



# Construction Environmental Management Plan (CEMP)

Greenwich Hospital Redevelopment

HammondCare | Revision C

# Content Page

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<b>1. Document Control – Revision History</b>	<b>5</b>
1.1. Revision Status	5
1.2. Project Specifics	5
1.3. Approval for Implementation	6
1.4. CEMP Induction	6
<b>2. Purpose and Scope of CEMP</b>	<b>6</b>
2.1. Sustainability	7
2.2. Environmental Management System	7
2.2.1. Customised Compass Templates	8
2.3. Project Specific Documents	8
<b>3. Strategy, Policy, Objectives and Targets</b>	<b>8</b>
3.1. Strategy	8
3.2. Policy	8
3.3. Company Objectives and Targets	8
<b>4. Compliance</b>	<b>9</b>
4.1. Legislative Requirements	9
4.2. Monitoring of Legislative Requirements	9
4.3. Access to Documents	10
4.4. Responsibility and Authority	10
<b>5. Risk Management</b>	<b>10</b>
5.1. Environmental Impact Guides – EIG’s	11
<b>6. Hazard Reporting</b>	<b>12</b>
<b>7. Emergency \ Incident Management</b>	<b>12</b>
7.1. Incident Management	12
7.2. Incident Notification Guidelines	13
<b>8. Communication \ Consultation</b>	<b>13</b>
8.1. Consultation Requirements	14
8.2. Key Stakeholder Consultation	14
8.3. Communication Summary	16
<b>9. Control and Monitoring</b>	<b>17</b>

9.1.	Inspections .....	17
9.2.	Monitoring and Measurement.....	17
9.3.	Inspection and Corrective action .....	19
9.4.	Auditing.....	19
<b>10.</b>	<b>Reporting .....</b>	<b>20</b>
10.1.	Weekly Reporting Requirements .....	20
10.2.	Monthly Reporting Requirements.....	20
10.3.	Client and External Reporting Requirements.....	20
<b>11.</b>	<b>Document and Record Management .....</b>	<b>21</b>
<b>12.</b>	<b>Project Specific Environmental &amp; Sustainability Particulars.....</b>	<b>22</b>
12.1.	Project Details & Hours of Work .....	22
12.2.	Dilapidation Report .....	22
12.3.	Heritage / Cultural Considerations.....	22
12.4.	Geotechnical Report .....	22
12.5.	Contamination / Remediation Report .....	22
12.6.	Additional Reports.....	22
12.7.	Project Specific Sustainability Initiative .....	22
12.8.	Environmental Management Sub-Plans – Plans located in project Aconex .....	22
12.9.	Site Set up .....	23
12.10.	Storm Water / Rainwater.....	23
12.11.	Land Use and Ecology .....	23
12.12.	Waste Management .....	23
12.13.	Groundwater Management.....	24
<b>Appendix A – Environmental and Sustainability Policy .....</b>		<b>25</b>
<b>Appendix B – Environmental Features and Controls Layout .....</b>		<b>26</b>
<b>Appendix C – Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP).....</b>		<b>28</b>
<b>Appendix D – Construction Noise and Vibration Management Sub-Plan (CNVMSP).....</b>		<b>29</b>
<b>Appendix E – Construction Waste Management Sub-Plan (CWMSP) .....</b>		<b>30</b>
<b>Appendix F – Construction Soil and Water Management Sub-Plan (CSWMSP) .....</b>		<b>31</b>
<b>Appendix G – Biodiversity Management Sub-Plan (BMSP) .....</b>		<b>32</b>
<b>Appendix H – Construction Flood Emergency Response Plan (CFERP) &amp; Greenwich Hospital Flood Emergency Response Plan.....</b>		<b>33</b>

**Appendix I – Road Safety Audit..... 34**

**Appendix J Community Communication Strategy Plan – Construction to Operational Phase..... 35**

# 1. Document Control – Revision History

## 1.1. Revision Status

Approved revisions to this document may be independently issued.

Date Issued	Revision	Details	Section	Page
30/09/2024	Rev A	Plan Creation	ALL	ALL
22/11/2024	Rev B	BM+G Review Update	ALL	ALL
29/11/2024	Rev C	Updated CTMP	Appendix C	Pg 26
08/07/2025	Rev D	Updated with IEA Comments	Appendix H	Pg 23 & 367
24/02/2026	Rev E	Draft Submission for MOD2	ALL	ALL

In addition to the above milestone reviews, reviews shall be prompted through Compass > SQE Planning Documents whereby documents are reviewed and confirmed without change and re-loaded to Compass, or reviewed, amended and uploaded accordingly so that the document reflects the project needs.

## 1.2. Project Specifics

<b>Company Name:</b>	Hindmarsh Construction Australia Pty Ltd
<b>ABN</b>	15 126 578 176
<b>Project:</b>	Greenwich Hospital Redevelopment
<b>Project No:</b>	2060
<b>Address:</b>	97-115 River Road, Greenwich, NSW
<b>Client:</b>	Hammond Care
<b>Contract:</b>	Modified AS4902-2000
<b>Project Description:</b>	<p>HammondCare is redeveloping Greenwich Hospital at 95-115 River Road, Greenwich to provide an integrated, contemporary healthcare campus providing specialised care services and a continuum of care to age in place. The project has been approved by Department of Planning, Housing and Infrastructure (DPHI) on 28 March 2024.</p> <p>The redevelopment of Greenwich Hospital is proposed to be delivered over four stages to cater for the operational requirements of the hospital and health campus. The proposed stages are as follows:</p> <ul style="list-style-type: none"><li>• Stage 1 – Early works and external works;</li><li>• Stage 2 – New Hospital Buildings; Two new Seniors Living buildings;</li></ul>
<b>Anticipated Start and Duration:</b>	<p>Stage 1 early works commenced in January 2025, with completion by January 2026</p> <p>Stage 2 is due to commence in March 2026 and completion expected in April 2029</p>

## SSDA 13619238 Condition C13 Requirements addressd in this plan:-

Prior to the commencement of construction, the applicant must submit a Construction Enviromental Management Plan (CEMP) ([This document](#)) to the certifier and provide a copy to the Planning Secretary within 7 days upon request, The CEMP must include, but not limited to, the following:

(a) Details of:

- (i) Hours of work; ([refer to section 13.1 of this plan](#))
  - (ii) 24-hour contact details of site manager; ([refer to section 13.1 of this plan](#))
  - (iii) Management of Dust and odour to protect the amenity of the neighbourhood; ([refer to section 9.2 of this plan](#))
  - (iv) Groundwater management plan including measures to prevent ground water contamination; ([refer to section 12.13 of this plan](#))
  - (v) External lighting in compliance with all Austrlian Standards, codes and guildlines; ([refer to section 13.9 of this plan](#))
  - (vi) Community consultation and complaints handling as set out in the Community Communication Stratergy required by Condition C9; ([refer to section 8.2 of this plan](#))
  - (vii) Detail the quantities of each waste type generated during construction and the prosed reuse, recycling and disposal locations; ([refer to section 13.12 of this plan](#))
- (b) Construction Traffic and Pedestrain Management Sub-Plan (CTPMSP) ([refer to section 13.8 of this plan](#))
  - (c) Construction Noise and Vibration Management Sub-Plan (CNVMSP) ([refer to section 13.8 of this plan](#))
  - (d) Construction Waste Management Sub-Plan (CWMSP) ([refer to section 13.8 of this plan](#))
  - (e) Construction Soil and Water Management Sub-Plan (CSWMSP) ([refer to section 13.8 of this plan](#))
  - (f) Biodiversity Management Sub-Plan (BMSP) ([refer to section 13.8 of this plan](#))
  - (g) Construction & Facility Flood Emergency Response Plans (CFERP) ([refer to section 13.8 of this plan](#))
  - (h) Greenwich Hospital - Flood Emergency Response Plans (GHFERP) ([refer to section 13.8 of this plan](#))

### 1.3. Approval for Implementation

This revision of the Construction Environmental Management Plan (CEMP) has been reviewed by the Project Manager, it complies with environmental aspects of Compass, contractual obligations and statutory requirements and is authorised for use. Draft versions of this document, although approved, are issued for comment / feedback and should not be considered as finalised until a revision number / letter is assigned.

### 1.4. CEMP Induction

Every Hindmarsh Project employee receives induction training into the purpose and use of this CEMP. Each acknowledges that they fully understand this CEMP's requirements and their roles \ responsibilities associated with it. This acknowledgement is recorded via Aconex.

Key elements of this CEMP may be extracted for inclusion in the project specific site induction training which is given to all Employees, subcontractors and site workers prior to commencing works on site.

## 2. Purpose and Scope of CEMP

Hindmarsh operates a fully integrated Business Management System, known as Compass which incorporates our Safety, Quality and Environment business systems.

This CEMP describes the environmental strategy, methods, controls, and requirements to be implemented during the execution of the project. The purpose of this CEMP is to:

- Ensure company environmental objectives and targets are achieved;
- Identify the environmental issues (impacts and aspects) for this project;

- Establish, communicate and implement controls to reduce any adverse impacts on the environment which may arise from project's activities, products and services;
- Identify controls which will be implemented to mitigate high risk environmental impacts, which may eventuate during construction;
- Ensure Hindmarsh, its suppliers and subcontractors comply with all relevant environmental legislation, any applicable licenses, approvals, permits and regulatory requirements;
- Ensure works are managed to reduce adverse impacts on the environment;
- Action any outcomes from environmental incidents or accidents, project audits or other identified non-conformances and to continually improve the Environmental Management System elements within Compass; and
- Establish project-specific objectives and targets (where appropriate) and identify strategies and evidence in support of their achievements.

This CEMP is intended to stand alone as the master document for the management of all site environmental activities. It should, however, be read in conjunction with other management plans, referenced appendices and documents, including;

- Construction Management Plan (CMP)
- Emergency Management Plan (CEMP)
- Safety Management Plan (SMP)
- Quality Management Plan (QMP)
- Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP)
- Construction Noise and Vibration Management Sub-Plan (CNVMSP)
- Construction Waste Management Sub-Plan (CWMSP)
- Construction Soil and Water Management Sub-Plan (CSWMSP)
- Biodiversity Management Sub-Plan (BMSP)
- Construction Flood Emergency Response Plan (CFERP)
- Greenwich Hospital Flood Emergency Response Plan (GHERP)

## **2.1. Sustainability**

Responsible Environmental Management extends far beyond that of simple mitigation measures. Sustainability embraces environmental, social and economic accountability. Hindmarsh seeks, with its project partners, to reduce those negative impacts and maximise benefits related to all three areas across the entire project life cycle. Fundamentally, our environmental strategy and CEMP requires every project to consider:

- A reduced resource consumption
- Reuse of resources
- Use and support of recyclable resources
- Elimination of toxic substance / material use
- Focus on quality outcomes to prevent re-work

## **2.2. Environmental Management System**

Hindmarsh operates an Environmental Management System as per the requirements of AS14001:2004 The system has been independently certified as meeting the requirements of both. Please refer to the Compass Manual for further information regarding the Hindmarsh Management System. Documents, procedures, and forms supporting this CEMP have been referenced accordingly throughout this plan. Compass documents detailed within this plan are identifiable by title and are formatted in italics and underlined.

### 2.2.1. Customised Compass Templates

During the life of the project several Compass templates will be customised, and in some cases continually revised to address project specific requirements: for example, Risk Profile templates. To ensure these documents / records are appropriately controlled this project will utilise, either or both, Aconex and or the Site Server Electronic Filing System.

## 2.3 Project Specific Documents

The following project specific environmental \ sustainability related documents have been referred to in the preparation of this CEMP:

Reference Document	Doc Reference
Geotech Report	JK Geotechnics 32507R2rpt Rev 2 10/05/22
Additional Site Investigation	Jk Geotechnics E32507BRrpt5Rev2 10/05/22
Hazardous Building Materials Survey	JK Geotechnics E32507BLrpt-HAZRev2 5/5/22
Social Impact Assessment	Ethos Urban Rev 4 11/08/2023
Noise & Vibration Impact Assessment	Acoustic Logic Rev 4 20210374.1/2507A/R4/LL
Aboriginal Cultural Heritage Assessment report	Cultural heritage Connections October 2023
Biodiversity Development Assessment Report	2 August 2023
Vegetation Management Plan	Travers Bushfire & Ecology 17 May 2022
Waste Management Plan	Waste Audit 8/8/2022
Schedule of Conservation Works	Built Environment May2022
Demolition Works Plan	

## 3. Strategy, Policy, Objectives and Targets

### 3.1. Strategy

This CEMP is implemented in support of the Hindmarsh *SQE Strategic Framework*. This strategy is to be communicated and made available to all workers at all times.

### 3.2. Policy

The Hindmarsh *Environmental and Sustainability Policy* are to be communicated and made available to all workers at all times. At time of site induction workers are briefed on the Policy and its intent.

### 3.3. Company Objectives and Targets

Current company environmental and sustainability objectives and targets are detailed within the *SQE Strategic Framework*.

The following are project specific objectives and targets:

Objective:	Target:	Monitored by:	Reported via:	Frequency of Report:
Prevent and minimize adverse impacts on the environment	No more than 2 reported to the regulator per year	Project Manager	Monthly Report	Monthly
Recognise and protect special environmental characteristics	100% of contractors site inducted into this CEMP	SQE Supervisor	Monthly Report	Monthly
Maintenance of compliance to ECC	Obtain and maintain compliance with ECC	Project Manager	Monthly Report	Monthly
Recycle waste	90% of waste recycled	Site Engineer	Status Report – Project Objectives and Targets.	Monthly
Environment Inspections	1 x Monthly Environment inspections	SQE Supervisor	Monthly Report	Monthly
Environmental Complaints	No more than 2 reported to the regulator per year	Project Manager	Monthly Report	Monthly
Environmental Incidents	No more than 2 reported to the regulator per year	Project Manager	Monthly Report	Monthly
Sustainability: WELS/Neighbors/ Greenstar/ BASIX	5 Star Greenstar/ WELS 4- 6 Star	Project Manager	Status Report	Monthly

## 4. Compliance

### 4.1. Legislative Requirements

The Legal Register is a list of relevant legislative and regulatory requirements applicable to general Hindmarsh construction operations. The project team has reviewed this document and has identified relevant legislative and regulatory requirements applicable to project specific operations. The project specific Legal Register is available upon request and has been completed as per the Legal Requirements procedure.

Legislative and or regulatory information may also be included in relevant Environmental Impact Guides (EIGs) and in the site-specific induction training provided to all Employees and site workers prior to their commencement of works on site.

### 4.2. Monitoring of Legislative Requirements

Monitoring of Acts, Regulations, Codes of Practice and Australian standards will be managed by a subscription service called LAWLEX - <http://www.lawlex.com.au>. Where relative legislative change is to occur the National SQE Manager informs State SQE Manager who are then required to review changes and forward recommendations (this may be Document Change Request, email, hardcopy or other) to the SQE Systems Manager for Hindmarsh Management System (Compass) coordination.

For more detailed information please refer to Legal Requirements procedure.

### **4.3. Access to Documents**

Hindmarsh Employees, suppliers and subcontractors have access to legislation and regulatory documents via the internet. Where a project receives a request for an applicable legislative / regulatory document which is not available via the internet, then the request is to be forwarded to one of the following who will arrange for a copy of the required document to be made available to the requestor.

- National SQE Manager
- SQE Administration Manager

Hindmarsh subscribes to “Building and Construction” related Australian Standards. Refer to the [Australian Standards Online Select Access](#) document for further information regarding access instructions and credentials required for login.

### **4.4. Responsibility and Authority**

It is the responsibility of Hindmarsh project staff to ensure that the [Construction Environmental Management Plan \(CEMP\)](#) is complied with, and objectives and targets are met. To facilitate effective environmental management, specific responsibilities for implementing and supporting this CEMP have been assigned.

Please refer to the [Roles and Responsibility Matrix](#), for the project specific allocations.

## **5. Risk Management**

Project risk management is completed as directed within the [Risk Management](#) procedure in Compass.

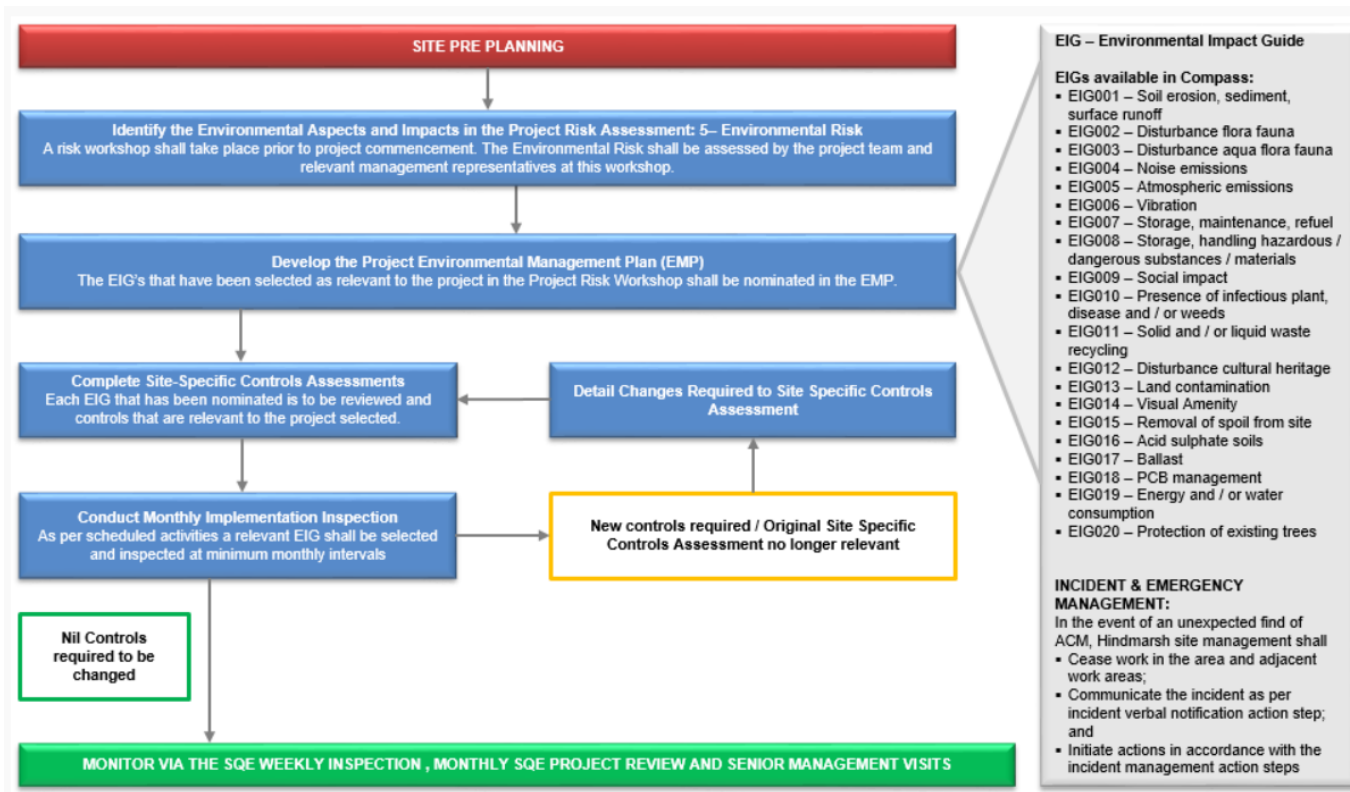
The [Project Risk Assessment](#) considers identified hazards (aspects) and impacts which are relevant to the project. The Project team has reviewed all available information (i.e., risk assessments, consultant reports, advice, papers, scope of works etc) to ensure the Project Risk Assessment accommodates all known issues.

Hindmarsh ensures environmental aspects and impacts are continually reviewed, risks assessed and that monitoring requirements remain relevant and current as demonstrated in the below flowchart.

Key environmental aspects and risks are communicated to Hindmarsh Employees and subcontractors based on level risk, controls implemented and or as deemed appropriate by project requirements.

Key Environmental aspects and risks applicable to this project include:

- Impacts to native fauna through plant, equipment, noise and vibration.
- Impact to critical endangered flora
- Spills of pollutants
- Generation of traffic and noise



## 5.1. Environmental Impact Guides – EIG’s

Hindmarsh has developed a number of standard *Environmental Impact Guides (EIGs)*, these are documented procedures targeting high risk and \ or common environmental aspects and impacts which arise from general construction activities. EIGs provide the project team with general guidance regarding the management of each respective environmental impact, describes the processes involved, the permits or licenses required, the control measures to be implemented, the monitoring and reporting requirements and any emergency response measures to be implemented. Where an EIG has been selected in the *Project Risk Assessment* a Site-Specific Controls Assessment shall be conducted on the EIG to ensure it addresses project specific circumstances and requirements. These shall then be implemented on the project.

EIG’s relevant to this project include:

*EIG001- Soil Erosion, Sediment, Surface Run Off*

*EIG002- Disturbance Flora Fauna*

*EIG003- Disturbance Aqua Flora Fauna*

*EIG004- Noise Emissions*

*EIG005- Atmospheric Emissions*

*EIG006- Vibration*

*EIG007- Storage, Maintenance, Refuel*

*EIG008- Storage, Handling or Hazardous / Dangerous Substances / Materials*

*EIG009- Social Impact*

*EIG010- Presence of Infectious Plant, Disease or Weeds*

*EIG011- Solid and / or Liquid Waste, Recycling*

*EIG012- Heritage / Culture Management / Disturbance*

*EIG013- Land Contamination*

*EIG014- Visual Amenity*

*EIG015- Removal of Spoil from site*

*EIG016- Acid Sulphate Soils*

*EIG017- Ballast*

## 6. Hazard Reporting

Hindmarsh Employees, subcontractors, those working on site, as well as those visiting have a duty to report any hazard observed on site. If a hazard is suspected or identified, report the matter with urgency to a Hindmarsh Management representative who shall be responsible for recording this in the OnSite CAR Module.

Hazard information may be communicated via site induction, safe work method statement review, and \ or safety meetings (e.g. Pre Start and Toolbox) held on site.

Where a Corrective Action has been submitted reporting a hazard, Hindmarsh shall investigate and take necessary corrective action to address the issue raised to remove the hazard and \ or prevent a reoccurrence.

## 7. Emergency \ Incident Management

Please refer to the Projects Emergency Management Plan (EMMP) for information regarding emergency preparedness and response. The project specific EMMP ensures Hindmarsh controls are in place, and assesses Emergency preparedness elements as required for the project.

The EMMP details when Environmental Emergency Drills will be conducted. This schedule must be completed and included within the CEMP. Emergency Drill reports must be completed on the correct template.

### 7.1. Incident Management

Refer to the Injury, Illness and Incident Management and Reporting flow chart for detailed guidance regarding the management and reporting of injuries, illness and incidents.

Incidents occurring to the environment, flora or fauna shall be reported, investigated and corrective actions managed in accordance with the Incident Management Procedure and contract requirements. Contract Representative shall be responsible for ensuring incidents involving Employees, contractors and visitors are reported, investigated and corrective actions assigned and completed to the relevant authorities.

Procedures and processes referenced within the above mentioned document address the following:

- Detailed definitions (SQE Definitions)
- Actions to be taken in the event of an injury, illness or incident (Injury, Illness and Incident Response)
- Additional reporting responsibilities and obligations associated with higher level injuries \ incidents (Incident Actions External Notifications)
- Incident Reporting responsibilities and expectations (Incident Reporting Flowchart)
- Site and or National investigation requirements
- Corrective and Preventive Action
- Analysis of data \ findings (including Objectives \ Targets status)

A Crisis Management and Recovery Plan supports the injury, illness and incident management process.

In the event of a Dangerous Incident, ensure site preservation and that the site where the notifiable incident has occurred is not disturbed until an inspector arrives at the site other than for the reasons set out in the WHS Legislation.

## 7.2. Incident Notification Guidelines

Notification Authority	Contact Method	Timing	Responsible party
SafeWork NSW	Via phone	Immediately on becoming aware that a notifiable incident has occurred arising out of works.	State SQE Manager
	Written – <u>Via online Notification of Incident form</u>	Within 48 hours	State SQE Manager
Environment Protection Authority	EPA NSW	Immediately on becoming aware of an activity that could cause harm to human health or the environment through emissions to air, land and water.	National SQE Manager

The Serious SQE Incident Alert may be used to communicate lessons learned for continual improvement opportunities. A Serious SQE Incident Alert may be issued within Hindmarsh to communicate lessons learned and actions required arising from:

- Notifiable Incidents;
- Dangerous Incidents / Occurrences; or
- Critical Incidents where the Crisis Management and Recovery Plan has been enacted.

An SQE Alert may also be issued for relevant regulatory/industry alerts, or where directed via National SQE meetings to address relevant issues of recurring incidents

Record Keeping requirements for incidents shall adhere to legislative and client requirements in Sentinel and Onsite Hindmarsh System.

## 8. Communication \ Consultation

With many interested parties involved in the project it is critical that communication and consultation occurs efficiently and effectively between all.

With regards to environmental issues consultation and communication generally occurs when the following matters arise:

- An Employer or Employees identifies a hazards
- assessing any aspect \ impact (risk)
- deciding on measures to control risks
- implementing controls
- reviewing the effectiveness of controls
- reviewing and developing policies
- investigating incidents \ complaints

- changing work practices and procedures
- introducing new substances to the workplace
- changes to current health and safety Acts, Regulations, Australian Standards, Codes of Practice and other relevant environmental requirements

## 8.1. Consultation Requirements

In discussion with site workers (Hindmarsh Employees and Subcontractors), the following arrangements have been made with regards to communication and consultation regarding environmental matters:

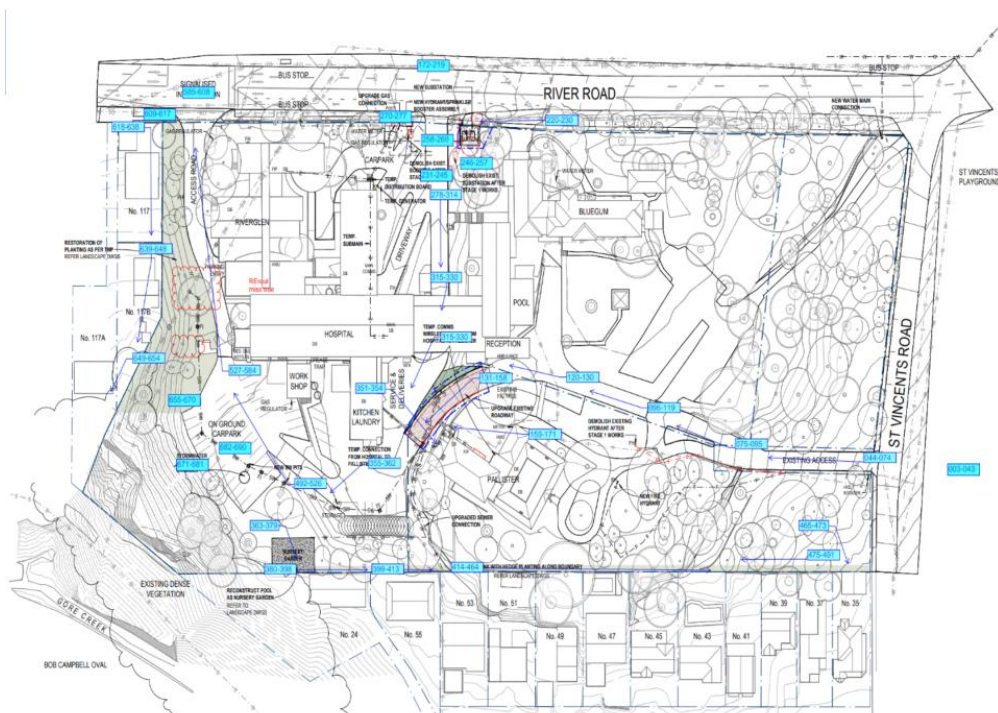
Arrangements may include one or more of the following:

- Environmental Clearance Certificate
- Notice of Disruption Process
- Inclusion of environmental issues in site meetings
- Daily Prestart Meetings
- Toolbox Meetings
- Site Induction
- Weekly Subcontractor / Supervisor meetings
- Hazard Identification / Reporting and Communication
- SWMS Submission and Review
- Hazardous Substance Risk Assessment

Refer to Appendix J – Community Communications Strategy Plan

## 8.2. Key Stakeholder Consultation

Hindmarsh seeks to ensure stakeholders; the local Community and authorities are satisfied by the manner in which construction activities and tasks are managed. Refer to Appendix J for the project specific Community Communications Strategy Plan. The trailing indicates adjacent residents that have been/will be consulted in relation to the project.



To facilitate this Hindmarsh will:

### **Provision of External Lighting :**

#### **Safety Requirements**

- **Adequate Lighting:** Ensure safe working conditions, especially at night or in low-light areas. Follow AS/NZS 1680.2.4 for workplace lighting levels.
- **Emergency Lighting:** Temporary emergency lights should be in place for evacuation routes during power outages, per AS 2293.1.

#### **Environmental and Occupant Considerations**

- **Minimize Light Spill:** Prevent light from spilling into nearby areas or affecting residents in occupied buildings, using shields or directional fittings. Follow AS 4282 for managing light pollution.
- **Noise and Timing:** Limit the operation of bright lights to avoid disturbing occupants, particularly at night. Use timers to ensure lights turn off during non-work hours.
- **Wildlife Sensitivity:** Reduce the impact on nearby wildlife, especially in conservation zones.

#### **Practical Guidelines for Construction**

- **Temporary Lighting Stability:** Install lighting securely to prevent hazards like tipping or falling.
- **Energy Efficiency:** Use LED lights to reduce power consumption and costs.
- **Directional Lighting:** Focus lights on work areas to improve visibility and reduce glare for workers and building occupants.

#### **Relevant Standards**

- AS/NZS 1680 Series: Safe lighting for work areas.
- AS 4282: Control of light pollution.
- AS 2293.1: Emergency lighting requirements.

#### **Occupied Building Considerations**

- Ensure minimal disruption to occupants by limiting light intensity near windows.
- Engage with building occupants to address concerns about light intrusion or safety.
- Install temporary barriers or curtains if lighting impacts residential or office areas.
- This streamlined guidance ensures compliance with Australian standards while balancing the needs of construction and building occupants.

### 8.3. Communication Summary

Communication with internal and external stakeholders regarding environmental issues will be in accordance with the following table:

#### Notifications

Subject	Action	Recipient	Frequency
Environmental incident	Senior Project Manager	State Operations Manager \ CLIENT	As per client requirements
Pollution \ Environmental noncompliance	Senior Project Manager	State Operations Manager \ CLIENT	As per client requirements
Public complaints	Senior Project Manager	CLIENT/ Client Rep	48 hours and as per client requirements
Complaint response	Senior Project Manager	CLIENT/ Client Rep	48 hours and as per client requirements
Extended working hours	Senior Project Manager	CLIENT/ Client Rep	and as per client requirements
Discovery of threatened fauna	Senior Project Manager	State Operations Manager \ CLIENT	48 hours
Discovery of archaeological material incl heritage items	Senior Project Manager	CLIENT/ Client Rep	48 hours and as per client requirements
Discovery of skeletal material	Senior Project Manager	State Manager Construction \ CLIENT	24 hours and as per client requirements
Consultation Package 1	Senior Project Manager	Key Stakeholders	As Required \ as per programme
Consultation Package 2	Senior Project Manager	Key Stakeholders	As Required \ as per programme
High Noise \ Night Works	Senior Project Manager	ALL	2 Days prior to works commencing

#### General

Subject	Action	Recipient	Frequency
CEMP	Project Manager	Internal	As required
Environmental CAR	Team	Project Manager	As required

Audit	National SQE Manager	Project Manager	Notify 5 days prior
Environmental performance	National SQE Manager	State Manager Construction	As scheduled via Internal Audit

## Meetings

Type	Chair	Attendees	Frequency
Key Stakeholder Meeting	Project Manager	As Required	Weekly
Subcontractor Coordination	Site Manager	As Required	Weekly
Daily Prestart Meetings	Subcontractor Reps	As Required	Daily
Project Control Group Meeting (PCG)	Project Manager	As Required	Monthly

# 9. Control and Monitoring

## 9.1. Inspections

EIG effectiveness is monitored throughout the life of the project. Where an EIG has been selected in the project risk assessment and nominated Environmental Management Plan, Site-Specific Controls shall be added to the EIG to ensure it addresses project specific circumstances and requirements.

Monitoring of controls specified in the relevant EIG's shall be conducted via:

- Monthly Environmental Impact Guide Inspection
- Weekly SQE Inspection
- Monthly SQE Project Review
- Senior Managers Visits (SMV) Review

Hindmarsh may outsource auditing and inspections to external consultants where specific expertise is required.

Where monitoring has identified issues, this will result in a corrective action. CARs shall be documented and managed through OnSite > SQE > CARs with appropriate actions implemented to address the CAR in a timely manner and to prevent repeat incidents.

Where CARs are not addressed appropriately, in a timely manner or there is a subsequent recurrence of the nonconformance the CAR shall be elevated to SQE Manager for consultation and resolution.

Should potential improvement to Compass policies and procedures be proposed as a result of a CAR, these shall be communicated to the National SQE Manager to evaluate and manage.

## 9.2. Monitoring and Measurement

Monitoring requirements for the project will be identified within the project specific Project Risk Assessment. All Hindmarsh owned measuring equipment must be registered on the Equipment Calibration Register and all associated calibration records maintained. Hindmarsh may outsource environmental monitoring to external consultants as required. Calibration records for non Hindmarsh owned equipment will be requested.

The following should be noted regarding possible noise \ vibration \ dust monitoring regimes:

- Monitoring may be undertaken in response to complaints where this is considered an appropriate response
- Monitoring that is to occur will be undertaken by personnel suitable qualified and experienced in undertaking acoustic measurements
- Monitoring may occur for plant and equipment which is perceived as 'excessively noisy' to determine the need for rectification or replacement

Where monitoring has been identified, data collected may be analysed and may result in corrective and or preventive action. If night works are required and approved by the EPA, noise levels may be monitored at the start of the activity, and at a location equivalent to the most affected noise sensitive land user to confirm adherence with EPA requirements.

Dust and Odour will be managed on this project as follows:

- Dust management

Use the hierarchy of controls to manage dust on construction sites:

- Eliminate the hazard: If possible, remove the dust-producing product.
- Substitute: Use a less hazardous product.
- Isolate: Use physical barriers, like cutting stations, to keep workers away from the dust.
- Engineer: Use controls to reduce exposure to dust, such as dust collector vacuums, air scrubbers, or suppression cannons.
- Administer: Provide personal protective equipment and workplace policies to protect workers.
- Control traffic: Use water-based surfactants to suppress dust from traffic. Washing vehicle wheels before leaving the site can also help.

- Odor management

Odor management in construction sites is vital to minimize public nuisance and comply with air quality standards. Key aspects include:

Sources of Odor

1. Diesel Exhausts: From machinery and vehicles.
2. Surface Coatings: VOCs released during application of paints, adhesives, and sealants.
3. Disturbed Land: Odorous emissions when contaminated soil is exposed.

Control Measures

2. Diesel Exhausts:
  - Maintain engines for efficient combustion.
  - Use equipment with catalytic converters and exhaust filters.
  - Limit idling and ensure proper fuel use.
3. Surface Coatings:
  - Stage applications to reduce peak emissions.
  - Consider wind direction and speed to minimize off-site impacts.
  - Utilize extraction and ventilation systems.
4. Disturbed Land:
  - Investigate and address contamination sources before excavation.
  - Use barriers or coverings to limit emissions from stockpiles.

## General Strategies

- Wind Management: Conduct odorous activities when wind conditions aid in dispersion.
- Equipment Placement: Locate machinery away from sensitive receptors like homes and schools.
- Training and Communication: Educate workers on Odor control and inform nearby residents of potentially odorous activities.

## Monitoring and Response

- Use environmental management plans (EMP) and air quality checklists to assess and mitigate Odor issues.
- Address complaints promptly by modifying work schedules or applying additional controls.

By integrating these practices, construction sites can effectively manage Odor emissions and minimize impacts on surrounding communities.

## 9.3. Inspection and Corrective action

At minimum 1 x EIG shall be inspected per month. Site teams shall select an EIG that is in use and is deemed as critical at that time due to on site activities occurring. If during the inspection it is found that controls that were not initially assessed as relevant to the project are assessed as necessary, a new Site-Specific Controls Assessment shall be completed. Where an inspected item Fails, a Hazard or CAR appropriate to level of risk shall be entered into Project Hub.

The Scheduled *SQE Activities Matrix* shall be used to confirm the above activity has been completed.

Monitoring of controls specified in the relevant EIGs shall be conducted via the Weekly SQE Inspection, Monthly SQE Project Review and Senior Managers Visits (SMV) Review

Any environmental non conformances will be rectified via the Corrective Action process. Where nonconformity creates a hazard, this will result in either:

- A hazard record being made on onsite,
- a CAR raised on Onsite
- the completion of an Incident Report.

Where a Corrective Action Required form is issued and it is not addressed in a timely manner or there is a subsequent re-occurrence of the non-conformance the Corrective Action and Escalation Process will commence.

During project delivery Hindmarsh anticipates and encourages continual improvement in all areas of business. Continual improvement opportunities may arise from inspections, testing, auditing, incidents and or observations. Hindmarsh promotes and support the issue of corrective actions, as required, to support continual improvement requirements.

## 9.4. Auditing

Hindmarsh actively monitors performance and seeks potential improvement opportunities by completing internal audits. Internal audits shall be conducted by auditors (i.e., State SQE Managers) who are qualified auditors with training and qualifications obtained by a registered training organisation.

The audit scopes shall address Compass requirements, including Procedures and Management Plans, and EIGs. The Internal SQE Audit will be used at scheduled internal audits and rolling cross border audits. Audits shall be conducted in accordance with the Senior Management Inspection and Audit Schedule. This shall be reviewed at the Monthly National SQE Committee Meeting to consider project relevance and coordination

of the monthly Cross Border Audit.

Where audits have identified issues, this will result in a corrective action. CARs shall be documented and managed through OnSite > SQE > CARs with appropriate actions implemented to address the CAR in a timely manner and to prevent repeat occurrence.

Any environmental non-conformances will be rectified via the Corrective Action process. Where nonconformity creates a hazard, this will result in either:

- A hazard record being made on onsite,
- a CAR raised on Onsite
- the completion of an Accident Incident Report.

Where a Corrective Action Required form is issued and it is not addressed in a timely manner or there is a subsequent re-occurrence of the non-conformance the Corrective Action and Escalation Process will commence.

During project delivery Hindmarsh anticipates and encourages continual improvement in all areas of business. Continual improvement opportunities may arise from inspections, testing, auditing, incidents and or observations. Hindmarsh promotes and support the issue of corrective actions, as required, to support continual improvement requirements.

## **10. Reporting**

### **10.1. Weekly Reporting Requirements**

- Weekly SQE Inspection

### **10.2. Monthly Reporting Requirements**

- Monthly SQE Project Review
- Monthly EIG

### **10.3. Client and External Reporting Requirements**

- Monthly PCG Report

# 11. Document and Record Management

Environmental project records are controlled and minimum records maintained include the following:

Category	Record	Responsible	Retention Timeframe
General Requirement	Environmental Management Plan (all versions), Including: <ul style="list-style-type: none"> <li>Performance Targets and Measurements</li> <li>Contact and Service Provider Information</li> </ul>	Project Manager	Permanent
	<u>Site Diary – Site Manager / Foreman</u> Inspection Records Training Records – Including Qualifications held by individuals All formal correspondence with stakeholders Meeting Minutes Complaint records Audit reports (including internal review reports) Weekly Environmental & Sustainability Check sheets Induction Records	Project Manager Site Manager Project Manager HR Manager Project Manager Project Manager Project Manager Environmental Coordinator	Permanent Permanent Permanent Permanent Permanent Permanent Permanent
Legislative / Regulatory	Identified Legislative Regulatory Register	Project Manager	Permanent
Approvals, Permits and Licenses	Any Approvals, Permits and Licenses	Project Manager	Permanent
External Review Reports	Not Applicable		
Construction Waste management	Waste tracking docket Waste disposal receipts	Site Manager Site Manager	Permanent Permanent
Land Contamination	Not Applicable		
Hazardous Substance	Copies of MSDS's	Site Manager	Permanent
Corrective Action Request	Copies of issued corrective action / Action Required Notifications Log of corrective actions	Project Manager Project Manager Project Manager	Permanent Permanent Permanent
Incident reporting	Environmental incident reports Incident Investigation Reports	Project Manager Project Manager	Permanent Permanent
Performance Analysis / Evaluation Reports	Where available	Project Manager	Permanent

## 12. Project Specific Environmental & Sustainability Particulars

### 12.1. Project Details & Hours of Work

1. Throughout the project, Construction hours will be as per SSDA Condition D4

(a) Between 7:30am and 5:30pm, Monday to Friday inclusive; and

(b) Between 8am and 1pm, Saturdays.

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

Works may be undertaken outside of these hours on Saturday between 1pm – 3:30pm unless directed otherwise by the Planning Secretary and noise management levels are comply with the ‘outside recommended hours’ detailed in the Interim Construction Noise Guideline (DECC, 2009).

Contact Details for the project team will be Senior Project Manager Mark Reynolds M.0429 994 885 or E. mark.reynolds@hindmarsh.com.au

### 12.2. Dilapidation Report

Stage 1 – Early Works Delapidation Report completed by Project Solutions on 10 September 2024. Aviable on Aconex.

### 12.3. Heritage / Cultural Considerations

Refer Built Environment Heritage Group Schedule of Conservation Works report May 2022

### 12.4. Geotechnical Report

Refer JK Geotechnics report 32507R2rpt Rev 2 10/05/22

### 12.5. Contamination / Remediation Report

Refer Jk Geotechnics E32507BRrpt5Rev2 10/05/22

### 12.6. Additional Reports

Refer Aconex for docs listed in section 2.3

### 12.7. Project Specific Sustainability Initiative

Refer Aconex for docs listed in section 2.3

### 12.8. Environmental Management Sub-Plans – Plans located in project Aconex

This section of the plan is to identify whether there are any sub-plans applicable to this document. This will include (the emergency management plan must be referenced here):

- Emergency Management Plan (EMMP)
- Construction Management Plan (CMP)

- Safety Management Plan (SMP)
- Quality Management Plan (QMP)
- Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP)
- Construction Noise and Vibration Management Sub-Plan (CNVMSP)
- Construction Waste Management Sub-Plan (CWMSP)
- Construction Soil and Water Management Sub-Plan (CSWMSP)
- Biodiversity Management Sub-Plan (BMSP)
- Construction Flood Emergency Response Plan (CFERP)

All plans will be available via Aconex

## **12.9. Site Set up**

Refer to the Construction Management Plan for the layout of site amenities including hoardings for the early works stage of the project.

During construction, any external lighting will have automatic timers to ensure lights are turned off after hours to reduce light pollution to surrounding receivers.

## **12.10. Storm Water / Rainwater**

Construction Soil and Water will be managed in accordance with VDM • Construction Soil and Water Management Sub-Plan (CSWMSP) attached at Appendix X.

## **12.11. Land Use and Ecology**

Refer to JK Environments Remediation Action Plan E32507BRrpt6Rev1 to identify previous use of site and the types of activities allowed in the development zone (agriculture, residential, industrial etc)

## **12.12. Waste Management**

Waste will be managed in accordance with Waste Audit's Combined Operational, Demolition, and Construction Waste Management Plan. This report details the quantities of each waste type generated during construction and the proposed reuse, recycling and disposal locations. A copy of this report will be on Aconex.

Throughout the early works construction phase 1, Hindmarsh will engage a waste contractor such as Just Skips or equivalent to provide waste bins for collection and separation of waste. On Site bins expected to be onsite include:

- 3m<sup>3</sup> food waste bin (collected weekly)
- 240L cardboard and paper recycling bin (collected fortnightly)
- 1,5m<sup>3</sup> general site waste bins
- 10m<sup>3</sup> general site waste bins
- 23m<sup>3</sup> general site waste bins

All general site waste bins will be used to collect all site waste from the building area. These smaller bins will then be tipped into the appropriate large site bins ready for truck collection and transportation to a recycling facility. Our contracted waste collection contractor will be contracted to ensure a minimum of 90% of all waste is recycled. Every month the facility will provide a log and waste recycling report on all materials delivered from our site the facility.

No waste will be conveyed to or deposited at any place that cannot lawfully be used as a waste facility for that waste.

### **12.13. Groundwater Management**

Investigations conducted by both JK Environmental & JK Geotechnics confirms minimal to no groundwater within the extend of the proposed works. Please refer to report Ref 32507R3rpt dated 23 August 2023 and the Remediation Action Plan E32507BRrpt6Rev2 for details and bore records outlining ground water extent. As part of the construction works, groundwater seepage into bulk excavations will be monitored.

Due to the concentration of some heavy metals (likely as a result of a wider regional issues), it is advised that some treatment may be required before off-site disposal of groundwater and stormwater during de-watering activities.

# Appendix A – Environmental and Sustainability Policy



## Environment & Sustainability Policy

This policy applies to all Hindmarsh employees and contractors, including (without limitation) employees and contractors Hindmarsh Construction Australia Pty Ltd, HCA Queensland Pty Ltd, Hindmarsh Living Pty Ltd, Hindmarsh Corporate Pty Ltd and any other related entities at the date of this policy or at any other time.

Hindmarsh operates with full appreciation and awareness that environmental protection and sustainability are principle to our ongoing success. Operations are compassionate to the environment, the local community and aim to support the ongoing sustainability of the environment.

Compliance with this policy will be monitored, audited and continually reviewed so as to remain effective and aligned with all of our operations.

Rowan Hindmarsh  
Chief Executive Officer



### Hindmarsh Environmental & Sustainability Pledge

We seek to meet our own environmental needs and the needs and expectations of clients, stakeholders, employees and the community by:

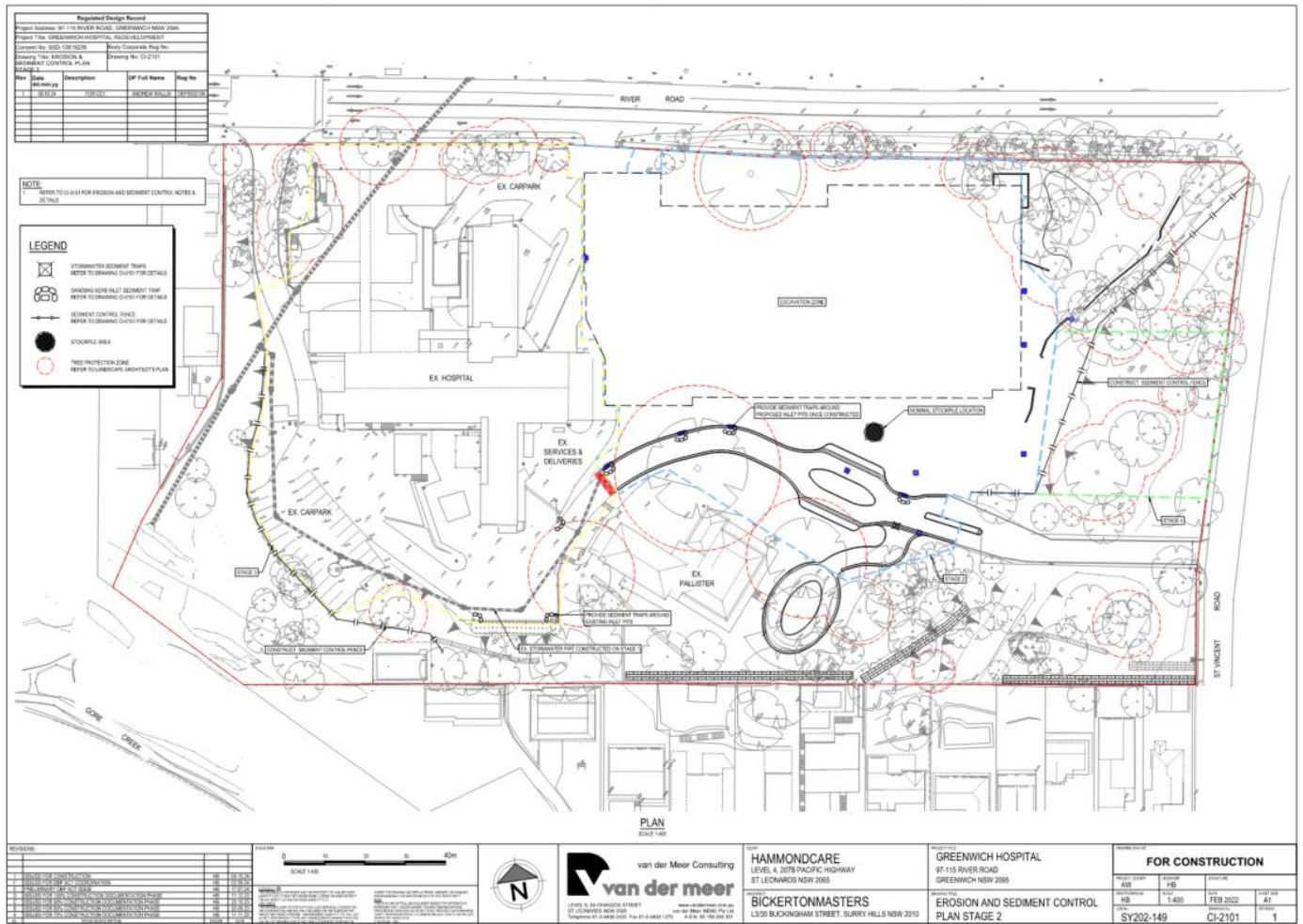
- Setting and continually reviewing measurable environmental objectives and targets. Backed by ongoing monitoring, reporting and analysis supporting continual improvement. Complimented by ongoing feedback at all levels.
- Prevent pollution and unnecessary resource consumption by setting targets and maintaining systems and processes which seek to minimise construction related impacts including noise, vibration, groundwater, air quality, land contamination, amenity and heritage.
- Promote a shared sense of ownership and responsibility for optimal environmental performance from board through to employees and contractors, whilst developing a culture of environmental respect and appreciation.
- Encourage and support environmental awareness through ongoing training and development of competencies particular to specific environmental impacts related to individual activities.
- Comply with all legal requirements including environmental Legislation, Regulations, Codes of Practice, Applicable Australian and other standards specific to Hindmarsh.
- Implement and maintain the Hindmarsh Management System and its Environmental elements to ensure all potential aspects and impacts are identified, evaluated and suitably eliminated or controlled.
- Foster and support continuous improvement at all levels including the identification of key environmental initiatives.

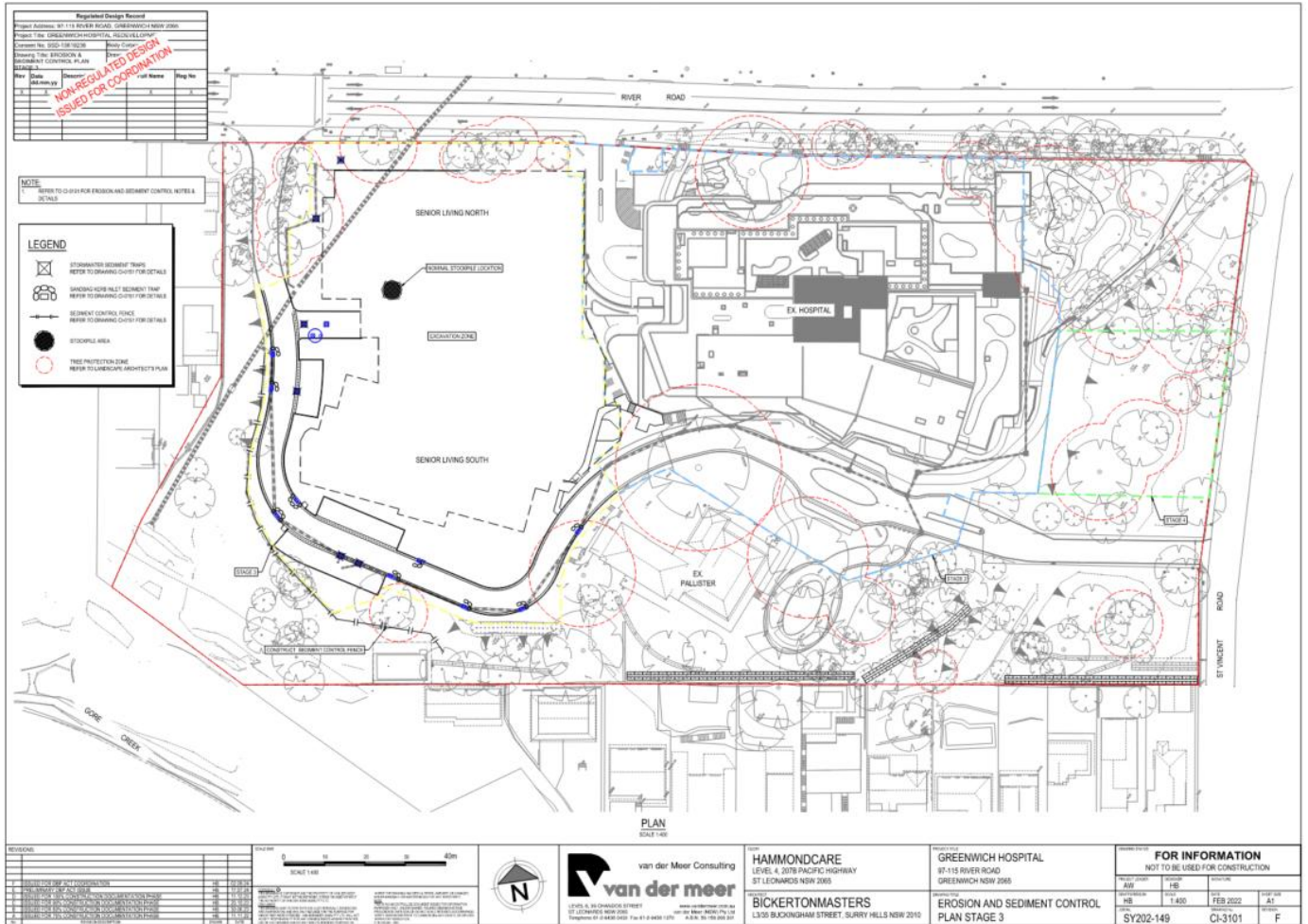
WARNING - Uncontrolled when printed! Refer to COMPASS for the latest version.

Authorised by: CEO  
Maintained by: SQE  
Last Revision Date: 22 March 2023

Next Review Date: March 2026  
Current Version: 4.0  
Page 1 of 1

# Appendix B – Environmental Features and Controls Layout





NO.	DESCRIPTION	DATE	BY
1	ISSUED FOR COORDINATION	18/02/2022	AM
2	FOR INFORMATION	18/02/2022	AM
3	FOR INFORMATION	18/02/2022	AM
4	FOR INFORMATION	18/02/2022	AM
5	FOR INFORMATION	18/02/2022	AM
6	FOR INFORMATION	18/02/2022	AM
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8	FOR INFORMATION	18/02/2022	AM
9	FOR INFORMATION	18/02/2022	AM
10	FOR INFORMATION	18/02/2022	AM

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9	FOR INFORMATION	18/02/2022	AM
10	FOR INFORMATION	18/02/2022	AM



van der Meer Consulting  
**van der meer**  
 LEVEL 6, 36 CHAMBERS STREET  
 SYDNEY NSW 2000  
 Telephone: 61 61 9550 1100 Fax: 61 61 9550 1101  
 www.vandermeer.com.au  
 G.P.O. Box 1055 Sydney NSW 2000

HAMMONDCARE  
 LEVEL 4, 2078 PACIFIC HIGHWAY  
 ST LEONARDS NSW 2055  
 PROJECT NO: BICKERTONMASTERS  
 1/355 BUCKINGHAM STREET, SURRY HILLS NSW 2010

PROJECT NO: GREENWICH HOSPITAL  
 97-115 RIVER ROAD  
 GREENWICH NSW 2055  
 PROJECT TITLE: EROSION AND SEDIMENT CONTROL  
 PLAN STAGE 3

FOR INFORMATION NOT TO BE USED FOR CONSTRUCTION			
NO.	DESCRIPTION	DATE	BY
1	FOR INFORMATION	18/02/2022	AM
2	FOR INFORMATION	18/02/2022	AM
3	FOR INFORMATION	18/02/2022	AM
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8	FOR INFORMATION	18/02/2022	AM
9	FOR INFORMATION	18/02/2022	AM
10	FOR INFORMATION	18/02/2022	AM

# Appendix C – Construction Traffic and Pedestrian Management Sub-Plan (CTPMSP)



CONSTRUCTION TRAFFIC & PEDESTRIAN  
MANAGEMENT SUB-PLAN (CTPMSP)

GREENWICH HOSPITAL REDEVELOPMENT

97-115 RIVER ROAD

GREENWICH NSW 2065

SSD-13619238



*21 November 2025*

Our Reference: 80675

**SITE Traffic Pty Ltd**

**SITE INTEGRATED TRAFFIC ENGINEERING**

ABN: 33 651 657 091

*a TTS Group company*

**Brisbane**

L1 16 McDougall Street

PO Box 1279

Milton QLD 4064

tel (07) 3554 1364

[admin@sitetraffic.com.au](mailto:admin@sitetraffic.com.au)

**Gold Coast**

L15 Corporate Centre One

2 Corporate Court

Bundall QLD 4217

tel (07) 5591 9575

[www.sitetraffic.com.au](http://www.sitetraffic.com.au)

 **Brisbane**

Level 1, 16 McDougall Street  
PO Box 1279  
Milton QLD 4064

 **(07) 3554 1364**

 **Gold Coast**


Level 15, Corporate Centre One  
2 Corporate Court  
Bundall QLD 4217

 **(07) 5591 9575**

 **admin@sitetraffic.com.au**

 **www.sitetraffic.com.au**

**Document Status**

Rev.	Author	Certified		Description	Date
		Name	Signature		
1	Marko Mrsic	Harry Dempsey RPEQ 27009 - RPEng		Issue for approval	21.11.2025

# Table of Contents

1.	Introduction	1
2.	Proposed Development	2
3.	Existing Site Conditions	3
4.	Existing Traffic Conditions	4
4.1	Road Network	4
4.2	Traffic Controls	5
4.3	Traffic Volumes	6
4.4	Public Transport	7
4.5	Pedestrians and Active Transport	8
5.	Construction Staging and Work Hours	9
5.1	Revised Construction Staging	9
5.2	Construction Work Hours	10
6.	Road Safety Audit	11
7.	Construction Traffic Management	13
7.1	General Mitigation Measures	13
7.2	Construction Traffic	13
7.3	Site Accesses	14
7.4	Access Management	15
7.5	Vehicle Swept Path Analysis	16
7.5.1	Gate 1 Vehicle Swept Paths	16
7.5.2	Gate 2 Vehicle Swept Paths	16
7.5.3	Gate 3 Vehicle Swept Paths	17
7.5.4	River Road/St Vincents Road Vehicle Swept Paths	18
7.6	Haulage and Access Routes	19
7.7	Works Zones	19
7.8	Traffic Guidance Scheme	19
7.9	Pedestrian Management	20
7.10	Emergency Vehicle Access	20
7.11	Public Road Integrity	20
7.12	Workforce Parking	21
7.13	Materials Handling	21

7.14 Public Notifications and Consultation

21

**Figure Index**

Figure 1:	Site Locality	1
Figure 2:	Approved Plan of Development	2
Figure 3:	Existing Site Plan and Aerial View	3
Figure 4:	Existing Road Network Plan	5
Figure 5:	Key Traffic Controls	6
Figure 6:	Existing Mid-Block Peak Hour Traffic Volumes	6
Figure 7:	Bus Stop Locations	7
Figure 8:	Existing Pedestrian Footpaths and Road Crossings	8
Figure 9:	Combined Stage 2 and Stage 3 Demolition Plan	9
Figure 10:	Combined Stage 2 and Stage 3 Construction Plan	10
Figure 11:	Construction Access Gates	14
Figure 12:	Gate 1 – Vehicle Swept Paths	16
Figure 13:	Gate 2 – Vehicle Swept Paths	16
Figure 14:	Gate 3 – Vehicle Swept Paths	17
Figure 15:	St Vincents Road Kerbside Parking Changes	17
Figure 16:	River Road/St Vincents Road – Vehicle Swept Paths	18
Figure 17:	Available Sight Distance (MGSD) – River Road/St Vincents Road	18
Figure 18:	Primary Haulage and Secondary Access Routes	19

**Appendices**

- A Vehicle Swept Path Plans
- B Traffic Guidance Scheme

# 1. Introduction



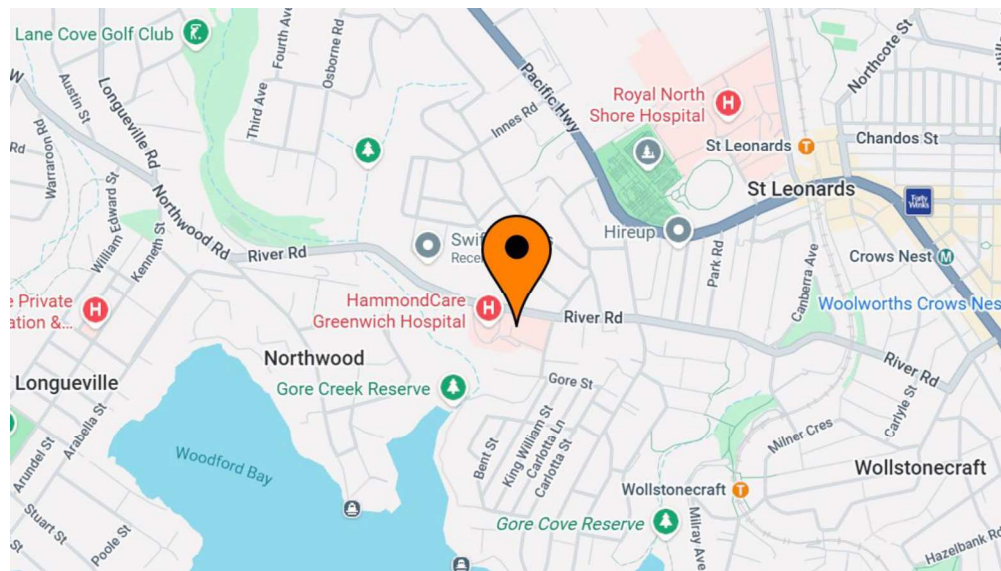
**ITE Traffic** has prepared this revised Construction Traffic & Pedestrian Management Sub-Plan (CTPMSP) as part of a Modification Application to enable the concurrent delivery of Stage 2 and Stage 3 of Greenwich Hospital Redevelopment.

The revised construction methodology is to consolidate Stage 2 and Stage 3 to achieve a shorter overall construction period and to minimise prolonged impacts.

As such the proposed construction program has been revised as follows:

- ▶ **Stage 1 – Early Works**, including site establishment, landscaping, and enabling infrastructure works.
- ▶ **Stage 2 – Health Building and Stage 3 Serviced Seniors Living**, providing the new health building, serviced seniors living buildings, and basement levels.
- ▶ **Stage 4 – Respite**, delivery of the respite building on the eastern edge of the site.

The subject site is located at 97-115 River Road Greenwich as shown in Figure 1.

