

KANE

ENVIRONMENTAL MANAGEMENT PLAN

Children's Hospital Westmead (CHW) Stage 2 & VVMF – Refurbishment Works

30/11/2023



CHANGE HISTORY

FREQUENCY OF REVIEW			
<input type="checkbox"/> Monthly	<input checked="" type="checkbox"/> Quarterly	<input type="checkbox"/> Annually	<input type="checkbox"/> Event:

ISSUE	CHANGE TYPE	AMENDMENT SUMMARY	DRAFTED	APPROVED	DATE
01	For CC	First Issue	SS	SB	07/03/23
02	Reviewed	Minor changes based on PwC feedback	SS	SB	31/05/23
03	Reviewed	Nil Changes	SS	SB	31/08/23
04	Reviewed	Changes to staff	SS	SB	30/11/23
05					

SCHEDULE 3 (Clause Ref 3.5)

Environmental Management Plan

Who shall implement	Project Manager to prepare for implementation on site
When to implement	Each Project
How to use/implement	<p>The Project Manager shall prepare and authorise for use the Project Environmental Management Plan EMP. In preparing the EMP, the Project Manager must:</p> <ul style="list-style-type: none"> • insert names of Kane staff into the chart • detail consultation process • prepare environmental risk assessment and checklist • prepare incident response flowchart

SELF VERIFICATION CHECKLIST

	REF Requirement	DOCUMENT REFERENCE
10	A detailed Construction Environmental Management Plan (CEMP) is to be prepared prior to the commencement of works and implemented during the undertaking of works. The CEMP must be prepared having regard to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (2020) prepared by the Department of Planning and Environment, and is to include (where relevant), but not be limited to, the following:	
10 (a)	Details of: <ul style="list-style-type: none"> i. hours of work; ii. 24-hour contact details of site manager; iii. management of dust and odour; iv. stormwater control and discharge; v. measures to ensure that sediment and other materials are not tracked onto the roadway by vehicles leaving the site; vi. any other specific environmental construction mitigation measures detailed in this REF; vii. any requirements outlined in any relevant approvals, permits or licences. viii. community consultation and complaints handling. 	Section 5.1 Attachment 4 Section 5.3 / Attachment 2 Refer Sub-Plan CSWMP Refer Sub-Plan CSWMP Refer CEMP (this document) Attachment 1 Attachment 4
10 (b)	Construction traffic and pedestrian management plan;	Refer Sub-Plan CTPMP
10 (c)	Construction noise and vibration management;	Refer Sub-Plan CNVMP
10 (d)	Construction waste management, including contaminated waste;	Refer Sub-Plan CWMP
10 (e)	Construction soil and water management;	Refer Sub-Plan CSWMP
10 (f)	Flood management;	N/A
10 (g)	Tree protection;	N/A
10 (h)	Air quality and dust management measures;	Section 5.3 / Section 5.10
10 (i)	Demolition work plans;	Attachment 10
10 (j)	Unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;	Attachment 9
10 (k)	Unexpected finds protocol for historical heritage;	Attachment 9
10 (l)	Unexpected finds protocol for contamination; and	Attachment 8

10 (m)	Emergency Management Plan.	N/A
10 (n)	Training of responsibilities under National Parks and Wildlife Act 1975, Heritage Act 1977 and any other relevant legislation.	N/A

	PSB SSDA Requirement Stage 5: Pathology Expansion (only)	DOCUMENT REFERENCE
B14	<p>Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE April 2020).</p> <p>Note:</p> <ul style="list-style-type: none"> • The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval • The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans. <p>Prior to the commencement of construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary for information. The CEMP must include, but not be limited to, the following:</p>	
	<p>(a) Details of:</p> <p>(i) hours of work;</p> <p>(ii) 24-hour contact details of site manager;</p> <p>(iii) management of dust and odour to protect the amenity of the neighbourhood;</p> <p>(iv) groundwater management plan including measures to prevent groundwater contamination; and</p> <p>(v) external lighting in compliance with AS 4282-2019 Control of the obtrusive effects of outdoor lighting;</p>	<p>Section 5.1 Attachment 4 Section 5.3 / Attachment 2</p> <p>Refer Sub-Plan CSWMP</p> <p>Section 5.12</p>
	<p>(b) an unexpected finds protocol for contamination and associated communications procedure to ensure that potentially contaminated material is appropriately managed;</p>	Attachment 8
	<p>(c) an unexpected finds protocol for Aboriginal and non-Aboriginal heritage and associated communications procedure;</p>	Attachment 9
	<p>(d) Construction Traffic and Pedestrian Management Sub-Plan (see condition B16);</p>	Refer Sub-Plan CTPMP

	(e) Construction Noise and Vibration Management Sub-Plan (see condition B17);	Refer Sub-Plan CNVMP
	(f) Construction Waste Management Sub-Plan (see condition B18);	Refer Sub-Plan CWMP
	(g) Construction Soil and Water Management Sub-Plan (see condition B19); and	Refer Sub-Plan CSWMP
	(h) Flood Emergency Response (see condition B20).	N/A

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1 INTRODUCTION

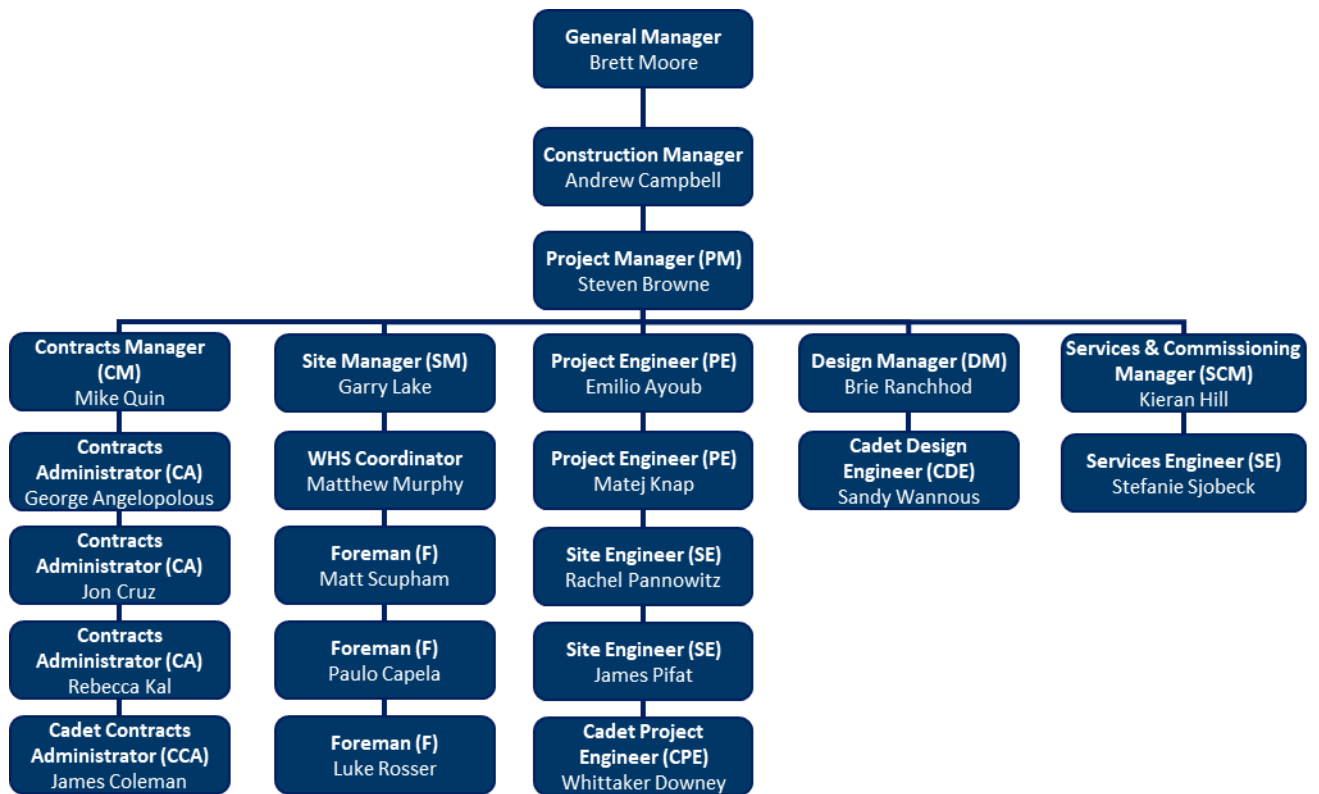
The Kane Constructions Environmental Management System is third party certified to ISO 14001 and developed for functionality and use at construction site level. The system is designed so that when implemented, will assist in achieving the objectives of the Kane Environmental Management Policy.

The Environmental Management Plan facilitates a systematic approach to site environmental management by applying the processes, checklists and forms of the Kane EMS to achieve compliance with relevant Environmental Legislation. When implemented on site, the checklists and forms of the Kane EMS become a record of project environmental management. We audit internally for compliance with the Kane EMS and randomly select sites for third party surveillance auditing for compliance with ISO 14001.

The Environmental Management Plan is developed to identify workplace environmental hazards, assess risks and implement control measures associated with activities, products and services over which Kane have control or influence.

The Kane project team is identified in the chart below. The project staff responsible for environmental management is assessed for competence, understanding and acceptance of the environmental responsibilities. Confirmation of this is provided – *refer Attachment 7*

1.1 Project Team Chart



2 CONSULTATION AND COMMUNICATION

2.1 Site Induction

Before commencing work, all visitors must report to the site office for a site specific induction where employees and service providers are presented information contained in the Environmental Induction Booklet (*refer Attachment 3*). Consultation and communication processes established are communicated at the site induction. All workers are encouraged to express their views on environmental issues direct to the Site Manager.

2.2 Currency and Awareness of Environmental Information

Kane Constructions seek Environmental advice, assistance and keep updated with changes to Environmental legislation, regulations and guidelines through the following (not limited to);

- Environmental Protection Authority Victoria
- Office of Environment and Heritage NSW
- Department of Environment and Resource Management QLD
- Department of the Environment, Climate Change, Energy and Water ACT
- Standards Australia Update emails etc.

During toolbox talks, the Site Manager shall communicate relevant alerts, newsletters, bulletins, results of audits, corrective actions etc. consistent with current activities on site. These shall be recorded using the OHSMS Schedule W-Record of Meeting proforma.

3 TRAINING AND COMPETENCY

3.1 Kane Staff

Kane Constructions ensures ongoing Environmental Management and Awareness training for all employees based on skill gaps. This targets the needs of individual people and relates appropriately to their roles and responsibilities. Certificates of competency are maintained in staff personnel files and available to validate competency upon request.

3.2 Non Kane Staff

The employer is responsible for providing their employees with the relevant training and supervision so they have the necessary competency and skills to undertake their responsibilities.

4 HAZARD IDENTIFICATION AND RISK CONTROL

4.1 Hazard Identification

Refer to Attachment 8 for the Unexpected Finds & Communications Protocol for contaminated materials.

4.2 Risk Assessment

An Environmental Risk Assessment and Checklist is prepared by the Project Manager to identify environmental aspects associated with the activities to be undertaken (*refer Attachment 2*). The risk of those aspects occurring and causing environmental impact is rated, and control measures identified to reduce the risk.

The Site Manager is responsible for ensuring the control measures determined in the Environmental Risk Assessment and Checklist are implemented and remain effective. The aspects that have significant impact and assessed to be of higher risk must be given the highest order of priority.



5 ENVIRONMENTAL ASPECTS

5.1 Work Hours

Construction, including the delivery of materials to and 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 (and between 1pm and 5pm if works do not exceed the existing background noise level plus 5dB).

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

5.2 Noise

The Site Manager will ensure noise and vibration levels meet acceptable standards and statutory requirements. Potential noise sources include but not limited to; plant, machinery, radios and construction methods.

"On-site" noise assessments and benchmarking of specific equipment, which are forecasted to have moderate to high noise impacts, will be conducted periodically during the project to ensure the maintenance of safe noise levels for on-site workers, as well as neighbouring residences and businesses.

Refer to the Construction Noise Vibration Management Plan prepared by Acoustic Logic.

5.3 Dust and Odour

The main site activities that have potential to generate dust & odour are; disturbance of ground conditions including the interim capping layer, vehicle movements, vehicle emissions, dry powdery soils, stockpiled soils, and ponding water. The Project Manager will identify sources and apply appropriate controls while the Site Manager will ensure the controls are managed effectively. It is up to the Project Managers discretion to identify dust causing activities and appropriate controls to be implemented. Such controls could include; wheel shakers, wheel wash, manual cleaning, tarpaulins to cover haulage trucks, daily monitoring of weather conditions (wind), daily hose down of problem areas, dust protection sprinklers, dust suppression machines and chemical applications as required.

5.4 Waste

The accumulation of waste resulting from demolition works, construction works, packaging, office tasks and amenities will be managed accordingly by Kane and/or engaged subcontractors. The Site manager shall ensure facilities are provided to adequately dispose of all types of waste. All site waste management will be in accordance with the Kane Constructions Waste Management Plan.

5.5 Chemicals

Various chemicals stored on site include but not limited to fuels, oil, paint and adhesives may have an impact on the environment if not handled appropriately. The Site manager will ensure minimum quantities of chemicals are stored correctly on site and empty packaging is disposed of in accordance with state laws and regulations.

5.6 Land Contamination / Soil Contamination

Various activities may contribute to the contamination of land and soil including wash water, brick cutting and plaster. Effective controls shall be implemented to ensure contamination to soil is

minimised. Refer to the Kane Constructions Unexpected Finds protocol for contamination and associated communications procedure (Attachment 8).

5.7 Erosion and Sediment

Rain and/or water used on site over recently disturbed or bare areas of soils have potential to carry sediment off site and cause erosion impacting native vegetation and water courses. The Site Manager shall minimise the disturbance of vegetation to reduce the likelihood of sediment loss and erosion. All erosion and sediment controls will be completed in compliance with the Construction Soil and Water Management Plan (CSWMP).

5.8 Flora / Fauna

Plant/machinery and various forms of construction work can impact negatively on surrounding flora and native vegetation. Protection of existing native vegetation from the impacts of construction work shall be implemented by the Site Manager.

When native fauna is encountered, it must not be disturbed. Notify the Site Manager if you see any fauna which is in the way of conducting work. Disturbing, injuring or killing native fauna without a permit may lead to prosecution.

5.9 Mud on Road

Vehicle movements after heavy rain events increase the risk of transferring mud and dirt onto public roads. The Site Manager shall put controls in place to ensure the risk of mud on roads is minimised. These controls may include; shaker grids, wheel wash downs, tarpaulins on haulage trucks and road cleaning as required.

5.10 Heritage Sites

Various forms of construction work including demolition can have an impact on the cultural heritage of an existing building or site. The heritage significance of the building shall be determined by the Project Manager and the Site Manager shall ensure agreed protection methods are implemented on site. Refer to the Kane Constructions Unexpected Finds protocol for aboriginal and non-aboriginal heritage items (Attachment 9).

5.11 Air Pollution

Poor plant maintenance and exhaust emissions will impact the quality of the air. The Site Manager shall ensure that incoming plant is assessed and confirmed to be maintained in accordance with manufacturer's recommendations. Other sources of air contaminants shall be contained and managed appropriately.

5.12 Obtrusive Lighting

All external site lighting will be selected, positioned and controlled in a manner that there will be no obtrusive impacts on surrounding buildings in accordance with AS4282-2019. Project Manager and site management will monitor the above and ensure compliance.

6 SYSTEM IMPLEMENTATION AND RESPONSIBILITIES

Site staff have responsibility for implementation of the following site specific Environmental Management system procedures and related Kane Business Management System procedures. Responsibilities listed below must be read in conjunction with the Kane EMS responsibilities (refer Clause 3.1). The priority, order and timeframes in which the items below are implemented may

differ as determined by the Project Manager to suit the project construction programme and the findings of the environmental risk assessment.

Project Specific Systems	Corporate Responsibility	Individual Responsibility
1. Include Environmental Management as a fixed agenda item of meetings	Kane	Kane PM, CM, CA
2. Develop the Environmental Management Plan EMP and all attachments	Kane	PM
3. Deliver Site Induction (including policy, controls, incident response)	Kane	SM / WHS Coordinator
4. Implement the environmental controls identified in the EMP	Kane and Subcontractors	SM, Subcontractor Supervisor, WHS Coordinator
5. Implement Incident Response procedure (where incidents occur)	Kane and Subcontractors	SM, Subcontractor Supervisor, WHS Coordinator
6. Raise Non-conformance reports and initiate corrective and preventative action	Kane and Subcontractors	SM, Subcontractor Supervisor, WHS Coordinator
7. Communicate alerts, incidents etc via Toolbox Meetings	Kane and Subcontractors	SM, Subcontractor Supervisor
8. Update site noticeboard with material waste data sheets	Kane	SM, WHS Coordinator
9. Monitor and evaluate environmental controls (document weekly)	Kane and Subcontractors	SM, Subcontractor Supervisor, WHS Coordinator
10. Measure and evaluate the effectiveness of the EMP	Kane	PM, WHS Coordinator

7 INCIDENT NOTIFICATION, INVESTIGATION AND RESPONSE

7.1 Incident notification

All site employees are responsible for notifying the Site Manager if they witness a pollution incident including leak, spill or escape of a substance or pollution incident causing or threatening public or property harm. In the event of an incident, the clean-up process shall be managed under the direct supervision of the Site Manager. The Site Manager is responsible for reporting notifiable incidents to the relevant environmental authority, Kane Senior Management and the Client Emergency Contacts in accordance with Attachment 4 Incident Response Flowchart.

7.2 Investigation and action taken

Procedural and/or legislative Non-conformances are identified, investigated, corrected and prevented by raising an Improvement Notice (refer Attachment 5). When raised, Kane Site Management documents the non-conformance and recommendation on how to correct the non-conformance. The Improvement Notice recipient is required to document the action taken to rescind the notice. Kane Site Management determines if the rectification is complete and adequate to prevent recurrence.

If the incident is of a large magnitude and poses high risk, the Site Manager shall contact and allow emergency services to manage the clean-up process. Such incidents shall be investigated using Kane OHSMS Schedule M/2 - Incident Investigation to determine how the incident occurred, how to prevent recurrence and how procedures may require revision to improve preparedness

and response. The findings of an investigation are reviewed by the Construction Director, Systems Manager, Systems Coordinator, and Construction Supervisor NSW/QLD with a view to disseminating the lessons learnt to all projects.

8 AUDITING AND FREQUENCY

8.1 Internal

Quarterly Audit Report (refer Attachment 7) is used by the Project Manager to audit effective implementation of the Kane EMS. Points are awarded for effective implementation and points taken where noncompliance is observed. The audit facilitates recognising good practice environmental management and requires actions be documented where improvement is necessary. Each site is audited quarterly (minimum) close to the end of each reporting period on a day determined by the Project Manager. The audit report is issued to the Systems Manager for VIC projects or Construction Supervisor for NSW/QLD projects to review against company objectives/targets and identify trends that may appear (positive and negative). The audits are scheduled at the end of the following months (or otherwise scheduled to avoid holiday and extremely busy periods i.e. lead up to Christmas)

- March (Jan – Mar)
- June (Apr – Jun)
- September (Jul – Sept)
- December (Oct – Dec)

Random EMS audits are undertaken by the Systems Manager/Coordinator (VIC) and Construction Supervisor (NSW/QLD). Reports are prepared and distributed to all staff on the project for actioning and for information to the Directors in each state.

8.2 External

Kane Constructions certification to ISO 14001 – Environmental Management requires third party surveillance audits be undertaken. Projects are selected randomly. Each audit confirms if the company certification should remain. Corrective action must be promptly closed where identified.

It is not uncommon for head contracts to require external audits of projects. The auditor is commonly required to have Lead Auditor competency. Audit frequency and reporting requirements differ based on project complexity and risks.

9 ATTACHMENTS

Attachment	Document Title	Kane OHS / BMS Reference
1	Schedule of Acts, Regulations, Standards and Codes of Practice	EMS-SYS-SCH3-ATT1
2	Risk Assessment and Checklist	EMS-SYS-SCH3-ATT2
3	Environmental Induction	EMS-SYS-SCH3-ATT3
4	Incident Response Flowchart	EMS-SYS-SCH3-ATT4
5	Improvement Notice	EMS-SYS-SCH3-ATT5
6	Quarterly Audit Report	EMS-SYS-SCH3-ATT6
7	Confirmation of Responsibilities	EMS-SYS-SCH3-ATT7
8	Unexpected Finds Protocol Contamination and Associated Communications Procedure	-
9	Unexpected Finds Protocol Aboriginal & Non-Aboriginal Heritage Items	-
10	Demolition Work Plans	-
11	VVMF Asbestos Management Plan	-

The below table identifies the documents associated with this EMP, however are integrated with and presented in the Kane Occupational Health and Safety Management System.

Document Title	Document Description	Document Number	Kane OHS / BMS Reference
Skills Register	Register of training /competency	OHS-SYS-SCHD	OHS Schedule D
Post Tender Interview	Contract document detailing environmental management obligations of all subcontractors engaged	NA	Section 8.26
Incident Investigation	Form completed for the purposes of investigating incidents	OHS-SYS-SCHM2	OHS Schedule M2
Site Induction Record	Form completed by all inductees detailing personal and employment details	OHS-SYS-SCHP	OHS Schedule P
Record of Consultation	Form used to record consultation / communication	OHS-SYS-SCHW	OHS Schedule W

ATTACHMENT 1

Schedule of Acts, Regulations, Standards and Codes of Practice

Who shall implement	Construction Director/Secretary- Maintain currency of documentation All Project Staff- Ensure availability of publications for the use on site
When to implement	Bi Annually- Maintain Currency As required - Provide documentation
How to use/implement	The list of publications is available to confirming legal obligations / best practice controls / guidance material for works on site. All Commonwealth legislation applies across Australia. All other legislation is relevant to the state of NSW.

Publication	Source
Acts	
<u>Environment Protection</u>	
Protection of the Environment Administration Act 1991	NSW Legislation and Parliamentary Document Website http://www.legislation.nsw.gov.au/ Search Using title OR
National Environment Protection Council (NSW) Act 1995	
Protection of the Environment Operations Act 1997	Commonwealth Legislation Website http://www.comlaw.gov.au/Home Search using title
Smoke Free Environment Act 2000	
Contaminated Land Management Act 1997	
<u>Planning and Environmental Impact Assessment</u>	
Waste Avoidance and Resource Recovery Act 2001	
Environmental Reform (Consequential Provisions) Act 1999	
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	
<u>Heritage and Other Land Protection Legislation</u>	
National Parks and Wildlife Act 1974	
<u>Other Acts with Potential to Affect Construction Activities</u>	
Health Administration Act 1982	
Dangerous Goods (Road and Rail Transport) Regulation 2014	

<p>Water Act 2007 (Commonwealth) Regulations</p> <p>Protection of the Environment Operations (Clean Air) Regulation 2010</p> <p>Protection of the Environment Operations (General) Regulation 2009</p> <p>Protection of the Environment Operations (Noise Control) Regulation 2017</p> <p>Protection of the Environment Operations (Waste) Regulation 2014</p> <p>Contaminated Land Management Regulation 2013</p>	<p>NSW Legislation and Parliamentary Document Website http://www.legislation.nsw.gov.au/ Search using title</p>
<p>Office of Environment and Heritage Publications and Guidelines</p> <p>Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW</p> <p>Managing Urban Stormwater Harvesting and Re-Use Soil and Construction</p> <p>Environmental Management on the Urban Fringe</p> <p>6.1 Economic incentives for environmental management</p> <p>6.2 Property management plan</p> <p>6.3 Environmental assessment</p> <p>Storing and Handling Liquids: Environmental Protection - Participants Manual Interim Construction Noise Guideline</p> <p>Review of alternatives to 'beeper alarms' for construction equipment</p> <p>Assessing Vibration: A Technical Guideline</p>	<p>NSW Government – Office of Environment and Heritage Website</p> <p>http://www.environment.nsw.gov.au/ Search using title</p> <p>http://www.environment.nsw.gov.au/clm/index.htm</p> <p>https://www.epa.nsw.gov.au/</p>
<p>Other Standards and Guidelines</p> <p>ISO</p> <p>ASNZS ISO 14001:2015 - Environmental Management Systems</p> <p>Environmental Management System Guides – Risk Based Licencing Biodiversity Biodiversity Conservation Act 2016</p> <p>The National Strategy for the Conservation of Australia's Biological Diversity</p>	<p>http://www.environment.gov.au</p> <p>https://legislation.nsw.gov.au/view/html/inforce/current/ac%20t-2016-063</p>

Australian Government Department of Defence Defence Environmental Strategic Plan 2016- 2036	Department of Defence Infrastructure Management Website https://defence.gov.au/EstateManagement/governance/p%20olicy/environment/Policy/EnvironmentStrategy2016.PDF
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ATTACHMENT 2

Risk Assessment and Checklist



ATTACHMENT 2 – INTERIM ENVIRONMENTAL RISK ASSESSMENT and CHECKLIST (CI 3.5.1)

ASSESS RISK RATING IN ACCORDANCE WITH THE BELOW RISK CLASSIFICATION TABLE

Determine the RATING for each aspect (including any site specific) after consideration of the standard risk controls.

After implementation of the standard risk controls, is there:

Job No. 2591	Job Title: Children’s Hospital Westmead Stage 2 & VVMF - Refurbishment	<ul style="list-style-type: none"> • Potential for pollution resulting in long term damage • Potential for pollution that cannot be mitigated immediately • A specific contract requirement • A specific permit requirement • A specific authority requirement 	H - HIGH	Additional risk controls required. Frequency of monitoring to be based on level of risk
Prepared By : Steven Browne	Position : Project Manager Sign : <i>[Signature]</i> Date Approved: 07/03/2023			
Date of Review: 07/03/2023	Risk Review undertaken by (list names / company);	<ul style="list-style-type: none"> • Minimal potential for public or other complaint • Minimal potential for pollution (mitigated with minor damage) • No potential for public or other complaints • No potential for a legal breach • No specific contract requirement • No specific permit requirement • No specific authority requirement 	M - MEDIUM	Monitor weekly to ensure controls are effective (may require increased monitoring based on inspections)
Review Number 1			L - LOW	No additional risk controls. Monitor weekly

No	ASPECTS	SOURCE	STANDARD RISK CONTROLS	Residual Risk Rating (H, M, L)	Additional Risk Controls Required (where risk rating is H)	No. of Compliance Controls Observed	No. of Non-Compliance Controls	Minor Actions Required [Improvement Notice (Attachment 5) to be raised where significant Non-compliance is observed]	Initial and Date when action Completed
1	Noise	Plant / Machinery Construction Methods Radios	<ul style="list-style-type: none"> • Plant /machinery maintained in accordance with manufacturer recommendations • Silencers placed on large compressors / generators • Comply with council work hours • Limit volume of radios • Utilise prefabricated materials 	L		5	0	0	SB
2	Dust & Odour	Ground disturbance Vehicle Movement Dry powdery soils	<ul style="list-style-type: none"> • Protect surrounding buildings ventilation systems with louvre filters • Protect areas of vegetation and minimise clearing / disturbance • Cover exposed ground with mulch or other suitable material • Restrict vehicle movements • Dampen surfaces with fence mounted sprinklers, water cart (seek approval where water restrictions apply) • Landscape and re-vegetate as soon as possible • Seed, or cover and maintain soil stockpiles • Special, high quality hoarding which meets infection control standards installed for operational healthcare facilities • Plant / machinery maintained in accordance with manufacturer recommendations • Plant / machinery exhaust emissions monitored for smoke (should not observe continuous smoke for longer than 10 seconds) 	L		10	0		SB
3	Waste	Demolition Construction Works Packaging Office Amenities	<ul style="list-style-type: none"> • Utilise separate recycle bins for paper, steel etc (space permitting on site) • Use bin contractors who sort and recycle construction waste • Utilise existing client facilities for domestic recyclables (paper, cans etc) • Recycle demolished materials wherever possible • Place lids on domestic waste bins for odour and vermin control 	L		4	0		SB
4	Chemicals	Fuel Oil Paint Adhesives	<ul style="list-style-type: none"> • No bulk storage of fuel / oil on site (fuel tankers to visit site as required) • Paints, adhesives stored on site at minimum quantities in vented containers/rooms • All storage of chemicals shall comply with the Material Safety Data Sheet • Major servicing of plant e.g. where large quantities of oil requires changing shall be undertaken off site 	L		4	0		SB
5	Contamination (from slurry / wash water) & Soil	Paint Plaster Concrete Brick / Paver cutting	<ul style="list-style-type: none"> • Use paint wash trough. Settled solids should be removed by an appropriate waste disposal company • Designate a washing up and brick cutting area away from stormwater drains. Build an earth bund to contain wash water from concrete, plaster, brick cutting • Documented evidence of contaminated soil removed from site is accepted by landfill facility 	L		2	1	Given the nature of the project comprising of internal refurbishment works and extension of the existing hospital building, the	SB



	Contaminati on								potential for works to encounter contaminated materials is low	
6	Erosion and Sediment	Disturbed / cleared soils Rain events	<ul style="list-style-type: none"> Protect and maintain natural vegetation and minimise clearing / disturbance Connect downpipes to stormwater drainage as soon as possible or pipe roof water onto grassed areas Install sediment fences close to the site boundary and drains where surface water may carry sediment off site Place gravel sausages across pit openings 	L		4	4			SB
7	Mud on Road	Muddy site Vehicle Movements Significant Rain Event	<ul style="list-style-type: none"> Crushed rock placed in areas of vehicle movement Restrict vehicle movements on un-vegetated/exposed ground Cover exposed trafficked ground with mulch or other suitable material Protect areas of vegetation and minimise clearing / disturbance Remove water from site by connecting downpipes to stormwater drainage Install rumble strips at site exit to promote cleaning mud off vehicle tyres 	L		5	1			SB
8	Heritage Sites	Demolition Construction Works	<ul style="list-style-type: none"> Project documentation to be closely reviewed for areas of Heritage significance Any Heritage significance to be identified during site induction Agreed protection measures to be included in the work method statement 	L		0	3	Project scope does not include known heritage sites. Unexpected finds protocol for heritage items to be followed if required.		SB
9	Air Pollution	Plant / Machinery	<ul style="list-style-type: none"> Plant / machinery maintained in accordance with manufacturer recommendations Plant / machinery exhaust emissions monitored for smoke (should not observe continuous smoke for longer than 10 seconds) 	L		2	0			SB
Total Compliant and Non-compliant Observed										
						Total Compliant and Non-compliant Observed		36	6	Since Project Started

ATTACHMENT 3

Environmental Induction Booklet




ATTACHMENT 3 (Clause 3.5.2)


Environmental Induction Booklet for the Children’s Hospital Westmead (CHW) Stage 2 & VVMF – Refurbishment Project

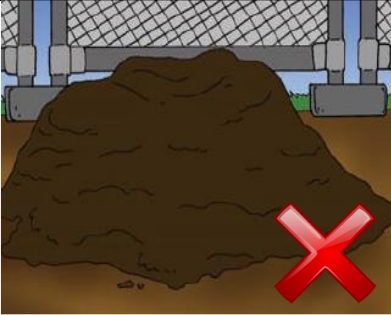


Environment Policy	All personnel (Kane Constructions and Subcontractors) must be committed to achieving the objectives of Kane’s Environment Policy. The policy is posted on the noticeboard or induction room for all inductees to read
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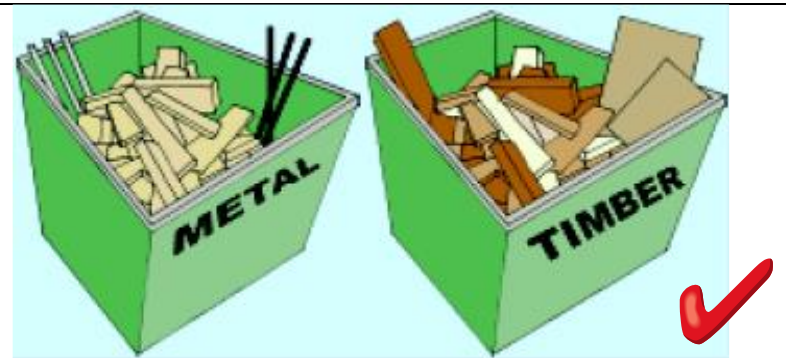
Incident Response	All site employees are responsible for notifying the Site Manager if they witness a pollution incident including leak, spill escape of a substance or pollution incident causing or threatening public or property harm
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Waste Data Sheets	The Site Noticeboard is updated as required with Material Waste Data Sheets (good practice environmental control information) for all to read
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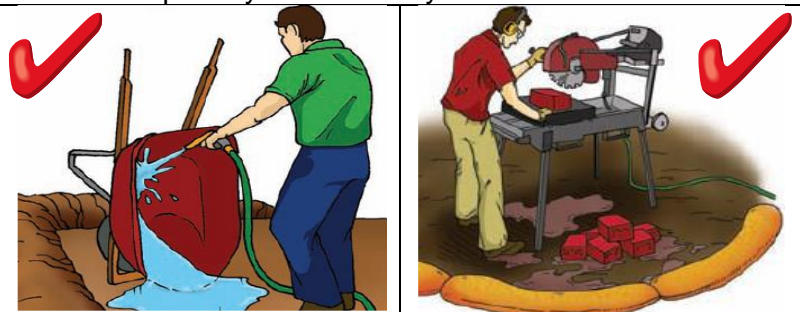
NOISE	<p>Source</p> <ul style="list-style-type: none"> • Plant / Machinery • Construction Methods • Radios • Unnecessary
	<p>Risk Controls</p> <ul style="list-style-type: none"> • Plant /machinery maintained in accordance with manufacturer recommendations • Silencers placed on large compressors / generators • Comply with council work hours • Limit volume of radios • Utilise prefabricated materials

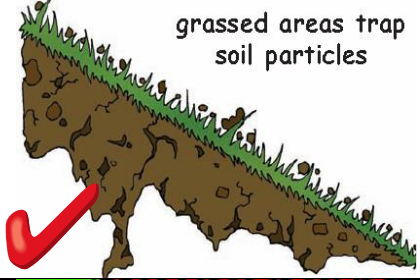

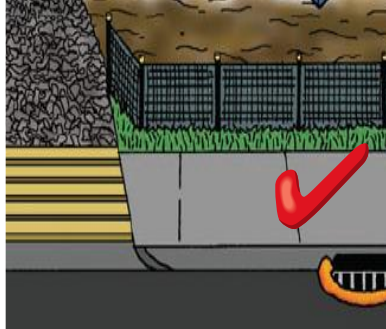
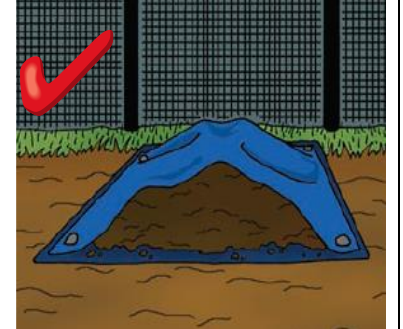
DUST & ODOUR	<p>Source</p> <ul style="list-style-type: none"> • Ground disturbance • Vehicle Movement • Dry powdery soils • Cutting • Stagnant water • Infection Control
	<p>Risk Controls</p> <ul style="list-style-type: none"> • Protect areas of vegetation and minimise clearing / disturbance • Cover exposed ground with mulch or other suitable material • Restrict vehicle movements • Dampen surfaces (seek approval where water restrictions apply) • Landscape and re-vegetate as soon as possible • Seed or cover soil stockpiles


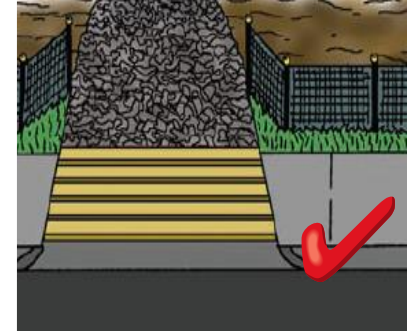


	<ul style="list-style-type: none"> • Monitor stormwater catchments and eliminate ponding zones • Special, high quality hoarding which meets infection control standards installed for operational healthcare facilities
	


<h2>WASTE</h2>	<p>Source</p> <ul style="list-style-type: none"> • Demolition • Construction Works • Packaging • Office • Amenities
 <p style="text-align: center;">LITTER</p>	<p>Risk Controls</p> <ul style="list-style-type: none"> • Utilise separate recycle bins for paper, steel etc (space permitting on site) • Use bin contractors who sort and recycle construction waste • Utilise existing client facilities for domestic recyclables (paper, cans etc) • Recycle demolished materials wherever possible • Place lids on domestic waste bins for odour and vermin control
 <p style="text-align: center;">RECYCLE</p>	

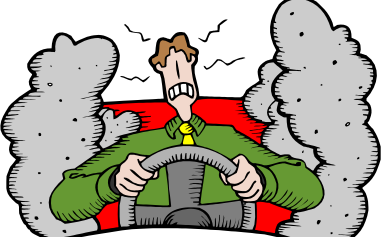
<h2 style="text-align: center;">CHEMICALS</h2>	<p>Source</p> <ul style="list-style-type: none"> • Fuel • Oil • Paint • Adhesives
	<p>Risk Controls</p> <ul style="list-style-type: none"> • No bulk storage of fuel / oil on site (fuel tankers to visit site as required) • Paints, adhesives stored on site at minimum quantities in vented containers/rooms • All storage of chemicals shall comply with the Material Safety Data Sheet • Major servicing of plant e.g. where large quantities of oil requires changing shall be undertaken off site
	

<h2 style="text-align: center;">CONTAMINATION (FROM SLURRY/ WASHWATER)</h2>	<p>Source</p> <ul style="list-style-type: none"> • Paint • Plaster • Concrete • Brick / Tile / Paver cutting
	<p>Risk Controls</p> <ul style="list-style-type: none"> • Use paint wash trough. Settled solids should be removed by an appropriate waste disposal company • Designate a washing up and brick cutting area away from stormwater drains. Build an earth bund to contain wash water from concrete, plaster, brick cutting • Designate a washing up and brick cutting area away from stormwater drains. Build an earth bund to contain wash water from concrete, plaster, brick cutting • Documented evidence of contaminated soil removed from site is accepted by landfill facility
	

<h2 style="text-align: center;">EROSION AND SEDIMENT</h2>	<p>Source</p> <ul style="list-style-type: none"> Disturbed / cleared soils Rain events
 <p style="text-align: center;">grassed areas trap soil particles</p>  <p style="text-align: center;">ROOF WATER connected to storm water or piped onto grassed area</p>	<p>Risk Controls</p> <ul style="list-style-type: none"> Protect and maintain natural vegetation and minimise clearing / disturbance Connect downpipes to stormwater drainage as soon as possible or pipe roof water onto grassed areas Install sediment fences close to the site boundary and drains where surface water may carry sediment off site Place gravel sausages across pit openings  

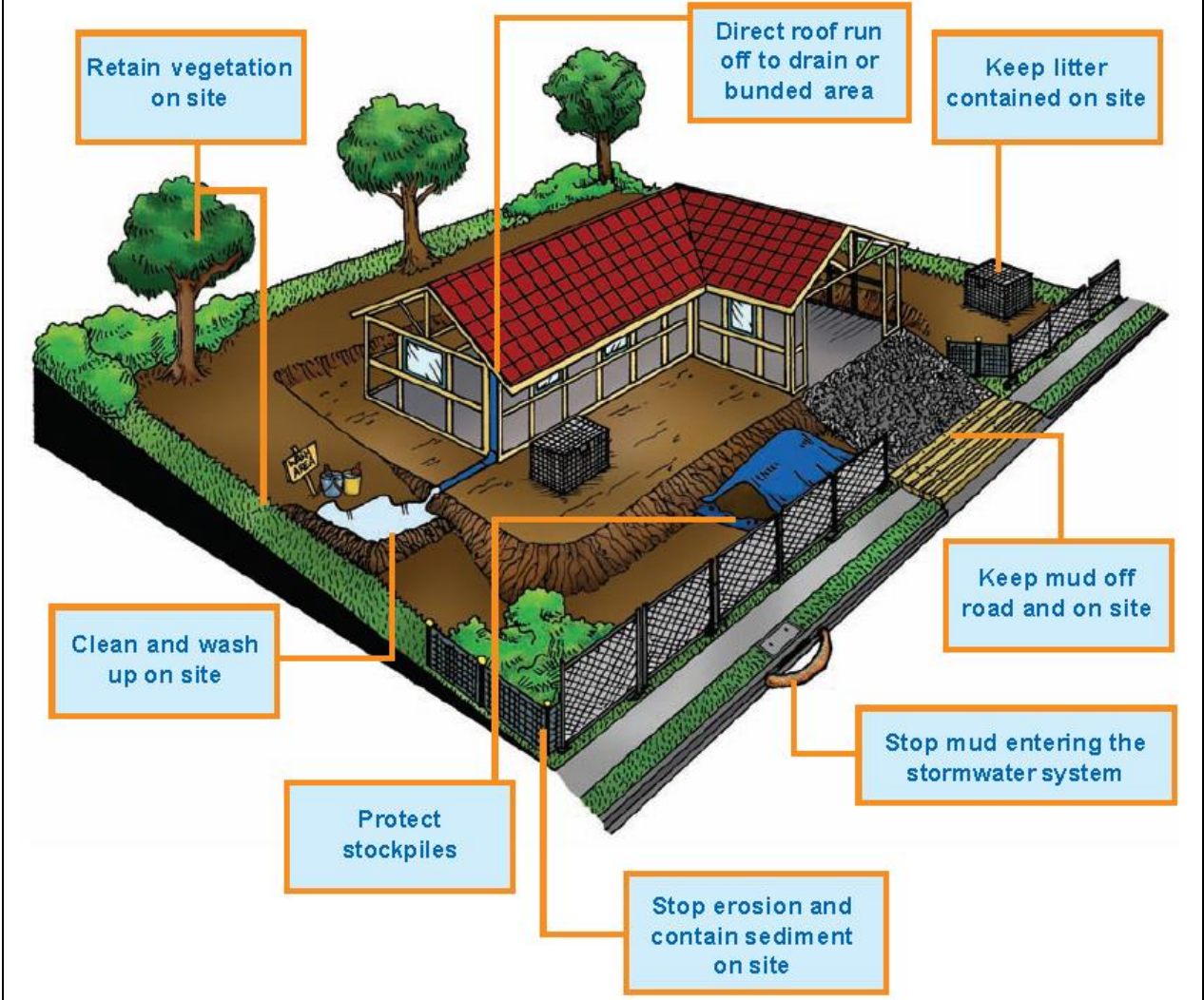
<h2 style="text-align: center;">MUD ON ROAD</h2>	<p>Source</p> <ul style="list-style-type: none"> Muddy site Vehicle Movements Significant Rain Event
 	<p>Risk Controls</p> <ul style="list-style-type: none"> Crushed rock placed in areas of vehicle movement Restrict vehicle movements on un-vegetated/exposed ground Cover exposed trafficked ground with mulch or other suitable material Protect areas of vegetation and minimise clearing / disturbance Remove water from site by connecting downpipes to stormwater drainage Install rumble strips at site exit to promote cleaning mud off vehicle tires  

<p>FLORA / FAUNA</p>	<p>Source</p> <ul style="list-style-type: none"> • Plant / Machinery • Construction Works
	<p>Risk Controls</p> <ul style="list-style-type: none"> • Trees, shrubs etc is protected by flagging, roped off i.e. "No Go Zone" • Vehicles parked outside of tree root zone to avoid damage • No entry to fenced off areas, no pets on sites, stick to access roads, and notify Site Manager of any fauna

<p>AIR POLLUTION</p>	<p>Source</p> <ul style="list-style-type: none"> • Plant / Machinery
	<p>Risk Controls</p> <ul style="list-style-type: none"> • Plant / machinery maintained in accordance with manufacturer recommendations • Plant / machinery exhaust emissions monitored for smoke (should not observe continuous smoke for longer than 10 seconds)

SUMMARY

Risk Controls



ATTACHMENT 4

Incident Response Flowchart

ATTACHMENT 4 (Clause 3.5.3)

Incident Response **NSW**



New South Wales

Organisations operating under the New South Wales Department of Planning and Environment (DPE) issued environmental licences are required to notify pollution incidents by calling the DPE Pollution Watch Line.

Pollution incident means an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

- Protection of the Environment Operations Act 1997 (links are to the [NSW legislation website](#)):
 - Section 116: It is an offence to willfully or negligently cause any substance to leak, spill in a manner that harms or is likely to harm the environment.
 - Section 120: It is illegal to pollute or cause or permit pollution of waters.
 - Section 124-126 Businesses must maintain and operate equipment and deal with materials in a proper and efficient manner to prevent air pollution at all times.
 - Section 139 and 140: It is an offence to allow noise from your premises to be generated as a result of the failure to maintain or operate machinery.
 - Section 142: It is an offence to pollute land
 - section 147: Meaning of material harm to the environment
 - section 148: Pollution incidents causing or threatening material harm to the environment
 - section 149: Manner and form of notification
 - section 150: Relevant information to be given
 - section 151: Incidents not required to be reported
 - section 152: Offence for breaching duty to notify pollution incidents
 - section 153: Incriminating information

The DPE relies on everyone in the community to report pollution. The community is encouraged to call the DPE Pollution Watch Line when the following is noticed:

- Smoke or odours from an industry or business
- Spills or slicks in waterways
- Illegal dumping of wastes
- Noise from a factory or industrial complex
- Littering
- Smokey Vehicles

CONTACT ENVIRONMENT LINE

Metropolitan – 131 555 (24 hours)

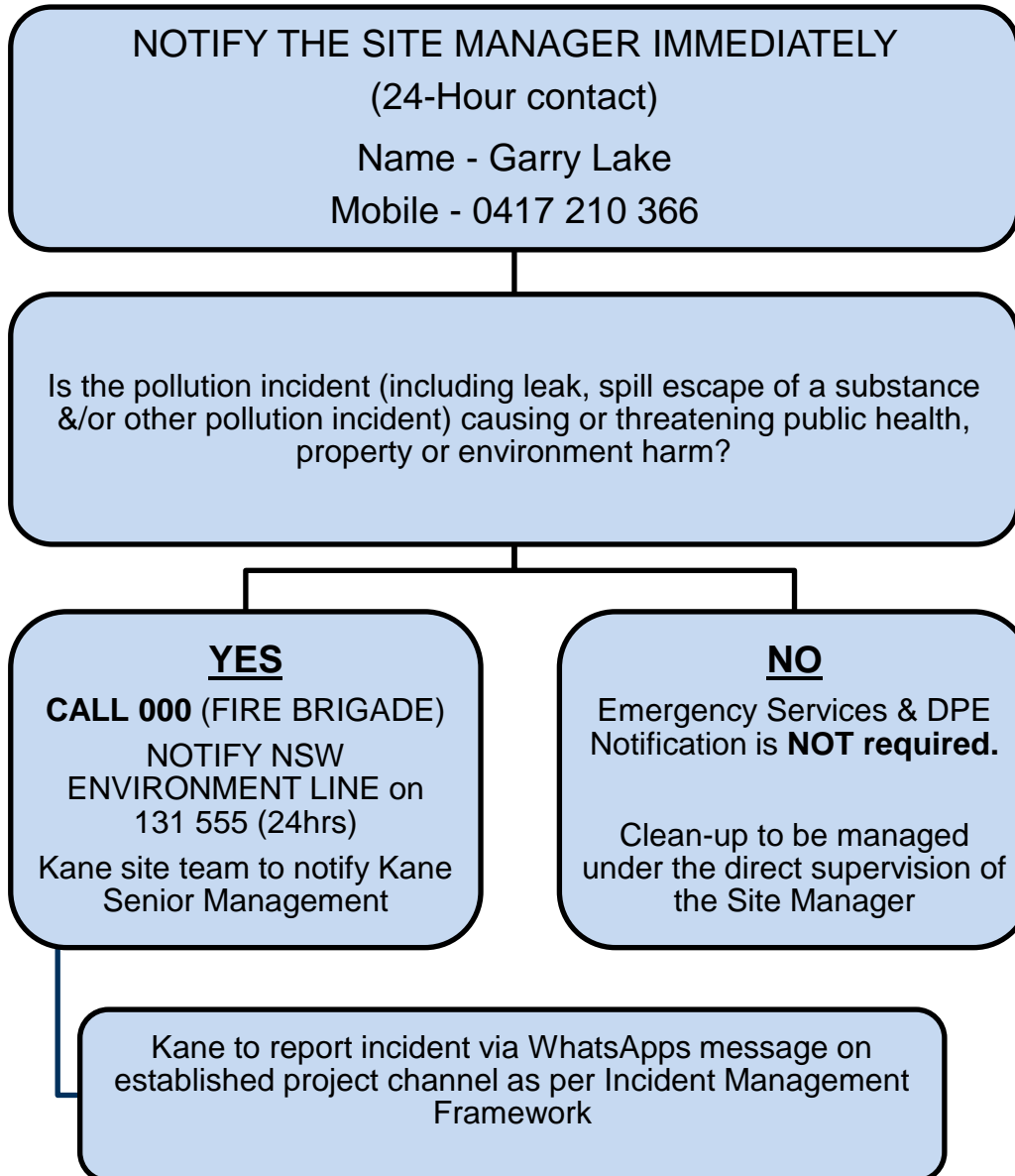
All site employees are responsible for notifying the Site Manager if they witness a pollution incident including leak, spill escape of a substance or pollution incident causing or threatening public or property harm. When notified, the Site Manager shall implement the attached Incident Response Flowchart.



Incident Response

In the event of an ENVIRONMENTAL INCIDENT

(all types of incidents) notify the Site Manager



3. Incident Management Framework

Category 1 – Critical Incident Trigger: Incident involving fatality or severe injury or major impact to critical hospital operations or incident resulting in potential severe corporate reputational damage.	Category 2 – Significant Incident Trigger: Incident involving major detrimental impact to project, including damage to civil structures, extreme weather impacts, and threats to life or property or major environmental impact, or significant impact to critical hospital operations or any LTI, significant near-miss or external environmental breach.	Category 3 – Minor Incident Trigger: Incident involving Medical Treatment Injury (MTI), potential for LTI, or on-site environmental impact, or minor near miss or non-conformance likely to lead to LTI	Category 4 – Notifiable Incident Trigger: Minor incident and/or safety breach on worksite For example: first aid treatment or non-conformance on site not likely to lead to an LTI
Step 1 – Immediate Contractor sends WhatsApp message on established project channel: Project Manager HI Regional Director / Senior Project Directors/Project Directors/Construction Managers Contractor informs Regulators and Emergency Services if required	Step 1 – Immediate Contractor sends WhatsApp message on established project channel: Project Manager HI Regional Director / Senior Project Directors/Project Directors/Construction Managers Contractor informs Regulators and Emergency Services if required	Step 1 – Within 1 hour Contractor sends WhatsApp message on established project channel: Project Manager HI Regional Director / Senior Project Director/Project Directors/Construction Managers Contractor informs Regulators	Step 1 – Within 4 hours Contractor sends WhatsApp message on established project channel: Project Manager HI Project Directors/Senior Project Directors/Regional Director /Construction Managers
Step 2 – Immediate Regional Director informs: HI Chief Executive Executive Director Western Region/Executive Director Northern Region/Executive Director Rural & Regional HI Communications Business Partner and Director Communications and Engagement	Step 2 – Immediate Regional Director informs: HI Chief Executive Executive Director Western Region/Executive Director Northern Region/Executive Director Rural & Regional HI Communications Business Partner and Director Communications and Engagement	Step 2 – Within 1 hour Regional Director / Senior Project Director / Project Director informs: Executive Director Western Region/Executive Director Northern Region/Executive Director Rural & Regional HI Communications Business Partner and Director Communications and Engagement	Step 2 – Within 8 hours Project Director/Senior Project Director: Engage with HI Communications Business Partner and Director Communications and Engagement
Step 3 – Immediate Chief Executive and Executive Director: Inform Secretary (and if instructed to the Minister), Ministry, Local Health District/s Inform the HI Board Chair Engage with Director Communications and Engagement	Step 3 – Immediate At discretion of CE and ED. Chief Executive and Executive Director inform Secretary (and Minister if instructed), Ministry, Local Health District/s Informs the HI Board Chair Engage with Director Communications and Engagement	Step 3 – Within 2 hours Executive Director: Informs CE and Leadership Team	Step 3 – Within 3 working days Incident report submitted with recommended mitigation to Executive Director Incident Management Team not required Managed through routine project governance and reporting
Step 4 – Immediate HI Chief Executive / Executive Director officially declare incident as detailed in the NSW health Incident Management Policy	Step 4 – Immediate At discretion of CE and ED HI Chief Executive / Executive Director officially declare incident	Step 4 – Within 24 hours Stakeholder Communications Plan implemented Media Management Plan implemented, as required	Step 4 – Within 24 hours Stakeholder Communications Plan implemented Media Management Plan implemented, as required
Step 5 – Within 1 hour Upon CE / ED officially declaring incident, a HI Incident Management Team is formed – see Section 2 below	Step 5 – Within 1 hour Upon CE / ED officially declaring incident, a HI Incident Management Team is formed – see Section 2 below	Step 5 – Within 3 working days Incident report submitted with recommended mitigation to Executive Director Incident Management Team not required Managed through routine project governance and reporting Employee status monitored and incident escalated if condition becomes serious	
Step 6 – Ongoing Incident Management Team assumes control of incident response Media and stakeholder communication managed in line with Section 3 – Stakeholder Relationship Managers and Appendix 1 – Incident Media Protocols	Step 6 – Ongoing Incident Management Team assumes control of incident response Media and stakeholder communication managed in line with Section 3 – Stakeholder Relationship Managers and Appendix 1 – Incident Media Protocols		

ATTACHMENT 5

Improvement Notice



ATTACHMENT 5 (Clause 3.5)



Improvement Notice

This notice is issued as a consequence of your failure to maintain adequate environmental controls during the performance of your contract works

PROJECT – CHILDREN’S HOSPITAL WESTMEAD STAGE 2.	PROJECT NO.
SITE MANAGER – Garry Lake	DATE:

TO: FROM:

 Company Name Company Name

<input type="checkbox"/> Noise	<input type="checkbox"/> Dust and/or Odour
<input type="checkbox"/> Waste	<input type="checkbox"/> Chemicals
<input type="checkbox"/> Contamination (slurry, wash water, oil)	<input type="checkbox"/> Erosion and Sediment
<input type="checkbox"/> Flora / Fauna	<input type="checkbox"/> Mud on road
<input type="checkbox"/> Heritage	<input type="checkbox"/> Air Pollution
<input type="checkbox"/> Other	<input type="checkbox"/>

Where this Improvement Notice is issued as a result of an environmental incident, IDENTIFY ACTION TAKEN TO CLEAN UP

ACTION TAKEN TO ELIMINATE THE CAUSE (i.e re-induction, improved control measure etc)

VERIFICATION OF ACTION TAKEN (Kane Site Management use only)

Action verified as completed Action inadequate (describe why inadequate)

.....

Signed:



Date:.....

Kane Representative

In the event the company issued this notice fails to action, all costs incurred to undertake these works will be back-charged.

Labour to Rectify

men x
Hours

hours =

Total

Distribution:

- Site File
- Project Manager
- Subcontractor

ATTACHMENT 6

Environmental Management Audit Report



ATTACHMENT 6 (Clause 4.1.2)



Environmental Management Audit

Who shall implement	Project Manager (Auditor) - Audit and submit report Site Manager (Auditee) - Implement actions identified
When to implement	Quarterly (minimum)
How to use/implement	Project Manager to check compliance, with the Site Manager, of all items against actual site record/observations and score out of 150. If not applicable, write N/A and award total points. Do not award negative points. Lowest score possible is zero. Any issue identified shall be listed (<i>immediate actions required column</i>) and actioned by the Site Manager (<i>sign and date in the closed column</i>). The report is to be issued to the Systems Manager (Vic) or Construction Supervisor (NSW/QLD).

Job Title: CHILDREN'S HOSPITAL WESTMEAD STAGE 2		Period Audited
Site Manager: Garry Lake	Job No.	Date Audited

* if not applicable write N/A and award total points

EMS Sch / CL Ref	Audit Criteria	* Points Scored	Immediate Actions Required	Closed Sign/Date
Sch 1B	1. All EMS (body and schedules) implemented on site is the most current revisions i.e check documents against revision control table (<i>Award 15 points, less 2 points for each document not current</i>)			
Sch 3	2. Environmental Management Plan is signed, dated and prepared using current revision (<i>15 points if signed, dated and current. Less 10 points if not signed and dated. Zero points if not current revision used</i>)			
Sch 3 Att 2	3. Environmental Risk Assessment and Checklist prepared (<i>15 points if prepared, less 10 points if not signed and dated by PM, less 10 points if risk rating is not completed, less 5 points if names of attendees not listed, zero points if not prepared</i>)			
Sch 3 Att 2	4. Environmental Risk Assessment implementation (<i>15 points for completed weekly checks, less 10 points for weeks not completed, zero points for no implementation</i>)			
Sch 3 Att 2	5. Tally of Compliant / Non-Compliant Controls Maintained (<i>5 points, less 2 points if tally not updated, zero points if no tally</i>)			

EMS Sch / CL Ref	Audit Criteria	* Points Scored	Immediate Actions Required	Closed Sign/Date
Sch 3 Att 2	6. Environmental Risk Assessment minor actions required (10 points for minor actions required and closed out, less 2 points each action not closed out)			
Sch 3 Att 3	7. Environmental Induction Booklet displayed in induction room (10 points for induction book displayed, zero points if not displayed)			
Sch 3 Att 4	8. Incident Response Flowchart completed with Site manager's name and displayed on site noticeboard (10 points if completed and displayed, less 5 points for not displaying on the noticeboard and zero points if not completed)			
Sch 3 Att 5	9. Improvement notices raised and closed out (20 points for notices closed out, less 10 points for each notice raised and not closed out)			
Sch 4	10. Materials Waste Data Sheets displayed on site notice board relevant to stage of project works (10 points, less 2 points for each data sheet not relevant to works)			
Sch 3 Att 6	11. Quarterly environmental reporting statistics are submitted by the requested date (15 points, less 10 points if not submitted on time)			
Sch 3 Att 6	12. Are issues/actions repeated from previous audits? (10 points, less 10 points if answered Yes without an explanation why the issues/actions are repeated from previous audits)	Yes/No	If Yes, list the reasons why the issues/actions are not actioned from previous audits	
4.1.2	13. Is the Kane EMS effective in achieving the objectives and targets? (10 points, less 10 points if answered No without an explanation why the system is not effective)	Yes/No	If No, list why (i.e system change, training etc)	

Total Points achieved	maximum score 160	Date Immediate Actions must be closed by	write date above
<p>If maximum points are <u>not achieved</u> on the Audit Criteria 1 and 2 above, the Total Points achieved for this audit shall default to "Improvement Required"</p> <p>If maximum points are <u>not achieved</u> on the Audit Criteria 3, 4 and 6 above, the Total Points achieved for this audit shall default to "Unsatisfactory Result"</p>			
Between 90 - 100% (144 – 160) Points	Kane EMS trainer/mentor suitable to train young foreman		
Between 70 – 89 % (112 – 143) Points	Good Implementation (above average implementation)		
Between 50 – 69 % (80 – 111) Points	Improvement Required (average implementation)		
Below 50 % (0 – 79) Points	Unsatisfactory result (Non-conformance report and re-induction)		

Print Name
(Site Manager)

Print Name.....
(Project Manager)

Distribution

Site File

Systems Manager/Systems Coordinator (VIC)/Construction Supervisor (NSW, QLD)

ATTACHMENT 7

Confirmation of Responsibilities



ATTACHMENT 7



Confirmation of Responsibilities

The project staff responsible for management of environmental management is assessed for competence, understanding and acceptance of their environmental responsibilities. Confirmation of this is provided below.

Each individual shall complete the table to verify the items listed below. Write either Yes or No (alongside the item in your column only) sign and date.

Item 1 I understand my responsibilities identified in the Kane EMS (revision A2)

Item 2 I understand my responsibilities identified in the Environmental Management Plan (revision 1)

Item 3 I was consulted and given opportunity for input in the development of this Environmental Management Plan

Item 4 I am competent to carry out my responsibilities identified in the Kane EMS and this Environmental Management Plan

Item 5 I will carry out my responsibilities identified in the Kane EMS and this Environmental Management Plan

Name	Position	Item 1 Yes/No	Item 2 Yes/No	Item 3 Yes/No	Item 4 Yes/No	Item 5 Yes/No	Sign	Date
Steven Browne	Project Manager	Yes	Yes	Yes	Yes	Yes		7/03/23
Matthew Murphy	WHS Coordinator	Yes	Yes	Yes	Yes	Yes		7/03/23
Garry Lake	Site Manager	Yes	Yes	Yes	Yes	Yes		7/03/23
Luke Rosser	Foreman	Yes	Yes	Yes	Yes	Yes		31/05/23
Paulo Capela	Foreman	Yes	Yes	Yes	Yes	Yes		31/05/23
Matt Scupham	Foreman	Yes	Yes	Yes	Yes	Yes		31/05/23
Kieran Hill	Services Manager	Yes	Yes	Yes	Yes	Yes		31/05/23
Briean Ranchhod	Design Manager	Yes	Yes	Yes	Yes	Yes		7/03/23
Emilio Ayoub	Project Engineer	Yes	Yes	Yes	Yes	Yes		31/05/23
Matej Knap	Project Engineer	Yes	Yes	Yes	Yes	Yes		30/11/23
Stefanie Sjobeck	Site Engineer	Yes	Yes	Yes	Yes	Yes		7/03/23
Rachel Pannowitz	Site Engineer	Yes	Yes	Yes	Yes	Yes		31/05/23
James Pifat	Site Engineer	Yes	Yes	Yes	Yes	Yes		31/05/23
Whittaker Downey	Cadet Project Engineer	Yes	Yes	Yes	Yes	Yes		7/03/23

Sandy Wannous	Cadet Project Engineer	Yes	Yes	Yes	Yes	Yes		31/05/23
Mike Quin	Contracts Manager	Yes	Yes	Yes	Yes	Yes		31/05/23
George Angelopoulos	Senior Contracts Administrator	Yes	Yes	Yes	Yes	Yes		7/03/23
Jon Cruz	Contracts Administrator	Yes	Yes	Yes	Yes	Yes		31/05/23
Rebecca Kal	Contracts Administrator	Yes	Yes	Yes	Yes	Yes		31/05/23
James Colman	Cadet Contracts Administrator	Yes	Yes	Yes	Yes	Yes		31/05/23

ATTACHMENT 8

Unexpected Finds Protocol Contamination and Associated Communications Procedure

UNEXPECTED FINDS PROTOCOL FOR CONTAMINATION AND ASSOCIATED COMMUNICATIONS PROCEDURE

Revision History

Revision	Date	Author	Approval	Description
REV 1	7/03/2023	SS	SB	ISSUED FOR CC

Works within the Viral Vector Manufacturing Facility (VVMF) development within the Innovation Centre (IC) are to be in accordance with the associated Asbestos Management Plan 56200/150219 [Rev A] 24 February 2023 by JBS&G (refer Attachment 11).

With regards to the CHW scope of works in areas associated with the Remedial Action Plan for Westmead Children’s Hospital Stage 2 PSB by JBS&G (56200/133,598 [Rev 1] 11 May 2022), it is acknowledged that previous investigations of the site have been undertaken to assess the identified contaminants of potential concern in selected parts of the site. However, ground conditions between sampling points may vary, and further hazards may arise from unexpected sources and/or in unexpected locations during remediation. The nature of any residual hazards which may be present at the site are generally detectable through visual or olfactory means, for example;

- bottles / containers of chemicals (visible);
- construction / demolition waste (visible);
- ash and/or slag contaminated soils / fill materials (visible);
- petroleum contaminated soils (odorous, staining / discolouration visible) beyond the identified impact, or at levels that prevent off-site disposal without treatment; and
- volatile organic compound contaminated soils (odorous).

As a precautionary measure to ensure the protection of the workforce and surrounding community, should any new soil contamination information or contaminants be identified during the undertaking of works which have the



potential to alter previous conclusions about site contamination, then Kane Constructions and HI must be immediately notified and works must cease in the location of the contamination.

Works must not recommence until a suitably qualified contaminated land specialist (i.e. a Certified Environmental Practitioner) has investigated and assessed the category of the contamination in accordance with SEPP (Resilience & Hazards) 2021 and if required prepare a Remediation Action Plan (RAP) which details the necessary remedial work or management required to render the site suitable for the proposed development.

Following completion of the remediation, a Site Remediation & Validation Report (SRVR) which documents the completeness of the remedial work is to be submitted to HI and the EPA, if required. Any contaminated materials or hazardous substances that need to be removed from site are to be classified first and then stored, transported and disposed of in accordance with EPA requirements at an EPA licensed waste facility.

Asbestos removal and management in NSW is regulated under the Work Health and Safety Act 2011 and Work Health and Safety Regulation 2017. The handling of asbestos work must be carried out in accordance with Safework Australia Code of Practice "How to Manage and Control Asbestos in the Workplace" February 2016, including being undertaken by contractors who hold a current Safework Asbestos or Demolition License and any other current Safework License required.

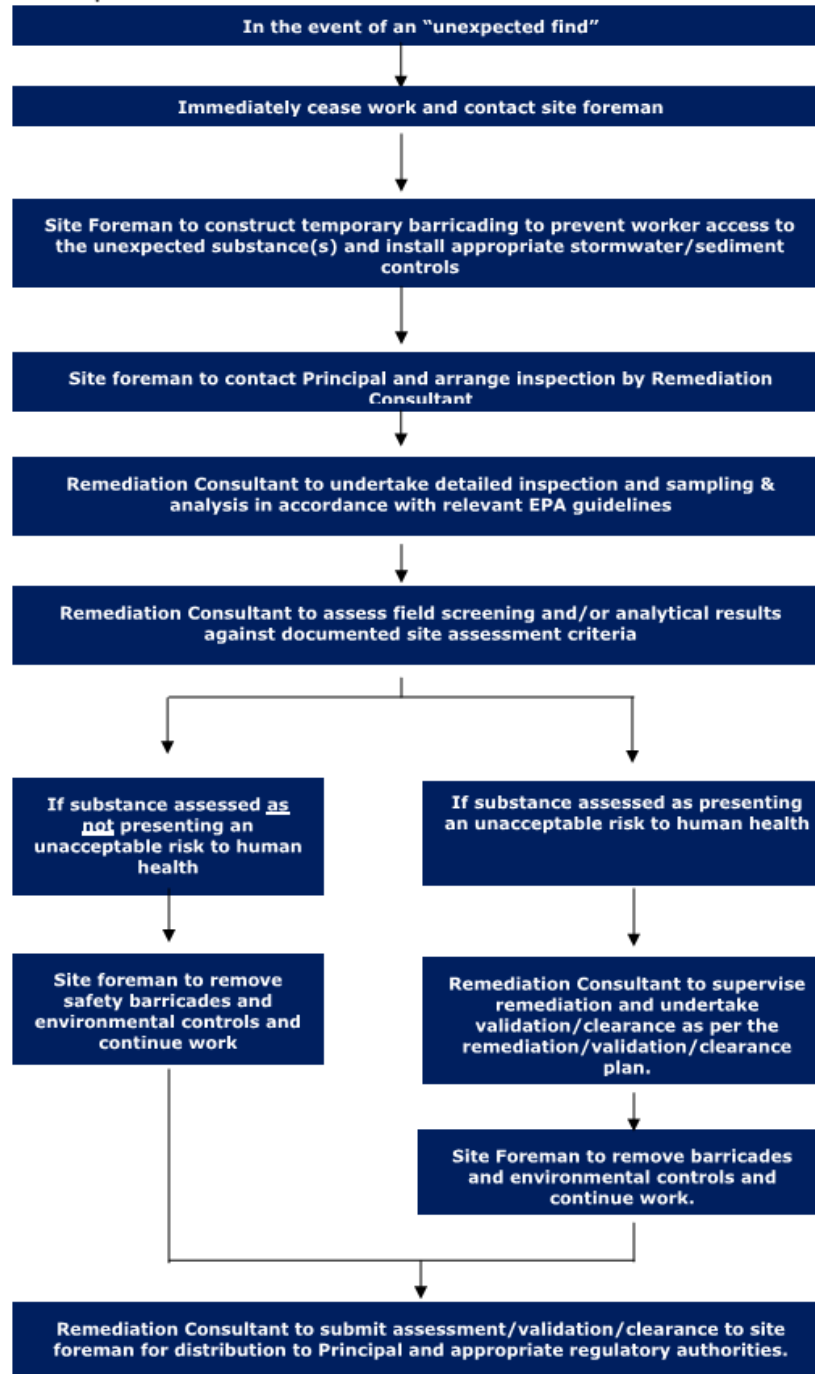
If soils are to be disposed offsite during construction, they are required to be disposed in accordance with the waste classification, subject to additional sampling and analysis. Construction works should not result in the contamination of the site. A spill containment kit will be available at all times. All personnel will be made aware of the location of the kit and trained in its effective deployment. Materials will be sourced from licensed quarries and operators. All materials will be certified uncontaminated and environmentally safe.

The procedure is summarised in the following flowcharts from both the Remedial Action Plan for Westmead Children's Hospital Stage 2 PSB by JBS&G (56200/133,598 [Rev 1] 11 May 2022) Section 8.1 'Unexpected Finds Protocol' and from the Asbestos Management Plan for Westmead Hospital VVMF by JBS&G (56200/150219 [Rev A] 24 February 2023) Section 9.1 'Unexpected Finds Protocol'.

An enlarged version of the unexpected finds protocol, suitable for use on-site, will be posted in the Site Office and referred to during the Site Specific Induction by the Contractor.

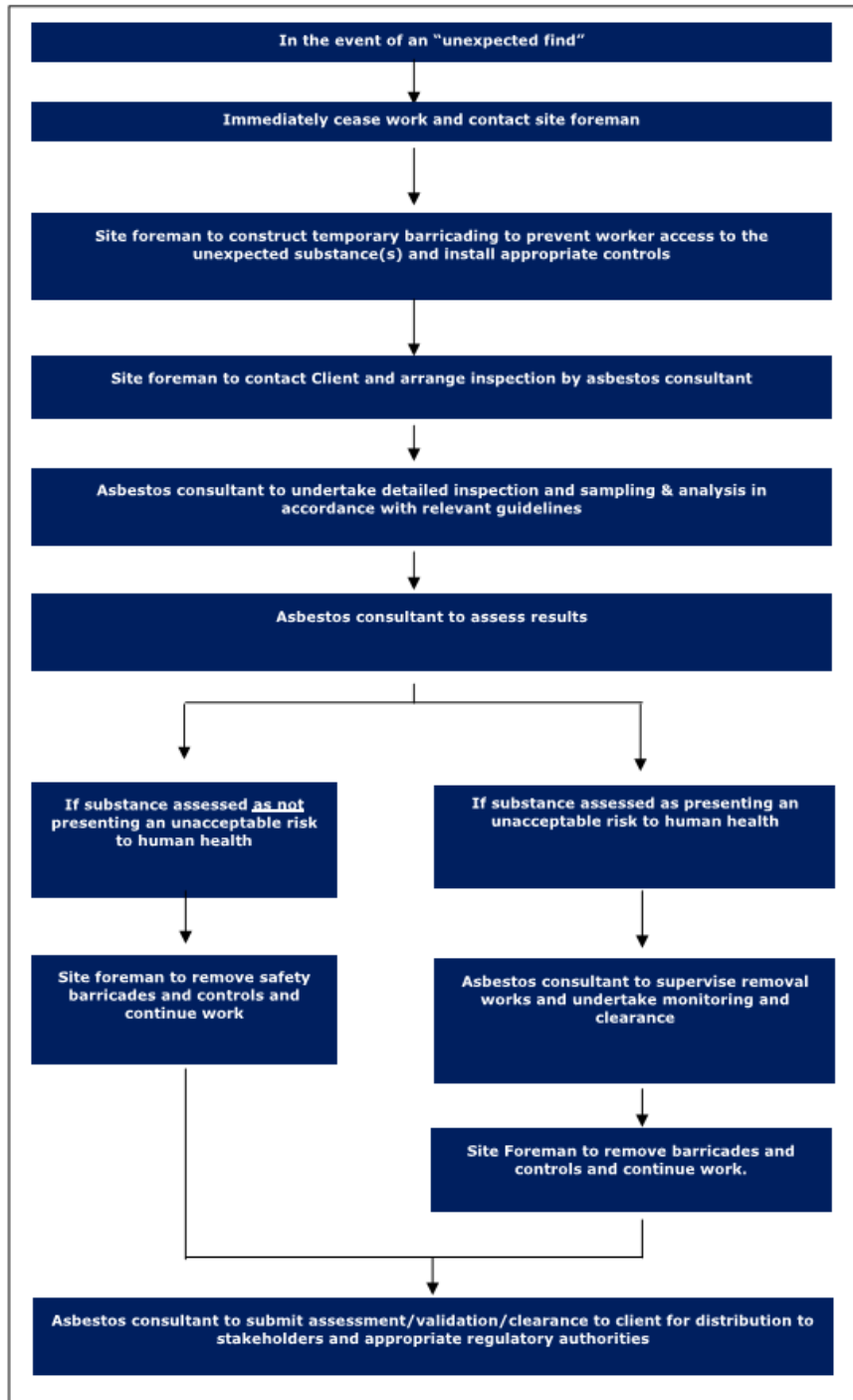


Flowchart 8.1: Unexpected Finds Protocol





Flowchart 9.1 – Unexpected Finds Protocol



BE AWARE UNEXPECTED HAZARDS MAY BE PRESENT



drums



asbestos



chemical bottles



odour

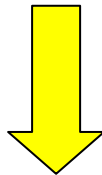


ash / slag

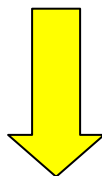


demolition waste

If you SEE or SMELL anything
unusual



STOP WORK & contact the Site
Manager / WHS Coordinator



do not restart working before the area
has been investigated and cleared by an
Environmental Consultant.

ATTACHMENT 9

Unexpected Finds Protocol Aboriginal & Non-Aboriginal Heritage Items



UNEXPECTED FINDS PROTOCOL FOR ABORIGINAL AND NON-ABORIGINAL HERITAGE ITEMS

PURPOSE

This management plan has been developed to provide a consistent method for managing unexpected finds of either Aboriginal or non-Aboriginal heritage discovered during work on a project site.

This procedure assumes that an appropriate level of Aboriginal and non-Aboriginal heritage assessment has been undertaken prior to work commencing.¹

Despite appropriate and adequate investigation, unexpected heritage items may still be discovered during construction works. When this happens, the following procedure must be followed.

REVISION HISTORY

Revision	Date	Author	Approval	Description
01	7/03/2023	SS	SB	Issue for CC

LEGISLATIVE REQUIREMENTS

Table 1 below identifies some of the relevant legislation / regulations for the protection of heritage and the management of unexpected heritage finds in NSW.

Table 1: Requirement and Objectives

Relevant Requirement	Objectives and offences
Environmental Planning and Assessment Act 1979 (EP&A Act)	Requires heritage to be considered within the environmental impact assessment of projects. This guideline is based on the premise that an appropriate level of Aboriginal and non-Aboriginal cultural heritage assessment and investigations and mitigation have already been undertaken under the relevant legislation, including the EP&A Act, during the assessment and determination process. It also assumes that appropriate mitigation measures have been included in the conditions of any approval
Heritage Act 1977	The Heritage Act provides for the care, protection and management of (Heritage Act) heritage items in NSW. Under section 139, it is an offence to disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed, unless the disturbance or excavation is carried out in accordance with an excavation permit issued by the Heritage Division of the . Under the Act, a relic is defined as: 'any deposit, artefact, object or material evidence that: (a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and (b) is of State or local heritage significance.' A person must notify the Heritage Division of DPE, if a person is aware or believes that they have discovered or located a relic (section 146). Penalties for offences under the Heritage Act can include six months imprisonment and/or a fine of up to \$1.1million.

¹ If previous studies have identified that finds are likely, an *application may be required under the Heritage Act 1977 or the National Parks and Wildlife Act 1974.*

<p>National Parks and Wildlife Act 1974 (NPW Act)</p>	<p>The NPW Act provides the basis for the care, protection and management of Aboriginal objects and places in NSW. An Aboriginal object is defined as: ‘any deposit, object or material evidence (not being a handicraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains’. An ‘Aboriginal place’ is an area declared by the Minister administering the Act to be of special significance with respect to Aboriginal culture. An Aboriginal place does not have to contain physical evidence of occupation (such as Aboriginal objects). Under section 87 of the Act, it is an offence to harm or desecrate an Aboriginal object or place. There are strict liability offences. An offence cannot be upheld where the harm or desecration was authorised by an AHIP and the permit’s conditions were not contravened. Defences and exemptions to the offence of harming an Aboriginal object or Aboriginal place are provided in section 87, 87A and 87B of the Act. A person must notify DPE if a person is aware of the location of an Aboriginal object. Penalties for some of the offences can include two years imprisonment and/or up to \$550,000 (for individuals), and a maximum penalty of \$1.1 million (for corporations)</p>
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It should be noted that significant penalties exist for breaches of the listed legislation as a result of actions that relate to unauthorised impacts on heritage items. Further, it is noted that heritage that has been assessed and is being managed in accordance with relevant statutory approvals(s) can be exempt from these offences.

To avoid breaches of legislation, it is important that Kane and its contractors are aware of our statutory obligations under relevant legislation and that appropriate control measures are in place to ensure that unexpected heritage items are appropriately managed during construction.

AN UNEXPECTED FIND

An *unexpected find* in the context of heritage is usually categorized as one or more of the following:

- a) **Aboriginal objects**
- b) **Historic (non-Aboriginal) heritage items**
- c) **Human skeletal remains**

All of these are protected by law and destruction or disturbance of them could result in significant fines or even jail terms. The relevant legislation that applies to each of these categories is described below.

a) ABORIGINAL OBJECTS

The *National Park and Wildlife Act 1974* protects *Aboriginal objects*. These include stone tool artefacts, shell middens, axe grinding grooves, pigment or engraved rock art, burials and scarred trees.

If any impact is expected to an Aboriginal object, an Aboriginal Heritage Impact Permit (AHIP) is usually required from the Department of Planning and Environment (DPE). When a person becomes aware of an Aboriginal object they must notify the Secretary of the Department Planning Industry and Environment about its location. Assistance on how to do this is provided in Section 7.

b) HISTORIC HERITAGE ITEMS

Historic (non-Aboriginal) heritage items may include:

- Archaeological 'relics'
Other historic items (i.e. works, structures, buildings or movable objects).

c) ARCHAEOLOGICAL RELICS

The *Heritage Act 1977* protects relics which are archaeological items of local or state significance which may relate to past domestic, industrial or agricultural activities in NSW, and can include bottles, remnants of clothing, pottery, building materials and general refuse.

d) OTHER HISTORIC ITEMS

Some historic heritage items are not considered to be 'relics'; but are instead referred to as works, buildings, structures or movable objects. Examples of these items may be encountered include culverts, historic road formations, historic pavements, buried roads, retaining walls, tramlines, cisterns, fences, sheds, buildings and conduits. Although an approval under the *Heritage Act 1977* may not be required to disturb these items, their discovery must be managed in accordance with the procedure as per *Figure 1*.

As a general rule, an archaeological relic requires discovery or examination through the act of excavation. An archaeological excavation permit under Section 140 of the *Heritage Act 1977* is required to do this. In contrast, 'other historic items' either exist above the ground's surface (e.g. a shed), or they are designed to operate and exist beneath the ground's surface (e.g. a culvert).

Despite this difference, it should be remembered that relics can often be associated with 'other heritage items', such as archaeological deposits within cisterns and underfloor deposits under buildings.

e) HUMAN SKELETAL REMAINS

Human skeletal remains can be identified as either an Aboriginal object or non-Aboriginal relic depending on ancestry of the individual (Aboriginal or non-Aboriginal) and burial context (archaeological or non-archaeological). Remains are considered to be archaeological when the time elapsed since death is suspected of being 100 years or more. Depending on ancestry and context, different legislation applies.

As a simple example, a pre-European settlement archaeological Aboriginal burial would be protected under the NPW Act, while a historic (non-Aboriginal) archaeological burial within a cemetery would be protected under the Heritage Act. In addition to the NPW Act, finding Aboriginal human remains also triggers notification requirements to the Commonwealth Minister for the Environment under section 20(1) of the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*(Commonwealth).

However, where it is suspected that less than 100 years has elapsed since death, the human skeletal remains come under the jurisdiction of the State Coroner and the *Coroners Act 2009* (NSW). Such a case would be considered a 'reportable death' and under legal notification obligations set out in section 35(2); a person must report the death to a police officer, a coroner or an assistant coroner as soon as possible. This applies to all human remains less than 100 years old² regardless of ancestry (i.e. both Aboriginal and non-Aboriginal remains). Public health controls may also apply.

SEEKING ADVICE

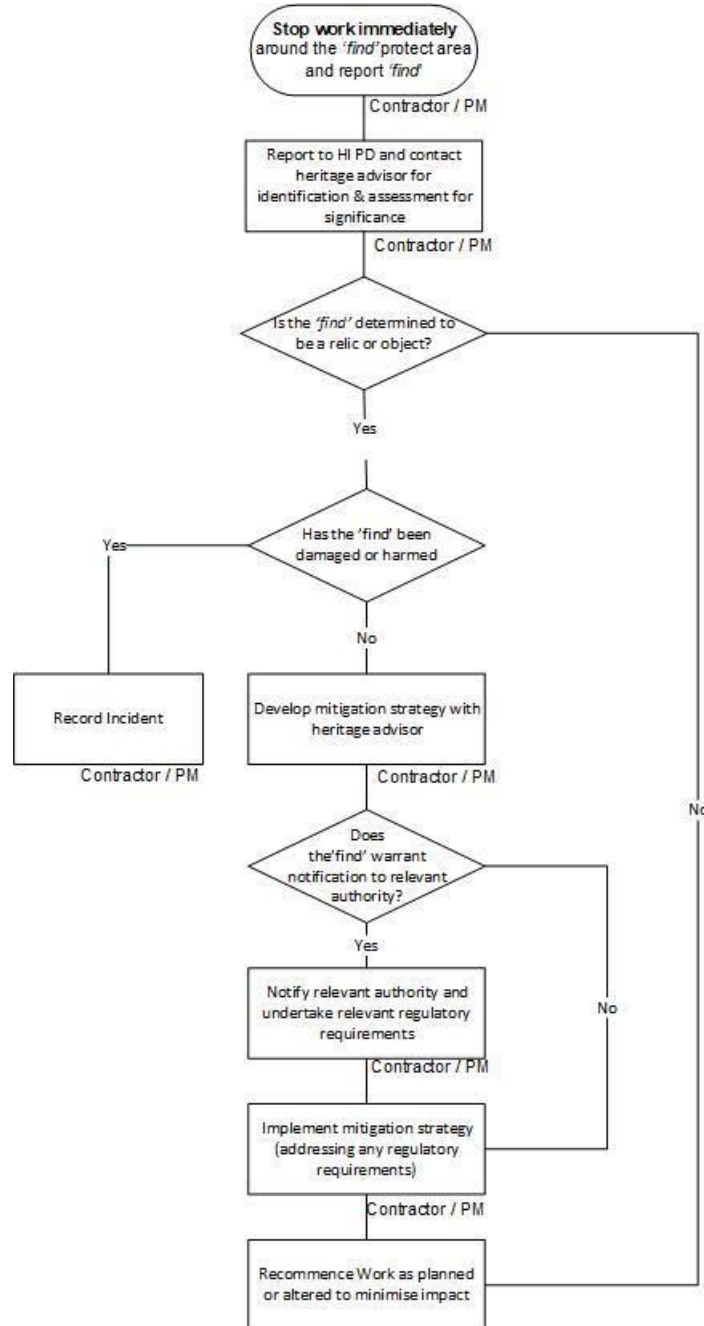
Technical archaeological or heritage advice regarding an unexpected heritage item should be sought from HI and the contracted archaeologist. Technical specialist advice can also be sought from heritage policy staff within Environment Branch to assist with the preliminary archaeological identification and technical reviews of heritage/archaeological reports.

² Under section 19 of the *Coroners Act 2009*, the coroner has no jurisdiction to conduct an inquest into reportable death unless it appears to the coroner that (or that there is reasonable cause to suspect that) the death or suspected death occurred within the last 100 years.

UNEXPECTED HERITAGE ITEMS PROCEDURE

In the event that an unexpected find is encountered, refer to flow chart below for procedure.

Figure 1: Procedure flow chart with an unexpected finding



APPENDIX A

UNCOVERING BONES

All matters relating to uncovering bones/human remains require notification to HI Development Team staff. They will guide Project Managers through occurrences of uncovering bones.

This appendix A provides Project Managers with advice (1) on what to do on first uncovering bones (2) the range of human skeletal notification pathways and (3) additional considerations and requirements when managing the discovery of human remains.

1. FIRST UNCOVERING BONES

Stop all work in the vicinity of the find. All bones uncovered during project works should be **treated with care and urgency** as they have the potential to be human remains. Therefore they must be identified as either human or non-human as soon as possible by a qualified forensic or physical anthropologist. These specialist consultants can be sought by contacting regional environment staff and/or heritage staff at Environment Branch.

On the very rare occasion where it is instantly obvious from the remains that they are human, the Project Manager (or a delegate) **should inform the police by telephone** prior to seeking specialist advice. It will be obvious that it is human skeletal remains where there is no doubt, as demonstrated by the example in Figure 2. Often skeletal elements in isolation (such as a skull) can also clearly be identified as human. Note it may also be obvious that human remains have been uncovered when soft tissue and clothing are present.

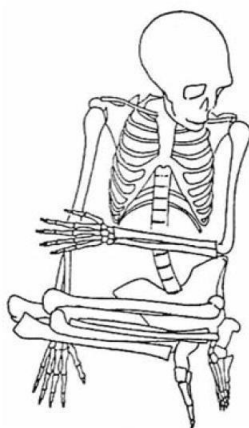


Figure 2: Schematic of a complete skeleton that is 'obviously' human¹².



Figure 3: Disarticulated bones that require assessment to determine species.

¹² After Department of Environment and Conservation NSW (2006), *Manual for the identification of Aboriginal*

Remains:

Where it is not 'obvious' that the bones are human (in the majority of cases, illustrated by Figure 3), specialist assessment is required to establish the species of the bones. Photographs of the bones can assist this assessment if they are clear and taken in accordance with guidance provided in photo above. Good photographs often result in the bones being identified by a specialist without requiring a site visit; noting they are nearly always non-human. In these cases, non-human skeletal remains must be treated like any other unexpected archaeological find.

If the bones are identified as human (either by photographs or an on-site inspection) a technical specialist must determine the likely ancestry (Aboriginal or non-Aboriginal) and burial context (archaeological or forensic). This assessment is required to identify the legal regulator of the human remains so urgent notification (as below) can occur. Preliminary telephone or verbal notification by the Project Manager to the HI Representative, and/or HI's planning team is essential.

2. RANGE OF HUMAN SKELETAL NOTIFICATION PATHWAYS

The following is a summary of the different notification pathways required for human skeletal remains depending on the preliminary skeletal assessment of ancestry and burial context.

A) HUMAN BONES ARE FROM A RECENTLY DECEASED PERSON (LESS THAN 100 YEARS OLD).

Action

A police officer must be notified immediately as per the obligations to report a death or suspected death under s35 of the Coroners Act 2009 (NSW). It should be assumed the police will then take command of the site until otherwise directed.

B) HUMAN BONES ARE ARCHAEOLOGICAL IN NATURE (MORE THAN 100 YEARS OLD) AND ARE LIKELY TO BE ABORIGINAL REMAINS.

Action

The DPE and the HI's Planning Team must be notified immediately. The Planning Team, must then contact and inform the relevant Aboriginal community stakeholders who may request to be present on site. .

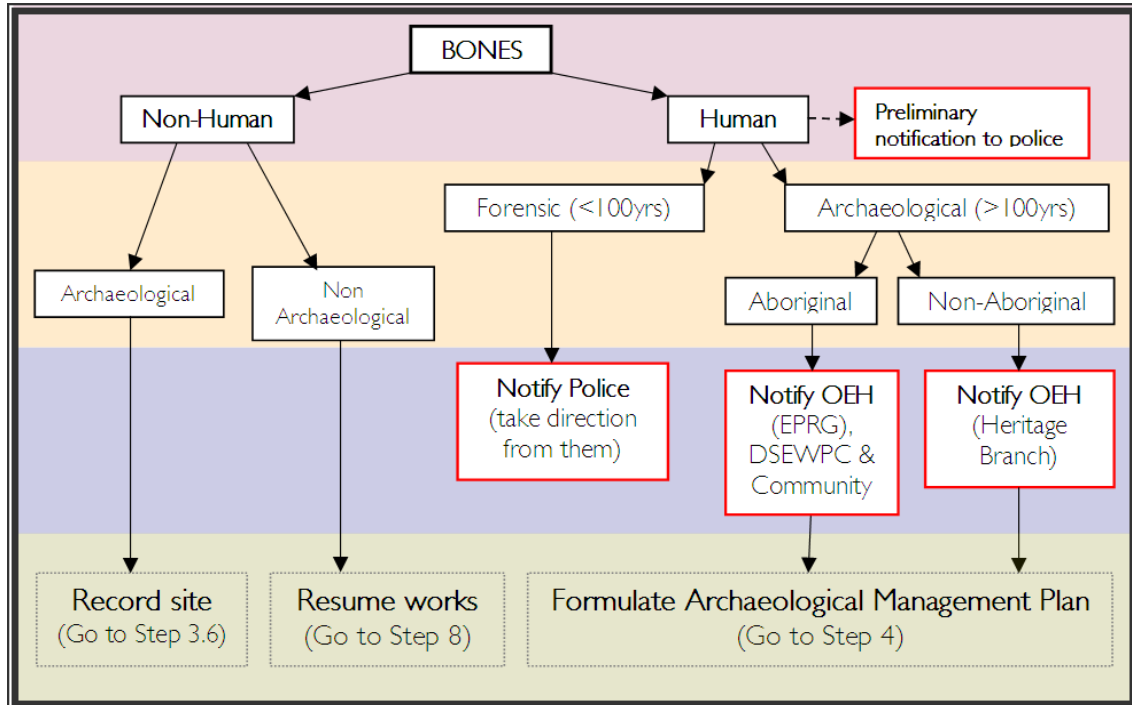
C) HUMAN BONES ARE ARCHAEOLOGICAL IN NATURE (MORE THAN 100 YEARS OLD) AND LIKELY TO BE NON-ABORIGINAL REMAINS.

Action

The DPE (Heritage Branch, Conservation Team) must be notified immediately.

The simple diagram below summarises the notification pathways on finding bones.

Figure 2: Notification pathways on bones finding



After the appropriate verbal notifications (as described in B and C), the Kane Project Manager must proceed through the Unexpected Heritage Items Procedure to formulate an archaeological management plan (Step 4). Note no archaeological management plan is required for forensic cases (A), as all future management is a police matter.

Non-human skeletal remains must be treated like any other unexpected archaeological find and so must proceed to recording the find as per Step 3.6.

¹³ This requirement is in addition to heritage approvals under the *Heritage Act*

ATTACHMENT 10

Demolition Work Plans



PROJECT MILESTONE SUMMARY

- 01 - Galleria East and Western Airlocks
- 02 - Clinical Research Centre
- 03 - Gait Lab
- 04 - Blood bank
- 05 - Pathology Expansion
- 06 - VVMF KR Rooftop extension and Link bridge
- 07 - VVMF Innovation centre (clean room)
- 08 - CHW Corridor Widening Works

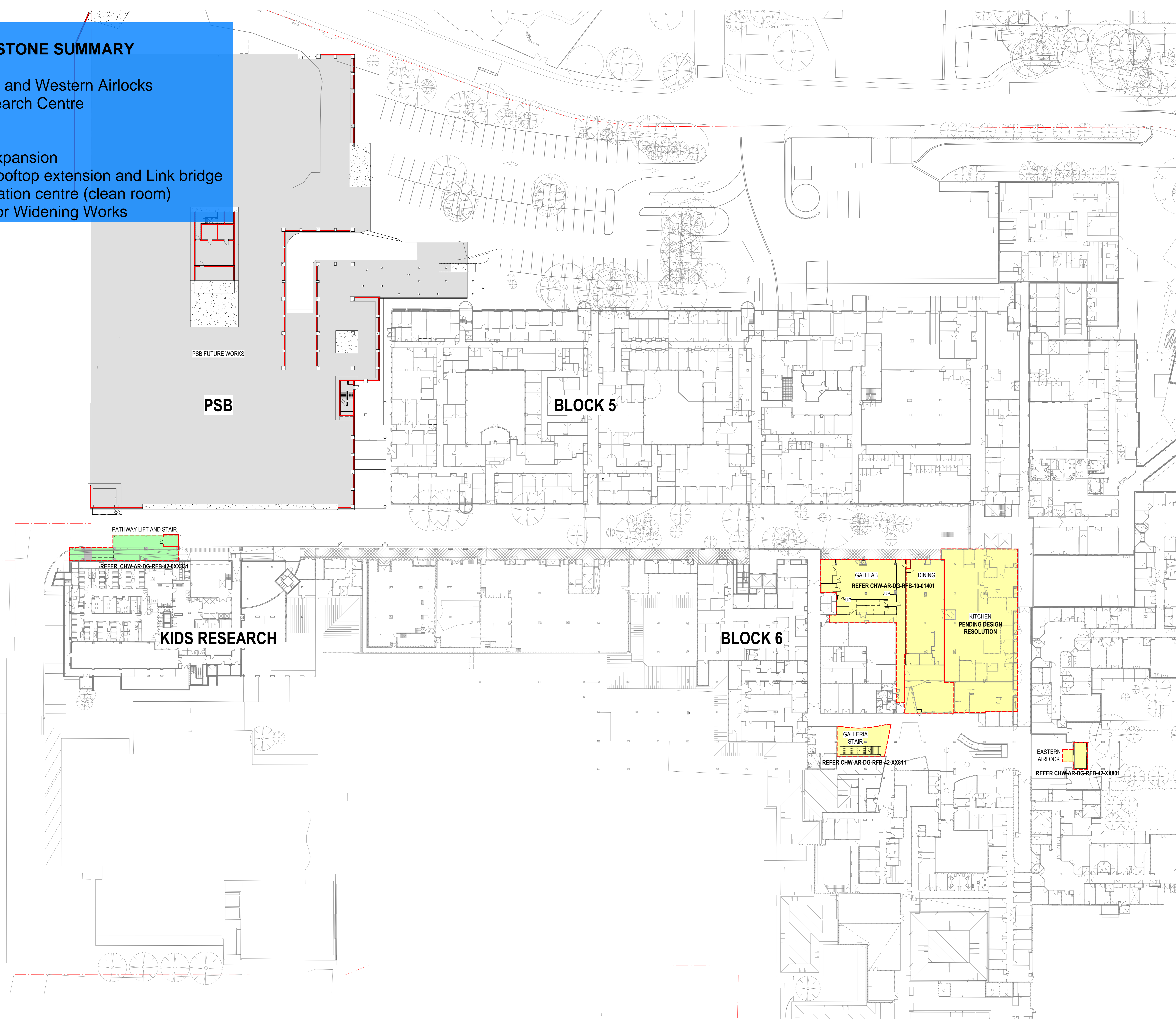
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INTERFACE AREAS IMPACTED BY REFURB WORKS INCLUDE GALLERIA ON L1 & L2, STAFF DINING, PATHWAY WORKS, FORECOURT AND IMPACTS ON EXISTING FIRE EGRESS PATHWAYS TO BE MAINTAINED BY THE BUILDER.

NOTE 1
FUTURE SHARED STAFF HUB TO BE PRICED BY TENDERS AS A PRINCIPAL'S PRICING OPTION - REFER TO PRICING OPTIONS IN RFT DOCUMENTATION.

