

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

PROJECT	Fairvale High School
ADDRESS	1 Thorney Road, Fairfield West, NSW, 2165
REVISION	3
ISSUE DATE	17 March 2020



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1. REGISTER OF DOCUMENT REVIEW

REVISION	DATE	SECTION	DESCRIPTION OF AMENDMENTS	AMENDED BY
1	10/02/20	All	All – Review for Submission to Superintendent	NG, DO
2	02/03/20	All	All – Amendments to suit comments from DoE	NG, DO
3	17/03/20	All	All – Amendments to suit further comments from DoE	NG,Do

This plan has been developed using the below Master Template revision.

Environmental Management Plan Rev 1	Date: 6/12/18
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A copy of each superseded plan is to be retained.

2. REVIEW AND APPROVAL

Revision 1 of this plan must be approved by the Construction Manager, Project Manager and the Site Manager.

This plan must be reviewed by all Icon project personnel on this project. The Document Review and Sign On will be used for this purpose.

Refer: 076 Document Review & Sign On



4. ABBREVIATIONS AND DEFINITIONS

СА	Contract Administrator
СМ	Construction Manager
Competent Person	A person who has acquired through training, qualification, or experience, or a combination of these, the knowledge and skills enabling that person to perform the required task.
Critical Incident	A critical incident is any incident in the work place that results in death; major structural damage, serious/permanent disability or injury or major impact on a client's operations
DIR	Directors
Env.MP	Environmental Management Plan
EMP	Emergency Management Plan
EPA	Environment Protection Authority or relevant state based environmental regulatory body
FAI	First Aid Injury
GM	General Manager
lcon	Icon Co (Aust) Pty Ltd, Icon Co (NSW) Pty Ltd, Icon Co (QLD) Pty Ltd, Icon SI (Aust) Pty Ltd, Cockram Construction Ltd, Cockram Construction QLD Pty Ltd
KPI	Key Performance Indicator
MFB	Metropolitan Fire and Emergency Services Board
NZ	New Zealand Operations
ОМ	Operations Manager
HIRAC	Hazard Identification, Risk Assessment & Controls
HSEM	Health, Safety and Environment Manager
HSEC	Work Health and Safety Coordinator or equivalent (site based safety personnel)
HSR	Health & Safety Representative
PPE	Personal Protection Equipment
PM	Project Manager
Precast Panel	Includes concrete precast panels and tilt up concrete panels
SDS	Safety Data Sheet
SSC	Site Safety Committee
SM	Site Manager
SWMS/JSEA	Safe Work Method Statement or JSEA in New Zealand (also sometimes referred to as a TA – Task Analysis)
TWA	Trade Waste Agreement



5. SYSTEM UPDATES

Any system updates are to be filed behind this page. Such updates will supersede the relevant content in the plan.

6. PLAN REVIEW AND UPDATE

This plan will be updated specifically for this project. This plan details the minimum Icon requirements across the project. Unless specifically requested by the client information within this plan will be retained as it provides valuable guidance material to our project teams.

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7. PURPOSE & OBJECTIVES

A site specific Environmental Management Plan is developed for every Icon project prior to works commencing and is maintained for the duration of each project.

This Environmental Management Plan sets out the framework for environmental planning on this project consistent with company Policies and Procedures. This plan shall apply to all activities undertaken by Icon on this project. This includes all activities of subcontractors, suppliers and consultants.

The site management team will be inducted into this plan and all workers are made aware of its location during the site induction should they wish to refer to it at any time. Revisions of the plan are notified to relevant personnel. The Plan is authorised by the Construction Manager, or their delegated representative.

7.1 PURPOSE

The purpose of the Site Environmental Management Plan is to outline management measures to minimise potential impact to the environment of the site and surrounding area during construction activities that are proposed to be undertaken at the site by Icon for the duration of the works. Relevant parties include all people on site during the construction works which may include but not be limited to Icon employees and sub-contractors engaged as part of the works.

Management measures outlined within this document will be implemented to avoid potential impacts to the environment at the site in line with the requirements of ISO 14001 Environmental Management Systems. Where impacts are unavoidable, measures to reduce and control impacts will be implemented as per this plan.

The Site Environmental Management Plan provides a clear statement of auditable actions, environmental performance indicators and management systems consistent with achieving the above objective

7.2 OBJECTIVE

The principle objectives are to:

- Ensure that the construction works are carried out in accordance with the appropriate environmental statutory requirements;
- Ensure that the works are carried out in such a way as to minimise potential environmental degradation by the implementation of best environmental practice;
- Ensure that personnel engaged in the works comply with the terms and conditions of this Environmental Management Plan.
- Respond to changes in environmental conditions during the proposed works through review and monitoring and control programs in consultation with the Icon Project Manager or their nominated representative(s); and
- Ensure that corrective actions where necessary, are implemented in a timely manner.
- Minimise material consumption;
- Maximise material re-use;
- Use of renewable or recyclable materials;
- Protection of the natural environment (through materials sourcing, manufacture and installation);
- Create a healthy non-toxic construction and work environment;
- Use of energy efficient equipment;
- Management of residual materials (waste);
- Encourage the adoption of a positive attitude toward the protection of the environment by staff and contractors with an objective of achieving stated environmental goals;

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- Ensuring where possible that tender and contract requirements reflect the project's environmental concerns (including subcontractor requirements);
- Minimise or recycle product packaging, etc., during the construction period.

7.2.1 PROJECT ENVIRONMENTAL AND SUSTAINABILITY TARGETS

The project environmental targets include the following;

- Comply with environmental management requirements as defined in the Project Contract;
- Comply with all environmental law that applies to the site and the associated construction works;
- Ensure non-compliance and complaints are dealt with according to Icon System procedures and reported to the Client immediately; and
- Meet all environmental and sustainability objectives set within the project program/timeframe.

7.3 INTERGRATED MANAGEMENT SYSTEM

This Plan has been developed in conjunction with relevant project specifications, drawings, Head and Subcontract conditions for all activities to be undertaken on the project; and has been developed to comply with the requirements of:

- AS/NZS 4801:2001 Safety Management Systems
- ISO 14001:2015 Environmental Management Systems
- ISO 9001:2015 Quality Management Systems
- Icon Policies and Procedures
- Additional requirements as specified by the client

This plan shall be reviewed for suitability and effectiveness on a six monthly basis as a minimum, or when there are significant changes to the environmental aspects and impacts at the project site.

7.4 HAMMERTECH SOFTWARE SYSTEM

Icon use the HammerTech software system where possible on projects to assist manage day to day HSEQ operations. All forms referred to in this document are duplicated within the HammerTech environment and are interchangeable.

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7.5 SYSTEM OVERVIEW



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8. ENVIRONMENTAL POLICY

A copy of the Icon Environmental Policy shall be displayed on the notice board in the site office / amenities area and will be communicated to workers on site during the Site Induction program.

ENVIRONMENTAL POLICY

Icon is committed to the protection of the environment, prevention of pollution and effective environmental management in all related activities.

Icon will ensure, as far as practicable, that it will:

- Implement an ISO 14001:2015 accredited environmental management system to ensure all contractual and statutory obligations are met;
- Ensure specific Project Environmental Management Plans are developed and implemented for each individual project;
- Communicate this policy to all workers and other interested parties, as appropriate, to ensure they are aware of and agree to comply with their obligations with respect to company operations;
- Identify any activities carried out by or on the behalf of the company that might have an impact on the environment;
- Identify and address both positive and negative environmental aspects and impacts (risk) associated with our operations through the environmental assessment process;
- Implement appropriate control measures that will mitigate negative effects to the environment;
- Provide management, workers and service providers with appropriate information, instruction and training to ensure that they are aware of any potential issues in the workplace that may impact on the environment;
- Continually monitor and assess the needs of stakeholders and other interested parties;
- Monitor and audit our environmental processes and systems with a view to continuous improvement;
- Establish measurable objectives and targets to improve our environmental performance;
- Comply with legal, regulatory and other guidelines for environmental management and protection;
- Ensure our Environmental Policy and management systems are regularly reviewed to ensure they remain relevant to the purpose and context of the organisation, including the nature and scale of its activities, products and services;
- Ensure that employees and/or subcontractors are aware of their environmental responsibilities.

This commitment will be achieved by the combined efforts of our employees and workers at Icon workplaces.

Nick Brown Managing Director Date: 1/11/2018



9. PROJECT SPECIFIC REQUIREMENTS

9.1 REFERENCED CLIENT DOCUMENTS

The project client documents include the following:

- Environmental Site Management Plans ESM 1 & 2
- Project Preliminaries
- Asbestos Management Plan 2015
- Fairvale Asbestos Register
- Fairvale Arborist Report

9.2 CLIENT SPECIFIC REQUIREMENTS

As outlines in the documents listed in Section 9.1

9.3LOCAL AUTHORITY REQUIREMENTS

Refer Fairfield Council & Cumberland Council for requirements

9.4 CLIENT INCIDENT REPORTING PROTOCOL

Name:	Daniel Smith
Position:	Senior Project Manager
Types of incidents to be reported:	All incidents
Timeframe for reporting incidents:	In accordance with the contract
Incident report format:	HammerTech Incident Report
Summary incident reporting requirements:	Monthly reports

9.5 KNOWN INDIGENOUS/HERITAGE SITES

There are no known Indigenous or other heritage sites at this project location. This has been checked against Office of Environment and Heritage.

In the case of unexpected finds, please see below procedure.

- 1. Stop Work
 - a. Notification to be provided to all other workers in the area to restrict further disturbance.
- 2. Notification to Site Management
- 3. Protection
 - a. Exclusion zone to be erected to prevent further work from taking place and further disturbance occurring
- 4. Notification to Archaeologist by Main Contractor
- 5. Assessment of the find
 - a. Archaeologist to investigate to determine the nature, extent and location of the find.
- 6. Record and salvage the find
- 7. Return to work
 - a. Subject to approval, works may recommence under the agreed terms once a full assessment has been completed and salvaged appropriately.

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9.6COMMUNICATION

Communication regarding environmental issues will be in accordance, but not limited to, the table below.

WHO	WHEN	HOW/WHO
Client	Unexpected finds that may	PM/SM as per client
	impact works	requirements
	Incidents	
Local Council	Permitting requirements	PM/SM as required
	Compliance issues	
	Complaints	
	Road cleaning	
EPA	Incident reporting	PM/SM as required
	Asking for Advice	
	Response to notices	
Neighbours/Interested	Site conditions that may	Site team as required
stakeholders	impact neighbouring	Letter drops
	operations i.e. noisy works	Door Knocks
Heritage Authority	Unexpected finds during	PM/SM as required
	construction activities	
Indigenous Authority	Any issue related to the	PM/SM as required
	indigenous community	

10.SITE CONTACT DETAILS

10.1 ICON CONTACT DETAILS

ICON HEAD OFFICE:	Level 2, 179 New South Head Road, Edgecliff.
	NSW, 2027 02 8456 6500

NAME	POSITION	EMAIL	PHONE
Peter Parathyras	Operations Manager	Peter.Parathyras@icon.co	0423 029 088
Angus Falstein	HSE Manager	Angus.falstein@icon.co	0428 318 000
Damian O'Leary	Project Manager	Damian.Oleary@icon.co	0418 730 420
Perry Chisholm	Site Manager	Perry.Chisholm@icon.co	0409 814 117

10.2 24 HOUR EMERGENCY CONTACT DETAILS

NAME	POSITION	EMAIL	PHONE
Damian O'Leary	Project Manager	Damian.Oleary@icon.co	0418 730 420
Perry Chisholm	Site Manager	Perry.Chisholm@icon.co	0409 814 117

11. GENERAL SITE MANAGEMENT

Icon shall ensure there is minimal impact to the environment from general activities at the site and provides all practical resources for the implementation of relevant State Environment Protection Policies (SEPPs).

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11.1KEY ENVIRONMENTAL ASPECTS

The following environmental aspects have been identified as relevant to this project. Aspects and impacts are covered in detail in the Project Risk Assessment.

ASPECT	RELEVANT ✓
1. Ground contamination	\checkmark
2. Hazardous Substances	~
3. Dust	~
4. Excavation work	\checkmark
5. Stockpiles	~
6. Noise/Vibration	~
8. Waste Management	~
9. Other: (List below)	

11.2 SUSTAINABILITY

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To the maximum extent reasonably practicable and consistent with a value-engineering approach, works shall include practical and effective sustainability measures (active and passive) which are then fully implemented in the construction phase.

Environmentally Sustainable Design (ESD) principles shall be incorporated into the design, construction and operation of the Project where practicable and where supported by the client. Particular emphasis shall be placed on the quality of the indoor environment (daylight, air quality, and thermal comfort), energy efficiency (reducing greenhouse gas emissions and peak electrical loads), water conservation and waste minimisation (during construction and operation). All new equipment and appliances provided under the Project shall aim to have high efficiency ratings and low energy consumption where possible.

11.3 INSPECTION AND MONITORING

The following processes are used to identify, control, monitor and evaluate effectiveness of control implemented on site:

PROCESS	FREQUENCY		BY WHO		COMPLIANCE & EFFECTIVENESS	
Site Establishment Checklist	Start of project		PM/SM		HSEM	
Prior to commencement of Pre Start Meeting HRCW activity (Not required daily)		Subcontra (attended and Forer relevant)	actor Led by SM nan as	SM		
Site Safety & Environmental Walk and Hazard Identification*	Weekly		SM/HSR/HSEC PM = Quarterly HSEM			
Australia: SWMS Review for HRCW NZ: JSEA Review for all tasks	All subcontractors		SM		HSEM	
Task Interactions*	1 per week		Project Team		Internal Au	udits
Incident Investigations	Ongoing		CM/PM/SM	M/HSEM	Director	
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PROCESS	FREQUENCY	ву who	COMPLIANCE & EFFECTIVENESS MONITORED BY
Project Risk Assess. (Includes Enviro)	Prior to commencement Reviewed Monthly	PM/SM	HSEM/Internal audits
Design Risk Assessment	Design Phase when D&D	Design Mgr/PM/SM/ Consultants	HSEM/Internal audits
Safety Committee Meeting*	As per Local legislated requirement	Safety Committee	SM/HSR/HSEM/HSEC
Site HSE Audit	Within 3 months of start Then 6 monthly	HSEM/Consultant	Ops Mgr/General Mgr/Director
Compliance Audit 14001	Annual	External Certifying Body	Corp Systems Mgr
Management Review	Yearly	Directors/Senior Mgt/HSEM	Internal audit/Compliance Audit

*Frequency is dependent on construction phase and number of workers on site

12. PERFORMANCE INDICATORS

ITEM	PERFORMANCE INDICATOR
1. Lighting	No community complaints regarding security lighting.
2. Hours of work	No work conducted outside approved working hours
3. Site Housekeeping	Site remains tidy. No complaints from local community or relevant regulatory authorities received.
4. Illegal Dumping	No occurrence of illegal dumping of waste at site or in general site waste bins.
5. Public Roads	Adjacent public roads not affected by soil, sand, clay or stones originating from the construction activities on site.
6. Asbestos	Removal of asbestos conducted in accordance with relevant guidelines and regulations where encountered.
7. Remediation	Works conducted in accordance with plan where required.
8. Non-conformance	Non-conformances reported and rectified where possible and as soon as is practical.
9. Authority Notices	Nil notices received from relevant Authorities relating to environmental issues.

13. RESPONSIBILITIES

The following key Company personnel have authority and responsibility for environmental management on the project as defined. Site based personnel will sign in to the plan to signify that they:

- Have read the plan;
- Understand their role and responsibilities in the effective and environmentally responsible management of the project, as defined in this section of the plan;
- Will effectively fulfil their role as defined in this plan and its appendices.

Activities related to the implementation of this plan are detailed within various sections of this document.

Note: Roles are applicable to all Icon operations across Australia and New Zealand.

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Refer: 071 Document Review & Sign On

13.1 DIRECTORS/STATE MANAGER

The Company Directors in consultation with State Directors and the Corporate HSEQ Systems Manager will establish the policy, objectives and targets and provide framework to enable the full implementation of this system and demonstrate ownership through the management review process and communication to staff, contractors, suppliers, clients and public alike.

13.2 CORPORATE HSEQ SYSTEMS MANAGER

The Corporate HSEQ Systems Manager ensures that the EMS is established, implemented and maintained to meet the requirements of ISO 14001:2015.

The Corporate HSEQ Systems Manager is responsible for administering the EMS and shall ensure that legal and other compliance obligations are identified, assessed and that the systems are set in place to identify aspects and impacts relative to the construction activity. An environmental system audit regime is to be developed and implemented to ensure company wide compliance to statutory and other compliance obligations.

13.3 HSE MANAGER (ENVIRONMENTAL MANAGEMENT REPRESENTATIVE)

The HSE Manager acts in the capacity of Environmental Management Representative for each project. The Environmental Management Representative's responsibilities include:

- Assist the Corporate HSEQ System Manager in ensuring EMS is established, implemented and maintained to meet the requirements of ISO14001:2015, as well as legal and other compliance obligations;
- Ensure an Environmental Management Plan is developed for each project;
- Ensure that environmental issues are covered in the site induction process;
- To liaise with the Sub-contractor(s), authorities and local community as necessary;
- Put in place an inspection and audit regime to ensure compliance to this plan;
- Collate data required for management review and potential improvements;
- Ensure training is undertaken as required.

13.4 CONSTRUCTION MANAGER/OPERATIONS MANAGER/GENERAL MANAGER

The Construction Manager has the following responsibilities:

- Ensure that this plan is implemented in accordance with relevant legislation, codes of practice and Australian and New Zealand Standards;
- Ensure appropriate resources have been allowed;
- Ensure that the agreed project audit schedule is implemented, and that the results of those audits are made available to the senior management;
- The Construction Manager will assign or delegate responsibility for the implementation of project procedures.

13.5 **PROJECT MANAGER**

The environmental responsibilities of the Project Manager include:

- Customisation of this plan specific to project and client requirements;
- The implementation of this plan to ensure the project meets the environmental needs, expectations and compliance obligations of the project's stakeholders;
- Allocating resources to ensure that appropriate actions are taken to identify and manage project environmental aspects and impacts;
- The site operation of this plan;
- Ensuring that this plan is adhered to by direct employees;

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- Ensuring that the project audit schedule is implemented, and the results of those audits are made available to relevant parties.

13.6 SITE MANAGER

The Site Manager will report to the Project Manager and is responsible for:

- To ensure that relevant licenses, clearances, permits and approvals are in place in the appropriate manner;
- Manage employees/contractors and construction activities on a daily basis to ensure the appropriate environmental controls are implemented and maintained in accordance with the requirements of the Site Environmental Management Plan;
- Ensure all staff are inducted into the site;
- Undertake site inspections of environmental controls and maintain records of environmental actions;
- Report any environmental management concerns or incidents to the Project Manager;
- Report all environmental incidents as per legislative and company requirements;
- Respond to all enquiries from the EPA as required during the duration of the project
- Recommend improvements to the Project Manager; and
- Implement corrective actions issued as a result of any site inspections, audits or meeting.

13.7 SUBCONTRACTORS

- Ensure their employees are aware of and comply with the requirements of Icon's Environmental Management Plan;
- Comply with the requirements of relevant Acts, Regulations and Codes of Practice and ensure their employees observe them at all times;
- Ensure supervision is suitable and employees receive adequate, appropriate training to carry out their tasks; and
- Provide suitable WHS documentation (including task specific SWMS/JSEA's).

14.TENDERING

During the contract tendering phase the project environmental requirements will be addressed and noted within the Tender Interview document which forms part of the Purchase Order engaging the Subcontractor. This includes, as appropriate, information about potential significant environmental impacts associated with the transportation or delivery, use, end-of-life treatment and final disposal of products and services.

The contract documentation issued to the Tenderer will include all relevant parts of the Project Contract Documents, including relevant sections of Preliminaries and General Requirements.

15. KEY ENVIRONMENTAL ASPECTS

The following sections describe some of the key management measures and controls to mitigate potential risks associated with construction on identified key environmental aspects for the Project. This list is not exhaustive, and the management measures detailed below will be incorporated into specific environmental procedures upon Project award. These will be monitored and reviewed on an ongoing basis and may change.

15.1 CONTAMINATED WASTE MANAGEMENT

All materials generated on site during either demolition or excavations are to be fully evaluated for potential contamination. This process is to be scheduled with the Project Manager and/or Site Manager on an as needs basis.

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Should contaminated wastes be evident (e.g. asbestos, hydrocarbons, etc.), the client will be advised so that arrangements can be made for the engagement of appropriately qualified specialists in hazardous materials handling.

A waste classification (for materials to be removed) and waste validation (for materials to remain) will be undertaken to confirm the contamination status of the construction areas of site.

Any contaminated waste will be managed in accordance with the Site WHS Plan requirements.

<u>Australian Operations</u> - Disposal of prescribed waste/contaminated materials, including contaminated spoil shall be under the following controls:

- Use of licensed prescribed waste contractors and vehicles;
- Advising waste contractors of waste composition and any special hazards associated with the waste;
- Retention of waste transport certificates.

15.1.1 ASBESTOS

If asbestos is identified on this site a qualified hygienist may be engaged to provide advice on the management procedures required to effectively manage asbestos onsite. The client will be asked to provide a report showing all known locations for existing asbestos within the site boundary. The following controls will be implemented:

- Areas already identified as containing asbestos will be identifiable on site via appropriate signage. All employees working on site will be briefed of the presence of asbestos in these areas via a toolbox meeting and/or in the site induction.
- Where required an Asbestos Management Plan may be developed as a subsidiary document to this Environmental Management Plan.
- Any grey fibrous cement materials observed on site, and not previously identified as an asbestos contaminated area, must be treated as asbestos-cement materials, or sampled for asbestos fibres.
- Any pipe or other lagging or insulation identified on site that cannot be positively identified as synthetic mineral fibre (SMF) material, polystyrene foam or brown hessian organic fabric should be treated as asbestos lagging.
- If asbestos is suspected of being found during construction activities, works in the immediate vicinity are to cease immediately. Works are not to recommence in that area until confirmation by the way of a hygienist report that has confirmed the type of material.

Refer: Site Specific Asbestos Management Plan as relevant

15.2 HAZARDOUS MATERIALS (FUELS AND CHEMICALS) TRANSPORT, STORAGE & HANDLING

- The storage and handling of fuels and chemicals will comply with all relevant legislation
- SDS's will be obtained when purchasing chemicals and will be available to all personal on-site for all chemicals stored and handled.
- Contaminated soils that are Prescribed Industrial Wastes (PIW) must be transported by appropriately permitted trucks with a relevant Waste Transport Certificate, **or local authority equivalent**, completed for each load, and disposed of at a suitably licensed site in accordance with the local Environmental Regulatory Authority.
- Minimal volumes of fuels and chemicals will be stored onsite. If required to be stored in the work area, liquid chemicals will be bunded to 110% of the total volume stored.
- Batteries are to be located in clearly defined areas. Batteries are to be sealed units to prevent acid spills (where possible). Batteries are to be charged in well ventilated areas.

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- Spill response equipment will be located at various locations around the site during the construction and must be carried in all fuel transport vehicles/trailers.
- Inspection of fuel and chemical storage areas are to be undertaken daily.
- Drivers of fuel and chemical transport vehicles to the sites will be trained in the procedures for emergency response for spills.
- Persons handling chemicals will be provided with appropriate training and personal protective equipment. The operator must be present during re-fuelling operation.
- Vehicles carrying fuel for the purpose of refuelling other vehicles shall be clearly identifiable, have the fuel stored in approved containers and have a hydrocarbon spill kit on board.
- Re-fuelling areas will not be within 100m of any natural drainage line and will be within bunded areas (where possible).
- Products to be stored in designated areas only such that soil/water is not contaminated (e.g. cement products to be stored in weather proof area).
- Flammables are to be stored in approved storage areas and placarded appropriately.
- All drums/containers for use must be adequately labelled and made of appropriate material.
- Fire extinguishers to be available at storage areas where flammables are stored.
- In the event of a spill, a spill kit will be used to clean up immediately. If this is not possible the relevant authorities will be contacted.

15.3 WATER AND SOIL POLLUTION CONTROL

- Fuelling, maintenance and cleaning of vehicles and construction plant will not be carried out in areas from which fuel or oil may be discharged to street gutters or storm water drainage systems. The location of such activities needs to be fully considered so as to minimise the potential for spillage into sensitive receptors.
- Storage of fuel, oils, chemicals on site will be held to an absolute minimum. No such materials shall be stored on site without the permission of the Site Manager. The location of these shall be well clear of trafficable areas in case of collision. A spill kit will be kept in close proximity.
- Where practical impervious bunds (or a similar retention system) may be constructed around all fuel or oil storage areas to ensure retention of not less the 110 per cent of the capacity of the largest tank in each bund. Drums and tanks containing oil or other pollutants will be stored within impervious bunds. Suitable barriers shall be erected along bund walls to prevent elevated storage tanks and drums stored more than 2 drum heights, from falling outside of bunded areas. Adequate absorption materials shall be readily available to collect and recover any liquid spillages.
- Dry methods of spillage clean-up will be used wherever possible. Bunded fuel areas will not be fitted with valves or drains but shall be graded to pump out sump. Oil contaminated storm water and/or soil will be disposed of to a licensed disposal site where relevant.
- Fuelling construction plant will not be carried out without an operator or driver being in attendance at all times. Road going vehicles will not be fuelled on site.
- All spillage on to sealed areas will be cleaned up as quickly as practical and placed into suitable receptacles for reclamation or disposal in a manner that does not cause pollution of the environment.

15.4 CONCRETE AGITATOR WASH DOWN

Concrete agitator chutes, where possible, will be washed down off site. Where this is not possible they will be washed down in a designated area. Sediment will be contained and disposed of with waste materials in the designated waste bins and removed by waste recycling contractor. Alternatively, chutes will be washed into sealable container or drum located on the concrete truck. The concrete residue is then treated or re-cycled back into the concrete plant.

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15.5 DEWATERING

Dewatering activities must be done properly to avoid eroding the soil on site. It is also important to choose the best location for discharge. When choosing discharge areas from a dewatering process the following must be considered:

- Water should not be pumped directly onto slopes;
- Dewatering activities should be directed to a wooded buffer, if available;
- It is important to pay special attention and discontinue dewatering if the area shows signs of instability or erosion;
- Channels used for dewatering must be stable and better if they have been protected with grass or vegetation;
- You should avoid dewatering under heavy rains because the infiltration rate is at a minimum and water will move slower or just the dewatering process will not function;
- Never discharge water that has been contaminated with oil, grease, chemical products directly. In such instances, an oil/water separator may be necessary;
- Additional permits and requirements might be needed from the local, or federal agencies;
- It is important to understand the water table conditions in the area, perhaps the underground water is always near the surface, so your plan might not work;
- Sump pumps are the most common dewatering technique but it can handle only a small volume of water.

15.5.1 DEWATERING METHODS

Construction dewatering from open excavation or trenches can be done by numerous methods. The following methods will be considered and the most effective and practical will be used:

- Water pumping;
- Siphoning;
- Earth channels;
- Sediment tank. The purpose of a portable sediment tank is to trap and retain sediment and treat turbid water prior to pumping the water to the sewer system.

Ensure relevant authority permits are obtained in all cases.

15.6 DUST/AIR QUALITY & NOISE MANAGEMENT

- Dust control measures will be implemented on all unsealed trafficable areas considered to generate significant wind-blown or traffic generated dust emissions. Subject to availability recycled water will be used as preference to potable water. Recycled water will come from sources that meet relevant EPA requirements.
- Roadways and work areas will be watered using approved recycled water or approved privately sourced water, to minimized dust levels outside of working hours, as necessary.
- Movements on and offsite will be reduced as far as possible during wet weather. Mud on roads will be removed by sweeping or using shovels.
- In extreme wind conditions, construction activities may need to cease until conditions improve.
- No burning off is permitted on site.
- Where appropriate, vehicle engines not in use for a period exceeding 20 minutes will be turned off to reduce greenhouse gas emissions and unnecessary noise.
- All fumes to be exhausted to open air will be released through a mobile ventilation system.
- All items of plant and equipment to be in good working order and regularly serviced to reduce exhaust emissions.

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- All field personnel will be made aware of potential noise sources from their operations, the noise limits are to be observed inclusive of adaptation of mitigation measures.
- Construction operations will be conducted during approved hours, and within the requirements of all local noise regulations. All personal will be advised of regulatory requirements regarding air and noise in work pre briefs.
- Where possible, limit excessive noise generating activities to daylight hours.
- All equipment to have manufacturers noise control equipment (exhaust/mufflers/sound proofing) in sound working condition - daily plant maintenance checks to be carried out.
- For activities that may generate abnormal noise levels, local residents will be informed prior to commencement.
- Any plant, equipment or vehicles fitted with acoustic canopies shall be used with the canopy closed at all times whist operational.
- If the event of a noise complaint the Project Manager must be informed. Noise monitoring may be conducted to confirm actual construction noise levels.

15.7 ROAD MANAGEMENT

- Road cleaners will be engaged to clean roads as required;
- Cattle grates may be installed where required and where space allows;
- Wheel wash facilities may also be implemented where required.

15.8 VIBRATION MANAGEMENT

If significant vibration occurs as a result of construction works, vibration monitoring may be undertaken. A vibration management plan may be developed.

15.9 EQUIPMENT EMISSIONS

Construction equipment will be properly maintained to ensure exhaust emissions are minimised. If visible smoke can be seen from any equipment (while working on a construction site) for longer than 10 seconds duration, the equipment will be taken out of service and adequately repaired or tuned so the smoke is no longer visible for periods longer than 10 seconds.

15.10 FLORA MANAGEMENT

15.10.1 SITE SET UP AND VEHICLE MOVEMENT

- Plans and construction procedures shall clearly outline limit of works and flora/fauna exclusion areas.
- All work areas shall be located within the area of contract. Movement of vehicles and plant shall be restricted to designated access corridors and work areas.

15.10.2 VEGETATION/TREES

- Avoid all unnecessary destruction of vegetation;
- Permission is to be obtained for tree removal and/or pruning as relevant to local requirements.

15.10.3 TREE DRIP LINES

- Stockpiles shall not be located, and equipment shall not be stored, against trees, under drip lines of trees, or on native grasses, shrubs and groundcover plants.
- No fill shall be placed under drip lines of trees unless indicated in the design drawings.

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- Excavation shall not take place within drip lines of trees unless indicated in the design drawings. Any exposed roots during excavation shall be trimmed with a clean saw in accordance with AS 4373.
- It is not anticipated that this will be an issue on this project.

15.10.4 REHABILITATION

- Upon completion of site work, stockpile sites and access roads shall be restored to conditions similar to their original conditions.

15.11 FAUNA MANAGEMENT

15.11.1 SITE MONITORING

- All permanent and/or temporary fencing shall be checked daily. If and when required, site personnel shall rectify (or notify appropriate personnel) if any fencing is compromised.

15.11.2 INTERACTION WITH FAUNA

- Employees are not permitted to feed native or pest fauna.
- No hunting, disturbing, capturing or destroying native animals, birds or fish is permitted within the project area.
- No domestic pets shall be allowed within the project area.
- In the event of detection of an animal within the project area, no employee or subcontractor shall approach the animal. If relocation is required, the Site Supervisor (or delegate) shall be contacted to arrange removal/relocation by a suitably qualified and permitted specialist.
- Ensure fauna ramps are placed into any open trench at the end of each day (if required by prior ecological assessment);
- Remove fauna ramps and inspect all open trench for animals prior to start of each day (if required by prior ecological assessment);
- Where potentially dangerous animals are encountered (e.g. snakes), contact the Icon Site Manager for advice; do not interfere or attempt to move the animals along; and
- Sick or injured animals must be reported to Icon Site Manager; Only authorised personnel may act to relocate such animals.
- If the animal species is injured, it shall be taken to an appropriate veterinary clinic or wildlife shelter.

15.11.3 PEST MANAGEMENT

- All compound, storage and laydown areas shall be maintained such that they are in a clean and tidy state at all times.
- Domestic and construction waste bins with secure lids shall be provided to avoid attracting vermin and other scavengers.
- No trapping of animals shall occur (e.g. within amenities etc.). If nuisance animals are present, the Site Supervisor (or delegate) shall be consulted.

15.12 HERITAGE MANAGEMENT AND CULTURAL RESOURCES

If a cultural or heritage object is discovered during construction activities, works should cease in the subject area and Icon should notify the relevant local authority immediately for further advice.