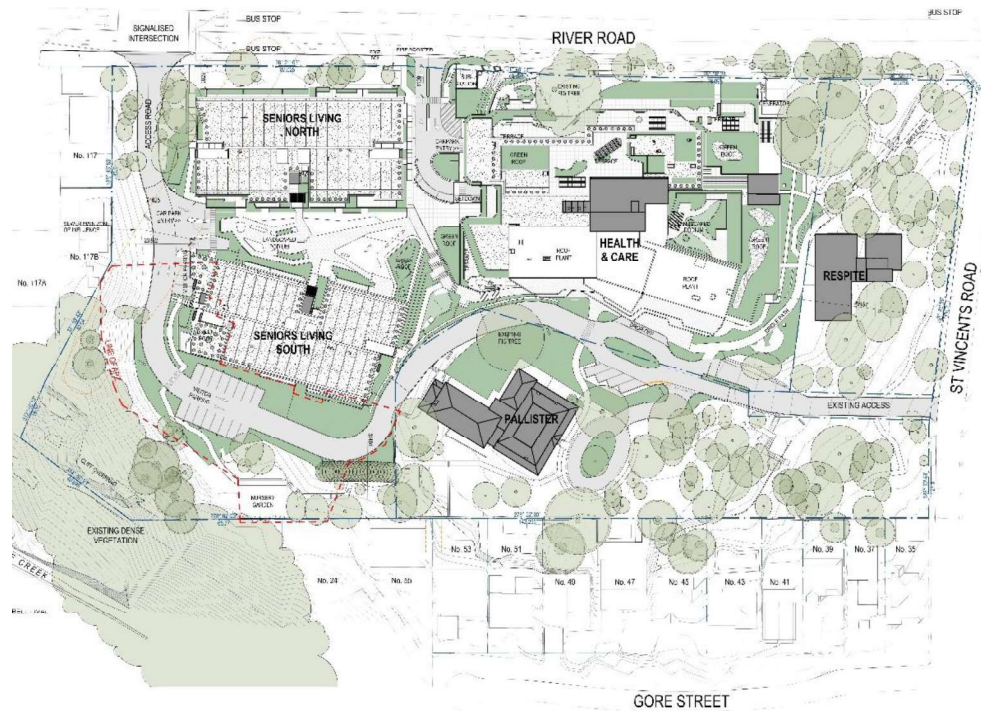


**Figure 1: Site Locality**

## 2. Proposed Development

The approved redevelopment involves:

- ▶ Demolition of the existing hospital building and associated facilities with the exception of heritage listed Pallister House.
- ▶ Construction of a new hospital facility and integrated healthcare services, including:
  - A new 7 storey main hospital building offering 130-bed residential aged care and health care facilities
  - Two new 5-6 storey serviced self-care buildings offering 89 services senior living units
  - A new 2-3 storey respite care building.
- ▶ Construction of associated site facilities and services, including pedestrian and vehicular access to basement parking.
- ▶ Site landscaping and infrastructure works.
- ▶ Preservation of Pallister House which will continue to house dementia care and administrative functions.



**Figure 2: Approved Plan of Development**

### 3. Existing Site Conditions

The existing hospital provides rehabilitation with an integrated day therapy and home-based rehabilitation services, inpatient palliative care services and day respite services as well as psycho geriatric assessment and inpatient care.

The services provided by the hospital are currently located in several interconnected buildings throughout the site as shown in Figure 3.

Vehicle access to the site is as follows:

- ▶ Signalised intersection with River Road (west).
- ▶ Mid-block access via River Road.
- ▶ All movements access via St Vincents Road.

Pedestrian access to the site is generally limited to the River Road frontage.

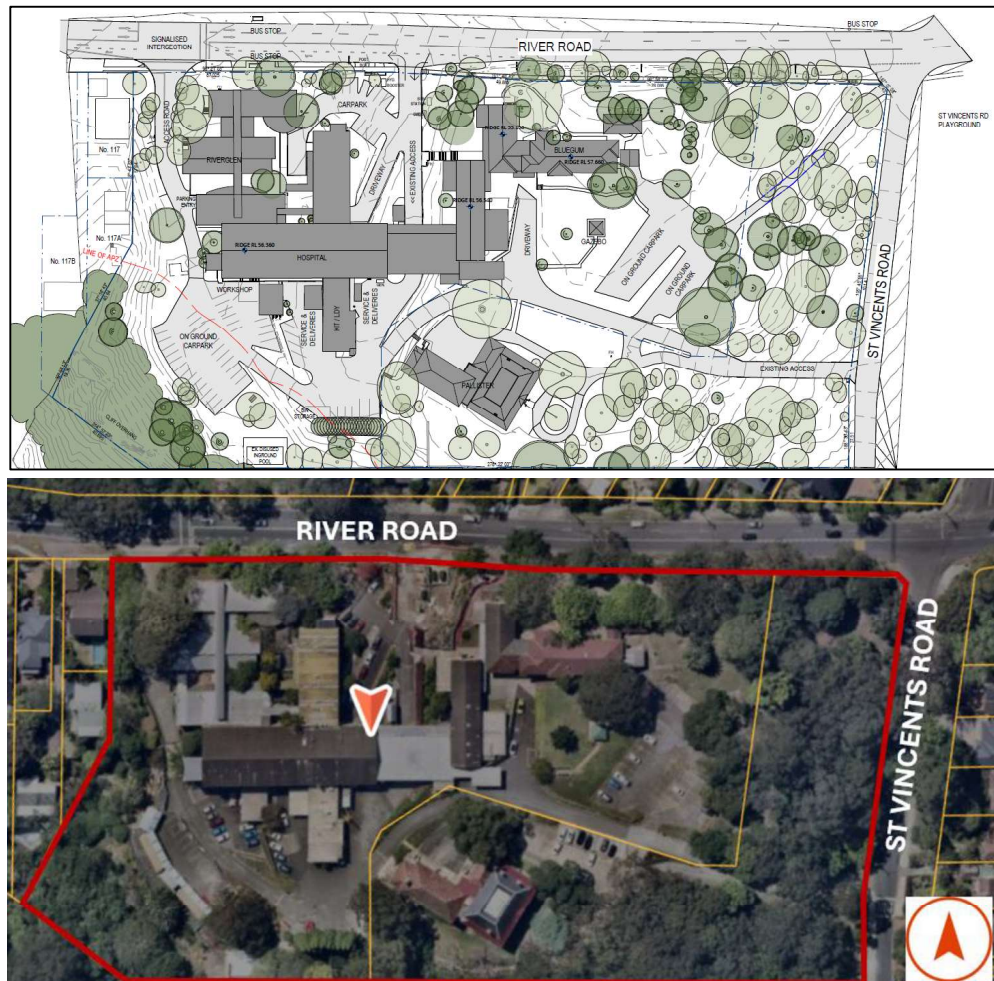


Figure 3: Existing Site Plan and Aerial View

## 4. Existing Traffic Conditions

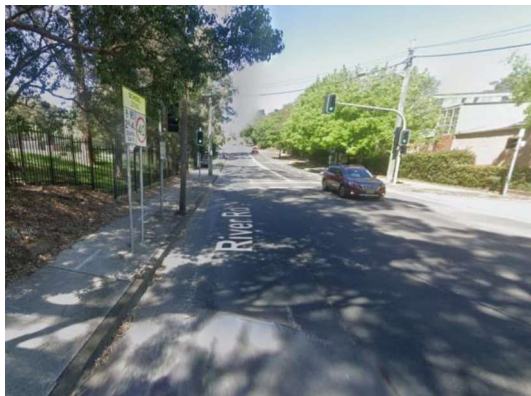
### 4.1 Road Network

The road network classifications that directly service the site are as follows and shown in Figure 4 overleaf:

- ▶ **Pacific Highway** – a State Road and Arterial route providing the major north/south connection between Sydney and Hornsby.



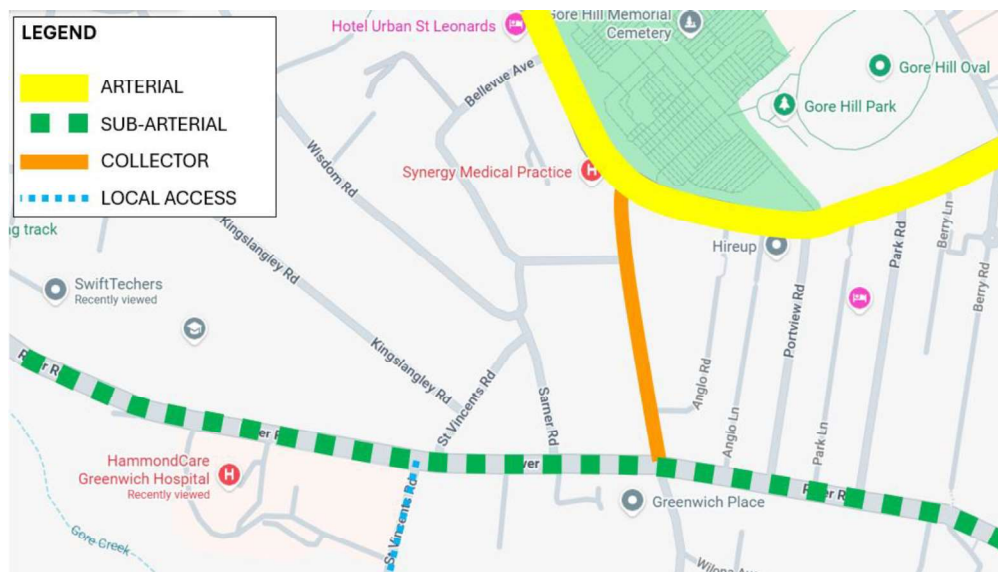
- ▶ **River Road** – a Regional Road and Sub-Arterial route which connects Longueville and Crows Nest.



- ▶ **Greenwich Road** – a Collector route which links River Road to the Pacific Highway.



- ▶ **St Vincents Road** – a local access road which connects to River Road.



**Figure 4: Existing Road Network Plan**

## 4.2 Traffic Controls

Key traffic controls along the road network in the vicinity of the site are shown in Figure 5 and include:

- ▶ Signalised intersection of Pacific Highway/Greenwich Road.
- ▶ Signalised intersection of River Road/Greenwich Road.
- ▶ Signalised intersection of River Road/main Hospital access.
- ▶ Give Way intersection control of River Road/St Vincents Road.
- ▶ 50 km/h sign posted speed limit along River Road and St Vincents Road.
- ▶ 40km/h School Zone (8 - 9.30am, 2.30 - 4pm School Days) along River Road between St Vincents Road and Standish Street.

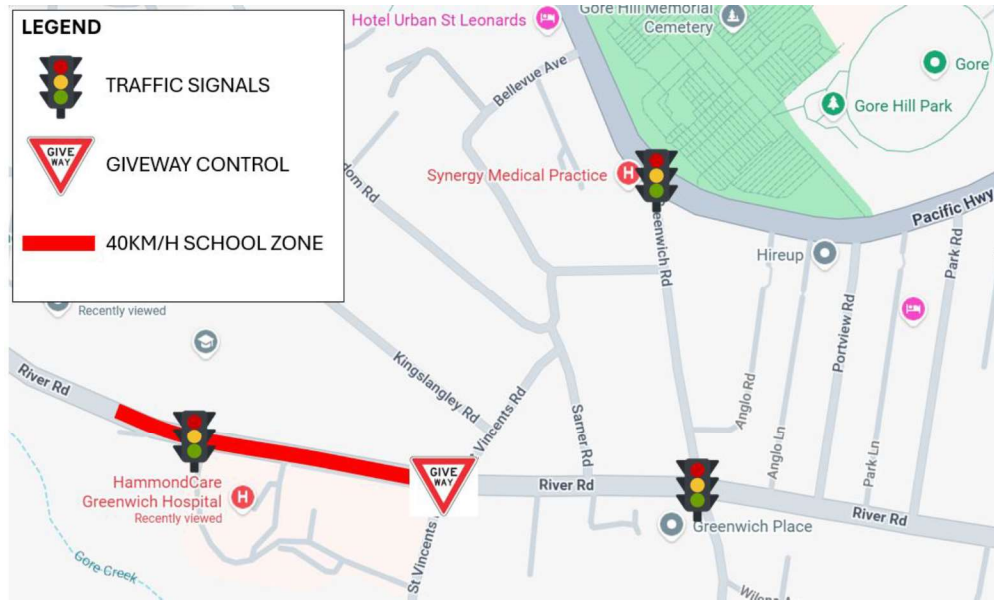


Figure 5: Key Traffic Controls

### 4.3 Traffic Volumes

Recently surveyed morning (AM) and afternoon (PM) peak hour mid-block traffic volumes adjacent to the subject site are provided in Figure 6.

The AM and PM peak hours were found to be 8.00am-9.00am and 5.00pm to 6.00pm respectively.

It is noted these volumes include existing traffic associated with the hospital operations.

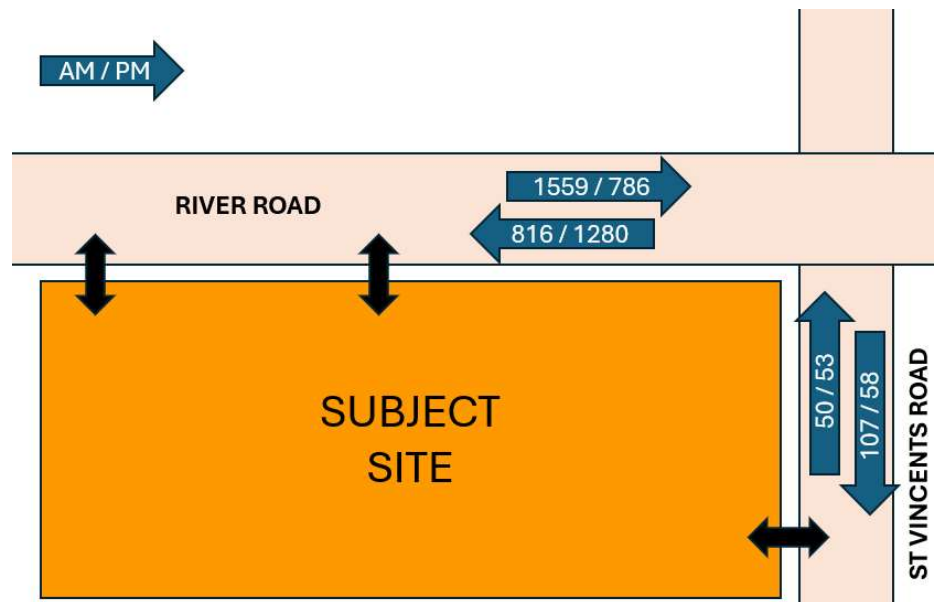
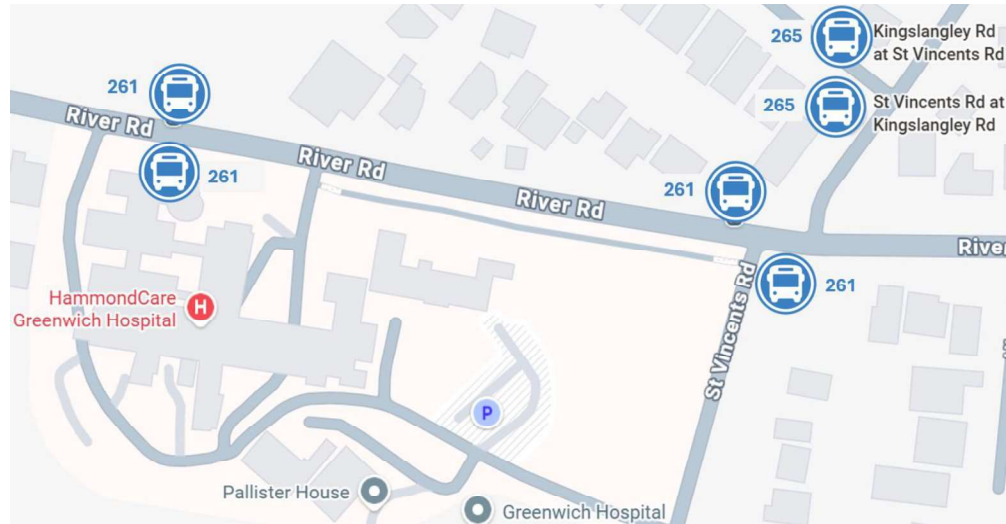


Figure 6: Existing Mid-Block Peak Hour Traffic Volumes

## 4.4 Public Transport

The subject site is within close proximity to 6 bus stops along River Road, St Vincents Road and Kingslangley Road as shown in Figure 7.



**Figure 7: Bus Stop Locations**

- ▶ **Bus Route 261** operates along River Road between Lane Cove and the City via Longueville, Northwood and Crows Nest and North Sydney. This route operates as a 6 days per week service with a number of weekday services extending to Chatswood. Bus stops are provided on either side of River Road adjacent to the Hospital's signalised access and also in the vicinity of St Vincents Road.
- ▶ **Bus Route 265** operates along Greenwich Road and River Road (part) connecting between Lane Cove and McMahons Point via St Leonards, Crows Nest and North Sydney. This service operates on a full-time basis on weekdays with peak period frequencies of 30 minutes and 60-minute frequencies at other times and daytime on Saturdays. Bus stops for this service are located either side of St Vincents Road/ Kingslangley Road intersection.

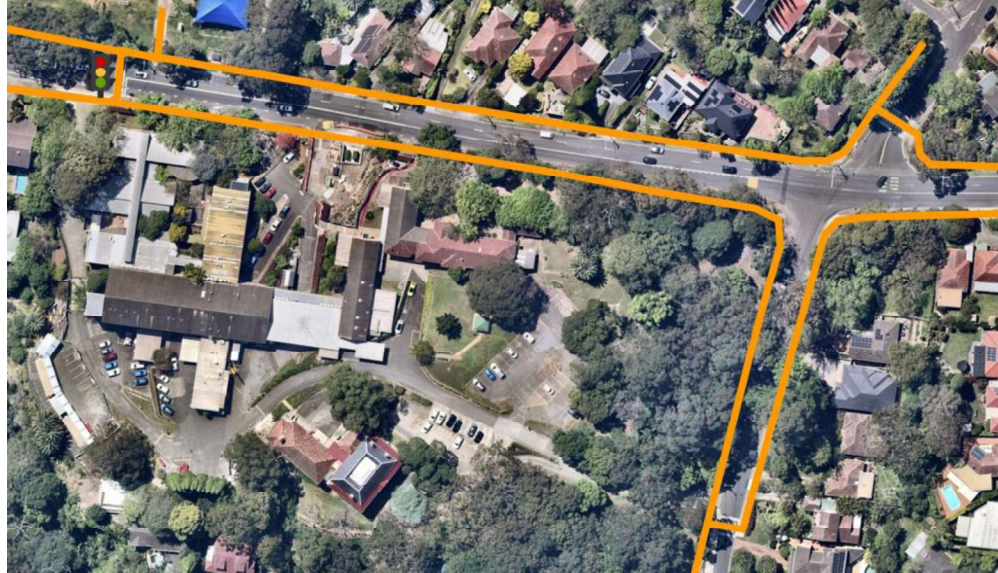
Two train stations are within 1km east of the site, namely:

- ▶ St Leonards Station, and
- ▶ Wollstonecraft Station.

It is noted that commuter car parking is provided at the Wollstonecraft Station.

## 4.5 Pedestrians and Active Transport

The extent of existing pedestrian footpaths and road crossings surrounding the subject site are shown in Figure 8.



**Figure 8: Existing Pedestrian Footpaths and Road Crossings**

There are currently no existing on-street bicycle lanes within the vicinity of the subject site.

## 5. Construction Staging and Work Hours

### 5.1 Revised Construction Staging

The revised overall staging program (Rev 4) is provided below:

Stage	Scope	Previous Program (Rev3)	Revised Program (Rev4)
1	<p>Early Works comprises enabling and external works. Works include:</p> <ul style="list-style-type: none"> <li>Decommissioning and capping of existing services</li> <li>Installation of temporary MSB, substations, potable water, power and comms to the hospital and Pallister House</li> <li>Civil and stormwater works and new internal access road</li> <li>Landscape works (nursery garden, southern boundary berm, revegetation of southwest slope)</li> <li>Other temporary services</li> </ul>	<p>Commence: Q4 2024 Complete: Q4 2025</p>	<p>Commence: Q4 2024 Complete: Q1 2026</p>
2	<p>Health Buildings</p> <ul style="list-style-type: none"> <li>Demolition and earthworks for the hospital and seniors living building sites</li> <li>Basement (shared with Stage 3)</li> <li>Full construction of the new hospital building</li> </ul>	<p>Commence: Q4 2029 Complete: Q4 2031</p>	<p>Commence: April 2026 Complete: Q3 2029</p>
3	<p>Serviced Seniors Living – North and South</p> <ul style="list-style-type: none"> <li>Construction of two 5-6 storey seniors living buildings</li> <li>Basement (shared with Stage 2)</li> </ul>	<p>Commence: Q4 2031 Complete: Q1/2 2033</p>	<p>Commence: April 2026 Complete: Q2 2028</p>
4	<p>Respite Care Building</p> <ul style="list-style-type: none"> <li>Construction of two storey respite building</li> </ul>	<p>Commence: Q1 2033 Complete: Q4 2033</p>	<p>Commence: Q1 2033 Complete: Q4 2033</p>

The now consolidated staging plans for the concurrent Stage 2 and Stage 3 demolition and construction activities are provided in Figure 9 and Figure 10.

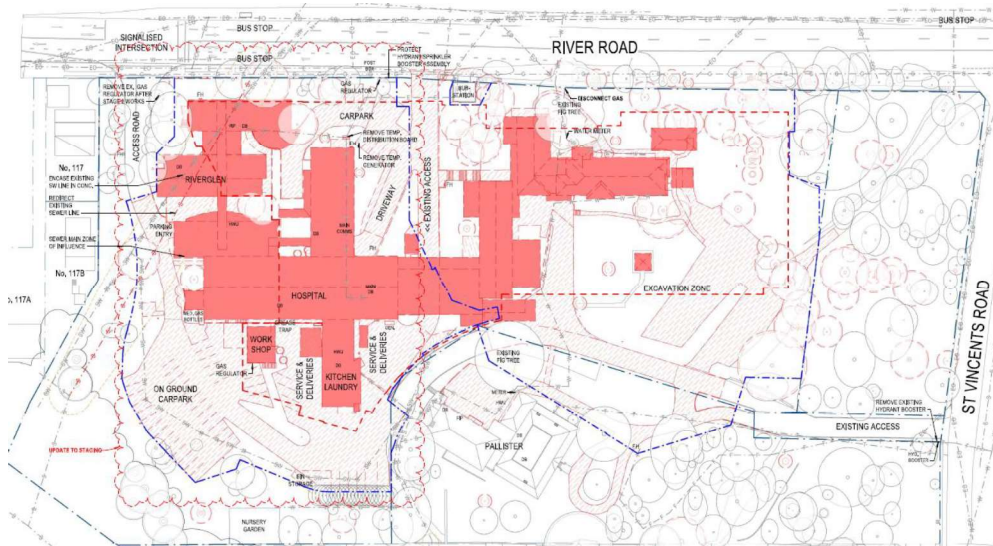


Figure 9: Combined Stage 2 and Stage 3 Demolition Plan



**Figure 10: Combined Stage 2 and Stage 3 Construction Plan**

## 5.2 Construction Work Hours

Typical construction work hours shall be as follows:

- ▶ 7:30 am to 5:30 pm Monday to Friday.
- ▶ 8:00 am to 1:00 pm Saturday.
- ▶ No work Sunday and Public Holidays.

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

- ▶ 9:00 am to Midday and 2:00 pm to 5:00 pm Monday to Friday.
- ▶ 9:00 am to Midday Saturday.
- ▶ No work Sunday and Public Holidays.

## 6. Road Safety Audit

A construction stage Road Safety Audit was previously prepared by Positive Traffic Pty Ltd in November 2024 (Report No: PT124067r01\_V7).

The key findings of this audit and response comments are reproduced below:

No.	Item	Description	Risk	Audit Team Assessment/Comment	SITE Traffic Response
1.	Inconsistent CTMP / TGS Plans	Discrepancies in TGS and CTMP traffic management plans	Low	Consistency of information in particular placement of traffic controls and signage should be considered across all plans to avoid confusion	Comments based on an old draft version of the CTMP/TGS's and no longer valid.
2.	TGS Plan	Advisory signage for trucks turning around St Vincents Road intersection	Med	Consideration for expansion of TGS signage plan to include 'trucks turning' advisory signage for St Vincents Road / River Road intersection	Trucks advisory signage is incorporated into the current TGSs.
3.	Protection of pedestrians on south – west corner of St Vincents Road intersection	Provision of barrier separation of pedestrians using poor condition pathway on south – west corner of St Vincents Road intersection	High	Consideration for removable barriers to provide separation to pedestrians / large vehicles.	Barriers would be problematic at this location and would narrow the existing footpath /kerb ramp area. Left turns out of St Vincents Rd will be minimal and not the primary haulage route.
4.	Driveway Access Grades	Existing steep grade of St Vincents Road access	High	Confirm suitability of driveway for large vehicle access having regard to existing steep grades and limited grade transitions	The main contractor has confirmed in writing that the driveway gradients will not be an issue during construction.
5.	School Consultation	Plan of Management for School communications	Med	Consideration of an ongoing communications strategy for school parents / staff parking advisory of any changes to on-street parking availability and construction activities	Refer to Section 7.14 of this document.
6.	Movement of large vehicles during school peak periods	Ambiguity of sub CTMP references to heavy vehicle access during school peak periods	High	Access by large heavy vehicles during school peak periods should be avoided in all instances	Refer to commentary below.

On the basis that there are no fundamental changes to the existing road and transport network or the CTPMSP, with the exception of combining Stages 2 and 3, it is our professional view that an additional road safety audit would not be necessary.

We confirm that the recommendations of Items 1 to 5 above have been carried over into this revised CTPMSP.

Having regard to Item 6, we note that restricting heavy vehicle movements during the morning and afternoon school peaks will effectively halve the working day and accessibility of heavy vehicles by limiting their access times to a short 5-hour window between 9.30 am to 2.30 pm.

We also note such restrictions are not conditioned as part of the Development Consent.

If such limiting restrictions were imposed, the overall construction program would be extended significantly, and in turn lengthen the duration of impacts to the broader community. This would also have substantial cost implications to the construction budget.

In view of this matter, and to help mitigate the risks of heavy vehicles during school peaks, it is instead recommended that the head contractor of each stage closely monitor the interaction of vehicles and school students during the critical peaks.

The head contractor shall then meet with representatives of Greenwich Public School on a bi-monthly basis (or as otherwise deemed necessary) to discuss any identified safety concerns and implement reasonable mitigation measures in response.

This CTPMSP also recommends reducing the traffic speed in St Vincents Road to 20km/h during construction times.

## 7. Construction Traffic Management

### 7.1 General Mitigation Measures

The proposed measures to mitigate potential road safety and efficiency during construction (as per Condition C15(d)) include:

- ▶ Limit traffic speeds to 40km/h along River Road during construction hours.
- ▶ Limit traffic speeds to 20km/h along St Vincents Road during construction hours.
- ▶ Limit all construction traffic at Gate 2 to Left in/Left out only movements.
- ▶ Widen the Hospital access connection at Gate 2 to accommodate large trucks.
- ▶ Provide specific measures in St Vincents Road including:
  - prohibition of parking along the western kerb (See Figure 15).
  - widen Hospital access connection to accommodate large trucks.
  - Managing exiting construction traffic so that exiting trucks are precluded from passing entering trucks on St Vincents Road.
- ▶ Provide temporary fencing and/or site hoarding and gated accesses around the site to restrict non-bona fide pedestrian and vehicle movements.
- ▶ Provide Traffic Controllers at each Gate to ensure the safe passage of pedestrians and cyclists, and to control truck exit/release movements.
- ▶ Prepare specific Traffic Management Plans for the infrequent access of any vehicles larger than Truck and Dog configurations.

### 7.2 Construction Traffic

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

Vehicle Type	Vehicle Length
Semi-Trailer (AV) - infrequent	19m
Truck & Dog Tipper	18.1m (or worst-case 20.0m Truck & Quad Dog)
Heavy Rigid Vehicles (HRV)	12.5m
Medium rigid vehicles (MRV)	8.8m
Small rigid vehicles (SRV)	6.4m
Mobile cranes	9.8m - 13.5m
Concrete agitators/pumps	8.8m – 9.8m
Utility vehicle/Van (B99)	5.2m

The maximum estimated total truck movements (inbound plus outbound) are expected to be as follows:

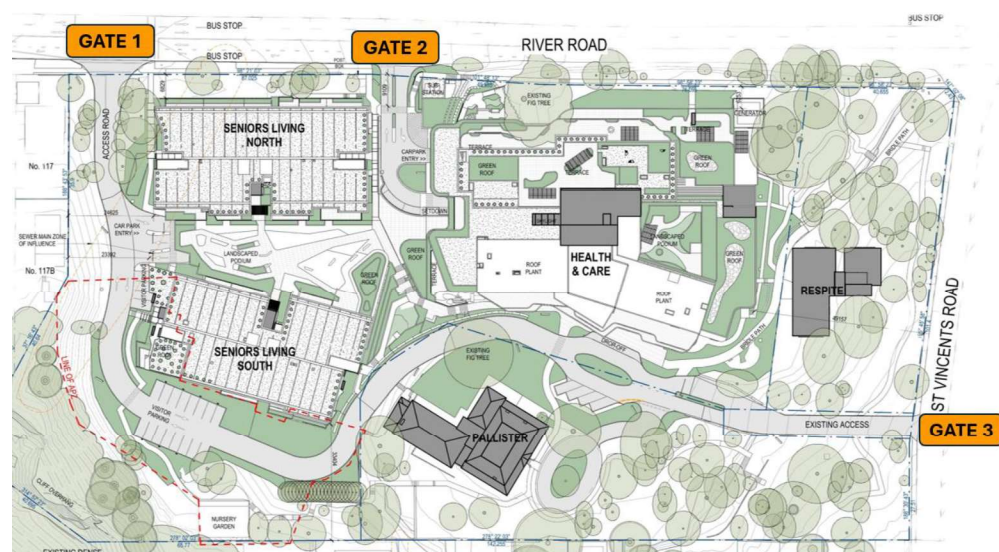
	Bulk Excavation	Structure & Fit-out	External Works
Per Day	75	55	25
Per Hour	9	8	5

The delivery/dispatch of any heavy plant via oversized vehicles will occur outside of normal commuter and school peaks.

Any infrequent access movements required for such oversized vehicles (large structured components or machinery etc) shall be subject to separate specific traffic management plans.

### 7.3 Site Accesses

Access to the site will be via the 3 existing accesses, namely Gates 1 and 2 on River Road and Gate 3 on St Vincents Road as shown in Figure 11.



**Figure 11: Construction Access Gates**

The permitted vehicle movements for all construction vehicles at each Gate shall be as follows:

- ▶ **Gate 1:** All movements permitted (under full signal control).
- ▶ **Gate 2:** Left in/Left out only.
- ▶ **Gate 3:** Right in/Left out only.

## 7.4 Access Management

Each Gate shall be manned by a qualified Traffic Controller (TC). The role of each TC at each Gate shall generally be as follows:

▶ **Gate 1 TC:**

- Assist in the safe passage of pedestrians and cyclists along and across River Road.
- Do not allow vehicles (or pedestrians) to traverse the intersection without the appropriate and legal traffic signal control. Ensure all traffic movements adhere to the signal controls.
- Manage the inbound and outbound flow of construction vehicles via UHF radio communications.
- Do not release large vehicles out of the site unless they have a green traffic signal and pedestrians/cyclists are clear of the crossings.
- Hold outbound vehicles on site if an inbound vehicle is about to enter within a 4-minute window (i.e. 2 signal cycles) to avoid conflicts.
- Unless an emergency prevails, general traffic and entering construction traffic on River Road shall not be stopped. If for any reason entering construction traffic needs to be stopped or cannot enter, it should instead be waived on to circulate the block and re-enter.

▶ **Gate 2 TC:**

- Assist in the safe passage of pedestrians and cyclists along River Road.
- Ensure construction vehicles do not turn right out of the site.
- Manage the inbound and outbound flow of construction vehicles via UHF radio communications. Hold outbound vehicles on site if an inbound vehicle is about to enter to avoid conflicts.
- Unless an emergency prevails, general traffic and entering construction traffic on River Road shall not be stopped. If for any reason entering construction traffic needs to be stopped or cannot enter, it should instead be waived on to circulate the block and re-enter.

▶ **Gate 3 TC:**

- Assist in the safe passage of pedestrians and cyclists along St Vincents Road.
- Ensure inbound construction vehicles to this Gate radio ahead within 3 to 5 minutes of arrival. Do not let vehicles exit the site if a vehicle is entering within this timeframe.
- Unless an emergency prevails, general traffic and entering construction traffic on St Vincents Road shall not be stopped. If for any reason entering construction traffic needs to be stopped or cannot enter, it should instead be waived on to circulate the block and re-enter.

## 7.5 Vehicle Swept Path Analysis

Vehicle swept path analysis has been carried out using AutoDesk Vehicle Tracking for a worst-case oversized Truck and Quad Dog configuration at each access Gate as well as the intersection of River Road/St Vincents Road.

Vehicle Swept Path Plans are provided in Appendix A and summarised below.

### 7.5.1 Gate 1 Vehicle Swept Paths

As shown in Figure 12, there will be no fundamental issues with Truck and Quad Dog vehicles using this access Gate.

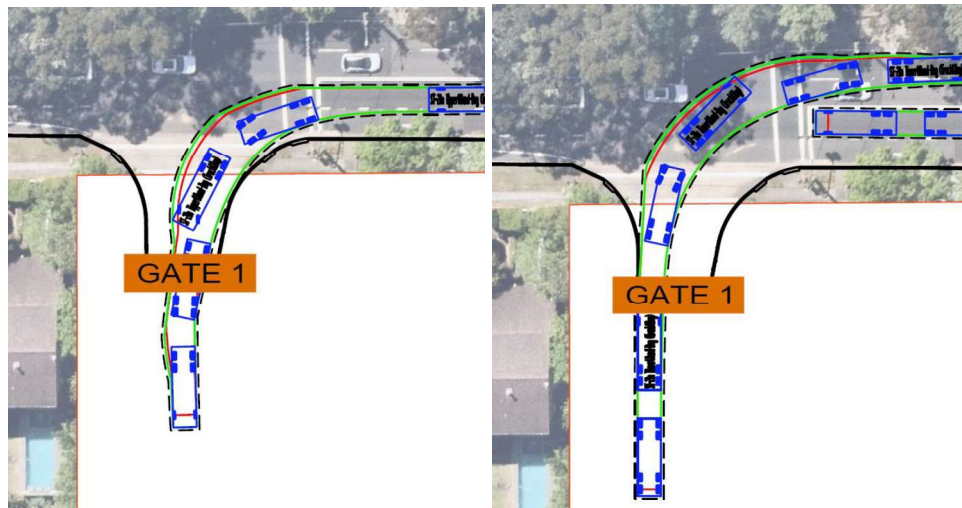


Figure 12: Gate 1 – Vehicle Swept Paths

### 7.5.2 Gate 2 Vehicle Swept Paths

As shown in Figure 13, there will be no fundamental issues with Truck and Quad Dog vehicles using this access Gate.

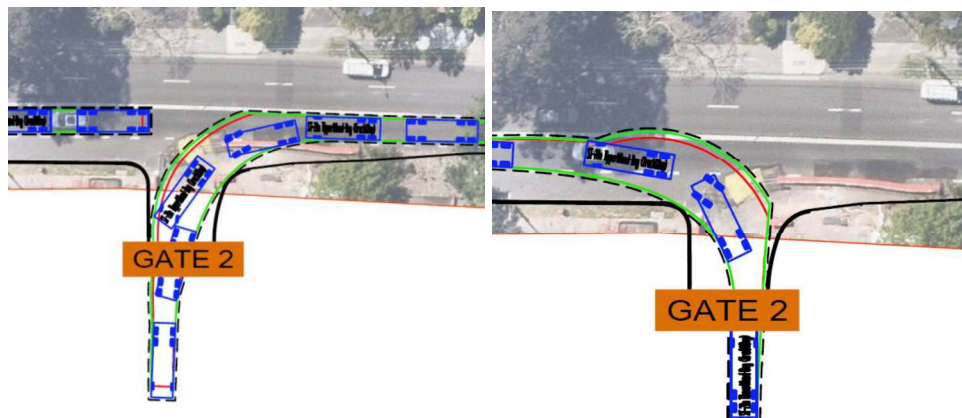


Figure 13: Gate 2 – Vehicle Swept Paths

### 7.5.3 Gate 3 Vehicle Swept Paths

As shown in Figure 14, both inbound and outbound vehicles will be required to use the eastern side of St Vincents Road to access the site.

Parking is currently permitted outside of school drop off/pick up hours along the eastern side of St Vincents Road, and unrestricted parking on the western side.

In order to facilitate adequate and safe vehicle turn movements and access arrangements it is proposed to adjust the kerbside signage and parking arrangements as shown in Figure 15 and also represented in the swept path plans.



Figure 14: Gate 3 – Vehicle Swept Paths

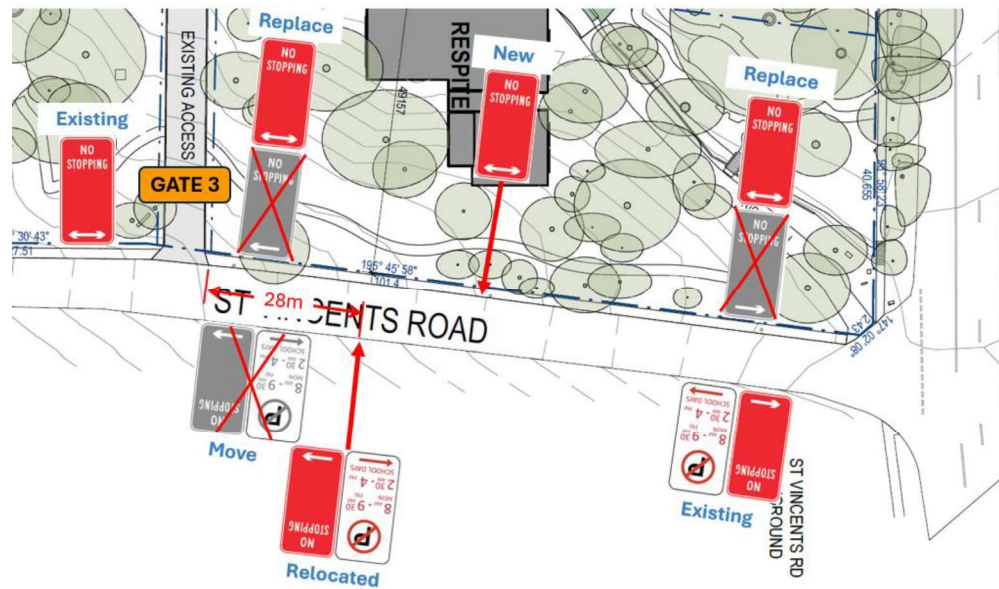


Figure 15: St Vincents Road Kerbside Parking Changes

### 7.5.4 River Road/St Vincents Road Vehicle Swept Paths

As shown in Figure 16, there will be no fundamental issues with Truck and Quad Dog vehicles using this intersection.



**Figure 16: River Road/St Vincents Road – Vehicle Swept Paths**

It is noted that right turns out of St Vincent Drive will be acceptable based on the Minimum Gap Sight Distance (MGSD) available at this location and on the premise traffic speeds during construction will be reduced to 40km/h along River Road.

Based on a 50km/h ‘design’ speed and critical gap acceptance time of 5 seconds, Austroads Guide to Road Design Part 4A requires a MGSD of 69m. The available MGSD for traffic turning right out of St Vincents Road is depicted in Figure 17 which exceeds Austroads requirements and allows for safe right turn movements.

It is also worthy to note that the 2 sets of traffic signals either side of this intersection along River Road will generate gaps in traffic flows to further allow sufficient time for right turn movements during each signal cycle.

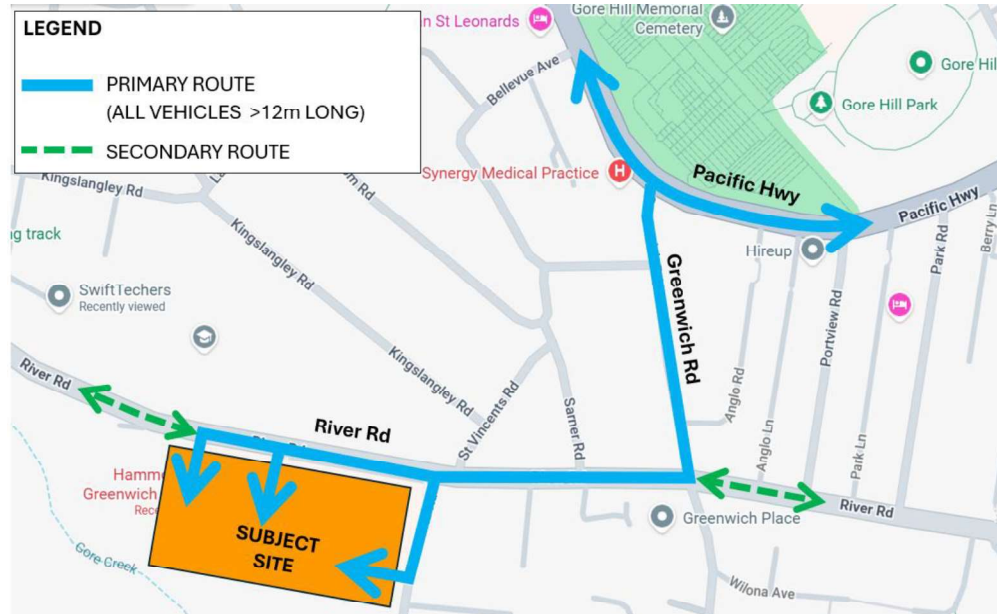


**Figure 17: Available Sight Distance (MGSD) – River Road/St Vincents Road**

## 7.6 Haulage and Access Routes

The primary haulage and secondary access routes to/from the site shall be as shown in Figure 18.

All heavy vehicles exceeding 12m in length shall only follow the primary access route.



**Figure 18: Primary Haulage and Secondary Access Routes**

## 7.7 Works Zones

There are no requirements for any on-street Works Zones for the day-to-day construction activities. There will be adequate space within the site for materials storage, loading/unloading and vehicle manoeuvring.

There shall be no loading/unloading of vehicles along River Road or St Vincents Road, likewise that shall be no storage of equipment or materials outside of the subject site.

## 7.8 Traffic Guidance Scheme

A Traffic Guidance Scheme (TGS) has been developed for implementation on the public road network for the full duration of Stages 2 and 3 of construction.

Of key importance to the TGS is:

- ▶ The placement of 1 x Traffic Controller at each of the 3 access Gates.
- ▶ Temporary reduction of traffic speeds on River Road to 40km/h during site hours.

- ▶ Temporary reduction of traffic speeds on St Vincents Road to 20km/h during site hours.
- ▶ Advanced warning signs of 'Trucks Turning'.
- ▶ Pedestrian caution signs at each Gate crossing.

The TGS for implementation is provided in Appendix B which also includes an after-care arrangement.

It is noted that the revised TGS strictly precludes any requirements for a traffic controller to stop traffic along River Road or St Vincents Road or in the vicinity of operational traffic signals. Any such arrangements would be completely unnecessary for construction activity and represents a significant safety risk.

## 7.9 Pedestrian Management

Whilst pedestrians are considered vulnerable road users, we note that all existing pedestrian infrastructure will remain as per existing and no pedestrian detours are proposed or considered necessary.

Pedestrians walking along the site frontage and site boundaries will be protected by temporary construction fencing and/or site hoarding.

Traffic controllers shall always supervise vehicle movements into and out of the site at all 3 Gates ensuring pedestrians have a safe passage and are always separated from vehicle movements.

## 7.10 Emergency Vehicle Access

The proposed works will not adversely affect access to the site by emergency vehicles. Emergency protocols on the site would specify a requirement for a traffic controller to assist with emergency access on the site as and when needed.

Traffic controllers will hold all existing traffic from exiting the site in the event of a passing emergency vehicle along River Road or St Vincents Roads.

Contacts will be maintained with the ambulance, fire services, police, and other emergency services agencies throughout the construction period, and a 24-hour site contact will be made available for 'out-of-hours' emergencies and access.

As such, there would be no impacts on the provision of emergency vehicle access to the site, past the site frontages or to other neighbouring properties as a result of the proposed construction activities.

## 7.11 Public Road Integrity

Shaker grids and brush clean will be employed to minimise any wheel tracking or spoil spillage on the public road.

The head contractor will ensure that all roads in the vicinity of the site remain in clean and serviceable states during the construction period.

Any damage to kerbs, signage, trees, footpaths etc., shall be repaired or replaced to the satisfaction of Council.

## 7.12 Workforce Parking

The head contractor confirms that subcontractor agreements identify that limited on-site parking will be provided, and that the workforce will be encouraged to utilise nearby public transport facilities, active transport and ride share options.

The head contractor will also provide storage areas for workforce staff to store and lock their tools and equipment to avoid the need for daily vehicle use.

Parking restrictions and alternative transport options will be discussed within the site specific induction and familiarisation and included in Work Pack documents.

The head contractor will monitor (and undertake enforcement where possible) to prevent workforce parking on nearby streets adjacent to the worksite.

In any regard it is noted that the site will not be in operation as a fully functioning hospital during Stages 2 and 3 of construction, such that there will be no competing demands for parking with staff, visitors and patients. This will allow better flexibility and temporary areas for workforce parking within the site.

## 7.13 Materials Handling

All materials shall be unloaded and stored within the site at all times.

Loading/unloading of materials will occur on site from designated Loading Areas by crane or with the assistance of trolleys/forklifts.

No materials or equipment will be placed or left on any public road or footpath areas at any time.

## 7.14 Public Notifications and Consultation

The head contractor shall prepare on-going notification letters to be emailed to the relevant authorities and letter box dropped to adjoining property owners and the adjacent school to advise of the timeframes for each phase of the construction process and any related changes.

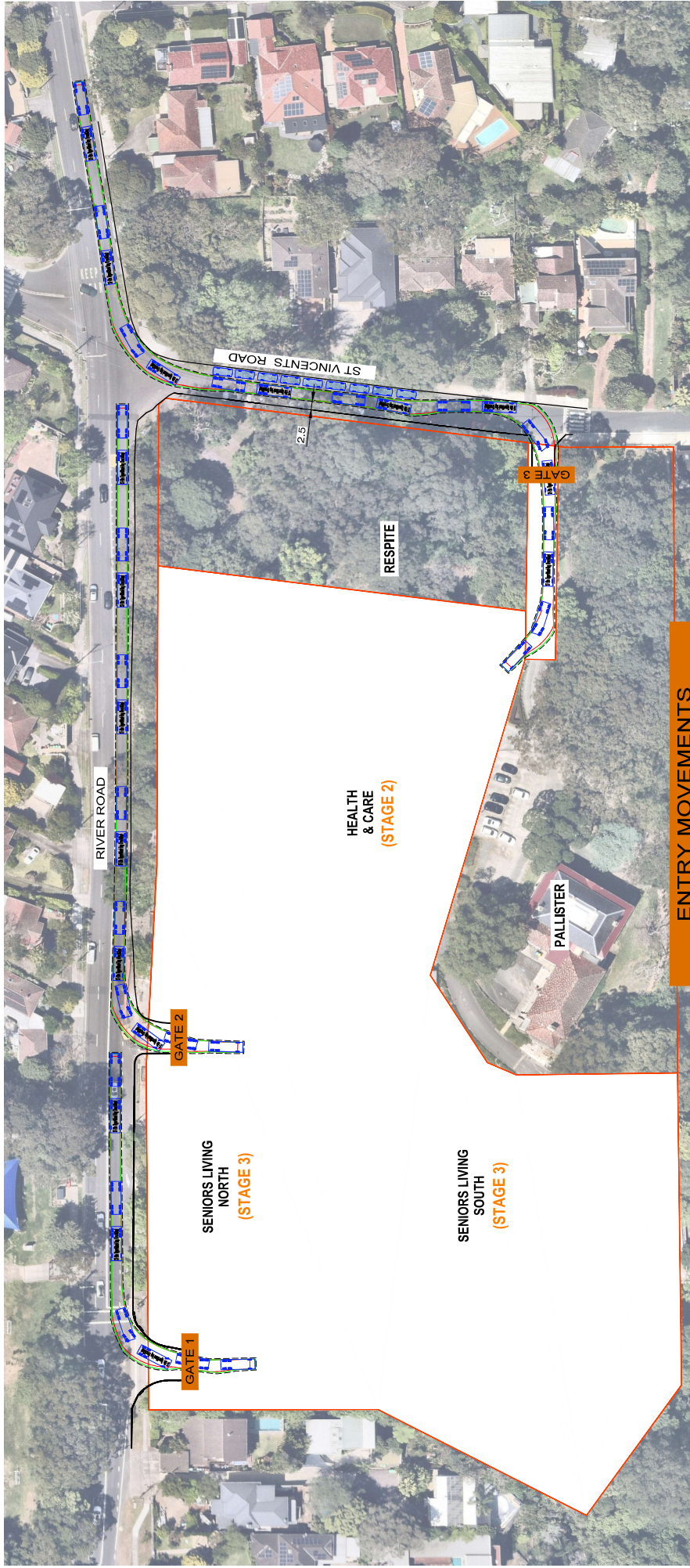
The notifications will be provided a minimum of 7 days prior to the implementation of any temporary traffic control measures or changes to access, traffic or parking arrangements.

As previously notes in Section 6, to help mitigate the risks of heavy vehicles during school peaks, it is proposed that the head contractor of each stage closely monitor the interaction of vehicles and school students during the critical peaks.

The head contractor shall then meet with representatives of Greenwich Public School on a bi-monthly basis (or as otherwise deemed necessary) to discuss any identified safety concerns and implement reasonable mitigation measures in response.

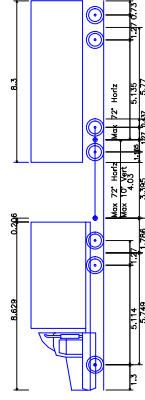
# Appendix A

## *VEHICLE SWEEP PATH PLANS*



**ENTRY MOVEMENTS**

**DESIGN VEHICLE**



Oversized Tipper & Quad-Dog (Truck & Dog)  
 Overall Length 20.000m  
 Overall Width 2.500m  
 Overall Body Height 3.737m  
 Overall Ground Clearance 2.500m  
 Track Width 5.000m  
 Lock-to-lock time 5.000s  
 Curb to Curb Turning Radius 12.640m



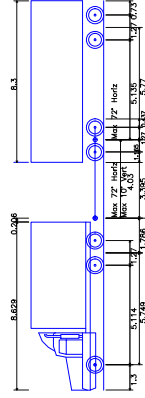
- VEHICLE OUTLINE
- VEHICLE OVERLAYS
- WHEEL TRACK
- 300mm VEHICLE CLEARANCE
- DESIGN SPEED

 <b>TRAFFIC</b> SITE INTEGRATED TRAFFIC ENGINEERING BRISBANE L1, 16 McDougall St Milton QLD 4064 Tel: (07) 3554 1364 www.sitetraffic.com.au info@site@traffice.com.au		<b>HammondCare</b> CLIENT	GREENWCH HOSPITAL REDEVELOPMENT 97-115 River Rd Greenwch NSW 2065	DRAWING NUMBER <b>80675 - SP1</b>
	NORTHPOINT	M MRSIC DESIGNED H DEMPSEY CERTIFIED	DATE 14.11.2025 TMD CIP 863 RPEQ 27029	SHEET 1 OF 2 PROJECT NUMBER <b>80675</b>
REVISION A Issue for Implementation M MRSIC 14.11.2025	DATE 14.11.2025	VEHICLE SWEEP PATH PLAN STAGE 2 AND STAGE 3		



**EXIT MOVEMENTS**

**DESIGN VEHICLE**



Oversized Tipper & Quad-Dog (Truck & Dog)  
 Overall Length 20.000m  
 Overall Width 2.500m  
 Overall Body Height 3.737m  
 Overall Ground Clearance 2.500m  
 Track Width 5.000m  
 Lock-to-lock time 5.000s  
 Curb to Curb Turning Radius 12.640m

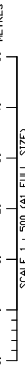


VEHICLE OUTLINE

VEHICLE OVERLAYS

WHEEL TRACK

--- 300mm VEHICLE CLEARANCE



	<b>TRAFFIC</b> <b>ENGINEERING</b>	<b>SITE TRAFFIC PTY LTD</b> <small>ABN: 33 651 657 091</small> <b>BRISBANE</b> L1, 16 McDougall St Milton QLD 4064 Tel: (07) 3554 1364 <a href="http://www.sitetraffic.com.au">www.sitetraffic.com.au</a> <small>enquiries@sitetraffic.com.au</small>		<b>NORTHPOINT CLIENT</b>  <b>HammondCare</b> CERTIFIED <b>H DEMPSEY</b>		DRAWING NUMBER <b>80675 - SP2</b>
		REVISION A Issue for Implementation M MRSIC 14.11.2025 DRAWN DATE		OBSERVED M MRSIC 	DATE 14.11.2023 TMD CIP 863 RPEQ 27029	SHEET 2 OF 2 PROJECT NUMBER <b>80675</b>
		GREENWCH HOSPITAL REDEVELOPMENT 97-115 River Rd Greenwich NSW 2065		VEHICLE SWEEP PATH PLAN STAGE 2 AND STAGE 3		

# Appendix B

## *TRAFFIC GUIDANCE SCHEME*



**NOTES:**

- ALL SIGNS SHALL BE MINIMUM SIZE A.
- ALL SIGNS SHALL BE CLASS 1 RETROREFLECTIVE.
- LOCATION OF SIGNS SHALL BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY.
- ALL SIGNAGE SHALL BE CLEAN, CLEARLY VISIBLE AND NOT OCCULDED.
- ALL TRAFFIC CONTROL PLANS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE TNSM TRAFFIC CONTROL AT WORK SITES MANUAL V01.6 (TNSM, 2022) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS.
- THIS TRAFFIC GUIDANCE SCHEME SHALL BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND THE ACCREDITED PERSONNEL. THE CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION.
- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TGS BEFORE ANY PHYSICAL WORK COMMENCES. ENSURE A COPY OF THE TGS IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TGS HAS BEEN IMPLEMENTED CORRECTLY. ANY AMENDMENTS TO THE TGS MUST BE MADE TO THE TGS BEFORE WORKS BEGIN. ANY AMENDMENTS MADE TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL.
- IT IS THE RESPONSIBILITY OF AN ACCREDITED PERSONNEL WITH A "PREPARE A WORK ZONE TRAFFIC MANAGEMENT PLAN" TICKET TO ENSURE THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURES THROUGHOUT THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND THE TGS. THE TGS SHOULD BE KEPT ON FILE FOR AUDITING PURPOSES.
  - VEHICULAR ACCESS AND SERVICING REQUIREMENTS SHALL BE MAINTAINED AT ALL TIMES TO ADJACENT PROPERTIES AFFECTED BY WORKS.
  - 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.
- IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS THAT MEET AUSTRALIAN STANDARDS WHEN THE WORKSITE IS LEFT UNATTENDED.
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2009.
- ALL DISTANCES BETWEEN SIGNS SHALL BE IN ACCORDANCE WITH SECTION 2.2.7 OF AS1742.3:2009. HOWEVER, MODIFICATIONS MAY BE MADE TO SUIT SITE CONDITIONS.



**TGS: DURING CONSTRUCTION WORK HOURS**

SCALE 1 : 500 (A1 FULL SIZE)

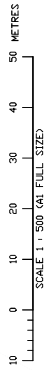
PLAN DETAIL  
(SCALE: 1:500)

<p><b>TRAFFIC SITE</b></p> <p><b>SITE INTEGRATED TRAFFIC ENGINEERING</b></p> <p>BRISBANE L1, 16 McDougall St Milton QLD 4064 Tel: (07) 3554.1364 www.sitetraffic.com.au enquiries@sitetraffic.com.au</p>	<p><b>SITE TRAFFIC PTY LTD</b> ABN: 33 621 627 091 GOLD COAST L15, 2 Corporate Ct Bundall QLD 4217 Tel: (07) 5591 9575</p>	<p><b>NORTHPOINT CLIENT</b></p> <p>DESIGNED: M MRSC CERTIFIED: H DEMPSEY DATE: 14.11.2023 TMD: CIP 863 RPEQ: 27009</p>	<p><b>HammondCare</b></p>	<p>DRAWING NUMBER <b>80675 - 002</b></p>				
				<p>PROJECT NUMBER <b>80675</b></p>				
<p>REVISION</p> <table border="1"> <tr> <th>REVISION</th> <th>DATE</th> </tr> <tr> <td>A Issue for Implementation</td> <td>14.11.2025</td> </tr> </table>		REVISION	DATE	A Issue for Implementation	14.11.2025	<p>GREENWICH HOSPITAL REDEVELOPMENT 97-115 River Rd Greenwich NSW 2065</p>	<p>TRAFFIC GUIDANCE SCHEME STAGE 2 AND STAGE 3</p>	<p>SHEET 2 OF 4 REASON <b>A</b></p>
REVISION	DATE							
A Issue for Implementation	14.11.2025							



**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 CONTROL PLANS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE TNSW 'TRAFFIC CONTROL AT WORK SITES' MANUAL, VER 6.1 (TNSW 2022) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF TRAFFIC CONTROL DEVICES; PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS.
6. THIS TRAFFIC GUIDANCE SCHEME SHALL BE SET UP BY A PERSON ACCREDITED BY THE TNSW 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 WORKSITES TO VERIFY THE TRAFFIC CONTROL MEASURES ARE IMPLEMENTED CORRECTLY AND THAT IT WILL WARN, INSTRUCT AND GUIDE ROAD USERS AS DESIGNED. ANY AMENDMENTS MADE TO THE PLAN MUST BE MADE TO THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL.
8. IT IS THE RESPONSIBILITY OF AN ACCREDITED PERSONNEL WITH A CURRENTLY VALID ZONE TRAFFIC MANAGEMENT PLAN TICKET TO ENSURE THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURES THROUGH TO THE WORKSITES. THE ACCREDITED PERSONNEL SHALL ENSURE SIGNS AND DEVICES ARE PLACED IN THE CORRECTING POSITIONS OF CHECKS SHALL BE KEPT ON FILE FOR AUDITING PURPOSES.
  - VEHICULAR ACCESS AND SERVING REQUIREMENTS SHALL BE MAINTAINED AT ALL TIMES.
  - TRAFFIC CONTROL MEASURES ADJACENT PROPERTIES AFFECTED BY TRAFFIC CONTROL MEASURES SHALL BE MAINTAINED 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. IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE SIGNAGE IS PLACED TO ADVISE ROAD USERS OF ANY CHANGES AND PRESTRANS TO RELEVANT AUSTRALIAN STANDARDS WHEN THE WORKSITE IS LEFT UNATTENDED.
  - ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2009.
11. ALL DISTANCES BETWEEN SIGNS SHALL BE IN ACCORDANCE WITH SECTION 2.3.2 OF AS1742.3:2009. HOWEVER, MODIFICATIONS MAY BE MADE TO SUIT SITE CONDITIONS.



**TGS: AFTER CARE OUTSIDE OF CONSTRUCTION WORK HOURS**

PLAN DETAIL  
(SCALE: 1:500)

	<b>SITE TRAFFIC PTY LTD</b> <small>ABN: 33 651 657 091</small> <b>GOLD COAST</b> L1, 16 McDougall St Milton QLD 4064 Tel: (07) 3554 1364 <a href="http://www.sitetraffic.com.au">www.sitetraffic.com.au</a> <small>enquiries@sitetraffic.com.au</small>		<b>CLIENT</b> 	<b>DATE</b> 14.11.2023	<b>REASON</b> 80675 - 003
				<b>CERTIFIED</b> H DEMPSEY	<b>SHEET</b> 3 OF 4
<b>REVISION</b> A Issue for implementation		<b>DRAWN</b> M MRSIC	<b>DATE</b> 14.11.2025	<b>PROJECT NUMBER</b> 80675	<b>REVISION NUMBER</b> A
<b>TRAFFIC SITE</b> SITE INTEGRATED TRAFFIC ENGINEERING		<b>GREENWICH HOSPITAL REDEVELOPMENT</b> 97-115 River Rd Greenwich NSW 2065		<b>TRAFFIC GUIDANCE SCHEME</b> STAGE 2 AND STAGE 3	

**NOTES:**

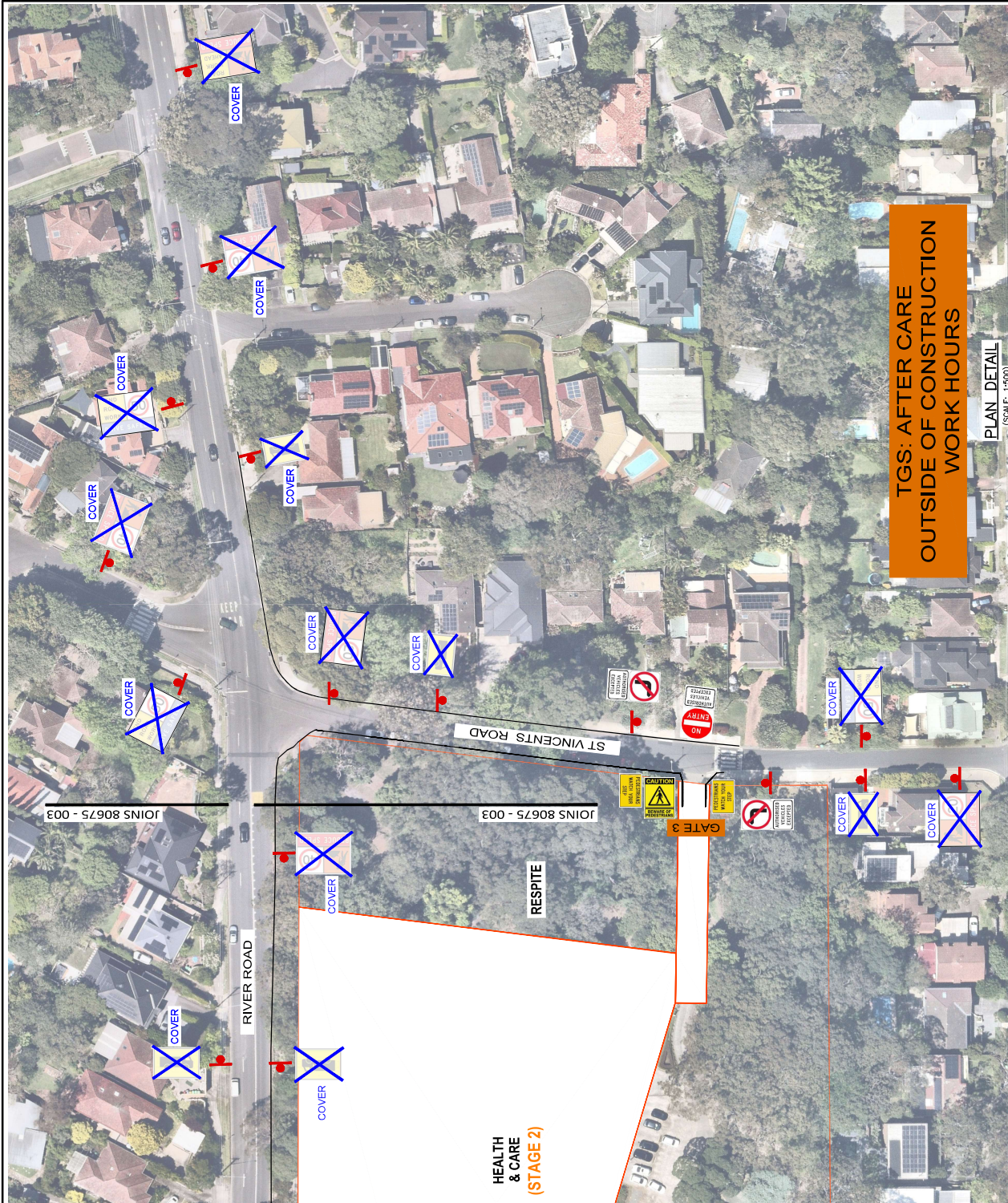
- ALL SIGNS SHALL BE MINIMUM SIZE A.
- ALL SIGNS SHALL BE CLASS 1 RETROREFLECTIVE.
- LOCATION OF SIGNS SHALL BE CONFIRMED ON-SITE TO ENSURE APPROPRIATE VISIBILITY.
- ALL SIGNAGE SHALL BE CLEAN, CLEARLY VISIBLE AND NOT OBSCURED.
- ALL TRAFFIC CONTROL PLANS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE TMSM TRAFFIC CONTROL AT WORK SITES MANUAL, VER 6.1 (TMSM, 2022) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES FOR WORKS ON ROADS.
- THIS TRAFFIC GUIDANCE SCHEME SHALL BE SET UP BY A PERSON HOLDING AN "IMPLEMENT TRAFFIC MANAGEMENT PLAN" TICKET AND THE ACCREDITED PERSONNEL CHECKLIST SHALL BE COMPLETED PRIOR TO IMPLEMENTATION.
- THE ACCREDITED PERSONNEL SHALL IMPLEMENT THE APPROVED TMS BEFORE ANY PRACTICAL WORK COMMENCES. ENSURE A COPY OF THE TOP IS KEPT ON-SITE. THE ACCREDITED PERSONNEL SHALL DRIVE THROUGH THE SITE BEFORE WORKS BEGIN TO ENSURE THAT THE TOP HAS BEEN IMPLEMENTED CORRECTLY AND THAT ALL WORKERS AND ADJACENT ROAD USERS AS DESIGNED. ANY AMENDMENTS MADE TO THE PLAN MUST BE MARKED ON THE PLAN AND INITIALED BY THE ACCREDITED PERSONNEL.
- IT IS THE RESPONSIBILITY OF AN ACCREDITED PERSONNEL WITH A PREPARED WORK ZONE TRAFFIC MANAGEMENT PLAN TICKET TO ENSURE THE INTEGRITY OF ALL TRAFFIC CONTROL MEASURES THROUGHOUT THE FINAL REMOVAL. THIS INCLUDES DAILY CHECKS OF ALL SIGNS AND THE ACCREDITED PERSONNEL TO CONDUCT DAILY 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 WORKS.
  - 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.
- IT IS THE CONTRACTOR'S DUTY TO ENSURE THAT THE APPROPRIATE MEASURES ARE TAKEN TO PROVIDE A SAFE ENVIRONMENT FOR VEHICLES AND PEDESTRIANS THROUGHOUT AUSTRALIAN STANDARDS WHEN THE WORKSITE IS LEFT UNATTENDED.
- ALL WORKERS MUST ADHERE TO THE APPLICABLE SAFE WORK DISTANCE AS DESCRIBED IN AS1742.3:2009.
- ALL DISTANCES BETWEEN SIGNS SHALL BE IN ACCORDANCE WITH SECTION 2.2.7 OF AS1742.3:2009. HOWEVER, MODIFICATIONS MAY BE MADE TO SUIT SITE CONDITIONS.