LEGEND

- REFURB SCOPE (2022)
- FUTURE SCOPE (2024)
- WORKS BY PSB CONTRACTOR
- FORECOURT SCOPE



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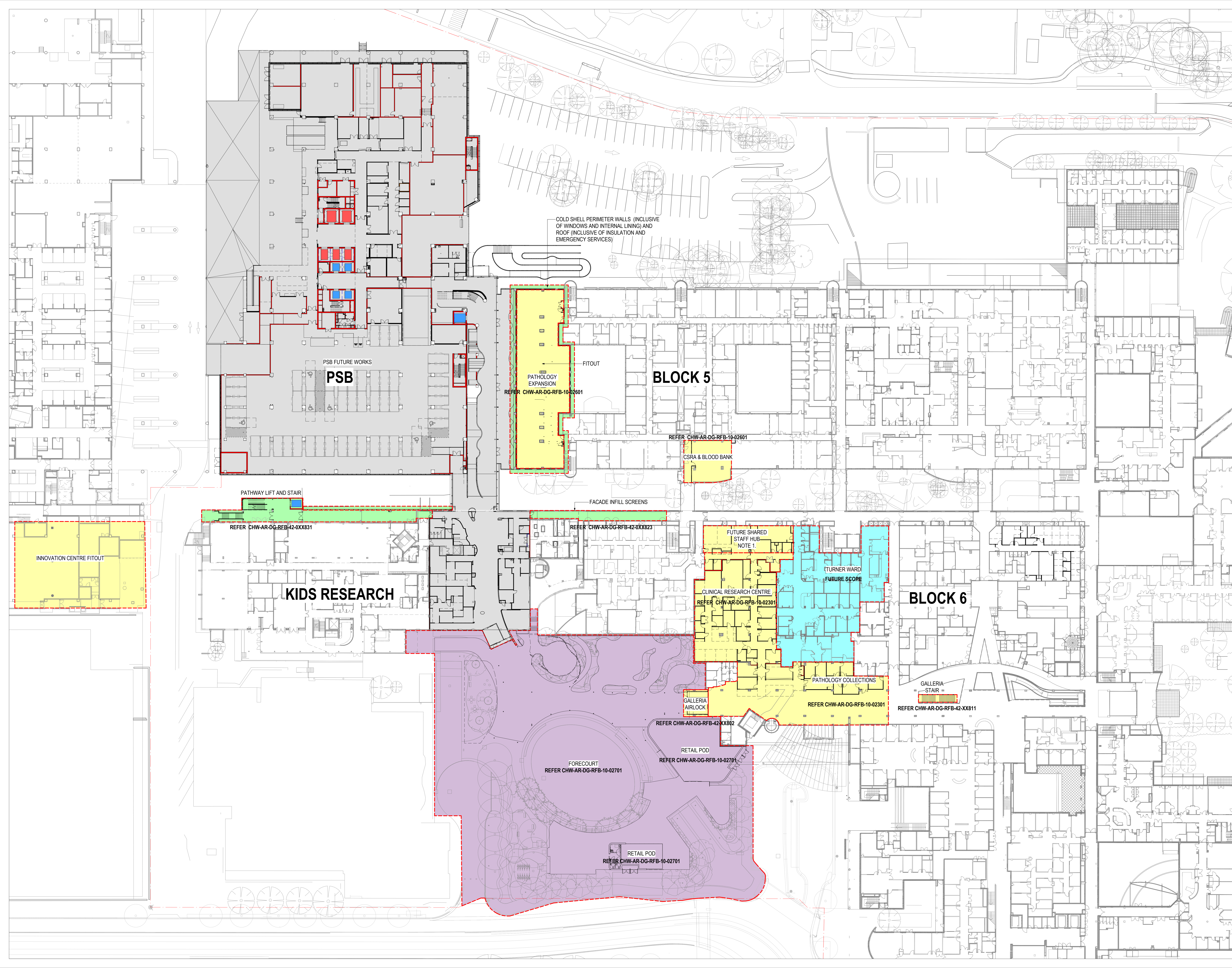
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- FORECOURT SCOPE

REV	REVISION DESCRIPTION	DATE
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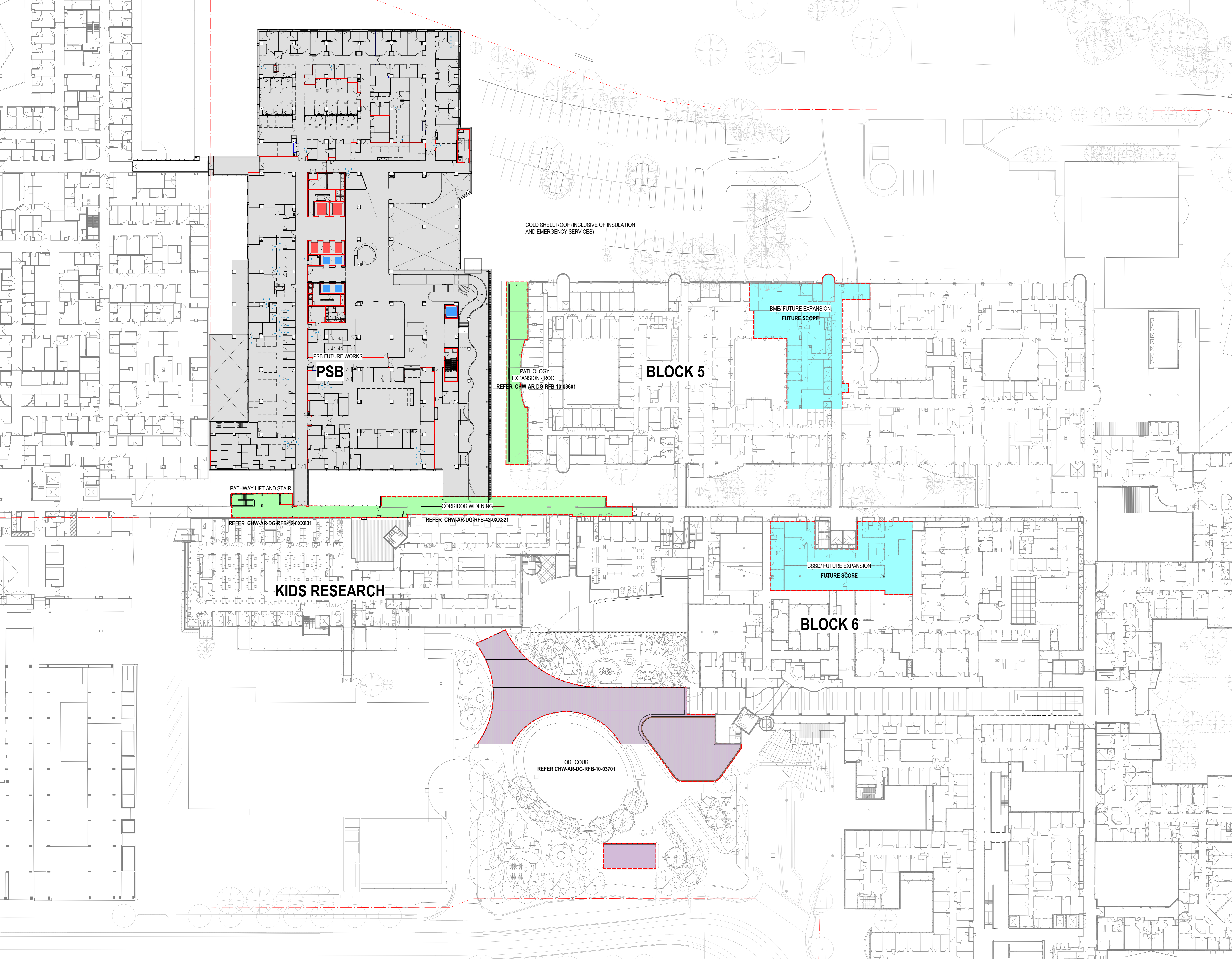
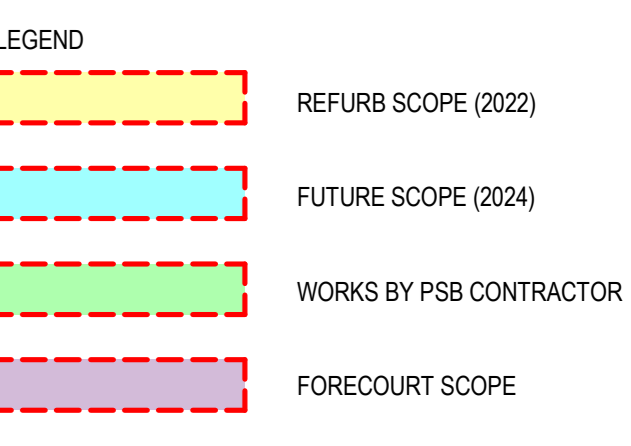
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Sheet Name
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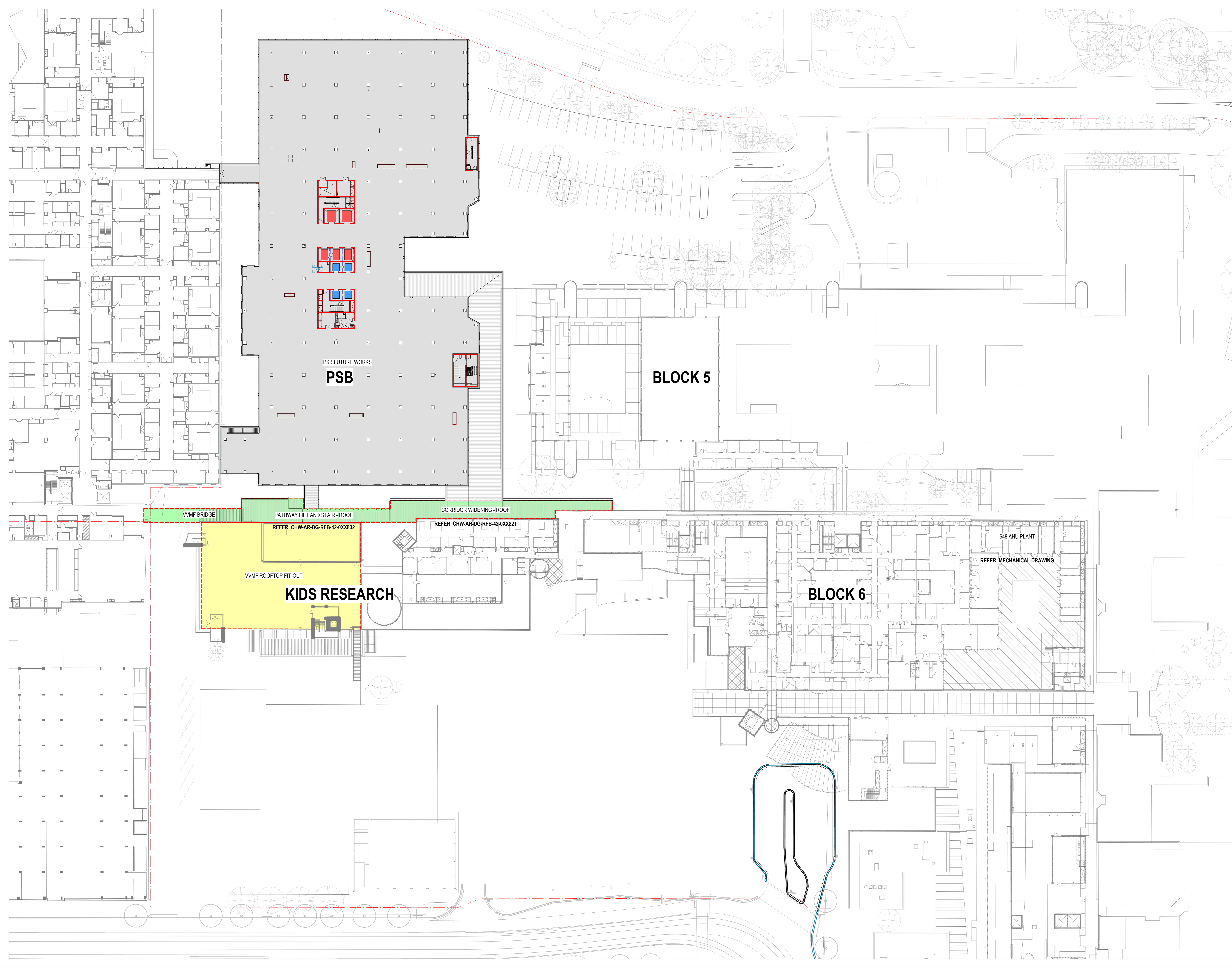
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D	ISSUED FOR TENDER	25/03/22
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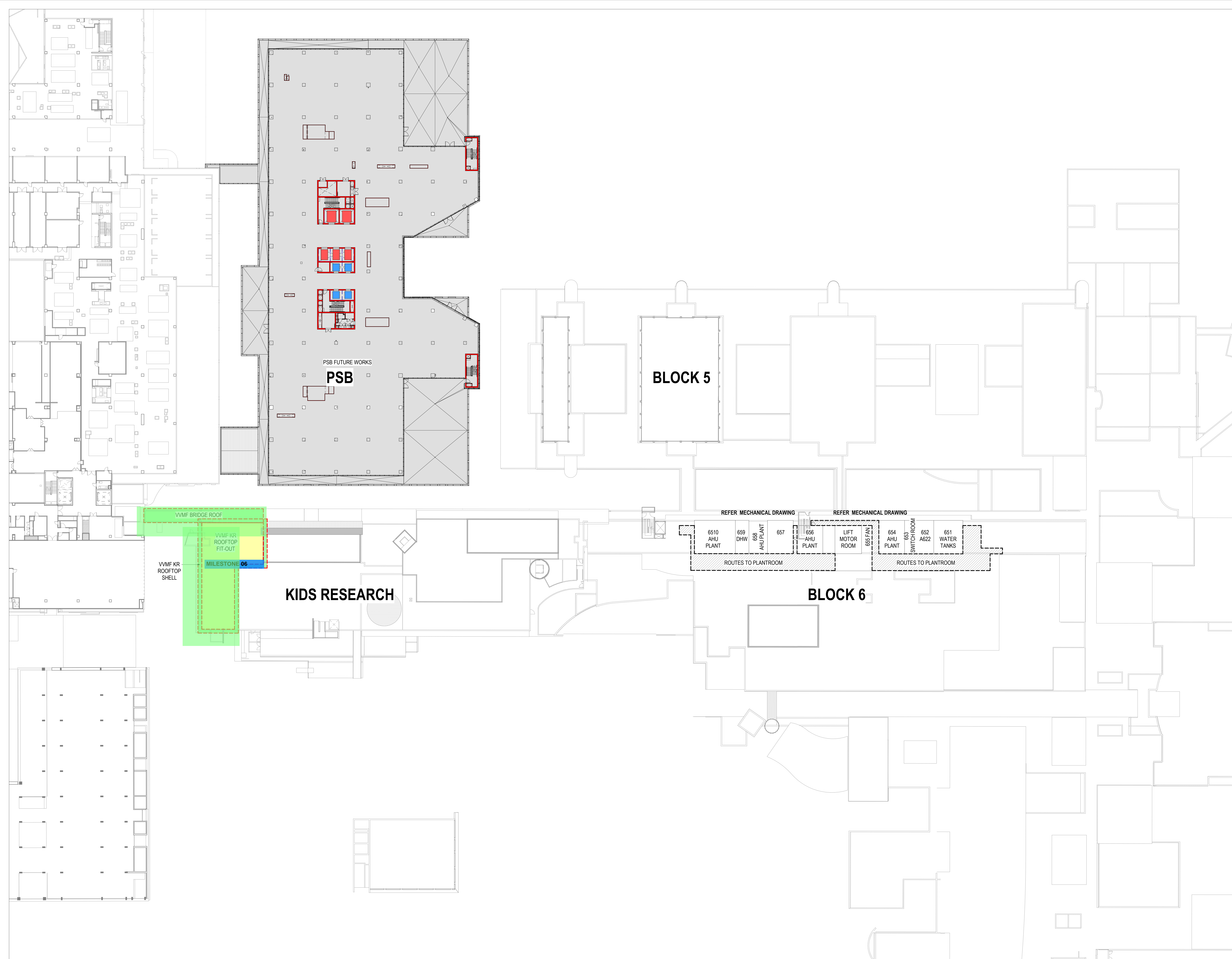
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- NOTES**
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- LEGEND**
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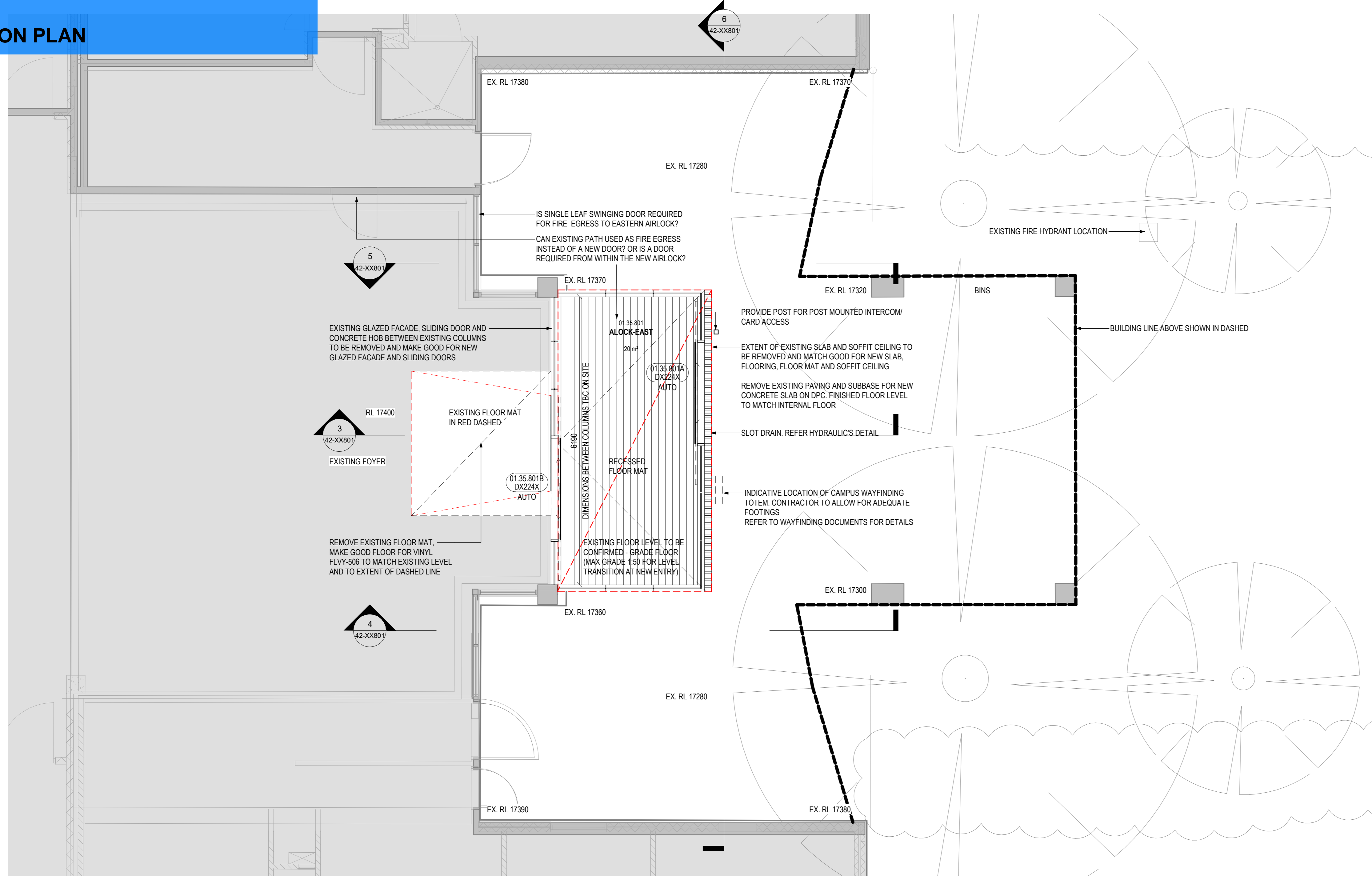
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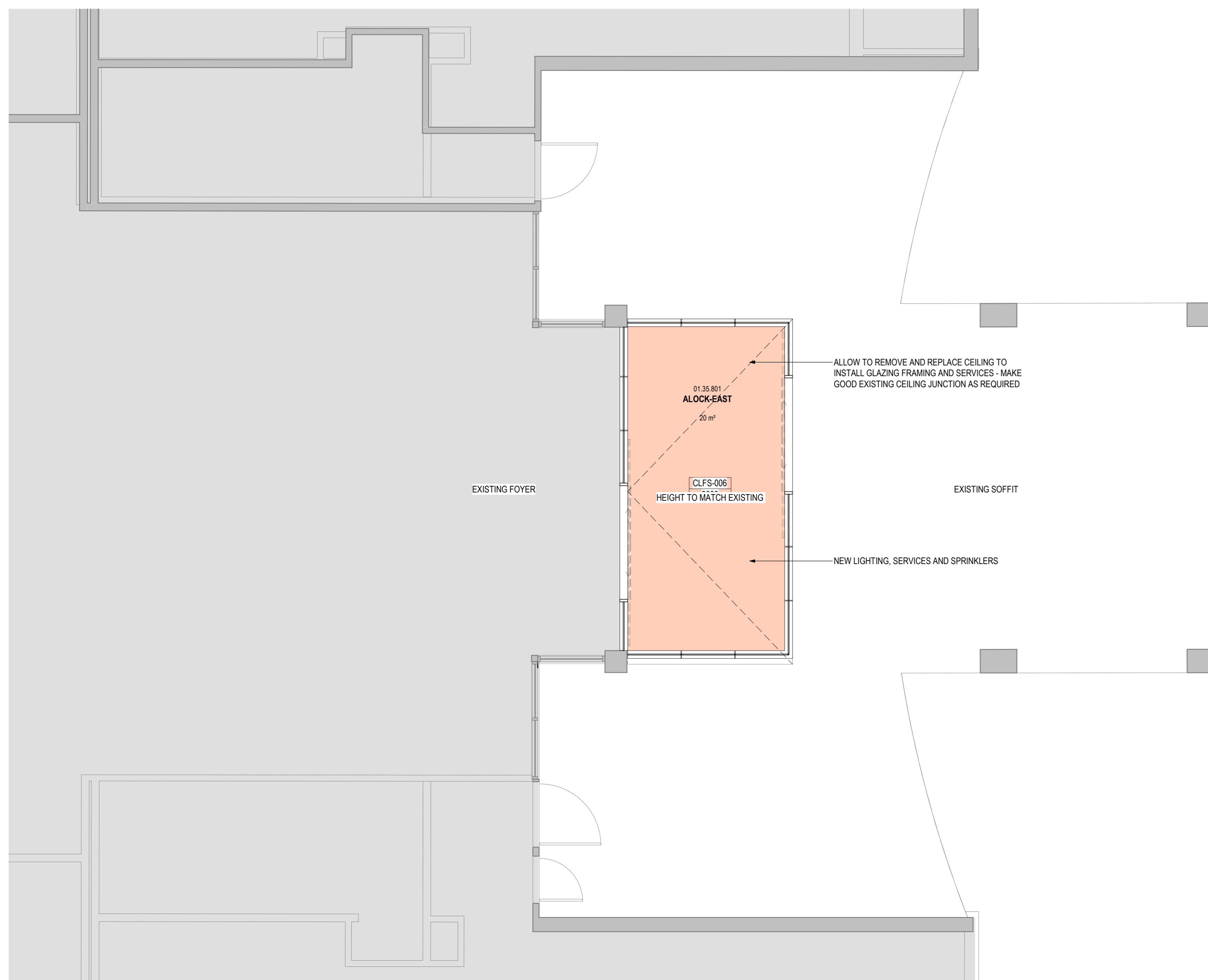
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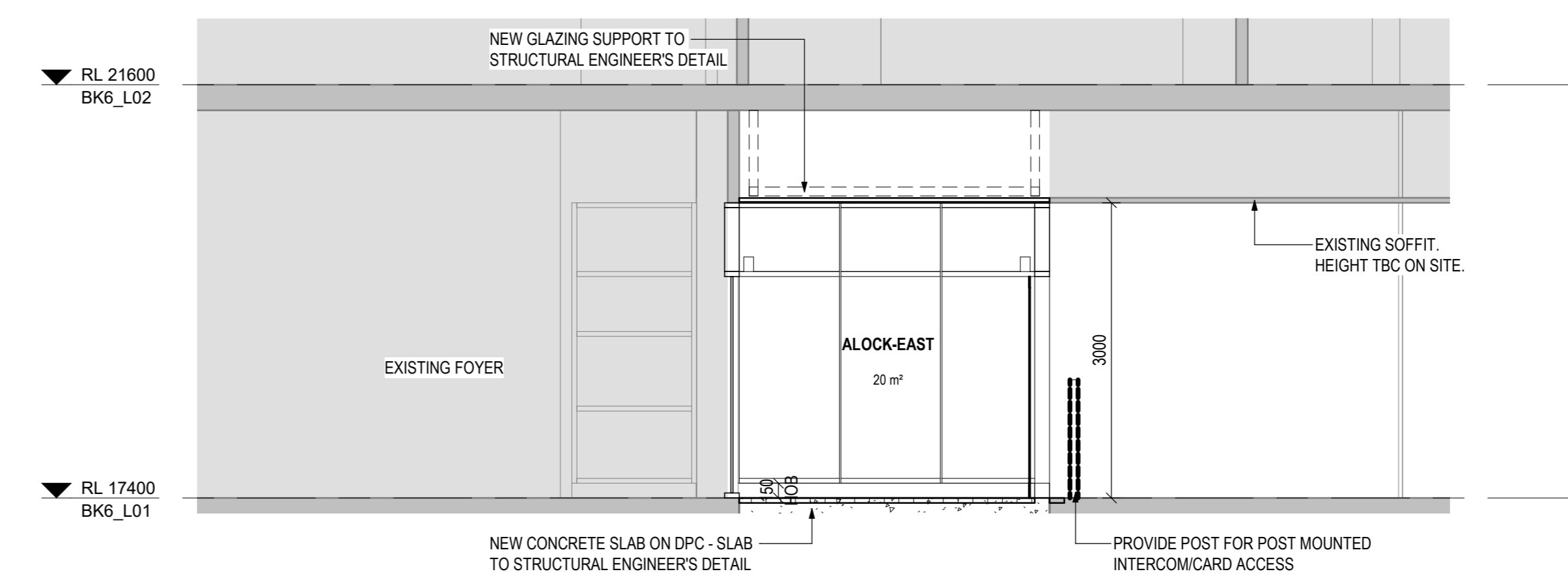
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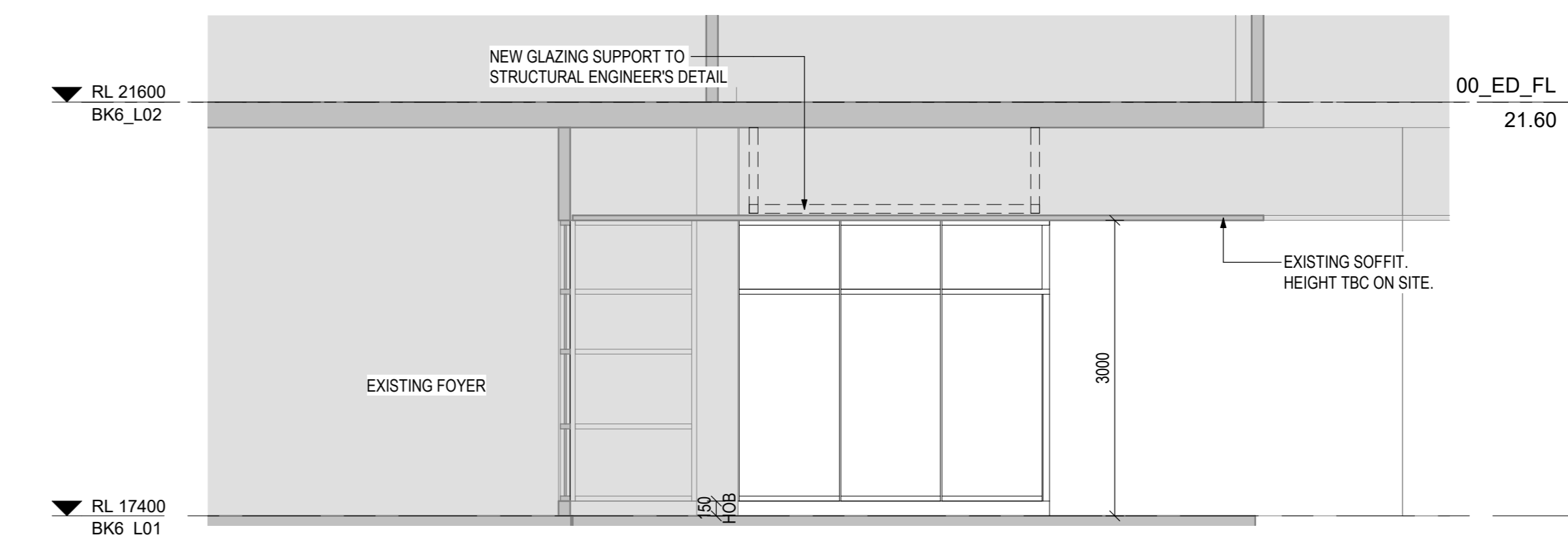
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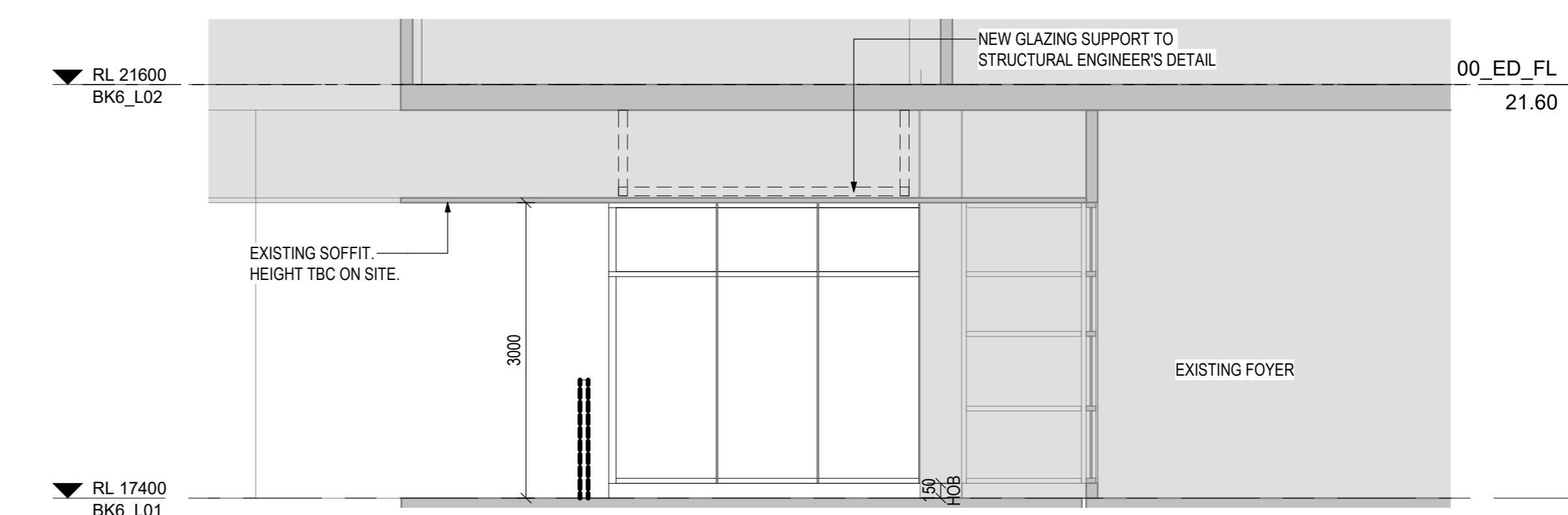
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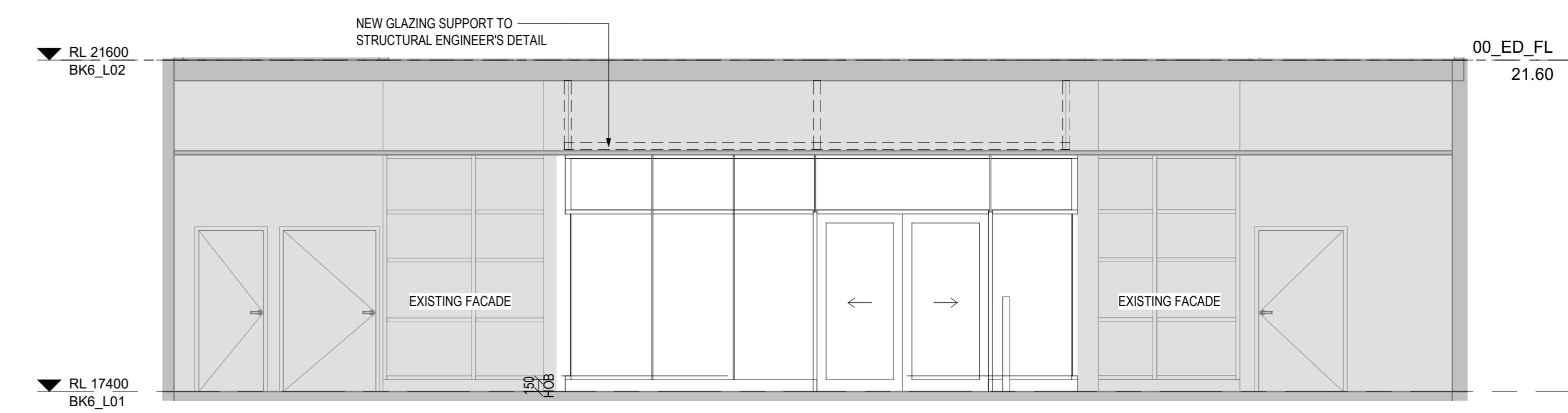
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GENERAL NOTES:

USE FIGURED DIMENSIONS ONLY. DO NOT SCALE FROM DRAWING
WORKS MUST COMPLY WITH NCC 2019 VOLUME 1 AND AS 1428. DIMENSIONS TO BE CHECKED ON SITE PRIOR TO FABRICATION OF COMPONENT ITEMS.

CONCRETE SLAB, FOOTINGS, BEAMS & FRAMING MEMBER PROFILES & SIZES ARE INDICATIVE ONLY. REFER TO STRUCTURAL ENGINEERS DOCUMENTATION IN CONJUNCTION FOR SPECIFIC REQUIREMENTS.
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH STRUCTURAL & CIVIL ENGINEERS DOCUMENTATION.
THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ELECTRICAL, MECHANICAL, HYDRAULIC & FIRE SERVICES DOCUMENTATION.

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE SPECIFICATION DOCUMENT AND T-SHEETS.
CONTRACTOR TO CO-ORDINATE BETWEEN TRADES.

EXTENT OF DEMOLITION FOR GALLERIA STAR REFER TO DRAWING CHW-AR-DG-RFB-09-01401 AND CHW-AR-DG-RFB-09-02201

NOTES:

1. ALL HANDRAILS AND BALUSTRADES CONSTRUCTED TO BE CONTINUOUS TO STAIR FLIGHTS AND LANDINGS.
2. BALUSTRADES AND HANDRAILS ARE SHOWN INDICATIVE. BALUSTRADE POST SPACINGS TO BE EQUALLY SPACED.
3. PROVIDE REQUIRED STAIR NOSINGS - AMS1-101
4. PAINTED STEEL FRAMED STAIR STRINGERS AND LANDINGS TO STRUCTURAL ENGINEERS DESIGN AND DRAWINGS.
5. PAINTED FOLDED STEEL PLATE TREADS AND RISERS WITH VINYL - FLYVISEK FLOOR JOINTS AND FINISH INSTALL AS PER SUPPLIER INSTRUCTION. PROVIDE PLASTERBOARD LINING TO UNDERSIDE OF STAIR BETWEEN STRINGERS. SERVICES TO BE CONCEALED WITHIN SOFFIT.
6. PROVIDE 800H HANDRAIL (BBS-106) AS BARRIER TO UNDERSIDE OF STAIR (BELOW 2050 HEAD CLEARANCE)

REV	REVISION DESCRIPTION	BY	DATE
D	ISSUED FOR TENDER		18/02/22
C	ISSUED FOR INFORMATION		21/12/21
B	FOR COORDINATION		10/12/21
A	FOR INFORMATION		09/12/21

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CLIENT Health Infrastructure, NSW

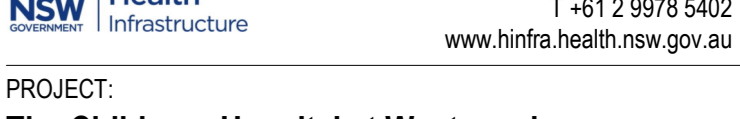
Level 6, 1 Reserve Road
St Leonards, NSW 2065
T +61 2 9078 5402
www.hinfra.health.nsw.gov.au

PROJECT: The Childrens Hospital at Westmead

Redevelopment - Stage 2

Sheet Name EASTERN AIRLOCK

Scale As indicated @AD



Drawn By WC Checked By ALIAG

Revision Date 18/02/22 Revision D

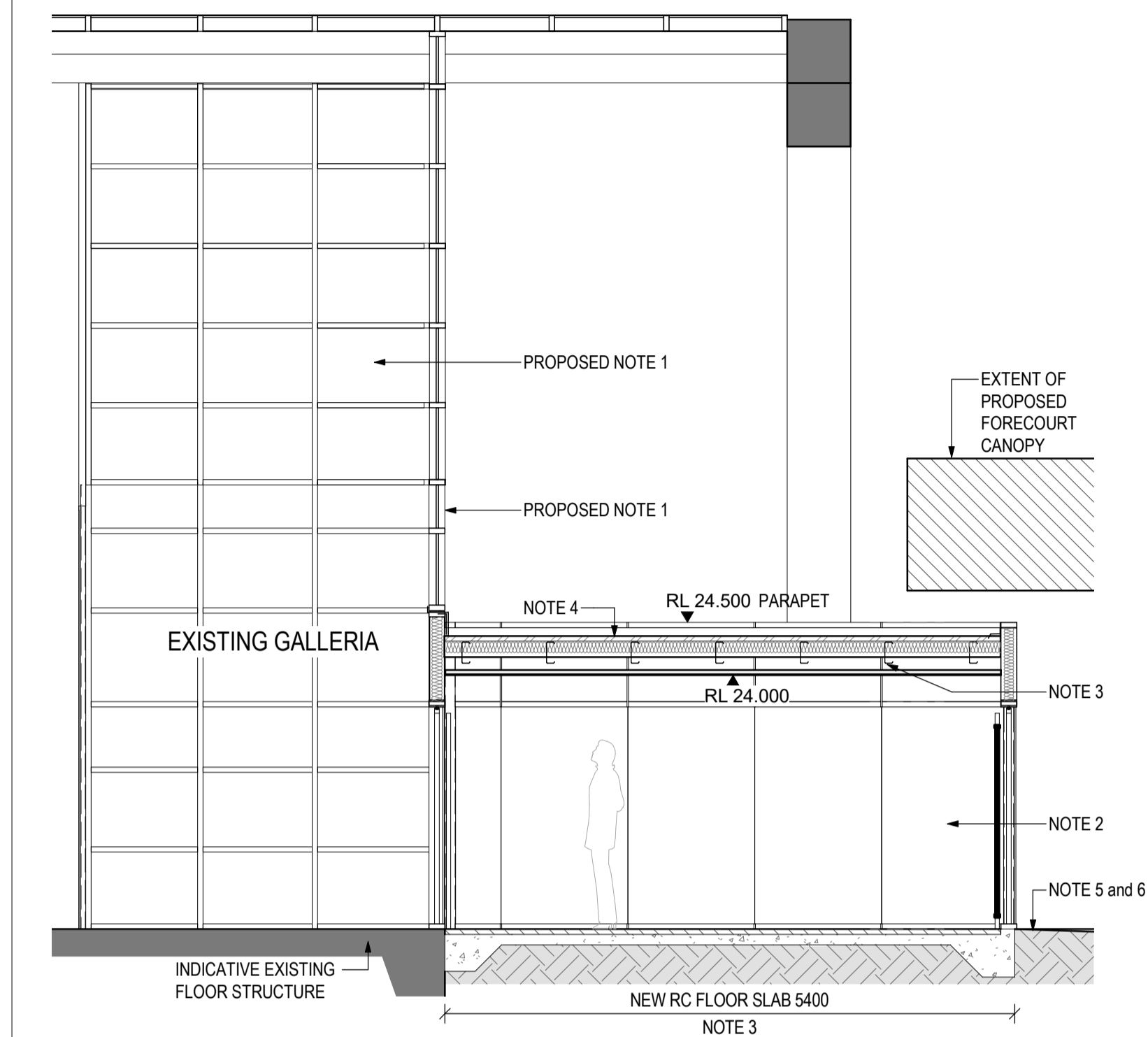
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Drawing No CHW-AR-DG-RFB-42-XX801

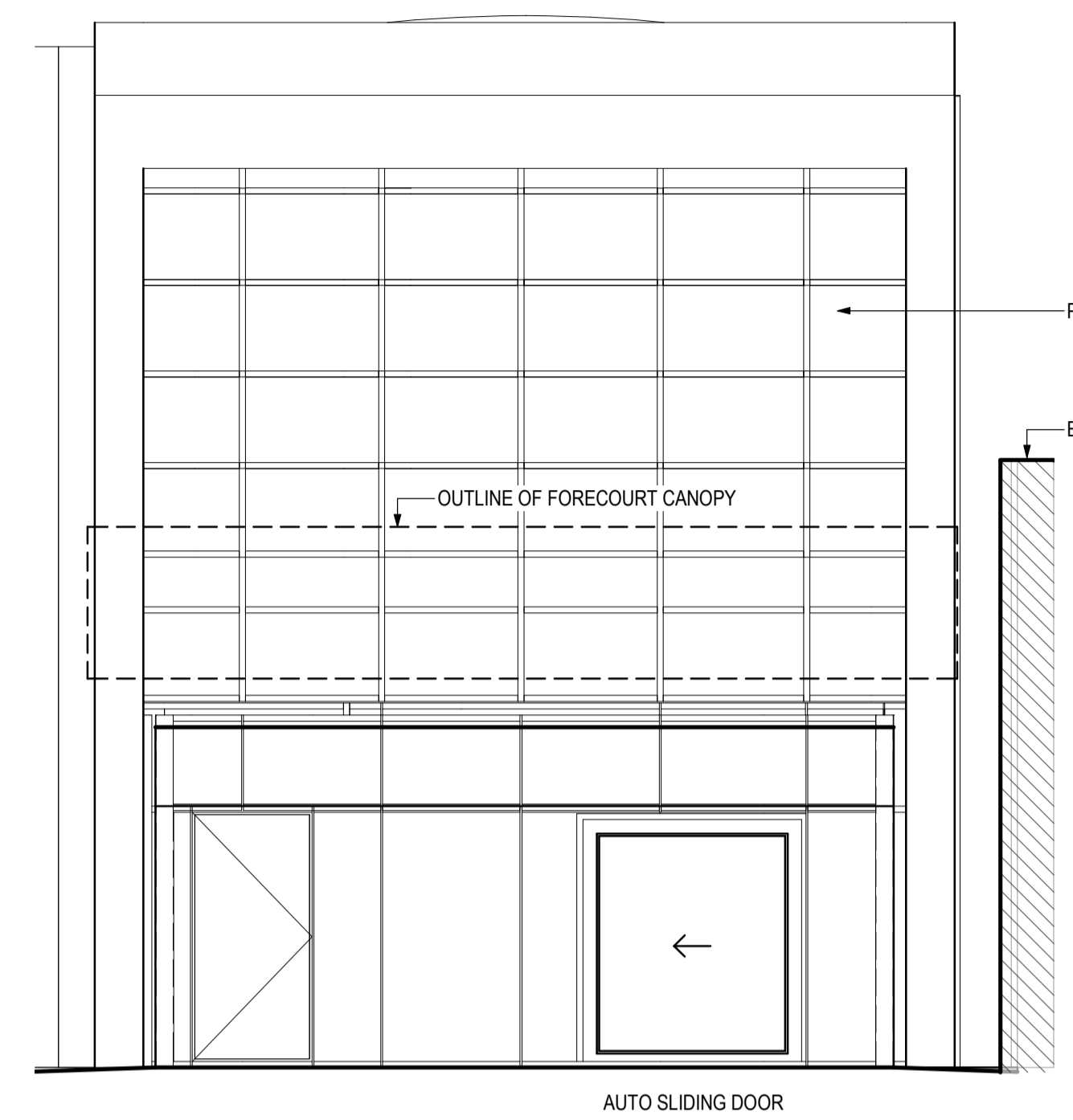
FOR TENDER

MILESTONE 01 - GALLERIA UPGRADES

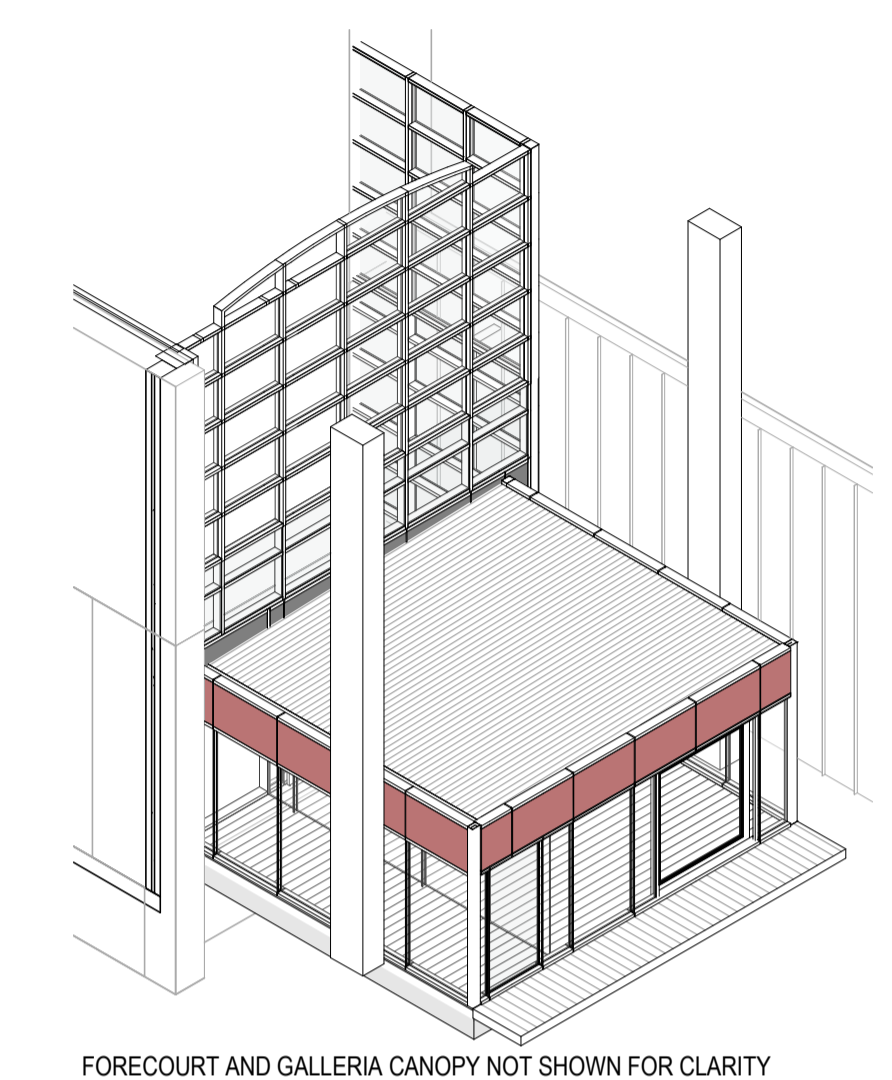
DEMOLITION PLAN



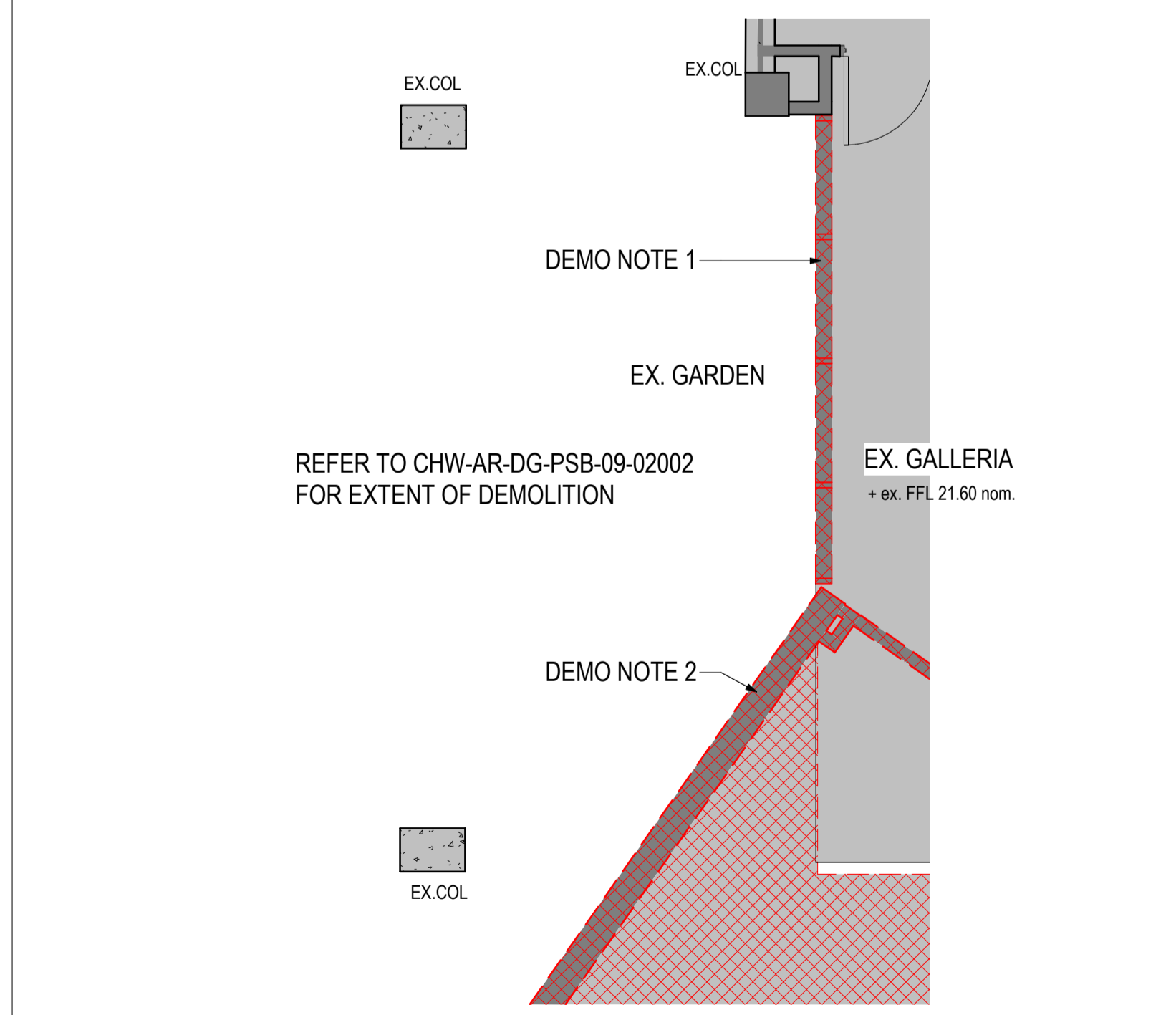
5 SECTION - GALLERIA AIR-LOCK
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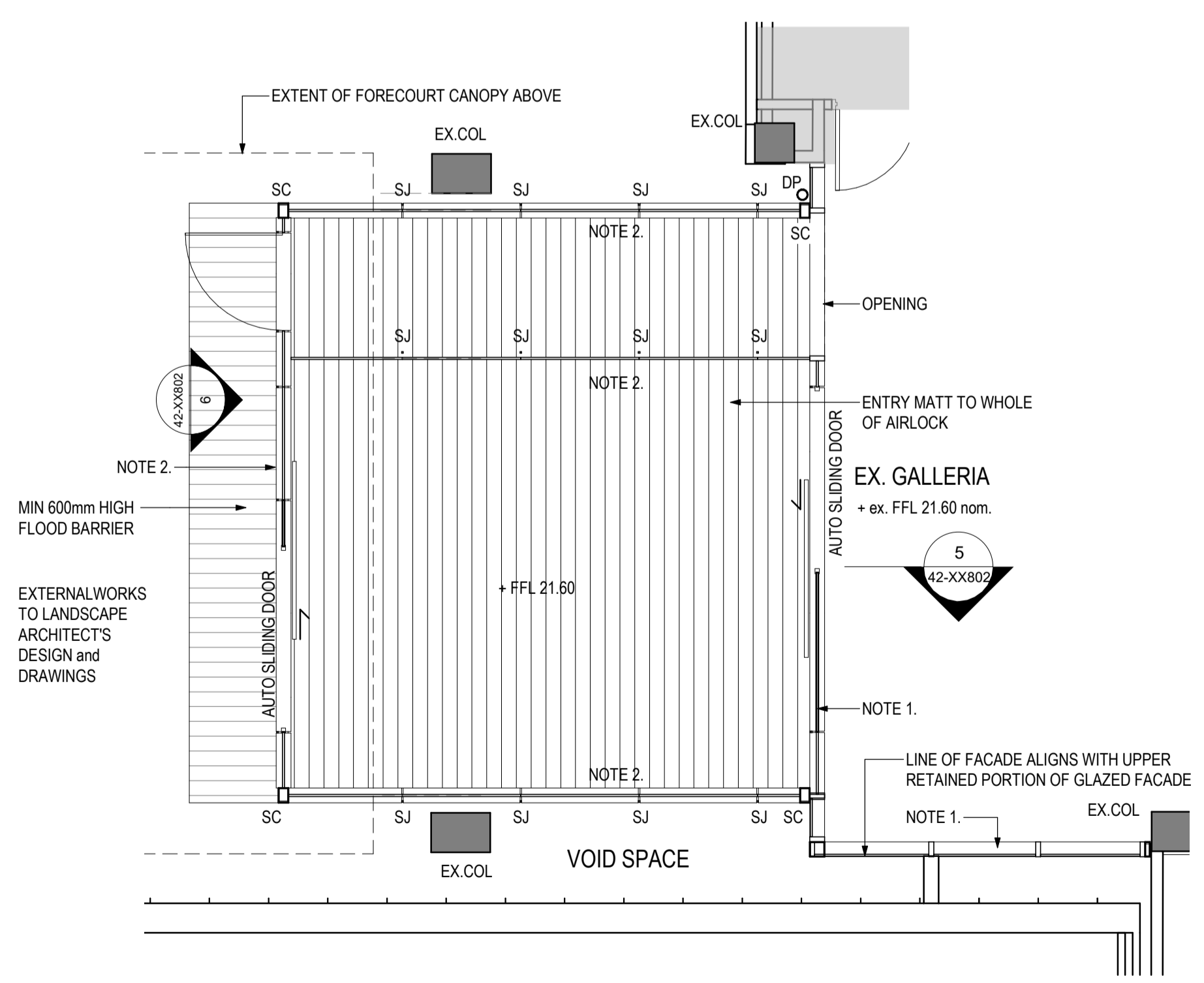
6 ELEVATION - PROPOSED GALLERIA AIR-LOCK
1:50



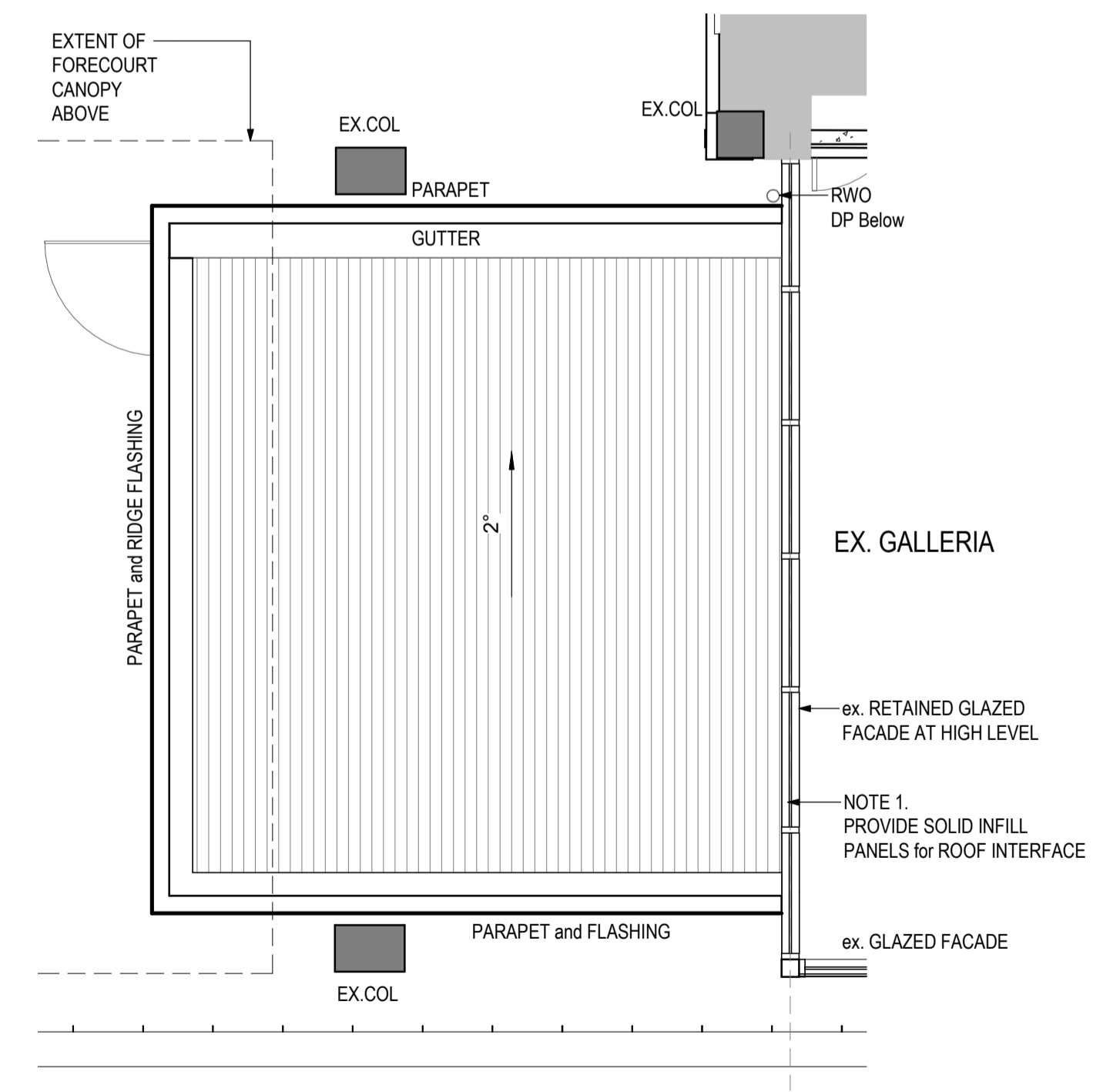
9 AXO VIEW of Galleria AIRLOCK
1:50



1 PLAN - DEMOLITION LEVEL 2 GALLERIA AIR-LOCK
1:50



2 PLAN - LEVEL 2 GALLERIA AIR-LOCK PROPOSED
1:50



3 PLAN - GALLERIA AIR-LOCK ROOF PROPOSED
1:50



EXISTING CONDITION VIEWS

LEGEND:

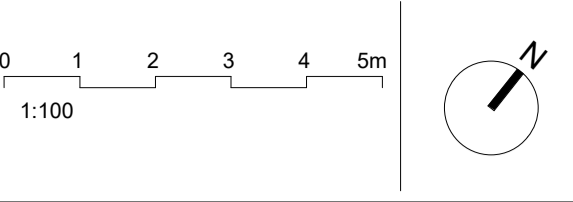
- NEW
- EXISTING
- DEMOLITION
- INDICATIVE LINE OF PROPOSED WORKS
- + RL EXISTING LEVELS
- RL PROPOSED LEVELS
- SC STRUCTURAL COLUMN
- DP DOWNPIPE FOR ROOF DRAINAGE
- SJ BLACK SILICON JOINT
- RWO RAINWATER OUTLET

DEMOLITION NOTES:

1. REMOVE EXISTING GLAZED FACADE AND SUPPORTING STRUCTURE. MAKE GOOD SURFACES FOR NEW WORKS.
2. DEMOLISH OF EXISTING WALL AND MAKE GOOD SURFACES FOR NEW WORKS BY FORECOURT CONTRACTOR.
3. REFER TO CHW-AR-DG-PSB-09-02002 FOR EXTENT OF ADJACENT DEMOLITION WORKS.

GENERAL NOTES:

1. PROPOSED ALUMINIUM FRAMED GLAZED CURTAIN WALL / SHOPFRONT SYSTEM TO SUIT EXISTING GLAZED FACADE BY REFURB CONTRACTOR. TRANSOM LOCATIONS TO ALIGN WITH EXISTING SYSTEM/INTERNAL WALL JOINTS. MULLION LOCATIONS TO ALIGN WITH ATRIUM SKYLIGHT FRAMING - CONFIRM ON SITE.
2. PROPOSED FRAMELESS GLASS EXTERNAL AIR-LOCK WALLS BY REFURB CONTRACTOR. PROVIDE MULLIONS AND TRANSOMS AS SHOWN ON THE ELEVATIONS / SECTIONS. REFER TO THE STRUCTURAL ENGINEER'S DESIGN AND DRAWINGS FOR THE STRUCTURAL SLAB AND ROOF FRAME.
3. COLORBOND STEEL ROOF LAID TO FALL, FIXED TO STEEL ROOF FRAME BY REFURB CONTRACTOR.
4. REFER TO THE LANDSCAPE ARCHITECT'S DESIGN AND DRAWINGS FOR THE EXTERNAL WORKS INTERFACE.
5. REFER TO THE CIVIL ENGINEER'S DESIGN AND DRAWINGS FOR THE EXTERNAL WORKS INTERFACE.



KEY PLAN

REV	DESCRIPTION	DATE
A	ISSUED FOR TENDER	25/03/22

MECHANICAL / ELECTRICAL
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PROJECT
The Children's Hospital at Westmead
Stage 2 Redevelopment

Scale
As indicated@A1

Date
25/03/22

Drawn By
JP

Checked By
AG

Revision
A

Project No
19038

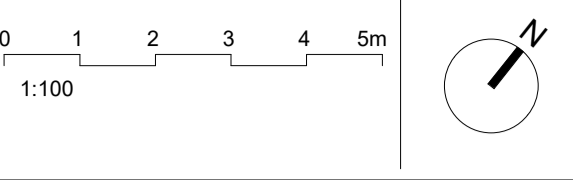
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CHW-AR-DG-RFB-42-XX802

FOR TENDER

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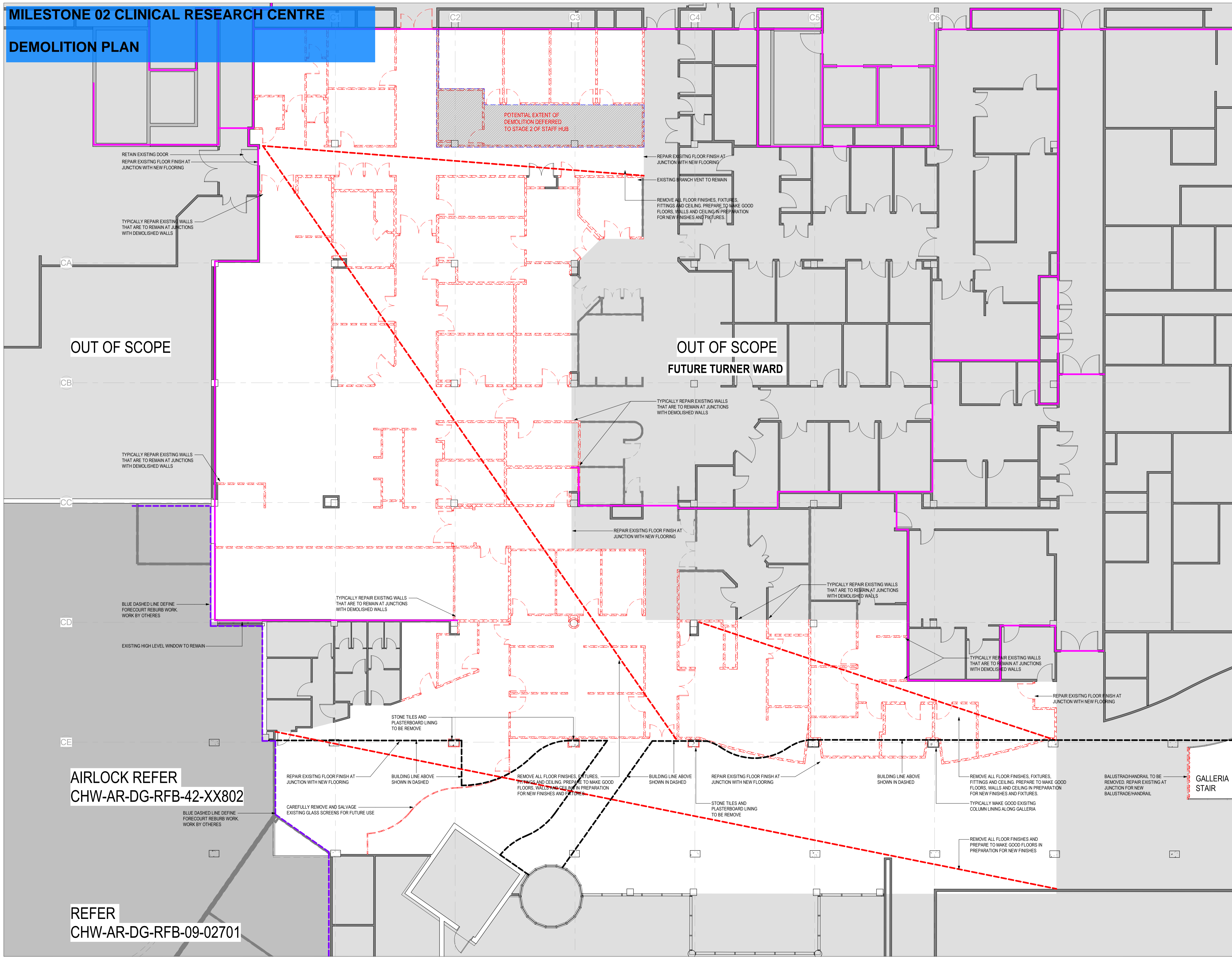
MILESTONE 02 CLINICAL RESEARCH CENTRE

DEMOLITION PLAN



- KEY:**
- - - - - WALLS/DOORS TO BE DEMOLISHED
 - EXISTING TO BE RETAINED
 - PRESUMED EXISTING FIRE RATED WALL BASED ON ENGINEER'S DESKTOP STUDY 29/11/21 & 01/12/21 - CONTRACTORS TO VERIFY ON SITE

NOTE:
COMPLIANCE IS REQUIRED FOR ALL FIRE WALLS BOTH NEW AND EXISTING. EXISTING CONSTRUCTION AND SERVICE PENETRATIONS WILL BE REQUIRED TO BE INSPECTED TO DETERMINE COMPLIANCE. WHERE EXISTING WALLS ARE DEFICIENT, WALLS WILL BE REQUIRED TO BE UPGRADED TO ENSURE ADEQUATE FIRE (SMOKE) SEPARATION.



REV	DESCRIPTION	DATE
E	ISSUED FOR TENDER	25/03/22
D	ISSUED FOR TENDER	18/02/22
C	ISSUED FOR TENDER - DRAFT	17/12/21
B	FOR INFORMATION	24/11/21
A	FOR INFORMATION	28/10/21

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NSW Health Infrastructure

PROJECT
The Childrens Hospital at Westmead
Redevelopment - Stage 2

Sheet Name
**PLAN - DEMOLITION - LEVEL 02
- CRC & PATHOLOGY
COLLECTIONS**

Scale
1 : 100@A1

Date
25/03/22

Drawn By
WC

Checked By
AL/AG

Revision
E

Project No
19038

Drawing No
CHW-AR-DG-RFB-09-02301

FOR TENDER

OUT OF SCOPE

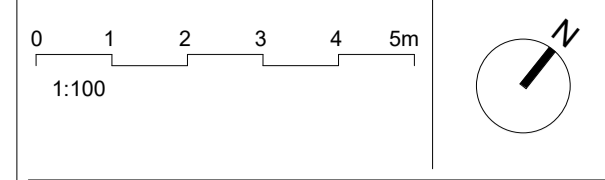
OUT OF SCOPE
FUTURE TURNER WARD

AIRLOCK REFER
CHW-AR-DG-RFB-42-XX802

REFER
CHW-AR-DG-RFB-09-02701

GALLERIA
STAIR

B:\19038\CHW-Stage 2\CHW-BLP-MDL-ARC-RFB-BLD.DWG



KEY:

- - - - - WALLS/DOORS TO BE DEMOLISHED
- — — — — EXISTING TO BE RETAINED
- — — — — PRESUMED EXISTING FIRE RATED WALL BASED ON ENGINEER'S DESKTOP STUDY 29/11/21 & 01/12/21 - CONTRACTORS TO VERIFY ON SITE

NOTE:
COMPLIANCE IS REQUIRED FOR ALL FIRE WALLS BOTH NEW AND EXISTING. EXISTING CONSTRUCTION AND SERVICE PENETRATIONS WILL BE REQUIRED TO BE INSPECTED TO DETERMINE COMPLIANCE. WHERE EXISTING WALLS ARE DEFICIENT, WALLS WILL BE REQUIRED TO BE UPGRADED TO ENSURE ADEQUATE FIRE (SMOKE) SEPARATION.

REV	DESCRIPTION	DATE
E	ISSUED FOR TENDER	18/02/22
D	ISSUED FOR TENDER - DRAFT	17/12/21
C	FOR INFORMATION	24/11/21
B	FOR INFORMATION	10/11/21
A	FOR INFORMATION	28/10/21

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PROJECT
The Childrens Hospital at Westmead
Redevelopment - Stage 2

Sheet Name
**PLAN - DEMOLITION - LEVEL 01
- GAIT LAB**

Scale
1: 100@A1

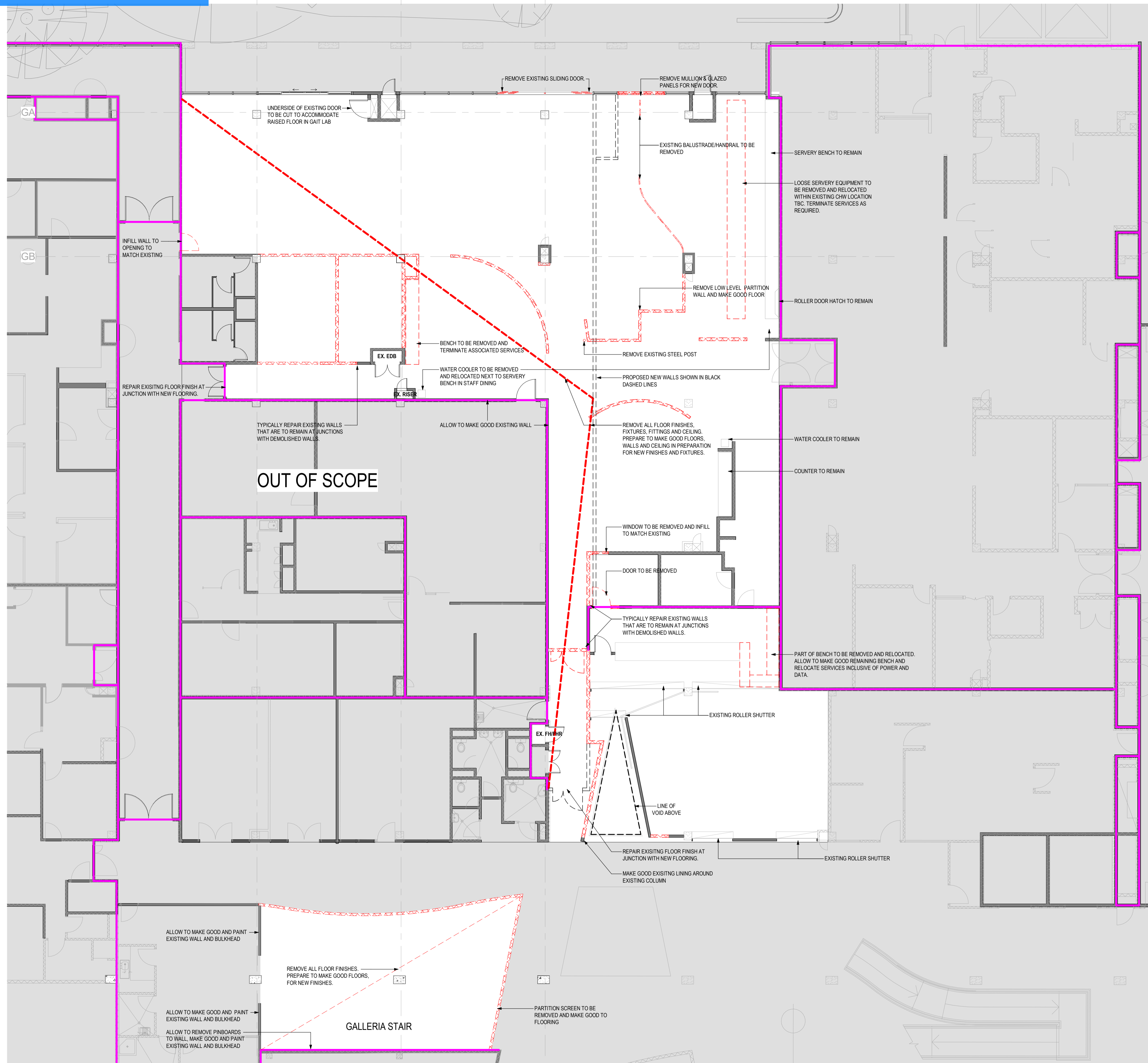
Date
18/02/22

Drawn By SG	Checked By AL/AG	Revision E
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Project No
19038

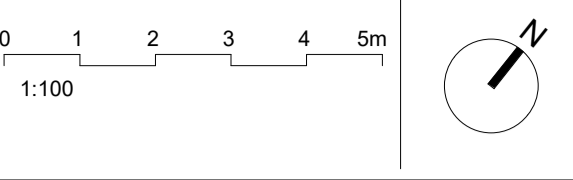
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FOR TENDER



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DEMOLITION PLAN



- KEY:**
- - - - - WALLS/DOORS TO BE DEMOLISHED
 - EXISTING TO BE RETAINED
 - PRESUMED EXISTING FIRE RATED WALL BASED ON ENGINEER'S DESKTOP STUDY 29/11/21 & 01/12/21 - CONTRACTORS TO VERIFY ON SITE

NOTE:
COMPLIANCE IS REQUIRED FOR ALL FIRE WALLS BOTH NEW AND EXISTING. EXISTING CONSTRUCTION AND SERVICE PENETRATIONS WILL BE REQUIRED TO BE INSPECTED TO DETERMINE COMPLIANCE. WHERE EXISTING WALLS ARE DEFICIENT, WALLS WILL BE REQUIRED TO BE UPGRADED TO ENSURE ADEQUATE FIRE (SMOKE) SEPARATION.

REV	DESCRIPTION	DATE
G	ISSUED FOR TENDER	08/04/22
F	ISSUED FOR TENDER	25/03/22
E	ISSUED FOR TENDER	18/02/22
D	ISSUED FOR TENDER - DRAFT	17/12/21
C	FOR INFORMATION	24/11/21
B	FOR INFORMATION	19/11/21
A	FOR INFORMATION	08/11/21

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PROJECT
The Childrens Hospital at Westmead
Redevelopment - Stage 2

Sheet Name
**PLAN - DEMOLITION - LEVEL 02
- PATHOLOGY EXPANSION -
STAGE 01**

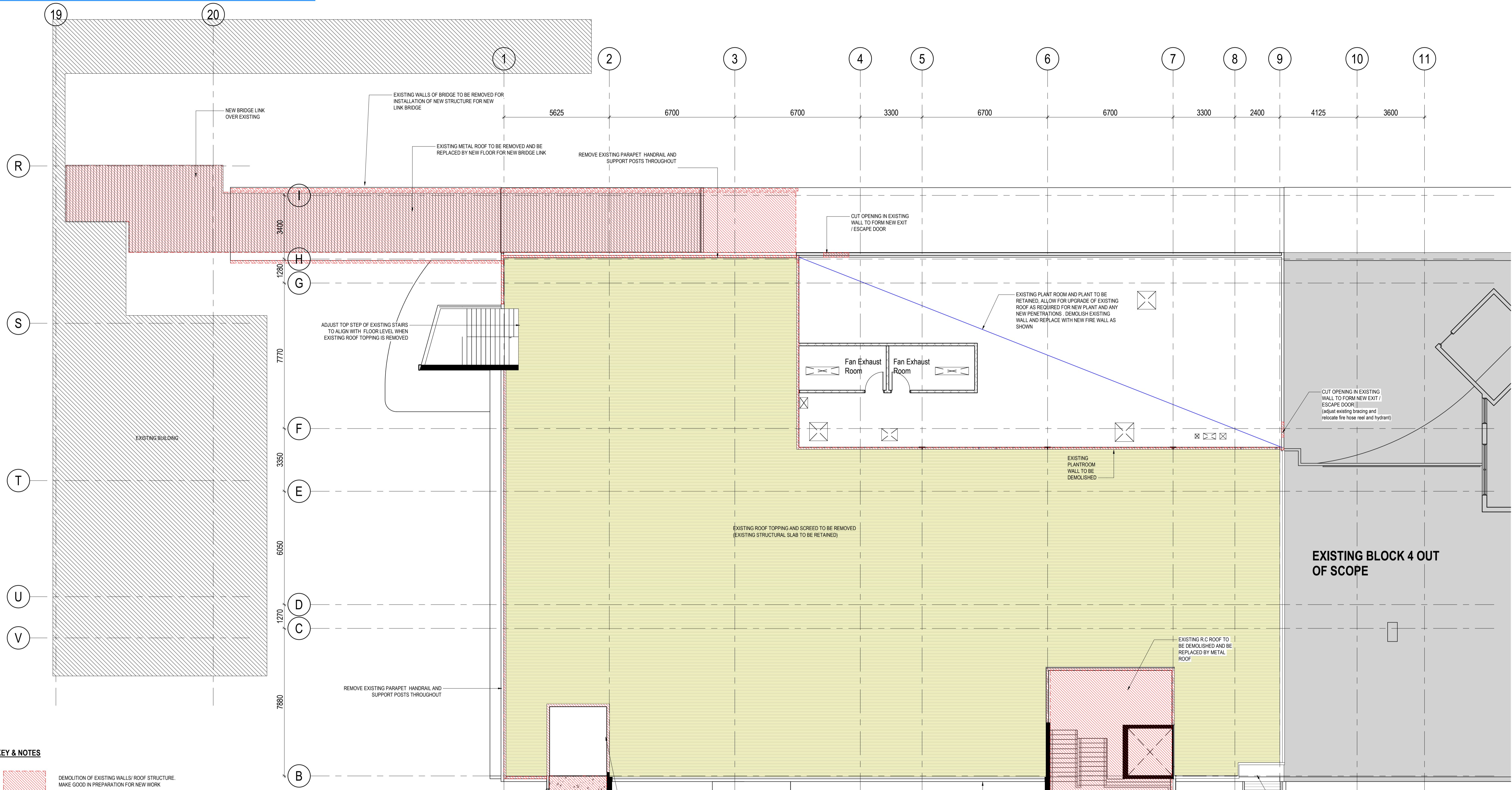
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Drawn By	Checked By	Date
FN	AL/AG	08/04/22
Project No	Revision	
19038	G	

Drawing No
CHW-AR-DG-RFB-09-02601

MILESTONE 06 - KR ROOFTOP

DEMOLITION PLAN



KEY & NOTES

- DEMOLITION OF EXISTING WALLS / ROOF STRUCTURE. MAKE GOOD IN PREPARATION FOR NEW WORK
- EXISTING ROOF TOPPING AND SCREED TO BE REMOVED (EXISTING STRUCTURAL SLAB TO BE RETAINED)

- ALL FLOOR FINISHES TO BE REMOVED AND FLOOR TO BE MADE GOOD FOR NEW FLOOR FINISHES
- ALL EXISTING SERVICES WITHIN THE DEMOLITION AREAS ARE TO BE REMOVED AND MADE SAFE AND READY FOR NEW CONSTRUCTION (REFER TO SERVICE ENGINEERS FOR DETAILS)
- MAKE GOOD TO THE EXISTING FACADE AT THE JUNCTIONS WITH THE NEW CONSTRUCTION
- ADDITIONAL WORKS MAY BE REQUIRED AND ALLOWANCE SHOULD BE MADE FOR ANY SUCH WORKS. THIS IS TO BE DETERMINED AND IS SUBJECT TO FURTHER ON-SITE INVESTIGATIONS OF EXISTING AND NEW JUNCTIONS
- TO ADDRESS ANY RISK FROM ASBESTOS, TENDERS SHOULD PROVIDE A COMPREHENSIVE RISK ASSESSMENT MANAGEMENT PLAN AND SAFE WORKING METHODOLOGY AS PART OF THEIR OVERALL TENDER SUBMISSION
- HDR WILL TAKE NO RESPONSIBILITY FOR WHAT MAY BE ENCOUNTERED OR UNCOVERED DURING THE DEMOLITION WORKS
- THE EXTENT OF DEMOLITION ON THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL CONSULTANTS DOCUMENTATION
- TEMPORARY WATERPROOFING TO BE APPLIED DURING DEMOLITION TO ENSURE WATER TIGHTNESS FOR OPERATIONAL LEVELS BELOW. ANY DAMAGES TO EXISTING WATERPROOFING DUE TO DEMOLITION / CONSTRUCTION MUST BE REPAIRED TO EQUAL OR HIGHER STANDARDS THAT COMPLIES WITH THE BCA & AS REQUIREMENTS

2/21/2022 6:28:19 PM BIM 360://10292941_WM_Viral_Vector_2020/10292941-A-VV-KRI.rvt

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1:50mm

REV	DATE	DESCRIPTION	CHK	ISSUED
01	03/11/21	ISSUED FOR SCHEMATIC DESIGN	TB	HDR
02	13/10/22	ISSUED FOR 90% DESIGN DEVELOPMENT	SS	AC
03	21/02/22	FINAL DESIGN DEVELOPMENT ISSUE	SS	AC

PROJECT: **WESTMEAD VVMF**
DRAWING TITLE: **DEMOLITION PLAN (KR) - LEVEL 04**

PROJECT NUMBER: **10292941** DRAWING NUMBER: **HDR-AR-DG-20340**
STATUS: **DESIGN DEVELOPMENT**

REVISION: **03**
SCALE: **1 : 100 @ A1**



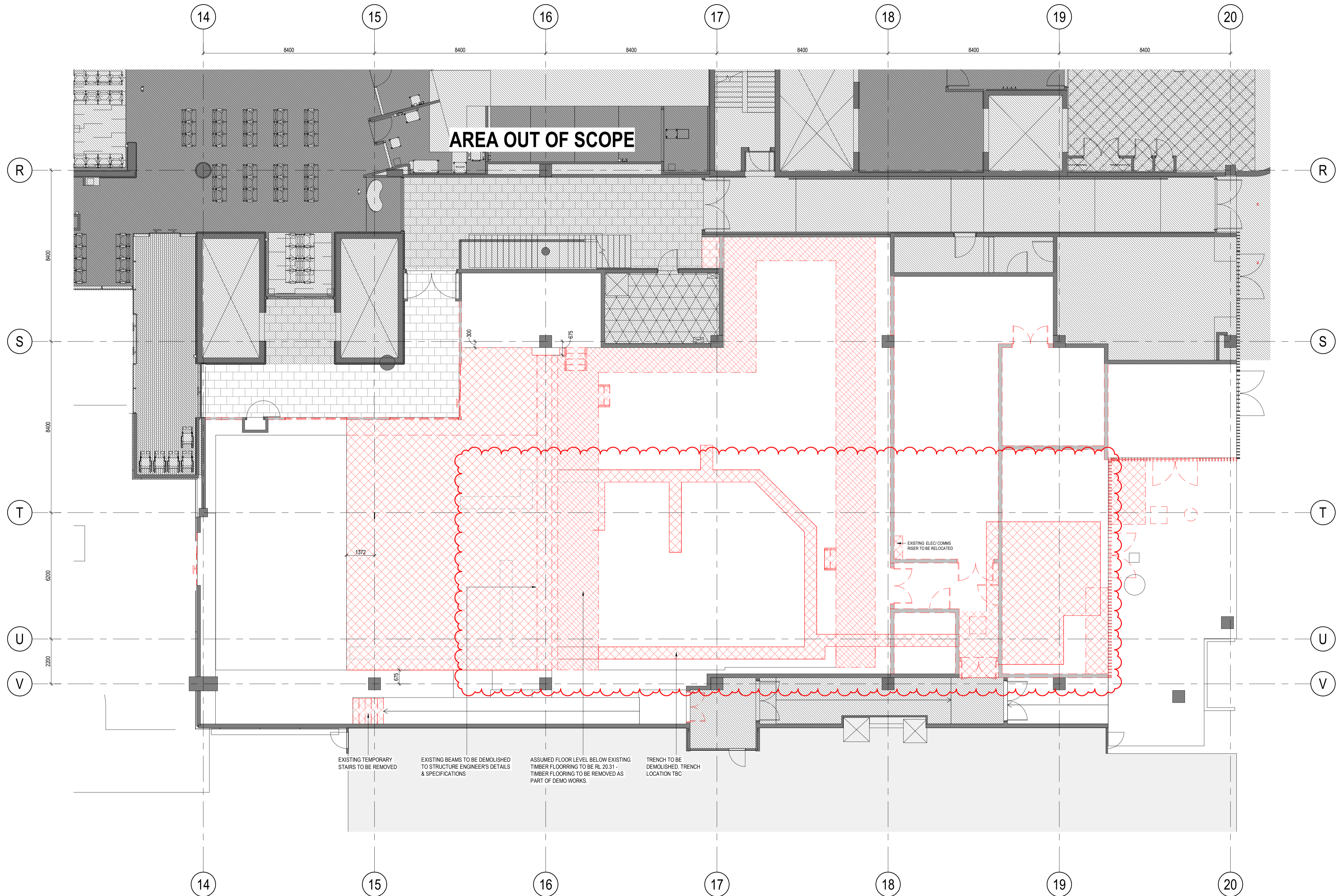
CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060

MILESTONE 07 - VVMF INNOVATION CENTRE

DEMOLITION PLAN

GENERAL NOTES - SERIES A 0300 (DEMOLITION)

1. MAKE GOOD ALL EXISTING SURFACES IN PREPARATION FOR NEW WORKS.
2. MAKE GOOD ALL VOIDS IN CEILINGS LEFT BY DEMOLISHED WALLS.
3. DEMOLISH AND/OR REPLACE EXISTING SERVICES FIXTURES AS REQUIRED CAP THE SERVICES IF NOT NEEDED REFER TO ENGINEER'S DRAWINGS FOR DETAILS.
4. REFER TO STRUCTURE ENGINEER'S DOCUMENTATION FOR ANY STRUCTURE DEMOLITION REQUIREMENTS TO ENSURE INTEGRITY IS MAINTAINED.
5. PLAN HAS BEEN PREPARED IN CONJUNCTION WITH THE SURVEY PROVIDED BY LTS DATED 22/06/2022 - REFERENCE NUMBER:32572-1078T
6. REFER TO CONTAMINATION REPORT AS PREPARED BY JBS&G REPORT DATED 17 DECEMBER 2021 FOR FURTHER DETAILS REGARDING DEMOLITION REQUIREMENTS OVER ASBESTOS CONTAMINATED SITE



EXISTING TEMPORARY STAIRS TO BE REMOVED
 EXISTING BEAMS TO BE DEMOLISHED TO STRUCTURE ENGINEER'S DETAILS & SPECIFICATIONS
 ASSUMED FLOOR LEVEL BELOW EXISTING TIMBER FLOORING TO BE RL 20.31 - TIMBER FLOORING TO BE REMOVED AS PART OF DEMO WORKS.
 TRENCH TO BE DEMOLISHED. TRENCH LOCATION TBC

1 DEMOLITION PLAN IC - LEVEL 01
 1:100

LEGEND - SERIES A 0300 (DEMOLITION)

- AREA OF SLAB TO BE DEMOLISHED
- AREA OF TIMBER STRUCTURE TO BE DISMOUNTED
- EXISTING WALLS TO BE DEMOLISHED
- EXISTING TO BE RETAINED

11/4/2022 3:45:38 PM BIM 360://10292941_VM_Viral_Vector_2020/10292921-A-VV-CASB-EV1.rvt

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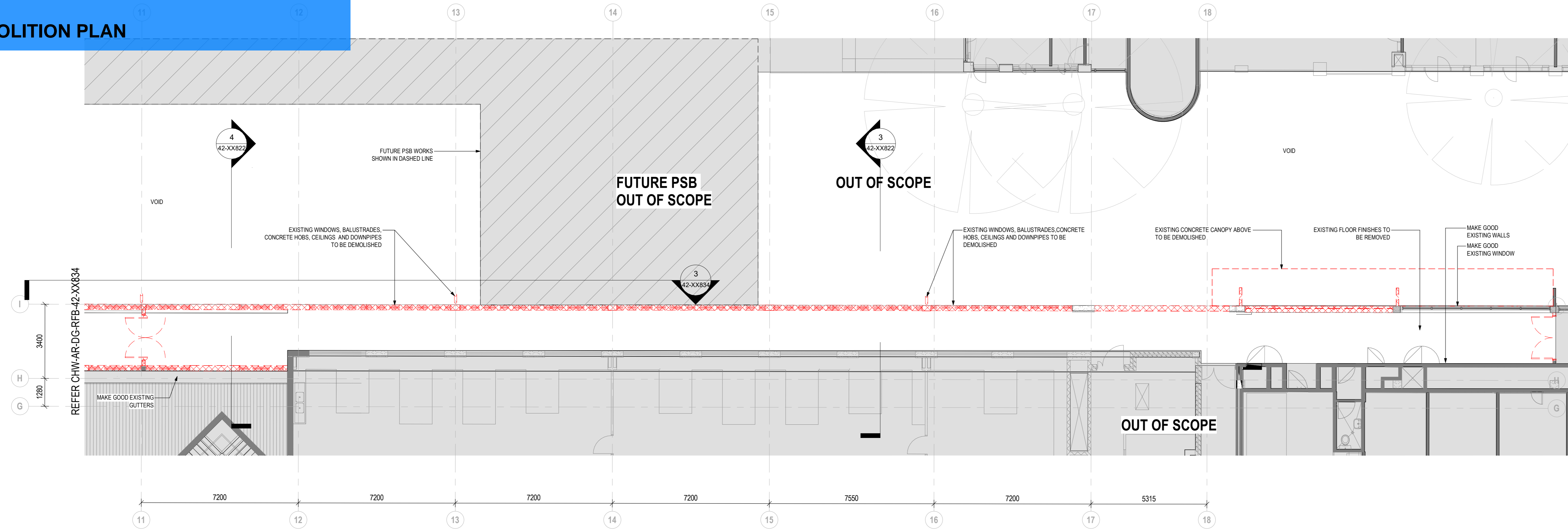
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	15/08/22	WIP ISSUE	MC	AC
	29/08/22	WIP ISSUE	RS	AC
	14/10/22	WIP ISSUE	MC	AC
02	21/10/22	DRAFT DESIGN DEVELOPMENT ISSUE	MC	AC
03	28/10/22	100% DESIGN DEVELOPMENT	MC / KD	AC
04	04/11/22	UPDATED 100% DESIGN DEVELOPMENT ISSUE	KD	AC

PROJECT:
CASB VVMF FITOUT
 DRAWING TITLE:
DEMOLITION (IC) - LEVEL 01

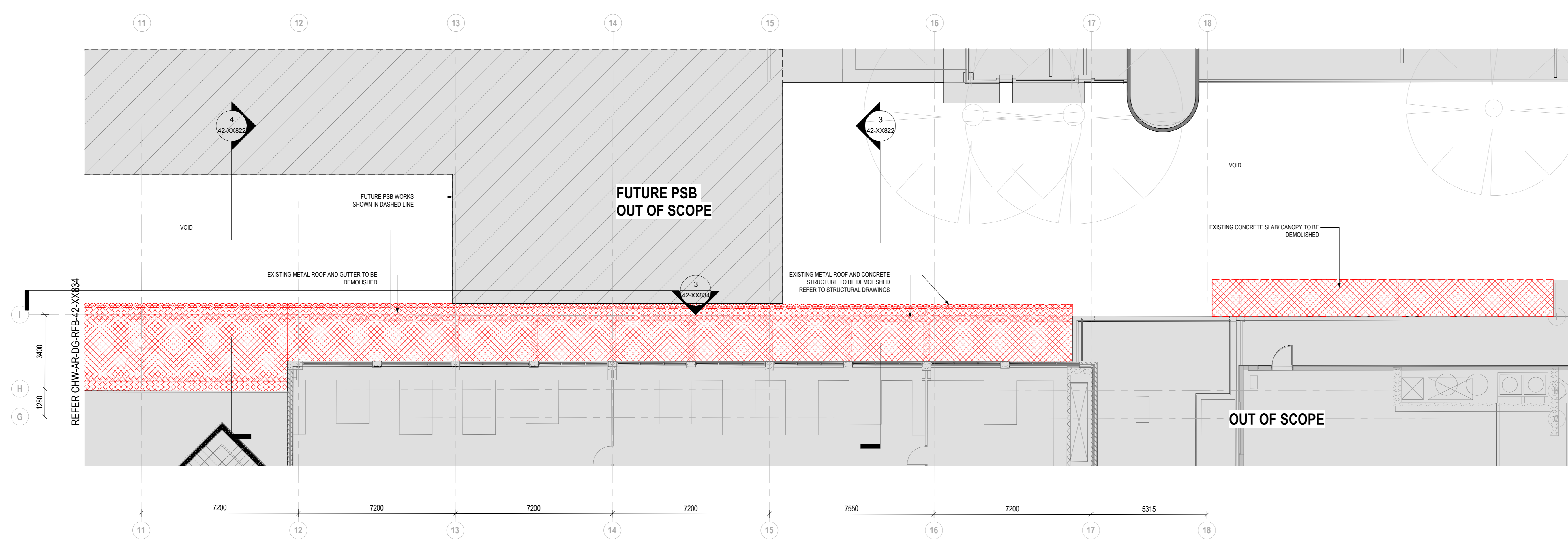
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REVISION: **04**
 SCALE: **As indicated @ A1**

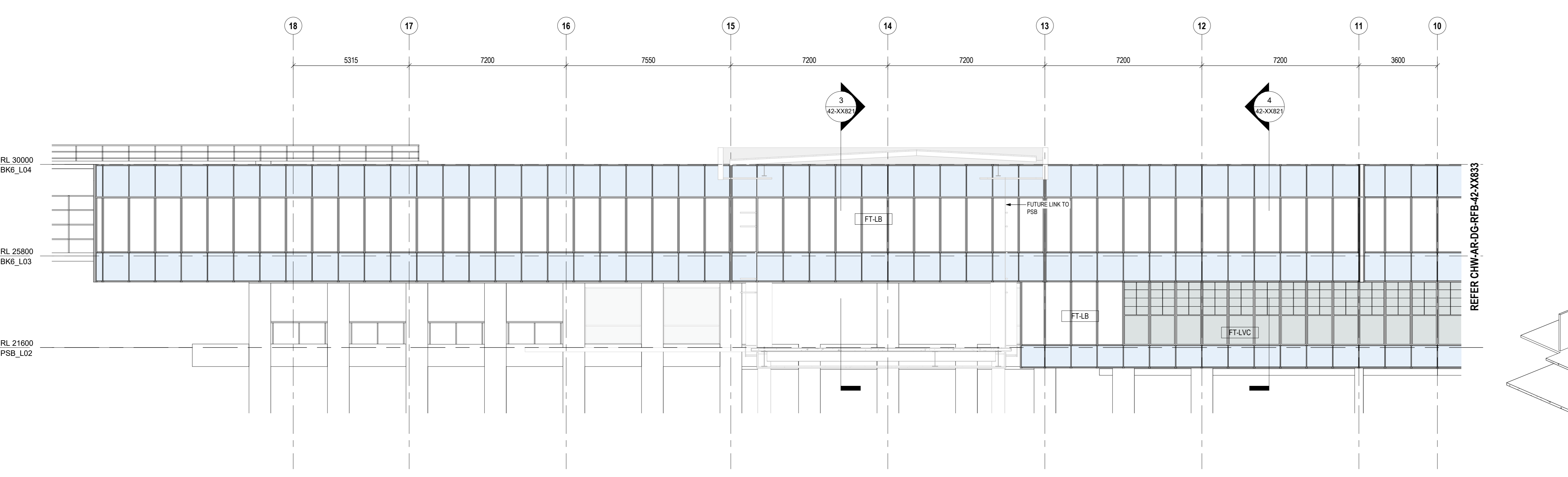
NSW GOVERNMENT Health Infrastructure
 CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060



