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S4.55(2) Modification Noise Assessment – Port Macquarie PCYC On-Grade Carpark

Introduction

RAPT Consulting has been engaged by AW Edwards to undertake an acoustic assessment for the Port Macquarie PCYC. There has been a change in the existing design intent regarding the basement carparking, roof top ventilators and façade makeup. The project is now proceeding with an on-grade carpark option at the rear of the site. A modification to the design consent with the Department of Infrastructure will be required and an amended acoustic report addressing the on-grade car park is required.

Scope

The scope of this assessment included:

- Review the existing environmental noise report undertaken for the project JHA Document *NOISE & VIBRATION IMPACT ASSESSMENT FOR SSDA (SSD-11920082) HASTINGS SECONDARY COLLEGE – PORT MACQUARIE CAMPUS Rev F 14 May 2021.*
- Utilise existing established project noise trigger levels in the above mentioned report
- Review updated drawings of location of on grade carpark
- Undertake one operational noise model scenario of car park noise
- Undertake an assessment of onsite carpark noise levels and assess against project noise trigger levels
- Generate a letter style report as an addendum to the existing above mentioned acoustic report commenting on compliance with project noise trigger levels or otherwise. If project noise trigger levels generated from the ongrade car park are predicted to be exceeded, recommend in principle noise mitigation measures.

Project Noise Trigger Levels

Project noise trigger levels derived from JHA Document NOISE & VIBRATION IMPACT ASSESSMENT FOR SSDA (SSD-11920082) HASTINGS SECONDARY COLLEGE – PORT MACQUARIE CAMPUS Rev F 14 May 2021 are shown in Table 1.

Table 1 Project Noise Trigger Levels dB(A) Leq(15min)

Indicative Noise Amenity Area	Period	Intrusiveness Criteria, $L_{Aeq,15min}$ dB(A)	Amenity Criteria, $L_{Aeq,15min}$ dB(A)
Medium Density Residential (R3)	Day	50	53
	Evening	44	43
	Night	43	38
General Residential (R1)	Day	50	58
	Evening	44	48
	Night	43	43
Active Recreation (RE1)	When in use		55

On-Grade Carpark Noise Assessment

Acoustic modelling was undertaken using Bruel and Kjaer's "Predictor" to predict the effects of construction noise. Predictor is a computer program for the calculation, assessment and prognosis of noise propagation. Predictor calculates environmental noise propagation according to ISO 9613-2, "Acoustics – Attenuation of sound during propagation outdoors" The method predicts the sound pressure level under meteorological conditions favourable to propagation from sources of known sound emission. These conditions are for downwind propagation or equivalently under a well-developed moderate ground based temperature inversion. Terrain topography, ground absorption, atmospheric absorption and relevant shielding objects are also taken into account in the calculations.

Other Key assumptions in the model include:

- topographical information was obtained from NSW Government Spatial Services
- all areas were modelled considering a conservative ground factor of 0.0
- all residential receivers were modelled at 1.5 metres above the ground surface

Site layout and building structures were based on information provided at the time of the assessment.

Onsite vehicles entering and exiting noise modelling assumptions include 13 cars in 15 minutes within the carpark area to account for each of the carpark spaces with a 10km/hr sound power level of 85dB(A), and a sound power level of a car door opening and closing of 78dB(A). Additionally, a 10km/hr sound power level of 93dB(A) has been adopted for 1 bus in a 15 minute period which has been sourced from RAPT consultings' internal sound level database. The cars and bus have assumed to be entering / exiting from Owen Street . There will be boom gates at the entry and exit, however these are not considered to be a significant noise source.

The results of the noise modelling are provided in Figure 1.

Figure 1 Carpark Modelled Results dB(A) Leq(15min)

The results of the on-grade carpark noise assessment indicate its operation should safely comply with approved project noise trigger levels.

Roof Top Ventilators

Roof top ventilation noise levels generally range from 40 dB(A) on lower settings to 60 dB(A) on high settings. Using the inverse square law for distance attenuation alone, this would attenuate

to 37dB(A) at 15 metres on the high setting and therefore would safely comply with approved project noise trigger levels.

Conclusion

RAPT Consulting has undertaken an acoustic assessment for the Port Macquarie PCYC. The assessment has addressed an on-grade carpark option at the rear of the site and roof top ventilators. The results of the assessment indicate their operation should safely comply with project noise trigger levels.

Limitations

The purpose of the report is to provide an independent acoustic assessment for the proposal.

It is not the intention of the assessment to cover every element of the acoustic environment, but rather to conduct the assessment with consideration to the prescribed work scope.

The findings of the noise assessment represent the findings apparent at the date and time of the assessment undertaken. Specifically, this report relies upon information contained within the JHA Document *NOISE & VIBRATION IMPACT ASSESSMENT FOR SSDA (SSD-11920082) HASTINGS SECONDARY COLLEGE – PORT MACQUARIE CAMPUS Rev F 14 May 2021.* It is the nature of environmental assessments that all variations in environmental conditions cannot be assessed and all uncertainty concerning the conditions of the ambient environment cannot be eliminated. Professional judgement must be exercised in the investigation and interpretation of observations.

In conducting this assessment and preparing the report, current guidelines for acoustics, noise and vibration were referred to. This work has been conducted in good faith with RAPT Consulting's understanding of the client's brief and the generally accepted consulting practice.

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