**HEALTH & CARE (STAGE 2)**

**RESPIRE**

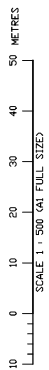
JOINS 80675 - 003

JOINS 80675 - 003



**TGS: AFTER CARE OUTSIDE OF CONSTRUCTION WORK HOURS**

PLAN DETAIL  
(SCALE: 1:500)



	<b>SITE TRAFFIC PTY LTD</b> ABRN 33 021 627 091 GOLD COAST L1, 16 McDougall St Milton QLD 4064 Tel: (07) 3554 1364 www.sitetraffic.com.au Email: info@sitetraffic.com.au		NORTHPOINT CLIENT <b>HammondCare</b> OBSERVED: M MRSIC CERTIFIED: H DEMPSEY DATE: 14.11.2023 TMD: OP 863 RPE/Q: 27009		GREENWICH HOSPITAL REDEVELOPMENT 97-115 River Rd Greenwich NSW 2065	DRAWING NUMBER <b>80675 - 004</b>
	BRISBANE L1, 16 McDougall St Milton QLD 4064 Tel: (07) 3554 1364 www.sitetraffic.com.au Email: info@sitetraffic.com.au		REVISION A Issue for Implementation M MRSIC 14.11.2025		PROJECT NUMBER <b>80675</b>	SHEET 4 OF 4 REVISION <b>A</b>
		DATE: 14.11.2023 TMD: OP 863 RPE/Q: 27009		TRAFFIC GUIDANCE SCHEME STAGE 2 AND STAGE 3		

# Appendix D – Construction Noise and Vibration Management Sub-Plan (CNVMSP)



MATTHEW PALAVIDIS

VICTOR FATTORETTO

MATTHEW SHIELDS

## Greenwich Hospital Redevelopment

# Construction Noise & Vibration Management Plan

---

**SYDNEY**

ABN 98 145 324 714

9 Sarah St

[www.acousticlogic.com.au](http://www.acousticlogic.com.au)

MASCOT NSW 2020

(02) 8339 8000

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Project ID	20241017.1
Document Title	Construction Noise & Vibration Management Plan
Attention To	TSA Riley

Revision	Date	Document Reference	Prepared By	Checked By	Approved By
0	13/09/2024	20241017.1/1309A/R0/RF	RF		RF

**TABLE OF CONTENTS**

<b>1</b>	<b>INTRODUCTION .....</b>	<b>6</b>
<b>2</b>	<b>DEVELOPMENT CONSENT CONDITIONS .....</b>	<b>7</b>
<b>3</b>	<b>REFERENCED DOCUMENTS .....</b>	<b>8</b>
3.1	<b>BACKGROUND INFORMATION USED .....</b>	<b>8</b>
3.2	<b>GUIDELINES .....</b>	<b>8</b>
<b>4</b>	<b>SITE DESCRIPTION AND THE PROPOSAL .....</b>	<b>9</b>
4.1	<b>GENERAL PROJECT DESCRIPTION .....</b>	<b>9</b>
4.2	<b>PROPOSED WORKS .....</b>	<b>9</b>
4.3	<b>PROPOSED CONSTRUCTION HOURS .....</b>	<b>10</b>
4.4	<b>SENSITIVE RECEIVERS .....</b>	<b>10</b>
4.5	<b>NOISE AND VIBRATION SOURCES .....</b>	<b>12</b>
<b>5</b>	<b>CONSTRUCTION NOISE AND VIBRATION ASSESSMENT .....</b>	<b>13</b>
5.1	<b>GENERAL .....</b>	<b>13</b>
5.2	<b>CONSTRUCTION NOISE MANAGEMENT LEVELS .....</b>	<b>13</b>
5.3	<b>CONSTRUCTION VIBRATION MANAGEMENT LEVELS .....</b>	<b>14</b>
5.3.1	Amenity Management .....	14
5.3.2	Structure Damage Risk Criteria .....	15
5.4	<b>NOISE ASSESSMENT .....</b>	<b>17</b>
5.4.1	Methodology .....	17
5.4.2	Proposed Hours of Work .....	17
5.4.3	Predicted Noise Levels .....	17
<b>6</b>	<b>NOISE AND VIBRATION RECOMMENDATIONS .....</b>	<b>22</b>
6.1	<b>NOISE .....</b>	<b>22</b>
6.2	<b>VIBRATION .....</b>	<b>23</b>
<b>7</b>	<b>GENERAL MITIGATION METHODS .....</b>	<b>24</b>
7.1	<b>SELECTION OF ALTERNATE APPLIANCE OR PROCESS .....</b>	<b>24</b>
7.2	<b>ACOUSTIC BARRIER .....</b>	<b>24</b>
7.3	<b>SILENCING DEVICES .....</b>	<b>24</b>
7.4	<b>MATERIAL HANDLING .....</b>	<b>24</b>
7.5	<b>TREATMENT OF SPECIFIC EQUIPMENT .....</b>	<b>24</b>
7.6	<b>ESTABLISHMENT OF SITE PRACTICES .....</b>	<b>25</b>
7.7	<b>NOISE MONITORING .....</b>	<b>25</b>
7.8	<b>COMBINATION OF METHODS .....</b>	<b>25</b>
7.9	<b>MAINTENANCE OF PLANT, EQUIPMENT AND MACHINERY .....</b>	<b>25</b>
7.10	<b>STAFF TRAINING AND REPORTING MECHANISM .....</b>	<b>25</b>
<b>8</b>	<b>CONTROL OF CONSTRUCTION NOISE AND VIBRATION .....</b>	<b>26</b>
<b>9</b>	<b>COMMUNITY INTERACTION AND COMPLAINTS HANDLING .....</b>	<b>27</b>
9.1	<b>ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES .....</b>	<b>27</b>
9.2	<b>COMMUNITY CONSULTATION UNDERTAKEN .....</b>	<b>27</b>
9.3	<b>DEALING WITH COMPLAINTS .....</b>	<b>28</b>
9.4	<b>REPORTING REQUIREMENTS .....</b>	<b>29</b>
9.5	<b>CONTINGENCY PLANS .....</b>	<b>29</b>
<b>10</b>	<b>CONCLUSION .....</b>	<b>30</b>

**APPENDIX 1 – ENGAGEMENT OUTCOMES REPORT DETAILING COMMUNITY ENGAGEMENT  
UNDERTAKEN ..... 31**

## 1 INTRODUCTION

Acoustic Logic have been engaged to provide a project construction noise and vibration management plan (“**CNVMP**” or the “**Plan**”) that will be used to manage noise and vibration emissions associated with the proposed works.

The Plan:

- Identifies sensitive receivers that are likely to be potentially impacted by the proposed works.
- Develops project specific noise and vibration management levels. These will be used to indicate whether additional impact mitigation, beyond normal “good practice”, is indicated.
- Identifies the major noise and vibration sources that will be present on the construction site, and additional construction-related traffic generated by the development.
- Predicts the likely noise and vibration levels during the phases of construction and assesses these against the established management levels. Where the predicted impacts exceed the management levels, the Plan identifies and assesses potential measures to minimise these impacts.
- Provides specific and general recommendations for the ongoing monitoring, assessment and management of noise and vibration emissions as the works progress in response to additional information and site conditions, and the updating of the Plan to reflect additional information obtained during the construction period.

The subject site and local context are indicated in Figure 1.

Where the term “construction” is used in this Plan, it includes demolition, excavation and any other site activity related to the construction of the development being assessed.

This Plan has been prepared for the sole purpose as stated above and should not be used or relied on for any other purpose.

## 2 DEVELOPMENT CONSENT CONDITIONS

The Plan addresses the following consent conditions in approval number SSD-8699, repeated below.

- C16. The Construction Noise and Vibration Management Sub-Plan (CNVMSP) must address, but not be limited to, the following:
- (a) be prepared by a suitably qualified and experienced noise expert;
  - (b) incorporate the recommendations made in the *Greenwich Hospital Redevelopment Noise & Vibration Impact Assessment* prepared by Acoustic Logic and dated 25 July 2023 in relation to construction noise impacts;
  - (c) describe procedures for achieving the noise management levels in EPA's *Interim Construction Noise Guideline* (DECC, 2009);
  - (d) describe the procedures and mitigation measures that would be implemented to manage residential properties that would be highly noise affected during construction activities;
  - (e) describe the measures to be implemented to manage high noise generating works (i.e. work exceeding a NML of LAeq 75dBA), such as piling in close proximity to sensitive receivers;
  - (f) include details of implementation of reasonable and feasible measures including but not limited to those contained in the *Greenwich Hospital Redevelopment Noise & Vibration Impact Assessment* prepared by Acoustic Logic and dated 25 July 2023 to mitigate construction noise impacts on residents of the Site and nearby residential properties, in the circumstances where construction activities are predicted to exceed the highly noise affected noise level of 75dB(A);
  - (g) describe the community consultation undertaken, including consultation with all sensitive receivers where construction noise impacts exceed the highly noise and vibration affected level, to develop the strategies in condition C16(f);
  - (h) include a suitable proactive construction noise and vibration management program which:
    - (i) aims to ensure the construction noise and vibration criteria in this consent and in the *Greenwich Hospital Redevelopment Noise & Vibration Impact Assessment* prepared by Acoustic Logic and dated 25 July 2023 are not exceeded;
    - (ii) includes short term noise monitoring as detailed in the *Greenwich Hospital Redevelopment Noise & Vibration Impact Assessment* prepared by Acoustic Logic and dated 25 July 2023 where valid data is collected during a weeklong period following the commencement of each stage of works; and
    - (iii) includes, without unavoidable delay, the implementation of noise attenuation measures if monitoring identifies exceedances of noise and vibration criteria identified above;
  - (i) include a complaints management system that would be implemented for the duration of the construction; and
  - (j) include a program to monitor and report on the impacts and environmental performance of the development and the effectiveness of the management measures in accordance with condition C12.

## 3 REFERENCED DOCUMENTS

### 3.1 BACKGROUND INFORMATION USED

The assessment is based on the following information:

- Noise & Vibration Impact Assessment with reference 20210374.1/2507A/R4/LL, dated 25/07/2023
- Draft Construction Management Plan prepared by Roberts Co dated December 2022
- Engagement Outcomes Report prepared by TSA Advisory, dated May 2022

### 3.2 GUIDELINES

The primary guideline that will be used to formulate the Plan is the NSW EPA – ‘Interim Construction Noise Guideline’ (“**ICNG**”) July 2009.

The ICNG recognises that development occurs close to sensitive receivers and the nature of construction means that it is not possible to prevent noise impacts. The ICNG is focused *“on applying a range of work practices most suited to minimise construction noise impacts, rather than focusing only on achieving numeric noise levels. While some noise from construction sites is inevitable, the aim of the Guideline is to protect the majority of residences and other sensitive land uses from noise pollution most of the time.”*

The ICNG requires the identification of activities likely to exceed the noise/vibration management levels, and the implementation of feasible and reasonable mitigation strategies to minimise emissions. Strategies include physical and management controls, liaising with the public and stakeholders, monitoring, etc. The ICNG recognises that each site will have a particular set of circumstances to be addressed, and that it is typically not possible to fully mitigate impacts. The guideline is intended as a pathway to determining a realistic compromise between construction sites and the surrounding receivers.

The following additional planning instruments and guidelines have also been used in the assessment:

- NSW Department of Environment and Conservation Assessing Vibration: A Technical Guideline” (Feb, 2006)
- NSW EPA – ‘Noise Policy for Industry’ (“**NPfi**”) October 2017
- NSW Transport (RMS) Construction Noise and Vibration Guideline (“**CNVG**”) (2016)
- Transport for NSW Construction Noise and Vibration Strategy (“**CNVS**”) (2018)

## **4 SITE DESCRIPTION AND THE PROPOSAL**

### **4.1 GENERAL PROJECT DESCRIPTION**

The Greenwich Hospital redevelopment project approved under SSD-8699 consists of the following:

- Demolition of the existing hospital building and associated facilities at the site;
- Construction of a new hospital facility and integrated healthcare uses and services, including:
- A new 7 storey main hospital building.
- Two new 5-6 storey serviced self-care housing buildings (serviced seniors living);
- A new 2-3 storey respite care building.
- Construction of associated site facilities and services, including pedestrian and vehicular access and basement parking.
- Site landscaping and infrastructure works; and
- Preservation of Pallister House which will continue to host dementia care and administrative functions

### **4.2 PROPOSED WORKS**

Construction of the proposed development will be in 4 stages as follows:

Stage 1 – Early works and external works

- 10 weeks

Stage 2 – Construction of new Hospital building

- Site establishment: 6 weeks
- Demolition: 5 weeks
- Excavation: 18 weeks
- Construction 114 weeks

Stage 3 – Construction of two new Seniors Living buildings

- Site establishment 3 weeks
- Demolition: 10 weeks
- Excavation: 12 weeks
- Construction: 70 weeks

#### Stage 4 – Construction of new Respite Care building

- Site Establishment: 2 weeks
- Excavation: 2 weeks
- Construction: 30 weeks

### **4.3 PROPOSED CONSTRUCTION HOURS**

The following hours of operation are proposed for all construction activities and delivery of materials to and from the site:

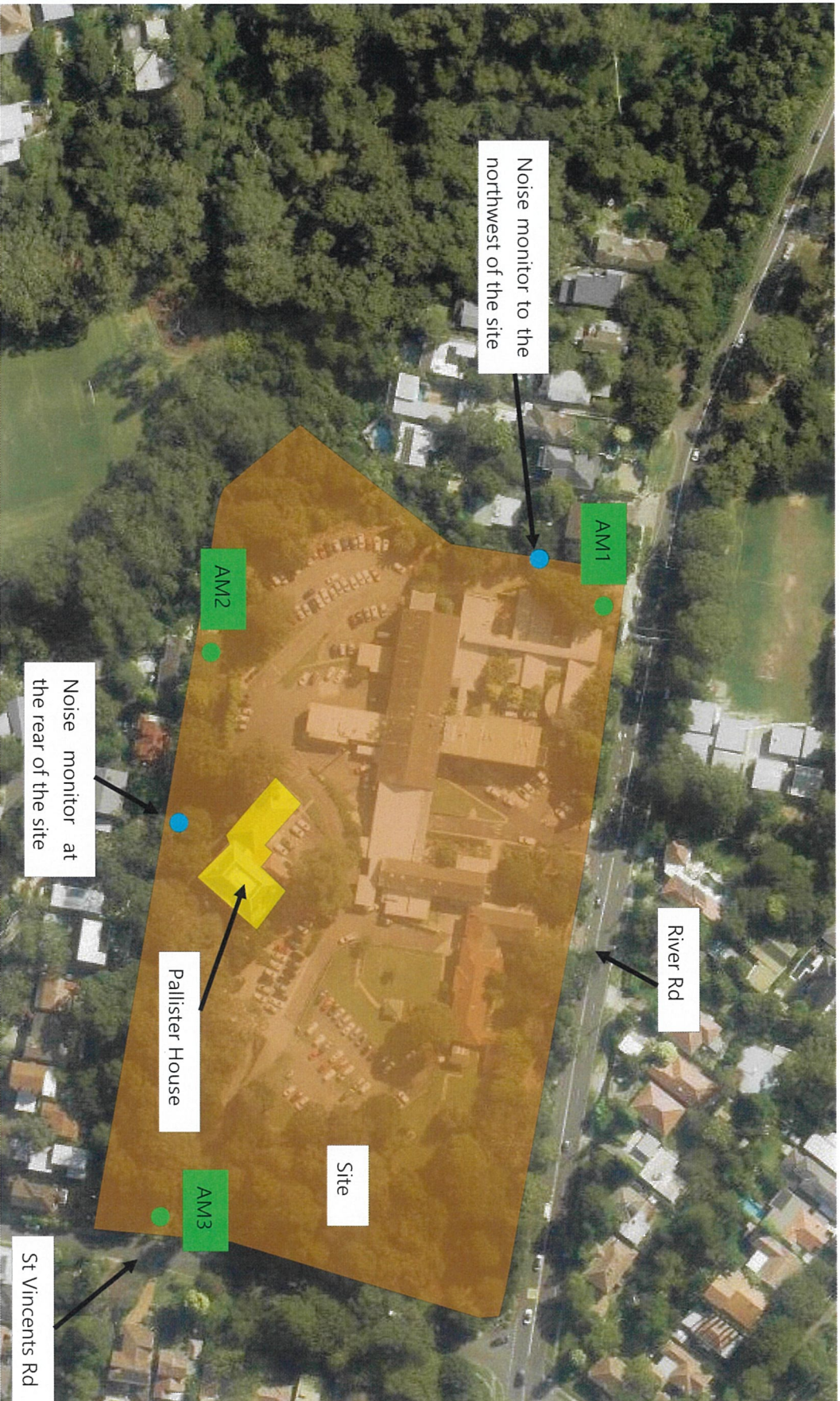
- Monday to Friday – 7:30am to 5:30pm.
- Saturdays – 7.30am to 3:30pm.
- Sundays and Public Holidays – No works.

It is noted that the hours between 7:30 and 8am and 1pm to 3:30pm on Saturdays are outside ICNG “standard” construction hours.

### **4.4 SENSITIVE RECEIVERS**

The nearest/potentially most impacted sensitive receivers surrounding the site representative of noise catchments have been identified and as summarised below. An aerial photo of the site indicating nearby noise sensitive receivers and the catchment areas, and the ambient noise measurement locations is presented in Figure 1.

- Residential properties along the western boundary of the site – 117, 117A & 117B River Road, Greenwich.
- Residential properties to the north of the site, across River Road – 102 to 120 River Road, Greenwich.
- Residential properties to the east of the site, across St Vincent’s Road – 10 to 20 St Vincent’s Road, Greenwich.
- Residential properties along the southern boundary of the site – 24 to 55 Gore Street, Greenwich.



- Subject Site
- Pallister House
- Attended noise measurement locations
- Unattended noise measurement

**Figure 1 – Site Description (source: Google Maps)**

#### 4.5 NOISE AND VIBRATION SOURCES

The main noise and vibration sources relevant to each phase of the works have been identified, and are summarised in the following section.

**Table 1 – Sound Power Levels of the Proposed Equipment**

<b>EQUIPMENT /PROCESS</b>	<b>SOUND POWER LEVEL dB(A)</b>
Excavator with Rock Breaker Attachment	120
Hand Held Jackhammer	115*
Angle Grinder / Tile Cutter	114*
General Trucks	108
Piling Rig	108
Excavator with Bucket Attachment	105
Shotcrete	105
Bobcat	105
Concrete Pump	105
Cement Mixing Truck	105
Tower Crane	104
Man & Material Hoist	96
Powered Hand Tools	95*

\* - includes 5 dB(A) addition for characteristics of noise source.

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

- On site measurements;
- Table A1 of Australian Standard 2436-2010, and
- Data held by this office from other similar studies.

## 5 CONSTRUCTION NOISE AND VIBRATION ASSESSMENT

### 5.1 GENERAL

A quantitative evaluation of the proposed works has been undertaken to identify those activities that have the potential to adversely impact nearby properties. The outcomes of the assessment have been used to develop a management plan to minimise adverse noise and vibration impacts.

The assessment uses site specific noise and vibration management levels developed using the EPA ICNG. The predicted, receiver noise and vibration levels will be compared to the management levels to identify those activities that are likely to require additional management, above what is considered to be normal good practice.

### 5.2 CONSTRUCTION NOISE MANAGEMENT LEVELS

Construction noise management levels have been determined in accordance with the ICNG at SSDA stage and detailed in the approved the Noise & Vibration Impact Assessment with reference 20210374.1/2507A/R4/LL, dated 25/07/2023. The following tables summarise applicable noise management levels.

Receiver	Noise Affected Management Level - dB(A) $L_{eq}(15min)$	Highly Noise Affected Management Level - dB(A) $L_{eq}(15min)$
Residential Receivers to the north and northwest (River Rd)	58	75
Residential Receivers to the east (across St Vincents Rd)	54	
Residential Receivers to the south	54	
Commercial	70	N/A

Receiver	Outside of Hours Noise Affected Management Level (RBL + 5dBA) $L_{eq}(15min)$
Residential Receivers to the north and northwest (River Rd)	49 (Sat 7:30am – 8am) 53 (Sat 1pm – 3:30pm)
Residential Receivers to the east (across St Vincents Rd)	49 (Sat 7:30am – 8am) 48 (Sat 1pm – 3:30pm)
Residential Receivers to the south	49 (Sat 7:30am – 8am) 48 (Sat 1pm – 3:30pm)

### 5.3 CONSTRUCTION VIBRATION MANAGEMENT LEVELS

#### 5.3.1 Amenity Management

Vibration goals for the amenity of nearby land users are those recommended by the EPA document *Assessing Vibration: A technical guideline*. These levels (extracted from Tables 2.2 and 2.4 of the guideline) are presented in the following table for various types of vibration:

**Table 2 -(Table 2.2 *Assessing Vibration: A Technical Guideline*) – Preferred and Maximum Weighted RMS Values for Continuous and Impulsive Vibration Acceleration (m/s<sup>2</sup>) 1-80Hz**

Location	Assessment Period <sup>1</sup>	Preferred values		Maximum Values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
<b>Continuous Vibration</b>					
Critical areas <sup>2</sup>	Day or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.010	0.0071	0.02	0.014
	Night-time	0.007	0.005	0.014	0.010
Offices, schools, educational institutions and places of worship	Day or night-time	0.020	0.014	0.040	0.028
Workshops	Day or night-time	0.04	0.029	0.080	0.058
<b>Impulsive Vibration</b>					
Critical areas <sup>2</sup>	Day or night-time	0.0050	0.0036	0.010	0.0072
Residences	Daytime	0.30	0.21	0.60	0.42
	Night-time	0.10	0.071	0.20	0.14
Offices, schools, educational institutions and places of worship	Day or night-time	0.64	0.46	1.28	0.92
Workshops	Day or night-time	0.64	0.46	1.28	0.92

<sup>1</sup> Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am.

<sup>2</sup> Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. There may be cases where sensitive equipment or delicate task require more stringent criteria than the human comfort criteria specified above. Stipulation of such criteria is outside the scope of this policy, and other guidance documents (e.g. relevant standards) should be referred to. Source: BS6472-1992.

**Table 3 -(Table 2.4 Assessing Vibration: A technical guideline) – Acceptable Vibration Dose Values for Intermittent Vibration (m/s<sup>1.75</sup>)**

Location	Daytime <sup>1</sup>		Night-time <sup>1</sup>	
	Preferred value	Maximum Value	Preferred value	Maximum Value
Critical areas <sup>2</sup>	0.10	0.20	0.10	0.20
Residences	0.20	0.40	0.13	0.26
Offices, schools, educational institutions and places of worship	0.40	0.80	0.40	0.80
Workshops	0.80	1.60	0.80	1.60

1 Daytime is 7:00am to 10:00pm and night-time is 10:00pm to 7:00am.

2 Examples include hospital operating theatres and precision laboratories where sensitive operations are occurring. These criteria are only indicative, and there may be a need to assess intermittent values against the continuous or impulsive criteria for critical areas. Source: BS6472-1992.

### 5.3.2 Structure Damage Risk Criteria

#### 5.3.2.1 Generally

German Standard DIN 4150-3 (2016) provides a guideline for acceptable levels of vibration velocity in building foundations, to assess the effects of vibration on structures. The table give guidance on the maximum accepted values of velocity at the foundation and in the plane of the highest floor of various types of buildings, to prevent any structural damage.

The table following lists the peak particle velocity, which is the maximum absolute value of the velocity signals for the three orthogonal components. This is measured as a maximum value of any of the three orthogonal component particle velocities when 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.

It is noted that if measured vibration levels do not exceed the guidelines listed in the following table, damage that will reduce the serviceability of the building will not occur, and if damage to the building does occur, it is assumed that the damage is related to other causes. Furthermore, the DIN4150-3 guideline states the following regarding the limits presented in Table 1 of the standard:

*“Exceeding the guideline values does not necessarily lead to damage. Should they be exceeded, however, further investigations may be necessary, such as determining and evaluating the stresses as detailed in 4.3 and 4.4.”*

**Table 4 -(Table 1 – DIN 4150-3 (2016)) – Guideline Values for Vibration Velocity,  $v_{i,max}$ , for Evaluating the Effects of Short-Term Vibration on Structures**

	TYPE OF STRUCTURE	Guideline values for $v_{i,max}$ in mm/s				
		Foundation, all directions, $i = x, y, z,$ at a frequency of			Topmost floor, horizontal direction, $i = x, y$	Floor slabs, vertical direction, $i = z$
		1Hz to 10Hz	10Hz to 50Hz	50Hz to 100Hz <sup>(a)</sup>	All Frequencies	All Frequencies
L/C	1	2	3	4	5	6
1	Buildings used for commercial purposes, industrial buildings, and buildings of similar design	20	20 to 40	40 to 50	40	20
2	Residential buildings and buildings of similar design and/or occupancy	5	5 to 15	15 to 20	15	20
3	Structures that, because of their particular sensitivity to vibration, cannot be classified under lines 1 and 2 <b>and</b> are of great intrinsic value (e.g. listed buildings) buildings that are under a preservation order)	3	3 to 8	8 to 10	8	20 <sup>(b)</sup>

**NOTE** Even if guideline values as in line 1, columns 2 to 5, are complied with, minor damage cannot be excluded.

*a At frequencies above 100 Hz, the guideline values for 100 Hz can be applied as minimum values.*

*b It may be necessary to lower the guideline value markedly to prevent minor damage*

## 5.4 NOISE ASSESSMENT

### 5.4.1 Methodology

Noise from the loudest typical construction activities for all stages of works have been predicted to the nearest most affected sensitive receivers.

Predictions take into account:

- The distance between the noise source and the receiver.
- The screening effect provided by any building structure or building shell, if applicable. In particular, noise from works proposed during the fit-out stages when the building shell will screen these activities from the surrounding sensitive receivers.

### 5.4.2 Proposed Hours of Work

The following hours of operation are proposed for all construction activities and delivery of materials to and from the site:

- Monday to Friday – 7:30am to 5:30pm.
- Saturdays – 7.30am to 3:30pm.
- Sundays and Public Holidays – No works.

Standard construction hours in section 2.2 of the NSW EPA Interim Construction Noise Guideline (ICNG) are between 7am-6pm Monday to Friday and 8am-1pm on Saturdays with no works on Sundays or Public Holidays. The proposed hours of work represent an overall reduction in total construction hours of 2 hours per week with reduced hours Monday-Friday and additional hours on Saturdays. With respect to the proposed work hours on Saturdays, Table 13 shows "noise affected" management levels adjusted for this period based on background noise monitor which presents a lower level at each receiver when compared to the standard construction hours.

### 5.4.3 Predicted Noise Levels

See tables below for predicted noise levels for each receiver. Given the size of the site predicted noise levels will change significantly depending on where the noise source is located. As such, a noise level range has been presented, giving expected noise levels for activities 'farthest from' to 'nearest to' the receiver.

**Table 5 – Predicted Noise Generation to Northern Residential Receivers  
(106-120 River Rd, Greenwich)**

<b>Activity</b>	<b>Predicted Noise Level dB(A)<math>L_{eq}(15min)</math> (External Areas)</b>	<b>Noise Management Level dB(A)<math>L_{eq}(15min)</math> (External Areas)</b>	<b>Comment</b>	
Excavator with Rock Breaker Attachment	70-80	$\leq 58$ (Standard construction hours)  $\leq 49$ (Saturdays 7:30am – 8am) $\leq 53$ (Saturdays 1pm – 3:30pm)	The following construction activities can cause an intermittent exceedance of Noise Management Level. However, the predicted noise levels are only exceeding the 75dB(A) 'Highly Noise Affected Level' when working close to the northern boundary of the site. See Section 8 for mitigation measures.	
Hand Held Jackhammer	70-80			
Angle Grinder / Tile Cutter	64-74			
General Trucks	58-68		$\leq 58$ (Standard construction hours)	Causes an intermittent exceedance of Noise Management Level. However, the predicted noise levels are still less than 75dB(A) 'Highly Noise Affected Level'.
Piling Rig	58-68			
Excavator with Bucket Attachment	55-65		$\leq 49$ (Saturdays 7:30am – 8am) $\leq 53$ (Saturdays 1pm – 3:30pm)	Causes an intermittent exceedance of Noise Management Level when working close to the northern boundary of the site.
Shotcrete	55-65			
Bobcat	55-65			
Concrete Pump	55-65			
Cement Mixing Truck	55-65			
Tower Crane	59-60			
Man & Material Hoist	46-56			
Powered Hand Tools (Externally)	45-55		$\leq 58$ (Standard construction hours)	Compliant during standard construction hours *, however an intermittent exceedance of Noise Management Level outside of standard hours on Saturdays when working close to the northern boundary of the site.
Powered Hand Tools (Internally)	30-40			

\*An exceedance of 1-2dB is imperceptible as per standard industry practice.

**Table 6 – Predicted Noise Generation to Eastern Residential Receivers  
(10-20 St Vincents Rd, Greenwich)**

<b>Activity</b>	<b>Predicted Noise Level dB(A)<math>L_{eq}(15min)</math> (External Areas)</b>	<b>Noise Management Level dB(A)<math>L_{eq}(15min)</math> (External Areas)</b>	<b>Comment</b>
Excavator with Rock Breaker Attachment	64-74	<p align="center"> <math>\leq 54</math>                      (Standard construction hours)   <math>\leq 49</math>                      (Saturdays 7:30am – 8am)   <math>\leq 48</math>                      (Saturdays 1pm – 3:30pm)                 </p>	Causes an intermittent exceedance of Noise Management Level. However, the predicted noise levels are still less than 75dB(A) 'Highly Noise Affected Level'.
Hand Held Jackhammer	64-74		
Angle Grinder / Tile Cutter	58-68		
General Trucks	52-62		Causes an intermittent exceedance of Noise Management Level when working close to the eastern boundary of the site.
Piling Rig	52-62		
Excavator with Bucket Attachment	49-59		
Shotcrete	49-59		
Bobcat	49-59		
Concrete Pump	49-59		
Cement Mixing Truck	49-59		
Tower Crane	48-52		Compliant during standard construction hours, however an intermittent exceedance of Noise Management Level outside of standard hours on Saturdays when working close to the eastern boundary of the site.
Man & Material Hoist	40-50		Compliant*
Powered Hand Tools (Externally)	39-49		
Powered Hand Tools (Internally)	24-34		

\*An exceedance of 1-2dB is imperceptible as per standard industry practice.

**Table 7 – Predicted Noise Generation to Southern Residential Receivers  
(24-55 Gore St, Greenwich)**

<b>Activity</b>	<b>Predicted Noise Level dB(A)<sub>L<sub>eq</sub>(15min)</sub> (External Areas)</b>	<b>Noise Management Level dB(A)<sub>L<sub>eq</sub>(15min)</sub> (External Areas)</b>	<b>Comment</b>		
Excavator with Rock Breaker Attachment	70-82	<p align="center">≤ 54 (Standard construction hours)</p> <p align="center">≤ 49 (Saturdays 7:30am – 8am)</p> <p align="center">≤ 48 (Saturdays 1pm – 3:30pm)</p>	<p>The following construction activities can cause an intermittent exceedance of Noise Management Level. However, the predicted noise levels are only exceeding the 75dB(A) 'Highly Noise Affected Level' when working close to the southern boundary of the site. See Section 8 for mitigation measures.</p>		
Hand Held Jackhammer	70-82				
Angle Grinder / Tile Cutter	64-76*				
General Trucks	58-70		<p align="center">≤ 54 (Standard construction hours)</p> <p align="center">≤ 49 (Saturdays 7:30am – 8am)</p> <p align="center">≤ 48 (Saturdays 1pm – 3:30pm)</p>	<p>Causes an intermittent exceedance of Noise Management Level. However, the predicted noise levels are still less than 75dB(A) 'Highly Noise Affected Level'.</p>	
Piling Rig	58-70				
Excavator with Bucket Attachment	55-67				
Shotcrete	55-67				
Bobcat	55-67				
Concrete Pump	55-67				
Cement Mixing Truck	55-67				
Tower Crane	56-57				
Man & Material Hoist	46-58				
Powered Hand Tools (Externally)	45-57				
Powered Hand Tools (Internally)	30-42				Compliant

\*An exceedance of 1-2dB is imperceptible as per standard industry practice.

**Table 8 – Predicted Noise Generation to Western Residential Receivers  
(117, 117A and 117B River Rd, Greenwich)**

<b>Activity</b>	<b>Predicted Noise Level dB(A)<sub>L<sub>eq</sub>(15min)</sub> (External Areas)</b>	<b>Noise Management Level dB(A)<sub>L<sub>eq</sub>(15min)</sub> (External Areas)</b>	<b>Comment</b>
Excavator with Rock Breaker Attachment	66-92	<p align="center">≤ 58 (Standard construction hours)</p>	<p>The following construction activities can cause an intermittent exceedance of Noise Management Level. However, the predicted noise levels are only exceeding the 75dB(A) 'Highly Noise Affected Level' when working close to the western boundary of the site. See Section 8 for mitigation measures.</p>
Hand Held Jackhammer	66-92		
Angle Grinder / Tile Cutter	60-86		
General Trucks	54-80		
Piling Rig	54-80		
Excavator with Bucket Attachment	51-77		
Shotcrete	51-77		
Bobcat	51-77		
Concrete Pump	51-77		
Cement Mixing Truck	51-77		
Tower Crane	54-64	<p align="center">≤ 49 (Saturdays 7:30am – 8am)</p> <p align="center">≤ 53 (Saturdays 1pm – 3:30pm)</p>	Causes an intermittent exceedance of Noise Management Level. However, the predicted noise levels are still less than 75dB(A) 'Highly Noise Affected Level'.
Man & Material Hoist	42-68		Causes an intermittent exceedance of Noise Management Level when working close to the western boundary of the site.
Powered Hand Tools (Externally)	41-67		
Powered Hand Tools (Internally)	26-52		Compliant during standard construction hours, however an intermittent exceedance of Noise Management Level when working close to the western boundary of the site outside of standard hours on Saturdays.

## 6 NOISE AND VIBRATION RECOMMENDATIONS

### 6.1 NOISE

#### Generally

- Quiet work methods/technologies:
  - Materials handling/vehicles:
    - Trucks and bobcats to use a non-tonal reversing beacon (subject to OH&S requirements) to minimise potential disturbance of neighbours.
    - Avoid careless dropping of construction materials into empty trucks.
    - Trucks, trailers and concrete trucks (if feasible) should turn off their engines during idling to reduce noise impacts (unless truck ignition needs to remain on during concrete pumping).
- Complaint's handling - In the event of complaint, the procedures outlined in the following sections should be adopted.
- A detailed noise management plan should be developed by the main contractor that describes in detail the construction phases, programme, processes and equipment used, noise impact assessment and proposed mitigation and management.
- Consideration of alternative construction techniques for high noise generating equipment.
- Site Induction:
  - A copy of the Noise Management Plan is to be available to contractors. The location of the Noise Management Plan should be advised in any site induction.
  - Site induction should also detail the site contact is to be notified in the event of noise complaint.

#### Outside of Standard Construction Hours

It is recommended that activities that exceed the "Highly Noise Affected" Level are not undertaken during hours outside of the standard construction hours (Saturdays 7:30am – 8am and 1pm – 3:30pm) in section 2.2 of the NSW EPA Interim Construction Noise Guideline (ICNG). These construction activities include

- Rock Breaking
- Hand Held Jackhammering
- Angle Grinder / Tile Cutter operating on the western boundary
- General Trucks operating on the western boundary
- Pilling Rig operating on the western boundary

It is also recommended that, during the proposed extended hours on Saturdays (7:30am – 8am and 1pm – 3:30pm), all construction activities should be undertaken away from receiver boundaries where practical, so as to minimise potential noise impacts to surrounding receivers. Specific mitigation measures during these extended hours periods should be considered within the future Construction Noise and Vibration Management Plan.

## 6.2 VIBRATION

Where vibration intensive activities are undertaken close to a residential boundary, there is a potential for exceedances of the nominated vibration levels at residential locations. Where these works are required, it is recommended that sample short-term vibration measurements are taken to determine the likely impact. If an exceedance is found during these tests, it is recommended that vibration monitoring is implemented along the property boundary closest to the receiver during the extent of the activity.

## **7 GENERAL MITIGATION METHODS**

### **7.1 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 this activity by use of pneumatic hammers, bulldozers ripping and/or milling machines lower levels of noise will result.

Selection of alternative appliances have been explored for the demolition of the existing structure. Due to safety concerns, particularly in relation to slab and structural loading, large excavator mounted milling will not be feasible.

Pre-drilling, saw cutting and ripping may be incorporated in the excavation of the existing base slab. Whilst hammering may still be required, the substitution of drilling, sawing and ripping will reduce degree of hammering required.

### **7.2 ACOUSTIC BARRIER**

Barriers or screens can be an effective means of reducing noise. Barriers can be located either at the source or receiver.

- The placement of barriers at the source is generally only effective for static plant (tower cranes). 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 however this will not be beneficial in this instance due to receivers overlooking the site.

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 15dB(A) can be effected. Where only partial obstruction of line of sight occurs, noise reductions of 5 to 8dB(A) may be achieved. Where no line of sight is obstructed by the barrier, generally no noise reduction will occur.

As barriers are used to provide shielding and do not act as an enclosure, the material they are constructed from should have a noise reduction performance that is approximately 10dB(A) greater than the maximum reduction provided by the barrier. In this case the use of a material such as 10mm or 15mm thick plywood (radiata plywood) would be acceptable for the barriers.

### **7.3 SILENCING DEVICES**

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.

### **7.4 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).

### **7.5 TREATMENT OF SPECIFIC EQUIPMENT**

In certain cases, it may be possible to specially treat a piece of equipment to dramatically reduce the sound levels emitted.

## **7.6 ESTABLISHMENT OF SITE PRACTICES**

This involves the formulation of work practices to reduce noise generation. It is recommended that all available and reasonable treatments and mitigation strategies presented in this report be adopted to minimise noise emissions from the excavation and construction activities on site.

## **7.7 NOISE MONITORING**

Predicted noise levels indicate that noise emissions from a number of activities proposed on site will exceed the noise management at the surrounding sensitive receivers. On this basis, noise monitoring can be undertaken to determine the effectiveness of ameliorative measures which have been implemented.

Noise monitoring can be conducted during the demolition and excavation stages, to establish a benchmark of the potential highest levels of noise likely to be generated. We recommend monitoring for a weeklong period during each stage of works, to establish these benchmark levels.

Ongoing monitoring and reporting can be conducted if required, after this initial benchmark period. Continuous monitoring will typically include report generated fortnightly, with additional reports created if benchmark levels are exceeded. In events of exceedance in benchmark levels, site foreman will immediately stop work on site and contact acoustic consultant to determine if;

- Noisy plant/activity was recognised by site foreman – determine reason for exceedance and recommend ameliorative measures or alternate processes for the activity.
- Site attendance is required by acoustic consultant to determine noisy plant/activity and conduct attended measurements. Device further controls based on measured levels.

## **7.8 COMBINATION OF METHODS**

It may be necessary that two or more control measures be implemented to minimise noise.

## **7.9 MAINTENANCE OF PLANT, EQUIPMENT AND MACHINERY**

Construction Profile will ensure all plant, equipment and machinery are regularly serviced and maintained at optimum operating conditions, to ensure excessive noise emissions are not generated from faulty, overused or unmaintained machinery.

## **7.10 STAFF TRAINING AND REPORTING MECHANISM**

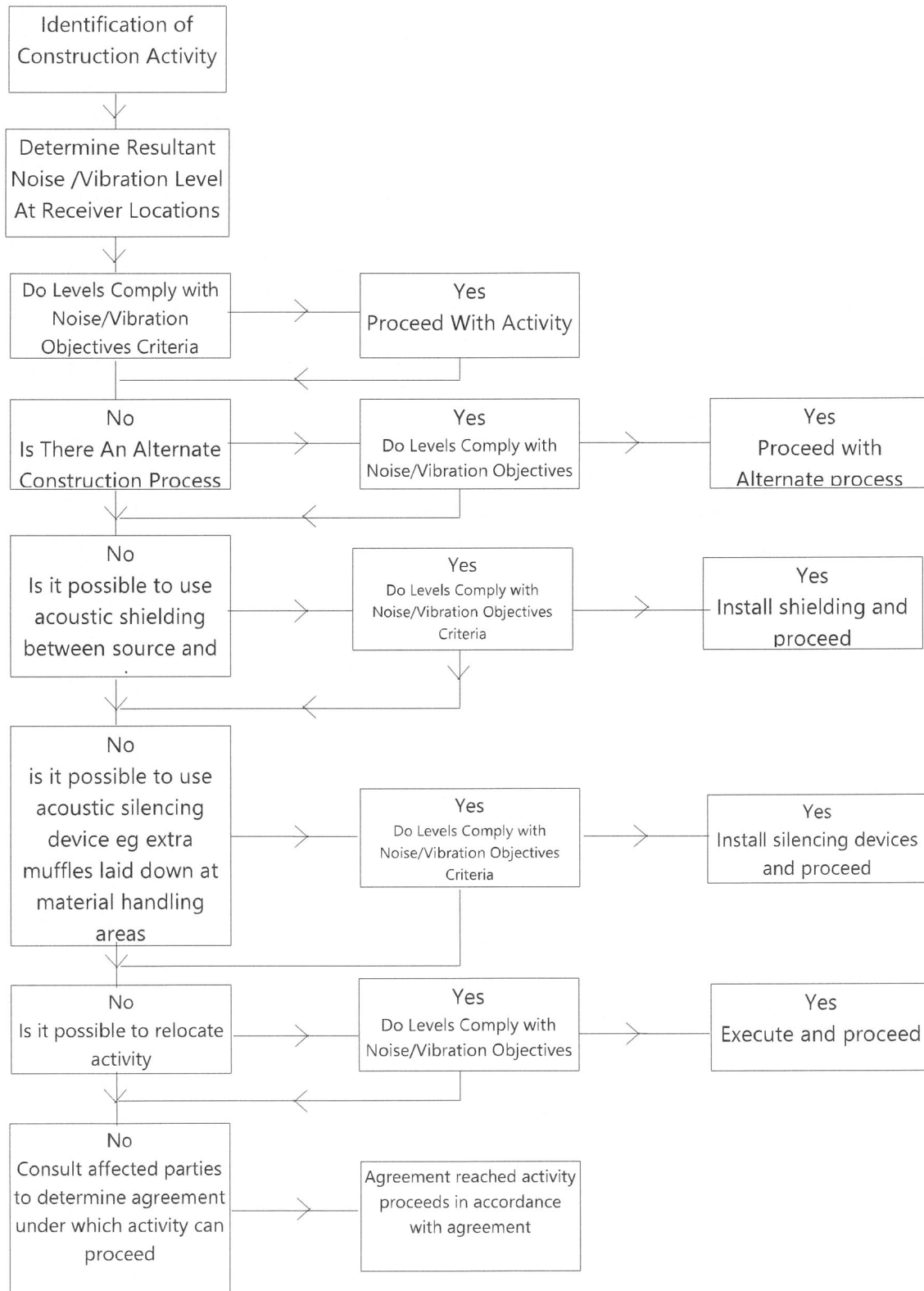
All construction staff on site, as part of the site induction process, will be informed of the surrounding sensitive receivers on site and the site-specific recommendations to reduce noise impacts to these receivers (late starts, respite period, vehicle noise control etc. – refer section 8). Any complaints received by construction staff must be immediately reported to the site foreman, followed by completion of incident report form and steps detailed in the section below.

A copy of the recommendations detailed in this report (section 8) and dealing with complaints procedure (section below) will be posted at key areas around the site for easy reference by all staff.

## 8 CONTROL OF CONSTRUCTION NOISE AND VIBRATION

The execution of this work will facilitate the formulation of noise control strategies for this project.

The flow chart presented in Figure 2 illustrates the process that will be followed in assessing construction activities.



**Figure 2 – Process Flowchart**

## **9 COMMUNITY INTERACTION AND COMPLAINTS HANDLING**

### **9.1 ESTABLISHMENT OF DIRECT COMMUNICATION WITH AFFECTED PARTIES**

In order for any construction noise management programme to work effectively, continuous communication is required between all parties, which may be potentially impacted upon, the builder and the regulatory authority. This establishes a dynamic response process which allows for the adjustment of control methods and criteria for the benefit of all parties.

The objective in undertaking a consultation processes is to:

- Inform and educate the groups about the project and the noise controls being implemented;
- Increase understanding of all acoustic issues related to the project and options available;
- Identify group concerns generated by the project, so that they can be addressed; and
- Ensure that concerned individuals or groups are aware of and have access to a Constructions Complaints Register which will be used to address any construction noise related problems should they arise.

### **9.2 COMMUNITY CONSULTATION UNDERTAKEN**

Consent condition 16g requires that community consultation be undertaken to inform mitigation strategies.

The Engagement Outcomes Report prepared by TSA Advisory, dated May 2022 included in Appendix A provides details of community engagement already undertaken.

We note that bulk excavation has been completed, which is the loudest and most intrusive construction activity expected to occur on this site. We also note that no works assessed within this CNVMP are predicted to exceed the 'Highly Noise Affected' criteria of 75dB(A).

Notwithstanding the above, consultation is to continue as detailed in this section to ensure noise impacts are minimised as far as is practicable.

### 9.3 DEALING WITH COMPLAINTS

Should ongoing complaints of excessive noise or vibration criteria 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
- 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.

## **9.4 REPORTING REQUIREMENTS**

The following shall be kept on site:

1. A register of complaints received/communication with the local community shall be maintained and kept on site with information as detailed in this report.
2. Where noise/vibration complaints require noise/vibration monitoring, results from monitoring shall be retained on site at all times.
3. Any noise exceedances occurring including, the actions taken and results of follow up monitoring.
4. A report detailing complaints received and actions taken shall be presented to the construction liaison committee.

## **9.5 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.

## 10 CONCLUSION

This report assesses potential construction noise and vibration impacts from the Greenwich Hospital redevelopment project. The assessment uses the methodology contained in the EPA IGNG to determine appropriate noise and vibration management levels and identify those activities that are likely to impact nearby receivers.

The outcomes of the assessment have been used to prepare a management plan that should be adopted and refined to minimise impacts to the extent that it is feasible and reasonable.

It is concluded that with the implementation of the mitigation and ongoing assessment recommended in Section **Error! Reference source not found.**, construction noise and vibration emissions from the proposed development will be minimised in accordance with the IGNG.

We trust this information is satisfactory. 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 1 – ENGAGEMENT OUTCOMES REPORT DETAILING COMMUNITY  
ENGAGEMENT UNDERTAKEN**



Report to  
**HammondCare**  
Greenwich Health Campus project



# Engagement Outcomes Report

**May 2022**

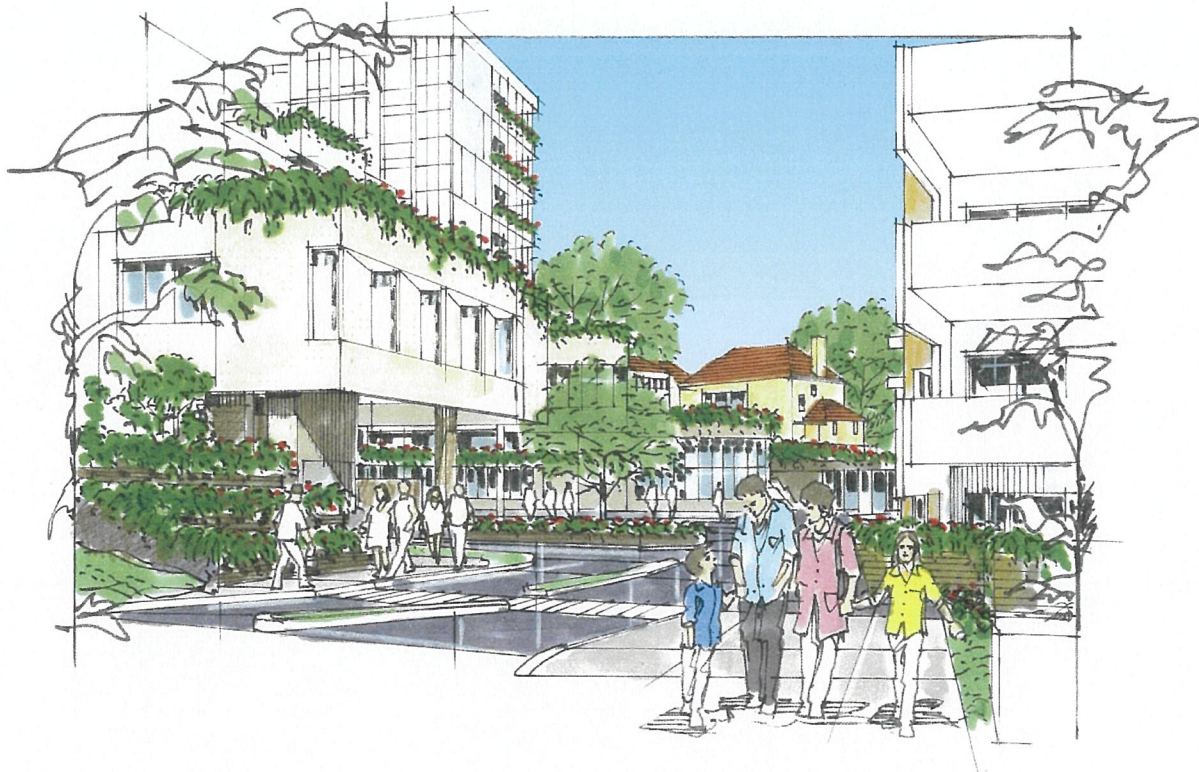
### Quotes

This report has been supplemented with quotes from questions and comments received during the online information sessions and individual stakeholder briefings. Quotes have been corrected for spelling errors and grammar, where necessary. Often, commentary shared has covered a range of topics and issues. This report therefore includes excerpts from such commentary relevant to the issue being discussed in the report. The words or intent shared have not been changed.

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### Document Control

Prepared for issue:	Courtney Harrington	Date:	1 April 2022
Approved for issue:	Peter Whelan	Date:	9 May 2022



# Contents

1. Introduction .....	4
2. Background .....	5
3. Engagement methods .....	6
4. Key themes.....	9
5. Appendices.....	22

Appendix A: Project newsletter

Appendix B: Distribution area for project newsletter

Appendix C: Media release

Appendix D: Copy of media coverage

Appendix E: Presentation – online information sessions

# 1. Introduction

TSA Management was engaged by HammondCare to undertake community and stakeholder engagement for the Greenwich Health Campus as it moves to the detailed design stage.

The purpose of the engagement was to proactively inform the community and interested stakeholders of the latest information on the project and seek early feedback on the detailed design which responds to the parameters of the concept approval received in December 2020.

HammondCare has previously sought feedback on the proposal in terms of use and scale.

This engagement and outcomes report documents the engagement and communications program and approach, and summarise key themes and feedback received during consultation. The report also references HammondCare's considerations in response to feedback undertaken for the Greenwich Health Campus detailed design.

In May 2022, an Environmental Impact Statement (EIS) will be lodged with the Department of Planning.

Consistent with requirements, pre-lodgement engagement with the community and interested stakeholders was undertaken by HammondCare with the support of TSA Management, from February – April 2022. It is noted there will be further opportunity for the community and interested stakeholders to make formal submissions following the EIS lodgement as part of the public exhibition process.

In recognising the importance of the Greenwich Health Campus project to the community and site neighbours, HammondCare is committed to working closely with local residents and welcomes further input and engagement on the latest detailed design.

HammondCare continues to proactively engage with neighbouring community members of the Greenwich Health Campus site and a number of key stakeholders to capture early feedback on the design and address any concerns as it relates to their individual interests.

Since the Concept State Significant Development (SSD) was approved in December 2020, HammondCare has been working to develop the design as part of the Detailed Design SSD, culminating in the release of a draft concept plan for the new Greenwich Hospital and associated Serviced Seniors Living accommodation.

The latest design changes are reflective of community feedback received through previous engagement and will honour the site's significant heritage aspects while aiming to provide state-of-the-art healthcare provision for the lower north shore community.

Key enhancements made to the concept plan include:

- Reduced building height
- Improved building articulation and widespread greenery and plantings, including on balconies, roofs and podiums
- Relocating non-care elements such as loading provisions and carparking underground (where possible)
- Enhancing views of the heritage-listed Pallister House which will continue to provide research and administrative functions
- Improved accessibility and connection to ground level for residents, patients, visitors and staff
- Incorporation of the site's important Indigenous and European Heritage aspects

## 2. Background

The Greenwich Hospital Redevelopment is a \$141.5 million initiative of HammondCare which aims to cater for the North Sydney community's health care needs, both now and into the future, by creating an integrated facility for seniors and others with complex health needs.

The existing precinct was built in the 1960s to provide inpatient palliative care and general health services to the local community, however, these facilities are no longer considered fit for purpose due to growing demand in the health sector. People are living longer and the need for complex aged health services is increasing. The number of people aged 65 or older in Northern Sydney is expected to increase to 18% by 2031. The provision of healthcare is also changing, with a preference for shorter hospital stays, more treatments in home, and demand for improved access to specialised health services and greater choice on how to receive care.

HammondCare's ambition is to set the global standard of relationship-based care for people with complex needs and to increase our care for those that others won't or can't. The Greenwich Health Campus will be the first site of its kind in the Northern Sydney Local Health District. The project involves:

- Demolition of the existing hospital building and associated facilities
- Construction of a new hospital facility and integrated healthcare uses and services including:
  - A new main hospital building up to RL 80.0
  - Two new seniors living buildings, Northern building up to RL 56.36 and Southern building up to RL 60.65
  - A new respite care building up to RL 56.9
- Construction of associated site facilities and services such as pedestrian and vehicular access and basement car parking
- Site landscaping and infrastructure works
- Preservation of the heritage-listed Pallister House which will continue to provide research and administrative functions

Since the project was announced in 2017, there has been strong interest among the local community, particularly those residents immediately surrounding the site. HammondCare has undertaken several rounds of engagement, including the Concept Plan public exhibition in 2019 which resulted in significant changes to the concept design, demonstrating a high degree of responsiveness to community and stakeholder feedback, such as:

- Minimising visual impact on neighbours and the heritage-protected Pallister House
- Reduction in bulk and scale of serviced seniors living buildings
- Protection of tree canopy through greater retention and commitment to revegetation
- Undergrounding non care elements, such as car parking, to maximise greenspace and ground-level connectivity

Project newsletters were distributed in June 2019, November 2019 and December 2020 to 1,800 properties in the Greenwich and Northwood areas to coincide with project milestones served as the last broad communication about the project. Project updates have also been published on the HammondCare website. Local media, including the *North Shore Times* and the Lane Cove website *In the Cove*, as well as Nine News have covered project milestones.

The Concept State Significant Design (SSD) approved was received in December 2020 for the envelope which the new Greenwich Health Campus could be built within. Since this time, the HammondCare project team has redesigned both the Health and Serviced Seniors Living buildings to be substantially within the approved envelope and will be seeking approval within these parameters.

## 3. Engagement methods

### 3.1 Project newsletter

A two-page A4 project newsletter (see Appendix A) was distributed to 1,836 residents and key stakeholders on 17 March 2022. The newsletter provided a general project update and welcomed further input and engagement on the latest design through invitation to attend an online information session. See Appendix B for a copy of the distribution map.

### 3.2 Media

A media release was published on 17 March 2022 (see Appendix C) to announce the latest design changes and promote the online information sessions. As a result, the announcement received media coverage from the following outlets (see Appendix D for copies):

- *The North Shore Times* Facebook page
- *In The Cove* website
- *The Weekly Source*, a national aged care news website

### 3.3 Online information sessions

While consideration was given to holding in-person drop-in sessions on site at Greenwich, online engagement was considered the preferred option given the current status of COVID-19 and health advice at the time. This was supported by community members who expressed a preference to avoid in-person gatherings.

Two online information sessions were held on Monday 28 March from 6 to 7pm and Thursday 31 March 2022 from 12 to 1pm and hosted using the Microsoft Teams platform. The sessions involved a formal presentation by members of the HammondCare project team, Dr Andrew Montague (General Manager of Health and Palliative Care) and Katie Formston (Head of Design, Property and Capital Works), covering:

- Project timeline – works completed to date
- What was approved under the Concept State Significant Development (SSD) approval
- About HammondCare and Project Vision
- Services to be provided at Greenwich Health Campus
- Project benefits
- Proposed Detailed Design features
- Construction timeframe
- Next steps and further opportunity for community input

Chris Forrester (Associate Director, Planning) from Ethos Urban was also present to answer any technical questions about the latest design.

The sessions were interactive and provided an opportunity for interested stakeholders to hear about the project and ask any questions of the HammondCare project team.

A copy of the presentation (see Appendix E) is available on the HammondCare website and emailed to all community members and interested stakeholders who attended or registered to attend an online information session.

The sessions were attended by approximately 25 community members and interested stakeholders. Key topics raised during the sessions included:

- Building height
- Overlooking / privacy and how HammondCare will address
- Protection of bushland and trees
- Landscaping outcomes more generally
- Future of Pallister House
- Construction timeframes, staging, work hours and impact on neighbours
- Traffic management during construction and more generally
- Serviced Senior Living units – who can access, what are they designed for (e.g. reassurances that they will not be 'lifestyle villas')
- Drainage / stormwater

The HammondCare project team answered most questions at the session and was able to update attendees on improvements made since the Concept Plan was approved in November 2020.

Attendees also heard about the project's next steps and the Environmental Impact Statement (EIS) process, including further opportunities for consultation and feedback.

Follow up meetings were arranged with those community members who wished to discuss their questions further as a result of attending an information session, and for neighbours of the Greenwich site, how the project would relate with their property.

It was noted in the presentations that further detail of the Greenwich Health Campus will be made available in the coming months and via lodgement of the project's Environmental Impact Statement (EIS) with the NSW Department of Planning and that the community will be invited to make formal submissions as part of the public exhibition process.

### 3.4 Individual stakeholder briefings

The HammondCare project team also sought to undertake individual stakeholder briefings with the local Members of Parliament, Lane Cove Council and several local interest groups. The purpose of these briefings was to provide an update on the project, discuss any questions or concerns which may be worked through as part of the design process and understand what success looks like to them. A summary of the themes discussed at these meetings is provided in *4.2 Individual stakeholder briefings*.

- Briefing to Lane Cove Council executive on Tuesday 29 March.
- Briefing to Lane Cove North Residents Association on Monday 4 April
- Briefing to HammondCare Hospital staff and volunteers on Friday 8 April
- Briefing to Lane Cove Council elected members on Monday 11 April
- Greenwich Community Association on Wednesday 20 April
- Greenwich Public School on Wednesday 4 May

Briefings were also offered to the following groups but not accepted at this time, noting that several members of these groups attended an online information session:

- Hon Anthony Roberts MP, Member for Lane Cove
- Mr Trent Zimmerman MP, Member for North Sydney
- Greenwich Public School Parent's and Citizens Association Inc
- Greenwich Action Group
- Greenwich St Leonards Action Group
- Lane Cove Bushland and Conservation Society
- Longueville Residents Association
- Northwood Action Group

### 3.5 Meetings and site-walks with neighbours

Representatives of the HammondCare project team have been meeting with near site neighbours since the Greenwich Health Campus project was announced in 2017. These meetings, phone calls and emails occur on an ad hoc basis and relationship management will be ongoing.

HammondCare enjoys positive relationships with its Greenwich neighbours and is demonstrating good will, over and above the requirements of the planning and design process, in achieving mutually beneficial outcomes, particularly in the areas of accessibility, screening and stormwater management.

### 3.6 Dedicated information line and email address

HammondCare has well-established contact details within the community which have been promoted on all engagement materials to encourage ongoing contact with the project team:

Phone: 1300 426 666

Email: [AskGreenwich@hammond.com.au](mailto:AskGreenwich@hammond.com.au)

### 3.7 Website

The latest round of engagement and information sessions were promoted on the HammondCare website's dedicated Greenwich Hospital and associated Greenwich Redevelopment webpages. The Greenwich Redevelopment webpage has been updated with the latest information on the detailed design phase.

A copy of the presentation shared at the online information sessions is also available to download from the website.

## 4. Key themes

### 4.1 Summary of key themes raised

Themes have been identified through review of commentary received during the online information sessions and during one-on-one stakeholder briefings. Six key themes were identified as being most frequently referenced by community members and interested stakeholders:

- Preservation of bushland and tree canopy
- Building height and mass
- Traffic management and safety
- Overlooking
- Water run-off/drainage
- Construction impacts – timeline, hours, staging

Topics which were less frequent but worth noting are:

- Further information on the process
- Service provision and access by lower income earners
- Indigenous input and site history
- Ongoing engagement and opportunities for input

These themes are described and analysed over the following pages, with the inclusion of quotes to highlight the observations made.

It is acknowledged that the strongest interest in the project is largely generated by neighbours immediately surrounding the site and therefore the following key themes are not generally representative of the broader area or potential Greenwich Health Campus users.

#### **Preservation of bushland and tree canopy**

The main topic of interest both with local community members and other stakeholders is maintaining the integrity of the untouched bushland and tree canopy which is unique to the Greenwich Hospital site.

There was generally support for HammondCare's landscape response and effort to maintain the site's extensive tree canopy. The community was particularly receptive that the significant tree located on River Road, tree 167 would be maintained. This was an update from the Concept Plan approved in November 2020 which originally planned on removing this tree, however the building has been redesigned to ensure this tree can remain.

Positive comments were received in response to how the design has placed a greater emphasis on commitment to green space and enhancing the landscape.

*Questions raised:*

- Which trees will be maintained?
- How many trees will be removed?
- How is the bushland being protected during construction? Particularly in the south-western corner of the site.

- Has Council had any input into the landscaping scheme?
- What input have Indigenous groups had into the proposal, including identification of sites and history?
- Were there any other trees that we to be retained by condition?
- Seeing the size of tree 167 and the amount of excavation needed, how can you give assurance that the tree will survive?
- Have you investigated the option of moving and replanting 167 or is it a stipulation to remain where it is?
- This development has always seemed to have a fundamental flaw, in that an underground carport, especially one of such depth, will seriously interfere with and divert the groundwater flow from uphill to the very large trees especially the huge eucalypts, on the southwestern border of the property. This will compromise them and could eventually cause them to fail and fall on neighbouring houses, especially during storms or high winds. Will HammondCare please assure we local residents that due and proper research be carried out with the lower carport design to ensure that these trees get the water they require to thrive?

### **Building height and mass**

The proposed height of the Health and Serviced Seniors Living buildings received significant interest through previous engagement. Community members were interested in seeing how the designs had changed and noted the building height reduction.

- Has the height of the Seniors Living South building been reduced from earlier plans?
- How have you adjusted orientation and modulation of the [Seniors Living South building] envelope to minimise bulk and massing?
- Has the footprint of the Serviced Seniors Living buildings changed?

**Traffic management and safety** were raised a number of times in regard to pedestrian movement (particularly along River Road), vehicular access through the site and how this relates to neighbouring streets.

