



**Department of Education**  
Picton High School Redevelopment  
Section 4.55 Acoustic Assessment

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# 1. Introduction

## 1.1 Overview

GHD has been engaged to prepare an acoustic assessment to address planning related changes to the proposed redevelopment of Picton High School and accompany the Section 4.55 application.

GHD previously prepared a Noise and Vibration Impact Assessment (2127011-REP-0\_Picton HS Acoustic Assessment dated April 2018) which addresses the Secretary's Environmental Assessment Requirements (SEARs) for the original design of the school.

This Section 4.55 acoustic assessment should be read in conjunction with the original Noise and Vibration Impact Assessment.

## 1.2 Scope of works

To address the acoustic impact relating to the changes to the proposed Picton High School, the following scope has been undertaken:

- Noise modelling to assess the noise impact of the reconfigured STEM building and the proposed automotive extension to existing metals engineering workshop on the nearby sensitive receivers. This included:
- Quantify the cumulative impact with all other noise sources previously modelled on the site and determine resultant noise levels at the sensitive receivers
- Where require, provide noise mitigation recommendations to reduce noise levels to compliant levels, in accordance with the Environment Protection Authority's Noise Policy for Industry (2017)

## 1.3 Proposed changes

The following changes for the 4.55 application are detailed below and shown in Figure 1.

Changes

- Additional support unit classrooms
- Minor changes to a small number of facades
- Reconfiguration of STEM building
- Additional automotive workshop extension to existing Metal Engineering Workshop building

The addition of the support unit classrooms and the changes to the façade should not increase the acoustic impact and do not require detailed noise modelling.

The proposed use and equipment within the additional automotive workshop will be similar to the existing Metal Engineering Workshop and will not significantly increase the acoustic impact. However, additional modelling has been undertake to confirm whether additional noise mitigation is required.

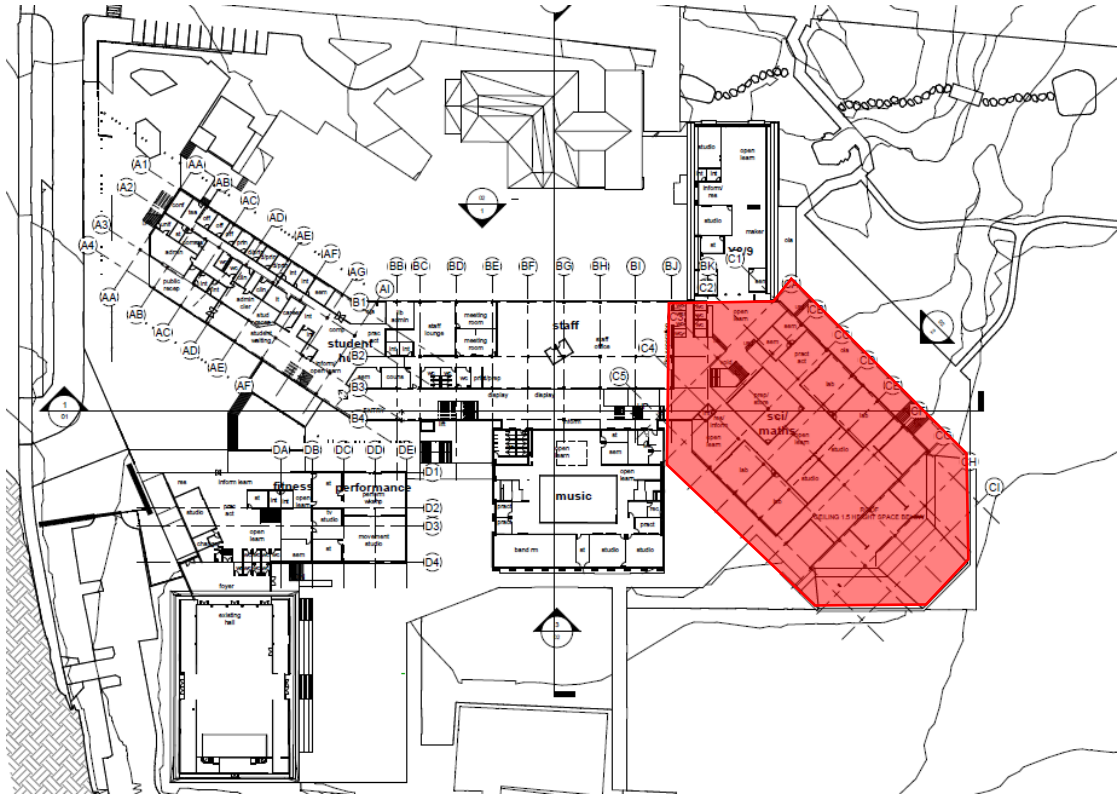
The noise emission from the mechanical plant from the reconfigured STEM building has been assessed to determine the impact on the nearest sensitive receivers.