To ensure the adequate protection of above ground and sub-surface heritage items on the site a Heritage Consultant will be engaged to provide a detailed report as to the site processes to be engaged. Controls could be but not limited to the following dependent on the specific project requirements.

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- All construction personnel will attend a site induction that includes identification of heritage issues and requirements prior to the commencement of construction works (and / or the commencement of individual contracts);
- Inspection of heritage buildings will be undertaken prior to any site works being carried out to identify the sensitivities of the heritage buildings with regards to the works and completion of restoration works should any be required;
- Protective barriers are to be installed around all heritage buildings located on the site to ensure protection during the works;
- Construction works will be staged so as to provide efficient and practical access to the site and its infrastructure as required throughout the construction program. Construction works will also be staged so as to allow for works required to mitigate potential heritage impacts throughout the construction program, including stabilisation of built elements to be retained, and archaeological investigation and recording of areas of archaeological potential that may be disturbed during demolition works;
- No undermining of heritage building foundations will take place as part of the site works;
- Temporary stabilising elements may need to be introduced to ensure structural stability of retained built elements during and after construction works. Work method statements should be prepared to guide all stabilising elements that will be installed during the construction program. Any direct physical impacts to heritage fabric (e.g. fixing points) should be clearly detailed so that they can be considered in relation to the overall benefit of stabilising and protecting these significant elements;
- Inspection of heritage buildings during and post works to ensure the structures remain in a sound state; and
- Any proposed ground disturbance in areas identified as having archaeological potential should be undertaken in conjunction with or preceded by appropriate archaeological investigation and recording by a suitably qualified archaeologist.

15.13 NOXIOUS WEEDS

- Mitigation measures will be implemented to prevent the spread of listed noxious weeds both on and off site.
- Vehicles and plant will be isolated from heavily affected areas if the area is not within the construction footprint in the form of fencing/barricading that will be affixed with signage.
- Fencing/barricading and signage will be inspected as part of the environmental Inspection to ensure appropriate segregation is maintained.
- Vehicles/plant to stick to designated crushed rock haul roads.
- Topsoil on site will not be transported offsite without being treated first.
- Plant/machinery will be inspected prior to entering and exiting site to ensure weed seeds are not being transported on or off site.

15.14 SEDIMENT AND EROSION CONTROL

Water has the potential to enter the site from two sources:

- Rainfall.
- Ingress from subterranean or surface sources.

The ingress of subterranean or surface water, together with rainfall into the area of the excavation, will be removed from the excavation by a system of de-watering pumps placed around the perimeter of the excavation. Water removed from the excavation is to be tested and treated, if necessary, before discharge to the stormwater system.

15.14.1 TEMPORARY EROSION CONTROL MEASURES

Temporary erosion control measures that will be used include, as appropriate:

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- Using non-woven, needle punched geotextile or plastic to provide temporary surface protection in temporary creek diversions, temporary creek crossings, on batter drains and along creek banks or beds that have been disturbed;
- Maintaining the existing vegetation in flow lines for as long as possible and only clearing directly prior to the installation of culverts;
- Constructing temporary compacted earth windrows, with a minimum depth of 400 millimetres along the top of fill batters, to direct runoff to temporary lined batter drains or sediment traps at cut/fill lines;
- Revegetating topsoil stockpiles and temporary drainage structures with a cover crop if the stockpile is to remain in place longer than 28 days, except where the risk of rainfall is extremely low. The surface of topsoil stockpiles should be left rough to assist with seed germination;
- Temporary geotextile or plastic-lined batter drains on fill batters. The geotextile or plastic should be keyed in at least 300 millimetres deep at the top of the batter drain and staked to the batter at regular intervals either side of the drain. The drain should be slightly dish-shaped so runoff stays on the geotextile or plastic. A sediment filter, such as a sediment fence, sediment trap or drain taking the runoff from the batter drain to a sediment trap, should be installed at the toe of the fill.

15.14.2 SEDIMENT BARRIERS, TRAPS AND BASINS

Sediment barriers, traps and basins that will be used include, as appropriate:

Timber windrows, which should:

- be constructed from cleared vegetation
- be placed at the toe of fill batters
- be to a maximum height of 1.5 metres
- have little or no soil mixed in with the vegetation, to assist in fire management
- be spread back onto adjacent batters with other cleared vegetation to provide surface protection and a native seed source once topsoil has been respread

Excavated sediment traps or sumps which should:

- be used where narrow easements prevent the installation of sediment basins
- be appropriately sized
- be located at low points or below cut/ fill lines
- have temporary drains directing runoff into them
- have geotextile-lined spillways
- be maintained regularly after rain
- have water tested and treated, if necessary, before discharge to the stormwater system.

15.14.3 MAINTENANCE

During construction, the inspection of temporary erosion and sediment control measures should be undertaken regularly and following rain events, with any necessary maintenance to controls being undertaken promptly (1–5 days after rain ceases).

15.15 SITE FACILITIES MANAGEMENT

- Sediment control will be implemented in temporary laydown areas as required.
- All areas of the site are to be left neat and tidy, uncluttered with debris, random construction materials, plant and equipment etc.
- Vehicle, plant, and equipment laydown areas are to be established within designated areas only.
- Office, workshop and storage areas are to be maintained at regular intervals.
- Dust suppression by water sprays to be undertaken in site facility areas (as required). Where possible dewatering water or recycled water will be utilised as dust suppression.
- Fuel and chemical storage areas managed and maintained.

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- Products to be stored such that soil / water are not contaminated (e.g. fuel and chemical storage and cement products to be protected from weather).
- No trapping of animals is to occur.

15.16 SOIL MANAGEMENT

15.16.1 EXCAVATION

During excavation works the following controls will be implemented:

- Excavated spoil will be stockpiled in 2m high mounds and covered or grass seeded to minimised dust generation.
- Stockpiles will be located away from hazards such as areas of concentrated flow, waterways, channels, gutters, drains, and steep slopes. Spoil will not be placed where it is likely to fall or wash into roads, gutters or drains.
- Topsoil will be stockpiled separately from general excavated material so that it may be used when rehabilitating the site.
- Any soil to be excavated and disposed offsite, that is known to be contaminated, will be done so in accordance with relevant Environmental Authority Guidelines.
- Contaminated soils must be transported by appropriately permitted trucks where relevant, with a Waste Transport Certificate (Australia only) completed for each load, and disposed of at a suitably licensed site in accordance with the relevant Environmental legislation.
- The number and size of soil stockpiles will be minimised.
- Soil stockpiles will not impede natural or constructed surface drainage channels or access tracks and will be confined to designated areas within the construction corridor and will be appropriately separated based on soil layers and contamination status.
- Soil stockpiles to be monitored and environmental controls installed as appropriate;
- Every attempt will be made to re-establish vegetation as soon as practicable after reinstatement earthworks to stabilise exposed soils. Erosion and sediment control structures will be retained during reinstatement until vegetation is established.
- Excavation within identified acid sulphate soil areas will be avoided in the first instance. If avoidance is not possible or an unexpected encounter occurs work will be temporarily postponed in the area until management measures can be implemented.
- Any soil to be disposed off-site (regardless of whether it is contaminated or otherwise) will be classified according to Environmental Regulator Guidelines and consigned to the appropriately licensed facility.
- If asbestos fragments are identified within excavated soil a qualified removalist will be engaged to remove the asbestos or the soil will be transported offsite.

15.17 STORMWATER RETENTION AND SILT CONTROL

Assessment will be made of the site area ground water catchments. Temporary dish drains may be established to direct water runoff. The drains will have straw bales and gravel to retain silt at intermittent points.

At any discharge point to the site stormwater system the pit lids are to be covered with shade cloth, filter fabric or silt socks.

The downhill sides of the site fence may have shade cloth filter fabric to a height of 300mm if the directional flow of water travels through the fence enclosure.

The new stormwater system will be installed and commissioned as early as possible to minimise the period of uncontrolled roof and road water. The fence and drainage controls will be maintained on a regular basis to ensure effectiveness.

15.18 TRAFFIC AND SITE ACCESS MANAGEMENT

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- Compliance to traffic management plan at all times.
- All vehicles/plant entering and leaving the site will comply with standard vehicle noise requirements as set by relevant government authorities and will be adequately maintained by regular scheduled servicing.
- All vehicles/plant will utilize designated access routes and designated parking areas.
- Heavy vehicles will drive in such a manner that exhaust brakes will only be used as per standard road regulations in the vicinity of residences, except in an emergency.
- All vehicles and trucks carrying loads of soil, rock, concrete, or vegetation will be loaded no higher than the tray, and where applicable appropriately covered such that spillage and dust during travel is minimised.
- In the event of inclement weather, vehicles and plant leaving the site will be prior inspected and, if necessary, wheels will be washed to ensure that debris is not deposited on surrounding roads.
- Surrounding local public roads will be swept clean as required if dirt build up is apparent.

15.19 WASTE MANAGEMENT

Icon is committed to reducing the amount of waste generated onsite and uses the EPA wastes hierarchy to achieve this aim. The wastes hierarchy is an order of preference and states that waste should be managed in accordance with the hierarchy, with avoidance being the most preferred option and disposal being the least.

- No littering of the Project Site will be tolerated.
- Brief all employees on waste minimization, management, and disposal prior to works proceeding as part of the Site Induction.
- Brief all suppliers on waste minimization, management, and disposal of packaging. Where possible suppliers to provide products free of packaging.
- Provide appropriate waste storage containers with secure lids to prevent fauna access.
- Construction waste such as concrete, steel, brick rubble and wood is to be separated for recycling.
- Putrescible waste to be regularly disposed of to landfill.
- Cigarette butts are to be disposed of in bins appropriately.
- Residues and containers to be stored in designated areas protected from stormwater drains.
- Chemical residues, packaging, and used containers are to be disposed of in accordance with the relevant SDS.
- Portable toilets are to be emptied regularly and waste disposed off site by a licensed Contractor in accordance with local Council and EPA requirements.
- Contaminated materials (e.g. soil contaminated with oils) to be appropriately stored and contained on site and disposed or relocated at the direction of the Environmental Delegate. NB: such material may require laboratory testing prior to determining where it can be disposed.
- Spent absorbent materials will be bagged and stored in a suitable storage container labelled accordingly. Full containers will be removed by a licensed contractor to a licensed landfill.
- Stormwater collected in bunds is to be visually inspected for contamination (i.e. a sheen) prior to release onto a hardstand area away from stormwater pits.
- No on-site dumping and burning is permitted.
- All vehicles carrying loads of dry soil, rock, concrete or vegetation will be loaded to a level and then appropriately covered such that spillage and dust dispersal during travel is minimised.
- Upon removal of site facilities, areas are to be left clean and tidy.
- Debris & sediment collected behind sediment controls is to be re-used where possible (e.g. rehabilitation works) or disposed of to a designated spoil site.

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16.ENVIRONMENT MANAGEMENT FRAMEWORK

The following section outlines the framework that will be used by Icon to manage, document, and report on environmental issues at the site.

16.1 SUBCONTRACTOR MANAGEMENT

Sub-contractors are required to comply with the provisions of the Environmental Management Plan at all times. This will be documented by each sub-contractor or the nominated site representative for each organisation by the Site Induction Form which forms part of the HSE compliance system. Sub-contractor's environmental performance obligations shall be incorporated into sub-contractor's contract for works to be undertaken at the site.

16.2 MONITORING AND INSPECTIONS

Monitoring and inspection of the site will be carried out by means of weekly site meetings and site safety and environmental walk. These measures will be used to identify areas of non-conformance and / or opportunities for improvement. Monitoring and / or inspections required on a more frequent basis by the Environmental Management Plan will be conducted as required and reviewed in the weekly site meeting.

16.3 NONCONFORMANCES

Non-conformance to the environmental procedures identified at the site must be addressed as soon as is practical. The member of staff and/or sub-contractor responsible for the nonconformance must be notified immediately and provided with guidance on the method of rectification of the problem, where practicable.

The non-conformance must be documented as outlined in the relevant company procedure.

Refer: 002 Corrective Action and Control of Nonconformances.

16.4 ENVIRONMENTAL MEASURING AND TEST EQUIPMENT

Measuring and test equipment used on site to monitor the environment is to be appropriately identified, calibrated, maintained and stored. Such equipment includes, but is not limited to:

- Air monitoring equipment;
- Noise monitoring equipment;

Records of current calibration for such equipment are to be provided by the service provider prior to use on site. Equipment found to be out of calibration will be removed from service until recalibrated.

Items used for indicative purposes only (e.g. applications on smartphones) will not be calibrated. These items may be used to identify the need for formal monitoring or the introduction of specific controls.

Workers using measuring and test equipment used for monitoring the environment will be trained in its use.

16.5 ENVIRONMENTAL AUTHORITY NOTIFICATION & SITE VISITS

Contact with the Environmental Authority should be conducted via the Site Manager and/or HSE Manager. Depending on the significance of the issue, the Project Manager will determine whether the notification of Icon Legal Counsel or other Icon senior management is required.

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Communication from the Environmental Authority must be documented (as a minimum) in the site diary. It is recognized that depending on the nature of the communication, other supporting documentation may need to be compiled.

In the event that a representative of the Environmental Authority representative arrives on site, the following procedure should be followed:

- 1. The Officer should be taken to the Site Office to meet the Site Manager or his representative. Before any site inspection, the purpose of the EPA visit should be determined.
- 2. Particular care must be taken to ensure that visitors are signed in and inducted to an appropriate standard depending on the nature of their visit.
- 3. Under legislation, Officers have the right to enter any site for the purposes of evaluating the nature and extent of potential pollution.

AN ENVIRONMENTAL AUTHORITY OFFICER CANNOT BE REFUSED ENTRY TO THE CONSTRUCTION SITE.

- 4. The Officer should be escorted around the site under the full-time supervision of the Site Manager or a suitable Icon representative.
- 5. Before the Officer leaves the site, the Site Manager should obtain a debriefing from the Officer to identify the findings of the inspection.

16.6 **COMMUNITY RELATIONS**

Where complaints are made by the community or other third parties directly to Icon or subcontractors directly under its control, these will be forwarded to the Project Manager, Site Manager and/or HSE Manager. The complaint will be recorded on HammerTech.

Refer: HT - Issues

16.7 TRAINING

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All personnel working on the site during the construction activities will receive a site induction to explain the relevant environmental and safety hazards, environmental and safety protocols, sensitivities and emergency procedures for the site. The content of the induction program will be specific to the project and endorsed by the Icon Site Manager responsible for the site and will be presented by the Site Manager or a delegated representative.

16.8 SITE ENVIRONMENTAL EMERGENCY MANAGEMENT

An environmental incident may include a spillage or major leak, failure of a pollution control device such as a bund, major settlement, collapse of a bank or embankment, impact to water quality, fire and/or impact to soil quality.

In an emergency all works will cease and the approved Emergency Response Plan will be activated.

Authority Emergency Contact Number					
EPA – VIC		1300 372 842			
EPA – NSW		131 555	if you are in NSW.		
		(02) 99	95 5555 if you are o	utside NSW	
EPA – A.C.T.		13 22 81			
Department of		Pollution Hotline 1300 130 372			
Environment ar	nd Heritage	ge			
Protection – QL	_D				
Department of		1300 76	52 982 (9am to 5pm	Monday to Friday. If	calling outside
Environment Re	egulation –	these h	ours, please contact	t Pollution Watch Ho	otline)
WA Pollution Watch Hotline 1300 784 782					
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EPA – SA	(08) 8204 2004
EPA – NT	Pollution Hotline 1800 064 567
EPA – TAS	Pollution Incidents and Complaints Hotline 1800 005 171
EPA - NZ	04 916 2426 (Wellington)

Refer: Emergency Management Plan

17.ACCESS TO LEGAL AND OTHER REQUIREMENTS

Activities at the site must conform with relevant Environment Protection Policies (SEPPs) and environmental regulations promulgated under relevant legislation.

Legal obligations have been reviewed and compiled to accord with the environmental aspects identified in section 6 - Environmental Aspects and Controls of this document.

Further information on legal and other obligations is available on the Environmental Essentials Pty Ltd website accessed via the company website.

17.1 FEDERAL ENVIRONMENTAL LEGISLATION

Environment Protection and Biodiversity Conservation Act 1999 Aboriginal and Torres Strait Islander Heritage Protection Act 1984 Australian Heritage Council Act 2003 National Environment Protection Council Act 1994 National Environment Protection Measures (Implementation) Act 1998 Natural Heritage Trust of Australia Act 1997

17.2 NEW SOUTH WALES

General Environmental Legislation	Protection of the Environment Operations Act 1997
Waste Minimisation / Material Recycling	Protection of the Environment Operations Act 1997, s 47-48, 142A-E, s 143 <u>Crown Lands Act 1989</u> , s 155 <u>Management of Waters and Waterside Lands</u> <u>Regulations – NSW</u> , cl 13 <u>Protection of the Environment Operations (Waste)</u> <u>Regulation 2005, cl 42, 48, 49, 22, 24</u>
Contaminated Waste Management	Protection of the Environment Operations Act 1997, s 47-48, 142A-E, 143 <u>Crown Lands Act 1989</u> , s 155 <u>Management of Waters and Waterside Lands</u> <u>Regulations – NSW</u> , cl 13 <u>Protection of the Environment Operations (Waste)</u> <u>Regulation 2005</u> , cl 49, 42, 43, 44-46, 48, 22, 24, 32-37 <u>Contaminated Land – Guidance</u> <u>Hazardous Waste – Guidance</u>
Storm water Retention and Silt Control	Protection of the Environment Operations Act 1997
Air Quality and Dust Control	Protection of the Environment Operations Act 1997, s 124-125, 126 Protection of the Environment Operations (Clean air) Regulations 2010 NTC Brochure: Load Restraint Guide 2004 Smoke-Free Environment Act 2000, s 6-10 Smoke-Free Environment Regulation 2007, 4-7 Public Health Act 1991, s 46 Air - Guidance

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Noise and Vibration Control	Protection of the Environment Operations Act 1997, s
	139, 140
	Protection of the Environment Operations (Noise
	Control) Regulation 2008
	Noise - Guidance
Hazardous and Flammable	Work Health and Safety Regulation 2011
Material Management	<u>Dangerous Goods - Guidance</u>
Equipment Emissions	Protection of the Environment Operations Act 1997, cl
	155, 124 -125

Useful links

Environment Protection Authority: <u>http://www.epa.nsw.gov.au</u> Office of Environment and Heritage: <u>http://www.environment.nsw.gov.au/</u>

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18.SSD CONDITIONS

18.1 SECTION B9

This plan must be made available onsite to all employee and subcontractors. All employees who engage in work on this site must be made aware of and will be instructed to comply with the conditions of this consent, relevant to activities they carry out in respect of the development.

A copy of this plan will be available in the Project Site Office and Icons Head Office.

18.2 SECTION B13 (A) DETAILS:

(i) Hours of Work

Construction may only be carried out between the following hours:

- Monday to Friday inclusive: Between 7am and 6pm
- Saturdays: Between 8am and 1pm

(ii) Site Manager Contact Details (24 Hour Contact) Fairvale – Perry Chisholm – 0409 814 117

(iii) Management of Dust & Odour

Refer to above sections:

- 15.6 Dust/Air Quality & Noise Management
- 15.15 Site Facilities Management
- 15.18 Traffic & Access Management

(iv) Stormwater Control & Discharge

Refer to above sections:

- 15.14 Sediment & Erosion Control
- 15.17 Stormwater Retention and Silt Control

Also refer to the "Fairvale High School ESM Plans 1-7"

(v) Measures to Ensure that sediment/materials are not tracked onto the roadway by vehicles leaving site

Refer to above sections:

- 15.7 Road Management
- 15.18 Traffic & Access Management

(vi) Groundwater Management Plan including Measures to Prevent Groundwater Contamination

Refer to above sections:

- 15.2 Hazardous Materials
- 15.3 Water & Soil Pollution Control
- 15.5 Dewatering
- 15.14 Sediment & Erosion Control
- 15.15 Site Facilities Management
- 15.17 Stormwater Retention and Silt Control

Also Refer to the "Fairvale High School ESM Plans 1-7"

(vii) External Lighting in Compliance with AS4282-1997 Refer to attached Design Statement from JN Consultants

(vii) Community Consultation and Complaints Handling Refer to Icon Communications Management Plan

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18.3 CONSTRUCTION TRAFFIC & PEDESTRIAN MANAGEMENT SUB-PLAN (CTPMSP) CONDITION B15

Refer to B15 Folder CTPMSP

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9th March 2020

Reference: 190250.03FA

ICON Level 2, 179 New South Head Rd Edgecliff, NSW, 2027 Attention: Nicholas Gannon

CONSTRUCTION TRAFFIC MANAGEMENT PLAN OF FAIRVALE HIGH SCHOOL AT 1 THORNEY ROAD, FAIRFIELD WEST NSW 2165

Dear Nicholas,

Reference is made to your request to prepare a Construction Traffic Management Plan (CTMP) for the proposed construction for the upgrade of Fairvale High School at 1 Thorney Road, Fairfield West NSW 2165.

1.1 Site Location

The site is located at 1 Thorney Road, Fairfield West as shown in **Figure 1** below, and is currently occupied by the existing Fairvale High School with all vehicular access provided via a private road which connects Zarlee Street and Thorney Road, a service vehicle entry from Thorney Road and a cul-de-sac from Tripoli Road. The site has one frontage to Thorney Road and is generally surrounded by low density residential dwellings in all directions, and Avery Park immediately to the west. The relevant characteristics of the surrounding road network servicing the site are provided below.

Cumberland Highway has the following existing characteristics within close proximity to the site:

- RMS Classified STATE Road (No. 13);
- Approximately 23m wide carriageway facilitating three traffic flow lanes in each direction separated by a 3.8m width median strip;
- Sign-posted 70km/h speed limit;
- Clearway zone applies between the hours of 6am-7pm on weekdays and 8am-8pm on weekends, "No Parking" at all other times.

Thorney Road has the following existing characteristics within close proximity to the site:

Unclassified LOCAL Road;



 Approximately 12m wide carriageway facilitating one traffic flow in each direction with parallel kerbside parking bays on both sides of the road;

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lane

- Sign-posted 50km/h speed limit, with speed restrictions to 40km/h during peak school periods;
- Provision for kerbside parking along both sides of the carriageway, with the exception of a bus zone near the south-western boundary of Fairvale High School.

Hamilton Road has the following existing characteristics within close proximity to the site:

- Unclassified LOCAL Collector Road;
- Approximately 12m wide carriageway facilitating one traffic flow lane in each direction with parallel kerbside parking bays on both sides of the road;
- Sign-posted 50km/h speed limit, with speed restrictions to 40km/h during peak school periods;
- "No Parking" and "No Stopping" zones along both sides of the road at all times.

Scarfe Street has the following existing characteristics within close proximity to the site:

- Unclassified LOCAL Road;
- Approximately 10m wide carriageway facilitating one traffic flow lane in each direction with parallel kerbside parking permitted on both sides of the road;
- Sign-posted 50km/h speed limit, with speed restrictions to 40km/h during peak school periods;
- Provision for kerbside parking along both sides of the carriageway.

Tripoli Road has the following existing characteristics within close proximity to the site:

- Unclassified LOCAL Road;
- Approximately 9m wide carriageway facilitating one traffic flow lane in each direction with parallel kerbside parking permitted on both sides of the road except for locations with double white (BB) lines;
- Sign-posted 50km/h speed limit, with speed restrictions to 40km/h during peak school periods;
- Provision for kerbside parking along both sides of the carriageway, except for at locations near double white (BB) lines.





Site Location

FIGURE 1: SITE LOCATION 1.2 Proposed Development

The proposed construction works will include the demolition of three (3) existing school buildings, the Bini Dome, removal of trees at Fairvale High School and construction of new school buildings, a sports field, games court and awnings over four stages. It should be noted that the existing school will continue to operate during all construction stages. Vehicular access to the school will be maintained along the northern site boundary, with access to the existing staff car park and cul-desac maintained via the existing private roadways. Vehicular access for construction vehicles into and out of the construction site will be provided via Thorney Road (south of the existing parent car park and via the existing services entry), and Tripoli Road.

The proposed construction works will be split up into four stages as described in **Table 1** below and shown in the site plans in **Annexure A**:

Stage	Construction Activities
Stage 1	Zone C: Structural Works Site Shed Occupation
Stage 2A	Zone C: Structural Works Zone B: Block K Demolition
Stage 2B	Zone B: Block K Structural and Fitout Works Zone A: Block J Demolition, Structural and Fitout Works
Stage 3	Block A: (Existing) Internal Strip Out Block G: Bini Dome Demolition and Fitout

TABLE 1: CONSTRUCTION STAGES



1.3 Duration of Construction

Construction is expected to occur over a total duration of approximately 14 months. The expected approximate durations of each task are as shown in **Table 2**.

Stage	Construction Activities	Total Duration
Stage 1	Zone C: Structural Works. Site Shed Occupation.	3 months (March 2020-June 2020)
Stage 2A	Zone C: Structural Works. Zone B: Block K Demolition and Structural Works.	11 months (April 2020-March 2021)
Stage 2B	Zone B: Block K Structural and Fitout Works. Zone A: Block J Demolition, Structural and Fitout Works.	12 months (May 2020-May 2021)
Stage 3	Block A: (Existing) Internal Strip Out. Block G: Bini Dome Demolition and Fitout. Demountable Building Demolition.	3 months (Feb 2021-May 2021)

TABLE 2: CONSTRUCTION PROGRAM

This timeframe and expected task durations are indicative only and can possibly change due to delays, weather and construction certification details.

1.4 Construction Hours of Work

The work associated with the construction of the development is expected to be carried out between the general hours of construction as shown below:

- Monday to Friday between the hours of 6:00am to 6:00pm;
- Saturday between the hours of 7:00am to 5:00pm;
- No work is to be carried out on Sundays or Public Holidays;

The enforcement of these hours of work is the responsibility of the site contractor and any other delegated authority. All sub-contractors and associated workmen are to follow the hours of work as instructed by the site contractor. Any works outside of the approved hours of work must be approved by Council prior to carrying out the work.

1.5 Construction Site Access

The indicative site layout plan is shown in **Annexure A**. Vehicular access to the site will be made <u>via</u> <u>three (3) separate access driveways listed below. When construction works are to be undertaken on</u> school days, all vehicular movements associated with the works shall be undertaken outside of the school zone hours (8am – 9:30am and 2:30pm – 4pm).

- Thorney Road Carpark Access (Stage 2B)
- Thorney Road existing service vehicle entry point (Stage 2A)
- Tripoli Road Entry (Stages 1, 2A and 3)

Vehicular access to Block K during Stage 2A will be provided via Thorney Road through the existing service vehicle entry point approximately 90m from the western boundary of the site. Construction vehicles can either enter the site either from the west or the east along Thorney Road. Entrance from the east requires the haulage route to go through residential streets, but access from the west



requires traffic controllers to stop all traffic on Thorney Road to allow a reverse manoeuvre into the site. The reverse entry path from the west also uses the bus zone areas on both sides of Thorney Road near the Stage 2A site entrance. Therefore, the site manager must ensure that these operations do not occur concurrently with busses arriving at either existing bus stop (Stop ID 2165123 and Stop ID 2165100). It is the responsibility of the Council to determine which access is more appropriate.

All vehicular access to the site during Stage 2B will be made via Thorney Road onto the private road on the south-western boundary of the site. Construction hoarding and fencing will be placed halfway along the private road and the southern side of the fencing will be for construction vehicle manoeuvring during Stage 2B. It is relevant to note that the staff car parking spaces within this area will be displaced. A turning area within the remaining staff parking area to the north of the construction site fencing must be provided to allow vehicles to turn around within the carpark and enter / exit the carpark via Mellick Street. Therefore, the private road shall act as a two-way carriageway. An approximate site plan of the displaced parking area is provided in **Annexure B** of this report. It is noted that when AV access is not required the construction site school parking when AV access is not required to the Stage 2B site. Staff parking is likely overflow into the local street network during Stage 2B, however, it is considered that there is sufficient on-street parking to accommodate this temporary measure.

Vehicular access to Zone C and Block G will be made via the private road on the north-eastern side of the site. Zone C access is required for Stage 1 and Stage 2A, and Block G is required for Construction Stage 3. Due to the bend on Tripoli Road, the largest vehicle that can access Zone C and Block G is an 8.8m length MRV.

It is important to note that there is no on-site provision of parent spaces or student spaces. The ARUP report shows that only 24% of students arrive to school in a private car, and 12% leave school in a private car. Private car pick-up and drop-off occurs within the on-street drop-off area on Thorney Road. Therefore, parent pick-up and drop-off procedures are unaffected by the construction and will continue to operate under the existing conditions.

All vehicular access to the site via the Stage 2B entrance from Thorney Road will be restricted to a 19m length Articulated Vehicle / Truck and Dog Combination with all unloading / loading and concrete pours undertaken wholly within the construction site. Vehicular access to Stage 2A from Thorney Road will be restricted to an 8.8m length MRV for forward entry or a 12.5m length HRV for reverse entry under the supervision of RMS Accredited Traffic Controllers. Vehicular access to the


Zone C and Block G via the north-eastern entrance will be restricted to an 8.8m length Medium Rigid Vehicle (MRV).

Swept paths have been undertaken and are reproduced in **Annexure C** for reference, showing a 19m length Articulated Vehicle (AV) and an 18.7m length Truck and Dog combination entering and exiting the south-western site driveway, an 8.8m length MRV entering Zone C and Block G, and 8.8m length MRVs and 12.5m length HRVs entering the Stage 2A Thorney Road entrance. All vehicular access into and out of the site will be restricted to forward entry / forward exit, except for potential reverse manoeuvres into the 2B Thorney Road site entry if needed, which will be undertaken under supervision of RMS Accredited Traffic Controllers on Thorney Road. It should be noted that any reverse manoeuvres required by construction vehicles to enter and exit

the site will be required to be undertaken with the assistance of a traffic controller. The preferred operation, which will be undertaken whenever possible, will be that vehicles enter and exit the site in a forward direction.

All construction vehicle movements are to be undertaken under the implementation of the Traffic Control Plans shown in **Annexure D**. Any damage to the existing kerbside or road due to construction movements into and out of the site will be repaired as a part of the dilapidation survey and bond. An appropriate "cattle grid shaker" or wash system is to be installed at the access driveways within the construction site fencing / hoarding to prevent spoil material being tracked off the site onto surrounding roadways.

1.6 Work Zones

No Works Zone is required as a part of this construction, it is expected that all loading / unloading of deliveries / materials will be undertaken wholly on-site.

All materials and equipment / machinery will be stored on-site with all deliveries to be coordinated by the Site Manager. The internal arrangement of concrete trucks and pumpers is to be controlled by the site contractor and any traffic controller, if and when required, to ensure all vehicles arrive and depart the site safety.

1.7 Construction Staff & Parking Requirements

It is expected that a peak of 16 construction staff will be on-site at any one time during construction, this will typically be during the fit outs and finishes stage, with a reduced number of staff during construction (approximately 12) and further reduced staff numbers during the demolition and excavation stage (9 staff). The contractor shall encourage and facilitate carpooling amongst construction staff as well as encouraging the use of public transport where possible to minimise private vehicle use. The site is in very close proximity to an existing bus stop located along the sites frontage providing access to Bus Route 802 provided by Transport NSW. Bus Route 802 provides access to Parramatta Train Station, Merrylands Train Station, Fairfield Train Station and Liverpool Station It is expected that a proportion of staff will travel to and from the site using public transport.

Further, staff parking on-site will be made available wholly within the construction fencing or within the existing staff carpark reducing any impact upon the surrounding on-street parking supply.

1.8 Construction Traffic

An estimate of the Construction traffic generated by the works is summarised in **Table 2** below.



Stage	Trucks	Truck Type
Demolition	20 x construction vehicles per day	19m length AV
Excavation	20 x Construction vehicle per day	18.7m length Truck and Dog Combination
Structure	3 x construction vehicle per day 1 x waste collection vehicles per day;	19m length AV
Fit outs and Finishes4 x construction vehicle per day 2 x waste collection vehicle per day;		HRV
Concrete Pours	urs Peak of 4 x concrete truck per hour per pour; MRV - HRV A total of 10 concrete pours.	