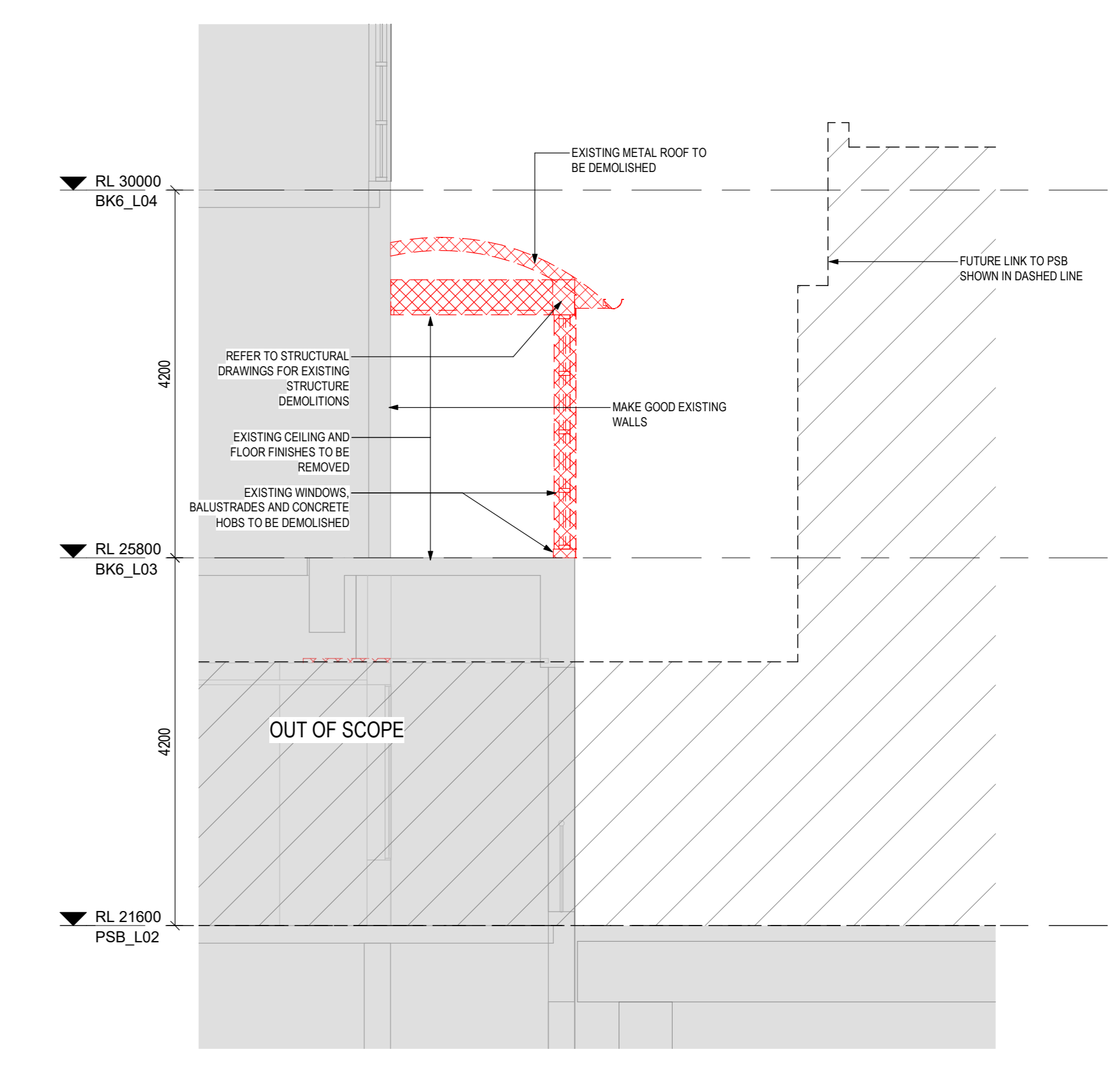
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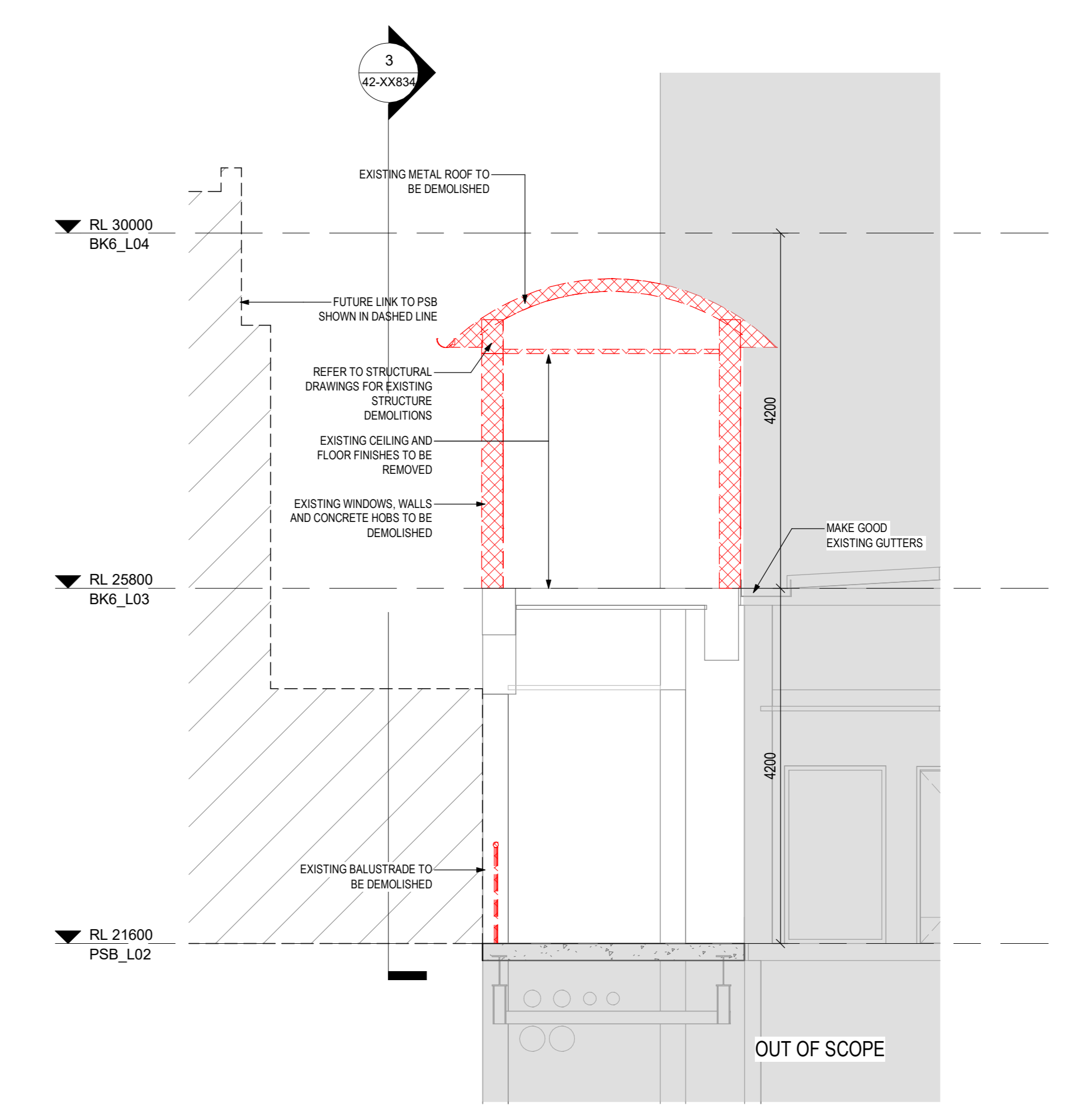
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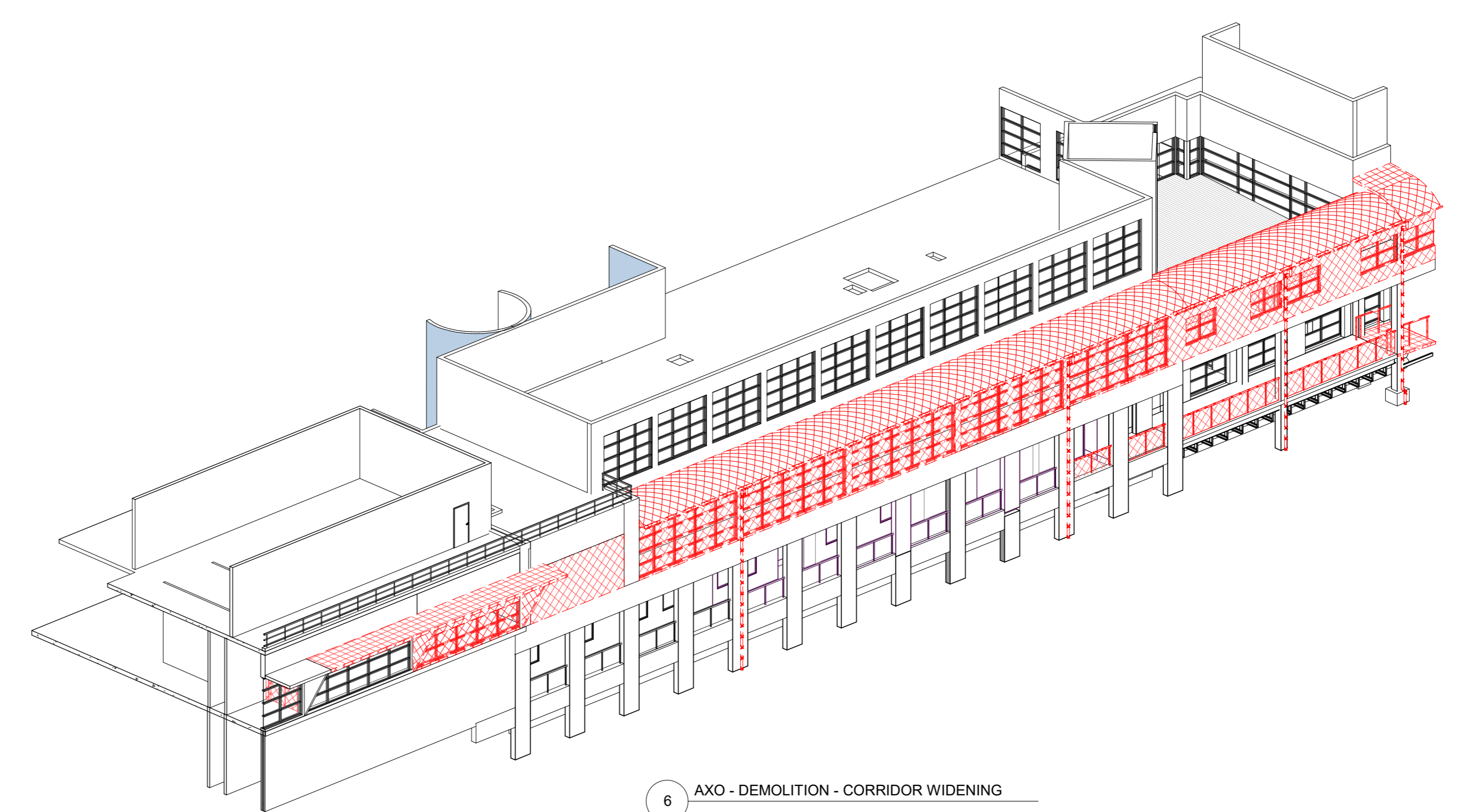
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1:100



3 SECTION 3 - DEMOLITION - CORRIDOR WIDENING
1:50



4 SECTION 4 - DEMOLITION - CORRIDOR WIDENING
1:50



6 AXO - DEMOLITION - CORRIDOR WIDENING
1:50

REV	REVISION DESCRIPTION	BY	DATE
D	ISSUED FOR TENDER		28/02/22
C	ISSUED FOR TENDER - DRAFT		18/02/22
B	ISSUED FOR TENDER - DRAFT		24/01/22
A	ISSUED FOR INFORMATION		21/12/21

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PROJECT:
The Childrens Hospital at Westmead
Redevelopment - Stage 2

Sheet Name
PATHWAYS - CORRIDOR WIDENING - SHEET 2

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Checked By
ALJAG

Project No
19038

Revision Date
28/02/22

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ATTACHMENT 11

VVMF Asbestos Management Plan

Refer to Aconex Document No. 2591-PM-MP-004 'R14 (Westmead Hospital VVMP AMP)'

ATTACHMENT 12

Sub-Plan: Construction Noise and Vibration Management Plan

Refer to Aconex Document No. 2591-PM-MP-002 '*Construction Noise and Vibration Management Plan (CNVMP)*
CHW VVMF & REFURB'

ATTACHMENT 13

Sub-Plan: Construction Soil and Water Management Plan

Refer to Aconex Document No. 2591-PM-MP-003 '*Construction Soil and Water Management Plan (CSWMP) CHW VVMF & REFURB*'

ATTACHMENT 14

Sub-Plan: Construction Traffic and Pedestrian Management Plan

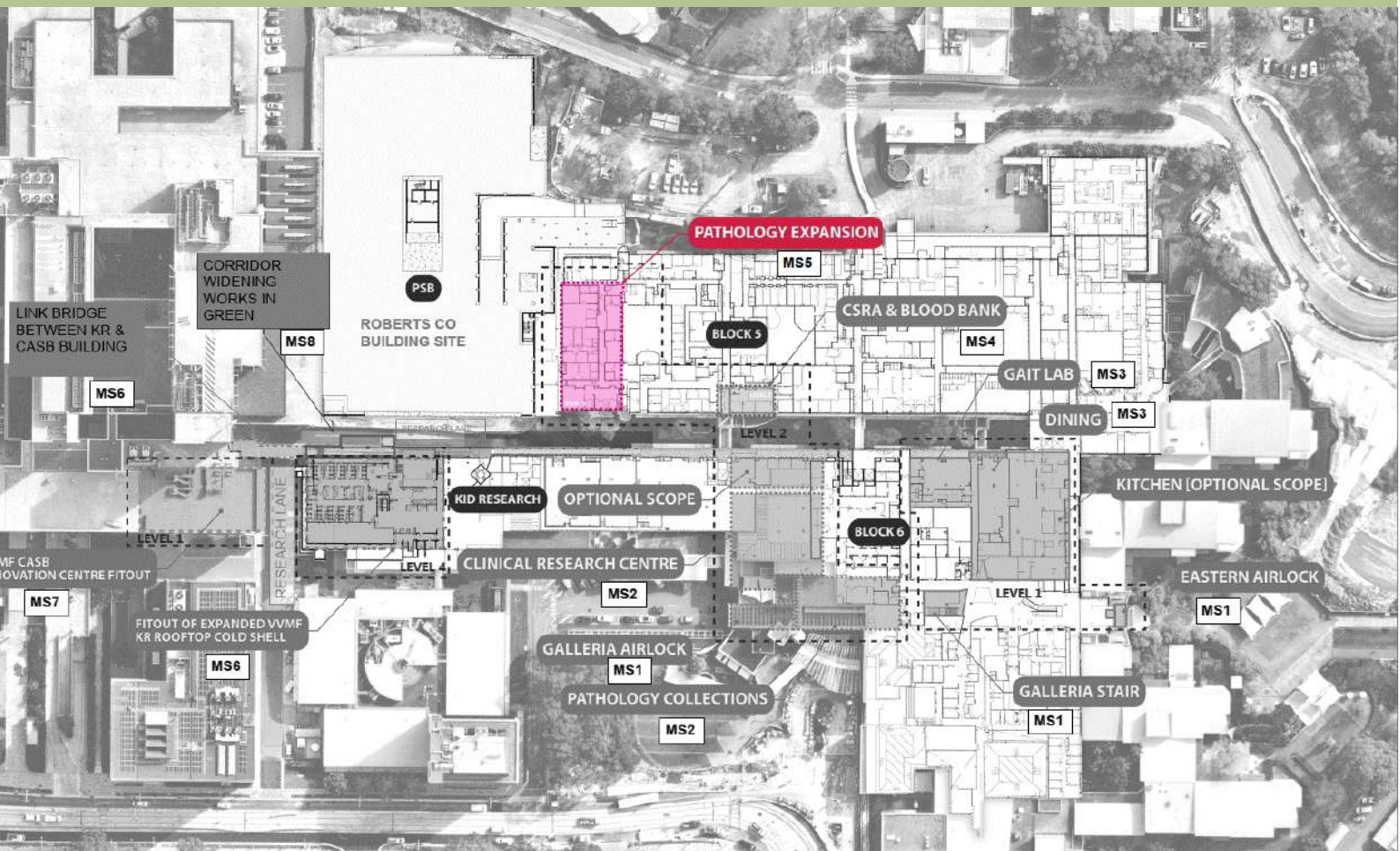
Refer to Aconex Document No. 2591-PM-MP-004 '*Construction Traffic and Pedestrian Management Plan (CTPMP)*
CHW VVMF & REFURB'

ATTACHMENT 15

Sub-Plan: Construction Waste Management Plan

Refer to Aconex Document No. 2591-PM-MP-005 '*Construction Waste Management Plan (CWMP) CHW VVMF & REFURB*'

The Children's Hospital at Westmead (CHW) Stage 2 and ViralVector Manufacturing Facility (VVMF) – Refurbishment Works Pathology Expansion (Stage 5) Construction Traffic Management Plan



Client Name: Kane Constructions
Reference: 23030
Issue: For Construction (Issue D)



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Appendix C	– Approved Architectural Plans
Appendix D	– Construction Workers Transportation Strategy
Appendix E	– Consultation with TfNSW and Council
Appendix F	– Swept Path Assessments
Appendix G	– Traffic Guidance Schemes



Document Control

Reference	23030	
Issue	For Construction (Issue D)	05/09/2023
Client Name	Kane Constructions	

Revision Register

Issue	Date	Description	Prepared By	Signed
Draft A	18/02/2023	Draft CTMP	M.R, Q.A	M.K
Draft B	18/02/2023	Draft CTMP with CWTS	M.R, Q.A	M.K
For Construction (Issue A)	23/03/2023	Final CTMP with CWTS for Construction	M.R, Q.A	M.K
For Construction (Issue B)	04/07/2023	Revised CTMP	M.R, J.S	M.K
For Construction (Issue C)	07/07/2023	Revised CTMP	M.R, J.S	M.K
For Construction (Issue D)	05/09/2023	Split for Separate CTMP for Pathology Expansion (Stage 5) only with Final CWTS in Appendix D	M.R, J.S	M.K



1.0 Introduction

1.1 Background

A Stage Significant Development Application (SSD-10349252) has been approved by Health Administration Corporation for The Children's Hospital at Westmead Stage 2 and Viral Vector Manufacturing Facility – Refurbishment Works.

It is noted that this CTMP is pertinent to the SSD-10349252 Stage 5 works only - Pathology Expansion. A separate CTMP will be submitted for the other stages as required.

This Plan has been prepared in satisfaction of Consent Condition no. B16 for submission of a Construction Pedestrian and Traffic Management Plan as part of the Construction Certificate documentation as follows:

B16. The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:

*(a) be prepared by a suitably qualified and experienced person(s);
(b) be prepared to the satisfaction of Council's Traffic and Transport Manager and TfNSW; and
(c) detail:*

(i) measures to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;

(ii) measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs;

(iii) detail the measures that are to be implemented to minimise the impact of activities associated with the construction of the development the subject of this consent on the Parramatta Light Rail (PLR) Project, in liaison with PLR's Construction Contractor and/or Operator;

(iv) construction and heavy vehicle routes, access and parking arrangements;

(v) the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as



manoeuvrability through the site, in accordance with the latest version of AS 2890.2;

(vi) arrangements to ensure that construction vehicles enter and leave the site in a forward direction unless in specific exceptional circumstances under the supervision of accredited traffic controller(s);

(vii) details of crane arrangements including location of any crane(s) and crane movement Plan; and

(viii) detail measures to minimise cumulative construction impacts on surrounding road networks, identifying the duration of impacts.

The conditions and associated sections, page numbers and appendices are provided in the table below.

Consent Satisfaction Table Condition

Condition	Requirements	Document reference
B16	<i>B16. The Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP) must be prepared to achieve the objective of ensuring safety and efficiency of the road network and address, but not be limited to, the following:</i>	
	<i>(a) be prepared by a suitably qualified and experienced person(s);</i>	Section 1.1 (pg. 3)
	<i>(b) be prepared to the satisfaction of Council's Traffic and Transport Manager and TfNSW; and</i>	Section 4.12 (pg. 27). See Appendix E.
	<i>(c) detail:</i>	
	<i>(i) measures to ensure road safety and network efficiency during construction in consideration of potential impacts on general traffic, cyclists and pedestrians and bus services;</i>	Section 4.7 (pg. 26) Sections 4.12 (pg. 27), Sections 5.1, 5.2, 5.3 and 5.4 (pg. 28)
	<i>(ii) measures to ensure the safety of vehicles and pedestrians accessing adjoining properties where shared vehicle and pedestrian access occurs;</i>	Sections 5.7 (pg. 29)
	<i>(iii) detail the measures that are to be implemented to minimise the impact of activities associated with the construction of the development the subject of this</i>	Sections 3.9 (pg. 19)



Condition	Requirements	Document reference
	<i>consent on the Parramatta Light Rail (PLR) Project, in liaison with PLR's Construction Contractor and/or Operator;</i>	
	<i>(iv) construction and heavy vehicle routes, access and parking arrangements;</i>	Sections 4.1 and 4.3 (pg. 21 & 22)
	<i>(v) the swept path of the longest construction vehicle entering and exiting the site in association with the new work, as well as manoeuvrability through the site, in accordance with the latest version of AS 2890.2;</i>	Appendix F, Section 4.1 (pg. 21)
	<i>(vi) arrangements to ensure that construction vehicles enter and leave the site in a forward direction unless in specific exceptional circumstances under the supervision of accredited traffic controller(s);</i>	Section 4.1 (pg. 21)
	<i>(vii) details of crane arrangements including location of any crane(s) and crane movement plan; and</i>	Section 3.6 (pg. 17)
	<i>(viii) detail measures to minimise cumulative construction impacts on surrounding road networks, identifying the duration of impacts.</i>	Section 3.3 (pg. 15) Section 5.0 (pg. 28-29)

This Plan has been prepared by a suitably qualified and experienced civil (traffic) engineer with 15 years of professional experience and holds the SafeWork NSW Prepare a Work Zone Traffic Management Plan accreditation, detailed as follows:

Siew Hwee Kong - card no. TCT1030659

1.2 Objectives

The primary objective of this Plan is to ensure that the construction is completed in the best and safest practice manner with adherence to the guidelines and regulations of the authorities. This Plan is to identify and define plans to:



- To minimise inconvenience to all residents, staff, visitors, tenants and others
- To minimise the impact on local road use and avoid the use of transport-related operations inside peak road use times and school hours
- To ensure that local pedestrians are able to use footpaths or have suitable safe circulation routes clearly provided during construction.
- To complete the proposal without damaging any property, either the property itself or the adjoining owners
- To minimise dust and noise to safe and acceptable levels.
- To remove spoil without creating health or safety issues.
- To minimise the impact of the project on the public and the environment with the aim to reduce or eliminate the number of vehicle, pedestrians or environmental incidents.
- Ensure that the construction process is safe, seamless and compliant with council, state and federal guidelines.

1.3 References

In preparing this Plan, reference has been made to the following:

- an inspection of the site and its surrounds
- Procedures for use in the Preparation of a Traffic Management Plan (TMP), Roads and Maritime Services (RMS), December 2001 (Version 2.0)
- Transport for NSW - Traffic control at work sites Technical Manual, Issue No. 6.1, February 2022 (including amendments in November 2022)
- Australian Standard AS1742.3 – 2019 'Manual of Uniform Traffic Control Devices – Part 3: Traffic control for works on roads
- other documents and data as referenced in this Plan.



2.0 Existing and Future Transport Conditions

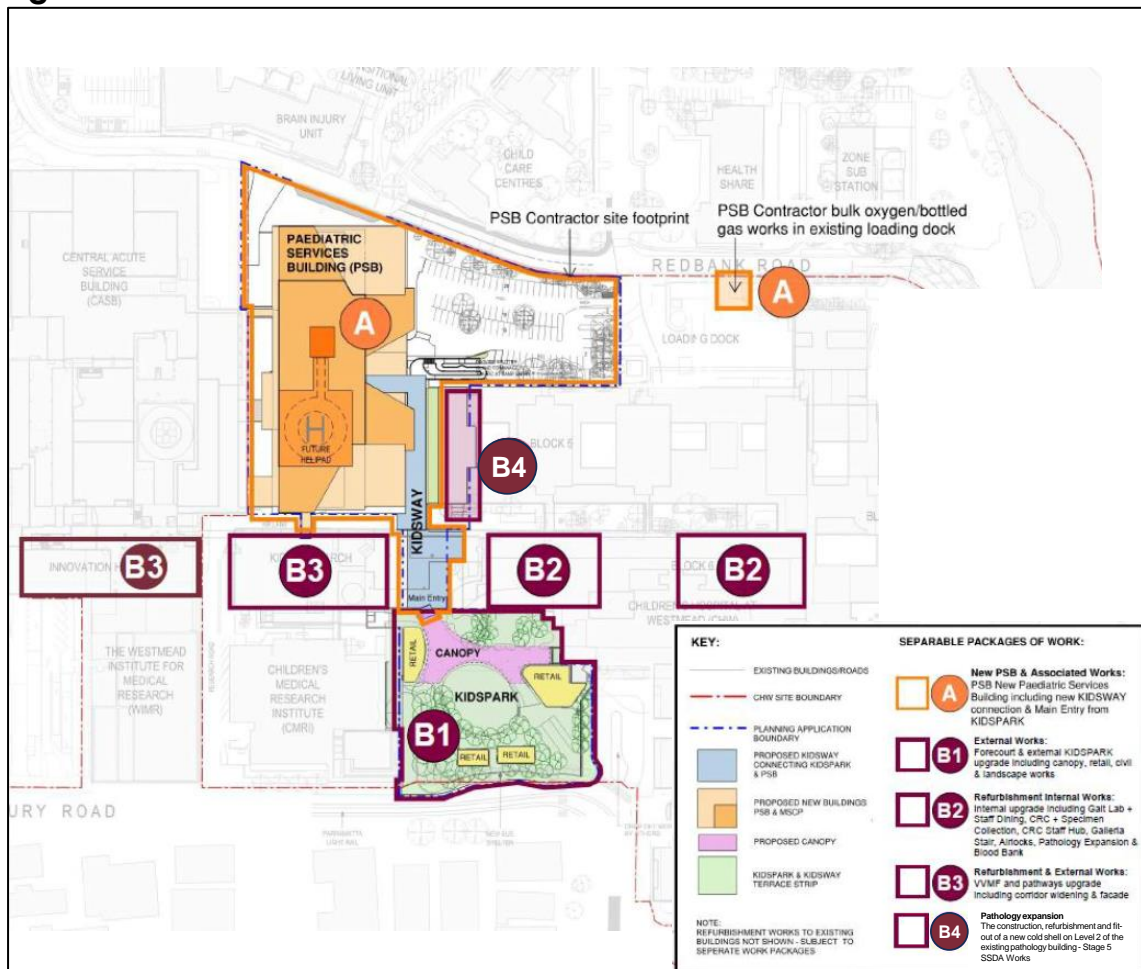
2.1 Existing Site

The site is Lot 101 in Deposited Plan 1119583 (178 Hawkesbury Road, Westmead) and Lot 1 in Deposited Plan (DP) 1194390 (166-174 Hawkesbury Road, Westmead).

The proposed Pathology Expansion (Stage 5) works will be on Level 2 of the existing CHW Block 5.

The location of the subject site is shown in Figure 2.1.

Figure 2.1: Site Location





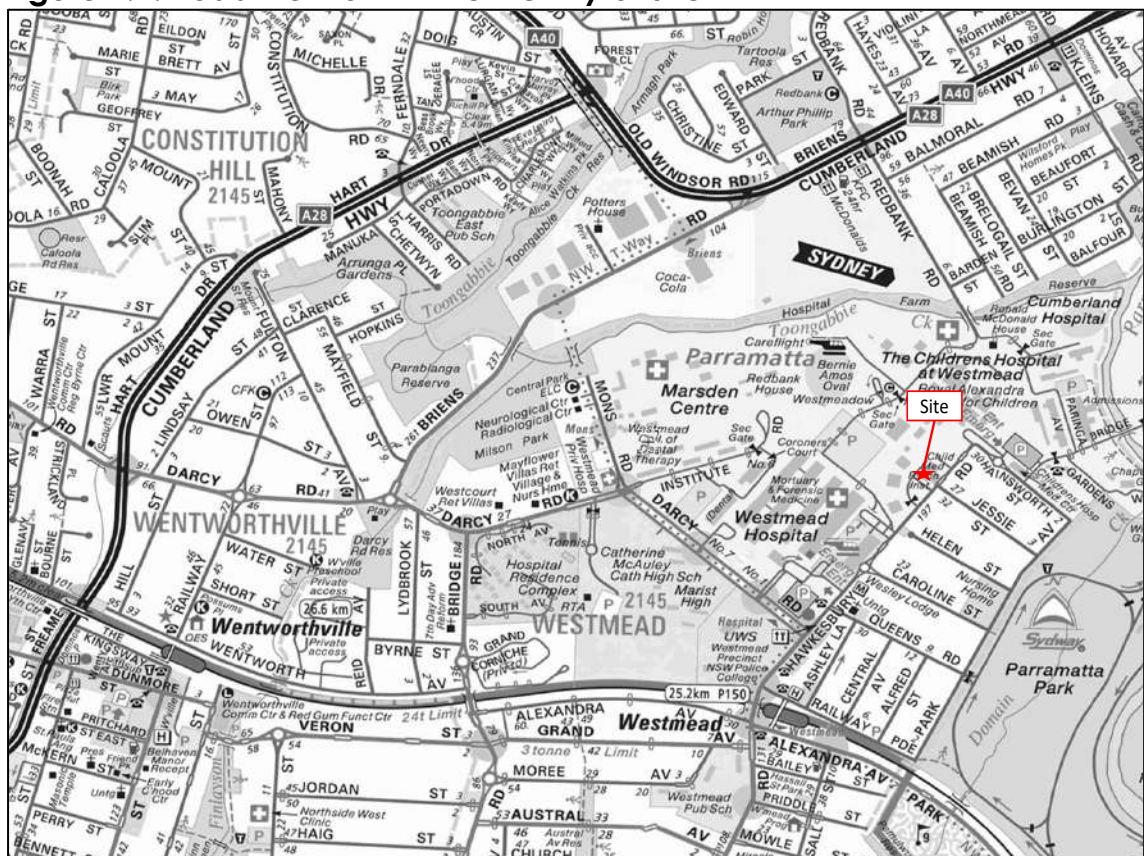
2.2 Existing Road Network

The surrounding road network includes:

- Darcy Road – a major collector road and Regional Road connecting Binalong Road in Wentworthville and Hawkesbury Road in Westmead. It generally aligns in the Northwest – Southeast with 2 lanes in each direction. Darcy road is a 22.5m wide, divided carriageway with no kerbside parking.
- Hawkesbury Road - a local road / regional Road which runs in the north-south direction. It is a 23m-wide undivided carriageway with 1 northbound and 1 southbound lane and accommodates the light rail alignment in the centre.

The surrounding road network is shown in Figure 2.2.

Figure 2.2: Road Network in the vicinity of Site



2.3 Traffic Conditions

Based on site observation, there are peak-hour congestions along Hawkesbury Road. Notwithstanding the above, it has been observed there are ample gaps in the Hawkesbury Road traffic flow to allow safe ingress



and egress of construction-related traffic onto and out of Research Lane.

2.4 Public Transport Services

Train

The closest railway station to the site is Westmead Train Station, which is 1km (about a 12-minute walk) to the south of the site.

Westmead Station is serviced by the T1 North Shore, Northern and Western Line, T5 Cumberland Line and Blue Mountains Line.

Services along the T1 and T5 lines operate every 5 to 10 minutes, with express services to the Sydney CBD (from Parramatta Station). It interchanges with the T9 Northern Line at Strathfield, the T7 Olympic Park Line and the T3 Bankstown Line at Lidcombe and the T2 Inner West and Leppington line at Parramatta, Lidcombe or Strathfield.

The T5 Cumberland Line interchanges with the T1 Western and T2 Inner West and Leppington lines at Parramatta, the T3 Bankstown Line at Cabramatta and Liverpool, and the T8 Airport and South Line at Glenfield. Services on the Blue Mountains Line operate every 30 minutes.

Details of the existing train services are provided in Appendix A.

Bus

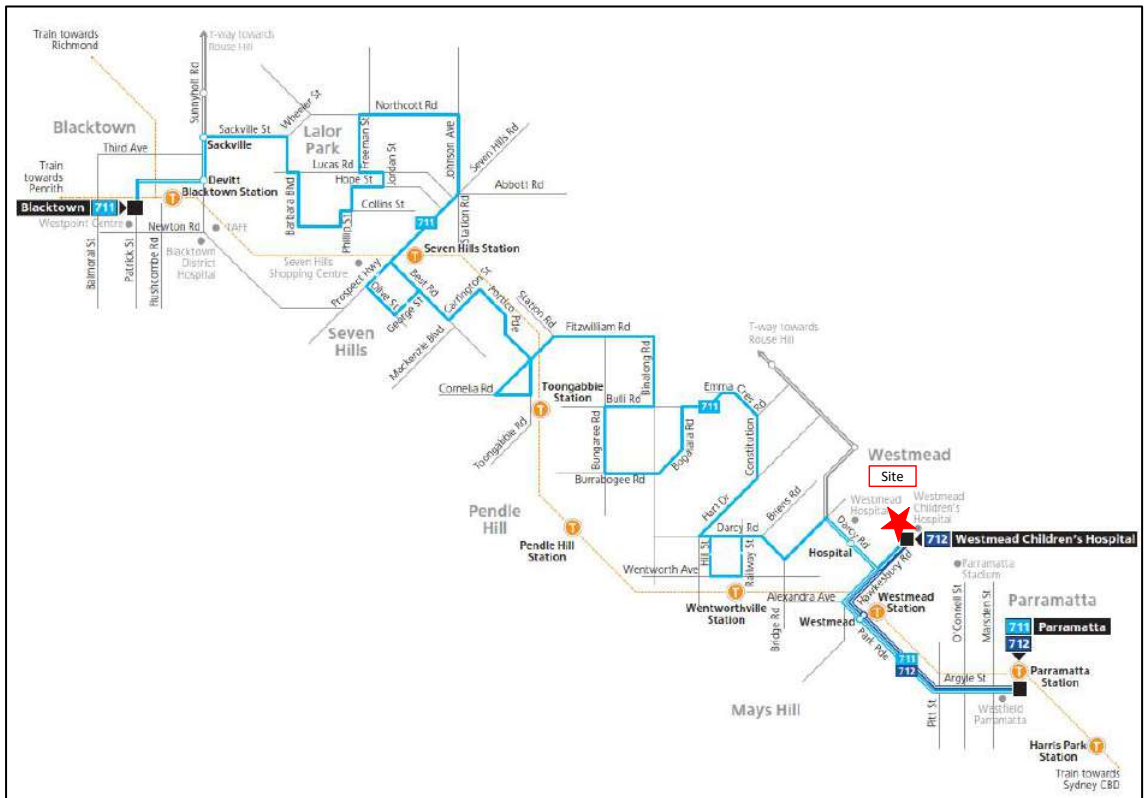
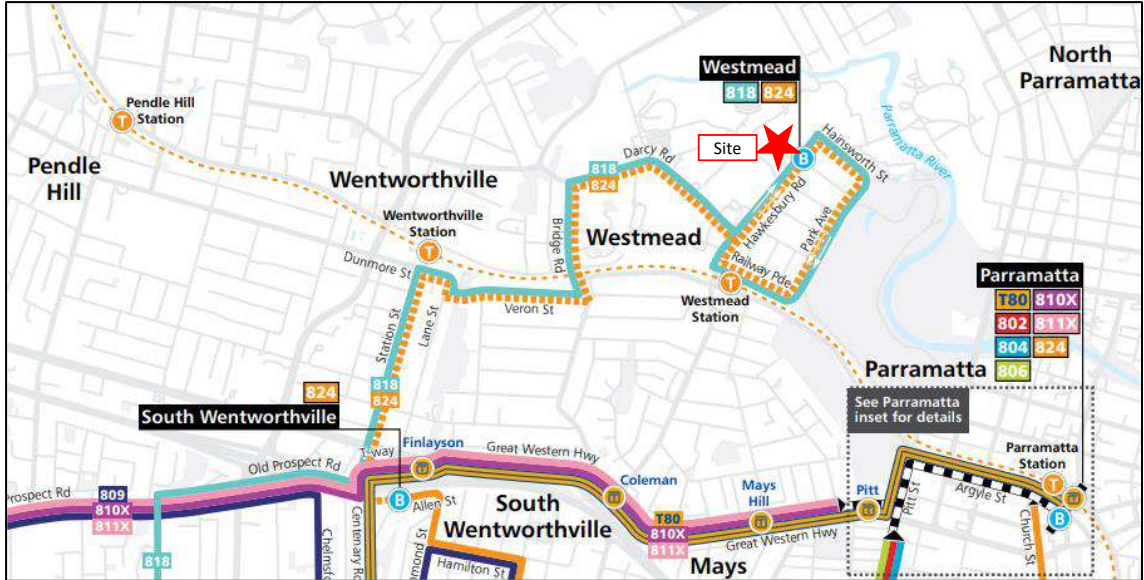
The nearest bus stop to/from the site is located on Hawkesbury Road north of Jessie Street and is within a 2-minute (150-metre) walk of the site. The stop is serviced by the following bus routes:

Bus Route	Details
711	Blacktown to Parramatta via Wentworthville
712	Westmead Children's Hospital to Parramatta
818	Westmead Hospitals to Merrylands
824	Westmead Hospitals to Parramatta via South Wentworthville

Bus route no. 711, 818 and 824 providing connection to/from the Westmead Station. Details of the existing bus services and their connections to nearby railway stations/suburbs are provided in the following Figure 2.3.



Figure 2.3: Public Transport



The site is also served by a comprehensive network of bus services with 600m of the site. The bus routes servicing the site vicinity include:

- Westmead Hospital, North West Twy along Darcy Road (southbound):



Transport Strategies

660, 661, 662, 663, 664, 665, 705, 708, 711, 818, 824

- Westmead Hospital, North West Twy along Darcy Road (northbound):
660, 661, 662, 663, 664, 665
- Darcy Road after Hawkesbury Road along Darcy Road (northbound):
705, 708, 711, 818, 824

Bus Route	Details
660	Castlewood to Parramatta
661	Blacktown to Parramatta via Kings Langley & North West Twy
662	Castle Hill to Parramatta via Bella Vista & North West Twy
663	Rouse Hill Station to Parramatta via Kellyville Ridge
664	Rouse Hill Station to Parramatta via Kellyville
665	Rouse Hill Station to Parramatta
705	Blacktown to Parramatta via Seven Hills
708	Constitution Hill to Parramatta via Pendle Hill
711	Blacktown to Parramatta via Wentworthville
818	Westmead Hospitals to Merrylands
824	Westmead Hospitals to Parramatta via South Wentworthville

Details of the existing bus services are provided in Appendix B.

2.5 Walking Facilities

There are currently footpaths on:

- Both sides of Hawkesbury Drive
- The southern side of Research Lane

Signalised pedestrian crossings are provided along Hawkesbury Road and Hainsworth Street in the vicinity of the site, as shown in Figure 2.4.



Figure 2.4: Signalised pedestrian



2.6 Cycling Facilities

There are currently on-road bicycle routes along Hawkesbury Road in the vicinity of the site, as shown in Figure 2.5 and Figure 2.6.



Figure 2.5: Cycle Routes

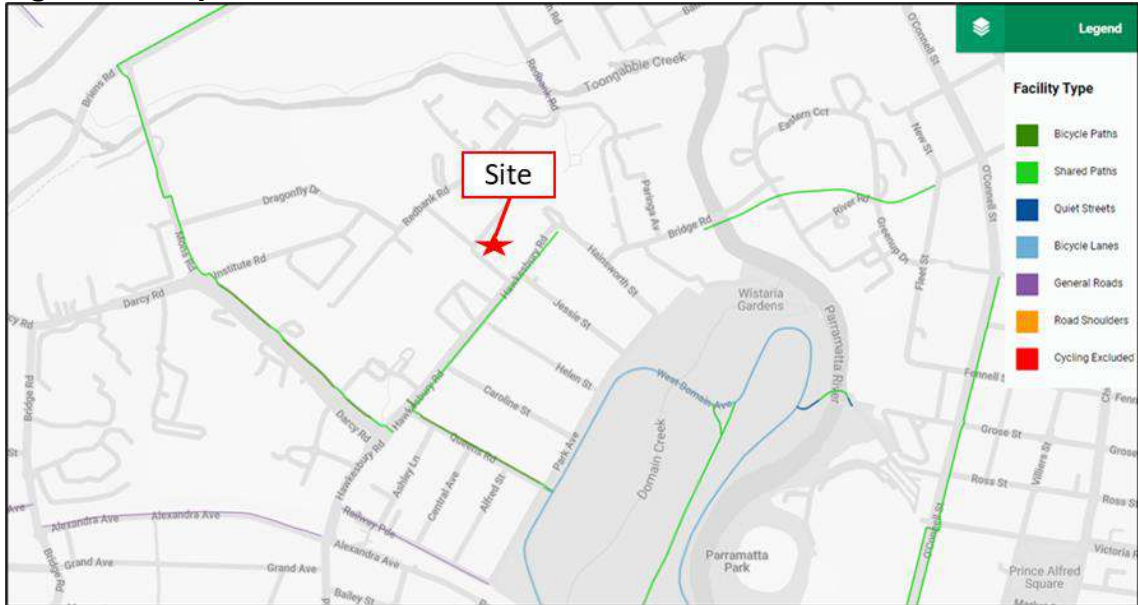


Figure 2.6: On-Road Bicycle Routes along Hawkesbury Road



2.7 Parramatta Light Rail

The Parramatta Light Rail Stage 1 will connect Westmead to Carlingford via Parramatta CBD and Camellia. The route will link Parramatta's CBD and train



station to the Westmead Precinct. The nearest station will be the Children's Hospital at Westmead Station, located 300m from the site (see Figure 2.7 and Figure 2.8). The Parramatta Light Rail, from Westmead to Carlingford, is expected to open in 2023.

Figure 2.7: Parramatta Light Rail

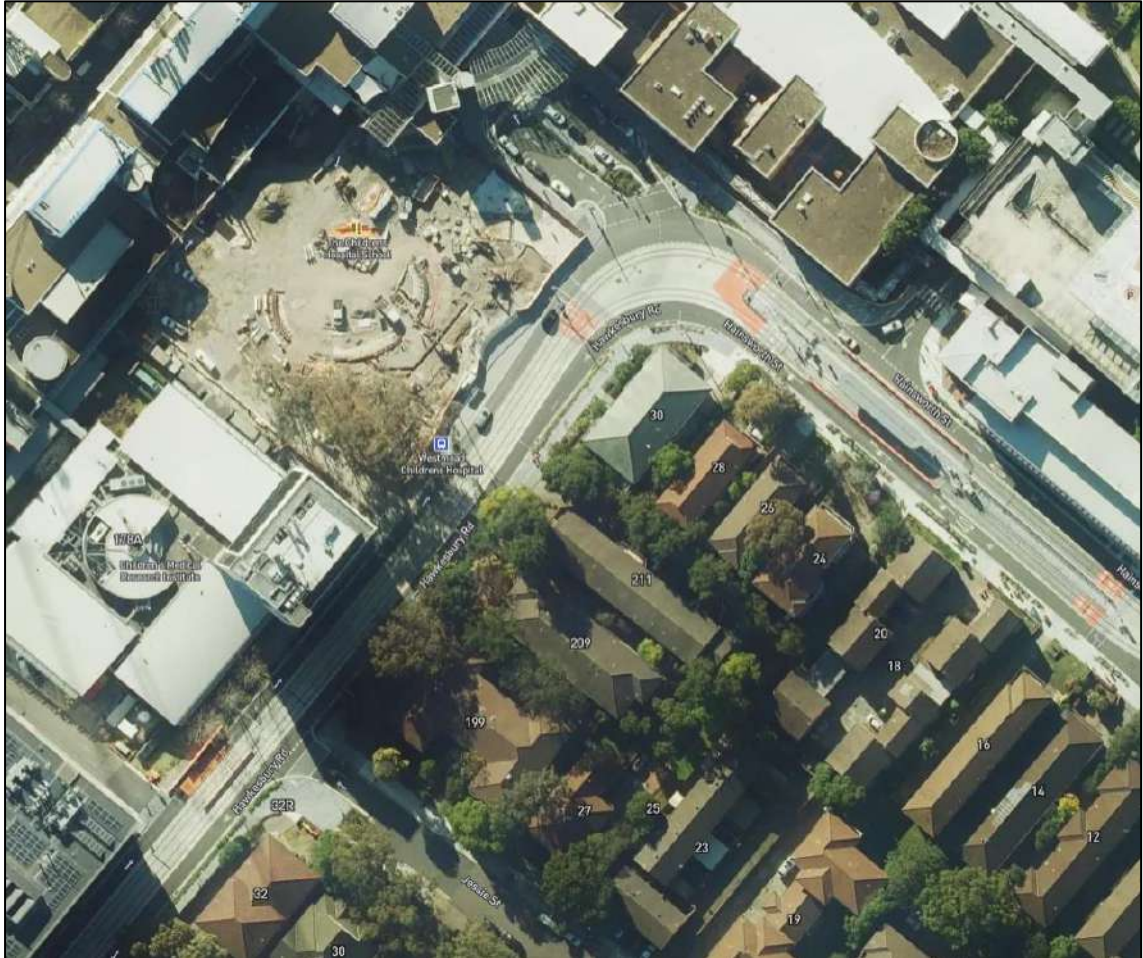
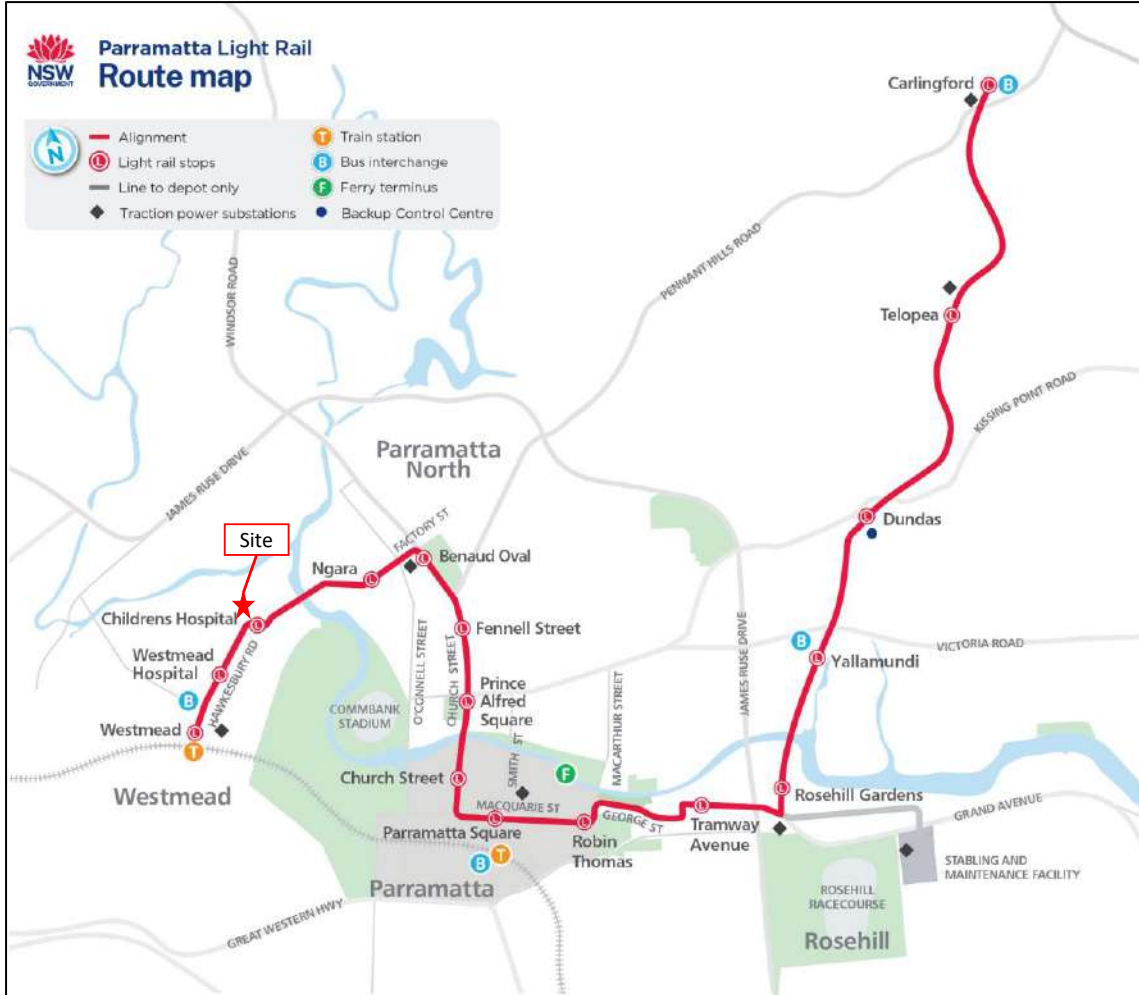




Figure 2.8: Parramatta Light Rail Stage 1 Alignment



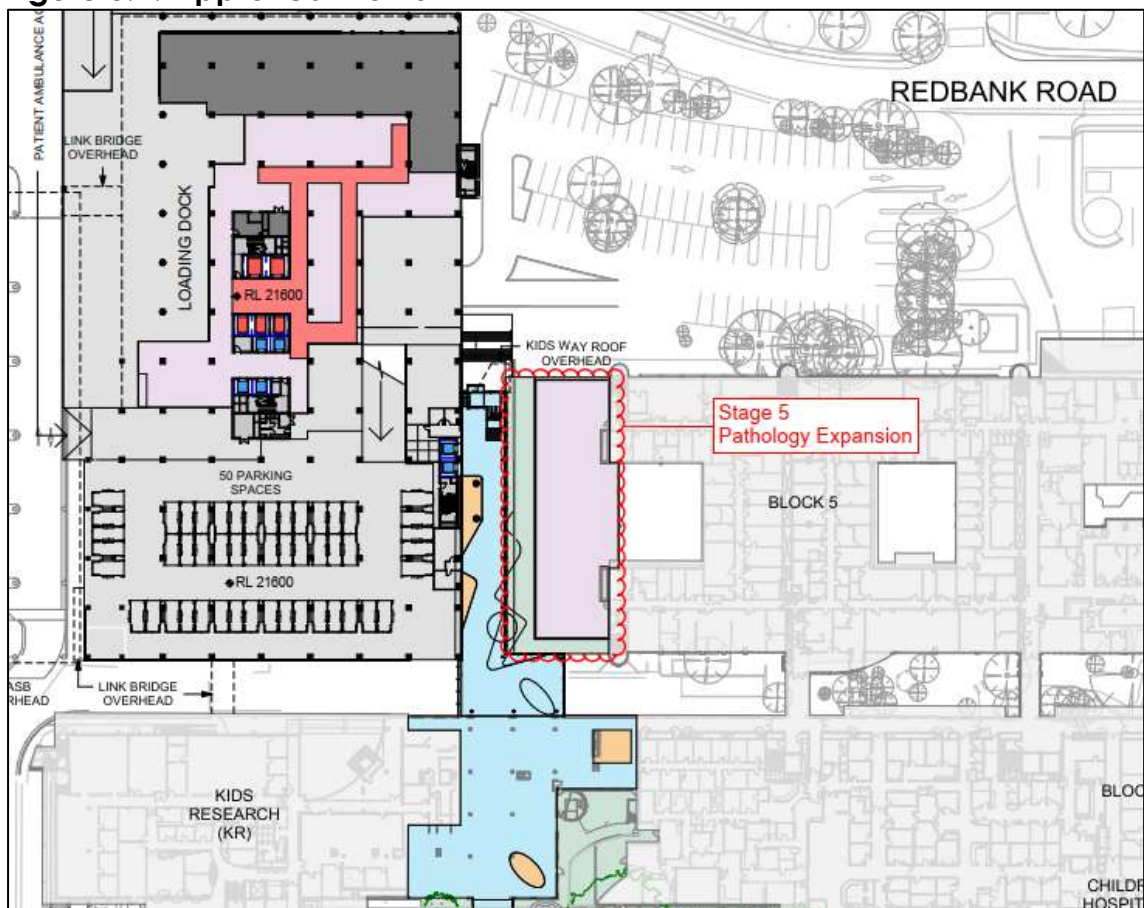


3.0 Approved Works and Proposed Construction Scheme

3.1 Approved Works

The Stage 5 Pathology expansion includes the construction, refurbishment and fit-out of a new cold shell on Level 2 of the existing pathology building (see Figure 3.1).

Figure 3.1: Approved Works



Source: Proposed Plan - Level 02" CHW-AR-DG-PSB-SSD011

The details of approved construction areas are shown in Appendix C.



3.2 Construction Stages and Program

The works commenced on 7/06/2023, with the expected completion by February 2024.

3.3 Construction Hours

Construction, including the delivery of materials to and 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.

Notwithstanding the above hours, provided noise levels do not exceed the existing background noise level plus 5dB, works may also be undertaken during the following hours:

- (a) between 6pm and 7pm, Mondays to Fridays inclusive; and
- (b) between 1pm and 5pm, Saturdays.

Construction activities may be undertaken outside of the aforementioned hours required:

- (a) by the Police or a public authority for the delivery of vehicles, plant or materials; or
- (b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or
- (c) where the works are inaudible at the nearest sensitive receivers; or
- (d) for the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or
- (e) where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.

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

Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:

- (a) 9am to 12pm, Monday to Friday;



- (b) 2pm to 5pm Monday to Friday; and
- (c) 9am to 12pm, Saturday.

Kane shall ensure that all sub-contractors are aware of the permitted hours of operation and shall ensure that all activity occurs strictly within the hours stipulated by the Conditions of Consent.

3.4 Construction Workers Parking

It is anticipated that there will be an average of 17 workers and a maximum of 51 workers on-site during the construction stages.

No construction worker parking will be established within the site.

The workers will be instructed not to utilise the hospital's staff parking areas. Kane would take appropriate action if informed of this activity occurring.

The site is in close proximity to well-established and high-frequency public transport services, therefore, construction workers will be encouraged to use public transport to access the site. A tool drop-off and storage facility will be provided within the site office. This would allow tradespeople to drop off and store their tools and machinery, allowing them to use public transport to travel to/ from the site on a daily basis. This will be incorporated into the site induction program.

A Construction Worker Transportation Strategy has been prepared to minimise demand for parking in nearby public and residential streets or public parking facilities. See Appendix D.

All site staff related to the works who **need** to drive to/from the site are to park at the following designated off-street area within 400m walking distance from the site (see Figure 3.2):

- Westmead Children's Hospital Car Park at Hawkesbury Road (approx. 400 spaces)
- Westmead Hospital - P4 at Hawkesbury Road (360 spaces)



Figure 3.2: Designated Off-Street Parking Area



3.5 On-Street Works Zone

On-street works zones would not be required for the construction-related works.

Should a works zone be required, a separate application will be made to the Council to organise appropriate approvals for the proposed works zone prior to the start of works, as well as the parking and traffic changes.

3.6 Cranage and Materials Handling

No tower crane would be required for construction-related works for materials handling within the on-site material handling zone.

All materials will be loaded/unloaded directly to/from trucks using mobile cranes, forklifts or trolleys.

Specific areas will be available for loading/unloading, materials handling and storage, worker sheds, etc.



All materials will be stored on the site, with all demolished materials removed from the site.

3.7 Site Inspections and Record-Keeping

The construction work will be monitored to ensure that it proceeds as set out in the Construction Management Plan provided by KANE. A daily inspection before the start of the construction activity should take place to ensure that conditions accord with those stipulated in the Plan and there are no potential hazards. Any possible adverse impacts will be recorded and dealt with as they arise.

3.8 Other Construction Activities

The construction activities will overlap with the construction of the Parramatta Light Rail (PLR) and Sydney Metro West.

Parramatta Light Rail (PLR)

KANE noted that the major construction to deliver the light rail is ongoing, with the construction expected to be completed in 2023. Information on the PLR Project can be found at <http://www.parramattalightrail.nsw.gov.au/>.

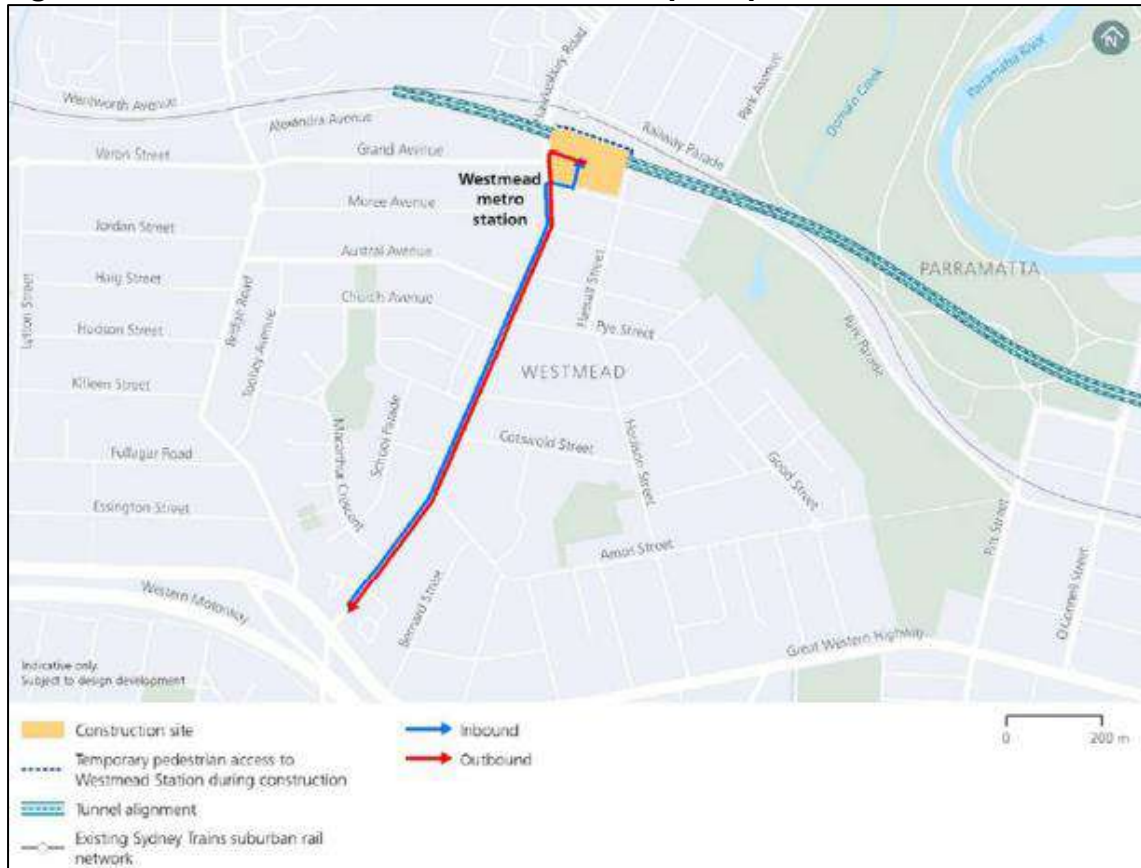
The primary construction vehicle route for PLR is via Hawkesbury Road, Darcy Road and Cumberland Highway.

Sydney Metro West

Based on the Construction Traffic Management Plan Westmead prepared by DELTA dated 12/10/2021, the construction site access is via Hawkesbury Road into Bailey Street, with the egress directly onto Hawkesbury Road. The construction vehicle routes are shown in Figure 3.3.



Figure 3.3: Construction vehicle routes for Sydney Metro West



3.9 Consultation, Communication and Liaison

The Stage 5 (Pathology Expansion) portion of works will not include vehicles greater than an 8.8m long medium rigid vehicle (MRV), and therefore will not encroach onto the light rail tracks. As per the swept path assessments in Appendix F, these vehicles can turn left from Hawksbury Road (south) and exit left-out onto Hawkesbury Road (north) satisfactorily.

Consultation between Kane and Great River City Light Rail, City of Parramatta and TfNSW is ongoing. See Appendix E.

In addition to Council and TfNSW, KANE will continue to liaise/coordinate with the following relevant stakeholders:

- Westmead Health precinct stakeholders
- Westmead Hospital
- Police NSW
- Bus Operators: CDC, Transit Systems, Transdev, Hillsbus, and State Transit Authority



- Endeavour Energy

Any planned disruptions to Westmead Health precinct operations and services will be managed through Disruption Notices (DNs). For such stoppages, the DN will describe the applicable Works, timetable, issues and contingency plans. DNs will be submitted by the KANE to the Project Manager and Hospital stakeholders for approval. Depending on the nature of the Works, these are required 10 days prior to commencement of Works. However, this doesn't take into consideration the review and approval process, which depending on the scope of works, can take up to 4 weeks.

In addition, KANE maintains regular contact with the surrounding project contractors (Roberts Co & Fords Civil) during weekly Disruption Notice meetings held by Health Infrastructure on Thursdays to identify any potential overlap of major construction works and cooperate to ensure such overlaps are minimised during the life cycles of the works.

A sign with phone number and email address will be installed on the hoarding to allow the general public to make inquiries or complaints regarding traffic control for the site.

With the above measures, it is not expected that this level of traffic movement would create any adverse impact on the surrounding road network.



4.0 Traffic Management Plan

4.1 Construction Site Access

Truck access to the construction site is proposed via 3 gates (Gates 1, 2 and 4) off Research Lane. Separate access off Hawkesbury Road is also provided for B99 vehicles/utes/vans via Gate 3. These accesses are shown in Figure 4.1.

Figure 4.1: Site accesses



All vehicles will enter left-in from Hawkesbury Road (south) and exit left-out onto Hawkesbury Road (north).

Sufficient manoeuvring area will be provided on-site and on Research Lane to ensure construction vehicles can enter and exit in a forward direction via Hawkesbury Road for up to 8.8m medium rigid vehicles.



An 8.8m MRV will enter Research Lane from Hawkesbury Road on arrival and depart onto Hawkesbury Road in a forward direction on departure under the management of accredited traffic controllers.

Swept path analysis completed in accordance with AS 2890.2 for an 8.8m MRV expected to access the site, is provided in Appendix F of this Plan.

4.2 Pedestrian Access

Access to the site is provided via security-controlled gates on Research Lane. All personnel entering the site will be required to undertake an induction program.

Pedestrian activities are currently removed from the construction area by the erected site fencing, where required, which is comprised of A-Class hoarding. Trained on-site personnel will be present at the site access to manage pedestrian movements and assist with vehicle ingress and egress.

4.3 Construction Traffic Haulage Route

Generally, construction vehicles will have origins and destinations from a wide variety of locations throughout Sydney. However, all construction vehicles will be restricted to the State and Regional Road network.

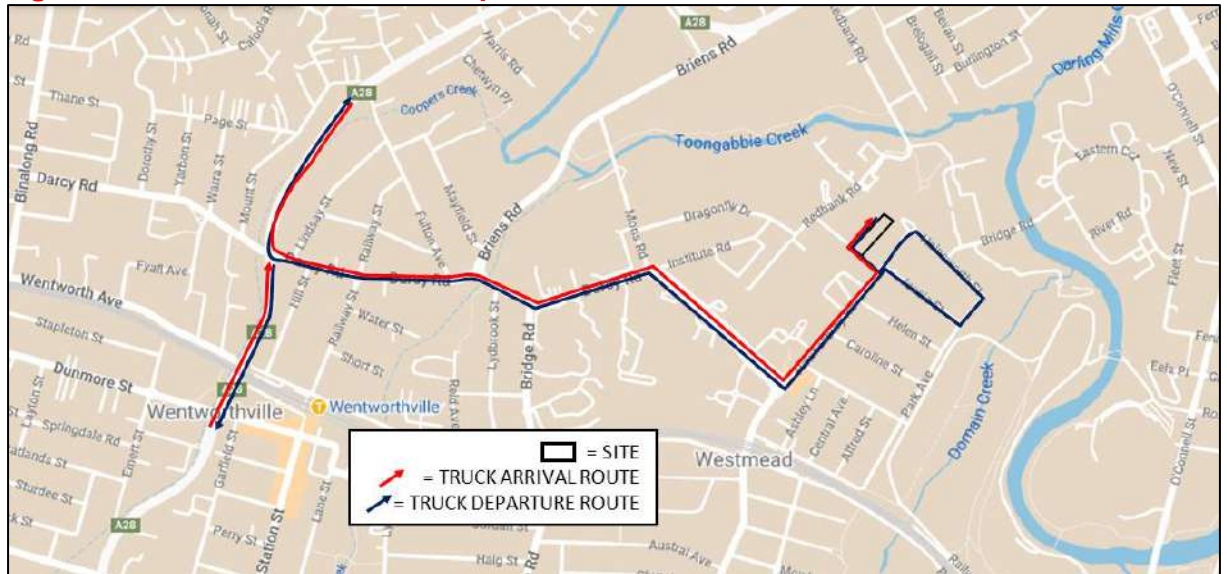
Dedicated construction vehicle routes (including vehicles associated with spoil removal, material delivery and machine floatage) have been developed with the aim of providing the shortest distances to/from the arterial road network while minimising the impact of construction traffic on streets within the vicinity of the site, as well as avoiding the major construction routes and works zones of the PLR, Sydney Metro and PCB project towards the north and east.

The selected truck haulage routes will have regard for the above construction traffic that is largely concentrated within Darcy Road and Hawkesbury Road, such that their travel directions minimise any possible overlap with other trucks to avoid any further implications during peak periods.

As such, the dedicated construction vehicle routes will use Hawkesbury Road as much as possible, with access to/from Cumberland Highway and Darcy Road, as illustrated in [Figure 4.2](#).



Figure 4.2: Truck arrival and departure routes



Construction vehicle movements will be limited during peak periods, AM (7 am-9.30 am) and PM (4 pm-6.30 pm), to reduce impacts on any bus operations and traffic flow, when possible.

Truck drivers will be advised of the designated truck routes to/ from the site. No queuing or marshalling of trucks will be permitted on public roads in the vicinity of the site.

Accredited traffic controllers will ensure they are in radio contact with truck drivers, thus ensuring each vehicle's arrival is anticipated and planned. Such a process will be important in managing truck activity to ensure access to the construction site is available at all times and to remove any likelihood of construction vehicles queuing and waiting along Hawkesbury Road and Research Lane to enter the site, causing delays on surrounding roads.

4.4 Driver Code of Conduct

Impacts of Construction

KANE is committed to protecting the environment and preventing air, water and noise pollution. The operators of all construction-related vehicles are subject to environmental regulations relating to vehicle emission and product spill and to minimise the impacts of earthworks and construction on the local and regional road network.

KANE also understands and appreciates the seriousness of polluting the environment and the consequences of this any carelessness or neglect of



responsibilities may cause personal injury, loss of life, property damage, substantial fines, and adverse publicity for the company.

All drivers of vehicles transporting loose materials will be required to ensure the entire load is covered using a tarpaulin or similar impervious material. The vehicle driver will need to take all precautions to prevent any excess dust or dirt particles from depositing onto the roadway during travel to and from the site.

The respective trades will be inducted by the head contractor into the above procedures and will monitor all trucks exiting the site to ensure the procedures are met.

Kane will be required to monitor the roadways leading to and from the site on a daily basis and take all necessary steps to rectify any adversely impacted road deposits caused by site vehicles. The roads will also be cleaned on a regular basis to minimise dirt particles deposited externally from the site. Such cleaning will occur in the evenings outside of the peak traffic period.

Conflicts with Other Road Users

The road is there to share and therefore, it is KANE's requirement that the heavy vehicle operators display courtesy and restraint towards other road users to minimise conflicts with other road users.

Public roads and access points will not be obstructed by any materials, vehicles, refuse skips or the like under any circumstances. All deliveries and works will be carried out within the site at the designated Construction Zones. If there is a requirement to operate any material handling machinery on public access roads, Kane will be required to seek separate Council/Police/TfNSW/Sydney Buses approval prior to the event.

Road Traffic Noise

Generating excessive noise is governed by legislation and is an offence. Heavy trucks generate a higher level of noise than light vehicles. The amenity of surrounding road users/residents is to be maintained as far as practical during the construction process. Vehicles traveling to, from and within the site shall not create unreasonable or unnecessary noise or vibration to minimise interference to adjoining building operations. No tracked vehicles will be permitted or required on any paved roads. All heavy vehicle operators are required to adhere to the following during the course of their duty:



Transport Strategies

- If possible, minimise road traffic noise by not using engine brakes near residences and built-up areas.
- All vehicles must be fitted with audible reversing alarms. These are essential for the safety of all personnel. Reversing alarms are, however, the source of potential noise complaints from neighbouring residents, so all drivers should be aware of this and try to minimise reversing when possible.
- Avoid loading and unloading of materials/deliveries outside of daytime hours.
- Compounds and work areas should be designed as one-way to minimise the need for vehicles (up to 18.1m truck and dog trailers) to reverse.
- Trucks should not idle near residential receivers.
- Stationary sources of noise, such as generators, should be located away from sensitive receivers.
- Project personnel, including relevant sub-contractors, to acquaint themselves with noise and vibration requirements and the location of sensitive receivers during inductions and toolbox talks.
- Delivery vehicles should be fitted with straps rather than chains for unloading, wherever possible.
- Truck drivers should avoid compression braking as far as practicable.
- Where night-time works are required, trucks should use broadband reversing alarms.

Specified Routes

All trucks must enter and exit the works via the site gates. The preferred routes for access to and from the site are provided in Section 5.4.

Where possible, you should always:

- Use main roads,
- Use bypasses,
- Avoid communal areas, schools, e.g. (particularly during school start and finish times), parks, etc.

The heavy vehicle operators must stick to the defined routes unless there are exceptional circumstances. Such exceptional circumstances may be:

- Normal route blocked, e.g., flooded,
- A revised route agreed in writing.

Trucks and heavy vehicles must not use local residential streets.



4.5 Construction Vehicle Types

It is anticipated that the construction works will involve the following heavy vehicle types:

Type	Purpose	Length
Medium rigid vehicles (MRV), including concrete trucks, concrete pump and single bogie	Construction material delivery	8.8m
Small rigid vehicles (SRV)		6.4m
Bin trucks	Waste collection	8.8m
Mobile cranes/ Crawler Crane	Material handling/façade installation	8.8m
Small utility vehicle/Van	Tradesperson	5.2m

4.6 Number of Construction Vehicles

The construction vehicle estimates during the construction activities would be:

- Average daily truck: 8
- Maximum daily truck: 15

The traffic movement activities associated with the proposed construction will be significantly less than the proposed developments when operational.

4.7 Site Hoarding

Kane is responsible for protecting the construction site with A-Class hoarding and a restricted pedestrian access gate. All the construction works are contained within the site boundary. A silt fence will also be installed along the site perimeter prior to the site fence. Safety for passing traffic and pedestrians will be maintained at all times.

4.8 Contact Person

Kane's contact person, which will be assigned to liaise with all the stakeholders and have authority without reference to other persons to comply with instructions issued by the Council's Traffic Engineer, would be:

Emilio Ayoub
Project Engineer
Email: edayoub@kane.com.au
Mobile: 0404 641 333



4.9 Site Induction and Occupational Health and Safety

All workers and visitors employed on the site by the appointed contractor (including sub-contractors) will be required to undergo a formal 'site induction' process, and all the inductions will be performed specifically to each trade according to the occupational health and safety requirements of the New South Wales Work Cover Authority requirements.

The induction will include details of approved access routes to and from the construction site for site staff and delivery vehicles, parking arrangements, and standard environmental, WHS, driver protocols and emergency procedures. The agreed work hours must be included as part of this induction.

4.10 Traffic Guidance Scheme

The Traffic Guidance Scheme (TGS) presents the principles of traffic management, with detailed information for worksite operations contained in the Traffic Control at Work Sites Technical Manual Version 6.1, dated February 2022 (including November 2022 Amendments). The control of traffic at work sites must be undertaken with reference to WorkCover requirements and Kane's Constructions Workplace Health and Safety Manuals.

The TGSs, in accordance with Australian Standards 1742.3 attached in Appendix G.

4.11 Oversized Vehicles

No oversized or over-massed vehicles will be required for the construction works. If an oversized or over massed vehicle is needed, a separate application would be submitted to Council and Transport for NSW.

4.12 Road Serviceability

Kane will be responsible for monitoring and ensuring that the road and footpath along Research Lane and Hawkesbury Road will remain in a serviceable state during the course of the construction. Under the direction of the Council, Kane will restore any roadside facilities affected by the construction works, footpaths, road pavement, etc., to the Council's satisfaction, at no cost to Council.

4.13 Public Notification

Kane will prepare notification letters, under the approval of Council, that would be dropped and emailed to adjoining property owners to advise of the timeframes for completion of each phase of the development/construction process.



5.0 Impacts

5.1 Impact of Construction Traffic

Truck volumes would be in the order of up to 15 vehicles (30 movements) per day, which would occur outside of peak traffic periods - AM (7.00 am-9.30 am) and PM (2.30 pm-5.30pm), when possible to minimise traffic (pedestrian, bus and traffic flows) impacts and associated road network delays.

Construction truck drivers will be reminded that there should be no idling on and the use of Research Lane and Hawkesbury Road as a TMA.

With the above measures, it is not expected that this level of traffic movement would create any adverse impact on the surrounding road network.

5.2 Impact on Parking

There will be no loss of on-street parking associated with the construction activities. Given that all workers will be encouraged to use public transport, the proposed construction activities are not anticipated to have an adverse impact on the off-street parking in the Precinct.

5.3 Impact on Public Transport Services

While the truck route will overlap with the bus routes during the construction period, it is not expected that traffic generation of no more than 15 trucks per day would be adverse to the efficiency of the existing bus services.

5.4 Impact on Pedestrians/Cyclists

During construction, pedestrian/cyclist movements along Hawkesbury Road and Research Lane will be maintained at all times.

A-Class hoarding would be erected around the perimeter of the construction area. Trained personnel will be made available as needed during construction hours to manage construction vehicle entry and exit and pedestrian/cyclist movements at the site access, noting that pedestrian priority would be given.

Notwithstanding, all construction-related traffic movements in and out of the site will occur under the supervision of trained on-site personnel.

To minimise disruption to pedestrian/cyclist movements, it is advised that



truck movements are managed, wherever possible, to occur outside of peak pedestrian/traffic periods.

5.5 Impact on Traffic Movements in Adjoining Council Areas

No adverse effects are expected from the movement of heavy vehicles through adjacent council areas.

5.6 Impact on Emergency Vehicle Access

Access to the site and neighbouring sites by emergency vehicles would not be affected by the proposed construction zones, which are within the bounds of the construction site. Emergency protocols on the site would indicate a requirement for the traffic controller to assist with emergency access from Hawkesbury Road and Research Lane.

All truck movements to the site construction zone and the incident point would be suspended and cleared. Consequently, any potential impacts on emergency access would be effectively managed throughout the works.

The liaison would be maintained with the police and emergency services agencies throughout the construction period, and a 24-hour contact would be made available for 'out-of-hours' emergencies and access. Thus, there would be no adverse impacts on the provision of existing emergency vehicle access to the site or other neighbouring properties as a result of the proposed construction activities.

5.7 Impact on Neighbouring Properties

Access to neighbouring properties will be maintained at all times. Workers/subcontractors will be directed not to park their vehicles in the driveways of the neighbouring properties.

This will be incorporated into the site induction program. KANE would take appropriate action if informed of this activity occurring.



Transport Strategies

Appendix A

Existing Train Services

Sydney rail network



M Metro **T** Trains



Sydney metro and train lines



Metro North West Line
Chatswood
Tallawong



T1 North Shore & Western Line
North Shore
Western
Richmond



T2 Inner West & Leppington Line
Inner West
Leppington
City



T3 Bankstown Line
Liverpool
Lidcombe
City



T4 Eastern Suburbs & Illawarra Line
Eastern Suburbs
Illawarra
Cronulla



T5 Cumberland Line
Leppington
Richmond



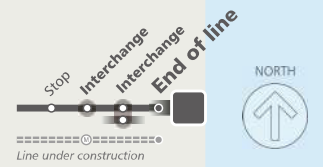
T7 Olympic Park Line
Olympic Park
Lidcombe



T8 Airport & South Line
Airport
South
City



T9 Northern Line
Northern
Gordon



Check timetables and trip planners for train services and connections

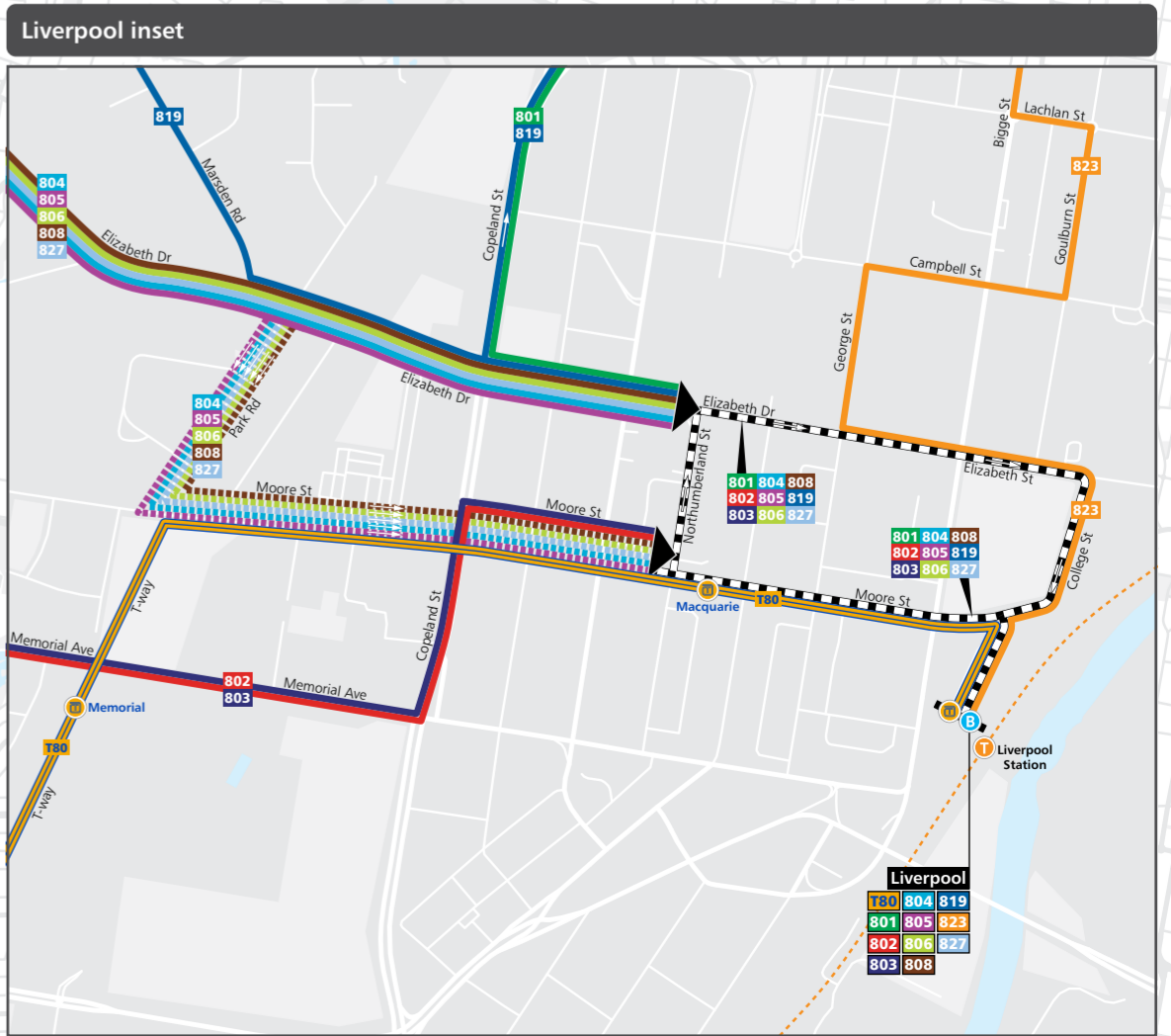
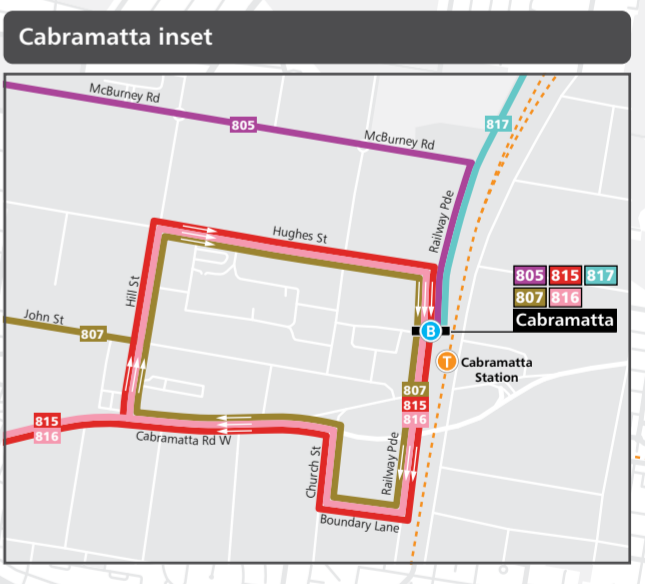
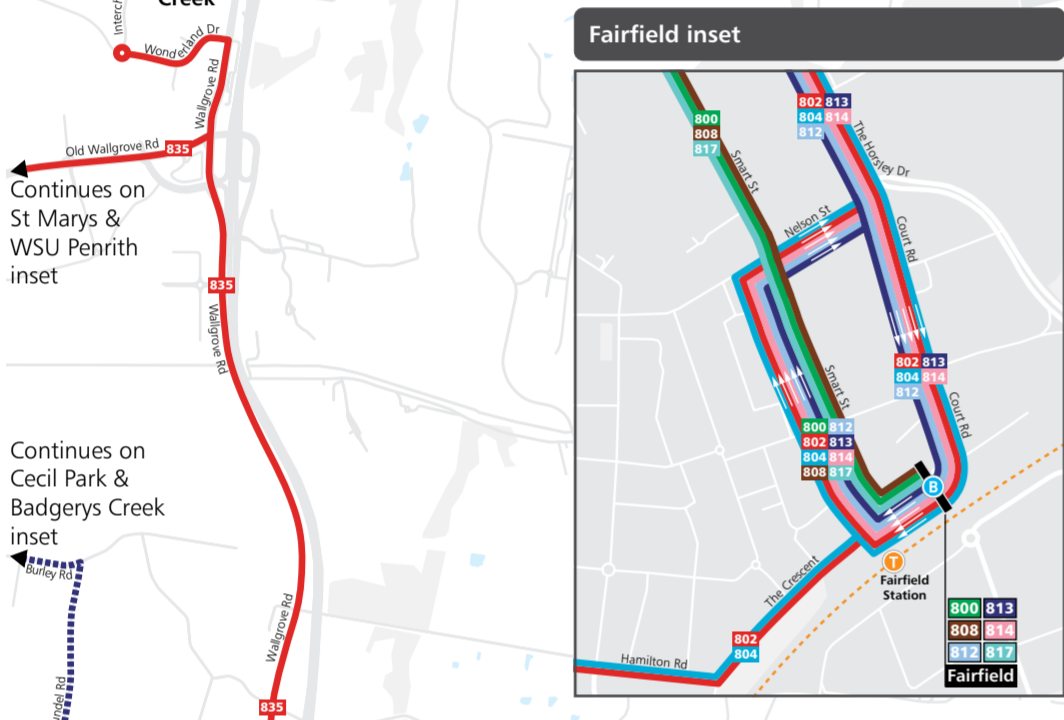
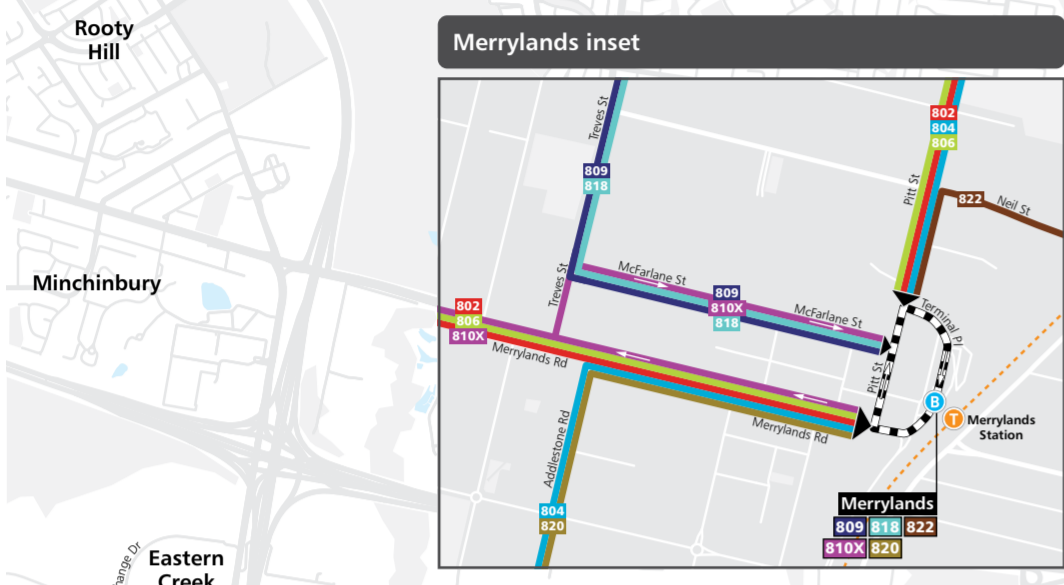
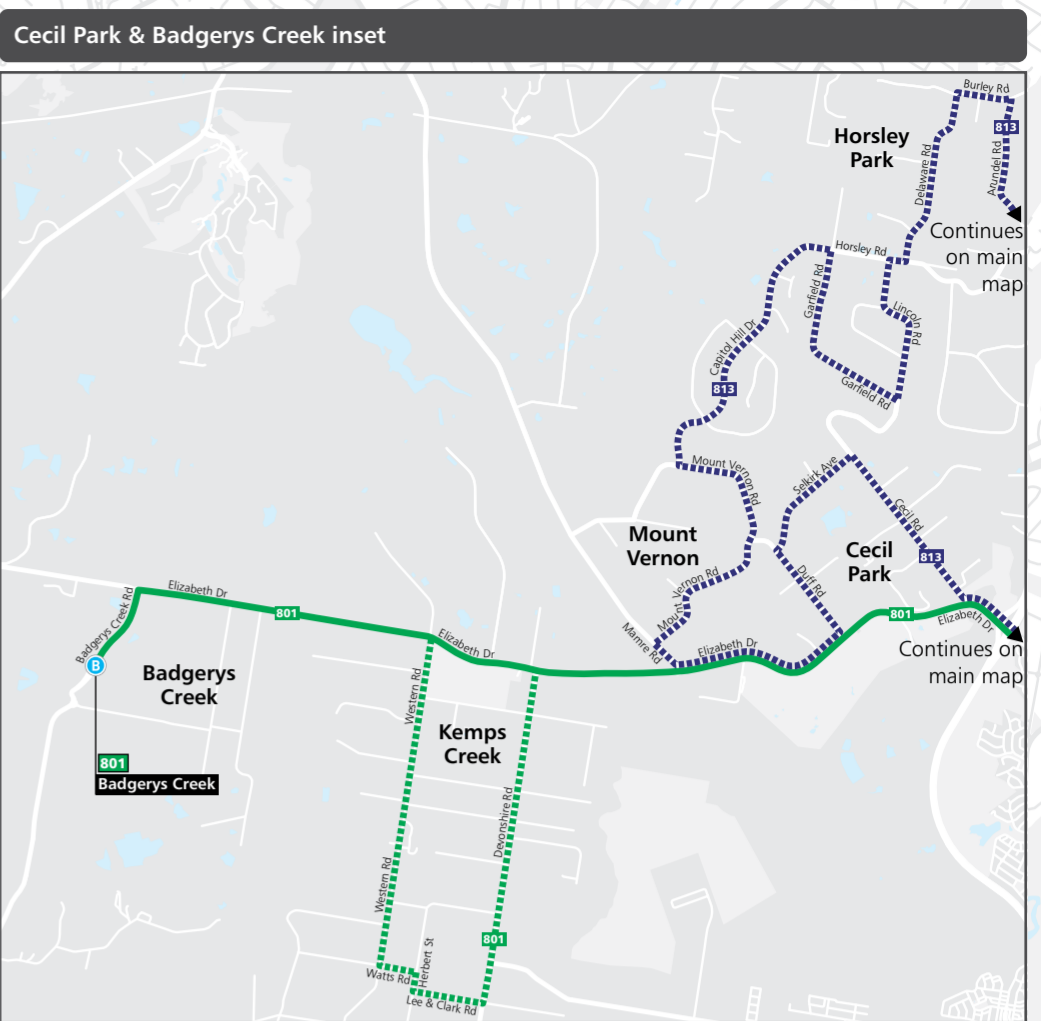
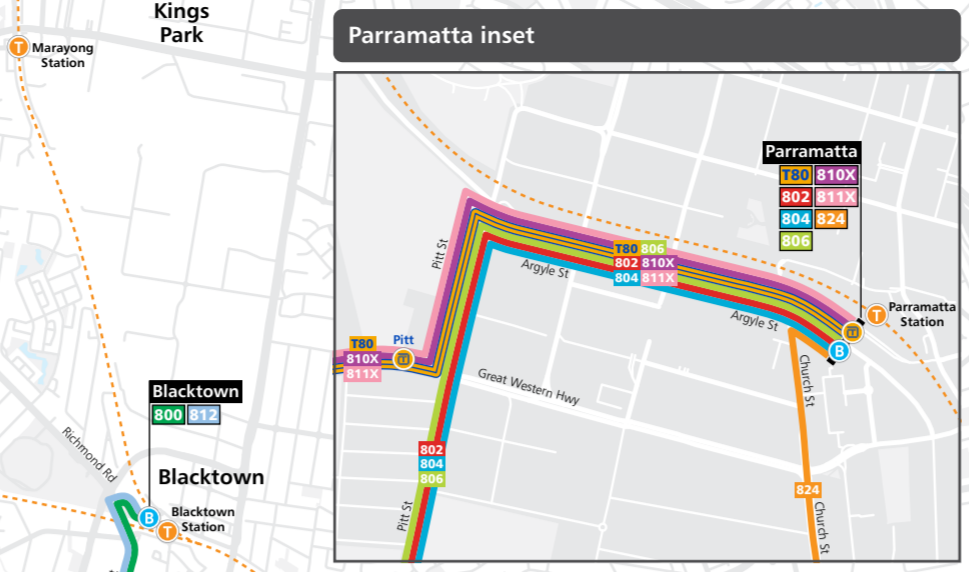
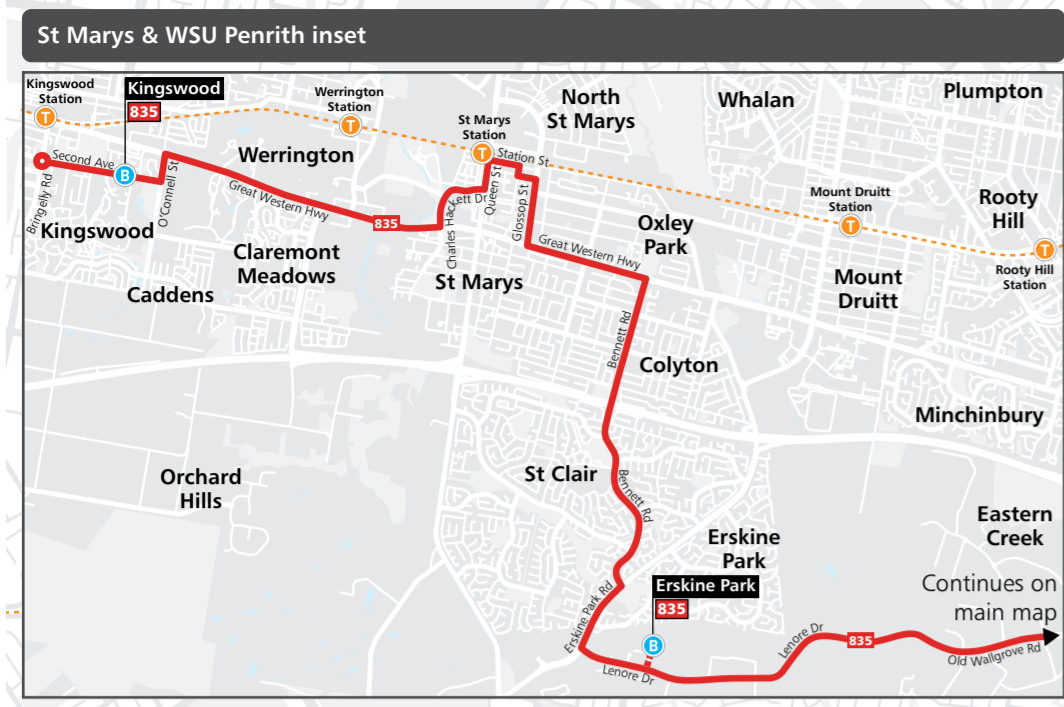
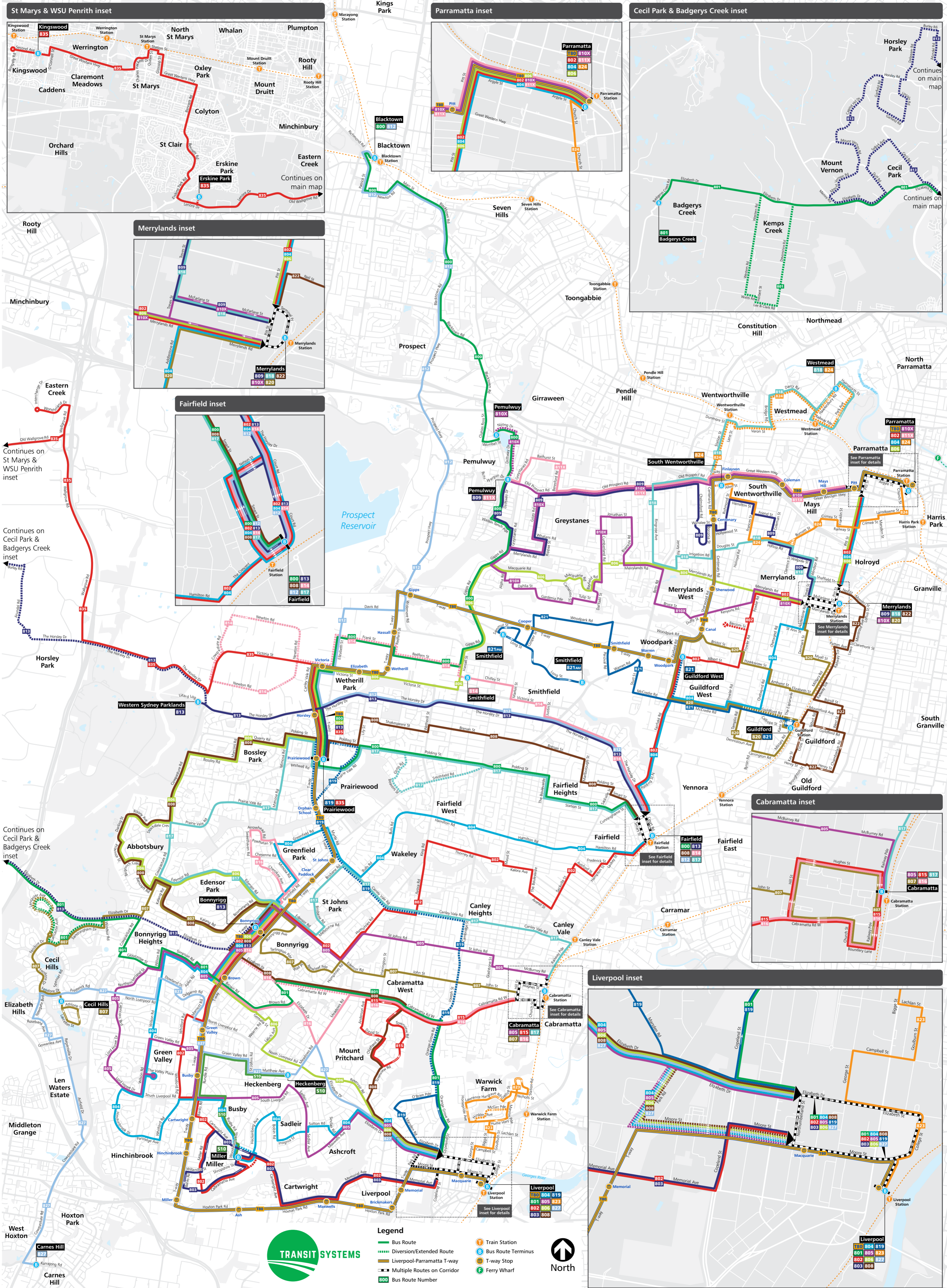
Visit transportnsw.info



Transport Strategies

Appendix B

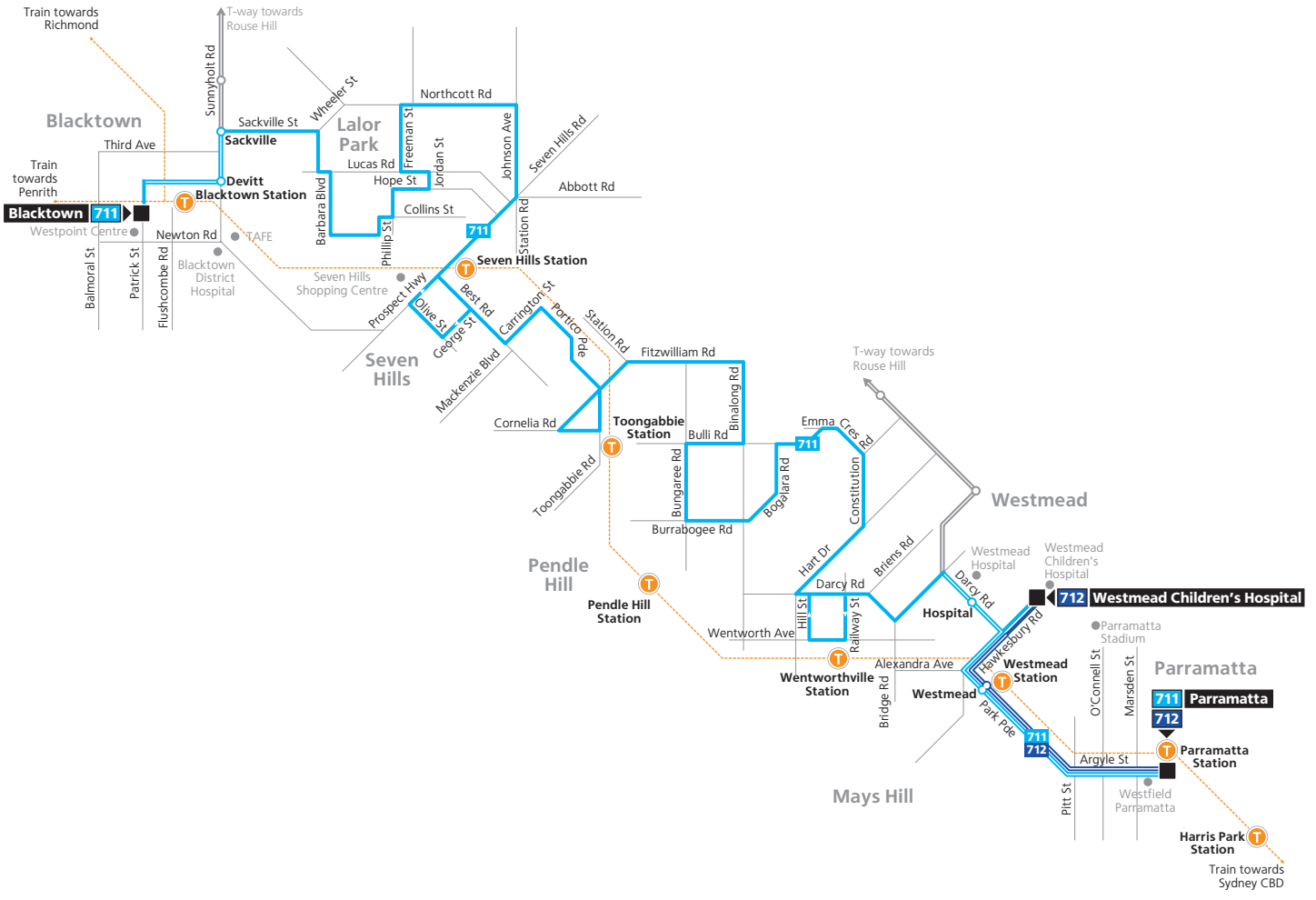
Existing Bus Services



- Legend**
- Bus Route
 - - - Diversion/Extended Route
 - Liverpool-Parramatta T-way
 - Multiple Routes on Corridor
 - 800 Bus Route Number
 - T Train Station
 - B Bus Route Terminus
 - T T-way Stop
 - F Ferry Wharf



Routes 711, 712



Legend

- Bus route
- Bus route start/finish
- T-way/stop near route
- 711 Bus route number
- T Train line/station

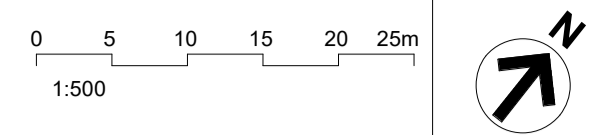
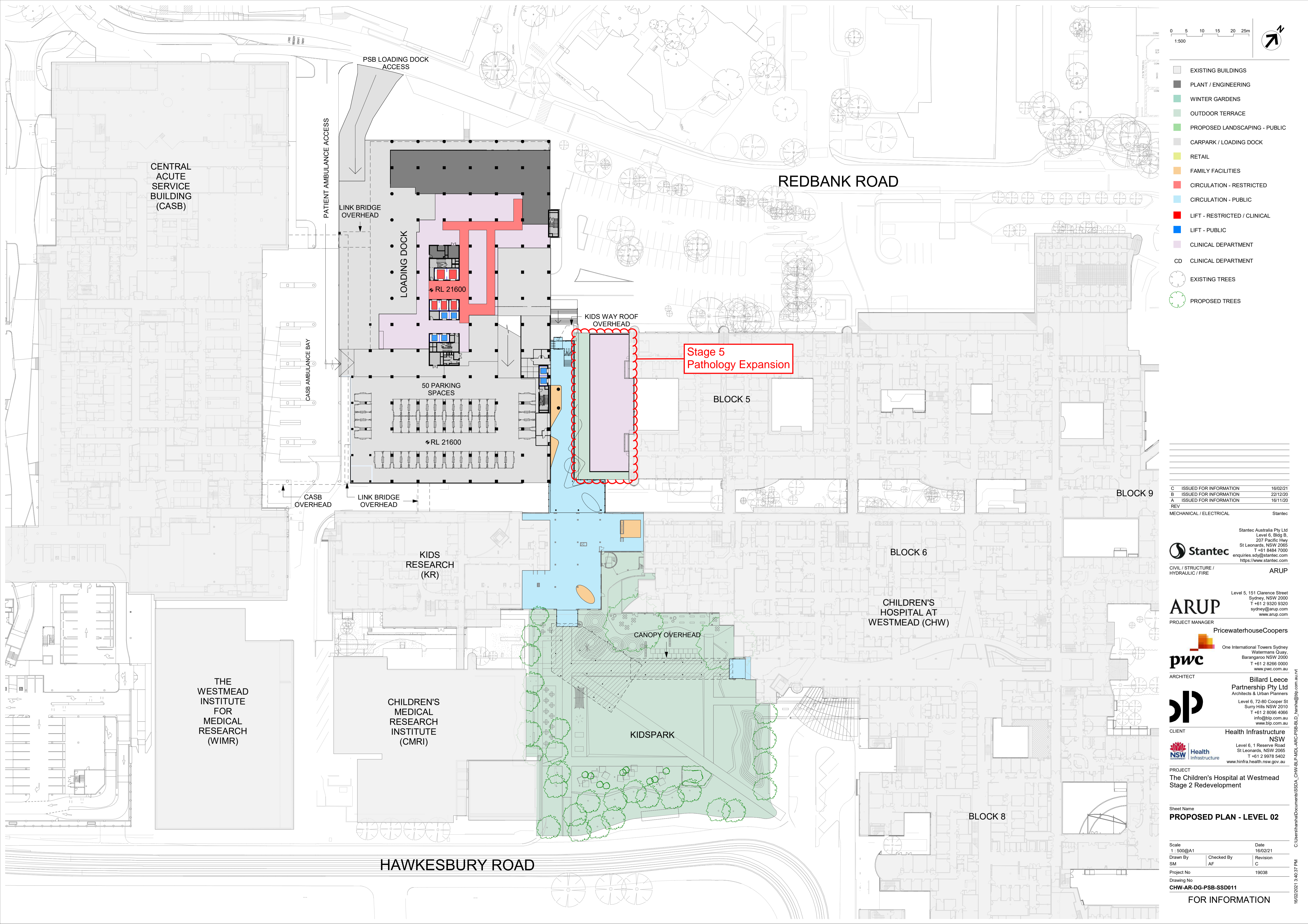
Diagrammatic Map
Not to Scale



Transport Strategies

Appendix C

Approved Architectural Plans



- EXISTING BUILDINGS
- PLANT / ENGINEERING
- WINTER GARDENS
- OUTDOOR TERRACE
- PROPOSED LANDSCAPING - PUBLIC
- CARPARK / LOADING DOCK
- RETAIL
- FAMILY FACILITIES
- CIRCULATION - RESTRICTED
- CIRCULATION - PUBLIC
- LIFT - RESTRICTED / CLINICAL
- LIFT - PUBLIC
- CLINICAL DEPARTMENT
- CD CLINICAL DEPARTMENT
- EXISTING TREES
- PROPOSED TREES

C	ISSUED FOR INFORMATION	16/02/21
B	ISSUED FOR INFORMATION	22/12/20
A	ISSUED FOR INFORMATION	16/11/20
REV		
MECHANICAL / ELECTRICAL		Stantec

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Health Infrastructure
 PROJECT

The Children's Hospital at Westmead
 Stage 2 Redevelopment

Sheet Name
PROPOSED PLAN - LEVEL 02

Scale	1 : 500@A1	Date	16/02/21
Drawn By	SM	Checked By	AF
Project No	19038	Revision	C
Drawing No	CHW-AR-DG-PSB-SSD011		

FOR INFORMATION

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EA EB EC ED EE EF EG

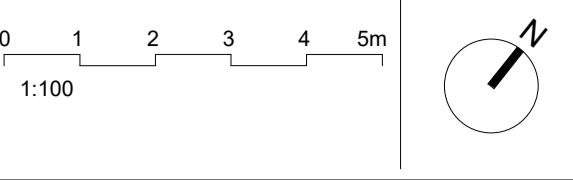
DEMOLITION BY PSB CONTRACTOR

PATHOLOGY EXPANSION

OUT OF SCOPE

DEMOLITION BY REFRUB CONTRACTOR

CSRA AND BLOOD BANK



KEY:

- WALLS/DOORS TO BE DEMOLISHED
- EXISTING TO BE RETAINED
- PRESUMED EXISTING FIRE RATED WALL BASED ON ENGINEER'S DESKTOP STUDY 29/11/21 & 01/12/21 - CONTRACTORS TO VERIFY ON SITE

NOTE:
COMPLIANCE IS REQUIRED FOR ALL FIRE WALLS BOTH NEW AND EXISTING. EXISTING CONSTRUCTION AND SERVICE PENETRATIONS WILL BE REQUIRED TO BE INSPECTED TO DETERMINE COMPLIANCE. WHERE EXISTING WALLS ARE DEFICIENT, WALLS WILL BE REQUIRED TO BE UPGRADED TO ENSURE ADEQUATE FIRE (SMOKE) SEPARATION.

