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17 August 2021

SINSW
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Suite 2, Level 10, 3 Spring Street
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Attention: Mr. M. Havdahl

Dear Martin,

RE: Hastings SC | SSDA Acoustic Addendum

JOB NO.: 200360

REVISION NO.: [F]

This acoustic letter has been prepared as an addendum to the Acoustic Report for SSDA (ref. 200360-AC-SSDA [F]) in order to respond to comments from the DPIE in regards to the SSDA submission. This addendum addresses further comments provided in addition to Addendum Revision C.

Comment: *Confirm that use of the multi-purpose sports court is expected to meet the required operational noise criteria during the evening time at residential receivers if windows and doors are closed and whether this is feasible.*

Response: Based on the noise assessment, with windows and doors closed the noise levels at residential receivers is expected to meet the operational noise criteria as stated in the Acoustic Report for SSDA during the evening period (6pm to 10pm).

Comment: *Provide further details in relation to sound insulation of openings to achieve noise levels at receivers and confirm that they are feasible and would be implemented.*

Response: Openings for mechanical ventilation have been provided only on the North and East façade, with none located on the West façade which faces the residential receivers, as an acoustic control measure. Based on this, the mechanical ventilation openings are not expected to result in an exceedance of the noise criteria stated in the Acoustic Report for SSDA.

Comment: Concerns have been raised in relation to the noise implications caused by an increase in vehicle and pedestrian flow as a result of the Stage 3 Multi-purpose sports facility.

Response: As per Section 5.4 of the Acoustic Report for SSDA, for existing residences and other sensitive land uses affected by additional traffic on existing roads generated by land use developments, any increase in the total traffic noise levels should be limited up to 2.0dB above the existing noise levels. Predicted increase in the total traffic noise levels due to the development – including the Multi-purpose sports facility – is 0.85dB. Therefore, traffic generated as a result of the proposed development is not expected to exceed the noise criteria stated in the NSW RNP and the Acoustic Report for SSDA.

Extension of Construction Hours: Based on NSW COVID-19 Health Orders, construction times on Saturday are to be 7am to 1pm (work hours may be altered in accordance with COVID-19 Health Orders at the time of construction).

Comment: Address noise from CAPA building on Mainsail building

Response: The character of the noise emissions from the use of classrooms, such as sound pressure level and spectra, vary in accordance with the teaching activity. There will not be significant noise emissions from the use of the classrooms as, generally, noise levels within teaching spaces in a school are expected to be low, plus the typical façade sound insulation performance will minimise the noise impacts to the nearest noise sensitive receivers.

In order to achieve a sufficient façade sound insulation performance, surface and sound insulation performance of glazing shall not reduce the overall sound insulation performance of the building façade.

Noise emissions from the use of classrooms of the CAPA building have been assessed to the Mainsail Building in 17-19 Owen Street. The noise assessment has considered the following assumptions:

- Classrooms will be used during school operating hours – i.e. day time period.
- Noise levels have been considered as continuous over a 15-minute assessment period to provide the worst-case scenario.
- Noise levels within the classrooms are based on 'loud' noise levels of teaching activities in the CAPA Building – i.e. dancing class.
- The noise break-out has been assumed through the building envelope construction of the classrooms, being composed by façade wall system (assumed R_w45) and glazing (assumed R_w30 for closed windows and R_w10 for open windows). Based on these sound insulation ratings and the area of the elements, the composite sound reduction of the façade with closed windows is R_w37 and R_w17 for windows opened. To provide a worst-case scenario, open windows have been considered for the noise assessment.

The noise impact assessment has been based on the following methodology:

$$L_{\text{ext}} = L_{\text{int}} - R_{\text{comp}} + 10 \log_{10}(S) - 20 \log_{10}(r) - 14$$

where:

L_{ext} is the resultant sound pressure level at the receiver (dB(A))

L_{int} is the internal noise level (dB(A))

R_{comp} is the composite sound reduction for the façade (dB)

S is the surface area of the façade (m^2)

R is the distance to the receiver's boundary from the CAPA Building façade (m)

Predicted noise impact assessment at the Mainsail Building is summarised in the following table.