TABLE 3: CONSTRUCTION VEHICLE MOVEMENTS

The largest vehicle to access the site during construction will be a 19m length AV which will utilise the proposed Stage 2B construction gate access along Thorney Road. Any vehicles larger than a 19m length AV will be prohibited from travelling to the site. The largest vehicle to access Zone C or Block G is an 8.8m length MRV, and the largest vehicle to access the Stage 2A Thorney Road access is an 8.8m length MRV for forward entry, or a 12.5m length HRV for reverse entry under traffic control. Based upon a 10-hour operating day and the peak of 20 delivery vehicles per day during excavation to and from the site, four (4) construction vehicle movements (2 in, 2 out) within any one peak hour.

Staff peak traffic generation will generally occur early in the morning (7:00am) and finish in the afternoon from 3:00pm to 5:00pm.

The level of private vehicle traffic in conjunction with the heavy vehicle traffic specified in Table 3 above is not expected to have a significant or lasting adverse impact on the surrounding road network. Construction traffic will be easily managed by the site contractor who will coordinate all deliveries including concrete trucks. The anticipated truck movements should not give rise to an increase in delays within the existing road network, although minor delays may occur within Thorney Road when vehicles are entering / exiting the site, requiring following vehicles to slow, which is a typical operation of any driveway.

Temporary delays would occur on Thorney Road during Stage 2A if reverse entry is required into the site. Vehicles traveling along Thorney Road in both directions would be delayed for approximately 30 seconds whilst HRVs reverse into the site.

The TCP described in Section 1.11 and shown in Annexure D shall be implemented for the entire duration of construction to control both vehicle and pedestrian movements across the construction site access.

1.8.1 Cumulative Impacts Associated with Other Construction Activities

The site proposes to have multiple construction activities occurring at the same time throughout the site, with multiple construction vehicle access points. The traffic generation detailed above estimated a peak hour traffic generation of four (4) vehicle trips across the whole site (i.e. including all 3 of the vehicle connections) which corresponds to an additional trip on the local road network every 15 minutes. This level of traffic is well within daily fluctuations and will not adversely impact the local **Fairvale High School**



road network. Further, the site is located within close proximity to a State Road (Cumberland Highway) reducing any potential impact that additional construction traffic may have on the local road network as construction vehicles can easily filter onto Cumberland Highway.

1.9 Construction Vehicle Haulage

As mentioned in **Section 1.5**, vehicular access into the site will be made via the proposed construction gate off Thorney Road, the existing service vehicle entry off Thorney Road, and via Tripoli Road for Zone C and Block G works. Refer to **Annexure E** for a map of the haulage routes.

It is expected that construction vehicles up to 19m length Articulated Vehicles (AV) will travel to the Stage 2B Thorney Road site entrance along the Cumberland Highway from the south, turn right into Thorney Road and then turn left into the site driveway.

Rigid vehicles up to a 12.5m length HRV are able to approach the Stage 2B Thorney Road site entrance from both the north and the south along Cumberland Highway, turn right / left into Thorney Road, then left into the site driveway.

Vehicles up to the size of an HRV can travel to the Stage 2A site entrance from the Cumberland Highway, turn left / right onto Thorney Road, then reverse into the site driveway under the supervision of traffic controllers. This route requires traffic on Thorney Road to stop in all directions, causing an impact on traffic flows.

Vehicles up to 8.8m length MRVs can travel to the Stage 2A Thorney Road site entrance along the Cumberland Highway, turn left/right onto Hamilton Road, turn right onto the Boulevarde, turn right onto Kalora Avenue, turn right onto Maud Street, turn left onto Thorney Road and enter the site in a forward direction via a right turn. The Boulevarde and Kalora Avenue are residential streets with a 10T and 5T weight limit. Therefore, access via this route is only acceptable if there is no other alternative. It is the responsibility of Council to determine whether stopping all traffic on Thorney Road is an acceptable solution.

It is envisaged that all construction vehicles exiting the Stage 2A and Stage 2B site will forward out of the site driveway, turn right onto Thorney Road and turn left / right onto the Cumberland Highway.

Construction vehicles up to 8.8m length MRV's will travel to the Zone C and Block G entrance from Cumberland Highway (Palmerston Road), turn left / right onto Hamilton Road, turn right onto Scarfe Street, turn left onto Tripoli Road and enter Zone C or Block G in a forward direction.

During Stages 1, 2A and 3, construction vehicles up to 8.8m length MRV's will exit Zone C or Block G in a forward direction, exit the site onto Tripoli Road, turn right onto Scarfe Street, turn left onto Hamilton Road, and turn left / right onto Cumberland Highway (Palmerston Road).

These routes allow vehicles up to a 19m length AV access / egress the site to complete all loading / unloading of deliveries / material / concrete pours.

The relevant swept paths of the above construction routes are reproduced in **Annexure C** for reference.

1.10 Pedestrian Management

The site frontage along Thorney Road outside of the construction fencing is to be free of any waste, construction material or trip hazards associated with the development outside the use of the Fairvale High School Page 8 of 39



construction zone. Only authorised personnel are permitted on-site and must be inducted by the site manager/OH&S officer. Site fencing along the frontages should also be regularly inspected for potential trip hazards or encroachment onto the verge where pedestrians will walk.

An RMS Accredited Traffic Controller will be utilised during the implementation of the TCPs detailed in **Section 1.11** and is to monitor pedestrian traffic along the northern side of Thorney Road during the entry / egress of construction vehicles from the site.

The existing public verge on the northern side of Thorney Road is to remain open to all pedestrians at all time during construction. If necessary during construction, the site manager must install appropriate type A or type B hoarding to allow free access to pedestrians at all times.

The main pedestrian entrance to the existing school from Thorney Road will be maintained at all times throughout construction for students and staff. Staff will be provided a path for entrance from the remaining staff carpark near the north-western corner of the site.

1.11 Traffic Control Plans

A Traffic Control Plan (TCP) has been prepared in **Annexure D** and is to be implemented and erected by a suitably qualified contractor during truck movements into and out of both construction site accesses. The TCP is based on *Roads & Maritime Services (RMS) Traffic Control at Worksites* and AS1742.3:2009.

All truck movements at the Stage 2A and 2B Thorney Road access driveways shall be undertaken under the supervision of an RMS Accredited Traffic Controller when required, who will also be required to monitor pedestrian movements along the northern side of Thorney Road. The following are relevant to note with respect to the TCP:

- The Traffic Controller on Thorney Road is required to monitor pedestrian movements along the northern side of Thorney Road;
- The Existing School ground outside of construction areas is to remain operational at all times.

1.12 Resident/Parent/Staff/Stakeholder Consultation Process

Parents, staff and stakeholders of the school and surrounding residential area are required to be notified of the construction prior to the occupation of the site. Staff shall be notified of the displacement of staff parking spaces and provided with a map of alternative on-street parking locations within the surrounding local road network. Consultation should be provided using the following methods: Note – There will be no disruptions to traffic routes and direct notification of residents is not required.

- Publications on the school's website
- Posts on the school's noticeboard
- Email newsletter
- Letter box drop to surrounding properties

1.13 Driver Code of Conduct

As requested by the client, a Driver Code of Conduct (DCC) has been prepared by *M^cLaren Traffic Engineering* (MTE). It is noted that all construction vehicle drivers are to read and sign the DCC prior to conducting site deliveries or servicing.



All staff of the Fairvale High School construction project and any employees contracted to it, whether directly or indirectly, who engage in the movement of delivery trucks or motor vehicles on the site shall abide by the following code of conduct. All drivers of vehicles including employee and contractor truck drivers will be required to sign a register of inducted drivers confirming that they agree to the obligations, requirements and directions in regard to Driver's Code of Conduct. The signed drivers code of conduct register shall be kept on the premises at all times and be readily available upon request by authorised Council or RMS officers.

In the event that a statutory requirement overlaps the scope of this plan then the statutory requirements will take precedence. If there is a real or perceived difference between the statutory regulations and this document, then the contractor or staff member must first seek clarification from the proponent on the implementation of that action for which the difference is identified.

- a) Drivers to be appropriately licenced by RMS or another Australian state for the vehicle size and combination.
- b) Drivers will abide by the (NSW) Road Rules 2014 as amended at all times when travelling on public roads and within the site.
- c) It is prohibited to be under the influence of alcohol while operating a motor vehicle in accordance with the NSW Road Rules or as specified in contractual agreements for all employees. This specifically includes consumption by any worker who will operate machinery or a vehicle during their work period.
- d) It is prohibited to be under the influence of drugs, other than alcohol, while operating a motor vehicle in accordance with NSW Road Rules or as specified in contractual agreements for all employees. This includes illicit drugs and those which may directly or indirectly have an effect such as those accompanied by the warning of *"This medicine may cause drowsiness and may increase the effect of alcohol. If affected do not drive a motor vehicle or operate machinery"*.
- e) Contractors will specifically be required to abide by this code of conduct at all times while engaged in performing their duties during their work period. Failure of a contractor to comply with this code of conduct (without due cause) may result in reprimand or severance of employment by the land owner/proprietor in accordance with relevant government policies and contractual agreements for all employees. Failure of compliance will be recorded by construction staff.
- f) Drivers should adjust their driving speeds and turning movements during times of poor weather including rain, fog and wind. Drivers should also turn on headlights / fog lights during fog weather conditions.
- g) Drivers will comply with the direction of authorised staff when within the site.
- h) Drivers will follow the nominated vehicle movement routes referred to in this Construction Traffic Management Plan (CTMP) by M^cLaren Traffic Engineering, including movements limited by, prevailing traffic conditions, vehicle size and vehicle mass. Drivers are to obey temporary changes in travel routes as directed by regulatory signage or under the direction of Police or traffic controller at work sites and drive their vehicles in a compliant manner appropriate to the size of the vehicle and road conditions.
- i) When construction works are to be undertaken on school days, all vehicular movements associated with the works shall be undertaken outside of the school zone hours (8am – 9:30am and 2:30pm – 4pm).



1.13.1 Program to Manage Effectiveness of DCC

- The DCC should be routinely reviewed by the site manager. If any updates / changes are to be made this should be redistributed to all parties involved.
- The site manager's phone number should be provided to school officials to report any • noncompliances with the DCC.
- All drivers of vehicles including employee and contractor truck drivers will be required to sign a register of inducted drivers confirming that they agree to the obligations, requirements and directions in regard to Driver's Code of Conduct. The signed drivers code of conduct register shall be kept on the premises at all times and be readily available upon request by authorised Council or RMS officers.
- Failures of compliance with the DCC shall be record and made known to the site manager.
- The site manager is to routinely inspect vehicle entry to / exit from site to ensure that no construction vehicle queueing is occurring on-street.

1.14 Traffic Management Plan Checklist

Reference is made to the RMS (previously RTA) Procedures for Use in the Preparation of a Traffic Management Plan, version 2.0 December 2001. The following list addresses the required TMP details.

- A. Description or detailed plan of proposed measures Is the detailed plan of the proposed measures necessary? Yes
- B. Identification and assessment of impact of proposed measures Is a detailed assessment required?

No – The expected generated construction traffic is relatively low and is not expected to measurably increase expected delays or impacts on surrounding network performance.

- C. Measures to ameliorate the impact of re-assigned traffic *Is an assessment required?* No – The expected generated construction traffic is relatively low and is not expected to measurably increase expected delays or impacts on surrounding network performance.
- D. Assessment of public transport services affected *Is an assessment required?* No – There are no existing bus stops which will be affected by the proposed works. The required staff levels are also not expected to add loading above what the surrounding public transport network can cater for with its current services and frequency and as such, public transport will not be affected.
- E. Details of provision made for emergency vehicles, heavy vehicles, cyclists and pedestrians Are these details required? No – All emergency vehicle, heavy vehicle, cyclist and pedestrian movements will operate under existing conditions throughout construction.
- F. Assessment of effect on existing and future developments with transport implications in the vicinity of the proposed measures Is an assessment required? No – The Stage 2A site entrance is located near two existing bus stops (Stop ID 2165123 and ID 2165100). Reverse manoeuvres into the site use the bus zone areas for manoeuvring. It is relevant to note that reverse manoeuvres into the site may not be needed, as forward Fairvale High School



entry is possible. If reverse manoeuvres are required at the Stage 2A site entrance, they will be managed such that deliveries arrive outside of scheduled bus stop arrival times. This will be easily managed by the Site Manager, who shall have access to the bus schedules of existing routes which use these stops. The required staff levels are also not expected to add loading above what the surrounding public transport network can cater for with its current services and frequency and as such, public transport will not be affected.

G. Assessment of effect of proposed measures on traffic movements in adjoining Council areas *Is an assessment required?*

No – The expected generated construction traffic is relatively low and is not expected to measurably increase expected delays or impacts on surrounding network performance.

H. Public consultation process *Is a public consultation process required?* **No** – the current traffic flow conditions will remain unaltered and therefore no impact on existing traffic flows along local and arterial roads.

Please contact the undersigned should you require further information or assistance.

Yours faithfully M^cLaren Traffic Engineering

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Craig M^CLaren Director BE Civil, Grad Dip (Transport Engineering), MAITPM, MITE RPEQ 19457 RMS Accredited Level 3 Road Safety Auditor [1998] RMS Accredited Traffic Management Plan Designer [2018]



ANNEXURE A: SITE LAYOUT PLAN



(Sheet 1 of 1)





ANNEXURE B: STAGE 2B SITE PLAN

(SHEET 1 OF 1)





ANNEXURE : SWEPT PATH ANALYSIS (SHEET 1 OF 18)



AUSTRALIAN STANDARD MEDIUM RIGID VEHICLE (MRV)



AUSTRALIAN STANDARD HEAVY RIGID VEHICLE (HRV)

Blue – Tyre Path Green – Vehicle Body Red – 500mm Clearance

All tests performed at 5 km/h forwards and 2.5km/h reverse



: SWEPT PATH ANALYSIS (SHEET 2 OF 18)



18.7M LENGTH TRUCK AND DOG COMBINATION

Blue – Tyre Path Green – Vehicle Body Red – 500mm Clearance

All tests performed at 5 km/h forwards and 2.5km/h reverse



: SWEPT PATH ANALYSIS (SHEET 3 OF 18)



AV ENTRY / EXIT TO THORNEY ROAD FROM THE NORTH ALONG CUMBERLAND HIGHWAY Entry is Unsuccessful



AV ENTRY / EXIT TO THORNEY ROAD FROM THE SOUTH ALONG CUMBERLAND HIGHWAY

Successful Entry and Exit

AV Access shall be restricted to approach from the south along Cumberland Highway



: SWEPT PATH ANALYSIS (SHEET 4 OF 18)



HRV ENTRY / EXIT TO THORNEY ROAD FROM THE NORTH ALONG CUMBERLAND HIGHWAY



HRV ENTRY / EXIT TO THORNEY ROAD FROM THE SOUTH ALONG CUMBERLAND HIGHWAY

Successful

Note: This path is required during Stage 2B and potentially for Stage 2A if reverse manoeuvres are required, MRVs otherwise



: SWEPT PATH ANALYSIS (SHEET 5 OF 18)



TRUCK AND DOG ENTRY / EXIT TO THORNEY ROAD FROM THE NORTH ALONG CUMBERLAND HIGHWAY



TRUCK AND DOG ENTRY / EXIT TO THONEY ROAD FROM THE SOUTH ALONG CUMBERLAND HIGHWAY

Successful Note: Truck and Dog access to the site is only required during Stage 2B



: SWEPT PATH ANALYSIS (SHEET 6 OF 18)



AV ENTRANCE INTO SOUTH-WESTERN SITE ENTRANCE



AV EXIT FROM SOUTH-WESTERN SITE ENTRANCE

Successful

Note: This path is only required during Stages 2B



: SWEPT PATH ANALYSIS (SHEET 7 OF 18)



AV ENTRANCE INTO DELIVERY AREA



AV EXIT FROM DELIVERY AREA

Successful Note: This path is only required during Stages 2B

ANNEXURE C: SWEPT PATH ANALYSIS OF 18)



(SHEET 8



TRUCK AND DOG SITE ACCESS FROM SOUTH WESTERN SITE ACCESS

Successful

Note: Truck and Dog access to the site is only required during Stage 2B

C: SWEPT PATH ANALYSIS OF 18)



: SWEPT PATH ANALYSIS (SHEET 9 OF 18)



HRV ENTRY / EXIT TO HAMILTON ROAD FROM THE NORTH ALONG CUMBERLAND HIGHWAY



HRV ENTRY / EXIT TO HAMILTON ROAD FROM THE SOUTH ALONG CUMBERLAND HIGHWAY

Successful Note: This path is only required during Stages 1 and 2A







HRV LEFT TURN FROM SCARFE STREET ONTO HAMILTON ROAD

Successful Note: This path is only required during Stages 1 and 2A

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ANNEXURE : SWEPT PATH ANALYSIS (SHEET 11 OF 18)



MRV LEFT TURN FROM SCARFE STREET TO TRIPOLI ROAD

Successful

Note: This path is only required during Stages 1 and 2A

ANNEXURE C





(SHEET 12

MRV RIGHT TURN FROM TRIPOLI ROAD TO SCARFE STREET

Successful

Note: This path is only required during Stages 1 and 2A

ANNEXURE C: SWEPT PATH ANALYSIS OF 18)



: SWEPT PATH ANALYSIS (SHEET 13 OF 18)



HRV ENTRY / EXIT INTO ZONE C FROM INTERNAL PRIVATE ROAD

Successful

Note: This path is only required during Stages 1 and 2A



: SWEPT PATH ANALYSIS (SHEET 14 OF 18)



HRV ENTRY / EXIT INTO BLOCK G FROM INTERNAL PRIVATE ROAD

Successful



Note: This path is only required during Stages 3 : SWEPT PATH ANALYSIS



MRV RIGHT TURN FROM HAMILTON ROAD ONTO THE BOULEVARDE



MRV RIGHT TURN FROM THE BOULEVARDE ONTO KALORA ROAD

Successful



Note: This path is only required during Stage 2A for forward manoeuvres into the site : SWEPT PATH ANALYSIS (SHEET 16 OF 18)



MRV RIGHT TURN FROM THE KALORA AVENUE ONTO MAUD STREET



MRV RIGHT TURN FROM MAUD STREET ONTO THORNEY ROAD

Successful



Note: This path is only required during Stage 2A for forward manoeuvres into the site : SWEPT PATH ANALYSIS (SHEET 17 OF 18)



MRV RIGHT TURN FROM THE THORNEY ROAD INTO STAGE 2A SITE



MRV RIGHT TURN FROM STAGE 2A SITE ONTO THORNEY ROAD

Successful

Note: This path is only required during Stage 2A for forward manoeuvres into the site



: SWEPT PATH ANALYSIS (SHEET 18 OF 18)



HRV REVERSE ENTRY INTO STAGE 2A SITE FROM THORNEY ROAD



HRV RIGHT TURN FROM STAGE 2A SITE ONTO THORNEY ROAD

Successful

Note: This path is only required during Stage 2A for reverse manoeuvres into the site if required. The entry manoeuvre is required to be undertaken under the supervision of RMS Accredited Traffic Controllers on Thorney Road.



TRAFFIC CONTROL PLAN (SHEET 1 OF 3)



ANNEXURE D:



STAGES 1, 3 AND 2A VIA FORWARD ENTRY TRAFFIC CONTROL PLAN



(SHEET 2 OF 3)



STAGES 1, 3 AND 2A VIA REVERSE ENTRY



TRAFFIC CONTROL PLAN (SHEET 3 OF 3)



STAGES 1, 3 AND 2B





ANNEXURE E: HEAVY VEHICLE HAULAGE ROUTE (SHEET 1 OF 1)



It is expected that construction vehicles up to 19m length Articulated Vehicles (AV) will travel to the Stage 2B Thorney Road site entrance along the Cumberland Highway from the south, turn right into Thorney Road and then turn left into the site driveway.

Rigid vehicles up to a 12.5m length HRV are able to approach the Stage 2B Thorney Road site entrance from both the north and the south along Cumberland Highway, turn right / left into Thorney Road, then left into the site driveway.

Vehicles up to the size of an HRV can travel to the Stage 2A site entrance from the Cumberland Highway, turn left / right onto Thorney Road, then reverse into the site driveway under the supervision of traffic controllers. This route requires traffic on Thorney Road to stop in all directions, causing an impact on traffic flows.



Vehicles up to 8.8m length MRVs can travel to the Stage 2A Thorney Road site entrance along the Cumberland Highway, turn left/right onto Hamilton Road, turn right onto the Boulevarde, turn right onto Kalora Avenue, turn right onto Maud Street, turn left onto Thorney Road and enter the site in a forward direction via a right turn. The Boulevarde and Kalora Avenue are residential streets with a 10T and 5T weight limit. Therefore, access via this route is only acceptable if there is no other alternative. It is the responsibility of Council to determine whether stopping all traffic on Thorney Road is an acceptable solution.

It is envisaged that all construction vehicles exiting the Stage 2A and Stage 2B site will forward out of the site driveway, turn right onto Thorney Road and turn left / right onto the Cumberland Highway.

Construction vehicles up to 8.8m length MRV's will travel to the Zone C and Block G entrance from Cumberland Highway (Palmerston Road), turn left / right onto Hamilton Road, turn right onto Scarfe Street, turn left onto Tripoli Road and enter Zone C or Block G in a forward direction.

During Stages 1, 2A and 3, construction vehicles up to 8.8m length MRV's will exit Zone C or Block G in a forward direction, exit the site onto Tripoli Road, turn right onto Scarfe Street, turn left onto Hamilton Road, and turn left / right onto Cumberland Highway (Palmerston Road).

These routes allow vehicles up to a 19m length AV access / egress the site to complete all loading / unloading of deliveries / material / concrete pours.

The relevant swept paths of the above construction routes are reproduced in **Annexure C** for reference.

Stephen Santelmann

From:	Simon Cai <scai@fairfieldcity.nsw.gov.au></scai@fairfieldcity.nsw.gov.au>	
Sent:	Monday, 18 February 2019 5:43 PM	
То:	Stephen Santelmann	
Cc:	Philip Saverimuttu	
Subject:	Fairvale High School Construction Traffic Management Plan - 1 Thorney Road, Fairfield West	
Attachments:	Fairvale High School - Construction Traffic Management Plan comments and suggestions.docx	

Hi Stephen

Thank you for taking the time on Tuesday, 12 February 2019 to meet with me to discuss the subject construction traffic management plan (CTMP) for 1 Thorney Road, Fairfield West (Fairvale High School).

Please find attached a copy of the traffic comments/suggestions regarding the subject matter. Happy to discuss it further.

Kind Regards **Simon Cai** Professional Engineer | Traffic and Transport City Projects PO Box 21, Fairfield NSW 1860 P (02) 9725 0240 | F (02) 9609 3257



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Hi Stephen

Thank you for taking the time on Tuesday, 12 February 2019 to meet with me to discuss the subject construction traffic management plan (CTMP) for 1 Thorney Road, Fairfield West (Fairvale High School).

Please find below my traffic comments/suggestions regarding the key issues that were discussed at the meeting about the CTMP:

Stages	Construction Activities	Total Duration
Stage 1	Zone C: Structural works	4 months (Nov 2018 – Mar 2019)
_	Site shed occupation	
Stage 2A	Zone C: Structural works	12 months (Nov 2018 – Nov 2019)
_	Zone B: Block K Demolition	
Stage 2B	Zone B: Block K Structural and Fitout works	8 months (Mar 2019 – Nov 2019)
	Zone A: Block J Demolition, Structural and	
	fitout works	
Stage 3	Block A: (Existing) Internal strip out	4 months (Nov 2019 – Mar 2020)
_	Block G: Bini Dome demolition and Fitout	
Total		17 months (Nov 2018 – Mar 2020)

The scope of the works to be completed at various stages of the project:

Truck details & movements at various stages of the project, please confirm on the following:

Demolition	Vehicle/type	Frequency of the trucks attending the
stage		site
1	12.5m long vehicle (HRV)	10 trucks per day max. for 1 week
2A	19m long vehicle	20 trucks per day for 3 weeks
2B	19m long vehicle	10 trucks per day for 1 week
3	8.8m long vehicle (MRV)	10 trucks per day for 1 week

Construction stage	Vehicle/type	Frequency of the trucks attending the site
1 – 4 months	12.5m long vehicle (HRV)	3 trucks per day for 4 months
2A – 12	N/A	N/A
months		
2B – 11	N/A	N/A
months		
3 – 1 month	N/A	N/A

- Could you please confirm whether there will be construction vehicles to/from the school site during construction stages 2A, 2B and 3?
- For Stage 2A during demolition stage, considering that construction works will be carried out between 6am 8am, 9.30am 2.30pm, 4pm 6pm, Monday to Friday (outside the school zone hours), a total of 20 x 19m long trucks are expected to arrive/depart the site in 9 hours. This is equivalent to two trucks per hour. Further information shall be provided about the management of trucks on site.
- When construction works are to be undertaken on school days, all vehicular movements associated with the works shall be undertaken outside of the school zone hours (8am 9.30am and 2.30pm -4 pm).
- Further information shall be provided about how the impacts on the loss of on-site parking spaces which cater for staff and visitors of the school will be managed during various the stages of the project. Also, there will be increased demand for parking for construction workers (maximum of 16 workers).
- Stage 2B is expected to take approximately 12 months to complete. At what stage(s) will the temporary loss of on-site parking for staff and visitors be reinstated on-site? A site plan showing approximately the potential loss of on-site parking would be appreciated.
- Based on the safety of road users, RMS accredited traffic controllers shall be deployed at the site entrance/exit on Thorney Road to assist with the heavy vehicle movements. All traffic and pedestrian control shall be in accordance with the Roads and Maritime Services (RMS) Traffic Control at Work Sites manual.
- Local routes which are to be used by vehicles larger than 8.8 metres shall be amended and this information shall be provided to Council. According to Guide to Road Design Part 4: Intersections and Crossings – General (selection of design and checking vehicles and typical turning radii for intersection), Arterial/Local (residential) intersection is designed for truck of up to 12.5m long unless further justification is provided.

GUIDE TO ROAD DESIGN PART 4: INTERSECTIONS AND CROSSINGS - GENERAL

	Australia	
Intersecting road types	Typical Austroads standard vehicle for design	Typical Austroads standard vehicle for checking design
Arterial/Arterial	Single articulated (19.0 m) ¹ Radius 15 m	Appropriate restricted access vehicle e.g. B-double (25 m) ² Long single articulated (25 m) Road train ³ Radius 15 m
Arterial/Collector	Single unit truck/ bus (12.5 m) Radius 12.5 m	Single articulated (19.0m) Radius 15 m
Arterial/Local (residential)	Service vehicle (8.8 m) Radius 12.5 m	Single unit truck/ bus (12.5 m) Radius 12.5 m
Collector/Collector (industrial)	Single articulated (19.0 m) ¹ Radius 15 m	Single articulated (19.0 m) ¹ Radius 15 m
Collector/Collector (residential)	Single unit truck/ bus (12.5 m) Radius 12.5 m	Single articulated (19.0 m) ¹ Radius 15 m
Collector/Local (residential)	Service vehicle (8.8 m) Radius 9 m	Single unit truck/ bus (12.5 m) Radius 12.5 m
Local/Local (industrial) ⁴	Single articulated (19.0 m) ¹ Radius 12.5 m ⁵	Appropriate restricted access vehicle e.g. B-double (25 m) ² Long single articulated (25 m) Road train ³
Local/Local (residential)	Service vehicle (8.8 m) Radius 9 m	Single unit truck/ bus (12.5 m) Radius 12.5 m

Table 5.1: Selection of design and checking vehicles and typical turning radii in Australia

Notes:

1. Select the appropriate restricted access vehicle for the design of sites that are frequently used by such vehicles.

2. B-double length may vary between jurisdictions (e.g. 26 m in South Australia: 27.5 m in Western Australia).

- Based on the above table, a swept path diagram showing how the largest vehicle (19m long articulated vehicle) manoeuvring at the intersection of Cumberland Highway/Thorney Road as well as manoeuving into and out of the site at 1 Thorney Road, Fairfield West (Fairvale High School) in a forward direction shall be provided. As discussed, vehicles over 8.8m long shall use Cumberland Highway and Thorney Road based on safety reasons unless further justification is provided.
- The intersection of Hamilton Road/Scarfe Street is a signalised intersection. Currently, there are 'No Left Turn' restrictions to prohibit westbound vehicles longer than 9 metres from turning left from Hamilton Road into Scarfe Street.

- Swept path analysis undertaken by Council officers in accordance with Design Vehicle and Turning Path Template Guide Austroads shows that left turn manoeuvre undertaken by a 19m long vehicle from Cumberland Highway into Thorney Road is a tight turn.
- Swept path diagram showing how 8.8m long vehicle maneouvring into and out of the site in a forward direction via Tripoli Road and Scarfe Street shall be provided to Council.
- The Boulevarde and Kalora Avenue are currently signposted with 10-tonne and 5tonne load limit restrictions respectively. Also, based on safety (refer to Table 5.1 of Guide to Road Design Part 4: Intersections and Crossings – General) and the impacts on residential amenity, construction vehicles shall not use residential streets unless there is no alternative.
- Oversize vehicles (vehicles with 4.5 tonnes or more GVM or vehicles that, together with any load or projection which are 7.5 metres or longer) must not park on a road in a built-up area for longer than 1 hour under the NSW Road Rules.
- A dilapidation report shall be submitted to Council's City Assets Branch for assessment. Please contact Mr Arun Arunasalm on 9725 0222 should you have any further enquiries regarding this matter.
- Prior to the commencement of any site establishment, demolition, excavation or construction activities, the applicant shall advise the affected stakeholders including nearby residents of the works.
- Vehicular and pedestrian access to neighbouring properties shall be maintained at all times.
- The proposed construction works shall be referred to the local bus operator (Transit Systems) to determine whether any of the works would impact the operations of the bus zone (public transport services) on Thorney Road.
- Separate approval is required from the Fairfield Traffic Committee, NSW Police Force, Roads and Maritime Services of NSW, and Transit Systems (local bus operator) before any roads can be closed to through traffic.
- Separate approval is required from Fairfield Traffic Committee for the installation of a 'Construction/Works Zone'.
- Separate approval is required from Fairfield City Council for the use of any concrete pump, crane or hoist on a public space.
- All vehicles awaiting loading or unloading shall be parked on site and not on adjacent or nearby public roads.
- No illegal parking is permitted on-street.

Further suggestions

- Advance warning signs shall be installed to alert approaching traffic of the presence of possible truck movements and traffic controllers ahead.
- Warning signs shall be installed to warn pedestrians along the site frontage.
- RMS Traffic controllers who should have the following responsibilities during the construction of the project shall be deployed at/near the site frontage in Thorney Road:
 - to ensure the safety of pedestrian movements along Thorney Road site frontage so that no pedestrians enter the path of a heavy vehicle;
 - to control vehicle movements into and out of the site;
 - The traffic controllers shall wait for a safe gap in the passing traffic flows on Thorney Road before allowing the vehicle to exit the site; and
 - to control local traffic movements along Thorney Road when trucks are entering and/or exiting the site.

Stephen Santelmann

From:	Stephen Santelmann
Sent:	Friday, 15 March 2019 4:53 PM
То:	'Simon Cai'
Subject:	Fairvale High School Construction Traffic Management Plan - 1 Thorney Road, Fairfield West
Attachments:	18643.02FA - Letter of Response - February 2019.pdf

Good afternoon Simon,

Please find attached our response to queries raised in relation to the submitted CTMP on our Fairvale High School Project.

We await your review and assessment

On the matter of the Dilapidation Survey I can advise that it has been submitted and it's receipt acknowledged by Fairfield City Council.

Kind Regards,

Stephen Santelmann Project Manager Lahey Constructions

P 02 9509 3333 | M 0437 890 223 PO Box 219 | Suite 2.08, 55 Miller Street | Pyrmont NSW 2009

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21 February 2019

Reference: 18643.02FA

Lahey Constructions Level 2/55 Miller Street Pyrmont NSW 2009 Attention: Pino Martino

LETTER OF RESPONSE TO COUNCIL COMMENTS FOR FAIRVALE HIGH SCHOOL IMPROVEMENTS AT 1 THORNEY ROAD, FAIRFIELD WEST 2165

Dear Pino,

Reference is made to your request to provide a letter in response to the comments provided by Fairfield Council with regard to for the Fairvale High School Improvements at 1 Thorney Road, Fairfield West 2165. This letter is in response to Fairfield City Council's comments and should be read in conjunction with *M^cLaren Traffic Engineering*'s (MTE)'s Construction Traffic Management Plan (CTMP) dated 21st February 2019. The comments made by Council relevant to the CTMP are shown below (italised) with *MTE* response thereafter.

Council Comment #1: Could you please confirm whether there will be construction vehicles to/from the school site during construction stages 2A, 2B and 3?