REV	DESCRIPTION	DATE
G	ISSUED FOR TENDER	08/04/22
F	ISSUED FOR TENDER	25/03/22
E	ISSUED FOR TENDER	18/02/22
D	ISSUED FOR TENDER - DRAFT	17/12/21
C	FOR INFORMATION	24/11/21
B	FOR INFORMATION	19/11/21
A	FOR INFORMATION	08/11/21

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PROJECT
The Childrens Hospital at Westmead
Redevelopment - Stage 2

Sheet Name
**PLAN - DEMOLITION - LEVEL 02
- PATHOLOGY EXPANSION -
STAGE 01**

Scale
1 : 100@A1

Date
08/04/22

Drawn By
FN

Checked By
AL/AG

Revision
G

Project No
19038

Drawing No
CHW-AR-DG-RFB-09-02601

FOR TENDER

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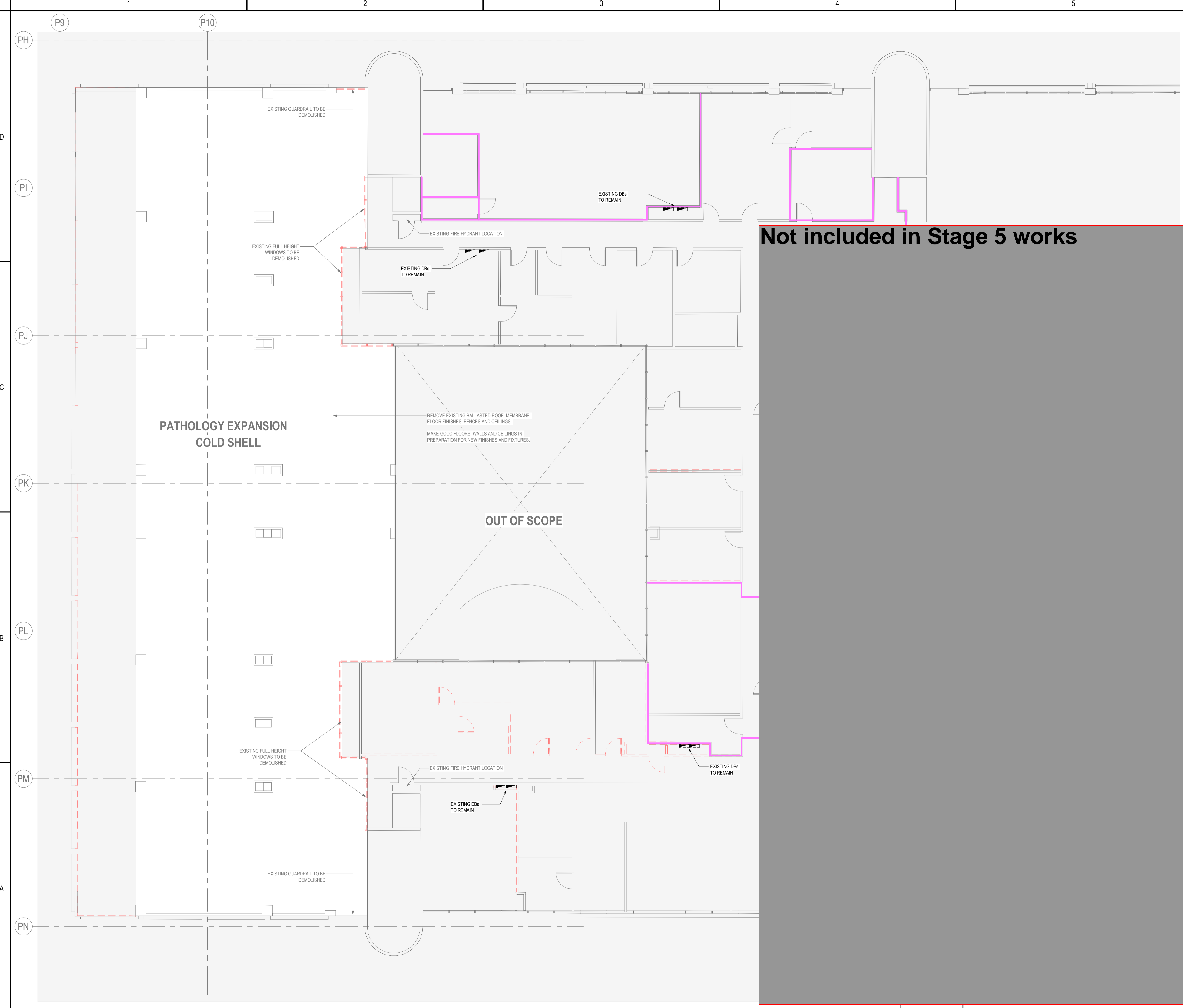
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Not included in Stage 5 works



**PATHOLOGY EXPANSION
COLD SHELL**

OUT OF SCOPE

B	ISSUED FOR TENDER	ST	AW	2022.02.18
A	ISSUED FOR TENDER - DRAFT	ST	AW	2022.02.04
	Issued/Revision	By	Appd	YYYYMM.DD

File Name:	N/A	Author:		Designer:		Checker:		12/06/21
		Dwn.		Dgn.		Chkd.		YYYYMM.DD

Issue Status
TENDER
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Client/Project
HEALTH INFRASTRUCTURE NSW

THE CHILDREN'S HOSPITAL WESTMEAD STAGE 2 REDEVELOPMENT
 HAWKESBURY RD, WESTMEAD, NSW 2145

Title
**DEMOLITION PLAN - LEVEL 02 -
PATHOLOGY EXPANSION**

Project No.	301344311	Scale	1 : 100
Revision	B	Drawing No.	CHW-STN-EL-DG-RFB-10-0210

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DEMOLITION NOTES

- MECHANICAL CONTRACTOR TO DECOMMISSION, MAKE SAFE AND REMOVE FROM SITE:
 - FANS AS NOTED ON THE DRAWINGS
 - AIR CONDITIONING EQUIPMENT INCLUDING FAN COIL UNITS AND AHUS AS NOTED ON THE DRAWINGS
 - AIR CONDITIONING EQUIPMENT INCLUDING REFRIGERANT SYSTEMS. ALL REFRIGERANT GAS TO BE SAFELY REMOVED FROM SITE AND DISPOSE IN ACCORDANCE WITH ENVIRONMENTAL REQUIREMENTS.
 - POWER AND CONTROLS CABELING TO MECHANICAL EQUIPMENT
 - CONDENSATE DRAINAGE FROM MECHANICAL EQUIPMENT INCLUDING DRIP TRAYS AND PIPEWORK TO TUNDRISH
 - TEMPERATURE AND HUMIDITY SENSORS UNLESS NOTED OTHERWISE
 - DUCTWORK FOR SUPPLY, EXHAUST AND OUTSIDE AIR SYSTEMS. LIST IS NOT EXHAUSTIVE. CONTRACTOR TO CONFIRM BY WAY OF DETAILED SURVEY.
- LOCATION OF EXISTING SERVICES ARE APPROXIMATE. THE EXACT LOCATIONS AND EXTENT IF EXISTING EQUIPMENT SHALL BE VERIFIED ON SITE BY THE MECHANICAL CONTRACTOR PRIOR WORKS COMMENCING.
- EXISTING REFURBISHMENT WORKS HAVE BEEN LIMITED TO SITE INVESTIGATIONS RESTRICTED BY CEILING AND DEPARTMENTAL ACCESS AS WELL AS LIMITED AVAILABILITY OF EXISTING AS BUILT DOCUMENTATION. FURTHER INVESTIGATION REQUIRED IN DETAIL DESIGN TO CONFIRM SCOPE.
- CONTRACTOR TO CONFIRM EXISTING FIRE AND SMOKE DAMPER INSTALLATION AND CONDITION. ALLOW TO REPLACE IF DAMPERS ARE INOPERABLE.
- CEILINGS, WALLS AND FLOOR FINISHES ARE TO BE MADE GOOD AFTER WORKS COMPLETION IN OUTSIDE OF SCOPE AREAS

MINIMISATION OF DISTURBANCE
 THE CONTRACTOR SHALL MINIMISE DOWNTIME BY COORDINATING THE TIME OF THE DEMOLITION WORKS WITH THE HOSPITAL SERVICE DEPARTMENT. WORK METHOD STATEMENT TO BE PROVIDED FOR SIGN OFF BY CLIENT (BUILDER) AND HOSPITAL PRIOR TO COMMENCING DEMOLITION.

Rev	Description	Author	Design	Check	Date
C	TENDER ADDENDUM	JHE	EAG		2022.05.20
B	ISSUED FOR TENDER	NDOU	EAG		2022.02.18
A	ISSUED FOR TENDER - DRAFT	NDOU	EAG		2022.02.04
Issued/Revision		By	Appd		YYYY.MM.DD

File Name	Author	Designer	Checker	Date
N/A	Dwn.	Dgn.	Chk.	12/02/21
				YYYY.MM.DD

Issue Status

TENDER

NOT FOR CONSTRUCTION

This document is suitable only for the purpose noted above. Use of this document for any other purpose is not permitted.

Client/Project Logo

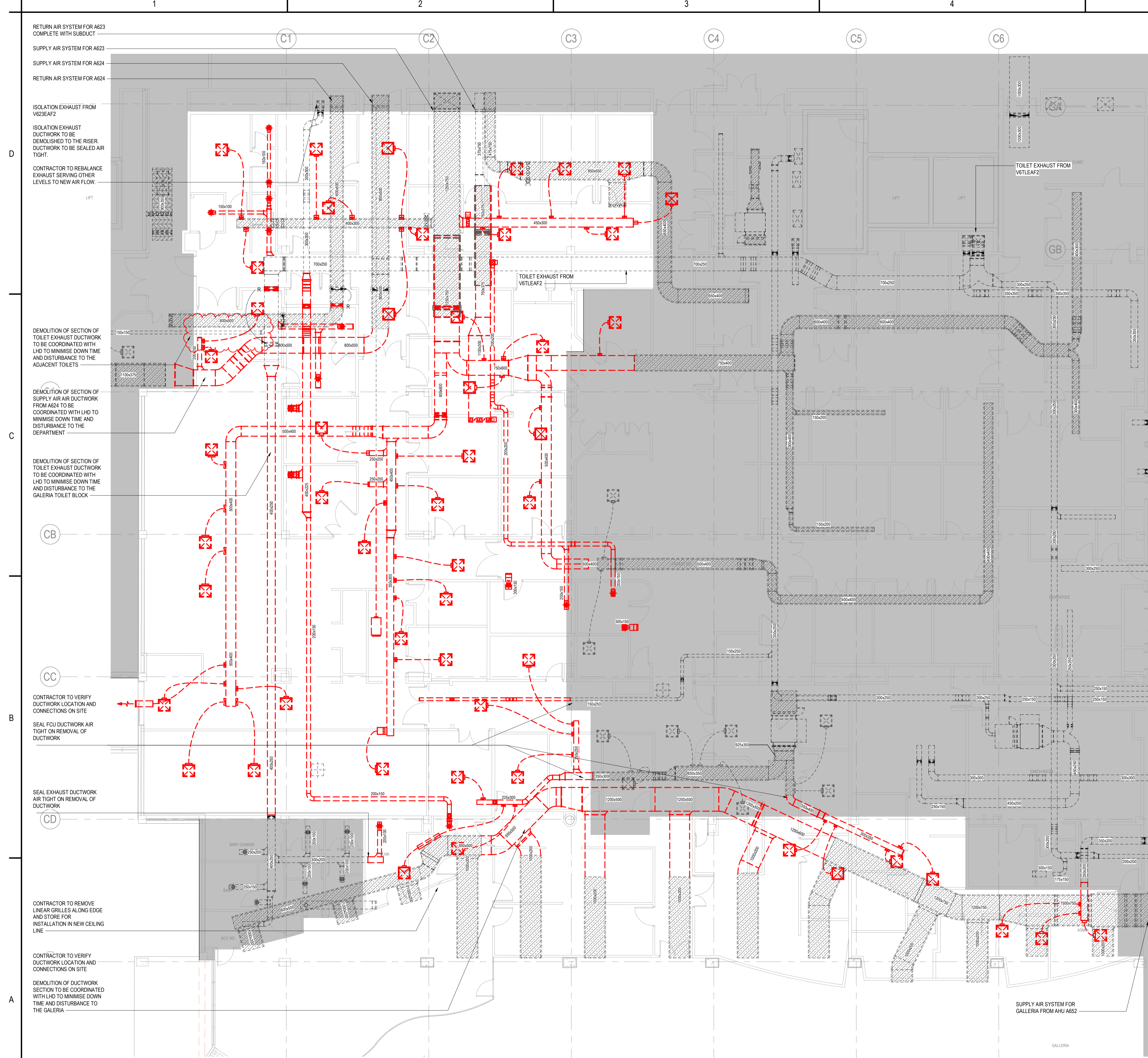


Client/Project
 HEALTH INFRASTRUCTURE NSW

THE CHILDREN'S HOSPITAL WESTMEAD STAGE 2 REDEVELOPMENT
 HAWKESBURY RD, WESTMEAD, NSW 2145

Title
 LEVEL 02 DEMOLITION - CRC & PATHOLOGY COLLECTIONS

Project No.	Scale
301344311	1 : 100
Revision	Drawing No.
C	CHW-STN-ME-DG-RFB-10-0201



EXISTING LINEAR GRILLE SERVING THE GALLERIA TO BE DEMOLISHED AND STORED ON SITE FOR INSTALLATION IN NEW CEILING LINE

Not included in Stage 5 works

D

C

B

A

P9

P10

PI

PJ

PK

PL

PM

PN

SA DU

AHU #

EXIST

SENS

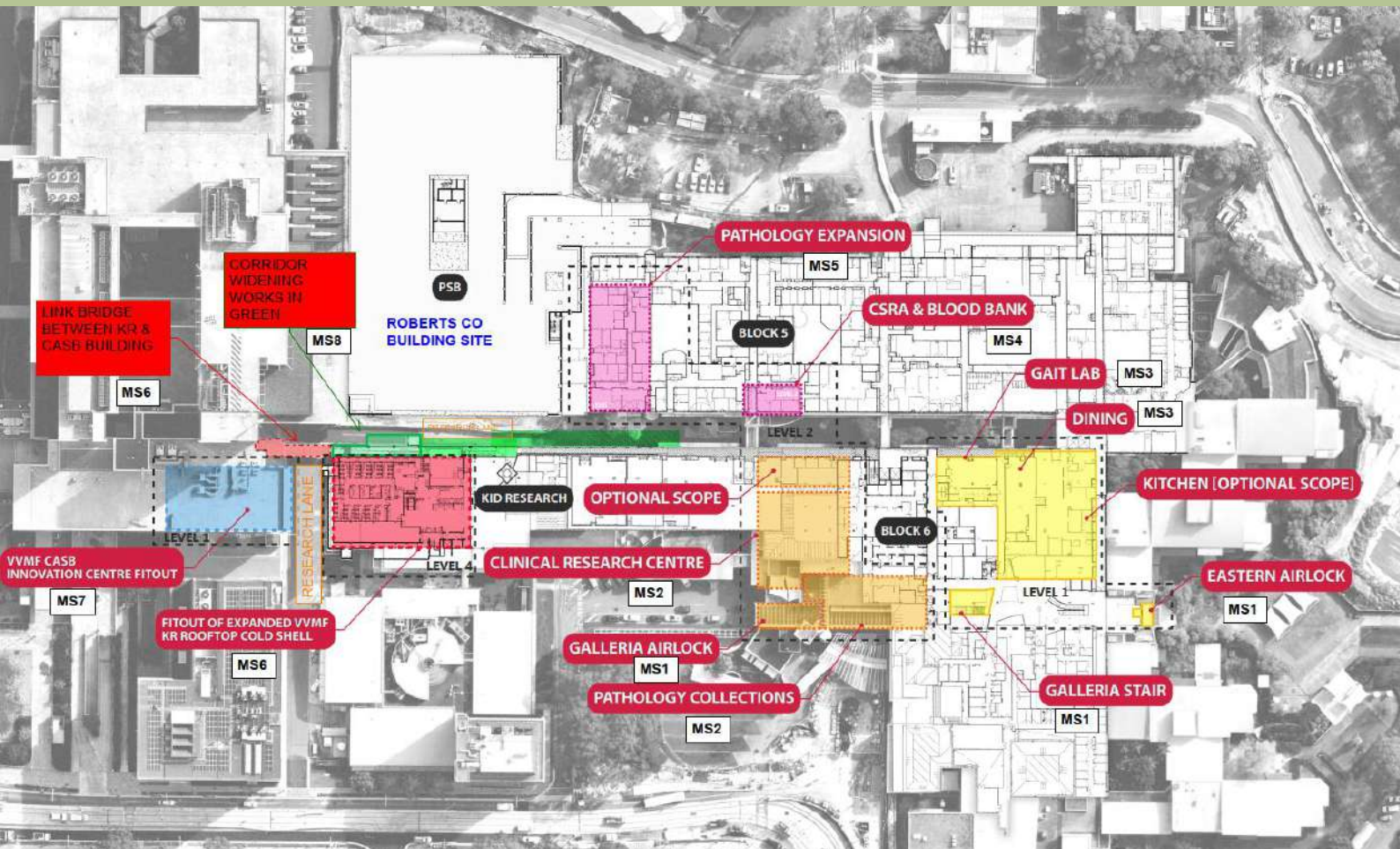


Transport Strategies

**Appendix D
Construction
Transportation Strategy**

Workers

The Children's Hospital at Westmead Stage 2 and ViralVector Manufacturing Facility – Refurbishment Works Construction Workers Transport Strategy



Client Name: Kane Constructions
Reference: 23030
Issue: A



Contents

1.0 INTRODUCTION	4
2.0 STRATEGIES	5
2.1 Public Transport Strategies	5
2.2 Off-Street Public Parking	7
2.3 Future Parramatta Light Rail	8

APPENDICES

- Appendix A – Rail Services
- Appendix B – Bus Services



Document Control

Reference	23030	
Issue	Final A	04/09/2023
Client Name	Kane Constructions	

Revision Register

Issue	Date	Description	Prepared By	Signed
Draft A	18/02/2023	Draft CWTS	M.R, Q.A	M.K
Final A	04/09/2023	Final CWTS	M.R, Q.A	M.K



1.0 Introduction

A Stage Significant Development Application (SSD-10349252) has been approved by Health Administration Corporation for The Children's Hospital at Westmead Stage 2 and Viral Vector Manufacturing Facility – Refurbishment Works.

This strategy has been prepared in satisfaction of Consent Condition no. B23 for submission of a Construction Worker Transportation Strategy as part of the Construction Certificate documentation as follows:

B23. Prior to the commencement of construction, the Applicant must submit a Construction Worker Transportation Strategy to the Certifier. The Strategy must detail the provision of sufficient parking facilities or other travel arrangements for construction workers in order to minimise demand for parking in nearby public and residential streets or public parking facilities. A copy of the strategy must be provided to the Planning Secretary for information.



2.0 Strategies

No construction worker parking will be established within the site. The workers will be instructed not to utilise the hospital's staff parking areas. Facilities will be provided within the site to store tools to reduce the need to bring vehicles to site each day to carry their tools. The strategies will be communicated to construction workers during tender interviews, site inductions and regular toolbox talks, ensuring construction workers are aware of the construction worker transportation strategy.

2.1 Public Transport Strategies

Train

The closest railway station to the site is Westmead Train Station, which is 1km (about a 12-minute walk) to the south of the site. Westmead Station is serviced by the T1 North Shore, Northern and Western Line, T5 Cumberland Line and Blue Mountains Line.

Services along the T1 and T5 lines operate every 5 to 10 minutes, with express services to the Sydney CBD (from Parramatta Station). It interchanges with the T9 Northern Line at Strathfield, the T7 Olympic Park Line and the T3 Bankstown Line at Lidcombe and the T2 Inner West and Leppington line at Parramatta, Lidcombe or Strathfield.

The T5 Cumberland Line interchanges with the T1 Western and T2 Inner West and Leppington lines at Parramatta, the T3 Bankstown Line at Cabramatta and Liverpool, and the T8 Airport and South Line at Glenfield. Services on the Blue Mountains Line operate every 30 minutes.

Details of the existing train services are provided in Appendix A.

Bus

The nearest bus stop to/from the site is located on Hawkesbury Road north of Jessie Street and is within a 2-minute (150-metre) walk of the site. The stop is serviced by the following bus routes:

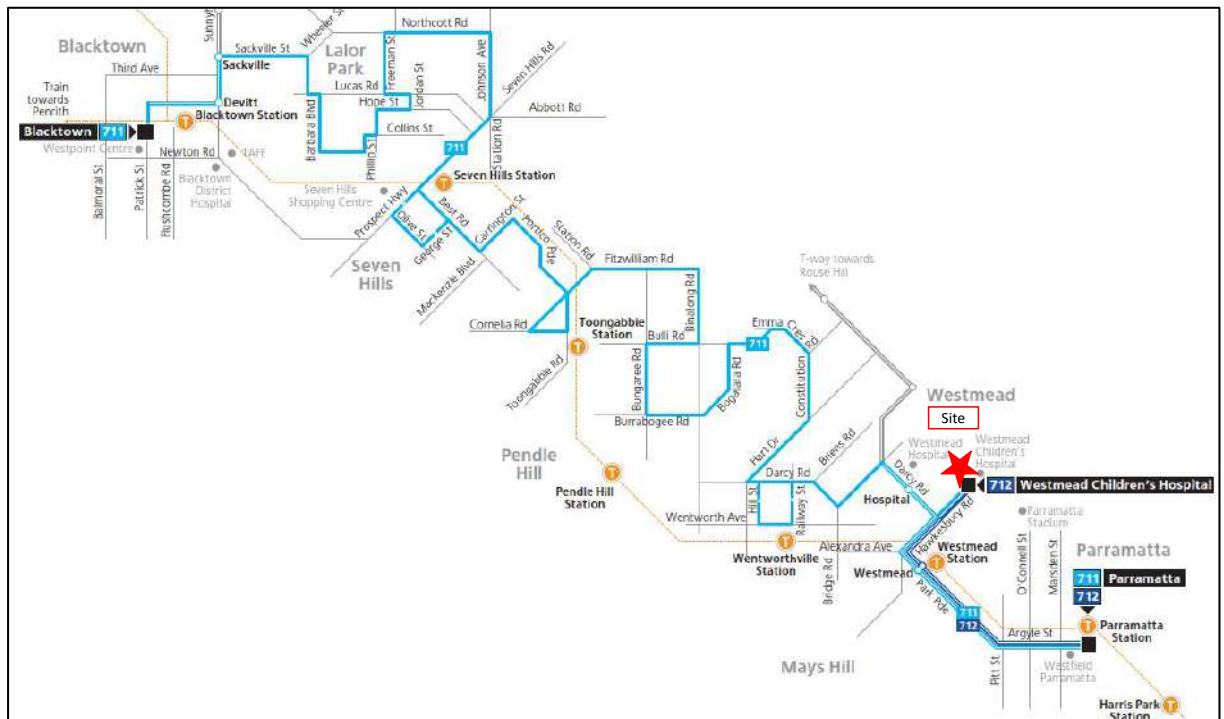
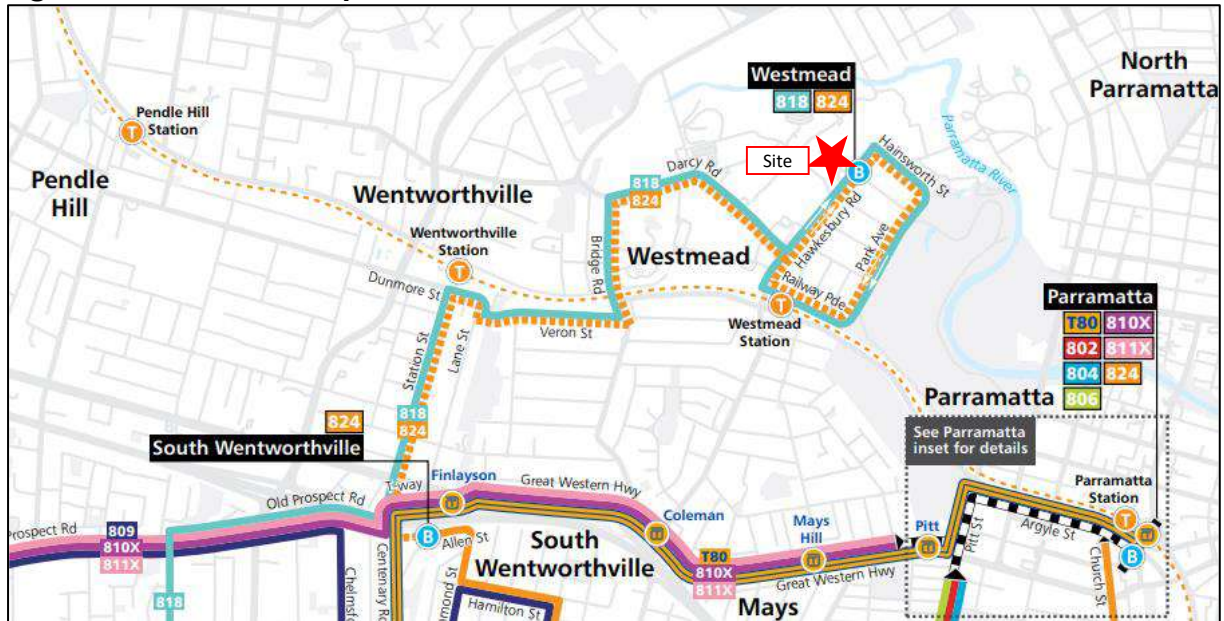
Bus Route	Details
711	Blacktown to Parramatta via Wentworthville
712	Westmead Children's Hospital to Parramatta
818	Westmead Hospitals to Merrylands
824	Westmead Hospitals to Parramatta via South Wentworthville

Bus route no. 711, 818 and 824 providing connection to/from the Westmead Station.



Details of the existing bus services and their connections to nearby railway stations/suburbs are provided in the following Figure 2.1.

Figure 2.1: Public Transport



The site is also served by a comprehensive network of bus services with 600m of the site. The bus routes servicing the site vicinity include:

- Westmead Hospital, North West Twy along Darcy Road (southbound): 660, 661, 662, 663, 664, 665, 705, 708, 711, 818, 824



- Westmead Hospital, North West Twy along Darcy Road (northbound): 660, 661, 662, 663, 664, 665
- Darcy Road after Hawkesbury Road along Darcy Road (northbound): 705, 708, 711, 818, 824

Bus Route	Details
660	Castlewood to Parramatta
661	Blacktown to Parramatta via Kings Langley & North West Twy
662	Castle Hill to Parramatta via Bella Vista & North West Twy
663	Rouse Hill Station to Parramatta via Kellyville Ridge
664	Rouse Hill Station to Parramatta via Kellyville
665	Rouse Hill Station to Parramatta
705	Blacktown to Parramatta via Seven Hills
708	Constitution Hill to Parramatta via Pendle Hill
711	Blacktown to Parramatta via Wentworthville
818	Westmead Hospitals to Merrylands
824	Westmead Hospitals to Parramatta via South Wentworthville

Details of the existing bus services are provided in Appendix B.

2.2 Off-Street Public Parking

Workers who **needed** to drive to/from site can rely on the nearby public parking stations (See **Figure 2.2**):

- Westmead Children's Hospital Car Park, Hawkesbury Road, Westmead (approx. 400 spaces):
Details:<https://www.secureparking.com.au/en-au/car-parks/australia/new-south-wales/sydney/outer-western-sydney/westmead-childrens-hospital-car-park>
- Westmead Hospital - P4 (360 spaces)
Details:https://www.secureparking.com.au/en-au/car-parks/australia/new-south-wales/sydney/outer-western-sydney/westmead-hospital-car-park?utm_source=business.google.com&utm_medium=organic&utm_campaign=Google+My+Business+NSW+Westmead+Childrens+Hospital+Car+Park



Figure 2.2: Designated Off-Street Parking Area



2.3 Future Parramatta Light Rail

The Parramatta Light Rail Stage 1 will connect Westmead to Carlingford via Parramatta CBD and Camellia. The route will link Parramatta's CBD and train station to the Westmead Precinct. The nearest station will be the Children's Hospital at Westmead Station, located 300m from the site (see Figure 2.3 and Figure 2.4). The Parramatta Light Rail, from Westmead to Carlingford, is expected to open in 2023.

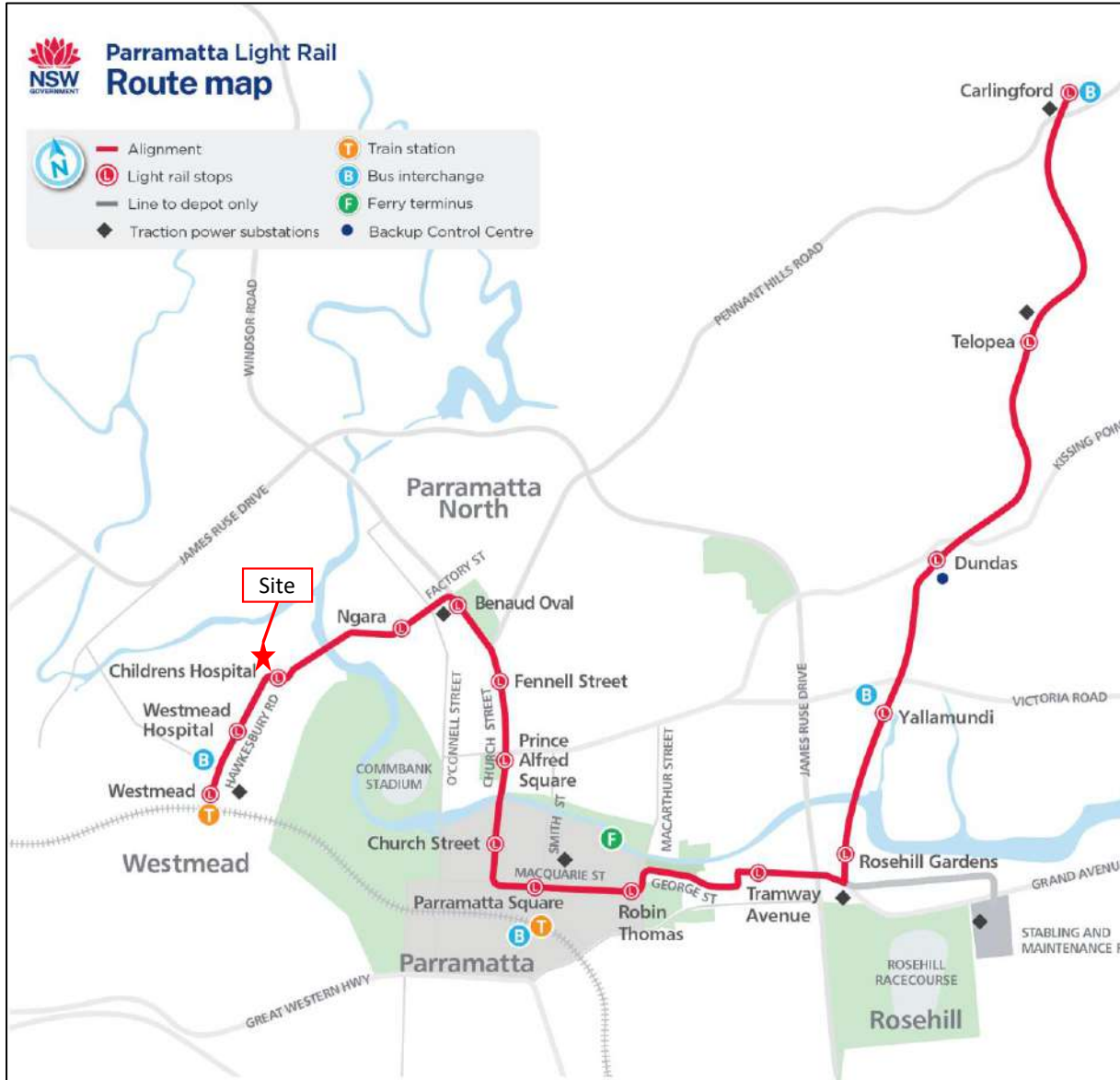


Figure 2.3: Parramatta Light Rail





Figure 2.4: Parramatta Light Rail Stage 1 Alignment





Transport Strategies

Appendix A

Rail Services

Sydney rail network



M Metro **T** Trains



Sydney metro and train lines



Metro North West Line
Chatswood
Tallawong



T1 North Shore & Western Line
North Shore
Western
Richmond



T2 Inner West & Leppington Line
Inner West
Leppington
City



T3 Bankstown Line
Liverpool
Lidcombe
City



T4 Eastern Suburbs & Illawarra Line
Eastern Suburbs
Illawarra
Cronulla



T5 Cumberland Line
Leppington
Richmond



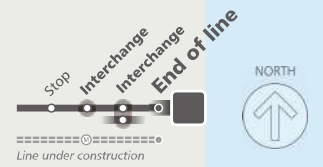
T7 Olympic Park Line
Olympic Park
Lidcombe



T8 Airport & South Line
Airport
South
City



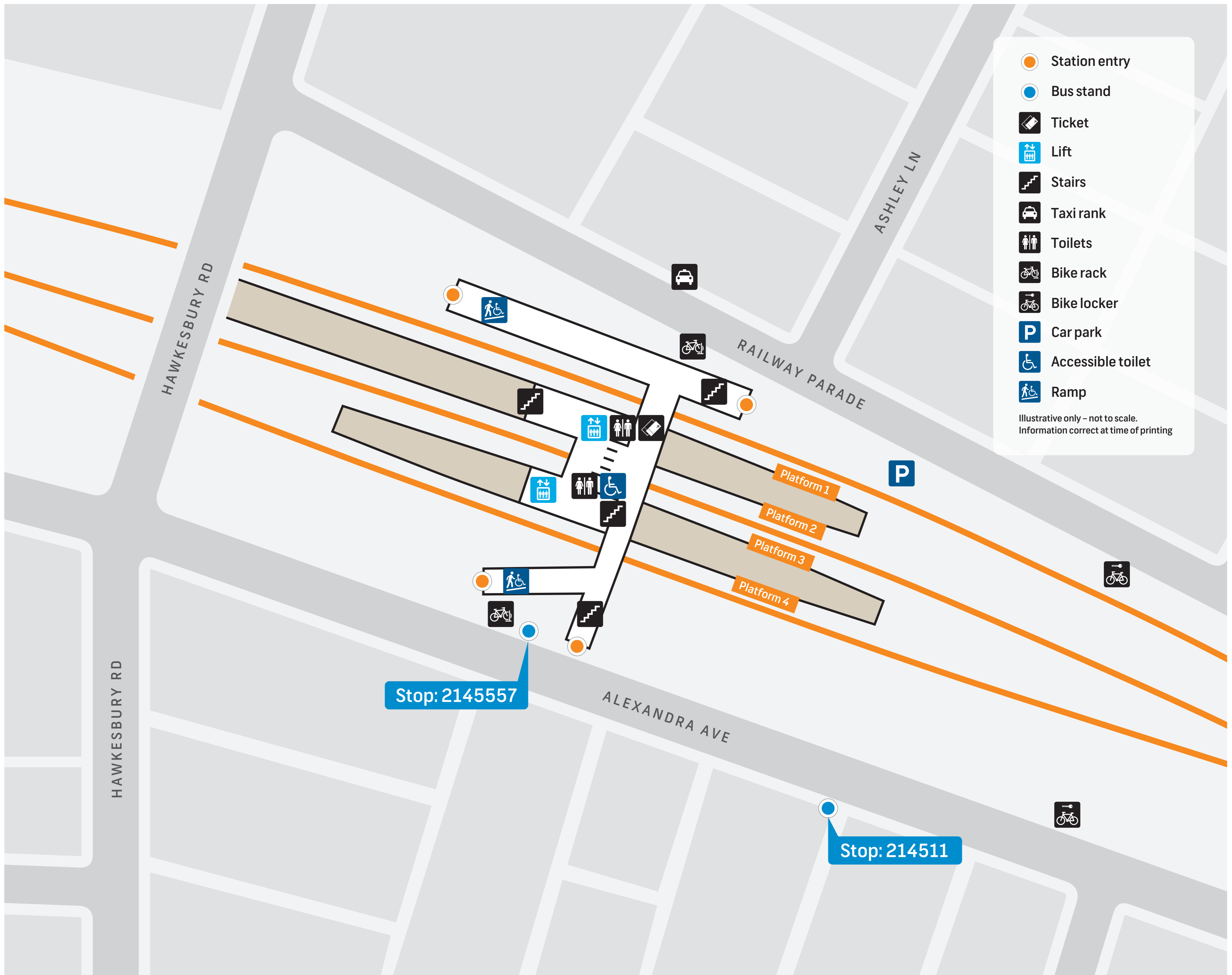
T9 Northern Line
Northern
Gordon



Check timetables and trip planners for train services and connections

Visit transportnsw.info

Westmead Station Public Transport Map



- T**
 - T1** *North Shore, Northern & Western Line*
North Shore
Western
Richmond
 - T5** *Cumberland Line*
Leppington
Richmond
- Blue Mountains**

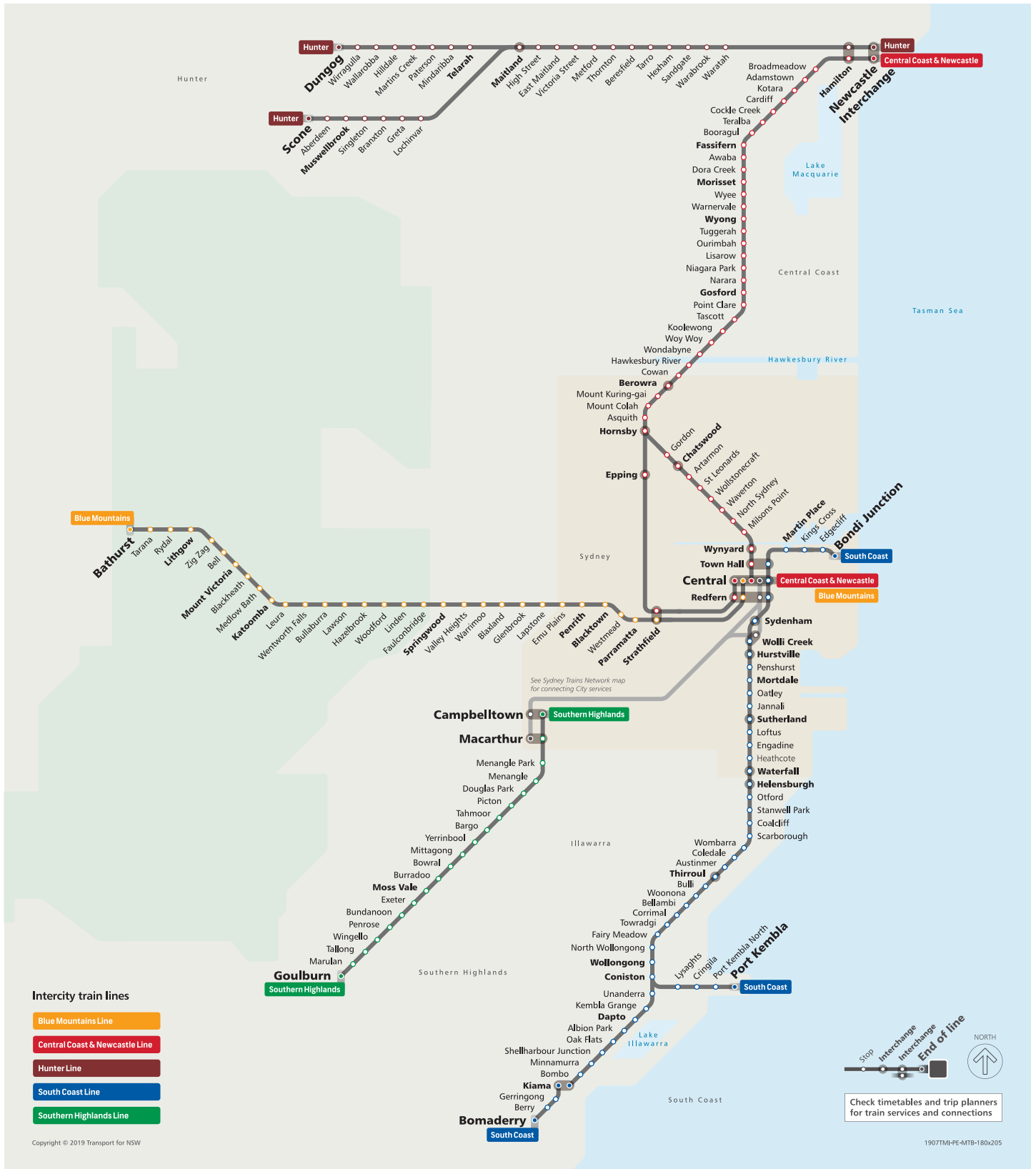
B	Stop: 214557	Stop: 214511
	660 Parramatta	660 Castle Hill
	661 Parramatta	661 Blacktown
	662 Parramatta	662 Castle Hill
	663 Parramatta	663 Rouse Hill Station
	664 Parramatta	664 Rouse Hill Station
	665 Parramatta	665 Rouse Hill Station
	705 Parramatta	705 Blacktown
	708 Parramatta	708 Constitution Hill
	711 Parramatta	711 Blacktown
	712 Parramatta	712 Westmead Childrens Hospital
	N70 City Town Hall	N70 Penrith
	N71 City Town Hall	N71 Richmond

For more information

 transportnsw.info

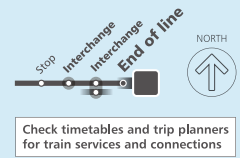


Intercity Trains Network



Intercity train lines

- Blue Mountains Line
- Central Coast & Newcastle Line
- Hunter Line
- South Coast Line
- Southern Highlands Line



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1907TM-PE-MTB-180x205



Transport Strategies

Appendix B

Bus Services

St Marys & WSU Penrith inset

Kings Park

Merrylands inset

Parramatta inset

Chester Hill inset

Auburn inset

Legend

- Bus Route
- Diversions/extended Route
- Liverpool-Parramatta Tway
- Multiple Routes on Corridor
- Bus Route Number
- Train Station
- Bus Route Terminus
- T-way Stop
- Ferry Wharf

Strathfield & Burwood inset

Overnight services

Liverpool inset

Cecil Park & Badgerys Creek inset

Fairfield inset

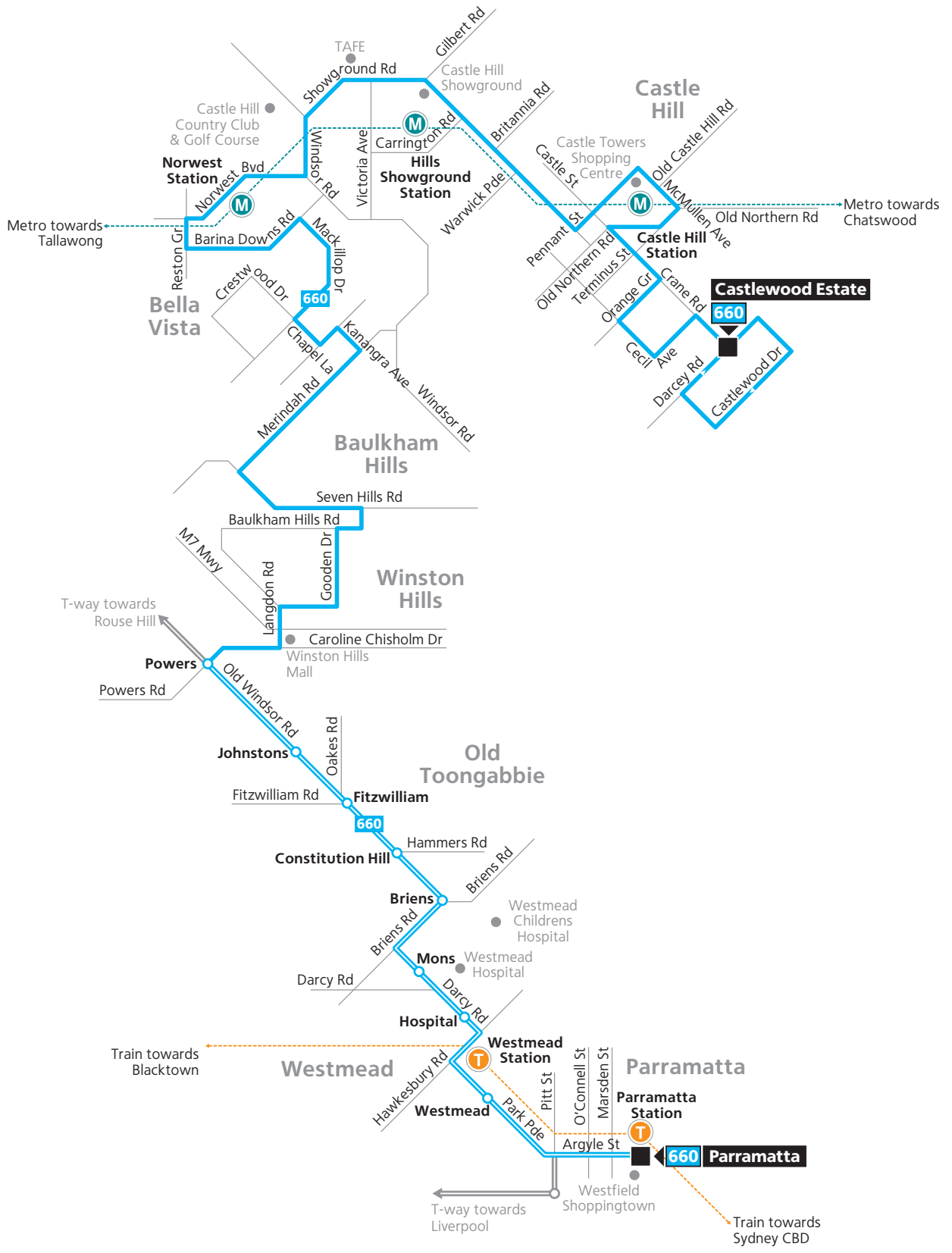
Bankstown inset

Cabramatta inset

Hurstville inset

The route of buses travelling through the Liverpool CBD may vary at certain times of the day. Visit transportsw.info to confirm the details of your trip.

Route 660



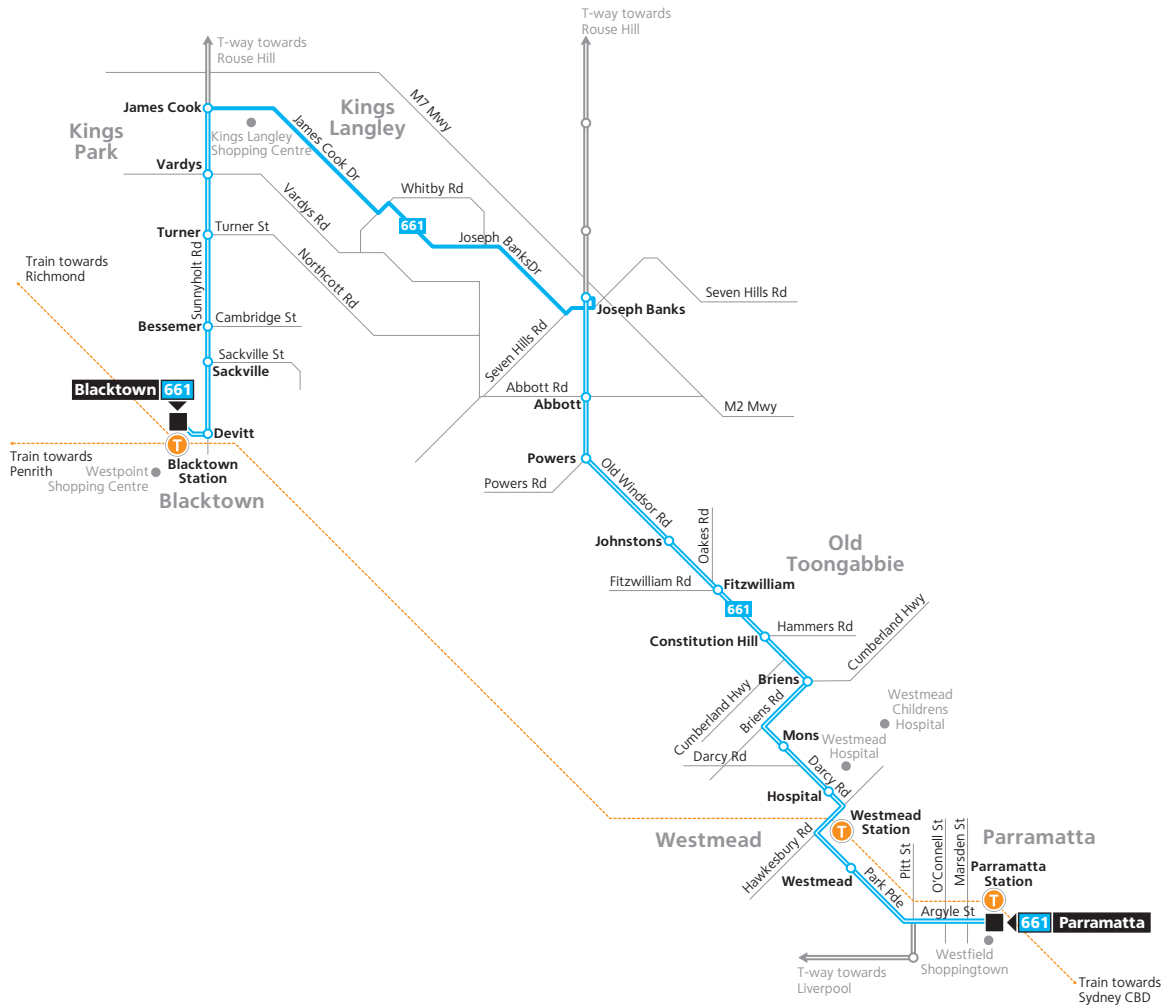
Legend

- Bus route
- 660 Bus route number
- 660 Bus route start/finish
- Metro line/station
- Train line/station
- T-way/stop

Diagrammatic Map
Not to Scale



Route 661

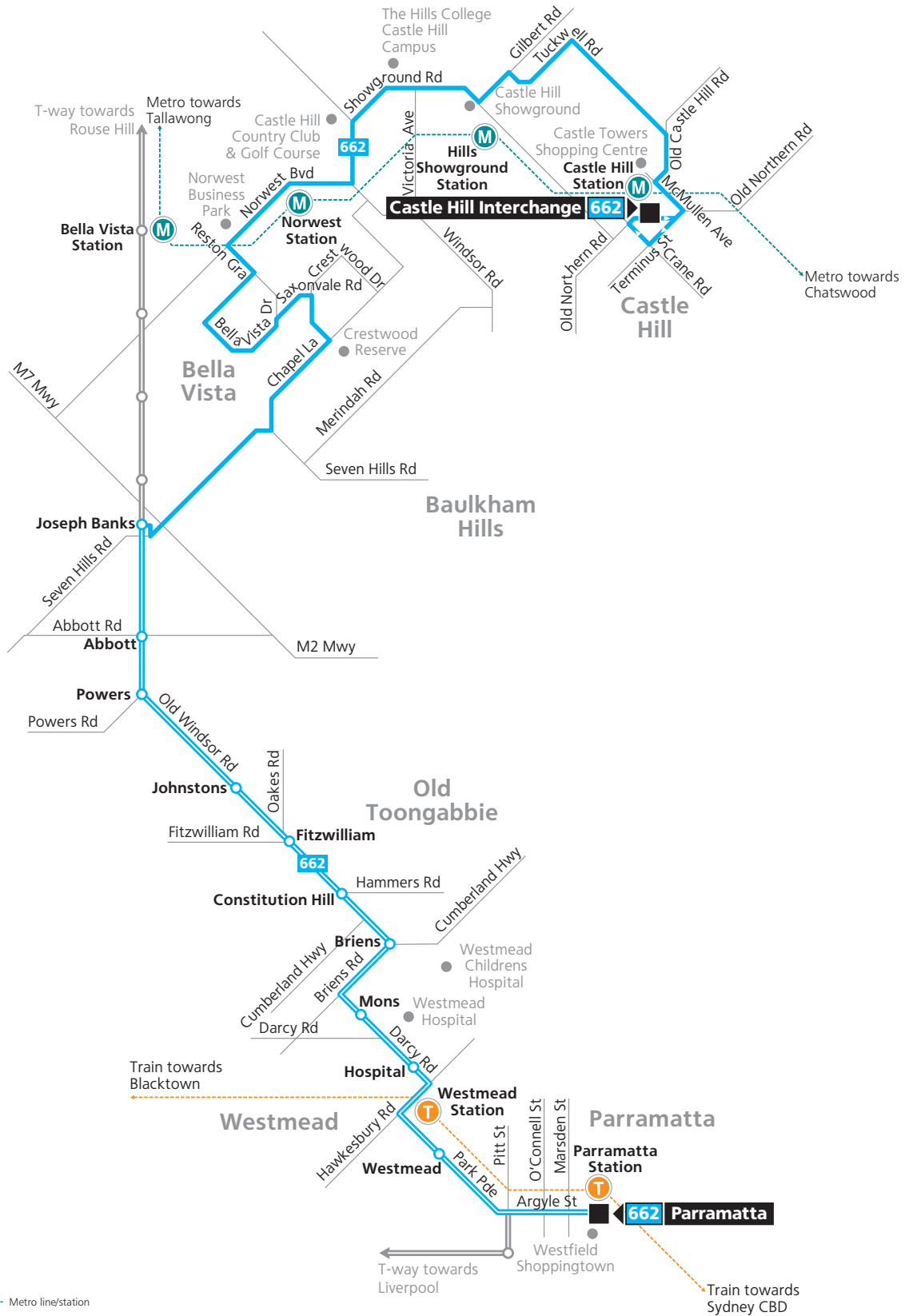
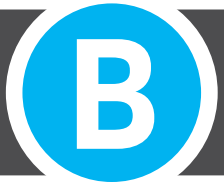


Legend

- Bus route
- 661 Bus route number
- Bus route start/finish
- T-way/stop
- T- Train line/station

Diagrammatic Map
Not to Scale

Route 662



- Legend**
- Bus route
 - Bus route number
 - Bus route start/finish
 - Metro line/station
 - Train line/station
 - T-way/stop

Diagrammatic Map
Not to Scale



Route 663

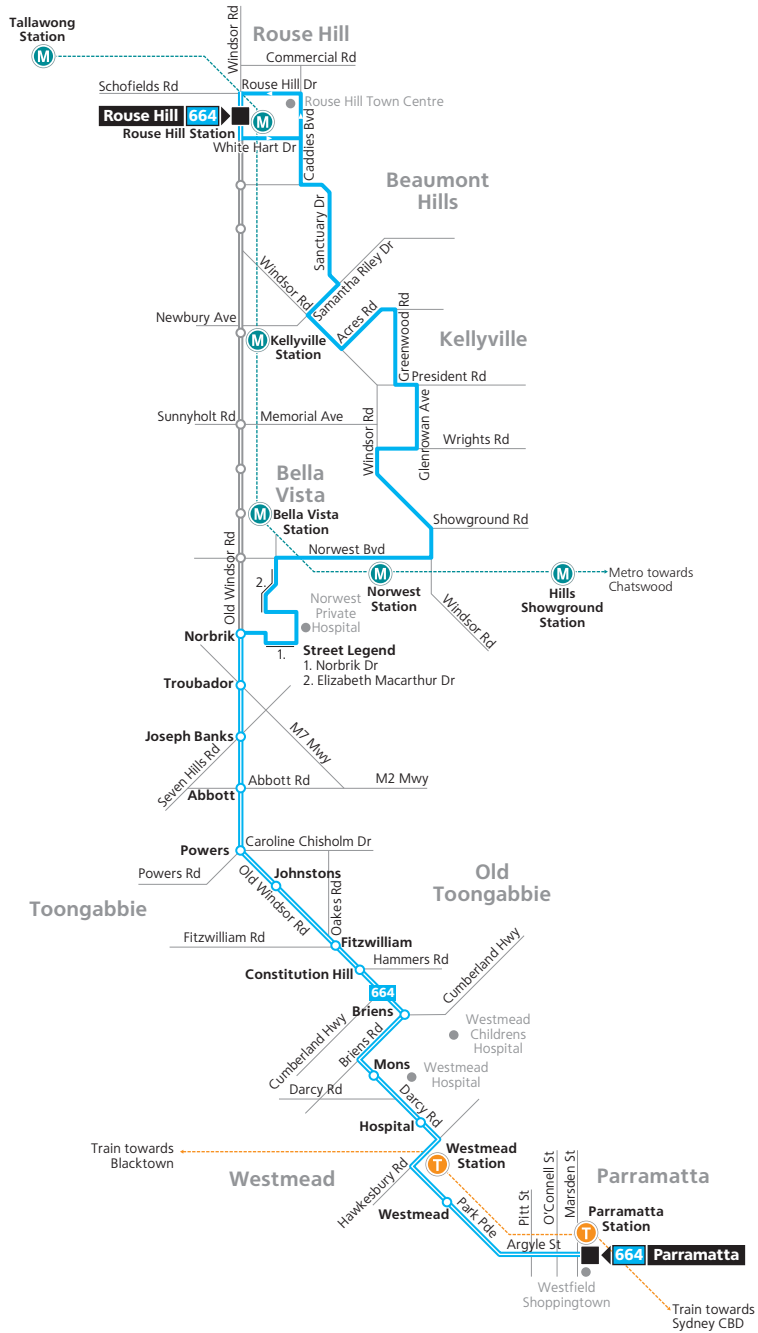
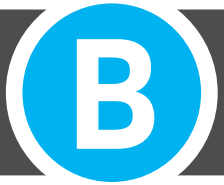


- Legend**
- Bus route
 - 663 Bus route number
 - 663 Bus route start/finish
 - Metro line/station
 - Train line/station
 - T-way/stop

Diagrammatic Map
Not to Scale



Route 664



- Legend**
- Bus route
 - 664 Bus route number
 - Bus route start/finish
 - Metro line/station
 - Train line/station
 - T-way/stop

Diagrammatic Map
Not to Scale



Route 665

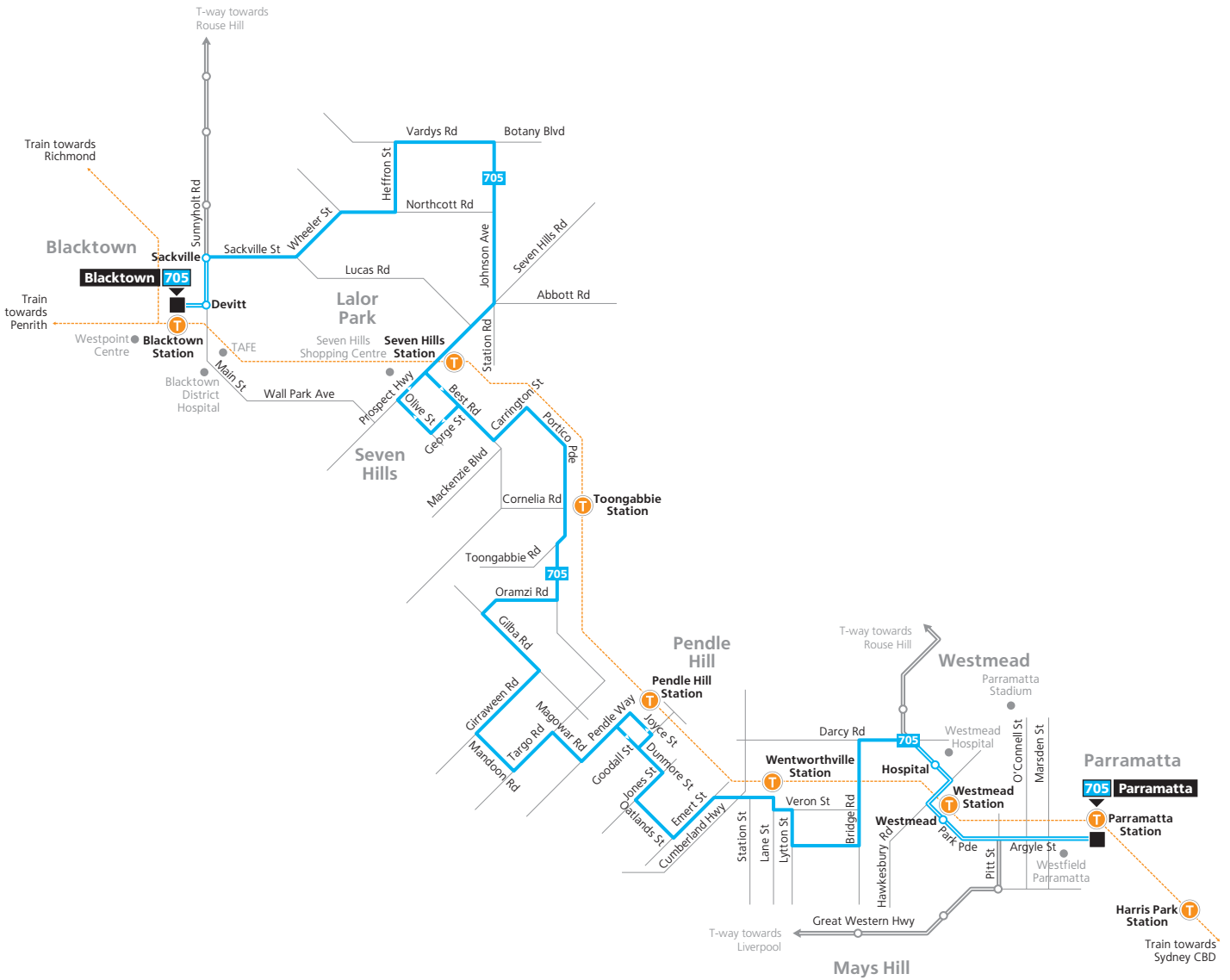


- Legend**
- Bus route
 - Bus route number
 - Bus route start/finish
 - Metro line/station
 - Train line/station
 - T-way/stop

North
Diagrammatic Map
Not to Scale



Route 705

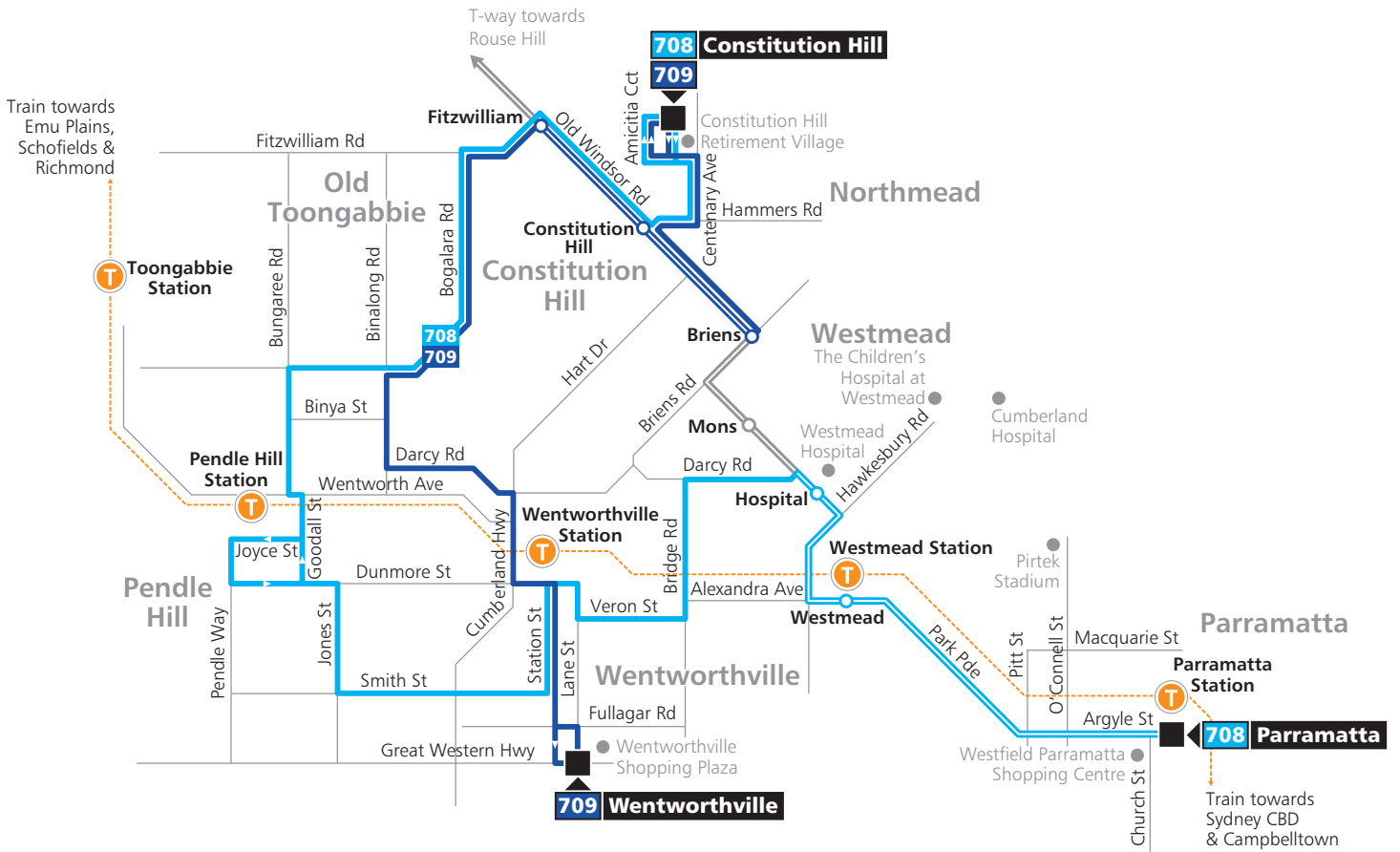
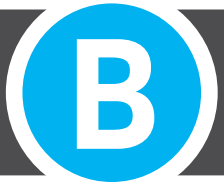


Legend

- Bus route
- 705 Bus route number
- Bus route start/finish
- T Train line/station
- T-way/stop near route

Diagrammatic Map
Not to Scale

Routes 708, 709

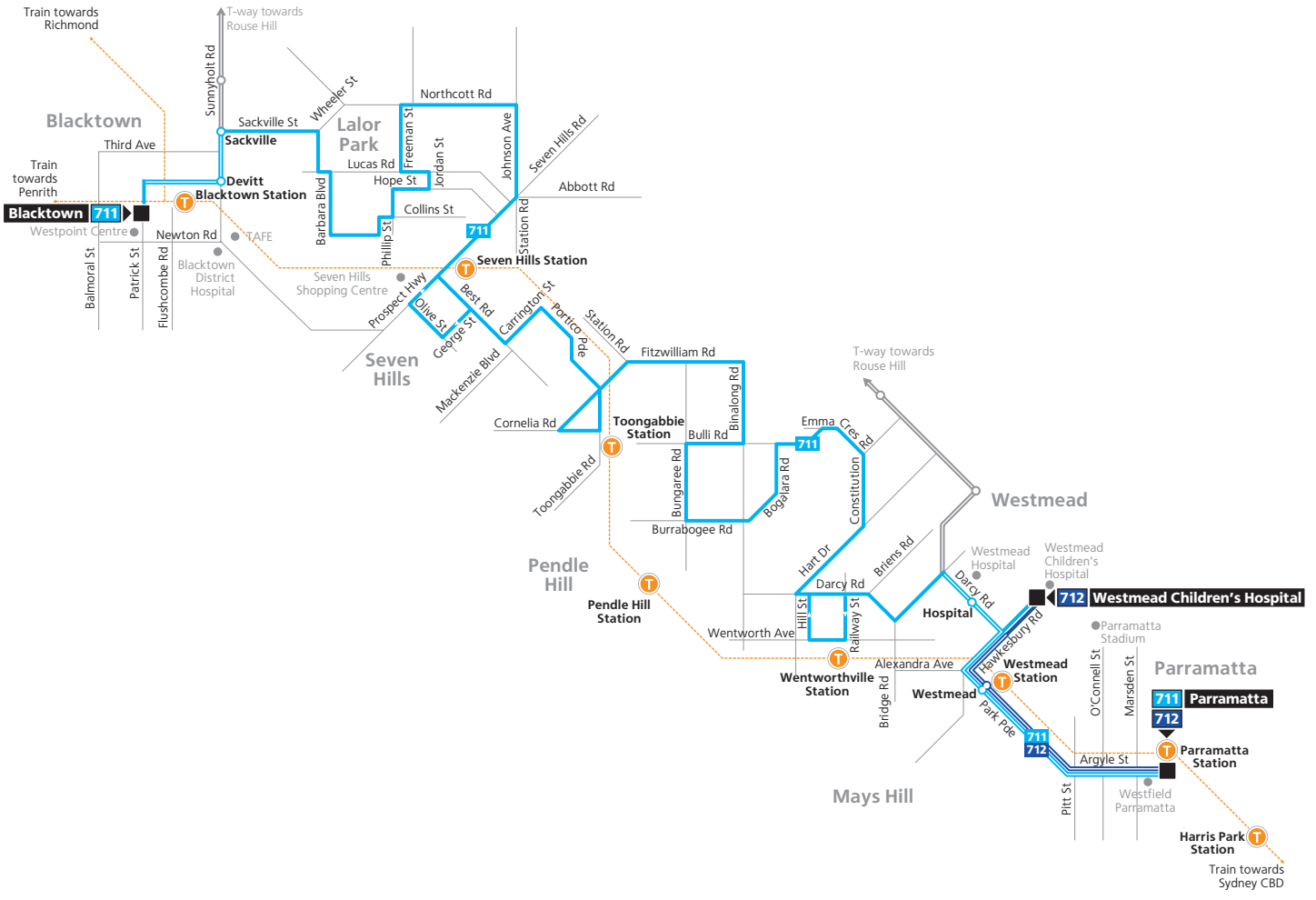


Legend

- Bus route
- 708 Bus route number
- Bus route start/finish
- Train line/station
- T-way/stop

Diagrammatic Map
Not to Scale

Routes 711, 712

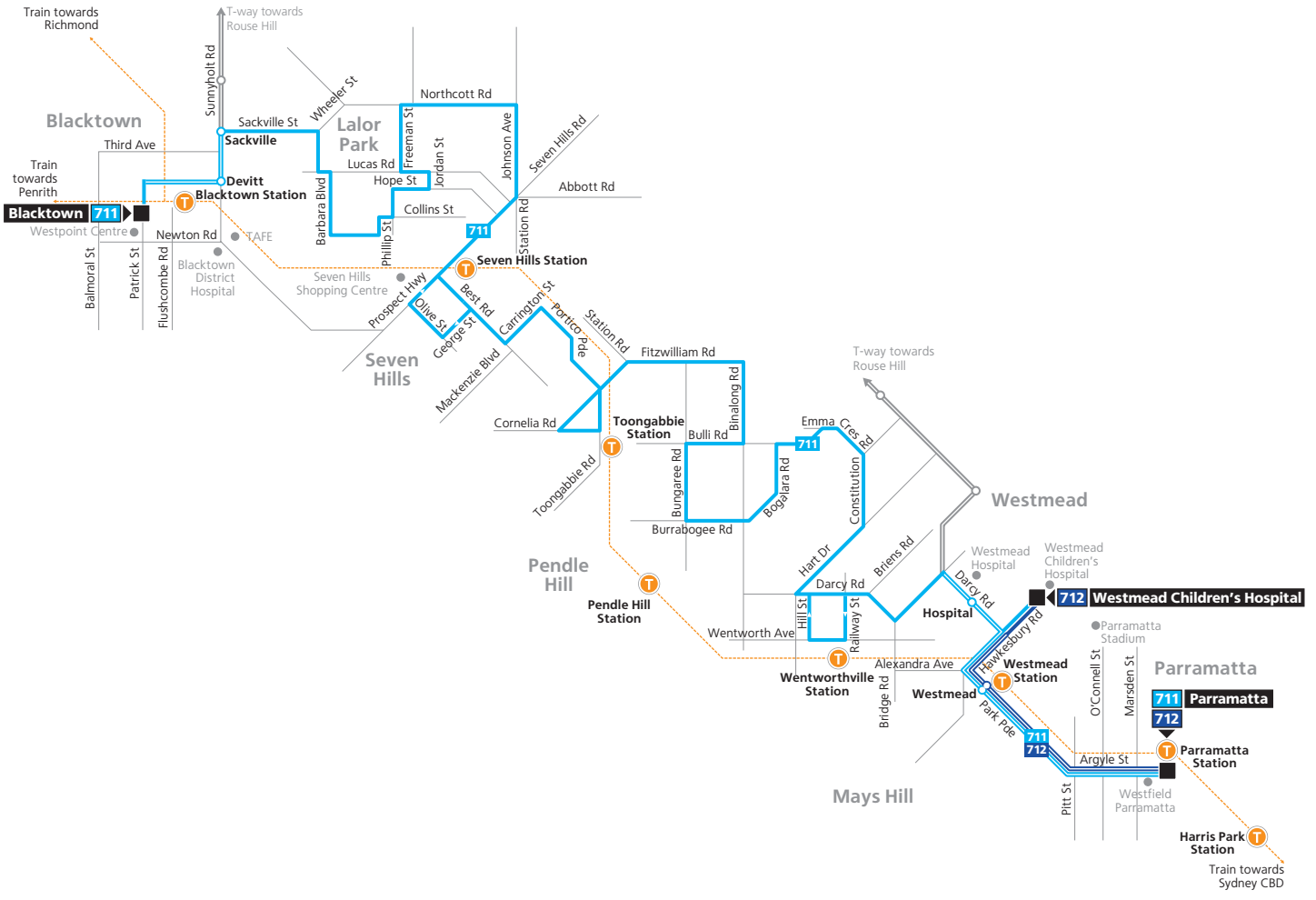


Legend

- Bus route
- Bus route start/finish
- T Train line/station
- 711 Bus route number
- T Train line/station
- T T-way/stop near route

Diagrammatic Map
Not to Scale

Routes 711, 712

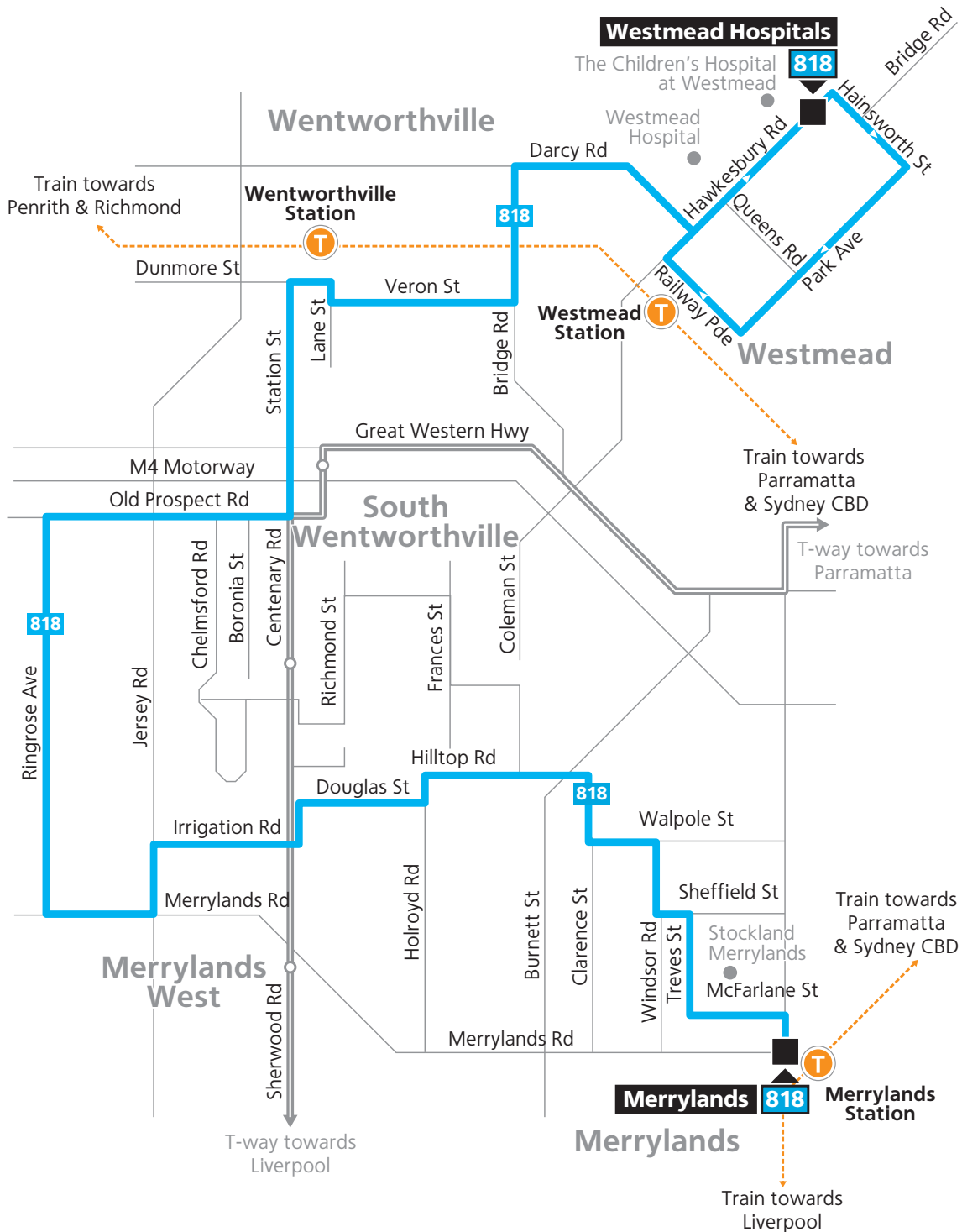
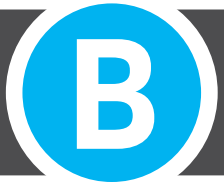


Legend

- Bus route
- 711 Bus route number
- Bus route start/finish
- T Train line/station
- T-way/stop near route

Diagrammatic Map
Not to Scale

Route 818



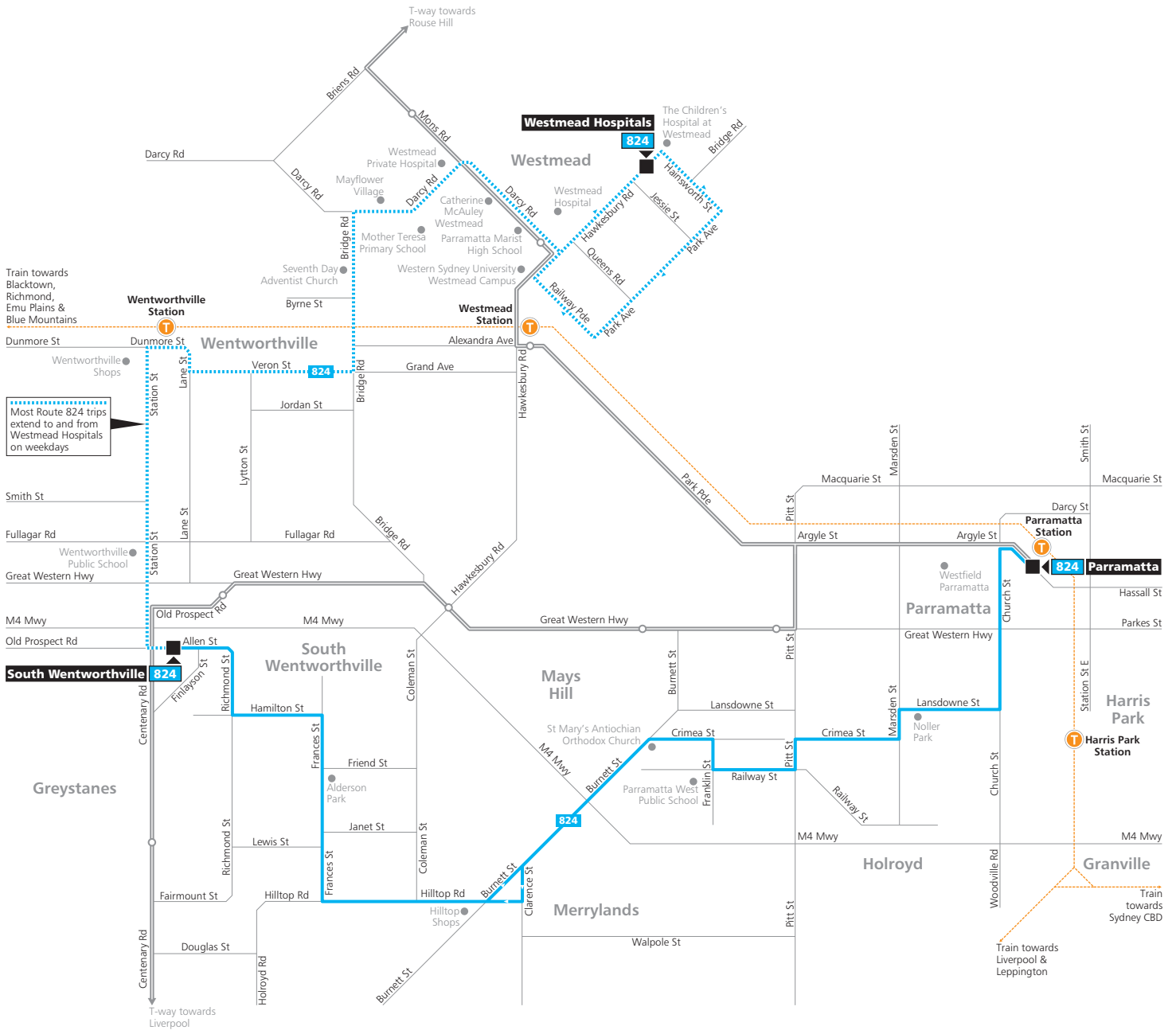
Legend

- Bus route
- Bus route start/finish
- 818 Bus route number
- Train line/station

Diagrammatic Map
Not to Scale



Route 824



Legend

- Blue line: Bus route
- 824: Bus route number
- Black square: Bus route start/finish
- Orange circle with T: Train line/station
- Grey circle: T-way/stop near route

North
Diagrammatic Map
Not to Scale





Transport Strategies

Appendix E Consultation with TfNSW and Council

From: technical@transportstrategies.com.au
Sent: Tuesday, 5 September 2023 4:29 PM
To: 'Development CTMP CJP'
Cc: 'Christopher Smith'; 'Egwin Herbert'; 'Emilio Ayoub'; 'Steven Browne'; 'Stefanie Sjobeck'
Subject: RE: SSD-10349252 - CTMP - The Children's Hospital at Westmead

Hi Ben

Hope you are keeping well.

Thank you for your earlier in-principle support on the overall CTMP. We have now separated the CTMP and created a CTMP pertinent to the **SSD-10349252 Stage 5 works only - Pathology Expansion**.

Kindly note that the largest vehicles required for the works is an 8.8m medium rigid vehicle (MRV). Trucks entering and exiting Research Lane from/to Hawkesbury Road will not encroach onto the Light Rail Infrastructure. As such, a deed poll agreement will not be required.

Please download the CTMP from the link below:

https://drive.google.com/file/d/11RhZZBBZhcbi135NzGaoSx76QGjJNwCZ/view?usp=drive_link

Appreciate your review and comments. Feel free to contact me if you have any questions.

Kind regards

Meg Kong

Founder & Transport Strategist

Transport Strategies Alliance Pty Ltd

207A/30 Campbell Street, Blacktown NSW 2148



Transport Strategies



M: 04 2400 7141

E: technical@transportstrategies.com.au

Licenses & Certifications:

- Traffic Control Work Card: TCT1030659
- Design Practitioner Reg. No: DEP0000127
- Professional Engineer Reg. No: PRE0000121

From: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>

Sent: Thursday, June 15, 2023 10:52 AM

To: Meg Kong <technical@transportstrategies.com.au>

Cc: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>; Christopher Smith <Christopher.SMITH3@transport.nsw.gov.au>; Egwin Herbert <Egwin.Herbert@transport.nsw.gov.au>

Subject: RE: SSD-10349252 - CTMP - The Children's Hospital at Westmead

Hi Meg

Thanks for meeting yesterday to discuss your CTMP for the Children's Hospital at Westmead. As discussed, Transport for NSW support the CTMP in principal provided the following issues are addressed:

- Kane must enter into a deed poll agreement with Great River City Light Rail (GRCLR) to ensure no damage is done to the Light Rail Infrastructure. GRCLR to provide details on maximum vehicle loads.
- There is to be no access across the Light Rail tracks once testing and commissioning begins.
- Separate CTMPs should be provided to show operation both before and after testing and commissioning begins.

Regards

Ben Borger
Transport Planning Project Manager
Customer Journey Planning
Greater Sydney
M: 0408 064 433

Transport for NSW
231 Elizabeth Street, Sydney NSW 2000



OFFICIAL

From: Meg Kong <technical@transportstrategies.com.au>
Sent: Tuesday, 13 June 2023 10:29 AM
To: Steven Browne <sbrowne@kane.com.au>
Cc: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>; Jonathan Yip <jonathan.yip@greatrivercity.com.au>; Development Applications <Developments.CJP@transport.nsw.gov.au>; Garry Lake <glake@kane.com.au>; Jackson Soong <jackson@transportstrategies.com.au>; Raza Muhammad <raza@transportstrategies.com.au>; Ahmed Mostapha <amostapha@kane.com.au>; Saidhbin Langan <SLangan@headwaytt.com>; Jason Olivo <jolivo@caf.net>; Miquel Riu <mriu@caf.net>; Stefanie Sjobeck <ssjobeck@kane.com.au>
Subject: Re: SSD-10349252 - CTMP - The Children's Hospital at Westmead

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Hi Ben

Hope you had a good long weekend.

Can we please do

- Wednesday 14/06 – 3pm – 4pm

Thank you
Meg

On Thu, Jun 8, 2023 at 3:34 PM Steven Browne <sbrowne@kane.com.au> wrote:

Hi Meg,

Ahmed is on leave today, however I will check with him tomorrow and come back to you with our availability.

Kind regards

Steven Browne
Project Manager

KANE

Kane Constructions Pty Ltd
2 John Street
Waterloo NSW 2017 Australia
Post: PO Box 243 Alexandria 2015

—
Mobile: 0413 735 490
Online: kane.com.au
Email: sbrowne@kane.com.au

National Construction Master Builder of the Year 2019

Follow Kane Constructions:



From: Meg Kong [mailto:technical@transportstrategies.com.au]
Sent: Thursday, 8 June 2023 3:10 PM
To: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>
Cc: Jonathan Yip <jonathan.yip@greatrivercity.com.au>; Development Applications <Developments.CJP@transport.nsw.gov.au>; Steven Browne <sbrowne@kane.com.au>; Garry Lake <glake@kane.com.au>; Jackson Soong <jackson@transportstrategies.com.au>; Raza Muhammad <raza@transportstrategies.com.au>; Ahmed Mostapha <amostapha@kane.com.au>; Saidhbhin Langan <SLangan@headwaytt.com>; Jason Olivo <jolivo@caf.net>; Miquel Riu <mriu@caf.net>
Subject: Re: SSD-10349252 - CTMP - The Children's Hospital at Westmead

Thanks, Ben.

Just waiting to hear back from Kane on their availability.

@Jonathan

I will come back to you with your comments this week. Just need to chat with Kane prior to my response.

Kind regards

Meg

On Thu, Jun 8, 2023 at 2:44 PM Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au> wrote:

Hi all

Apologies, I've got my months mixed up. Thanks for picking that up Jonathan. It should read:

- Tuesday 13/06 – 11am – 12pm, 1:45pm – 3pm
- Wednesday 14/06 – 11am – 1pm, 3pm – 4pm
- Friday 16/06 – 10am – 11am, 12pm - 2pm, 3pm - 4pm.

Regards

Ben Borger

Transport Planning Project Manager

Customer Journey Planning

Greater Sydney

M: 0408 064 433

Transport for NSW
231 Elizabeth Street, Sydney NSW 2000



Transport
for NSW

From: Jonathan Yip <jonathan.yip@greatriverscity.com.au>

Sent: Thursday, 8 June 2023 1:56 PM

To: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>;
technical@transportstrategies.com.au; Development Applications <Developments.CJP@transport.nsw.gov.au>;
Development Applications <Developments.CJP@transport.nsw.gov.au>
Cc: 'Steven Browne' <sbrowne@kane.com.au>; 'Garry Lake' <glake@kane.com.au>; 'Jackson Soong'
<jackson@transportstrategies.com.au>; 'Raza Muhammad' <raza@transportstrategies.com.au>; 'Ahmed
Mostapha' <amostapha@kane.com.au>; Saidhbhin Langan <SLangan@headwaytt.com>; Jason Olivo
<jolivo@caf.net>; Miquel Riu <mriu@caf.net>
Subject: RE: SSD-10349252 - CTMP - The Children's Hospital at Westmead

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Hi Meg,

We had spoken briefly about this matter on the phone this morning. You advised that at this stage you are looking at your construction vehicles needing potentially to encroach onto our track on Hawkesbury Rd until April 2024. As mentioned, we are expecting to see actual tram movements along the alignment as part of our T&C phase later this year and next year. Other vehicles accessing our track during this time will need to be carefully managed and coordinated in order not to impact our testing and commissioning. Understanding is that you were going to check and seek more info from your client and get back to us.

I have copied in our traffic manager (Saidhbhin) who has provided some initial comments on your document provided including:

1. There is no TGS to support swept paths 1 & 2 of 8; and
2. Some of the movements appear to be reverse movements but this is not clearly shown on the plans. This will need to be verified.

Agree with Ben that having a meeting should facilitate our further discussions on this topic.

Hi Ben,

Just to clarify, I believe you were meant to suggest setting up a meeting some time in **June** and not May as indicated in your email below? Also, the dates and days you have proposed seem to be not consistent (for the month of June, e.g. 14/06/23 is a Wed, not Tues)

Regards,

Jonathan Yip

Interface Manager

M +61 418 656 084

E jonathan.yip@greatrivercity.com.au



Level 1, 31 Macquarie St, Parramatta NSW 2150



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From: Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>

Sent: Thursday, June 8, 2023 12:49 PM

To: technical@transportstrategies.com.au; Development Applications

<Developments.CJP@transport.nsw.gov.au>; Development CTMP CJP

<development.CTMP.CJP@transport.nsw.gov.au>; Development Applications

<Developments.CJP@transport.nsw.gov.au>; Jonathan Yip <jonathan.yip@greatrivercity.com.au>

Cc: 'Steven Browne' <sbrowne@kane.com.au>; 'Garry Lake' <glake@kane.com.au>; 'Jackson Soong'

<jackson@transportstrategies.com.au>; 'Raza Muhammad' <raza@transportstrategies.com.au>; 'Ahmed Mostapha' <amostapha@kane.com.au>

Subject: RE: SSD-10349252 - CTMP - The Children's Hospital at Westmead

Hi Meg

We'd like to arrange a meeting to discuss this CTMP. Can you please advise your who needs to be involved from your end and your availabilities from the following:

- Tuesday 14/05 – 2pm – 3pm
- Wednesday 15/05 – 11am – 1pm
- Friday 17/05 – 10am – 4pm.