## 2. Assessment of acoustic impact

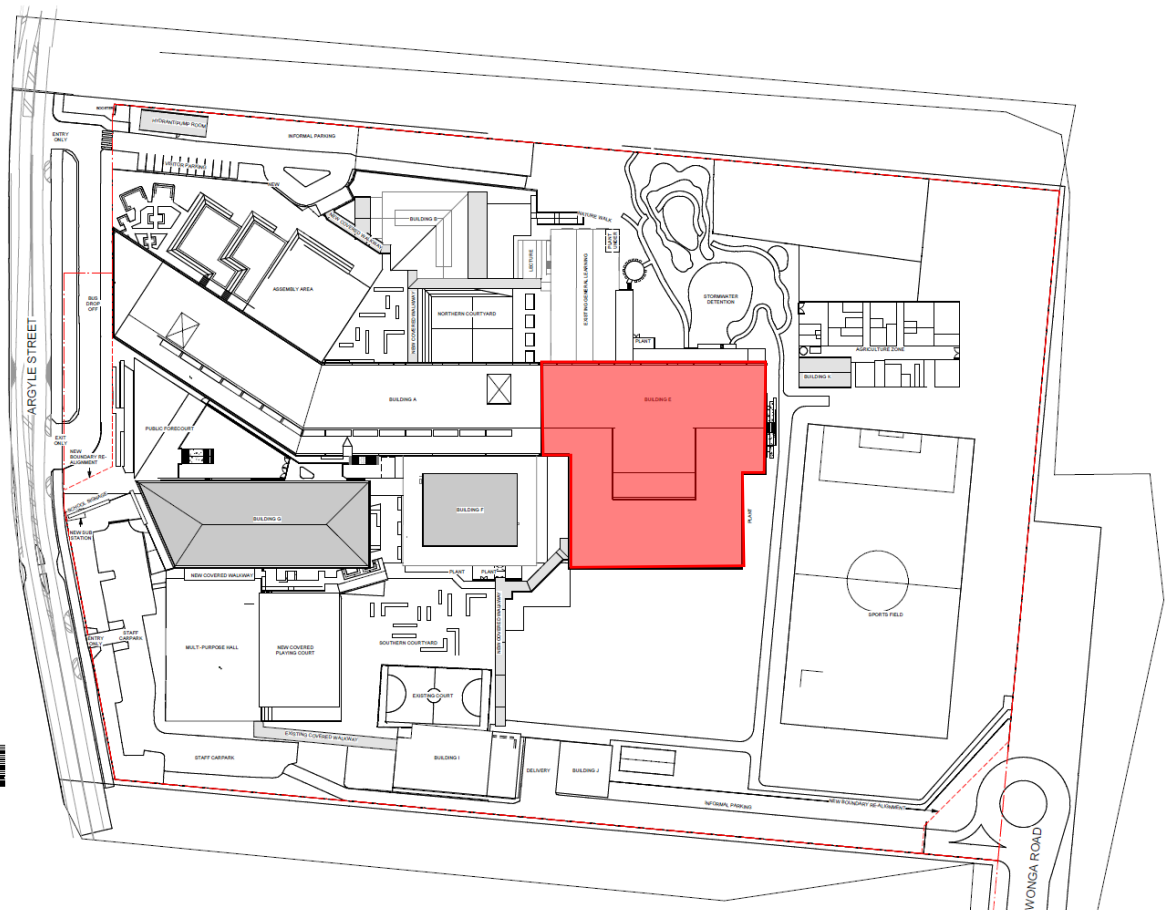
### 2.1 Reconfiguration of STEM building

Figure 2 below shows the configuration of the STEM building in the approved plans from the SSDA application.



**Figure 2 Approved site plan and location of STEM building**

Figure 3 below shows the proposed reconfiguration of the STEM building for the 4.55 submission.



**Figure 3 Proposed reconfiguration of the STEM building**

To determine the acoustic impact of the school with the reconfiguration of the STEM building, noise modelling has been undertaken. Full details of the noise modelling methodology and parameters, along with the details of the relevant noise emission criteria, are provided in the original Noise and Vibration Impact Assessment.