MTE Response: Yes, there will be construction vehicles to/from the school site during construction stages 2A, 2B and 3. The following information can be found within the CTMP:

- the largest vehicle to access the Stage 2A Thorney Road access is an 8.8m length MRV for forward entry, or a 12.5m length HRV for reverse entry under traffic control (Section 1.8).
- Due to the bend on Tripoli Road onto Scarfe Street, the largest vehicle permitted to enter the Stage 2A Zone C access (at the northeast of the site) is an 8.8m length MRV (Sections 1.5 and 1.8).
- The largest vehicle to access the site during construction will be a 19m length AV which will utilise the proposed 2B construction gate access along Thorney Road (Section 1.8).
- Stage 3 requires MRV access around the Bini Dome near Block D. (Page 28).

The haulage routes for the above vehicle accesses are shown in **Annexure E** of the CTMP.

Council Comment #2: For Stage 2A during demolition stage, considering that construction works will be carried out between 6am – 8am, 9.30am – 2.30pm, 4pm



– 6pm, Monday to Friday (outside the school zone hours), a total of 20 x 19m long trucks are expected to arrive/depart the site in 9 hours. This is equivalent to two trucks per hour. Further information shall be provided about the management of trucks on site.

MTE Response: The largest vehicle proposed to enter and exit the site during Stage 2A is an 8.8m length MRV (or a 12.5m length HRV under traffic control). At no stage were 19m long trucks proposed to access the site during Stage 2A, contrary to Council's comment, and it is unclear from where this assertion is drawn.

Regarding site management, the CTMP states that "All materials and equipment / machinery will be stored on-site with all deliveries to be coordinated by the Site Manager." All deliveries and loading/unloading of material shall be completed before the next truck arrives. If there are vehicles on site which restrict the access/egress for arriving vehicles, the arriving vehicle shall not wait within the road reserve. The waiting vehicle would be required to circulate the road network on approved routes until the on-site delivery area is available. Again, the management of onsite deliveries shall be coordinated by the Site Manager."

Council Comment #3: When construction works are to be undertaken on school days, all vehicular movements associated with the works shall be undertaken outside of the school zone hours (8am - 9.30am and 2.30pm -4 pm).

MTE Response: This comment has been added throughout the updated CTMP.

Council Comment #4: Further information shall be provided about how the impacts on the loss of on-site parking spaces which cater for staff and visitors of the school will be managed during various the stages of the project. Also, there will be increased demand for parking for construction workers (maximum of 16 workers).

MTE Response: This information is provided in **Section 1.7** of the submitted CTMP and is reiterated within this response. The staff numbers are as follows:

- Demolition: 9 staff
- Excavation: 9 staff
- Structure: 12 staff
- Fitout: 16 staff

Staff parking currently occurs on Zarlee Street. Access into Zarlee Street is only required during Stage 2B, which occurs over 8 months from March 2019 to November 2019. During this stage, approximately half of the carpark will be fenced off for construction activities. During all other stages (9 months total), construction access is not required via Zarlee Street and only a very small portion of the parking area will be taken up by construction staff. Throughout construction, the only access into the Zarlee Street parking area is from the north.

The site provides good access to Bus Route 802, servicing Parramatta Train Station, Merrylands Train Station, Fairfield Train Station and Liverpool Train Station. It is the responsibility of the site manager to encourage car pooling and the use of public transport to reduce the impact upon the parking within the local area.

If the site manager reduces the vehicle traffic by 50% by public transport and carpooling, then that results in a worst case of five (5) displaced vehicles during demolition/excavation, six (6) during structure and eight (8) vehicles during fitout.

It is noted that there is no on-site provision of parent or student spaces. 24% of students arrive to school in a private car, and 12% leave school in a private car. It is highly likely that these students



are dropped off in the "*No Parking*" zone at the front of the site by design. Therefore, the displaced vehicles will be staff and infrequent, external visitor vehicles only.

Council Comment #5: Stage 2B is expected to take approximately 12 months to complete. At what stage(s) will the temporary loss of on-site parking for staff and visitors be reinstated on-site? A site plan showing approximately the potential loss of on-site parking would be appreciated.

MTE Response: Contrary to what Council have stated, Stage 2B will only take 8 months (March 2019 – November 2019). The on-site parking for staff and visitors will be reinstated immediately after all construction materials, machinery and fencing associated with Stage 2B are removed.

A site plan is provided in **Annexure A** to this response and also within the amended CTMP. It is noted that there is a significant reduction in construction site area when AV access to the site is not required. The builder should shift the site fencing to the south to allow for more on-site school parking when AV access is not required to the Stage 2B site.

Council Comment #6: Based on the safety of road users, RMS accredited traffic controllers shall be deployed at the site entrance/exit on Thorney Road to assist with the heavy vehicle movements. All traffic and pedestrian control shall be in accordance with the Roads and Maritime Services (RMS) Traffic Control at Work Sites manual.

MTE Response: The TCPs provided within the CTMP show that RMS accredited traffic controllers are deployed at both Stage 2A and Stage 2B site entrances on Thorney Road. For forward entry, only a single traffic controller is required in the verge to temporarily halt pedestrians and to guide the construction vehicle onto the site. For any reverse entry, two traffic controllers are required within Thorney Road to temporarily halt all vehicular traffic whilst the construction vehicle manoeuvres into the site.

Council Comment #7: Based on the above table (Table 5.1 of Austroads Guide to Road Design Part 4), a swept path diagram showing how the largest vehicle (19m long articulated vehicle) manoeuvring at the intersection of Cumberland Highway/Thorney Road as well as manoeuving into and out of the site at 1 Thorney Road, Fairfield West (Fairvale High School) in a forward direction shall be provided. As discussed, vehicles over 8.8m long shall use Cumberland Highway and Thorney Road based on safety reasons unless further justification is provided.

MTE Response: The AV swept paths are shown on **Page 19** and **Page 22** of the CTMP. No other vehicles larger than an 8.8m length MRV are proposed to use any roads besides Thorney Road and Cumberland Highway. Although HRV paths are shown performing various manoeuvres into the Stage 1, 2A and Stage 3 site, only 8.8m length MRVs are permitted to arrive to Stage 1, 2A and Stage 3 sites along Hamilton Road due to the bend on Tripoli Road as stated within the letter. It is logical to assume that if HRV paths are shown to be successful, then MRV paths will also be successful. In summary, the vehicles over 8.8m are not permitted to use any roadways other than Cumberland Highway and Thorney Road.

Council Comment #8: The intersection of Hamilton Road/Scarfe Street is a signalised intersection. Currently, there are 'No Left Turn' restrictions to prohibit westbound vehicles longer than 9 metres from turning left from Hamilton Road into Scarfe Street.

MTE Response: *MTE* does not propose that vehicles traveling west on Hamilton Road turn left into Scarfe Street, therefore this comment is irrelevant. The proposed haulage routes are shown in **Annexure E** of the CTMP.

Council Comment #9: Swept path analysis undertaken by Council officers in accordance with Design Vehicle and Turning Path Template Guide – Austroads



shows that left turn manoeuvre undertaken by a 19m long vehicle from Cumberland Highway into Thorney Road is a tight turn.

MTE Response: *MTE* agrees with Council's assessment. The CTMP states that the left turn from Cumberland Highway onto Thorney Road is unsuccessful, and that "19m length Articulated Vehicles (AV) will travel to the Stage 2B Thorney Road site entrance along the Cumberland Highway from the south, turn right into Thorney Road and then turn left into the site driveway." AV left turns are not proposed or permitted from Cumberland Highway onto Thorney Road.

Council Comment #10: Swept path diagram showing how 8.8m long vehicle maneouvring into and out of the site in a forward direction via Tripoli Road and Scarfe Street shall be provided to Council.

MTE Response: This swept path is provided on **Pages 27-29** of the CTMP. **Page 29** shows an HRV entering and exiting the site. As stated previously, it is logical to assume that if HRV paths are shown to be successful, then MRV paths will also be successful.

Council Comment #11: The Boulevarde and Kalora Avenue are currently signposted with 10-tonne and 5-tonne load limit restrictions respectively. Also, based on safety (refer to Table 5.1 of Guide to Road Design Part 4: Intersections and Crossings – General) and the impacts on residential amenity, construction vehicles shall not use residential streets unless there is no alternative.

MTE Response: The use of Kalora Avenue and The Boulevarde have been proposed for MRV access into the Stage 2A Thorney Road Site. This route allows MRVs to turn right into the site. Alternative access can be provided from the Thorney Road / Cumberland Highway intersection which avoids the residential streets. However, the forward entry into site via a left turn from Thorney Road is not possible due to existing structures within the driveway. Therefore, traffic controllers would be required to stop all traffic along Thorney Road temporarily whilst vehicles up to a 12.5m length HRV reverse into the site. Access from the residential streets has a lesser impact on traffic flows, but a greater impact on residential amenity. Access via a reverse manoeuvre has a greater impact on traffic flows and safety, but a lesser impact on residential amenity. It is the responsibility of Council to determine which access arrangement is more desirable.

Council Comment #12: Oversize vehicles (vehicles with 4.5 tonnes or more GVM or vehicles that, together with any load or projection which are 7.5 metres or longer) must not park on a road in a built-up area for longer than 1 hour under the NSW Road Rules.

MTE Response: The above comment is noted. No works zones are proposed as a part of the CTMP. All construction vehicles will stand within the site and not on any public roads. Therefore, the comment is irrelevant.

Council Comment #13: A dilapidation report shall be submitted to Council's City Assets Branch for assessment. Please contact Mr Arun Arunasalm on 9725 0222 should you have any further enquiries regarding this matter.

MTE Response: **Section 1.5** of the CTMP states that "any damage to the existing kerbside or road due to construction movements into and out of the site will be repaired as a part of the dilapidation survey and bond". It is the responsibility of the builder to ensure the dilapidation report is submitted to Council.

Council Comment #14: Prior to the commencement of any site establishment, demolition, excavation or construction activities, the applicant shall advise the affected stakeholders including nearby residents of the works.

MTE Response: This is addressed in Section 1.12 of the CTMP.

Council Comment #15: Vehicular and pedestrian access to neighbouring properties shall be maintained at all times.



MTE Response: The construction vehicle movements will not restrict any vehicular or pedestrian access to the neighbouring sites. All vehicles will stand within the site, no footpaths are closed and no driveways are blocked as a part of the CTMP.

Council Comment # 16: The proposed construction works shall be referred to the local bus operator (Transit Systems) to determine whether any of the works would impact the operations of the bus zone (public transport services) on Thorney Road.

MTE Response: This is the responsibility of the applicant. There are bus stops on both sides of Thorney Road on the frontage of the site. These will only be affected if Stage 2A access is not granted through the Boulevarde and Kalora Avenue, when traffic on Thorney Road is temporarily stopped to allow a reverse manoeuvre into the Stage 2A site.

Council Comment #17: Separate approval is required from the Fairfield Traffic Committee, NSW Police Force, Roads and Maritime Services of NSW, and Transit Systems (local bus operator) before any roads can be closed to through traffic.

Council Comment #18: Separate approval is required from Fairfield Traffic Committee for the installation of a 'Construction/Works Zone'.

MTE Response: No road closures or works zones are proposed as a part of this CTMP.

Council Comment #19: Separate approval is required from Fairfield City Council for the use of any concrete pump, crane or hoist on a public space.

MTE Response: Separate applications for such things are required from the applicant. It is expected that there is enough space on site for concrete trucks and concrete pump trucks to unload wholly within the site following the haulage routes proposed in the CTMP.

Council Comment #20: No illegal parking is permitted on-street'

MTE Response: All drivers, including construction staff, school staff and school visitors are required to follow NSW Road Rules for parking.

Council Comment #21: Advance warning signs shall be installed to alert approaching traffic of the presence of possible truck movements and traffic controllers ahead.

Warning signs shall be installed to warn pedestrians along the site frontage.

RMS Traffic controllers who should have the following responsibilities during the construction of the project shall be deployed at/near the site frontage in Thorney Road:

- to ensure the safety of pedestrian movements along Thorney Road site frontage so that no pedestrians enter the path of a heavy vehicle;
- o to control vehicle movements into and out of the site;
- The traffic controllers shall wait for a safe gap in the passing traffic flows on Thorney Road before allowing the vehicle to exit the site; and
- to control local traffic movements along Thorney Road when trucks are entering and/or exiting the site.

MTE Response: The TCPs in the CTMP show trucks turning signs (RMS Code W5-22(L)) at all site entrances and traffic controller signs (RMS Code T1-200-2*) where traffic controllers are present on the roadways in accordance with *AS1742.13:2009*. These signs will be visible to pedestrians walking along the frontage of the road. Additionally, there are traffic controllers at all the site entrances who will monitor pedestrian safety and control vehicle movements into and out of site.



21 February 2019

Reference: 18643.02FA

Lahey Constructions Level 2/55 Miller Street Pyrmont NSW 2009 Attention: Pino Martino

LETTER OF RESPONSE TO COUNCIL COMMENTS FOR FAIRVALE HIGH SCHOOL IMPROVEMENTS AT 1 THORNEY ROAD, FAIRFIELD WEST 2165

Dear Pino,

Reference is made to your request to provide a letter in response to the comments provided by Fairfield Council with regard to for the Fairvale High School Improvements at 1 Thorney Road, Fairfield West 2165. This letter is in response to Fairfield City Council's comments and should be read in conjunction with *M^cLaren Traffic Engineering*'s (MTE)'s Construction Traffic Management Plan (CTMP) dated 21st February 2019. The comments made by Council relevant to the CTMP are shown below (italised) with *MTE* response thereafter.

Council Comment #1: Could you please confirm whether there will be construction vehicles to/from the school site during construction stages 2A, 2B and 3?

MTE Response: Yes, there will be construction vehicles to/from the school site during construction stages 2A, 2B and 3. The following information can be found within the CTMP:

- the largest vehicle to access the Stage 2A Thorney Road access is an 8.8m length MRV for forward entry, or a 12.5m length HRV for reverse entry under traffic control (Section 1.8).
- Due to the bend on Tripoli Road onto Scarfe Street, the largest vehicle permitted to enter the Stage 2A Zone C access (at the northeast of the site) is an 8.8m length MRV (Sections 1.5 and 1.8).
- The largest vehicle to access the site during construction will be a 19m length AV which will utilise the proposed 2B construction gate access along Thorney Road (Section 1.8).
- Stage 3 requires MRV access around the Bini Dome near Block D. (Page 28).

The haulage routes for the above vehicle accesses are shown in **Annexure E** of the CTMP.

Council Comment #2: For Stage 2A during demolition stage, considering that construction works will be carried out between 6am – 8am, 9.30am – 2.30pm, 4pm



– 6pm, Monday to Friday (outside the school zone hours), a total of 20 x 19m long trucks are expected to arrive/depart the site in 9 hours. This is equivalent to two trucks per hour. Further information shall be provided about the management of trucks on site.

MTE Response: The largest vehicle proposed to enter and exit the site during Stage 2A is an 8.8m length MRV (or a 12.5m length HRV under traffic control). At no stage were 19m long trucks proposed to access the site during Stage 2A, contrary to Council's comment, and it is unclear from where this assertion is drawn.

Regarding site management, the CTMP states that "All materials and equipment / machinery will be stored on-site with all deliveries to be coordinated by the Site Manager." All deliveries and loading/unloading of material shall be completed before the next truck arrives. If there are vehicles on site which restrict the access/egress for arriving vehicles, the arriving vehicle shall not wait within the road reserve. The waiting vehicle would be required to circulate the road network on approved routes until the on-site delivery area is available. Again, the management of onsite deliveries shall be coordinated by the Site Manager."

Council Comment #3: When construction works are to be undertaken on school days, all vehicular movements associated with the works shall be undertaken outside of the school zone hours (8am - 9.30am and 2.30pm -4 pm).

MTE Response: This comment has been added throughout the updated CTMP.

Council Comment #4: Further information shall be provided about how the impacts on the loss of on-site parking spaces which cater for staff and visitors of the school will be managed during various the stages of the project. Also, there will be increased demand for parking for construction workers (maximum of 16 workers).

MTE Response: This information is provided in **Section 1.7** of the submitted CTMP and is reiterated within this response. The staff numbers are as follows:

- Demolition: 9 staff
- Excavation: 9 staff
- Structure: 12 staff
- Fitout: 16 staff

Staff parking currently occurs on Zarlee Street. Access into Zarlee Street is only required during Stage 2B, which occurs over 8 months from March 2019 to November 2019. During this stage, approximately half of the carpark will be fenced off for construction activities. During all other stages (9 months total), construction access is not required via Zarlee Street and only a very small portion of the parking area will be taken up by construction staff. Throughout construction, the only access into the Zarlee Street parking area is from the north.

The site provides good access to Bus Route 802, servicing Parramatta Train Station, Merrylands Train Station, Fairfield Train Station and Liverpool Train Station. It is the responsibility of the site manager to encourage car pooling and the use of public transport to reduce the impact upon the parking within the local area.

If the site manager reduces the vehicle traffic by 50% by public transport and carpooling, then that results in a worst case of five (5) displaced vehicles during demolition/excavation, six (6) during structure and eight (8) vehicles during fitout.

It is noted that there is no on-site provision of parent or student spaces. 24% of students arrive to school in a private car, and 12% leave school in a private car. It is highly likely that these students



are dropped off in the "*No Parking*" zone at the front of the site by design. Therefore, the displaced vehicles will be staff and infrequent, external visitor vehicles only.

Council Comment #5: Stage 2B is expected to take approximately 12 months to complete. At what stage(s) will the temporary loss of on-site parking for staff and visitors be reinstated on-site? A site plan showing approximately the potential loss of on-site parking would be appreciated.

MTE Response: Contrary to what Council have stated, Stage 2B will only take 8 months (March 2019 – November 2019). The on-site parking for staff and visitors will be reinstated immediately after all construction materials, machinery and fencing associated with Stage 2B are removed.

A site plan is provided in **Annexure A** to this response and also within the amended CTMP. It is noted that there is a significant reduction in construction site area when AV access to the site is not required. The builder should shift the site fencing to the south to allow for more on-site school parking when AV access is not required to the Stage 2B site.

Council Comment #6: Based on the safety of road users, RMS accredited traffic controllers shall be deployed at the site entrance/exit on Thorney Road to assist with the heavy vehicle movements. All traffic and pedestrian control shall be in accordance with the Roads and Maritime Services (RMS) Traffic Control at Work Sites manual.

MTE Response: The TCPs provided within the CTMP show that RMS accredited traffic controllers are deployed at both Stage 2A and Stage 2B site entrances on Thorney Road. For forward entry, only a single traffic controller is required in the verge to temporarily halt pedestrians and to guide the construction vehicle onto the site. For any reverse entry, two traffic controllers are required within Thorney Road to temporarily halt all vehicular traffic whilst the construction vehicle manoeuvres into the site.

Council Comment #7: Based on the above table (Table 5.1 of Austroads Guide to Road Design Part 4), a swept path diagram showing how the largest vehicle (19m long articulated vehicle) manoeuvring at the intersection of Cumberland Highway/Thorney Road as well as manoeuving into and out of the site at 1 Thorney Road, Fairfield West (Fairvale High School) in a forward direction shall be provided. As discussed, vehicles over 8.8m long shall use Cumberland Highway and Thorney Road based on safety reasons unless further justification is provided.

MTE Response: The AV swept paths are shown on **Page 19** and **Page 22** of the CTMP. No other vehicles larger than an 8.8m length MRV are proposed to use any roads besides Thorney Road and Cumberland Highway. Although HRV paths are shown performing various manoeuvres into the Stage 1, 2A and Stage 3 site, only 8.8m length MRVs are permitted to arrive to Stage 1, 2A and Stage 3 sites along Hamilton Road due to the bend on Tripoli Road as stated within the letter. It is logical to assume that if HRV paths are shown to be successful, then MRV paths will also be successful. In summary, the vehicles over 8.8m are not permitted to use any roadways other than Cumberland Highway and Thorney Road.

Council Comment #8: The intersection of Hamilton Road/Scarfe Street is a signalised intersection. Currently, there are 'No Left Turn' restrictions to prohibit westbound vehicles longer than 9 metres from turning left from Hamilton Road into Scarfe Street.

MTE Response: *MTE* does not propose that vehicles traveling west on Hamilton Road turn left into Scarfe Street, therefore this comment is irrelevant. The proposed haulage routes are shown in **Annexure E** of the CTMP.

Council Comment #9: Swept path analysis undertaken by Council officers in accordance with Design Vehicle and Turning Path Template Guide – Austroads



shows that left turn manoeuvre undertaken by a 19m long vehicle from Cumberland Highway into Thorney Road is a tight turn.

MTE Response: *MTE* agrees with Council's assessment. The CTMP states that the left turn from Cumberland Highway onto Thorney Road is unsuccessful, and that "19m length Articulated Vehicles (AV) will travel to the Stage 2B Thorney Road site entrance along the Cumberland Highway from the south, turn right into Thorney Road and then turn left into the site driveway." AV left turns are not proposed or permitted from Cumberland Highway onto Thorney Road.

Council Comment #10: Swept path diagram showing how 8.8m long vehicle maneouvring into and out of the site in a forward direction via Tripoli Road and Scarfe Street shall be provided to Council.

MTE Response: This swept path is provided on **Pages 27-29** of the CTMP. **Page 29** shows an HRV entering and exiting the site. As stated previously, it is logical to assume that if HRV paths are shown to be successful, then MRV paths will also be successful.

Council Comment #11: The Boulevarde and Kalora Avenue are currently signposted with 10-tonne and 5-tonne load limit restrictions respectively. Also, based on safety (refer to Table 5.1 of Guide to Road Design Part 4: Intersections and Crossings – General) and the impacts on residential amenity, construction vehicles shall not use residential streets unless there is no alternative.

MTE Response: The use of Kalora Avenue and The Boulevarde have been proposed for MRV access into the Stage 2A Thorney Road Site. This route allows MRVs to turn right into the site. Alternative access can be provided from the Thorney Road / Cumberland Highway intersection which avoids the residential streets. However, the forward entry into site via a left turn from Thorney Road is not possible due to existing structures within the driveway. Therefore, traffic controllers would be required to stop all traffic along Thorney Road temporarily whilst vehicles up to a 12.5m length HRV reverse into the site. Access from the residential streets has a lesser impact on traffic flows, but a greater impact on residential amenity. Access via a reverse manoeuvre has a greater impact on traffic flows and safety, but a lesser impact on residential amenity. It is the responsibility of Council to determine which access arrangement is more desirable.

Council Comment #12: Oversize vehicles (vehicles with 4.5 tonnes or more GVM or vehicles that, together with any load or projection which are 7.5 metres or longer) must not park on a road in a built-up area for longer than 1 hour under the NSW Road Rules.

MTE Response: The above comment is noted. No works zones are proposed as a part of the CTMP. All construction vehicles will stand within the site and not on any public roads. Therefore, the comment is irrelevant.

Council Comment #13: A dilapidation report shall be submitted to Council's City Assets Branch for assessment. Please contact Mr Arun Arunasalm on 9725 0222 should you have any further enquiries regarding this matter.

MTE Response: **Section 1.5** of the CTMP states that "any damage to the existing kerbside or road due to construction movements into and out of the site will be repaired as a part of the dilapidation survey and bond". It is the responsibility of the builder to ensure the dilapidation report is submitted to Council.

Council Comment #14: Prior to the commencement of any site establishment, demolition, excavation or construction activities, the applicant shall advise the affected stakeholders including nearby residents of the works.

MTE Response: This is addressed in Section 1.12 of the CTMP.

Council Comment #15: Vehicular and pedestrian access to neighbouring properties shall be maintained at all times.



MTE Response: The construction vehicle movements will not restrict any vehicular or pedestrian access to the neighbouring sites. All vehicles will stand within the site, no footpaths are closed and no driveways are blocked as a part of the CTMP.

Council Comment # 16: The proposed construction works shall be referred to the local bus operator (Transit Systems) to determine whether any of the works would impact the operations of the bus zone (public transport services) on Thorney Road.

MTE Response: This is the responsibility of the applicant. There are bus stops on both sides of Thorney Road on the frontage of the site. These will only be affected if Stage 2A access is not granted through the Boulevarde and Kalora Avenue, when traffic on Thorney Road is temporarily stopped to allow a reverse manoeuvre into the Stage 2A site.

Council Comment #17: Separate approval is required from the Fairfield Traffic Committee, NSW Police Force, Roads and Maritime Services of NSW, and Transit Systems (local bus operator) before any roads can be closed to through traffic.

Council Comment #18: Separate approval is required from Fairfield Traffic Committee for the installation of a 'Construction/Works Zone'.

MTE Response: No road closures or works zones are proposed as a part of this CTMP.

Council Comment #19: Separate approval is required from Fairfield City Council for the use of any concrete pump, crane or hoist on a public space.

MTE Response: Separate applications for such things are required from the applicant. It is expected that there is enough space on site for concrete trucks and concrete pump trucks to unload wholly within the site following the haulage routes proposed in the CTMP.

Council Comment #20: No illegal parking is permitted on-street'

MTE Response: All drivers, including construction staff, school staff and school visitors are required to follow NSW Road Rules for parking.

Council Comment #21: Advance warning signs shall be installed to alert approaching traffic of the presence of possible truck movements and traffic controllers ahead.

Warning signs shall be installed to warn pedestrians along the site frontage.

RMS Traffic controllers who should have the following responsibilities during the construction of the project shall be deployed at/near the site frontage in Thorney Road:

- to ensure the safety of pedestrian movements along Thorney Road site frontage so that no pedestrians enter the path of a heavy vehicle;
- o to control vehicle movements into and out of the site;
- The traffic controllers shall wait for a safe gap in the passing traffic flows on Thorney Road before allowing the vehicle to exit the site; and
- to control local traffic movements along Thorney Road when trucks are entering and/or exiting the site.

MTE Response: The TCPs in the CTMP show trucks turning signs (RMS Code W5-22(L)) at all site entrances and traffic controller signs (RMS Code T1-200-2*) where traffic controllers are present on the roadways in accordance with *AS1742.13:2009*. These signs will be visible to pedestrians walking along the frontage of the road. Additionally, there are traffic controllers at all the site entrances who will monitor pedestrian safety and control vehicle movements into and out of site.



– 6pm, Monday to Friday (outside the school zone hours), a total of 20 x 19m long trucks are expected to arrive/depart the site in 9 hours. This is equivalent to two trucks per hour. Further information shall be provided about the management of trucks on site.

MTE Response: The largest vehicle proposed to enter and exit the site during Stage 2A is an 8.8m length MRV (or a 12.5m length HRV under traffic control). At no stage were 19m long trucks proposed to access the site during Stage 2A, contrary to Council's comment, and it is unclear from where this assertion is drawn.

Regarding site management, the CTMP states that "All materials and equipment / machinery will be stored on-site with all deliveries to be coordinated by the Site Manager." All deliveries and loading/unloading of material shall be completed before the next truck arrives. If there are vehicles on site which restrict the access/egress for arriving vehicles, the arriving vehicle shall not wait within the road reserve. The waiting vehicle would be required to circulate the road network on approved routes until the on-site delivery area is available. Again, the management of onsite deliveries shall be coordinated by the Site Manager."

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MTE Response: This comment has been added throughout the updated CTMP.

Council Comment #4: Further information shall be provided about how the impacts on the loss of on-site parking spaces which cater for staff and visitors of the school will be managed during various the stages of the project. Also, there will be increased demand for parking for construction workers (maximum of 16 workers).

MTE Response: This information is provided in **Section 1.7** of the submitted CTMP and is reiterated within this response. The staff numbers are as follows:

- Demolition: 9 staff
- Excavation: 9 staff
- Structure: 12 staff
- Fitout: 16 staff

Staff parking currently occurs on Zarlee Street. Access into Zarlee Street is only required during Stage 2B, which occurs over 8 months from March 2019 to November 2019. During this stage, approximately half of the carpark will be fenced off for construction activities. During all other stages (9 months total), construction access is not required via Zarlee Street and only a very small portion of the parking area will be taken up by construction staff. Throughout construction, the only access into the Zarlee Street parking area is from the north.

The site provides good access to Bus Route 802, servicing Parramatta Train Station, Merrylands Train Station, Fairfield Train Station and Liverpool Train Station. It is the responsibility of the site manager to encourage car pooling and the use of public transport to reduce the impact upon the parking within the local area.

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It is noted that there is no on-site provision of parent or student spaces. 24% of students arrive to school in a private car, and 12% leave school in a private car. It is highly likely that these students



are dropped off in the "*No Parking*" zone at the front of the site by design. Therefore, the displaced vehicles will be staff and infrequent, external visitor vehicles only.

Council Comment #5: Stage 2B is expected to take approximately 12 months to complete. At what stage(s) will the temporary loss of on-site parking for staff and visitors be reinstated on-site? A site plan showing approximately the potential loss of on-site parking would be appreciated.

MTE Response: Contrary to what Council have stated, Stage 2B will only take 8 months (March 2019 – November 2019). The on-site parking for staff and visitors will be reinstated immediately after all construction materials, machinery and fencing associated with Stage 2B are removed.

A site plan is provided in **Annexure A** to this response and also within the amended CTMP. It is noted that there is a significant reduction in construction site area when AV access to the site is not required. The builder should shift the site fencing to the south to allow for more on-site school parking when AV access is not required to the Stage 2B site.

Council Comment #6: Based on the safety of road users, RMS accredited traffic controllers shall be deployed at the site entrance/exit on Thorney Road to assist with the heavy vehicle movements. All traffic and pedestrian control shall be in accordance with the Roads and Maritime Services (RMS) Traffic Control at Work Sites manual.

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MTE Response: The above comment is noted. No works zones are proposed as a part of the CTMP. All construction vehicles will stand within the site and not on any public roads. Therefore, the comment is irrelevant.

Council Comment #13: A dilapidation report shall be submitted to Council's City Assets Branch for assessment. Please contact Mr Arun Arunasalm on 9725 0222 should you have any further enquiries regarding this matter.

MTE Response: **Section 1.5** of the CTMP states that "any damage to the existing kerbside or road due to construction movements into and out of the site will be repaired as a part of the dilapidation survey and bond". It is the responsibility of the builder to ensure the dilapidation report is submitted to Council.

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MTE Response: This is addressed in Section 1.12 of the CTMP.

Council Comment #15: Vehicular and pedestrian access to neighbouring properties shall be maintained at all times.



MTE Response: The construction vehicle movements will not restrict any vehicular or pedestrian access to the neighbouring sites. All vehicles will stand within the site, no footpaths are closed and no driveways are blocked as a part of the CTMP.

Council Comment # 16: The proposed construction works shall be referred to the local bus operator (Transit Systems) to determine whether any of the works would impact the operations of the bus zone (public transport services) on Thorney Road.

MTE Response: This is the responsibility of the applicant. There are bus stops on both sides of Thorney Road on the frontage of the site. These will only be affected if Stage 2A access is not granted through the Boulevarde and Kalora Avenue, when traffic on Thorney Road is temporarily stopped to allow a reverse manoeuvre into the Stage 2A site.

Council Comment #17: Separate approval is required from the Fairfield Traffic Committee, NSW Police Force, Roads and Maritime Services of NSW, and Transit Systems (local bus operator) before any roads can be closed to through traffic.

Council Comment #18: Separate approval is required from Fairfield Traffic Committee for the installation of a 'Construction/Works Zone'.

MTE Response: No road closures or works zones are proposed as a part of this CTMP.

Council Comment #19: Separate approval is required from Fairfield City Council for the use of any concrete pump, crane or hoist on a public space.

MTE Response: Separate applications for such things are required from the applicant. It is expected that there is enough space on site for concrete trucks and concrete pump trucks to unload wholly within the site following the haulage routes proposed in the CTMP.

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MTE Response: All drivers, including construction staff, school staff and school visitors are required to follow NSW Road Rules for parking.

Council Comment #21: Advance warning signs shall be installed to alert approaching traffic of the presence of possible truck movements and traffic controllers ahead.

Warning signs shall be installed to warn pedestrians along the site frontage.

RMS Traffic controllers who should have the following responsibilities during the construction of the project shall be deployed at/near the site frontage in Thorney Road:

- to ensure the safety of pedestrian movements along Thorney Road site frontage so that no pedestrians enter the path of a heavy vehicle;
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- The traffic controllers shall wait for a safe gap in the passing traffic flows on Thorney Road before allowing the vehicle to exit the site; and
- to control local traffic movements along Thorney Road when trucks are entering and/or exiting the site.