Regards

Ben Borger

Transport Planning Project Manager

Customer Journey Planning

Greater Sydney

M: 0408 064 433

Transport for NSW
231 Elizabeth Street, Sydney NSW 2000



Transport
for NSW

From: technical@transportstrategies.com.au <technical@transportstrategies.com.au>
Sent: Wednesday, 24 May 2023 8:55 PM
To: Development Applications <Developments.CJP@transport.nsw.gov.au>; Development CTMP CJP <development.CTMP.CJP@transport.nsw.gov.au>; Development Applications <Developments.CJP@transport.nsw.gov.au>
Cc: 'Steven Browne' <sbrowne@kane.com.au>; 'Garry Lake' <glake@kane.com.au>; 'Jackson Soong' <jackson@transportstrategies.com.au>; 'Raza Muhammad' <raza@transportstrategies.com.au>; 'Ahmed Mostapha' <amostapha@kane.com.au>
Subject: SSD-10349252 - CTMP - The Children's Hospital at Westmead

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Hi CJP Officer

Hope you are well.

Condition B16 requires us to prepare the CTMP in consultation TfNSW.

Specifically, we would like to seek TfNSW's approval for our truck turning path encroaching the light rail tracks noting that it is currently under construction and not operational yet. See Appendix F of the CTMP.

Appreciate TfNSW's review and comments. Feel free to contact me if you have any questions.

Kind regards

Meg Kong

Founder/Transport Strategist



Transport Strategies Alliance Pty Ltd

Mobile: 04 2400 7141

Email: technical@transportstrategies.com.au

Address: 207A/30 Campbell Street, Blacktown NSW 2148

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From: technical@transportstrategies.com.au
Sent: Tuesday, 5 September 2023 4:28 PM
To: 'Behzad Saleh'
Cc: 'Emilio Ayoub'; 'Steven Browne'; 'Stefanie Sjobeck'
Subject: RE: Condition ~ regarding CTPMSP for construction works at Westmead Children s Hospital SSSA 10349252

Hi Behzad,

Hope you are keeping well.

Thank you for your earlier concurrence on the overall CTMP. We have now separated the CTMP and created a CTMP pertinent to the **SSD-10349252 Stage 5 works only - Pathology Expansion**.

Kindly note that the largest vehicles required for the works is an 8.8m medium rigid vehicle (MRV). Trucks entering and exiting Research Lane from/to Hawkesbury Road will not encroach onto the Light Rail Infrastructure. As such, a deed poll agreement will not be required.

Please download the CTMP from the link below:

https://drive.google.com/file/d/11RhZZBBZhcbi135NzGaoSx76QGjNwCZ/view?usp=drive_link

Appreciate your review and comments. Feel free to contact me if you have any questions.

Kind regards

Meg Kong

Founder & Transport Strategist

Transport Strategies Alliance Pty Ltd

207A/30 Campbell Street, Blacktown NSW 2148



Transport Strategies



M: 04 2400 7141

E: technical@transportstrategies.com.au

Licenses & Certifications:

- Traffic Control Work Card: TCT1030659
- Design Practitioner Reg. No: DEP0000127
- Professional Engineer Reg. No: PRE0000121

From: Behzad Saleh <BSaleh@cityofparramatta.nsw.gov.au>

Sent: Monday, July 3, 2023 3:54 PM

To: technical@transportstrategies.com.au

Subject: Condition ~ regarding CTPMSP for construction works at Westmead Children s Hospital SSSA 10349252

Hi Meg,

Please see attached CTMP concurrence letter for the construction works at the Children's Hospital in Westmead. Let me know if you have any questions.

Kind Regard's

Behzad Saleh

Traffic and Transport Investigations Engineer | Development and Traffic Services

P: (02) 9806 8410

City of Parramatta
126 Church Street, Parramatta NSW 2150
PO Box 32, Parramatta, NSW 2124
cityofparramatta.nsw.gov.au



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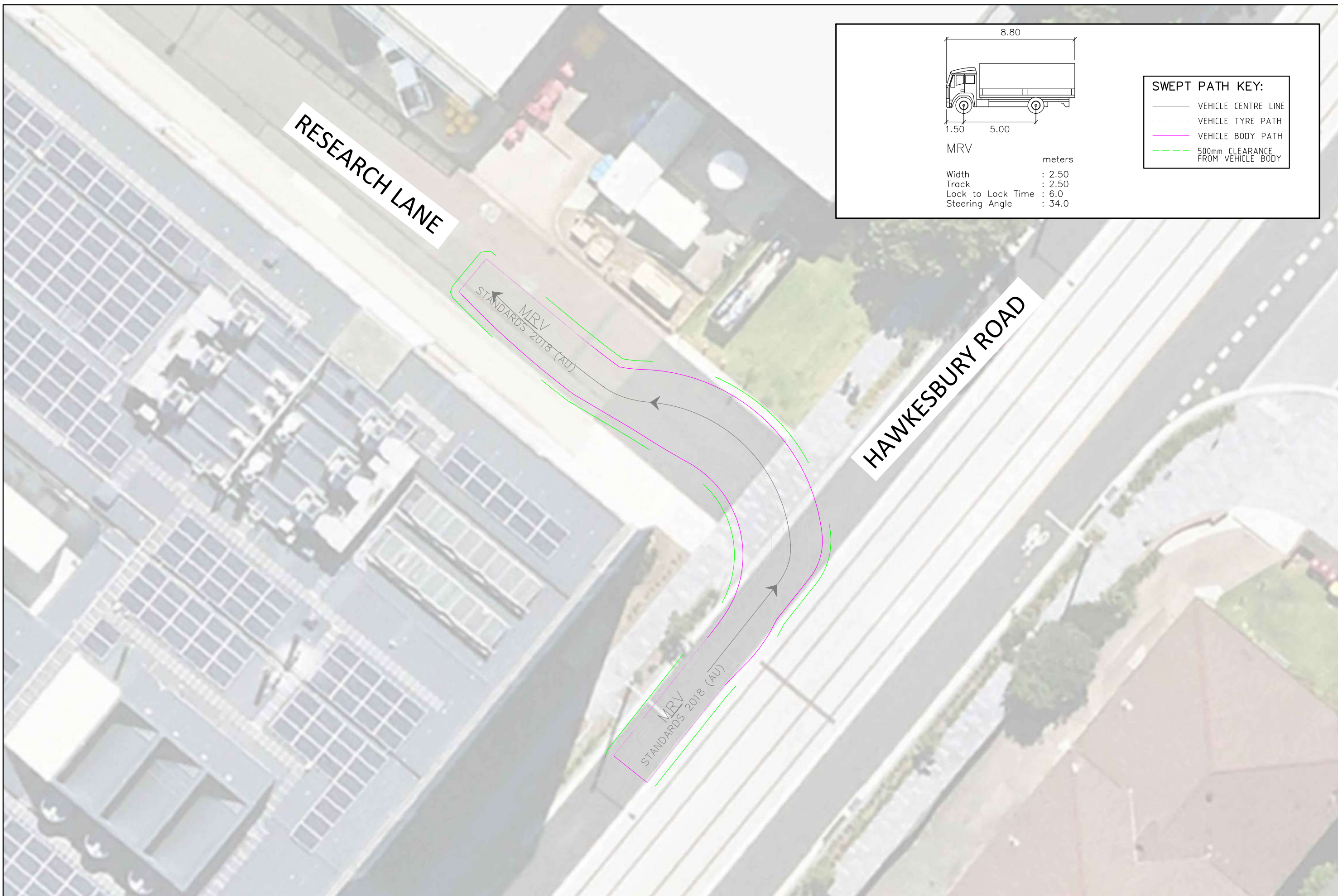


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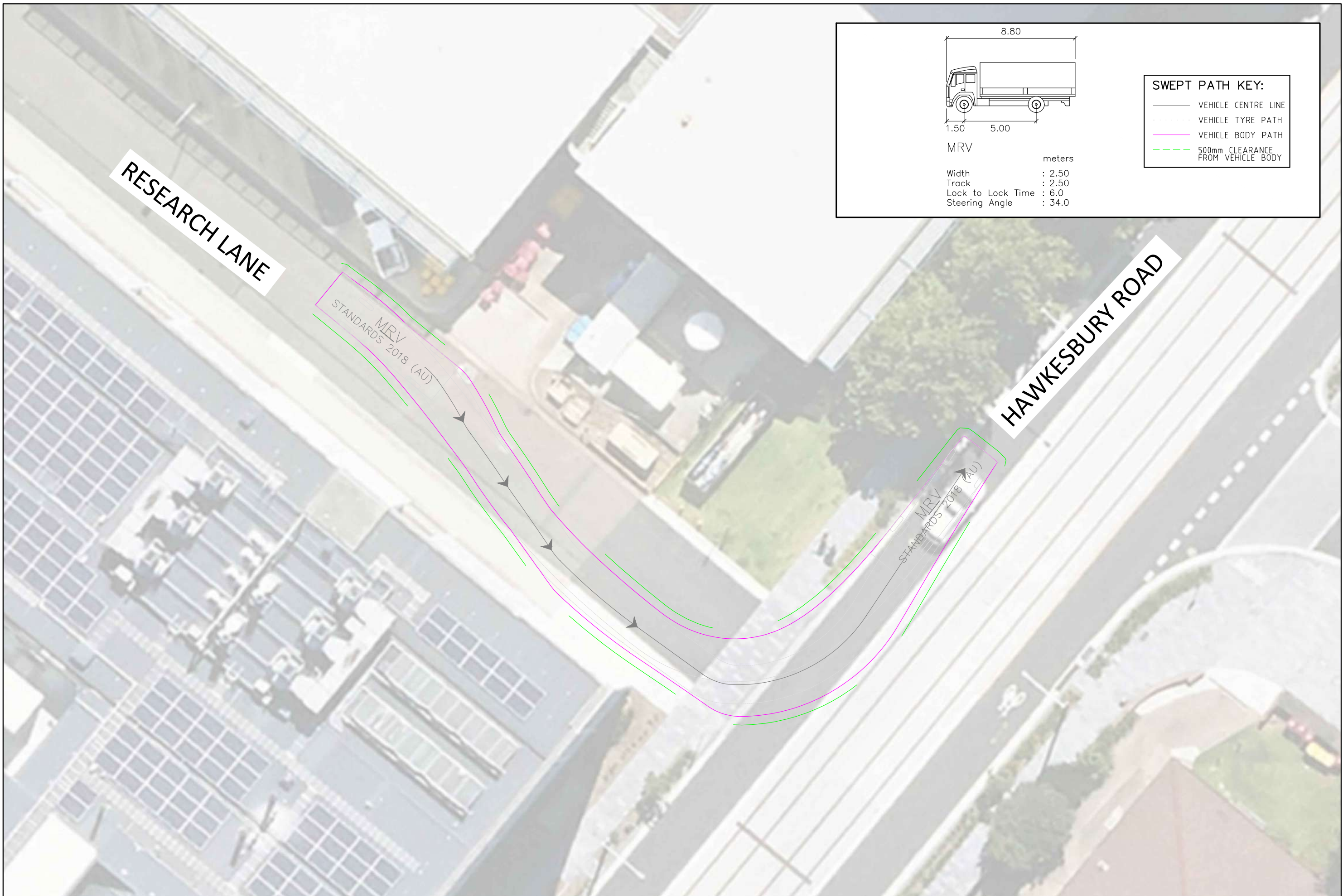
Appendix F

Swept Path Assessments

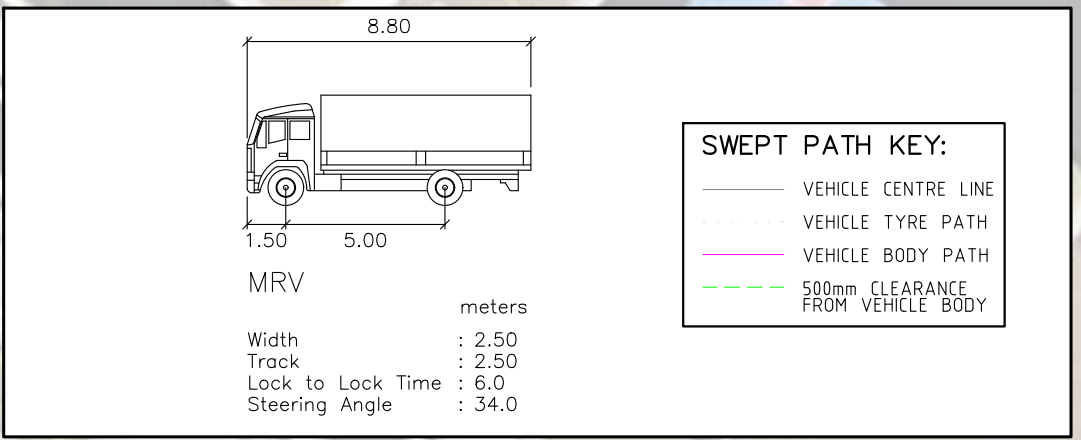
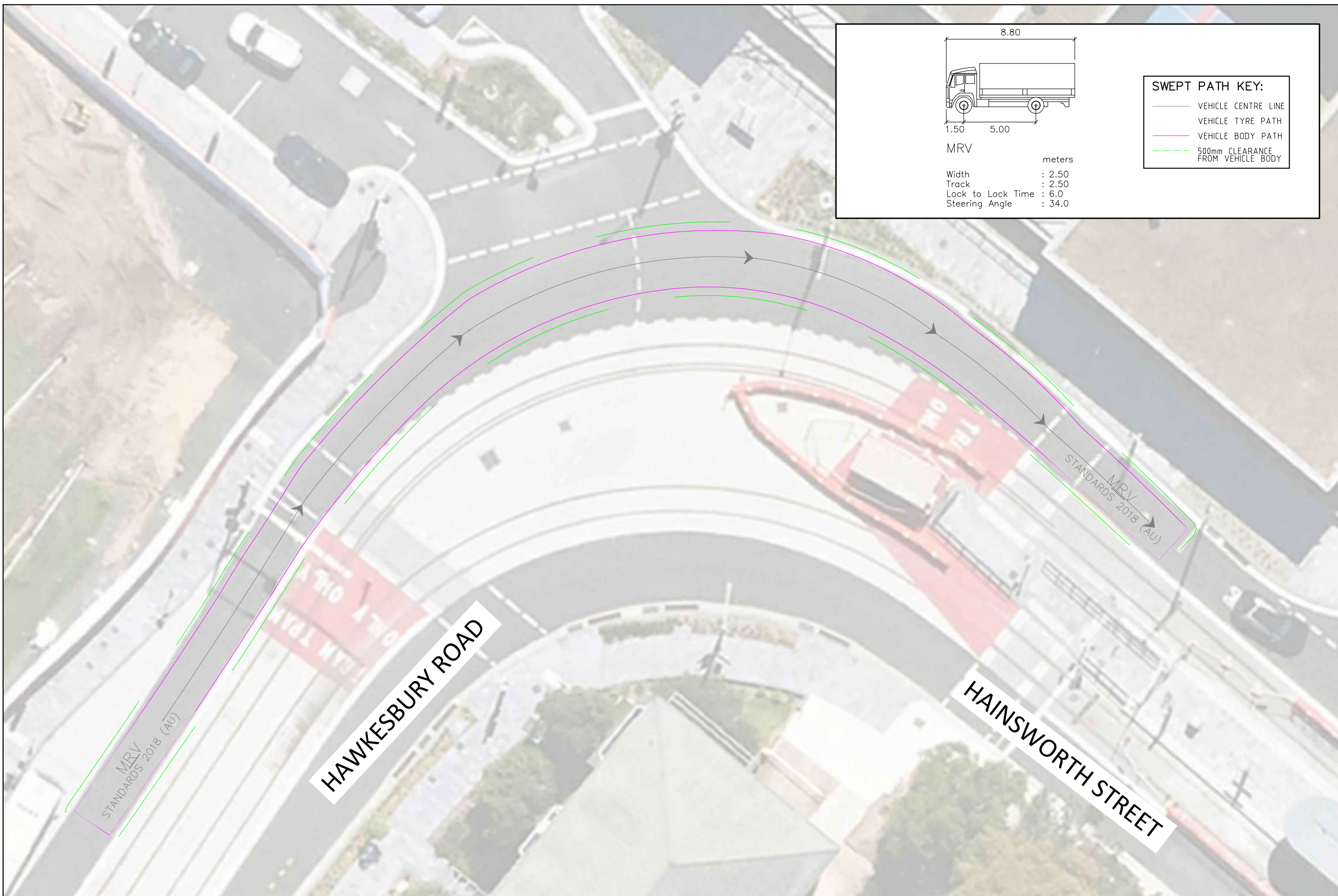
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WESTMEAD CHILDREN'S HOSPITAL
CONSTRUCTION TRAFFIC MANAGEMENT PLAN
SWEPT PATH ASSESSMENT



207A/30 CAMPBELL STREET, BLACKTOWN NSW 2148
ABN 13 254 028 433
PHONE 0424 007 141

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES
ONLY SUBJECT TO CHANGE
WITHOUT NOTIFICATION

23035-01-V8-SP
07 (2)F 08
5 September 2023

DESIGNED BY S.YOU
APPROVED BY M.KONG

SCALE A3 0 1:###

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WESTMEAD CHILDREN'S HOSPITAL
CONSTRUCTION TRAFFIC MANAGEMENT PLAN
SWEEP PATH ASSESSMENT



Transport Strategies

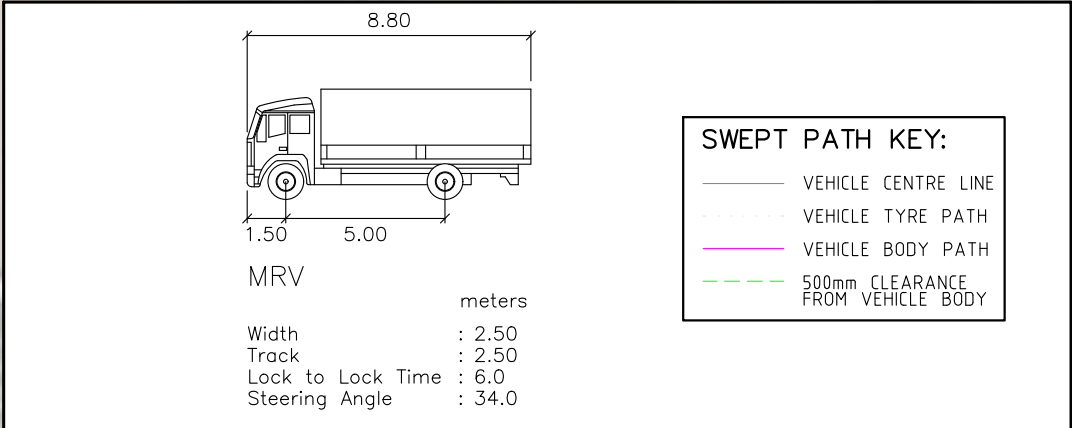
207A/30 CAMPBELL STREET, BLACKTOWN NSW 2148
ABN 13 254 028 433
PHONE 0424 007 141

PRELIMINARY PLAN
FOR DISCUSSION PURPOSES
ONLY SUBJECT TO CHANGE
WITHOUT NOTIFICATION

23035-01-V8-SP
07 (3)F 08
5 September 2023

DESIGNED BY S.YOU
APPROVED BY M.KONG

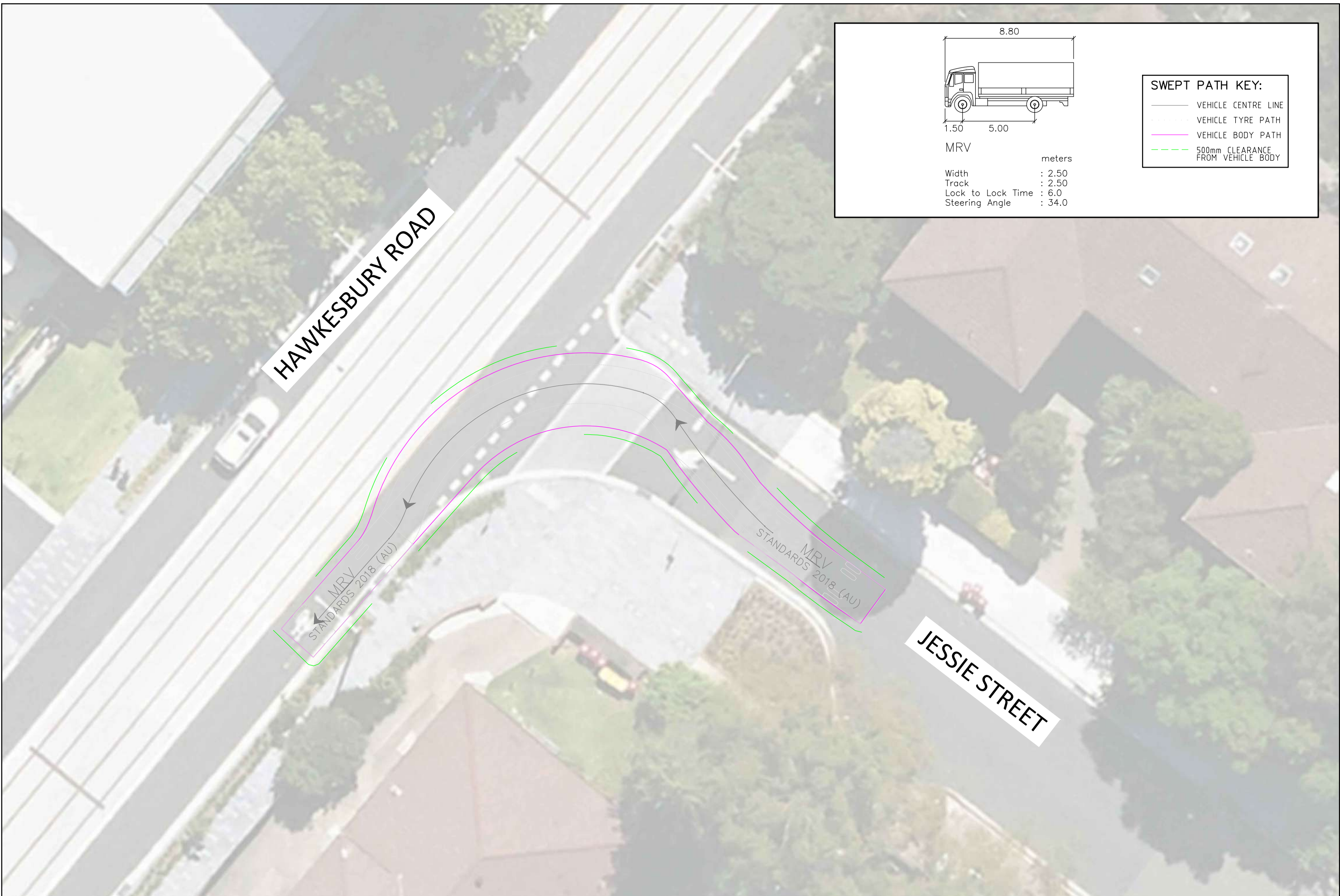
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- SWEPT PATH KEY:**
- VEHICLE CENTRE LINE
 - - - VEHICLE TYRE PATH
 - VEHICLE BODY PATH
 - - - 500mm CLEARANCE FROM VEHICLE BODY

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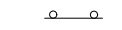


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Appendix G

Traffic Guidance Schemes

LEGEND:

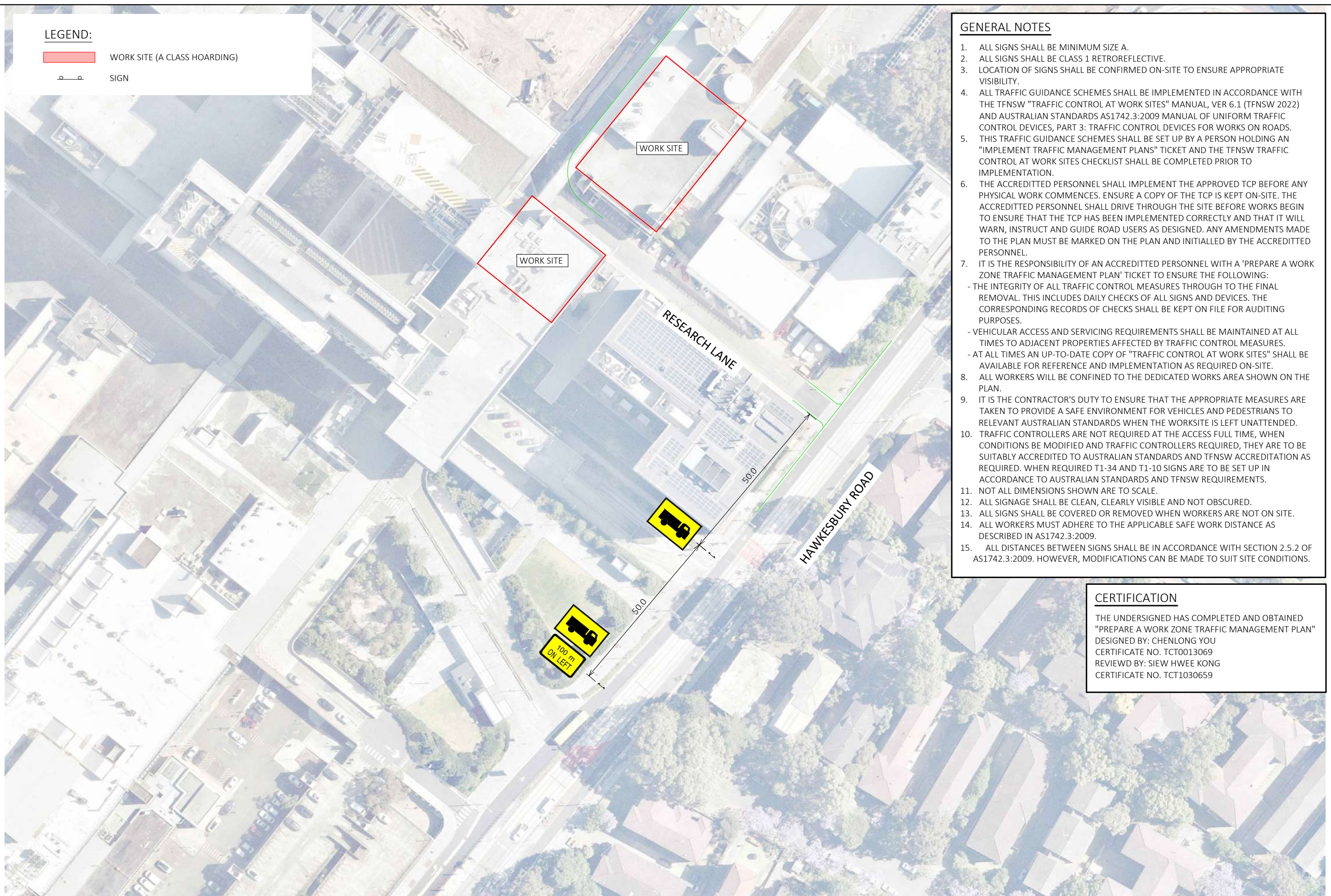
-  WORK SITE (A CLASS HOARDING)
-  SIGN

GENERAL NOTES

1. ALL SIGNS SHALL BE MINIMUM SIZE A.
2. ALL SIGNS SHALL BE CLASS 1 RETROREFLECTIVE.
3. LOCATION OF SIGNS SHALL BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY.
4. ALL TRAFFIC GUIDANCE SCHEMES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE TFNSW "TRAFFIC CONTROL AT WORK SITES" MANUAL, VER 6.1 (TFNSW 2022) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS.
5. THIS TRAFFIC GUIDANCE SCHEMES SHALL BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLANS" TICKET AND THE TFNSW TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION.
6. THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES. ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY AMENDMENTS MADE TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL.
7. IT IS THE RESPONSIBILITY OF AN ACCREDITED PERSONNEL WITH A 'PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN' TICKET TO ENSURE THE FOLLOWING:
 - THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURES THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
 - VEHICULAR ACCESS AND SERVICING REQUIREMENTS SHALL BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES.
 - AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE.
8. ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN.
9. IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS WHEN THE WORKSITE IS LEFT UNATTENDED. TRAFFIC CONTROLLERS ARE NOT REQUIRED AT THE ACCESS FULL TIME, WHEN CONDITIONS BE MODIFIED AND TRAFFIC CONTROLLERS REQUIRED, THEY ARE TO BE SUITABLY ACCREDITED TO AUSTRALIAN STANDARDS AND TFNSW ACCREDITATION AS REQUIRED. WHEN REQUIRED T1-34 AND T1-10 SIGNS ARE TO BE SET UP IN ACCORDANCE TO AUSTRALIAN STANDARDS AND TFNSW REQUIREMENTS.
11. NOT ALL DIMENSIONS SHOWN ARE TO SCALE.
12. ALL SIGNAGE SHALL BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED.
13. ALL SIGNS SHALL BE COVERED OR REMOVED WHEN WORKERS ARE NOT ON SITE.
14. ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2009.
15. ALL DISTANCES BETWEEN SIGNS SHALL BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2009. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS.

CERTIFICATION


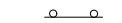

THE UNDERSIGNED HAS COMPLETED AND OBTAINED "PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN" DESIGNED BY: CHENLONG YOU
 CERTIFICATE NO. TCT0013069
 REVIEWD BY: SIEW HWEE KONG
 CERTIFICATE NO. TCT1030659



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LEGEND:

-  WORK SITE (A CLASS HOARDING)
-  SIGN
-  TfNSW ACCREDITED TRAFFIC CONTROLLER

GENERAL NOTES

1. ALL SIGNS SHALL BE MINIMUM SIZE A.
2. ALL SIGNS SHALL BE CLASS 1 RETROREFLECTIVE.
3. LOCATION OF SIGNS SHALL BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY.
4. ALL SIGNAGE SHALL BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED.
5. ALL TRAFFIC GUIDANCE SCHEMES SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE TfNSW "TRAFFIC CONTROL AT WORK SITES" MANUAL, VER 6.1 (TfNSW 2022) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS.
6. THIS TRAFFIC GUIDANCE SCHEME SHALL BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND THE TfNSW TRAFFIC CONTROL AT WORK SITES CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION.
7. THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TCP BEFORE ANY PHYSICAL WORK COMMENCES. ENSURE A COPY OF THE TCP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TCP HAS BEEN IMPLEMENTED CORRECTLY AND THAT IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY AMENDMENTS MADE TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL.
8. IT IS THE RESPONSIBILITY OF AN ACCREDITED PERSONNEL WITH A 'PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN' TICKET TO ENSURE THE FOLLOWING:
 - THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURES THROUGH TO THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND DEVICES. THE CORRESPONDING RECORDS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
 - VEHICULAR ACCESS AND SERVICING REQUIREMENTS SHALL BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES.
 - AT ALL TIMES AN UP-TO-DATE COPY OF "TRAFFIC CONTROL AT WORK SITES" SHALL BE AVAILABLE FOR REFERENCE AND IMPLEMENTATION AS REQUIRED ON-SITE.
9. ALL WORKERS WILL BE CONFINED TO THE DEDICATED WORKS AREA SHOWN ON THE PLAN.
10. IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS TO RELEVANT AUSTRALIAN STANDARDS WHEN THE WORKSITE IS LEFT UNATTENDED.
11. WHEN TRAFFIC CONTROLLER/S ARE NOT ON SITE, TRAFFIC CONTROLLER (T1-34) AND PREPARE TO STOP (T1-18) SIGNS SHALL BE COVERED OR REMOVED.
12. ROADWORK SIGNS SHALL BE COVERED OR REMOVED WHEN WORKERS ARE NOT ON SITE.
13. NOT ALL DIMENSIONS SHOWN ARE TO SCALE.
14. ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2009.
15. ALL DISTANCES BETWEEN SIGNS SHALL BE IN ACCORDANCE WITH SECTION 2.5.2 OF AS1742.3:2009. HOWEVER, MODIFICATIONS CAN BE MADE TO SUIT SITE CONDITIONS.

CERTIFICATION

THE UNDERSIGNED HAS COMPLETED AND OBTAINED "PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN"
 DESIGNED BY: CHENLONG YOU
 CERTIFICATE NO. TCT0013069
 REVIEWD BY: SIEW HWEE KONG
 CERTIFICATE NO. TCT1030659

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The Children's Hospital, Westmead

Construction Noise and Vibration Management-Sub Plan (CNVMSP)

Project ID	20230148.1
Document Title	Construction Noise and Vibration Management-
Attention To	Kane Constructions Pty Ltd

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	16/02/2023	20230148.1/1602A/R0/RF	RF		
1	21/02/2023	20230148.1/2102A/R1/RF	RF		VF
2	28/02/2023	20230148.1/2802A/R2/RF	RF		VF
3	1/06/2023	20230148.1/0106A/R3/RF	RF		VF

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B17 Consent Satisfaction Table

Condition	Condition requirements	Document reference
B17	The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:	
	(a) be prepared by a suitably qualified and experienced noise expert;	Appendix B
	(b) describe procedures for achieving the noise management levels in EPA’s Interim Construction Noise Guideline (DECC, 2009);	Section 9
	(c) describe the reasonable and feasible measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;	Section 9.3
	(d) include strategies that have been developed with the community for managing high noise generating works;	Section 10
	(e) describe the community consultation undertaken to develop the strategies in condition B17(d);	Section 10
	(f) include a complaints management system that would be implemented for the duration of the construction; and	Section 10.1, 10.2
	(g) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B14.	Section 9.7.7 & 9.7.8

Review of Environmental Factors – ‘The Children’s Hospital at Westmead Stage 2 and Viral Vector Manufacturing Facility – Refurbishment Works’ Satisfaction Table

REF reference	Requirement	Document Reference
12. Noise Management Measures		
12.1	During preparation of the construction program, consult with the hospital to determine what areas (if any) of the hospital is particularly noise sensitive, and at what time (ward rooms, operating theatres, etc.).	Section 7, Section 10. Appendix A
12.2	Identify feasible acoustic controls or management techniques (use of screens, scheduling of noisy works, notification of adjoining land users, respite periods) when excessive levels may occur.	Section 9
12.3	For activities where acoustic controls and management techniques still cannot guarantee compliant noise levels, implement a notification process whereby nearby development is made aware of the time and duration of noise intensive construction processes.	Section 10

1 INTRODUCTION

This report presents our assessment of the processes which will be followed in order to manage noise and vibration from construction activities associated with the redevelopment of The Children's Hospital, Westmead. This report is pursuant to development consent SSD conditions B17 for the provision of a Construction Noise and Vibration Management Sub-Plan.

The principal objective of this study is to undertake an evaluation of work to be performed during construction phases and forecast potential impacts of noise and vibration. The evaluation will be used to formulate and streamline effective regulation and mitigation measures.

The principal issues which will be addressed in this report are:

- Specific activities that will be conducted and the associated noise/vibration sources.
- Identification of potentially affected noise/ vibration sensitive receivers.
- The development, hours of work and excavation period.
- The construction noise requirements specified in consent condition B17.
- Noise/ vibration response procedures.
- Assessment of potential noise/ vibration from the proposed construction activities; and

Contingency plans to be implemented in the event of non-compliances and/or noise complaints.

2 SITE DESCRIPTION & PROPOSED DEVELOPMENT

The site is located at the Westmead Health precinct, with the bulk of the works occurring near the Redbank Rd side of the complex. There will be interface with the public in several areas throughout the project. The building is a multi-storey live public hospital. The hospital is comprised of multiple buildings spread over a large area of land and joined by means of internal & external roads, walkways and link bridges. They consist of concrete, brick and steel structures. Interior fit out includes typical commercial environments with both brick, lightweight & glazed walls and ceiling treatments.

The following scope of works is proposed:

- Demolition of the Eastern Airlock (Milestone 1)
- Demolition of the Galleria Airlock (Milestone 1)
- Demolition of the Galleria Stair (Milestone 1)
- Demolition of the Clinical research Centre (Milestone 2)
- Demolition of the Gait Lab and Dining areas (Milestone 3)
- Demolition of the CSRA Blood Bank (Milestone 4)
- Demolition of the Pathology Expansion (Milestone 5)
- Demolition of the Kids Research rooftop (Milestone 6).
- Corridor widening works.
- Demolition of concrete ramp including supporting steel structure to the Kids Research building (Milestone 8).
- Innovation Centre Fitout.

Sensitive receivers surrounding the site have been identified as follows:

- **R1:** Residential receivers north of Redbank Creek, east of Redbank Road.
- **R2:** 'Ronald McDonald House' short-term accommodation, to the north east.
- **R3:** Residential receivers to the south along Hawkesbury Road.
- **H1:** CHW Development site. We note that the CHW will be operational during redevelopment, Areas within CHW still operating are considered sensitive receivers.
- **H2:** Cumberland Hospital to the east.
- **H3:** Children's medical Research Institute (CMRI) to the south west.
- **H4:** Westmead Institute of Medical Research (WIMR) to the south west.
- **H5:** Central Acute Services Building (CASB) to the west. We note that development also encompasses CASB Innovation Centre.
- **H6:** Paediatric Services Building (PSB) to the west (currently under construction).
- **H7:** Kids Research (KR) to the west. We note that development also encompasses part of KR.

An aerial photo of the site, monitoring locations and surrounding receivers is shown below in Figure 1. Detailed site map showing locations of proposed works is provided in Figure 2.

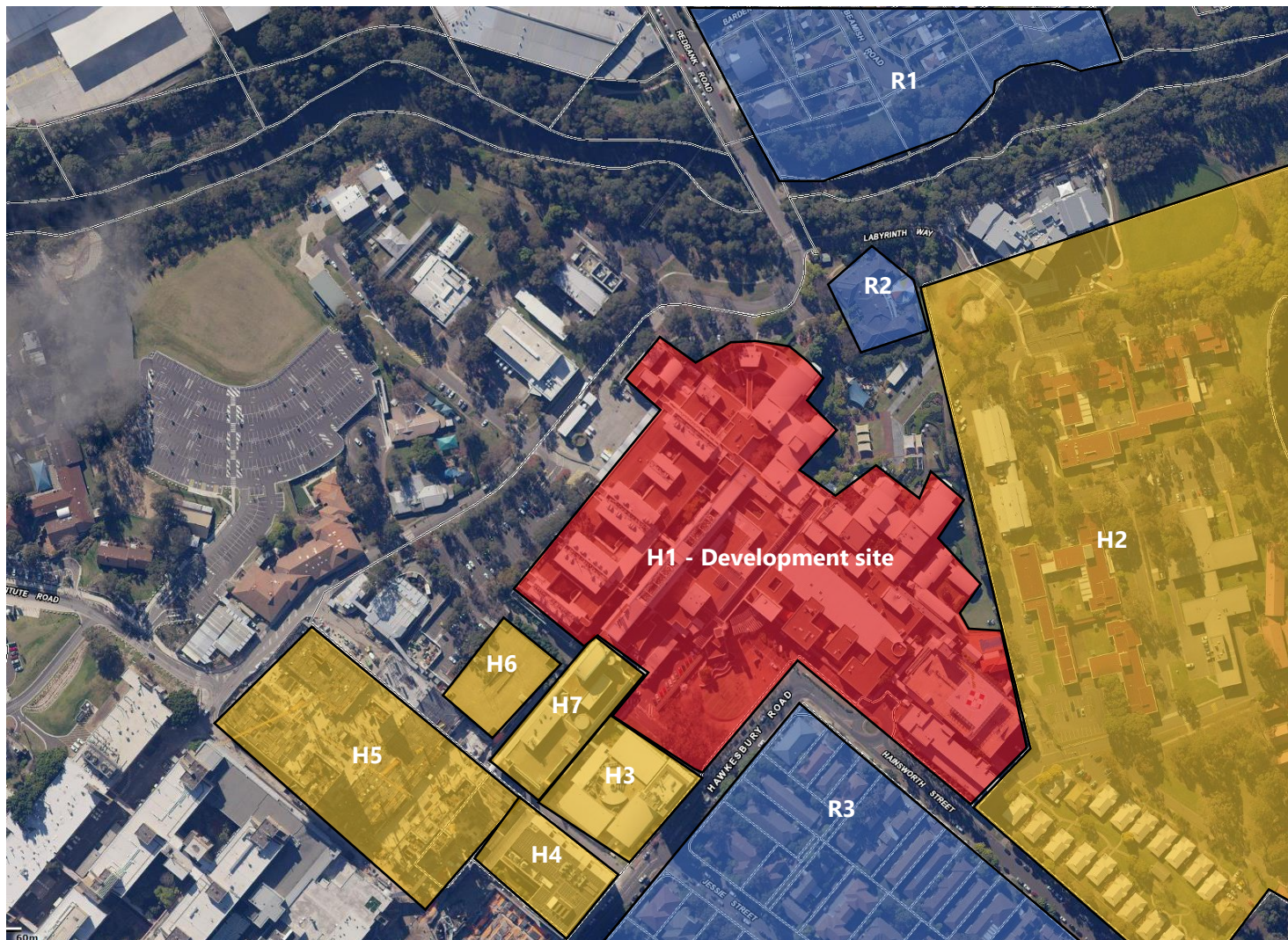


Figure 1 – Overview of site and surrounding developments (Source: Six Maps)

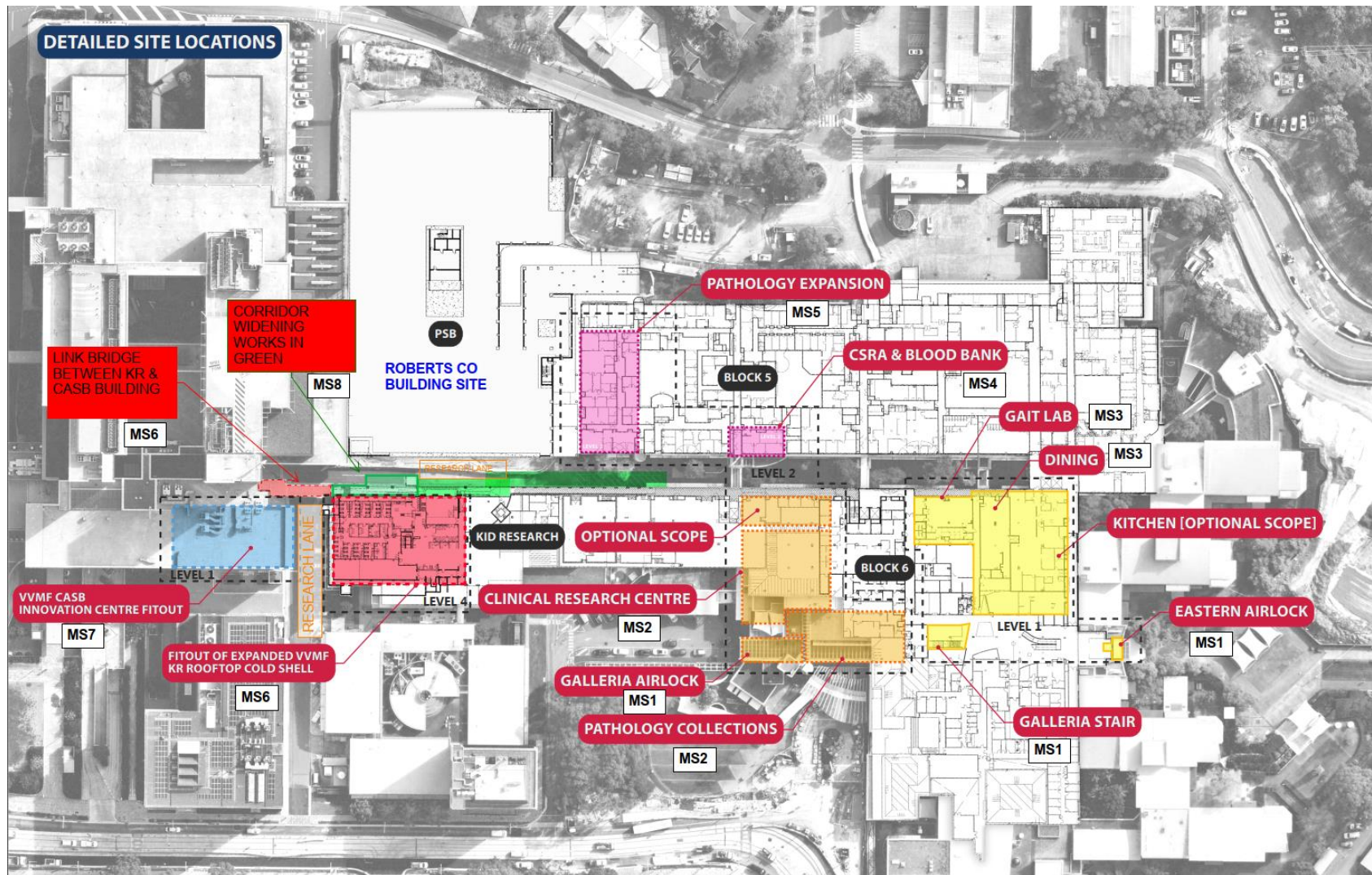


Figure 2 – Detailed Site Locations (Source: Kane Constructions)

3 ACTIVITIES TO BE CONDUCTED AND ASSOCIATED NOISE SOURCES

The primary noise producing equipment and activities likely to occur during the works have been provided by Kane Constructions and outlined below.

For internal works, the following noise generating activities/equipment are anticipated:

- Internal demolition using hand/power tools
- Trucks for material delivery/removal

For the demolition of concrete foot ramp entrance to kid's research facility, the following noise generating activities/equipment are anticipated:

- Crane
- Demolition road saw
- Excavators (3-5 tonne)
- Hand/power tools
- Trucks for material removal
- Erection of scaffolding

For the structural demolition of concrete awning to Kids Research facility, the following noise generating activities/equipment are anticipated:

- High frequency demolition saw or track mounted wall saw
- Core drilling
- Jackhammering
- 30-50 tonne crane
- Hand/power tools
- Trucks for material removal

4 HOURS OF WORK AND DURATION

4.1 HOURS OF WORK

Consent conditions C4-C8 stipulates that construction hours are limited as follows:

Construction Hours

- C4. Construction, including the delivery of materials to and 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.
- C5. Notwithstanding condition C4, provided noise levels do not exceed the existing background noise level plus 5dB, works may also be undertaken during the following hours:
- (a) between 6pm and 7pm, Mondays to Fridays inclusive; and
 - (b) between 1pm and 5pm, Saturdays.
- C6. Construction activities may be undertaken outside of the hours in condition C4 and C5 if required:
- (a) by the Police or a public authority for the delivery of vehicles, plant or materials; or
 - (b) in an emergency to avoid the loss of life, damage to property or to prevent environmental harm; or
 - (c) where the works are inaudible at the nearest sensitive receivers; or
 - (d) for the delivery, set-up and removal of construction cranes, where notice of the crane-related works is provided to the Planning Secretary and affected residents at least seven days prior to the works; or
 - (e) where a variation is approved in advance in writing by the Planning Secretary or her nominee if appropriate justification is provided for the works.
- C7. Notification of such construction activities as referenced in condition C6 must be given to affected residents before undertaking the activities or as soon as is practical afterwards.
- C8. Rock breaking, rock hammering, sheet piling, pile driving and similar activities may only be carried out between the following hours:
- (a) 9am to 12pm, Monday to Friday;
 - (b) 2pm to 5pm Monday to Friday; and
 - (c) 9am to 12pm, Saturday.

A summary of approved construction hours is provided in Table 1 below:

Table 1 – Summary of Approved Construction Hours

Construction Activity	Development Consent Condition	Day of the Week – Permitted Times		
		Monday - Friday	Saturday	Sunday & Public Holidays
Construction and delivery of materials to and from site	C4	7:00am – 6:00pm	8:00am – 1:00pm	None permitted.
Construction and delivery of materials to and from site	C5 (BG+5 noise limit)	N/A	1:00pm – 5:00pm	None permitted
Rock breaking, rock hammering, sheet piling, pile driving	C8	9:00am – 12:00pm, and 2:00pm – 5:00pm	9:00am – 12:00pm	None permitted

5 EXISTING BACKGROUND NOISE LEVELS

Existing background noise levels for receivers external to the site are based on data provided in the detailed Design Acoustic Report for the project prepared by Stantec (Ref: 44311, dated 25/2/22).

Table 2 – Rating Background Noise Levels

Location	RBL – Time of Day		
	Daytime (7am – 6pm)	Evening (6pm -10pm)	Night (10pm – 7am)
Surrounding residential receivers	43 dB(A) _{L90(Period)}	43* dB(A) _{L90(Period)}	42 dB(A) _{L90(Period)}

*44dB(A) measured.

6 CONSTRUCTION NOISE AND VIBRATION EMISSION MANAGEMENT LEVELS

6.1 NOISE MANAGEMENT LEVELS

Noise emissions associated with construction activities on the project site to external areas of receivers will be assessed in with reference to the following:

- Development Consent Condition B17
- NSW EPA's *Interim Construction Noise Guideline (DECC, 2009)*,
- Protection of the Environment Operations Act 1997,
- Australian Standard AS2436:2010 "Guide to Noise Control on Construction, Maintenance and Demolition Sites.

6.1.1 Development Consent Condition C13

Consent conditions state the following with respect to construction noise limits:

Construction Noise Limits

C13. Construction must be undertaken in accordance with 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.

We note that DECC noise management levels as detailed in the Interim construction Noise Guideline (ICNG) are not regulatory stop-work limits. This is discussed further in section 6.1.2 below.

6.1.2 2009 NSW Environmental Protection Authority (EPA) document – "*Interim Construction Noise Guideline (ICNG) 2009*"

The EPA's ICNG assessment requires:

- Review of noise levels at nearby development
- If necessary, recommendation of noise control strategies in the event that compliance with noise emission goals is not possible.

EPA guidelines adopt differing strategies for noise control depending on the predicted noise level at the nearest residences for construction during the recommended standard hours:

- "*Noise Affected*" level – Where construction noise is predicted to exceed the "noise affected" level at a nearby residence, the proponent should take reasonable/feasible work practices to ensure compliance with the noise affected level. For residential properties, the noise affected level occurs when construction noise exceeds the rating background noise level by more than 10dB.
- "*Highly Noise Affected*" level – Where noise emissions are such that nearby properties are "highly noise affected", noise controls such as respite periods should be considered. For residential properties, the highly noise affected level occurs when construction noise exceeds 75dB(A)_{L_{eq}(15min)} at nearby residences.

The guideline also provides external management levels for land used for commercial or industrial purposes to be assessed at the most affect occupied point of the premises. EPA guidelines recommend a construction noise management level for industrial receivers of 75dB(A) $L_{eq(15\text{-minute})}$.

Section 4.1.2 of the guideline provides that, for other sensitive land uses such as classrooms at educational institutions, the noise management level should not exceed 45 dB(A) internally.

6.1.3 Protection of the Environment Operations Act 1997,

We note that, in the absence of specific noise limits provided in the Protection of the Environment Operations Act 1997 with respect to construction noise, it is considered that adherence to the requirements of the NSW EPA’s ICNG is sufficient in the assessment of ‘offensive noise’.

6.1.4 Report entitled ‘Westmead Hospital N&V Noise Monitoring’, prepared by ARUP ref: 28312-16, 21/4/23

The ARUP report (refer Appendix A) provides noise management levels for mice holding rooms based in a review of applicable research findings as follows:

- L_{Amax} 85 dB (for short duration high noise levels)
- $L_{Aeq}(1\text{minute})$ 69 dB (for more continuous noise generation)

6.1.5 Construction Noise Management Levels Summary

Nosie management levels applicable to the development site and surrounding receivers are summarised in the following tables.

Table 3 – Construction Noise Emission Management Levels – External of Westmead Hospital Precinct

Receiver Type	“Noise Affected” Level - dB(A) $L_{eq(15\text{min})}$	“Highly Noise Affected” Level - dB(A) $L_{eq(15\text{min})}$
Residential Receivers (R1,R2,R3)	53 Background + 10dB(A) (Standard Construction Hours)	75

Construction noise management levels for areas within the hospital precinct are provided below based on the requirements of the ICNG and other applicable reports and guidelines:

Table 4 – Construction Noise Emission Management Level (Other)

Receiver Type	Noise Management Level - dB(A) $L_{eq}(15min)$
Hospitals (when in use)	45 (Internal) 75* (external)
Research Buildings** (when in use)	Laboratories: 55 (Internal) 85* (external) Office areas: 50 (Internal) 80* (External)
WIMR Mice Holding Rooms (refer Section 6.1.4)	L_{Amax} 85 dB (for short duration high noise levels) $L_{Aeq}(1minute)$ 69 dB (for more continuous noise generation)

*Based on a 30dB(A) reduction across a fixed/closed façade.

**The ICNG does not specify noise level requirements for research buildings. As such, an NML of ambient noise + 5db(A) has been adopted, with ambient noise levels based on those specified in AS2107:2106.

6.1.6 Australian Standard AS2436:2010 “Guide to Noise Control on Construction, Maintenance and Demolition Sites

Australian Standard AS2436 does not provide specific noise management targets. The guideline focuses on strategies for developing feasible and reasonable mitigation methodologies, management controls and community liaison to reach realistic compromises between the needs of construction activities and potentially affected receivers.

For the control and regulation of noise from construction sites AS2436:2010 *Guide to noise control on construction, maintenance and demolition sites* nominates the following:

- That reasonable suitable noise management objectives are established.
- That all practicable measures be taken on the building site to regulate noise emissions, including the siting of noisy static processes to locations of the site where they can be shielded, selecting less noisy processes, and if required regulating demolition hours, and

6.2 VIBRATION OBJECTIVES

Development consent conditions state the following with respect to vibration:

Vibration Criteria

- C16. 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 for 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).
- C17. Vibratory compactors must not be used closer than 30m from residential buildings unless vibration monitoring confirms compliance with the vibration criteria specified in condition C16.
- C18. The limits in conditions C16 and C17 apply unless otherwise outlined in a Construction Noise and Vibration Management Plan, approved as part of the CEMP required by condition B17 of this consent.

The criteria and the application of the guidelines mentioned in condition C16-18 are discussed in separate sections below.

6.2.1 German Standard DIN 4150-3 (1999-02) - Ground Borne Vibrations and Damage Limits

German Standard DIN 4150-3 (1999-02) provides vibration velocity guideline levels for use in evaluating the effects of vibration on structures. The criteria presented in DIN 4150-3 (1999-02) are presented in Table 5.

It is noted that the peak velocity is the absolute value of the maximum of any of the three orthogonal component particle velocities as measured at the foundation, and the maximum levels measured in the x- and y-horizontal directions in the plane of the floor of the uppermost storey.

Table 5 – DIN 4150-3 (1999-02) Safe Limits for Building Vibration

TYPE OF STRUCTURE		PEAK PARTICLE VELOCITY (mms ⁻¹)			
		At Foundation at a Frequency of			Plane of Floor of Uppermost Storey
		< 10Hz	10Hz to 50Hz	50Hz to 100Hz	All Frequencies
1	Buildings used in commercial purposes, industrial buildings and buildings of similar design	20	20 to 40	40 to 50	40
2	Dwellings and buildings of similar design and/or use	5	5 to 15	15 to 20	15
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 (e.g. buildings that are under a preservation order)	3	3 to 8	8 to 10	8

6.2.2 Environmental Noise Management Assessing Vibration: a technical guideline (DEC, 2006) - Managing Assessing Impacts

Department of Environment and Conservation NSW “Assessing Vibration: A Technical Guideline” (Feb 2006) is based on the guidelines contained in BS 6472:1992. This guideline provides procedures for assessing tactile vibration and regenerated noise within potentially affected buildings.

The recommendations of this guideline should be adopted to assess and manage vibration within the excavation/construction site.

Table 6 – EPA Recommended Vibration Criteria

Place	Time	RMS acceleration (m/s ²)		RMS velocity (mm/s)		Peak velocity (mm/s)	
		Preferred	Maximum	Preferred	Maximum	Preferred	Maximum
Continuous Vibration							
Critical Working Areas	Daytime	0.005	0.01	0.1	0.2	0.14	0.28
Residences		0.01	0.02	0.2	0.4	0.28	0.56
Offices		0.02	0.04	0.4	0.8	0.56	1.1
Workshops		0.04	0.08	0.8	1.6	1.1	2.2
Impulsive Vibration							
Critical Working Areas	Daytime	0.005	0.01	0.1	0.2	0.14	0.28
Residences		0.3	0.6	6.0	12.0	8.6	17.0
Offices		0.64	1.28	13.0	26.0	18.0	36.0
Workshops		0.64	1.28	13.0	26.0	18.0	36.0

6.2.3 Additional Vibration Criteria

While not referenced in the consent, we have been advised of the requirements of a number of vibration sensitive uses surrounding the development site based on client consultation with key stakeholders. Vibration criteria are detailed Appendix A and summarised as follows.

Table 7 -Vibration Requirements for Surrounding Sensitive Spaces

Building	Space	Criteria	
		PPV	RMS Velocity
Children’s Hospital Westmead	Level 1 Laboratories	-	Curve VC-C (1/3rd Octave band VRMS to be below 0.0125mm/s), based on the two analysers
	Level 1 Mental Health Unit	-	Curve 2 Australian Standard AS2670.2 (1/3rd Octave band VRMS to be below 0.204mm/s), based on daytime residence human comfort limit
Central Acute Services Building (CASB)	Level 2 MRI Scanner	-	Curve VC-A (1/3rd Octave band VRMS to be below 0.051mm/s)
	Level 3 Surgical Suite	-	Curve 1 Australian Standard AS2670.2 (1/3rd Octave band VRMS to be below 0.102mm/s)
Kids Research (KR)	Level 1 Animal House	1.0mm/s	Curve 1 Australian Standard AS2670.2 (1/3rd Octave band VRMS to be below 0.102mm/s)
	Level 4 Lab 9	-	Curve VC-B (1/3rd Octave band VRMS to be below 0.025mm/s)
Westmead Institute for Medical Research (WIMR)	Level 1 Animal Holding	-	¼ of human perception curve for vibration

7 ASSESSMENT OF NOISE EMISSIONS

7.1 ACTIVITIES TO BE CONDUCTED AND THE ASSOCIATED NOISE SOURCES

We have been advised of the typical equipment/processes anticipated to be used on the project site. Noise impacts from these activities on the amenity of the surrounding identified sensitive receivers will be predicted based on the A-weighted sound power levels outlined in the table below.

Table 8 – Equipment Sound Power Levels

EQUIPMENT /PROCESS	SOUND POWER LEVEL dB(A)
Internal works	
Hand/Power Tools	100
External works	
Concrete Saw	105
Excavator with Bucket (5 tonne)	100
Hand/Power Tools (Used Externally)	100
Jackhammer	120
Trucks	105
Crane (electric)	95

***Noise levels take into account correction factors (for tonality, intermittency where necessary).**

The noise levels presented in the above table are derived from the following sources:

1. On-site measurements;
2. Table D2 of Australian Standard 2436-1981 & Table A1 of Australian Standard 2436-2010; and
3. Data held by this office from other similar studies.

7.2 NOISE EMISSION PREDICTIONS AND ASSESSMENT

7.2.1 Methodology

Noise generated by plant and equipment will be managed to generally comply with the nominated noise management levels, and where this noise goal may be exceeded, noise will be managed based on principles consistent with Australian Standard 2436.

Predictions of noise levels at the sensitive receivers identified have been made of the construction processes with the potential to produce significant noise.

It is noted that many of the noise sources are present over a small period of the day or may be present for a few days with a significant intervening period before the activity occurs again.

7.2.2 Predicted Noise Levels

An assessment of the principal sources of noise emission has been undertaken to identify the activities that may produce noise and/or vibration impacts so that appropriate ameliorative measures can be formulated.

Noise levels from construction works have been predicted at the surrounding receivers and assessed against the construction noise management levels set out in Section 6. Refer to tables below for predicted noise levels for each receiver.

Predictions take into account the following:

- The distance between the noise source and the receiver.
- The screening effect provided by building structure/shell.
- For receivers external to the site, an external noise level is predicted at the receiver boundary.
- For receivers within the Westmead health Precinct, an internal noise level is predicted at the most affected space within the building.

Table 9 – Predicted Construction Noise Emissions to Surrounding Receivers

Phase of work	Receiver									
	R1	R2	R3	H1 CHW	H2 Cumberland Hospital	H3 CMRI	H4 WIMR	H5 CASB	H6 PSB	H7 KR
Demolition of Eastern Airlock	<30	<30	<30-61	See Discussion Section 7.3.1	<30	<30	<30	<30	<30	<30
Demolition of Galleria Airlock	<30	<30	<30-61	See Discussion Section 7.3.1	<30	<30	<30	<30	<30	<30
Demolition of Galleria stair	<30	<30	<30-61	See Discussion Section 7.3.1	<30	<30	<30	<30	<30	<30
Demolition of the Clinical research Centre	<30	<30	<30-61	See Discussion Section 7.3.1	<30	<30	<30	<30	<30	<30
Demolition of the Gait Lab and Dining areas	<30	<30	<30-61	See Discussion Section 7.3.1	<30	<30	<30	<30	<30	<30
Demolition of the CSRA Blood Bank	<30	<30	<30-61	See Discussion Section 7.3.1	<30-35	<30	<30	<30	<30	<30
Pathology Expansion	<30	<30	<30-61	See Discussion Section 7.3.1	<30-35	<30	<30	<30	<30	<30
Demolition of the Kids Research rooftop	40-45	43-49	53-61	See Discussion Section 7.3.1	<30	40	<30	<30	<30	See Discussion Section 7.3.1
Corridor widening works	<30	<30	<30-61	47-53	<30	<30	<30-35	37-43	43-53	43-53
Demolition of concrete ramp including supporting steel structure to the Kids Research building	<30-40	<30-43	45-70	48-68	<30	<30-48	<30-48	37-62	43-68	43-68
VVMF CASB Innovation Centre Fitout	<30	<30	<30-57	<30-47	<30	<30	See Discussion Section 7.3.1	See Discussion Section 7.3.1	<30-41	<30-53
NML	53 (External)	53 (External)	53 (External)	45 (Internal)	45 (Internal)	Laboratories: 55 (Internal) Office areas: 50 (Internal)	Laboratories: 55 (Internal) Office areas: 50 (Internal)	45 (Internal) Office areas: 50 (Internal)	45 (Internal) Office areas: 50 (Internal)	Laboratories: 55 (Internal) Office areas: 50 (Internal)
HANML	75	75	75	N/A	N/A	N/A	N/A	N/A	N/A	N/A

7.3 DISCUSSION – NOISE

Predicted construction noise levels to surrounding receivers, as presented in tables above, are summarised and discussed below:

7.3.1 Predicted Noise Levels for Works Occurring Within Receiver Building

We note that the hospital and surrounding health buildings will be operational for the duration of works. Where demolition or fitout works are occurring within a building, noise from the works to occupied internal spaces within the same building will be a combination of airborne and structure borne noise. It is impossible to predict noise levels generated by structure borne noise. As such, internal noise level predictions have not been presented. It is likely that occupied spaces within a building will experience exceedances of noise management levels while works are taking place within that building. Given the nature of the works, this is unavoidable. All reasonable and feasible measures should be taken to mitigate noise as much as possible consistent with the measures outlined in this plan.

7.3.2 R1, R2 & R3 - Residential Receivers

Construction noise to residential receivers R1 and R2 to are expected to be below noise management levels.

Noise emissions to residential receivers along Hawkesbury Road, particularly from trucks and the use of jackhammers, are expected to intermittently exceed the noise affected level (NAL), however it is not expected that the 'Highly Noise Affected Level' (HNAL) will be exceeded from any process at surrounding residential locations.

All reasonable and feasible measures should be taken to mitigate noise as much as possible consistent with the measures outlined in this plan.

7.3.3 H1, H2, H5 & H6 – Hospital Receivers

Noise levels are expected to intermittently exceed noise management levels particularly in areas adjacent to works occurring internally, and during the use of jackhammers externally (Refer Discussion Section 7.3.1).

All reasonable and feasible measures should be taken to mitigate noise as much as possible consistent with the measures outlined in this plan.

7.3.4 H3 & H7 – Research Buildings

Noise from construction activities to research buildings are generally below noise management levels with the exception of noise generated by works internal to these buildings (Refer Discussion Section 7.3.1) and exceedances that may occur at the Kids Research during the corridor widening and concrete ramp demolition stages. All reasonable and feasible measures should be taken to mitigate noise as much as possible consistent with the measures outlined in this plan.

7.3.5 H4 WIMR

Sample attended and unattended construction noise measurements have been conducted within the VVMF site and WIMR mice holding room I.1.20 and detailed in the ARUP report entitled 'Westmead hospital N&V Noise Monitoring' with reference 28312-16, dated 21/4/23 (Refer Appendix A). The report notes:

- 'Noise readings taken during construction show that all levels that can potentially be attributed to construction sources do not exceed the 69 dBL_{Aeq} and 85dBL_{Amax} triggers'.

Notwithstanding the above, all reasonable and feasible measures should be taken to mitigate noise as much as possible consistent with the measures outlined in this plan.

8 VIBRATION IMPACTS

The proposed works are not typically associated with heavy vibration and as such are expected to be acceptable to receivers external to the site. We note however, that the CHW itself and adjoining and adjacent buildings to the site contain highly sensitive spaces, equipment and animal houses. Some of the works may have impacts. Vibration monitoring requirements (criteria, reporting and procedures) for the site and adjacent/adjoining buildings to the site are outlined in the memos attached in Appendix A. The following section summarises which receivers are affected by the various stages of works.

8.1.1 Receivers Within Hospital Precinct

Vibration monitoring requirements (criteria, reporting and procedures) for the site and adjacent/adjoining buildings to the site are outlined in the memos attached in Appendix A. Vibration monitoring to the spaces identified is not required for the duration of the build, only when works are occurring in close proximity to the building, within the building or in an adjoining building. The following table outlines when vibration monitoring should occur based on proximity of works to the sensitive areas identified.

Table 10 – Vibration Monitoring Recommendations

Building	Space with monitoring requirement	Stage of works where monitoring is recommended
Children’s Hospital Westmead (CHW)	Level 1 Laboratories	All works except Innovation Centre Fitout
	Level 1 Mental Health Unit	
Central Acute Services Building (CASB)	Level 2 MRI Scanner	Innovation Centre Fitout Corridor widening works Demo of concrete ramp
	Level 3 Surgical Suite	
Kids Research (KR)	Level 1 Animal House	Demo of KR Roof Corridor widening works Demo of concrete ramp
	Level 4 Lab 9	
Westmead Institute for Medical Research (WIMR)	Level 1 Animal Holding	Innovation Centre Fitout Corridor widening works Demo of concrete ramp

We note that that ambient vibration levels may already exceed the nominated limits for the spaces identified above. As such, is recommended that baseline vibration monitoring be undertaken within these spaces prior to the commencement of works. In addition, given the critical nature of the Kids Research Level 1 Animal House, we recommend that simulation measurements of typical construction activities are recommended to be carried out within this space prior to the commencement of works.

8.1.2 Other Internal/External Receivers

For external receivers or receivers internal to the Westmead health Precinct but not identified at this stage as requiring monitoring, vibration monitors can be installed during the key stages in the event of complaints or concern for structural damage.

The monitors are proposed to be fitted with GSM modem and remotely signal up to five mobile phones indicating any exceedance of the prescribed vibration criteria to enable immediate notification to be sent to the contractor when vibration thresholds are approached.

We note, it is impossible to predict the vibrations induced by the construction operations on site at potentially affected receivers. However, the total vibration emissions are to be limited with real-time alarm notification given to the plant operators to ensure that the vibration limits are not exceeded. Based on feedback from the real-time monitoring system, the plant operators will be able to modify their operations to ensure the vibrations are kept within acceptable limits.

8.1.2.1 Vibration Monitoring Download

Downloading of the vibration logger will be conducted on a regular basis. In the event exceedance of vibration criteria or alarms occur, downloading of the logger will be conducted more frequently. Results obtained from the vibration monitor will be presented in a graph format and will be forwarded to the client for review. It is proposed that reports are provided fortnightly with any exceedance in the vibration criteria reported as detailed in this report.

8.1.2.2 Vibration Monitoring Reports

A fortnightly report will be submitted to the client via email summarising the vibration events. The vibration exceedance of limit is recorded the report shall be submitted within 24 hours. Complete results of the continuous vibration logging will be presented in fortnightly reports including graphs of collected data.

9 SPECIFIC NOISE CONTROLS

9.1 STATIC PLANT

If required, additional noise reduction can be achieved by erecting solid barriers around static plant such as diesel generators.

The use of electric powered tower crane means that enclosing of crane motors or fitting of exhaust mufflers is not required. Adopting quieter plant is effective in reducing the noise emitted from its operation.

9.2 ACOUSTIC BARRIERS

The placement of barriers at the source is generally only effective for static plant (i.e. diesel generators). Equipment which is on the move or working in rough or undulating terrain cannot be effectively attenuated by placing barriers at the source. Barriers can also be placed between the source and the receiver.

The degree of noise reduction provided by barriers is dependent on the amount by which line of sight can be blocked by the barrier. If the receiver is totally shielded from the noise source reductions of up to 15 dB(A) can be affected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8 dB(A) may be achieved. Where no line of sight is obstructed by the barrier, generally no noise reduction will occur.

Screens around work areas will provide no material benefit for multi storey receivers as these will overlook screening.

For internal works, where activities occur within a building adjacent to occupied spaces, a temporary partition should be installed to isolate work areas. The rating of the partition would depend on the noise generated in the work area and the sensitivity of the adjacent space.

9.3 OTHER ACTIVITIES

In the event of complaint, noise management techniques identified in this report should be employed to minimise the level of noise impact if management levels are found to be exceeded. This may include additional community consultation and re-scheduling of loud construction processes.

Notwithstanding above, general management techniques and acoustic treatments are included in Section 9.6 which may be implemented on a case-by-case basis to reduce noise emissions to surrounding receivers.

9.4 GENERAL RECOMMENDATIONS

Other noise management practices which may be adopted are discussed below. In addition, notification, reporting and complaints handling procedures should be adopted as recommended in this report.

9.4.1 Treatment of Specific Equipment

Where construction process or appliances are noisy, the use of silencing devices may be possible. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts.

9.4.2 Material Handling

The installation of rubber matting over material handling areas can reduce the sound of impacts due to material being dropped by up to 20dB(A).

9.4.3 Selection of Alternate Appliance or Process

Where a particular activity or construction appliance is found to generate excessive noise levels, it may be possible to select an alternative approach or appliance. For example; the use of a hydraulic hammer on certain areas of the site may potentially generate high levels of noise. By carrying out this activity by use of bulldozers ripping and/or milling machines lower levels of noise will result.

9.4.4 Establishment of Site Practices

This involves the formulation of work practices to reduce noise generation. This includes locating fixed plant items as far as possible from residents as well as rotating plant and equipment to provide respite to receivers. Construction vehicles accessing the site should not queue in residential streets and should only use the designated construction vehicle routes. Loading of these vehicles should occur as far as possible from any sensitive receiver.

9.4.5 Management Training

All site managers should be aware of noise and vibration limits, applicable control measures and methods. They should ensure that all agreed noise and vibration measures are carried out by employees and sub-contractors.

A copy of the Noise Management Plan is to be available to contractors, and site inductions should detail the site contact in the event of noise complaints.

9.4.6 Respite Periods

Kane Constructions has advised that noisy works will occur only during standard construction hours and for a maximum of 45 minutes followed by a minimum 15 minute break.

Respite periods would apply to very noisy works exceeding the highly noise affected management levels or as stipulated for the activities included in Condition C8. Of the activities proposed, jack hammering is the noisiest activity and should be carried out during the hours proposed in condition C8. It is noted that the majority of activities are generally low impact and that no activities have been predicted to exceed the HNML's.

9.4.7 Noise Monitoring

Noise monitoring is to be undertaken in the WIMR building as per the requirements outlined in the memo in Appendix A.

For other receivers, noise monitoring can be undertaken to determine the effectiveness of measures which are been implemented, whilst the results of monitoring can be used to devise further control measures.

Attended noise measurements can be undertaken at key stages when particularly noise generating activities are undertaken or specific items of plant are in operation.

Attended noise measurements are to be conducted in accordance with Australian Standard AS1055: 2018 '*Acoustics- Description and measurement of environmental noise*', and should include the following:

- Type 1 or 2 sound meter (calibrated)
- Use of appropriate noise descriptor (in this case, $L_{eq(15min)}$).
- Detail of measurement position and proximity to reflecting surface if any (building or similar). Measurement positions will typically be a residential property boundary, or internally for other sensitive receiver types detailed in Section 2.

Monitoring should not be conducted under adverse weather conditions. The conditions applying at the time of the measurements should be indicated in the reporting.

9.4.8 Vibration Monitoring

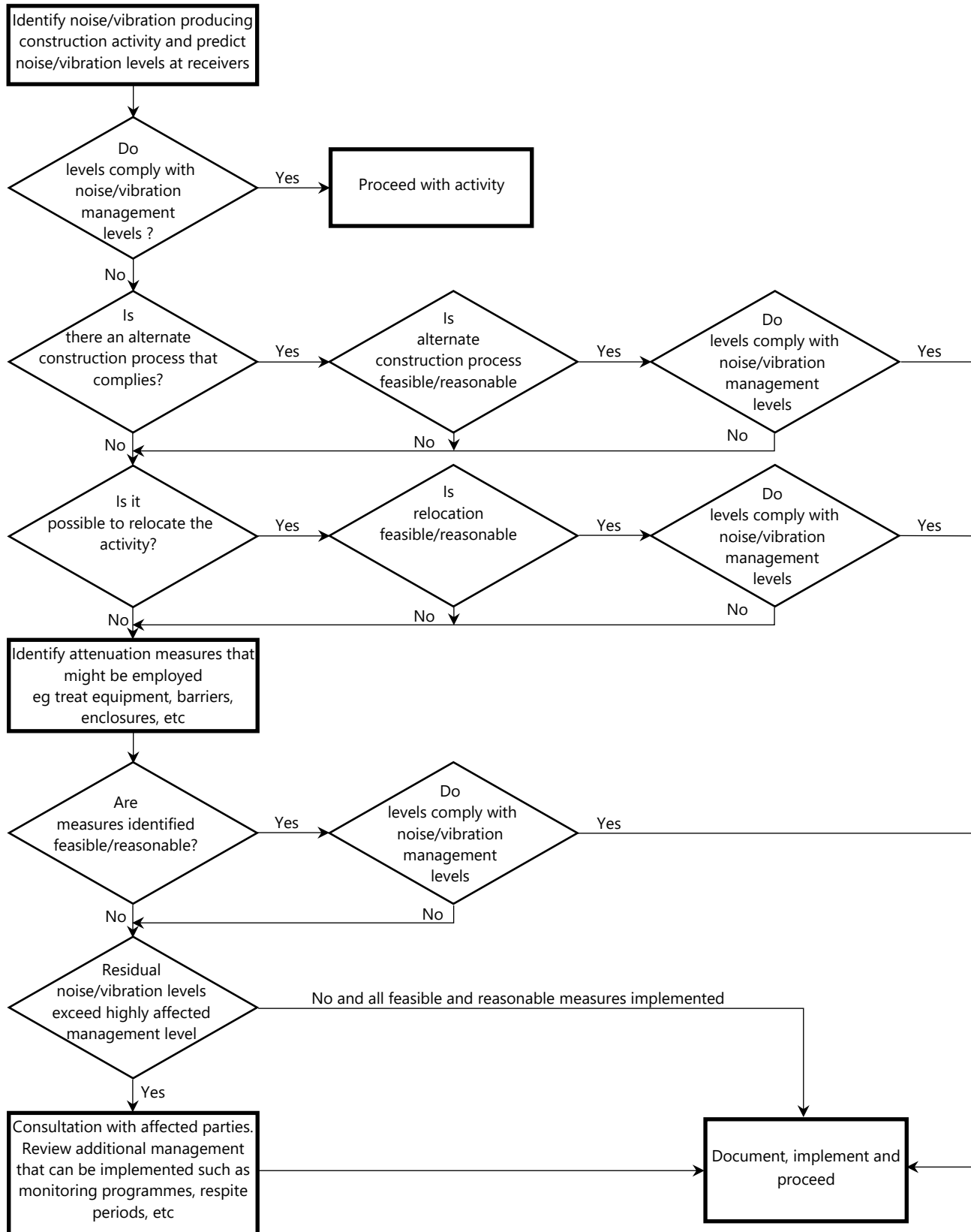
Vibration monitoring for Westmead Health Precinct receivers should be carried out as per the recommendations in section 8 of this report and the requirements outlined in the memos in Appendix A.

Where vibration monitoring is required for external residential receivers, the measurement location should be near the middle of the common boundary between the two properties, or as otherwise determined from time to time to best measure representative vibration levels. The monitor used should log the peak particle velocities and also transmit SMS warnings to the contractor and acoustic expert if a pre-determined threshold is exceeded. Regular reports should be provided (twice monthly) showing the vibration levels recorded and comparing these to the criteria.

Attended or unattended monitoring should also be undertaken at other locations in response to complaints, or as needed to confirm the use of additional plant/processes with the potential to exceed vibration criteria.

9.5 CONTROL OF CONSTRUCTION NOISE AND VIBRATION – PROCEDURAL STEPS

The flow chart presented below illustrates the process that should be followed in assessing construction activities.



9.6 DEALING WITH OFFENSIVE NOISE LEVELS

Should ongoing complaints of excessive noise occur, immediate measures shall be undertaken to investigate the complaint, the cause of noise exceedances and identify the required changes to work practices.

The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

All complaints or offensive noise received should be fully investigated and reported to management. The complainant should also be notified of the results and actions arising from the investigation.

The investigation of offensive noise shall involve where applicable:

- noise measurements at the affected receiver.
- an investigation of the activities occurring at the time of the incident.
- inspection of the activity to determine whether any undue noise is being emitted by equipment.
- Whether work practices were being carried out either within established guidelines or outside these guidelines.

Where an item of plant is found to be emitting excessive noise, the cause is to be rectified as soon as possible. Where work practices within established guidelines are found to result in excessive noise being generated then the guidelines should be modified to reduce noise emissions to acceptable levels. Where guidelines are not being followed, the additional training and counselling of employees should be carried out.

Measurement or other methods shall validate the results of any corrective actions arising from a complaint where applicable.

10 COMMUNITY INTERACTION AND COMPLAINTS HANDLING

10.1 ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES

Consent Condition B17 states the following with respect to community interaction:

- B17. The Construction Noise and Vibration Management Sub-Plan must address, but not be limited to, the following:
- (a) be prepared by a suitably qualified and experienced noise expert;
 - (b) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009);
 - (c) describe a reasonable and feasible mitigation measures to be implemented to manage high noise generating works such as piling, in close proximity to sensitive receivers;
 - (d) include strategies that have been developed with the community for managing high noise generating works;
 - (e) describe the community consultation undertaken to develop the strategies in condition B17(d);
 - (f) include a complaints management system that would be implemented for the duration of the construction; and
 - (g) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the implemented management measures in accordance with the requirements of condition B14.

Consultation Requirements under the SSDA Conditions

MSCP Condition B17 states that the Plan should be prepared in consultation with the relevant government organisations and surrounding stakeholders. These include:

- Children's Hospital Westmead (CHW).
- Central Acute Services Building (CASB).
- Kids Research Institute (KRI).
- Westmead Institute for Medical Research (WIMR).

We note that consultation has already commenced with the parties nominated above and that noise and vibration monitoring locations, criteria and procedures are being developed (See Appendix A).

Ongoing consultation

Ongoing consultation with key hospital stakeholders, particularly CASB and CHW and surrounding medical research facilities (KR and WIMR) containing noise and/or vibration sensitive equipment will continue throughout the construction of the project. This will be in the way of weekly interface and disruption notice meetings.

A complaint procedure will also be implemented where stakeholder complaints are tracked weekly and reported back to the principal during weekly contractor and interface meetings.

These complaints, whether it be from the community members or from hospital stakeholders, will be tracked in KANE's Community Contacts and Complaints Register.

Notification Process as required by REF item 12.3

The REF stipulates the following regarding notification to nearby development where noise objectives are expected to be exceeded.

For activities where acoustic controls and management techniques still cannot guarantee compliant noise levels, implement a notification process whereby nearby development is made aware of the time and duration of noise intensive construction processes.

In light of the above, we recommend that a leaflet is distributed to affected external residential receivers prior to the commencement of noisy works, detailing time and duration of the works. This would in particular apply to residential receivers R3 before the commencement of external works. Notification to receivers R1 and R2 would not be required given that noise emissions to these receivers are expected to generally be below noise management levels.

For receivers within the Westmead Health precinct, notification should take place during weekly meetings discussed on previous page under the heading 'ongoing consultation'.

10.2 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration occur, immediate measures shall be undertaken to investigate the complaint, the cause of the exceedances and identify the required changes to work practices. In the case of exceedances of the vibration limits all work potentially producing vibration shall cease until the exceedance is investigated.

The effectiveness of any changes shall be verified before continuing. Documentation and training of site staff shall occur to ensure the practices that produced the exceedances are not repeated.

If a noise complaint is received the complaint should be recorded on a Noise Complaint Form. The complaint form should list:

- The name and address of the complainant (if provided);
- The time and date the complaint was received;
- The nature of the complaint and the time and date the noise was heard;
- The name of the employee who received the complaint;
- Actions taken to investigate the complaint, and a summary of the results of the investigation;
- Required remedial action, if required;
- Validation of the remedial action; and
- Setup vibration monitoring system at the location represents the nearest vibration receiver location with alarm device which can inform the project manager on site if the vibration exceedance happened.
- Summary of feedback to the complainant.

A permanent register of complaints should be held.

All complaints received should be fully investigated and reported to management. The complainant should also be notified of the results and actions arising from the investigation.

The investigation of a complaint shall involve where applicable;

- noise measurements at the affected receiver;
- an investigation of the activities occurring at the time of the incident;
- inspection of the activity to determine whether any undue noise is being emitted by equipment; and
- Whether work practices were being carried out either within established guidelines or outside these guidelines.

Where an item of plant is found to be emitting excessive noise, the cause is to be rectified as soon as possible. Where work practices within established guidelines are found to result in excessive noise being generated then the guidelines should be modified so as to reduce noise emissions to acceptable levels. Where guidelines are not being followed, the additional training and counselling of employees should be carried out.

Measurement or other methods shall validate the results of any corrective actions arising from a complaint where applicable.

11 CONTINGENCY PLANS

Where non-compliances or noise complaints are raised the following methodology will be implemented.

1. Determine the offending plant/equipment/process.
2. Locate the plant/equipment/process further away from the affected receiver(s) if possible.
3. Implement additional acoustic treatment in the form of localised barriers, silencers etc. where practical.
4. Selecting alternative equipment/processes where practical
5. Setup noise monitoring devices at locations represent nearest noise receivers and provide noise data for each complain time period. Analysis is required and determine suitable noise mitigation measures.

Complaints associated with noise and vibration generated by site activities shall be recorded on a Noise Complaint Form. The person(s) responsible for complaint handling and contact details for receiving of complaints shall be established on site prior to construction works commencing. A sign shall be displayed at the site indicating the Site Manager to the general public and their contact telephone number.

12 CONCLUSION

This document presents a noise and vibration management plan for construction activities associated with the redevelopment of The Children's Hospital, Westmead.

The principal issues which addressed in this report are:

- Specific activities that will be conducted and the associated noise/vibration sources;
- Identification of potentially affected noise/ vibration sensitive receivers;
- The development, hours of work and excavation period;
- The construction noise and vibration requirements specified in development conditions of consent.
- Noise/ vibration response procedures;
- Assessment of potential noise/ vibration from the proposed construction activities; and
- Contingency plans to be implemented in the event of non-compliances and/or noise complaints.

The assessment of noise and vibration indicates that construction activities associated with the project development may generate noise levels that will require some additional management. Adoption of the controls detailed in Section 9 of this report and adherence to the requirements of development consent will ensure that noise impacts will be minimised.

Vibration goals have also been set in this report to minimise structural damage risk for existing structures close to the project site and to protect human comfort in line with the requirements of the consent.

Noting the above, we find the construction noise and vibration management requirements of development consent B17 to be satisfied.

Please contact us should you have any further queries.

Yours faithfully,

A handwritten signature in black ink, appearing to be 'RF', with a long horizontal line extending to the right.

Acoustic Logic Pty Ltd
Ross Ferraro

APPENDIX A – DOCUMENTS OUTLINING NOISE AND VIBRATION REQUIREMENTS AND CONSULTATION UNDERTAKEN WITH KEY STAKEHOLDERS

By email
21 April 2023

Jesse Anil - PwC

Our ref 283812-16

Westmead Hospital N&V Monitoring

Attended Noise Measurements - VVMF Construction Activity

Arup have been engaged by PwC to evaluate the impact of construction activities conducted inside the Westmead Institute for Medical Research (WIMR) Biosciences Facility (BSF) to the adjacent Viral Vector Manufacturing Facility (VVMF). This letter presents the findings of a noise measurement exercise undertaken for trial construction works on 21 March 2023 using attended noise measurements, supplemented by ambient noise data collected from a permanent noise monitor located in WIMR Mice Holding Room I.1.20. It is expected that the measurements summarised within will contribute to the evaluation of construction noise. Supplementary analysis of construction activity to fixed logger position in WIMR is provided for April 6.

Construction noise measurements were undertaken within CASB with reference to the unattended logger location at WIMR being made to correlate measurement for assessment of noise in mice holding room WIMR I.1.20.

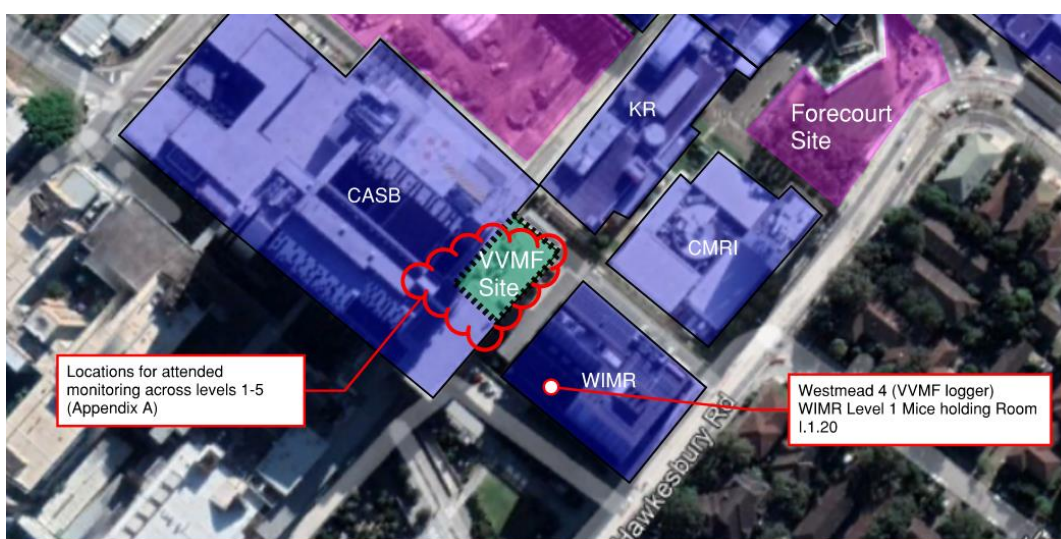


Figure 1: VVMF site location, vicinity of attended CASB monitoring and fixed WIMR noise logger position

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1. CASB

1.1 Test procedure

Short duration noise measurements of 30 seconds to 1 minute were taken in a range of locations within CASB. Where possible, measurements were intended to characterise noise transfer during steady-state construction activity for areas where noise was noticeably louder than the measured background noise levels, or where complaints had been made (L3 innovation space). Testing followed the plan established by Kane Constructions. For reference, Table 1 below presents the equipment used and the time of measurement.

Table 1: Construction staging

Equipment	Start of equipment usage	End of equipment usage
Petrol demolition saw (on VVMF slab)	10:33 am	10:38 am
Petrol demolition saw (on VVMF primary beam)	10:43 am	10:49 am
Small jackhammer	10:55 am	11:04 am
Large jackhammer	11:10 am	11:15 am
1.5t excavator* with jackhammer	11:54 am	12:01 pm
Road saw	12:10 pm	12:17 pm
1.5t excavator* with jackhammer	12:25 am	12:27 pm
Cut Removal with Excavator & Skid Steer	12:34 pm	12:44 pm
Hammer drill (on L2 slab – VVMF roof)	14:12 pm	14:15 pm
Petrol demolition saw (on VVMF primary beam after construction of acoustic barrier)	14:22 pm	14:25 pm
Drilling – Starter bar	14:31 pm	14:34 pm
Angle grinder	14:39 pm	14:41 pm

*An original schedule and actual works were expected to use a 5t excavator. However, given the VVMF space is not currently accessible via a 5t excavator, pending widening of openings, a 1.5t excavator was used as a substitute.

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1.2 Instrumentation

Measurements were carried out using equipment as detailed in Table 2. The sound level meters and microphones are Type 1, conforming to BS EN 61672-1: 2003. The calibration of the sound level meters, pre-amplifier and microphone chains were checked before and after use, to confirm that there was no significant drift in meter response at the calibrator frequency and level. All Arup’s sound level meters are regularly calibrated, and this calibration is traceable to international standards.

Table 2: Summary of measurement equipment

Instrument	Manufacturer	Type	Serial Number
Modular precision sound level analyser	Brüel and Kjær	2250 G4	3029878
Modular precision sound level analyser	Brüel and Kjær	4189	25053
Type 1 sound pressure level calibrator	Brüel and Kjær	4231	2445716

The equipment was calibrated prior and subsequent to the measurement period with no significant drift in calibration observed.

1.3 Results

Table 3 summarises the noise levels measured during attended measurements. Measurement locations and source IDs are presented to show the receiver locations in relation to placement of associated construction equipment. Table 3 is to be read in conjunction with the mark-up included within Appendix A that details measurement locations in relation to the noise source locations.

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Table 3: CASB attended measurement results

ID	Measurement Location	Source	Source Location	dB LAeq	dB LAmax	Note ¹
1	L1 Corridor (INVC.TE.011)	Background Noise	n/a	45	60	
1	L1 Corridor (INVC.TE.011)	Electric Demo Saw	S1. VVMF Slab	71	76	No acoustic barrier
1	L1 Corridor (INVC.TE.011)	Petrol Demo Saw	S2. VVMF Primary Beam	79	81	No acoustic barrier
1	L1 Corridor (INVC.TE.011)	Small Jackhammer	S2. VVMF Primary Beam	69	74	No acoustic barrier
1	L1 Corridor (INVC.TE.011)	Large Jackhammer	S2. VVMF Primary Beam	65	69	No acoustic barrier
1	L1 Corridor (INVC.TE.011)	Petrol Demo Saw	S2. VVMF Primary Beam	70	72	Acoustic barrier constructed
2	L1 ED Reception (CASB.EDU.243)	Background Noise	n/a	62	73	Jackhammer nearly inaudible during operation prior
3	L2 Exposition (INVC.INC.002)	Background Noise	n/a	37	46	
3	L2 Exposition (INVC.INC.002)	1.5T Excavator with Jackhammer	S2. VVMF Primary Beam	77	80	Structureborne
3	L2 Exposition (INVC.INC.002)	Hammer Drill	S3. VVMF Roof Slab	74	75	Structureborne
3	L2 Exposition (INVC.INC.002)	Drilling - Starter Bar Install	S4.	48	53	Airborne (via ductwork)
3	L2 Exposition (INVC.INC.002)	Angle Grinder	S4.	44	55	Airborne (via ductwork)
3	L2 Exposition (INVC.INC.002)	Cut Removal with Excavator & Skid Steer	S1. VVMF Slab	54	63	Airborne (via ductwork)

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ID	Measurement Location	Source	Source Location	dB LAeq	dB LAmax	Note ¹
3	L2 Exposition (INVC.INC.002)	Road Saw	S1. VVMF Slab	62	65	Airborne (via ductwork)
4	L3 Top of Stairs (CASB.ENG.890)	Background	n/a	44	46	
4	L3 Top of Stairs (CASB.ENG.890)	1.5T Excavator with Jackhammer	S2. VVMF Primary Beam	70	71	Structureborne
4	L3 Top of Stairs (CASB.ENG.890)	Hammer Drill	S3. VVMF Roof Slab	58	60	Structureborne
5	L4 Near Fire Stairs (INVC.INC.025)	1.5T Excavator with Jackhammer	S2. VVMF Primary Beam	69	70	Structureborne
5	L4 Near Fire Stairs (INVC.INC.025)	Road Saw	S1. VVMF Slab	49	55	Airborne
6	L5 USYD Open Space Inf Gr (USYD.INC.069)	Background	n/a	50	57	Conversations
6	L5 USYD Open Space Inf Gr (USYD.INC.069)	1.5T Excavator with Jackhammer	S2. VVMF Primary Beam	61	62	Structureborne
7	L3 Innovation Space Meeting Room 2 (INVC.INC.031)	Background Noise	n/a	33	49	Quiet office
7	L3 Innovation Space Meeting Room 2 (INVC.INC.031)	1.5T Excavator with Jackhammer	S2. VVMF Primary Beam	67	67	Structureborne
8	L3 Innovation Space Collab Zone (INVC.INC.103)	Background Noise	n/a	52	66	Conversations
8	L3 Innovation Space Collab Zone (INVC.INC.103)	1.5T Excavator with Jackhammer	S2. VVMF Primary Beam	76	77	Structureborne
1. Refer to Section 1.4.1 for discussion on structureborne/airborne						

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1.4 Discussion

1.4.1 Modes of Noise Transfer to L2-5

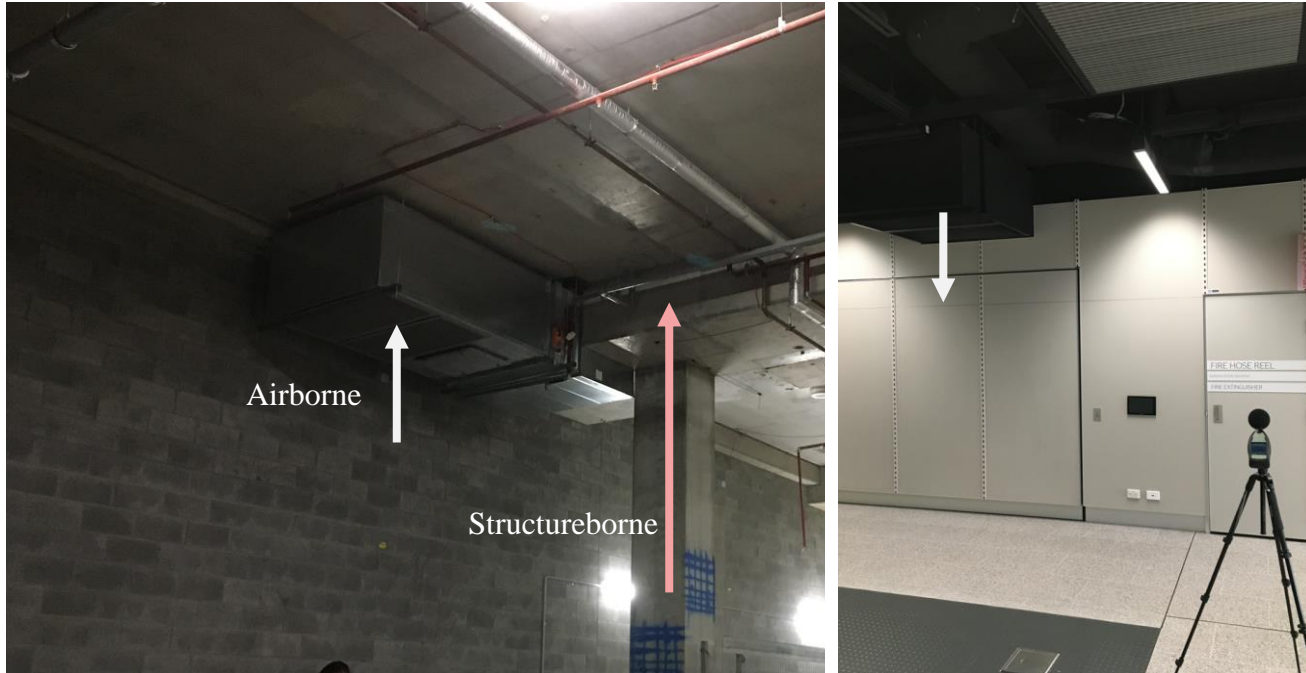


Figure 2: L1 and L2 airborne and structureborne noise transfer paths (Left: L1 VVMF site, Right: L2 Exposition)

Reradiated structureborne noise was noted across Levels 2-5 for construction options targeting the primary beam. Where structureborne noise was non-dominant, there was moderate noise intrusion into L2 exposition space INVC.INC.002 with an observed noise transfer path through exposed ductwork at the ceiling of the VVMF site. All ducts within this space would benefit from temporary covering during works.

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1.4.2 Acoustic Barrier

A temporary construction hoarding packed with mineral wool insulation was built in front of the glazed sections of the partition between the VVMF site and the lift lobby/corridor on L1. Measurements indicate this provides an approximate 9dB improvement in measured noise levels within corridor INVC.TE.011. It is expected that this will translate to a beneficial reduction in airborne noise transfer within the ED reception, however this was not tested during the survey.



Figure 3: Temporary acoustic barrier - VVMF site

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2. WIMR

2.1 Noise management levels

The following advice is provided regarding the Arup recommended noise management level trigger setting for I.1.20 Mice Holding Room within WIMR.

Based on a review of applicable research findings, Arup has proposed two different noise trigger limits:

- L_{Amax} 85 dB (for short duration high noise levels)
- $L_{Aeq(1minute)}$ 69 dB (for more continuous noise generation)

The noise management levels above were determined following both the review of current noise levels within the room when no construction was conducted, and research findings related to animal housing and breeding facilities¹.