The location of the mechanical plant associated with STEM building will be in different location as a result of the reconfiguration. The noise emission from the mechanical plant has been reassessed at the nearest sensitive receivers. The results presented below are the cumulative levels with all proposed mechanical plant associated with the school operational.

Receiver locations and figures can be found in the original acoustic assessment.

**Table 2-1 Predicted operational noise levels**

| Receiver                                                                                           | Equipment and noise levels (dBA)                                                                                                                                      | Resultant noise levels $L_{Aeq, 15 \text{ min}}$ (dBA) | Criteria, $L_{Aeq, 15 \text{ min}}$ (dBA) |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------|-------------------------------------------|
| Worst case residential receiver to the north of school (R06 from original acoustic assessment)     | Mechanical plant<br>Assumed VRV outdoor units with Sound Pressure Level of 61 dBA measured at 1 metre<br><br>School bell and PA system<br>Sound Power Level of 85 dBA | 39                                                     | 44                                        |
| Worst case residential receiver to the south of school (R76 from original acoustic assessment)     |                                                                                                                                                                       | 22                                                     | 44                                        |
| Worst case non-residential receiver to the south of school (C07 from original acoustic assessment) |                                                                                                                                                                       | 31                                                     | 65                                        |

The above results demonstrate that the cumulative noise emission from mechanical plant with the proposed reconfiguration of the STEM building is predicted to comply the relevant noise criteria detailed in the original acoustic assessment.

## 2.2 Additional automotive workshop extension to existing Metal Engineering Workshop building

The existing metals engineering workshop and additional automotive workshop extension is located at the southern end of the site. The nearest residential receiver is located approximately 80 metres to the south of the workshop (R76) and the nearest non-residential receiver is located approximately 100 metres to the southeast (C07).

The proposed activities within the automotive workshop are expected to be similar in nature to the existing metal engineering workshop and will be housed fully within the building. This would largely consist of the use of power tools and machinery.

To determine the impact of the automotive workshop and to provide indicative noise mitigation recommendations, further noise modelling has been undertaken. Note that the noise emission from the existing metal engineering workshop has been included to determine the cumulative noise impact on the nearest sensitive receivers.

Full details of the modelling methodology and parameters, along with the details of the relevant noise emission criteria, are provided in the original Noise and Vibration Impact Assessment.

### 2.2.1 Assumptions

The following assumptions have been made:

- Internal reverberant sound pressure level for automotive workshop and metal engineering workshop – 105 dBA (taken from VDI 2571:1976 Sound Radiation from Industrial Buildings)
- External walls –  $R_w$  40
- Metal roller door on western and northern façade only –  $R_w$  17
- Assumed no glazing on southern façade



- Small windows on eastern façade – Rw 25

### 2.2.2 Results

**Table 2-2 Predicted operational noise levels – automotive workshop**

| Receiver                                                                                           | Noise level (dBA)                                 | Resultant noise levels $L_{Aeq, 15 \text{ min}}$ (dBA) | Criteria, $L_{Aeq, 15 \text{ min}}$ (dBA) |
|----------------------------------------------------------------------------------------------------|---------------------------------------------------|--------------------------------------------------------|-------------------------------------------|
| Worst case residential receiver to the north of school (R09 from original acoustic assessment)     | Internal reverberant sound pressure level 105 dBA | 19                                                     | 44                                        |
| Worst case residential receiver to the south of school (R76 from original acoustic assessment)     |                                                   | 30                                                     | 44                                        |
| Worst case non-residential receiver to the south of school (C07 from original acoustic assessment) |                                                   | 37                                                     | 65                                        |

The above results demonstrate that the noise emission from the proposed automotive workshop is predicted to comply the relevant noise criteria detailed in the original acoustic assessment, with the inclusion of the following noise mitigation measures.

### 2.2.3 Mitigation recommendations

To protect the amenity of the local residents, mitigation measures have been recommended to manage noise during the use of the proposed automotive workshop.

- There should be no windows or roller doors located on the southern façade of the extension
- Roller doors and windows should be closed during the operation of noisy equipment
- No noisy activities should be undertaken outside the building

## 3. Conclusion

GHD has prepared an acoustic assessment to address planning related changes to the proposed redevelopment of Picton High School and to accompany the Section 4.55 application.

Based on the assumptions made in this report and the original Noise and Vibration Impact Assessment, operation of the school is predicted to comply with the Noise Policy for Industry (EPA, 2017) noise criteria during school hours based on the mitigation measures recommended in Section 4.2.3.





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Document Status

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