Summary of questions asked:

- How have you incorporated the two-way bicycle path along St Vincents Road into your vehicle entry point?
- Is a further traffic impact study being undertaken?
- If so, will the community be able to see the results?
- Will the traffic study take into account the changes in traffic with more people working at home?
- Will there be any parking impacts for River Road - at the moment we can park in front of our house without restrictions on River Road, will this remain?
- Will there be any traffic implications e.g., if we are heading down River Road towards Lane Cove, can residents turn right turn into a driveway? Will we be able to turn into the hospital from River Road as we currently can (not at the traffic light).

- In terms of patients and safety, will there be any potential danger to patients (being on a main road) or the community (e.g., local primary school across the road) based on the medical needs of the patients?
- How will pedestrian movement be managed along the River Road frontage?

### **Overviewing**

Neighbours closest to the Greenwich Hospital site frequently raised the issue of potential overviewing from the new Health and Serviced Seniors Living buildings. Neighbours to the rear of the site requested information on screening and the visual scale of the Health Building, once constructed.

Example of questions asked:

- Has the potential for overviewing of [neighbouring] properties been addressed in the detailed plan?
- What measures have you taken to minimise privacy impacts on residents to the west and south?
- Has there been analysis on what can be seen from the higher levels into neighbours' back yards?
- Can the residents on Level 7 be able to see into neighbours' back yards?
- What treatments to balconies and or habitable rooms have you introduced?
- Does the design consider privacy from Gore Street neighbours' behind the hospital near Pallister House?

### **Storm water and drainage**

HammondCare has had regular, ongoing correspondence with neighbouring properties regarding to stormwater management, particularly following significant rain events associated with the La Niña weather pattern. The following questions were raised both in regards to the development and ongoing site management more broadly.

*Questions raised:*

- How will the underground carpark interfere with groundwater flow uphill to the very large trees ... on the southwest border of the property?
- Drainage to the south has always been a huge problem for residents in Gore St. What has been planned to ensure that storm waters do not continue to flood these properties?
- Will stormwater be harvested?
- How will run-off be handled, including maintaining natural flows through to Gore Creek?

### **Construction impacts – timeline, hours, staging**

It was evident that there is an element of concern by those living closest to the Greenwich site about the construction process and how disruption would be minimised for neighbouring properties.

*Questions raised:*

- When will you start demolition?
- Will you work with other developments to ensure residents and the school are not impacted?
- Will anything be done to help reduce the clogging of side streets with construction workers / vehicles?
- What are the construction timelines in terms of what time of day will they be working? Will it be during nights? Will it be on weekends? What are normal construction hours?
- What is the scheduled construction period of the project?
- Exactly how many months will it take to build the Southern Seniors Apartments?
- What is the timeline for staging?
- How will hospital operations be maintained throughout construction?
- What will the impact be on neighbouring properties (e.g., Gore Street)?

### **Further info**

Several community members enquired about the process, when further information (e.g., detailed plans) would become available and when they would have an opportunity to provide formal responses to the detailed design.

#### *Questions raised:*

- When will the detailed design material be available?
- What is the planning approval process? Will there be one overall State Significant Development Application (SSDA) or staged? If an overall SSDA, will there be staged Construction Certificates?
- What are the plans for Pallister House?

### **Service provision**

Several community members requested further detail around how the Serviced Seniors Living accommodation could be accessed, specifically in relation to ensuring that residents genuinely require healthcare provision.

- What is the model for Serviced Seniors Living?
- Are all over 55 (years of age) Seniors Living units serviced?
- What are the pre-requisites to access this accommodation? E.g., will anything prevent a healthy, 55-year-old from taking advantage of this service as permanent housing?
- Will lower income earners be able to access this service?

## 4.2 Individual stakeholder briefings

### 4.2.1 Lane Cove Council – executive

A meeting was held on Tuesday 29 March 2022 with members of the Lane Cove Council executive:

- Rajiv Shankar – Manager Development Assessment
- Chris Shortt – Senior Town Planner
- Chris Pelcz – Coordinator Strategic Planning
- Terry Tredrea – Strategic Planner

Representatives from HammondCare shared a presentation on the latest detailed design enhancements.

A summary of the consultation:

- Staff enquired about what questions the community had asked during information sessions held the previous week. Representatives from HammondCare provided an overview on key themes and responses.
- Council was interested in the staging timeline, construction noise, impact on neighbouring properties along Gore Street and stormwater “harvesting”.
- There was also a discussion about solar panels, one of HammondCare’s sustainability initiatives for the site, and a particular interest in the proposed use of photo-volcanic glass.
- It was confirmed during this meeting that HammondCare representatives would attend the full meeting of Council on Monday 11 April, and HammondCare’s intention to undertake further stakeholder meetings.

### 4.2.2 Lane Cove Council – elected members

A briefing was provided to Lane Cove Council elected members on Monday 11 April 2022.

Councillors asked various questions of the HammondCare project team representatives and requested a response to two in particular:

1. The condition of Consent (b) on the Greenwich Hospital Redevelopment requires that Lane Cove Council be the consent authority on the redevelopment’s Seniors Living component.
2. What sustainable development considerations will be implemented as part of the development?

Key themes and areas of interest included:

- Clarification on what services will be provided on site.
- Whether the development of other aged care in the Local Government Area (LGA) will impact the viability of the project. It is noted these developments were already considered and still would not meet growing demand on health and aged care.
- How long consultation would run for and next steps.
- Discussion around the Serviced Seniors Living apartments and compliance with the Apartment Design Guide (ADG), specifically as it relates to daylight.
- Potential for a partnership between HammondCare and Lane Cove Council to develop a shared-use pathway along River Road.

- Construction management, truck movement and primary access during excavation works.
- Whether the site would be gated – confirmation that the Greenwich Health Campus will not be gated and will remain open to the community in line with HammondCare’s vision.

At this meeting it was agreed that HammondCare will exhibit the project documentation, once finalised, at Council for those community members and interested stakeholders who do not have access to the Department of Planning and Environment’s Major Projects Portal.

#### **4.2.3 Lane Cove North Residents Association**

HammondCare representatives met with members of the Lane Cove North Residents Association on Monday 4 April 2022 to present the information shared at the community information sessions the week prior and discuss in more detail using hard copy visuals.

A summary of the questions and topics raised during this meeting:

- Location of the respite cottage, including discussion about whether another location could be found on the site?
- Preservation of the bushland in the south-western corner of the site from the development.
- The number of trees to be removed.
- Preservation of tree 167, a change welcomed by the committee.
- The River Road frontage, including pedestrian movement.
- The Serviced Seniors Living model planned for the site, including potential access by lower income earners.
- Council input into the landscaping scheme.
- How water run-off from the site will be handed, including maintaining natural flows through to Gore Creek.
- Indigenous input into the proposal, including identification of sites and history.

#### **4.2.4 Greenwich Community Association**

HammondCare representatives met in person with the Greenwich Community Association (GCA) at their regular monthly meeting held at the Greenwich Sailing Club on Wednesday 20 April 2022.

About 25 members were in attendance. HammondCare representatives presented a project update identical to that given at the online information sessions. Hard copy presentations were shared with attendees.

Key themes and areas of interest included:

- What has been budgeted for s7.11/7.12 contributions?
- Are there any changes proposed to the St Vincents Road access?
- Are there any other comparable facilities – other than Calvary Bethlehem Hospital site in Victoria?
- St Vincents Road is considered inadequate for construction and the view was that all construction vehicles should utilise River Road.

- Concerns were raised about how that would impact children.
- Has a new traffic study been undertaken?
- Who owns the land and who is the operator?
- Overshadowing diagrams were requested.
- Request for an explanation of the community hub.
- Would HammondCare contribute to a shared-use pathway along River Road?
- Will patients and staff need to be relocated during construction?
- When is construction due to be completed?

#### 4.2.5 Greenwich Public School

A HammondCare representative met in person with Greenwich Public School Principal Callum Thomson on Wednesday 5 May 2022 to provide an overview of the project, what is proposed for the site and latest detailed designs.

Key themes discussed included:

- Potential for the school to form close links with the new residential aged care and Serviced Seniors Living community that will be established on site.
- Positive feedback about the initiative to re-align the footpath around the front entrance to fix the dangerous River Road footpath step into the blind right-turn slip lane traffic.
- Improved access for pedestrians, including school children, to walk through the site.
- General conversation about the site's history, specifically whether the current Greenwich Public School site on River Road was once part of the private school which operated at Pallister House.

### 4.3 Individual neighbour meetings

Representatives of the HammondCare project team have undertaken a series of meetings and interactions with site neighbours, including (but not limited to):

- Meeting with neighbours to the southern boundary of Greenwich on Tuesday 1 February to discuss:
  - Stormwater and overland flow to the southeast of the site – noting the neighbouring properties sit lower than the Greenwich site and stormwater flows down the vegetated and rocky embankment on the southern boundary of the site onto their properties.
  - HammondCare confirmed the requirement to complete appropriate stormwater design and management through the planning and construction pathways.
  - Further, agreement was made for HammondCare to investigate a permanent structure, such as a small berm (or equivalent landscaping feature) to the south-eastern boundary within the landscaping response to assist in the capture and redirection of stormwater away from the neighbouring properties. This design feature is not required as part of the planning but would be included by HammondCare as an act of goodwill.
  - Confirmation that HammondCare would undertake to plant screening vegetation along the southern boundary prior to construction work commencing.

- In May 2019, HammondCare received a complaint about weeds and stormwater runoff impacting on two properties along the southwestern boundary of the property from a neighbour at 117A The River Rd, Greenwich and his neighbour at 117. Complaint claimed water was running from car park embankment above and running down and eroding soil.
- Meetings with the neighbours took place on May 15 and 29, 2020 where it was decided:
  - Maintenance Team would be instructed to manage weed control on a regular basis.
  - Neighbour raised concern that a dish drain ran 3/4 of the way along the boundary fence of 117B but does not connect to a drainage brick system. Water diverts through the internal bottom area of 117B and then towards 117A.
  - On 4 December 2020 a weed management plan for a five-year period was provided to Lane Cove Council for the area.
  - On 11 March 2022, after a period of planning and works, a half pipe extension designed by engineers was completed.
  - On 11 March 2022, further complaint from neighbour at 117a about erosion on a cliff bank.
- Meeting with Meera and Kesavan Paripurapavan of Greenwich. Meera attended an online information session and requested to meet with the project team to follow up her specific queries. Head of Design Katie Formston met her at her home on April 22, 2022. Key concerns included:
  - Privacy and overlooking of their backyard
  - Whether their view of the fireworks would be blocked (I don't think it will as it is over the trees next to Pallister House and we are not building between them and those trees)
  - Impacts during construction
  - Impact on property values
  - Traffic and whether people will end up parking outside their house instead of paying for parking
  - Maintaining a green outlook
  - Safety – specifically public passer-by
  - Consideration for double-glazing on the front windows of their property

As a result of this meeting, HammondCare has agreed to commission drone photos for sight lines for the Seniors Living north and Health floors. HammondCare will also undertake to identify which trees are being retained on Rive Road and to identify a key contact within the Department for Planning, Infrastructure and Environment.

## 4.4 Summary of feedback and HammondCare responses

Theme and feedback	Response
Preservation of bushland and tree canopy	
<p>Queries about the impact of the development on tree removal and bushland more broadly.</p>	<p>As part of the Environmental Impact Statement (EIS) process, HammondCare has commissioned two technical reports: the Bushland Management Plan and Construction Management Plan. The reports are interrelated and will cover the measures to be taken to protect bushland and trees and demonstrate how this will be implemented throughout construction.</p>
<p>Query about how many trees will be removed / retained.</p>	<p>Significant and large trees to the perimeter of the site will be retained to maintain the leafy outlook and create a visual buffer that improves the amenity of the streetscape. The southwestern corner of the site contains a densely vegetated area extending down a steep slope towards Gore Creek. This part of the site will remain largely intact, and a management plan implemented.</p>
	<p>Through an adjustment of the concept building footprint, 48 more existing trees will be saved (a total of over 212 trees to be retained) and there will be a commitment to plant a further 86 new trees. Some of the trees designated to be removed with the Development are dead or pest/noxious weed species.</p>
Building height and mass	
<p>Queries included how tall the buildings will be, and whether the height of the Seniors Living buildings has been reduced from earlier plans.</p>	<p>The building steps up the site and has 10 distinct levels. However in terms of height above natural ground, the Health building ranges from 1 to 7 storeys above existing ground level. The Southern Seniors Living building is 6 to 7 Storeys above existing ground level and the Northern Seniors Living building is 4 to 5 storeys above existing ground level.</p>
	<p>The proposal for the new hospital, along with the inclusion of seniors living has been prepared following detailed investigation of the community's projected needs over the long-term.</p>
	<p>The proposal provides a framework for the holistic future of the site for the coming decades, rather than having a piecemeal approach to future development.</p>
	<p>At the same time, HammondCare is mindful of the need to reduce the impact on our neighbours from development and overshadowing, and ensure the site and</p>

precinct retains a leafy feel. Larger buildings will be set back from sensitive areas in local streets, and significant trees and bush corridors will be protected.

The revised Concept Proposal, submitted to the Department of Planning in August, reduced the bulk and scale of the Serviced Seniors Living buildings by up to two floors at the western end to minimise visual impact on neighbours and Pallister House.

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## Traffic management and safety

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Queries raised included how HammondCare will manage traffic and parking on site.

### *Traffic impacts*

The Environmental Impact Statement (EIS) will address traffic and related construction impacts, identifying potential impacts and outlining proposed methods of mitigation.

Traffic management and accessibility will be primary considerations as the Greenwich Hospital will continue to operate during the construction process.

The Construction Management Plan, which will form part of the State Significant Development (SSD) application will include measures to mitigate traffic management impacts during construction.

### *Parking*

The proposal includes approximately 329 parking spaces with the majority underground. The main site access will remain off River Road through a signalised entry.

A detailed traffic study was commissioned as part of the proposal and concluded that the traffic generated from the proposed redevelopment would only have a minimal impact. This is because the type of vehicle trips generated from a hospital and facilities like seniors living, do not generally contribute to regular commuter traffic, or have peak periods like school pick-up and drop-off times.

There will be controlled parking to ensure patients, families, staff and visitors to the campus have safe and convenient access to parking. Whilst parking terms are still being finalised, free parking will not be provided for anyone not associated with the hospital.

## Overviewing

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Queries from neighbouring properties around overviewing and how the design considers privacy. Screening was also raised as a potential solution as part of the landscape design.

HammondCare has considered the potential for overviewing and in response, the Serviced Seniors Living buildings look predominantly to the south and north.

This will also be managed through the incorporation of green planters to keep residents away from the edge of the building and prevent any viewing down onto neighbouring properties to the west.

The landscape concept does include upgrading the planting along the boundary to our southern neighbours. Subject to approval, HammondCare would commit for this to occur in Stage 1, the early works, so that it is established prior to the demolition commencing.

As part of the landscape response, screening plants approx. 2.5m high can be planted along their boundary to achieve screening. Plans will be further developed in coming months.

HammondCare will explore making montages available showing visual impact of new building as part of the detailed design phase.

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## Water run-off/drainage

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Query around what stormwater measures will be included in the planning for Greenwich to stop drainage onto neighbouring properties.

The Environmental Impact Statement (EIS) submission will include a Stormwater Management Plan.

HammondCare will be committing to new stormwater works to ensure the proposal does not contribute to natural overland flow and will monitor stormwater to determine effectiveness of diversions.

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## Construction impacts – timeline, hours, staging

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Queries around when demolition will commence, anticipated construction hours and timeline for staging more broadly.

Queries around how neighbouring properties will be impacted and how HammondCare will prepare for this.

### *Demolition timing*

The construction program timing is dependent on an approval being issued however based on previous forecasting, demolition may commence from early to mid-2023.

Early enabling works will be undertaken prior to demolition to ensure hospital services won't be interrupted.

### *Construction staging*

Construction will be undertaken in a 5-stage process, with some stages overlapping. The project will be delivered in stages to ensure health services are not disrupted.

Subject to approval of the detailed design application, work may start on site in early 2023.

Stage 1: Early works – 6 months

Stage 2: Health Building – 20 months

Stage 3: Seniors Living South – 14 months

Stage 4: Seniors Living North – 12 months

Stage 5: Respite – 8 months

A noise and vibration management and sediment and erosion control plan will be submitted with the Environmental Impact Statement to demonstrate the measures that will be implemented to mitigate noise, dust and vibration impact. Unlike many construction sites, the Greenwich Hospital will be operating throughout the works, and HammondCare has a vested interest in ensuring construction impacts are minimised.

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### Further information on process

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Query as to why the proposal for the Serviced Seniors Living is not being assessed by Lane Cove Council.

HammondCare is committed to working closely with Lane Cove Council at every step of the process. However, as a State Significant Development (SSD) project, assessment is required by the Department of Planning and Environment as the consent authority. This provides a more holistic approach to future development on the site, rather than parts of the proposal being assessed by separate consent authorities.

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### Service provision

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Query around why Serviced Seniors Living is part of the Greenwich Health Campus and what the model will be e.g. who can access this service.

The inclusion of serviced seniors living is an integral part of the development and a contemporary approach to the way we provide a continuum of care for older people. It allows people to downsize as they age, remain living in their local area and also receive health and aged care services they may need over time. These units, intended for resident aged 75 and above with chronic health needs, is included as a financially responsible use of the site.

Seniors living provides an opportunity for couples to remain living together after one of them requires inpatient or residential aged care services. It also offers an

opportunity for single older people to live independently without family support while still having convenient access to hospital and outpatient support services.

The number of people aged 65 or older in Northern Sydney is expected to increase to 18% by 2031, and we estimate that more than 45% recipients of HammondCare's services are low income or disadvantaged older people. This will be reflected through the mix of services at Greenwich Health Campus.

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### Future of Pallister House

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Generally seeking surety that heritage-protected Pallister House will be retained for future use.

There are no changes proposed for Pallister House. Pallister House was built in 1892 as a residence for John St Vincent Welch and his family and is listed on the State Heritage register.

Today it is home to HammondCare's world-leading specialised Dementia Centre. Funded through a partnership with the Australian Government, it provides quality specialised dementia support nationally to people living with dementia and their carers.

HammondCare has a strong record of protecting this important heritage asset and in the past five years has spent more than \$2 million restoring Pallister House.

The revised Concept Proposal, submitted to the Department of Planning and Environment in August 2019 removed Seniors Living accommodation along St Vincents Road to enhance the Pallister House heritage curtilage, with a new respite care facility added.

Pallister House will continue to provide research and administrative functions.

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### Further opportunity for engagement and input

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Queries around what the next step is for the Greenwich Health Campus project and further opportunities for input.

The detailed design process will continue and HammondCare will consider community feedback received in finalising the relevant documentation.

An Environmental Impact Statement (EIS) is being prepared with input from several technical consultants. It is based on the detailed design of the buildings. This process is directed by the Department of Planning and Environment for assessment.

HammondCare will then lodge detailed designs for approval through the Department of Planning and Environment's State Significant Development (SSD) process. The SSD will go on public exhibition for 30 days.

The community will be able to provide feedback through a formal submission as part of this process.

The department will then give HammondCare an opportunity to respond to any matters raised through a 'response to submissions report', and this will inform the rest of the assessment.

Project updates and latest news will be shared to the project distribution list of people who have registered for email updates, and also published to HammondCare's website. This includes the set of detailed plans for the site which will be uploaded to the Ask Greenwich webpage for feedback. Interested community members and stakeholders can also use the contact form to request a copy.

HammondCare will also exhibit project documentation at Lane Cove Council for those community members and interested stakeholders who do not have access to the Department of Planning and Environment's Major Projects Portal.

The HammondCare project team is available to meet with community members and interested individuals as the project progresses.

## 5. Appendices

Appendix A	Project newsletter
Appendix B	Distribution area
Appendix C	Media release
Appendix D	Media coverage
Appendix E	Presentation – online information sessions



## Greenwich Hospital

### Community update: Health campus vision moves to the detailed design stage

As you may be aware, HammondCare is pursuing a long-term vision for Greenwich Health Campus as an integrated facility for seniors and others with complex health needs.

HammondCare's vision is to transform Greenwich Hospital from a dated, 1960's facility into a contemporary healthcare campus providing specialised care services.

The Greenwich Health Campus includes a hospital building offering health services, residential care, older persons mental health and palliative care along with a tailored accommodation offering Serviced Seniors Living.

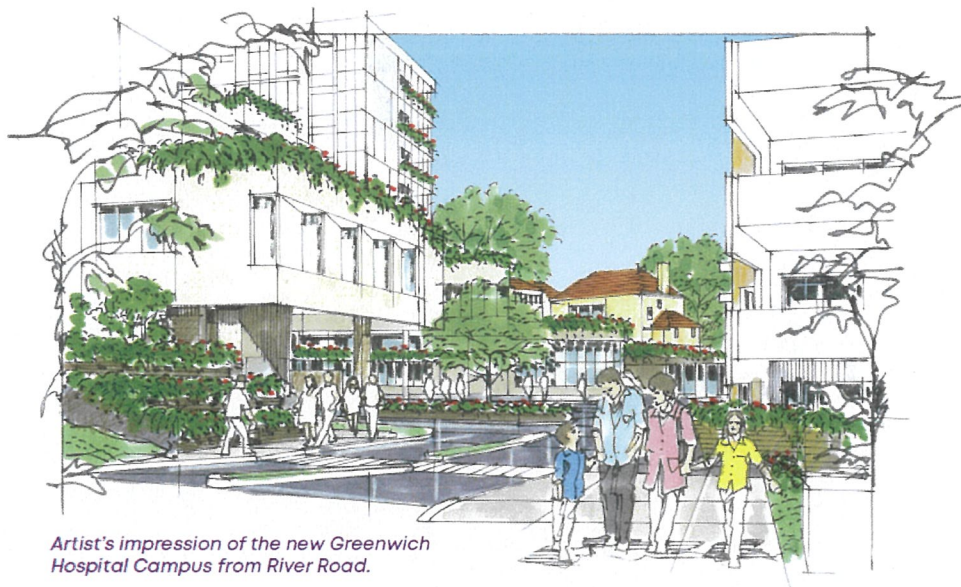
Serviced Seniors Living units are an important aspect of the project, offering 24/7 access to health services for older people with chronic health conditions who wish to live independently.

Since the Concept State Significant Development (SSD) was approved in December 2020, the project team is now working to develop the design as part of the Detailed Design SSD.

HammondCare is pleased to share the below design development of the new Greenwich Hospital Campus on River Road.

In developing the detailed design following the Concept SSD approval, a number of key themes have been addressed, including:

- Reduced building height
- Improved building articulation and widespread greenery and plantings, including on balconies, roofs and podiums
- Relocating non-care elements such as loading provisions and carparking underground (where possible)
- Enhancing views of the heritage-listed Pallister House
- Improved accessibility and connection to ground-level for residents, patients, visitors and staff
- Incorporation of the site's important Indigenous and European Heritage aspects



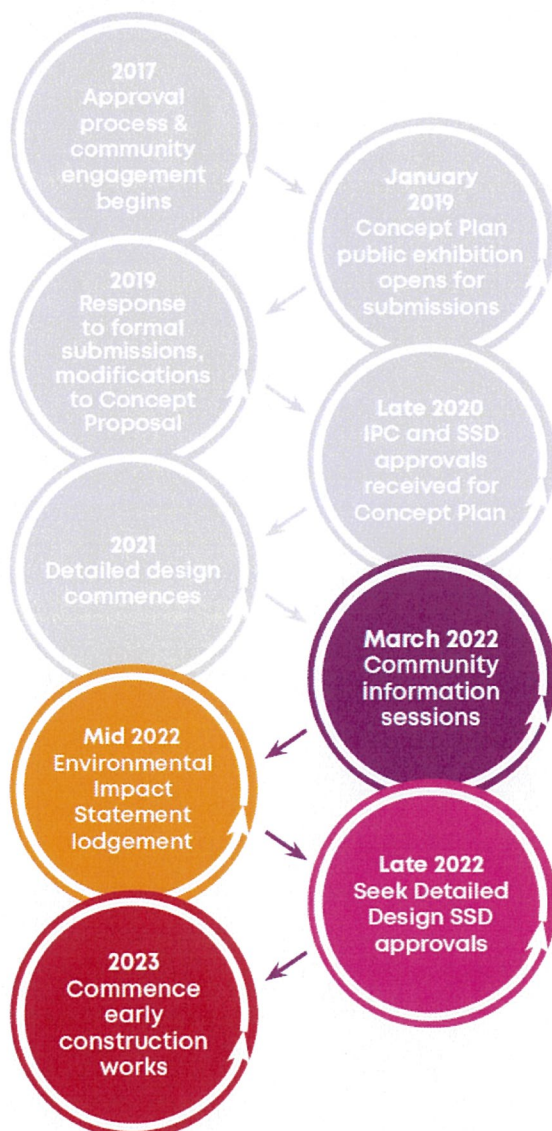
*Artist's impression of the new Greenwich Hospital Campus from River Road.*

As an independent Christian charity, HammondCare champions life.

## Project milestones

The realisation of HammondCare's vision for Greenwich Hospital is a long-term project.

HammondCare is committed to working with the community and will continue to keep the local community and other interested stakeholders up to date as the project progresses.



## Community information sessions

HammondCare invites community members and interested stakeholders to attend an online information session to view the updated designs for Greenwich Hospital and the integrated Seniors Living Facility, to hear from HammondCare representatives about the project's next steps and ask any questions, prior to the detailed Concept State Significant Design (SSD) being submitted.

The sessions will be held on the following days and hosted on Microsoft Teams:

**Monday 28 March 2022 from 6pm - 7pm**

**Thursday 31 March 2022 from 12pm - 1pm**

Please register your attendance using the contact details below and a member of the project team will send you a confirmation email with a link and instructions on how to attend.

The community and interested stakeholders will be invited to formally respond to the updated designs for the Greenwich Health Campus once finalised.


**We invite you to find out more about the vision and detailed design for Greenwich Hospital by attending an upcoming online information session or by visiting: [www.hammond.com.au/greenwich](http://www.hammond.com.au/greenwich)**

## Keeping you updated

We encourage you to register for project updates via the HammondCare website:

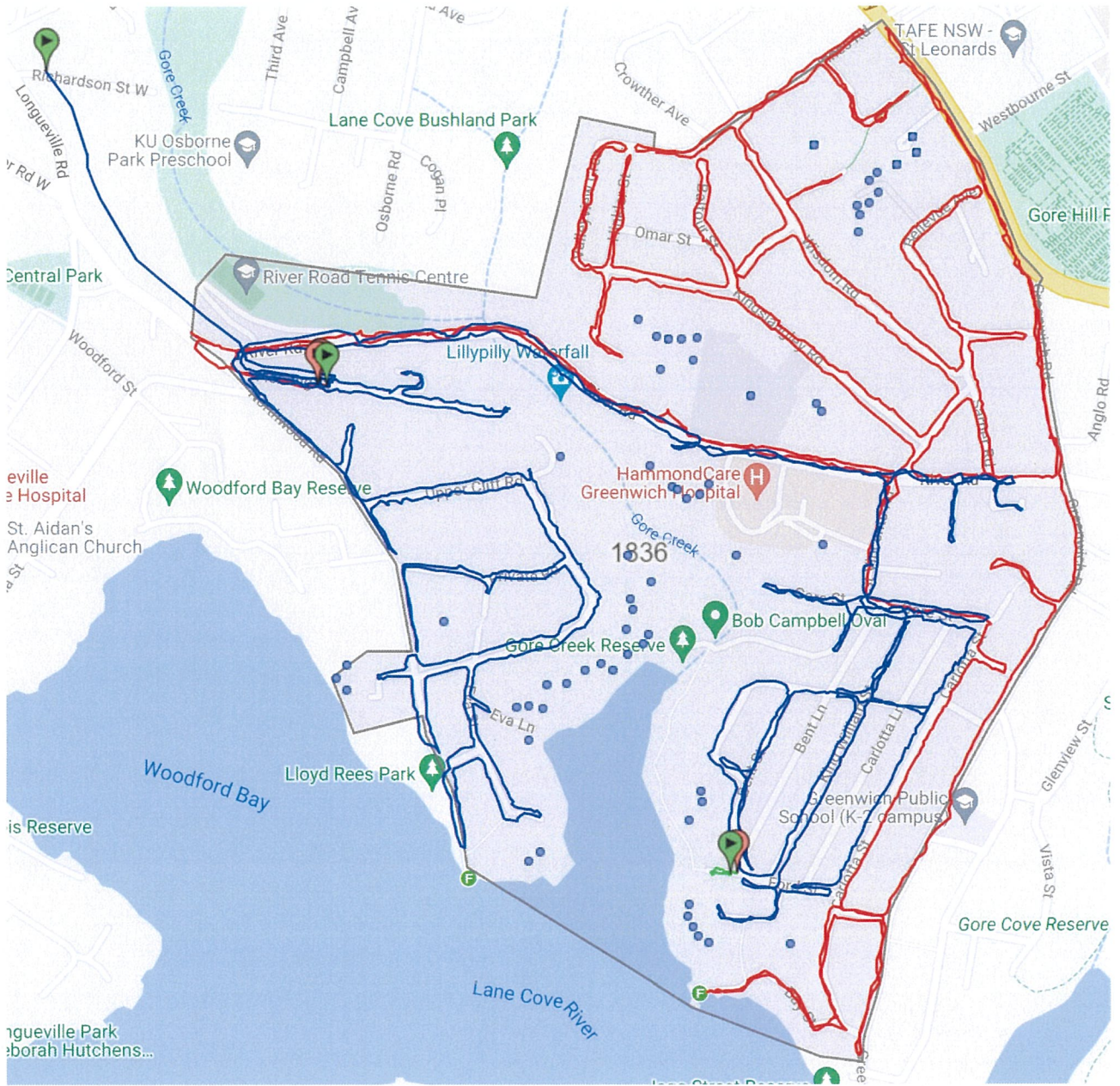
[www.hammond.com.au/greenwich](http://www.hammond.com.au/greenwich)

If you have any queries or would like to speak with a member of the team, please contact us:

 Phone  
1300 426 666

 Email  
[AskGreenwich@hammond.com.au](mailto:AskGreenwich@hammond.com.au)

Appendix B: Distribution area





## Media Release

**For release: Immediately**

**Date: March xx, 2022**

### Health campus vision for Greenwich Hospital site moves to detailed design stage

HammondCare's vision to transform Greenwich Hospital into an integrated health campus has been enhanced with detailed design showing reduced building heights, maximised greenspace and better views of historic Pallister House.

The Greenwich Hospital Redevelopment is a \$141.5 million plan which aims to cater for the Northern Sydney's health care needs now and into the future, especially for older people.

HammondCare has called for community feedback on the detailed design for the Greenwich Hospital site before proceeding with an environmental impact statement to be lodged by mid-2022.

A Concept State Significant Design (SSD) proposal for Greenwich Hospital was approved in November 2020. The approval covered demolition of all buildings other than Pallister House, construction of a combined hospital and residential care bed building, two seniors living blocks, a respite facility and basement care parking

The 89 serviced seniors living units will offer older people with chronic health conditions who want to live independently with access to 24/7 health services.

The *Greenwich Hospital Redevelopment – Detailed Design*, which is consistent with the approved Concept, has building articulation and widespread greenery and plantings, including on balconies, roofs and podiums, to integrate the proposed structures with the landscape.

The campus reflects that healthcare is changing, with a preference for shorter hospital stays, more treatments in home, and demand for improved access to specialised health services and greater choice on how to receive care.

HammondCare General Manager of Health and Palliative Care Andrew Montague said the proposed design is the result of listening to community feedback received through previous engagement.

Dr Montague said the detail proposal respects the site's significant heritage aspects while bringing the campus into the 21<sup>st</sup> century with state-of-the-art healthcare provision.

"HammondCare is pleased to be bringing the detailed plans back to the community to demonstrate how it is consistent with the Concept approval and

to share how we plan to transform the Greenwich Hospital from a dated, 1960's facility into an integrated, contemporary healthcare campus.

“HammondCare recognises the importance of this project to the local community – we are committed to working closely with local residents as the project develops and to ensure the new health care facilities meet community needs, both now and into the future.

Key enhancements in response to the Concept approval include:

- Reducing building heights
- Further greening of the site through landscaped edge conditions, green roofs and terraces and enhancing the tree canopy.
- Relocating non-care elements such as loading provisions and carparking underground (where possible) to maximise greenspace and ground level pedestrian connectivity
- Improving safety and accessibility on site by providing for service vehicle movements into the basement
- Enhancing views of the heritage-listed Pallister House which will continue to provide research and administrative functions
- Improved direct-level access and connection to nature for residents, patients, visitors and staff
- Incorporating interpretation installations to communicate the site's Indigenous and European Heritage
- Development of the landscape design to accommodate all patients, regardless of ability, access to paths and walks with interactive and informative points of interest

Care services which will be provided at the new Greenwich Health Campus include palliative care, mental health, rehabilitation (including hydrotherapy), serviced seniors living, aged care, General Practitioners and outpatient clinics and 24/7 on-site care.

HammondCare is inviting the community and interested stakeholders to attend an online information session in late March 2022 to hear from project representatives and view the detail design for Greenwich Campus

To register or for more information, visit [www.hammond.com.au/locations/greenwich-hospital](http://www.hammond.com.au/locations/greenwich-hospital)

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**Media:** For more information contact Kelvin Bissett on 0418 222 107 or email at [kbissett@hammond.com.au](mailto:kbissett@hammond.com.au)

**HammondCare:** HammondCare provides health, aged and dementia care expertise that empowers the people that we serve. Regarded nationally and internationally as one of Australia's most innovative health and aged care providers, HammondCare offers hospital care, residential care and community services. HammondCare is an independent Christian charity.



Detailed designs have been released for the redevelopment of the 1960's Greenwich Hospital site into an integrated health campus. Online community feedback sessions will be held on Monday and Thursday <https://www.hammond.com.au/locations/greenwich-hospital>



Source: <https://www.facebook.com/northshoretimes/posts/detailed-designs-have-been-released-for-the-redevelopment-of-the-1960s-greenwich/10158881035393719/?msclkid=b04059fd51111ec90e64a15ce4da8fd>

# Register for Greenwich Hospital Community Information Sessions on Design Plans

By Jacky Barker - 22 March 2022



In November 2020, the Independent Planning Commission approved plans for a \$141.5 million redevelopment of Greenwich Hospital. [Background information on the IPC decision here.](#)

The Concept State Significant Design proposal for Greenwich Hospital covers the demolition of all buildings other than Pallister House, and the construction of an integrated hospital and residential care building serviced seniors living accommodation, respite facility and basement car parking.

Care services that will be provided at the new Greenwich Health Campus include palliative care, mental health, rehabilitation (including hydrotherapy), serviced seniors living, aged care, General Practitioners, outpatient clinics, research and 24/7 on-site care.

## Detailed Design Plans

HammondCare has now developed detailed design plans.

HammondCare General Manager of Health and Palliative Care Andrew Montague said the detailed proposal respects the site's significant heritage while bringing the campus into the 21st century with state-of-the-art healthcare provision.

"HammondCare is pleased to be bringing the detailed plans back to the community to demonstrate how it is consistent with the Concept approval and to share how we plan to transform the Greenwich Hospital from a dated, 1960's facility into an integrated, contemporary healthcare campus."

"HammondCare recognises the importance of this project to the local community - we are committed to working closely with local residents as the project develops and to ensure the new health care facilities meet community needs, both now and into the future."

## How Do I See the Detailed Designs?

HammondCare is holding online community sessions on the detailed design for the Greenwich Hospital site. After the sessions, they expect to lodge a Detailed State Significant Design Application by mid-2022.

The online information sessions will be held on **March 28 and 31, 2022.**

You can register for the online sessions by clicking this [link](#) and completing the contact form located at the bottom of the page.



## When Will the Redevelopment Be Completed?

HammondCare on their website states:

“The realisation of HammondCare’s vision for Greenwich Hospital will take many years to complete. HammondCare recognises the significant interest in our plans and we are committed to working with the community to develop contemporary services that meet future needs.

Depending on approvals, HammondCare expects construction to begin in 2023. The hospital will continue to operate during construction.”

Source (above article): <https://inthecove.com.au/2022/03/22/register-for-greenwich-hospital-community-information-sessions-on-design-plans/>

Source (right): <https://www.theweeklysource.com.au/hammondcare-seeks-community-feedback-on-its-141-5m-redevelopment-of-greenwich-hospital-in-sydney/>



### | HammondCare seeks community feedback on its \$141.5M redevelopment of Greenwich Hospital in Sydney

Published on March 22, 2022

The Not For Profit provider has released the detailed design of the proposed integrated health campus planned for its Greenwich Hospital, 7km northwest of Sydney’s CBD.

HammondCare is calling for community feedback on the new design which has reduced the building height, maximised green space and improved the views of the historic Pallister House before it proceeds with the lodgement of a Detailed State Significant Design Application by mid-2022.

**A Concept State Significant Design proposal for Greenwich Hospital was originally approved by the Independent Planning Commission NSW in November 2020. The approval covered demolition of all buildings other than Pallister House, and construction of an integrated hospital and residential care building, serviced seniors living accommodation, respite facility and basement parking.**

The 89 serviced seniors living units will offer older people with chronic health conditions who want to live independently with access to 24/7 health services.

**HammondCare** is inviting the community and interested stakeholders to attend an online information session this month to hear from project representatives and view the detail design for Greenwich Campus.

To find out more and register, [click here](#)

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# Appendix E – Construction Waste Management Sub-Plan (CWMSP)



Waste Audit & Consultancy Services (Aust) Pty Ltd  
Level 21, 133 Castlereagh Street  
Sydney, NSW 2000  
Telephone 02 9199 4521  
[www.wasteaudit.com.au](http://www.wasteaudit.com.au)

## Greenwich Hospital Redevelopment

### Combined Operational, Demolition, and Construction Waste Management Plan

State Significant Development,  
Application Number SSD-11619238

Prepared for TSA Management

August 8, 2022

# Table of Contents

1	Introduction.....	3
2	Applicable Legislation, Standards and Guidelines.....	4
3	Reference Documents and Reports.....	4
4	Scope of Demolition and Construction Works.....	5
5	Risk Management and Reporting.....	5
6	Demolition and Construction Waste Objectives and Targets.....	6
7	Demolition and Construction Waste Management Strategies.....	6
8	Demolition and Construction Waste Management Principles.....	7
8.1	General Principles.....	7
8.2	Liquid Waste Management.....	7
8.3	Asbestos Containing Materials.....	7
9	Demolition Waste.....	8
10	Construction Waste.....	10
11	Operational Waste.....	11
11.1	Expected Materials Streams.....	11
11.2	Predicted Operational Volumes.....	11
12	Operational Waste Management Processes.....	13
12.1	Clinical Wastes.....	13
12.2	General Waste.....	15
12.3	Cardboard and Paper Recycling.....	15
12.4	Secure Document Destruction.....	15
12.5	Commingled Recycling.....	15
12.6	Food Waste Recycling.....	15
12.7	Polystyrene Recycling.....	16
12.8	Specialised Recycling (E-Waste, Printer Cartridges, Lamps, Batteries).....	16
13	Operational Waste Stream Management.....	16
13.1	Labelling and Tracking.....	16
13.2	Mobile Garbage Bins (MGBs) and Trolleys.....	16
13.3	Handling of Bags/Bin Liners.....	17
13.4	Spill Management.....	17
13.5	Auditing.....	18
14	Waste and Recycling Contractor Requirements.....	18
14.1	Transport and Disposal.....	18
14.2	Servicing, Access, and Reporting.....	18
15	Storage and Loading Areas.....	19
16	Internal Bins.....	19
16.1	Administrative Areas.....	19
16.2	Clinical Areas.....	19
17	Staff & Contractor Education.....	20
18	Operational Resource Recovery Targets.....	20
19	Ongoing Performance Reporting.....	20
	Appendix 1: Glossary.....	21
	Appendix 2: Clinical Waste Stream Management.....	23
	Appendix 3: Signage Examples - Hazardous Waste.....	26
	Appendix 4: Signage Examples - Internal and Loading Dock.....	27
	Appendix 5: Site Demolition Plans.....	29
	Appendix 6: Site Construction Plans.....	30
	Appendix 7: Materials Movement, Storage, and Collection.....	33
	Appendix 8: Lane Cove Council Waste Management Controls.....	38
	Appendix 9: Waste Management Bins and Equipment.....	47

# 1 Introduction

This combined Operational, Demolition, and Construction Waste Management Plan is submitted to the Department of Planning, Industry and Environment (DPIE) in support of a State Significant Development Application (SSD-13619238) for the redevelopment of Greenwich Hospital into an integrated hospital and seniors living facility on land identified as 97-115 River Road, Greenwich (the site). The extent of the site is shown below.

**Figure 1: Location Plan**



The subject proposal is for the detailed design and construction of the facility following its concept approval under SSD-8699. Specifically, SSD-13619238 seeks approval for the following:

- Construction of a new hospital facility and integrated healthcare campus comprising of hospital, residential aged care, seniors housing, overnight respite, across:
  - A new main hospital building up to RL 80.0;
  - Two new seniors living buildings, Northern building up to RL 56.36, and Southern building up to RL 60.65;
  - A new 2-3 respite care building up to RL 56.9;
- Construction of associated site facilities and services, including pedestrian and vehicular access and basement parking;
- Site landscaping and infrastructure works; and
- Preservation of Pallister House which will continue to host dementia care and administrative functions.

This report provides details of:

- Calculations of predicted waste types, quantities, and management processes for the following project stages:
  - Demolition of existing structures
  - Construction of new facilities
  - Ongoing facility operations
- Materials movement pathways and storage area design and layout
- Staff engagement strategies and education programs
- Private waste contractor requirements

- Lane Cove Council planning requirements regarding waste management

A Development Consent for the project was issued on 10 November 2020 for SSD-8699 (concept proposal for the redevelopment of Greenwich Hospital).

In accordance with Section 4.39 of the Environmental Planning & Assessment Act 1979 (EP&A Act), the Secretary's Environmental Assessment Requirements (SEARs) for the Detailed Design component of the redevelopment (SSD-13619238) were issued on 24 February 2021.

Consequently this report has been prepared to respond to the following SEARs:

**Table 1: SEARs Requirements**

Stage/Item	Description of Requirement	Report Section
<b>EIS Item 18. Waste</b>	<ul style="list-style-type: none"> <li>• Identify, quantify and classify the likely waste streams to be generated during construction and operation.</li> <li>• Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.</li> <li>• Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.</li> <li>• Provide a hazardous materials survey of existing aboveground buildings that are proposed to be demolished or altered</li> </ul>	<p>Sections 9-12</p> <p>Section 13</p> <p>Sections 13-18</p> <p>See separate 2018 GreenCap report</p>
<b>Concept Proposal B29. Waste</b>	<ul style="list-style-type: none"> <li>• All future applications for new built form must include Waste Management Plans to address storage, collection, vermin control, hygiene and management of waste and recycling within the development and during construction and demolition works.</li> </ul>	Sections 13-18

## 2 Applicable Legislation, Standards and Guidelines

The following have been referred to in compiling this report:

- NSW *Protection of the Environment Operations Act 1997*
- NSW *Protection of the Environment Operations (Waste) Regulation 2014, Part 11*
- NSW *Protection of the Environment (General) Operations Act 1998*
- NSW *Waste Avoidance and Resource Recovery Act 2001*
- NSW EPA *Waste Classification Guidelines 2014*
- Lane Cove Council *Development Control Plan Part Q - Waste Management & Minimisation*

## 3 Reference Documents and Reports

The following diagrams, documents and reports have been consulted in compiling this report:

- DD-SW-0100\_EXISING SITE PLAN\_P8
- DD-SW-0101\_PROPOSED SITE PLAN\_P9
- DD-SW-0121\_STAGE 1.1 PLAN-DEMOLITION\_P7
- DD-SW-0124\_STAGE 3.1 PLAN-DEMOLITION\_P7
- DD-SW-0122\_STAGE 1.2 PLAN - CONSTRUCTION\_P7
- DD-SW-0123\_STAGE 2 PLAN - CONSTRUCTION\_P7
- DD-SW-0125\_STAGE 3.2 PLAN - CONSTRUCTION\_P7

- DD-SW-0126\_STAGE 4 PLAN - CONSTRUCTION\_P7
- DD-SW-0127\_STAGE 5 PLAN - CONSTRUCTION\_P7
- Attachment\_1605-220217-Loading Dock Option
- Attachment\_1605-220218-Staging Option-Preferred
- WF-0410-0416\_WORKFLOW DIAGRAMS COMBINED- WASTE MANAGEMENT - HEALTH & CARE
- WF-0420\_WORKFLOWS - SL - WASTE MANAGEMENT - L1\_P2
- WF-0421\_WORKFLOWS - SL - WASTE MANAGEMENT - L2\_P2
- GreenCap *Hazardous Material Risk Assessment* April 2018
- Douglas Partners *Report on Preliminary Site Investigation (Contamination)* August 2018

## 4 Scope of Demolition and Construction Works

The demolition and construction components of the project will take place across several stages and sub-stages as summarised below and illustrated in the drawings in Appendix 7.

**Table 2: Scope of Demolition & Construction Works**

Stage	Proposed Work Relevant to this Report
1.1	Demolition of existing buildings (Bluegum, pool, reception, and adjacent structures) Demolition of existing roadways Removal of non-significant vegetation
1.2	Construction of new Hospital building including Podium, Tower and basement carpark Construction of new roadways and external carparks
2	Construction of new Hospital building including Garden Terraces
3.1	Demolition of existing buildings (Hospital, Riverglen, and adjacent structures) Demolition of existing roadways and carparks Removal of non-significant vegetation
3.2	Construction of Seniors Living South and surrounding areas and landscaping
4	Construction of Seniors Living North and surrounding areas and landscaping
5	Construction of Respite

## 5 Risk Management and Reporting

Legislation specifies that the generator of waste is the owner of the material until it crosses a weighbridge into a licensed processing or disposal facility. Waste contractors and construction contractors will be the primary transporters of waste off-site; accordingly, contractors will be required to provide monthly reports to the Project Managers on waste reused, re-processed/ recycled, and sent to landfill.

All reports will include the following information:

- Date and time material removed
- Material type
- Amount of material (in kg and/or cubic metres)
- Processing facility material taken to
- Processing facility licensing information
- Vehicle registration and waste contractor's company details

This information will be kept on site in a data file (printed and/or electronic) and made available for inspection to authorised council officers at any time during site works. On conclusion of works, the construction contractor will retain all documentation and make it available for inspection.

## 6 Demolition and Construction Waste Objectives and Targets

This Waste Management Plan will be implemented throughout the project’s demolition and construction phases. The project’s waste management objectives will include:

- Meeting all waste management standards while ensuring the health and safety of the workers on the project
- Maximising the quantities of materials diverted from landfill by reusing, recycling and reprocessing off-site
- Disposal of no more than 20% of residual waste materials to a licensed landfill in accordance with both regulatory and legal requirements
- The diversion from landfill of 80% of construction waste by weight, to meet the criteria of the NSW State Government’s waste legislation, policy settings and regulatory regime

Management strategies and responsibilities for ensuring these objectives are achieved are detailed in Section 7.

## 7 Demolition and Construction Waste Management Strategies

The following waste management strategies for the project will operate over the design, procurement, demolition, and construction (including fitout) stages of the project:

**Table 3: Management Strategies**

Management Strategies	Responsibilities
<b>Design:</b> Use of modular components in design Use of prefabricated components in design Design for materials to standard sizes Design for operational waste minimisation	Architect & Engineer Architect, Builder, Subcontractors Architect, Subcontractors Architect & Builder
<b>Procurement:</b> Select recycled and reprocessed materials Select components that are reusable after deconstruction	Architect, Engineer, Builder, Subcontractors Architect, Engineer & Builder
<b>Pre-Demolition:</b> Waste management plan to be reviewed and amended as required to address any changes in project scope Hazardous materials survey to be undertaken prior to commencements of any demolition works	Project Manager, Builder
<b>Construction:</b> Use the waste hierarchy principles of avoidance, reuse, reduction, and recycling Minimisation of recurring packaging materials Returning packaging to the supplier Separation and recycling of materials off site Monitor and audit correct usage of bins Monitor and audit waste contractor(s)	Builder & Waste Contractor  Subcontractors Builder & Subcontractors Waste Contractor Builder & Waste Contractor Builder

## 8 Demolition and Construction Waste Management Principles

### 8.1 General Principles

The following standard waste management hierarchy principles have been used to guide this waste management plan:

**Avoid:** Use practices that avoid the creation of waste products in the first place (e.g., the Design for Manufacture and Assembly (DfMA) process that combines the manufacture of building components, such as wall systems and facades, in an efficient factory environment, with on-site construction assembly. For details of this process please go to:

<https://architectus.com.au/insight/design-for-manufacture-and-assembly-dfma/>

**Reduce:** Reduce the use of materials during demolition that require treatment or disposal

**Reuse:** Ensure that wherever possible, materials are reused either on site or offsite:

- Identify and put systems in place to separate and store materials for onsite reuse
- Identify the potential applications for reuse offsite and facilitate this process

**Recycle/Recover:** Identify all recyclable waste products to be produced on site:

- Provide systems, bins, and signage for separating and stockpiling of recyclables
- Process the material for recycling either onsite or offsite

**Treat/Dispose:** Waste products which cannot be reused or recycled will be removed and treated/disposed of at appropriately licensed facilities. To minimise vehicle movements and transportation costs, bins should be monitored for fullness and collected on an efficient schedule.

### 8.2 Liquid Waste Management

- Ensure water is used in moderation and no taps are left continuously running
- Use any grey water produced on site for irrigation or for dust suppression
- Only discharge clean water into storm water
- Manage all wastewater and runoff in accordance with Sydney Water requirements

### 8.3 Asbestos Containing Materials

In regard to disposal of asbestos-containing materials, there are regulatory requirements under Clause 42 of the *Protection of the Environment Operations (Waste) Regulation 2005* that apply to the management of asbestos waste. Should any materials be suspected of being (or containing), asbestos, the following process will be followed:

- Treat the material as asbestos unless proven otherwise
- Do not disturb the material (i.e., shift or place into a container)
- Send the materials to a suitably qualified laboratory for testing
- If determined not to be asbestos, then the materials can be managed as an inert waste
- If determined to be asbestos then the materials must be managed by a licenced contractor for packaging, removal and disposal
- If the material has accidentally been uncovered, then the area should be cleared, barriers erected to prevent access, NSW WorkCover and EPA notified, and if the material is broken, it should be covered with a fine spray/mist of water.

Only workers trained in asbestos removal techniques will be allowed to manage the removal of asbestos-contaminated soil and any material contained in existing structures.

## 9 Demolition Waste

Table 4 shows estimated quantities of demolition waste to be generated, and management strategies for each type of material, based on our understanding of structures to be demolished and excavation works to be undertaken. Specific disposal/recycling facilities are not shown, as waste removal contractors have not yet been appointed for the project.

**Table 4: Demolition Waste - Expected Materials Streams**

Materials on Site		Destination/Treatment		
Type of Material	Estimated m <sup>3</sup>	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
<b>Excavated Soil, Rock</b>	<b>13,600</b>	Possible onsite reuse in landscaping works	Material to be taken to facility for processing for reuse at other sites	No disposal to landfill
<b>Bricks</b>	<b>1,000</b>	Separated on site and crushed for use in pavement and/or temporary access road construction	Acceptable quality bricks collected by contractor for reuse. Unusable bricks collected and recycled at recycling facility to be used in aggregate gravel products	No disposal to landfill
<b>Trees &amp; Vegetation</b>	<b>200</b>	Possible onsite reuse	Material to be taken to organic waste facility for processing for reuse in landscaping works	No disposal to landfill
<b>Roof Tiles</b>	<b>100</b>	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
<b>Bitumen</b>	<b>100</b>	No on-site reuse	Collected by contractor for recycling at dedicated facility	No disposal to landfill
<b>Concrete</b>	<b>60</b>	Separated on site and crushed for use in pavement and/or temporary access road construction	Acceptable quality bricks collected by contractor for reuse. Unusable bricks collected and recycled at recycling facility to be used in aggregate gravel products	No disposal to landfill
<b>Metals</b>	<b>60</b>	No on-site reuse	Collected by contractor for separation into different metal types for recycling	No disposal to landfill
<b>General Waste (All Materials Unsuitable for Reuse/Recycling)</b>	<b>60</b>	No on-site reuse or recycling	Collected by the waste contractor for disposal at landfill	Disposal to landfill
<b>Floor Coverings</b>	<b>60</b>	No on-site reuse	Collected in designated bin and sent for recycling if of sufficient quality; otherwise sent to landfill	Material that cannot be recycled will be sent to landfill
<b>Structural &amp; Fencing Timber</b>	<b>50</b>	Possible onsite reuse	Untreated recyclable timber will be collected and recycled at timber yard. Unrecyclable timber will be sent to landfill	Material that cannot be recycled will be sent to landfill

Materials on Site		Destination/Treatment		
Type of Material	Estimated m <sup>3</sup>	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Glass	40	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
Hazardous Materials	30	No on-site reuse or recycling	Collected by specialist contractor for treatment and disposal	Disposal to licensed landfill
Ceiling Tiles	20	No on-site reuse or recycling	Collected by specialist contractor for recycling	No disposal to landfill
Lighting Fixtures, Lamps (Non-Hazardous)	30	No on-site reuse or recycling	Collected by specialist contractor for recycling	No disposal to landfill
Wiring, Electrical Fittings	30	No on-site reuse	Collected by specialist metal subcontractor for separation into different metal types for recycling	No disposal to landfill
Plumbing, Fixtures	30	No on-site reuse		No disposal to landfill
Plasterboard	20	No on-site reuse	Material to be separated onsite and collected by contractor for recycling for use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be sent to landfill
Bathroom & Kitchen Tiles	10	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
<b>TOTAL MATERIALS</b>	<b>15,540</b>	The development's demolition phase will produce around <b>15,540 m<sup>3</sup></b> of waste materials, of which <b>15,540 m<sup>3</sup></b> or <b>99%</b> can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

## 10 Construction Waste

Table 5 shows expected volumes resulting from the construction process, including materials generated from deliveries, such as pallets, pallet wrap, cardboard packaging, and general waste and recyclables disposed of by contractor staff, based on the works to be undertaken. Specific disposal/recycling facilities are not shown, as waste removal contractors have not yet been appointed for the project.

**Table 5: Construction Waste - Expected Materials Streams**

Materials on Site		Destination		
Type of Material	Estimated m <sup>3</sup>	Onsite (Reuse/Recycle)	Offsite (Reuse/Recycle)	Disposal (Landfill)
Soft Plastics (e.g. pallet wrapping)	85	Possible onsite reuse	Collected by contractor and taken to recycling facility	No disposal to landfill
Used Pallets	83	Reuse on site for materials storage	Collected by contractor and taken to recycling facility	No disposal to landfill
Paper/Cardboard Recycling	66	Reuse cardboard boxes for storage where possible	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Metal Offcuts, Wiring, etc.	58	No on-site reuse	Collected by contractor for separation into different metal types for recycling	No disposal to landfill
General Waste	55	No on-site reuse or recycling	Separated onsite into dedicated receptacles and collected by waste contractor for disposal	Disposal to landfill
Plasterboard Offcuts	52	No on-site reuse	Material to be separated onsite and collected by contractor for recycling for use as soil improver with gypsum removed by recycler	Material that cannot be recycled will be sent to landfill
Floor Coverings	50	No on-site reuse	Collected in designated bin and sent for recycling if of required quality; otherwise sent to landfill	Material that cannot be recycled will be sent to landfill
Recyclable Glass, Metal, & Plastic Containers	41	No on-site reuse	Separated onsite into dedicated receptacles and collected by the waste contractor for recycling	No disposal to landfill
Timber Offcuts	39	Reuse for formwork where possible	Untreated recyclable timber will be collected and recycled at timber yard. Unrecyclable timber will be sent to landfill	Material that cannot be recycled will be sent to landfill
Concrete (Excess)	33	Separated on site and crushed for use in access road construction	Collected by contractor and taken to concrete recycling facility	No disposal to landfill
Glass (Excess)	28	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
<b>TOTAL MATERIALS</b>	<b>589 m<sup>3</sup></b>	The development's construction phase will produce around <b>589 m<sup>3</sup></b> of waste materials, of which <b>534 m<sup>3</sup></b> or <b>90.2%</b> can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

## 11 Operational Waste

### 11.1 Expected Materials Streams

The following materials streams will be generated from the development's ongoing operations:

**Table 6: Materials Streams**

Material Stream	Health & Care	Seniors Living
General Waste	✓	✓
Cardboard & Paper Recycling	✓	✓
Confidential Paper Recycling	✓	✓
Commingled Recycling	✓	✓
Food Organics Recycling	✓	✓
Cooking Oil Recycling	✓	
Polystyrene Recycling	✓	
Clinical Waste	✓	✓
Pharmaceutical Waste	✓	✓
Cytotoxic Waste	✓	
Sanitary Waste	✓	✓
Sharps Waste	✓	
E-Waste Recycling	✓	✓
Lamp Recycling	✓	✓
Bulky Used Items	✓	✓

Garden waste will also be generated, but it is expected that this will be removed by the development's garden maintenance contractor and so it has not been included in calculations.

### 11.2 Predicted Operational Volumes

To calculate these, we have used the existing Hospital's waste data for January-June 2021 as a guide, and multiplied volumes of general waste by a factor of 6.25, and a factor of 6.50 for the site's other streams, taking into account reduced occupancy in 2021 due to COVID-19 and an increase in the number of Hospital beds from 74 to 130, and 89 Seniors Living apartments.

For food organics recycling, for which the current hospital does not have a recycling program, we have estimated expected quantities based on the percentage of this material likely to be recoverable from the general waste.

Tables 7 and 8 show expected daily volumes in litres, bin and equipment sizes and requirements, and recommended collection frequencies for the main materials streams listed above, based on full occupancy of the Hospital and Seniors Living.

Collections of other streams (E-Waste, Lamps, and Bulky Items) will be done on an ad-hoc basis as required; figures in Table 7 for these streams are for both buildings.

As cooking will take place on site, used oil recycling facilities will also be provided in the central bin storage room. The estimated daily volume of this waste is around 20 litres.

The site's private waste contractor, Suez, will collect all materials from the central storage room as shown in the drawings in Appendix 7.

**Table 7: Equipment & Collection Frequencies - Hospital**

Material Stream	Daily Litres	Bin Size (Litres)	No.	Collection Frequency	m <sup>2</sup> Per Bin	Total Area m <sup>2</sup>
General Waste	10,799	1100	11	7 per week	1.33	14.63
Cardboard & Paper Recycling	2,505	1100	4	3 per week	1.33	5.32
Confidential Paper Recycling	86	240	2	1 per week	0.43	0.85
Commingled Recycling	492	240	8	3 per week	0.43	3.41
Food Organics Recycling	474	120	5	7 per week	0.26	1.30
Cooking Oil Recycling	20	500	1	1 per month	0.50	0.50
Polystyrene Recycling	500	1100	1	3 per week	1.33	1.33
Clinical Waste	123	240	6	1 per month	0.43	2.56
Pharmaceutical Waste	8	120	1	1 per quarter	0.26	0.26
Cytotoxic Waste	17	120	2	1 per month	0.26	0.52
Sanitary Waste	574	28	10	1 per week	0.10	1.00
Sharps Waste	<5	5	To be determined			
E-Waste Recycling	Irregular	240	1		0.43	0.43
Lamp Recycling	Irregular	240	1		0.43	0.43
Bin Wash Area	N/A					4
Bulky Goods Area	N/A					8
Circulation Space (+30% of bin footprint)	N/A					10.56
<b>Total</b>	<b>15,596</b>					<b>55.09</b>

**Table 8: Equipment & Collection Frequencies – Seniors Living**

Material Stream	Daily Litres	Bin Size (Litres)	No.	Collection Frequency	m <sup>2</sup> Per Bin	Total Area m <sup>2</sup>
General Waste	11,089	1100	11	7 per week	1.33	14.63
Cardboard & Paper Recycling	2,573	1100	4	3 per week	1.33	5.32
Confidential Paper Recycling	88	240	2	1 per week	0.43	0.85
Commingled Recycling	505	240	8	3 per week	0.43	3.41
Food Organics Recycling	20	500	5	7 per week	0.26	1.82
Clinical Waste	126	240	6	1 per month	0.43	2.56
Pharmaceutical Waste	8	120	1	1 per quarter	0.26	0.26
Sanitary Waste	589	28	10	1 per week	0.10	1.00
Circulation Space (+30% of bin footprint)	N/A					9.16
<b>Total</b>	<b>14,999</b>					<b>39.69</b>

HammondCare intends to reduce food wastage and its attendant environmental impacts through a variety of measures, including collection by a licensed contractor and/or on-site processing using an appropriate technology. The final choice of system will be reviewed and coordinated following lodgement of the EIS.

## 12 Operational Waste Management Processes

### 12.1 Clinical Wastes

Due to the risks involved with the generation and handling of these wastes, extreme care must be taken when handling, packaging, transporting and disposing of these materials. Consequently, there are strict requirements for all generators, transporters and disposal site operators to ensure protection to the community and the environment.

All clinical and related wastes must be:

- Handled by staff with access to appropriate Personal Protective Equipment (PPE)
- Packaged so that there is no risk of wastes escaping
- Transported and disposed of in accordance with EPA NSW legislation and guidelines and relevant Codes of Practice

The NSW Health *Clinical and Related Waste Management for Health Services Policy*, August 2017 provides clear guidance and detailed procedures for managing various types of clinical waste. These materials must be stored in uniquely identified receptacles located in separate rooms from all other wastes and recyclables, as per the colour-coding shown in Appendices 2 and 3 and disposed of according to designated Clinical and Hazardous Waste Procedures.

Clinical wastes may include:

- Anatomical
- Laboratory
- Sharps
- Cytotoxic
- Pharmaceutical
- Radioactive
- Chemical

**Anatomical, laboratory, and sharps wastes** must be managed using the following protocols:

1. Community sharps accepted or collected at a public hospital or authorised outlet of the Needle and Syringe Program are classified as clinical sharps waste and must be managed in accordance with this Policy.
2. Genetically modified organisms (GMOs) must be disposed of in clinical waste, except if the GMOs also contain cytotoxic waste, in which case they must be disposed of as cytotoxic waste for incineration.
3. Incontinence pads and disposable nappies can be treated as general waste unless the material is locally judged to come from an infectious patient (and consistent with the *CEC Infection Prevention and Control Practice Handbook*), is visibly blood stained, or is disposed of in a manner likely to cause offence such as in unusually large quantities, in which case it must be treated as clinical waste.
4. Sharps containers that are resistant to impact, penetration and leakage, are stable, have integrity of the handles/other carrying features and closure device, and have a capacity indicator (fill line) marked on the outside wall of the container must be used.
5. Reusable sharps containers must be readily emptied and cleaned before reuse.
6. Microbiological and pathological wastes must be decontaminated in accordance with *Australian and New Zealand Standard 2243.3: Safety in Laboratories* and shredded by the waste contractor prior to disposal.

7. Waste service providers require the application form for approval of a method to treat clinical waste if they collect, transport and treat clinical waste. Refer to the *Guideline for Approval of Method to Treat Clinical Waste*.
8. Reclassify waste in accordance with the EPA step-by-step waste classification process after treatment and before recycling or disposal.
9. For further clarification on requirements for disposal of infectious substances, refer to the most current *Australian and New Zealand Standard 2243.3: Safety in Laboratories*.

**Cytotoxic, pharmaceutical, and radioactive wastes** must be managed as follows:

1. Radioactive sharps must be placed in a clinical sharps bin and the bin must be labelled with a radioactive sticker while the waste is radioactive, the name of the substance, activity level and the date at which it is measured. When radioactivity decays to background, the sticker must be removed and waste disposed of as clinical waste.
2. For requirements on medication handling and recommended destruction of Schedule 8 Medications, refer to NSW Health Policy Directive *Medication Handling in NSW Public Health Facilities* (PD2013\_043).
3. Refer to the RPS No.20 *Safety Guide for Classification of Radioactive Waste* for the classification of radioactive waste in consideration of long-term safety and disposal of the waste.
4. Refer to the EPA classification guidelines for the step-by-step procedure to classify and manage radioactive waste.
5. For guidance on safe handling, segregation and storage of radioactive waste, refer to Part A2 'Requirements for Radioactive Waste' of the Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (RPS14). The Radiation Management Plan document needs to address dose limit requirements for the public and occupationally exposed persons as provided in Schedule 5 of the Radiation Control Act 1990.
6. The policy and procedure for radioactive sharps waste management is to be determined locally, e.g. storage in a dedicated room.
7. Specific obligations are placed on the responsible person (including obtaining consent) and transporter by the *Code for the Safe Transport of Radioactive Material* (RPS2) which is mandated by the *Radiation Control Regulation 2013*.