Calculation	Overall A-weighted noise level, in dB(A)
Reverberant Sound Pressure Level (L_{int})	85
Composite Sound Reduction of Façade (R_{comp})	-17
Correction for Surface Area of Façade (S)	-15
Correction for Distance to Receiver (r)	-31
Resulting Sound Pressure Level at Residential Receiver	38
SEPP Criteria Day Time. Complies?	50 / Yes

Based on the results, noise emissions from the CAPA Building to the Mainsail Building are expected to comply with the Educational Establishments and Child Care Facilities SEPP noise level criteria. Acoustic design of the façade, other external building elements and ventilation openings of the school will need to be reviewed during the design stages in order to confirm compliance of the noise level criteria.

Comment: Clarification on windows closed to reduce noise and windows open for ventilation

Response: Refer to Response 3 above.

Comment: The noise research report conducted by JHA Services (see document 20) estimates in Chapter 5.2 Table 16 (page 23) that the decibel emanating from the PCY building during sports games would be 84dB(A) and this would be reduced to 44dB(A) at the La Mer building in the evening due to distance to La Mer and "building fabric sound reduction". Similarly, during dance and disco activities the noise level is estimated to be 94dB(A) (see table 17 on page 24) but somehow the noise is again reduced to 44dB(A). There is inconsistency in the noise reduction based on the distance from La Mer. The noise for sport is claimed to be reduced by 31dB(A), yet despite the fact that the distance to La Mer is the same, the noise reduction for music and disco is reduced by 39dB(A). This discrepancy does not appear to be explained.

Response: The report references reduction in noise levels with differing dB(A). The noise reduction varies based on where the activity is being undertaken in the PCYC building and the separation from that activity to the La Mer building. For clarity, refer to below for Table 16 and Table 17 from the NVIA.

Calculation	Sound Pressure Level
Reverberant Internal Noise Level of indoor sport games $L_{Aeq,15min}$, dB(A)	84
Building fabric sound reduction, dB	-30
Distance attenuation, dB	-31
Predicted noise level at nearest receiver, $L_{Aeq,15min}$ dB(A)	23
Noise Level Criteria (Evening-time), $L_{Aeq,15min}$ dB(A)	44 / Yes

Table 16: Predicted noise levels from Multipurpose Sporting Courts during indoor games with spectators.

Calculation	Sound Pressure Level
Reverberant Internal Noise Level of dance / disco event $L_{Aeq,15min}$, dB(A)	94
Building fabric sound reduction, dB	-30
Distance attenuation, dB	-39
Predicted noise level at nearest receiver, $L_{Aeq,15min}$ dB(A)	25
Noise Level Criteria (Evening-time), $L_{Aeq,15min}$ dB(A)	44 / Yes

Table 17: Predicted noise levels from Multipurpose Rooms during Disco / Dance events.

These tables show the noise impact assessments and shall be interpreted as follows:

- Internal noise levels within the spaces are presented in the first rows.
- Second rows show the composite sound insulation performance of the building façade and it can be noted that similar values are applied.
- Attenuation due to distance are shown in third rows. It can be noted that they are different values as it is understood that Disco and Dance events will be held in the Multipurpose Rooms further than the indoor sport courts (refer to Figure 5 and Figure 6 of the NVIA). Furthermore, there is no a direct line of sight from the Multipurpose rooms to La Mer building as noted in Figure 6, which renders to be shielded and therefore noise impact will be lesser than other receivers with direct line of sight.
- Results of the noise impact at the receivers are presented in the fourth rows which are the sum of the above figures.
- Noise assessment is carried out in the fifth rows which show the noise level criteria during evening time 44dB(A) and the statement if the result of the noise impact at the receivers achieve the noise level criteria.
- Noise level figures in last rows are not the result of the noise impact assessments.** These are the noise level criteria to be achieved.

Yours sincerely,



Jorge Reverter

Acoustic Group Manager