The research indicates that noise and vibration from construction activities may have a negative impact on research animals. It is understood that it is the rapid increase in noise and vibration generated by construction activities that contributes to the adverse impacts. It is also understood that the initial adverse behaviours eventually subside as the animals become used to the environment.

The research indicates that typical day-to-day activities within animal housing labs generate noise significantly higher than the measured background noise levels (L_{max} 80-90 dBA). The day-to-day noise activities are typically short duration (few seconds), which lab animals are regularly exposed and accustomed to. The noise measurements conducted within WIMR were consistent with those noted in the research during the monitoring period with no construction (L_{max} 80-96 dBA). The research concluded that alert levels with a maximum level to not exceed of 85 dBL_{Amax} were deemed appropriate.

Accordingly, it is therefore proposed to adopt the trigger level to 85 dBL_{Amax} based on the maximum in the research paper, which would result in significantly less false triggers per day.

In addition, the research notes that animals may also be impacted by more continuous construction noises (such as core drilling or concrete drilling). While no alternative trigger metrics are recommended in the research paper, it is proposed to set an additional trigger based on an $L_{Aeq(1minute)}$, which corresponds to the average measured level over the time period. Based on the measured noise levels with no construction, an $L_{Aeq(1min)}$ of 69 dBA was exceeded approximately 1 time per day on average (28 times over the period identified above). It is proposed to adopt this level.

¹ Richard Finley and Chenzi Wu, 'Noise and vibration criteria and observations for construction works within animal research and breeding facilities' dated November 2022

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2.2 Noise Impacts to Mice Holding Room I.1.20 (21 March)

Measured noise levels during trial construction works on 21 March 2023 are detailed in Table 4 below. Source positions are included in Appendix A.

Results are derived from one minute noise logging data from the ARL noise logger web portal, which is then correlated with timestamps from attended measurements. While noise levels during construction are raised above measured background levels for the holding room, fluctuations may also be caused by activity within the facility. Noise readings taken during construction show that all levels that can potentially be attributed to construction sources do not exceed the 69 dBL_{Aeq} and 85dBL_{Amax} triggers derived in Section 2.1.

Table 4 presents the noise logging results obtained via the ARL noise logger portal and correlated to the VVMF construction activity based on start time. dBC results are added so that low frequency noise contribution can be evaluated – these numbers do not directly correlate with dBA results. Triggers for dBC levels have not been established.

Table 4: Noise Impacts to Mice Holding Room

Equipment	Source Location ID	Start Time	Measured Level dB L _{Aeq} 1min	Measured Level dB L _{Ceq} 1min	Measured Level dB L _{Amax}	Measured Level dB L _{Cmax}
n/a (Background)	-	9.20am	49	59	51	72
Electric Concrete Saw	S1 – Slab	10:15am	50	64	59	82
Petrol Concrete Saw	S1 – Slab	10:34am	56	63	73	75
Petrol Concrete Saw	S2 – Primary Beam	10:45am	50	64	57	76
		14:24pm	59	71	79	93
Large Jackhammer	S2 – Primary Beam	11:09am	55	64	66	80
Excavator With Jackhammer Attachment	S2 – Primary Beam	11:56am	56	70	77	92
		12:26pm	54	73	76	94
Road Saw	S1 – Slab	12:12pm	55	62	77	77
Cut Removal with Excavator & Skid Steer	S1 – Slab	12:35pm	53	64	63	77
Hammer Drill	S3 - Ceiling	14:13pm	57	63	72	71
Drilling	S4	14:32pm	54	64	68	79

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Equipment	Source Location ID	Start Time	Measured Level dB LAeq 1min	Measured Level dB LCeq 1min	Measured Level dB LAmax	Measured Level dB LCmax
Angle Grinder	S4	14:39pm	55	63	77	78

2.3 Noise Impacts to Mice Holding Room I.1.20 (6 April)

A secondary construction stage was undertaken on April 6, supplementing initial data presented in Table 4 for Mice Holding Room. These findings are detailed below in Table 6.

Table 5: Construction staging

Equipment	Start of equipment usage	End of equipment usage
Drilling machine and 5.5t excavator	11:28am	11:38am
5.5t crusher and skid steer	12:22pm	12:39pm
	12:56pm	13:02pm
	13:04pm	13:14pm
Concrete Pump	14:38pm	14:49pm

Table 6: Noise impacts to Mice Holding Room

Equipment	Source Location ID	Start Time	Measured Level dB LAeq 1min	Measured Level dB LCeq 1min	Measured Level dB LAmax	Measured Level dB LCmax
n/a (Background)	-	8:40am	49	60	52	64
Drilling machine and 5.5t excavator	S5 – Drilling Site	11:28am	56	68	74	89
5.5t crusher and skid steer	S6 – Primary Torsion Beam	12:22pm	66	76	83	98
		12:56pm	59	74	78	97
		13:04pm	56	71	78	94
Concrete Pump	S1 – Slab	14:38pm	58	71	77	93

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Regards,

Thomas Graham-Murdoch
Consultant

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e thomas.graham-murdoch@arup.com

Our ref 283812-16
Date 21 April 2023

Appendix A – Measurement Locations and Construction Source Positions



Legend -
Measurement Position, ID: ● #
Source Location: ☁ S#

LEGEND

- Westmead Hospital Zones
- CHW, Innovation Centre & USYD Zones
- COLD SHELL
- WARM SHELL
- PUBLIC
- STAFF / RESTRICTED
- LOGISTICS / RESTRICTED
- PLANT
- STAIRS

TYPICAL FFL 21,300 UNLESS OTHERWISE NOTED

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REV	DATE	DESCRIPTION	DWN	CHK
V	13/12/19	ROOMS RE TAGGED	JC	CM
W	10/01/20	FORTNIGHTLY ISSUE	JC	CM
X	07/02/20	FORTNIGHTLY ISSUE	JC	CM
Y	05/03/20	RISER ADDED	RSH	CM
Z	01/05/20	AS BUILT	JC	DJM
AA	04/05/20	AS BUILT UPDATE	JC	DJM
BB	08/07/20	AS BUILT - ROOM TAGS UPDATE	JC	DJM

PROJECT: **Westmead Hospital**
 DRAWING TITLE: **GENERAL ARRANGEMENT - LEVEL 01**

PROJECT NUMBER: **232186**
 DRAWING NUMBER: **CASB-HDR-AR-DG-820101**
 STATUS: **AS BUILT**

REVISION: **BB**
 SCALE: **1 : 250 @ A1**

CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060

MULTIPLEX

UNIVERSITY CLINICS

Legend -
 Measurement Position, ID: ● #
 Source Location: ☁ S#

Superimposed location of noise sources on L1

LEGEND

- Westmead Hospital Zones
- CHW, Innovation Centre & USYD Zones
- COLD SHELL
- WARM SHELL
- PUBLIC
- STAFF/ RESTRICTED
- LOGISTICS / RESTRICTED
- PLANT
- STAIRS

TYPICAL FFL 25,800 UNLESS OTHERWISE NOTED

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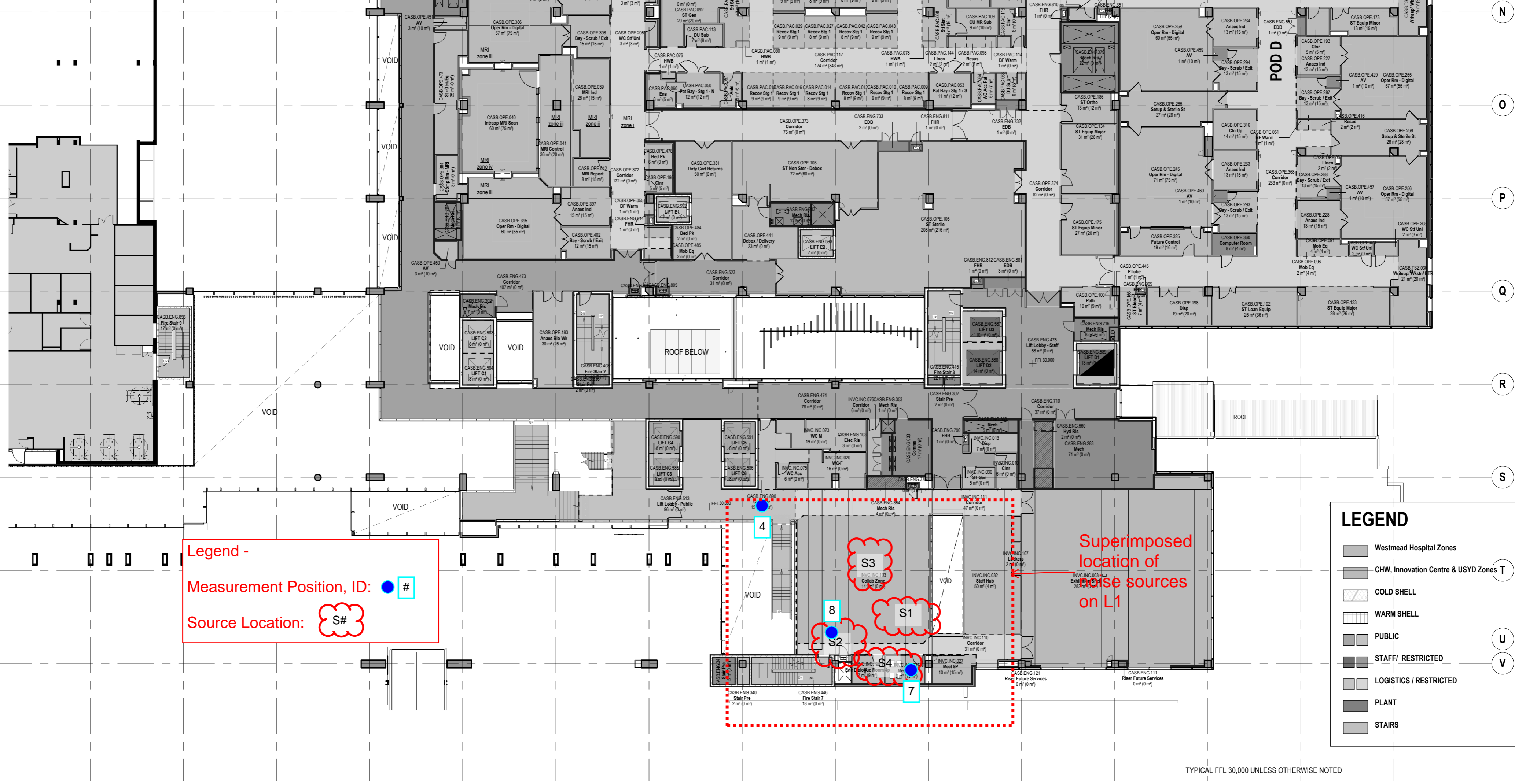
REV	DATE	DESCRIPTION	DWN	CHK
AA	10/01/20	FORTNIGHTLY ISSUE	JC	CM
BB	07/02/20	FORTNIGHTLY ISSUE	JC	CM
CC	19/02/20	FORTNIGHTLY ISSUE	AW	CM
DD	02/03/20	ROOM REMOVED	HL	CL
EE	01/05/20	AS BUILT	JC	DJM
FF	04/05/20	AS BUILT UPDATE	JC	DJM
GG	08/07/20	AS BUILT - ROOM TAGS UPDATE	JC	DJM

PROJECT: **Westmead Hospital**
 DRAWING TITLE: **GENERAL ARRANGEMENT - LEVEL 02**

PROJECT NUMBER: **232186**
 DRAWING NUMBER: **CASB-HDR-AR-DG-820201**
 STATUS: **AS BUILT**

REVISION: **GG**
 SCALE: **1 : 250 @ A1**

NSW GOVERNMENT Health Infrastructure
 CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060
MULTIPLEX



Legend -
 Measurement Position, ID: ● #
 Source Location: ☁ S#

Superimposed location of noise sources on L1

LEGEND

- Westmead Hospital Zones
- CHW, Innovation Centre & USYD Zones T
- COLD SHELL
- WARM SHELL
- PUBLIC
- STAFF/ RESTRICTED
- LOGISTICS / RESTRICTED
- PLANT
- STAIRS

TYPICAL FFL 30,000 UNLESS OTHERWISE NOTED

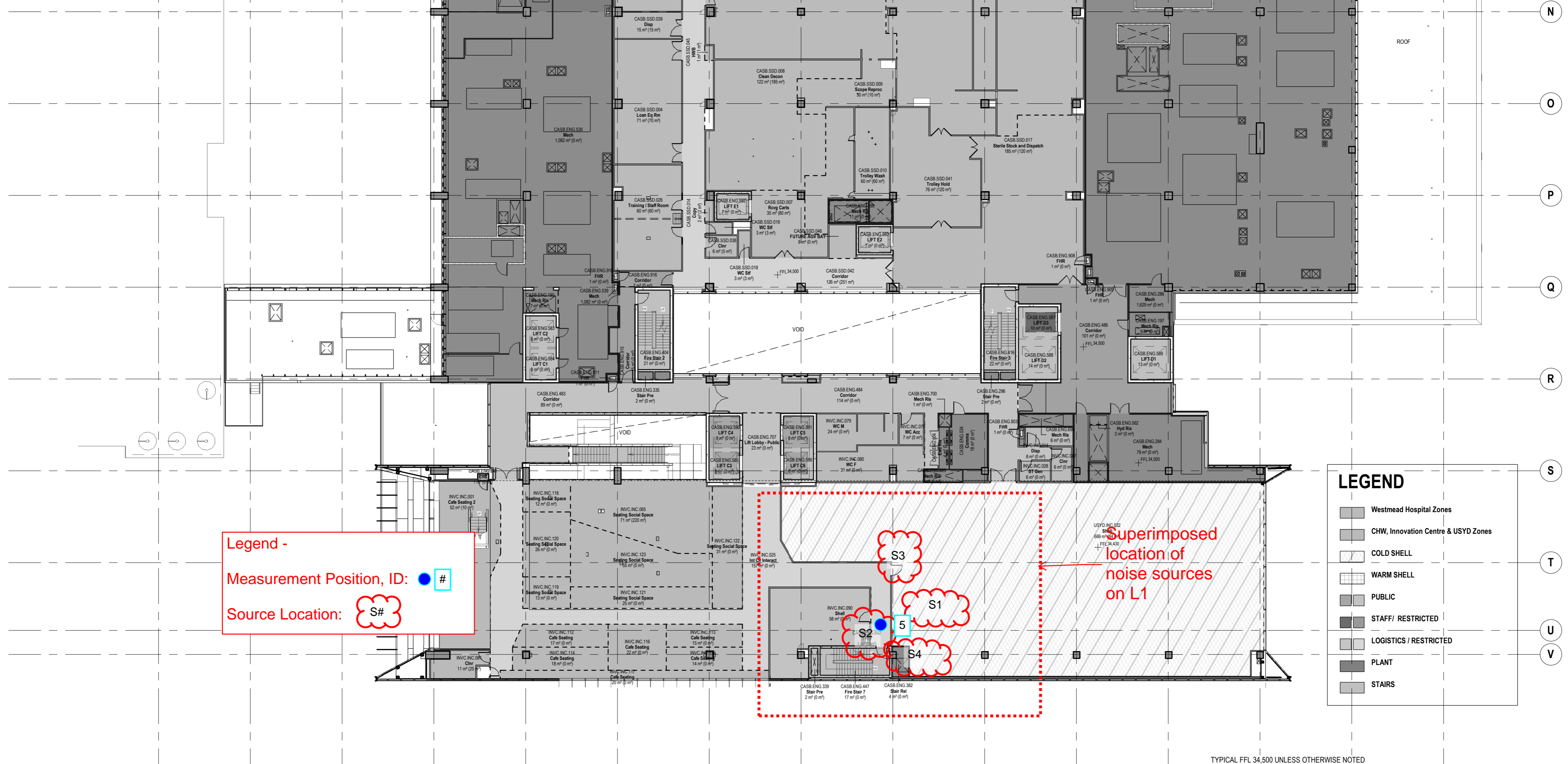
1/05/2020 4:29:27 PM C:\vt\2019\232186-A-CASB-INTERNAL_Jose.CruzUPGBK.rvt

REV	DATE	DESCRIPTION	DWN	CHK
R	12/07/19	FORTNIGHTLY ISSUE	JC	CM
S	09/08/19	FORTNIGHTLY ISSUE	JC	CM
T	27/09/19	FORTNIGHTLY ISSUE	JC	CM
U	25/10/19	FORTNIGHTLY ISSUE	JC	CM
V	06/12/19	FORTNIGHTLY ISSUE	JC	CM
W	07/02/20	FORTNIGHTLY ISSUE	JC	CM
X	01/05/20	AS BUILT	JC	DJM

PROJECT: **Westmead Hospital**
 DRAWING TITLE: **GENERAL ARRANGEMENT - LEVEL 03**

PROJECT NUMBER: **232186**
 DRAWING NUMBER: **CASB-HDR-AR-DG-820301**
 STATUS: **AS BUILT**
 REVISION: **X**
 SCALE: **1 : 250 @ A1**

CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060

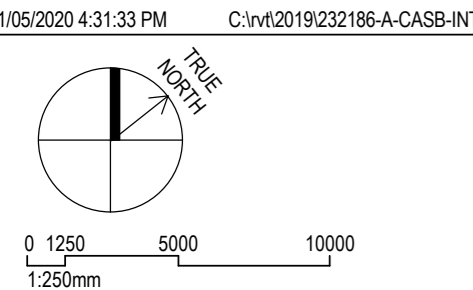


Legend -
 Measurement Position, ID: ● #
 Source Location: ☁ S#

LEGEND

- Westmead Hospital Zones
- CHW, Innovation Centre & USYD Zones
- COLD SHELL
- WARM SHELL
- PUBLIC
- STAFF/ RESTRICTED
- LOGISTICS / RESTRICTED
- PLANT
- STAIRS

TYPICAL FFL 34,500 UNLESS OTHERWISE NOTED



REV	DATE	DESCRIPTION	DWN	CHK
N	26/07/19	FORTNIGHTLY ISSUE	JC	CM
O	23/08/19	FORTNIGHTLY ISSUE	JC	CM
P	27/09/19	FORTNIGHTLY ISSUE	JC	CM
Q	11/10/19	FORTNIGHTLY ISSUE	JC	CM
R	25/10/19	FORTNIGHTLY ISSUE	JC	CM
S	07/02/20	FORTNIGHTLY ISSUE	JC	CM
T	01/05/20	AS BUILT	JC	DJM

PROJECT: **Westmead Hospital**
 DRAWING TITLE: **GENERAL ARRANGEMENT - LEVEL 04**

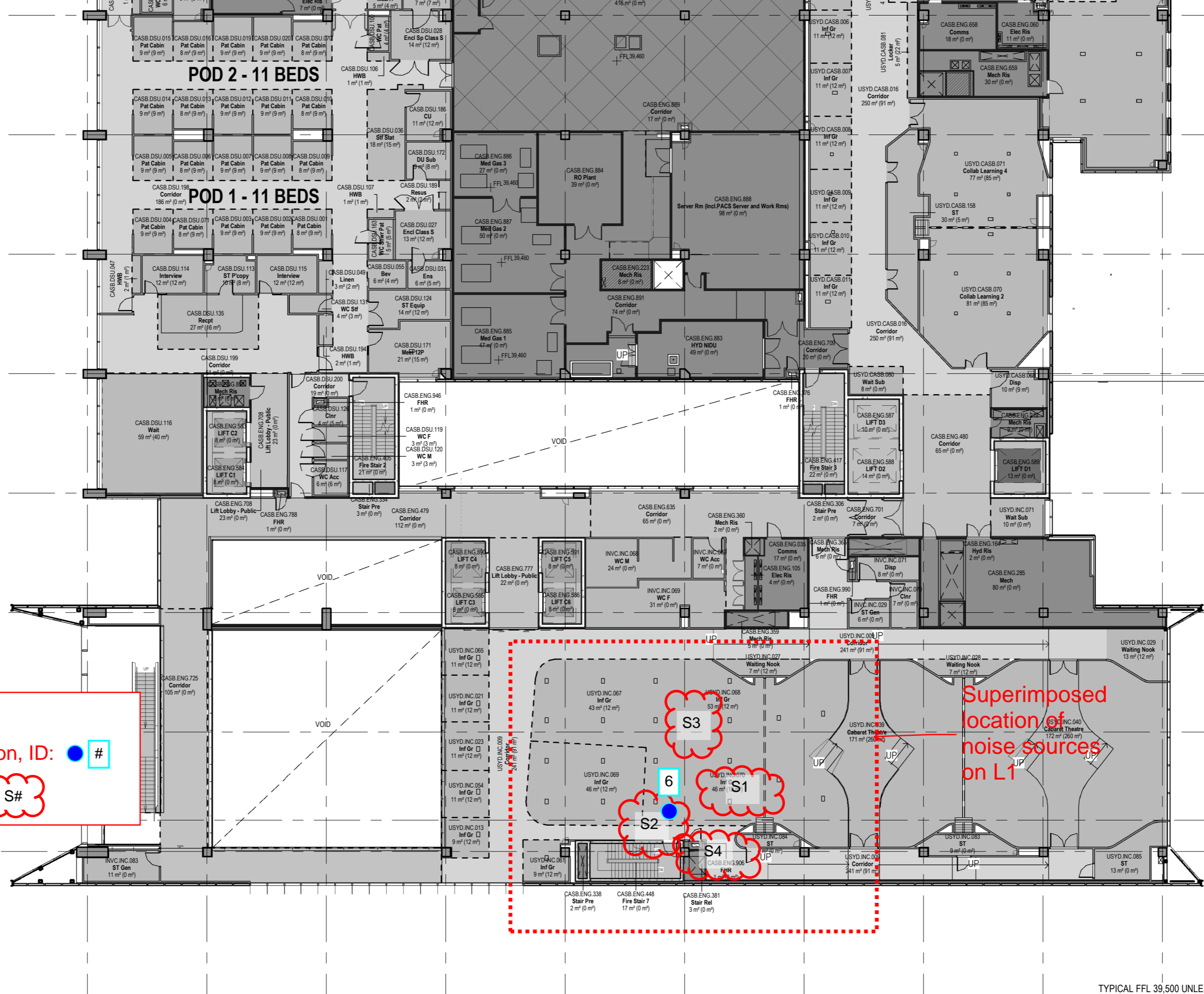
PROJECT NUMBER: **232186**
 STATUS: **AS BUILT**

DRAWING NUMBER: **CASB-HDR-AR-DG-820401**

REVISION: **T**
 SCALE: **1 : 250 @ A1**

CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060

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Legend -
 Measurement Position, ID: ● #
 Source Location: ☁ S#

LEGEND

- Westmead Hospital Zones
- CHW, Innovation Centre & USYD Zones
- COLD SHELL
- WARM SHELL
- PUBLIC
- STAFF/ RESTRICTED
- LOGISTICS / RESTRICTED
- PLANT
- STAIRS

TYPICAL FFL 39,500 UNLESS OTHERWISE NOTED

1/05/2020 4:33:10 PM C:\vt\2019\232186-A-CASB-INTERNAL_Jose.CruzUPGBK.rvt

REV	DATE	DESCRIPTION	DWN	CHK
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V	27/09/19	FORTNIGHTLY ISSUE	JC	CM
W	25/10/19	FORTNIGHTLY ISSUE	JC	CM
X	22/11/19	FORTNIGHTLY ISSUE	JC	CM
Y	13/12/19	ROOMS RE TAGGED	JC	CM
Z	10/01/20	FORTNIGHTLY ISSUE	JC	CM
AA	01/05/20	AS BUILT	JC	DJM

PROJECT: **Westmead Hospital**
 DRAWING TITLE: **GENERAL ARRANGEMENT - LEVEL 05**

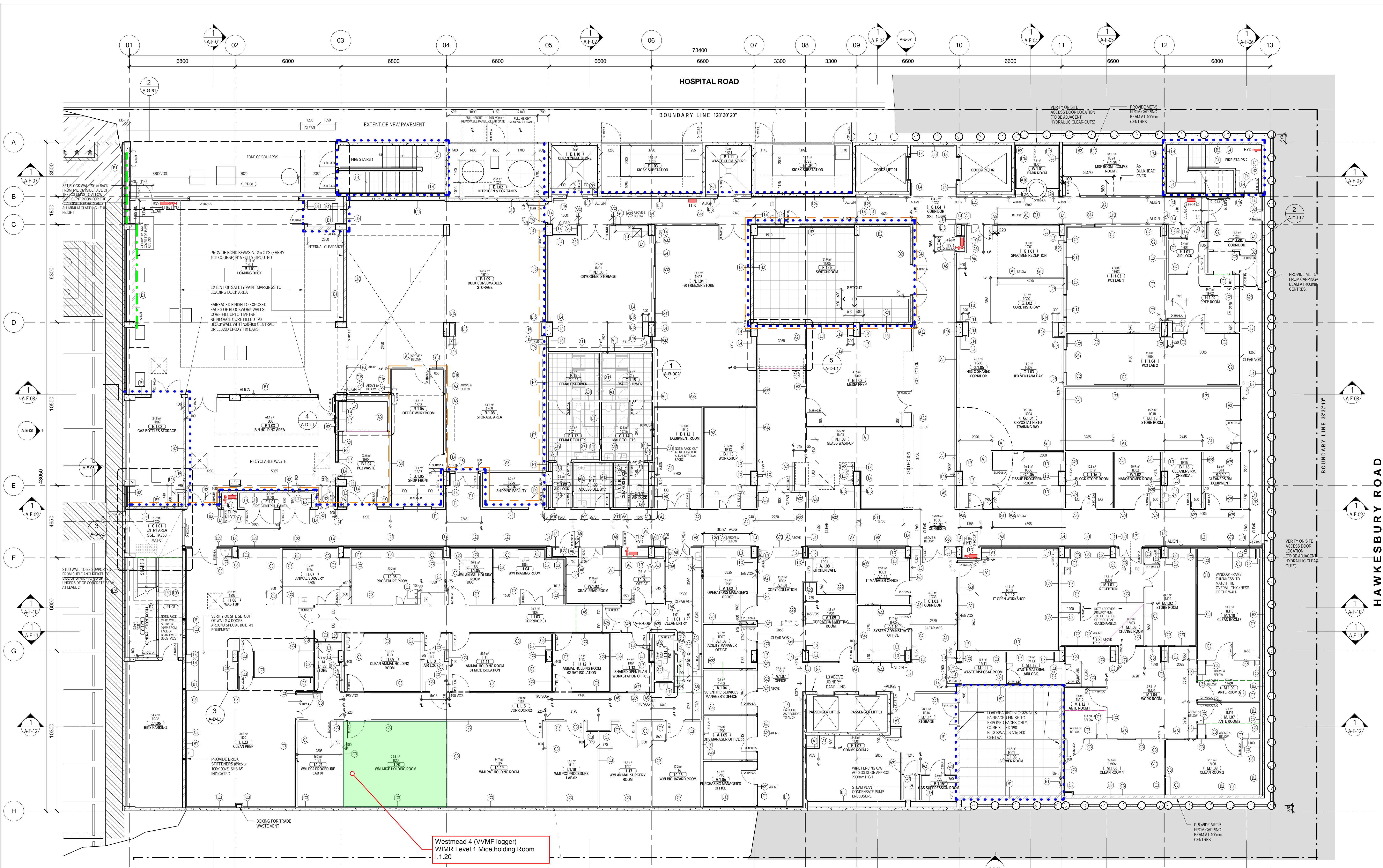
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 DRAWING NUMBER: **CASB-HDR-AR-DG-820501**
 STATUS: **AS BUILT**
 REVISION: **AA**
 SCALE: **1 : 250 @ A1**

CLIENT: Level 14, 77 Pacific Highway North Sydney NSW 2060

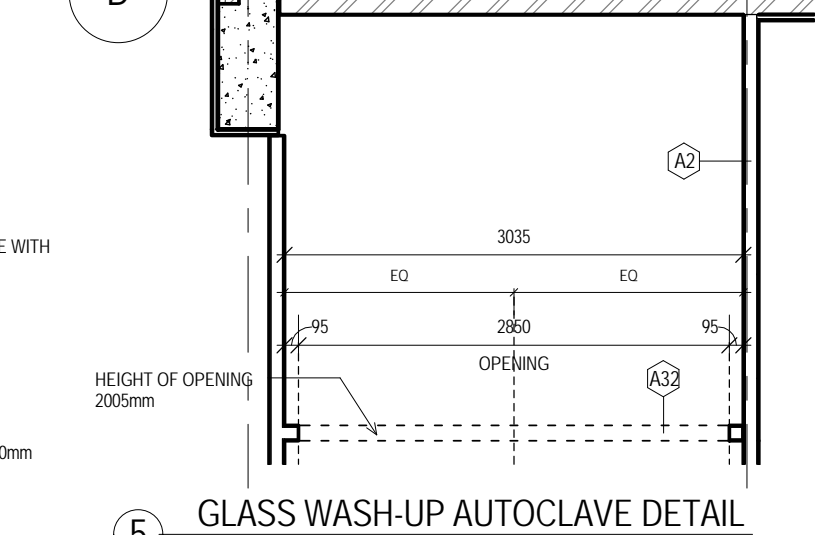
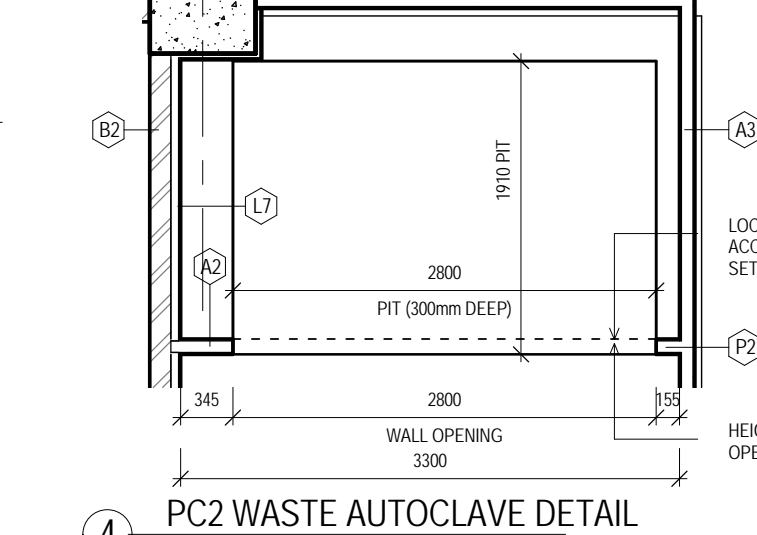
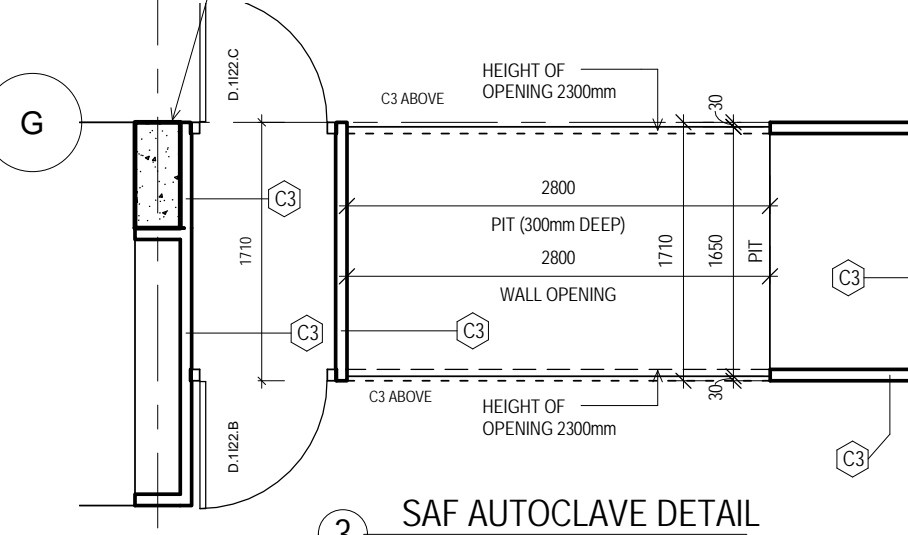
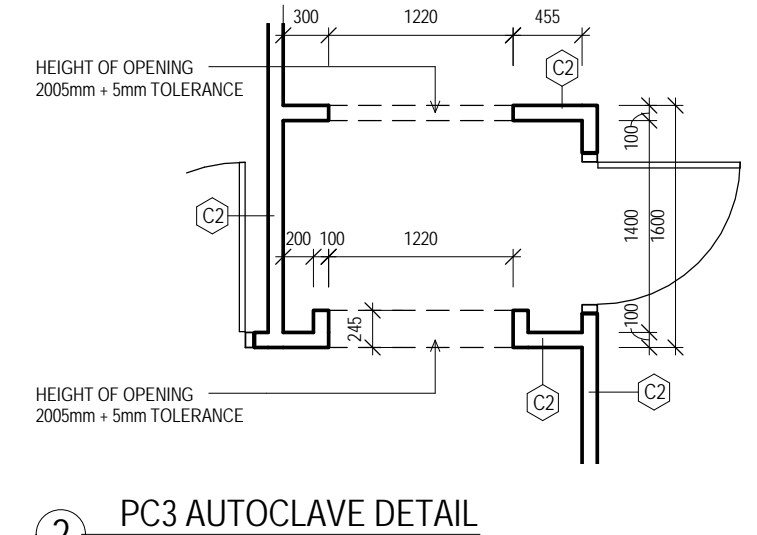
MULTIPLEX

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ISSUE	DATE	FOR INFORMATION	FOR
1	23.02.2011	FOR INFORMATION	
2	28.04.2011	FOR INFORMATION	
3	24.05.2011	FOR INFORMATION	
4	23.06.2011	FOR INFORMATION	
5	15.08.2011	70% DESIGN DEVELOPMENT	
6	18.08.2011	FOR INFORMATION	
7	30.09.2011	70% DESIGN DEVELOPMENT	
8	02.12.2011	FOR INFORMATION	
9	29.06.2012	ISSUED FOR TENDER	
10	13.03.2012	FOR WORK TENDER	
11	20.07.2012	FOR INFORMATION	
12	26.07.2012	CONSTRUCTION CERTIFICATE	
A	21.02.2013	FOR INFORMATION	
AA	07.02.2014	FOR CONSTRUCTION	
B	13.09.2012	FOR INFORMATION	
BB	24.03.2014	AS BUILT	
C	17.02.2013	FOR INFORMATION	
D	26.10.2012	FOR BLOCKWORK TENDER	
E	31.10.2012	FOR INFORMATION	
F	16.11.2012	FOR DRYWALL TENDER	
G	28.11.2012	REV. TENDER DRYWALL/GLAZED PTN.	
H	11.12.2012	FOR INFORMATION	
I	05.02.2013	FOR INFORMATION	
J	08.02.2013	REV. TENDER DRYWALL/GLAZED PTN.	
K	20.02.2013	REV. TENDER DRYWALL/GLAZED PTN.	
L	27.02.2013	FLOOR FINISHES TENDER ONLY	
MM	27.02.2013	BLOCKWORK SETOUT/DRYWALL REV.	
N	11.04.2013	BLOCKWORK/DRYWALL SETOUT	
O	17.04.2013	COORDINATION ISSUE	
P	24.04.2013	FOR INFORMATION	
Q	30.04.2013	FOR CONSTRUCTION	
R	28.05.2013	FOR CONSTRUCTION	
S	06.06.2013	FOR CONSTRUCTION	
T	07.06.2013	FOR CONSTRUCTION	
U	17.06.2013	FOR CONSTRUCTION	
V	12.07.2013	FOR CONSTRUCTION	
W	22.07.2013	FOR CONSTRUCTION	
X	06.08.2013	FOR CONSTRUCTION	
Y	18.09.2013	FOR CONSTRUCTION	
Z	05.02.2014	FOR CONSTRUCTION	



NOTE:
1. PROVIDE HEAD RESTRAINTS AND WALL/COLUMN RESTRAINTS U.N.O.
HEAD RESTRAINT MET-4 AT 400mm CENTRES. WALL/COLUMN RESTRAINT MET-5 AT 400mm CENTRES U.N.O.



FIRE-RATING
60/60/60 FIRE-RATED WALL
90/90/90 FIRE-RATED WALL
120/120/120 FIRE-RATED WALL
SMOKE SEPARATION LINE

CLIENT
Westmead Millennium Institute
for Medical Research

PROJECT MANAGER
CAPITAL INSIGHT

BUILDER
Abigroup COCKRAM

PROJECT
WESTMEAD MILLENNIUM INSTITUTE

BVN PROJECT NUMBER
S1012004

DRAWING KEY

TOP OF FLOOR	RL 40.30
ROOF	RL 58.35
LEVEL 9	RL 54.00
PLANTROOM 8	RL 53.70
LEVEL 7	RL 47.40
LEVEL 6	RL 43.10
LEVEL 5	RL 38.80
LEVEL 4	RL 34.50
LEVEL 3	RL 30.20
LEVEL 2	RL 25.90
PLANTROOM 1	RL 23.20
LEVEL 1	RL 19.90
BASEMENT	RL 16.60

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE (m)
0 25 50
SCALE

1: 100 @ B1 DO NOT SCALE
STATUS
AS BUILT
DRAWING
FLOOR PLAN LEVEL L1
LOWER GROUND

DRAWING NUMBER
A-D-L1
ISSUE
BB

To CASB Facilities Manager Date 22 November 2021

Copies Mary Sakr; Hannah Urquhart Reference number

From Matt Walden; Grant Cuthbert File reference

Subject CHW Monitoring - CASB

This memo outlines the proposed vibration monitoring locations and limits within CASB to help ensure disruption from the CHW development is minimised. The locations are preliminary and are to be discussed with CASB. At each of these locations, 240V power and an ethernet data connection is required. Ethernet connections are for outbound data only.

1 Level 2 – MRI Scanner

MRI scanners are considered the most sensitive piece of equipment within the CASB, and as such should be monitored. Figure 1 below shows the proposed location of the vibration monitor, while Table 1 outlines the proposed alert criteria. The proposed criteria is adopted from the Stantec Acoustic Report for the Paediatric Services Building, and from NSW Health Guidelines for vibration for new hospitals.

While there is a CT scanner on the Level 1 floor, this is marginally further away from the construction works, and is considered to be slightly less sensitive than the MRI scanner.

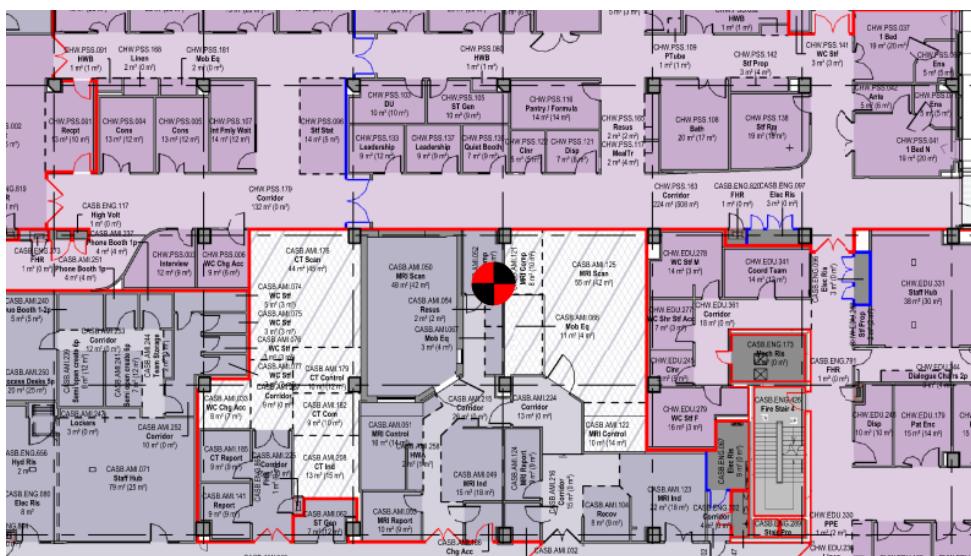


Figure 1: Level 2 MRI vibration monitor location

Memorandum

Table 1: Level 2 MRI vibration monitor criteria (NSW health guidelines for medical imaging)

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve VC-A (1/3 rd Octave band V_{RMS} to be below 0.051mm/s)

2 Level 3 – Surgical Suite

The surgical suites are of elevated risk and closest to the PSB site, and as such should be monitored. Figure 2 below shows the proposed location of the vibration monitor, while Table 2 outlines the proposed alert criteria. The proposed criteria is adopted from the Stantec Acoustic Report for the Paediatric Services Building, and from NSW Health Guidelines for vibration for new hospitals. Pod C is chosen and it is understood that Pod B is not yet in use.

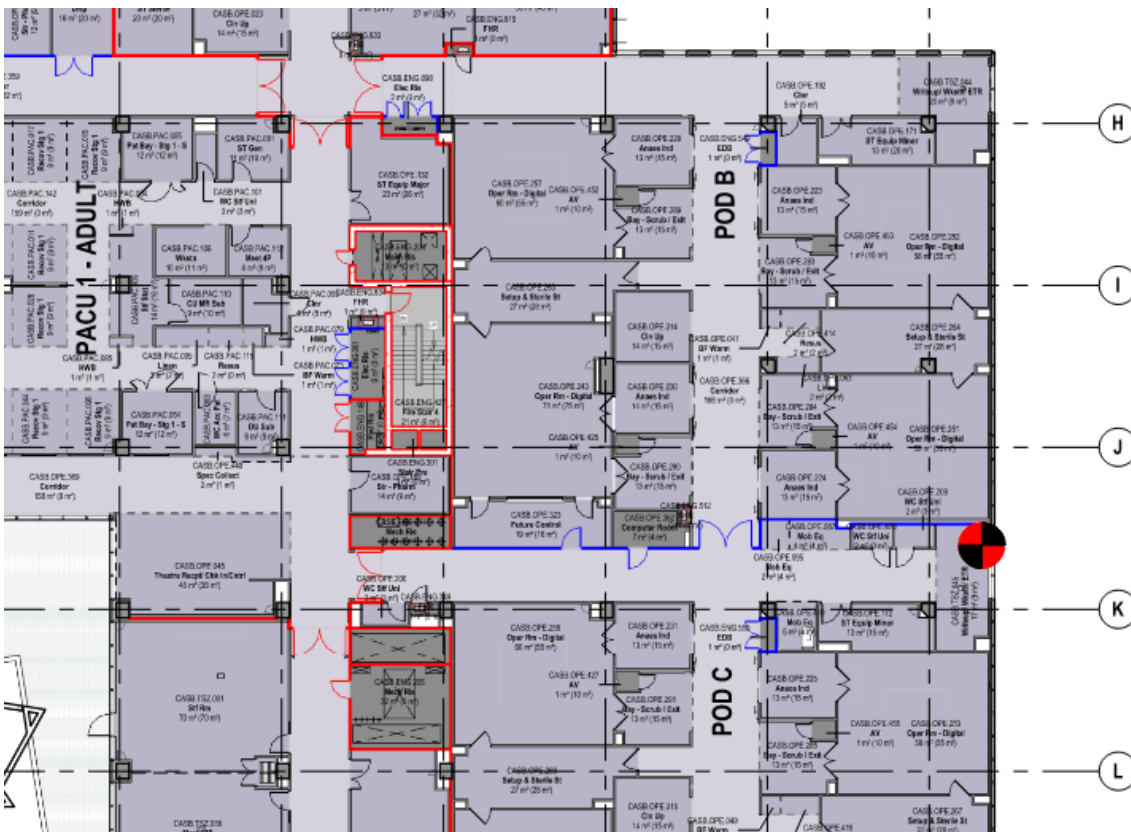


Figure 2: Level 3 surgical suite vibration monitor location

Table 2: Level 2 surgical suite vibration monitor criteria (NSW health guidelines for operating theatres)

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve 1 Australian Standard AS2670.2 (1/3 rd Octave band V_{RMS} to be below 0.102mm/s)

Memorandum

3 Vibration Alert Management

The following diagram outlines the vibration alert management procedure. The first step is to confirm that the alert was not caused by someone in the vicinity of the monitor, as this is a common cause of false triggers. This could be accidental knocking of the device or dropping a large object nearby. If this was not the case, the rest of the escalation procedure below will be followed to investigate the source and the impact of vibrations and address as necessary.

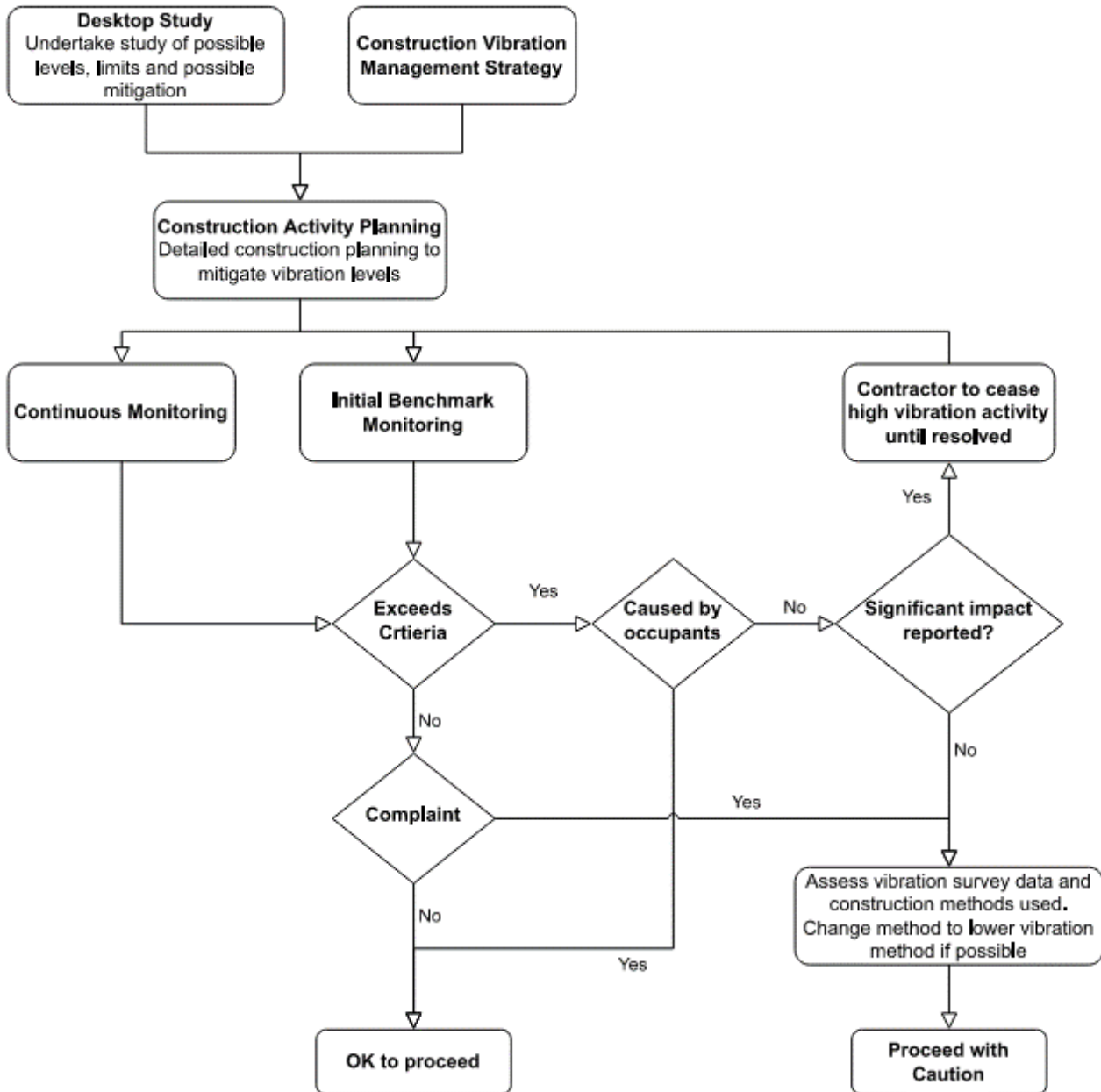


Figure 3: Vibration alert management procedure

To	CHW Facilities Manager	Date	22 November 2021
Copies	Mary Sakr; Hannah Urquhart	Reference number	
From	Matt Walden; Grant Cuthbert	File reference	
Subject	CHW Monitoring - CHW		

This memo outlines the proposed vibration monitoring locations and limits within CHW to help ensure disruption from the PSB and MSCP development is minimised. The locations are preliminary and are to be discussed with CHW. At each of these locations, 240V power and an ethernet data connection is required. Ethernet connections are for outbound data only.

Figure 1 below shows the project site (red outline), and the scope area of this memo (yellow outline).

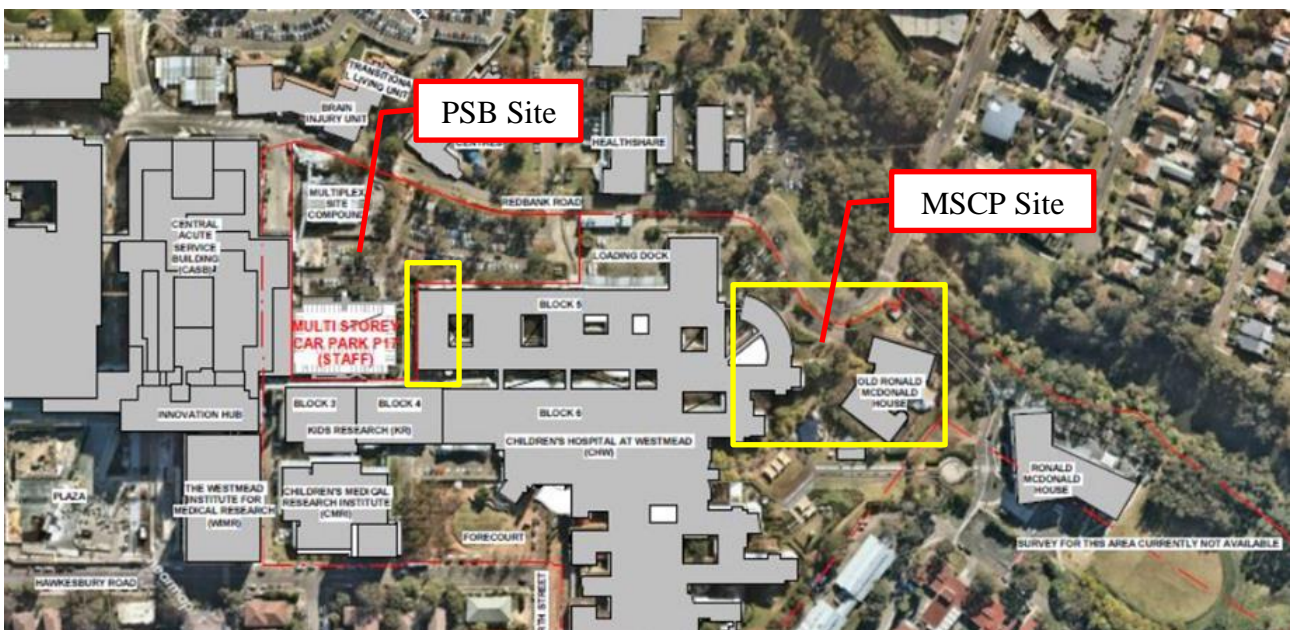


Figure 1 - Site map

1 Level 1 – Laboratories

The Level 1 endocrinology laboratory houses very sensitive and close to the PSB works, and as such should be monitored. This equipment includes:

- Immulite 1000 Analyser

Memorandum

- iSYS Analyser
- Wizard 2470 Gamma Counter
- TQ-S Tandem Mass Spectrometer
- TQ-XS Tandem Mass Spectrometer

Figure 2 below shows the proposed location of the vibration monitor, while Table 1 outlines the proposed alert criteria. The criteria adopted is based on the Stantec Acoustic Report for the Paediatric Services Building, which includes a table of the lab equipment and its specified vibration criteria.

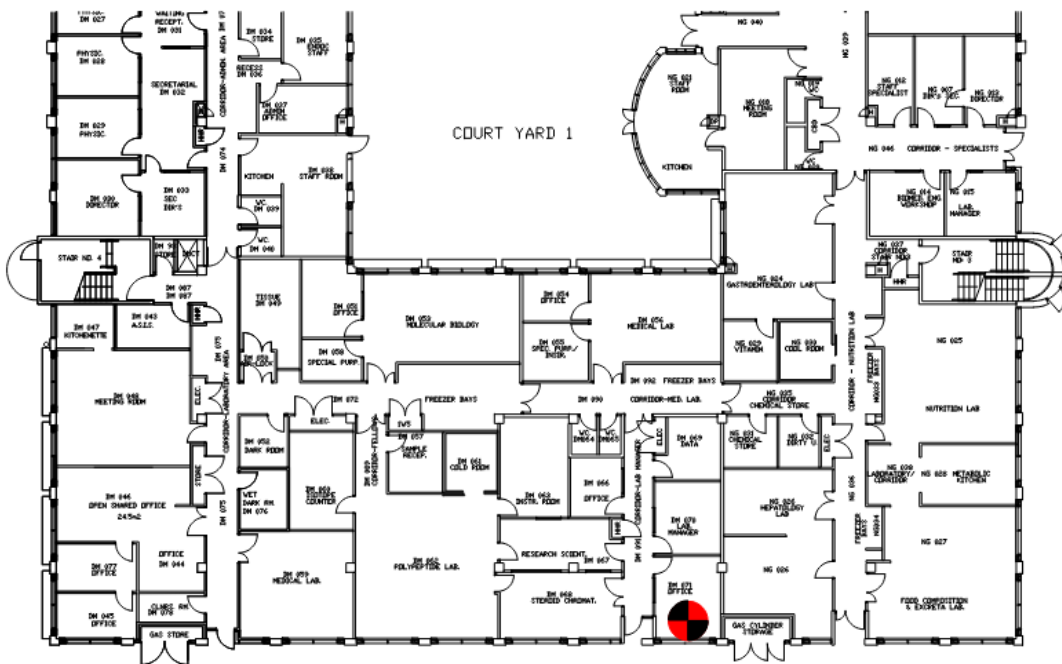


Figure 2: Level 1 Lab vibration monitor location

Table 1: Level 1 Lab vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve VC-C (1/3 rd Octave band V_{RMS} to be below 0.0125mm/s), based on the two analysers

2 Level 1 – Mental Health Unit

As the facility closest to the MSCP site, the mental health unit should be monitored. Figure 3 below shows the proposed location of the vibration monitor, while Table 2 outlines the proposed alert criteria. This criteria is based on the Stantec Acoustic Report for the Multi-Storey Car Park and the NSW DEC Assessing Vibration: A Technical Guideline (2006), which prescribe maximum and preferred limits for residences in the daytime. As work is not expected at night time, the more stringent night time limit is not adopted.

Memorandum

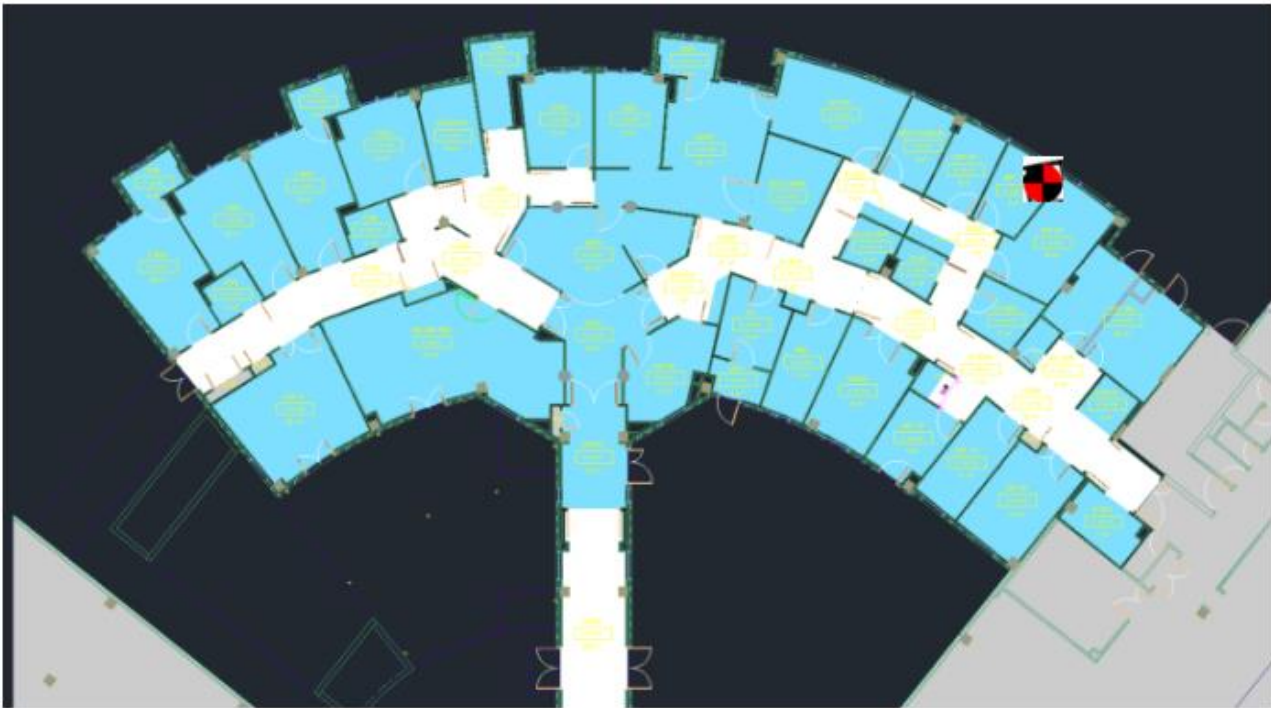


Figure 3: Level 1 mental health unit vibration monitor location

Table 2: Level 1 mental health unit vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve 2 Australian Standard AS2670.2 (1/3 rd Octave band V_{RMS} to be below 0.204mm/s), based on daytime residence human comfort limit

3 Ronald McDonald House

Ronald McDonald House is also within the zone of influence of the Multi-Storey Car Park, it is further away from the site than the mental health unit above. It is also of similar usage, being residential housing for patient families. As such it is proposed that vibration levels at Ronald McDonald house are monitored by proxy with the vibration monitor in the mental health unit.

4 Vibration Alert Management

The following diagram outlines the vibration alert management procedure. The first step is to confirm that the alert was not caused by someone in the vicinity of the monitor, as this is a common cause of false triggers. This could be accidental knocking of the device or dropping a large object nearby. If this was not the case, the rest of the escalation procedure below will be followed to investigate the source and the impact of vibrations and address as necessary.

Memorandum

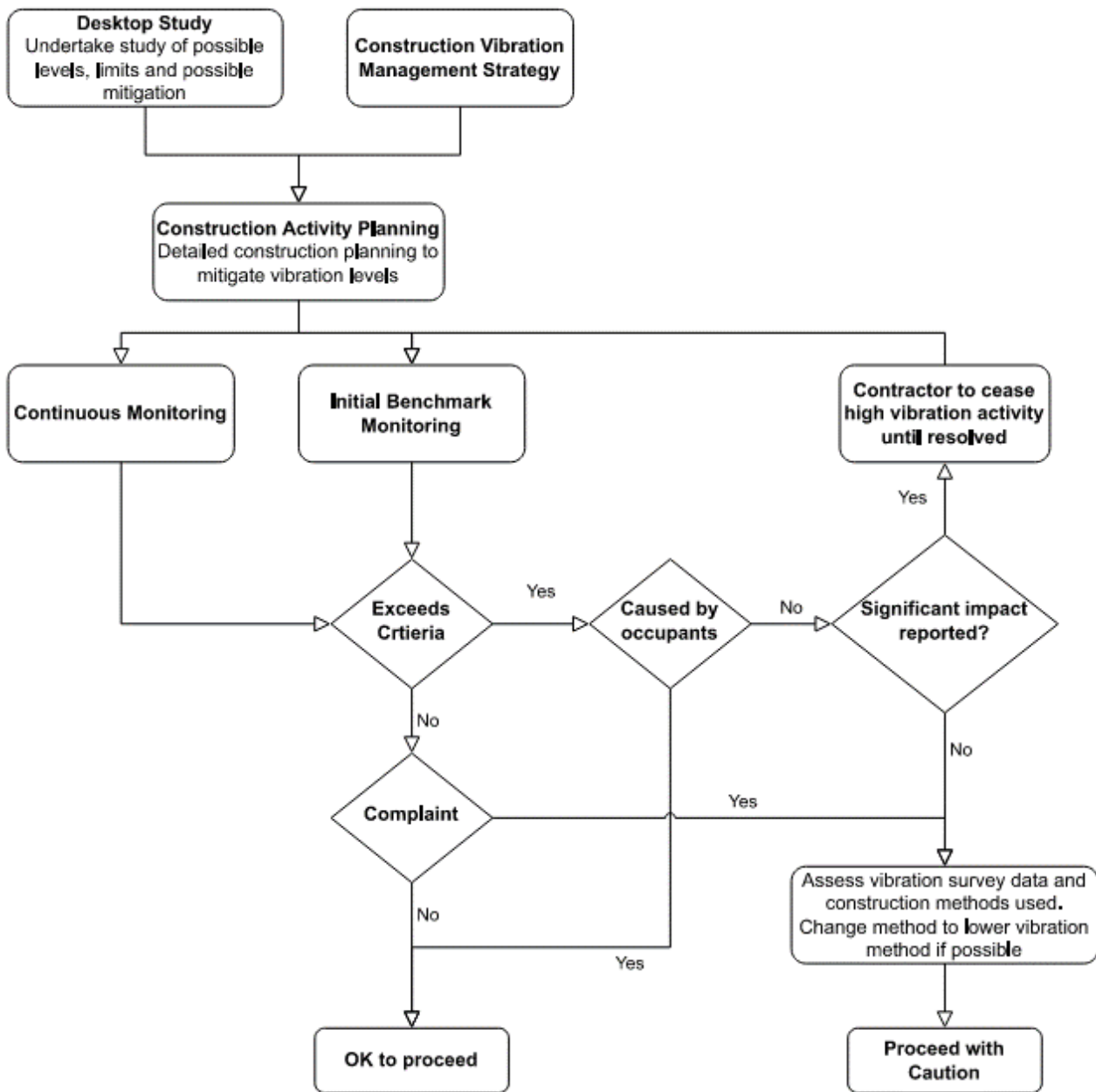


Figure 4: Vibration alert management procedure

Memorandum

ARUP

To CASB Facilities Manager

Date
22 November 2021

Copies Mary Sakr; Hannah Urquhart

Reference number

From Matt Walden; Grant Cuthbert

File reference

Subject CHW Monitoring - KR

This memo outlines the proposed vibration monitoring locations and limits within KR to help ensure disruption from the CHW development is minimised. The locations are preliminary and are to be discussed with KR. At each of these locations, 240V power and an ethernet data connection is required. Ethernet connections are for outbound data only. 3G modems can be provided to locations where no ethernet is available (i.e. the corridor beside the animal house).

Figure 1 below shows the project site (red outline), and the scope area of this memo (yellow outline).

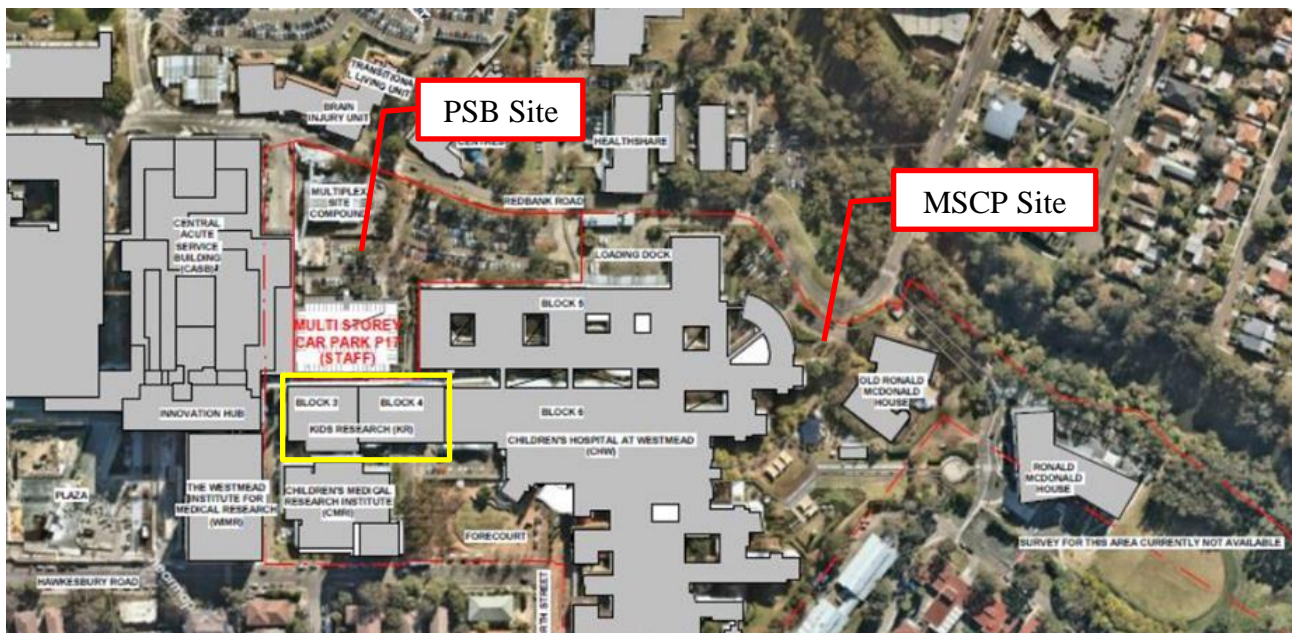


Figure 1 - Site map

Memorandum

1 Level 1 – Animal House

The animal house is considered highly important and is close to the construction site of the PSB, and as such should be monitored. Figure 2 below shows the proposed location of the vibration monitor, while Table 1 outlines the proposed alert criteria. The criteria adopted is based on the Stantec Acoustic Report for the Paediatric Services Building which includes a table outlining the required criteria for animal houses, and is in line with previous monitoring projects at KR.

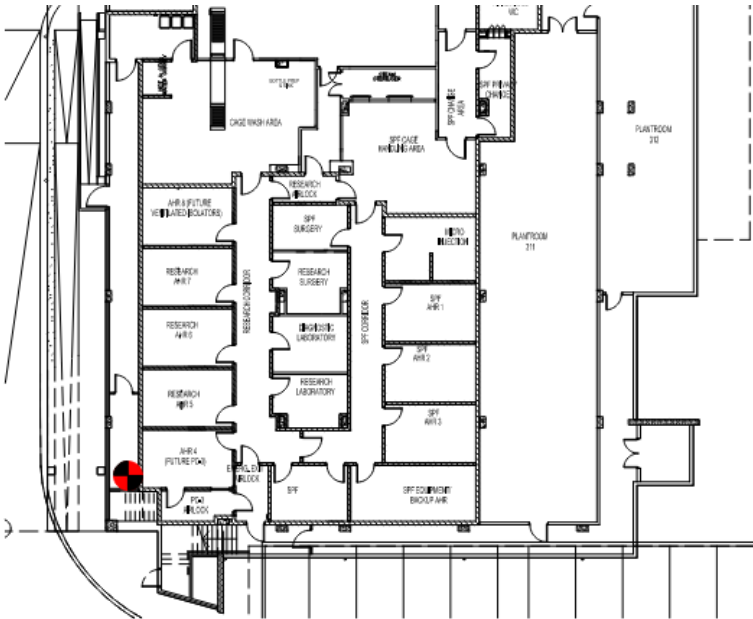


Figure 2: Level 1 Animal House vibration monitor location

Table 1: Level 1 Animal House vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
1.0mm/s	Curve 1 Australian Standard AS2670.2 (1/3 rd Octave band V_{RMS} to be below 0.102mm/s)

2 Level 2 – Offices

The offices on level 2 of KR are considered to be the least vibrationally sensitive spaces within KR. This space was monitored during the demolition of the P17 carpark. Data from this monitoring is presented in Figure 3. This shows that the measured levels were generally very low, below both the performance criteria of Curve 4, and below the average threshold of human perception (Curve 1).

Memorandum

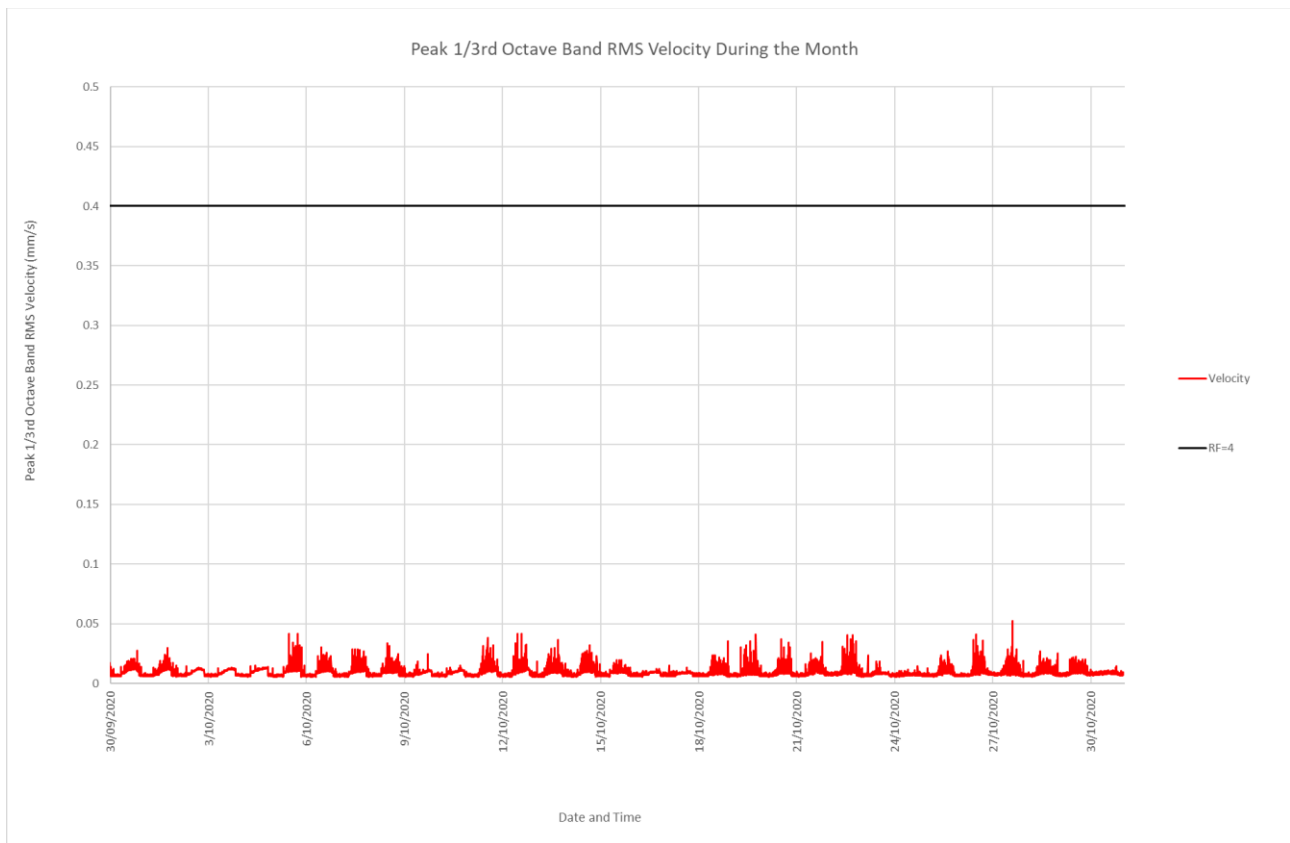


Figure 3: L2 office - P17 demolition monitored levels (1 month)

Based on the sensitivity of the space and historical recorded data, we do not believe that monitoring of this space is warranted.

3 Gait Lab

The gait lab is considered to be partially sensitive due to the equipment in the room. Previous monitoring in the facility (Figure 4) did show some exceedances, however these were not reflected in other monitors across KR and are therefore considered to have been locally generated.

Outside of these occasional exceedances, the recorded levels during the P17 demolition were generally well below the limit. As such, a monitor at this location is not deemed necessary.

Memorandum

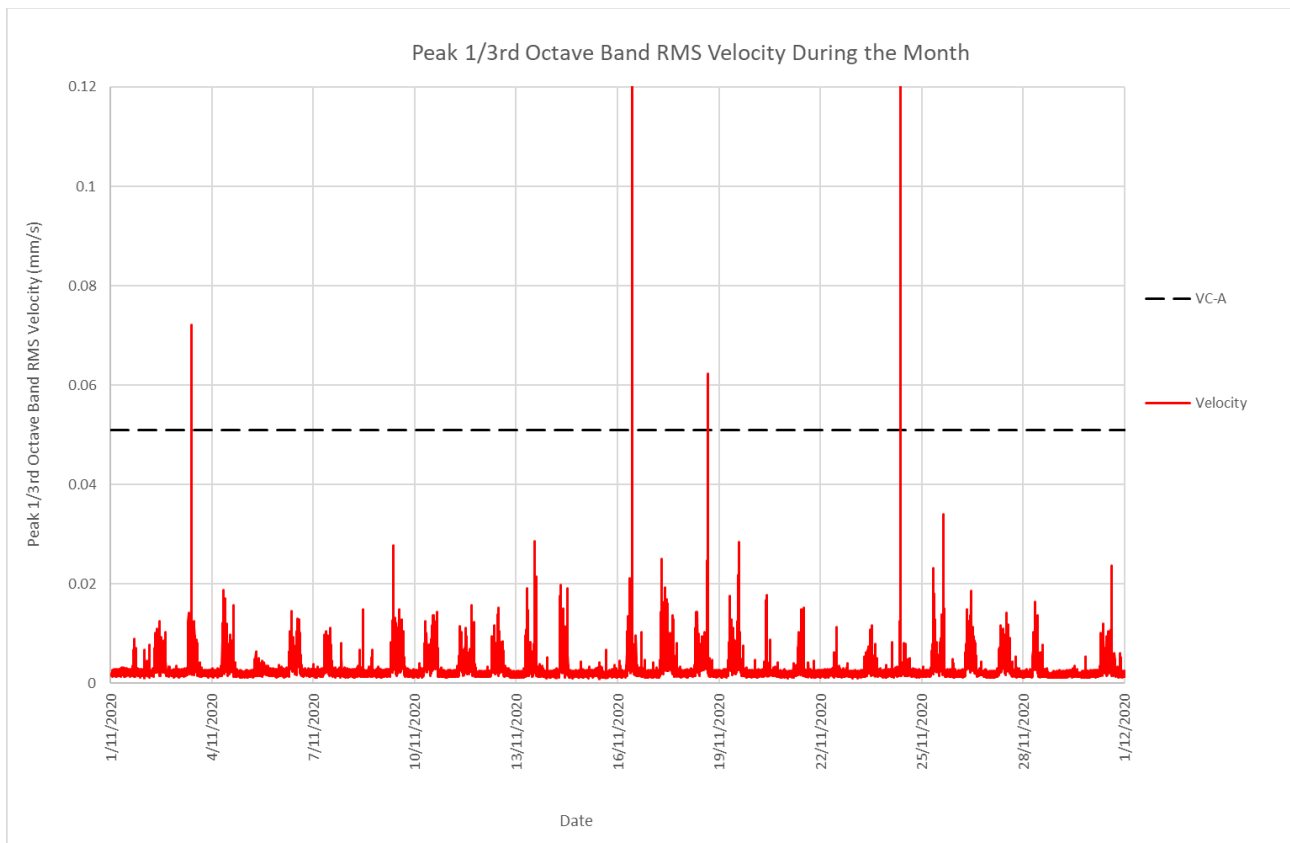


Figure 4: L2 gait lab - P17 demolition monitored levels (month 1)

4 Level 3 Laboratories

The level 3 labs are considered to be somewhat sensitive, and have been monitored as part of both CASB and the P17 demolition. This lab is considered less sensitive than Level 4 Lab 9, as the equipment in the L3 labs have higher vibration limits. This equipment is known to be:

- 3D printers
- Mecmesin torsional mechanical tester
- Faxitron
- Skyskan 1272/1174
- Piximus
- Incubators

Additionally, the recorded data from P17 demolition (Figure 5) shows that the recorded levels did not reach the triggering level.

Memorandum

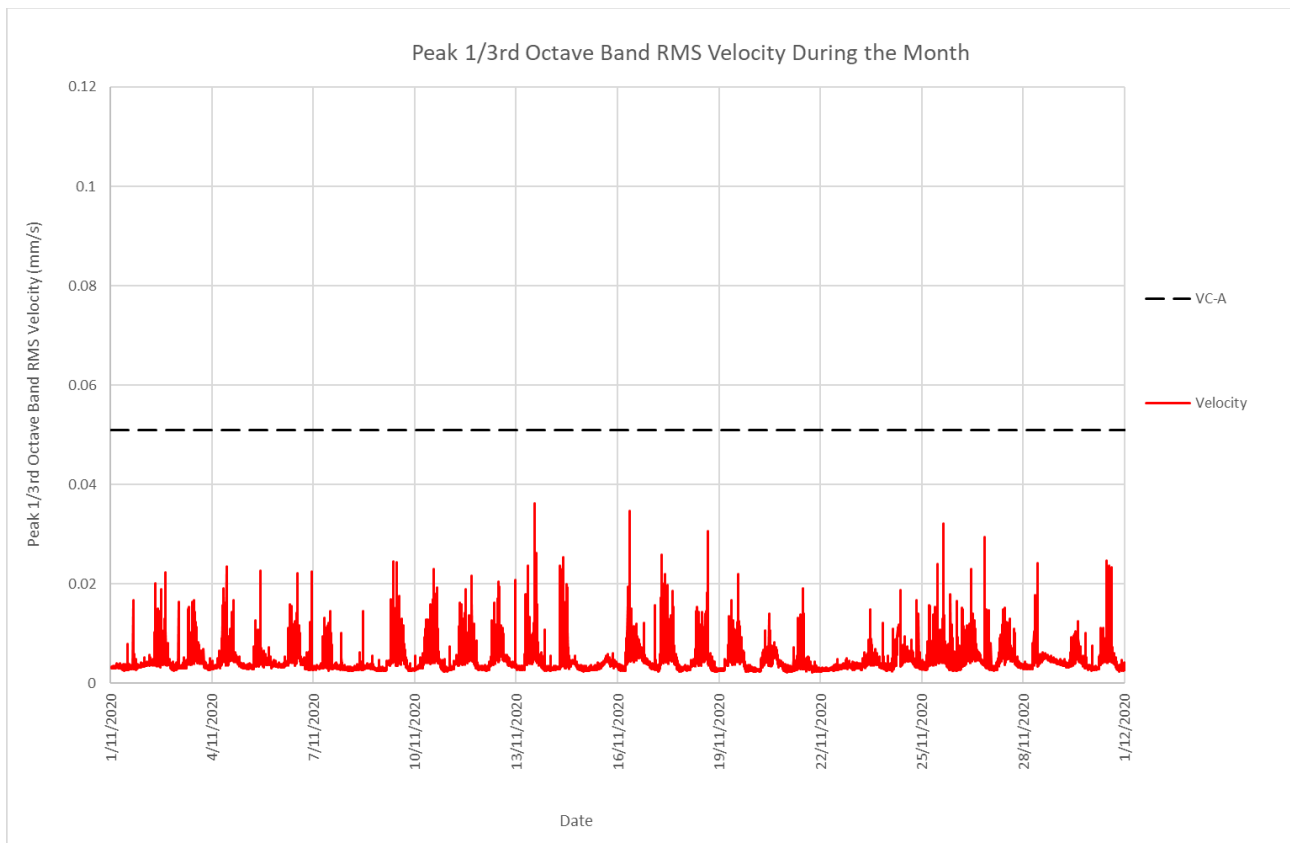


Figure 5: L3 laboratory - P17 demolition monitored levels (month 1)

Based on this lower sensitivity and historical measurement for construction on the PSB site, we do not recommend monitoring at this location.

5 Level 4 – Lab 9

Lab 9 was known to have the most sensitive equipment when works for the P17 demolition took place (VC-D), and as such should be monitored. In this location, actual monitoring prior to the P17 demolition indicated the floor was only able to meet a VC-B performance level. Figure 6 and Figure 7 below show the recorded data during the demolition works, which indicated that the floor is close to performing at VC-B level ordinarily, but the works did result in an increase in the vibration levels and resulted in exceedance.

Memorandum

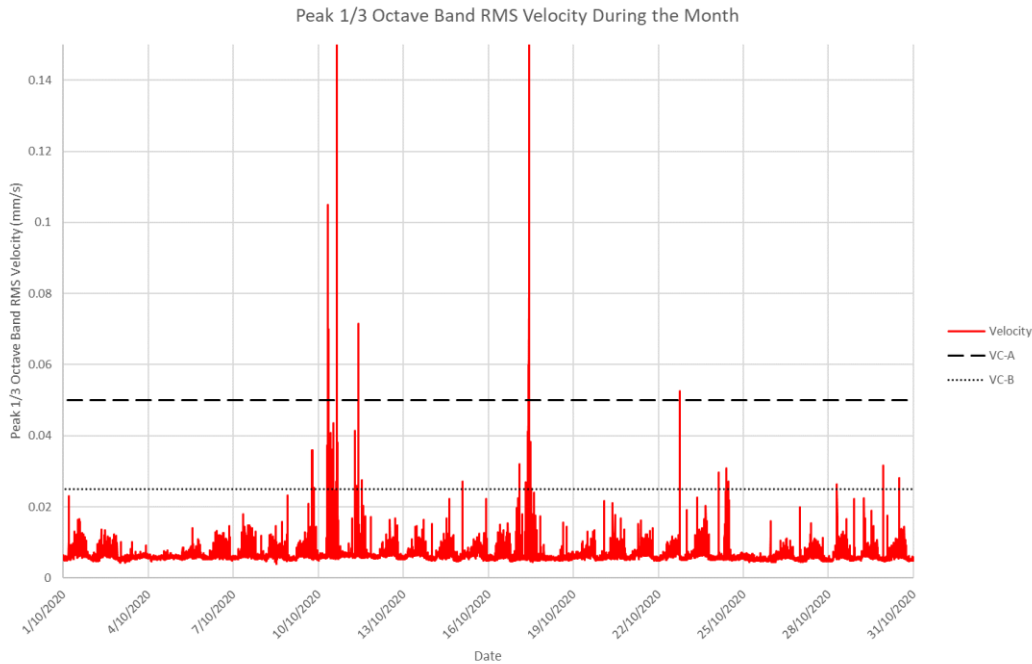


Figure 6: KR Lab 9 - P17 demolition (month 1)

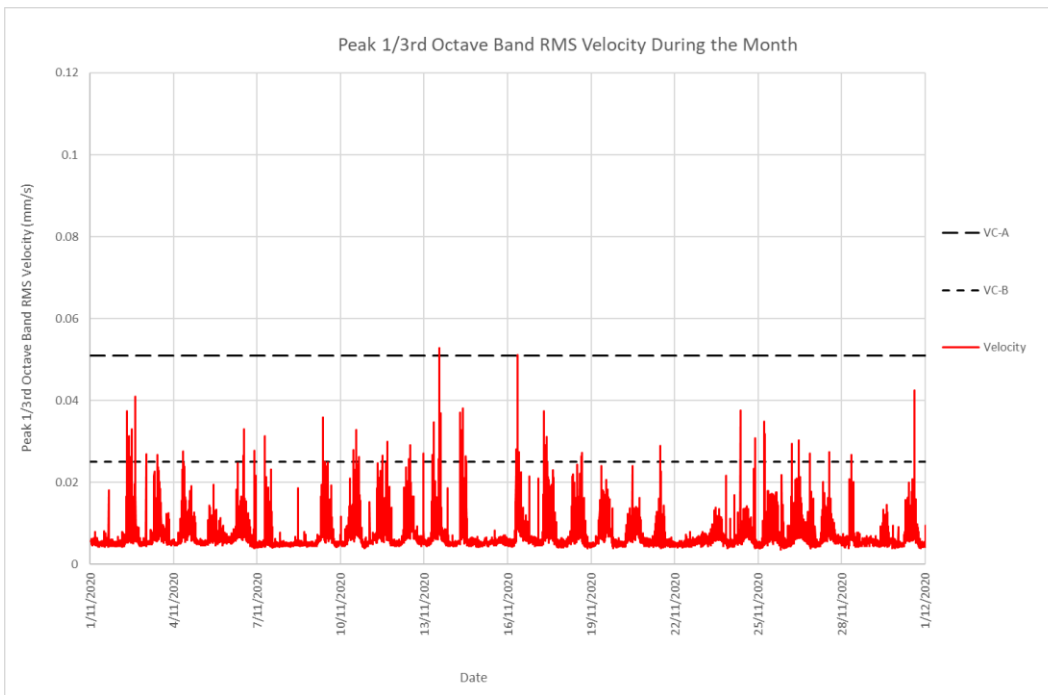


Figure 7: KR Lab 9 - P17 demolition (month 2)

Figure 8 below shows the proposed location of the vibration monitor. Note that we are not 100% sure that the room indicated is correct room, as this floor plan on file is not up to date. Table 2 outlines the proposed alert criteria, however it is anticipated that this location will require review and ongoing discussion regarding impact.

Memorandum

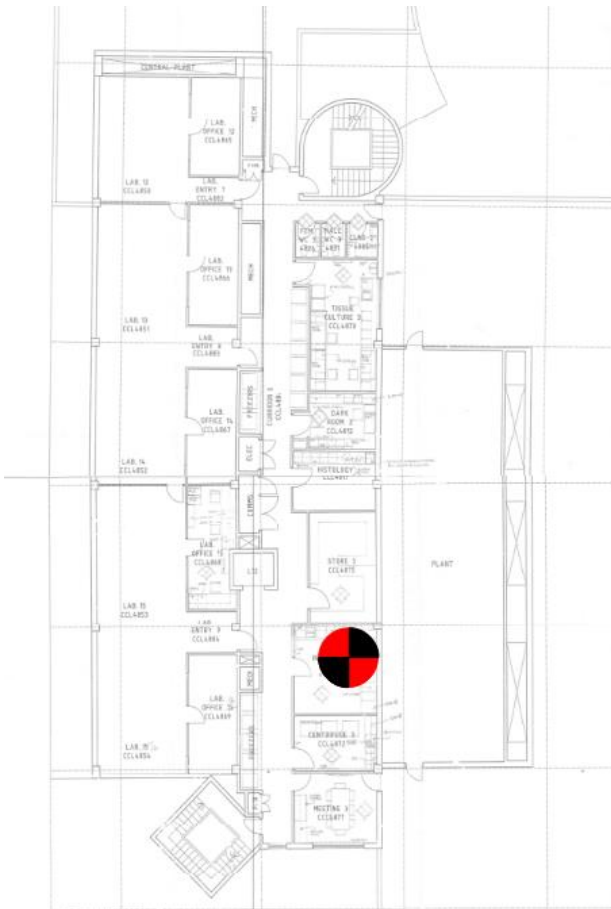


Figure 8: Level 4 Lab 9 vibration monitor location

Table 2: Level 4 Lab 9 vibration monitor criteria

PPV Criteria	RMS Velocity Criteria
Not applicable	Curve VC-B (1/3 rd Octave band VRMS to be below 0.025mm/s)

6 Vibration Alert Management

The following diagram outlines the vibration alert management procedure. The first step is to confirm that the alert was not caused by someone in the vicinity of the monitor, as this is a common cause of false triggers. This could be accidental knocking of the device or dropping a large object nearby. If this was not the case, the rest of the escalation procedure below will be followed to investigate the source and the impact of vibrations and address as necessary.

Memorandum

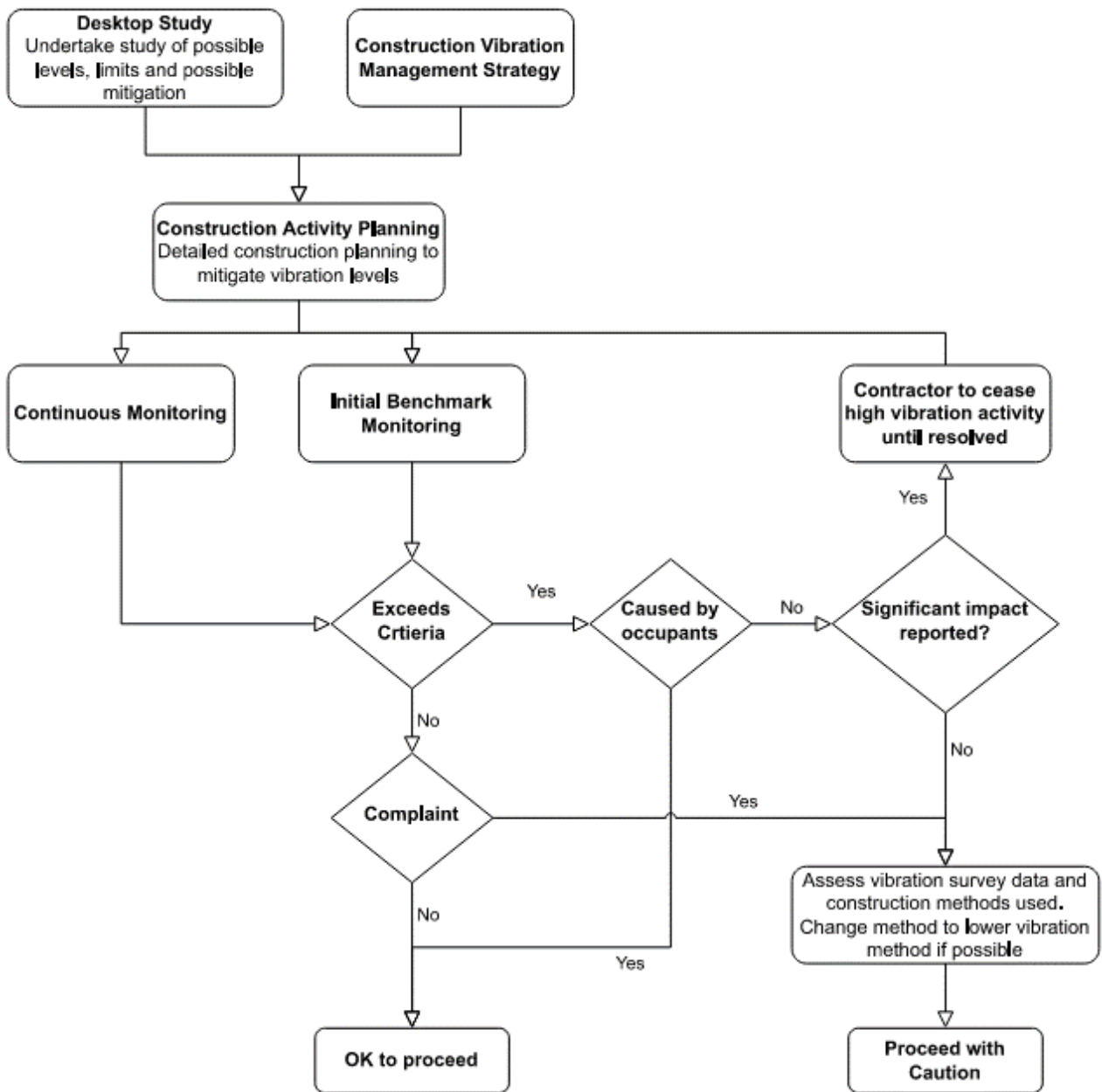


Figure 9: Vibration alert management procedure

By email
10 November 2022

Jesse Anil

Our ref 271985-00

Dear Jesse,

Westmead VVMF

Outcomes of WIMR site walk for VVMF impact and monitoring

This letter summarises the conversations held between Arup and the WIMR BSF representatives on 19 September 2022, regarding vibration and noise requirements for the VVMF works in an adjacent facility.

Key discussion points and conclusions are as follows:

1. While works are expected to continue for 6-9 months, the first two months of these works are likely to be of the largest impact from a vibration perspective – but still below human perception. These works are expected to be well below the levels seen in the CASB construction works and P17 carpark demolition. This is on the basis that:
 1. VVMF works do not include bulk excavation;
 2. VVMF works do not include rock breaking or scraping;
 3. VVMF works do not include works where heavy objects can be expected to routinely fall from an appreciable height.
2. Arup have reviewed the technical specification of the x-ray and bioluminescence imaging machine for acceptable vibration levels. The vibration criteria are more stringent for the breeding animals, and therefore we do not expect vibration levels at this location to have a negative impact that won't also be observed at the animal cages. Both rolling 1s RMS and peak velocity vibration levels will be measured and set as trigger levels. With these considerations in mind, it is Arup's conclusion that one vibration and one noise logger in the WIMR BSF will be sufficient.
3. The criterion set for the animals will be 1/4th of human perception for vibration as the facility now houses more sensitive breeding activities. The vibration loggers will be initially located in the cleaning room in the southwest corner. Vibrations are expected to dissipate from this point towards the animals, and therefore if not triggering at this location, should ensure acceptability for the experiments. If triggers are observed during a testing window, including if triggered by the machine wash unit, then we can move this vibration logger closer to the rooms that house the animals to be more representative. The noise logger will

Our ref
Date

Job number
18 October 2022

- be located closer to the animal housing facility to be representative. The trigger level for noise is expected to be set during baseline measurement.
4. Both monitoring equipment units (vibration and noise) will each require a power and ethernet point. The ethernet point will be required to allow outbound connections for the vibration logger, and an inbound and outbound connection for the noise logger – to enable data to be sent to Arup, and for Arup to perform updates remotely. If for any reason, inbound connections are not possible on the ethernet point, then any servicing and updates on the loggers will be done in person.
 5. The program will require monitor set up and conduction of a baseline tests to ensure adequacy and validity of the monitored measurements. Following this baseline measurement period, that measures the ambient vibration in the space, the trial works including the use of various construction equipment items at a known period will be trialled to assess the vibration levels expected during the fit out works. Prior to testing the effect of the use of specific construction equipment, we propose that the wash machine is run to ensure the use of this equipment does not provide a false trigger if used. If so, the vibration equipment can be relocated closer to the animal housing rooms to be more representative of what the animals will be subjected to. Once these baseline levels are measured, and the effect of various construction equipment is tested, Arup will specify acceptable construction equipment for the fit-out teams to use, so as to limit vibration and noise levels to acceptable limits.
 6. Construction equipment testing schedules should be shared with WIMR contacts for any internal experiments to be run during benchmarking.
 7. If specific one-off periods of highly sensitive experimental or lab procedural works are required, then the period of these works should be shared by WIMR to Arup and PwC for coordinating the construction schedule to minimise impact of fit out works on WIMR's research works.

During the works, if criterion are triggered, contacts from WIMR, PwC and the construction teams will receive text and email alerts within 3 minutes of the criterion being exceeded. Work procedures following a trigger will be agreed upon by all parties prior to commencement of works to ensure that due care is given to the research works in the WIMR BSF.

Once acceptability of these plans are confirmed with all parties involved and our scope is approved, we will install the noise and vibration loggers to begin baseline measurement and equipment tests.