**Chemical wastes** must be managed as follows:

Chemical waste is to be classified in accordance with the step-by-step process in the *Waste Classification Guidelines Part 1: Classifying Waste* and the ADG Code. These wastes must be managed and disposed of as per the Safety Data Sheet (SDS) for the hazardous chemical and recommended handling precautions, PPE and disposal.

All containers containing chemical waste must have labelling as per the requirements in Part 3 of Schedule 9 Classification, packaging and labelling requirements of the *WHS Regulation 2017* and the *Labelling of Workplace Hazardous Chemicals Code of Practice*. This applies for a waste product that is reasonably likely to be a hazardous chemical. The waste is to be packed in a container with a label in English including the following for the hazardous chemical:

- Product identifier
- Name, and the Australian address and telephone number of the manufacturer or importer
- Hazard pictogram and hazard statement consistent with the classification of the chemical

A licence may be required for the disposal of high activity level radioactive substances classified as hazardous waste in accordance with the *Waste Classification Guidelines Part 3: Waste Containing Radioactive Material*.

## 12.2 General Waste

General waste is to be contained in clearly labelled white or opaque bags. General waste is any waste that:

- Is not covered in Section 12.1
- Has not been in contact with infectious agents, hazardous chemicals or radioactive substances
- Does not pose a sharps hazard

General waste will be further separated into recyclable or compostable streams as described in Sections 12.3-12.8.

## 12.3 Cardboard and Paper Recycling

Most cardboard packaging will originate from deliveries of supplies and stationery. Paper materials such as non-confidential office paper, newspapers, magazines, etc. will be generated from offices, reception areas, and waiting rooms, and managed as follows:

1. Hospital staff will dispose of paper into correct bin within bin hubs
2. Hospital staff will flatten cardboard boxes and leave in designated area for collection
3. Cleaners will collect materials and transfer to the bins within storage room
4. Recycling contractor will collect from here according to designated schedule

## 12.4 Secure Document Destruction

These materials will be placed in 240-litre bins located in each office area and collected on an as-required basis by a specialist contractor. To avoid contractors using lifts for transporting these materials during busy times, the following system is recommended:

1. Hospital staff will dispose of secure documents into designated bin(s)
2. Hospital will arrange for cleaning contractor to collect bins and take to storage room
3. Secure document contractor will collect from here according to designated schedule

## 12.5 Commingled Recycling

Commingled recycling consists of all (non-hazardous) mixed plastic bottles and containers, glass bottles, and steel and aluminium cans. This material will have the following separation and collection processes:

1. Hospital staff will dispose of materials into correct bin within bin hubs
2. Cleaners will collect materials and transfer to the designated bins in storage room
3. Recycling contractor will collect from here according to designated schedule

## 12.6 Food Waste Recycling

There are significant opportunities for recycling food organics from the Hospital using the following process:

1. Hospital staff will dispose of materials into small bins for collection by cleaners
2. Cleaners take separated materials to organics bins in main Hospital bin storage area (alternatively to an onsite food waste processing unit)
3. Recycling contractor will collect from here according to designated schedule (or if food waste processing equipment is installed onsite, the processed end material will be reused on the Hospital's grounds)

## 12.7 Polystyrene Recycling

Variable quantities of polystyrene packaging will be generated from deliveries of medical supplies. An 1100-litre bin located in the main Hospital storage area will be used for these materials and collections will be done as required by the Hospital's recycling contractor.

1. Hospital staff will leave polystyrene boxes in designated area for collection
2. Cleaners will collect materials and transfer to the designated bin within storage room
3. Recycling contractor will collect from here as required

## 12.8 Specialised Recycling (E-Waste, Printer Cartridges, Lamps, Batteries)

Variable quantities of e-waste (discarded electrical and electronic items) will be generated from office areas and general hospital operations. A 240-litre bin is recommended for storage of these materials in the main Hospital bin area.

Used printer cartridges will be generated from office areas. The usual recycling system consists of a cardboard box supplied by the service provider (e.g. Planet Ark) that is located next to print facilities. The system will be managed by Facilities Maintenance staff, who will organize transfer of the full boxes to the main storage room.

Maintenance staff and electrical contractors are generally required to remove all lamps and globes generated through their activities for correct disposal offsite. Alternatively, a dedicated recycling box can be left in the main storage room for this purpose. The full box would be collected by a specialist contractor on request by the Hospital.

Used batteries would be stored and collected separately, or combined with the e-waste materials, depending on contract arrangements.

Appendix 7 provides diagrams and descriptions of materials movement pathways and workflows.

# 13 Operational Waste Stream Management

## 13.1 Labelling and Tracking

All waste containers and bin liners are to be correctly colour coded and identified. The labelling, packing and transport of Division 6.2 Infectious Substances must comply with the ADG Code for dangerous goods. These requirements typically apply for waste classified as UN 2814 (Category A Infectious Substances) and UN 3291 (Category B Infectious Substances).

Portable and mobile bins must be marked, labelled and placarded as required by Chapters 5.2 and 5.3 of the ADG Code. The Hospital will need to liaise with the transporter to ensure they have a transport document describing what is being transported, and comply with the record keeping requirements specified in the EPA clinical waste tracking exemption for clinical waste, cytotoxic waste, sharps waste, pharmaceuticals and poisons, and radioactive waste.

## 13.2 Mobile Garbage Bins (MGBs) and Trolleys

MGBs are re-usable rigid-walled containers used to contain and move clinical and related wastes. Trolleys are used to move clinical wastes contained in plastic bags or non-mobile rigid-walled containers.

MGBs and trolleys must be dedicated solely for collecting and transporting waste to decrease spills, eliminate direct contact with waste and minimise manual handling. MGBs and trolleys must be washable, with a lid that is lockable. MGBs must be securely closed during movement but not necessarily locked, unless the MGB is a pharmaceutical waste bin.

MGBs and trolleys must never be overfilled and the load is to not be more than three quarters full (i.e., less than 55 kg). Waste collection rounds are to be performed as often as necessary to minimise housekeeping hazards.

The following procedures are recommended to be regularly completed by the hospital:

- Rinse with cold water then wash with warm water and a neutral detergent, or equivalent (e.g., chemical formulated for cold water use)
- Trolleys and MGBs are to be drained to sewer and left to dry
- Clean trolleys and bins are to be stored separately to soiled containers
- Appropriate personal protective equipment must be worn when cleaning MGBs

In addition, MGBs are to be readily inspected and cleaned after each use by the waste contractor. Defective containers must be repaired before use or taken out of service. Plastic bags/liners must have sufficient strength to safely contain waste and be suitable for the purpose if used for moist heat sterilization. Chemical waste containers must be suitable for the chemical contained within and labelled.

### 13.3 Handling of Bags/Bin Liners

It is best practice to minimise the handling of waste bags and to avoid decanting from one bin to another. When clinical waste bags must be handled, all bags are to be held away from the body by the closed top of the bag, and placed directly into a bin appropriate to the waste (see Table 1).

Gloves, apron and protective eyewear must be worn when closing the bags and placing them into the container. Gloves worn are to be appropriate for the type of waste being handled.

Waste bags must not be filled to more than two-thirds capacity and contents are to be secured within the bag when closing. Excess air is to be excluded without compaction, prior to closure at the point of generation. The bag is not to be secured with sharp protuberances, e.g. staples.

All clinical waste stream bags and receptacles stored pending collection are to be in a secure area with restricted access. Pathology specimens and associated materials must be double packaged. Anatomical waste must be packaged to minimise the risk of contents spilling or puncturing the bin liner before being placed into the anatomical waste bin. This includes triple bagging of body parts or amputated limbs that may have sharp bone edges and/or the use of wet bags. Sharps must never be placed in waste bags.

### 13.4 Spill Management

Spills will be managed according to standard procedures. The hospital will ensure that:

- Personnel involved in spill management are trained in emergency procedures and handling requirements, including use of spill kits. Spill kits are to be readily accessible throughout the health service and clearly labelled and mapped
- Health services have personal protective equipment and emergency spill kits that are appropriate to the waste streams handled, so staff can safely and effectively clean spills and dispose of the waste
- Spill kits are restocked with the necessary components immediately after use, returned to their locations and regularly inspected for malfunctioning or missing components
- Spill kits are to be disposed of with the relevant waste stream

## 13.5 Auditing

Auditing is important to establish benchmarks and whether waste is appropriately managed. This includes reviewing contractor information and developing an agreed auditing process, including frequency and selection of samples. Audits will include:

- Checking waste streams are appropriately used and managed
- Checking that bags and MGBs/trolleys are not filled with loads more than two-thirds or three-quarters of their capacity, respectively
- Reviews of WMP procedures
- Interviews with key staff
- Reviews of records.

Auditing is to be conducted at least quarterly to ensure correct management of all waste streams.

## 14 Waste and Recycling Contractor Requirements

### 14.1 Transport and Disposal

Transport documents must describe the dangerous goods being transported, and appropriate emergency information for those goods. The ADG Code requirements commonly apply for the packing and transport of the following waste categories:

- UN 2814 (Category A Infectious Substances): Infectious substances affecting humans
- UN 3291 (Category B Infectious Substances): Infectious substances which do not meet the criteria for inclusion in Category A, which includes clinical wastes which are reasonably believed to have a low probability of containing infectious substances

The SafeWork NSW factsheet *Packing and Transporting Clinical Waste* assists health services with the handling and transport of UN3291 clinical waste in accordance with Packing Instruction P62A of the ADG Code.

### 14.2 Servicing, Access, and Reporting

All collections will take place from the Hospital's loading dock. It is possible that differently sized collection vehicles may be used for collection of some additional streams; if so, the waste contractor will be responsible for notifying the Hospital in advance of any vehicles entering the site, to ensure heights and turning circles are consistent with access and clearance requirements.

The waste contractor will also be required to comply with the following requirements:

- Reliable and efficient servicing, and meeting all agreed schedules
- Suitably sized collection vehicles to be able to access the loading dock
- Having collection vehicles fitted with suitable weighing technology
- Working with the Hospital to achieve improved resource recovery
- Maintaining accurate and comprehensive tracking systems for all materials collected
- Providing detailed monthly and annual reports on diversion and financial outcomes
- Maintaining current details of processing facilities used, and providing information on these if requested by the Hospital
- Providing detailed monthly reports on diversion and financial outcomes

## 15 Storage and Loading Areas

Central waste and recycling storage facilities will be located in the loading dock with dedicated areas for storage of general waste and recycling, including a bin wash area, and space for bulky goods storage. All rooms will be locked and accessible by authorised staff only and will conform with the relevant specifications of the Lane Cove Council *Development Control Plan Part Q - Waste Management & Minimisation* (listed in Appendix 8 of this report).

All waste and recycling containers will be clearly differentiated through appropriate signage and colour coding to reflect the materials contained, with each stream located in a designated area with colour-coded signage to assist in easy identification by users.

## 16 Internal Bins

### 16.1 Administrative Areas

These areas will be equipped with 4-stream bin hubs for:

- Paper/Cardboard Recycling
- Commingled Recycling
- Food Organics Recycling
- General Waste

Bins will be situated in areas which service a group of workstations and offices, as opposed to having bins under every desk; this improves cleaner efficiencies by reducing the number of bins that require collection and reduces the number of bin liners required. Offices with these types of systems typically achieve higher recycling rates than those with bins at desks or workstations.

Figure 2 shows examples of bin configurations commonly used in office applications. Colour-coded translucent bin liners are recommended to assist cleaning staff to distinguish different materials streams and identify contamination prior to final disposal in the bins in the central storage room.

**Figure 2: Four Stream Bin Configuration**



### 16.2 Clinical Areas

Clinical areas will have receptacles for the following streams located in dirty utility rooms:

- Commingled Recycling
- General Waste
- Clinical Waste
- Sharps Waste

## 17 Staff & Contractor Education

An education program will be implemented for all Hospital and Seniors Living staff following occupation of the development, to ensure the highest possible standard of waste management and diversion resource recovery.

Tenancy leases will contain clauses outlining compliance with the development's systems, and a continuing tenant education program will be implemented on an ongoing basis throughout the development's operational phase for all tenancies. New tenants will receive detailed information on the waste management and recycling programs as part of their leasing documentation.

Specific waste management clauses will also be written into cleaning contract specifications, including requirements for cleaning staff to monitor contamination of recycling streams and condition of bins and compactor equipment, and provide HammondCare with feedback on the ongoing performance of the waste management and recycling programs.

Examples of suitable bins and signage are presented in Section 16 and Appendices 3 and 4.

## 18 Operational Resource Recovery Targets

Specific targets for diversion of operational waste from landfill to resource recovery outcomes will form part of the contract between the development and its waste and recycling contractor(s). Using similar developments as a guide, we suggest the following targets:

**Year 1: 50% diversion/resource recovery**

**Year 2: 55% diversion/resource recovery**

**Year 3: 60% diversion/resource recovery**

To monitor progress towards these targets, ongoing reporting systems will be implemented as detailed below in Section 19.

## 19 Ongoing Performance Reporting

Following implementation of the new systems, a monthly reporting system, based on the Better Buildings Partnership (BBP) *Operational Waste Guidelines*, will be instituted. This will ensure the accurate tracking of performance, continued improvement, and cost-effective waste removal.

Specific performance clauses and KPIs in waste and cleaning contracts will ensure that all parties actively participate in the resource recovery initiatives and meet regularly to resolve performance issues and identify new improvement opportunities for.

Contractors will be required to report actual volumes and tonnages by stream so that site management can monitor performance and feed this back to stakeholders.

These processes should be supported by an annual weight-based physical audit of all non-hazardous materials streams, to be conducted by a qualified independent third party.




## Appendix 1: Glossary



Abbreviation/Term	Definition
Anatomical Waste	Limbs, organs, placenta, pathological specimens, biopsy specimens and body tissue taken during laboratory testing, surgery or autopsy and/or resulting from investigation or treatment of a patient.
Chemical Waste	Chemical waste generated by the use of chemicals in medical, veterinary and laboratory procedures.
Clinical Waste	(a) Human tissue waste (b) Discarded sharps (c) Laboratory waste (d) Animal waste
Commingled Recycling	Refers to a mixed container recycling stream. Typically this would include glass containers, aluminium cans, milk cartons, tins, and plastic containers. This stream does not strictly include any paper or cardboard materials however small portions of these materials are acceptable. Drinking glasses, ceramic mugs or plates, coffee cups or plastic bin liners are considered contaminants.
Contamination	Any item not designated under the contract as a recyclable.
Cytotoxic Waste	Material, which is, or may be, contaminated with a cytotoxic drug during the preparation, transport or administration of cytotoxic therapy.
General Waste	Assorted waste materials put into the recycling stream, usually characterised by being contained in plastic "garbage" bags. There may or may not be recyclable materials in the bag.
Hazardous Waste	Component of the waste stream which poses a danger to humans, the environment, equipment and physical structures.
Landfill	Land used for the burial of waste
Material Recovery Facility (MRF)	Plant and equipment for sorting and pre-processing materials from the waste stream for resource recovery.
MGB	Mobile Garbage Bin
Organic Waste	Component of the waste stream derived from living organisms.
Plastics:	
PET	Polyethylene Terephthalate. Clear, tough material that may come in different colours: used in soft drink bottles, as filling for pillows and sleeping bags and other textile fibres.
HDPE	High Density Polyethylene. Very common plastic usually white or coloured, used for milk and cream bottles, shampoo and cleaners, freezer bags and milk crates.
LDPE	A plastic material – Low Density Polyethylene, a soft flexible plastic that is made into the lids of icecream containers, garbage bags, garbage bins and black plastic sheet material.
PVC, UPVC, PPVC	Plastic materials in the polyvinyl chloride class. 1. UPVC is Unplasticised Polyvinyl Chloride which is usually made into clear cordial and juice bottles, blister packs and plumbing pipes and fittings. 2. PPVC is Plasticised Polyvinyl Chloride and is usually made up into items such as garden hose, shoe soles and blood bags and tubing.
PP	Polypropylene, a hard but flexible plastic that has many uses. Examples of uses are ice cream containers, potato crisp bags, drinking straws and hinged lunch boxes.
PS & EPS	Polystyrene 1. PS is a rigid brittle plastic that may appear clear and glassy. It is used for yoghurt containers, plastic cutlery and imitation "crystal" glassware. 2. EPS – expanded polystyrene is the white material that is made into hot drink cups, food containers, meat trays and fruit boxes.

Abbreviation/Term	Definition
Other Plastic	There is another category of plastic – Category 7 which includes all other plastics including acrylic and nylon.
Pharmaceutical Waste	Consists of pharmaceutical (drug, remedy/medicinal substance) or other chemical substance specified in the Poisons. Pharmaceutical waste, excluding cytotoxics, may arise from expired or discarded pharmaceuticals, those no longer required by patients, and waste materials/substances generated during the manufacture and administration of pharmaceuticals.
Recycled Materials	Materials recovered and manufactured into new products of the same general type (which may be manufactured from virgin recycled materials).
Recycling	Set of processes (including biological) for converting recovered materials that would otherwise be disposed of as wastes, into useful materials and or products.
Resource Recovery	Process that extracts material or energy for a useful purpose
Sharps Waste	Means any waste resulting from medical, nursing, dental, veterinary, pharmaceutical, skin penetration or other related clinical activity, and that contains instruments or devices: (a) That have sharp points or edges capable of cutting, piercing or penetrating the skin (e.g. needles, syringes with needles or surgical instruments), and (b)that are designed for such a purpose, and (c) that have the potential to cause injury or infection.
Waste	Materials and energy which have no further use and are released to the environment as a means of disposal.
Waste Generator	Any person or organisation that consumes goods and services resulting in addition to the waste stream.
Waste Management	Entire process of monitoring process of monitoring, collecting, sorting, storing and transporting for processing and reclamation of materials and energy resources and disposal of waste.

## Appendix 2: Clinical Waste Stream Management

The following tables are taken from the NSW Health *Clinical and Related Waste Management for Health Services Policy* and details procedures for management of waste and recycling streams that may be generated by the development's tenants during the operational phase.

Stream	Anatomical Waste	Clinical Sharps Waste	Clinical Waste (Including Pathological Waste)
Definition	Identifiable human body parts such as limbs, organs, placenta and recognisable or large pathological specimens resulting from investigation or treatment of a patient  It does not include deceased bodies	Any clinical object capable of inflicting a penetrating injury which may or may not be contaminated with blood and or body substance. This includes needles, ampoules and any other sharp objects or instruments designed to perform penetrating procedures  May contain clinical material or Genetically Modified Organism (GMO) waste	Clinical waste with the potential to cause injury, infection or offence: <ul style="list-style-type: none"> <li>Unrecognisable human tissue (excluding hair, teeth, nails and anatomical waste)</li> <li>Bulk blood or other body fluids (or body substances)</li> <li>Material and equipment visibly stained by blood or body fluids (includes incontinence pads and disposable nappies from an infectious patient)</li> <li>Lab specimens, cultures or other waste from lab investigations</li> <li>Waste from medical or veterinary research</li> <li>Genetically Modified Organisms (GMOs)</li> </ul>
Bin Colour	Yellow	Yellow	Yellow
Bin Lid Colour	Orange	Yellow	Yellow
Bin Liner	Orange	N/A	Yellow
Symbol			
Label (if GMOs present)		Contains GMOs	Contains GMOs
Specific Requirements	For incineration only	For incineration or autoclaving and shredding  Sharps containers must be rigid-walled and meet the requirements specified in AS/NZS 4031 and AS/NZS 4261[4,5]  Autoclave tape and bag indicators must be used to show autoclaving has been completed	For incineration or autoclaving [6] and shredding. Autoclave tape and bag indicators must be used to show autoclaving has been completed. Fluid may be able to be discharged into sewer depending on Liquid Trade Agreement between the health service and water utility  All clinical waste once treated by a process acceptable to NSW Health[7] may be reclassified in accordance with the Waste Classification Guidelines[8] before recycling or disposal  There are special precautions regarding disposal of waste related to cases of viral haemorrhagic fever

Stream	Anatomical Waste	Clinical Sharps Waste	Clinical Waste (Including Pathological Waste)
Relevant Act/Regulation/Australian Standard	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers <i>Protection of the Environment Operations Act 1997</i> <i>Protection of the Environment Operations (Waste) Regulation 2014</i>	AS/NZS 3816:1998 Management of clinical and related waste AS/NZS 4123:2008 Mobile Waste Containers <i>Protection of the Environment Operations Act 1997</i> <i>Protection of the Environment Operations (Waste) Regulation 2014</i>
EPA licence requirements	No	No	No
Stream	Cytotoxic Waste	Pharmaceutical Waste	Radioactive Waste
Definition	Material contaminated with residues or preparations containing materials toxic or otherwise harmful to cells. This includes any residual cytotoxic drug or laboratory chemical and any discarded material or clinical waste associated with the preparation or administration or excretion of cytotoxic drugs May include Genetically Modified Organisms (GMOs) or tissues containing GMOs	Pharmaceuticals or other chemical substances specified as regulated goods in the Poisons and Therapeutic Goods Act 2008. Includes any substance specified in a Schedule of the Poisons List under the Act, as well as any therapeutic good which is unscheduled Includes expired or discarded pharmaceuticals, filters or other material contaminated by pharmaceutical products	Waste material, including sharps and clinical waste contaminated with a radioisotope which arises from the medical or research use of radionuclides, e.g. during nuclear medicine, radioimmunoassay and bacteriological procedures, and may be in solid, liquid or gaseous form, and which emits a level of radiation above the level set by regulatory authorities
Bin Colour	Purple	Red	Red
Bin Lid Colour	Purple	Red	Red
Bin Liner	Purple	N/A	Red
Labelling of Bins	Cytotoxic waste	Pharmaceutical waste	Radioactive waste plus specific requirements below
Symbol		None	
Label (if GMOs present)	Contains GMOs		

Stream	Cytotoxic Waste	Pharmaceutical Waste	Radioactive Waste
Specific Requirements	For incineration only Collection, transport and handling only by licensed and registered waste management companies	Storage, destruction and disposal methods must comply with PD2013_043 Medication Handling in NSW Public Health Facilities Pharmaceutical waste must be incinerated at a licensed controlled waste facility. Certain pharmaceuticals may only be destroyed by authorised persons under the <i>Poisons and Therapeutic Goods Act 1966</i> Pharmaceutical waste bins must be lockable	Radioactive material to be stored on-site in appropriate storage area until it decays to below the thresholds of a “radioactive substance” as defined under the Radiation Control Act and Regulation Waste is to be classified with reference to the Safety Guide for the Classification of Radioactive Waste[4] and in accordance with the EPA Waste Classification Guidelines[5] Radioactive waste must be labelled with the substance, activity level and the date at which it is measured Handling and storage to comply with a Radiation Management Plan in accordance with the Code of Practice for Radiation Protection in the Medical Applications of Ionizing Radiation (ARPANSA 2008) Radioactive sharps When radioactive waste is to be transported, health services must comply with the Code of Practice for the Safe Transport of Radioactive Material (ARPANSA 2014)
Relevant Act & Regulation	AS/NZS 4123:2008 Mobile Waste Containers <i>Protection of the Environment Operations Act 1997</i> <i>Protection of the Environment Operations (Waste) Regulation 2014</i>	<i>Poisons and Therapeutic Goods Act 1966</i> <i>Poisons and Therapeutic Goods Regulation 2008</i>	AS/NZS 4123:2008 Mobile Waste Containers <i>Radiation Control Act 1990</i> <i>Radiation Control Regulation 2013</i>
EPA Licence Requirements	No	No	Yes - Waste Classification Guidelines Part 3: Waste containing radioactive material (EPA, 2014)

## Appendix 3: Signage Examples - Hazardous Waste

The examples below are for illustration purposes only.



## Appendix 4: Signage Examples - Internal and Loading Dock

The examples below are for illustration purposes only.



A collection of various recyclable items including metal cans, glass bottles, plastic containers, paper cartons, and cardboard boxes, arranged in front of a large orange recycling symbol.

### mixed recycling

- ✓ metal ✓ glass ✓ plastic containers
- ✓ cartons ✓ paper ✓ cardboard



A pile of organic waste including fruit scraps, vegetable peels, coffee grounds, and tea bags, arranged in front of a large green recycling symbol.

### organic recycling

- ✓ fruit & vegetable scraps ✓ food leftovers
- ✓ coffee grounds & tea bags



A collection of various recyclable items including metal cans, glass bottles, plastic containers, paper cartons, and cardboard boxes, arranged in front of a small green recycling symbol.

### MIXED RECYCLING

METAL, GLASS, CARTONS AND PLASTIC CONTAINERS  
PLUS PAPER AND CARDBOARD



Two black plastic bags of waste, with various items like a coffee cup, a plastic bag, and a piece of tape shown in dashed-line callouts around them, under a trash can icon.

### LANDFILL

PLASTIC BAGS, COFFEE CUPS, CLING WRAP, STICKY TAPE,  
WRAPPERS, POLYSTYRENE, BROKEN CROCKERY



# MIXED RECYCLING



# ORGANIC RECYCLING



METALS



GLASS



PAPER



FRUIT



VEGETABLES



FOOD SCRAPS



PLASTIC CONTAINERS



CARDBOARD



CARTONS



TEA BAGS



COFFEE GROUNDS



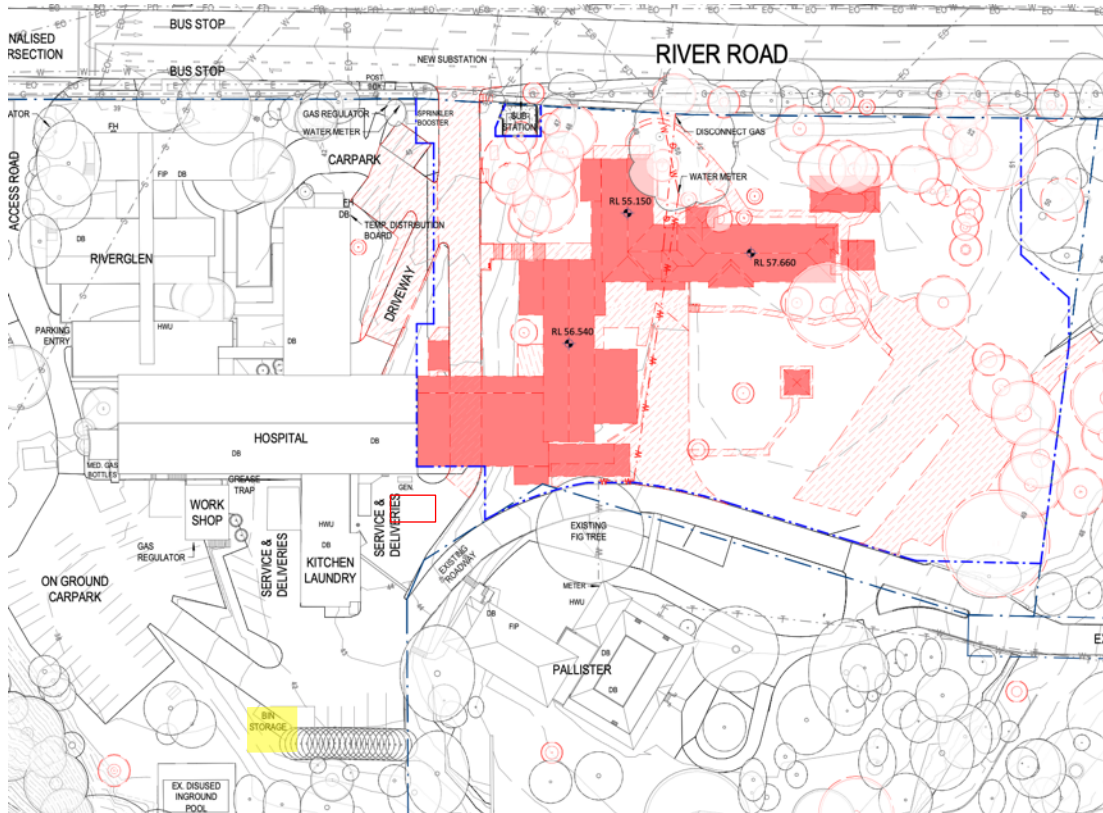
BREAD



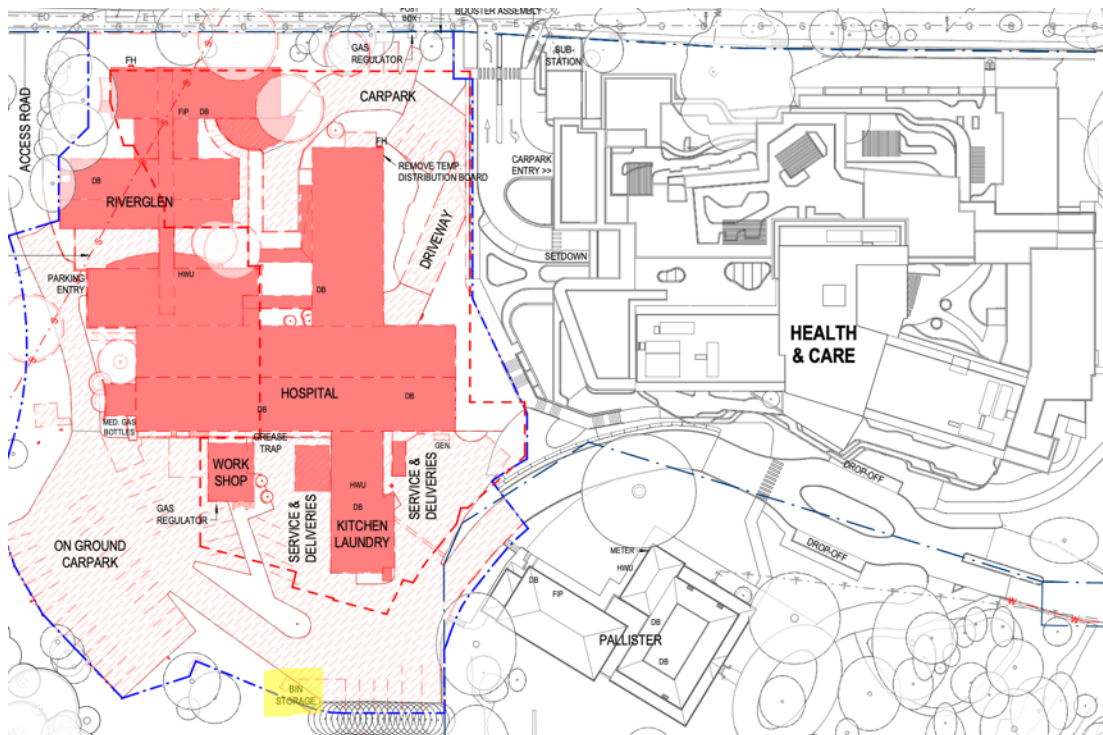
## Appendix 5: Site Demolition Plans

The following drawings show the existing structures on site to be demolished. Bin storage zones for demolition waste are highlighted.

### Stage 1.1



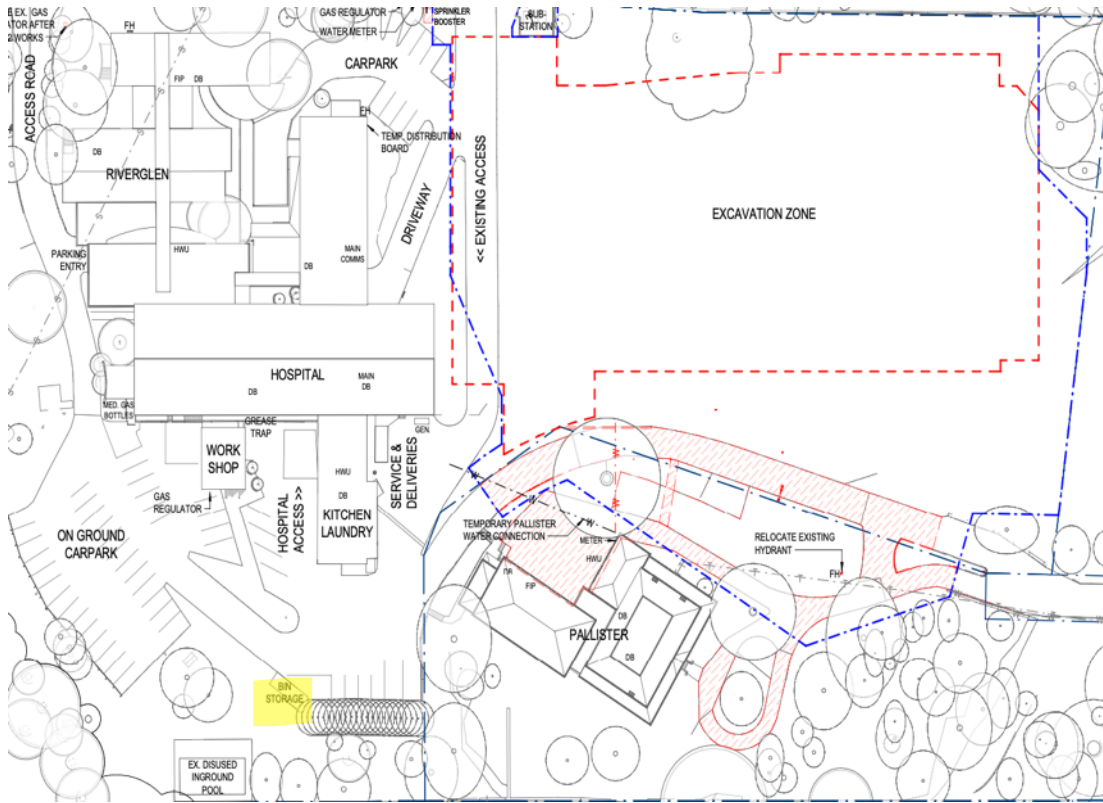
### Stage 3.1



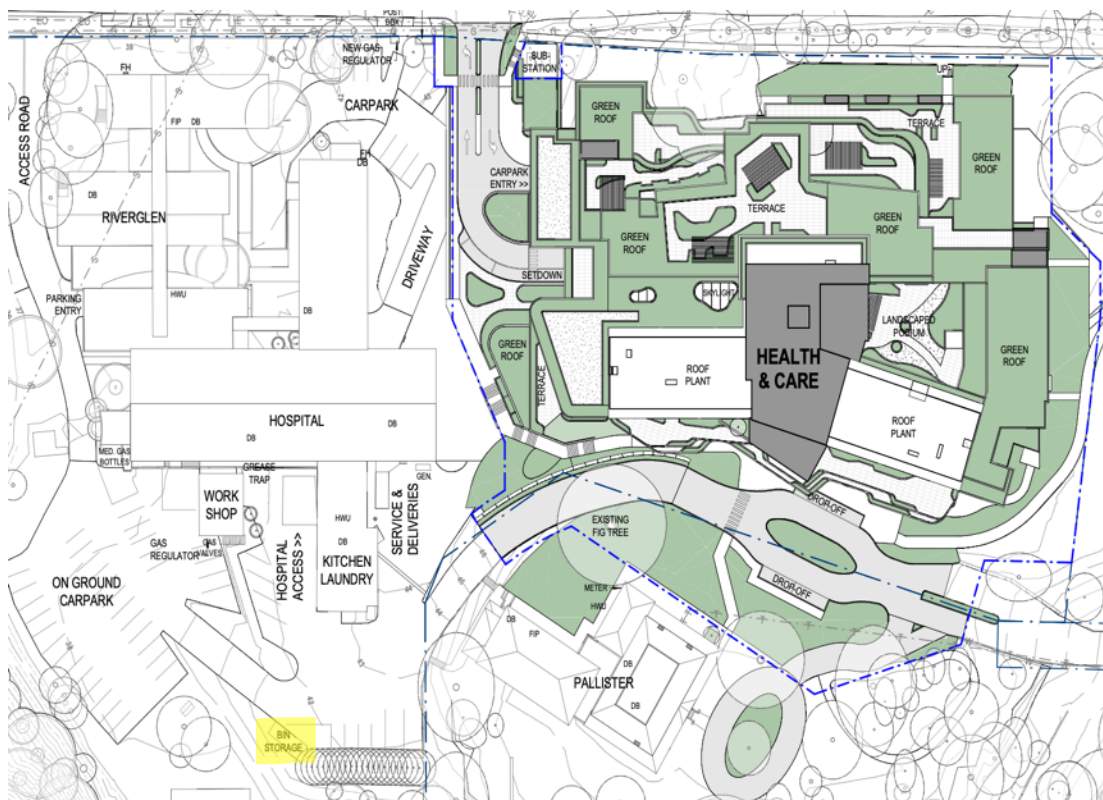
## Appendix 6: Site Construction Plans

The following drawings show the development's construction stages. Bin storage zones for construction waste are highlighted.

