.**

Comments from City of Sydney are as follows:

*It is unclear whether the impacts of the location on Level 1 has been adequately considered, particularly regarding acoustic privacy and the proximity of apartments to noise sources on Hickson Road and surrounding uses. It is uncommon to find residential uses so close to the ground floor in a CBD context as they cannot struggle to comply with acoustic requirements. The submitted supporting written documents do not address acoustic compliance with parts 4H and 4J of the ADG.*

### **Response**

Council's query is focussed on external noise impacts on the apartments and the Application of ADG section 4H and 4J. Section 4H addresses general acoustic amenity guidelines and section 4J provides guidance for development in noise affected areas.

#### ADG Section 4J.

ADG 4J provides guidance for development in noise affected areas.

The apartments in question are located on the eastern façade and will overlook Hickson Road. The primary external noise source at this location is road traffic, and to a lesser extent from retail activities.

Hickson Road does not have an average daily traffic of over 40,000 and so the acoustic provisions of the ISEPP would not apply. However we note that the Apartment Design Guide (section 4J) refers to the document *Development Near Rail Corridors and Busy Roads – Interim Guidelines* (the Guideline). The Guideline provides recommended internal noise levels for traffic affected development as follows:

- Windows Closed:
  - Bedrooms (night time): 35dB(A)<sub>Leq(9hr)</sub>
  - Living Areas (daytime time): 40dB(A)<sub>Leq(15hr)</sub>.
- The Guideline includes a further comment that if internal noise levels with windows open exceed the criteria by more than 10dB(A) (ie – 45dB(A)<sub>Leq(9hr)</sub> in bedrooms, 50dB(A)<sub>Leq(15hr)</sub> in living rooms), ventilation of the rooms should be such that the occupants can leave windows closed and have ventilation compliant with the BCA.
- A logical application of this requirement is that if internal noise levels with the windows *open* is met (ie – 45dB(A)<sub>Leq(9hr)</sub> in bedrooms, 50dB(A)<sub>Leq(15hr)</sub> in living rooms), then the rooms are considered to be adequately protected from noise even when windows are open, and the rooms also can be considered adequately ventilated (via open window) in a manner consistent with the Guideline.
- We also note that there is nothing in the Guideline that prohibits the use of mechanical ventilation in the event that apartment windows need to be closed in order to address external noise impacts.

We have reviewed the *Construction and Operational Noise Report* (by Wilkinson Murray dated Jul 2016) prepared as part of the EIS documentation for the development. Section 3 of that report presents a detailed survey of ambient noise conditions, including traffic noise on Hickson Road. Logger location 1 is representative of traffic noise conditions for the Key Worker Housing Units. The external noise levels presented in the Wilkinson Murray report at Location 1 were:

- Daytime period (7am-10pm): 61-62dB(A)<sub>Leq(15hr)</sub>
- Night time (10pm-1am): 57dB(A)<sub>Leq(9hr)</sub>.

Typically, there is a 10dB(A) noise reduction between a noise level at the façade, and the corresponding noise level within the room behind it (assuming the window is open to 5% of the floor area to provide natural ventilation of the space). On applying a 10dB(A) reduction of the external noise level, the internal noise levels within the apartment would become:

- Daytime period (7am-10pm): 51-52dB(A)<sub>Leq(15hr)</sub>
- Night time (10pm-1am): 47dB(A)<sub>Leq(9hr)</sub>.

These are very marginal exceedances of the “windows open” criteria referred to above (typically, a 2dB(A) exceedance is considered negligible).

However, we also note that both apartments contain balconies (approximately 2m deep) and have sliding doors opening onto them. These doors can be opened such that the opening has, at most, only a 90 degree view of the roadway and would be partially screened by the balcony balustrade. The decreased view of roadway and screening would provide more than 2dB(A) benefit compared to a window directly facing the roadway. Taking a further 2dB(A) reduction in noise level, it would be expected that the noise levels within apartments would meet the “windows open” guidelines discussed above. This is consistent with the *Development Near Rail Corridors and Busy Roads Guideline*, and therefore also consistent with the performance goal of ADG section 4J.

Further, we note that the apartments will also have acoustic glazing (to ensure suitable noise levels when windows are closed) and a mechanical ventilation system (to provide fresh air to the apartments when windows are closed), which is also consistent with the Guideline.

#### *ADG Section 4H.*

ADG Section 4H provides general design guidance for acoustic privacy for apartments. Design guidance includes minimising the number of apartment inter-tenancy walls, separation of bedroom windows from plant rooms and common areas, orientation of window openings to minimise noise and appropriate use of acoustic materials.

Acoustic treatments to the Key Worker Apartments will be designed such that internal noise levels in the P1 apartments (from road, retail or plant noise) will meet internal noise level criteria, and will be consistent with the Design guidance in ADH section 4H:

- There is only one party wall to the apartments and the wall will be designed to meet the inter-tenancy wall separation requirements of the BCA. (In fact, given the thickness of the concrete blade wall separating the apartments, the inter-tenancy wall separation requirement will be significantly better than BCA requirements).
- The balcony design enables the apartments to orient some of their windows such that they do not face the traffic stream.
- While one of the apartments lies next to a plant room:
  - There is a greater than 3m separation between plant room and apartment bedroom windows (consistent with ADG 4H guidance).

- The plant room external louvres will be acoustic treated in any event such that plant noise impacts on the apartment will be consistent with EPA guidelines (as required by condition of consent B41).
- The apartments do not lie over any communal area or garage door.
- Apartments will incorporate acoustic glazing such that when windows are closed, the internal noise level requirements of 35dB(A)<sub>Leq(9hr)</sub> in bedrooms, 40dB(A)<sub>Leq(15hr)</sub> will be met (as is required by the Development Near Rail Corridors and Busy Roads guideline).
- With respect to the cumulative noise impact of road, plant and retail noise:
  - Plant noise and retail noise are subject to the noise limits of the EPA Noise Policy for Industry and the Office of Liquor and Gaming. These guidelines set limits such that the allowable noise emission from them to the apartments will be below that created by road traffic.
  - There will be no significant cumulative noise impact as a result of plant, retail and road noise – the road traffic is the dominant noise (and addressed through façade design) and the other noise sources are regulated and will have a lesser noise impact on the façade than the road traffic.

As such, the design guidance of section 4H of the ADG has been adopted.

**NSW Department of Planning, Industry and Environment Comments.**

Comments from NSW Planning, Industry and Environment are as follows:

*Provide further justification for the location of the two KWH apartments on Level 1, having regard to Council's concerns about the amenity of these apartments. This should include consideration of acoustic impacts, solar access, ventilation, outlook, room and overall apartment sizes to demonstrate an overall acceptable level of amenity in accordance with the Apartment Design Guide (ADG).*

The detailed response to City of Sydney comments addressing acoustic impacts (section 4H and 4J of the ADG), including the inter-relationship of external noise impacts and natural ventilation of the apartments is presented above.

Sections 4H and J ADG do not set numerical performance requirements with respect to acoustics, and therefore compliance with these sections of the ADG is demonstrated through following the design guidance of that section (as per introductory notes to the ADG). As is detailed in the response to the City of Sydney queries, the design guidance has been followed such that the acoustic outcomes are consistent with the intention of the ADG. This also addresses the Department of Planning, Industry and Environment comments.

Please contact us if you have any queries.

Regards,

A handwritten signature in black ink, appearing to read 'T. Taylor'.

Thomas Taylor

Principal Engineer

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