Our ref
Date

Job number
18 October 2022

Yours sincerely,

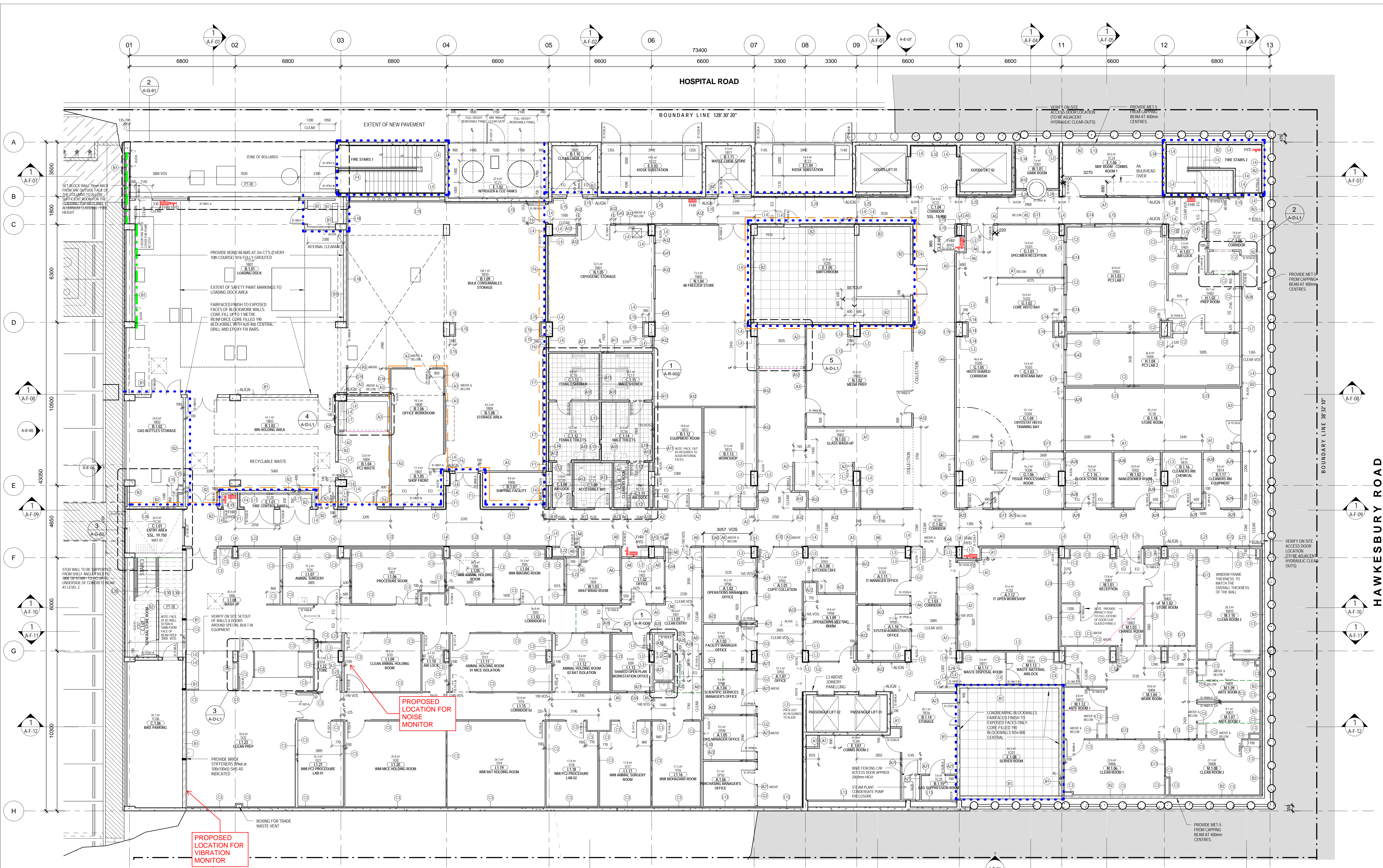
Matthew Walden
Senior Engineer

d +61 2 9320 9565
e matthew.walden@arup.com

cc Pranav Rawal, Tom Morgan

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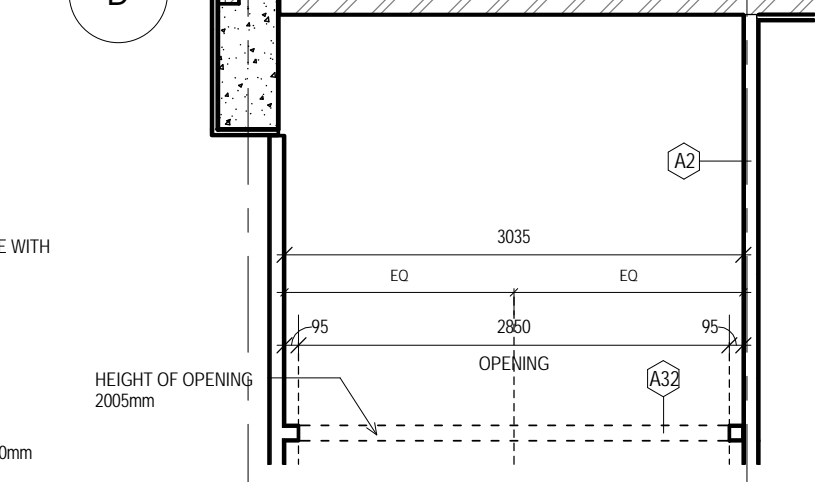
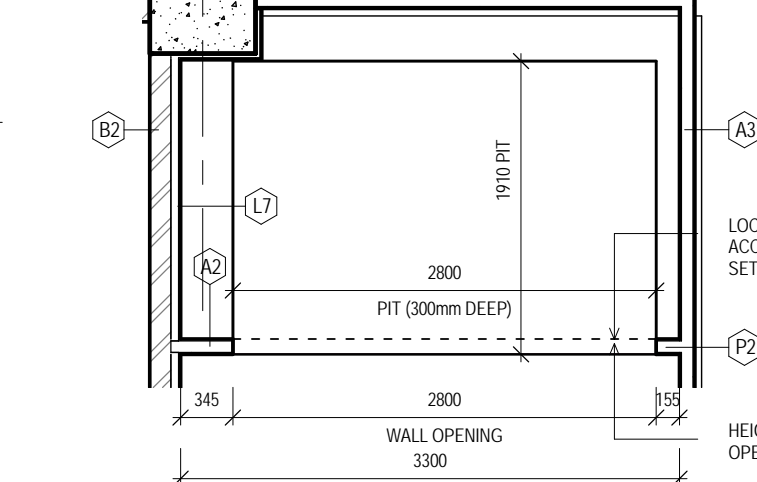
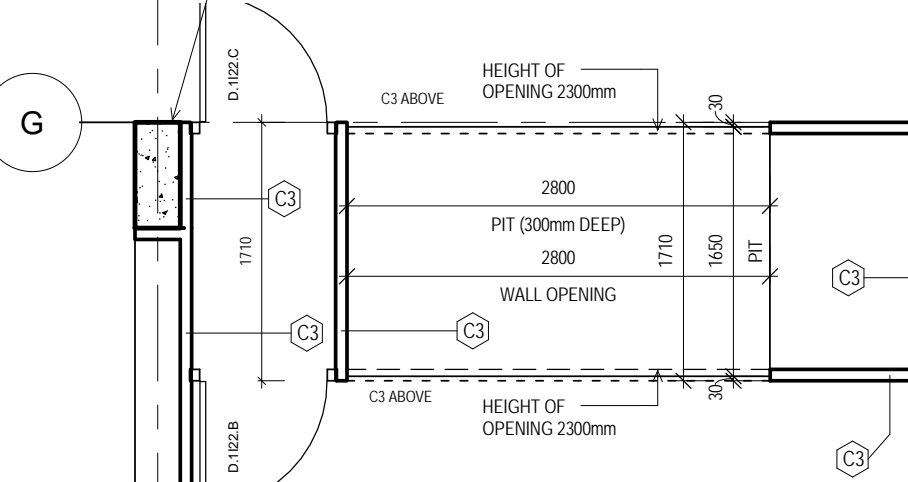
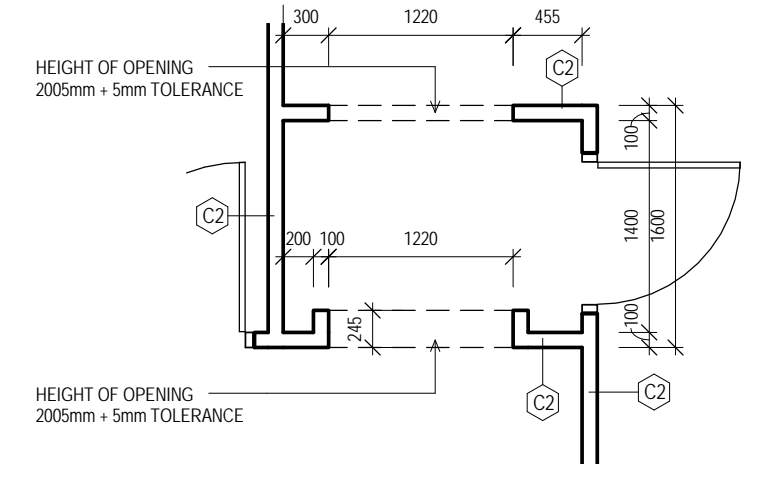
ISSUE	DATE	FOR INFORMATION	FOR
1	23.02.2011	FOR INFORMATION	
2	28.04.2011	FOR INFORMATION	
3	24.05.2011	FOR INFORMATION	
4	21.06.2011	FOR INFORMATION	
5	15.08.2011	40% DESIGN DEVELOPMENT	
6	18.08.2011	FOR INFORMATION	
7	30.09.2011	70% DESIGN DEVELOPMENT	
8	02.12.2011	ISSUED FOR TENDER	
9	29.06.2012	FOR INFORMATION	
10	13.03.2012	FOR INFORMATION	
11	20.07.2012	FOR INFORMATION	
12	26.07.2012	CONSTRUCTION CERTIFICATE	
A	21.02.2013	FOR INFORMATION	
AA	07.02.2014	FOR CONSTRUCTION	
B	13.09.2012	FOR INFORMATION	
BB	24.03.2014	AS BUILT	
C	17.02.2013	FOR INFORMATION	
D	26.10.2012	FOR BLOCKWORK TENDER	
E	31.10.2012	FOR INFORMATION	
F	16.11.2012	FOR DRYWALL TENDER	
G	28.11.2012	REV. TENDER DRYWALL/GLAZED PTN.	
H	11.12.2012	FOR INFORMATION	
I	05.02.2013	FOR INFORMATION	
J	08.02.2013	REV. TENDER DRYWALL/GLAZED PTN.	
K	20.02.2013	REV. TENDER DRYWALL/GLAZED PTN.	
L	27.02.2013	FLOOR FINISHES TENDER ONLY	
LL	27.02.2013	BLOCKWORK SETOUT/DRYWALL REV.	
N	11.04.2013	BLOCKWORK/DRYWALL SETOUT	
O	17.04.2013	COORDINATION ISSUE	
P	24.04.2013	FOR INFORMATION	
Q	30.04.2013	FOR CONSTRUCTION	
R	28.05.2013	FOR CONSTRUCTION	
S	06.06.2013	FOR CONSTRUCTION	
T	07.06.2013	FOR CONSTRUCTION	
U	17.06.2013	FOR CONSTRUCTION	
V	12.07.2013	FOR CONSTRUCTION	
W	22.07.2013	FOR CONSTRUCTION	
X	06.08.2013	FOR CONSTRUCTION	
Y	18.09.2013	FOR CONSTRUCTION	
Z	05.02.2014	FOR CONSTRUCTION	



PROPOSED LOCATION FOR NOISE MONITOR

PROPOSED LOCATION FOR VIBRATION MONITOR

NOTE:
1. PROVIDE HEAD RESTRAINTS AND WALL/COLUMN RESTRAINTS U.N.O.
HEAD RESTRAINT MET-4 AT 400mm CENTRES. WALL/COLUMN RESTRAINT MET-5 AT 400mm CENTRES U.N.O.



FIRE-RATING
60/60/60 FIRE-RATED WALL
90/90/90 FIRE-RATED WALL
120/120/120 FIRE-RATED WALL
SMOKE SEPARATION LINE

CLIENT
Westmead Millennium Institute
for Medical Research

PROJECT MANAGER
CAPITAL INSIGHT

BUILDER
Abigroup COCKRAM

PROJECT
WESTMEAD MILLENNIUM INSTITUTE
BVN PROJECT NUMBER
S1012004

DRAWING KEY

TOP OF FLOOR	RL 40.30
ROOF	RL 58.35
LEVEL 9	RL 54.00
PLANTROOM 8	RL 53.70
LEVEL 7	RL 47.40
LEVEL 6	RL 43.10
LEVEL 5	RL 38.80
LEVEL 4	RL 34.50
LEVEL 3	RL 30.20
LEVEL 2	RL 25.90
PLANTROOM 1	RL 23.20
LEVEL 1	RL 19.90
BASEMENT	RL 16.60

TRUE NORTH PROJECT NORTH

GRAPHIC SCALE (m)
0 25 50
SCALE

1: 100 @ B1 DO NOT SCALE
STATUS
AS BUILT

DRAWING
FLOOR PLAN LEVEL L1
LOWER GROUND

DRAWING NUMBER
A-D-L1
ISSUE
BB

APPENDIX B – CURRICULUM VITAE

Qualifications

Master of Architectural Science (Audio & Acoustics), USYD 2020

Outline of Experience

Beginning at AL in 2020, Ross has developed experience in a variety of areas of noise and vibration measurement and assessment. Since working at AL, Ross has been involved in the investigation, design, construction, inspection and certification/compliance testing of acoustic impacts from environmental noise, building design, operational noise and mechanical noise. Ross has extensive experience in the usage and application of statutory codes and requirements of acoustic design in buildings and mechanical systems. Ross' areas of expertise include:

- Spatial planning of development (room layouts, wall design etc)
- Acoustic control of mechanical systems (ventilation systems, air-conditioning etc).
- Acoustic design of reverberant noise in critical spaces (seminar rooms, theatres).
- Environmental noise modelling and assessment as required for consent authorities.
- Review of external noise impacts (traffic, rail).
- Review of acoustic impact of helicopters/helipads.

Project Experience

A sample of projects Ross has been or is currently involved with as a Project Engineer include:

Residential/ Hotel/ Mixed-Use Projects

- The Ribbon, Darling Harbour
77 Market Street, Sydney
- Riverwood Estate SSD, Riverwood
- Tallawong Station Precinct, Rouse Hill
5-7 Charles Street, Parramatta
- 26 Mann Street, Gosford
- Scape Student Accommodation, Kensington
- Scape Student Accommodation, Kingsford
- Carter Street, Lidcombe
- 128 Bunnerong Road, Pagewood

Commercial Projects

- 55 George Street, Sydney
- One Eden Park Drive, North Ryde
- Coles CFC, Horsely Business Park
- Bondi Junction RSL
- St Mary's Leagues Club
- Toongabbie Sports Club
- Castle Hill RSL

Ross Ferraro
Project Engineer



Healthcare, Research, Educational and Aged-Care Facilities

University of Sydney Biomedical Accelerator
University of Sydney Dubbo Medical Teaching Facility
Children's Medical Research Institute, Westmead
Westmead Hospital Central Acute Services Building
Westmead Innovation Centre
Westmead Innovation Quarter
Western Sydney University, Bankstown Campus
Hornsby Ku-Ring-Gai Hospital
Blacktown Hospital
Edmondson Park Public School
Millthorpe Public School, Orange
Bletchington Public School, Orange
Picton High School
Opal Aged Care, Toongabbie
Opal Aged Care, Carlingford

SYDNEY
A: 9 Sarah St
MASCOT 2020
T: (02) 8339 8000

SYDNEY MELBOURNE BRISBANE
CANBERRA LONDON DUBAI SINGAPORE
GREECE

Qualifications

Bachelor of Mechanical Engineering (Hons, Class1) (1982)

Member of the Australian Acoustical Society (M.A.A.S)

Member of Institution of Engineers, Australia

Member of Australian Building Codes Board External Noise Project

1994 - Current	Director, Acoustic Logic Consultancy
1992 to 1994	Associate Director, Renzo Tonin and Associates
1989 to 1992	Project Engineer, Renzo Tonin and Associates
1981 to 1989	Engineer, NSW Public Works Department

Outline of Experience

Between 1981 and 1989 Victor was employed with the NSW Public Works Department as a professional engineer. His work involved the investigation, design and construction supervision of mechanical services (air conditioning, ventilation heating, solar design) for new and existing public buildings throughout the state as well as acoustics.

Victor joined Renzo Tonin and Associates, a Sydney-based acoustics and vibration consultancy, in 1989 as a project engineer, and was made an associate director of the firm in 1992. In 1994 he became a director of Acoustic Logic Consultancy.

Victor's areas of expertise include:

- Building acoustics and building services noise control
- Environmental noise modelling and assessment
- Vibration isolation and structural dynamics
- Traffic noise prediction
- Helicopter & aircraft noise
- Industrial Noise Control

Project Experience

Victor has undertaken a vast number of noise assessments and designs for a variety of projects. Some of these are listed below.

- Star Event Centre and Hotel
- Trinity Grammar Masterplan
- Sydney Olympics
- Eastern Distributor
- 710 George Street Residential Project
- Canterbury, Liverpool, Campbelltown and Camden Hospitals
- Mirvac Residential Developments Milsons Point and Rhodes
- Shepherds Bay Residential precinct
- AGL Site Mortlake redevelopment
- Australand Residential Development Balmain, Waverton and Discovery Point

KANE

WASTE MANAGEMENT PLAN

CHILDRENS HOSPITAL WESTMEAD STAGE 2 –PROJECT: CHW & VVMF REFURBISHMENT
CONTRACT NUMBER: HI 22029

30/11/2023



CHANGE HISTORY

ISSUE	CHANGE TYPE	AMENDMENT SUMMARY	AUTHOR	APPROVED	DATE
01	For Approval	For CC	SS	SB	28/02/23
02	Reviewed	Minor adjustments to address PwC comments	SS	SB	31/05/23
03	Reviewed	Nil changes	SS	SB	31/08/23
04	Reviewed	Nil changes	SS	SB	30/11/23
05					
06					
07					

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Review of Environmental Factors (REF) Conditions

REF	Requirement	Document Reference / Location
11.1	A Demolition/Construction Waste Management Plan shall be prepared by an appropriately qualified contractor prior to the commencement of works. The Waste Management Plan should be prepared in accordance with DECCW's "Waste Classification Guidelines (2008)" and the Protection of the Environment Operations Act 1997.	Refer CWMP (this document)
11.2	The Demolition/Construction Waste Management Plan is to include the following requirements and details:	See below;
11.2 (a)	The type and volume of all waste materials (e.g. excavation material, green waste, bricks, concrete, timbers, plasterboard and metals) is to be estimated prior to the commencement of works, with the destination for each waste identified. Waste should be re-used or recycled as much as practicable. Where not practicable, the location of a suitable waste disposal facility is to be identified.	Refer Section 6.0, Attachment A, and Attachment B
11.2 (b)	Cleaning out of batched concrete mixing plant is not permitted within any construction compound.	Refer Section 3.0
11.2 (c)	Non-recyclable waste and containers are to be regularly collected and disposed of at a licensed disposal site. Frequency of collection should be identified.	Refer Section 3.0
11.2 (d)	No burning or burying of waste is permitted on the site.	Refer Section 3.0
11.2 (e)	Any bulk garbage bins delivered by authorized waste contractors are to be placed and kept within the property boundary.	Refer Section 3.0
11.3	The following mitigation measures will be implemented in order to prevent adverse impacts in relation to waste generated by the proposed works:	See below;
11.3 (a)	No materials will be used in a manner that will pose a risk to public safety and waste generated from the proposed works will be recycled where possible.	Refer Section 4.0
11.3 (b)	Unnecessary resource consumption will be avoided.	Refer Section 4.0

PSB SSDA Conditions

Note: Applicable only for the PATHOLOGY EXPANSION works

PSB SSDA	Requirement	Document Reference / Location
B18	The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste including the following:	See below;
B18 (a)	The recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use for materials to remain;	Refer Section 6.0, Attachment A, and Attachment B
B18 (b)	Information regarding the recycling and disposal locations; and	Refer Section 6.0, Attachment A, and Attachment B
B18 (c)	Confirmation of the contamination status of the development areas of the site based on the validation results.	Refer Section 7.0

1.0 INTRODUCTION

This Waste Management Plan is relevant to the development of the CHW Refurb & VVMF Building located on Kid's Research Lane, Westmead. The works include the following;

- The refurbishment of all milestones as per the principal's documentation that includes but not limited to relevant standards, BCA, HI Engineering Services Guidelines, Review of Environmental factors and HI CHW Refurb & VVMF Guidance Notes (DGN's)
- Construction of stairs in the galleria and airlocks located on the eastern & western entrances of Block 6
- The refurbishment of the Clinical Research Centre, Pathology Collections, Gait lab & dining, CSRA & Blood Bank, Pathology Expansion
- The fit-out of expanded Viral Vector Manufacturing Facility and Kid's Research Rooftop
- Expansion of the Link Bridge between the Kid's Research Building and the Central Acute Services Building
- The fit-out of the Viral Vector Manufacturing Facility within the Acute Services Innovation Centre Building.
- Provision of improved pedestrian access, signage and lighting around the site during and after construction. Ensure all temporary and permanent pedestrian pathways are DDA / BCA compliant
- Associated building services including but not limited to electrical, mechanical, hydraulic, security, IT / Communications, fire protection, medical gases.
- Establishing a safe surrounding environment at the various interfaces, and continuity of healthcare services, air quality, and vibration management, acoustic controls, overland flow, fire egress and maintenance routes. (High risk workshops will be required prior to new work types to ascertain tooling and methodology appropriateness).

The Key Participants in the design and delivery of the CHW & VVMF project includes:

Principal	Health Infrastructure
User Group	Sydney Children's Hospital Network (SCHN)
	Western Sydney Local Health District
Project Manager (Client)	Price Waterhouse Cooper (PwC)

The objective of this Waste Management Plan (WMP) is to outline measures to classify and dispose of all waste generated from the project during the Construction Phase and to ensure that resources are used efficiently in an attempt to minimise waste volumes. The processes detailed within this plan will ensure that waste will be correctly managed in line with the relevant Legislative requirements as well as the guidelines and priorities set out by the NSW Environment Protection Authority (EPA). Effective Waste Management is considered a communal responsibility, although specific responsibilities have been defined to ensure active implementation of Waste Management Procedures.

The management of Waste associated with the Operations of the completed facility are considered to be at the discretion of the End User Group and will therefore not be addressed within this Waste Management Plan.

This Demolition/Construction Waste Management Plan was prepared in consultation with Cabra Contracting Pty Ltd, an appropriately qualified contractor, as per the Demolition Work Plan and VVMF IC Waste Management Plan included in Attachment A and Attachment B respectively.

2.0 LEGISLATION / STANDARDS / GUIDELINES

NSW Protection of the Environment Operations Act, 1997 (POEO Act);

NSW Protection of the Environment Operations (Waste) Regulation 1996;

NSW Waste Avoidance and Resource Recovery Act 2001;

NSW Waste Minimisation and Management Act 1995;

Office Environment & Heritage (OEH) Waste Classification Guidelines: Part 1 Classifying Wastes (DECC 2009a)

The strategies employed to minimise waste on-site will parallel the approach to Waste depicted in the EPA Waste Management Hierarchy:

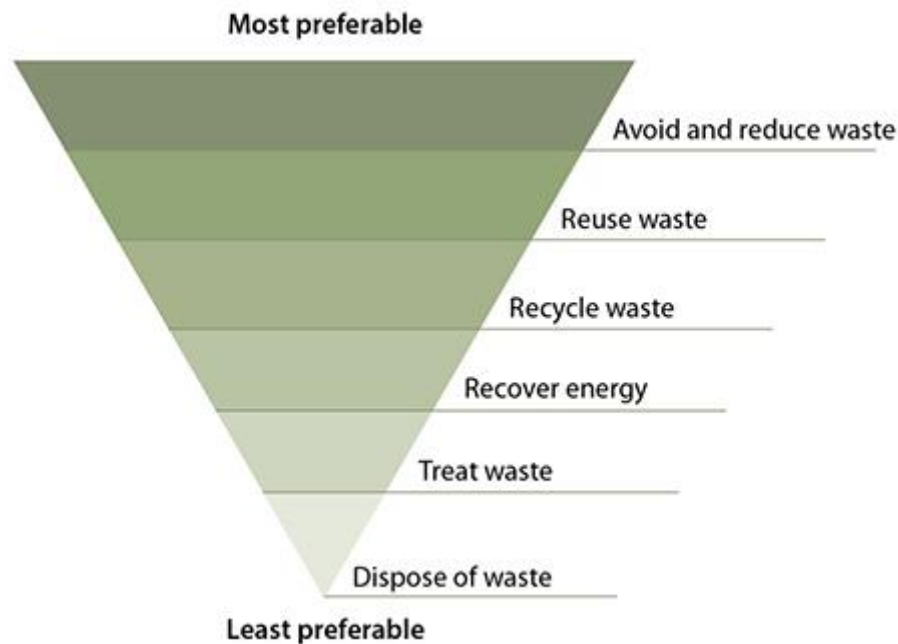


Figure 1: Waste Management Hierarchy. Sourced from EPA

3.0 PROCESS

Waste creation during the completion of construction works shall consist of a) Building material waste b) general waste from staff engaged during the creation of the facility c) demolition waste produced by the demolition sub-contractor.

During the construction phase, key waste sources include:

- Excess spoil from excavations;
- Construction and general waste such as demolition waste from the existing buildings currently onsite;
- Asphalt and concrete waste;
- Liquid wastes such as oils and used chemicals from equipment maintenance domestic waste from site personnel including food scraps, glass and plastic bottles, paper and plastic containers;
- Site sewage and other wastewater run-off including water utilised for dust suppression.

Generally, activities identified to facilitate the reduction of waste creation include:

- Utilise separate re-cycling bins
- Where practical use “prefabrication” rather than “in-situ materials”
- Ensure materials are recycled where practical.
- Monitor waste disposal.
- Ensure adequate site bins are available to control waste.

The following waste management processes will be followed by all sub-contractors on-site

- The cleaning out of batched concrete mixing plant will not be conducted and is not permitted within any construction compound.
- The burning or burying of any waste on site is strictly not permitted.
- All Non-recyclable waste and containers will be regularly collected and disposed of at a licensed disposal. (In put frequency of collection.
- All bulk garbage bins will be delivered by authorised waste contractors and are to be placed and kept with the property boundary.

The management of waste will be conducted in accordance with the process illustrated in Table 1.

ACTIONS	RESPONSIBILITY
<p>Appropriate Training All personnel are to receive the project Environmental induction and ongoing waste management awareness and training via tool box talks on a regular basis.</p>	<p>Environment Manager</p>
<p>Assessment of Onsite Situation</p> <ul style="list-style-type: none"> • Identify waste streams and approximate quantities prior to commencement of works. • Identify management measures to reduce, reuse, recover, and recycle in preference to disposing to a licenced landfill. • Advise Environment Manager prior to generating new waste streams. • Refer to Table 1 for waste stream types and disposal locations already identified. 	<p>Site Foreman Project Engineer Environment Manager</p>

<p>Waste Management Onsite</p> <ul style="list-style-type: none"> • Waste storage facilities/stockpile locations to be established prior to works commencing and identified on the Environmental Control Map. • Waste storage facilities/stockpile locations to be appropriately signposted e.g. recyclables, steel, concrete, general waste. • The waste hierarchy of avoid, reduce, reuse and recycle to be employed throughout the project. Examples to be employed on site include: <ul style="list-style-type: none"> ○ Alternative products with recycled content and/or lower embodied energy will be investigated, especially paper, landscaping and concrete products; ○ Beneficial reuse will occur on site where feasible to do so; ○ Possible offsite crushing and screening will be explored to create a potential reusable product; ○ Topsoil will be stockpiled for later reuse in site rehabilitation, where possible. • Material sent offsite will be classified by an appropriately qualified professional in accordance with the Waste Classification Procedure and OEH's Waste Classification Guidelines: Part 1 Classifying Wastes (DECC 2009a). 	<p>Site Foreman</p> <p>Superintendent</p> <p>Project Engineer</p> <p>Environment Manager</p>
<p>Monitoring and Recording</p> <ul style="list-style-type: none"> • A waste tracking form is to be used for all materials that require off-site disposal. • Monitoring of waste management practices to be recorded using the Weekly Environmental Inspection Checklist. • Monitoring of goals and limits in regards to waste management will be completed by the Environment Manager. • Any actions from inspections to be assigned to the foreman for the area and recorded using the Environmental Inspection Actions Form. • Any observations will be kept in a site diary and significant issues are to be raised with the Environmental Manager. 	<p>Site Foreman</p> <p>Project Engineer</p> <p>Environment Manager</p>

Table 1: Onsite Waste Management Actions and Responsibilities

4.0 MANAGEMENT

- Waste management and reuse strategies will be considered and implemented where practical and cost-effective. On-site reuse opportunities will be maximised, with efforts made to implement reuse and recycling initiatives. Examples to be employed on site include:
 - Beneficial reuse of spoil as fill where practicable for backfilling, access roads and retaining wall construction at fill locations;
 - Possible offsite crushing and screening will be explored to create a potential reusable product;
 - Topsoil will be stockpiled for later reuse in site rehabilitation, where possible;
 - Where available, and of appropriate chemical and biological quality, stormwater, recycled water or other sources of water shall be used in preference to potable water for construction activities, including concrete mixing and dust control.
- Material sent offsite will be classified by an appropriately qualified professional in accordance with the Waste Classification Procedure and OEH's Waste Classification Guidelines: Part 1 Classifying Wastes (DECC 2009a).
- **Table 2** list the waste generating aspects and identifies the range of solid, hazardous, special and liquid wastes that potentially may be generated by construction.
- **Table 2** also outlines the proposed reuse, recycling or disposal method.
- Staff will be inducted on the principles of waste management and resource use requirements while working on site.
- Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing or disposal on site, except as expressly permitted under the POEO Act, if a licence is required for that waste type.
- Mitigation and management measures for waste impacts during construction are outlined in **Table 3**.

WASTE	CLASSIFICATION	POTENTIAL RECOVERY/REUSE	DISPOSAL (ALL TRACKED)
Green waste from clearing and grubbing of vegetation	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Green waste would be reused as mulch onsite or provided to local schools for landscaping. 	<ul style="list-style-type: none"> Clear and grub sub-contractor would remove timber and excess mulch to appropriately approved facilities.
Virgin Excavated Natural Material (VENM) – residual soil and shales	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Where possible, all suitable fill materials would be used on site in a cut to fill operation. 	<ul style="list-style-type: none"> Wherever possible, VENM would be used on the project and excess material would be transferred to appropriately approved sites requiring VENM.
Excavated Natural Material (ENM)	General Solid Waste (Non Putrescible) – Resource Recovery Exemption	<ul style="list-style-type: none"> Where possible, all suitable fill materials would be used on site in a cut to fill operation. 	<ul style="list-style-type: none"> Wherever possible, ENM would be used on the project and excess material would be transferred to appropriately approved sites requiring ENM.
Mixed Spoil	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Where possible, all suitable fill materials would be used on site in a cut to fill operation. 	<ul style="list-style-type: none"> Mixed unsuitable spoil would be transferred to appropriately approved waste facilities.
Demolition concrete and bitumen	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Stockpiled and transported to recycling centre and recycled for project construction activities. 	<ul style="list-style-type: none"> Nil. Valuable recourse.
Building rubble and structural element demolition materials	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Collected in designated collection areas and reused as much as practically possible. 	<ul style="list-style-type: none"> Mixed unsuitable materials would be transferred to appropriately approved waste facilities.
Waste metals	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Stockpiled and transported to recycling centre. 	<ul style="list-style-type: none"> Nil. Valuable recourse.
Liquid wastes – potholing slurries, site sewage, potholing, paint.	Liquid Waste	<ul style="list-style-type: none"> Liquid waste would be clearly identified and stored separate from other waste materials for selective disposal. 	<ul style="list-style-type: none"> Liquid waste would be stored so as to prevent or control accidental releases to air, soil, and water resources in the area. A licensed waste collection contractor would collect the liquid wastes generated on site and dispose to appropriately approved liquid waste facilities.
General office waste – paper, cardboard, used printer cartridges.	General Solid Waste (Non Putrescible)	<ul style="list-style-type: none"> Office waste such as paper, cardboard boxes, comingled wastes (Cans, plastic bottles etc) and used printer cartridges would be recycled. 	<ul style="list-style-type: none"> Food wastes and non-recyclables will be sent to landfill.
Asbestos or Asbestos Containing Material	Special Waste	<ul style="list-style-type: none"> None currently identified 	<ul style="list-style-type: none"> A licensed waste collection contractor would collect the liquid wastes generated on site and dispose to appropriately approved special waste facilities.

Table 2: Construction Waste and Management

NO	MITIGATION MEASURE	TIMING	RESPONSIBILITY	TOOL
General				
1.	The 'waste hierarchy' will be maximised during construction and incorporated into work programs, purchase strategies and site inductions, and will be assessed quarterly to identify opportunities for improvement.	Pre-construction and construction	Environmental Manager	Site Inductions / Toolbox Talks
2.	Excavated material would be reused on-site, as far as practically possible.	Construction	Project Engineer	Site Inductions / Toolbox Talks
3.	Cleared vegetation will be reused on-site, as far as practically possible.	Construction	Project Engineer	Site Inductions / Toolbox Talks
4.	All liquid and/or non-liquid waste generated on the site from will be assessed and classified in accordance with Waste Classification Guidelines (DECC, 2008), as described in the Waste Classification Procedure .	Construction	Project Engineer	Site Inductions / Toolbox Talks / Waste Classification Procedure
5.	Waste disposal will be in accordance with the POEO Act. Wastes that are unable to be reused or recycled will be disposed of off-site at an appropriately licensed waste management facility, following classification.	Construction	Project Engineer	Site Inductions / Toolbox Talks / Waste Classification Procedure / Waste Tracking Form / Waste Register
6.	A section 143 notice under the POEO Act will be completed by both the project and the relevant property owner, should off-site disposal of construction waste material or VENM onto private property be deemed necessary.	Construction	Project Engineer / Environmental Manager	Section 143 Notice
7.	Waste generated outside the site shall not be received at the site for storage, treatment, processing, reprocessing, or disposal on the site, except as expressly permitted by the project's EPL.	Construction	Project Engineer	Site Inductions / Toolbox Talks
8.	Waste segregation and separation will be promoted to facilitate reuse and recycling as a priority of the waste management program as follows: <ul style="list-style-type: none"> – waste segregation at the worksites - all waste materials will be separated onsite into dedicated bins/areas where practicable for either reuse onsite or collection by a waste contractor; and – waste separation off-site - all wastes will be deposited into one bin where space is not available on the worksite(s) and the waste will be sorted by a waste contractor. 	Construction	Environmental Manager	Site Inductions / Toolbox Talks
9.	Recycled material will be considered for use in rail construction where feasible and reasonable in accordance with the NSW Government's WRAPP.	Construction	Construction Manager	Site Inductions / Toolbox Talks
10.	Where available, and of appropriate chemical and biological quality, stormwater, recycled water or other water sources will be used in preference to potable water for construction activities, including concrete mixing and dust control.	Construction	Construction Manager	Site Inductions / Toolbox Talks / Permit to Pump
11.	A procurement approach will be adopted to reduce waste at the higher end of the waste hierarchy. During the procurement process, alternative products with recycled content and/or lower embodied energy will be investigated, especially paper, landscaping and concrete products. These products will be preferred where they meet all required specifications, are fit-for-purpose, can meet supply requirements and are cost neutral.	Pre-Construction	Environmental Manager	Site Inductions / Toolbox Talks

NO	MITIGATION MEASURE	TIMING	RESPONSIBILITY	TOOL
Tracking				
12.	Tracking of waste generation trends by type and amount of waste generated to be recorded on the Waste Register .	Construction	Environmental Manager	Toolbox Talks
13.	All waste collected for disposal and/or recycling, including amounts, date and time and details, and location of disposal to be recorded on the Waste Register .	Construction	Environmental Manager	Toolbox Talks / Waste Register
Transportation				
14.	On-site and off-site transportation of waste would be conducted so as to prevent or minimise spills, releases and exposures to employees and the public.	Construction	Project Engineer	Site Inductions / Toolbox Talks
15.	All trucks transporting wastes off-site will be appropriately licensed to carry the waste and will have load covers installed.	Construction	Project Engineer	Site Inductions / Toolbox Talks
Monitoring				
16.	Monitoring and reporting requirements to be undertaken including regular visual inspections of waste storage collection and storage areas for evidence of accidental releases and to verify that wastes are properly labelled and stored.	Construction	Environmental Co-ordinator	Site Inductions / Toolbox Talks / Weekly Environmental Inspection Checklist
Hazardous Waste				
17.	Any hazardous waste generated on-site, as classified in accordance with Waste Classification Procedure , will be disposed of in accordance with the DECCW Guidelines.	Construction	Project Engineer	Waste Classification Procedure
18.	Special management actions for any hazardous waste discovered, generated or procured on-site shall be implemented, including as appropriate: <ul style="list-style-type: none"> – storage in closed, banded containers; – secondary containment systems available and to be at least 110 percent of the largest storage container, or 25 percent of the total storage capacity (whichever is greater), in that specific location; – information to be made readily available on chemical compatibility to employees, including labelling each container to identify its contents; – hazardous waste storage areas to be clearly identified (label) and demarcated, including documentation of the location on a facility map or site plan; and – spill response and emergency plans to be prepared to address accidental release of hazardous materials. 	Construction	Construction Manager	Site Inductions / Toolbox Talks / Weekly Environmental Inspection Checklist

Table 3: Mitigation Measures

5.0 MONITORING AND REPORTING

- A waste tracking form is to be used for all materials that require off-site disposal. A copy of the waste tracking form (including dockets and receipts) will be retained to record the date of waste removal, and identify the waste transport contractor and destination of the wastes from the worksite.
- Monitoring, inspection and reporting shall be undertaken including monitoring tools, monitoring frequencies, inspection records, tracking of actions, communication of outcomes and accountabilities.
- The following wastes are subject to special monitoring and reporting requirements by OEHL under the waste tracking system:
 - hazardous non-liquid waste (e.g. batteries);
 - industrial non-liquid waste; and
 - Liquid wastes including non-recyclable oils, fuels, chemicals and paint.
- The Weekly Environmental Inspection Checklist will be used to ensure that all environmental aspects are reviewed during inspection of the project.
- Regular inspections will also be undertaken to assess environmental compliance against regulatory requirements.
- Actions arising from the inspections will be recorded on the Environmental Inspection Actions Form and each action will be allocated to the foreman for the work area.

6.0 RECYCLING AND DISPOSAL LOCATIONS

Demolished materials are to be processed and separated into waste streams on site ready for transport and disposal. The various separate waste streams are to be loaded into trucks and removed from site to their respective waste handling, recycling or salvage facilities.

The tables below show a list of waste materials generated and possible recycling and disposal locations.

Refer to **Table 4** for the expected material waste and waste type produced by the demolition works for the VVMF Innovation Centre (refer Attachment B, Waste Management Plan *Cabra Contracting Pty Ltd*);

Type of material	Est. Vol. (m3)	Est. W _t (tonne)	Destination
Non-Recyclable Mixed demolition waste Plasterboard, Synthetic Insulation, Timber, Carpet, MDF etc	30	12	Bingo Recycling Centre Eastern Creek
Masonry / Brickwork	0	0	Concrete Recyclers - Camellia
Concrete	186	372	Concrete Recyclers - Camellia
Salvageable Timber & Plywood	2	4	Cabra Yard
Ferrous & Non-Ferrous Metals	24	30	Sims Metal Recycling - Alexandria

Table 4: Expected Demolition Waste and Destination – Childrens Hospital at Westmead Milestone 7 – Innovation Centre

Refer to **Table 5** for the expected material waste and waste type produced by the demolition works for all remaining milestones (refer Attachment A, Demolition Work Plan *Cabra Contracting Pty Ltd*).

Type of material	Est. Vol. (m3)	Est. W _t (tonne)	Destination
Non-Recyclable Mixed demolition waste Plasterboard, Synthetic Insulation, Timber, Carpet, MDF etc	296	257	Bingo Recycling Centre Eastern Creek
Masonry / Brickwork	540	980	Concrete Recyclers - Camellia
Concrete	295	650	Concrete Recyclers - Camellia
Salvageable Timber & Plywood	0	0	Cabra Yard
Ferrous & Non-Ferrous Metals	66	325	World Wide Scrap – Seven Hills

Table 5: Expected Demolition Waste and Destination – Westmead Childrens Hospital Stage 2 Development

7.0 HAZARDOUS MATERIALS

Refer to Construction Environmental Management Plan (CEMP) for information regarding the unexpected finds protocol for contamination.

Prior to construction, JBS&G were engaged by Health Infrastructure (HI) to undertake a hazardous building materials survey of areas within the Children's Hospital Westmead (CHW) applicable for the Stage 2 Redevelopment Project (refer Attachment 3, Hazardous Materials Survey *JBS&G*). Refer to Attachment 3 for the contamination status of the development areas of this site based on the validation results.

8.0 SUSTAINABILITY

Kane is committed to achieving Green Star Credits 22/22B (Construction and Demolition Waste), which requires demolition and construction waste contractors to provide;

- A 'Compliance Verification Summary' issue by a suitably qualified auditor confirming compliance to GS Construction & Demolition Waste Reporting Criteria, and
- Monthly reporting confirming at least 90% of construction and demolition waste generated (reported in kilograms) has been diverted from landfill. Required to report the total amount of waste generated and the total amount of waste diverted from landfill, and report on the proportion diverted as a percentage.

Attachment A: Demolition Work Plan – Cabra Contracting Pty Ltd



Westmead Childrens Hospital – Stage 2 Development



Demolition Work Plan

Prepared by

Cabra Contracting Pty Ltd

Prepared for

Kane Constructions Pty Ltd

February 2023

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1. Introduction

Cabra Contracting Pty Ltd have been engaged by Kane Constructions to undertake demolition activities involved with the works with the Westmead Children's Hospital Redevelopment Stage 2 and to prepare a Demolition Work Plan for the works.

This document has been compiled as per section 2.3 Work Plan, of Australian Standard Demolition of Structures AS2601-2001.

This demolition work plan will outline the demolition to be conducted and the sequence in which the works will proceed.

2. Cabra Contracting Pty Ltd Details

Cabra Contracting Head Office is located at:

Suite 4, 40 Robert Street, Rozelle NSW 2039

Cabra Contracting mailing address is;

PO Box 6205, Marrickville, NSW, 2204

Cabra Contracting hold the following licence;

- Unrestricted Demolition Licence No: AD213675. This licence entitles Cabra Contracting to conduct all types of demolition work. This licence can be viewed in Appendix 1 – Demolition Licence

Cabra Contracting hold the following insurances;

- Workers Compensation
 - iCare Workers Insurance
 - Policy Number 201767701

Public and Products Liability. This document can be viewed in Appendix 3 – Public Liability Insurance

- Lloyds London via Epsilon Liability.
- Policy Number AWB1152BU

Vehicle and Plant Insurance

- Oamps Insurance Brokers
- Policy Number 06110323

3. Building Description and Extent of Demolition works

The site is located at Westmead, NSW, with the bulk of the works occurring near the Redbank Rd side of the complex. There will be interface with the public in several areas throughout the project.

3.1 Building description

- a. The building is a multi-storey live public hospital type structure.
- b. The hospital is comprised of multiple buildings.
- c. The buildings are spread over a large area of land and are joined by means of internal & external roads, walkways and link bridges.
- d. They consist of concrete, brick and steel structures.
- e. Interior fit out includes typical commercial environments with both brick, lightweight & glazed walls and ceiling treatments.

3.2 Scope of works

To undertake the demolition works for the alterations at the above project. Our works will include;

- Demolition of the Eastern Airlock. (Milestone 1)
- Demolition of the Galleria Airlock. (Milestone 1)
- Demolition of the Galleria Stair. (Milestone 1)
- Demolition of the Clinical research Centre. (Milestone 2)
- Demolition of the Gait Lab and Dining areas. (Milestone 3)
- Demolition of the CSRA Blood Bank. (Milestone 4)
- Demolition of the Pathology Expansion. (Milestone 5)
- Demolition of the Kids Research rooftop. (Milestone 6)
- Demolition of the corridor widening works
- The demolition of the concrete ramp including supporting steel structure to the Kids Research building. (Milestone 8)

4. Public Protection and Notification

4.1 Public Protection

Public protection is a high priority, due to the dangerous nature of demolition works. Under no circumstances will the public be permitted to enter the site either during the demolition work or out of hours. There are 3 main forms of risk associated with the public gaining entry which are:

1. Injury due to the actual demolition works.
2. Injury due to the movement of plant and equipment.
3. Injury due to trips and falls when entry is gained out of hours.

Prior to commencement of any demolition works, the work site will be protected against access from the public.

- Kane Constructions will erect and manage A-Class Hoardings and fences at access points.

Due to the nature of the daily running of a hospital noisy works will be kept to a minimum. Where possible every effort will be made to use alternatives to percussive and vibratory tools.

4.2 Safety Signage

During the course of the demolition works the public will be notified of hazards with safety signage attached to the site hoarding along the perimeter of the site. Signs will also be erected warning the public of construction activities. Particular signs to be erected at regular intervals on the fence around the site include: 'Demolition In Progress', 'Keep Out', 'No Unauthorised Entry'.

A sign will also be erected at a prominent position on the site giving details of the contractor and a 24hr contact number for a responsible person in charge of the site.

4.3 Council Notification

The Principal Contractor is responsible for obtaining all relevant authority approvals prior to demolition works commencing.

4.4 WorkCover Notification

The notifications of demolition works will be sent to SafeWork(NSW) at least 5 calendar days prior to commencement of all notifiable demolition works.

The works requiring SafeWork(NSW) are;

- Demolition of the Kids Research rooftop.(Milestone 6)
- The demolition of the concrete ramp including supporting steel structure to the Kids Research building. (Milestone 8)

5. Service Disconnection

Preliminary investigations have identified the following services currently on-site.

- Sewer
- Fibre Optic services
- Storm-water
- Water
- Electricity
- Telecommunications
- Fire suppression sprinklers
- Medical gases and vacuum systems

Generally, the following principles will be adopted when disconnecting services:

- All service authorities will be consulted prior to the works commencing to ascertain lead times and correct termination locations (where applicable)
- All termination works will be undertaken in accordance with design Engineers' specifications and instructions
- All termination works will be undertaken by suitably licensed contractors or incumbents working for Kane P/L, with a formal isolation form to be completed by each services subcontractor prior to demolition works commencing.
- DBYD Plans will be obtained and referenced before start of excavation or demolition works.

6. Details of Hazardous Materials

After a walkthrough site inspection there is no evidence to show there is any hazardous material present on-site. The relevant Hazardous Materials Registers will be reviewed prior to any works being undertaken in each of the specific areas.

6.1 Unexpected Finds

In the event that hazardous materials are found or suspected in the course of work the following actions will be taken.

Personnel involved in construction works within or near the project area will temporarily suspend work in the affected area.

This area will be isolated to minimise the potential for disturbance of the affected material, soil and/or water.

The field personnel are to notify the Site Manager or Project Manager who will be responsible for evaluation of the nature of the unexpected find.

Due to the potential variability in both the nature and extent of an unexpected find, it is not possible to define specific remedial strategies for potential contamination associated with an unexpected find.

7. Hours of work

Working hours will be in accordance with the Development Application.

7.1 Noisy works

Noisy works such as hammering with excavators and Roadsaw operations, will be undertaken during the main operating hours of the site, generally Monday through Friday between 7AM and 5PM. Noisy works will be conducted for a maximum of 45 minutes followed by a minimum 15 minute break.

Noise suppression devices such as acoustic blankets and hydraulic hammer shrouds will be used to control loud noises as a result of the demolition and excavation works.

Noise Management Plans will be followed for all demolition works.

8. Demolition Methodology

All demolition works will be undertaken in accordance with the following:

- AS2601-2001 – Demolition of Structures.
- Work, Health and Safety Act 2011
- Work, Health and Safety Regulation 2011

The sequence and methods of demolition have been chosen in order to maximize safety of all personnel, the protection of elements of the building to remain and maximum recycling of materials produced during the demolition.

8.1 Demolition of internal rooms.

Including the following areas;

- Eastern Airlock
- Galleria Airlock
- Level 2 CRC + Pathology Collection
- Level 1 Gait Lab + Staff Dining
- Level 2 CSRA and Blood Bank
- VVMF Kids Research
- CHW Corridor Widening

1. The work area is to be isolated by fencing and hoardings. Demolition warning signage will be erected on the outside of fences.
2. Drainage points will be identified and covered to prevent debris or slurry entering the stormwater system.
3. Services will be disconnected by others within the vicinity of the demolition works.
4. Major site dust control will be organized by the builder.
5. Dust suppression in the form of water misting and air filtered fans will be used where ever dusty work is being conducted.
6. Items to be demolished will be clearly marked by a competent supervisor and compared to the plans to ensure accuracy.
7. Demolition hazards will be identified during this time for each work area. These hazards include;
 - a. Glass removal – To be removed by competent personnel wearing long

sleeved shirts and full length trousers, cut resistant gloves and safety glasses. The glass is to be held, lifted and transported using glass suckers. In the event of glass breakage, it is paramount that broken glass is cleaned up and safely removed from site immediately.

- b. Service identification – Power point / sprinklers / water and gas plumbing. These must be marked clearly to help prevent accidental and unnecessary service strikes. The amount and type of service and their locations must be recorded and given to site management to be disconnected and made safe before demolition can be conducted in their immediate vicinity.
8. A team of skilled labourer's with hand tools will systematically demolish and stockpile the internal structures.
9. The waste produced will be separated concurrently by the labour team and placed into designated stockpiles in the already demolished area ready for load out.
10. 4 and 2 wheeled waste bins with sealable lids will be used to transport any waste produced that will be taken into a public area.
11. "Sticky" mats will be placed at the exit from site into any public area that will collect excess dust from the feet of workers and the wheels of bins.
12. A 10m³ hook bin will be located at a designated loading area as close to the demolition works as is practically possible. An exclusion zone of barrier tape and bollards will be erected around the bin.
13. Once all demolition work has been finished a final clean of all rubble and debris will take place and be removed from site in preparation for following trades.

8.2 Demolition of external elements.

Including the following areas;

- Eastern Airlock
 - Level 2 Pathology Expansion
 - VVMF Kids Research
 - CHW Corridor Widening
1. The work area is to be isolated by fencing and hoardings. Demolition warning signage will be erected on the outside of fences.
 2. Drainage points will be identified and covered to prevent debris or slurry

entering the stormwater system.

3. Services will be disconnected by others within the vicinity of the demolition works.
4. Major site dust control will be organized by the builder.
5. Dust suppression in the form of water misting will be used where ever excessively dusty work is being conducted.
6. Items to be demolished will be clearly marked by a competent supervisor and compared to the plans to ensure accuracy.
7. A team of skilled labourer's with hand tools will systematically demolish and stockpile the demolition items.
8. The waste produced will be separated concurrently by the labour team and placed into designated stockpiles in the already demolished area ready for load out.
9. Wheeled waste bins and trolleys will be used to transport any waste produced and brick chutes will be utilized where-ever possible.
10. Where brick chutes are utilized, dust suppression in the form of misting hoses will be set up at the bottom of the chute or directly inside the truck which is being loaded.
11. The fixing point of any brick chute must be deemed fit and safe for purpose by a competent and experience person before assembly. Once assembled and ready for use both the demolition supervisor and an independent site manager must check over the fixings and provide sign-off that the chute is well fixed securely and safe to use.
12. Brick chutes will be fitted with a plywood lid to stop unauthorised or accidental use. The lid will always remain in place except when the chute is being utilized under the supervision of the area supervisor.
13. While brick chutes are in operation the following protocol will be followed;
 - a. an exclusion zone will be erected around the truck being loaded.
 - b. A designated spotter will be posted directly outside the exclusion zone with a full view of the area.
 - c. The spotter will be fitted with a 2-way radio and will be in constant contact with the area supervisor (fitted with a 2-way radio) who will be posted at the top of the chute.
 - d. Radio confirmation that the area is clear and safe to load will be given by the spotter to the supervisor.

- e. The supervisor will remove the lid and will not leave the immediate area while the chute is in use.
 - f. Should the spotter request loading stop, the supervisor will replace the lid on the chute and will not remove it until they have received radio confirmation that it is safe to do so.
 - g. When loading has finished the lid will be fixed to the mouth of the chute and the exclusion zone will be maintained around the exit of the chute.
14. "Sticky" mats will be placed at the exit from site into any public area that will collect excess dust from the feet of workers and the wheels of bins.
15. A 10m³ hook bin will be located at a designated loading area as close to the demolition works as is practically possible. An exclusion zone of barrier tape and bollards will be erected around the bin.
16. Once demolition work has been finished a final clean of all rubble and debris will take place and be removed from site in preparation for following trades.

8.3 Structural demolition of concrete foot ramp entrance to Kids Research Facility.

The frame of this structure is constructed from structural steel edge beams fixed to structural steel support columns which support a 140mm thick Bondek slab with Shear Studs.

The Bondek is welded to the structural steel edge beams.

The ramp is approx. 45 metres long and 2.7 metres wide.

The ramp spans a delivery access point approximately 17 metres wide that must remain accessible at most times. There will be points during the demolition works where with negotiation with affected parties, the access may need to be blocked. This will only occur during significant demolition activities such as craning out structural members and be for short durations.

The ramp is situated along Research Rd which must be left accessible to delivery, patient transport and emergency services vehicles at most times. There may be periods of shutting down this road (with negotiation with affected parties) for high risk activities such as crane work.

It is assumed the existing ramp will have at least a 3kPa – 5 kPa capacity. An RFI will be raised to confirm this prior to the works proceeding.

SEQUENCE OF WORKS

1. The work area is to be isolated by fencing and hoardings. Demolition warning signage will be erected on the outside of fences.
2. Drainage points will be identified and covered to prevent debris or slurry entering the stormwater system.
3. Services (Electrical, water) will be disconnected by others within the vicinity of the demolition works. Any live services remaining will be protected using Plywood/carpet, or similar.
4. All plant to be used on-site will have a 2-way radio so that all machines can easily keep good clear communication with the demolition supervisor.
5. All diesel and petrol powered plant to be used on the works will be regularly serviced and of good repair with service and inspection records provided.
6. An engineered Birdcage steel scaffold will be erected to within 200-400mm of the underside of the ramp with a 10KPa capacity, suitable to take the weight of the ramp structure as ramp components are disconnected from the main structure. This scaffold will be erected the full length of the section of the ramp to be demolished and cantilever out over the footpath and roadway below by 1500mm. This will provide a working platform, overhead protection and edge protection whilst the demolition works are underway.

NOTE – These works by others.

7. Where the scaffold is to span the 17m wide driveway beneath, the Birdcage Scaffold deck will be supported by scaffold towers and ladder beams to provide the maximum opening into the Loading Dock area as possible. Scaffold engineers will consider this when designing the scaffold.
8. Cabra will construct an engineered timber catch deck from the scaffold deck using multiple layers of 19mm CD ply, supported by LVL Bearers & Joists. This deck is to be screwed up using the scaffold U Heads, hard to the underside of the Bondek.
9. Timber protection will also be constructed above the large services beneath the Ramp deck.
10. The structural steel frame that currently supports the services will have a post or prop installed beneath to provide support to the services. The hanging post currently fixed to the underside of the upper level slab, protrudes through the ramp to be demolished and is fixed to the steel frame supporting the services.
11. Once the new post has been installed, the hanging post can be cut away.

12. After the scaffolding and edge protection have been erected; the glass balustrade, balustrade supports and hand rail will be dismantled by hand.
13. The removal of the Bondek slab will proceed starting at the upper northern end of the ramp, working back down the ramp, sequentially removing the concrete deck, leaving the supporting structural steel frame.
14. After the removal of the Bondek slab, the structural steel frame will be dismantled with the use of a crane.
15. Prior to commencing these works a Structural Engineer will be engaged to review all work plans, imposed loads and provide certification.
16. All works will be under the complete and direct control of an experienced, qualified and SafeWork(NSW) registered Demolition Supervisor.
17. An electric road saw will be used (in order to minimise noise) to cut the concrete deck between structural supporting beams into sections of approximately 1000mm long x 350mm wide. Each of these sections will weigh approximately 100- 120kgs (depending on the SWL of the excavator to be used).
18. The extent of deck to be cut at any one point will be determined by the reach of the excavator to be used. It is likely that the deck will be sawcut at approximately 2m long stages. This is to ensure the excavator is always operating on un-sawcut sections of the deck.
19. Concrete anchor bolts and eyelets will be installed in each concrete section to allow it to be safely lifted up.
20. Excavators to be used as a lifting device will be fitted with 'Burst Valves'.
21. A 3-5 Tonne excavator (depending on existing suspended slab capacity), operating from the top of the ramp, using either standard mechanical grabs or lifting chains will then progressively remove 1 section at a time.
22. The excavator will slew around over the catch deck below and place the lifted section on the uncut slab behind the leading demolition edge.
23. A skid steer or similar will transport it safely to the bottom of the ramp to be loaded into a waiting bin.
24. All demolition operators will be ticketed & qualified and have significant experience specifically operating in a demolition environment.
25. Upon completion of the removal of the concrete sections the catch decks will be dismantled and removed. This will leave the structural columns and beams.

26. Prior to any crane work be undertaken a full Lift Study will be undertaken. The sequence, lengths and cut points of each lift will be planned to ensure the stability of the structure is maintained at all times and the demolition SWL (generally twice the standard SWL) is not to be exceeded.
27. The crane operatives, demolition supervisor & project manager, Kane representatives & structural engineer will contribute to the Lift Study.
28. This process which is likely to take two days, will require the temporary closure of Research Road.
29. A 30 - 50 Tonne city crane will be used to remove and lower the remaining steel structure to the ground as per the approved Lift Study.
30. This process will include the crane supporting the steel beams in situ. A team of experienced Boilermakers, operating out of EWPs or off the Birdcage scaffold, will then move into position at the required positions cut through the steel members to free the section.
31. The Lift Study will identify the safe locations of Boilermakers and the sequence of cutting to prevent injuries caused by rotation of steel members when cut.
32. Once the beam is free and supported by the crane the Boilermakers will move away from the beam to a safe location nearby as per the Lift Study.
33. The crane crew will then lower the steel beam to the ground where it can be further processed into smaller manageable pieces.
34. This process will be continued progressively until the entire structure is demolished.
35. A 15m³ hook bin will be located on Research Lane, as close as is practically possible to the work site that does not impede access to deliveries or emergency vehicles.
36. Once the structure is completely demolished, all rubble and debris will then be cleaned up and removed from site & scaffold dismantled.

8.4 Structural demolition of concrete awning to Kids Research facility.

1. The work area is to be isolated by fencing and hoardings. Demolition warning signage will be erected on the outside of fences.
2. Drainage points will be identified and covered to prevent debris or slurry entering the stormwater system.
3. Services (Electrical, water) will be disconnected by others within the vicinity of the demolition works. Any live services remaining will be protected using

Plywood/carpet, or similar.

4. The building façade and windows in the zone of the demolition are to be protected with a plywood frame.
5. All operatives, including the supervisor & demolition workers will have a 2-way radio to maintain good clear communication.
6. To start a steel scaffold with stretcher stair access will be constructed up to the underside of the base of the three vertical concrete angled supporting blades.

Note only two of the blades are to be removed.

7. The scaffold at this point is as wide as the awning, plus an additional bay. The additional bay will be erected up to the top of the level of the concrete awning, providing access, edge protection and a working deck. (By others).
8. An engineered catch deck will then be constructed from the lower deck to the underside of the concrete awning, capable of taking the load of the concrete awning when it is disconnected from the building and supporting concrete blades.
9. A high frequency electric hand saw or track mounted wall saw will be used to cut the horizontal section of concrete awning into seven sections each measured and quantified to weigh no more than 1 Tonne.
10. Scans to determine the exact location and extent of the reinforcing steel within the concrete awning will be made and marked out on the top of the awning.
11. Each of the sections will then have four lifting lugs of the relevant capacity installed, one at each corner. The distance from the edges and position of the lifting lugs will be determined by the structural engineer after reviewing the 'As-Built' drawings and the marked out reinforcing steel.

The correct positioning of the lifting lugs will prevent premature buckling or failing of the awning when being lifted out of place and lowered to the ground.

12. A 30-50 Crane will be used to lift down each of the seven sections which then can be removed offsite.
13. After the removal of the top deck of the awning, works will commence on the two blades.
14. The top of each blade will have two core holes (100mm diameter) cut in at a location again determined by the engineer reviewing the surface scans and

As- Built.

15. The crane will assume the load of the blade.

Note: The weight of each blade is less than 500Kg.

16. A flush cutting wall saw will then cut the blade vertically from the façade, freeing the blade.

17. The crane will lower each blade to the ground where it will be loaded into trucks for offsite disposal.

18. Upon completion of the removal of the concrete sections the catch decks and scaffolding will be dismantled and removed.

19. Once the structure is completely demolished, all rubble and debris will then be cleaned up and removed from site.

9 Waste Management Plan

As noted above the methods of demolition have been chosen in order to reduce risk to workers on site and to maximise recycling of the materials generated. Waste streams are to be separated at the source point ready for transport and disposal. All vehicles carrying waste from the site must be loaded within the site boundaries and all loads covered prior to leaving site. Cabra Contracting is the intended transport contractor for demolition waste.

Materials to be recycled include:

- Concrete
- Brick
- Ferrous and Non-ferrous metals
- Plasterboard
- Timber
- Carpet and vinyl flooring

9.1 Type and Quantity of Material to be removed from Site

It is anticipated that all demolition waste including salvageable and recyclable materials will be taken off site.

It is estimated that at least 88% by weight of materials generated by the demolition will be recycled.

The table below shows a list of waste materials generated and possible recycling or landfill locations.

Type of material	Est. Vol. (m3)	Est. W _t (tonne)	Destination
Non-Recyclable Mixed demolition waste Plasterboard, Synthetic Insulation, Timber, Carpet, MDF etc	296	257	Bingo Recycling Centres Eastern Creek
Masonry / Brickwork	540	980	Concrete Recyclers – Camellia
Concrete	295	650	Concrete Recyclers – Camellia
Salvageable Timber & Plywood	0	0	Cabra Yard
Ferrous & Non-Ferrous Metals	66	325	World Wide Scrap – Seven Hills

9.2 Method of Waste Disposal

Demolished materials are to be processed and separated into waste streams on site ready for transport and disposal.

This ensures maximum recycling of the demolished materials.

The various separate waste streams are to be loaded into trucks and removed from site to their respective waste handling, recycling or salvage facilities.

10. Materials Handling Statement.

Cabra Contracting will remove and dispose of all materials from the site in accordance with the *“Waste Avoidance and Resource Recovery Act 2001”* and *“Council’s Policy for Waste Minimisation in New Developments 2005”*.

11. Environmental Controls

Prior to commencement and during the demolition, environmental controls will be implemented to minimise the impact of noise, dust, sedimentation/water pollution and odours to the environment. Controls will be in accordance with the *Protection of the Environmental Operations Act 1997*.

11.1 Noise

In order to minimise noise generated during the demolition the following noise reducing measures will be taken:

- Work within the noise sensitive constraints imposed by the local council
- City of Sydney Code of Practice – Construction Hours.

11.2 Dust

Demolition activities, particularly breaking of concrete, generate dust. In order to minimise the generation and emission of dust the following measures will be taken:

- Monitor weather conditions and cease demolition works if the above controls cannot control the dust especially during windy times.

11.3 Sedimentation/ Water Pollution

Prior to commencement of demolition works, sedimentation controls will be established on site to control sediments and water pollution. Sedimentation controls include:

- Existing stormwater inlets on the site are to be maintained and protected using geo-textile fence.
- The principal contractor, Kane P/L, is responsible for supplying and installing sedimentation controls.

11.4 Odours

Odour emissions from construction sites are difficult to control, because the activities associated with odour generation typically move around site. However, some practices that can be implemented to control odours include;

- Efficient combustion and proper dispersion from trucks and excavators
- Using extraction fans and directing fumes
- Considering wind speed and direction and timing activities accordingly
- Locating odour producing equipment, such as diesel generators, away from sensitive receptors

12. Induction Training for Workers

All demolition workers commencing works on the site will be inducted into the principal contractors site and into the Site Specific Safe Work Method Statement.

The general induction will inform and train workers of the general conditions of the site and works/tasks to be completed. This will include information such as;

- Location of site amenities.
- Site opening hours and parking information.
- General PPE requirements whilst on site.
- First Aid.
- Reporting of accidents and/or near misses.
- Access ways.
- Evacuation and Fire Procedures.
- General behavior whilst on-site.
- Presence of plant and equipment on site.
- Identification of qualified and experienced personnel for each activity.
- Information and training into demolition works near heritage building.

All Demolition workers will be inducted into the Demolition Safe Work Method Statement by the Site Supervisor. The Safe Work Method Statement will brief workers on the hazards and risks associated with the works, and the manner in which the works will be undertaken to control the risks and hazards.

13. Fire Fighting Controls

Any demolition works involving the use of grinders and or oxy acetylene equipment will be carried out by experienced personnel. Flammable materials will be removed from areas of work prior to commence. During all hot works, a "Spotter" will be used to monitor the works. A Foam type extinguisher will be with the "Spotter" should any materials ignite. All hot works will cease at least one-hour prior to all personal leaving site.

14. Access and Egress

Traffic management for in and around the site will be as per the Traffic Management Plan as prepared by Kane P/L.

Generally;

- Trucks will Access and Egress the site via Redbank Rd.
- Traffic controllers will manage traffic in and out of site as per Traffic Management Plan prepared by Kane P/L.
- During the demolition works, waste will be removed using bins and small tip trucks limited to the sizes noted in the Site TMP.
- Prior to vehicles leaving the site, wheels will be inspected and dusted down to prevent any dust and materials leaving the site.
- All trucks leaving the site with demolished materials will have their loads covered to prevent debris falling onto the roadway.

15. Truck Routes

Truck routes and movement will be as per the Traffic Management Plan as prepared by Kane P/L.

16. Personal Protection Clothing and Devices

While on site, every worker and every visitor shall wear a safety helmet complying with AS/NZS 1801. Also, every worker shall wear protective clothing and where appropriate, the following protective equipment.

1. Eye protectors complying with AS1336 & AS1337
2. Respirators complying with AS/NZS 1715 & AS/NZS1716
3. Hearing protection complying with AS1270
4. Industrial safety gloves complying with AS/NZS2161
5. Safety footwear complying with AS/NZS2210.1 & AS/NZS2210.2
6. Industrial safety belts or harnesses complying with AS/NZS 1891
7. Highly visible clothing.

Appendix 1 – Demolition Licence



CONDITIONAL RESTRICTED DEMOLITION LICENCE

Issued under the *Occupational Health and Safety Regulation 2001(NSW)*. This licence is not transferrable.

Licence: AD213675
Licence period: From: 30/06/2021 To: 29/06/2023
Licence holder name: Cabra Contracting Pty Limited
ABN: 85 639 871 079
ACN: 639 871 079
Address: 2/ 40 Robert Street
ROZELLE NSW 2039

Description of the work that can be undertaken under this licence

- Demolition using a tower crane on site
- Demolition of a pre-tensioned or post-tensioned structures
- Demolition using a mobile crane with a rated capacity of more than 100 tonnes
- Demolition involving floor propping
- Demolition above 15 metres in height
- Demolition of Chemical Installations

The licence holder **CANNOT** undertake the following demolition work

- Demolition using explosives

Licence holder obligations

A nominated supervisor must be present at the site at all times when licenced demolition work is carried out.

This licence must be displayed on site at all times.

Demolition of a structure or part of a structure that is loadbearing or otherwise related to the physical integrity of the structure, that is at least six metres in height or demolition involving explosives must be notified to SafeWork NSW at least five days prior to the work commencing.

The licence holder must notify SafeWork NSW in writing of any changes to the licence or supervisor details within 14 days.

Appendix 2 – Public Liability Insurance


ABN 68 097 402 134

AFSL 245612

CERTIFICATE OF CURRENCY

This document certifies that the Policy referred to above is in force until 4.00p.m. on the Expiry Date shown unless the Policy is cancelled, lapsed, varied or otherwise altered in accordance with relevant Policy Conditions or the provisions of the 'Insurance Contracts Act 1984'.

Insured:	Cabra Contracting Pty Ltd Interactive Projects Pty Ltd
Business Description:	Principally Commercial & Industrial strip outs, demolition, asbestos removal, excavation, earthmoving & digging, shoring, underpinning, salvage sales, labour hire, plant hire
Class Of Business:	Section 1: Public and Products Liability Section 2: Financial Loss (Professional Indemnity)
Limit of Indemnity:	Section 1: \$20,000,000 any one Occurrence in respect of public liability and in the aggregate during the Period of Insurance in respect of products liability. Section 2: \$1,000,000 any one claim in the aggregate any one Period of Insurance.
Co-Insurer:	Primary Liability: Certain Underwriters at Lloyd's of London – 50% Berkley Insurance Company t/a Berkley Re Australia – 50%
Issuer:	Epsilon Insurance Broking Services Pty Ltd t/a Epsilon Underwriting Agencies
Policy Number:	AWB0590BU
Period of Insurance:	From: 1 May, 2021 at 4.00p.m. local standard time. To: 1 May, 2022 at 4.00p.m. local standard time.



Signed: _____
 For and on behalf of Epsilon Insurance Broking Services Pty Ltd trading as Epsilon Underwriting Agencies as agent for the Underwriter as specified above.

Date: 4 June 2021

- This Certificate:**
- Is issued as a matter of information only and confers no rights upon the holder.
 - Does not amend, extend or alter the coverage afforded by the Policy listed.
 - Reference must be made to the current Policy wording for full details of the cover provided.

Suite 1503 | Level 15 | 1 Market Street | Sydney NSW 2000 | Ph: 02 9299 3466

Appendix 3 – Workers Compensation Insurance



Workers Insurance

Certificate of currency

000024 005 0862 01
 Elias Bolos
 CABRA CONTRACTING PTY. LIMITED
 PO Box 2386
 BURWOOD NORTH NSW 2134

Issue date:
 18/03/2022



Statement of coverage

The following policy of insurance covers the full amount of the employer's liability under the *Workers Compensation Act 1987 (NSW)*.

Employer name:	Policy number:	Valid:
CABRA CONTRACTING PTY. LIMITED	201767701	31/03/2022 - 31/03/2023
Trading name:	ABN:	ACN:
	85 639 871 079	639 871 079

Industry classification number (WIC) ³	Number of workers ¹	Wages/units ²
421020 Site Preparation Services	10	\$500,000.00

1. Number of workers includes contractors/deemed workers
 2. Total wages/units estimated for the current period
 3. The policy covers all workers employed by the entity named on this certificate in the course of its primary business activity or any other activities ancillary to its primary business activity as required.

Important information

Principals relying on this certificate should ensure it is accompanied by a statement under section 175B of the *Workers Compensation Act 1987 (NSW)*. Principals should also check and satisfy themselves that the information is correct and ensure that the proper workers compensation insurance is in place, i.e. compare the number of employees on site to the average number of employees estimated; ensure that the wages are reasonable to cover the labour component of the work being performed; and confirm that the description of the industry/industries noted is appropriate. A principal contractor may become liable for any outstanding premium of the sub-contractor if the principal has failed to obtain a statement or has accepted a statement where there was reason to believe it was false.

Yours faithfully,



Peter Meighan
 Underwriting Operations Manager
 icare Workers Insurance

000024 01

icare™ is the brand of Insurance & Care NSW and acts for the Workers Compensation Nominal Insurer ABN 83 564 379 108

1 of 1

Attachment B: Waste Management Plan – Cabra Contracting Pty Ltd



Childrens Hospital at Westmead Milestone 7 – Innovation Centre

Waste Management Plan

Prepared by

Cabra Contracting Pty Ltd

Prepared for

Kane Constructions Pty Ltd

February 2023

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1. Introduction

Cabra Contracting Pty Ltd have been engaged by Kane Constructions to undertake demolition activities involved with the works with the Stage 2 Redevelopment of the Childrens Hospital at Westmead and to prepare a waste management plan for Milestone 7, The Innovation Centre.

2. Cabra Contracting Pty Ltd Details

Cabra Contracting Head Office is located at:

Suite 4, 40 Robert Street, Rozelle NSW 2039

Cabra Contracting mailing address is;

PO Box 6205, Marrickville, NSW, 2204

Cabra Contracting hold the following licence;

- Restricted Demolition Licence No: AD213675. This licence entitles Cabra Contracting to conduct all types of demolition work other than explosive demolition.

Cabra Contracting hold the following insurances;

- Workers Compensation
 - iCare Workers Insurance
 - Policy Number 201767701

Public and Products Liability. This document can be viewed in Appendix 3 – Public Liability Insurance

- Lloyds London via Epsilon Liability.
- Policy Number AWB0590BU

Vehicle and Plant Insurance

- Oamps Insurance Brokers
- Policy Number 06110323

3. Waste Management Plan

The methods of demolition have been chosen in order to reduce risk to workers on site and to maximise recycling of the materials generated. Waste streams are to be separated at the source point ready for transport and disposal. All vehicles carrying waste from the site must be loaded within the site boundaries and all loads covered prior to leaving site. Cabra Contracting is the intended transport contractor for demolition waste.

Innovation Centre Demolition Waste Management

Materials to be recycled include:

- Concrete
- Ferrous and Non-ferrous metals
- Non Recyclable mixed waste including plasterboard and unsalvageable timber
- Salvageable timber and plywood

3.1 Type and Quantity of Material to be removed from Site

It is anticipated that all demolition waste including salvageable and recyclable materials will be taken off site.

It is estimated that at least 97% by weight of materials generated by the demolition will be recycled.

The table below shows a list of waste materials generated and possible recycling or landfill locations.

Type of material	Est. Vol. (m3)	Est. W _t (tonne)	Destination
Non-Recyclable Mixed demolition waste Plasterboard, Synthetic Insulation, Timber, Carpet, MDF etc	30	12	Bingo Recycling Centre Eastern Creek
Masonry / Brickwork	0	0	Concrete Recyclers - Camellia
Concrete	186	372	Concrete Recyclers - Camellia
Salvageable Timber & Plywood	2	4	Cabra Yard
Ferrous & Non-Ferrous Metals	24	30	Sims Metal Recycling - Alexandria

3.2 Method of Waste Disposal

Demolished materials are to be processed and separated into waste streams on site ready for transport and disposal.

This ensures maximum recycling of the demolished materials.

The various separate waste streams are to be loaded into trucks and removed from site to their respective waste handling, recycling or salvage facilities.

4. Materials Handling Statement.

Cabra Contracting will remove and dispose of all materials from the site in accordance with the *“Waste Avoidance and Resource Recovery Act 2001”* and *“Council’s Policy for Waste Minimisation in New Developments 2005”*.



Health Infrastructure NSW
Hazardous Building Materials Survey

Stage 2 Redevelopment,
The Children's Hospital at Westmead,
Hawkesbury Road,
Westmead NSW

22 December 2021

56200/142,833 (Rev 0)

JBS&G Australia Pty Ltd

Health Infrastructure NSW
Hazardous Building Materials Survey

Stage 2 Redevelopment,
The Children's Hospital at Westmead,
Hawkesbury Road,
Westmead NSW

22 December 2021

56200/142,833 (Rev 0)

JBS&G Australia Pty Ltd

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Appendix B	Photographs
Appendix C	Laboratory Analysis Reports and Chain of Custody Documentation

Abbreviations

Term	Definition
AC	Asbestos Cement
ACM	Asbestos Containing Material
ACD	Asbestos Containing Dust
ANZECC	Australian and New Zealand Environment Conservation Council
AMP	Asbestos Management Plan
COC	Chain of Custody
EPA NSW	Environmental Protection Authority, New South Wales
FA	Friable Asbestos
HIL	Health Investigation Levels
HSL	Health Screening Levels
JBS&G	JBS&G Australia Pty Ltd
LAA	Licensed Asbestos Assessor
LCD	Lead Containing Dust
LOR	Limit of Reporting
LP	Lead Paint
NATA	National Association of Testing Authorities, Australia
NEPC	National Environmental Protection Council
NEPM	National Environmental Protection Measure
PCB	Polychlorinated Biphenyls
PPE	Personal Protective Equipment
SMF	Synthetic Mineral Fibre
SWA	Safe Work Australia
SWNSW	SafeWork New South Wales
WHS (WH&S)	Workplace Health and Safety

1. Introduction

1.1 Background

JBS&G Australia Pty Ltd (JBS&G) was engaged by Health Infrastructure NSW (HI, the client), care of PricewaterhouseCoopers Australia (PwC) to undertake a hazardous building materials survey (HBMS) of proposed refurbishment areas of the main hospital building associated with the Stage 2 Redevelopment Project at The Children's Hospital at Westmead (CHW), located at Hawkesbury Road, Westmead, NSW (the site).

It is understood that a number of internal areas within the CHW are proposed to be refurbished as part of the broader Stage 2 Redevelopment project. This HBMS was requested to identify the presence of hazardous materials within the nominated refurbishment areas to assist with the site redevelopment works.

The nominated refurbishment areas are detailed further in **Section 3**, and were inspected for the following hazardous materials:

- Asbestos containing materials (ACMs);
- Asbestos containing dust (ACD);
- Lead based paints (LP);
- Lead containing Dust (LCD)
- Synthetic mineral fibres (SMF); and
- Polychlorinated biphenyls (PCB).

This advice presents the outcomes of the inspection undertaken by JBS&G personnel and provides recommendations on requirements for the removal of identified hazardous materials in accordance with regulations and guidance in force at the time of the inspection.

No previous hazardous building materials survey reports or registers were made available to JBS&G prior to the completion of these works.

1.2 Objectives

The objective of the HBMS was to determine the presence, quantity and condition of any hazardous materials within the buildings prior to proposed refurbishment works.

The HBMS and production of this report have been undertaken in accordance with the requirements of:

- *Work Health and Safety Act (2011)*;
- *Work Health and Safety Regulation (2017)*;
- *How to Safely Remove Asbestos Code of Practice, SafeWork NSW, (2019) (SWNSW 2019a)*;
- *How to Manage and Control Asbestos in the Workplace Code of Practice, SafeWork NSW (2019) (SWNSW 2019b)*;
- Australian Standard 4361.2 (1998) *Guide to Lead Paint Management - Part 2: Residential and Commercial Buildings (AS4361.2-1998)*;
- Australian Standard 4361.2 (2017) *Guide to Hazardous Paint Management - Part 2: Lead Paint in Residential, Public and Commercial Buildings (AS4361.2-2017)*;
- National Occupational Health and Safety Commission's *National Standard for Synthetic Mineral Fibres [NOHSC:1004(1990)]*;

- National Occupational Health and Safety Commission's *National Code of Practice for the Safe Use of Synthetic Mineral Fibres*, [NOHSC:2006(1990)]; and
- Australian and New Zealand Environment Conservation Council's *Identification of PCB-containing Capacitors: An information booklet for Electricians and Electrical Contractors*, (ANZECC 1997).

1.3 Hazardous Materials Survey Limitations

Whilst all reasonable care has been taken by JBS&G during the completed HBMS, this report is limited due to:

- Only safely accessible areas of the site were surveyed.
- Access restrictions to operational areas such as energised services, gas, air conditioning/heating, pressurised vessels, chemical lines etc.
- Potential materials located in areas in which they could not reasonably be envisaged or anticipated.
- Limited access to internal building components e.g. set floor, walls, ceiling cavities etc., in which case only representative areas were inspected with the hand tools available to the JBS&G consultants for destructive investigation.
- Access restrictions to areas above 3 metres or any area deemed inaccessible without the use of specialised equipment.
- Access to restrictions to areas of structures where the structural integrity for the floor and/or ceiling has been compromised.
- Service pits, confined spaces, voids, cavities within the building structure and internal areas of plant and equipment that could not be safely accessed.

It should be noted that buildings built between the 1930s - 1980s may have general occurrences of ACMs in areas which are not readily accessible with the hand tools available for the survey. These areas and materials include, inter alia:

- Fibre Cement Sheeting (FCS) used as packing to bearers and joists in the underfloor void or as boxing/shuttering to concrete formwork;
- FCS packing between window/door frames and timber studs; and
- Compressed FCS underneath tiled floor areas.

Whilst all care is taken by the consultants to uncover hidden materials, not all areas can be accessed within the allowable timeframe without more industrial (power) tools. As such, only minor destructive sampling techniques were employed to gain access. Consequently, without substantial demolition of the building, it is not possible to guarantee that every source of hazardous material has been detected. JBS&G recommends that areas inaccessible during the survey be inspected as the demolition progresses. If suspected hazardous materials are observed, confirm the presence or absence of hazardous materials through laboratory testing.

In the event suspected hazardous materials are identified during strip out or demolition which are not included in this report, JBS&G recommends that works should cease and an assessment of the materials undertaken by a competent person for further appropriate recommendations.

No one section or part of a section of this report is to be taken as giving an overall idea of this report. Each section is to be read in conjunction with the whole of this report, including the appendices and attachments.

2. Methodology

2.1 Hazardous Materials

2.1.1 Asbestos Containing Materials and Asbestos Containing Dust

Representative samples of suspected ACMs and ACDs were collected where possible and placed into a zip-lock bags. These were subsequently delivered to a NATA accredited laboratory for analysis using polarised light microscopy in conjunction with dispersion staining techniques. Similar materials to those analysed or other materials known to contain asbestos from the consultant's experience (e.g. Electrical backing boards, corrugated asbestos cement roofs and older fibre cement sheeting) or materials not accessible may also be assumed to contain asbestos as per the relevant Code of Practice.

At the time of inspection, the following details were recorded:

- Location;
- Type of material;
- Accessibility;
- Condition;
- Friability; and
- Volume/dimensions.

2.1.2 Lead Based Paint

Australian Standard AS4361.2 (2017) *Guide to Hazardous Paint Management - Part 2: Lead Paint in Residential, Public and Commercial Buildings* defines lead paints as those in which the lead content (calculated as lead metal) is in excess of 0.1 percent by weight of the dry film. This can be determined by field spot tests, laboratory testing or the use of portable X-ray fluorescence (XRF) field tests. Representative samples of suspected lead based paints were collected where possible and delivered to a NATA accredited laboratory for analysis using inductively coupled plasma optical emission spectrometry (ICP-OES).

2.1.3 Lead Containing Dust

Representative samples of accumulated or settled dust were collected and delivered to a NATA accredited laboratory for analysis via ICP-OES. A conservative assessment criteria was adopted for this investigation given the potential for human exposure and the readily disturbed and uncontained nature of accumulated or settled dust.

Concentrations of lead within accumulated or settled dust were compared against the health investigation level (HIL) for residential sites with garden/accessible soil of 300 mg/kg as outlined in National Environment Protection Measure (NEPC 2013) guidelines.

2.1.4 Polychlorinated Biphenyls

Old fluorescent light fittings and other appliances which may contain capacitors containing PCB dielectric oil are identified by inspection and evaluation with the consultant's experience of similar light fittings and appliances. Alternatively, where possible and when it was safe to do so, a representative light fitting was opened to reveal the capacitor and the make and model recorded to be compared against the ANZECC (1997) list of PCB containing capacitors.

2.1.5 Synthetic Mineral Fibres

SMF containing materials were either sampled as per the asbestos methodology or assumed to contain SMF from the consultant's experience of similar materials.

2.2 Inaccessible Areas

As per SWNSW 2019b, any areas not accessible must be recorded as such. Where hazardous materials are suspected to be contained within inaccessible areas, these shall be documented in this report and the associated Hazardous Materials Register (**Appendix A**).

3. Site Description

The survey was completed on 8, 9 and 13 December 2021 by Matt O'Brien, Stuart Lumsden and Michael Le, JBS&G's experienced hazardous materials consultants and SafeWork NSW Licensed Asbestos Assessors (LAA 001093, LAA 001140 and LAA 001533 respectively).

The inspection areas were restricted to the proposed refurbishment areas on Levels 1 to 3 within the main building of the CHW (refer **Figures 1 to 3**)

The type, location, friability, accessibility, and approximate quantities of identified and suspected hazardous materials are provided in the Hazardous Materials Register in **Appendix A**. Photographs taken during the HBMS are presented in **Appendix B**. A summary of the observations made during the HBMS is included in the following sections.

3.1 Level 1 Refurbishment Areas

The Level 1 Refurbishment Areas comprised the Gait Lab, Galleria Entrance and Kitchen, as shown on **Figure 1**.

3.1.1 Gait Lab

The proposed Gait Lab refurbishment area was located on Level 1, in the central portion of the main building. It comprised existing staff toilets, meeting room, catering facilities for the meeting room, and a portion of the existing staff dining room, with cement rendered walls, a combination of fixed plasterboard and suspended ceiling tiles, and concrete floors with either vinyl or carpet floor coverings.

At the time of inspection, the proposed Gait Lab refurbishment area was occupied and operational.

A summary of the significant observations made during the HBMS is as follows:

- Non-asbestos containing blue vinyl flooring (GL-A01) was identified to the staff kitchen area.
- Assumed non-asbestos containing grey and light grey vinyl flooring (refer **Section 3.2.1**, samples ED-A01 & ED-A02) was identified to the staff dining area, pantry and kitchen to meeting room, and toilets.
- Non-lead based grey paint (GL-LP01, 0.02% w/w) was identified to the doors and jambs.
- Non-lead based white paint (GL-LP02, < 0.01% w/w) was identified to the cement rendered walls.
- All remaining paint systems are assumed to comprise non-lead based paint.
- Various assumed SMF insulation materials were identified throughout the area as follows:
 - Internal insulation to instant hot water systems in the staff kitchen and meeting room kitchen;
 - Insulation to ducting throughout the ceiling cavity;
 - Insulation to pipework throughout the ceiling cavity;
 - Packing pillows to penetrations; and
 - Suspended ceiling tiles.

3.1.2 Galleria Entrance

The proposed Galleria Entrance refurbishment area was located on Level 1, in the northern portion of the main building. It comprised the existing foyer to the northern entry into the main hospital building, with cement rendered walls, a fixed plasterboard ceiling, and concrete floors with timber pattern vinyl floor covering.

At the time of inspection, the proposed Galleria Entrance refurbishment area was occupied and operational, and appeared to have been refurbished since it was originally constructed.

Non-lead based yellow/orange paint (GAL-LP01, < 0.01% w/w) was identified to the cement rendered walls. All remaining paint system are assumed to comprise non-lead based paint.

No other hazardous material were identified at the time of inspection.

3.1.3 Kitchen

The proposed Kitchen refurbishment area was located on Level 1, in the central portion of the main building. It comprised the existing hospital kitchen with a combination of plasterboard, cement rendered and ceramic tile walls, suspended ceiling tiles, and concrete floors with either vinyl or ceramic tile floor coverings.

Internally, the Level 1 Kitchen is divided into three main areas:

- North portion – comprised Chefs Office, cool rooms and parts of the kitchen
- Central portion – comprised the main kitchen work area
- South portion – comprised Admin office, storage room areas and parts of the kitchen

A summary of the significant observations made during the HBMS is as follows:

- A number of fire doors were identified throughout the area. These fire doors were identified to have been manufactured in either the 1990's or 2000's. Based on the age of the fire doors they are not suspected to contain asbestos.
- Non-asbestos containing vinyl flooring (KIT-A1) was identified to the Chemical storage room. This material was also identified in the Admin office and Chef room.
- Non-asbestos containing vermiculite (KIT-A2) was identified to the ducting in the ceiling cavity adjacent to the Chef room.
- Lead concentrations within settled dust below the adopted site criteria (KIT-LD1, 130 mg/kg) was identified to the ceiling cavity above the kitchen. This dust was also found not to contain asbestos (KIT-AD1).
- Non-lead based white paint (KIT-LP1, < 0.01% w/w) was identified to the cement rendered walls.
- Non-lead based light green paint (KIT-LP2, 0.03% w/w) was identified to the door and window frames throughout the kitchen.
- All remaining paint systems are assumed to comprise non-lead based paint.
- Cool rooms were identified to the northern portion of the kitchen and are assumed to contain internal SMF insulation within the cool room walls and ceiling.
- Assumed SMF insulation batts were identified in the ceiling cavity.
- Assumed SMF insulation was identified to the ducting in the ceiling cavity.

3.2 Level 2 Refurbishment Areas

The Level 2 Refurbishment Areas comprised the Old Emergency Department, a Linkway & Pathway, Pathology, and External Forecourt, as shown on **Figure 2**.

3.2.1 Old Emergency Department

The proposed Old Emergency Department refurbishment area was located on Level 2, in the southern portion of the main building. It comprised existing treatment rooms, offices, toilet and shower facilities, and store rooms, with cement rendered and plasterboard walls, a combination of

fixed plasterboard and suspended ceiling tiles, and concrete floors with primarily vinyl floor coverings.

At the time of inspection, the proposed Old Emergency Department refurbishment area was occupied and operational, and being utilised by staff as offices, with a portion of the area utilised as the Covid Vaccination Clinic and another portion utilised as the Dental Clinic.

A summary of the significant observations made during the HBMS is as follows:

- A number of different coloured and textured vinyl flooring materials were identified throughout the area. Representative samples of the most common types of vinyl flooring were collected as follows:
 - Non-asbestos containing grey (ED-A01) and light grey (ED-A02) vinyl flooring was identified throughout.
 - Non-asbestos containing grey mottled (ED-A03) or blue mottled (ED-A04) vinyl flooring was identified to the bathrooms, showers and wet areas.
 - Non-asbestos containing cream vinyl (ED-A05) was identified to the walls of the bathrooms, showers and wet areas.
 - Non-asbestos containing white vinyl flooring (ED-A07) was identified to the northern office/clinic rooms.
- Based on the results of the representative samples on vinyl flooring collected, as detailed above, all vinyl flooring throughout the Old Emergency Department is assumed not to contain asbestos.
- Non-asbestos containing grey mastic (ED-A06) was identified to the wall expansion joints within the cement rendered walls throughout.
- Non-asbestos containing fibre cement sheeting (ED-A08) was identified to the soffit lining within the external Smurf Garden.
- Lead concentrations within settled dust below the adopted site criteria (ED-LD01, 23 mg/kg) was identified within the ceiling cavity. This dust was also found not to contain asbestos (ED-AD01).
- Non-lead based white paint (ED-LP01, < 0.01% w/w) was identified to the cement rendered walls.
- Non-lead based cream paint (ED-LP02, < 0.01% w/w) was identified to the doors and door jambs.
- All remaining paint systems are assumed to comprise non-lead based paint.
- Various assumed SMF insulation materials were identified throughout the area as follows:
 - Internal insulation to instant hot water systems in the kitchens;
 - Insulation to ducting throughout the ceiling cavity;
 - Insulation to pipework throughout the ceiling cavity;
 - Packing pillows to penetrations; and
 - Suspended ceiling tiles.

3.2.2 Linkway & Pathway

The proposed Linkway & Pathway refurbishment area was located on Level 2, in the southern portion of the main building. It comprised an internal (northern) area with cement rendered walls,

suspended ceiling tiles and concrete floors with vinyl floor covering, and an external (southern) area with cement rendered walls, glass balustrade, fibre cement ceiling and concrete floors with ceramic tiles.

At the time of inspection, the proposed Linkway & Pathway refurbishment area was occupied and operational being utilised as a thoroughfare.

A summary of the significant observations made during the HBMS is as follows:

- Non-asbestos containing blue vinyl flooring (L2-A01) was identified throughout the internal area.
- Non-asbestos containing grey mastic (L2-A02) was identified to the cement rendered walls within the internal and external areas.
- Non-asbestos containing fibre cement sheeting (L2-A03) was identified to the external area ceiling.
- Non-asbestos containing grey mastic (L2-A04) was identified to the floor expansion joints within the external area.
- Non-asbestos containing black mastic sealant (L2-A05) was identified to the glass balustrade.
- A number of fire doors were identified throughout the area. These fire doors were identified to have been manufactured in the 1990's. Based on the age of the fire doors they are not suspected to contain asbestos.
- Lead concentrations within settled dust below the adopted site criteria (L2-LD01, 110 mg/kg) was identified within the ceiling cavity. This dust was also found not to contain asbestos (LD-AD01).
- Non-lead based blue paint (L2-LP01, < 0.01% w/w) was identified to the fire doors and jambs.
- Non-lead based white paint (L2-LP02, < 0.01% w/w) was identified to the walls, doors and door jambs.
- Non-lead based light blue paint (L2-LP03, < 0.01% w/w) was identified the external cement rendered walls.
- Non-lead based dark blue paint (L2-LP04, < 0.01% w/w) was identified to the external pillars.
- All remaining paint systems are assumed to comprise non-lead based paint.
- Various assumed SMF insulation materials were identified throughout the area as follows:
 - Insulation to ducting throughout the ceiling cavity;
 - Insulation to pipework throughout the ceiling cavity;
 - Packing pillows to penetrations; and
 - Suspended ceiling tiles.

3.2.3 Pathology

The proposed Pathology refurbishment area was located on Level 2, in the western portion of the main building. It comprised an existing external courtyard & exposed roof to Level 1, with glass window walls, concrete pillars, concrete floors with gravel or pebblecrete pavers, and a fibre cement soffit.

At the time of inspection, the proposed Pathology refurbishment area was occupied and operational, and being utilised by staff as a break out area.

A summary of the significant observations made during the HBMS is as follows:

- Non-asbestos containing fibre cement sheeting (PE-A01) was identified to the soffit lining.
- Non-asbestos containing pebblecrete pavers (PE-A02) was identified to the flooring within the northern courtyard portion.
- The waterproofing membrane within the exposed roof portion comprised a combination of plastic and foam layers, with a gravel surface covering. No suspected ACM were observed.
- Non-lead based white paint (PE-LP01, < 0.01% w/w) was identified to the concrete pillars.
- No other hazardous materials were identified at the time of inspection.

3.2.4 External Forecourt

The proposed External Forecourt refurbishment area was located on Level 2. It comprised the external portion of the main entry, paved vehicle driveway (patient drop off/pick up area), grassed and landscaped areas, and former ambulance bay.

A summary of the significant observations made during the HBMS is as follows:

- Non-asbestos containing fibre cement sheeting (FC-A01) was identified to the soffit lining to the Clinical Research Centre (CRC) entry awning.
- Non-asbestos containing compressed fibre cement sheeting (FC-A02) was identified to the CRC façade.
- Non-lead based grey paint (FC-LP01, < 0.01% w/w) was identified to the cement rendered wall under the ambulance awning. This paint system was also identified to the ambulance bay dividing wall, the curved walkway walls, the Smurf Garden dividing walls, and main hospital building façade.
- Non-lead based blue paint (FC-LP02, < 0.01% w/w) was identified to the CRC external walls.
- All remaining accessible paint systems are assumed to comprise non-lead based paints.
- The ambulance and main entry awnings comprised metal and glass. No hazardous material were identified.

3.3 Level 3 Refurbishment Areas

The Level 3 Refurbishment Area comprised a Linkway & Pathway, as shown on **Figure 3**.

3.3.1 Linkway & Pathway

The proposed Linkway & Pathway refurbishment area was located on Level 3, in the southern portion of the main building. It comprised cement rendered and metal sandwich panel walls, suspended ceiling tiles and concrete floors with vinyl floor coverings.

At the time of inspection, the proposed Linkway & Pathway refurbishment area was occupied and operational being utilised as a thoroughfare, with the southern portion observed to have been recently refurbished as part of the new Acute Service Building (ASB) construction.

A summary of the significant observations made during the HBMS is as follows:

- Assumed non-asbestos containing blue vinyl flooring (refer **Section 3.2.2**, sample L2-A01) was identified throughout the internal area.
- Assumed non-asbestos containing grey mastic (refer **Section 3.2.2**, sample L2-A02) was identified to the cement rendered walls.

- A number of fire doors were identified throughout the area. These fire doors were identified to have been manufactured in the 1990's. Based on the age of the fire doors they are not suspected to contain asbestos.
- Lead concentrations within settled dust below the adopted site criteria (L3-LD01, 97 mg/kg) was identified within the ceiling cavity. This dust was also found not to contain asbestos (L3-AD01).
- Assumed non-lead based blue paint (refer **Section 3.2.2**, sample L2-LP01, < 0.01% w/w) was identified to the fire doors and jambs.
- Non-lead based white paint (refer **Section 3.2.2**, sample L2-LP02, < 0.01% w/w) was identified to the walls, doors and door jambs.
- All remaining paint systems are assumed to comprise non-lead based paint.
- Various assumed SMF insulation materials were identified throughout the area as follows:
 - Insulation to ducting throughout the ceiling cavity;
 - Insulation to pipework throughout the ceiling cavity;
 - Packing pillows to penetrations; and
 - Suspended ceiling tiles.

4. Results

4.1 Hazardous Materials

All identified hazardous materials are recorded in the Hazardous Materials Register in **Appendix A** with relevant photographs in **Appendix B**. NATA accredited laboratory analysis reports and chain of custody are provided in **Appendix C**.

4.1.1 Asbestos Containing Materials

ACM were identified by testing at an accredited NATA laboratory and/or visual inspection using the experience of the hazardous materials surveyor. A summary of the results of laboratory testing for asbestos are provided in **Table 4.1** below.

Table 4.1: Asbestos Results Summary Table

Sample ID	Lab ID	Refurbishment Area	Sample Location	Results	Observed Condition
Level 1					
GL-A01	21-De31117	Gait Lab	Staff kitchen – blue vinyl	No Asbestos Detected	N/A
GL-A02	21-De31118	Gait Lab	Wall expansion joints – grey mastic	No Asbestos Detected	N/A
KIT-A1	21-De32758	Kitchen	Chemical storage room – vinyl flooring	No Asbestos Detected	N/A
KIT-A2	21-De32759	Kitchen	Ceiling cavity, ducting – vermiculite	No Asbestos Detected	N/A
Level 2					
ED-A01	21-De31092	Old Emergency Department	Flooring throughout – grey vinyl	No Asbestos Detected	N/A
ED-A02	21-De31093	Old Emergency Department	Flooring throughout – light grey vinyl	No Asbestos Detected	N/A
ED-A03	21-De31094	Old Emergency Department	Bathrooms, showers and wet areas, floor – grey mottled vinyl	No Asbestos Detected	N/A
ED-A04	21-De31095	Old Emergency Department	Bathrooms, showers and wet areas, floor – blue mottled vinyl	No Asbestos Detected	N/A
ED-A05	21-De31096	Old Emergency Department	Bathrooms, showers and wet areas, walls – cream vinyl	No Asbestos Detected	N/A
ED-A06	21-De31097	Old Emergency Department	Cement rendered walls, expansion joints – grey mastic	No Asbestos Detected	N/A
ED-A07	21-De31098	Old Emergency Department	Northern offices/clinics, flooring – white vinyl	No Asbestos Detected	N/A
ED-A08	21-De31099	Old Emergency Department	Smurf Garden, soffit – fibre cement sheeting	No Asbestos Detected	N/A
L2-A01	21-De31104	Linkway & Pathway	Internal portion, flooring – blue vinyl	No Asbestos Detected	N/A
L2-A02	21-De31105	Linkway & Pathway	Cement rendered walls, expansion joint – grey mastic	No Asbestos Detected	N/A
L2-A03	21-De31106	Linkway & Pathway	External portion, ceiling lining – fibre cement sheeting	No Asbestos Detected	N/A
L2-A04	21-De31107	Linkway & Pathway	External portion, floor expansion joints – grey mastic	No Asbestos Detected	N/A
L2-A05	21-De31108	Linkway & Pathway	External portion, glass balustrade – black mastic sealant	No Asbestos Detected	N/A
PE-A01	21-De31121	Pathology	Soffit lining – fibre cement sheeting	No Asbestos Detected	N/A
PE-A02	21-De31122	Pathology	Courtyard – pebblecrete pavers	No Asbestos Detected	N/A
FC-A01	21-De31124	Forecourt	CRC, entry soffit – fibre cement sheeting	No Asbestos Detected	N/A
FC-A02	21-De31125	Forecourt	CRC façade – compressed fibre cement sheeting	No Asbestos Detected	N/A
Level 3					
No material samples were collected at the time of inspection					

4.1.2 Asbestos Containing Dust

Representative dust samples were collected throughout the site. A summary of the results of the laboratory testing for asbestos are provided in **Table 4.2** below:

Table 4.2: Asbestos Dust Results Summary Table

Sample ID	Lab ID	Refurbishment Area	Sample Location	Results	Observed Condition
Level 1					
KIT-AD1	21-De32760	Kitchen	Ceiling cavity – settled dust	No Asbestos Detected	N/A
Level 2					
ED-AD01	21-De31100	Old Emergency Department	Ceiling cavity – settled dust	No Asbestos Detected	N/A
L2-AD01	21-De31109	Linkway & Pathway	Ceiling cavity – settled dust	No Asbestos Detected	N/A
Level 3					
L3-AD01	21-De31115	Linkway & Pathway	Ceiling cavity – settled dust	No Asbestos Detected	N/A

4.1.3 Lead Containing Dust

Representative dust samples were collected throughout the site. A summary of the results of the laboratory testing for lead are provided in **Table 4.3** below:

Table 4.3: Lead Dust Results Summary Table

Sample ID	Lab ID	Refurbishment Area	Sample Location	Results	Observed Condition
Level 1					
KIT-LD1	S21-De32761	Kitchen	Ceiling cavity – settled dust	130 mg/kg	N/A
Level 2					
ED-LD01	S21-De31101	Old Emergency Department	Ceiling cavity – settled dust	23 mg/kg	N/A
L2-LD01	S21-De31110	Linkway & Pathway	Ceiling cavity – settled dust	110 mg/kg	N/A
Level 3					
L3-LD01	S21-De31116	Linkway & Pathway	Ceiling cavity – settled dust	97 mg/kg	N/A

4.1.4 Lead Based Paints

Representative paint samples were collected throughout the site. A summary of the results of the laboratory testing for lead are provided in **Table 4.4** below:

Table 4.4: Lead Paint Results Summary Table

Sample ID	Lab ID	Refurbishment Area	Sample Location	Results	Observed Condition
Level 1					
GL-LP01	S21-De31119	Gait Lab	Doors and jambs – grey paint	0.02% w/w	N/A
GL-LP02	S21-De31120	Gait Lab	Cement rendered walls – white paint	< 0.01% w/w	N/A
GAL-LP01	S21-De31128	Galleria Entrance	Cement rendered walls – yellow/orange paint	< 0.01% w/w	N/A
KIT-LP1	S21-De32762	Kitchen	Cement rendered walls – white paint	< 0.01% w/w	N/A
KIT-LP2	S21-De32763	Kitchen	Door and window frames – light green paint	0.03% w/w	N/A
Level 2					
ED-LP01	S21-De31102	Old Emergency Department	Cement rendered walls – white paint	< 0.01% w/w	N/A
ED-LP02	S21-De31103	Old Emergency Department	Doors and door jambs – cream paint	< 0.01% w/w	N/A
L2-LP01	S21-De31111	Linkway & Pathway	Internal area, fire doors and jambs – blue paint	< 0.01% w/w	N/A

Sample ID	Lab ID	Refurbishment Area	Sample Location	Results	Observed Condition
L2-LP02	S21-De31112	Linkway & Pathway	Internal area, cement rendered walls, doors and jambs – white paint	< 0.01% w/w	N/A
L2-LP03	S21-De31113	Linkway & Pathway	External area, cement rendered walls – light blue paint	< 0.01% w/w	N/A
L2-LP04	S21-De31114	Linkway & Pathway	External area, pillars – dark blue paint	< 0.01% w/w	N/A
PE-LP01	S21-De31102	Pathology	Concrete pillars – white paint	< 0.01% w/w	N/A
FC-LP01	S21-De31123	Forecourt	Wall under ambulance awning – grey paint	< 0.01% w/w	N/A
FC-LP02	S21-De31126	Forecourt	CRC façade – blue paint	< 0.01% w/w	N/A
Level 3					
No paint samples were collected at the time of inspection					

4.1.5 Polychlorinated Biphenyls

Fluorescent light fittings were of modern age and appearance. Based on the year of building construction (circa 1994) these light fittings are not suspected to contain PCB containing capacitors.