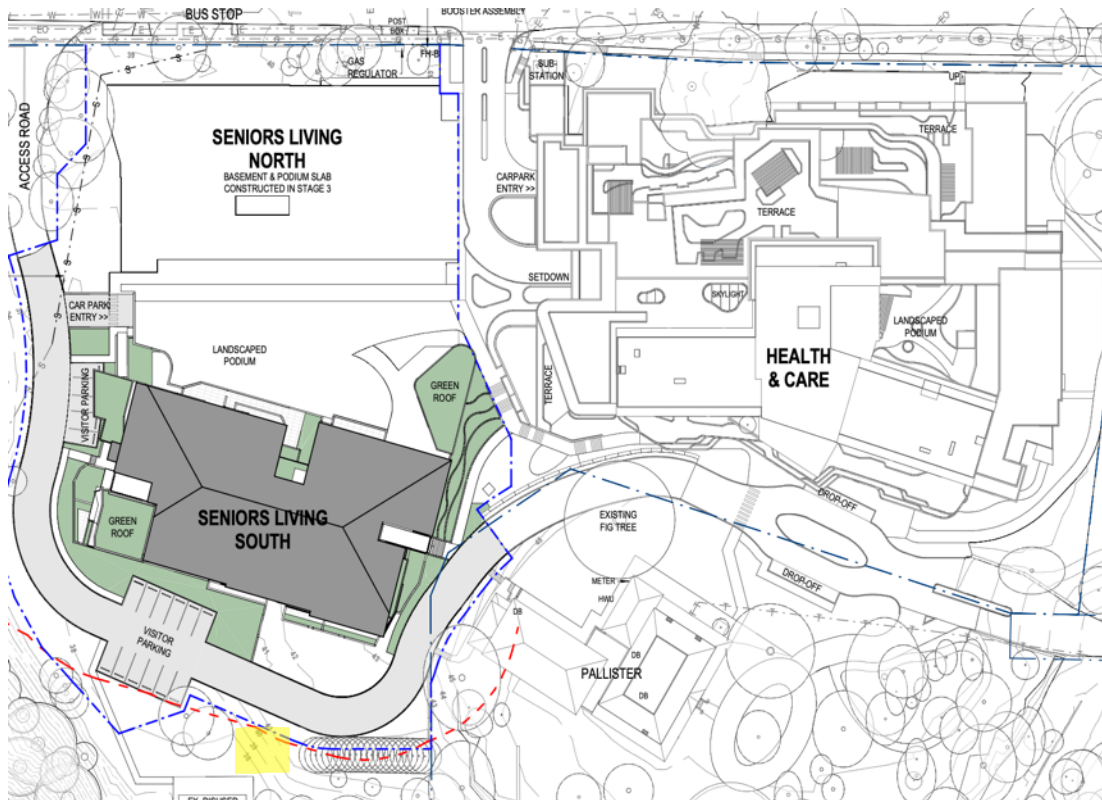
### Stage 1.2



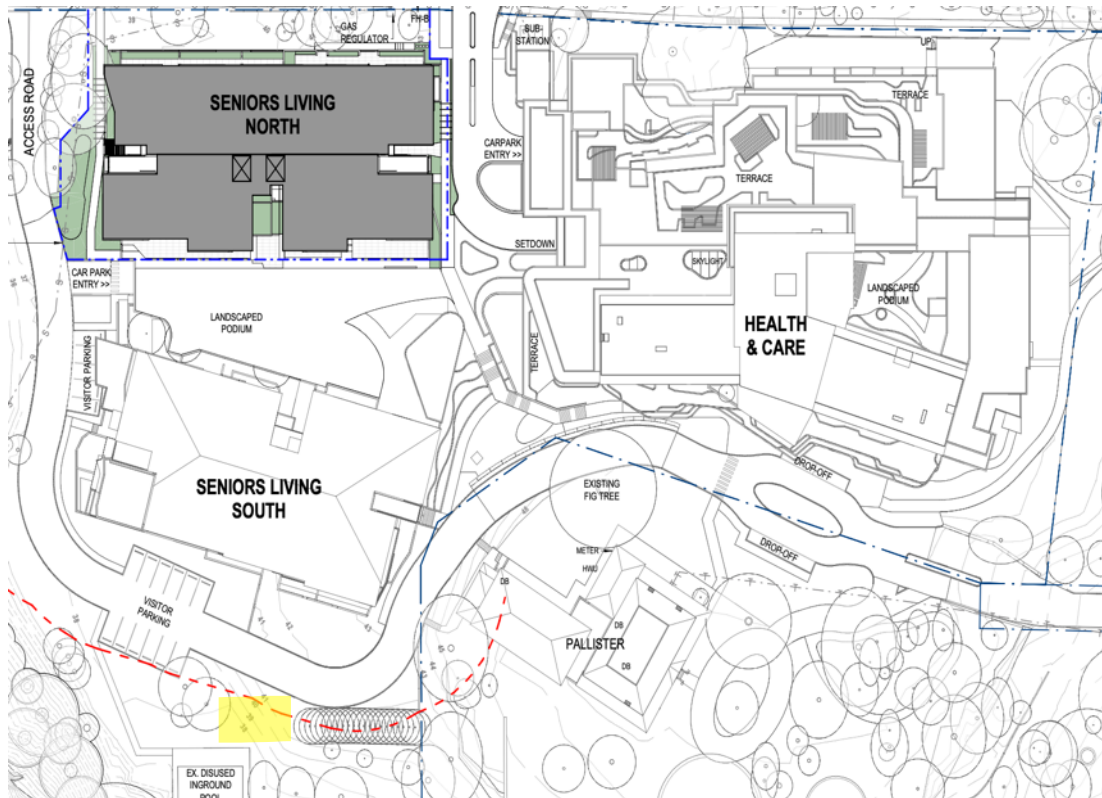
### Stage 2



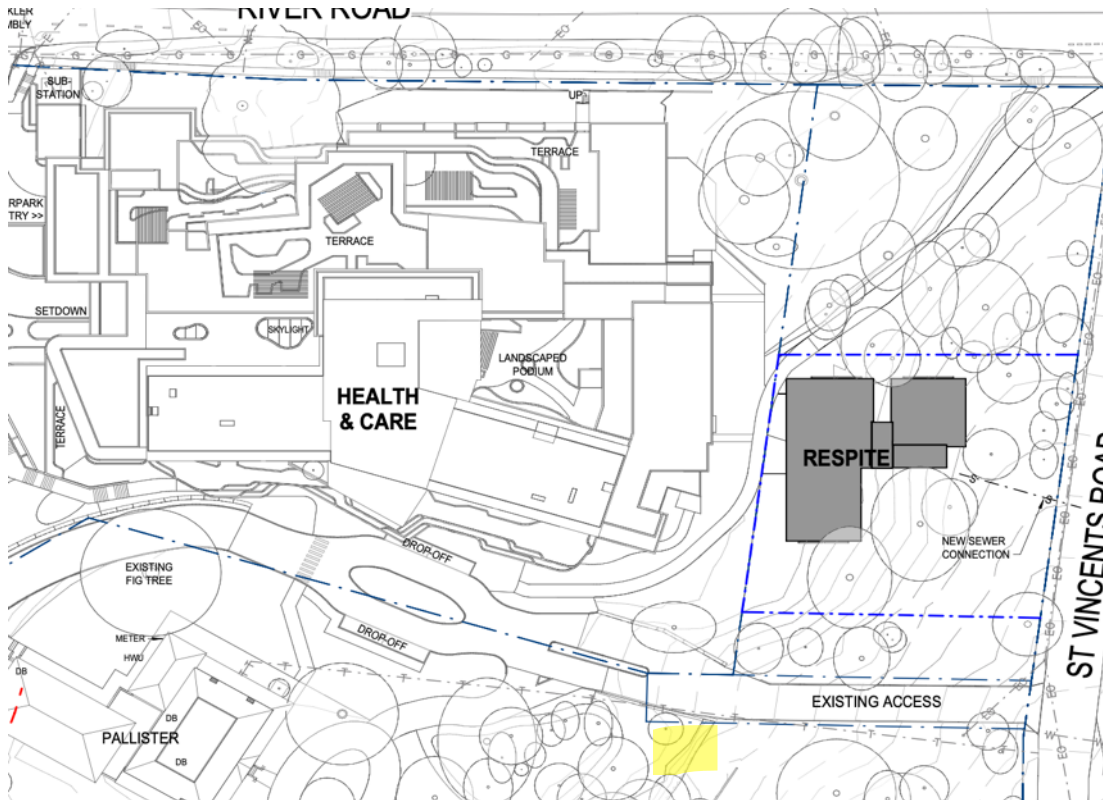
### Stage 3.2



### Stage 4

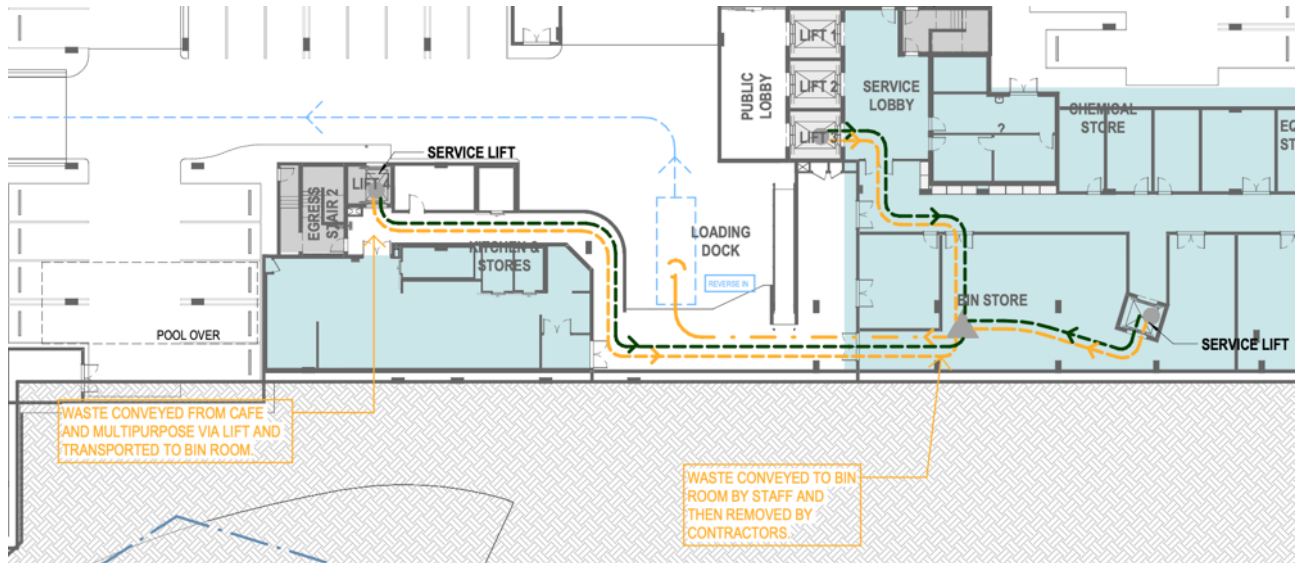


# Stage 5

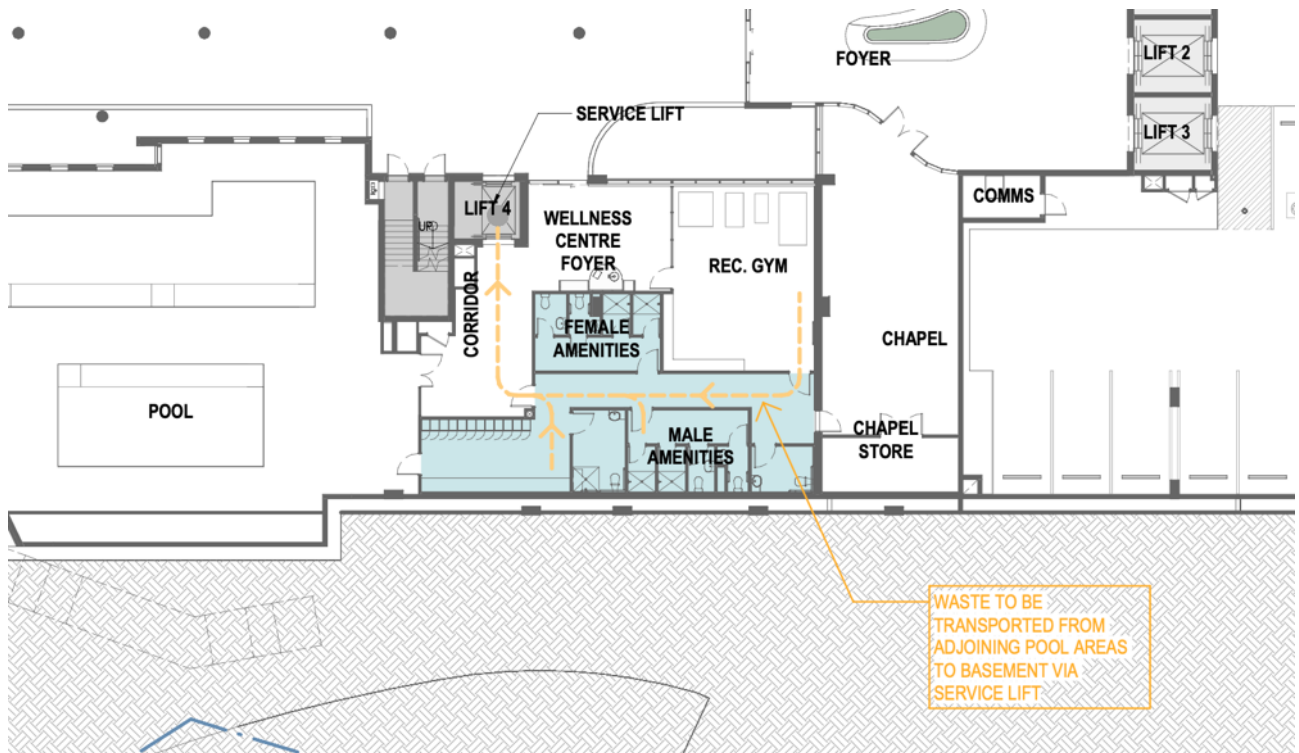


# Appendix 7: Materials Movement, Storage, and Collection

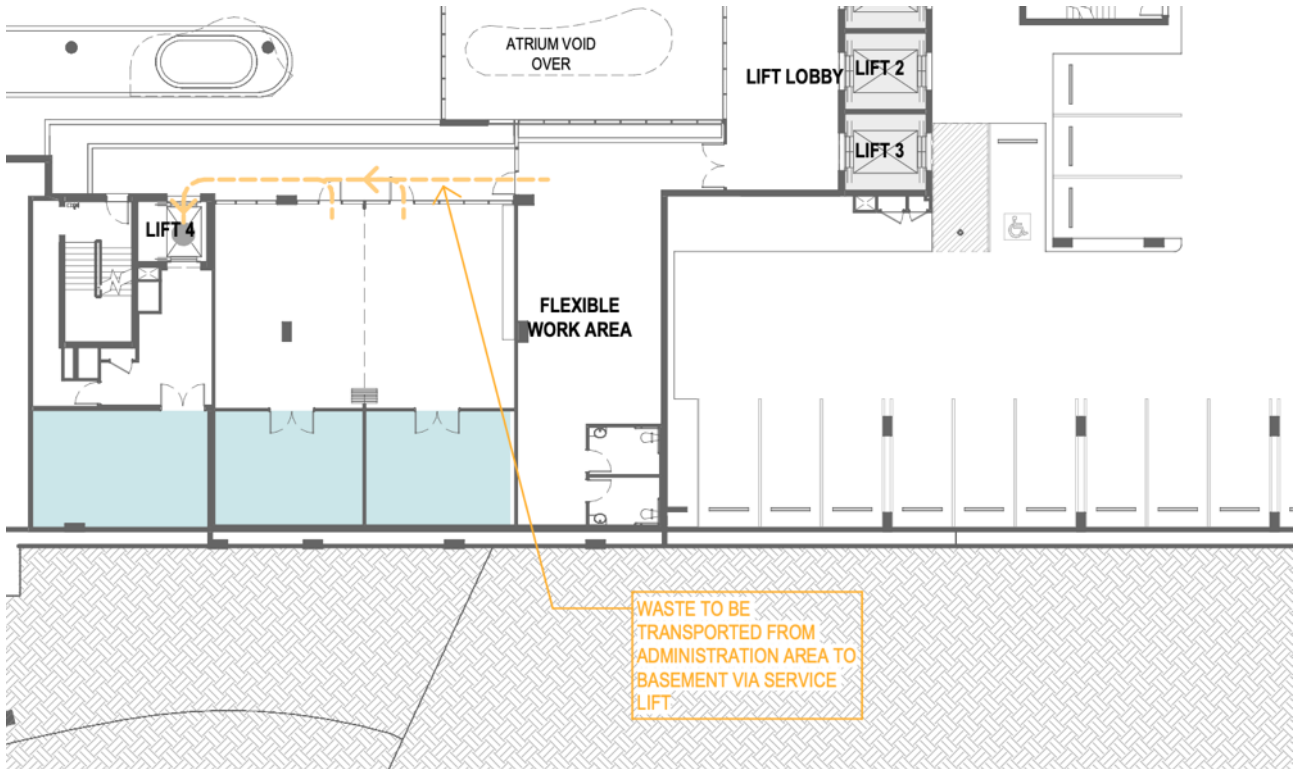
## Health & Care Level 1



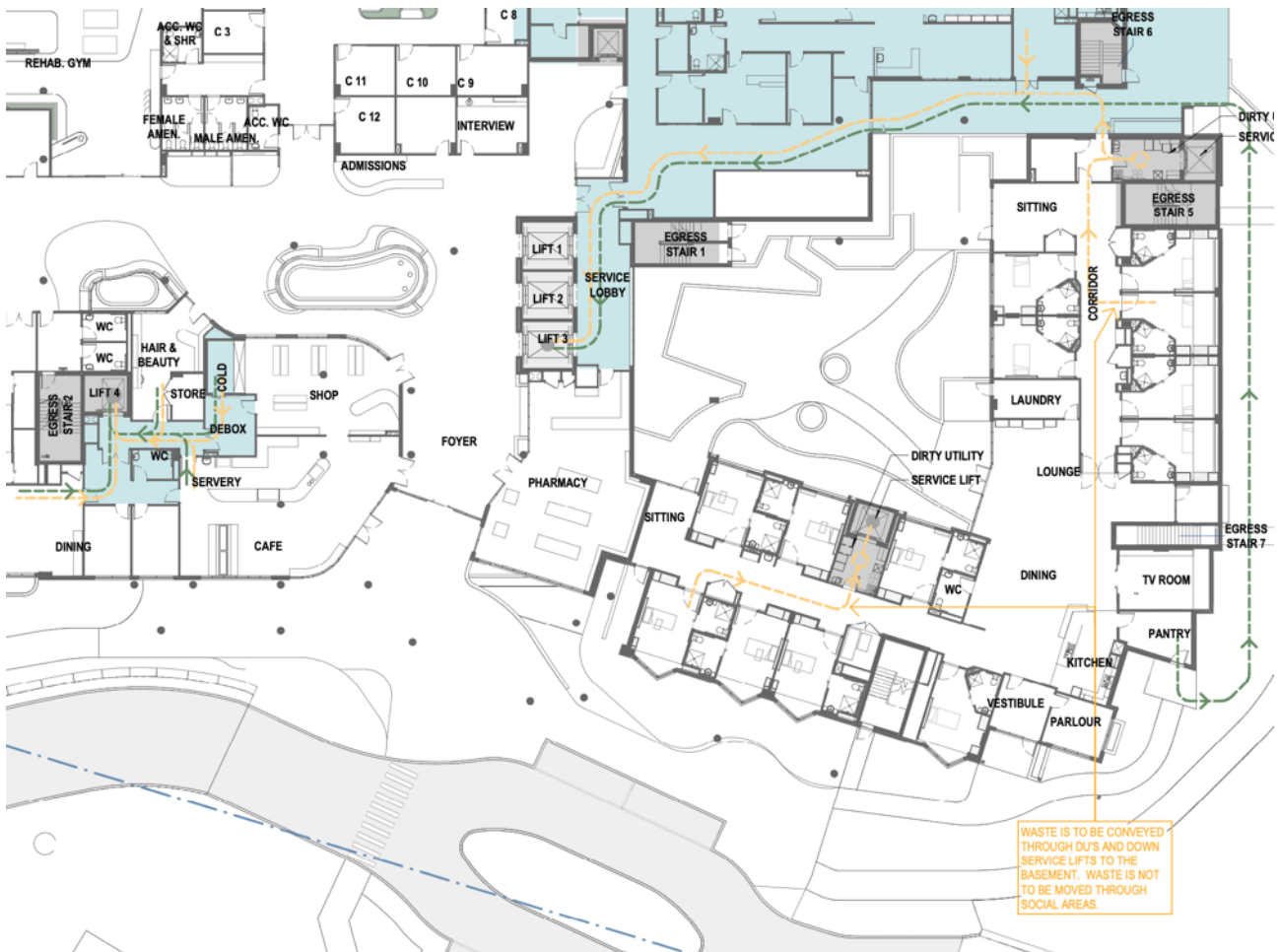
## Health & Care Level 2



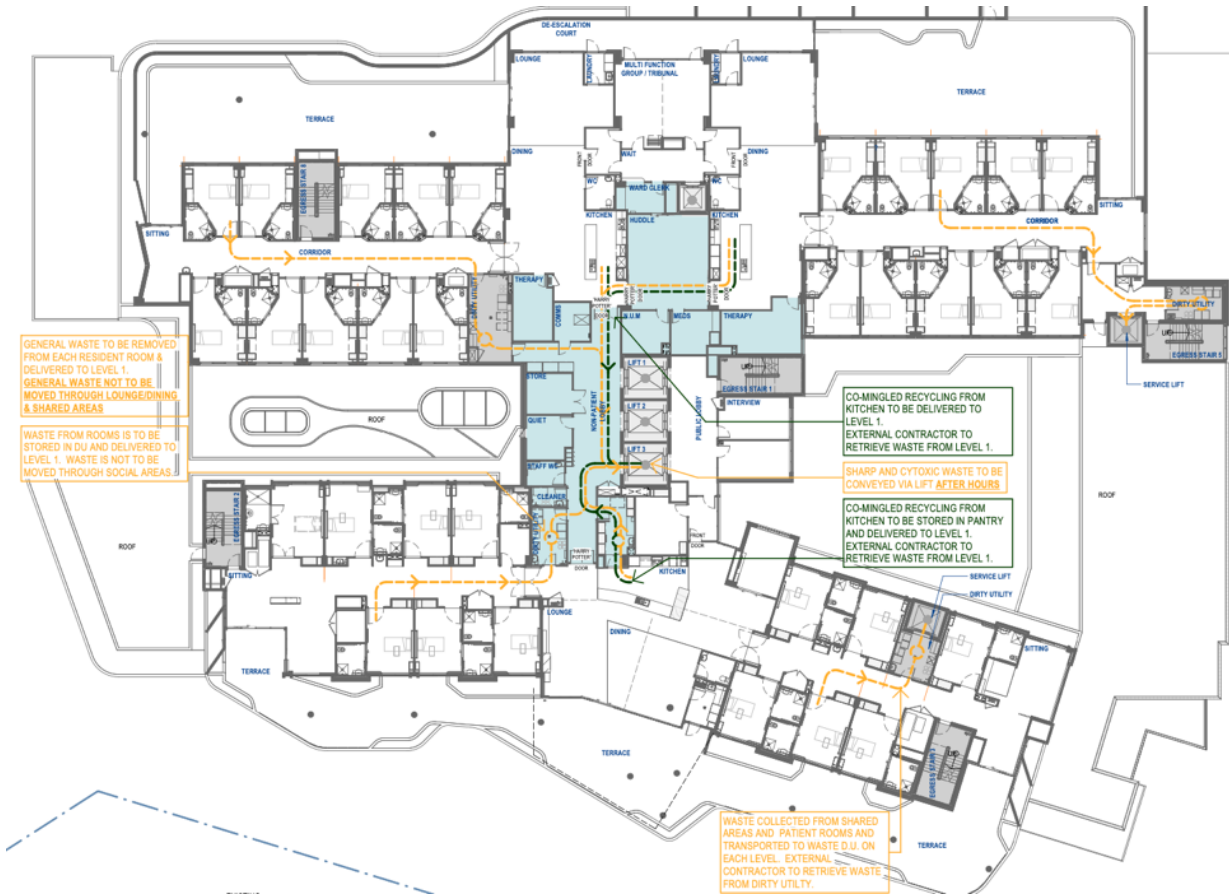
### Health & Care Level 3



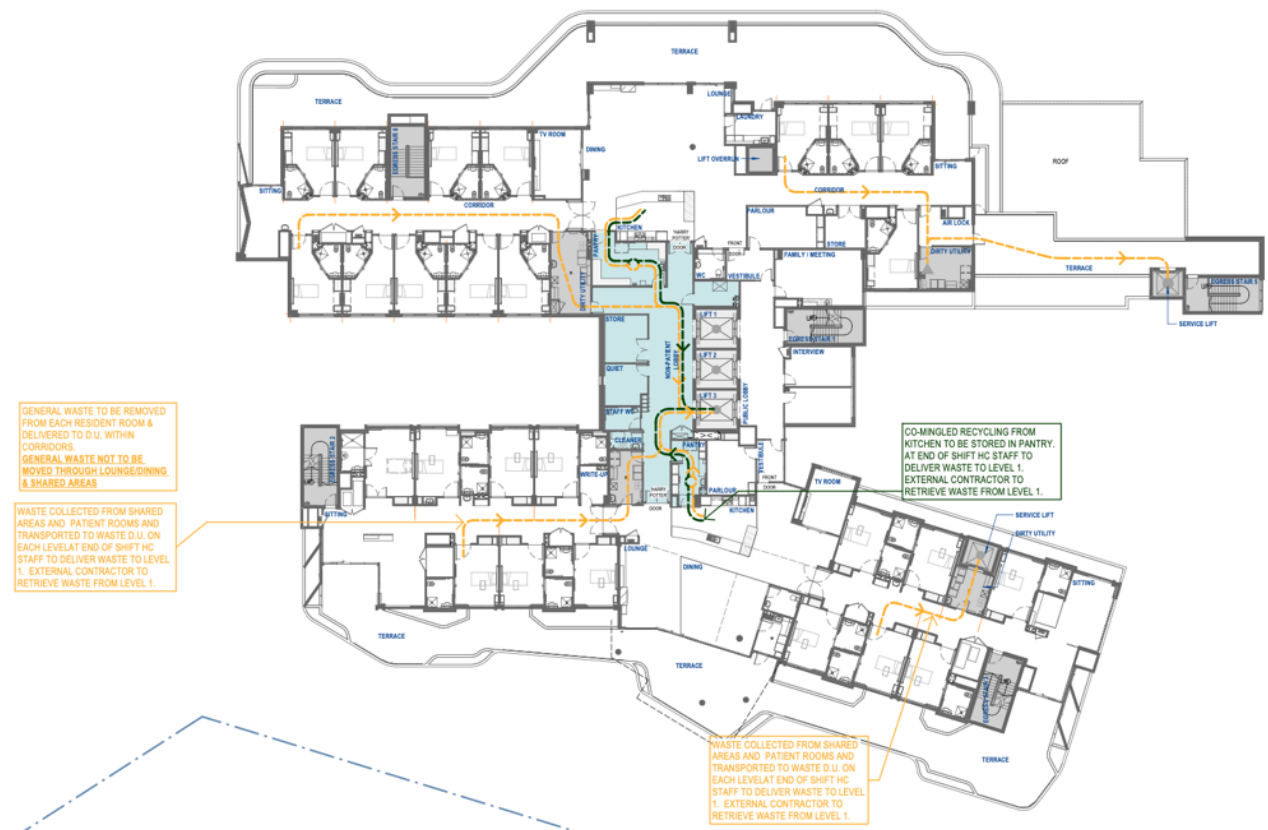
### Health & Care Level 4



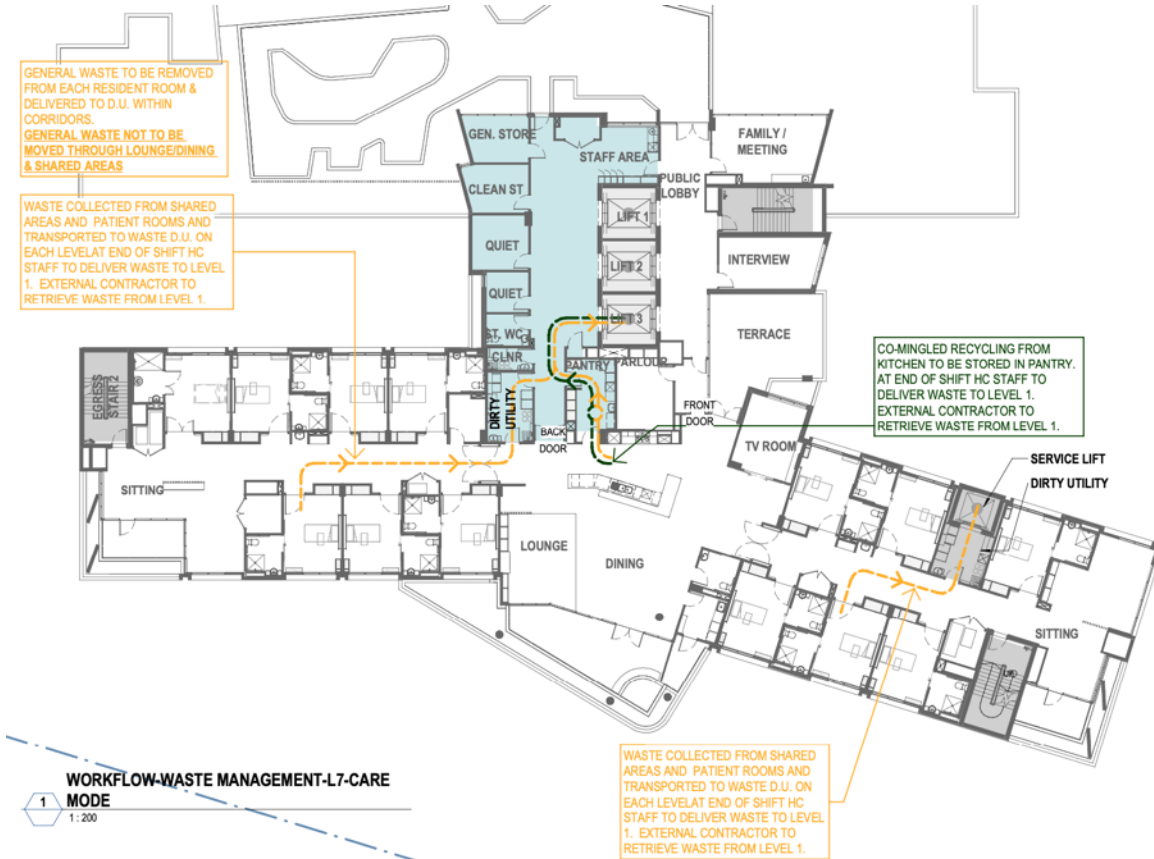
## Health & Care Level 5



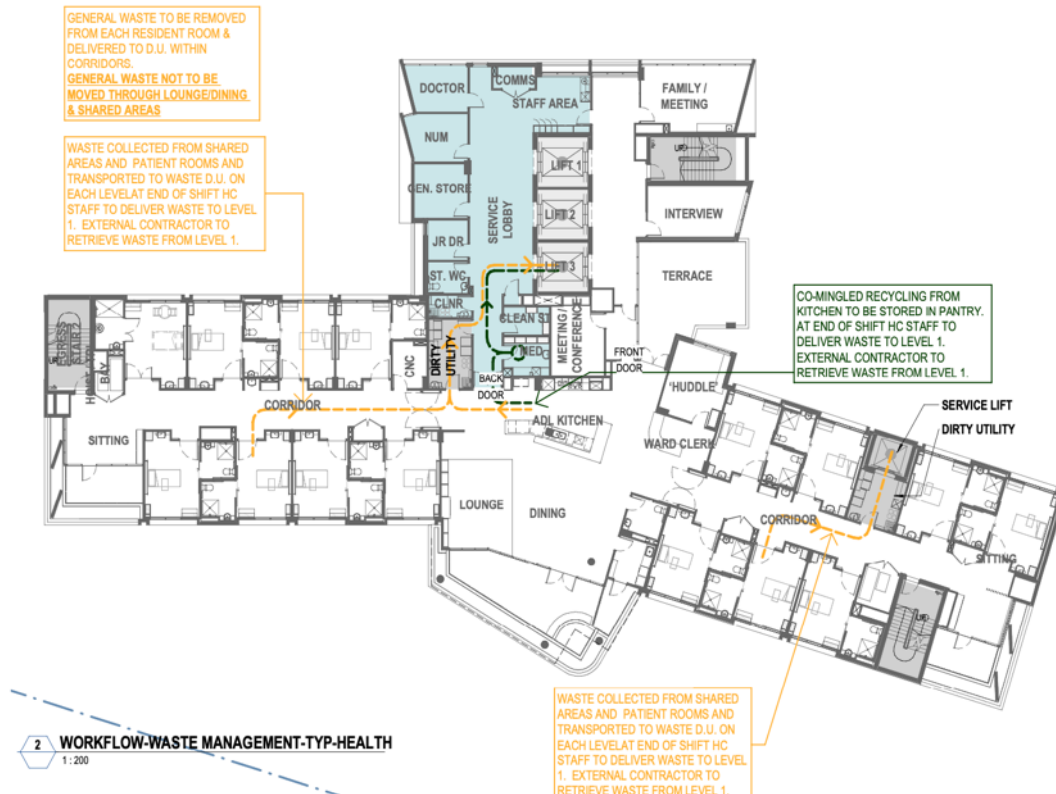
## Health & Care Level 6



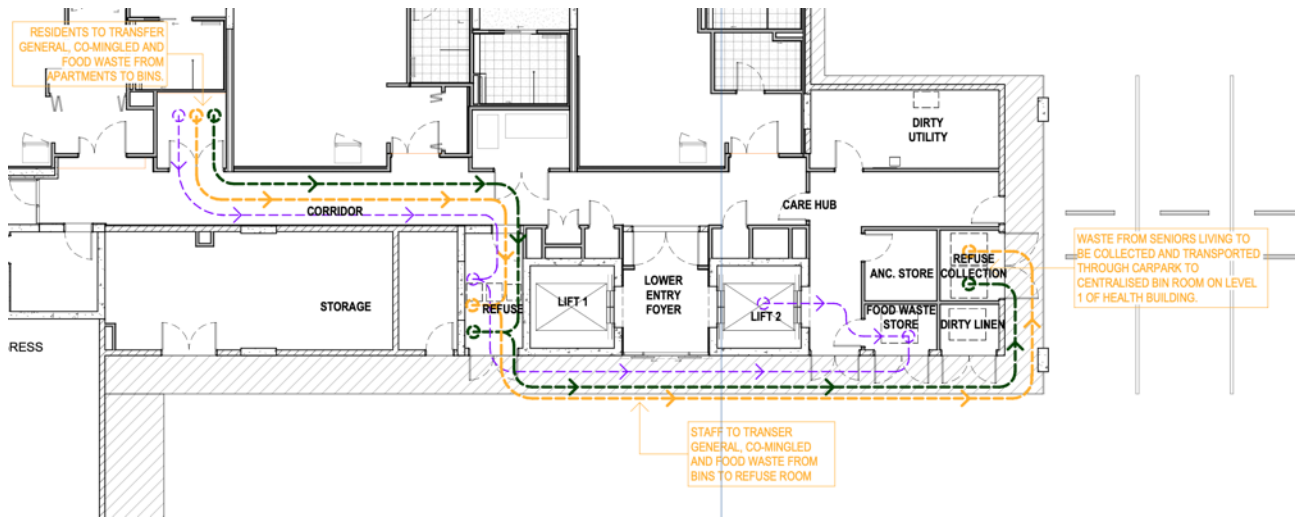
## Health & Care Level 7



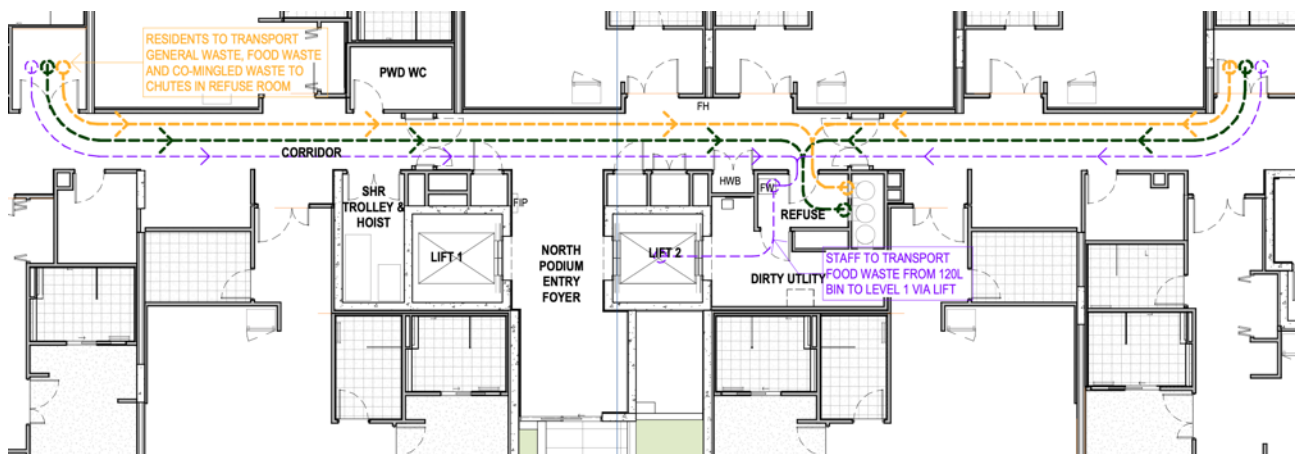
## Health & Care Typical Level



### Seniors Living Level 1



### Seniors Living Level 2



## Appendix 8: Lane Cove Council Waste Management Controls

The relevant sections of the Lane Cove Council *Development Control Plan Part Q - Waste Management & Minimisation* pertaining to the management of demolition, construction, and operational waste are reproduced below.

### 3.1 Demolition of Buildings or Structures

#### General

The demolition stage provides great scope for waste minimisation. Proponents are actively encouraged to consider possible adaptive reuse opportunities of existing buildings/structures, reuse of materials or parts thereof.

#### Aim

The principal aim of managing this activity is to maximise resource recovery and minimise residual waste from demolition activities.

#### Objectives

- 1 Optimise adaptive reuse opportunities of existing building/structures.
- 2 Maximise reuse and recycling of materials.
- 3 Minimise waste generation.
- 4 Ensure appropriate storage and collection of waste.
- 5 Minimise the environmental impacts associated with waste management.
- 6 Avoid illegal dumping.
- 7 Promote improved project management.

#### Controls/Requirements

- a) A completed Site Waste Minimisation and Management Plan (SWMMP) must accompany any demolition application.
- b) Pursue adaptive reuse opportunities of buildings/structures.
- c) Identify all waste likely to result from the demolition, and opportunities for reuse of materials. Refer to Figure 1.
- d) Facilitate reuse/recycling by using the process of 'deconstruction', where various materials are carefully dismantled and sorted.
- e) Reuse or recycle salvaged materials onsite where possible.
- f) Allocate an area for the storage of materials for use, recycling and disposal (giving consideration to slope, drainage, location of waterways, stormwater outlets, vegetation, and access and handling requirements).
- g) Provide separate collection bins or areas for the storage of residual waste.
- h) Clearly 'signpost' the purpose and content of the bins and storage areas.

- i) Implement measures to prevent damage by the elements, odour and health risks, and windborne litter.
- j) Minimise site disturbance, limiting unnecessary excavation.

When implementing the SWMMP the applicant must ensure:

- Footpaths, public reserves, street gutters are not used as places to store demolition waste or materials of any kind without Council approval.
- Any material moved offsite is transported in accordance with the requirements of the Protection of the Environment Operations Act (1997).
- Waste is only transported to a place that can lawfully be used as a waste facility.
- Generation, storage, treatment and disposal of hazardous waste and special waste (including asbestos) is conducted in accordance with relevant waste legislation administered by the EPA and relevant Occupational Health and Safety legislation administered by WorkCover NSW.
- Evidence such as weighbridge dockets and invoices for waste disposal or recycling services are retained.

Note: Materials that have an existing reuse or recycling market should not be disposed of in a landfill. Figure 1 provides a list of some potential reuse/recycling options. Reuse and recycling opportunities are decreased when asbestos is not carefully removed and segregated from other waste streams.

## 3.2 Construction of Buildings or Structures

### General

Attention to design, estimating of materials and waste sensitive construction techniques and management practices can achieve significant rewards in managing waste.

### Aim

The principal aim of managing this activity is to maximise resource recovery and minimise residual waste from demolition activities.

### Objectives

- 1 Maximise reuse and recycling of materials.
- 2 Minimise waste generation.
- 3 Ensure appropriate collection and storage of waste.
- 4 Minimise the environmental impacts associated with waste management.
- 5 Avoid illegal dumping.
- 6 Promote improved project management.
- 7 Optimise adaptive reuse opportunities of existing building/structures.

### Controls / Requirements

- a) A completed Site Waste Minimisation and Management Plan (SWMMP) shall accompany the application.
- b) Note: The type of construction determines whether a development application, construction certificate or complying development statement is required. In all cases a SWMMP must be completed. Maximum waste minimisation and management benefits are achieved when the SWMMP is considered from the earliest stages of the development.
- c) Estimate volumes of materials to be used and incorporate these volumes into a purchasing policy so that the correct quantities are purchased. For small-scale building projects see the rates in Appendix B Waste/Recycling Generation Rates for a guide.
- d) Identify potential reuse/recycling opportunities of excess construction materials.
- e) Incorporate the use of prefabricated components and recycled materials.
- f) Arrange for the delivery of materials so that materials are delivered 'as needed' to prevent the degradation of materials through weathering and moisture damage.
- g) Consider organising to return excess materials to the supplier or manufacturer.
- h) Allocate an area for the storage of materials for use, recycling and disposal (considering slope, drainage, location of waterways, stormwater outlets and vegetation).
- i) Arrange contractors for the transport, processing and disposal of waste and recycling. Ensure that all contractors are aware of the legal requirements for disposing of waste.
- j) Promote separate collection bins or areas for the storage of residual waste.

- k) Clearly 'signpost' the purpose and content of the bins and storage areas.
- l) Implement measures to prevent damage by the elements, odour and health risks, and windborne litter.
- m) Minimise site disturbance and limit unnecessary excavation.
- n) Ensure that all waste is transported to a place that can lawfully be used as a waste facility.
- o) Retain all records (i.e. weighbridge docketts or invoices) demonstrating lawful disposal of waste and keep them readily accessible for inspection by regulatory authorities such as council, DECC or WorkCover NSW.

## 4.4 Commercial Developments and Change of Use (Shops, Offices, Food Premises, Hotels, Motels, Licensed Clubs, Education Establishments, Entertainment Facilities and Hospitals)

### General

A range of non-residential uses present an array of unique waste minimisation opportunities and management requirements. Flexibility in size and layout is often required to cater for the different needs of multiple tenants as well as future changes in use.

Note: Storage and disposal of liquid waste, such as oils and chemicals, are not covered by Part Q - Waste Management & Minimisation.

### Aim

To ensure new developments and changes to existing developments are designed to maximise resource recovery (through waste avoidance, source separation and recycling); and to ensure appropriate well-designed storage and collection facilities are accessible to occupants and service providers.

### Objectives

- 1 Ensure appropriate waste storage and collection facilities.
- 2 Maximise source separation and recovery of recyclables.
- 3 Ensure waste management systems are as intuitive for occupants as possible and readily accessible to occupants and service providers.
- 4 Ensure appropriate resourcing of waste management systems, including servicing.
- 5 Minimise risk to health and safety associated with handling and disposal of waste and recycled material and ensure optimum hygiene.
- 6 Minimise adverse environmental impacts associated with waste management.
- 7 Discourage illegal dumping by providing on site storage and removal services.

### Controls/Requirements

A completed Site Waste Minimisation and Management Plan (SWMMP) shall accompany the application.

Note: The nature of the development or change in use will determine whether a development application or construction certificate is required. In all cases a SWMMP must be completed. Maximum waste minimisation and management benefits are achieved when the SWMMP is considered from the earliest stages of the development.

Plans submitted with the SWMMP must show:

- a) The location of the designated waste and recycling storage room(s) or areas, sized to meet the waste and recycling needs of all tenants.
- b) The location of temporary waste and recycling storage areas within each tenancy. These are to be of sufficient size to store a minimum of one day's worth of waste.
- c) An identified collection point for the collection and emptying of waste and recycling bins.
- d) The path of travel for moving bins from the storage area to the identified collection point (if collection is to occur away from the storage area).
- e) The on-site path of travel for collection vehicles (if collection is to occur on-site).

There must be convenient access from each tenancy to the waste/recycling storage room(s) or area(s). There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage room(s) or area(s).

Every development must include a designated waste/recycling storage area or room(s) (designed in accordance with Appendix G Commercial/Industrial Waste and Recycling Storage Areas).

Depending upon the size and type of the development, it may be necessary to include a separate waste/recycling storage room/area for each tenancy.

All commercial tenants must keep written evidence on site of a valid contract with a licensed waste contractor for the regular collection and disposal of the waste and recyclables that are generated on site.

Between collection periods, all waste/recyclable materials generated on site must be kept in enclosed bins with securely fitting lids so the contents are not able to leak or overflow. Bins must be stored in the designated waste/recycling storage room(s) or area(s).

Arrangements must be in all parts of the development for the separation of recyclable materials from general waste. Arrangements must be in all parts of the development for the movement of recyclable materials and general waste to the main waste/recycling storage room/area. For multiple storey buildings, this might involve the use of a goods lift.

The waste/recycling storage room/area must be able to accommodate bins that are of sufficient volume to contain the quantity of waste generated (at the rate described in Appendix B Waste/Recycling Generation Rates) between collections.

The waste/recycling storage room/area must provide separate containers for the separation of recyclable materials from general waste. Standard and consistent signage on how to use the waste management facilities should be clearly displayed.

The type and volume of containers used to hold waste and recyclable materials must be compatible with the collection practices of the nominated waste contractor.

Waste management facilities must be suitably enclosed, covered and maintained so as to prevent polluted wastewater runoff from entering the stormwater system.

Where possible, waste/recycling containers should be collected from a rear lane access point. Consideration should be given to the time of day at which containers are collected so as to minimise adverse impacts upon residential amenity, pedestrian movements and vehicle movements.

The size and layout of the waste/recycling storage room/area must be capable of accommodating reasonable future changes in use of the development.

A waste/recycling cupboard must be provided for each and every kitchen area in a development, including kitchen areas in hotel rooms, motel rooms and staff food preparation areas. Each waste/recycling cupboard must be of sufficient size to hold a minimum of a single day's waste and to hold separate containers for general waste and recyclable materials.

Premises that discharge trade wastewater must do so only in accordance with a written agreement from the local sewer authority. In the Sydney Metropolitan Area (SMA) this is Sydney Water. Sydney Water defines trade wastewater as "any liquid, and any substance contained in it, which may be produced at the premises in an industrial and commercial activity, but does not include domestic wastewater (e.g. from hand-basins, showers and toilets)."

Premises which generate at least 50 litres per day of meat, seafood or poultry waste must have that waste collected on a daily basis or must store that waste in a dedicated and refrigerated waste storage area until collection.

Arrangements must be in place regarding the regular maintenance and cleaning of waste management facilities. Tenants and cleaners must be aware of their obligations in regards to these matters.

Any garbage chutes must be designed in accordance with the requirements of Appendix F Garbage Chutes, the Building Code of Australia.. Garbage chutes are not suitable for recyclable materials and must be clearly labelled to discourage improper use.

# Appendix G: Commercial/Industrial Waste and Recycling Storage Areas

## 1.1 Building Code of Australia

- a) Waste/recycling storage areas must be constructed in accordance with the requirements of the Building Code of Australia (BCA).

## 1.2 Location and appearance

- a) Waste/recycling storage areas must be integrated into the design of the overall development. Materials and finishes that are visible from outside should be similar in style and quality to the external materials used in the rest of the development.
- b) Waste/recycling storage areas must be located and designed in a manner that reduces adverse impacts upon neighbouring properties and the streetscape. The location and design of the areas should minimise adverse impacts associated with:
  - I. the proximity of the area to dwellings
  - II. the visibility of the area
  - III. noise generated by any equipment located within the area
  - IV. noise generated by the movement of bins into and out of the area
  - V. noise generated by collection vehicles accessing the site; and
  - VI. odours emanating from the area.

## 1.3 Size

- a) Waste/recycling storage areas must be of adequate size to comfortably accommodate all waste and recycling bins associated with the development.
- b) Waste/recycling storage areas must be able to accommodate separate general waste bins and recycling bins which are of sufficient volume to contain the quantity of waste generated (at the rate described in Appendix B) between collections.

## 1.4 Layout

- a) The gradient of waste/recycling storage area floors and the gradient of any associated access ramps must be sufficiently level so that access for the purpose of emptying containers can occur in accordance with WorkCover NSW Occupational Health and Safety requirements.
- b) Within waste/recycling storage areas, containers used for the storage of recyclable materials should be kept separate from (but close to) general waste containers — so that the potential for contamination of recyclable materials is minimised.

## 1.5 Access: waste/recycling collection

- a) The development must be designed to allow access by collection vehicles used by the nominated waste contractor. Wherever possible, the site must be configured to allow collection vehicles to enter and exit the site in a forward direction and so collection vehicles do not impede general access to, from and within the site. Access driveways to be used by collection vehicles must be of sufficient strength to support such vehicles.
- b) Servicing arrangements for the emptying of bins must be compatible with the operation of any other loading/unloading facilities on-site.
- c) Access for the purpose of emptying waste/recycling storage containers must be able to occur in accordance with WorkCover NSW Occupational Health and Safety requirements.

## 1.6 Access: general

- a) In commercial development, public buildings and industrial development, there must be convenient access from each tenancy to the waste/recycling storage area(s). There must be step-free access between the point at which bins are collected/emptied and the waste/recycling storage area(s).
- b) Arrangements must be in place so that the waste/recycling storage area is not accessible to the general public.
- c) Vermin must be prevented from entering the waste/recycling storage area.

## 1.7 Surfaces

- a) Waste/recycling storage areas must have a smooth, durable floor and must be enclosed with durable walls/fences that extend to the height of any containers which are kept within.

## 1.8 Doors/gates

- a) Doors/gates to waste/recycling storage areas must be durable. There must be a sign adjacent to the door/gate that indicates that the door/gate is to remain closed when not in use. All doors/gates are to be openable from both inside and outside the storage area and must be wide enough to allow for the easy passage of waste/recycling containers.

## 1.9 Services

- a) Waste/recycling storage areas must be serviced by hot and cold water provided through a centralised mixing valve. The hose cock must be protected from the waste containers and must be located in a position that is easily accessible when the area is filled with waste containers.
- b) The floor must be graded so that any water is directed to a sewer authority approved drainage connection located upon the site. In the SMA this is Sydney Water.

## 1.10 Signage

- a) Waste/recycling storage areas must include signage that clearly describes the types of materials that can be deposited into recycling bins and general garbage bins.

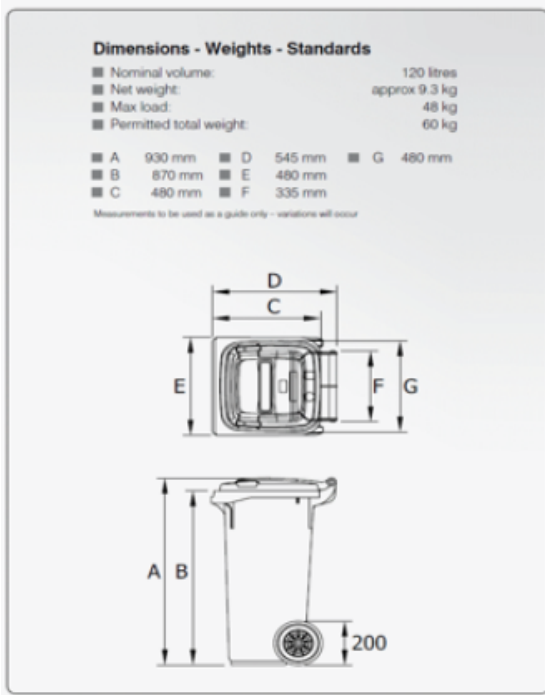
## 1.11 Management

- a) Arrangements must be in place for the regular maintenance and cleaning of waste/recycling storage areas. Waste/recycling containers must only be washed in an area which drains to a sewer authority approved drainage connection. In the SMA this is Sydney Water.

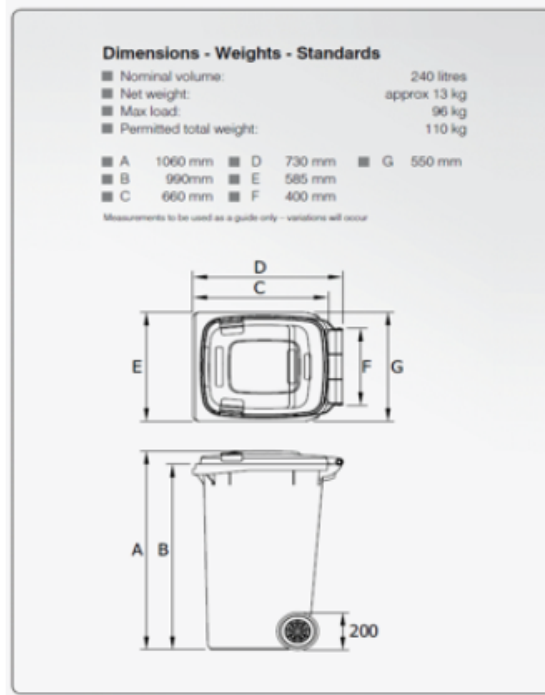
## Appendix 9: Waste Management Bins and Equipment

The dimensions shown below are indicative only and will be dependent on the waste contractor selected to service the development in its operational stage.

### 120-litre MGB



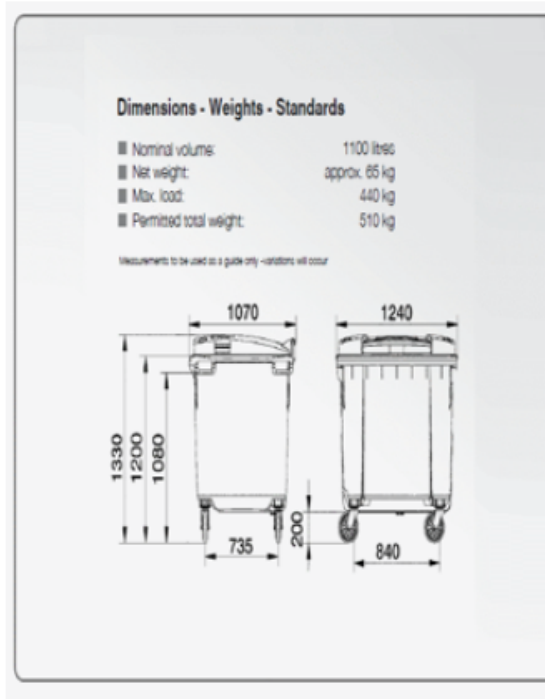
### 240-litre MGB



### 660-litre MGB



### 1100-litre MGB



## Bin Movers and Tugs



## Waste Oil Recycling Equipment



# Appendix F – Construction Soil and Water Management Sub-Plan (CSWMSP)



**van der meer**

**CONSTRUCTION SOIL AND WATER  
MANAGEMENT SUB-PLAN**

**Greenwich Hospital Redevelopment**

97-115 River Road

Greenwich NSW 2065

## Document Control Record

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<b>Prepared by:</b>	Max Yu
<b>Reviewed by:</b>	Hary Budhi
<b>Approved by:</b>	Andrew Wallis
<b>Position:</b>	Associate Director
<b>Signed:</b>	
<b>Date:</b>	09/10/2024
<b>Job No.</b>	SY202-149

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Recipients are responsible for eliminating all superseded documents in their possession.

### van der Meer Consulting (NSW)

ABN 56 158 266 301

Level 6, 39 Chandos Street,  
ST LEONARDS, NSW 2065

Telephone: +61 2 9436 0433

*This document and its contents are intended for the addressee only and contains opinions held by the Author based on material available at the time and expresses those opinions for the purposes of consideration by the Addressee and not for general publication without written consent.*



## TABLE OF CONTENTS

<b>1.</b>	<b>INTRODUCTION .....</b>	<b>4</b>
1.1	CONTROL AND OBJECTIVES.....	4
1.2	REFERENCE DOCUMENTS AND CONTROLS.....	5
<b>2.</b>	<b>ROLES AND RESPONSIBILITIES .....</b>	<b>6</b>
2.1	EMERGENCY CONTACTS.....	6
<b>3.</b>	<b>CSWMP IMPLEMENTATION .....</b>	<b>8</b>
3.1	POTENTIAL WORKS.....	8
3.2	SOIL EROSION AND SEDIMENT CONTROL PLAN .....	8
3.3	WET WEATHER EVENTS.....	10
3.4	OFF-SITE IMPACTS .....	12
3.5	TRAINING, MONITORING & REPORTING .....	14
3.6	COMPLAINT HANDLING PROCEDURE.....	14
3.7	KEY COMMUNICATION MECHANISM.....	15
<b>4.</b>	<b>CONCLUSION .....</b>	<b>16</b>



## 1. Introduction

This Construction Soil and Water Management Sub-plan (CSWMP) has been prepared by van der Meer Consulting to meet the requirement of SSD-13619238) consent condition C18 for the redevelopment of Greenwich Hospital into an integrated hospital and senior living facility on land identified as 97-115 River Road, Greenwich (Lot 3 & Lot 4 DP 584287). The extent of the site is shown below in Figure 1.



Figure 1: Site Overview

### 1.1 Control and Objectives

The key objectives of the CSWMP are to:

- Minimise waste produced on site and the built environment during early works
- Provide a clear framework for contractors to operate in an efficient manner
- Manage the impacts of soil and water during construction works
- Require that all waste generated during the during is assessed, classified and managed in accordance with the EPA's "Waste Classification Guidelines Part 1: Classifying Waste".

The following soil and water objectives apply to the construction site of the Project:



- All erosion and sediment controls are to be implemented during construction as a minimum, in accordance with the publication “*Managing Urban Stormwater: Soils & Construction (4<sup>th</sup> edition, Landcom 2004)*”, commonly referred to as the “Blue Book”.

## 1.2 Reference Documents and Controls

The CSWMP has been developed with specific information to allow for effective soil and water management during the project’s works. This plan has been developed taking into consideration the following requirements:

- Lane Cove Council Development Control Plan (DCP)
- Development Consent Application Numbers: SSD-13619238 and SSD-8699 MOD 1
- Managing Urban Stormwater: Soils & Construction (4<sup>th</sup> edition, Landcom 2004), referred to as the “Blue Book”.
- Environmental Planning and Assessment Act (1979),

Table 1 below outlines conditions relevant to the CSWMP under Schedule 2 of SSD-13619238.

*Table 1: CSWMP Conditions*

SSD Condition	Description
<b>Construction Environmental Management Plan</b>	<p><b>C18.</b> The Construction Soil and Water Management Sub-Plan (CSWMP) must address, but not be limited to the following:</p> <ul style="list-style-type: none"> <li>a) be prepared by a suitably qualified and experienced expert, in consultation with Council and adjoining landowners</li> <li>b) describe all erosion and sediment controls to be implemented during construction, as a minimum, in accordance with the publication <i>Managing Urban Stormwater: Soils &amp; Construction (4<sup>th</sup> edition, Landcom 2004)</i> commonly referred to as the “Blue Book”</li> <li>c) provide a plan of how all construction works will be managed in a wet-weather event (i.e. storage of equipment, stabilization of the Site)</li> <li>d) provide mechanisms to facilitate communication between the Applicant, Council and adjoining affected landowners during the construction of the development</li> <li>e) detail all off-site flows from the Site, including on to adjoining land</li> </ul>

## 2. Roles and Responsibilities

All project personnel including subcontractors have responsibilities in ensuring that the strategic plan of soil and water management is to be implemented during all stages of construction works. These roles and responsibilities are to provide a mechanism to facilitate communication between the applicant, council, and adjoining affected landowners during the construction of the re-development. Table 2 below lists the following:

*Table 2: Roles and Responsibilities*

Role	Responsibilities
Project Manager	<ul style="list-style-type: none"> <li>• Ensure appropriate resources are implemented and maintain soil and water management key objectives</li> <li>• Adhering to the soil and water management plan</li> <li>• Carrying out mitigation measures to ensure and promote soil and water controls are properly maintained</li> </ul>
Site Foreman	<ul style="list-style-type: none"> <li>• Carry out reports and inspections</li> <li>• Liase with the Project Manager that all mitigation measures are taken in accordance with the soil and water management plan</li> </ul>
Project/Site Engineer	<ul style="list-style-type: none"> <li>• Ensure all appropriate measures are implemented and maintained on site</li> </ul>
All Construction Workers	<ul style="list-style-type: none"> <li>• Notify site foreman of any soil and water management issues that appear</li> </ul>

### 2.1 Emergency Contacts

The emergency contacts for the Greenwich Hospital Redevelopment are listed below:

- Mark Reynolds (Hindmarsh) – 0429 994 885
- Emergency Services - 000
  - Ambulance - 000
  - Hospital
    - Royal North Shore Hospital  
Reserve Rd, St Leonards NSW 2065  
(02) 9926 7111
  - Fire
    - Fire and Rescue NSW Crows Nest Fire Station  
99 Shirley Rd, Crows Nest NSW 2065  
(02) 9493 1036
  - Police
    - North Sydney Police Station  
273 Pacific Hwy, Crows Nest NSW 2065  
(02) 9956 3199
- Authorities
  - Lane Cove Council  
48 Longueville Rd, Lane Cove NSW 2066  
(02) 9911 3555
  - NSW Environmental Protection Authority – 131 555

- Services
  - Water
    - Sydney Water – 132 090
  - Gas
    - Jemena – 1300 665 380
  - Communication
    - Telstra – 1800 653 935
    - Optus – 1800 500 253
  - Electricity
    - Ausgrid – 131 388



### 3. CSWMP Implementation

#### 3.1 Potential Works

Activities during the construction of the project that will necessitate the CSWMP include:

- Removal of vegetation
- Earthworks
- Demolition of existing buildings and infrastructure
- Transport of materials
- Stockpiling of materials
- Plant and vehicle movements on site

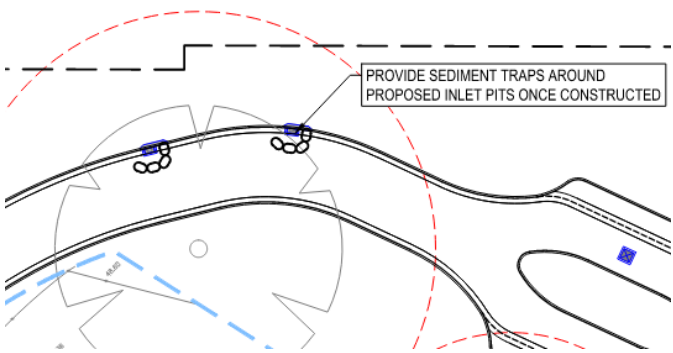
#### 3.2 Soil Erosion and Sediment Control Plan

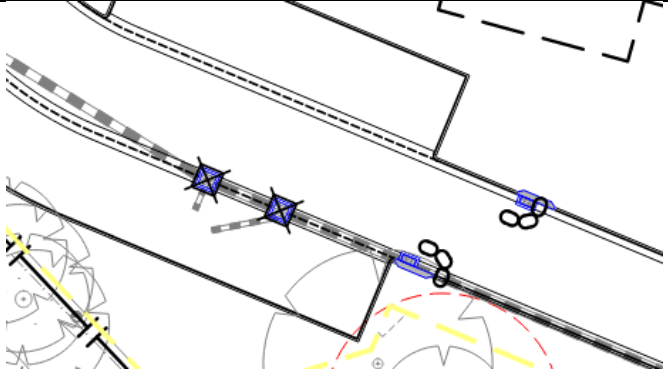
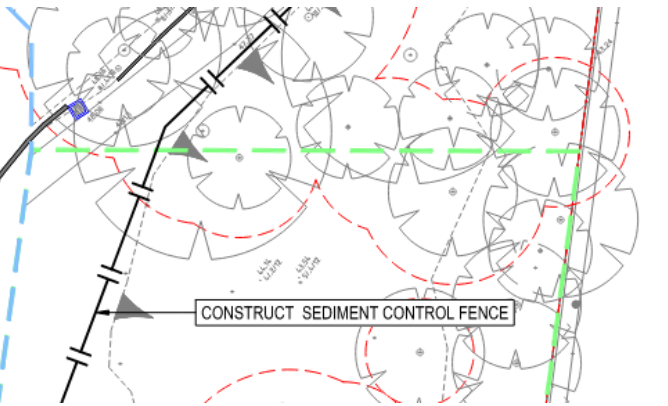
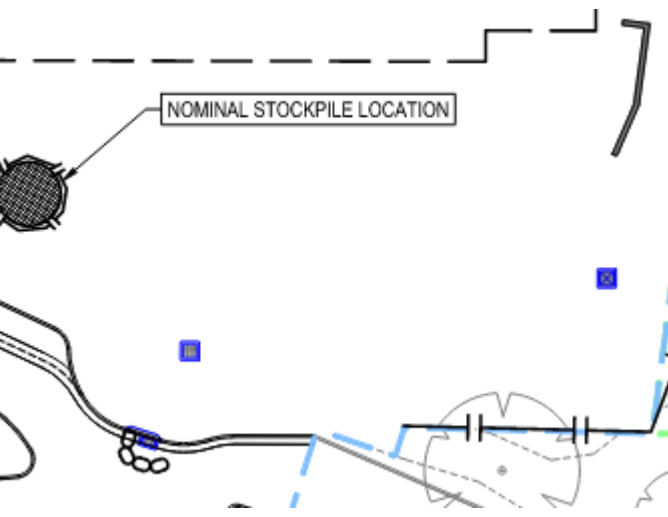
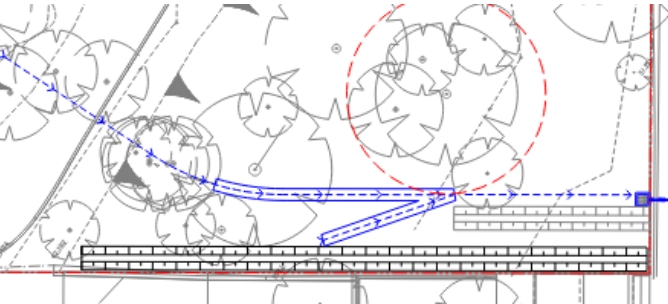
A soil erosion and sediment control plan has been developed for the construction site associated with the Greenwich Hospital Redevelopment in accordance with the Reference Documents. This will ensure that a significant portion of sediments and attached nutrients can be contained on site during construction.


These controls are referred to in the For Information Greenwich Hospital Civil Set Drawings, with particular reference to Drawing Nos. CI-0151, CI-1101, CI-2101 and CI-3101. Controls will be applied separately in three stages of construction.

The minimum controls to be implemented are outlined below in Table 3.

*Table 3: Controls Implemented*

Control	Description	Figure
Sediment Traps	Provide sediment traps around existing and as built inlet pits in accordance with 5.4.4 of the Blue Book. <ul style="list-style-type: none"> <li>• Sandbags along kerb inlet pits.</li> <li>• Geotextile filter fabrics around drop inlet pits</li> </ul>	 <p>PROVIDE SEDIMENT TRAPS AROUND PROPOSED INLET PITS ONCE CONSTRUCTED</p>

		
<p>Sediment Control Fences</p>	<p>Construct sediment control fences along extents of disturbed land and where the slope falls off the site in accordance with Section 6.3.7 of the Blue Book.</p>	
<p>Stockpiles</p>	<p>Nominate suitable locations for stockpiling materials in accordance with Section 4.3.1 of the Blue Book.</p>	
<p>Diversion Banks &amp; Drains</p>	<p>Construct diversion banks and diversion drains on highly erodible lands and where the slope falls off the site in accordance with Section 4.3.1 of the Blue Book.</p>	

<p>Tree Protection Zones</p>	<p>Retain as much existing vegetation as possible through designating tree protection zones.</p>	 <p>TREE PROTECTION ZONE REFER TO LANDSCAPE ARCHITECT'S PLAN</p>
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### 3.3 Wet Weather Events

A plan must be implemented to control how all construction works will be managed. Daily weather updates from the Bureau of Meteorology will provide information to construction personnel with the purpose of implementing productive operations in case of wet weather conditions. The purpose of this section is to outline procedures and protocols for managing construction activities during wet weather events to ensure:

- Worker safety
- Equipment protection
- Environmental compliance
- Minimization of project delays

Table 4 below indicates the measures taken in the case of wet weather.

Table 4: Wet weather measures

Description	Measures to be Taken
Storage of Equipment	<p>Sufficient storage capacity is available in the event of wet weather conditions which will include:</p> <ul style="list-style-type: none"> <li>• Controls are correctly in place and maintained</li> <li>• Sheds and containers will be placed in existing handstand pavements</li> </ul>
Stabilisation of the site	<p>Rumble bar cattle grids are to be installed as the indicative stabilised site accessway for all construction workers driving into site. This ensures that soil will not attach onto truck wheels and end up on public roads.</p>
Weather Monitoring	<ul style="list-style-type: none"> <li>• Designate a team member responsible for weather monitoring</li> <li>• Subscribe to local weather alerts</li> <li>• Establish trigger points for plan activation:</li> <li>• Light rain (0-10mm predicted)</li> </ul>

	<ul style="list-style-type: none"> <li>• Moderate rain (10-30mm predicted)</li> <li>• Heavy rain (&gt;30mm predicted)</li> </ul>
Equipment Management	<ul style="list-style-type: none"> <li>• Storage Procedures             <ul style="list-style-type: none"> <li>○ Relocate portable equipment to covered areas:                 <ul style="list-style-type: none"> <li>○ Hand tools</li> <li>○ Power tools</li> <li>○ Electrical equipment</li> <li>○ Sensitive instruments</li> </ul> </li> <li>○ Cover stationary equipment with waterproof tarps:                 <ul style="list-style-type: none"> <li>○ Generators</li> <li>○ Compressors</li> <li>○ Material stockpiles</li> <li>○ Secure crane booms and other tall equipment</li> <li>○ Move vehicles to higher ground if flooding is possible</li> </ul> </li> </ul> </li> <li>• Electrical Safety             <ul style="list-style-type: none"> <li>○ Disconnect non-essential power equipment</li> <li>○ Verify GFCI protection on all circuits</li> <li>○ Inspect and secure temporary power installations</li> </ul> </li> </ul>
Site Stabilization	<ul style="list-style-type: none"> <li>• Erosion Control             <ul style="list-style-type: none"> <li>○ Install additional erosion control measures:                 <ul style="list-style-type: none"> <li>▪ Sediment fences</li> <li>▪ Straw bales</li> <li>▪ Erosion control blankets</li> </ul> </li> <li>○ Check and reinforce existing erosion controls</li> <li>○ Clear all drainage paths and sediment traps</li> </ul> </li> <li>• Excavation Protection             <ul style="list-style-type: none"> <li>○ Cover open excavations with plastic sheeting</li> <li>○ Install temporary berms to divert water flow</li> <li>○ Ensure dewatering equipment is operational and on standby</li> <li>○ Check stability of excavation walls</li> </ul> </li> <li>• Material Protection             <ul style="list-style-type: none"> <li>○ Cover all exposed stockpiles:                 <ul style="list-style-type: none"> <li>▪ Sand</li> <li>▪ Gravel</li> <li>▪ Topsoil</li> <li>▪ Cement</li> </ul> </li> <li>○ Secure lightweight materials that could become airborne</li> <li>○ Elevate materials susceptible to water damage</li> </ul> </li> </ul>
Safety Measures	<ul style="list-style-type: none"> <li>• Worker Safety             <ul style="list-style-type: none"> <li>○ Issue appropriate PPE for wet conditions</li> <li>○ Identify slip hazards and mark clearly</li> <li>○ Establish safe walking paths with non-slip surfaces</li> <li>○ Review lightning safety protocols</li> </ul> </li> <li>• Access Control             <ul style="list-style-type: none"> <li>○ Designate safe entry/exit points</li> <li>○ Install additional lighting for poor visibility</li> <li>○ Identify and mark areas prone to flooding</li> </ul> </li> </ul>






Work Continuity	<ul style="list-style-type: none"> <li>• Alternative Work Plans <ul style="list-style-type: none"> <li>○ Identify indoor work that can continue during wet weather</li> <li>○ Prepare contingency schedule for critical path activities</li> <li>○ Plan for extended work hours during dry periods</li> </ul> </li> <li>• Quality Control <ul style="list-style-type: none"> <li>○ Establish procedures for checking work affected by rain</li> <li>○ Document all weather-related delays and impacts</li> <li>○ Adjust concrete pour schedules based on forecast</li> </ul> </li> <li>•</li> </ul>
Post-Event Procedures	<ul style="list-style-type: none"> <li>• Inspect site for water damage</li> <li>• Pump out flooded areas</li> <li>• Check stability of temporary structures</li> <li>• Document any weather-related damages</li> <li>• Update project schedule to reflect delays</li> </ul>
Communication Protocol	<ul style="list-style-type: none"> <li>• Establish chain of communication for weather events</li> <li>• Prepare notification templates for different severity levels</li> <li>• Maintain emergency contact list for key personnel</li> <li>• Schedule daily toolbox talks during wet weather periods</li> </ul>
Environmental Compliance	<ul style="list-style-type: none"> <li>• Monitor site runoff</li> <li>• Check sediment control measures twice daily</li> <li>• Document all environmental inspections</li> <li>• Report any non-compliance issues immediately</li> </ul>
Review and Update	<ul style="list-style-type: none"> <li>• Review this plan monthly during wet seasons</li> <li>• Update based on lessons learned from each event</li> <li>• Conduct regular drills to test plan effectiveness</li> </ul>

### 3.4 Off-site Impacts


Runoff and sediments originating from the site have the potential to cause adverse impacts to neighbouring properties, infrastructure and environments. Table 5 below provides a summary of the impacts and mitigation measures provided by the control plan.

*Table 5: Description of off-site impacts*

Site(s)	Description	Mitigation Measures
35 to 55 & 24 Gore Street (S/SE of site)	Residential properties. Runoff and site erosion resulting in sediments and chemicals entering properties: <ul style="list-style-type: none"> <li>• Degradation of property landscape</li> <li>• Property damage</li> </ul>	<ul style="list-style-type: none"> <li>• Diversion banks along the southern and south-eastern boundary to intercept runoffs flowing off the site.</li> <li>• Diversion drains along the southern and south-eastern boundary to carry</li> </ul>

	<ul style="list-style-type: none"> <li>• Decrease in health and quality of life for residents.</li> </ul>	<p>intercepted runoffs towards a proposed outlet drain.</p>
<p>117 River Road (W of site)</p> 	<p>Residential properties. Runoff and site erosion resulting in sediments and chemicals entering properties:</p> <ul style="list-style-type: none"> <li>• Degradation of property landscape</li> <li>• Property damage</li> <li>• Decrease in health and quality of life for residents.</li> </ul>	<ul style="list-style-type: none"> <li>• Sediment traps along all existing and to be built inlet pits.</li> <li>• Sediment control fence along the western and south-western boundary to contain sediments falling off the site.</li> </ul>
<p>St Vincents Road (E of site)</p> 	<p>Existing roadway. Runoff and site erosion resulting in sediments and chemicals entering the road and existing stormwater systems.</p> <ul style="list-style-type: none"> <li>• Roadway hazards for motorists from obstructions and loss of traction caused by sediments.</li> <li>• Local flooding along roadways from stormwater blockage caused by sediments.</li> <li>• Pollution of community waters from the existing stormwater system.</li> </ul>	<ul style="list-style-type: none"> <li>• Sediment traps along all existing and to be built inlet pits.</li> <li>• Sediment control fence along the eastern boundary to contain sediments falling off the site.</li> </ul>
<p>Gore Creek Reserve (SW of site)</p>	<p>Natural watercourse and public recreational area. Runoff and site erosion resulting in sediments and chemicals entering the creek and park.</p>	<ul style="list-style-type: none"> <li>• Sediment traps along all existing and to be built inlet pits</li> <li>• Sediment control fence along the western and south-western boundary</li> </ul>



	<ul style="list-style-type: none"> <li>• Contamination of waters and soil of the surrounding environment.</li> <li>• Decrease in water quality and ecosystem function.</li> <li>• Degradation of public facilities.</li> </ul>	<p>to contain sediments falling off the site.</p>
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### 3.5 Training, Monitoring & Reporting

Construction personnel will receive training on the requirements of following the CSWMP on the project. Construction personnel are also responsible for monitoring and reporting any other issues that may appear outside of the control perimeters of the CSWMP. This is to ensure an active soil and water management plan, which will minimise potential impacts to the local community.

Table 6 below lists the activities as below:

*Table 6: Training, Monitoring & Reporting*

Activity	Aspect	Resource	Responsibility	Action Required
Visual Check-ups	Sediment Controls Water Quality Controls	Supervisor Report Log	All construction personnel	Daily monitoring of control plans
Wet Weather Conditions	All soil and water management plans affected on job site	Supervisor Report Log	Supervisor and all construction workers	Supervisor and all construction workers to withhold all construction works

### 3.6 Complaint Handling Procedure

Any complaints from occupants, stakeholders, or authorities in relation to noise and vibration impacts from construction activities shall be recorded and investigated as soon as possible, addressed, and controlled through a coherent management system. This is to be implemented throughout the duration of our construction. All complaints will be investigated, mitigation measures implemented, and resolutions found and documented. A response to the complaint will be made and all actions will be taken to resolve any issues caused by construction activities.

Table 7 provides an example of a draft complaint register below:

Table 7: Complaint register draft

Date	Time	Contact Details	Incident Description	Action Taken	Follow-up Action (if required)
		Name: _____  Contact Number: _____			

### 3.7 Key Communication Mechanism

A dedicated Project Liaison Officer (PLO) which may be the Project manager will to serve as the primary point of contact between the Applicant, Council, and adjoining landowner Stakeholders. The PLO will be available during business hours via phone and email to address inquiries, coordinate communications, and maintain detailed records of all interactions which may include:

1. Project updates through multiple channels:
  - a. Community meetings for face-to-face discussions;
  - b. Email or letter drop updates on construction progress;
  - c. 24/7 hotline for urgent issues; and
  - d. Project website featuring timeline, updates, and FAQs.
2. Proactive notifications for high-impact works:
  - a. Minimum 5 business days notice for noisy works, traffic changes, or utility interruptions
  - b. Newsletter detailing upcoming works and potential impacts
  - c. Pre-construction information and property surveys for adjoining landowners
3. Complaint management featuring:
  - a. 24-hour initial response time
  - b. Detailed complaint register
  - c. Escalation protocol for unresolved issues
  - d. Regular reporting to Council on complaints and resolutions

These mechanisms ensure open, transparent communication throughout the construction process, minimizing disruption and fostering positive relationships between all stakeholders.

## 4. Conclusion

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This Construction Soil and Water Management Sub-plan provides details on how the key objectives of minimising soil and water management impacts from construction onto the local community and surrounding environment are to be achieved. These are to be achieved through implementation of appropriate controls and ongoing monitoring and evaluation throughout all three phases of construction.

The results from the investigations and assessment for this project that have been summarised in this report. This CSWMP indicates that the development with the proposed strategy can meet development consent condition C18 of SSD-13619238.



## Appendix A – Civil Engineering Erosion and Sediment Control Plans

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**AUCKLAND**  
L8, 139 Quay St  
Auckland NZ

**BRISBANE**  
L3, 51 Alfred St  
Fortitude Valley

**CANBERRA**  
L9, 2 Phillip Law St  
Canberra

**MELBOURNE**  
L6, 379 Collins St  
Melbourne

**NEWCASTLE**  
L1, 17 Bolton St  
Newcastle

**SYDNEY**  
L6, 39 Chandos St  
St Leonards



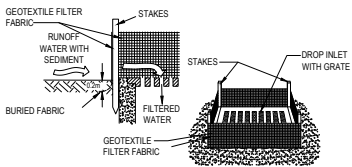
[www.vandermeer.com.au](http://www.vandermeer.com.au)

Regulated Design Record				
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Project Title: GREENWICH HOSPITAL REDEVELOPMENT				
Consent No: SSD-13619238		Body Component:		
Drawing Title: EROSION & SEDIMENT CONTROL DETAILS				
Rev	Date dd.mm.yy	Description	Full Name	Reg No
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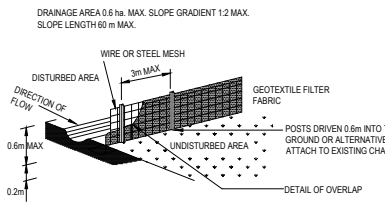
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### EROSION AND SEDIMENT NOTES

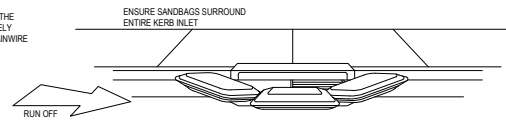
- B1. THIS PLAN IS TO BE READ IN CONJUNCTION WITH EROSION AND SEDIMENT CONTROL DETAILS AS SHOWN
- B2. THE CONTRACTOR SHALL IMPLEMENT ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES AS NECESSARY AND TO THE SATISFACTION OF COUNCIL PRIOR TO THE COMMENCEMENT OF AND DURING CONSTRUCTION. NO DISTURBANCE TO THE SITE SHALL BE PERMITTED OTHER THAN IN THE IMMEDIATE AREA OF THE WORKS AND NO MATERIAL SHALL BE REMOVED FROM THE SITE WITHOUT COUNCIL'S APPROVAL. ALL EROSION AND SEDIMENT CONTROL DEVICES TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH STANDARDS OUTLINED IN NSW DEPARTMENT OF HOUSING'S "MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTIONS".
- B3. TOPSOIL SHALL BE STRIPPED AND STOCKPILED OUTSIDE HAZARD AREAS SUCH AS DRAINAGE LINES. THIS TOPSOIL IS TO BE RESPREAD LATER ON AREAS TO BE REVEGETATED AND STABILISED ONLY. (I.E. ALL FOOTPATHS, BATTERS, SITE REGARDING AREAS, BASINS AND CATCHDRAINS). TOPSOIL SHALL NOT BE RESPREAD ON ANY OTHER AREAS UNLESS SPECIFICALLY INSTRUCTED BY THE SUPERINTENDENT. IF THEY ARE TO REMAIN FOR LONGER THAN ONE MONTH STOCKPILES SHALL BE PROTECTED FROM EROSION BY COVERING THEM WITH A MULCH AND HYDROSEEDING AND, IF NECESSARY, BY LOCATING BANKS OR DRAINS DOWNSTREAM OF A STOCKPILE TO RETARD SILT LADEN RUNOFF.
- B4. THE CONTRACTOR SHALL REGULARLY MAINTAIN ALL EROSION AND SEDIMENT CONTROL DEVICES AND REMOVE ACCUMULATED SILT FROM DEVICES SUCH THAT NO MORE THAN 60% OF THEIR CAPACITY IS LOST. ALL THE SILT IS TO BE PLACED OUTSIDE THE LIMIT OF WORKS. THE PERIOD FOR MAINTAINING THESE DEVICES SHALL BE AT LEAST UNTIL ALL DISTURBED AREAS ARE REVEGETATED OR AS DIRECTED BY THE SUPERINTENDENT OR COUNCIL.
- B5. VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING CONSTRUCTION CONFINING ACCESS WHERE POSSIBLE TO NOMINATED STABILISED ACCESS POINTS.
- B6. THE CONTRACTOR SHALL IMPLEMENT DUST CONTROL BY REGULAR WETTING DOWN (BUT NOT SATURATING) DISTURBED AREA.
- B7. PROVIDE AND MAINTAIN SILT TRAPS AROUND ALL SURFACE INLET PITS UNTIL CATCHMENTS ARE REVEGETATED OR PAVED.
- B8. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.
- B9. ALL DRAINAGE PIPE INLETS TO BE CAPPED UNTIL:
  - A) DOWNPIPES CONNECTED
  - B) PITS CONSTRUCTED AND PROTECTED WITH SILT BARRIER
- B10. SILT FENCE MAINTENANCE INSPECTION TO BE CARRIED OUT WEEKLY. PRIOR TO EXPECTED RAINFALL AND AFTER RAINFALL. ANY DAMAGE OR EXCESS SEDIMENT IN TO BE REPAIRED/REMOVED TO MAINTAIN EROSION & SEDIMENT CONTROL DEVICES.
- B11. EROSION & SEDIMENT CONTROL SIGNAGE AVAILABLE FROM COUNCIL MUST BE ATTACHED TO THE MOST PROMINENT AVAILABLE STRUCTURE AND BE VISIBLE AT ALL TIMES WHEN ENTERING THE SITE FOR THE DURATION OF CONSTRUCTION.
- B12. UNDER NO CIRCUMSTANCE IS FILL TO BE PLACED ON OR ALLOWED TO ESCAPE ONTO ADJOINING PROPERTY.



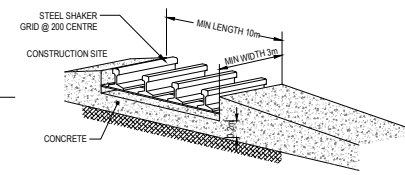
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SEDIMENT TRAP**  
N.T.S.



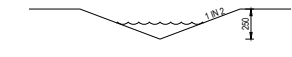
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N.T.S.