MTE Response: The TCPs in the CTMP show trucks turning signs (RMS Code W5-22(L)) at all site entrances and traffic controller signs (RMS Code T1-200-2*) where traffic controllers are present on the roadways in accordance with *AS1742.13:2009*. These signs will be visible to pedestrians walking along the frontage of the road. Additionally, there are traffic controllers at all the site entrances who will monitor pedestrian safety and control vehicle movements into and out of site.



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MTE Response: This is the responsibility of the applicant. There are bus stops on both sides of Thorney Road on the frontage of the site. These will only be affected if Stage 2A access is not granted through the Boulevarde and Kalora Avenue, when traffic on Thorney Road is temporarily stopped to allow a reverse manoeuvre into the Stage 2A site.

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MTE Response: The TCPs in the CTMP show trucks turning signs (RMS Code W5-22(L)) at all site entrances and traffic controller signs (RMS Code T1-200-2*) where traffic controllers are present on the roadways in accordance with *AS1742.13:2009*. These signs will be visible to pedestrians walking along the frontage of the road. Additionally, there are traffic controllers at all the site entrances who will monitor pedestrian safety and control vehicle movements into and out of site.



Please contact Mr Daniel Fonken or the undersigned on 8355 2440 should you require further information or assistance.

Yours faithfully M^cLaren Traffic Engineering

hu to

Craig M^CLaren Director BE Civil, Grad Dip (Transport Engineering), MAITPM, MITE RPEQ 19457 RMS Accredited Level 3 Road Safety Auditor [1998] RMS Accredited Traffic Management Plan Designer [2018]

ANNEXURE A: CONCEPT SITE PLAN





18.4 CONSTRUCITON NOISE & VIBRATION MANAGEMENT SUB-PLAN (CNVMSP) CONDITION B16

Refer to B16 Folder CNVMSP

The CNVMP was developed post the completion of the Johnstaff Consultation and Engagement Report with the local community. During this consultation period, no issues or strategies were identified and could not be elaborated on. Therefore, refer to the following sections for measures and strategies will be implemented:

- 1. Section 7.0 Recommended mitigation measures and work practices of Cundall CNVMSP
- 2. Section 15.6 of Construction Environmental Management Plan p19.

In conjunction with the implementation of the strategies listed above, ICON have a community complaint handling procedure which is highlighted below and in section 16.6 of the Construction Environmental Management Plan.

<u>Complaints:</u>

All relevant authorities, residents, businesses and others affected by project works will be informed of the project activity and timeframes.

In the event of interference with resident accesses, shop access, pedestrian thoroughfares or other matters, the project manager shall ensure that affected members of the public are so advised through, door knocks and/or letterbox drops or media announcements as appropriate.

Enquiries about the works from external parties are recorded on the Communications and Complaints Register.

Any complaints concerning any aspect of the project are registered, investigated and recorded detailing the nature of the complaint, the complainant and actions taken as a result of the compliant. It cross references any Nonconformance reports or other relevant documentation.

The Project Manager ensures that any complaint received is investigated promptly and that appropriate action is taken.

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Fairvale High School

Construction Noise and Vibration Management Sub-Plan

lcon

Job No:	1020706
Doc Ref:	1020706-AS-RPT-01 Fairvale CNVMP
Revision	Α
Revision Date:	30 Jan 2020

Project title	Fairvale High School	Job Number
Report title	Construction Noise and Vibration Management Sub-Plan	1020706

Document Revision History

Revision Ref	Issue Date	Purpose of issue / description of revision
А	30 Jan 2020	Issue for SSD Approval

Document Validation (latest issue)

17/05/2019

Х U. S Principal author

Signed by: Saralertsophon, Monica B.Mus (Comp) M.DesSc (Audio & acoustics) Member of Australian Acoustical Society (AAS) 17/05/2019

P.6A Х Checked by

Signed by: Saralertsophon, Monica B.App.Sc. (Physics) Member Institute of Acoustics (IOA) Member Victorian Planning and Environmental Law Association (VPELA)

17/05/2019

Verified by

Signed by: Saralertsophon, Monica

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1.0

Introduction

Document Ref.

1.0 Introduction

Cundall has been engaged by Icon Constructions to prepare a Construction Noise and Vibration Management Sub-Plan (CNVMSP, the Plan) for the proposed development at Fairvale High School, Fairfield West NSW.

This CNVMSP forms part of the Construction Environmental Management Plan to address the requirements in relation to construction noise and vibration management (Conditions B13(c) and B16.) requested by the NSW Department of Planning and Environment prior to issue of the Construction Certificate.

An explanation of common acoustic terminology used in this report is provided in Appendix A.

1.1 CNVMSP Objectives

The objectives of this CNVMSP are as follows:

- + Meet the requirements of the project approval (Development Consent Application No. SSD 8677)
- + Manage all construction related activities to minimise the noise and vibration impact to an acceptable level.
- + Limit and reduce noise or vibration impacts at sensitive receivers or affect building integrity.

1

- + Work to a target of not receiving any noise complaints.
- + Ensure all noise mitigation infrastructure is maintained and effective.





Description of the existing environment

2.0 Description of the existing environment

2.1 Project site and surrounds

The Fairvale Highschool was established in 1969 and, in addition to more traditional academic, sporting and vocational facilities, currently includes a multi-purpose Performing Arts and Creative Arts centre, and Hospitality kitchen.

The adjacent roads generally serve local traffic only, however the A28 is a major route connecting to the M4 further to the north (approx. 7 km) and the M5 to the south (approx. 7 km).

The site and the immediate surrounds, along with Cundall's noise monitoring locations are presented in Figure 1



Figure 1 Site location and surrounds

2.2 Measured background noise levels

Detail of the noise monitoring procedures and processes are outlined within *Acoustic Report for DA submission* 1015558

– Fairvale High School Revision E, prepared by Cundall dated 20 December 2017. The logger locations were considered appropriate to represent the noise climate at adjacent noise sensitive properties A brief description of the three noise monitoring locations is presented in Table 1.

Table 1 Description of noise monitoring location

Monitoring location	Description
NM01	South-west: set back from Thorney Road so as to be representative of noise levels on the most exposed façade of the proposed new three-storey development, and characteristic of the background noise levels at the nearest adjacent residential properties on the opposite side of Thorney Road (set back at a similar distance as the measurement location)
NM02	North: at the northern site boundary to determine prevailing noise levels affecting the rear of dwellings on Mellick Street
NM03	East: at the eastern site boundary to determine prevailing noise levels affecting the rear of dwellings on Maud Street

The average measured background noise levels are summarised in Table 2.

Monitoring location	Average measured background noise level (dB, LA90)			
	Daytime (0700 – 1800 hrs)	Evening (1800- 2200 hrs)	Night-time (2200 – 0700 hrs)	
NM01	48	42	41	
NM02	48	39	40	
NM03	40	34	36	

Table 2 Measured background noise levels (Cundall Acoustic DA report, 2017)

2.3 Sensitive receivers

The immediate vicinity of the Highschool is residential in nature, with dwellings located immediately adjacent to the north and east school boundary (Mellick Street and Maud Street properties, respectively) and south (across Thorney Road). Land to the west of the school site is Avery Park and beyond this lies the Cumberland Highway (A28), approximately 200 m from the western site boundary.

For assessment purposes, the Project area has been divided into four Noise Catchment Areas (NCAs). The NCAs have been used to represent the different noise environments in area of the Project.

A summary of the identified sensitive receivers is presented in Table 3.

Table 3	Identified sensitive receivers

NCA	Noise logger reference	Receiver Type	Address / Description	Approximate Horizontal Distance from nearest construction footprint (m) ¹	
NCA01	NM01	Residential	Residential receivers to the south separated by Thorney Road	28	
NCA02	NM02	Residential	Residential receivers to the north bounded by project site boundary, Zarlee Street, Mellick Street and Tripoli Road	13	
NCA03	NM03	Residential	Residential receivers to the east bounded by project site boundary and Maud Street	5	
NCA04	-	Existing school buildings	Fairevale Highschool	<1	
		Active recreational area	Avery Park	25	



Note 1: Approximate minimum horizontal distance to nearest receiver boundary (receiver of any type), where the horizontal distance is measured from the boundary to the near point of the Project footprint.



Figure 2 Sensitive receiver and Noise Catchment Area

Typical operating periods corresponding to the identified sensitive receivers above have been assumed at this stage of the Plan and are outlined in Table 4. The actual operating time are to be confirmed with the receivers prior to construction and the Plan to be updated correspondingly.

Receiver Type	Operating time
Residential	24 hours
Education Institutions	7:00 am to 4:00 pm ¹
Active recreational area	7:00 am to 6:00 pm ¹

 Table 4
 Sensitive Receivers – Assumed typical operating hours

Note 1: Assumed operating hours. To be confirmed with the relevant operator prior to construction.



3.0

Proposed construction activities

Document Ref. 1020706-AS-RPT-01 Fairvale CNVMP 6

3.0 Proposed construction activities

Upgrade works to Fairvale High School. The purpose of the works is to upgrade the current school to have capacity for 1,560 students and replace some of the existing demountables on the site with permanent facilities. The proposed construction works for the project are outlined in Table 5.

Staging plans are included in

Table 5 Proposed construction works

Proposed works	Applicable stage	Description of works	Assumed plant equipment ¹
Construction of New Cola and relocation of existing shade structure	 Stage 1 and Stage 2A 	 Clear and strip site Cut and fill excavation works Steel framed structure with metal cladding Erection with mobile cranes and elevated work platforms New slabs on ground Drainage works Electrical works 	Concrete agitator Concrete truck Concrete saw Excavator (tracked) 35t Mobile crane Hand tools/ Power tools Scissor Lift Truck – road truck Concrete pump Roller equipment
Demolition of Block C and removal of existing structures, paving, landscaping and nominated trees to enable construction of the Works.	✦ Stage 2A	 Clear and strip site Hand and mechanical demolition using hydraulic shears and breakers Materials removed from site with truck and dog 	Dump truck Excavator (tracked) 35t Front end loader 23t Hand tools/ Power tools Truck – road truck Skid steer
Construction of a new three storey home base block including ancillary spaces, toilets and associated facilities	 Stage 2A and Stage 2B 	 Mechanical excavation of footing systems and slab preparation Vertical material handling via mobile crane, builders hoist, tower crane, Manitou and hiab trucks Concrete placement by pump Building structure concrete frame with facades of masonry and cladding 	Excavator (tracked) 35t Forklift Front end loader 23t Hiab trucks Mobile crane/Tower crane Concrete pump Concrete trucks Skid steer
Construction of a new Hall including ancillary spaces, canteen, toilets and associated facilities	✦ Stage 2B	 Mechanical excavation of footing systems and slab preparation Vertical material handling via mobile crane, builders hoist, tower crane, Manitou and hiab trucks Concrete placement by pump Building structure concrete frame with facades of masonry and cladding 	Bulldozer D9 Concrete agitator Concrete truck Excavator (tracked) 35t Front end loader 23t Hand tools Mobile crane
Proposed works	Applicable stage	Description of works	Assumed plant equipment ¹



Refurbishment of Block A including ancillary spaces and associated facilities	+ Stage 3	 Manitou and hiab trucks Limited hand demolition works 	Forklift Hand tools/Power tools Hiab trucks Truck – road truck
Construction of external works, landscaping, site works, infrastructure	 Stage 2a and Stage 2b 	 Mechanical excavation of footing systems and slab preparation Vertical material handling via mobile crane, builders hoist, Manitou and hiab trucks Concrete placement by pump 	Concrete agitator Concrete truck Excavator (tracked) 28t Excavator 28t + hydraulic hammer Front end loader 23t Hand tools/Power tools Concrete pump Roller equipment
Demolition of Bini Shell Building	+ Stage 3	 Clear and strip site Hand and mechanical demolition using hydraulic shears and breakers Materials removed from site with truck and dog 	Excavator (tracked) 35t Excavator 35t + hydraulic hammer Front end loader 23t Truck – road truck

Note 1: Construction equipment adopted from similar construction activates provided within Table F1 of Roads and Maritime Services Construction Noise and Vibration Guideline (2016).

3.1.1 Program and staging

We understand that the construction staging and proposed programme are as follows:

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- + Stage 1: Zone C Jan 2020 to May 2020
- + Stage 2: Zone B Feb 2020 to Feb 2021
- + Stage 3: Zone A Mandatory Alternative (removed from Scope)
- + Stage 4: Refurbishment Dec 2020 to May 2021

The site establishment plan and staging layouts are presented in Figure 3.

CUNDALL



Figure 3 Proposed site plan (JDH Architects, drawing number A-005 Rev 3, dated 14 Jan 2019



4.0

Construction noise and vibration requirements

4.0 Construction noise and vibration requirements

4.1 Legislative and Other requirements

4.1.1 Relevant Legislation and Guidelines

In preparation of this report, the review of construction noise and vibration impacts has been carried out with in accordance with the following guideline:

- Development Consent document number SSD 8677 dated 31 January 2019 (NSW Department of Planning and Environment)
- + NSW Interim Construction Noise Guideline (ICNG) (EPA, 2009)
- + NSW Road Noise Policy (RNP) (EPA, 2011)

Guidelines and standards relating to the management of noise and vibration during construction include:

- Australian / New Zealand Standard AS/NZS 2107:2016 Recommended Design Sound Levels and Reverberation Times for Building Interiors (Standards Australia, 2016)
- + Australian Standard AS 1055.1-1997 Acoustics Description and Measurement of Environmental Noise General Procedures (Standards Australia, 1997)
- German Standard DIN 4150: Part 3 1999 Structural Vibration Effects of Vibration on Structures (German Institute of Standardisation, 1999)
- British Standard BS 7385 Part 2. Evaluation and measurement for vibration in buildings Part 2 (British Standards Institution, 1993)
- + Environmental Noise Management Assessing Vibration: a technical guideline (EPA, 2006)
- Australian Standard AS2436 Guide to noise and vibration control on construction, demolition and maintenance sites
- + UK's Department of Environment, Food and Rural Affairs *Noise Database for Prediction of Noise on Construction and Open Sites* (DEFRA, 2006)
- + Transport for NSW Construction Noise Strategy (CNS) (TfNSW 2012),
- + Roads and Maritime's Construction Noise and Vibration Guideline (CNVG) (Roads and Maritime, 2016)
- British Standard BS 5228-2:2009 Code of practice for noise and vibration control on construction and open sites

4.2 Licence and Permit Requirements

4.2.1 Development consent SSD 8677

The management of potential construction noise and vibration impact from the proposed development is govern by the Development Consent document number SSD 8677 dated 31 January 2019 issued by NSW Department of Planning and Environment. The relevant conditions relating to construction noise and vibration are outlined in Appendix B for reference.

The following compliance table identifies where this Plan addresses the relevant requirements in the Conditions of Approval outlined within the SSD 8677 for CNVMSP are presented Table 6.

Table 6Compliance matrix

Reference ID	SSD 8677 requirement	Cross-reference
B16.	The Construction Noise and Vibration Management Sub- Plan (CNVMSP) must address but not be limited to the, the following:	This plan


B16. (a)	Be prepared by a suitably qualified an experienced noise expert;	Document variation section
Reference ID	SSD 8677 requirement	Cross-reference
B16. (b)	Describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);	Section 7.0
B16. (c)	Describe the measures to be implemented to management high noise generating works such as piling, in close proximity to sensitive receivers (wherever applicable);	Section 6.5
B16. (d)	Include strategies that have been developed with the community for management high noise generating works;	Section 7.1
B16. (e)	Describe the community consultation undertaken to develop the strategies in condition B16(d); and	Section 7.4
B16. (f)	Include a complaints management system that would be implemented for the duration of the construction.	Section 7.5





5.0

Construction noise and vibration

Document Ref. 1020706-AS-RPT-01 Fairvale CNVMP

5.0 Construction noise and vibration criteria

5.1 Construction hours

Based upon the Development consent (Conditions C5, C6 and C7), the approved construction hours are outlined within Table 7.

 Table 7
 Approved construction hours

Day	Approved construction hours		
	Standard construction	High noise and vibration activities ¹	
Monday to Friday	7:00 am to 6:00 pm	9:00 am to 12:00 pm 2:00 pm to 5:00 pm	
Saturday	8:00 am to 1:00 pm ²	9:00 am to 12:00 pm	
Sunday and public holidays	No construction	No construction	

Note 1: Rock breaking, rock hammering, sheet piling, plie driving and similar activities

Note 2: Extended hours have been proposed and is pending as per Letter from NSW Department of Education dated 2 April 2019, contract number SINSW-17-416

Based on the proposed program (Section 0), it is noted that the construction works may be required during the school exams and HSC. Coordination with the school to manage potential disruptions caused by noise and vibration from construction activities.

Out of hours works are possible with appropriate permit for works requiring special condition, such as oversized trucks and/or cranes that are restricted by Roads and Maritime Services from travelling during daylight hours, or emergency works.

Application for out of hours works permit requires approval by the Department. Surrounding residents nearby the project site are to be notified in advance of the out of hours works.

5.2 Construction noise and vibration criteria

In accordance with the requirements of Condition C14 (noise) and C18 (vibration) of the Development Consent, the establishment of construction noise and vibration are outlined in Section 5.2.1 and Section 5.2.2.

5.2.1 Construction Noise Management Levels

Noise levels arising from a construction project, measured within an area of sensitive receiver premises (i.e. at boundary or within 30 m of the residence, whichever is the lesser), should not exceed the established Noise Management Levels (NMLs) in line with the ICNG. The NMLs are indicated in Table 8.

Time of day	Hours	Construction Noise Management Levels, dB, L _{Aeq(15minut}		Aeq(15minute)		
		ICNG	NCA01	NCA02	NCA03	NCA04
Recommended Standard Hours / Approved construction	Monday to Friday 7:00 am to 6:00 pm	Noise affected ¹ RBL ² + 10 dBA	58	52	51	-
hours	Saturday 8:00 am to 1:00 pm ⁶	Highly Noise affected ³ 75 dBA	75	75	75	-

Table 8 Construction Noise Management Levels



tion work:	Outside Recommended Standard Hours		Noise affected ¹ RBL + 5 dBA				
ted by construc	Daytime (out of hours)	Saturday 1:00 pm to 6:00 pm Sunday 8:00 am to 6:00 pm		53	47	46	-
affec	Evening	6:00 pm to 10:00 pm		53	44	45	-
Residences	Night-time ³	10:00 pm to 7:00 am		45	39	41	-
and Uses	Classrooms at schools and other educational institutions	7:00 pm to 4:00 pm ⁴		-	-	-	55 ⁵
Noise at Sensitive I other than resid	Active recreation areas (characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)	7:00 pm to 6:00 pm ⁴		-	-	-	65

Note 1: The noise affected level represents the point above which there may be some community reaction to noise.

Note 2: dB, L_{A90} - The "background noise level" or "Rating Background Level" (RBL) in the absence of construction activities. This parameter represents the average minimum noise level during the daytime, evening and night-time periods respectively. The dB, L_{Aeq(15minute)} construction noise management levels are based on the RBLs.

Note 4: Assumed operating hours. To be confirmed with the relevant operator prior to construction.

Note 5: Based on assumed partially open window reduction of 10 dB and to the internal Construction Noise Management Level of 45 dB, LAeq(15minute)

Note 6: Extended hours have been proposed and is pending determination as per Letter from NSW Department of Education dated 2 April 2019,

contract number SINSW-17-416

In the event construction noise levels are predicted to be above the NMLs, all feasible and reasonable work practices are investigated to minimise noise emissions.

5.2.2 Construction vibration criteria – Surface structure

Most commonly specified "safe" structural vibration limits are designed to minimise the risk of threshold or cosmetic surface cracks and are set well below the levels that have potential to cause damage to the main structure. Example of these vibration level limits are nominated within the BBS7385: Part 2.

As per the Development Consent C18 the vibration criteria specified within the DIN 4150: Part 3 has been recommended for structures surrounding the Project. The criteria specified within DIN 4150 are design for controls of continuous long-term vibration or repetitive vibration with the potential to cause fatigue effects to structure.

The following Peak Particle Velocity (PPV) values are specified within DIN 4150 as safe limits, below which even superficial cosmetic damage is not to be expected:

Note 3: Additional assessment of sleep disturbance is to be completed should the Project requires to undertake construction works during the night-time period.

- + 10 mm/s for commercial buildings and buildings of similar design.
- + 5 mm/s for dwellings and buildings or similar design.
- + 2.5 mm/s for buildings of great intrinsic value (e.g. heritage listed buildings).

For short-term vibration events (i.e. those unlikely to cause resonance or fatigue), DIN 4150 offers the criteria shown in Table 9. These are maximum levels measured in any direction at the foundation or in the horizontal axes in the plane of the uppermost floor.

Table 9 DIN 4150 Structural Damage - Safe Limits for Short-term Building Vibration

Group Type of Structure		Peak Particle Velocity, (mm/s) ¹			
		1 Hz to 10 Hz	10 Hz to 50 Hz	50 Hz to 100 Hz ²	
1	Buildings used for commercial purposes, industrial buildings and buildings of similar design	20	20 at 10 Hz increasing to 40 at 50 Hz	40 at 50 Hz increasing to 50 at 100 Hz	
2	Dwellings and buildings of similar design and/or use	5	5 at 10 Hz increasing to 15 at 50 Hz	15 at 50 Hz increasing to 20 at 100 Hz	
3	Structures that because of their particular sensitivity to vibration, do not correspond to those listed in Lines 1 or 2 and have intrinsic value (eg buildings that are under a preservation order	3	3 at 10 Hz increasing to 8 at 50 Hz	8 at 50 Hz increasing to 10 at 100 Hz	

Note 1: Unless specified, vibration levels are measured at foundation of the structure

Note 2: For frequencies above 100 Hz the upper value in this column should be used

The "safe limits" given in DIN 4150 are the levels up to which no damage due to vibration effects has been observed for the particular class of building. The definition of "damage" is described by DIN 4150 to include even minor non-structural effects such as superficial cracking in cement render, the enlargement of cracks already present, and the separation of partitions or intermediate walls from load bearing walls.

5.2.3 Construction vibration criteria – Human comfort

For most construction activities that generate perceptible vibration by occupants in nearby buildings (e.g. earth works and excavation works), the character of the vibration emissions is considered to be intermittent in nature. As a guide, the BS5228-2:2009 provide effects of perceived vibration level in terms of peak particle velocity (PPV, mm/s).

Vibration level (mm/s)	Effect
0.14	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.
0.3	Vibration might be just perceptible in residential environments.
1.0	It is likely that vibration of this level in residential environment will cause complaint, but can be tolerated if prior warning and explaining has been given to residents.
10.0	Vibration is likely to be intolerable for any more than a very brief exposure to this level.

Table 10 Guidance on effects of vibration levels (BS 5228-2: 2009)

Table 10 suggests that people will be able to detect vibration at levels of about 0.15 mm/s and that the motion becomes "noticeable" at a level of approximately 1 mm/s.

The EPA Assessing Vibration: a technical guideline nominates preferred and maximum vibration goals for critical areas, residences and other sensitive receivers (related to the Project) are shown in Table 11 for intermittent

vibration and Table 12 for continuous vibration. The guideline advises a low probability of adverse comment or disturbance to building occupants would be expected at or below the preferred values.

The applicable human comfort vibration goal for intermittent vibration source is defined in terms of Vibration Dose Values (VDVs) where the permissible vibration level corresponding to the VDV varies according to the duration of exposure.

Table 11 Preferred and Maximum Vibration Dose Values for Intermittent Vibration (EPA, 2006)

Building Type	Preferred Vibration Dose Value (m/s ^{1.75})	Maximum Vibration Dose Value (m/s ^{1.75})
Residential Daytime	0.20	0.40
Residential Night-time	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80

Note: Daytime is 7:00 am to 10:00 pm and Night-time is 10:00 pm to 7:00 am

Table 12 Preferred and Maximum Vibration Dose Values for Continuous Vibration (EPA, 2006)

Building Type	Preferred Vibration Dose Value (m/s ^{1.75})	Maximum Vibration Dose Value (m/s ^{1.75})
Residential Daytime	0.20	0.40
Residential Night-time	0.14	0.28
Offices, schools, educational institutions and places of worship	0.40	0.80

Note: Daytime is 7:00 am to 10:00 pm and Night-time is 10:00 pm to 7:00 am In applying the preferred and maximum VDV the guidelines states that:

'Situations exist where vibration above the preferred values can be acceptable, particularly for temporary disturbances and infrequent events of short term duration. An example is a construction or excavation Project.' The guideline also advises that: 'Where all feasible and reasonable measures have been applied to control potential ground vibration levels the maximum values may be used. For values above the maximum value the proponent should negotiate directly with the affected community.'

When short-term works such as piling, demolition or compaction give rise to impulsive vibrations, it should be noted that undue restriction on vibration levels can significantly prolong the construction process and may result in greater annoyance overall.

5.3 Nominated site control vibration targets

Based on the vibration criteria detailed above, the site-specific controls to reduce risk of cosmetic damage as per DIN 4150 are outlined below in Table 13.

Structure Site Control vibration Criteria ¹ (Pea PPV) in any Orthogonal		ria ¹ (Peak Particle Velocity, ogonal Direction
	Warning Level	Stop Level
Residential buildings	4 mm/s	5 mm/s
Commercial Buildings (school building)	10 mm/s	20 mm/s

Table 13Nominated site control vibration targets (warning and stop levels)

Note 1: Vibration levels measured at the base of the building





6.0

Consideration of construction noise and vibration

6.0 Consideration of construction noise and vibration

6.1 Construction Noise

The project-specific construction airborne noise management levels (NMLs) for approved daytime hours are outlined in Table 8. Where NMLs cannot be achieved, the construction contractor will use all reasonable and feasible noise mitigation and management measures to reduce noise generation and impacts.

6.2 Typical plant sound power level

The recommended noise levels for construction plant in Table 14 are referenced from various sources as a guide for the Project.

All plant and equipment used for construction must have operating Sound Power or Sound Pressure Levels below or equal to the allowable noise levels in or if not listed below, shall achieve compliance to the most applicable equipment listed in the following document:

- + Transport for NSW Construction Noise and Vibration Strategy (CNVS, 2018);
- Australian Standard AS 2436-2010 Guide to noise and vibration control on construction, demolition and maintenance sites;
- + UK's Department of Environment, Food and Rural Affairs *Noise Database for Prediction of Noise on Construction and Open Sites* (DEFRA, 2006);

+ British Standard BS 5228-1 Code of practice for noise and vibration control on construction and open sites. Table 14 Maximum allowable noise levels for construction equipment

Plant item	Reference	Individual Item SWL
Bulldozer D9	RMS CNVG	116
Concrete agitator	RMS CNVG	113
Concrete pump	TfNSW CNVS (2005)	109
Concrete saw	RMS CNVG	118
Concrete truck	RMS CNVG	109
Dump truck	RMS CNVG	110
Excavator (tracked) 28t	DEFRA	104
Excavator (tracked) 35t	RMS CNVG	112
Excavator 28t + hydraulic hammer ¹	TfNSW CNVS (2018)	122
Excavator 35t + hydraulic hammer ¹	TfNSW CNVS (2018)	122
Forklift	AS 2436	106
Front end loader 23t	RMS CNVG	112
Hand tools/ Power tools	AS 2436	102
Hiab trucks	TfNSW CNVS (2018)	108

Mobile crane	RMS CNVG	113
Roller equipment	RMS CNVG	109
Scissor Lift	RMS CNVG	98
Skid steer	TfNSW CNVS (2005)	110
Plant item	Reference	Individual Item SWL
Truck – road truck	RMS CNVG	108

Note 1: Equipment with special audible characteristics.

6.3 Vibration compliance

The construction contractor will, if required, ensure compliance with the nominated site control vibration targets as outlined in Table 13.

Details of monitoring requirements are outline within Section 0

6.4 Vibration damage

Disturbance to building occupants can potentially occur at much lower vibration levels than the safe limits relating to cosmetic or structural damage of the building.

The risk of exceeding the recommended building damage criteria should be managed by carrying out vibration measurements during piling, excavation, demolition and compaction works in order to establish satisfactory buffer zones. Details of monitoring requirements are outline within Section 7.3

6.5 Recommended minimum working distances for vibration intensive plant

The propagation of vibration emitted from a source is site-specific. The level of vibration potentially experienced at a by the occupant of a building structure is dependent upon the vibration energy generated by the source, the frequency content of vibration, the localised geotechnical conditions and the interaction of structures and features which can dampen or enhanced vibration.

The recommended minimum working distances for construction plant in Table 15 are referenced from the Transport for NSW *Construction Noise and Vibration Strategy, April 2018* as a guide for the Project.

The nominated distances outlined below assumed propagation on particular ground condition and the recommendations are for the practical management of potential vibration to minimise disturbance or annoyance to surrounding receivers. The human comfort minimum working distances are conservative, developed with reference to the more stringent objectives for continuous vibration for typical residential building constructions.

Table 15 Recommended safe working distances for vibration intensive plant (TfNSW CNVS, 2018)

Plant Item	Approx. Size/ Weight/ Model	Minimum Distance – Human Response (EPA Vibration Guideline)
Vibratory Roller	1-2 tonne	15 m to 20 m
	2-4 tonne	20 m
	4-6 tonne	40 m
	7-13 tonne	100 m

	13-18 tonne	100 m	
	> 18 tonne	100 m	
Small Hydraulic Hammer	300 kg (5 to 12t excavator)	7 m	
Medium Hydraulic Hammer	900 kg (12 to 18t excavator)	23 m	
Large Hydraulic Hammer	1600 kg (18 to 34t excavator)	73 m	
Bilo Driver Vibratory	Shoot pilos	20 m	
	Sheet piles	2011	
Plant Item	Approx. Size/ Weight/ Model	Minimum Distance – Human Response (EPA Vibration Guideline)	
Plant Item Piling Rig – Bored	Approx. Size/ Weight/ Model ≤ 800 mm	Minimum Distance – Human Response (EPA Vibration Guideline) N/A	
Plant Item Piling Rig – Bored Piling Rig – Hammer	Approx. Size/ Weight/ Model ≤ 800 mm 12 t down force	Minimum Distance – Human Response (EPA Vibration Guideline) N/A 50 m	

A vibration trial to assess the ground vibration from ground compacting equipment (e.g. vibratory roller) which may potentially impact the adjacent school buildings is recommended. The vibration trial is to be conducted to develop a sitespecific vibration propagation characteristic and determining safe operational distances for plant equipment on the Project site.

Continuous vibration monitoring is to be carried out throughout the activity when vibration intensive plant equipment's are in use. Continuous vibration monitoring will also be carried out during all works with potential to generate vibration.

6.6 Construction related traffic noise

Additional road traffic generated on existing roads due to construction phase of the proposal has the potential to cause adverse road noise impacts at receivers. The additional road traffic generated by vehicles accessing the construction site locations are to be assessed in accordance with the NSW EPA Road Noise Policy (RNP).

The Traffic Report prepared by McLaren Traffic Engineering (18643.01FB, dated 31st October 2018) has been provided by Icon for the review. The additional traffic generated from the proposed construction works are provided in Table 16. *Table 16 Construction traffic volume*

Work activity	Traffic volume	Vehicle types
General staff parking	16 per day	Light vehicle
Demolition	20 per day	heavy vehicle
Excavation	20 per day	heavy vehicle
Structure	4 per day	heavy vehicle
Fitouts and finishes	6 per day	heavy vehicle
Concrete pours	10 per day (4 per hour)	heavy vehicle

Based on the predicted traffic movement above, the following traffic generation is expected during construction:

+ Approximately 16 light vehicles and 60 heavy vehicle movements are expected daily.

The construction traffic movement is proposed to utilise the following public roads for site access:

- Cumberland Highway (State road, 70 hm/h, approximately 41,826 Annual Average Daily Traffic flow (AADT), 8% heavy vehicles¹) for all stages.
- + Thorney Road (local road, 50 km/h) for Stages 2A and 2B
- + Tripoli Road (local road, 50 km/h) for Stages 1, 2A and 3

As stated in the RNP application notes, the consideration of mitigation would only be required where additional traffic on existing roads creates an increase of more than 2 dB L_{Aeq (Daytime, Night-time)} at existing sensitive receivers. This typically corresponds to a traffic volume increase of minimum 60 percent, provided the mix of light and heavy vehicle traffic is comparable.

The additional traffic generated due to construction travelling along Cumberland Highway is considered to be negligible. The existing traffic volumes on the local roads are not available at the time of assessment however, it is likely to comprise predominately of light vehicles. The noise from additional construction traffic utilising the local roads would likely to be noticeable due to increase in heavy vehicle volumes.