4.1.6 Synthetic Mineral Fibres

Suspected SMF materials were identified in various forms throughout the site. Full details of all identified SMF materials are provided in the Hazardous Materials Register (**Appendix A**). The typical forms of SMF identified are summarised below:

- Internal insulation to hot water systems;
- Insulation lagging to ducting and pipework;
- Insulation batts within ceiling cavities; and
- Suspended ceiling tiles.

4.2 Inaccessible Areas

At the time of inspection, there were no areas of the refurbishment areas deemed to be inaccessible areas in accordance with SWNSW 2019b.

5. Conclusions and Recommendations

Based on the scope of this assessment and with reference to the limitations included in **Section 6**, the following conclusions are made with respect to the Hazardous Materials Survey completed.

5.1 Hazardous Materials

Identified and suspected hazardous materials were observed throughout the building as a result of visual identification and laboratory analysis.

The following recommendations are made for the removal of the identified hazardous materials to potentially mitigate harmful effects as a result of the proposed works program. The person with management or control of the site, must ensure so far as is reasonably practicable that the identified hazardous materials are removed prior to the commencement of demolition works.

The identified and suspected hazardous materials are presented in the Hazardous Materials Register included as **Appendix A**.

5.1.1 Asbestos Containing Materials

No asbestos containing materials were identified at the time of inspection.

5.1.2 Lead Containing Dust

No lead containing dust above the adopted site criteria was identified at the time of inspection.

5.1.3 Lead Based Paints

No lead based paints were identified at the time of inspection.

5.1.4 Synthetic Mineral Fibres

The synthetic mineral fibres encountered during this inspection were generally contained and deemed to be low risk. These SMF materials can be removed with the building and demolition waste with care taken not to generate fibres. Appropriate PPE is recommended including the use of P2 respirator as minimum and appropriate removal methodology as outlined in [NOHSC: 1004(1990)] and [NOHSC: 2006(1990)].

5.1.5 Polychlorinated Biphenyls

No polychlorinated biphenyls were identified at the time of inspection.

5.2 Unexpected Finds

Any materials deemed to be consistent with those detailed in the Hazardous Materials Register that have not been previously identified should be assumed to have the same content and be treated accordingly.

Should any additional suspected hazardous materials be observed during or prior to demolition works, works should cease until a suitably qualified occupational hygienist can assess the suspected hazardous material and provide appropriate recommendations for management and/or removal.

6. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquiries.

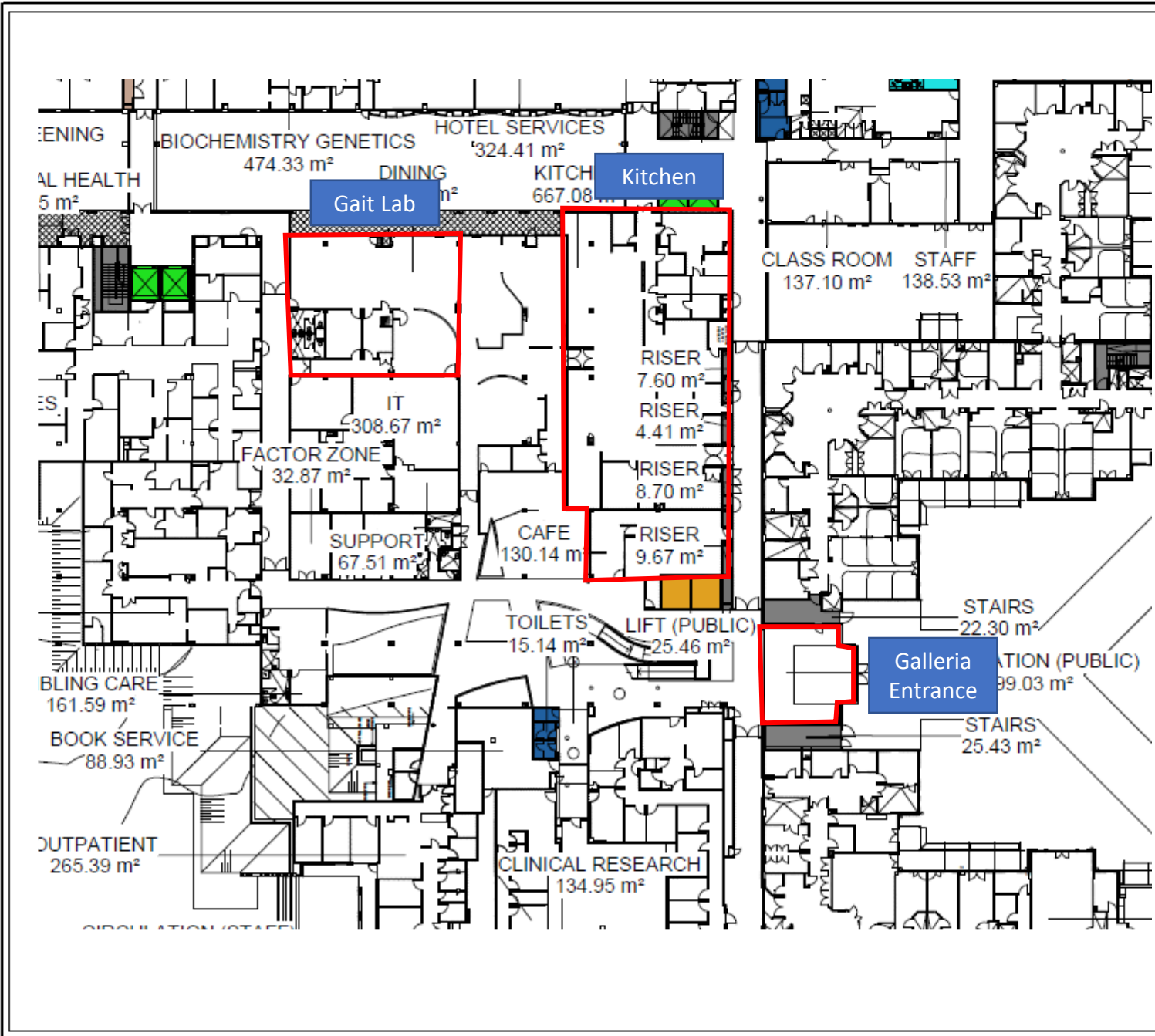
Sampling and chemical analysis of environmental media is based on appropriate guidance documents made and approved by the relevant regulatory authorities. Conclusions arising from the review and assessment of environmental data are based on the sampling and analysis considered appropriate based on the regulatory requirements.

Limited sampling and laboratory analyses were undertaken as part of the investigations undertaken, as described herein. Ground conditions between sampling locations and media may vary, and this should be considered when extrapolating between sampling points. Chemical analytes are based on the information detailed in the site history. Further chemicals or categories of chemicals may exist at the site, which were not identified in the site history and which may not be expected at the site.

Changes to the subsurface conditions may occur subsequent to the investigations described herein, through natural processes or through the intentional or accidental addition of contaminants. The conclusions and recommendations reached in this report are based on the information obtained at the time of the investigations.

This report does not provide a complete assessment of the environmental status of the site, and it is limited to the scope defined herein. Should information become available regarding conditions at the site including previously unknown sources of contamination, JBS&G reserves the right to review the report in the context of the additional information.

Figures



Legend:
 Approximate Refurbishment Area Boundary




Job No: 56200
 Client Health Infrastructure NSW
 Version: R12 Rev 0 Date: 20/12/2021
 Drawn By: SL Checked By: SL

Approximate Scale

Coor. Sys. GDA 1994 MGA Zone 58
**CHILDREN'S HOSPITAL WESTMEAD,
 HAWKESBURY ROAD,
 WESTMEAD, NSW**

LEVEL 1 REFURBISHMENT AREAS

FIGURE: 1

Legend:
 Approximate Refurbishment Area Boundary




Job No: 56200

Client Health Infrastructure NSW

Version: R12 Rev 0 Date: 20/12/2021

Drawn By: SL Checked By: SL

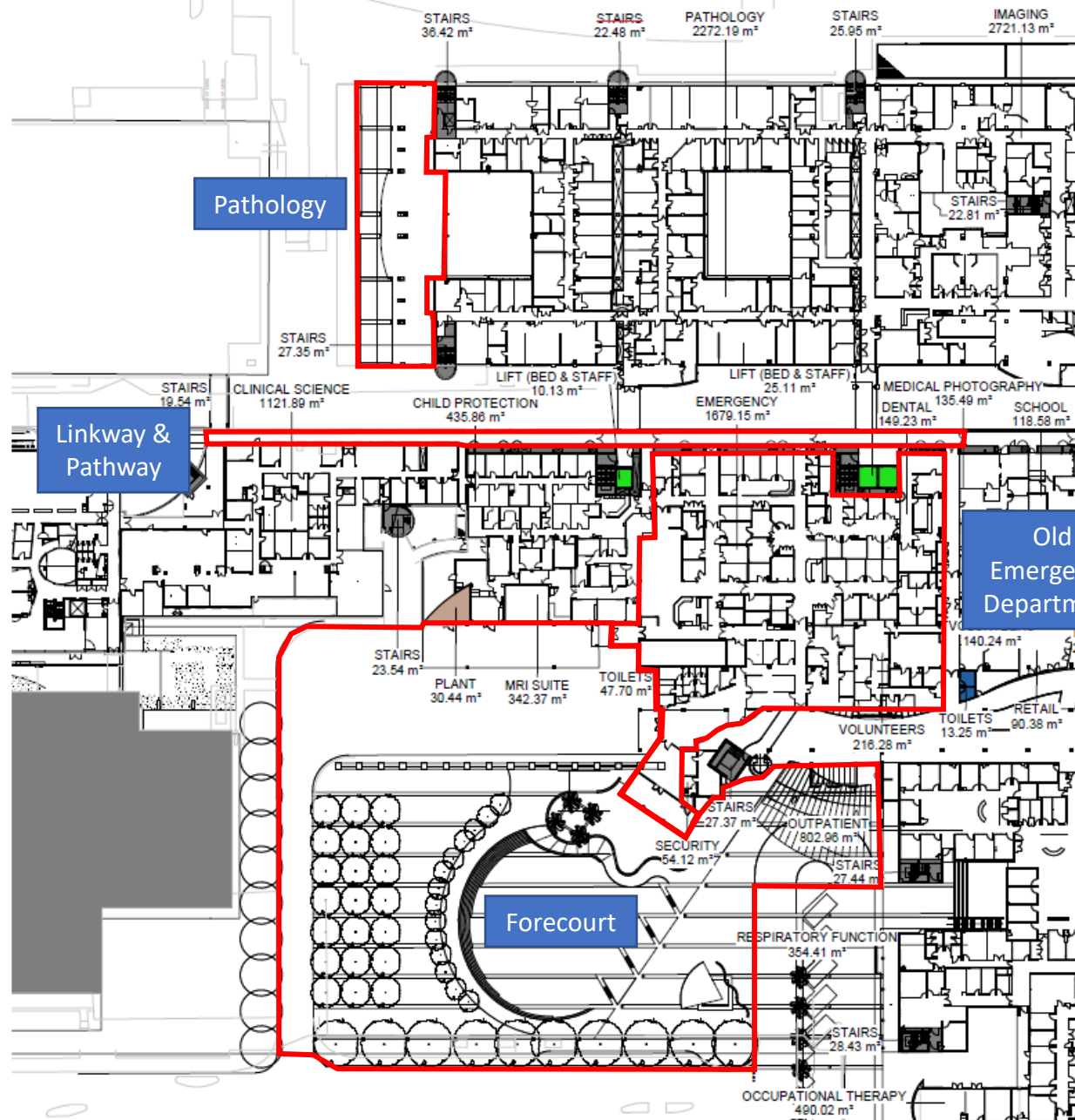
Approximate Scale 

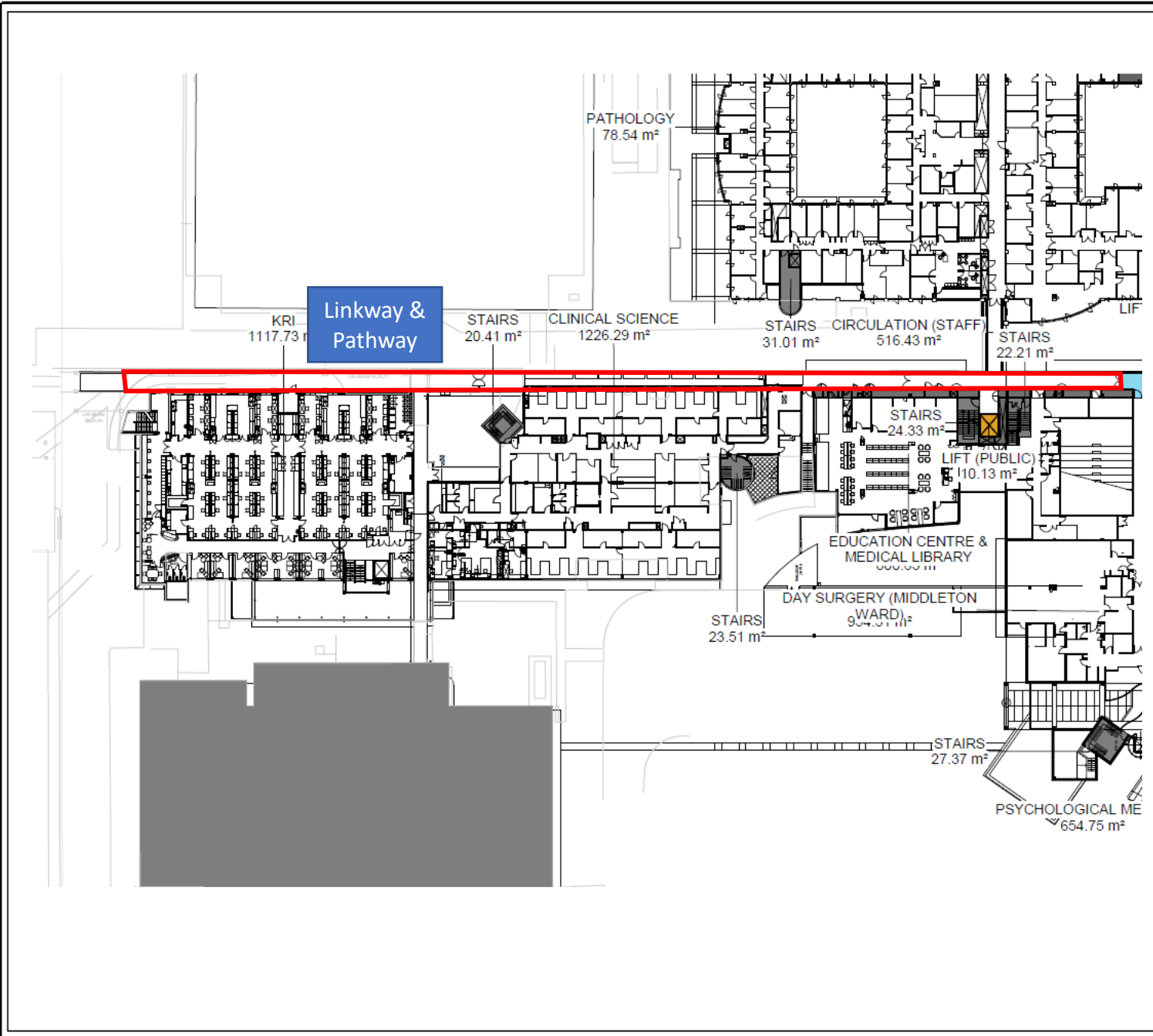
Coor. Sys. GDA 1994 MGA Zone 58

**CHILDREN'S HOSPITAL WESTMEAD,
 HAWKESBURY ROAD,
 WESTMEAD, NSW**


LEVEL 2 REFURBISHMENT AREAS

FIGURE: 2





Linkway & Pathway

Legend:
 Approximate Refurbishment Area Boundary



Job No: 56200
 Client Health Infrastructure NSW
 Version: R12 Rev 0 Date: 20/12/2021
 Drawn By: SL Checked By: SL

Approximate Scale 

Coor. Sys. GDA 1994 MGA Zone 58
**CHILDREN'S HOSPITAL WESTMEAD,
 HAWKESBURY ROAD,
 WESTMEAD, NSW**

LEVEL 3 REFURBISHMENT AREAS

FIGURE: 3

Appendix A Hazardous Materials Registers

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 1 – Refurbishment area – Gait Lab
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
No Asbestos Detected (NAD)											
GL-A01	Staff kitchen area, top of floor – blue vinyl flooring	Blue vinyl flooring	2	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
As per ED-A01 & ED-A02	Staff dining area, pantry, kitchen to meeting room and toilets	Grey and light grey vinyl flooring	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Lead Containing Dust											
No significant amounts of dust were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Non-Lead Paints											
GL-LP01	Doors and jambs throughout – grey paint	Grey paint	-	Yes	-	0.02% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
GL-LP02	Cement rendered walls – white paint	White paint	-	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 1 – Refurbishment area – Gait Lab

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
-	Staff kitchen and meeting room – hot water unit	Internal insulation	3	Yes	Non-friable	Assumed SMF	Good	2 units	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Ceiling cavity – air conditioning ducting	Insulation	-	Yes	Non-friable	Assumed SMF	Good	30 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Ceiling cavity – pipework insulation	Insulation	-	Yes	Non-friable	Assumed SMF	Good	10 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Cable penetrations – packing pillows	Packing pillows	-	Yes	Non-friable	Assumed SMF	Good	1 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	False ceilings throughout – false ceiling tiles	False ceiling tiles	4	Yes	Non-friable	Assumed SMF	Good	500 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 1 – Refurbishment area – Galleria Entrance
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Lead Containing Dust											
No significant amounts of dust were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Non-Lead Paints											
GAL-LP01	Cement rendered walls – yellow/orange paint	Yellow/orange paint	6	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											
No synthetic mineral fibre materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 1 – Refurbishment area – Kitchen

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
No Asbestos Detected (NAD)											
KIT-A1	Chemical storage room, top of floor – grey vinyl flooring	Grey vinyl flooring	8	Yes	-	No Asbestos Detected	-	-	No further action required	13/12/2021 JBS&G ML	-
As per KIT-A1	Admin office and Chef room, top of floor – grey vinyl flooring	Grey vinyl flooring	-	Yes	-	No Asbestos Detected	-	-	No further action required	13/12/2021 JBS&G ML	-
KIT-A2	Ceiling space, adjacent Chefs Room, vent – vermiculate	Vermiculate	9	Yes	-	No Asbestos Detected	-	-	No further action required	13/12/2021 JBS&G ML	-
KIT-AD1	Ceiling space – settled dust	Settled dust	9	Yes	-	No Asbestos Detected	-	-	No further action required.	13/12/2021 JBS&G ML	-
-	North and southern entry – fire doors	Fire doors	10	Yes	-	Assumed non-asbestos fire doors	-	-	The doors were identified to be manufactured 1990's or 2000's and are not suspected to contain asbestos	13/12/2021 JBS&G ML	-
Lead Containing Dust											
KIT-LD1	Ceiling space – settled dust	Settled dust	9	Yes	-	130 mg/kg	-	-	No further action required.	13/12/2021 JBS&G ML	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Non-Lead Paints											
KIT-LP1	Cement rendered walls – white paint	White paint	11	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
KIT-LP2	Door and door frames – Light green paint	Light green paint	10	Yes	-	0.03% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 1 – Refurbishment area – Kitchen
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Synthetic Mineral Fibres (SMF)											
-	North area of kitchen – cool rooms	Internal insulation	12	Yes	Non-friable	Assumed SMF	Good	5 units	Remove in accordance with NOHSC:2006 (1990)	13/12/2021 JBS&G ML	Prior to refurbishment
-	Ceiling space – insulation batts	Insulation batts	-	Yes	Non-friable	Assumed SMF	Good	5 m ²	Remove in accordance with NOHSC:2006 (1990)	13/12/2021 JBS&G ML	Prior to refurbishment
-	Ceiling cavity – ducting	Ducting	13	Yes	Non-friable	Assumed SMF	Good	20m ²	Remove in accordance with NOHSC:2006 (1990)	13/12/2021 JBS&G ML	Prior to refurbishment

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – Old Emergency Department

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
No Asbestos Detected (NAD)											
ED-A01	Throughout emergency department, flooring – grey vinyl flooring	Grey vinyl flooring	15	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A02	Throughout emergency department, flooring – Light grey vinyl flooring	Light grey vinyl flooring	15	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A03	Throughout bathroom, showers and wet areas, flooring – grey mottled vinyl flooring	Grey mottled vinyl flooring	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A04	Throughout bathroom, showers and wet areas, flooring – blue mottled vinyl flooring	Blue mottled vinyl flooring	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A05	Throughout bathroom, showers and wet areas, walls – cream vinyl sheeting	Cream vinyl sheeting	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A06	Cement rendered walls, between walls – expansion joint	Grey mastic	16	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A07	Northern office/clinic room, flooring – White vinyl sheeting	White vinyl sheeting	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-A08	External, smurf garden, soffit lining – fibre cement	Fibre cement	17	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-AD1	Ceiling cavity – settled dust	Settled dust	18	Yes	-	No Asbestos Detected	-	-	No further action required.	8-9/12/2021 JBS&G SL & MB	-
Lead Containing Dust											
ED-LD1	Ceiling cavity – settled dust	Settled dust	18	Yes	-	23 mg/kg	-	-	No further action required.	8-9/12/2021 JBS&G SL & MB	-

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – Old Emergency Department

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Non-Lead Paints											
ED-LP01	Cement rendered walls – white paint	White paint	-	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
ED-LP02	Door and door jambs – cream paint	Cream paint	-	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											
-	Kitchens – hot water unit	Internal insulation	-	Yes	Bonded	Assumed SMF	Good	3 units	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Ceiling cavity, pipework – insulation	Insulation	19	Yes	Bonded	Assumed SMF	Good	5 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Ceiling cavity, ducting – insulation	Insulation	18	Yes	Bonded	Assumed SMF	Good	15 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Cable penetrations – insulation pillows	Insulation pillows	-	Yes	Bonded	Assumed SMF	Good	2 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	False ceilings throughout – suspended ceiling tiles	Ceiling tiles	-	Yes	Bonded	Assumed SMF	Good	500 m ²	Remove in accordance with NOHSC:2006 (1990)	13/12/2021 JBS&G ML	Prior to refurbishment

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – Linkway & Pathway

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
No Asbestos Detected (NAD)											
L2-A01	Internal area throughout – blue vinyl flooring	Blue vinyl flooring	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-A02	Cement rendered walls, internal and external areas, between walls – Expansion joints	Grey mastic	-	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-A03	External areas, ceiling – Fibre cement	Fibre cement	21	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-A04	External areas, flooring – Black mastic sealant	Black mastic sealant	22	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-A05	Glass balustrade – Black mastic sealant	Black mastic sealant	22	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
-	Fire doors throughout	Fire doors	23	Yes	-	Assumed non-asbestos fire doors	-	-	The doors were identified to be manufactured 1990's and are not suspected to contain asbestos	8-9/12/2021 JBS&G SL & MB	-
L2-AD01	Ceiling cavity – settled dust	Settled dust	-	Yes	-	No Asbestos Detected	-	-	No further action required.	8-9/12/2021 JBS&G SL & MB	-
Lead Containing Dust											
L2-LD01	Ceiling cavity – settled dust	Settled dust	-	Yes	-	110 mg/kg	-	-	No further action required.	8-9/12/2021 JBS&G SL & MB	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Non-Lead Paints											

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – Linkway & Pathway

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
L2-LP01	Fire doors and door jambs – Blue paint	Blue paint	23	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-LP02	Walls, door and door jambs – White paint	White paint	-	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-LP03	External cement rendered walls – Light blue paint	Light blue paint	21	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
L2-LP04	External pillars – Dark blue paint	Dark blue paint	21	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											
-	Ceiling cavity, pipework – insulation	Insulation	-	Yes	Bonded	Assumed SMF	Good	5 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Ceiling cavity, ducting – insulation	Insulation	-	Yes	Bonded	Assumed SMF	Good	15 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Cable penetrations – insulation pillows	Insulation pillows	24	Yes	Bonded	Assumed SMF	Good	2 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	False ceilings throughout – suspended ceiling tiles	Ceiling tiles	-	Yes	Bonded	Assumed SMF	Good	500 m ²	Remove in accordance with NOHSC:2006 (1990)	13/12/2021 JBS&G ML	Prior to refurbishment

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – Pathology

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
No Asbestos Detected (NAD)											
PE-A01	External area, soffit lining – fibre cement	Fibre cement	26	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
PE-A02	Northern courtyard portion, flooring – pebblecrete pavers	Fibre cement	27	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
-	Exposed roof portion, gravel surface covering – waterproof membrane	Waterproof membrane	27	Yes	-	Non-asbestos material observed	-	-	Observed layer of plastic and foam layers. No further action required	8-9/12/2021 JBS&G SL & MB	-
Lead Containing Dust											
No significant amounts of settled dust were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Non-Lead Paints											
PE-LP01	Concrete pillars – white paint	White paint	26	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – Pathology
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
No Synthetic Mineral Fibre materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – External Forecourt
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
No Asbestos Detected (NAD)											
FC-A01	Clinical Research Centre (CRC), soffit lining – fibre cement	Fibre cement	29	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
FC-A02	Clinical Research Centre (CRC) façade – compressed fibre cement	Fibre cement	30	Yes	-	No Asbestos Detected	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Non-Lead Paints											
FC-LP01	Cement rendered wall under ambulance awning – Grey paint	Grey paint	-	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
As per FC-LP01	Ambulance bay, dividing wall, curved walkway walls, smurf garden dividing walls and main hospital building façade – Grey paint	Grey paint	31	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
FC-LP02	Clinical Research Centre (CRC), external walls – blue paint	Blue paint	30	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 2 – Refurbishment area – External Forecourt
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
No Synthetic Mineral Fibre materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 3 – Refurbishment area – Linkway & Pathway

Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
Asbestos Containing Materials (ACM)											
No Asbestos Containing Materials were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
No Asbestos Detected (NAD)											
As per L2-A01	Internal area throughout – blue vinyl flooring	Blue vinyl flooring	33	Yes	-	Assumed non-asbestos	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
As per L2-A02	Cement rendered walls, internal and external areas, between walls – Expansion joints	Grey mastic	-	Yes	-	Assumed non-asbestos	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
-	Fire doors throughout	Fire doors	-	Yes	-	Assumed non-asbestos fire doors	-	-	The doors were identified to be manufactured 1990's and are not suspected to contain asbestos	8-9/12/2021 JBS&G SL & MB	-
L3-AD01	Ceiling cavity – settled dust	Settled dust	-	Yes	-	No Asbestos Detected	-	-	No further action required.	8-9/12/2021 JBS&G SL & MB	-
Lead Containing Dust											
L3-LD01	Ceiling cavity – settled dust	Settled dust	-	Yes	-	97 mg/kg	-	-	No further action required.	8-9/12/2021 JBS&G SL & MB	-
Lead Based Paints											
No Lead Based Paints were identified at the time of inspection									-	13/12/2021 JBS&G ML	-
Non-Lead Paints											
As per L2-LP01	Fire doors and door jambs – Blue paint	Blue paint	-	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
As per L2-LP02	Walls, door and door jambs – White paint	White paint	33	Yes	-	<0.01% w/w	-	-	No further action required	8-9/12/2021 JBS&G SL & MB	-
Polychlorinated Biphenyls (PCBs)											

Hazardous Materials Register (Rev 0)
Children's Hospital at Westmead
Stage 2 Refurbishment
Level 3 – Refurbishment area – Linkway & Pathway
Date of Production – 22 December 2021



JBS&G SAMPLE NO.	LOCATION	MATERIAL DESCRIPTION	PHOTO NUMBER	ACCESSIBLE AREA?	FRIABILITY	ANALYTICAL RESULT	MATERIAL CONDITION	APPROX. QUANTITY	ACTION REQUIRED	DATE OF LAST INSPECTION (INCL. COMPANY NAME AND INITIALS)	DATE OF CONTROL ACTION &/OR REMOVAL
No Polychlorinated Biphenyls were identified at the time of inspection									-	8-9/12/2021 JBS&G SL & MB	-
Synthetic Mineral Fibres (SMF)											
-	Ceiling cavity, pipework – insulation	Insulation	-	Yes	Bonded	Assumed SMF	Good	5 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Ceiling cavity, ducting – insulation	Insulation	-	Yes	Bonded	Assumed SMF	Good	15 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	Cable penetrations – insulation pillows	Insulation pillows	-	Yes	Bonded	Assumed SMF	Good	2 m ²	Remove in accordance with NOHSC:2006 (1990)	8-9/12/2021 JBS&G SL & MB	Prior to refurbishment
-	False ceilings throughout – suspended ceiling tiles	Ceiling tiles	-	Yes	Bonded	Assumed SMF	Good	200 m ²	Remove in accordance with NOHSC:2006 (1990)	13/12/2021 JBS&G ML	Prior to refurbishment

Appendix B Photographs



Photo 1: Overview of the Level 1 – Gait Lab



Photo 2: Level 1 Gait lab, staff kitchen area, top of floor – Non-asbestos blue vinyl flooring



Photo 3: Level 1 Gait lab, staff kitchen and meeting room – hot water unit assumed to contain internal SMF insulation



Photo 4: Level 1 Gait lab, kitchen, false ceilings throughout – false ceiling tiles assumed to contain SMF



Photo 5: Overview of the Level 1 Galleria Entrance



Photo 6: Level 1 Galleria entrance, cement rendered walls – non-lead based yellow paint

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Appendix B: Photographs

Client: Health Infrastructure

Project: Refurbishment Areas – CHW Stage 2 HBMS

Job No: 56200

File Name: R12 App B - Photo Log



Photo 7: Overview of Level 1 kitchen area



Photo 8: Level 1 Kitchen, chemical storage room, top of floor – non-asbestos grey vinyl flooring

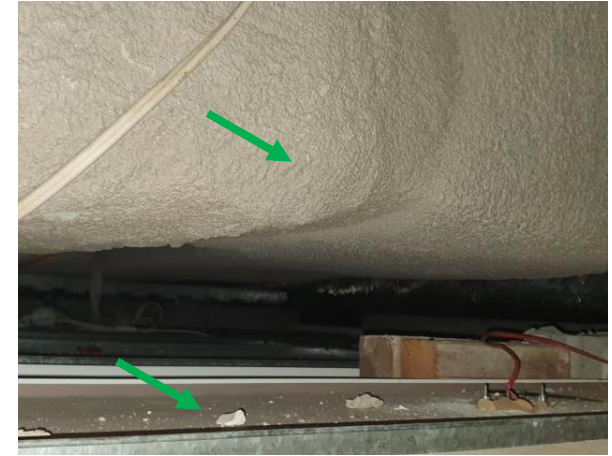


Photo 9: Level 1 Kitchen, ceiling space, adjacent Chefs Room, vent – non-asbestos vermiculate. Lead concentration in settled dust was below the adopted criteria and settled dust does not contain asbestos



Photo 10: Level 1 Kitchen, north entry fire doors – assumed non-asbestos fire doors as doors were identified to be manufactured in 1990's or 2000's. Non-lead based light green paint on door frames



Photo 11: Level 1 Kitchen, cement rendered walls – non-lead based white paint



Photo 12: Level 1 Kitchen, north area of kitchen – cool rooms assumed to contain internal SMF insulation

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Appendix B: Photographs

Client: Health Infrastructure

Project: Refurbishment Areas – CHW Stage 2 HBMS

Job No: 56200

File Name: R12 App B - Photo Log

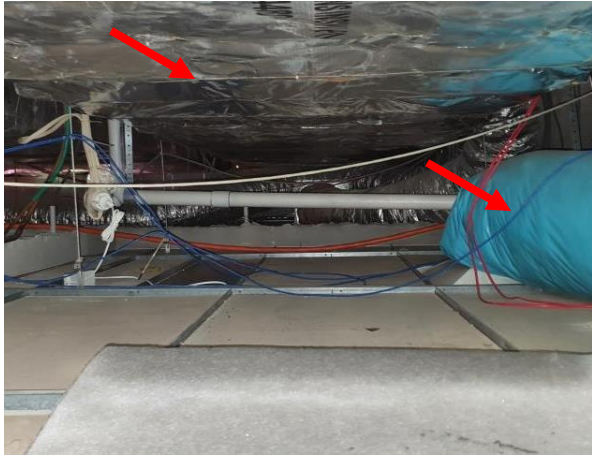


Photo 13: Level 1 Kitchen, ceiling space – ducting assumed to contain SMF



Photo 14: Level 2 Overview of Old Emergency Department



Photo 15: Level 2 Old Emergency Department, throughout emergency department, flooring – grey and light grey non-asbestos vinyl flooring



Photo 16: Level 2 Old Emergency Department - cement rendered walls, between walls – non-asbestos expansion joint



Photo 17: Level 2 Old Emergency Department - external smurf garden, soffit lining – non-asbestos fibre cement

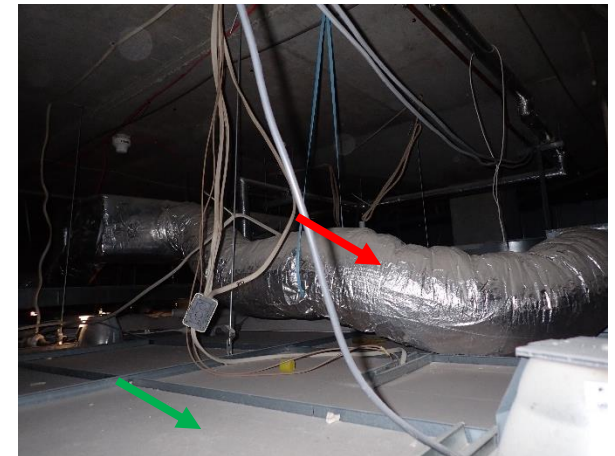


Photo 18: Level 2 Old Emergency Department, ceiling cavity – settled dust was below the adopted site criteria and settled dust does not contain asbestos. Ducting assumed to contain SMF.

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Appendix B: Photographs

Client: Health Infrastructure

Project: Refurbishment Areas – CHW Stage 2 HBMS

Job No: 56200

File Name: R12 App B - Photo Log

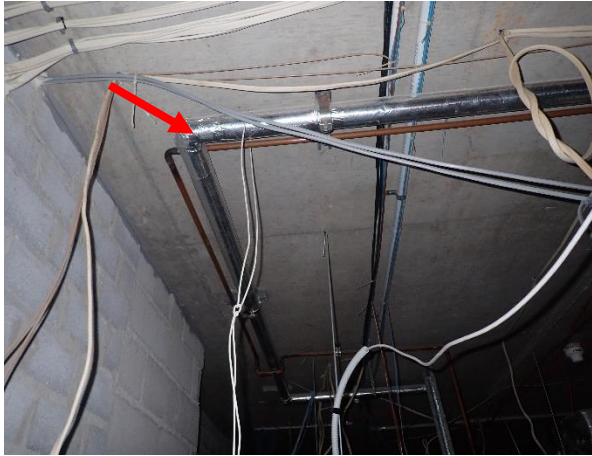


Photo 19: Level 2 Old Emergency Department, ceiling cavity – pipework, insulation assumed to contain SMF

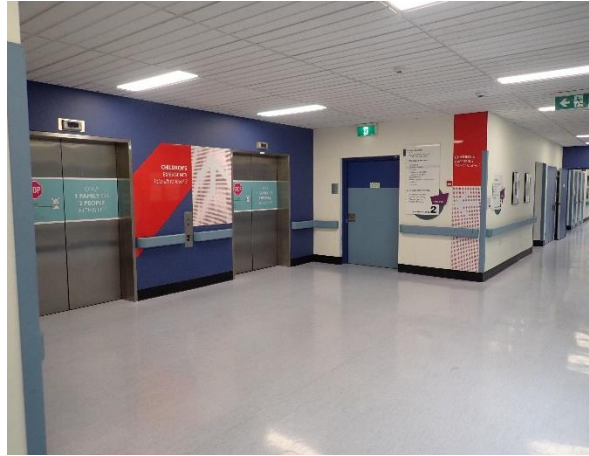


Photo 20: Overview of Level 2 Linkway and Pathway



Photo 21: Level 2 Linkway and Pathway, external area, ceiling– non-asbestos fibre cement. Non-lead based light blue paint on cement rendered walls and non-lead based dark blue paint on pillars



Photo 22: Level 2 Linkway and Pathway, external area, glass balustrade and between tile flooring – non-asbestos black mastic sealant.



Photo 23: Level 2 Linkway and Pathway, fire doors and door jambs – Non-lead based blue paint. Fire doors observed to be manufactured in 1990s and is assumed to not contain asbestos



Photo 24: Level 2, Linkway and Pathway, electrical cupboard, cable penetrations – insulation pillows assumed to contain SMF

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Appendix B: Photographs

Client: Health Infrastructure

Project: Refurbishment Areas – CHW Stage 2 HBMS

Job No: 56200

File Name: R12 App B - Photo Log



Photo 25: Overview of Level 2 Pathology expansion area



Photo 26: Level 2 Pathology Expansion area, external area, soffit lining – non-asbestos fibre cement. Non-lead based white paint on concrete pillars



Photo 27: Level 2 Pathology Expansion Area, northern courtyard portion, flooring – non-asbestos fibre cement. Non-asbestos waterproofing material observed



Photo 28: Overview of Level 2 External Forecourt



Photo 29: Level 2 Clinical Research Centre (CRC), soffit lining – non-asbestos fibre cement



Photo 30: Level 2, Clinical Research Centre (CRC) façade– non-asbestos compressed fibre cement. Walls, non-lead based blue paint

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Appendix B: Photographs

Client: Health Infrastructure

Project: Refurbishment Areas – CHW Stage 2 HBMS

Job No: 56200

File Name: R12 App B - Photo Log



Photo 31: Level 2 external forecourt, curved walkway walls– non-lead based grey paint



Photo 32: Overview of Level 3 Linkway and pathway



Photo 33: Level 3 Linkway and pathway, internal area throughout, flooring – assumed non-asbestos blue vinyl flooring. Walls and door jambs – non-lead based white paint

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Source:			
0	Original Issue -	SL	22/12/2021
Rev	Description	Drn.	Date



Appendix B: Photographs

Client: Health Infrastructure

Project: Refurbishment Areas – CHW Stage 2 HBMS

Job No: 56200

File Name: R12 App B - Photo Log

Appendix C Laboratory Analysis Reports and Chain of Custody Documentation



CHAIN OF CUSTODY

PROJECT NO.: 56200						LABORATORY BATCH NO.:																																	
PROJECT NAME: CHW – STAGE 2						SAMPLERS: Stuart Lumsden																																	
DATE NEEDED BY: 2 DAY TAT						QC LEVEL: NEPM (2013)																																	
PHONE: Sydney: 02 8245 0300 Perth: 08 9488 0100 Brisbane: 07 3112 2688																																							
SEND REPORT & INVOICE TO: (1) adminnsw@jbsg.com.au; (2) slumsden@jbsg.com.au; (3)@jbsg.com.au																																							
COMMENTS / SPECIAL HANDLING / STORAGE OR DISPOSAL:																																							
						<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50px;">ASBESTOS</td> <td style="width: 50px;">LEAD</td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> <td style="width: 50px;"></td> </tr> </table>														ASBESTOS	LEAD																		
ASBESTOS	LEAD																																						
						<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50px;">IDENTIFICATION</td> <td style="width: 50px;">NEPM/N/A</td> </tr> </table>														IDENTIFICATION	NEPM/N/A																		
IDENTIFICATION	NEPM/N/A																																						
						NOTES:																																	
SAMPLE ID	MATRIX	DATE	TIME	TYPE & PRESERVATIVE	Ph	ASBESTOS	LEAD																																
ED-A01	MATERIAL	9/12/21		1 x bag		X																																	
ED-A02	MATERIAL	9/12/21		1 x bag		X																																	
ED-A03	MATERIAL	9/12/21		1 x bag		X																																	
ED-A04	MATERIAL	9/12/21		1 x bag		X																																	
ED-A05	MATERIAL	9/12/21		1 x bag		X																																	
ED-A06	MATERIAL	9/12/21		1 x bag		X																																	
ED-A07	MATERIAL	9/12/21		1 x bag		X																																	
ED-A08	MATERIAL	9/12/21		1 x bag		X																																	
ED-AD01	DUST	9/12/21		1 x bag		X																																	
ED-LD01	DUST	9/12/21		1 x bag			X																																
ED-LP01	PAINT	9/12/21		1 x bag			X																																
ED-LP02	PAINT	9/12/21		1 x bag			X																																
L2-A01	MATERIAL	9/12/21		1 x bag		X																																	
L2-A02	MATERIAL	9/12/21		1 x bag		X																																	
L2-A03	MATERIAL	9/12/21		1 x bag		X																																	
L2-A04	MATERIAL	9/12/21		1 x bag		X																																	
L2-A05	MATERIAL	9/12/21		1 x bag		X																																	
L2-AD01	DUST	9/12/21		1 x bag		X																																	
L2-LD01	DUST	9/12/21		1 x bag			X																																

RELINQUISHED BY:				METHOD OF SHIPMENT:				RECEIVED BY:				FOR RECEIVING LAB USE ONLY:			
NAME: S.Lumsden		DATE: 13/12/21		CONSIGNMENT NOTE NO.				NAME:		DATE:		COOLER SEAL – Yes..... No Intact Broken			
OF: JBS&G				TRANSPORT CO.				OF:				COOLER TEMP deg C N/A			
NAME:		DATE:		CONSIGNMENT NOTE NO.				NAME: <i>Sheema</i>		DATE: <i>13/12/21</i>		COOLER SEAL – Yes..... No Intact Broken			
OF:				TRANSPORT CO.				OF:				COOLER TEMP deg C R# 849815			

Container & Preservative Codes: P = Plastic; J = Soil Jar; B = Glass Bottle; N = Nitric Acid Prsvd.; C = Sodium Hydroxide Prsvd; VC = Hydrochloric Acid Prsvd Vial; VS = Sulfuric Acid Prsvd Vial; S = Sulfuric Acid Prsvd; Z = Zinc Prsvd; E = EDTA Prsvd; ST = Sterile Bottle; O = Other

4:55 PM

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Stuart Lumsden
Report 849815-AID
Project Name CHW-STAGE 2
Project ID 56200
Received Date Dec 13, 2021
Date Reported Dec 15, 2021

Methodology:

Asbestos Fibre
 Identification

Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.

NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral
 Fibres

Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.

NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil
 Samples

The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.

NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.

Bonded asbestos-
 containing material
 (ACM)

The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.

NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting

The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).

The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).

NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name CHW-STAGE 2
Project ID 56200
Date Sampled Dec 09, 2021
Report 849815-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
ED-A01	21-De31092	Dec 09, 2021	Approximate Sample 14g / 85x40x2mm Sample consisted of: Grey vinyl tile with beige rubbery adhesive	No asbestos detected. No trace asbestos detected.
ED-A02	21-De31093	Dec 09, 2021	Approximate Sample 14g / 85x40x2mm Sample consisted of: Grey vinyl tile with beige rubbery adhesive	No asbestos detected. No trace asbestos detected.
ED-A03	21-De31094	Dec 09, 2021	Approximate Sample 15g / 103x42x3mm Sample consisted of: Grey vinyl tile with grey rubbery adhesive	No asbestos detected. Organic fibre detected. No trace asbestos detected.
ED-A04	21-De31095	Dec 09, 2021	Approximate Sample 14g / 105x35x2mm Sample consisted of: Blue vinyl tile with grey rubbery adhesive	No asbestos detected. Organic fibre detected. No trace asbestos detected.
ED-A05	21-De31096	Dec 09, 2021	Approximate Sample 11g / 100x40x2mm Sample consisted of: White vinyl tile with yellow rubbery adhesive and white paint	No asbestos detected. Organic fibre detected. No trace asbestos detected.
ED-A06	21-De31097	Dec 09, 2021	Approximate Sample 3g / 35x15x10mm Sample consisted of: Grey sealant with white paint	No asbestos detected. No trace asbestos detected.
ED-A07	21-De31098	Dec 09, 2021	Approximate Sample 11g / 65x55x2mm Sample consisted of: Grey vinyl tile with yellow adhesive	No asbestos detected. No trace asbestos detected.
ED-A08	21-De31099	Dec 09, 2021	Approximate Sample 3g / 25x25x4mm Sample consisted of: Grey layered fibre cement	No asbestos detected. Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
ED-AD01	21-De31100	Dec 09, 2021	Approximate Sample 2g / 35x20x<1mm Sample consisted of: Grey dust with plaster and cement material	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
L2-A01	21-De31104	Dec 09, 2021	Approximate Sample 12g / 80x40x2mm Sample consisted of: Blue vinyl tile with brown rubbery adhesive	No asbestos detected. Organic fibre detected. No trace asbestos detected.
L2-A02	21-De31105	Dec 09, 2021	Approximate Sample 3g / 25x20x5mm Sample consisted of: Grey vinyl underlay	No asbestos detected. No trace asbestos detected.
L2-A03	21-De31106	Dec 09, 2021	Approximate Sample 3g / 40x22x3mm Sample consisted of: Grey plaster cement material	No asbestos detected. Organic fibre detected. No trace asbestos detected.
L2-A04	21-De31107	Dec 09, 2021	Approximate Sample 2g / 25x10x5mm Sample consisted of: Grey vinyl underlay	No asbestos detected. Organic fibre detected. No trace asbestos detected.
L2-A05	21-De31108	Dec 09, 2021	Approximate Sample 3g / 20x15x8mm Sample consisted of: Black vinyl underlay	No asbestos detected. No trace asbestos detected.
L2-AD01	21-De31109	Dec 09, 2021	Approximate Sample 2g / 60x55x1mm Sample consisted of: Grey dust with white plaster cement material	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
L3-AD01	21-De31115	Dec 09, 2021	Approximate Sample 2g / 30x20x1mm Sample consisted of: Grey dust with white plaster cement material	No asbestos detected at the reporting limit of 0.01% w/w. Organic fibre detected. No trace asbestos detected.
GL-A01	21-De31117	Dec 09, 2021	Approximate Sample 11g / 85x40x2mm Sample consisted of: Grey vinyl tile	No asbestos detected. Organic fibre detected. No trace asbestos detected.
GL-A02	21-De31118	Dec 09, 2021	Approximate Sample 3g / 30x12x10mm Sample consisted of: Grey sealant with white paint	No asbestos detected. No trace asbestos detected.
PE-A01	21-De31121	Dec 09, 2021	Approximate Sample 2g / 30x15x2mm Sample consisted of: Grey plaster cement material	No asbestos detected. Organic fibre detected. No trace asbestos detected.
PE-A02	21-De31122	Dec 09, 2021	Approximate Sample 23g / 35x30x20mm Sample consisted of: Grey concrete material	No asbestos detected. No trace asbestos detected.
FC-A01	21-De31124	Dec 09, 2021	Approximate Sample 3g / 40x20x2mm Sample consisted of: Grey plaster cement material	No asbestos detected. Organic fibre detected. No trace asbestos detected.

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
FC-A02	21-De31125	Dec 09, 2021	Approximate Sample 3g / 35x15x4mm Sample consisted of: Grey fibre cement material with white paint	No asbestos detected. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 15, 2021	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Dec 15, 2021	Indefinite

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	849815	Due:	Dec 15, 2021
Project Name:	CHW-STAGE 2	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	ED-A01	Dec 09, 2021		Building Materials	S21-De31092		X		
2	ED-A02	Dec 09, 2021		Building Materials	S21-De31093		X		
3	ED-A03	Dec 09, 2021		Building Materials	S21-De31094		X		
4	ED-A04	Dec 09, 2021		Building Materials	S21-De31095		X		
5	ED-A05	Dec 09, 2021		Building Materials	S21-De31096		X		
6	ED-A06	Dec 09, 2021		Building	S21-De31097		X		

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	849815	Due:	Dec 15, 2021
Project Name:	CHW-STAGE 2	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
				Materials					
7	ED-A07	Dec 09, 2021		Building Materials	S21-De31098		X		
8	ED-A08	Dec 09, 2021		Building Materials	S21-De31099		X		
9	ED-AD01	Dec 09, 2021		Dust	S21-De31100	X			
10	ED-LD02	Dec 09, 2021		Dust	S21-De31101			X	
11	ED-LP01	Dec 09, 2021		Paint	S21-De31102				X
12	ED-LP02	Dec 09, 2021		Paint	S21-De31103				X
13	L2-A01	Dec 09, 2021		Building Materials	S21-De31104		X		
14	L2-A02	Dec 09, 2021		Building	S21-De31105		X		

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	849815	Due:	Dec 15, 2021
Project Name:	CHW-STAGE 2	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
14	L2-A02	Dec 09, 2021		Building Materials	S21-De31105				
15	L2-A03	Dec 09, 2021		Building Materials	S21-De31106		X		
16	L2-A04	Dec 09, 2021		Building Materials	S21-De31107		X		
17	L2-A05	Dec 09, 2021		Building Materials	S21-De31108		X		
18	L2-AD01	Dec 09, 2021		Dust	S21-De31109	X			
19	L2-LD01	Dec 09, 2021		Dust	S21-De31110			X	
20	L2-LP01	Dec 09, 2021		Paint	S21-De31111				X
21	L2-LP02	Dec 09, 2021		Paint	S21-De31112				X

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	849815	Due:	Dec 15, 2021
Project Name:	CHW-STAGE 2	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
22	L2-LP03	Dec 09, 2021		Paint	S21-De31113				X
23	L2-LP04	Dec 09, 2021		Paint	S21-De31114				X
24	L3-AD01	Dec 09, 2021		Dust	S21-De31115	X			
25	L3-LD01	Dec 09, 2021		Dust	S21-De31116			X	
26	GL-A01	Dec 09, 2021		Building Materials	S21-De31117		X		
27	GL-A02	Dec 09, 2021		Building Materials	S21-De31118		X		
28	GL-LP01	Dec 09, 2021		Paint	S21-De31119				X
29	GL-LP02	Dec 09, 2021		Paint	S21-De31120				X
30	PE-A01	Dec 09, 2021		Building Materials	S21-De31121		X		

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	849815	Due:	Dec 15, 2021
Project Name:	CHW-STAGE 2	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos - AS4964	Asbestos Absence /Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
31	PE-A02	Dec 09, 2021		Building Materials	S21-De31122		X		
32	PE-LP01	Dec 09, 2021		Paint	S21-De31123				X
33	FC-A01	Dec 09, 2021		Building Materials	S21-De31124		X		
34	FC-A02	Dec 09, 2021		Building Materials	S21-De31125		X		
35	FC-LP01	Dec 09, 2021		Paint	S21-De31126				X
36	FC-LP02	Dec 09, 2021		Paint	S21-De31127				X
37	GAL-LP01	Dec 09, 2021		Paint	S21-De31128				X
Test Counts						3	19	3	12

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025—Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: Stuart Lumsden
Report 850022-AID
Project Name WESTMEAD CHILDRENS HOSPITAL - KITCHEN
Project ID 56200
Received Date Dec 14, 2021
Date Reported Dec 16, 2021

Methodology:

Asbestos Fibre Identification Conducted in accordance with the Australian Standard AS 4964 – 2004: Method for the Qualitative Identification of Asbestos in Bulk Samples and in-house Method LTM-ASB-8020 by polarised light microscopy (PLM) and dispersion staining (DS) techniques.
NOTE: Positive Trace Analysis results indicate the sample contains detectable respirable fibres.

Unknown Mineral Fibres Mineral fibres of unknown type, as determined by PLM with DS, may require another analytical technique, such as Electron Microscopy, to confirm unequivocal identity.
NOTE: While Actinolite, Anthophyllite and Tremolite asbestos may be detected by PLM with DS, due to variability in the optical properties of these materials, AS4964 requires that these are reported as UMF unless confirmed by an independent technique.

Subsampling Soil Samples The whole sample submitted is first dried and then passed through a 10mm sieve followed by a 2mm sieve. All fibrous matter greater than 10mm, greater than 2mm as well as the material passing through the 2mm sieve are retained and analysed for the presence of asbestos. If the sub 2mm fraction is greater than approximately 30 to 60g then a sub-sampling routine based on ISO 3082:2009(E) is employed.
NOTE: Depending on the nature and size of the soil sample, the sub-2 mm residue material may need to be sub-sampled for trace analysis, in accordance with AS 4964-2004.

Bonded asbestos-containing material (ACM) The material is first examined and any fibres isolated for identification by PLM and DS. Where required, interfering matrices may be removed by disintegration using a range of heat, chemical or physical treatments, possibly in combination. The resultant material is then further examined in accordance with AS 4964 - 2004.
NOTE: Even after disintegration it may be difficult to detect the presence of asbestos in some asbestos-containing bulk materials using PLM and DS. This is due to the low grade or small length or diameter of the asbestos fibres present in the material, or to the fact that very fine fibres have been distributed intimately throughout the materials. Vinyl/asbestos floor tiles, some asbestos-containing sealants and mastics, asbestos-containing epoxy resins and some ore samples are examples of these types of material, which are difficult to analyse.

Limit of Reporting The performance limitation of the AS 4964 (2004) method for non-homogeneous samples is around 0.1 g/kg (equivalent to 0.01% (w/w)). Where no asbestos is found by PLM and DS, including Trace Analysis, this is considered to be at the nominal reporting limit of 0.01% (w/w).
 The NEPM screening level of 0.001% (w/w) is intended as an on-site determination, not a laboratory Limit of Reporting (LOR), per se. Examination of a large sample size (e.g. 500 mL) may improve the likelihood of detecting asbestos, particularly AF, to aid assessment against the NEPM criteria. Gravimetric determinations to this level of accuracy are outside of AS 4964 and hence NATA Accreditation does not cover the performance of this service (non-NATA results shown with an asterisk).
NOTE: NATA News March 2014, p.7, states in relation to AS 4964: "This is a qualitative method with a nominal reporting limit of 0.01 % " and that currently in Australia "there is no validated method available for the quantification of asbestos". This report is consistent with the analytical procedures and reporting recommendations in the NEPM and the WA DoH.

Project Name WESTMEAD CHILDRENS HOSPITAL - KITCHEN
Project ID 56200
Date Sampled Dec 14, 2021
Report 850022-AID

Client Sample ID	Eurofins Sample No.	Date Sampled	Sample Description	Result
KIT-A1	21-De32758	Dec 14, 2021	Approximate Sample 18g / 65x55x4mm Sample consisted of: Grey vinyl sheet with beige rubbery adhesive	No asbestos detected. Organic fibre detected. No trace asbestos detected.
KIT-A2	21-De32759	Dec 14, 2021	Approximate Sample 4g / 40x25x8mm Sample consisted of: Grey plaster-cement-vermiculite material	No asbestos detected. No trace asbestos detected.
KIT-AD1	21-De32760	Dec 14, 2021	Approximate Sample 2g / 70x40x<1mm Sample consisted of: Blue dusty organic material with plaster	No asbestos detected. Organic fibre detected. No trace asbestos detected.

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Asbestos - LTM-ASB-8020	Sydney	Dec 14, 2021	Indefinite
Asbestos - LTM-ASB-8020	Sydney	Dec 14, 2021	Indefinite

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 14, 2021 1:18 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	850022	Due:	Dec 16, 2021
Project Name:	WESTMEAD CHILDRENS HOSPITAL - KITCHEN	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos - AS4964	Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	KIT-A1	Dec 14, 2021		Building Materials	S21-De32758		X		
2	KIT-A2	Dec 14, 2021		Building Materials	S21-De32759		X		
3	KIT-AD1	Dec 14, 2021		Dust	S21-De32760	X			
4	KIT-LP1	Dec 14, 2021		Paint	S21-De32761				X
5	KIT-LP2	Dec 14, 2021		Paint	S21-De32762				X
6	KIT-LD1	Dec 14, 2021		Dust	S21-De32763			X	
Test Counts						1	2	1	2

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
4. Information identified on this report with the colour **blue** indicates data provided by customer that may have an impact on the results.
5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001). If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)
F/field	Airborne fibre filter loading as Fibres (N) per Fields counted (n)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
g, kg	Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (V = r x t)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r)
min	Time (t), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration:
$$C = \frac{N}{a} \times \frac{a}{n} \times \frac{n}{r} \times \frac{r}{t} = K \times \frac{N}{n} \times \frac{1}{V}$$

Asbestos Content (as asbestos):
$$\% w/w = \frac{(m \times PA)}{M}$$

Weighted Average (of asbestos):
$$\% w/w = \frac{\sum (m \times PA)_x}{X}$$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2 (PA)</i> .
ACM	Asbestos Containing Materials. Asbestos contained within a non-asbestos matrix, typically presented in bonded (non-friable) condition. For the purposes of the NEPM and WA DOH, ACM corresponds to material larger than 7 mm x 7 mm.
AF	Asbestos Fines. Asbestos contamination within a soil sample, as defined by WA DOH. Includes loose fibre bundles and small pieces of friable and non-friable material such as asbestos cement fragments mixed with soil. Considered under the NEPM as equivalent to "non-bonded / friable".
AFM	Airborne Fibre Monitoring, e.g. by the MFM.
Amosite	Amosite Asbestos Detected. Amosite may also refer to Fibrous Grunerite or Brown Asbestos. Identified in accordance with AS 4964-2004.
AS	Australian Standard.
Asbestos Content (as asbestos)	Total % w/w asbestos content in asbestos-containing finds in a soil sample (% w/w).
Chrysotile	Chrysotile Asbestos Detected. Chrysotile may also refer to Fibrous Serpentine or White Asbestos. Identified in accordance with AS 4964-2004.
COC	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
Friable	Asbestos-containing materials of any size that may be broken or crumbled by hand pressure. For the purposes of the NEPM, this includes both AF and FA. It is outside of the laboratory's remit to assess degree of friability.
HSG248	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2nd Edition (2021).
HSG264	UK HSE HSG264, <i>Asbestos: The Survey Guide</i> (2012).
ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece graticule area of the specific microscope used for the analysis (a).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
N/A	Not Applicable. Indicates a result or assessment is not required or applicable to that item.
NATA	National Association of Testing Authorities, Australia.
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SAC_07	Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences – Annex, Asbestos sampling and testing.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according to the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (%w _A).

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Asbestos Counter/Identifier:

Bennel Jiri Senior Analyst-Asbestos (NSW)

Authorised by:

Sayeed Abu Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

Internal Quality Control Review and Glossary General

1. QC data may be available on request.
2. All soil results are reported on a dry basis, unless otherwise stated.
3. Samples were analysed on an 'as received' basis.
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5. Information identified on this report with the colour **orange** indicates sections of the report not covered by the laboratory's scope of NATA accreditation.
6. This report replaces any interim results previously issued.

Holding Times

Please refer to the most recent version of the 'Sample Preservation and Container Guide' for holding times (QS3001). If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

Units

% w/w:	Percentage weight-for-weight basis, e.g. of asbestos in asbestos-containing finds in soil samples (% w/w)
F/field	Airborne fibre filter loading as Fibres (N) per Fields counted (n)
F/mL	Airborne fibre reported concentration as Fibres per millilitre of air drawn over the sampler membrane (C)
g, kg	Mass, e.g. of whole sample (M) or asbestos-containing find within the sample (m)
g/kg	Concentration in grams per kilogram
L, mL	Volume, e.g. of air as measured in AFM (V = r x t)
L/min	Airborne fibre sampling Flowrate as litres per minute of air drawn over the sampler membrane (r)
min	Time (t), e.g. of air sample collection period

Calculations

Airborne Fibre Concentration: $C = \frac{N}{a} \times \frac{a}{n} \times \frac{n}{r} \times \frac{r}{t} = K \times \frac{N}{n} \times \frac{1}{V}$

Asbestos Content (as asbestos): $\% w/w = \frac{(m \times PA)}{M}$

Weighted Average (of asbestos): $\% w = \frac{\sum (m \times PA)_x}{X}$

Terms

%asbestos	Estimated percentage of asbestos in a given matrix. May be derived from knowledge or experience of the material, informed by HSG264 <i>Appendix 2</i> , else assumed to be 15% in accordance with WA DOH <i>Appendix 2 (PA)</i> .
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COC	Chain of Custody.
Compliant	Indicates the item has been assessed against the relevant criteria, e.g. NATA SAC_07.
Crocidolite	Crocidolite Asbestos Detected. Crocidolite may also refer to Fibrous Riebeckite or Blue Asbestos. Identified in accordance with AS 4964-2004.
Dry	Sample is dried by heating prior to analysis.
DS	Dispersion Staining. Technique required for Unequivocal Identification of asbestos fibres by PLM.
FA	Fibrous Asbestos. Asbestos containing material that is wholly or in part friable, including materials with higher asbestos content with a propensity to become friable with handling, and any material that was previously non-friable and in a severely degraded condition. For the purposes of the NEPM and WA DOH, FA generally corresponds to material larger than 7 mm x 7 mm, although FA may be more difficult to visibly distinguish and may be assessed as AF.
Fibre Count	Total of all fibres (whether asbestos or not) meeting the counting criteria set out in the NOHSC:3003
Fibre ID	Fibre Identification. Unequivocal identification of asbestos fibres according to AS 4964-2004. Includes Chrysotile, Amosite (Grunerite) or Crocidolite asbestos.
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HSG248	UK HSE HSG248, <i>Asbestos: The Analysts Guide</i> , 2nd Edition (2021).
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ISO (also ISO/IEC)	International Organization for Standardization / International Electrotechnical Commission.
K Factor	Microscope constant (K) as derived from the effective filter area of the given AFM membrane used for collecting the sample (A) and the projected eyepiece graticule area of the specific microscope used for the analysis (a).
LOR	Limit of Reporting.
MFM (also NOHSC:3003)	Membrane Filter Method. As described by the Australian Government National Occupational Health and Safety Commission, <i>Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres</i> , 2nd Edition [NOHSC:3003(2005)].
N/A	Not Applicable. Indicates a result or assessment is not required or applicable to that item.
NATA	National Association of Testing Authorities, Australia.
NEPM (also ASC NEPM)	National Environment Protection (Assessment of Site Contamination) Measure, (2013, as amended).
Organic	Organic Fibres Detected. Organic may refer to Natural or Man-Made Polymeric Fibres. Identified in accordance with AS 4964-2004.
PCM	Phase Contrast Microscopy. As used for Fibre Counting according to the MFM.
PLM	Polarised Light Microscopy. As used for Fibre Identification and Trace Analysis according to AS 4964-2004.
SAC_07	Specific Accreditation Criteria: ISO/IEC 17025 Application Document, Life Sciences – Annex, Asbestos sampling and testing.
SMF	Synthetic Mineral Fibre Detected. SMF may also refer to Man Made Vitreous Fibres. Identified in accordance with AS 4964-2004.
SRA	Sample Receipt Advice.
Trace Analysis	Analytical procedure used to detect the presence of respirable fibres (particularly asbestos) in a given sample matrix.
UK HSE HSG	United Kingdom, Health and Safety Executive, Health and Safety Guidance, publication.
UMF	Unidentified Mineral Fibre Detected. Fibrous minerals that are detected but have not been unequivocally identified by PLM with DS according to the AS 4964-2004. May include (but not limited to) Actinolite, Anthophyllite or Tremolite asbestos.
WA DOH	Reference document for the NEPM. Government of Western Australia, <i>Guidelines for the Assessment, Remediation and Management of Asbestos- Contaminated Sites in Western Australia</i> (updated 2021), including Appendix Four: <i>Laboratory analysis</i>
Weighted Average	Combined average % w/w asbestos content of all asbestos-containing finds in the given aliquot or total soil sample (%w _A).

Comments**Sample Integrity**

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Asbestos Counter/Identifier:

Bennel Jiri Senior Analyst-Asbestos (NSW)

Authorised by:

Laxman Dias Senior Analyst-Asbestos (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

Eurofins shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from the use of any information or interpretation given in this report. In no case shall Eurofins be liable for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received.

JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Stuart Lumsden**

Report **849815-S**
 Project name **CHW-STAGE 2**
 Project ID **56200**
 Received Date **Dec 13, 2021**

Client Sample ID			ED-LD02	ED-LP01	ED-LP02	L2-LD01
Sample Matrix			Dust	Paint	Paint	Dust
Eurofins Sample No.			S21-De31101	S21-De31102	S21-De31103	S21-De31110
Date Sampled			Dec 09, 2021	Dec 09, 2021	Dec 09, 2021	Dec 09, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	23	-	-	110
Lead (% w/w)	0.01	%	-	< 0.01	< 0.01	-

Client Sample ID			L2-LP01	L2-LP02	L2-LP03	L2-LP04
Sample Matrix			Paint	Paint	Paint	Paint
Eurofins Sample No.			S21-De31111	S21-De31112	S21-De31113	S21-De31114
Date Sampled			Dec 09, 2021	Dec 09, 2021	Dec 09, 2021	Dec 09, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Lead (% w/w)	0.01	%	< 0.01	< 0.01	< 0.01	< 0.01

Client Sample ID			L3-LD01	GL-LP01	GL-LP02	PE-LP01
Sample Matrix			Dust	Paint	Paint	Paint
Eurofins Sample No.			S21-De31116	S21-De31119	S21-De31120	S21-De31123
Date Sampled			Dec 09, 2021	Dec 09, 2021	Dec 09, 2021	Dec 09, 2021
Test/Reference	LOR	Unit				
Heavy Metals						
Lead	5	mg/kg	97	-	-	-
Lead (% w/w)	0.01	%	-	0.02	< 0.01	< 0.01

Client Sample ID			FC-LP01	FC-LP02	GAL-LP01
Sample Matrix			Paint	Paint	Paint
Eurofins Sample No.			S21-De31126	S21-De31127	S21-De31128
Date Sampled			Dec 09, 2021	Dec 09, 2021	Dec 09, 2021
Test/Reference	LOR	Unit			
Lead (% w/w)	0.01	%	< 0.01	< 0.01	< 0.01

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Dec 15, 2021	28 Days
Lead (% w/w) - Method: LTM-MET-3040 Metals in Waters Soils & Sediments by ICP-MS	Sydney	Dec 15, 2021	6 Months

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	849815	Due:	Dec 15, 2021
Project Name:	CHW-STAGE 2	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID			
1	ED-A01	Dec 09, 2021		Building Materials	S21-De31092	X		
2	ED-A02	Dec 09, 2021		Building Materials	S21-De31093	X		
3	ED-A03	Dec 09, 2021		Building Materials	S21-De31094	X		
4	ED-A04	Dec 09, 2021		Building Materials	S21-De31095	X		
5	ED-A05	Dec 09, 2021		Building Materials	S21-De31096	X		
6	ED-A06	Dec 09, 2021		Building	S21-De31097	X		

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
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Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
				Materials				
7	ED-A07	Dec 09, 2021		Building Materials	S21-De31098	X		
8	ED-A08	Dec 09, 2021		Building Materials	S21-De31099	X		
9	ED-AD01	Dec 09, 2021		Dust	S21-De31100	X		
10	ED-LD02	Dec 09, 2021		Dust	S21-De31101		X	
11	ED-LP01	Dec 09, 2021		Paint	S21-De31102		X	
12	ED-LP02	Dec 09, 2021		Paint	S21-De31103		X	
13	L2-A01	Dec 09, 2021		Building Materials	S21-De31104	X		
14	L2-A02	Dec 09, 2021		Building	S21-De31105	X		

Company Name: JBS & G Australia (NSW) P/L
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NSW 2000
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Order No.:
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Phone: 02 8245 0300
Fax:

Received: Dec 13, 2021 4:55 PM
Due: Dec 15, 2021
Priority: 2 Day
Contact Name: Stuart Lumsden

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
14	L2-A02	Dec 09, 2021		Building Materials	S21-De31105			
15	L2-A03	Dec 09, 2021		Building Materials	S21-De31106	X		
16	L2-A04	Dec 09, 2021		Building Materials	S21-De31107	X		
17	L2-A05	Dec 09, 2021		Building Materials	S21-De31108	X		
18	L2-AD01	Dec 09, 2021		Dust	S21-De31109	X		
19	L2-LD01	Dec 09, 2021		Dust	S21-De31110		X	
20	L2-LP01	Dec 09, 2021		Paint	S21-De31111			X
21	L2-LP02	Dec 09, 2021		Paint	S21-De31112			X

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 13, 2021 4:55 PM
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Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
22	L2-LP03	Dec 09, 2021		Paint	S21-De31113			X
23	L2-LP04	Dec 09, 2021		Paint	S21-De31114			X
24	L3-AD01	Dec 09, 2021		Dust	S21-De31115	X		
25	L3-LD01	Dec 09, 2021		Dust	S21-De31116		X	
26	GL-A01	Dec 09, 2021		Building Materials	S21-De31117	X		
27	GL-A02	Dec 09, 2021		Building Materials	S21-De31118	X		
28	GL-LP01	Dec 09, 2021		Paint	S21-De31119			X
29	GL-LP02	Dec 09, 2021		Paint	S21-De31120			X
30	PE-A01	Dec 09, 2021		Building Materials	S21-De31121	X		

Company Name: JBS & G Australia (NSW) P/L
Address: Level 1, 50 Margaret St
Sydney
NSW 2000

Project Name: CHW-STAGE 2
Project ID: 56200

Order No.:
Report #: 849815
Phone: 02 8245 0300
Fax:

Received: Dec 13, 2021 4:55 PM
Due: Dec 15, 2021
Priority: 2 Day
Contact Name: Stuart Lumsden

Eurofins Analytical Services Manager : Ursula Long

Sample Detail						Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254								
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794								
Mayfield Laboratory - NATA # 1261 Site # 25079								
Perth Laboratory - NATA # 2377 Site # 2370								
External Laboratory								
31	PE-A02	Dec 09, 2021		Building Materials	S21-De31122	X		
32	PE-LP01	Dec 09, 2021		Paint	S21-De31123			X
33	FC-A01	Dec 09, 2021		Building Materials	S21-De31124	X		
34	FC-A02	Dec 09, 2021		Building Materials	S21-De31125	X		
35	FC-LP01	Dec 09, 2021		Paint	S21-De31126			X
36	FC-LP02	Dec 09, 2021		Paint	S21-De31127			X
37	GAL-LP01	Dec 09, 2021		Paint	S21-De31128			X
Test Counts						22	3	12

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

NTU: Nephelometric Turbidity Units

MPN/100mL: Most Probable Number of organisms per 100 millilitres

Terms

Dry	Where a moisture has been determined on a solid sample the result is expressed on a dry basis.
LOR	Limit of Reporting.
SPIKE	Addition of the analyte to the sample and reported as percentage recovery.
RPD	Relative Percent Difference between two Duplicate pieces of analysis.
LCS	Laboratory Control Sample - reported as percent recovery.
CRM	Certified Reference Material - reported as percent recovery.
Method Blank	In the case of solid samples these are performed on laboratory certified clean sands and in the case of water samples these are performed on de-ionised water.
Surr - Surrogate	The addition of a like compound to the analyte target and reported as percentage recovery.
Duplicate	A second piece of analysis from the same sample and reported in the same units as the result to show comparison.
USEPA	United States Environmental Protection Agency
APHA	American Public Health Association
TCLP	Toxicity Characteristic Leaching Procedure
COC	Chain of Custody
SRA	Sample Receipt Advice
QSM	US Department of Defense Quality Systems Manual Version
CP	Client Parent - QC was performed on samples pertaining to this report
NCP	Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within.
TEQ	Toxic Equivalency Quotient
WA DWER	Sum of PFBA, PFPeA, PFHxA, PFHpA, PFOA, PFBS, PFHxS, PFOS, 6:2 FTSA, 8:2 FTSA

QC - Acceptance Criteria

The acceptance criteria should be used as a guide only and may be different when site specific Sampling Analysis and Quality Plan (SAQP) have been implemented

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Results >20 times the LOR : RPD must lie between 0-30%

NOTE: pH duplicates are reported as a range not as RPD

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PFAS field samples that contain surrogate recoveries in excess of the QC limit designated in QSM where no positive PFAS results have been reported have been reviewed and no data was affected.

QC Data General Comments

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- Recovery Data (Spikes & Surrogates) - where chromatographic interference does not allow the determination of recovery the term "INT" appears against that analyte.
- For Matrix Spikes and LCS results a dash "-" in the report means that the specific analyte was not added to the QC sample.
- Duplicate RPDs are calculated from raw analytical data thus it is possible to have two sets of data.

Quality Control Results

Test				Units	Result 1		Acceptance Limits	Pass Limits	Qualifying Code			
Method Blank												
Heavy Metals												
Lead				mg/kg	< 5		5	Pass				
LCS - % Recovery												
Heavy Metals												
Lead				%	97		80-120	Pass				
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code			
Spike - % Recovery												
Heavy Metals												
Lead				S21-De34621	NCP	%	84	75-125	Pass			
Duplicate												
Heavy Metals												
Lead				S21-De17191	NCP	mg/kg	12	7.0	54	30%	Fail	Q15

Comments
Sample Integrity

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Qualifier Codes/Comments

Code	Description
Q15	The RPD reported passes Eurofins Environment Testing's QC - Acceptance Criteria as defined in the Internal Quality Control Review and Glossary page of this report.

Authorised by:

Emma Beesley	Analytical Services Manager
John Nguyen	Senior Analyst-Metal (NSW)



Glenn Jackson
General Manager

Final Report – this report replaces any previously issued Report

- Indicates Not Requested

* Indicates NATA accreditation does not cover the performance of this service

Measurement uncertainty of test data is available on request or please [click here](#).

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JBS & G Australia (NSW) P/L
Level 1, 50 Margaret St
Sydney
NSW 2000



NATA Accredited
Accreditation Number 1261
Site Number 18217

Accredited for compliance with ISO/IEC 17025 – Testing
 NATA is a signatory to the ILAC Mutual Recognition
 Arrangement for the mutual recognition of the
 equivalence of testing, medical testing, calibration,
 inspection, proficiency testing scheme providers and
 reference materials producers reports and certificates.

Attention: **Stuart Lumsden**

Report **850022-S**
 Project name **WESTMEAD CHILDRENS HOSPITAL - KITCHEN**
 Project ID **56200**
 Received Date **Dec 14, 2021**

Client Sample ID			KIT-LP1	KIT-LP2	KIT-LD1
Sample Matrix			Paint	Paint	Dust
Eurofins Sample No.			S21-De32761	S21-De32762	S21-De32763
Date Sampled			Dec 14, 2021	Dec 14, 2021	Dec 14, 2021
Test/Reference	LOR	Unit			
Lead (% w/w)	0.01	%	< 0.01	0.03	-
Heavy Metals					
Lead	5	mg/kg	-	-	130

Sample History

Where samples are submitted/analysed over several days, the last date of extraction is reported.

If the date and time of sampling are not provided, the Laboratory will not be responsible for compromised results should testing be performed outside the recommended holding time.

Description	Testing Site	Extracted	Holding Time
Lead (% w/w) - Method: LTM-MET-3040 Metals in Waters Soils & Sediments by ICP-MS	Sydney	Dec 16, 2021	6 Months
Heavy Metals - Method: LTM-MET-3040 Metals in Waters, Soils & Sediments by ICP-MS	Sydney	Dec 16, 2021	28 Days

Company Name:	JBS & G Australia (NSW) P/L	Order No.:		Received:	Dec 14, 2021 1:18 PM
Address:	Level 1, 50 Margaret St Sydney NSW 2000	Report #:	850022	Due:	Dec 16, 2021
Project Name:	WESTMEAD CHILDRENS HOSPITAL - KITCHEN	Phone:	02 8245 0300	Priority:	2 Day
Project ID:	56200	Fax:		Contact Name:	Stuart Lumsden
Eurofins Analytical Services Manager : Ursula Long					

Sample Detail						Asbestos - AS4964	Asbestos Absence / Presence	Lead	Lead (% w/w)
Melbourne Laboratory - NATA # 1261 Site # 1254									
Sydney Laboratory - NATA # 1261 Site # 18217						X	X	X	X
Brisbane Laboratory - NATA # 1261 Site # 20794									
Mayfield Laboratory - NATA # 1261 Site # 25079									
Perth Laboratory - NATA # 2377 Site # 2370									
External Laboratory									
No	Sample ID	Sample Date	Sampling Time	Matrix	LAB ID				
1	KIT-A1	Dec 14, 2021		Building Materials	S21-De32758		X		
2	KIT-A2	Dec 14, 2021		Building Materials	S21-De32759		X		
3	KIT-AD1	Dec 14, 2021		Dust	S21-De32760	X			
4	KIT-LP1	Dec 14, 2021		Paint	S21-De32761				X
5	KIT-LP2	Dec 14, 2021		Paint	S21-De32762				X
6	KIT-LD1	Dec 14, 2021		Dust	S21-De32763			X	
Test Counts						1	2	1	2

Internal Quality Control Review and Glossary

General

- Laboratory QC results for Method Blanks, Duplicates, Matrix Spikes, and Laboratory Control Samples follows guidelines delineated in the National Environment Protection (Assessment of Site Contamination) Measure 1999, as amended May 2013 and are included in this QC report where applicable. Additional QC data may be available on request.
- All soil/sediment/solid results are reported on a dry basis, unless otherwise stated.
- All biota/food results are reported on a wet weight basis on the edible portion, unless otherwise stated.
- Actual LORs are matrix dependant. Quoted LORs may be raised where sample extracts are diluted due to interferences.
- Results are uncorrected for matrix spikes or surrogate recoveries except for PFAS compounds.
- SVOC analysis on waters are performed on homogenised, unfiltered samples, unless noted otherwise.
- Samples were analysed on an 'as received' basis.
- Information identified on this report with blue colour, indicates data provided by customer, that may have an impact on the results.
- This report replaces any interim results previously issued.

Holding Times

Please refer to 'Sample Preservation and Container Guide' for holding times (QS3001).

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the SRA.

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported.

Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control.

For VOCs containing vinyl chloride, styrene and 2-chloroethyl vinyl ether the holding time is 7 days however for all other VOCs such as BTEX or C6-10 TRH then the holding time is 14 days.

Units

mg/kg: milligrams per kilogram

mg/L: milligrams per litre

ug/L: micrograms per litre

ppm: Parts per million

ppb: Parts per billion

%: Percentage

org/100mL: Organisms per 100 millilitres

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MPN/100mL: Most Probable Number of organisms per 100 millilitres

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Heavy Metals											
Lead				mg/kg	< 5		5	Pass			
LCS - % Recovery											
Heavy Metals											
Lead				%	102		80-120	Pass			
Test	Lab Sample ID	QA Source	Units	Result 1			Acceptance Limits	Pass Limits	Qualifying Code		
Spike - % Recovery											
Heavy Metals											
Lead				S21-De37629	NCP	%	85	75-125	Pass		
Duplicate											
Heavy Metals											
Lead				S21-De37723	NCP	mg/kg	35	41	16	30%	Pass

Comments**Sample Integrity**

Custody Seals Intact (if used)	N/A
Attempt to Chill was evident	N/A
Sample correctly preserved	Yes
Appropriate sample containers have been used	Yes
Sample containers for volatile analysis received with minimal headspace	Yes
Samples received within HoldingTime	Yes
Some samples have been subcontracted	No

Authorised by:

Ursula Long Analytical Services Manager
John Nguyen Senior Analyst-Metal (NSW)



Glenn Jackson
General Manager

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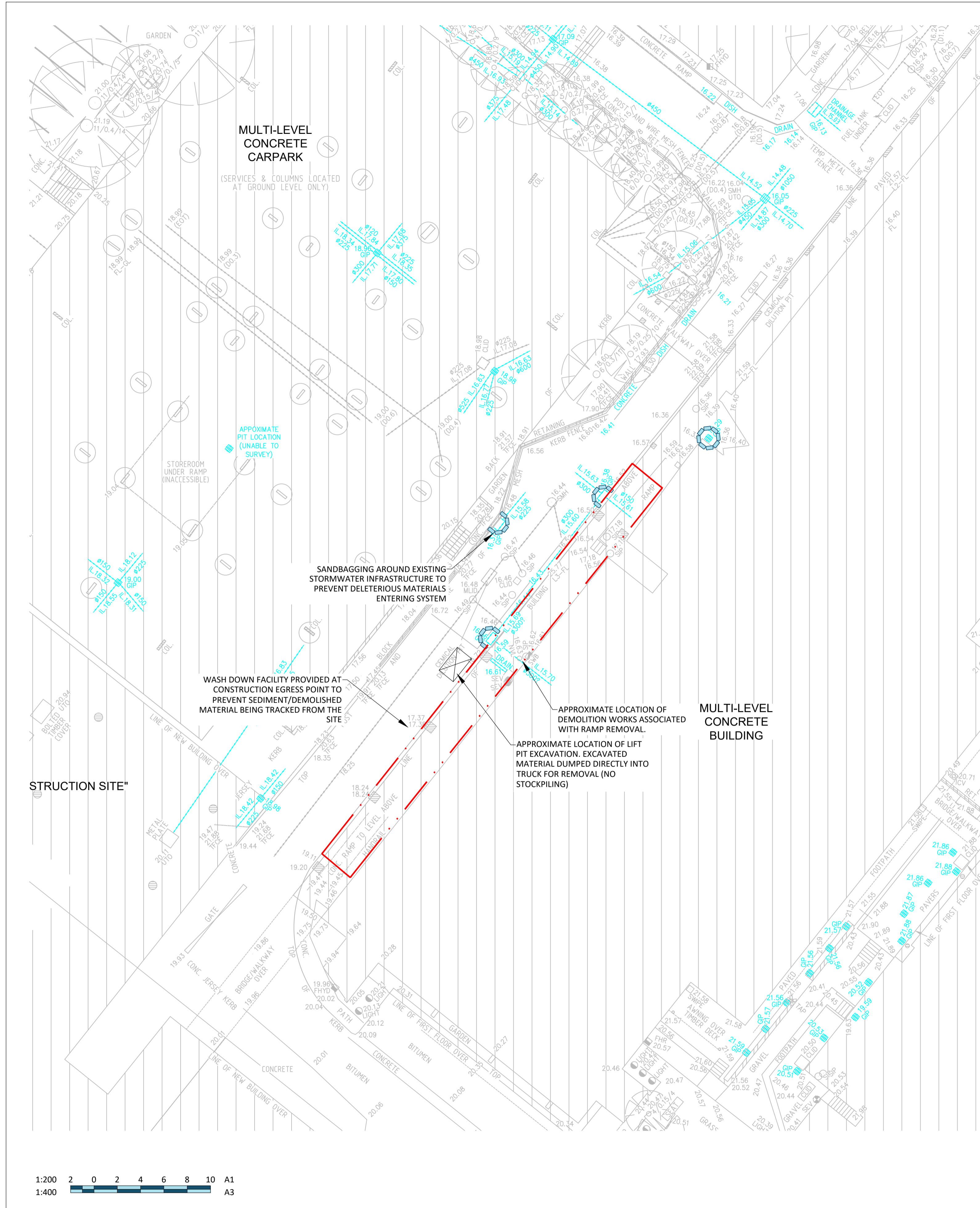
Document Distribution

Rev No.	Copies	Recipient	Date
0	1 x electronic	Ahmed Jaradat	22/12/2021

Document Status

Rev No.	Author	Reviewer	Approved for Issue		
		Name	Name	Signature	Date
0	Stuart Lumsden	Michael Samuel	Michael Samuel		22/12/2021



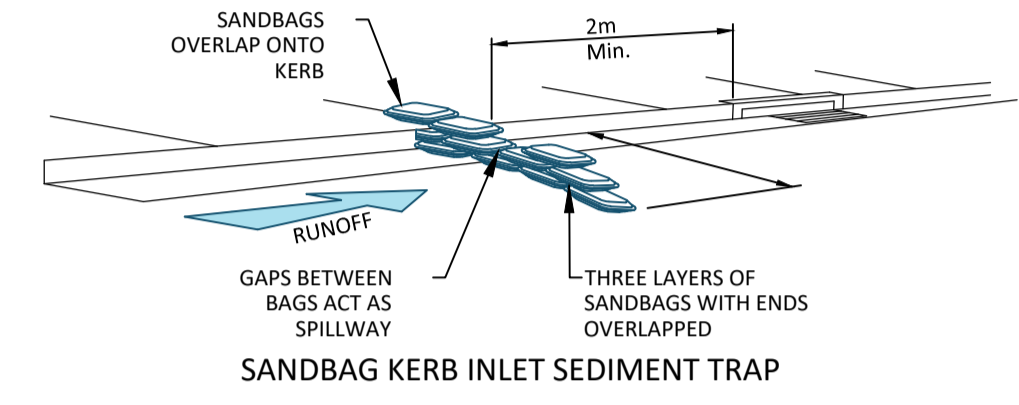


LEGEND

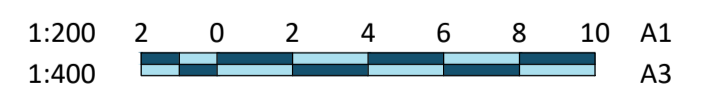
--- SITE BOUNDARY

○ PROPOSED SANDBAG PROTECTION

- EROSION AND SEDIMENT CONTROL NOTES**
- ALL WORK SHALL BE GENERALLY CARRIED OUT IN ACCORDANCE WITH:
 - LOCAL AUTHORITY REQUIREMENTS,
 - EPA - POLLUTION CONTROL MANUAL FOR URBAN STORMWATER,
 - DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT MANUAL - "URBAN EROSION & SEDIMENT CONTROL".
 - EROSION AND SEDIMENT CONTROL DRAWINGS AND NOTES ARE PROVIDED FOR THE WHOLE OF THE WORKS. SHOULD THE CONTRACTOR STAGE THESE WORKS THEN THE DESIGN MAY REQUIRE TO BE MODIFIED. VARIATION TO THESE DETAILS MAY REQUIRE TO BE APPROVED BY THE RELEVANT AUTHORITIES. THE EROSION AND SEDIMENT CONTROL PLAN SHALL BE IMPLEMENTED AND ADOPTED TO MEET THE VARYING SITUATIONS AS WORK ON SITE PROGRESSES.
 - MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES TO THE SATISFACTION OF THE SUPERINTENDENT AND THE LOCAL AUTHORITY.
 - MINIMISE THE AREA OF SITE BEING DISTURBED AT ANY ONE TIME.
 - PROTECT ALL STOCKPILES OF MATERIALS FROM SCOUR AND EROSION. DO NOT STOCKPILE LOOSE MATERIAL IN ROADWAYS, NEAR DRAINAGE PITS OR IN WATERCOURSES.
 - ALL SOIL AND WATER CONTROL MEASURES ARE TO BE PUT BACK IN PLACE AT THE END OF EACH WORKING DAY, AND MODIFIED TO BEST SUIT SITE CONDITIONS.
 - CONTROL WATER FROM UPSTREAM OF THE SITE SUCH THAT IT DOES NOT ENTER THE DISTURBED SITE.
 - ALL CONSTRUCTION VEHICLES SHALL ENTER AND EXIT THE SITE VIA THE APPROVED CONSTRUCTION ENTRY/EXIT ROUTE.
 - ALL VEHICLES LEAVING THE SITE SHALL BE CLEANED AND INSPECTED BEFORE LEAVING.
 - MAINTAIN ALL STORMWATER PIPES AND PITS CLEAR OF DEBRIS AND SEDIMENT. INSPECT STORMWATER SYSTEM AND CLEAN OUT AFTER EACH STORM EVENT.
 - CLEAN OUT ALL EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH STORM EVENT.



- SEQUENCE OF WORKS**
- PRIOR TO COMMENCEMENT OF WORKS THE FOLLOWING SOIL MANAGEMENT DEVICES MUST BE INSTALLED:
 - CO-ORDINATE CONSTRUCTION ENTRY/EXIT ROUTES WITH PROJECT MANAGER. ARRANGE SUITABLE LOCATION FOR THE INSPECTION OF TRUCKS PRIOR TO LEAVING SITE AND DIVERT RUNOFF TO SUITABLE CONTROL SYSTEM.
 - PROVIDE SANDBAG SEDIMENT TRAPS UPSTREAM OF EXISTING PITS. DISTURBED AREAS ARE TO BE REGULARLY WATERED TO REDUCE DUST POLLUTION.



REV	DESCRIPTION	DRAWN	APP'D	DATE
A	ISSUED FOR INFORMATION	IH	IH	16.02.23

NSW Health Infrastructure

KANE

CLIENT CONTRACTOR

CHILDRENS HOSPITAL WESTMEAD STAGE 2

SEDIMENT & EROSION CONTROL PLAN

PROJECT TITLE

0060-2-C-05.dwg

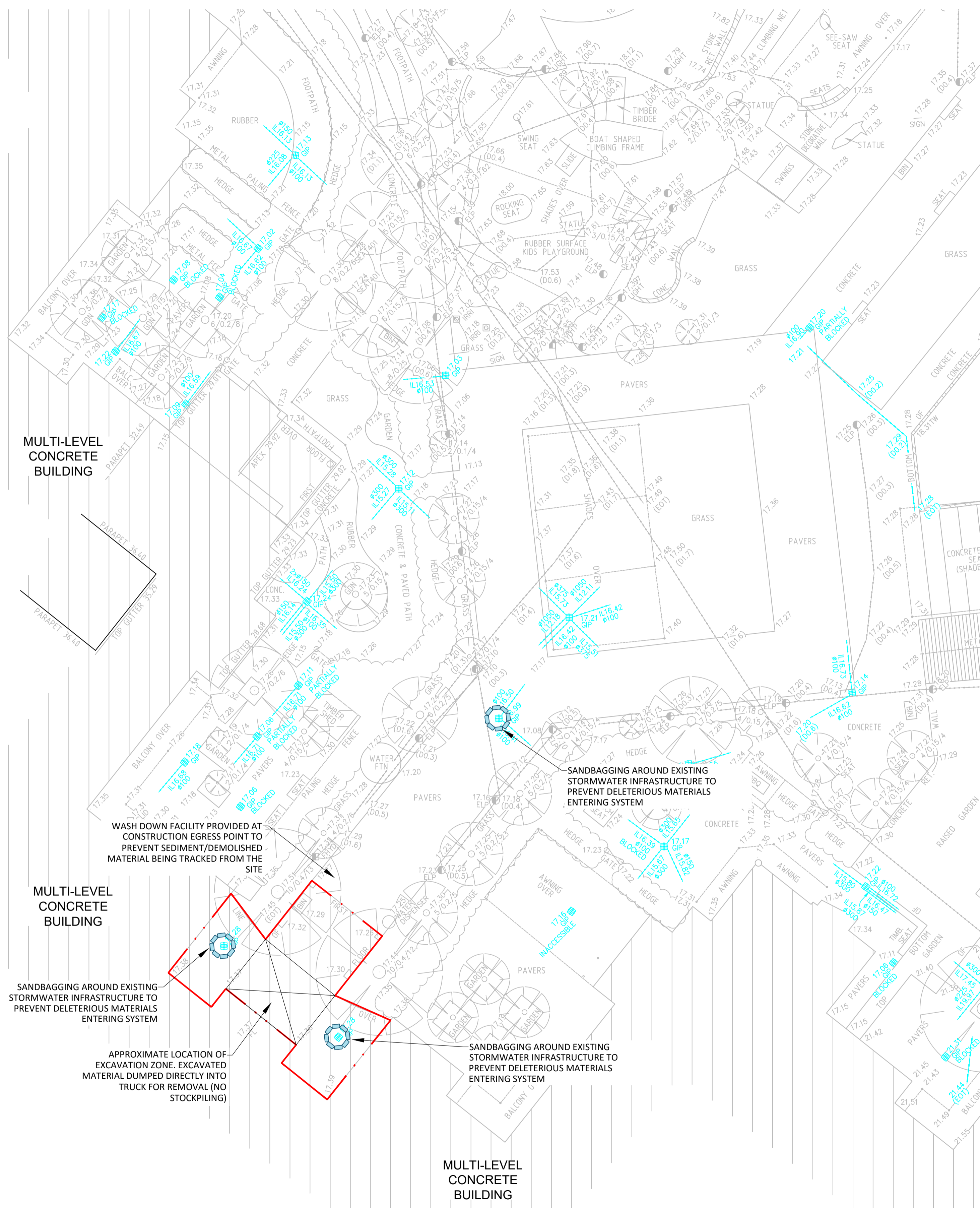
enscape studio

PRELIMINARY NOT FOR CONSTRUCTION

tel 0411 267 151 info@enscapestudio.com.au

AS NOTED SCALE @ A1 PROJECT No C-05 DRAWING No A

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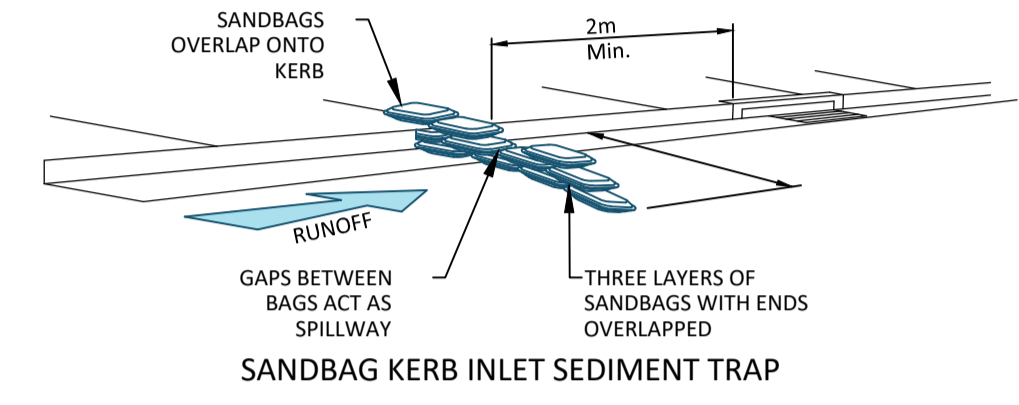


LEGEND

- SITE BOUNDARY
- PROPOSED SANDBAG PROTECTION

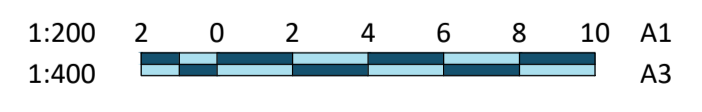
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REV	DESCRIPTION	DRAWN	APP'D	DATE
A	ISSUED FOR INFORMATION	IH	IH	16.02.23

NSW GOVERNMENT Health Infrastructure

KANE

CLIENT CONTRACTOR

CHILDRENS HOSPITAL WESTMEAD STAGE 2

SEDIMENT & EROSION CONTROL PLAN - AIRLOCK

PROJECT TITLE

0060-2-C-06.dwg

enscape studio

PRELIMINARY NOT FOR CONSTRUCTION

tel 0411 267 151 info@enscapestudio.com.au

AS NOTED SCALE @ A1

0060-2 PROJECT No

C-06 DRAWING No

A REV

22/02/2023 4:42:42 PM