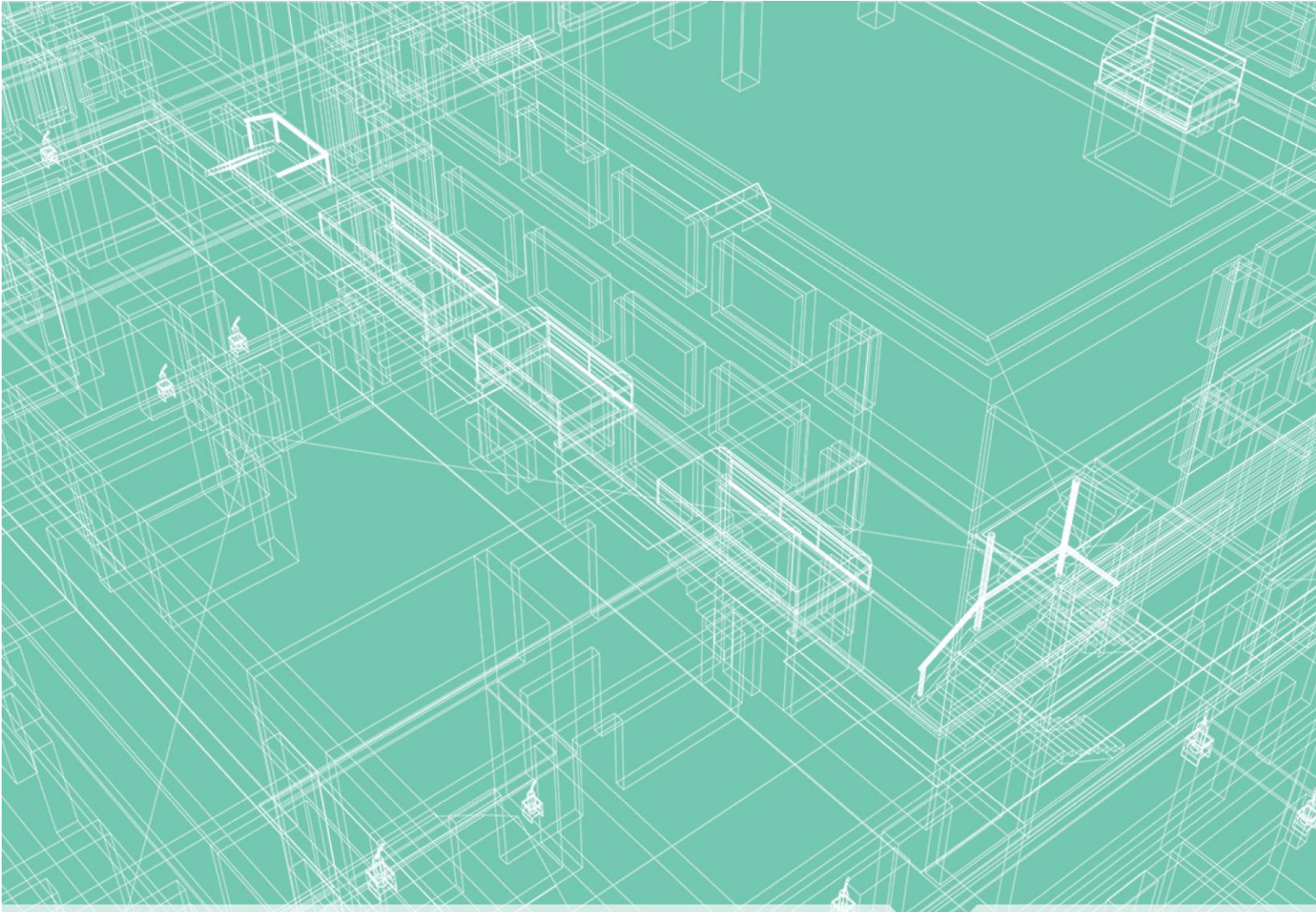

MECHANICAL SSDA REPORT (SSD 10352)

MORIAH COLLEGE REDEVELOPMENT

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1 INTRODUCTION

1.1 OVERVIEW

This Mechanical report has been prepared by JHA Consulting Engineers on behalf of the Moriah College / Aver Management Pty Ltd (the Applicant).

The Mechanical report accompanies an Environmental Impact Statement (EIS) in support of State Significant Development Application (SSD 10352) for the new Moriah College Redevelopment on Lot 3 DP 701512 (3 Queens Park Road) and Lot 22 DP 879582 (101 York Road) in Queens Park, NSW.

The proposal seeks consent for the demolishing of existing buildings and a tennis court to accommodate two new buildings. The two new buildings will consist of a four storey STEAM building and a three-storey new ELC. The proposed works will be undertaken over multiple demolition and construction stages with Phase 1 involving the STEAM building and Phase 2 involving the ELC building.

The purpose of this Mechanical report is to demonstrate compliance with the SEARs. This report shall be read in conjunction with the Architectural design drawings and other consultant design reports submitted as part of the application. The objectives of this mechanical assessment are:

- Establish the appropriate airborne contaminant levels in accordance with the relevant standards, guidelines and legislation for the work shops
- Determine what necessary control measures will need to be incorporated into the development or used in order to Mitigate Health and Safety issues within the building and emanating from the building to the surrounding public domain

This report does not address:-

- Risks and mitigation measure dealt with by the NCC 2019 for example fire, smoke, commercial kitchen exhausts and the like, as the proposed mechanical services will be DTS and comply with that document or in the case of the atrium smoke exhaust, DTS or an alternative solution as per the fire engineers report.
- Similarly mechanical services/provisions relating to energy efficiently, sealing, monitoring and the like will comply with NCC 2019 DTS requirements and additional efficiency provisions stipulated in the ESD reports.
- Mechanical space provisions and their incorporation in to the building envelope are addressed in the Architectural submission.
- Mechanical waste requirements (condensate) where not addressed in the Hydraulic submission will be in compliance with the Public health regulation 2012, under the Public health act 2010.
- Mechanical plant noise as this is dealt with in the acoustic submission.

