31 January 2014

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Transport for NSW
Level 7, 8 - 12 Castlereagh Street
Sydney NSW 2000

Attention: Sue Haertsch

Dear Sue

North West Rail Link Project
Windsor Road Bridge Modification
Noise Impact Assessment

This letter has been prepared in response to a request by Transport for NSW (TfNSW) to provide advice on the potential operational noise impact of the modification of the Windsor Road Bridge, relative to the impacts of the project that were identified in the Environmental Impact Statement (EIS).

The advice in this letter is based on inspection of the modified bridge design and how it varies from the design assessed in the EIS. Calculations of noise impacts for the modified bridge design have not been undertaken, as these are not considered to be warranted.

1 Approved Impacts

Potential noise and vibration impacts associated with operation of the NWRL have been identified in the EIS, and would include airborne operational noise, ground-borne operational vibration and ground-borne operational noise. Increased levels of noise emission can occur in areas where there are tight radius curves where flanging noise or curve squeal may occur. The viaduct crossing over Windsor Road would have the potential for increased noise emissions as a result of the (approximate) 400 metre radius curve.

Structure radiated noise from some types of rail bridges can increase overall levels of noise emission. The approved viaduct would comprise concrete box girder sections with concrete spans which are quieter than other constructions. The viaduct would also include noise barriers 1m above rail level to reduce airborne noise; and resilient rail fasteners to minimise structure-radiated noise.

The closest existing residential receiver to the rail alignment over Windsor Road is 798 Windsor Road (approximately 20m from the tracks). There are also proposed buildings to be located at a similar distance from the tracks, along the western frontage of the Rouse Hill Town Centre Northern Frame. Residential buildings are also located within the Rouse Hill Town Centre (more than 200m away). Other sensitive receivers in the vicinity include the Castlebrook Lawn Cemetery and Crematorium, and the OK Caravan Park.

Noise impacts identified in the EIS at the closest receiver (798 Windsor Road) were predicted to comply with the operational noise trigger levels.

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Further noise modelling of impacts on the Rouse Hill Town Centre Northern Frame was undertaken for information purposes, in response to concerns raised in a submission on the EIS by the landowner about impacts on future residential development. This modelling provides indicative noise impacts on future buildings, which may be residential, to inform the design of the proposed development to meet the internal noise levels required by State Environmental Planning Policy (Infrastructure) 2007.

2 Impacts as a Result of the Modification

The bridge would be designed to achieve compliance with the approved noise emissions based on a maximum radiated sound pressure level of 70dBA for a train speed of 80 km/h measured at a height of 1.5m above ground level. Relevant design considerations are:

- The bridge would comprise concrete box girder sections with concrete spans that would be comparable to the approved viaduct structure. The rail alignment, including the (approximate) 400 metre radius curve, would remain identical.
- The bridge parapets would also include acoustic panels.

The bridge is predicted to comply with operational noise trigger levels at existing sensitive receivers.

The bridge would not be expected to alter the predicted indicative noise levels at future buildings along the western frontage of the Rouse Hill Town Centre Northern Frame.

3 Summary

Potential operational noise impacts are largely unchanged as a result of the modification. The cable supported bridge would be comparable in composition and would include noise attenuation measures to ensure noise emissions would be consistent with the approved noise and vibration impacts.

Yours sincerely

Report Details

Reviewed by: CW
Review Date:31/1/2014

BRIONY CROFT
Principal - Acoustics