Recommendations for control of construction vehicles and traffic are provided within Section 7.1.

¹ Ref: http://www.rms.nsw.gov.au/about/corporate-publications/statistics/traffic-volumes/index.html , data accessed on 26 April 2019



7.0

Recommended mitigation measures and work practices

7.0 Recommended mitigation measures and work practices

7.1 General noise and vibration mitigation measures

As the details of the construction and operational methodology to carry out the Project has not been confirmed, specific mitigation measure, such as noise barrier, have not been specified.

The general mitigation measures provided in the Plan and the commitments made by Icon Constructions (Construction Contractor) should be referenced and revised to ensure applicability once the construction and operational methodology is finalised. Typical noise management procedures are as follows:

General

- Where feasible and reasonable, construction should be carried out during the approved standard daytime working hours. Work generating high noise and/or vibration levels should be scheduled during less sensitive time periods.
- Where high activities identified by the Development consent as generating high noise and vibration are expected, scheduling of respite period as per the approved hours outlined in Table 7 is required;
- + Avoiding the coincidence of noisy plant working simultaneously close together and adjacent to sensitive receivers (both noise and vibration generating activity).
- + The contractor will take all reasonable and feasible measures to mitigate noise effects;
- The contractor will take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers;
- + Minimise plant and vehicles idling when not in use;
- All plant and equipment should be maintained in a proper and efficient manner to minimise noise emissions, including the replacement of engine covers, repair of defective silencing equipment, tightening of rattling components and the repair of leakages in air lines;
- Notification of occupant's adjacent to the site of when these activities occur; and + Implementing an effective community consultation and complaints management.

Noise

- Provision of localised treatment such as temporary barriers, shrouds and the like around fixed plant such as pumps, generators and groundwater extraction plant during use and by "stepping down" the plant settings out of construction hours or turned off completely where able. The detailed design of acoustic treatments will be undertaken during the detailed design phase; and
- + Maximising the offset distance between noisy plant items and nearby noise sensitive receivers;
- Where practicable, provision of additional respite from noise producing activities during extended hours operations;
- + Use of broadband alarm in place of tonal alarm where practicable;
- + Selection and maintenance of "quiet" type equipment where practicable;
- Minimise consecutive works in the same locality (if applicable);
- Minimising consecutive works in the same locality;
- Silenced air compressors, fitted with noise labels indicating a maximum (L_{Amax}) sound pressure level of not more than 75 dBA at 7 m is to be used on site. The sound pressure level of noise emitted from a compressor used is to comply with noise label requirements;
- + Orienting equipment away from noise sensitive areas; and
- + Carrying out loading and unloading away from noise sensitive areas. Vibration
- + Selection and maintenance of low vibration equipment where practicable;

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Use only dampened rockbreakers and/or "city" rockbreakers to minimise the impacts associated with rockbreaking works;

- Trial testing of vibration levels is to be conducted where equipment identified as having the potential to exceed the human comfort criteria or where the vibration intensive plant or equipment is required to operate in close proximity to sensitive structure exceeding the nominated minimum working distances;
- + Trial vibration monitoring to determine appropriate work distances of proposed construction activities; and
- Utilise the smallest practicable size of plant equipment when in close proximity to the sensitive structure (e.g. small vibratory roller).

Construction traffic

- Where practicable, site should be arranged to provide one-way traffic movement minimise reversing of vehicles onsite;
- + Utilising main road networks to access site and where practicable, heavy vehicles should enter site from Thorney Road;
- + Provide instructions for heavy vehicles operators regarding minimising noise when entering and leaving the construction sites;
- + If required, planned truck queues to be located away from residences and operating school buildings in order to reduce noise impacts due to trucks idling; and
- + Where practicable, heavy vehicles should be switched off while queuing.

7.2 Noise monitoring

As part of site management for noise emissions, Construction Contractor would undertake a daily log of construction activities kept onsite by the site manager.

In addition, where required, noise monitoring would be conducted at the nearest residential receiver to the construction works being undertaken for:

- + The beginning of the proposed construction activity (refer to Table 5);
- Whenever an item of "noise intensive" plant or equipment is brought onto site for the first time. For the purpose of internal noise audits, any item of plant or equipment with Sound Power Level (SWL) greater than or equal to

110 dBA as presented in Table 3.3 would be considered to be potentially "noise intensive"; and

+ In response to complaints, once differentiation between site related construction noise sources and other sources has been established.

7.2.1 Noise auditing

The results of all noise audits and monitoring would be submitted to an environmental representative of Construction Contractor who would compile progressive impact assessments as work progresses. Submission of the internal noise auditing report to relevant authorities and/ or stakeholders may be applicable on an as per requested basis.

Site noise emissions requiring monitoring (e.g. following a compliant) would be undertaken in accordance with procedures outlined within the Construction Environmental Management Plan and would be carried out on the property of an affected receiver or at the boundary of the receiver (whichever is most affected).

The noise audits reporting would include the following information as a minimum during construction works:

Noise auditing reporting items

- Work activity.
- + Name of auditor and site manager.

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 Details of the instrument used for the measurement including make, model, serial number and last calibration date.
 Date and time of test.

Weather condition during test, including air temperature, wind speed, wind direction and details of rain/wet conditions if applicable.

- + Plant and equipment operating at the time of measurement.
- + Noise measurement recorded for each activity as follows:
- Concurrent construction occurring (not associated with Ex-Situ works) and other background noise sources.
 General noise auditing requirement:
- Measured 15 minute noise level at both the site boundary and nearest affected receiver, including A weighted, fast time-weighting L_{min}, L₉₀, L₁₀, L₁, L_{max} and L_{eq} statistical parameters.
- Provide comparison of the measured noise levels with the predicted noise levels from the proposed activity.
 Plant and equipment noise auditing requirement:
- A weighted, fast time-weighted L_{eq} and L_{max} noise level measured at a distance of 7 metres from the item of plant or equipment during normal operation.
- + Provide comparison of the measured noise levels with the predicted noise levels from the proposed plant equipment.

Noise auditing in response to complaints:

- + The name and contact details of the person making the complaint.
- + Time of the complaint.
- + Any other specific details relating to the complaint.
- + GPS location of the measurement location
- + Distance from the source activity to the measurement location.
- Measured 15 minute noise level at the boundary of the affected receiver A weighted, fast time-weighting L_{min}, L₉₀, L₁₀, L₁, L_{max} and L_{eq} statistical parameters.
- + Levels and description of other noise sources observed during the measurement period.

7.3 Vibration monitoring

As part of site management for vibration emissions, Construction Contractor would undertake a daily log of construction activities that would be kept onsite by the site manager. In addition, informal vibration audits would be conducted at the nearest affected receiver or relevant structure for:

- + Prevention of structural damage; and
- + In response to complaints.

7.3.1 Vibration auditing

The results of all vibration audits and monitoring would be submitted to an environmental representative of Construction Contractor who would compile progressive impact assessments as work progresses. Submission of the internal noise auditing report to relevant authorities and/ or stakeholders may be applicable on an as per requested basis.

Site vibration emissions requiring monitoring (e.g. following a compliant) would be undertaken in accordance with procedures outlined within the Construction Environmental Management Plan and would be carried out at the structure of the receiver building.

The mounting location of the vibration monitors must be on a stiff part of the structure either rigidly attached to or representative of the structure (at the foundations) on the side of the structures adjacent to the subject excavation

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works, in accordance with BS 7385 Part 2: 1993. The transducer must be positioned with the indicator arrow on top of the transducers pointing in the direction of the vibration source.

The vibration audits reporting would include the following information as a minimum during construction works:

Vibration auditing reporting items

Work activity.

- Name of auditor and site manager.
- Details of the instrument used for the measurement including make, model, serial number and last calibration date.
- Date and time of test.
- + Photograph of transducer and description of mounting location.
- + Plant and equipment operating at the time of measurement.
- + Description of other vibration source(s) (non-site related) and level if measurable.

Vibration auditing for building cosmetic damage prevention

Where it has been determined that continuous vibration monitoring is required to prevent risk of cosmetic damage to the structure, the vibration measurements are to be carried out with reference to the following standards:

+ BS 7385-1;

and + DIN 4150-3.

The frequency of reporting will be as agreed with relevant authorities in consultation with the Construction Contractor.

The vibration logger(s) will be set up to record time histogram during the proposed work hours and days. The loggers will include a real time monitoring and provide alerts for whenever the vibration levels reached the warning or stop levels as outlined in Table 13.

All units may also be set up to provide email or SMS alerts distributed to the nominated recipients when an event is triggered.

In the case of the vibration level exceeding the nominated Warning Level, construction activity does not need to cease immediately, but rather alerts the Site Manager to proceed with caution at reduced force or load.

In the case of the vibration level exceeding the nominated Stop Level, the equipment operator would be required to stop work immediately. Following the Stop Level exceedance, Project Manager is required to implement an alternative construction technique pending further analysis of the vibration frequency content in order to determine any potential exceedance of the criteria presented in Table 9. This include either:

- + Reduce the number of vibration-generating plant/equipment items; or
- + Cease operation, pending further analysis of the potential for building damage. A specialist acceptable to the construction contractor must endorse the conclusions of such an investigation.

Work must not resume until an alternative construction technique can be adopted. If it is not considered feasible or reasonable to adopt alternative construction methods, an operator-attended vibration monitoring would be conducted by a suitable qualified acoustic consultant for real-time assessment and works may proceed with caution under their strict instruction.

Documentation outlining the causation of the exceedance and control measures adopted is to be prepared and kept on site.

Vibration auditing in response to complaints (exceedance of human comfort criteria):

A vibration monitoring to address complaints may be carried out as a per request basis by Lendlease in the event where source of complaints have been identified as relating to the proposed works. Any engagement with the

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stakeholders should be carried out in accordance with Lendlease's stakeholder engagement procedures. The operator attended vibration survey would include the following items:

- + The name and contact details of the person making the complaint.
- + Time of the complaint and work associated with the complaint.
- + Any other specific details relating to the complaint.
- + Distance to the activity under assessment

Measurements are to be conducted at the location inside the property of the complainant as advised by the complainant to have felt the vibration the most.

- + Measured and recorded vibration level and frequency (PPV, mm/s and Hz) of the activity.
- + Determine and confirm that source of vibration is related to the project activity.
- + Conduct assessment of vibration emissions against the nominated human comfort criteria and provide a revised safety distances for the works.

Site noise and vibration management measures described in Section 7.1, in particular the scheduling of works and placement of plant and equipment would also provide benefits with reference to human response to vibration.

7.4 Community consultation

Community consultation will, if required, be undertaken via the construction contractor, including:

- + Advising the community of work to be undertaken.
- + Recording and managing any complaints.

These and other elements of the community consultation will be addressed under the relevant procedures for the subject works.

7.5 Complaints handling

This protocol is intended to provide framework relating to complaint as a result of the proposed work, and application of appropriate corrective action is identified and implemented as necessary:

- All complaints (verbal, telephone or in writing) are to be recorded and forwarded to the Project Manager, together with details of the circumstance leading to the complaint, work activity at relating to the complaint and all subsequent actions taken.
- + The Project Manager shall investigate the complaint in order to determine whether work practices have been carried out with reasonable and feasible to minimise noise.
- Where excessive noise has been caused and identified as related to the work corrective action will be planned and implemented by the construction contractor
- + Project Manager shall inform the complainants regarding their complaints including:
 - Outcome of the investigation; and
 - Corrective action taken (if applicable).
- + Follow up monitoring or other investigations will be carried out by the Project Manager and the construction contractor to confirm the effectiveness of the corrective action.

All stakeholders must be provided with a complaint response form, with the following details:

- Name and mobile phone number of a nominated contact for the Contractor, available during all construction operations;
- Details of the relevant Council Authority for noise complaint;
 Facility to record time, source, and duration of disturbance;
 A postal address for issuing written complaint.

An example Noise Compaint Form, to be provided to residents, is provided in Appendix D.

In the event of a complaint, the Contractor must:



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- + Investigate the complaint immediately;
- + Take any necessary remedial action;
- + Report to the Council on the results of that investigation.



It is also recommended that the Contractor maintain a complaint register to allow for an assessment of the overall performance of the Plan. This register should include a record of the above actions. An example Noise Complaint Register form is provided in Appendix E.





Appendices

Appendix A Acoustic terminology

ASSESSMENT BACKGROUND LEVEL (ABL)

A single-number figure used to characterise the background noise levels from a single day of a noise survey. ABL is derived from the measured noise levels for the day, evening or night time period of a single day of background measurements. The ABL is calculated to be the tenth percentile of the background LA90 noise levels – i.e. the measured background noise is above the ABL 90% of the time.

'A'-WEIGHTED SOUND LEVEL dBA

The unit generally used for measuring environmental, traffic or industrial noise is the A-weighted sound pressure level in decibels, denoted dBA. An A-weighting network can be built into a sound level measuring instrument such that sound levels in dBA can be read directly from a meter. The weighting is based on the frequency response of the human ear and has been found to correlate well with human subjective reactions to various sounds. An increase or decrease of approximately 10 dB corresponds to a subjective doubling or halving of the loudness of a noise. A change of 2 to 3 dB is subjectively barely perceptible.

DECIBEL

The ratio of sound pressures which we can hear is a ratio of 10⁶:1 (one million : one). For convenience, therefore, a logarithmic measurement scale is used. The resulting parameter is called the 'sound level' (L) and the associated measurement unit is the decibel (dB). As the decibel is a logarithmic ratio, the laws of logarithmic addition and subtraction apply.

Noise Level dBA	Example
130	Threshold of pain
120	Jet aircraft take-off at 100 m
110	Chain saw at 1 m
100	Inside disco
90	Heavy trucks at 5 m
80	Kerbside of busy street
70	Loud radio (in typical domestic room)
60	Office or restaurant
50	Domestic fan heater at 1m
40	Living room
30	Theatre
20	Remote countryside on still night
10	Sound insulated test chamber
0	Threshold of hearing

Some typical noise levels are given below:

EQUIVALENT CONTINUOUS SOUND LEVEL (LAeq)

Another index for assessment for overall noise exposure is the equivalent continuous sound level, Leq. This is a notional steady level, which would, over a given period of time, deliver the same sound energy as the actual time-varying sound over the same period. Hence fluctuating levels can be described in terms of a single figure level.

FREQUENCY

The rate of repetition of a sound wave. The subjective equivalent in music is pitch. The unit of frequency is the Hertz (Hz), which is identical to cycles per second. A thousand hertz is often denoted kilohertz (kHz), e.g. 2 kHz = 2000 Hz. Human hearing ranges from approximately 20 Hz to 20 kHz. The most commonly used frequency bands are octave bands, in which the mid frequency of each band is twice that of the band below it. For design purposes, the octave bands between 63 Hz to 8 kHz are generally used. For more detailed analysis, each octave band may be split into three one-third octave bands or, in some cases, narrow frequency bands.

RATING BACKGROUND LEVEL (RBL)

A single-number figure used to characterise the background noise levels from a complete noise survey. The RBL for a day, evening or night time period for the overall survey is calculated from the individual Assessment Background Levels (ABL) for each day of the measurement period, and is numerically equal to the median (middle value) of the ABL values for the days in the noise survey.

SOUND POWER AND SOUND PRESSURE

The sound power level (L_w) of a source is a measure of the total acoustic power radiated by a source. The sound pressure level (L_p) varies as a function of distance from a source. However, the sound power level is an intrinsic characteristic of a source (analogous to its mass), which is not affected by the environment within which the source is located.

STATISTICAL NOISE LEVELS

For levels of noise that vary widely with time, for example road traffic noise, it is necessary to employ an index that allows for this variation. 'A'-weighted statistical noise levels are denoted L_{A10}, dBL_{A90} etc. The reference time period (T) is normally included, eg. dBL_{A10}, 5min or dBL_{A90}, 8hr.

L_{A90} (T)

Refers to the sound pressure level measured in dBA, exceeded for 90% of the time interval (T) –i.e. measured noise levels were greater than this value for 90% of the time interval. This is also often referred to the background noise level.

L_{A10} (T)

Refers to the sound pressure level measured in dBA, exceeded for 10% of the time interval (T). This is often referred to as the average maximum noise level and is frequently used to describe traffic noise.

L_{A1} (T)

Refers to the sound pressure level measured in dBA, exceeded for 1% of the time interval (T). This is often used to represent the maximum noise level from a period of measurement.

LAmax

The maximum measured noise level measured in dBA.

VIBRATION

Vibration may be expressed in terms of displacement, velocity and acceleration. Velocity and acceleration are most commonly used when assessing structure borne noise or human comfort issues respectively. Vibration amplitude may be quantified as a peak value, or as a root mean squared (rms) value.

Vibration amplitude can be expressed as an engineering unit value e.g. 1mms⁻¹ or as a ratio on a logarithmic scale in decibels:



Vibration velocity level, L_V (dB) = 20 log (V/V_{ref}),

(where the preferred reference level, V_{ref} , for vibration velocity = 10^{-9} m/s).

The decibel approach has advantages for manipulation and comparison of data.

Appendix B Development consent SSD 8677

Monitoring and Environmental Audits

- A18. Any conditions of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 or Part 9 of the EP&A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance reporting and independent auditing.
- Note: For the purpose of this condition, as set out in the EPA&A Act, "monitoring" is monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an "environmental audit" is a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development

Part B Prior to commencement of Construction Construction Environmental Management Plan

B13. Prior to commencement of construction, the Applicant must prepare a **Construction Environmental Management Pan (CEMP)** and it must include, but not be limited to, the

following (c) Construction Noise and Vibration Management Sub-Plan (see Condition

B18²).

- B16. The **Construction Noise and Vibration Management Sub-Plan (CNVMSP)** must address but not be limited to the, the following:
 - (a) Be prepared by a suitably qualified an experienced noise expert;
 - (b) Describe procedures for achieving the noise management levels in EPA's Interim Construction Noise Guideline (DECC, 2009);
 - (c) Describe the measures to be implemented to management high noise generating works such as piling, in close proximity to sensitive receivers (wherever applicable);
 - (d) Include strategies that have been developed with the community for management high noise generating works;
 - (e) Describe the community consultation undertaken to develop the strategies in condition B16(d); and
 - (f) Include a complaints management system that would be implemented for the duration of the construction.

Compliance Reporting

- B35. No later than two weeks before the date notified for the commencement of construction a Compliance Monitoring and Reporting Program prepared in accordance with the Compliance Reporting Post Approval Requirements (Department 2018) must be submitted to the Department and the Certifying Authority.
- Compliance Reports of the project must be carried out in accordance with the Compliance Reporting Post Approval Requirements (Department 2018).

The Applicant must make each Compliance Report publicly available 60 days after submitting it to the Department and notify the Department and the Certifying Authority in writing at least seven days before this is done.

Part C During construction Operation of Plant Equipment

- C3. All plant and equipment used on site, or to monitor the performance of the development must be:
 - (a) Maintained in a proper and efficient condition; and
 - (b) Operated in a proper and efficient manner.

² Condition B18 of the consent refers to Construction Soil and Water Management Sub-Plan (CSWMSP).



Construction Hours

- C5. Construction, including the delivery of materials to an from the site, may only be carried out between the following hours:
 - (a) Between 7am and 6pm, Mondays to Fridays inclusive; and
 - (b) Between 8am and 1pm Saturdays.

No work may be carried out on Sundays or public holidays.

- C6. Activities may be undertaken outside of these hours if required:
 - (a) By the Police or public authority for the delivery of vehicles, plant or materials; or
 - (b) In an emergency to avoid the loss of life. Damage to property of to prevent environmental harm; or
 - (c) Works are inaudible at the nearest sensitive receivers; or
 - (d) If a variation is approved in advance in writing by the Secretary or her nominee.

Notification of such activities must be given to affected residents before undertaking the activities or as soon as is practical afterwards.

- C7. Rock breaking, rock hammering, sheet piling, plie driving and similar activities may only be carried out between the following hours:
 - (a) 9am to 12 pm Monday to Friday;
 - (b) 2pm to 5pm Monday to Friday;
 - (c) 9am to 12 pm Saturday.

Construction Noise Limits

- C14. The development must be constructed to achieve the construction noise management levels detailed in the Interim Construction Noise Guideline (DECC, 2009). All feasible and reasonable noise mitigation measures must be implemented and any activities that could exceed the construction noise management levels must be identified and managed in accordance with the management and mitigation measures identified in the approved Construction Noise and Vibration Management Plan.
- C15. The Applicant must ensure construction vehicles (including concrete agitator trucks) do not arrive at the

site or surrounding residential precincts outside of the construction hours of work outlined under Condition C5.

- C16 The applicant must implement, where practicable and without compromising the safety of construction staff or members of the public, the use audible movement alarms of a type that would minimise noise impacts on surrounding noise sensitive receivers.
- C17. Any noise generated during construction of the development must not be offensive noise within the meaning of the Protection of the Environment Operation Act 1997 or exceed approved noise limits for the site.

Vibration criteria

- C18. Vibration caused by construction at any residence or structure outside the site must be limited to:
 - (a) For structural damage, the latest version of DIN 4150-3 (1992-02) Structural vibration Effects of vibration on structures (German Institute of Standardisation, 1999); and
 - (b) For human exposure, the acceptable vibration values set out in the Environmental Noise Management Assessing Vibration; a technical guideline (DEC, 2006) (as may be updated or replaced from time to time).
- C19. Vibratory compactors must not be used closer than 30m from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C18.
- C20. The limits in conditions C18 and C19 apply unless otherwise outlined in a construction Noise and Vibration Management Plan, approved as part of the **CEMP** required by Conditions B13 of this consent.



Appendix C Construction Staging Plans



FAIRVALE HIGH SCHOOL - SITE ESTABLISHMENT PLAN - ZONE C



FAIRVALE HIGH SCHOOL - SITE ESTABLISHMENT PLAN - ZONE A & B

FAIRVALE HIGH SCHOOL - SITE ESTABLISHMENT PLAN - BLOCK A & BINI DOME





Noise Complaint Form If you have any queries regarding excessive noise or wish to make a complaint, please contact: **Builder Contact:** Address: Mobile Phone: Council contact number: (8.30 am to 5.00 pm) If, for any reason, you are not able to raise the above person, please make a note of the time and type of noise in the space provided below and send to the address detailed above. Your name: Date: Location: Type of noise (please be as specific as Start time **Duration of noise** possible) **Other Comments**



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Document Ref. 1020706-AS-RPT-01 Fairvale CNVMP

Appendix E Noise incident register

Date	Time	Cause of complaint	Remedial action taken



Consultation and Engagement

Fairvale High School Alterations and Additions

17/02/2020 SSD 8677


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1. Executive Summary

The Department of Education (DoE) is committed to providing a clear, open and informative transfer of information between the community, relevant stakeholders and the design team, not only to date but for the entire project lifecycle. The purpose of this report is to describe the consultation and engagement process undertaken since June 2017 for the Fairvale High School redevelopment and feedback received to date from the community, the school, neighbours, businesses and stakeholders. The report also details responses to any suggestions or issues raised and how these have been incorporated into the final design submitted for State Significant Development (SSD).

It is noted that consultation on this project is an ongoing process and will be maintained until project completion. To support this SSD application, the information presented in this report includes that undertaken and collected to date and that scheduled until the end of the year.

2. Consultation & Engagement Activities

Throughout the project stages, a variety of communication strategies have been (and will be) utilised for the purpose of stakeholder and community consultation and engagement. These are outlined below:

- Online communication opportunities the DoE project website;
- Printed communication community notices, school newsletters and letter box drops;
- Information booths community and parent information booths;
- Facilitated workshops on site community, teacher and parent workshops comprising Q and A sessions with a variety of display posts and opportunities to provide feedback;
- Consultation methods meetings targeted for maximum stakeholder engagement; and
- Authority and Regulatory consultation with Council, local member, TfNSW, etc.

The purpose of this community consultation and engagement was to gain feedback aimed at informing the project on the following as well as develop strategies with the community for managing:

- Design elements such as locations for buildings, heights and sizes of structure, 3D impressions, colour and material schemes;
- Community impacts such as operations of the school, the facilities being provided, community uses etc.; and
- Construction elements, such as traffic impacts, high noise generating work, noise and vibration, odour, sediment and erosion and remediation.

Details and results of the above are elaborated on below.

2.1. Online Communication

2.1.1. Department of Education Project Website

A project internet site was developed and launched on 30th June 2017 and gets updated monthly with current project information. The project internet sites have provided links from existing school internet pages and allowed users to easily access information about the engagement process and opportunities to participate, as well as get updates on the progress of the Fairvale High School redevelopment. Additionally, a project email was created to collect enquiries about the project to the Project Manager.



- Project Website: https://www.schoolinfrastructure.nsw.gov.au/projects/f/fairvale-highschool.html
- Project email: Fairvale@johnstaff.com.au

2.2. Printed Communication

2.2.1. Community Notices

Notifications of various community engagement events are listed in the local newspaper in order to inform the surrounding community of scheduled information booths and details of online surveys. These engagement events are publicised by placing advertisements with at least more than a week's notice to maximise attendance.

2.2.2. Project Newsletter

Fairvale High School has regularly issued school newsletters and handouts to students that have gone home to parents and caregivers. The Project Manager can use these to provide updates on the progress of the design and alert school communities to upcoming consultation.

Since funding was approved in June 2017, the Project Manager issued Fairvale High School with an update for the Capital Works project, which was included in the newsletter for that month. Details of this notification is outlined below:

 Fairvale High School Newsletter Update No.01 – 22nd June 2017 Outlined the Fairvale High School redevelopment and project website entailing additional project information.

2.2.3. Letter Box Drops

Letter box drops are used to make contact with neighbours and the local community, providing them with project updates, notification of any upcoming information booths and any details of online surveys. The first letter box drop was conducted on Monday 24th July 2017, where letters were issued to surrounding neighbours providing them with information on the project website and dates of upcoming information booths.

From the letter box drop 2 people attended the information booth and other residents raised general questions about the project and construction traffic.

2.3. Information Booths

The information booths follow a two-stream approach, with separate information booths for the school community and the local community as a whole. The information booths have feedback sheets available for anyone to leave comments, which in turn inform the project team and Project Reference Group, and where appropriate, influence the design or are addressed in the FAQ section of the project website. All information booths are managed by the Project Manager.

2.3.1. Community Information Booths

Community Information Booths have occurred (and will continue to occur) on a monthly basis at Wetherill Park Library. A summary of the details and results of these information booths is outlined below:



 Community Engagement Information Booth No.01 – 26th July 2017 (3:30pm – 4:30pm)) A summary of community contribution received during this session is included below:

I am interested in the Fairvale High School Redevelopment Project because:

- Neighbours

I think the redevelopment of Fairvale High School should embrace:

- Staff parking on Tripoli Road (narrow road)

I believe it is imperative that Fairvale High School has / maintains:

- Proactive learning spaces for students

What do you believe is the greatest challenge to the redevelopment of Fairvale High School?

- Mitigation of construction traffic

- Relocation of demountables
- Community Engagement Information Booth No.02 8th August 2017 (3:00pm 4:00pm) No community contribution to report from this occurrence.
- Community Engagement Information Booth No.03 15th September 2017 (4:00pm 5:00pm)

No community contribution to report from this occurrence.

- Community Engagement Information Booth No.04 16th October 2017 (2:00pm 3:00pm) No community contribution to report from this occurrence.
- Community Engagement Information Booth No.05 16th November 2017 (12:30pm 1:30pm).

No community contribution to report from this occurrence.

 Community Engagement Information Booth No.06 – 11th December 2017 (11:00am – 12:00pm) No community contribution to report from this occurrence.

2.3.2. Parent Information Booths

Parent information booths have occurred (and will continue to occur) at times that accommodate the schedules of parents and caregivers (usually 8:30am to 9:30am and 3:00pm to 4:30pm). A summary of the details and results of these parent information booths is outlined below:

 Parent Information Booth No.01 – 2nd August 2017 (8:45am - 9:45am) No community contribution to report from this occurrence.

Additionally, the P&C was presented to and informed about the project on the 28th June 2017. They questioned the timing of the project and the mitigation of traffic during the construction period. They were positive about the design and facilities.

The P&C is updated regularly in the progress of the project through the parent representative who is a member of and attends the Project reference group meetings.



A parent information meeting will be held before construction is to commence to ensure the parents and students are aware of safety at the school during construction. This includes a safety talk with the school students.

2.4. Facilitated Workshops

Throughout the design phases there have been a number of workshops held, targeting different stakeholders, to inform the design and ensure that the design submitted for SSD is suitable from a community and user group perspective. Workshops were managed and facilitated by the Project Managers and Head Design Consultant (HDC). The stakeholder workshops undertaken to date are summarised in the following sections.

2.4.1. Teacher's Consultation Workshops

Consultation through a design workshop and presentation with Fairvale High School teachers was held on 9th August 2017 in order to discuss the design of the Multi-purpose Hall, Staff / Administration and General Learning Spaces. Staff reviewed updated Schematic Design plans, elevations and 3D perspectives for the Hall, Staff / Administration and General Learning Spaces and were afforded the opportunity to provide their input and ideas. 3D perspective images were shown in order for the teachers to understand and visualise the scope of the redevelopment in contrast to the existing school building fabric.

Their operational requirements and comments regarding the spaces and furniture have been included in the design.

2.4.2. Educational Specialist Design Workshops

The Educational specialist has been working in collaboration with Johnstaff, JDH and Fairvale High School to progress the design of the learning spaces and the development of an educational model. Details on the workshops undertaken and scheduled are summarised below:

- Educational Design Workshop No.01 28th June 2017 Introduction of creating activity based learning environments and approach / vision for the design if the school with selection of head teachers.
- Educational Design Workshop No.02 26th July 2017 Review of design concepts with selection of head teachers and discussion of how these have been integrated into the architectural plans.
- Educational Design Workshop No.03 20th September 2017 JDH chaired a workshop discussing the updated plans and presented FFE typology to a select group of staff.
- Educational Design Workshop No.04 8th November 2017
 Final workshop to review the plans, design solutions and design recommendations for the Hall, Staff / Administration and General Learning Spaces.

2.5. Project Meetings

Consultation meetings and ongoing communication are carried out with the Departments Program Management Office (PMO), Project Reference Group (PRG) and Departments Technical Stakeholders Group (TSG) throughout the project. A summary of these meetings is provided in the following sections.



2.5.1. Program Management Office

Meetings have been held monthly with the PMO and will continue to do so throughout the life of the project.

2.5.2. Technical Stakeholders Group

Ongoing discussions have taken place with the Departments Technical Stakeholders Group including the Educational Facilities Standards and Guidelines (EFSG), ICT, Maintenance and Cleaning, Security, Work Health & Safety, Future Learning Unit, and Demountables unit. They have reviewed and commented on the design throughout the project design phases and will continue to do so. Their comments including the ICT, security and WHS requirements and EFSG changes have been implemented into the design.

2.5.3. PRG

A PRG for the project was established in December 2016 and has been providing input into the design. The PRG endorses all designs and staging plans and assist in communicating the project status to the school and its community. Members of the PRG include the Director Public Schools NSW, school representatives (including the principal, a parent and / or community representative who represents the interest of the teachers, a local community representative, asset management and the project team.

Details of PRG meetings which have occurred to date are summarised as follows:

- PRG Meeting No.01 17th November 2016
 Outlined the purpose of the PRG and discussed the Educational Design Principles.
- PRG Meeting No.02 29th November 2016
 PRG progressed review / endorsement of Education Design Principles and Site Analysis.
- PRG Meeting No.03 13th December 2016
 Endorsement of Education Design Principles. Presented two master plan option for Fairvale
 High School, which was subsequently endorsed enabling progress with 3 Concept options over the December / January break.
- PRG Meeting No.04 9th February 2017
 PRG reviewed a Pedagogy Model and provided feedback in regards to additional needs of the school. Additionally, it was noted that site investigations encompassing services audits and survey works had commenced.
- PRG Meeting No.05 23rd February 2017

Presented 3 Concept Design options for this school. Following the discussion, the PRG endorsed Option B. Briefing and engagement of additional site consultants is underway.

- PRG Meeting No.06 3rd May 2017
 Presented 4 relationship diagram options for the General Learning Spaces for this school. Site investigation updates were provided.
- PRG Meeting No.07 17th May 2017
 Presentation of the Schematic Design options for the Hall, Staff / Administration and General Learning Spaces. Site investigation updates were provided.
- PRG Meeting No.08 31st May 2017
 PRG reviewed further developed floor plans for Hall, Staff / Administration and General Learning Spaces, incorporating the PRG's feedback. Site investigation updates were



provided. Project website examples were provided to the PRG for comment and content for this school website provided for endorsement.