**SANDBAG KERB INLET SEDIMENT TRAP**  
N.T.S.



**TEMPORARY CONSTRUCTION  
VEHICLE EXIT**  
N.T.S.



**DIVERSION DRAIN**  
N.T.S.

REVISIONS:			
F	ISSUED FOR DBP ACT COORDINATION	HB	02.09.24
E	PRELIMINARY DBP ACT ISSUE	HB	17.07.24
D	ISSUED FOR 10% CONSTRUCTION DOCUMENTATION PHASE	HB	11.12.23
C	ISSUED FOR 30% CONSTRUCTION DOCUMENTATION PHASE	HB	20.10.23
B	ISSUED FOR 50% CONSTRUCTION DOCUMENTATION PHASE	HB	30.06.23
A	ISSUED FOR 75% CONSTRUCTION DOCUMENTATION PHASE	HB	11.11.22
No.	REVISION DESCRIPTION	ISSUED BY	DATE

SCALE BAR

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**van der meer**

LEVEL 6, 39 CHANDOS STREET  
ST LEONARDS NSW 2065  
Telephone 61-2-9436 0433 Fax 61-2-9436 1370

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CLIENT

**HAMMONDCARE**  
LEVEL 4, 207B PACIFIC HIGHWAY  
ST LEONARDS NSW 2065

ARCHITECT

**BICKERTONMASTERS**  
L335 BUCKINGHAM STREET, SURRY HILLS NSW 2010

PROJECT TITLE

**GREENWICH HOSPITAL**  
97-115 RIVER ROAD  
GREENWICH NSW 2065

DRAWING TITLE

**EROSION AND SEDIMENT CONTROL  
DETAILS**

DRAWING STATUS

**FOR INFORMATION**  
NOT TO BE USED FOR CONSTRUCTION

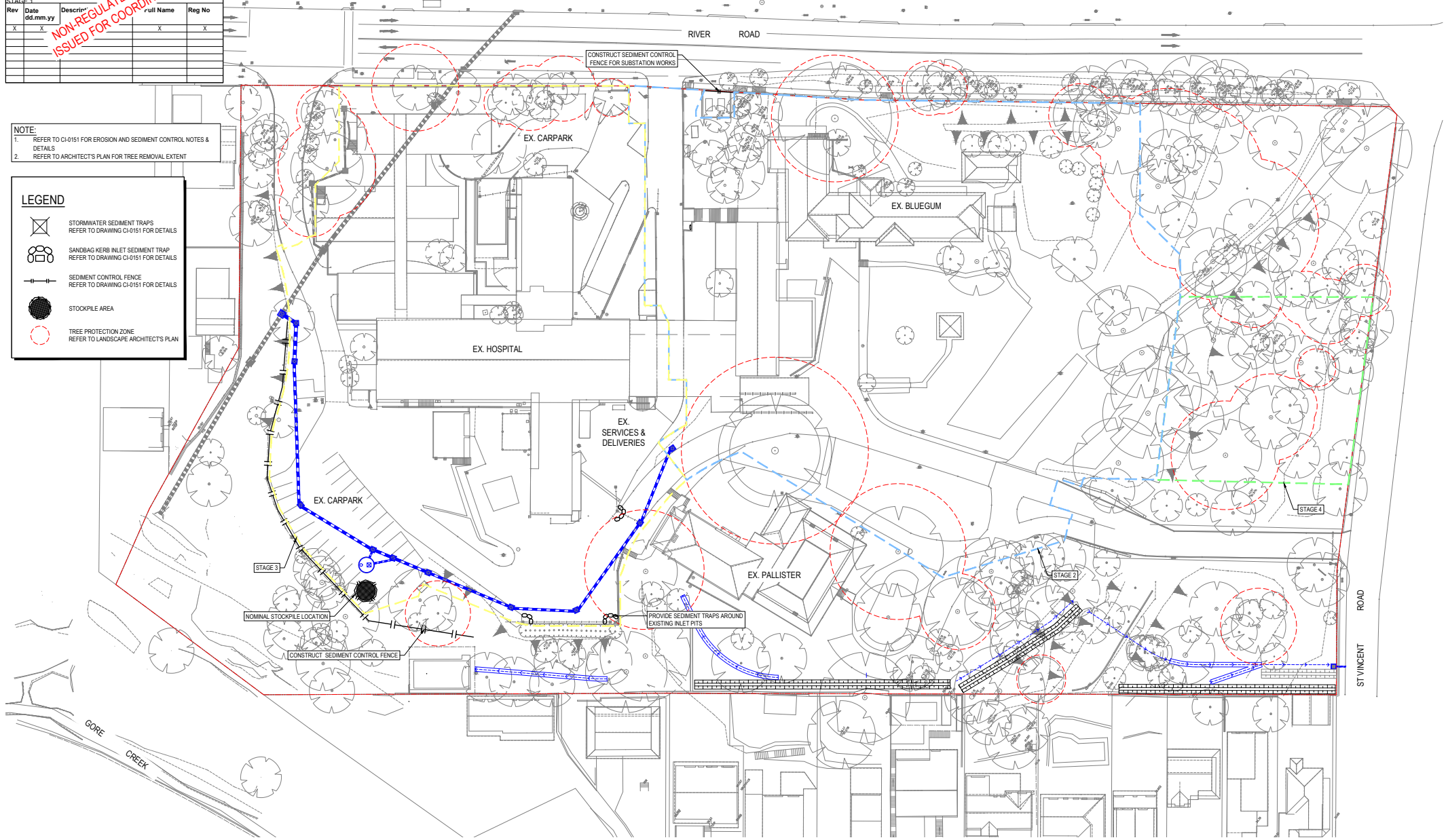
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DRAWN PERSON	SCALE	DATE
HB	AS SHOWN	FEB 2022
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		A1

Regulated Design Record				
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Project Title: GREENWICH HOSPITAL REDEVELOPMENT				
Consent No: SSD-13619238		Body Corp:		
Drawing Title: EROSION & SEDIMENT CONTROL PLAN		Drawn:		
STAGE 1				
Rev	Date	Description	Full Name	Reg No
X	X	X	X	X

NON-REGULATED DESIGN  
ISSUED FOR COORDINATION

- NOTE:**
- REFER TO CI-0151 FOR EROSION AND SEDIMENT CONTROL NOTES & DETAILS
  - REFER TO ARCHITECT'S PLAN FOR TREE REMOVAL EXTENT

LEGEND	
	STORMWATER SEDIMENT TRAPS REFER TO DRAWING CI-0151 FOR DETAILS
	SANDBAG KERB INLET SEDIMENT TRAP REFER TO DRAWING CI-0151 FOR DETAILS
	SEDIMENT CONTROL FENCE REFER TO DRAWING CI-0151 FOR DETAILS
	STOCKPILE AREA
	TREE PROTECTION ZONE REFER TO LANDSCAPE ARCHITECT'S PLAN



PLAN  
SCALE 1:400

NO.	REVISIONS:	DATE	BY
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G	PRELIMINARY DBP ACT ISSUE	17.07.24	HB
F	ISSUED FOR TENDER	28.06.24	HB
E	ISSUED FOR 100% CONSTRUCTION DOCUMENTATION PHASE	11.12.23	HB
D	ISSUED FOR 80% CONSTRUCTION DOCUMENTATION PHASE	20.10.23	HB
C	ISSUED FOR 80% CONSTRUCTION DOCUMENTATION PHASE	30.08.23	HB
B	ISSUED FOR STAGE 1 DOCUMENTATION	03.04.23	HB
A	ISSUED FOR 75% CONSTRUCTION DOCUMENTATION PHASE	11.11.22	HB

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PROJECT TITLE  
**GREENWICH HOSPITAL**  
97-115 RIVER ROAD  
GREENWICH NSW 2065

DRAWING TITLE  
**EROSION AND SEDIMENT CONTROL**  
PLAN STAGE 1

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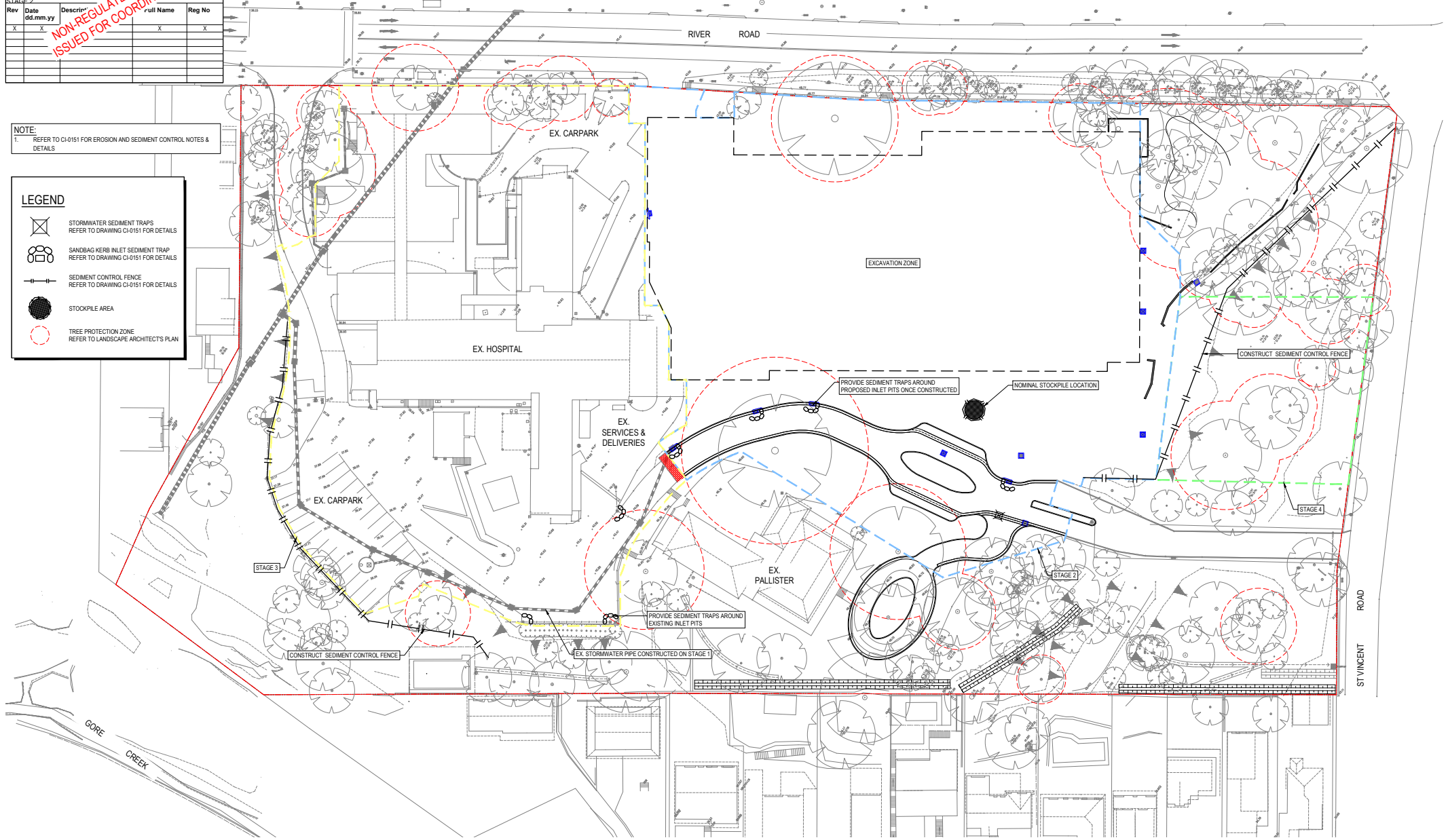
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Project Title: GREENWICH HOSPITAL REDEVELOPMENT				
Consent No: SSD-13619238		Body Corporate:		
Drawing Title: EROSION & SEDIMENT CONTROL PLAN STAGE 2		Drawn By:		
Rev	Date	Description	Full Name	Reg No
X	X		X	X

NON-REGULATED DESIGN  
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**NOTE:**  
1. REFER TO CI-0151 FOR EROSION AND SEDIMENT CONTROL NOTES & DETAILS

**LEGEND**

- STORMWATER SEDIMENT TRAPS  
REFER TO DRAWING CI-0151 FOR DETAILS
- SANDBAG KERB INLET SEDIMENT TRAP  
REFER TO DRAWING CI-0151 FOR DETAILS
- SEDIMENT CONTROL FENCE  
REFER TO DRAWING CI-0151 FOR DETAILS
- STOCKPILE AREA
- TREE PROTECTION ZONE  
REFER TO LANDSCAPE ARCHITECT'S PLAN



PLAN  
SCALE 1:400

NO.	REVISION	DATE
F	ISSUED FOR DBP ACT COORDINATION	HB 02.09.24
E	PRELIMINARY DBP ACT ISSUE	HB 17.07.24
D	ISSUED FOR 100% CONSTRUCTION DOCUMENTATION PHASE	HB 11.12.23
C	ISSUED FOR 90% CONSTRUCTION DOCUMENTATION PHASE	HB 20.10.23
B	ISSUED FOR 80% CONSTRUCTION DOCUMENTATION PHASE	HB 30.06.23
A	ISSUED FOR 75% CONSTRUCTION DOCUMENTATION PHASE	HB 11.11.22
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DRAWING TITLE  
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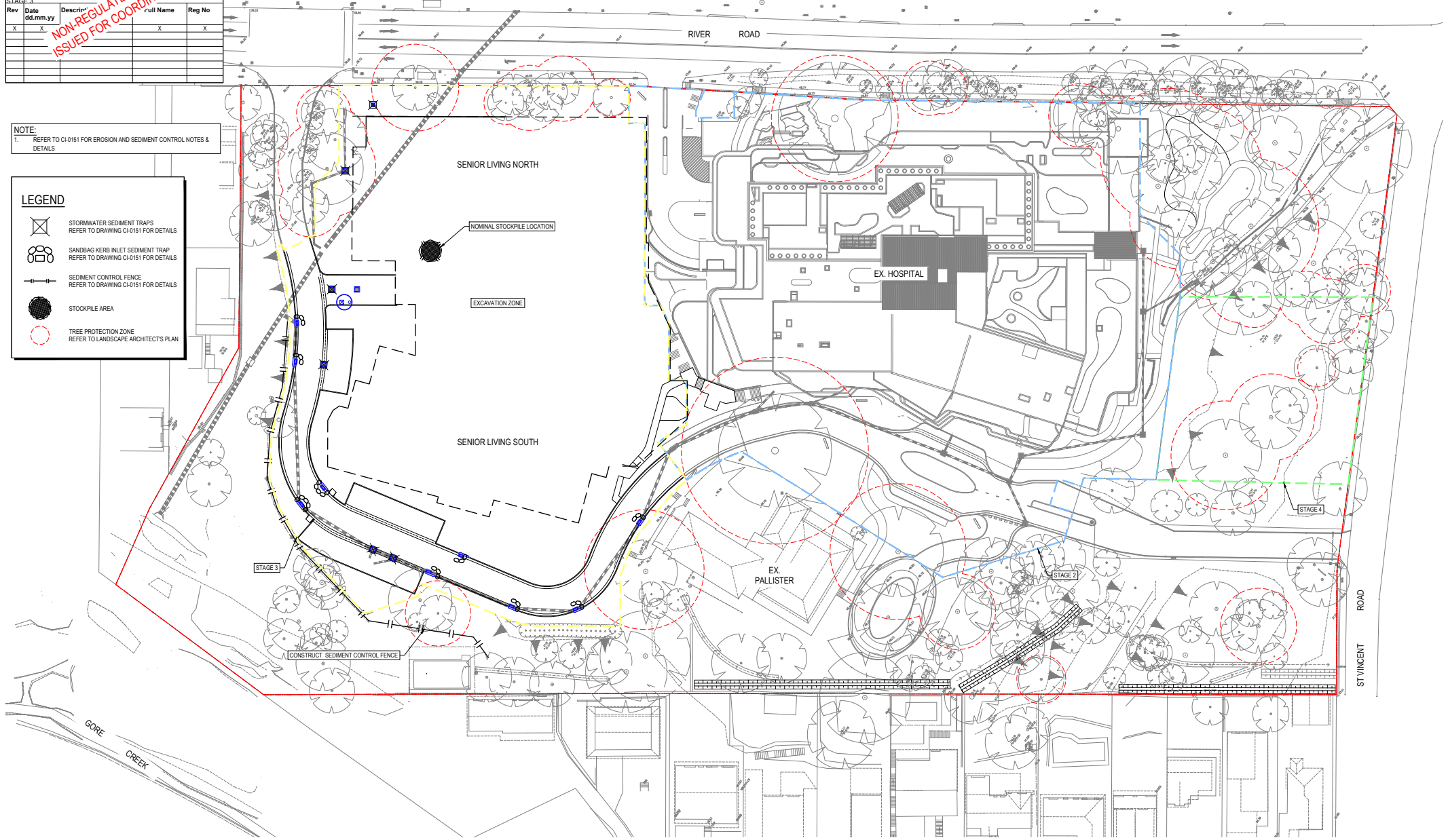
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Project Title: GREENWICH HOSPITAL REDEVELOPMENT				
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LEGEND	
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	SANDBAG KERB INLET SEDIMENT TRAP REFER TO DRAWING CI-0151 FOR DETAILS
	SEDIMENT CONTROL FENCE REFER TO DRAWING CI-0151 FOR DETAILS
	STOCKPILE AREA
	TREE PROTECTION ZONE REFER TO LANDSCAPE ARCHITECT'S PLAN



PLAN  
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D	ISSUED FOR 100% CONSTRUCTION DOCUMENTATION PHASE	11.12.23
C	ISSUED FOR 90% CONSTRUCTION DOCUMENTATION PHASE	20.10.23
B	ISSUED FOR 80% CONSTRUCTION DOCUMENTATION PHASE	30.06.23
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DRAWING TITLE  
**EROSION AND SEDIMENT CONTROL**  
PLAN STAGE 3

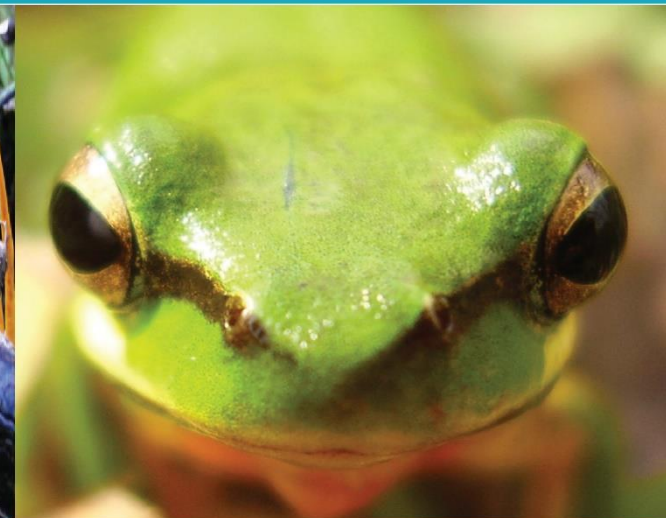
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# Appendix G – Biodiversity Management Sub-Plan (BMSP)



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& ECOLOGY**

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# **BIODIVERSITY MANAGEMENT PLAN**

Proposed Development  
Lot 3 and 4, DP 584287  
97-115 River Road  
Greenwich

18 November 2024

(REF: TSA08.4BMP)

# BIODIVERSITY MANAGEMENT PLAN

Lot 3 and 4 DP 584287, 97-115 River Road, Greenwich

**Prepared by:** Travers bushfire & ecology  
**Authors:** Darren Hall (B. Pks Rec & Heritage) – Restoration Ecologist  
 Lindsay Holmes (B. Sc.) – BAM accredited author  
**Approved by:** Michael Sheather-Reid (B. Nat. Res. Hons.) – Managing Director – BAM  
 accredited assessor  
**Date:** 18 November 2024

**Contents**

- Biodiversity Management Aims .....3
- Site Details .....3
- Biodiversity Management Works .....3
- Site Preparation & Protection of Native Vegetation .....3
- Tree Protection .....3
- Biodiversity Performance Targets .....4
- Onsite Vegetation .....4
- Threatened Biodiversity .....5
- Management of Development Footprint .....5
- Stormwater Management .....5
- Recommended Landscape Planting List .....5
- General Weed Control .....6
- Proposed Weeding Activities .....6
- Pest Management .....6
- Sediment and Erosion Control .....6
- Rubbish Removal .....7
- Management of Bushfire Risk .....7
- Construction Impact Mitigation .....7
- Monitoring and Maintenance .....8
- Non-Conformance with BMP .....8
- Compliance and Review .....8
- Pathogen Control and Management .....8
- Fauna Management .....9
- References .....10
- Program of Works .....12
- Attachment 1 – Audit & Compliance Certification Table .....16

**Tables**

- Table 1 – Preferred revegetation and landscaping species for use on site .....5
- Table 2 – Weed species identified within the study area .....6
- Table 3 – Data for hollow-bearing trees to be removed .....9
- Table 4 – Typical nest box dimensions for various fauna .....10
- Table 5 – Program of works .....12

**Figures**

- Figure 1 – Study area (red) .....2
- Figure 2 – Preliminary site plan .....2
- Figure 3 – Example of temporary tree protection fencing .....3
- Figure 4 - Myrtle rust on paperbark leaf (Melaleuca quinquenervia) .....9
- Figure 5 – Examples of outdoor wildlife friendly lighting for accessways .....9
- Figure 6 - Southern Myotis .....10
- Figure 7 – Anti-Myna baffle .....11
- Figure 8 – A Generic nest box design .....11
- Figure 9 – Microbat nest box detail (Option 1 & 2) .....11
- Figure 10 – Typical dimensions for large parrot box .....11
- Figure 11 – Augmented hollow using a hollow log .....11
- Figure 12 – Augmented hollow using inserted entrance and prepared cavity .....11
- Figure 13 - Site map .....13
- Figure 14 – Flora and fauna survey effort and results .....14
- Figure 15 - Tree retention and removal plan .....15

**Attachments**  
 Schedule 1 – Biodiversity Management Actions  
 Attachment 1 – Audit and Compliance Certification Table



Figure 1 – Study area (red)



Figure 2 – Preliminary site plan  
 (Source: Bickerton Masters, 11/02/2022)



Lot 3 and 4 DP 584287 97 – 115  
 River Road, Greenwich

18 November 2024  
 Ref: TSA08.4BMP

Page 2 of 16

**Biodiversity Management Plan**

## BIODIVERSITY MANAGEMENT AIMS

The purpose of this Biodiversity Management Plan (BMP) is to define and document the actions required for the management of biodiversity within Lot 3 and 4 DP 584287, 97-115 River Road, Greenwich, which has an approved development application for the Greenwich hospital redevelopment. The BMP aims to detail the management of the biodiversity values located within the proposed development, to protect and minimise impacts to these values, and ensure that vegetation clearance (where required) is undertaken ethically. The management of the residual bushland (avoided development area) within, Lot 3 and 4 DP 584287, can be found in the Vegetation Management Plan (TBE 17 May 2022), which focusses on the protection and restoration of the existing vegetation community and native fauna habitat.

The aims of this BMP include:

- Identify areas of land where impacts on biodiversity are to be avoided as outlined in the *Biodiversity Development Assessment Report*, prepared by Travers bushfire and ecology and dated 2 August 2023 and set out how these areas will be protected from construction impacts;
- Set out the measures identified in the Biodiversity Development Assessment Report to minimise, mitigate and manage impacts on biodiversity, including timing and responsibility for delivery of measures;
- Fauna management during clearing, and the handling and relocation of wildlife by a suitably qualified wildlife carer/fauna ecologist;
- Harvesting of suitable hollows for augmentation as per the VMP (TBE 2022);
- Sediment and erosion control;
- Ongoing rubbish and waste removal within the redevelopment areas;
- Installation of temporary protective fencing; and
- Pre-clearing survey procedures.

## SITE DETAILS

The site is within the suburb of Greenwich in the Lane Cove Council Local Government Area (LGA) of New South Wales. The site is surrounded by predominately existing urban development with scattered vegetation to the east. The northern boundary runs parallel to River Rd. The southern and eastern boundary are connected to Gore Creek Reserve/Lane Cove Bushland Park. The site is situated on a sloping topography towards the south-west portion of the site where there is a approx. 40 m high drop-off/escarpment. There are no creek lines within the study area. However, there is Gore Creek to the south-west within approx. 100 m of site and it is expected that any drainage filters down to the Creek, which in turn drains into Lane Cove River.

### Soil/Geology

Geology: Hawkesbury Sandstone (Rh) - Sandstone, quartz, with some shale. Soils: The majority of the study area is located on the Gynea soil landscape. gy-shallow to moderately deep (30-100 cm) Yellow Earths and Earthy Sands on crests and inside of benches; shallow (<20 cm) Siliceous Sands on leading edges of benches; localised Gleyed Podzolic Soils and Yellow Podzolic Soils on shale lenses; shallow to moderately deep (<100 cm) Siliceous Sands and Leached Sands along drainage lines. The eastern and western extremities of the site lie on the Hawkesbury soil landscape. ha-shallow (>50 cm), discontinuous Lithosols/Siliceous Sands associated with rock outcrop; Earthy Sands, Yellow Earths and some Yellow Podzolic Soils on inside of benches and along joints and fractures; localised Yellow and Red Podzolic Soils associated with shale lenses; Siliceous Sands and secondary Yellow Earths along drainage lines.

### Connectivity Features

There is some connectivity to the subject land. There is connection to Lane Cove Bushland Park and Gore Creek to the west and to Gore Creek Reserve to the south. The north of the site runs parallel to River Rd and to the east is mainly existing residential properties (i.e., poor connectivity in those directions). The location map (Figure 1) shows an overview of the extent of native vegetation and connective features in the locality.

### Zoning

The site is currently zoned SP2 under the Lane Cove LEP of 2010 which is for Special Purposes (health services facilities).

### Recorded Vegetation Summary

The following vegetation communities were identified on site in the approved BDAR:

- PCT 1841 - Coastal enriched sandstone moist forest
- PCT 1828 - Coastal sandstone gallery rainforest

Greenwich Hospital has operated from the site since 1966. Hammond Care has owned and operated Greenwich Hospital since 2008. Lot 3 DP 584287 contains the existing Greenwich hospital, associated inpatient and outpatient facilities, car parking and service areas. Existing buildings range between 1 and 5 storeys in height and are interconnected through internal corridors and external pathways. The site is serviced by water, sewer, telecommunication and power services.

The site has been subject to past historical clearing with the construction of the existing hospital buildings and associated infrastructure. Exotic vegetation exists within managed landscaped gardens alongside areas of managed turf. Patches of disturbed remnant native vegetation of PCT 1841 occur on the eastern side of the site accessed from St Vincents Rd. The area in the southwest corner of the site contains PCT 1841 along with PCT 1828 that has been incorporated into the Vegetation Management Plan (VMP).

## BIODIVERSITY MANAGEMENT WORKS

A summary of the key components of the biodiversity management works to be conducted, includes the following:

- A pre-clearing survey for resident fauna and fauna habitat prior to clearing
- Clear marking of all habitat trees and any other important habitat features
- Installation of fourteen (14) salvaged hollows/nest boxes prior to clearing to provide habitat for displaced fauna as a result of vegetation clearing (as per 2022 VMP) if not already installed.
- Protection of identified conservation areas from the construction zone through temporary fencing.
- Specific tree protection fencing put in place for trees marked for retention which border the construction zone as per the Tree Management Plan (Redgum, 2018);
- Supervision of vegetation clearing by a project ecologist to capture and relocate any fauna present into the retained bushland areas.
- Relocation of any other important habitat features such as logs to the retained bushland areas.
- Hollow augmentation through the installation of additional nest boxes to replace any good quality hollows destroyed during clearing.
- Pathogen control and monitoring of equipment and machinery contractors working onsite; and
- Weed control, including ongoing maintenance and monitoring.

## SITE PREPARATION & PROTECTION OF NATIVE VEGETATION

Prior to any works being undertaken, an independent project ecologist and project arborist must be engaged to undertake auditing, reporting and compliance certification.

The following site preparation is to be undertaken:

- Install temporary tree protection fencing during construction for all native remnant trees to be retained, bordering the proposed development (see Schedule 1).
- Sediment fencing is to be installed immediately adjacent or in conjunction with the permanent protection fencing along the boundary of VMP management area where it borders the construction zone for the duration of the construction period in compliance with *Soils & construction Managing Urban Stormwater* (Landcom 2004).
- Weed control should be commenced occur once the construction phase has begun. Commence weed control within the whole of the BMP management area prior to any landscaping or tree planting works.
- All litter and any other waste material on site is to be removed prior to restoration works. Ongoing rubbish removal throughout the maintenance period is to be undertaken.

## TREE PROTECTION

All tree protection works should follow the procedures detailed within the (A): Arboriculture Impact Assessment (AIA) and (B) Tree Management Plan (Redgum 2018), which would provide the specifications for all on site tree management. In summary, temporary tree protection fencing will need to be put in place for marked retained trees before any on site construction works are commenced (including demolition and bulk earthworks). The protection fencing must be established at the locations specified in the AIA report and cannot be removed or altered in any way without the approval of the project arborist. An example of protection tree fencing can be viewed in Figure 3.

All protective tree fencing is to remain in place until construction is complete to prevent accidental damage or felling of non-target trees. Signage will be placed on the fencing to inform workers that the tree is marked for retention, access is restricted, and no works are to be conducted which could impact on the health of the tree without consulting with the project arborist.



Figure 3 – Example of temporary tree protection fencing

## BIODIVERSITY PERFORMANCE TARGETS

The following restoration performance targets are to be audited, and compliance certificate issued by the project ecologist demonstrating satisfactory completion of the works in accordance with this BMP, with reference to the VMP (TBE 2022);

1. All building, construction, and landscaping works will be excluded from the VMP area.
2. Temporary tree protection and signage to be put in place around all trees to be retained within and adjacent to the proposed development
3. Subject to the staging of works, the presence, abundance and cover of invasive weed species within the site is not to exceed 10% weed coverage at the end of year 1, and this should be progressively reduced to less 2% by the end of year 3 and maintained at less than 2%.
4. Native vegetation is to be planted as per the species from the recommended landscape planting list (Table 1) or as specified in the landscaping plans by *Taylor Brammer*.
5. A minimum of 90% of landscaping and street planting trees should survive. If tree survival rates fall below 90%, replacement planting is to be completed.
6. As vegetation on site is cleared, logs are to be stockpiled for future use within the restoration area in the VMP area.
7. Cleared good quality hollows should be salvaged and relocated into the retained bushland area (avoided lands/VMP area) where possible. Good quality hollows destroyed during clearing are to be replaced by nest boxes.
8. A minimum of fourteen (14) nest boxes/salvaged hollows are to be installed prior to vegetation clearing to provide habitat for hollow-dependent fauna as per the VMP.
9. No stockpiles of rubbish or vegetation debris to be kept onsite, unless some native trees being felled are stockpiled for use as log habitat on site. Stockpiling locations must be agreed to by the project ecologist.
10. Sediment and erosion controls are to be implemented to a high standard and independently audited by the project ecologist.

## ONSITE VEGETATION

The vegetation within the development footprint that is directly impacted by the proposed development, including access roads and areas used to store construction materials consists of:

### PCT 1841 – Coastal Enriched Sandstone Moist Forest

This is the primary vegetation community on the site, occurring in the southeastern and southwestern portions of the site. It represents most of the remnant vegetation present and is in a moderate condition, with good diversity of native understorey species and a moderate abundance of exotics. Fair condition patches (Site Photo 1) consisted of native canopy including **Canopy** – *Angophora costata*, *Eucalyptus pilularis*, *Eucalyptus resinifera* and *Eucalyptus saligna* providing 20-30% Projected Foliage Cover (PFC). **Mid-storey** – *Pittosporum undulatum*, *Glochidion ferdinandi*, *Brachychiton acerifolius*, *Archontophoenix cunninghamiana*, *Doryanthes excelsa*, *Calochlaena dubia*, *Cassytha pubescens* and *Hibbertia dentata* providing 20-40% PFC. Exotic species are abundant in places, and include *Hedera helix*, *Ipomoea cairica*, *Lantana camara*, *Ligustrum lucidum*, *Ligustrum sinense*, *Ochna serrulata*, *Olea europaea* and *Phoenix canariensis*.

**Groundcovers** – *Adiantum aethiopicum*, *Asplenium aethiopicum*, *Pteridium esculentum*, *Commelina cyanea*, *Dianella caerulea*, *Cynodon dactylon*, *Oplismenus aemulus*, *Lomandra longifolia*, *Lepidosperma laterale*, *Poa affinis*, *Entolasia stricta* and *Microlaena stipoides* providing 1-20% PFC. Exotic ground covers include species such as *Tradescantia fluminensis*.

### PCT 1841 - Coastal enriched sandstone moist forest – planted/managed

This vegetation is comprised mostly of planted native trees and shrubs. It is likely that some of these are remnant or self-established plants (Site Photo 2) from the indigenous, remnant vegetation, but it is not possible to distinguish which are planted or not with great level of certainty. The understorey is highly managed and contains a lot of mown lawn. **Canopy** – species include *Ficus rubiginosa*, *Eucalyptus pilularis*, *E. microcorys*, *E. sideroxylon* and *Stenocarpus sinuatus* providing up to 50% PFC. **Mid-storey** – *Syzygium australe*, *Callistemon* spp., *Melia azedarach*, *Leptospermum* sp., *Banksia* spp. and *Cupaniopsis anacardioides* providing up to 5% PFC. **Groundcovers** – *Cyperus gracilis*, *Oplismenus aemulus*, *Lomandra longifolia* and *Microlaena stipoides* providing up to 60% PFC.

### PCT 1828 - Coastal sandstone gallery rainforest (outside subject land)

This vegetation occurs outside the subject land in the far southwest of the subject lot and within the Vegetation Management (Site Photo 3). This vegetation is typically dominated by *Ceratopetalum apetalum*, with a scattered cover of small trees in the sub-canopy layer, usually comprising *Callicoma serratifolia*, *Acmena smithii*, *Tristaniopsis laurina* and tree ferns (*Cyathea* spp.). Epiphytic species *Platynerium bifurcatum* are found growing on trees along with *Asplenium australasicum* growing on rocks.



Site Photo 1 – Fair condition PCT 1841 – Coastal Enriched Sandstone Moist Forest



Site Photo 2 – PCT 1841 – Coastal Enriched Sandstone Moist Forest Planted/managed

### Exotic Dominated Vegetation

Exotic and non-native trees and shrubs are scattered throughout the managed portions of the subject land. Species include *Cinnamomum camphora*, *Corymbia citriodora*, *Cupressus* spp., *Phoenix canariensis*, *Pinus radiata*, *Jacaranda mimosifolia*, *Camelia japonica*, *Liquidambar styraciflua* and *Jacaranda mimosifolia*. As the species composition is devoid of native species (Site photo 4), it has not been assigned to a vegetation zone or PCT.



Site Photo 3 – PCT 1828 - Coastal sandstone gallery rainforest (outside subject land)



Site Photo 4 – Exotic dominated vegetation



Site Photo 5 – Managed Landscape Gardens



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River Road, Greenwich

18 November 2024  
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Page 4 of 16

Biodiversity Management Plan

## THREATENED BIODIVERSITY

### Threatened Communities

There are no Threatened Ecological Communities (TECs) on site.

### Recorded Fauna

The following threatened fauna species were identified on site in 2023 and are further documented in the TBE Biodiversity Development Assessment Report (2023b):

- Southern Myotis (*Myotis macropus*).

### Southern Myotis (*Myotis Macropus*)

Southern Myotis was recorded during fauna surveys by TBE (2024c) within the Vegetation Management Plan (VMP) area to the south. The restoration actions and design specifications of the surrounding landscape are aimed at providing a habitat conducive to the requirements for this species. The southern myotis (*Myotis macropus*), also known as large-footed myotis, is a species of vesper bat (Vespertilionidae) in genus *Myotis*. The southern myotis is one of only two Australian "fishing" bats and feeds by trawling its specially adapted feet along the water's surface for aquatic invertebrates and fish along with mosquitos and moths. As a 'vesper bat', *M. macropus* are 'mouse-like' with small, rounded ears, however, its most prominent feature is its enlarged feet. Being at least 8 mm long, the *M. macropus* foot is specially adapted for trawling. Its toes are wide-set with long, hook-like claws. Like all bats, the hind limbs of the *M. macropus* are orientated so that the knees point backwards when they are bent, while the bottom of their feet face anteriorly. This aids them in scooping up aquatic prey and bringing it to their mouth, mid-flight.

### Microbat Habitat

Several hollow-bearing trees and sandstone caves were located containing suitable sized hollows for microbats, including, within the development footprint and the designated Vegetation Management Plan (VMP) area.

A precautionary approach will be taken to ensure if any roosting habitat is within these trees, the relevant hollow section will be safely recovered and relocated to the conserved bushland area. If hollows cannot be salvaged, then they will be replaced with appropriate nest boxes.

## MANAGEMENT OF DEVELOPMENT FOOTPRINT

In general, to maintain or improve the condition and structural diversity of the retained vegetation within the surrounding conserved bushland, the following restrictions need to be enforced within the development footprint:

### Weed Management

- Engagement of qualified and experienced bushland regeneration contractors to undertake all restoration works (Supervisor - *Certificate III/IV in Conservation and Land Management* or equivalent, with at least three (3) years of field experience);
- All invasive and environmental weeds within the proposed subdivision are to be eradicated where possible or, after primary and secondary weed controls are completed, remaining weeds are severely prosecuted such that the weed cover is less than 1% by the end of year 3. Garden or landscaping waste, weed propagules (seeds, tubers etc.), or lawn clippings, should not be dumped or spread on adjacent residual bushland or allowed to be washed or blown into the conservation areas; and
- Herbicides are to be used only as per the manufacturer's instructions and by a qualified operator.

### Erosion Control / Sedimentation Management

- All bare soils within the development area are to be stabilised especially within riparian vegetation, near creeks or on overland flows.
- Sediment and tree protection fences are to be installed around all construction works (including access tracks) prior to commencement of any earth or construction works.
- Sediment control infrastructure is to be installed in accordance with "Managing Urban Stormwater Soils and Construction" (Landcom 2004); and
- Sediment or stormwater infrastructure such as basins or grassy swales are to be installed prior to commencement of construction works.

### Soil Disturbance

- There will be no works that will disturb the soil within any areas covered by the Vegetation Management Plan (VMP), or within any other earthwork's exclusion zones. Activities such as scalping or slashing are strictly prohibited.
- No leaf litter outside of the development footprint is to be disturbed or removed; and
- In the event of any unauthorised soil disturbance, the ground will be restored as close as possible to its original state, as directed by the project ecologist.

### Impacts to Non-Target Vegetation

- Vegetation removal is to be undertaken strictly in accordance with this BMP.
- Within retained bushland, there will be no removal of native vegetation, branches, logs, bush rock or any other material.
- No disturbance to outcrops of sandstone that provides vital habitat.
- Any loss of vegetation that has been nominated for retention is to be replaced with the same species and in the same location to maintain a vegetation cover commensurate with the revegetation specifications contained in the VMP (TBE 2022).

### Landscape Planting

- Any landscape planting within the site should aim to utilise native species as specified in Table 1, or as specified and approved in the landscaping plans by *Taylor Brammer*. This will provide some cross-site shelter/habitat for birds travelling over the development.
- All plant stock for landscaping is to be certified as local provenance from the supplier, with preference for seeds collected from similar community types within the locality.

### Nutrient Management

- Lawn fertilisers and manure (horse, bovine or chicken) are not to be spread or stockpiled within 40 m of a drainage line or any of the retained bushland areas, including for the purposes of gardens or landscaping.

### Access

- Construction fencing is to be utilised to restrict or direct vehicle movements on and across the site;
- If development areas adjoin native vegetation retention areas, these are to be protected by fencing to exclude access;
- Tree protection zones are to be adequately protected by temporary fencing at the discretion of the project arborist, to ensure the zones are not impacted by vehicular movement, trampling, stockpiling and excavation.
- Dogs are to be always excluded from the residual bushland.

## STORMWATER MANAGEMENT

Wood & Grieve Engineers (2019) have prepared a Greenwich Hospital Overland Flow Assessment for SSD-8699.

The strategy provides methodologies for the management of stormwater on the site, which are as follows:

- The site is high enough above the creek level that there will be no flood impacts from Gore Creek and the downstream Lane Cove River.
- Stormwater will be conveyed around the site as per existing case, as such the proposed development is not obstructing any overland flow paths and will have no impact on the current overland flow path for the upstream catchment.
- Overland flow from upstream catchments will continue to be conveyed around the site as per the existing case, as such mitigation measures will not be required for the development. The proposed design will ensure that the drainage strategy remains the same as existing wherein all overland flow will be conveyed away from habitable floor levels.

## RECOMMENDED LANDSCAPE PLANTING LIST

Table 1 – Preferred revegetation and landscaping species for use on site

The below species are preferred for replacement or landscape planting, where areas are not specified in the landscaping plan.

Scientific Name	Common Name
<b>Canopy Planting</b>	
<i>Angophora costata</i>	Sydney Red Gum
<i>Eucalyptus pilularis</i>	Blackbutt
<i>Eucalyptus piperita</i>	Sydney Peppermint
<i>Eucalyptus saligna</i>	Sydney Blue Gum
<b>Sub-canopy</b>	
<i>Allocasuarina torulosa</i>	Forest Oak
<i>Ceratopetalum apetalum</i>	Coachwood
<i>Elaeocarpus reticulatus</i>	Blueberry Ash
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Pittosporum undulatum</i>	Sweet Pittosporum
<b>Shrub Planting</b>	
<i>Acacia longifolia</i>	Sydney Golden Wattle
<i>Dodonaea triquetra</i>	Hop-bush
<i>Polyscias sambucifolia</i>	Elderberry Panax
<i>Notelaea longifolia</i>	Large Mock-olive
<i>Breynia oblongifolia</i>	Coffee Bush
<b>Groundcover Planting</b>	
Grasses and grass-like species	
<i>Calochlaena dubia</i>	Rainbow Fern
<i>Entolasia marginata</i>	Bordered Panic
<i>Entolasia stricta</i>	Wiry Panic
<i>Microlaena stipoides</i>	Weeping Grass
<i>Poa affinis</i>	-
<b>Forbs</b>	
<i>Dianella caerulea</i>	Blue Flax-Lily
<i>Dichondra repens</i>	Kidney Weed
<i>Einadia hastata</i>	Berry Saltbush
<i>Goodenia hederacea</i>	Forest Goodenia
<i>Lobelia purpurascens</i>	White Root
<i>Lomandra longifolia</i>	Spiky-headed Mat-rush
<b>Climbing</b>	
<i>Clematis aristata</i>	Old Man's Beard
<i>Hardenbergia violacea</i>	Purple Coral Pea



Lot 3 and 4 DP 584287 97 – 115  
River Road, Greenwich

18 November 2024  
Ref: TSA08.4BMP

Page 5 of 16

Biodiversity Management Plan

Table 2 – Weed species identified within the study area

Scientific name	Common name	Weed Control Priority
<b>TREES</b>		
<i>Ochna serrulata</i>	Ochna	HIGH
<i>Cinnamomum camphora</i>	Camphor Laurel	MEDIUM
<i>Morus alba</i>	White Mulberry	MEDIUM
<i>Liquidambar styraciflua</i>	Liquidambar	MEDIUM
<i>Phoenix canariensis</i>	Phoenix Palm	MEDIUM
<b>SHRUBS</b>		
<i>Senna pendula var. glabrata</i>	Cassia	MEDIUM
<i>Ligustrum sinense</i>	Small leaved Privet	MEDIUM
<i>Lantana camara*</i>	Lantana	HIGH
<i>Solanum mauritanium</i>	Wild Tobacco	MEDIUM
<b>VINES</b>		
<i>Anredera cordifolia*</i>	Madeira Vine	VERY HIGH
<i>Ipomoea purpurea</i>	Morning Glory	MEDIUM
<b>GROUNDCOVERS</b>		
<i>Asparagus aethiopicus*</i>	Asparagus Fern	HIGH
<i>Ageratina adenophora</i>	Crofton Weed	MEDIUM
<i>Tradescantia fluminensis</i>	Wandering Trad	MEDIUM
<i>Cenchrus clandestinus</i>	Kikuyu	HIGH
<i>Chloris gayana</i>	Rhodes Grass	LOW
<i>Bidens pilosa</i>	Cobbler's Pegs	LOW
<i>Coreopsis lanceolata</i>	Tickseed	LOW
<i>Conyza sumatrensis</i>	Tall Fleabane	LOW
<i>Sida rhombifolia</i>	Arrowleaf Sida	LOW
<i>Argemone mexicana</i>	Prickly Poppy	LOW
<i>Ehrharta erecta</i>	Panic Veldt Grass	MEDIUM
<i>Solanum nigrum</i>	Black Nightshade	MEDIUM

\*Denotes priority weed (DPI 2024)

## GENERAL WEED CONTROL

The site in general contains pre-existing weed species from historical disturbances, primarily within the VMP designated area and below the canopy of the existing bushland remnant area at the entrance from St Vincents Rd. It is anticipated the proposed development may result in greater disturbance, with increased nutrients and edge effects, thus providing a greater opportunity for weedy species to establish or invade the retained bushland remnants. Continued weed management works are to be undertaken across the entirety of the development site for a minimum of 5 years to protect adjoining bushland areas from weed infiltration.

For the purposes of this BMP, a weed is defined as any plant species that does not naturally occur within PCT 1841 or PCT 1828. The definition of a weed includes any planted or exotic or cultivar species that are used in landscaping works or grasses commonly used to create lawns.

The development footprint is to be targeted for weeds which are to be removed using methods which minimise disturbance to protected vegetation. All ground and shrub layer weed control works are to be undertaken by qualified personnel from an experienced bushland regeneration company utilising low impact and best practice weed control, restoration, revegetation and bush regeneration methods.

Hand removal of weeds is the preferred low impact method of weed removal. However, within the development footprint if large areas of weeds need to target, herbicides may be judiciously employed using a backpack sprayer or dabbing method by an experienced bush regenerator with a chemical use certification (AQF3 Chemical Accreditation). Large scale herbicide spraying in proximity to the avoided conservation lands or any waterbodies/ watercourses (including detention basins), is strongly discouraged.

### Priority weeds

Priority weeds in the Sydney region are specified in the Greater Sydney Regional Strategic Weed Management Plan 2017-2022. Priority weeds that are listed as "State Priority Weeds" and "Regional Priority Weeds" have specific measures for the control of individual weed species no matter the land ownership or location. Weed treatment is to be undertaken on both government and private lands.

Priority weeds and other environmental weed species specifically targeted for removal are listed in Table 2. This list is not exhaustive but includes all non-native species which were observed in surveys.

## Fauna Habitat and Weed Control

There is a significant number of exotic vines, shrub and ground cover species including *Anredera cordifolia* (Madeira Vine), *Lantana camara* (Lantana), *Phoenix canariensis* (Phoenix Palms) and *Asparagus aethiopicus* (Ground Asparagus) within the site. Although these species are generally considered high to very high priority for removal (as stated in Table 2), these weeds currently provide habitat and foraging resources for native fauna. Therefore, care should be taken prior to weed removal to ensure native fauna species are not occupying these areas. A fauna ecologist should be consulted if there is a possibility of harm coming to resident fauna due to the removal of weed species.

Additional fauna habitat can also be created by relocating logs into the restoration area, and using leaf litter and woody debris translocated from the base of any *Eucalyptus sp.* which are to be felled. This debris should be weed free prior to translocation to ensure no harm occurs to any individuals.



Site Photo 6 – Lantana & Ground Asparagus infestation within the southern extent of the site.

## PROPOSED WEEDING ACTIVITIES

Weeds are to be ongoingly removed within the construction works zone and the completed subdivision in accordance with techniques recommended by the National Trust, NSW Department of Environment and Conservation (National Parks & Wildlife Service), Department of Primary Industries (DPI) and the Australian Association of Bush Regenerators.

Monitoring of the progress of weed removal and planted vegetation within the development area is to be undertaken by the project ecologist on a six (6) monthly interval with a report produced on an annual basis for five (5) years. This will include the issuing of compliance certificates before construction and post construction by the project ecologist.

Weed control works are expected to be undertaken within the development area for the duration of 5 years. It is predicted that the weed control exercise will be scaled back to a maintenance level over time as the weed control program is expected to result in few weeds within the retained bushland and only minor incursions of weeds into the future.

Weeds are to be targeted on site in accordance with their respective responsibilities under the NSW *Biosecurity Act* (2015) and the 'best practice' removal methods identified for each weed species.

## PEST MANAGEMENT

Any pest management undertaken will aim at controlling European red foxes (*Vulpes vulpes*), which could potentially frequent the site as records indicate sightings within the Lane Cove LGA.

Actions for pest control are to be integrated with a combination of exclusion using the permanent protective fencing of the retained bushland under the VMP (TBE 2024d). The fencing will be designed to deter foxes though does not guarantee their exclusion.

### European Red Fox

Most fox baiting control programs are coordinated with Local Land Services. Fox baiting will typically involve 1080, which is regulated by the 1080 Pest Control, Order (EPA 2020). However, baiting is not an option due to the location of the site within the Lane Cove LGA due to the potential harm to humans and domestic dogs.

Any fox sightings should be reported to Lane Cove Council.

## SEDIMENT AND EROSION CONTROL

Erosion and sediment control measures are to be implemented during all phases of the proposed development to minimise adverse effects as a result of increased erosion and sediment loading. These include:

- Sediment control infrastructure is to be installed in accordance with "Managing Urban Stormwater Soils and Construction" (Landcom 2004).
- Coordinated work practices aimed at minimising land disturbance and laying down of soil treatments to prevent erosion on disturbed soil or embankments (such as temporary seeding, erosion control matting, turfing and bitumen / hay sprays).
- Identification of potential erosion areas.
- Installation and maintenance of flow, erosion, sediment and nutrient control structures as applicable.
- Routine site inspections of drains, channels and sediment control structures as applicable.
- The safe disposal of all waste products.
- The disposal of only 'clean' water within the site and associated watercourses; and
- Exclusion of machinery that cause soil disturbance within retained vegetation areas.

The minimisation of soil erosion will be achieved through soil stabilisation measures which may include but is not limited to spray seeding, sediment fencing, water control techniques or structures, revegetation of cleared surfaces via seeding, planting of native species, mulching and the installation of biodegradable erosion control blankets.

## RUBBISH REMOVAL

All waste and rubbish on site are to be removed in conjunction with BMP works. The landowner is ultimately responsible for waste removal. If hazardous materials are located on site, the building contractor must ensure the material is disposed of at the appropriate facilities. Small scale rubbish removal can be completed by the bush regeneration contractors where practical. Continuous monitoring and removal of waste and rubbish is to occur throughout the restoration works to prevent illegal dumping and /or rubbish build up as this will undermine restoration efforts.

## MANAGEMENT OF BUSHFIRE RISK

The proposed development is within a bushfire prone area and therefore asset protection zones (APZs) are required between the development and bushfire hazard, noted to occur in the south-western corner of the site. Revegetation works and regeneration within APZ areas will need to be carefully monitored to ensure that fuel load levels are maintained to standards set out in Planning for Bush Fire Protection, 2019, or subsequent standards. APZ fuel loads and compliance should include an annual check during late winter or early spring, before the bushfire season commences.

## CONSTRUCTION IMPACT MITIGATION

The mitigation of potential adverse impacts of construction on the adjoining VMP and on residual areas of native vegetation on site, will be implemented through the following procedures:

### Prior to commencement of vegetation clearance

- Temporary fencing and signage to delineate the construction zone.
- Installation of nest boxes of various types with hinged lids as per the, to provide hollows for displaced fauna during clearing. Nest boxes to be installed a minimum of two (2) weeks prior to vegetation clearance.
- Habitat tree removal is to be done under the supervision of a fauna ecologist so that any residing fauna, particularly threatened species, can be effectively recovered and relocated. If fauna is recorded utilising the hollows that are removed, or if these hollows are considered of high quality, then these hollows are to be reinstalled into trees within the avoided land area. The habitat tree location is shown on Figure 14 as SHT1 towards the eastern side of the site.
- Certification to be submitted to Council for satisfactory completion is to be provided for habitat protection and fauna relocation works and implementation of contingency measures as required by project ecologist.

### During vegetation clearance

- A forest mulcher is to be used to remove shrubbery and small trees within the development footprint and excavators only used to grub out tree roots within the road access ways, internal roads and building footprint. Mulch is to be left on ground to provide erosion protection and sediment control. Mulch containing exotic plant material is not to be used in any revegetation area or landscaping garden bed.
- Tree removal is to be undertaken under the supervision of the project arborist with a method that avoids soil disturbance as much as possible. Figure 15 highlights trees to be removed and retained as per the arborist plans.
- Certification to be submitted to Council for satisfactory completion is to be provided for vegetation clearance, sediment control and fencing works and implementation of contingency measures as required by the project ecologist.

### Prior to commencement of excavations, cut and fill works

- Installation of temporary construction fence at the outer extent of the construction / bulk earthworks / landscape area. Temporary 1.8 m high chain link fence panels are appropriate.
- Implementation of erosion and sediment control measures before, during and after any earthworks and construction including installation of sediment fences adjacent to retained bushland areas, overland flows, drainage lines and creeks.
- Regular inspections and compliance certificates regarding protection of retained bushland, erosion control, habitat trees and vegetation management measures by the project ecologist.
- Application of low impact weed control methods by suitably qualified bushland regenerators, especially near and within areas of vegetation which are to be conserved.
- Retention of natural logs and rocks, or move salvageable ones to areas outside of the construction footprint.
- Natural caves found within the north, east and southern boundaries of the site should not be disturbed or destroyed as they are an important habitat for fauna.
- Certification to be submitted to Council for satisfactory completion is to be provided for above works during construction and implementation of contingency measures as required by the project ecologist.

### Landscaping works

- Temporary protection fencing to be installed around retained trees and the avoided designated VMP lands, to delineate an earthworks exclusion zone and to protect the remnant PCTs and restoration areas within the site.
- Turf to be limited to cut and fill areas and landscaped areas in the immediate vicinity of the proposed buildings. Turf is prohibited within or near the designated VMP area.
- Signage to be erected along fencing prohibiting construction works beyond the approved development footprint.
- All bare or disturbed areas are to be fully stabilised using methods recommended in "Managing Urban Stormwater Soils and Construction" (Landcom 2004) to minimise erosion into adjoining conserved bushland areas or drainage lines.
- All protective fencing (as per the landscape contractor recommendations) to be maintained and secured in perpetuity.
- Certification of project milestones are to be submitted to Council for satisfactory completion of all bushland protection and restoration works in accordance with this BMP, the conditions of consent and implementation of contingency measures as required by the appointed project ecologist.



Site photo 6 – Natural caves providing habitat



Site Photo 7 – Natural caves providing habitat



Site Photo 8 – Waterfall area with sandstone crevices providing habitat shelter



Site Photo 9 – Reptile habitat

## MONITORING AND MAINTENANCE

Maintenance activities are aimed at providing a framework for the upkeep of the site in order to help protect and maintain the existing natural habitat and neighbouring retained bushland. Maintenance, in particular weed control, within the development footprint should continue for a minimum period of five (5) years.

Maintenance activities include:

- Weed control;
- Waste control;
- Watering and vegetation maintenance for landscaped/street plantings;
- Maintenance of installed nest boxes;
- Sediment and erosion control.

Maintenance activities will occur as needed during the construction, post-construction or maintenance phase for a minimum of five (5) years post-construction. It is the responsibility of the landowner to ensure all maintenance is undertaken.

It is recommended that regular monitoring inspections be undertaken by the project ecologist on a twelve (12) monthly basis for the 5-year duration of this BMP. This will allow the determination of any areas suffering from disturbance or in need of further weed control, soil stabilisation, erosion control, native plantings, fencing or other maintenance.

## NON-CONFORMANCE WITH BMP

The landholder must notify council of any non-compliance and submit a contingency plan specifying corrective actions to be undertaken and the method and timing of actions.

Contingency works are to be specified on a twelve (12) monthly basis by the appointed project ecologist to ensure that the restoration performance targets are achieved.

Contingency restoration works may also include:

- Additional target weed control to prevent weed infiltration into protected bushland areas;
- Stabilisation of any identified areas of bare soil or erosion;
- Rectification of temporary tree protection and damage to roots of trees;
- Removal of waste or contaminated soil;
- Removal of litter; and
- Maintenance of sediment and erosion control fencing and rectification of any excessive sediment deposits.

## COMPLIANCE AND REVIEW

An audit inspection will be undertaken by the project ecologist at a minimum every twelve (12) months for the duration of the BMP following the initial baseline monitoring inspection at the first six (6) month interval. A compliance certificate will be issued at the completion of each stage of restoration works detailing the actual performance of the restoration tasks undertaken.

Compliance certificates are to be provided on the following basis:

### Prior to commencement of vegetation clearance

- Certification to be submitted to council for satisfactory completion is to be provided for habitat protection, tree protection fencing, fauna relocation works, habitat tree removal, installation of nest boxes, salvage of hollows, sediment and erosion control, and implementation of contingency measures as required by the project ecologist.

### Post vegetation clearance

- Certification to be submitted to Council for satisfactory completion is to be provided for vegetation clearance, maintenance of tree protection fencing, sediment and erosion controls and implementation of contingency measures as required by the project ecologist.
- All trees to be retained as advised in the Arboriculture Impact Assessment are to be retained. In the event they are lost including but not limited to storm damage, mechanical damage, disease, or senescence, additional plantings will be specified by the project ecologist.

### Post completion of excavations, cut and fill works

- Certification to be submitted to council for satisfactory completion of the installation of the temporary construction fence, tree protection measures, erosion and sediment control works, protection of any retained trees, application of low impact weed control methods and the retention and relocation of log habitat. This to be provided for above works during construction and implementation of contingency measures as required by project ecologist and Council.

### Post construction - Bushland protection works

- Certification to be submitted to Council for satisfactory completion of all bushland protection such as limiting the use of turf, protection signage, treatment of any patches of bare earth to revegetate to prevent erosion sedimentation in accordance

with this BMP, as well as the conditions of consent and implementation of contingency measures as required by the project ecologist and Council.

The project ecologist is to advise whether conditions of consent or targets are being met and if additional works or alternative methods are required to achieve various regeneration and protection targets.

## PATHOGEN CONTROL AND MANAGEMENT

Two types of pathogens are at risk of being introduced to the site and affect the outcomes for restoration works and tree plantings.

- **Root Rot Disease** (*Phytophthora cinnamomi*)
- **Myrtle Rust** (*Austropuccinia psidii*)

### *Phytophthora cinnamomi*

*Phytophthora cinnamomi* is a soil-borne plant pathogen that attacks the roots of susceptible plants—destroying the root system and reducing the ability of the plant to absorb water and nutrients. This causes symptoms referred to as 'dieback' which can lead to plant death.

Under favourable conditions *Phytophthora* spp. can spread easily and quickly, destroying plants and plant communities. These guidelines to help minimise the risk of spreading *Phytophthora cinnamomi* also apply to other species of *Phytophthora* present in Australia, as the management of those species is similar. Thousands of Australian native plant species are susceptible to *Phytophthora cinnamomi*, and several of those species may be at risk of extinction due to its impacts. The dramatic impact of *Phytophthora* spp. infestations on plant communities may also lead to major declines in some insect, bird and animal species due to the loss of shelter, nesting sites and food sources.

*Phytophthora cinnamomi* thrives in warm, moist conditions with temperatures between 15°C and 30°C, and with rainfall greater than 400 millimetres a year. Its impact is greatest in Western Australia, Victoria, Tasmania and South Australia. The Northern Territory remains the only jurisdiction unaffected, as its environmental conditions are generally unfavourable to the pathogen.

*Phytophthora cinnamomi* spreads through soil, water, and organic matter. It can remain dormant for long periods during dry weather and is impossible in most situations to eradicate from infested areas, which means limiting further spread is critical. Any activity that moves soil, water or plant material can spread the disease. This includes soil on tools, footwear, and vehicles.

### Myrtle Rust

Myrtle rust is a disease caused by the fungus *Austropuccinia psidii*. It affects trees and shrubs in the Myrtaceae plant family—attacking young, soft, actively-growing leaves, shoot tips and young stems, as well as fruits and flower parts.

The first signs of rust infection are tiny, raised spots or pustules on infected leaves. After a few days, the pustules erupt into distinctive bright yellow spore masses. Left untreated, the disease can cause deformed leaves, heavy defoliation of branches, dieback, stunted growth and plant death.

Plants susceptible to myrtle rust are those in the Myrtaceae family, which includes bottle brush (*Callistemon* spp.), tea tree (*Melaleuca* spp. and *Leptospermum* spp.), Lilly pillies (*Syzygium* spp.) and eucalypts (*Eucalyptus* spp., *Angophora* spp. and *Corymbia* spp.). The Myrtaceae family in Australia is ecologically important, accounting for about 10% of Australia's native flora, with many Australian plant communities dominated by myrtaceous species.

- Arrive clean, leave clean – ensuring all clothing, hats, footwear, tools, equipment, machinery and vehicles are free of weed seeds, mud, soil and organic material before entering and leaving bushland;
- Schedule works for dry soil conditions where possible;
- Minimise soil disturbance;
- **Do not** remove any plant material from sites infested with myrtle rust;
- If using seedlings, purchase them from a supplier that can guarantee high standards of hygiene – such as NIASA-accredited businesses; and
- Ensure transport and disposal of plant material does not introduce weeds to new areas.

### Procedures to Minimise Risk of Pathogen Transmission

When conducting works on site the following steps will help stop the spread of invasive species:

- If a site is infested with myrtle rust, **do not** remove any plant material from that site. Instead, dispose of plant

waste by burial. If this is not possible, seal the waste in a plastic bag, seal the bag in a second bag and spray the outside of the bag with a solution of 70% ethanol or methylated spirits in 30% water before responsible disposal offsite;

- Ensure all materials taken onto site – such as seedlings, mulch, soil, gravel, rock, and sand – are certified free of weeds and pathogens. You can do this by purchasing from Nursery Industry Accreditation Scheme Australia (NIASA) accredited businesses, and ensuring materials conform to Australian Standards—for example, *AS3743–2003 Potting mixes* or *AS4454–2012 Composts, soil conditioners and mulches*;
- Create a checklist of hygiene procedures for project managers and participants to use;
- Ensure equipment is cleaned and disinfected with a solution of 70% ethanol or methylated spirits in 30% water. This includes footwear, tools, equipment, machinery, vehicles, backpacks, walking sticks, tent pegs and personal items;
- Remove all weed seeds, mud, soil and organic matter from any items or equipment which comes into contact with plants or the ground. Stay as clean as possible while in the bush.

### Disinfecting Clothing, Footwear, Equipment, and Personal Items

The following procedures apply to the disinfection of vehicles and machinery:

- Carry a hard brush and a spray bottle of disinfectant—made up of a solution of 70% ethanol or methylated spirits in 30% water. If you are able to carry more, assemble a simple hygiene kit;
- Set up a wash-down area for participants to wash and dry their face and hands and clean their footwear before entering and exiting the site;
- To clean footwear, first use a hard brush or stick to remove as much mud, soil and organic matter as possible before disinfecting with a solution of 70% ethanol or methylated spirits in 30% water—applied through a spray bottle or a footbath;
- Seal all personal rubbish in a bag and spray the outside of the bag with a solution of 70% ethanol or methylated spirits in 30% water before responsible disposal offsite;
- Collect all removed mud, soil and organic matter in a bag or bucket, and keep it out of clean bushland;
- Where myrtle rust is present, disposable overalls and caps is to be worn over clothing upon entering a site and removed when leaving the site. However, in high-risk cases, also shower and change into clean clothes (including hats, gloves and footwear); and
- Wash all clothing, hats and gloves between site visits using warm or hot machine wash with detergent.

### Disinfecting Vehicles and Machinery

The following procedures apply to the disinfection of vehicles and machinery:

- Use a wash-down facility for vehicles and machinery if available, or wash-down on a hard, well-drained surface, for example a road, and on ramps if possible;
- Pay particular attention to cleaning mud flaps and tyres;
- Dispose of wash-down water so that it drains back into a low area of the infested zone away from waterways. If this is not possible, empty it into a waste container for responsible disposal offsite;
- Don't allow wash-down water to drain into clean bushland; and
- Don't drive through wash-down water.



Lot 3 and 4 DP 584287 97 – 115  
River Road, Greenwich

18 November 2024  
Ref: TSA08.4BMP

Page 8 of 16

Biodiversity Management Plan



<https://www.agriculture.gov.au/sites/default/files/documents/arrive-clean-leave-clean.pdf>

The Australian Government, Department of the Environment (2015) has published a more comprehensive guide to the management of invasive plant diseases and weeds. The Title of this document is "Arrive Clean, Leave Clean" and can be found at the following website:

## FAUNA MANAGEMENT

Fauna habitat will need to be removed from parts of the development area, in order to facilitate the proposed development. The following section provide guidelines on managing fauna and habitat values in order to minimise impacts on site.

### Log Habitat

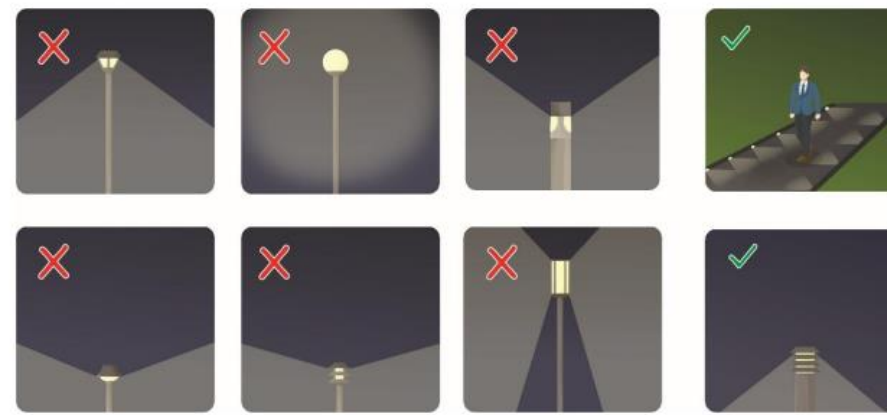
The proposed development will involve impacts to vegetation which may provide potential habitat for fauna. Selected logs that are to be removed as part of the development must be translocated within the VMP area (TBE 2022) for ground dwelling fauna.

Any native trees being removed, may be stockpiled at an appropriate location, with sections of logs harvested for re-use within retained vegetation areas on site as additional fauna habitat. There are no specific benchmark requirements for compliance, this is just an additional measure.

### Fauna Considerations

Factors to consider include:

- Lighting elements to limit light pollution emanating from adjacent development;
- Landscape planting of a visual barrier for lots bordering the VMP area and other avoided lands areas to filter light and over time create 'night' shading;
- Progressive weeding of exotic shrub layer which currently provides potential shelter and foraging habitat for native species. Native landscaping should attempt to replace removed exotic habitat to at the minimum provide space for urban native species;
- Installation of nest boxes/salvaged hollows in the VMP if not already undertaken as per the VMP guidelines which are mentioned under the heading of Nest Box Installation;
- Installation of nest boxes/salvaged hollows to encourage arboreal mammals and birds, and subsequently prey items for larger birds; and
- Timing of demolition and clearing works to avoid critical lifecycle events (i.e. breeding).



**Figure 5 – Examples of outdoor wildlife friendly lighting for accessways**  
(National Pollution Guidelines for Wildlife - DCCEEW 2023)

### Habitat Trees

The proposed development will involve the clearing of hollow-bearing and nest-bearing trees. Given that many large trees over 100mm DBH will be removed during the development impacts, particular strategies will be enacted within this BMP to help mitigate the loss. Large trees tend to have a higher incidence of hollows, and the branches that occasionally drop can be important for on-ground refugia. Hollows within the large trees are to be sectionally dismantled under the guidance of a fauna ecologist, with displaced animals moved to a nearby conservation area. Hollows shall be salvaged wherever possible and placed in the conservation area. Additional logs from trees being felled shall be stockpiled and used for ground-dwelling fauna in the conservation area. Additional trees shall be planted as part of the revegetation works, using the same species types that are being felled to ensure ongoing rejuvenation, increase the overall functioning of the wildlife corridor and habitat connectivity of the conservation area.

### Guidelines for the Removal of Nests and Hollow-bearing Trees

The removal of hollow bearing trees will be required to facilitate the proposed development. For trees where the hollows or possible nests occur, hollows of high quality, or hollows and nests with fauna recorded residing within should be sectionally dismantled for each relocation and all hollows should be inspected for occupation, signs of previous activity and potential for reuse. A total of one (1) tree containing six (6) hollows is located within the allotment (BDAR, 2023) (Table 3). This tree will be required to be removed by the proposed development.

**Table 3 – Data for hollow-bearing trees to be removed**

Tag No.	Common Name	DBH (cm)	Spread (m)	Height (m)	Vigour (%)	Hollows recorded
HT001	Stag	60	6	8	0	2x 10-15cm spout hollow 2x 15-20cm branch spout 1x 20-30cm trunk hollow 1x 30-40cm trunk hollow

### Pre-clearing Inspection of Trees

At least two (2) weeks' notice will be needed prior to the planned date for clearing of any hollow bearing trees. This is required to allow for time for inspections of trees for use by fauna and to plan for the safe felling of the tree/removal of fauna if present. After notice is given of the planned removal of trees a fauna ecologist will inspect the trees for use by fauna. This may include inspection of trees at sunset (stag or nest watching) that allows for the detection of diurnal fauna returning to hollows or nocturnal fauna leaving for the night. Inspections may also require camera probe inspection. All hollow or nest-bearing trees proposed for removal shall be clearly marked with a 'H' Symbol to indicate removal under supervision by a fauna ecologist. A

fauna ecologist is to be present at the removal of each habitat tree.

### During Clearing

Where fauna is identified within a hollow or nest and the risk of death or injury as a result of machine felling of the tree is high, the tree may need to be felled in sections. This will involve the removal of hollow or nest-bearing tree limbs or sections by chainsaw with the limb lowered to the ground for removal/relocation of fauna.

All nests and hollows will be inspected after felling for occupation by fauna. Any fauna will be removed and relocated to adjoining bushland.

Where young fauna is identified within a hollow or nest whose survival will be at risk as a result of the removal of the hollow or nest from the felling of the tree, then clearing will not be carried out until those young are old enough to leave the hollow and the care of the parents. It is suggested therefore that clearing is not carried out during breeding times when young are likely to be present within hollows (spring-early summer).