1.2 RESPONSE TO SEARS

The mechanical report has been prepared to address the Secretary's Environmental Assessment Requirements (SEARs) for SSD 10352. This table identifies the relevant SEARs requirements.

SEARs Item	*Report Reference*
1. Statutory and strategic context ..State Environmental Planning Policy (educational establishments and Child Care Facility's) 2017 ***Schedule 4 Schools design quality Principles 4 – health and safety***	Section 3
19. Sediment , Erosion and Dust controls *Detail measures and procedures to minimise and mange the generation and off site transmission of sediment,* ***dust and fine particles***	Section 3

Table 1: SEARs and Relevant Reference.

2 APPROPRIATE AIRBORNE CONTAMINANT LEVELS

2.1 EXPECTED SOURCES OF CONTAMINATES

The following major dust and fume generating processes are expected to be carried out in the workshops/fabrication hub and associated areas..

- Wood work
- Welding
- Brazing
- Soldering

The following processes are expected to occur sufficiently infrequently not to warrant the provision of dedicated mechanical systems.

- Use of glues, solvents and the like.
- Grinding and cutting of metal.

Where these and other similar processes are carried out personal protection equipment (dust and chemical face masks) and workshop general exhaust ventilation is expected to be used to mitigate risks to occupants and dilution of exhausts via compliance with the exhaust provisions of AS1668.2-2012 is proposed as a control measure for discharges emanating from the building to the surrounding public domain

The chemistry and biology laboratories and laboratory preparation areas are expected to generate minor volumes of chemical fumes.

2.2 APPROPRIATE AIRBORNE CONTAMINANT LEVELS

The following standards have been used to estimate appropriate levels

- Safe Work Australia - Workplace Exposure standards for airborne contaminants
- ACGIH -Industrial Ventilation, a manual of recommended practice.

Contaminant	TWA (mg/m3)	Comment
Wood dust	1	Wood dust hardwoods
Welding fumes	5	includes soldering and brazing

TWA – 8 hour Time-weighted average (TWA), daily exposure limit for 8 hours a day for a 5 days a working week.

Any contaminant generating work in the chemistry and biology laboratories and laboratory preparation area is expected to be carried out in fume cupboards which are design to exhaust 100% of any contaminated air. As a result and given the nature of the installation, airborne contamination is expected to be very minor and appropriate levels will not be estimated as compliance with AS/NZS 2243.8. 2014 *Safety in laboratories* is expected to achieve compliance with Safe Work Australia's requirements.

3 CONTROL MEASURES

3.1 WOOD DUST

Internal control measures will include local exhaust provisions as detailed in the ACGIH Industrial Ventilation Manual of Recommended Practice. Which includes exhaust points at each item of wood working machinery expected to generate significant volumes of dust.

The ACGIH manual is an industry stranded referenced by the NCC/Australian standard AS1668.2-2012 " *The use of ventilation and air-conditioning in buildings*" and is to be used where contaminants are not addressed by that standard.

Room general filtration will also be provided at a rate of 10 air changes an hour to help control dust which has bypassed the local exhaust points.

External control measures will include the provision of air cleaning devises to ACGIH recommendations. This will include fabric collectors to filter out contaminants prior to discharging at the roof or a lower level in compliance with AS1668.2 discharge requirement for non-obnoxious discharges.

3.2 WELDING, SOLDERING AND BRAZING

Internal control measures will include local exhaust provisions as detailed in the ACGIH Industrial Ventilation Manual of Recommended Practice. Which shall include exhaust hoods at each Welding, Soldering and Brazing station.

Room general exhaust will also be provided at a rate of 10 air changes an hour to help control fumes which have bypassed the local exhaust points.

External control measures will include the provision of air cleaning devises to ACGIH recommendations. This will include fabric collectors to filter contaminants out of the local exhaust systems prior to discharging above roof level in compliance with AS1668.2 discharge requirement for obnoxious discharges..

3.3 CHEMISTRY AND BIOLOGY LABORATORIES AND LABORATORY PREPARATION AREA

Internal control measures will include the provision of AS/NZS 2243.8:2014 compliant fume cupboards for all laboratories and preparation areas.

External control measures will include exhaust dilution via discharging above roof level in compliance with AS1668.2 discharge requirement for obnoxious discharges. Given the minor volumes of contaminants generated, dilution of chemical effluents below Safe Work Australia recommended levels is expected to be really achieved.

4 MANAGEMENT AND COMPLIANCE

Dust and fume control from a premise requires management on an ongoing basis. Strategies for the proposed development should include the following:

- Regular filtration system maintenance.
- Staff training to ensure the systems are not being used outside of their effective limits.
- Controlling of cross ventilation, spot cooling fans and drafts which can make the exhaust systems ineffective.
- Yearly certification of Laboratory and Preparation Fume Cupboards.

5 SUMMARY AND CONCLUSIONS

This report forms part of the documentation package to be submitted to the Department of Planning as part of the State Significant Development Application.

This report establishes the appropriate airborne contaminant levels in accordance with the relevant standards, guidelines and legislation for the workshops and Laboratories areas and makes recommendations as to the control measures which need to be incorporated into the development or used in order to mitigate health and safety issues within the building and emanating from the building to the surrounding public domain

The information presented in this report shall be reviewed if any modifications to the features of the development specified in this report occur, including and not restricted to selection of welding, wood and metal working machinery, work shop and laboratories processes carried out, modifications to the building and introduction of any additional airborne contamination sources.