- PRG Meeting No.09 26th July 2017
 PRG reviewed further developed floor plans for Hall, Staff / Administration and General Learning Spaces, incorporating the PRG's feedback. Additionally, material typology was investigated. Site investigation updates were provided.
- PRG Meeting No.10 9th August 2017
 Presented the updated Schematic Design plans, elevations and 3D perspectives for the Hall, Staff / Administration and General Learning Spaces. It was noted that the Educational Planner engagement was ongoing.
- PRG Meeting No.11 23rd August 2017 Presented their further developed Schematic Design plans, elevations and 3D perspectives for the Hall, Staff / Administration and General Learning Spaces. It was noted that the Secretary's Environmental Indicative Assessment Requirements (SEARs) application was lodged.
- PRG Meeting No.12 6th September 2017
 PRG reviewed progressed Schematic Design plans, elevations and 3D perspectives for the Hall, Staff / Administration and General Learning Spaces.
- PRG Meeting No.12 20th September 2017
 Presentation of the developed General Learning Spaces, Multipurpose Hall and Staff / Administration areas incorporating EFSG compliance for internal discussion and consideration. Schematic design was being finalised.
- PRG Meeting No.13 18th October 2017
 PRG reviewed updated Schematic Design plans, elevations and 3D perspectives for the Hall, Staff / Administration and General Learning Spaces. Additionally, FFE typology and quantities were discussed.

2.6. Regulatory and Authority Consultation

Relevant pre-development application meetings with Council, meetings with local members and other identified stakeholders have been carried out as required.

2.6.1. Liaison with Council

Johnstaff Projects carried out consultation with Fairfield City Council, and attempted on multiple occasions to establish a dialogue with Council staff in regard to the proposed SSD DA. This included:

- Five (5) phone calls through September and October 2017, including discussions with a duty officer, and multiple attempts to liaise with a team leader or senior assessment staff. No responses have been received to date; and
- Two (2) emails in October 2017, including a general enquiry requesting a response to confirm the best point of contact to discuss the proposal, and an email directly to a Team Leader of assessment inviting comment on the project or a date to discuss at a meeting. No responses have been received to either of the emails to date.

The above correspondence addresses the SEARs requirement to consult with the relevant local authority, however we understand that DPE will refer the development application to Fairfield City



Council for comment as part of the DA assessment process. Therefore, we note that Council will ultimately have an opportunity to provide comment on the proposed development.

2.6.2. TfNSW and Roads and Maritime Services

Transport for NSW (TfNSW) and Roads and Maritime Services (RMS) both issued comments for inclusion in the SEARs for the proposed development, and these requirements have been addressed.

A joint meeting with the Senior Transport Planner representing both TfNSW and RMS was held in November 2017 to discuss the proposed development and receive feedback on any relevant matters that required consideration prior to finalising the project. The Traffic and Transport Assessment prepared by ARUP was discussed and it was noted that it adequately addressed the impacts of the school's increased student population on the local traffic and transport networks. Road safety around the school was also discussed, with TfNSW and RMS being satisfied with the recommendations of the Traffic and Transport Assessment in this regard.

2.6.3. Sydney Water

Sydney water has been contacted, via phone, to discuss the project and if they had any further comments required to be considered before SSD lodgement. No additional comments or input has been received.

2.6.4. Local Member

The local member is briefed on the project and the project status. The local member is supportive of the development and proposed facilities.



18.5 DEMOLITION WASTE MANAGEMENT SUB-PLAN (CDWMSP) CONDITION B17

Refer to B17 Folder CDWMSP

For the removal of hazardous materials, method of containment, control of emissions fibres and disposal at approved waste disposal facilities, see below:

18.6 **ASBESTOS:**

Refer:

Safe Work Australia:

<u>Code of Practice – How to manage and control asbestos in the workplace</u> <u>Model - Code of Practice – How to safely remove asbestos</u>

VIC - <u>Compliance Code - Managing Asbestos in Workplaces</u>

NSW - https://www.safework.nsw.gov.au/hazards-a-z/asbestos/asbestos-at-work

WA - <u>https://www.commerce.wa.gov.au/worksafe/asbestos-information-asbestos-</u> workplace

ACT - <u>https://www.accesscanberra.act.gov.au/app/answers/detail/a_id/50/kw/asbestos</u> QLD - <u>https://www.worksafe.qld.gov.au/injury-prevention-safety/asbestos</u>

NZ - <u>https://worksafe.govt.nz/topic-and-industry/asbestos/working-with-asbestos/</u> Icon will request from the client a hazardous substances audit report (Part5/Part 6 audit) prior to commencement of works. Where none is available one will be commissioned. The hierarchy of controls should be considered when assessing the presence of asbestos in the workplace:

ELIMINATIONRedesign works so asbestos does not need to be disturbe Isolation: Can the asbestos be encapsulated to eliminate disturbance					
SUBSTITUTION	Can the asbestos be safely removed so work can proceed				
ENGINEERING Decontamination units used during works					
ADMINISTRATION Develop safe work procedures and train workers					
PPE last resort					

The site induction process will include details of the location of asbestos as relevant. It will also reiterate the process to follow should any further suspect materials be found on site. Only those subcontractors and workers who are qualified and licensed and formally trained in accordance with relevant legislation, codes of practice and Australian Zealand Standards shall be involved in the asbestos removal process.

18.6.1ASBESTOS REGISTER

<u>Australian Operations Only</u>: Under State and Federal legislation, all sites where buildings or plant contain asbestos material are required to maintain an Asbestos Register where:

- The workplace is a building that was constructed before 1 January 2004, or;
- Asbestos has been identified at the workplace, or;
- Asbestos is likely to be present at the workplace due to previous use of the premises or site, or:
- Asbestos is likely to be present at the workplace from time to time.

Icon will obtain copies of Asbestos Registers from the Building Manager or client as required.

Where no Asbestos is identified, the Asbestos Register is to state that no asbestos is identified at the workplace if the person knows that no asbestos is identified or is likely to be present from time to time, at the workplace.

The Asbestos Register is to be reviewed and as necessary revised if:

- Further asbestos is identified at the workplace; or

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- Asbestos is removed from, disturbed, sealed, or enclosed, at the workplace.

The Asbestos Register is to be made accessible to all staff, especially Health and Safety Representatives and workers carrying out work, intending to carry out work, or whom may have carried out work at the workplace where asbestos may be present. Where Icon hands over the management or control of a workplace to another person, Icon will transfer the Asbestos Register for the workplace to that person. *Refer: Form 60 Asbestos Register*

18.6.2 INSITU ASBESTOS

If asbestos is identified, or is likely to be present, on site but it is not part of the scope to be removed then an **Asbestos Management Plan** must be developed. This plan must include information about the following:

- The identification of asbestos (Example: A reference or link to the asbestos register for the workplace and signage and labelling);
- Decisions, and reasons for decisions, about the management of asbestos at the workplace (Example: Safe work procedures and control measures);
- Procedures for detailing incidents or emergencies involving asbestos at the workplace;
- Workers carrying out work involving asbestos.

The Asbestos Management Plan is to be made accessible to all staff, especially Health and Safety Representatives and workers carrying out work, intending to carry out work, or whom may have carried out work at the workplace where asbestos may be present. The asbestos management plan is to be reviewed and revised where:

- There is a review of the asbestos register or a control measure;
- Asbestos is removed from, or disturbed, sealed or enclosed at, the workplace;
- A Health and Safety Representative requests a review where a circumstance referred to above affects or may affect the health and safety of a member of the work group represented by the health and safety representative, or the person with management and control of the workplace has not adequately reviewed the Asbestos Management Plan in response to the circumstance;
- At least once every 5 years.

18.6.3 ASBESTOS REMOVAL

An **Asbestos Removal Control Plan** (or equivalent per local legislative requirements) will be developed by the approved licensed contractor before asbestos removal work commences. Where asbestos is to remain in situ during the works, the site manager shall ensure that a procedure is documented to ensure that the material remains undisturbed or that workers are not exposed to health risks. All such areas will be signed appropriately, and all workers will be informed when they complete the site induction.

The asbestos removal control plan must include details of:

- how the asbestos removal will be carried out, including the method, tools, equipment and PPE to be used
- the asbestos to be removed, including the location, type and condition of the asbestos.

Specifications or drawings that are relevant to the asbestos removal can also be attached to the asbestos removal control plan to provide additional information about the asbestos.

18.6.4 PREPARING THE ASBESTOS REMOVAL CONTROL PLAN

When preparing the asbestos removal control plan, the licensed asbestos removalist should consult with the person who commissioned the work, the person with management or

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control of the workplace (if not the same person), workers and their health and safety representatives.

For the same reasons, if licensed asbestos removal work is being carried out at domestic premises, the licensed asbestos removalist should consult with the person who commissioned the removal work, the owner or the occupier (if not the same person).

18.6.5 ACCESS TO THE ASBESTOS REMOVAL CONTROL PLAN

Once the asbestos removal control plan is prepared, a copy must be:

- Given to the person who commissioned the licensed asbestos removal work;
- Readily accessible to workers and their health and safety representatives.

Where air monitoring is required during asbestos removal it will be undertaken by a qualified and licensed person independent of the removal process with a clearance inspection certificate provided prior to the area being returned for normal use. All air monitoring equipment will be calibrated and service per the manufacturer's specifications.

18.6.6 ASBESTOS AWARENESS TRAINING (A.C.T. ONLY)

All Workers working on construction projects in the A.C.T. are required to have completed the VET course Asbestos Awareness [10314NAT] or other WorkSafe ACT recognised specific Asbestos Awareness training.

The <u>WorkSafe ACT</u> website defines the training requirement (*ref: <u>WorkSafe ACT website -</u>* <u>Mandatory Asbestos Awareness Training</u>).

The completion of recognised Asbestos Awareness training is to be verified as part of the Site Induction process.

Workers on A.C.T. construction projects are not permitted to commence working on site until proof of completion of such recognised training is provided to Icon.

18.6.7 LABELLING

All asbestos materials must be suitably labelled in accordance with the Code of Practice – How to manage and control asbestos in the workplace (Safe Work Australia).

18.7 HAZARDOUS MATERIALS

The following hierarchy of control should be considered prior to the introduction of any hazardous substance and dangerous goods into the workplace:

ELIMINATION	ELIMINATION The first choice is always to eliminate the use of the hazardous chemical or substance. However, where elimination of the hazardous substance is not reasonably practicable, the Site Manager shall implement suitable control measures that will reduce the risk so far as is reasonably practicable.				
	Control measures to reduce the risk should be implemented in the following order of preference:				
SUBSTITUTION-Substitution of the substance or chemical;-Isolation of the substance or chemical from people;-Engineering controls (such as mechanical ventilation).					
ISOLATION	Can the process be enclosed, extraction systems etc?				
ENGINEERING	Can the plant/machinery have additional filtering devices installed?				
ADMINISTRATION	Where the above-mentioned control measures do not achieve a satisfactory reduction to the level of risk, the following additional controls must be considered for implementation together with substitution, isolation or engineering controls:				
	- SDS's				

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	 Training Administrative controls to limit the time/dose relations between the hazardous substance and individual; 		
	The use of PPE does not control the hazard but reduces the potential of the worker. PPE shall be used in conjunction of other, higher forms of control.		
PPE	 Where a SDS requires specific PPE this shall be provided to the worker; The safe use of the PPE shall be monitored and training and instruction provided to workers for the use of the PPE; PPE shall at all times be maintained in good condition and replaced as required. 		

18.7.1ASSESSING RISK

A risk assessment using the SDS as a reference must be conducted for all "Dangerous Goods" and "Hazardous Substances". The risk assessment should consider particular controls required to manage:

- Appropriate storage and refuelling processes, including security requirements.
- Handling and transportation around site
- Safe use and application,
- Recycling and disposal,
- Requirements to manage spillage and release.
- Managing Dangerous Goods Manifests
- Conduct an assessment of the quantity of dangerous goods on site against the threshold quantities in legislation. Where thresholds are met, prepare a Manifest of dangerous goods and notify the regulator per the below.

Refer: Form 42 Hazardous Substance Risk Assessment

18.7.2 HAZARDOUS CHEMICALS MANIFEST

Hazardous Chemicals	A list that must be prepared of hazardous chemicals			
Manifest	defined by the relevant safety legislation if those			
	hazardous chemicals exceed the Manifest Quantity.			
Manifest Quantity	The quantity of a hazardous chemical used, handled or			
	stored at the workplace which is prescribed in the relevant			
	safety legislation as the Manifest Quantity.			
Placard Quantity	The quantity of a hazardous chemical used, handled or			
	stored at the workplace which is prescribed in the relevant			
	safety legislation as the Placard Quantity.			

When working within operating facilities, the Project Manager will obtain a copy of the Client's Hazardous Chemicals Manifest.

Where chemicals are required to be stored on site as part of the project works and the quantities exceed the Regulated Manifest Quantity (refer states specific requirements), the Project Manager will ensure that a Hazardous Chemicals Manifest is prepared and that the Manifest is reviewed and kept up to date.

The Site Manager will ensure that, if the quantity of a hazardous chemical exceeds the Manifest Quantity, the regulator for the relevant safety legislation is notified and an emergency plan is prepared and given to the primary emergency services organisation. *Refer: Form 43 Dangerous Goods Manifest*



18.7.3 SAFETY DATA SHEET

An SDS must be provided for each chemical registered on the Hazardous Substances Register. The contractor or user shall provide and review the SDS and must ensure that:

- The version of the SDS is current as per local legislated requirements;
- Not altered in any way (except by the importer or manufacturer in accordance with the relevant safety legislation) a translation may be included by way of an attachment, but this must clearly state that it does not form part of the original SDS;
- Controls listed on the SDS shall be addressed in a SWMS.

18.7.4 CONTAINER INFORMATION

All chemical containers in the workplace must be suitable for their purpose and provided with information to allow people to use the substance safely. Information on the container must be legible, durable and clearly display the product name. Containers holding hazardous substances must be labelled in accordance with the relevant safety legislation and should generally include the following information:

- The product identifier;
- Name, address and contact phone number in Australia of the manufacturer or importer, who must reside in Australia;
- For each ingredient of the chemical the identity and proportion disclosed in accordance with the relevant safety legislation;
- Any hazard pictogram consistent with the correct classification of the chemical;
- Any hazard statement, signal word and precautionary statement consistent with the correct classification of the chemical;
- Any information about the hazards, first aid and emergency procedures relevant to the chemical, not otherwise included in the hazard statement or precautionary statement referred to immediately above;
- The expiry date for the chemical if it has one, and;
- The word 'HAZARDOUS' clearly and prominently displayed.

The information or label shall remain on the container until its contents have been removed and the container has been completely cleaned free of the substance or the contents have been neutralised, cured or chemically deactivated.

18.7.5 ATMOSPHERIC & HEALTH MONITORING

Dependent on the level of risk, monitoring of substances and chemical may be undertaken to either determine the level of exposure of prescribed hazardous substances or monitor the effectiveness of controls implemented. Where such monitoring is required the Site Manager or delegated representative shall co-ordinate with appropriately qualified persons to undertake such monitoring.

18.7.6 EXISTING IN-SITU HAZARDOUS MATERIALS

Prior to any excavation, demolition or refurbishment works commencing on site a hazardous substance survey will be undertaken by a competent person, this will include but not be limited to:

- an assessment of any contaminated soil;
- the presence of any material containing or suspected of containing asbestos;
- light fittings containing PCBs;
- synthetic mineral fibres (SMFs); and
- lead paint.

Where the survey identifies the presence of hazardous materials/substances a risk assessment is to be undertaken and incorporated into the Project Risk Assessment.

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Procedures shall be developed outlining how the material is to be safeguarded (where not being disturbed) or removed and/or treated in accordance with regulatory requirements. Procedures are to include any requirements for atmospheric monitoring and health surveillance monitoring. In the case of Asbestos the risk assessment and procedures are to be outlined in a Safe Work Method Statement and/or asbestos management plan prepared by the qualified subcontractor.

Procedures for the removal or treatment of hazardous substances are to be in accordance with the relevant Regulations and Codes of Practice for Hazardous Materials.

On completion of the removal or treatment of any hazardous material, a clearance certificate shall be obtained from a competent person to verify safe removal or treatment has been completed.

In the event of the discovery of any suspect material being found in a location that has not been previously identified by the hazardous substance/material survey, the Site Manager or Project Manager are to order a cessation of work in the immediate area where the material was discovered and seek advice from a competent person on the actions to be taken. All identified hazardous material(s) will be removed in accordance with the legislative requirements and a written SWMS/JSEA which is to be provided to site management for review prior to any removal works commencing.

The Project Manager is to ensure the relevant contractor provides Icon with the following information:

- copies of all receipts for the removal and disposal of the hazardous materials;
- clearance certificates declaring the extent of removal of hazardous materials;
- copies of all air monitoring results;
- notification to any statutory authority; and
- removal by an appropriately licensed/registered vehicle.

18.7.7 SPILL KITS

A spill kit is available on site to immediately contain any substance spills. Spills will be reported by the Site Team for further investigation and/or formal reporting as per the Incident Management procedure.

Refer: PRO 008 Incident Management

18.7.8 CHEMICAL, FUEL OR REFRIGERANT LINES

Prior to works commencing on chemical, fuel or refrigerant lines the type of chemical/fuel/refrigerant is identified and systems (SWMS/JSEA) are put in place to:

- Prevent uncontrolled escape of chemical/fuel/refrigerant; and
- Identify handling and emergency control measures in accordance with relevant SDS, legislation and standards.
- Location of all services has been identified and documented and the relevant services have been disconnected or made safe by a suitably qualified person prior to working on or near chemical/fuel/refrigerant lines.
- Workers hold suitable qualifications and have been adequately instructed and trained in the safe work methods regarding work on chemical, fuel or refrigerant lines.
- The necessary PPE is available and being used to minimise risk of inadvertent contact.

18.7.9 CONTAMINATED / FLAMMABLE ATMOSPHERE

When works are to be undertaken in a contaminated or flammable atmosphere a SWMS/JSEA will be developed to ensure air quality and ventilation needs have been assessed and controlled, taking into account the nature of the work, duration of the exposure and the number of workers exposed. The SWMS/JSEA will contain the following specific information:

- Exposure levels will be identified and have been deemed to be within acceptable limits, in accordance with legislative requirements

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- Emergency procedures specifically addressing and controlling the contaminated atmosphere.
- Continual monitoring of the atmosphere for changes in atmospheric contamination.
- Outlines the specific PPE to be used by workers to minimise the exposure to atmospheric contaminants in accordance with the relevant legislation.

18.7.10 INFORMATION, INSTRUCTION AND TRAINING

Employees who are required to use or are likely to be exposed to a hazardous substance or chemical, or dangerous good at the workplace are to be provided with adequate information, instruction and training on the safe use handling and storage of the substance or chemical.

Training may take the following format:

- Workers complete a review of the SDS relevant to the product in use. This can be done at the time that they sign into the relevant SWMS
- In some instances, training may involve a specialised consultant i.e. hygienist who will address the site, or relevant workers, to provide information regarding this specific site issue. In this instance an attendance register or toolbox meeting form can be used as a record of training.
- Suitable controls are to be addressed during SWMS/JSEA development using the Safety Data Sheet as a reference. Sign on into the SWMS can be used as a record of training.
- Addressed in site specific induction
- Other method as determined by the site manager

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Demolition & Waste Management Plan

Fairvale High School

PROJECT: 1 Thorney Road, Fairfield West

DEMOLISHER: MERCON GROUP Pty. Ltd.

Demolition Work Plan

Residence – 1 Thorney Road, Fairfield West No.: 1 July 2018

Fairfield West Page 1



Address: 1 Thorney Road, Fairfield West

Licence No. AD 211599 ABN 42 163 274 084

George Merhi Mobile: 0405 145 100 Phone:

1300 MERCON COMMENCEMENT DATE: TBC

MERCON GROUP WH&S and ENVIRONMENTAL POLICY

Mercon Group Pty Ltd management has a commitment to workplace health, safety and the environment throughout all it's project activities.

This is achieved through:

- complying with statutory requirements, codes, standards and guidelines;
- setting up objectives and targets with the aim of eliminating work related incidents in relation to our workplace activities, products and services; and
- Defining roles and responsibilities for all staff on occupational health, safety and environment. Strategies

will include:

- ensuring workplace health, safety and environment management principles are included in all organisational planning activities;
- providing ongoing education and training to all of our employees;
- consulting with employees and other parties to improve decision-making on workplace health, safety and environment matters;
- ensuring incidents are investigated and preventative & corrective actions are communicated,
- distributing workplace health, safety and environment information, including this policy, to all employees and interested parties;
- providing enough resources to ensure workplace health, safety and environment is a foremost part of the organisation; and
- ensuring effective injury management and rehabilitation is provided to all employees.

MERCON GROUP PTY LTD	
respect for Client policy, personnel and propert	y and its neighbours and the general public
George Merhi	
Director	Date: 16/1/2019

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DEMOLITION WORK PLAN

1. Overview

Mercon Group Pty. Ltd. has prepared this demolition work plan for the implementation on;

The Demolition of the Existing buildings and COLA

2. Aim

The objective of this demolition work plan is to ensure that:

- a. The environmental aspects and impacts related to the demolition at this project are identified, controlled and managed to ensure acceptable environmental outcomes during the demolition processes.
- b. The demolition works are performed to provide Mercon Group and the Client with the certainty that all company standards, contractual, legislative, development conditions and occupational health & safety, environmental and community obligations are met during the course of demolition.
- 3. Scope

The Scope of this demolition work plan covers:

- a. Environmental Impacts resulting from Demolition activities:
 - Dust and Fumes
 - Water Control temporary services and usage
 - Surface Water and Silt control
 - Disposal of Site Materials
 - Traffic Control
 - Utilities & Public Services
 - Noise
 - Vibration
 - Disposal of Waste

b. Long Term impacts that may be influenced by demolition:

- Social Environment and Public Amenity
- Local Flora and Fauna
- Cultural, heritage significance

c. Worker and Neighbourhood impacts influenced by demolition:

- Health & Safety
- Traffic Control



4. Legal and Statutory Obligations

This Demolition Work Plan has been compiled to be above mentioned scope and to comply with the following criteria:

- Conditions of Contract & associated documentation
- Conditions of Development Application Consent
- Workplace Health & Safety Act 2011 (as amended)
- Worplace Health & Safety Regulations 2011(as amended)
- NSW Environment, Planning & Assessment Act 1979 (as amended)
- NSW Environment, Planning & Assessment Regulations 2000 (as amended)
- Australian Standard AS 2601:2001 Demolition of Structures
- Australian Standard AS1892.5:1999 Portable Ladders Part 5, Selection, safe use and care
- Australian Standard AS1576:1995 Scaffolding
- Australian Standard AS4501:2008 Occupational Protective Clothing
- Australian Standard AS 2436:2010 Guide to noise and vibration control on construction, demolition and maintenance sites

Codes of Practice:

- How to safely remove Asbestos- Safe Work Australia
- Demolition Work Safe Work Australia
- Preventing falls in Housing Construction Safe Work Australia
- Safe Work on Roofs. Part 2 Residential NSW Code of Practice
- Cutting & Drilling Concrete and other Masonry Products NSW Code of Practice
- Work near overhead power-lines NSW Code of Practice
- Safe Working at Heights NSW Guidance Notes
- Use of Ladders NSW Guidance Notes
- Working with Asbestos NSW Guidance Notes
- 5. Project Risk Assessment

It is Mercon Group Company procedure that prior to conducting any work on site that a comprehensive Workplace Health Safety and Environmental Risk assessment is carried out to identify all foreseeable risks and a Safe Work Method Statement SWMS document together with the proposed controls to manage the risks and the responsible parties.

Mercon Group shall induct all members of the site crew in Safe Work Method Statements SWMS to all significant and high risk activities performed during the demolition process.



6. Project Organisation, Responsibility and Accountability



Mercon Group Andre Merhi Works Manager

Mercon Group Site Supervisor

Mercon Group	
Personnel & Subcontractors	

The Mercon Works Manager shall direct and support the implementation of the demolition work plan at all levels of site activity and ensure that all the project objectives are addressed and results are regularly communicated to Mercon Managing Director.

The Mercon Site Supervisor shall report immediately any significant health & safety or environmental issues including notices, complaints deficiencies and re-sourcing issues to Mercon Works Manager.

The Mercon Site supervisor shall ensure that all planned control measures are established. Ensure through the site induction process all site employees are aware and understand all relevant health & safety and environmental issues relating to the site prior to their commencement of work on the Project. Report immediately any health & safety or environmental breaches or complaints to Mercon Works Manager for action.



7. Site Preliminaries and Establishment

Prior to the commencement of any Demolition activities on site the following must be established in conjunction with the Client:

- Property and Public protection, Security Fencing, Hoardings
- Site Access and Egress (incl. Gates and crossovers),
- Vehicle Hardstand Areas, Wash-down Facilities etc.,
- Identification and Protection to the Trunk, Branches or Roots of any Protected Trees
- Health & Medical facilities including suitable first aid requirements,
- Emergency Contact details and Evacuation Area,
- Display of approved site working hours,
- Mercon Project Signage to street frontage and including the contact name and phone number in the event of an emergency,
- Silt, Drainage and Erosion controls required on site,
- Identification, Location and Termination (if necessary) of all site utilities and services within the site area and the surrounding public domain,
- Signed notification of the termination of all site utilities and services within the dwelling or work areas,
- Survey to identify the extent or presence of any contaminated or hazardous substances.
- A Dilapidation Report shall be conducted by the Client on adjoining properties in case any damage is sustained during the demolition works

8. Programming and Sequencing of Works

Works shall be programmed to minimise and consolidate work areas and remove like materials at the same time. All walls, beams, heads and the like shall not be removed prior to checking if load bearing and such loads adequately supported prior to removal. In the event that removal of any structural element may render the building unstable then the Client shall consult with the Structural Engineer prior to commencement of such works. Asbestos removal should be carried out prior to any other disturbance of material to avoid damage in place or cross contamination.

Due to this dwelling being close to the side boundaries the immediate neighbouring residents shall be informed, in advance, of any significant or high risk work to be carried out and approximate duration which may impact on their amenity.

9. Hazardous Materials – Asbestos

The above mentioned hazardous substance survey shall be conducted to confirm the location and extent of Asbestos Sheeting and such areas shall be clearly marked with spray paint. This area shall be completely sealed off as an exclusion zone and sign posted. Refer to ICON CEMP section 15.1.1 for detailed procedure.



Asbestos removal shall be by the wet method and use of hand tools only. All removal, clean up, personal decontamination and clearance procedures shall be in accordance with the SAFE WORK AUSTRALIA CODE OF PRACTICE. All Material shall be immediately wrapped in approved 100um black plastic and efficiently disposed at a licenced tipping facility.

The General Area must be barricaded and appropriately sign posted and all personnel in this immediate vicinity (including outside of sealed area) must be trained in Asbestos removal and wear the appropriate personal protection suit and breathing apparatus during the preparation and removal process.

10. Project Methodology

The aim is to demolish the existing single level residential structure.

The works involve removing:

The roof tiles & timber roof structure, All masonry/ plaster board walls, Timber flooring and joists, Timber decking and timber cladding to rear, Redundant Services, Front Boundary Fence, Concrete Driveway and Paving,

Services and internal fittings:

Disconnect all services from residence and receive written confirmation from relevant trade or service provider. Remove all furniture, flooring coverings, doors, services and associated appliances, fittings, pipework, wiring or the like and thoroughly clean all internal surfaces of residual dust & dirt. Asbestos:

Identify and remove any asbestos products by the wet method prior to commencing any demolition works. Provide isolation curtains to contain and seal off work areas. No other personnel apart from those actively engaged in asbestos removal process shall be allowed within the building, it's surrounds or load out areas during the asbestos removal process and until clearance certification has been received. Roof Structure:

Drop Internal Ceiling material with use of aluminium scaffold. Install scaffold planks (or sheet flooring plywood) above ceiling joists locally for access to rafters, purlins and struts,

When tiles are sufficiently removed and safe to do so disassemble the roof pitch structure of battens, rafters, purlins and struts by hand or saw close to supporting members.

The excavator machine is to be used to remove the remainder of the structure down to the ground.



Masonry/ Plaster board Walls:

After removal of any windows or glazing, break front walls (for access) inward systemically in small segments in both height and width and clear away immediately to prevent large impacts or overloading the floor structure.

Flooring and Floor Joists:

Cut access into floor boards at convenient location to allow boards to be removed progressively across each room and when complete remove joists by disconnection or sawing adjacent to their supports. Aluminium Scaffold shall be used in areas where a fall of < 2 metres is possible. A similar procedure can be used for timber decking at rear.

Front Fence, Concrete Driveway, and paving:

With the use of an excavator and mechanical grab attachments lift elements and break into manageable segments to be loaded out and transported by tip truck and disposed responsibly to licenced recycler.

11. Emergency & Evacuation Response Plan

Mercon shall establish an emergency and evacuation plan. This Plan shall include as a minimum nomination of the person responsible in the event of an emergency, identify an evacuation muster station, and a contact list of all public utilities, Workcover, local medical facilities, police and the certifying authority.

12. Sediment Control Plan

The Client shall be responsible for all Site run-off collection. Prior to any run-off water being drained into the stormwater system it must be filtered by silt barriers, hay bales or filter socks to control suspended silt particles from entering the stormwater system or waterways.

13. Traffic Control Plan

A traffic control plan to council requirements shall be implemented to control all truck movements arriving or departing the site. This plan shall address any potential impact on traffic flows and neighbouring properties, including hours of operation, wash-down of departing trucks, maintaining the public domain free of dirt, debris & litter and for the use of traffic controllers during times of traffic movements or strategic operations.



14. Transport, Handling & Stockpiling Plan

Trucks used for hauling demolition material shall enter and exit the site by the designated ingress and egress point. These trucks while on-site shall remain on hardstand areas and not come in contact with soils at anytime unless site conditions require it. All trucks shall be inspected prior to egress of the site to ensure that any demolition material is a securely loaded and covered.

Any accumulation of waste shall be placed in designated areas or bins for removal. Any materials deemed to be resalable or reused shall be appropriately stockpiled for future access or if the condition is unsatisfactory then disposed of through relevant recycling companies.

Materials deemed to be contaminated or hazardous shall be treated in accordance with the relevant WH&S regulations and WorkCover Codes of Practice requirements. In all cases with hazardous materials, only relevant specialist personnel will be engaged for removal, treatment, safe handling and disposal at a licensed tipping facility. Operating practices that prevent spillage from occurring such as re-fueling operating plant, responsibly loading of trucks, load covering, slow and careful driving and careful and attentive loading practices will be adopted. Mercon Site Supervisor shall be responsible to monitor and maintain these practices during demolition activities.

15. Dust Control Plan

Demolition shall be performed in such a way as to minimise the production of fugitive emissions emanating from the site. Suppression of dust will be of primary importance during all phases of demolition. The Demolition personnel shall conform to all WorkCover regulations for the handling of dust to ensure emissions are minimised and within regulation limits.

The following dust control measures shall be strictly adhered to:

- All loads of building debris leaving the site shall be securely covered with a tarpaulin
- Water Sprays will be used if required to suppress dust. The water shall be applied by use of a garden hose levelled at the ground surface wherever the surface has dried out and has the potential to generate visible levels of dust either by the operation of equipment or by the action of wind over the surface.
- Plastic Sheeting (VLDPE or PVC) or other dust mitigating measures shall be used to address dust generation over demolition faces as applicable: o During non working hours (at Areas currently worked on) o If dust is being generated from a given surface
 - o If fugitive emissions have the potential to cause the ambient air quality to exceed EPA limits.



- The demolition areas exposed at any one time shall be limited wherever possible by working in a localised and progressive manner.
- All demolition equipment must have dust attenuation measures which makes the equipment suitable for use in urban areas.
- The Protective measures shall include covering feed openings with suitable curtains.

16. Odour Control Plan

When material is uncovered that generates odours, then following odour control measures shall be established:

- Plastic Sheeting (VLDPE or PVC) shall be used to cover stockpiles,
- Odour Suppressants such as "Biosolve" may be used to spray over the offending soils.

