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Marisa Sidoti
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Level 7, 177 Pacific Highway
Sydney, NSW, 2060

Dear Marisa,

Acoustic response to SSDA submissions

1.0 Introduction

The Department of Planning, Industry and Environment (DPIE) has provided key issues in relation to the Environmental Impact Statement (EIS) submitted for the Glenwood High School (GHS) Upgrade (SSD-23512960). The key issues were provided by DPIE, dated 20 December 2021. This letter provides a response to the noise related key issues.

2.0 Key Issue

This section provides extracts of noise related key issues:

1. *Staging /Construction Management*

   The EIS identifies that existing learning spaces (buildings A-K) are predicted to be highly noise affected during construction of the new three-storey building. Provide details of appropriate mitigation measures to ensure there are no detrimental impacts during construction on the continued operation of the school…

4. *Noise*

   The EIS identifies that during school operation, sensitive noise receiver 1 has a predicted decibel level exceedance by 2 decibels. Please include further justification as to why further mitigation cannot be used and/or the built form designed to comply with the EPA's Noise Policy for Industry (2017).

3.0 Response to Key Issues

3.1 Staging/Construction Management

Section 6.0 of the Noise and Vibration Impact Assessment (NVIA) for GHS reference 60659173-RPNV-01_C GHS SSDA dated 12 November 2021, recommends that a construction noise and vibration management plan be prepared which details feasible and reasonable work practices to be implemented to achieve noise management levels (NML).

The recommended noise and vibration mitigation measures in Table 22 of Section 6.0 of the NVIA include the following:

- Site inductions;
- Behavioural practices to minimise unnecessary noise;
- Selecting quieter plant and keeping well-maintained to minimise noise emissions;
- Construction hours and scheduling to avoid sensitive periods such as exams;
- Siting of plant to maximise distance of noisy plant and sensitive receivers;
- Use of non-tonal reversing alarms;
- Use of silencers on mobile plant;
- Shielding of stationary plant and operational stage noise barriers.

It should be noted that the predicted construction noise levels presented at sensitive school buildings represent a worst case scenario as they assume all equipment are operating concurrently and in very close proximity to Buildings A and C. Equipment would be located at greater distances from the

buildings for significant periods of time. It is also recommended that particularly noisy works required in close proximity to Buildings A and C, and K are completed outside of normal school hours. Keeping windows closed in Buildings A and C during nearby works would reduce internal noise levels by around 20 dB, fans and/or portable air-conditioners may be required for temperature and airflow management. If possible, classrooms on the northern façade of Buildings A and C should not be scheduled for use if noisy construction works are required in close proximity during normal school hours.

3.2 Proposed construction of the new Glenwood High School buildings

Section 7.2.2 of the Noise and Vibration Impact Assessment (NVIA) for GHS reference 60659173-RPNV-01_C GHS SSDA dated 12 November 2021, provides noise control treatments mechanical plant including the following:

- Internally lined ductwork comprising minimum 0.5 metres straight duct to be applied to each outdoor condenser unit discharge.
- Noise barriers of 2.5 m height on the eastern and northern side of the outdoor condenser units located on the east of Building N east.
- The side of the solid barrier facing the units must be lined with absorptive material with an NRC of 0.5.

Section 7.2.3 of the NVIA presented predicted noise levels to 10 noise sensitive receivers, with all predicted to be less than the relevant noise criteria except R1, which was predicted to exceed the criteria by 2 dB.

It should be noted that R1 is a two storey receiver with an assessment location 4.5 metres above ground located outside the second storey windows and therefore a noise barrier in excess of 3 metres would be required to achieve strict compliance with the noise emission criteria. A barrier of this height may have an impact on visual amenity of the school, solar access to the proposed new buildings and may require significant reinforcement to provide sufficient wind loading. A barrier above 2.5 metres is therefore considered unreasonable barrier to achieve strict compliance with the noise emission criteria.

The location of the proposed condenser units and the noise barrier are shown below in Figure 1.

Figure 1 Site Plan

Section 3.1 of the Environment Protection Authority's (EPA) Noise Policy for Industry 2017 (NPfI) states the following with regard to implementing mitigation:

> *When the project noise trigger level identified in this policy is likely to be exceeded, the noise assessment should identify feasible and reasonable mitigation. The proponent for the project must prepare this assessment.*
>
> *Where the project noise trigger level is exceeded, assess the feasible and reasonable mitigation measures that could be implemented to reduce noise down towards the relevant project noise trigger level. If it is reasonable to achieve these levels, the proponents should do so. If not, then achievable noise levels should be identified. It is not mandatory to achieve the trigger levels but the assessment should provide justification if they cannot be met. An assessment of the acceptability of residual impacts should also be provided.*

Section 4.2 of the NPfI states the following with regard to residual noise impacts:

> *Where all source and pathway feasible and reasonable noise mitigation measures have been applied, the significance of residual noise levels (that is, noise levels above the project noise trigger level) will be considered, as outlined in Table 4.1.*

Table 4.1 and 4.2 of the NPfI are presented below:

Table 4.1 Significance of residual noise impacts

If the predicted noise level minus the project noise trigger level is:	And the total cumulative industrial noise level is:	Then the significance of residual noise level is:
≤ 2 dB(A)	Not applicable	Negligible
≥ 3 but ≤ 5 dB(A)	< recommended amenity noise level or > recommended amenity noise level, but the increase in total cumulative industrial noise level resulting from the development is less than or equal to 1dB	Marginal
≥ 3 but ≤ 5 dB(A)	> recommended amenity noise level and the increase in total cumulative industrial noise level resulting from the development is more than 1 dB	Moderate
> 5 dB(A)	≤ recommended amenity noise level	Moderate
> 5 dB(A)	> recommended amenity noise level	Significant

Examples of noise mitigation at a residence that may be required by planning authorities to mitigate residual noise impacts are outlined in Table 4.2.

Table 4.2 Examples of receiver-based treatments to mitigate residual noise impacts

Significance of residual noise level	Example of potential treatment
Negligible	The exceedances would not be discernible by the average listener and therefore would not warrant receiver-based treatments or controls.
Marginal	Provide mechanical ventilation/comfort condition systems to enable windows to be closed without compromising internal air quality/amenity.
Moderate	As for 'marginal', but also upgraded façade elements, such as windows, doors or roof insulation, to further increase the ability of the building façade to reduce noise levels.
Significant	May include suitable commercial agreements where considered feasible and reasonable.

Given that a barrier to achieve compliance with the NPfI is not reasonable, a negligible residual noise impact that is imperceptible to the average listener is considered acceptable.

It is noted that the assessment presented in the NVIA was a worst case scenario and where possible, quieter building services plant would be selected during the detailed design.

I trust that the above information addresses the items raised by DPIE in the Submission dated 10 December 2021.

Yours faithfully

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