17. Noise & Vibration Control Plan

The demolition shall be performed in such a way as to minimise unnecessary noise and vibration. Regulatory Limits for noise and vibration will be strictly adhered to by applying the following controls:

- All equipment will be selected on the basis of its noise attenuation performance,
- All equipment will comply with regulatory standards for noise attenuation,
- Noisy equipment will be located in such away to limit the acoustic impacts,
- Stockpile areas will be positioned to account for their acoustic barrier properties but equally taking into consideration the noise generated during stockpile access,
- Attention will be given to siting of overnight parking locations to minimise start up and end of day disturbances,
- Hours of Operation will be strictly adhered to, including prevention of noise occurring from early arrival of equipment to site prior to agreed operating hours.

18. Environmental Monitoring Plan

An environmental monitoring program shall be initiated prior to the commencement of works on site and consist of the following components.

• Inspections

The following inspections will be conducted during demolition activities: o Plant & Equipment o Noise & Dust o Site Security o Tree Protection o Sedimentation and Site Drainage



o First Aid Facilities o Fire Fighting Equipment

Odour Monitoring

Odour detection in the working environment will be performed primarily through personal observations by the Site supervisor. Local residents my contact the Site regarding information on the project and to advise if dust and/or odour nuisance is observed. The phone contact will be available during normal operational hours and the contact number will be displayed on the Mercon Signage.

• Noise Monitoring

There are no operational targets set for noise monitoring but in the event that noise or vibration was to become an issue the Site Supervisor will propose a noise monitoring program that shall be associated with the noisy activity.

Emission Monitoring

Emissions Diesel and Petrol powered Plant and equipment working in partially covered areas which could pose a potential build up of carbon monoxide gases shall be monitored to assess the carbon monoxide levels during the work operation. Such work if carried out for long or sustained duration shall be performed with alternative powered Plant or Equipment.

• Traffic Disruptions

Any minor traffic disruptions shall be controlled by a traffic controller in accordance with the Traffic Management Plan. If any, Permits (Police, Local Council etc.) shall be applied for and approvals received, such approvals shall be available on site prior to any part road closure being made. Neighbours affected shall be informed by letterbox drop.

19. Contingency Planning For Works

During the demolition, conditions may arise which require a specific response to prevent or mitigate an environmental impact. In order to prepare for any contingency a range of pre-determined contingencies will be planned. The table shown below summarises anticipated problems, the resulting impacts they may cause and the proposed response actions to be taken in the course of such an event.

No Contingency plan will substitute for sound practice during any site activity. Accordingly, the Site Supervisor has the responsibility to monitor the works at all times and manage all potentially significant activities in a proactive manner. Records of all actions relating to protection measures, contingencies, events and impacts will be incorporated into the daily diary completed by the Site Supervisor.



Any non conformance shall be fully documented as soon as practical after the event even if it is prudent to attend to the corrective actions and close out the incident immediately.

	Contingency Planning	
Anticipated Problem	Potential Impact	Corrective Action
Discharge of fuel/oil from plant or equipment	Contamination of surface waters and/or soils	Remove source, use adsorbent material to remove oil; make repairs or replacement as required
Excessive Dust	Nuisance Complaints; Eye Irritations	Use water sprays; provide curtaining or shade-cloth or stop dust generating activity until better dust control measures can be achieved.
Excessive Noise	Nuisance Complaints	Identify source and review noisy equipment, erect temporary acoustic barrier if possible; restrict usage to suitable times.
Excessively Wet Materials	Generation of turbid waters	Stockpile and dewater on site; or add absorbents.
Uncovering Contaminated Materials	Contaminated Material to be capped, contained or disposed	Sign Post and Seal off area; seek advice from specialist; dispose through an approved waste facility
Flooding by extreme rainfall event	Contamination of Stormwater and/or contact with	Sediment Filters installed on the sediment basin overflow.
	contaminated soils	Inspect adequacy of all silt protection in place. Divert water flows as required
Unknown Asbestos is observed in uncovering existing works	Health and Safety Issues	Sign Post and Seal off area; specialist removal & dispose through an approved waste facility
Unacceptable levels of volatile gases	Health and Safety Issues	Cover exposed soil stockpiles & excavation pits, Use mitigation agent (Biosolve)
Excessive Odours	Nuisance Complaint	Use of Odour Suppressants cover exposed stockpiles (Biosolve or SSIOO-D) and excavation pits
Equipment Failures		Maintain spare equipment and parts; keep rental options available; shut down affected operations until repairs or replacement is made



17. Objectives and Targets

Objectives	Targets	Assessment/Record
To achieve minimal Lost Time	Zero Lost Time Injury Zero Lost Time Incidents	Record any injury in accordance with Mercon policy
No Complaints or disruptions to Client or Neighbours No harm to the environment	No Neighbourhood complaints No Client complaints No Pollution Incidents	Incident Reports Safety Inspections
Implementation and Maintenance of Safety & Environmental management Plans	No incidents or near misses	Incident reports
Ensure compliance in project safety inductions requirements	100 % Mercon employee site and work inductions	Mercon training Register SWMS Tool Box talks
To identify employee training needs and development	Regular Training Site Training & Awareness	Mercon Training register Toolbox Talks
Maintain compliance with OHS &E Legislation; OH&S regulations and DA conditions and Council ordinances	Zero Workcover prohibition & EPA or Council Infringement notices issued	Safety Inspections, Incident Reports, Infringements & Prohibition Notices
Identify all Site Specific OHS&E Risks	Implement & Maintain controls identified Site Specific OHS&E Risk Register	Maintain Current Site Specific BLS OHS 600 Risk Register. Inspections & Records of Controls in BLS OHS 600 Current Site Control Map Monthly Reports

WASTE MANAGEMENT PLAN

1. Purpose

The purpose is to ensure that resources are conserved and waste is processed responsibly by minimizing waste generation and maximizing reselling reusing and recycling of materials.

2. Scope

The scope is to address the waste management procedures for the demolition activities, undertaken during the proposed construction of the project.

- 3. Major Measures
 - 3.1 Materials Selection and Ordering



- Material Safety Data Sheets and Product Information are available, where required, to ensure that safe handling, storage and/or shelf life procedures are implemented.
- Assess the suitability of purpose for equipment purchased or hired.

3.2 Waste Recycling:

- Landfill waste generation from demolition activities on the site will be minimized, by resale, reused or recycled as applicable; Resale or reuse shall be determined by the condition of material after being retrieved as to its suitability.
- Dedicated and Secure containers will be provided on site for non-recyclable waste;
- Waste that can be recycled will be separated for removal off-site. This will typically include:
- Concrete/Mortar/Floor & Wall Tiles
- Bricks
- Timber
- Steel/Copper
- Plaster/Plasterboard
- PVC
- Mixed Waste will be transported off site to a recycling depot where it will be further sorted for reuse and/or recycling;
- 4. Waste Management Principles
 - 4.1 Educational, Training and Awareness
 - (a) Awareness and Knowledge of the Waste Management Plan (WMP) \Box
 - Avoid Reuse Recycle Dispose

Mercon aims to reduce the amount of waste to landfill by adopting the waste management hierarchy of <u>avoid > reuse > recycle > dispose</u> in the demolition processes. The following document outlines waste management procedures to be carried out to assist in reducing waste.

The first step is to ensure that all personnel involved are inducted, aware and understand the importance of the Waste Management

Principles including the social and monetary costs landfill disposal.

• Company & Site Induction's

To achieve the awareness of the Waste Management Principles to all personnel on site

• Coding or signage



Receptacles' can be colour coded or sign posted to assist in the identification of usage.

(b)Procedures of Waste Management Principles

The following approach will be adopted to waste management planning;

- Awareness by all personnel for construction waste and ongoing waste management on the site.
- Create an induction item to be incorporated in the Site Specific Induction.
- Engage a suitable waste management contractor.
- Include in Safe Work Method Statements SWMS
- Supply adequate bins and efficient and timely removal methods. □ Monitor feedback reports from waste management contractors.
- Upon completion of daily and specific activities leave site clean and free of debris or litter.
- 5. Waste Removal procedures

Demolition Phase

During the demolition phase, all materials will be catagorised and temporarily stored on site in relevant areas for re-sale, reuse, recycle or refuse for the removal by Mercon Truck or a waste management contractor engaged by Mercon.

6. Waste Management Contractor

All waste disposal shall be transported to a relevant licensed tipping facility. All truck movements shall be recorded and verification records established by the tipping facility shall be available on request.



MATERIALS ON SITE			DESTINATION		
	Estimated		Reuse & Recycling		Disposal
Type of Material	Volume (m3)/(m2)	Wt (t)	On Site Proposed Methods	Off Site Proposed Methods	Landfill Site
CONCRETE/MORTAR FLOOR & WALL TILES	0m2 0m2	Ot Ot		Recycling Plant	Nil
ROOF TILES	100m2	Ot		Sell or Recycling Plant depending on condition Damaged Items to be placed with general waste for recycling	Nil
TIMBER Bearers, Joists, Rafters Flooring Stairs Windows Doors Cupboards, Vanities, Shelves		0.5t 0t 0t 0.2t 0.2t 0t		Sell or Recycling Plant depending on condition Damaged Items to be placed with general waste for recycling	Nil Nil Nil Nil Nil Nil
BRICKS Brick, Render, Paint (Lead Based), Clean Brick Rubble	0 No	4t 0t		Sell or Recycling Plant depending on condition Damaged Items to be placed with general waste for recycling	Nil
STEEL/COPPER Reinforcement Plumbing) Electrical)	0	Ot Ot Ot		Recycling Plant Damaged Items to be placed with general waste for recycling	Nil

PLASTER/PLASTERBOARD Ceilings, Walls	0m2	2t	R D	Recycling Plant Damaged Items to be placed with general waste for recycling	TBA by waste management contractor
ASBESTOS	40m2		T ar	Frained Removalists in wet method and Responsibly packaged and disposed at licensed tipping facility	TBA by waste management contractor
GENERAL WASTE	0	5t	R	Recycling Plant	TBA by waste management contractor
GREEN WASTE	0	0	С	Chipped and used as soil stabilization	Landfill site



B17. The Construction and Demolition Waste Managemetn Sub-Plan (CDWMSP) must address but not be limited to, the following:

(a) Detail the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations.

Quantities and Type of Waste Generated:

- Excavated Material total approximate material 2760m3
- Trees, shrubs, top soil Total approximate material 100m3
- Building Material (during demolition) Total approximate 3000m3
- Construction waste Total approximate 6000m3

Proposed Locations for Disposal Locations:

- Benedict Recycling 33 39 Riverside Rd Chipping Norton NSW 2170
- Bingo Recycling 165 Woodpark Rd, Smithfield

Legislative Requirements:

<u>General:</u>

- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2017
- Protection of the Environment Operations Act 1997

Contaminated Waste Management:

- Protection of the Environment Operations Act 1997
- Crown Lands Act 1989
- Contaminated Land Guidance
- Hazardous Waste Guidance

Air Quality and Dust Control:

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Clean Air) Regulations 2010
- Smoke Free Environment Act 2000
- Smoke Free Environment Regulation 2007
- Public Health Act 1991

Noise and Vibration:

- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Nosie Control) Regulations 2008
- Noise Guidance

Hazardous and Flammable Material Management:

- Work Health Safety Regulation 2011
- Dangerous Goods Guidance



18.8 CONSTRUCTION SOIL AND WATER MANAGEMENT SUB-PLAN (CSWMSP) CONDITION B18

Refer to B18 Folder CSWMSP

Management of Construction Works in Wet Weather

Icon will ensure that all details in JN Consulting Engineers Environmental Site Management plans are implement onsite prior to works commencing. This includes ESM 1 to 7 attached to this plan. This will include the following controls:

- 1. Vibration/cattle grids
- 2. Gravel pads
- 3. Wash out bays
- 4. Sandbag Traps
- 5. Sediment/Silt Fences
- 6. Silt Fences
- 7. Earthbanks
- 8. Sediment Basins

By implementing the correct controls in place prior to site works commencing, in the event of inclement weather the environmental effects to the site will be minimal. These controls will be reviewed each week on the Icon safety walk and within 3 days of a rain event. If required additional controls may need to be implemented including the use of spray on polymer which will assist with batters and steep slope stabilisation.

The Environmental Officer shall develop and comply with a schedule of inspections while the site is operating, as well as additional environmental inspections following a Significant Rain Event. The site will be inspected by the Environmental Officer or his representative and if required, corrective action will be taken.

Wet weather poses numerous risks for construction workers, so it is critical these are recognised and managed by both workers and employees on site. During inclement weather events, depending on their nature, works will normally cease until the Icon Site Manager deems the site safe in conjunction with the representatives of the safety committee.

There are no specific laws relating to working conditions in wet weather. However, Icon will review weather forecasts prior to undertaking any construction work so that appropriate measures can be taken to ensure worker safety and the correct controls are in place to protect the surrounding environment. It is important that work ceases if there is an assessment that the level of risk from the weather is not acceptable to any workers on site.

Where heavy rain is forecast, open trenches, excavations, scaffolding (support) and lift wells and pits may quickly become hazardous and need to be reviewed. Along with ensuring environmental controls are installed and in good condition.

When scheduling works, site management will consider weather forecasts and, where possible, reschedule specific tasks that are regularly affected by inclement weather. This includes tasks such as, but not limited to:

- Roofing;
- Working on bondek and steel decking;
- Concreting;
- Tasks using products that can emit vapours when exposed to heat;
- Working outdoors/earthworks.

Materials are not to be left stored onsite throughout the day, a laydown area will be provided in a level sectioned off area as determined by the Icon Site Manger.

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03 March 2020

Icon Co (NSW) Pty Ltd Level 2, 179 New South Head Road EDGECLIFF NSW 2027



Our Ref: CRPT-N0200030.02B

Dear Sir,

Re: Civil Services Design Statement

Project:	NSW Public School Project – Fairvale High School (HS)
Client:	Icon Co (NSW) Pty Ltd
Address:	1 Thorney Road
	FAIRVALE WEST NSW 2165
Drawing Nos:	• 20161274 C001 NOTES & LEGEND-D

- 20161274 C050 TYPICAL DETAILS SHEET 1-G
- 20161274 C051 TYPICAL DETAILS SHEET 2-D
- 20161274 C052 TYPICAL DETAILS SHEET 3-C
- 20161274 C075 GROUND FLOOR PAVEMENT PLAN ZONE A & B-A
- 20161274 C076 GROUND FLOOR PAVEMENT PLAN ZONE C-A
- 20161274 C100 GROUND FLOOR STORMWATER PLAN ZONE A & B-F
- 20161274 C101 GROUND FLOOR STORMWATER PLAN ZONE C-H
- 20161274 C210 FIRST FLOOR STORMWATER PLAN ZONE A & B-E
- 20161274 C220 SECOND FLOOR STORMWATER PLAN ZONE A & B-E
- 20161274 C300 ROOF STORMWATER PLAN ZONE A & B-E
- 20161274 C301 ROOF STORMWATER PLAN ZONE C-E

Jones Nicholson confirm that the enclosed drainage design has been prepared in accordance with

- Institution of Engineers' publication "Australian Rainfall and Runoff" (2016);
- Fairfield City Stormwater Drainage Policy 2002;
- Managing Urban Stormwater;
- AS3500.3 Plumbing and Drainage, Stormwater Drainage;
- National Construction Code (NCC) Plumbing Code of Australia (PCA) 2019,
- Education Facilities Standards and Guidelines (EFSG) sections:
 - o DG95 Stormwater;
 - o DG96 Civil Works.

jn.com.au

JONES NICHOLSON PTY LTD ABN: 51 003 316 032 BRISBANE GOLD COAST SINGLETON SOUTHERN HIGHLANDS

SYDNEY-CBD SUTHERLAND WOLLONGONG GOULBURN



For and on behalf of Jones Nicholson Pty Ltd

Yours sincerely,

Self ti

Billy Adzioski Associate Civil Engineer

Bachelor of Engineering (Civil) Master of Project Management



ENVIRONMENTAL SITE MANAGEMENT LEGEND

ALONG THE SITE BOUNDARY

----- PROPOSED BUILDING LINE 🗕 🗕 🗕 🗕 🗕 🗕 🗕 PROPRIETARY SILT FENCE



TEMPORARY MASS CONCRETE FOOTPATH CROSSING.

UNDISTURBED NON-TRAFFICABLE AREA

KERB INLET PITS.

DIVERSION BANK

SURFACE INLET DRAINAGE PIT WITH SURROUNDING FILTER FABRIC INLET SEDIMENT TRAP OR FILTER TUBES (SANDBAGS)

TEMPORARY FILTER TUBE WITH SAFETY BARRICADE TO

TEMPORARY GEOTEXTILE WRAPPED HAY BALES/SAND BAGS

STOCK MATERIALS

SITE EQUIPMENT LOCATIONS

ENVIRONMENTAL SITE MANAGEMENT

- 1. EROSION & SEDIMENT CONTROLS TO BE INSTALLED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION & THE NSW DEPARTMENT OF HOUSING "BLUE BOOK" - SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER, 2004. REFER TO THE BLUE BOOK FOR STANDARD DRAWINGS "SD"
- 2. SEDIMENT & EROSION CONTROLS MUST BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS OR DEMOLITION ACTIVITY. THE LOCATION OF SUCH DEVICES IS INDICATIVE ONLY AND FINAL POSITION SHOULD BE DETERMINED ON SITE.
- 3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MEASURES ARE TAKEN DURING THE COURSE OF CONSTRUCTION TO PREVENT SEDIMENT EROSION AND POLLUTION OF THE DOWNSTREAM SYSTEM, SUPERVISING ENGINEER SHOULD BE CONTACTED IF IN DOUBT. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED SOIL STOCKPILE SITE.
- 4. RETAIN ALL EXISTING GRASS COVER WHEREVER POSSIBLE. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE. A SEDIMENT FENCE TO BE PLACED DOWNHILL OF STOCKPILE.
- 5. AREAS OF SITE REGRADING ARE TO BE COMPLETED PROGRESSIVELY DURING THE WORKS AND STABILISED AS EARLY AS POSSIBLE. THE SUPERVISING ENGINEER MAY DIRECT THE CONTRACTOR TO HAVE AREAS OF DISTURBANCE COMPLETED AND STABILISED DURING THE COURSE OF THE WORKS.
- 6. ALL DISTURBED AREAS ARE TO BE SEEDED & FERTILISED WITHIN 14 DAYS OF EXPOSURE. 7. ALL EXISTING TREES TO BE RETAINED UNLESS SHOWN OTHERWISE ON APPROVED DRAWINGS. TREES RETAINED ARE TO BE PROTECTED WITH A HIGH VISIBILITY FENCE, PLUS
- FLAGGING TO INDIVIDUAL TREES AS NECESSARY 8. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADEN WATER, UNTIL SURROUNDING AREAS ARE PAVED OR REGRASSED, GRAVEL OR
- GEOTEXTILE INLET FILTERS TO SD6-11 & SD6-12. 9. ALL SILT FENCES & BARRIERS ARE TO BE MAINTAINED IN GOOD ORDER & REGULARLY DESILTED DURING THE CONSTRUCTION PERIOD. SILT FENCES TO SD6-8 OR SD6-9.
- 10. STOCKPILES OF LOOSE MATERIALS SUCH AS SAND, SOIL, GRAVEL MUST BE COVERED WITH GEOTEXTILE SILT FENCE MATERIAL. PLASTIC SHEETING OR MEMBRANE MUST NOT BE USED. SAFETY BARRICADING SHOULD BE USED TO ISOLATE STOCKPILES OF SOLID MATERIALS SUCH AS STEEL REINFORCING, FORMWORK AND SCAFFOLDING.
- 11. WASTE MATERIALS ARE TO BE STOCKPILED OR LOADED INTO SKIP-BINS LOCATED ON SITE AS SHOWN ON PLAN 12. NO MORE THAN 150m OF TRENCHING TO BE OPEN AT ANY ONE TIME. IMMEDIATELY AFTER
- TRENCH BACKFILLING, PROVIDE SANDBAGS OR SAUSAGE FILTERS ACROSS EACH TRENCH AT MAXIMUM 20m SPACINGS. FILTERS TO REMAIN IN PLACE UNTIL REVEGETATION HAS OCCURRED. 13. ALL VEHICLES LEAVING THE SITE MUST PASS OVER THE STABILISED SITE ACCESS
- BALLAST AREA (SIMILAR TO SD6-14) TO SHAKE OFF SITE CLAY AND SOIL. IF NECESSARY WHEELS AND AXLES ARE TO BE HOSED DOWN. BALLAST IS TO BE MAINTAINED & REPLACED AS NECESSARY DURING THE CONSTRUCTION PERIOD.
- 14. THE HEAD CONTRACTOR IS TO INFORM ALL SITE STAFF AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN. 15. ANY SEDIMENT DEPOSITED ON THE PUBLIC WAY, INCLUDING FOOTPATH RESERVE AND
- ROAD SURFACE, IS TO BE REMOVED IMMEDIATELY. 16. PROVIDE BARRIERS AROUND ALL CONSTRUCTION WORKS WITHIN THE FOOTPATH AREA TO PROVIDE SAFE ACCESS FOR PEDESTRIANS
- 17. CONCRETE PUMPS AND CRANES ARE TO OPERATE FROM WITHIN THE BALLAST ENTRY DRIVEWAY AREA AND ARE NOT TO OPERATE FROM THE PUBLIC ROADWAY UNLESS. SPECIFIC COUNCIL PERMISSION IS OBTAINED.
- 18. TRUCKS REMOVING EXCAVATED / DEMOLISHED MATERIAL SHOULD TRAVEL ON STABILISED CONSTRUCTION PATHS. MATERIAL TO BE TAKEN TO THE TRUCK TO REDUCE TRUCK MOVEMENT ON SITE. TRUCKS TO BE LIMITED TO SINGLE UNIT HEAVY RIGID VEHICLES. (NO SEMITRAILERS
- 19. ANY EXCAVATION WORK ADJACENT TO ADJOINING PROPERTIES OR THE PUBLIC ROADWAY IS NOT TO BE COMMENCED UNTIL THE STRUCTURAL ENGINEER IS CONSULTED AND SPECIFIC INSTRUCTIONS RECEIVED FROM THE ENGINEER
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ESM2	ESM SITE PLAN - STAGE 1										
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ESM5	ESM SITE PLAN – STAGE 3										











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05.11.18	ELR	UPDATED 50% DETAILED DESIGN
02.11.18	ELR	50% DETAILED DESIGN
DATE	BY	DESCRIPTION
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ENVIRONMENTAL SITE MANAGEMENT LEGEND

----- PROPOSED BUILDING LINE 🗕 🗕 🗕 🗕 🗕 🗕 🗕 PROPRIETARY SILT FENCE



TEMPORARY FILTER TUBE WITH SAFETY BARRICADE TO KERB INLET PITS.

ALONG THE SITE BOUNDARY

NOMINATED DISPOSAL ROUTE FOR TRUCK MATERIAL TRANSPORTATION.

TEMPORARY MASS CONCRETE FOOTPATH CROSSING.

UNDISTURBED NON-TRAFFICABLE AREA

DIVERSION BANK

SURFACE INLET DRAINAGE PIT WITH SURROUNDING FILTER FABRIC INLET SEDIMENT TRAP OR FILTER TUBES (SANDBAGS)

TEMPORARY GEOTEXTILE WRAPPED HAY BALES/SAND BAGS

STOCK MATERIALS

SITE EQUIPMENT LOCATIONS

ENVIRONMENTAL SITE MANAGEMENT

- 1. EROSION & SEDIMENT CONTROLS TO BE INSTALLED IN ACCORDANCE WITH COUNCIL'S SPECIFICATION & THE NSW DEPARTMENT OF HOUSING "BLUE BOOK" - SOILS AND CONSTRUCTION - MANAGING URBAN STORMWATER, 2004. REFER TO THE BLUE BOOK FOR STANDARD DRAWINGS "SD"
- 2. SEDIMENT & EROSION CONTROLS MUST BE IN PLACE PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS OR DEMOLITION ACTIVITY. THE LOCATION OF SUCH DEVICES IS INDICATIVE ONLY AND FINAL POSITION SHOULD BE DETERMINED ON SITE.
- 3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MEASURES ARE TAKEN DURING THE COURSE OF CONSTRUCTION TO PREVENT SEDIMENT EROSION AND POLLUTION OF THE DOWNSTREAM SYSTEM, SUPERVISING ENGINEER SHOULD BE CONTACTED IF IN DOUBT. ALL SEDIMENT CONTROL STRUCTURES TO BE INSPECTED AFTER EACH RAINFALL EVENT FOR STRUCTURAL DAMAGE AND ALL TRAPPED SEDIMENT TO BE REMOVED TO A NOMINATED SOIL STOCKPILE SITE.
- 4. RETAIN ALL EXISTING GRASS COVER WHEREVER POSSIBLE. TOPSOIL FROM ALL AREAS THAT WILL BE DISTURBED TO BE STRIPPED AND STOCKPILED AT THE NOMINATED SITE. A SEDIMENT FENCE TO BE PLACED DOWNHILL OF STOCKPILE.
- 5. AREAS OF SITE REGRADING ARE TO BE COMPLETED PROGRESSIVELY DURING THE WORKS AND STABILISED AS EARLY AS POSSIBLE. THE SUPERVISING ENGINEER MAY DIRECT THE CONTRACTOR TO HAVE AREAS OF DISTURBANCE COMPLETED AND STABILISED DURING THE COURSE OF THE WORKS.
- 6. ALL DISTURBED AREAS ARE TO BE SEEDED & FERTILISED WITHIN 14 DAYS OF EXPOSURE. 7. ALL EXISTING TREES TO BE RETAINED UNLESS SHOWN OTHERWISE ON APPROVED DRAWINGS. TREES RETAINED ARE TO BE PROTECTED WITH A HIGH VISIBILITY FENCE, PLUS
- FLAGGING TO INDIVIDUAL TREES AS NECESSARY. 8. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADEN WATER, UNTIL SURROUNDING AREAS ARE PAVED OR REGRASSED. GRAVEL OR
- GEOTEXTILE INLET FILTERS TO SD6-11 & SD6-12. 9. ALL SILT FENCES & BARRIERS ARE TO BE MAINTAINED IN GOOD ORDER & REGULARLY DESILTED DURING THE CONSTRUCTION PERIOD. SILT FENCES TO SD6-8 OR SD6-9.
- 10. STOCKPILES OF LOOSE MATERIALS SUCH AS SAND, SOIL, GRAVEL MUST BE COVERED WITH GEOTEXTILE SILT FENCE MATERIAL. PLASTIC SHEETING OR MEMBRANE MUST NOT BE USED. SAFETY BARRICADING SHOULD BE USED TO ISOLATE STOCKPILES OF SOLID MATERIALS SUCH AS STEEL REINFORCING, FORMWORK AND SCAFFOLDING.
- 11. WASTE MATERIALS ARE TO BE STOCKPILED OR LOADED INTO SKIP-BINS LOCATED ON SITE AS SHOWN ON PLAN. 12. NO MORE THAN 150m OF TRENCHING TO BE OPEN AT ANY ONE TIME. IMMEDIATELY AFTER
- TRENCH BACKFILLING, PROVIDE SANDBAGS OR SAUSAGE FILTERS ACROSS EACH TRENCH AT MAXIMUM 20m SPACINGS. FILTERS TO REMAIN IN PLACE UNTIL REVEGETATION HAS OCCURRED.
- 13. ALL VEHICLES LEAVING THE SITE MUST PASS OVER THE STABILISED SITE ACCESS BALLAST AREA (SIMILAR TO SD6-14) TO SHAKE OFF SITE CLAY AND SOIL. IF NECESSARY WHEELS AND AXLES ARE TO BE HOSED DOWN. BALLAST IS TO BE MAINTAINED & REPLACED AS NECESSARY DURING THE CONSTRUCTION PERIOD.
- 14. THE HEAD CONTRACTOR IS TO INFORM ALL SITE STAFF AND SUB-CONTRACTORS OF THEIR OBLIGATIONS UNDER THE EROSION AND SEDIMENT CONTROL PLAN. 15. ANY SEDIMENT DEPOSITED ON THE PUBLIC WAY, INCLUDING FOOTPATH RESERVE AND
- ROAD SURFACE. IS TO BE REMOVED IMMEDIATELY 16. PROVIDE BARRIERS AROUND ALL CONSTRUCTION WORKS WITHIN THE FOOTPATH AREA TO PROVIDE SAFE ACCESS FOR PEDESTRIANS.
- 17. CONCRETE PUMPS AND CRANES ARE TO OPERATE FROM WITHIN THE BALLAST ENTRY DRIVEWAY AREA AND ARE NOT TO OPERATE FROM THE PUBLIC ROADWAY UNLESS SPECIFIC COUNCIL PERMISSION IS OBTAINED.
- 18. TRUCKS REMOVING EXCAVATED / DEMOLISHED MATERIAL SHOULD TRAVEL ON STABILISED CONSTRUCTION PATHS. MATERIAL TO BE TAKEN TO THE TRUCK TO REDUCE TRUCK MOVEMENT ON SITE. TRUCKS TO BE LIMITED TO SINGLE UNIT HEAVY RIGID VEHICLES. (NO SEMITRAILERS)
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ESM5	ESM SITE PLAN - STAGE 3										
ESM6	NOTES & LEGEND - EARLY WORKS										
ESM7	ESM SITE PLAN - EARLY WORKS										











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SCALE : As indicated



18.9 UNEXPECTED FINDS PROTOCOL - CONDITION B5 + HERITAGE PROCEDURES

An unexpected find is likely to comprise of any buried material which is not a typical soil material (i.e. fill, soil, rock) likely to be present at the site.

There could be many kinds of unexpected materials that could be encountered during excavation works including (but not limited to):

- Buried wastes
- Buried containers/drums
- Discoloured and odorous soils and groundwater/seepage
- Underground tanks
- Asbestos (asbestos finds are covered above in Section 14.1.1 & in conjunction with the Site Auditor and Hygienist)

Personnel undertaking works shall familiarise themselves with the location of possible contaminated soils and the type of contaminants, as well as the necessary safety measures, including, but not limited to adequate PPE; and Safety Health and Environmental Works Method Statement (SH&EWMS).

To minimise the risk of exposure of contaminants to human health and the environment, this protocol shall be implemented prior to the commencement of works within the contaminated area subject to this EMP. If any unexpected finds (such as asbestos, strong odours or heavily stained soils that are potentially contaminated) are encountered outside of the previously investigated areas during any future construction works, the activity shall cease immediately, and the Site Supervisor shall be notified. An Environmental Consultant shall be engaged to assess the risk of the unexpected finds and necessary actions undertaken. It is the responsibility of Icon to ensure that all adequate reports and previous data are provided to the sub-contractors or personnel involved in construction.

Any material identified as contaminated must be disposed off site, in line with applicable codes and guidelines, with the disposal location and results of testing submitted to the planning secretary, prior to its removal off site.

Heritage Procedures are listed in Section 15.12 above

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18.10 JONES NICHOLSON ENGINEER EXTERNAL LIGHTING COMPLIANCE CERTIFICATE



Our Ref: ERTR- N0200030.01A

Dear Sir,

Re: Combined Services Design Statement

Project:	Fairvale High School (HS)
Client:	Icon Co (NSW) Pty Ltd
Location:	1 Thorney Road
	Fairvale West NSW 2165

Pursuant to the provisions of clause A2.2 of the Building Code of Australia, I hereby certify that the above design is in accordance with normal engineering practice and meets the requirements of the Building Code of Australia, relevant Australian standards and relevant conditions of the development consent. In particular the design is in accordance with the following:

- Control of the Obtrusive Effects of Outdoor Lighting AS4282-1997.
- Interior Lighting AS1680.
- Emergency Escape Lighting and Exit Signs For Buildings Part 1: System Design, Installation and Operation AS 2293.1-2005.
- Wiring Rules AS3000-2018.
- BCA Section E Services and Equipment Parts E2.2, E4.2, E4.4, E4.5.
- BCA Section J Energy Efficiency Parts J6, J8.

I am an appropriately qualified and competent person in this area and as such state that the design and performance of the design systems comply with the above and which are detailed on the attached drawings list (refer to electrical transmittal).

Yours sincerely,

Senior Electrical Design Engineer

jn.com.au

JONES NICHOLSON PTY LTD ABN: 51 003 316 032 BRISBANE GOLD COAST SINGLETON SOUTHERN HIGHLANDS SYDNEY-CBD SUTHERLAND WOLLONGONG GOULBURN



PROJECT

FAIRVALE HIGH SCHOOL

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ADDRESS

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