Where possible, hollow limbs removed from trees will be collected by the fauna ecologist for re-erection in retained bushland on site. Any fauna injured during clearing will be handed to WIRES or a veterinarian for care and rehabilitation.

### Nest Box Installation

The 2022 VMP stipulated 14 nest boxes were to be installed in the native vegetation restoration area under the guidance of a fauna ecologist to ensure that there will be more hollows on site post construction than what is on site currently. The proposed nest boxes included the following:

- Four (4) nest boxes with 30cm entry suitable for forest owls
- Three (3) nest boxes with 15-20cm sized entry, suitable for large birds;
- Three (3) nest boxes with 60mm entries, suitable for lorikeets; and
- Four (4) nest boxes with 15-20mm slit entries, suitable for micro-chiropteran bats

The objective of the BMP is to ensure that this has been adequately undertaken. If the nest boxes have not yet been installed in the VMP area, the existing hollows from HT001 may be initially salvaged and utilised, and substituted with nest boxes with the dimensions above, or, just follow the above instruction.

### Nest Box Design

- Timber is to be of high-grade ply 17+ mm thick (MDF, particle board and low-grade ply are not acceptable).
- The lid is to be hinged at the rear side of the box that is affixed to the tree to allow internal inspections from the front side. Lids are to be well sloped to the front to allow runoff by rain. Hinges are to be robust (not small) and made of brass, stainless steel or galvanised. Lids are to be larger than the overall cross-sectional size of the box and placed so that a small eave exists on all sides to prevent entry of rain.
- Two vertical timber supports (approximately 30x30mm timber strips 150 mm apart) are to be attached down the rear face of the box so that there are two points of attachment to the trunk on a curved surface and the box does not rock in the wind. This will also provide easy attachment points to the trees without having to screw through the inside of the box. These are to be made of treated pine and any screws into this (for hinges etc.) should be manufactured for use in treated pine or stainless. Holes at both ends of both supports are to be predrilled for easy attachment to trees. Timber supports should not be placed directly onto the box but with small timber spacers so that an eave is permissible along this side of the roof.
- Joints are to be glued and screwed for strength. Glue should be labelled as non-toxic wood glue.
- All fasteners used are to be weather resistant stainless steel, galvanised or other. Screws into the treated pine supports are to be stainless steel or screws manufactured for use in treated pine.
- All fasteners for tree attachment are to be supplied (stainless steel or treated pine coach screws). These are to be a suitable gauge depending on the size of bow and suitable length to pass through the vertical timber supports, through the bark and cambium, and into a sufficient extent of heartwood.



Lot 3 and 4 DP 584287 97 – 115  
River Road, Greenwich

18 November 2024  
Ref: TSA08.4BMP

Page 9 of 16

**Biodiversity Management Plan**

- Heartwood penetration will depend on the size of the box. Screws for small boxes should extend a minimum of 20mm into the heartwood of hardwood eucalypts and medium boxes ~40mm. All boxes are to be screwed so that a small distance for growth exists between the timber supports and the trunk. This can be achieved with a small stainless sleeve over the screw.
- 5 mm drainage holes are to be drilled in each corner at the base of each nest box.
- Exterior of the boxes (including treated pine supports) are to be painted with a primer and then a minimum of two coats of external non-alcohol based acrylic paint. The colour selected should be consistent with the colour of the recipient trunk and therefore recipient trees should ideally be prior selected.

### Nest Box Placement

- Nest boxes are to be erected by a qualified arborist under the supervision of the project ecologist or fauna ecologist. A fauna ecologist is to locate appropriate trees and locations for installing the nest boxes.
- All replacement nest boxes are to be secured to trees at a minimum height of four metres above ground level facing the east to northeast direction. Place nest boxes as high as physically possible within a tree preferably using a cherry picker or tree climber/arborist - generally the higher the better for consideration to most species.
- Nest boxes and re-erected limbs are not to be placed near locations where public access is planned.
- The larger and more mature tree are to be selected to be nest box recipients where available. This will comparatively reduce the weighted stress on the tree, make the box less visible and result in less change in growth ratio affecting the selected attachment method. Boxes are preferably to be placed on the trunk for structural stability and protection from falling branches.
- Place nest boxes away from continual direct mid-day summer sun.
- Place nest boxes with large entry holes away from any prevailing winds when close to open waterbodies. E.g., protect from strong southerly winds close to the ocean and contrastingly cool-hot westerly winds in different seasons.
- Attach nest boxes securely so that they do not shift or shake in response to strong winds or being knocked by the movements of heavier animals, e.g. Possums and goannas.
- To ensure nest boxes are inaccessible to cats and rats or to also assist native species by exclusion of possums, the base of the trunk or branches may also require the installation of tree guards or exclusion collars.
- Nest boxes should ideally be placed in such a way that they are accessible for management but concealed from interference.
- These artificial nest boxes / structures must be accessible for maintenance purposes with an expected life span of 20 years.

### Nest Box Attachment

Nest boxes are to be appropriately affixed to a recipient tree under the guidance of a fauna ecologist. Different methods of attachment to the tree are available. *Travers bushfire & ecology* generally recommends that the boxes should be fixed with robust stainless steel or treated pine coach screws that penetrate through the cambium and into the heartwood of the tree to ensure a very secure attachment. Provided that any cambium damage to a tree is not left as an open wound then the chance of fungal infection or insect attack is significantly reduced, and the tree will grow around the screw. Any other method of attachment selected should also ensure the box is secured to prevent movement or fall and allows for the future growth of the tree without any cambium constriction over the entire life of the nest box.

### Nest Box Maintenance

- All nest boxes and re-erected limbs will be inspected annually for a minimum of five (5) years and any damaged, or in danger of falling, are to be repaired or replaced.
- Deterring mynas and starlings from re-nesting is not easy; these pests are very persistent, and constant vigilance is necessary. This also means that you must have convenient regular access to the nest-box, and that you must be aware of what creatures are using it for what purposes.
- Nest boxes found to be utilised by threatened or otherwise significant fauna may be prioritised for ongoing management to ensure their longevity and replicate their design/placement characteristics.

**Table 4 – Typical nest box dimensions for various fauna**

(Source: *Birds Australia Supplement No. 5 – Nest Boxes for Natives*)

SPECIES	INTERNAL SIZES	DEPTH/ LENGTH	ENTRY DIAMETRE	VERT/ HOR	HEIGHT	REF
Bat sp.	70-100 x 150-240 mm	200-250 mm	15-20 mm slit	v	-	BFNC (n.d.)
Bat, Southern Myotis	-	-	10 mm slit	v	-	Trainor (1995)
Bat, Gould's Wattled	-	-	10 mm slit	v	-	Trainor (1995)
Bat, Lesser Long-eared	-	-	10 mm slit	v	-	Trainor (1995)
Little Lorikeet	120 mm	600 mm	60mm	h	5m	-
Squirrel glider	200mm	650mm	60mm	v	6m	-



**Figure 6 - Southern Myotis**

See figures 7-12 for nest box diagrams and examples of augmented hollows

## REFERENCES

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Landcom (2024) *Soils & construction Managing Urban Stormwater* [Managing Urban Stormwater soils and construction Volume 1 4th ed | NSW Environment and Heritage](#)

Travers Bushfire and Ecology (2023) *Biodiversity Development Assessment Report*

Travers Bushfire and Ecology (2024) *Vegetation Management Plan VMP*

Redgum (2018) *A): Arboricultural Impact Assessment B): Tree Management Plan. Hammondcare Greenwich Hospital.*

Wood & Grieve Engineers (2019) *Greenwich Hospital Overland Flow Assessment. C - letter template (nsw.gov.au)*

Nest box diagrams and examples of augmented hollows

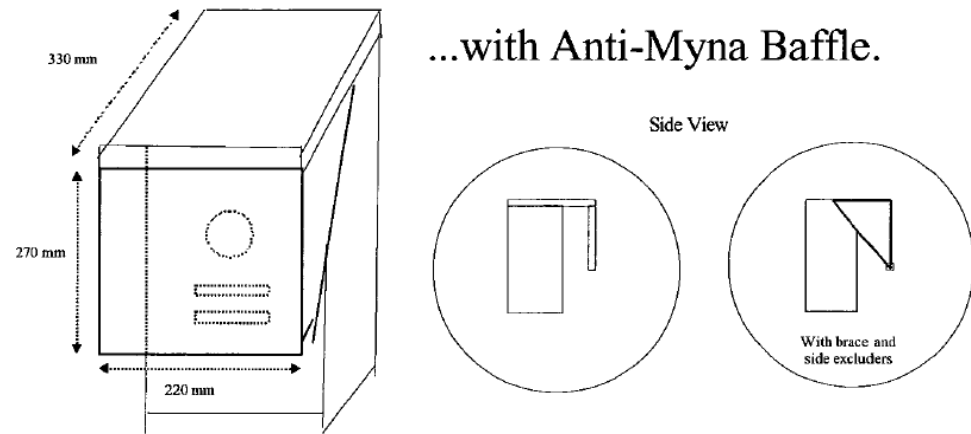


Figure 7 – Anti-Myna baffle

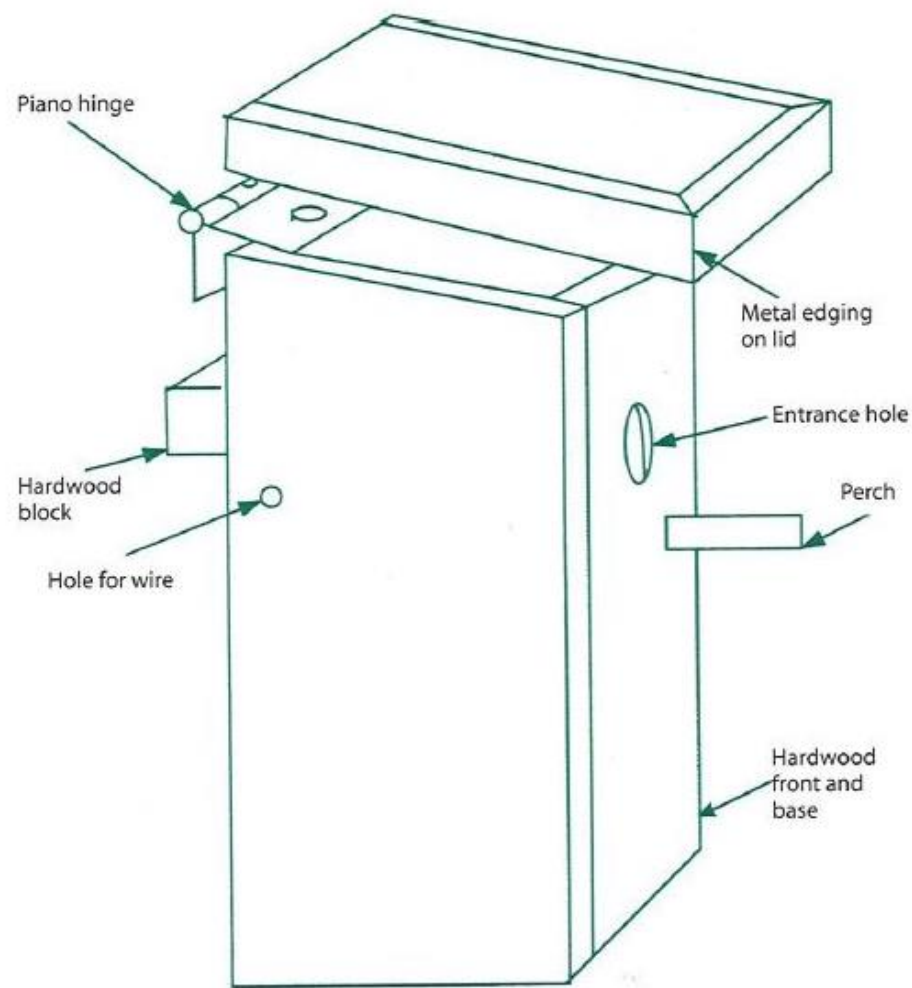


Figure 8 – A Generic nest box design  
(Source - From Alan and Stacey Franks, 2003)

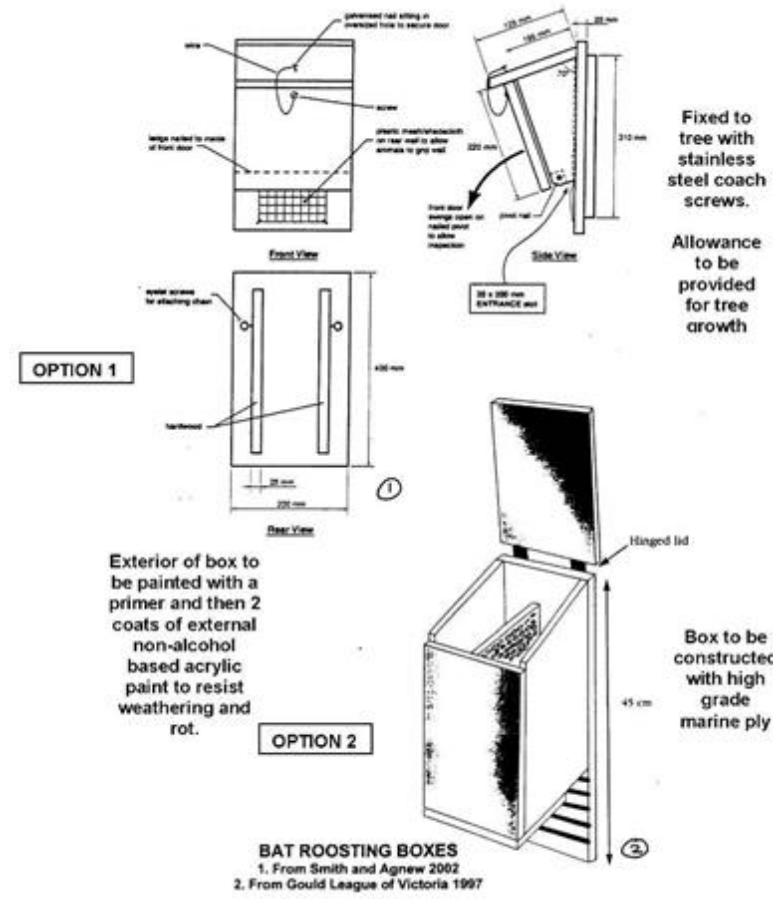
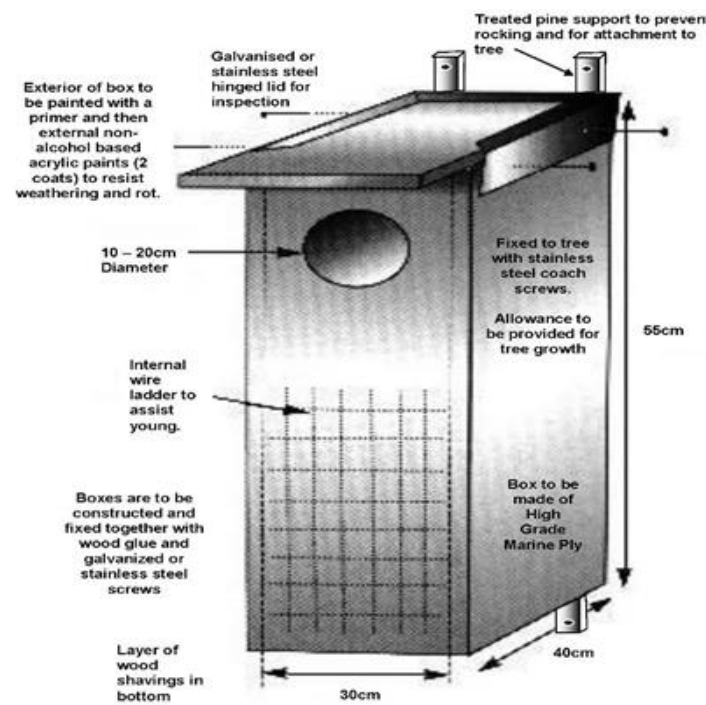


Figure 9 – Microbat nest box detail (Option 1 & 2)



Example 1 - DIMENSIONS APPLIED FOR A LARGE PARROT ROOSTING / NESTING BOX  
Note: Small parrot nest boxes will require a reduced entry hole size of 5 – 10cm in diameter  
Figure 10 – Typical dimensions for large parrot box



Figure 11 – Augmented hollow using a hollow log

(Source: Sustainable McCleod)

<https://sustainablemacleod.org.au/creating-hollows-for-wildlife-with-chainsaws/>



Figure 12 – Augmented hollow using inserted entrance and prepared cavity

(Source: Sustainable McCleod)

<https://sustainablemacleod.org.au/creating-hollows-for-wildlife-with-chainsaws/>





Figure 13 - Site map



Figure 14 – Flora and fauna survey effort and results

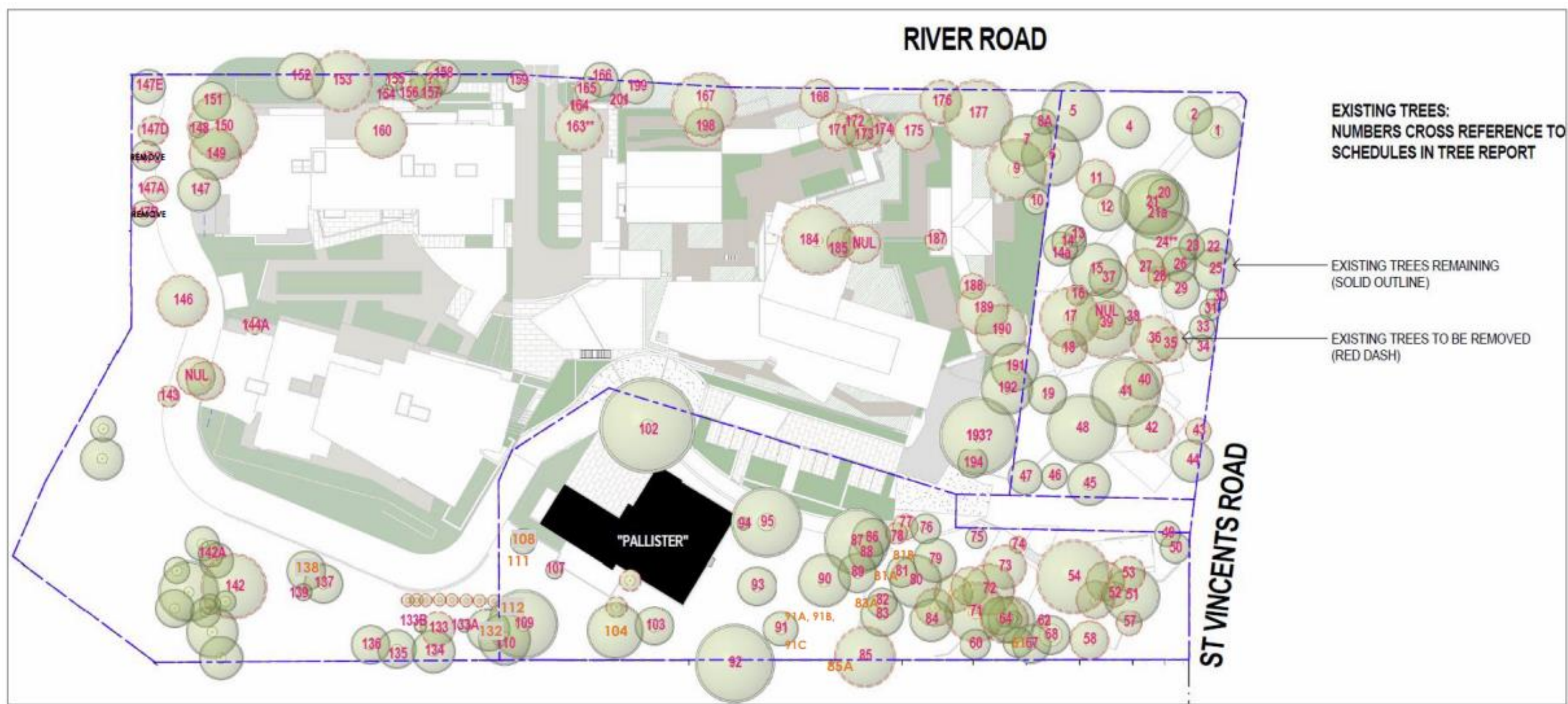


Figure 15 - Tree retention and removal plan

**ATTACHMENT 1 – AUDIT & COMPLIANCE  
CERTIFICATION TABLE**

Audit items	Timing	Responsibility	Rectification works required? Yes/No	Works required	Completion Date	Compliant Yes/No
<b>Preconstruction works (Prior to CC)</b>						
Practical completion of all preconstruction works – weed control, local provenance seed collection, sediment erosion control, protective fencing, installation of nest boxes prior to construction	0-3 months	Bush Regeneration Contractor				
<b>During Construction (Post issuance of CC)</b>						
Practical completion of all primary restoration works (Prior to Issuance of Subdivision Certificate) –Nest boxes/augmented hollows, fencing installation, protective fencing, fencing installation (3 access gates), watering, litter removal,	3-12 months	Bush Regeneration Contractor				
3-12 months – Assess whether contingency works are required to achieve practical completion and satisfaction of performance targets	3-12 months	Project Ecologist				
12 months – submission of first audit and compliance certificate demonstrating practical completion and compliance with Biodiversity Performance Targets	12 months	Project Ecologist				
<b>Year 1 Maintenance</b>						
Commence year 1 Maintenance works – Monthly maintenance session with submission of works report to Project Ecologist	Year 1 maintenance	Bush Regeneration Contractor				
Biannual review with Project Ecologist to determine need for contingency works	Every 6 months	Bush Regeneration Contractor with Project Ecologist				
Annual Audit report demonstrating compliance with Biodiversity Performance targets	Every 12 months	Project Ecologist				
<b>Year 2 Maintenance</b>						
Commence year 2 Maintenance works – Monthly maintenance session with submission of works report to Project Ecologist	Year 2 maintenance Period	Bush Regeneration Contractor				
Biannual review with Project Ecologist to determine need for contingency works	Every 6 months	Bush Regeneration Contractor with Project Ecologist				
Annual Audit report demonstrating compliance with Biodiversity Performance Targets	Every 12 months	Project Ecologist				
<b>Year 3 Maintenance</b>						
Commence year 3 Maintenance works – Monthly maintenance session with submission of works report to Project Ecologist	Year 3 maintenance	Bush Regeneration Contractor				
Biannual review with Project Ecologist to determine need for contingency works	Every 6 months	Bush Regeneration Contractor with Project Ecologist				
Annual Audit report demonstrating compliance with Biodiversity Performance Targets	Every 12 months	Project Ecologist				
<b>Year 4 Maintenance</b>						
Commence year 4 Maintenance works – Monthly maintenance session with submission of works report to Project Ecologist	Year 4 maintenance	Bush Regeneration Contractor				
Biannual review with Project Ecologist to determine need for contingency works	Every 6 months	Bush Regeneration Contractor with Project Ecologist				
Annual Audit report demonstrating compliance with Biodiversity Performance targets	Every 12 months	Project Ecologist				
<b>Year 5 Maintenance</b>						
Undertake a review of the Vegetation Management Plan and make adjustment for any site conditions for updated methodologies to improve restoration outcomes	During year 5	Project Ecologist				
Commence year 5 Maintenance works – Monthly maintenance session with submission of works report to Project Ecologist	Year 5 maintenance	Bush Regeneration Contractor				
Biannual review with Project Ecologist to determine need for contingency works	Every 6 months	Bush Regeneration Contractor with Project Ecologist				
Annual Audit report demonstrating compliance with Biodiversity Performance Targets	Every 12 months	Project Ecologist				
<b>Handover or extended maintenance period</b>						
Meet with receiving organization and determine readiness for hand over	Midway through year 5 maintenance	Project Manager with Project Ecologist				
On going maintenance until hand over occurs	Every Month	Bush Regeneration Contractor				
Biannual review with Project Ecologist to determine need for contingency works	Every 6 months	Bush Regeneration Contractor with Project Ecologist				
Annual Audit report demonstrating compliance with Biodiversity Performance Targets	Every 12 months	Project Ecologist				

# Appendix H – Construction Flood Emergency Response Plan (CFERP) & Greenwich Hospital Flood Emergency Response Plan





# GREENWICH HOSPITAL – CONSTRUCTION FLOOD EMERGENCY RESPONSE SUB-PLAN

NOVEMBER 2024

PREPARED FOR  
HammondCare

Project Details	
<b>Title</b>	Greenwich Hospital – Construction Flood Emergency Response Sub-Plan
<b>Prepared for</b>	HammondCare
<b>Document Name</b>	20031-R01-TSA-HammondCare-CFERSP-1

Document Control					
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Revision Status	
Revision	Description
0	Draft issued for Client Review
1	Final Report

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In preparing this report, WMS has assumed that all data, reports and any other information provided to us by the Client, on behalf of the Client, or by third parties is complete and accurate, unless stated otherwise.

## TABLE OF CONTENTS

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Background.....	1
1.2	Objective.....	1
1.3	Study Details.....	1
1.3.1	Site Location and Topography.....	1
1.3.2	Proposed Development.....	2
1.4	Construction Overview.....	4
1.4.1	Construction Plans.....	5
1.4.2	Working Hours and People on Site.....	5
1.5	Roles and Responsibilities.....	6
1.6	Maintenance of this CFERSP.....	6
<b>2</b>	<b>Flood Behaviour.....</b>	<b>7</b>
2.1	Site Flooding Conditions.....	7
2.1.1	Flood Behaviour.....	7
2.1.2	Rate of Rise and Duration of Inundation.....	10
2.2	Flood Hazard Thresholds.....	10
<b>3</b>	<b>Sources of Flood Information, Forecast and Warnings.....</b>	<b>16</b>
3.1	Bureau of Meteorology (The Bureau).....	16
3.1.1	Types of Warnings.....	16
3.1.2	Accessing The Bureau Warnings.....	17
3.2	NSW State Emergency Services (SES).....	17
3.3	Other Sources.....	18
<b>4</b>	<b>Emergency Repsonse.....</b>	<b>19</b>
4.1	Site Preparation.....	19
4.2	Recommended Flood Response.....	20
4.3	Personnel Preparation and Training.....	20
<b>5</b>	<b>References.....</b>	<b>21</b>

## APPENDICES

Appendix A	Action Plan
Appendix B	Emergency Contact List
Appendix C	CFERSP Review Record
Appendix D	Site Management Plan

## LIST OF TABLES

Table 1-1	Key Roles and Responsibilities used in this CFERSP.....	6
Table 2-1	Flood Levels and Depths Summary.....	7
Table 2-2	River Road & St Vincents Road Hazard Vulnerability Classification During PMF Event.....	11
Table 2-3	River Road Hazard Classification During PMF Event.....	14

Table 2-4	St Vincents Road Hazard Classification During PMF Event .....	14
Table 3-1	Bureau of Meteorology telephone weather service key phone numbers .....	17
Table 4-1	Flood Response Strategy Overview.....	20

## LIST OF FIGURES

Figure 1-1	Subject Site Topography .....	2
Figure 1-2	Proposed Site Plan.....	3
Figure 1-3	Proposed Staging Plan (Bickerton Masters, Drawing No. AR-SW-0120, Rev.P11, 08/07/2024) .....	4
Figure 2-1	Existing Conditions 1% AEP Peak Depth with Stage 2 Demolition Plan .....	8
Figure 2-2	Existing Conditions PMF Peak Depth with Stage 3 Demolition Plan .....	9
Figure 2-3	Hydrographs – Flow path west of River Road .....	10
Figure 2-4	General Flood Hazard Vulnerability Curve (AIDR, 2017) .....	11
Figure 2-5	1% AEP Peak Hazard – Existing Conditions .....	12
Figure 2-6	PMF Peak Hazard – Existing Conditions.....	13
Figure 2-7	Flood Velocity in River Road for PMF Design Scenario .....	15
Figure 2-8	Flood Velocity in St Vincents Road for PMF Design Scenario .....	15
Figure 3-1	AWS Warning Levels .....	18
Figure 4-1	Site Preparation Guide .....	19

## LIST OF ABBREVIATIONS

<b>BOM</b>	Bureau of Meteorology
<b>CFERSP</b>	Construction Flood Emergency Response Sub-Plan
<b>DCP</b>	Development Control Plan
<b>LEP</b>	Local Environmental Plan
<b>LGA</b>	Local Government Area
<b>PMF</b>	Probable Maximum Flood
<b>SES</b>	State Emergency Service
<b>WMS</b>	Water Modelling Solutions

## 1 INTRODUCTION

### 1.1 BACKGROUND

HammondCare (the proponent) owns and operates Greenwich Hospital (referred to as “the site”) at 95-115 River Road, located within the Lane Cove Local Government Area (LGA). HammondCare is preparing the demolition of the existing Greenwich Hospital and the construction of a new health campus, with integrated serviced Seniors Living buildings and a respite care facility. The site is located within the Gore Creek catchment. However, due to its elevation above Gore Creek, it is not subject to mainstream flood risk from Gore Creek itself. The site is subject to flood risk from overland flow, for which design flood behaviour has been defined by a site-specific TUFLOW model established in Greenwich Hospital Flood Assessment Report (WMS Engineering, 2023).

In accordance with the conditions listed in the Development Consent issued by the Department of Planning, Housing and Infrastructure (SSD-13619238, 28 March 2024), a Construction Flood Emergency Response Sub-Plan (CFERSP) must be provided by a qualified chartered engineer to the satisfaction of the Planning Secretary. This CFERSP is consistent with the relevant NSW SES “Floodsafe” Guides, addresses the provisions of the Floodplain Risk Management Guide (prepared by EESG published January 2019) and includes details of:

- the flood emergency responses for the construction phases of the development;
- predicted flood levels;
- flood warning time and flood notification;
- assembly points and evacuation routes;
- evacuation and refuge protocols; and
- awareness training for employees and contractors.

### 1.2 OBJECTIVE

The key purpose of this CFERSP is to reduce the risk of flood-related impacts and ensure the safety of all workers involved in the construction period of the Greenwich Hospital facilities. It is noted that existing patients and staff at Greenwich Hospital will follow the current *HammondCare Greenwich Hospital Campus Emergency Plan* (2019) during the construction period, then adopt the *Greenwich Hospital – Flood Emergency Response Plan* (WMS, 2023) for the redeveloped hospital.

### 1.3 STUDY DETAILS

#### 1.3.1 Site Location and Topography

The site (Lot 3 DP584287 and Lot 4 DP584287) is located at 95 -115 River Road in Greenwich in the Lane Cove Municipal Council LGA. The site covers an area of approximately 3.4 Ha and has an upstream contributing catchment area of approximately 20 Ha. The site is around 400 m southwest of the Pacific Highway and 30 m northeast of Gore Creek. The site location and topography are illustrated in **Figure 1-1**.

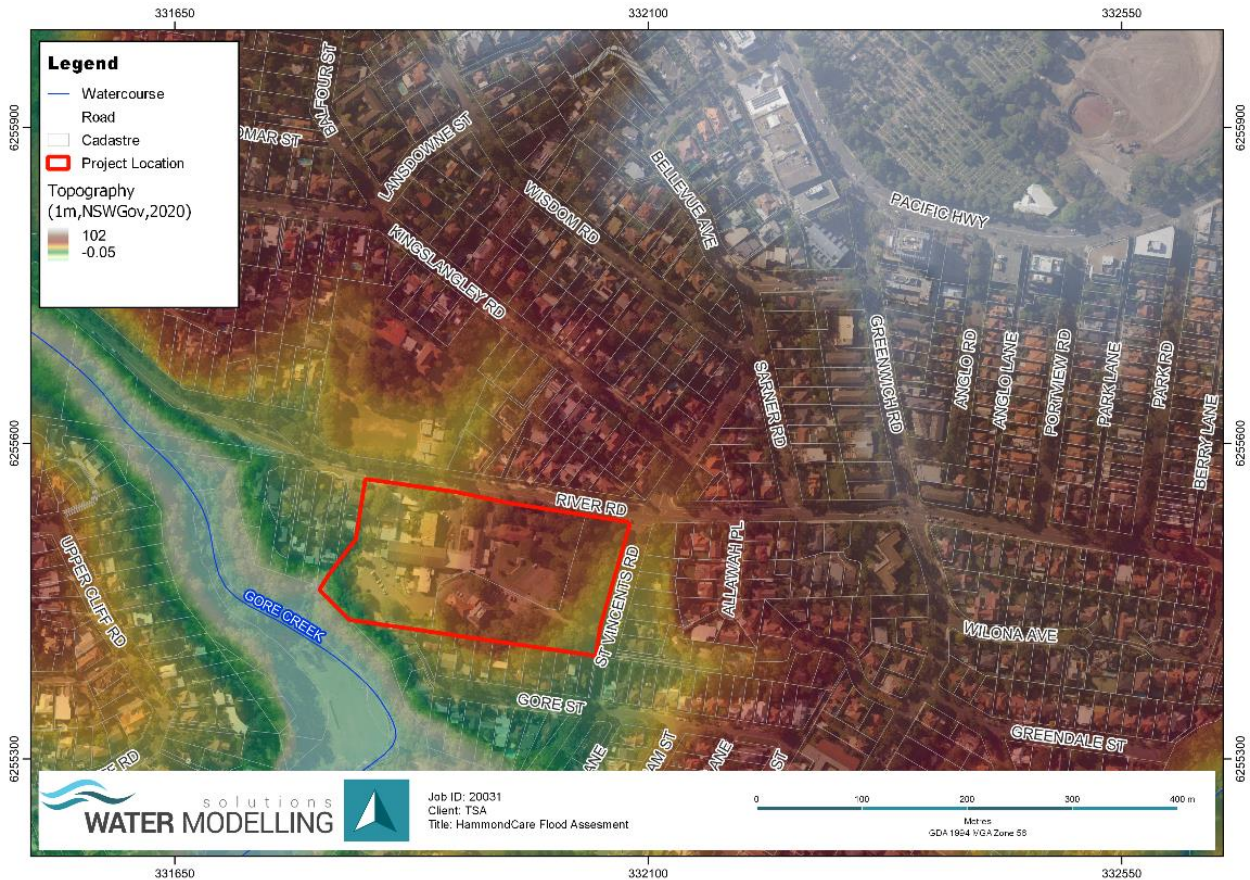


Figure 1-1 Subject Site Topography

### 1.3.2 Proposed Development

The redevelopment of the hospital is proposed to include:

- Demolition of the existing hospital building and associated facilities at the site;
- Construction of a new hospital facility and integrated healthcare uses and services;
- Construction of associated site facilities and services, including pedestrian and vehicular access and basement parking; and
- Site landscaping and infrastructure works, including a permanent, landscaped bund along the southern boundary.

It is noted that Pallister House will be retained and is to host dementia care and administrative functions under the proposed redevelopment.

The proposed development plan is shown in **Figure 1-2**.

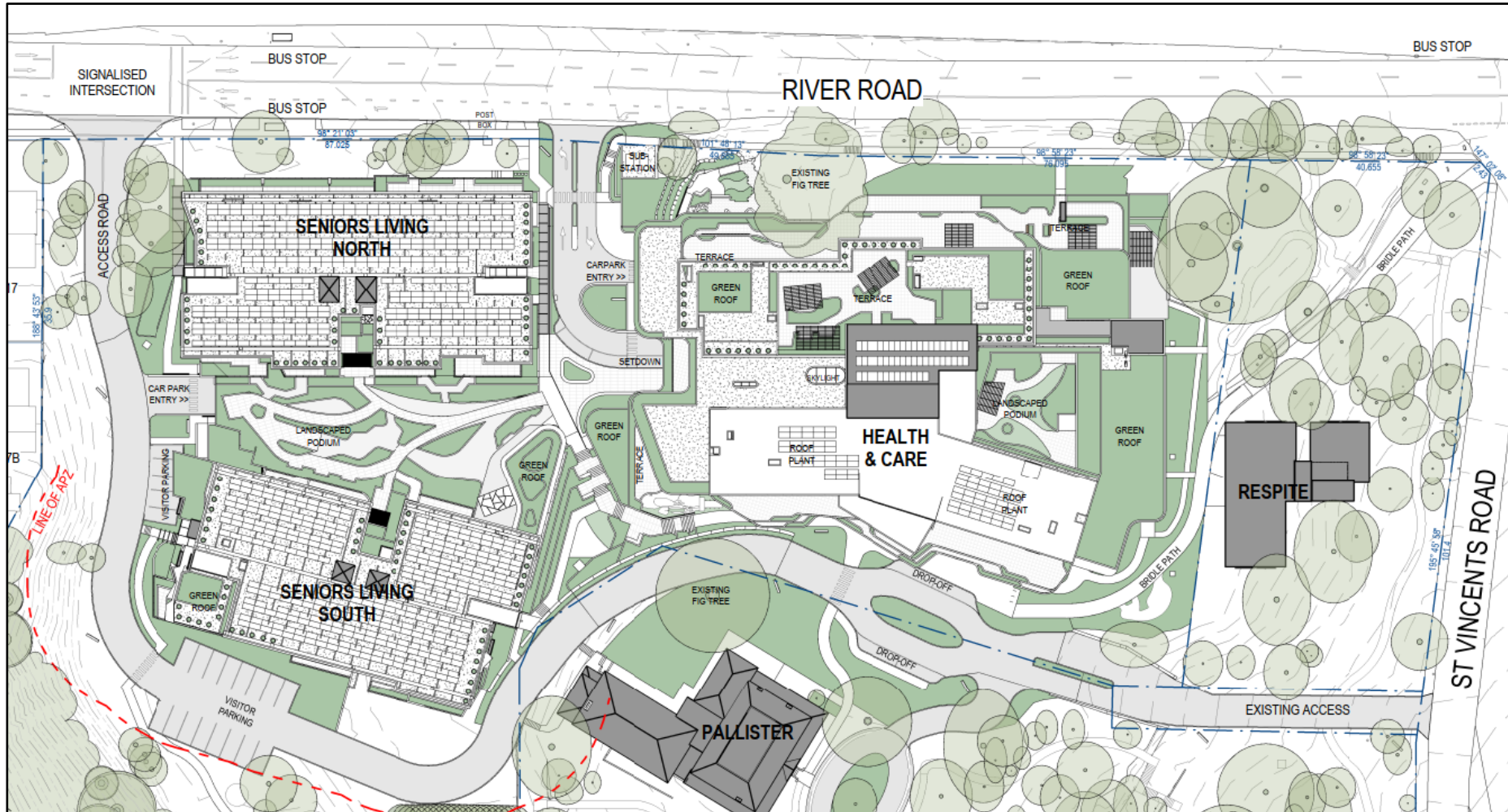


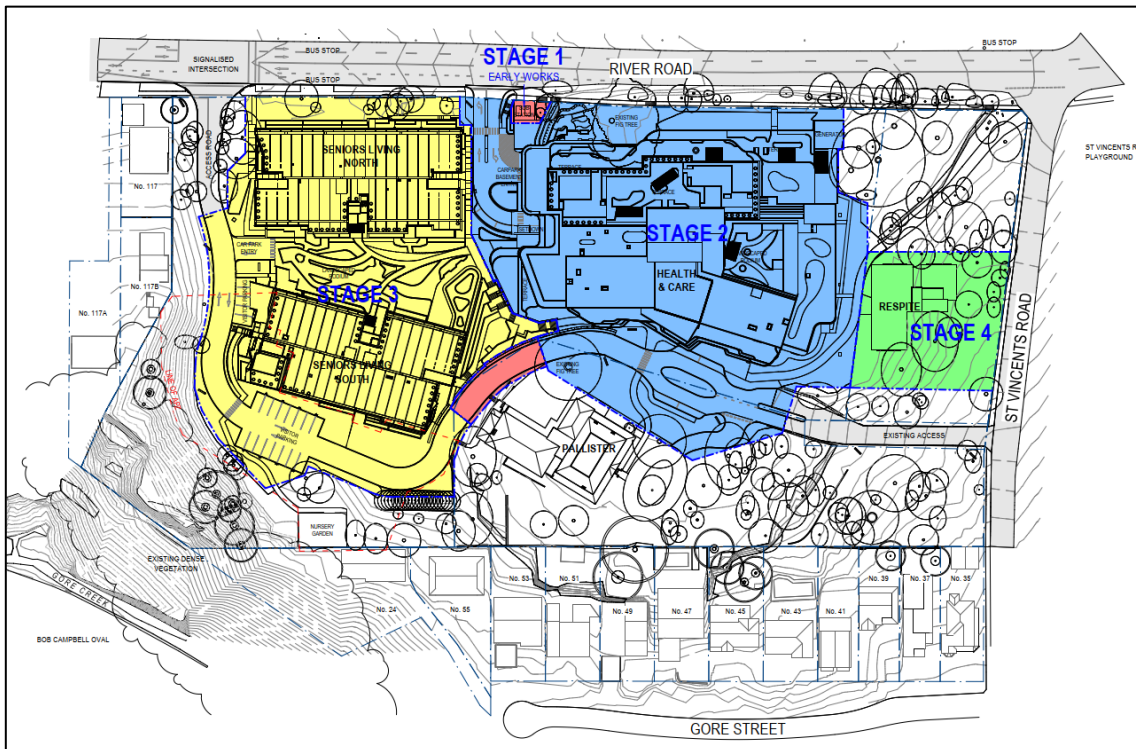
Figure 1-2 Proposed Site Plan

## 1.4 CONSTRUCTION OVERVIEW

The redevelopment of Greenwich Hospital is proposed to be delivered over four stages to cater for the operational requirements of the hospital and health campus. The proposed stages and timing are anticipated as follows:

- Stage 1 – Early works and external works
  - All activities 12 months
- Stage 2 – New hospital building
  - Site establishment 6 weeks
  - Demolition works 5 weeks
  - Construction 114 weeks
- Stage 3 – Two new Senior Living buildings
  - Site establishment 3 weeks
  - Demolition 10 weeks
  - Excavation 12 weeks
  - Construction 70 weeks
- Stage 4 – New Respite Care Buildings
  - Site establishment 2 weeks
  - Excavation 2 weeks
  - Construction 30 weeks

Figure 1-3 below shows the overall staging of the site. The boundaries and hoarding for the various stages are indicative only.



**Figure 1-3 Proposed Staging Plan (Bickerton Masters, Drawing No. AR-SW-0120, Rev.P11, 08/07/2024)**

#### 1.4.1 Construction Plans

A summary of the proposed construction plan is as follows. A site management plan showing the proposed layout of the construction site at each stage was provided by TSA (see **Appendix D**).

##### *Stage 1 - Early works and external works*

Stage 1 involves construction of the external enabling works, including existing services decommissioning and capped, MSB, substations, potable water supply, diverted existing sewer, power supply, and comms supply to hospital and Pallister House, civil stormwater and internal access road work, landscape work including the nursery garden, southern boundary berm and revegetation to southern western slope and other enabling services. Stage 1 is required to ensure that the hospital can maintain operation during the construction of Stage 2 and install services required for Stage 2 and 3.

During the construction of the external enabling works, the existing hospital will continue to operate within the existing facility. The existing on-ground south-western carpark will be destroyed during the stormwater work. With the scattered nature of the Stage 1 works, the construction sequence will be detailed to maintain the existing pedestrian access and vehicle access from River Road and St Vincent Road.

##### *Stage 2 – New Hospital Buildings*

This stage involves construction of the internal upgrade works to the half of the existing hospital (refurbishment of part of the existing hospital building to enable continuous operation during the Stage 2 construction period), demolition/earthworks and full construction for the new Hospital Building supported by the Stage 1 works.

During the demolition and earthworks, patient and staff in the existing hospital area that is to be demolished will be transferred to the remaining portion of the existing hospital building and continue to operate within the existing facilities. 2 access gates for construction vehicles and 2 turnstiles gates for workers will be proposed for the eastern portion of the site via River Road and St Vincent's Road. Patient and staff pedestrian and vehicular access will be via signalised entry from River Road.

##### *Stage 3 – Two Senior Living Buildings*

This stage involves demolition/earthworks and full construction for the Seniors South and North Buildings.

During the demolition and earthworks, patient and staff in the existing hospital will be transferred to the completed new Hospital Building, with no pause in operation. The Stage 3 boundary will encapsulate the future Stage 3 (Seniors Living Buildings) site and provide an area for material handling and storage. The proposed construction traffic access and egress, to be reviewed and approved at the time of construction, will be via signalised entry on River Road and St Vincent's Road. Patient and staff pedestrian and vehicular access will be via the main intersection from River Road and St Vincents Road.

##### *Stage 4 – New Respite Care Buildings*

This stage involves full construction for the Respite Building.

During the construction of the Respite Building, the new hospital and senior living buildings will be operational. Construction vehicle and workers access will be via St Vincent Road. Hospital and Senior Living buildings access and egress will be maintained via River Road.

#### 1.4.2 Working Hours and People on Site

Working hours (including the delivery of materials to and from the site) are noted in the conditions of consent and are limited to:

- Between 7:30 am and 5:30 pm, Mondays to Fridays inclusive.
- Between 8am and 1 pm Saturdays.
- No work may be carried out on Sundays or public holidays.

During peak construction period it is estimated 150 workers will be present at the site in addition to hospital staff and patients

## 1.5 ROLES AND RESPONSIBILITIES

The key persons responsible for implementing this CFERSP are defined in **Table 1-1**. The New South Wales State Emergency Service (SES) is the control agency for flooding in New South Wales, and are responsible for planning for floods, supporting community preparedness, and managing flood response if they do occur. The NSW SES is the legislated lead combat agencies for flooding in NSW. **Any directives issued by the NSW SES and/or Police are to take precedence over the contents of this CFERSP.**

Successful implementation of this CFERSP is the responsibility of the Site Project Manager, assisted by Flood Wardens. There is to be at least two Flood Wardens appointed for the site. These may be the same persons nominated as Fire Wardens if appropriate.

**Table 1-1 Key Roles and Responsibilities used in this CFERSP**

Organisation/Person	Roles and Responsibilities
NSW SES	The NSW SES is the legislated lead combat agency for flooding in NSW. Any flood directive issued by the SES must be followed by all the staff. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this CFERSP or as decided by the Site Project Manager.
Site Project Manager	<p>The Site Project Manager is responsible for:</p> <ul style="list-style-type: none"> <li>Ensuring that all deputy wardens who are on site are aware of the flood risks and the flood management procedures detailed in this CFERSP;</li> <li>Support the wardens in their duties;</li> <li>Maintain a register of all staff and subcontractors on site at all times, including contact details and emergency contacts;</li> <li>Lead the annual shelter in place/ flood emergency response drill (to be undertaken with the Deputy Wardens only, not other staff);</li> <li>Monitor flood warnings and alert mode triggers in accordance with this CFERSP;</li> <li>Escalate alert modes in accordance with the relevant triggers set in this CFERSP;</li> <li>Communicate flood response messages to Wardens and staff in accordance with this CFERSP;</li> <li>Coordinate all flood emergency procedures;</li> <li>Participate in a review of this CFERSP annually and following a major flood.</li> </ul>
Flood Wardens (at least 2)	<ul style="list-style-type: none"> <li>Assist the Site Project Manager to implement flood emergency procedures as required;</li> <li>Assist in distributing communications from the Site Project Manager to all staff on site;</li> <li>Participate in the annual flood emergency response drill;</li> <li>Participate in a review of this CFERSP annually and following a major flood.</li> </ul>
All other staff and contractors	<ul style="list-style-type: none"> <li>Follow directions of the flood wardens;</li> <li>Report any concerns to their respective flood warden.</li> </ul>

## 1.6 MAINTENANCE OF THIS CFERSP

This CFERSP shall be reviewed and updated on an annual basis by the Site Project Manager and following all major flood events that trigger implementation of the CFERSP. Any modifications to the Actions Checklist (**Appendix A**) should be made in this document and recorded in **Appendix C**.

As a minimum the following items should be reviewed to ensure:

- Web addresses and links to other sources (e.g., Bureau of Meteorology etc.) are correct;
- Contact details are up to date and the list is complete (see **Appendix B**);
- All signage is in good condition and installed as required; and
- The CFERSP Review Record is up to date (see **Appendix C**).

## 2 FLOOD BEHAVIOUR

### 2.1 SITE FLOODING CONDITIONS

The site is affected by one type of flooding: local overland flow flooding. As such, a site-specific TUFLOW flood model has been established to define flood behaviour at the site. The model details were included in the Greenwich Hospital Flood Assessment (WMS Engineering, 2023).

#### 2.1.1 Flood Behaviour

Under existing (construction) conditions, the overland flow in the upper reaches of the catchments travels from north to south through the catchment, making its way to Gore Creek via two main flowpaths: In a westerly direction along River Road and in a southerly direction along St Vincents Road (along the eastern boundary of the site). When the capacity of the gutter system along River Road is exceeded a shallow flow path enters the site through the western driveway and continues to the southwest. Aside from this western flowpath, there is quite limited flood risk in the site, with shallow runoff generated only by local rainfall falling within the site.

The 1% AEP and PMF flood levels and depths at the existing site entry are summarised in **Table 2-1**. The proposed layout of the construction site at stages 2 and 3 are overlayed on the top of the 1% AEP event to ensure the site access routes and mobile office are not in the flood extent, as shown in **Figure 2-1** and **Figure 2-2**.

**Table 2-1** Flood Levels and Depths Summary

Location	1% AEP Event		PMF Event	
	Flood Depth (m)	Flood Level (mAHD)	Flood Depth (m)	Flood Level (mAHD)
Western Access at River Road	0.01	38.69	0.19	38.88
Eastern Access at River Road	0.01	43.48	0.03	43.50
Access at St Vincents Road	0.01	37.99	0.03	38.02

The flood impact assessment has been undertaken for both events. It is noted that there is a localised redistribution of runoff as a direct result of the changes in building footprints and ground levels around the site, however no material changes to flood risk occur, nor creation/removal of flow paths as a result of the proposed development. Outside of the site boundary there is a minor reduction in flood levels on River Road (0.02-0.05 m) as a result of slight changes to the grading of the western driveway.

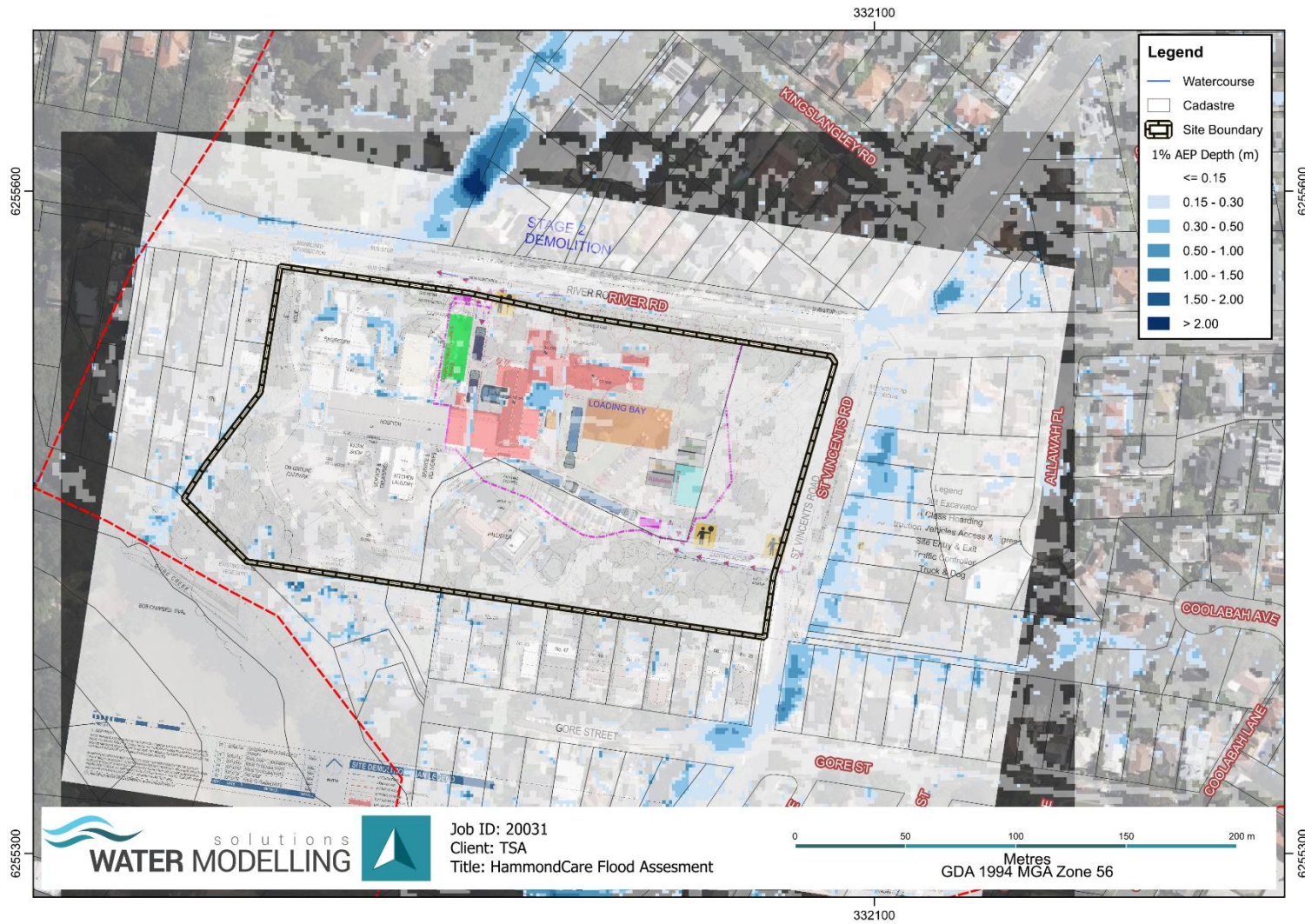


Figure 2-1 Existing Conditions 1% AEP Peak Depth with Stage 2 Demolition Plan

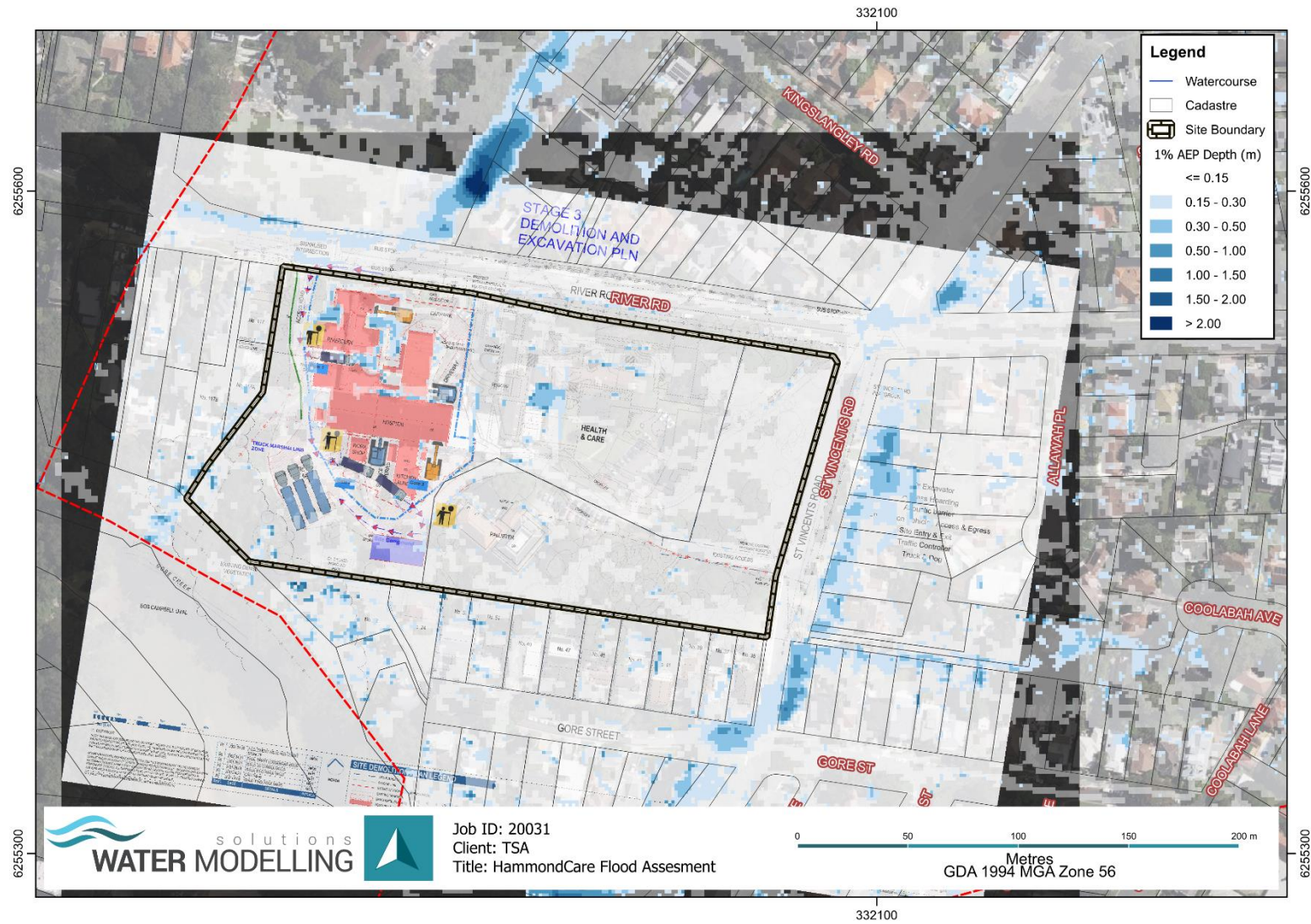
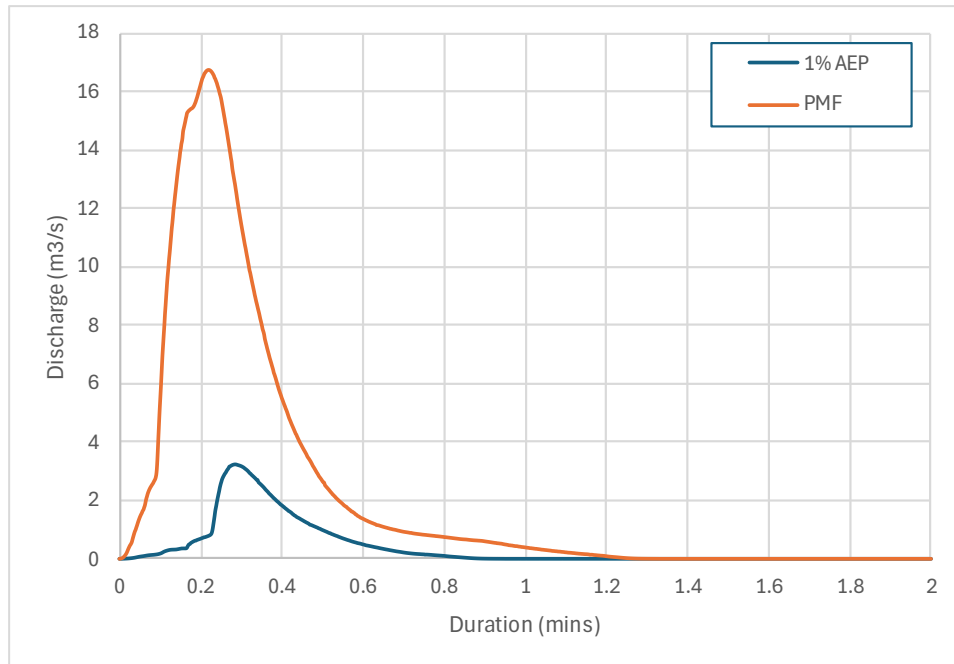


Figure 2-2 Existing Conditions PMF Peak Depth with Stage 3 Demolition Plan

### 2.1.2 Rate of Rise and Duration of Inundation

The flow hydrographs for River Road in the 1% AEP and PMF events of the proposed conditions have been extracted in **Figure 2-3**. The chart indicates that floodwater in the vicinity of the hospital is “flashy” in nature and will rise and fall within approximately 1 hour. Floodwater would not reach the ground floor of the site during both 1% and PMF events.

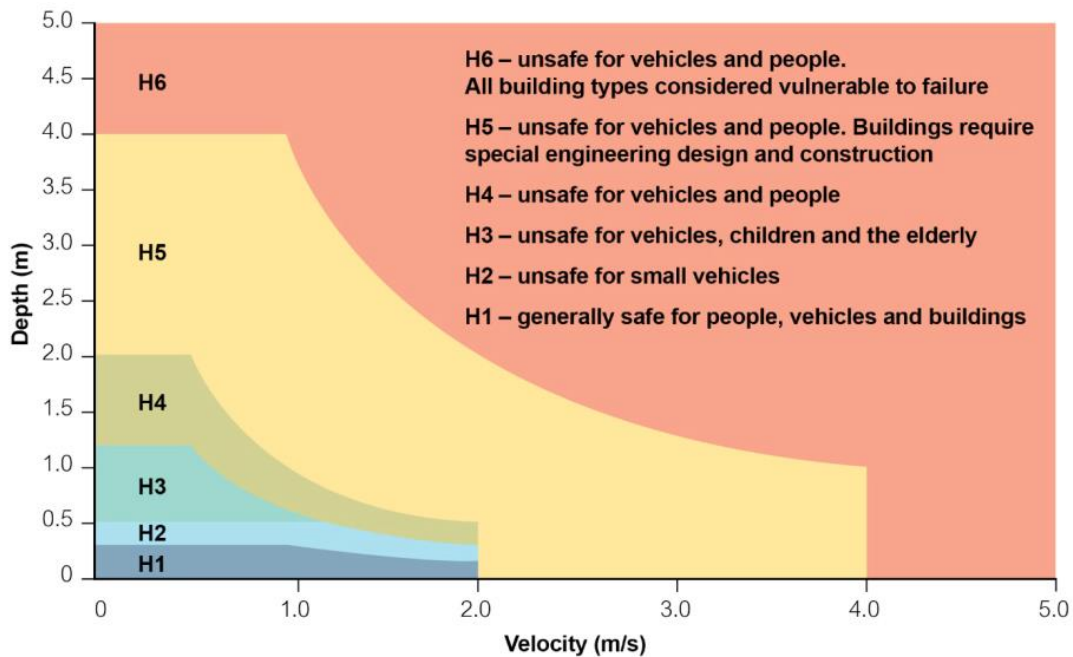


**Figure 2-3 Hydrographs – Flow path west of River Road**

## 2.2 FLOOD HAZARD THRESHOLDS

The relative vulnerability of the community and its built assets to flood hazard can be assessed by using flood velocity and depth thresholds. The thresholds are related to the stability of both people and vehicles in flood waters, and to buildings affected by flooding. **Figure 2-4** identifies thresholds that enable categorisation of flood hazard across the floodplain and for flood events of different scales using information readily derived from hydraulic models into 6 categories. These are H1 to H6, which range from least to most hazardous conditions.

The peak hazard of existing conditions in the 1% AEP and PMF event are shown in **Figure 2-5** and **Figure 2-6**. Flooding across most of the site is classified as H1 or No Restrictions in the 1% AEP and PMF events. There are small, isolated areas surrounding some of the buildings in the north-western corner with areas of H2 classification or *unsafe for small vehicles* in the 1% AEP event; and small areas reaching up to H4 *Unsafe for People and Vehicles* along the eastern driveway from St Vincents Road and the western driveway entrance from River Road in the PMF event. The PMF event also has areas of up to H6 Not Suitable for People, Vehicles or Buildings along (and predominantly outside) the western boundary in the vicinity of the steep slopes down into Gore Creek.



**Figure 2-4** General Flood Hazard Vulnerability Curve (AIDR, 2017)

As shown in **Table 2-2**, the maximum hazard vulnerability classification at the driveway entrances to site is H5 (unsafe for vehicles and people) for all storm durations. However, access to the site via River Road and St Vincents Road is only inaccessible for less than 10 minutes during the critical flood duration (15 mins). Outside of this 10-minute window, the hazard classification is only H1 (generally safe for vehicles, people, and buildings), as shown in **Table 2-3** and **Table 2-4**. For the longer storm duration, St Vincents Road will be flooded for a shorter period of time than River Road.

Further investigation has been conducted for the critical storm event for both River Road and St Vincents Road, depicted in **Figure 2-7** and **Figure 2-8** respectively. It was found that the high hazard classification along these two roads is predominantly caused by the high flood velocities, as demonstrated by the flood depth and flood velocity variation. The flood depth for the critical storm duration does not exceed 0.5 m in PMF flood event, however the velocity exceeds 2.0 m/s, which is deemed unsafe for vehicles.

**Table 2-2** River Road & St Vincents Road Hazard Vulnerability Classification During PMF Event

Storm Duration [min]	Time Inundated (Unsafe for vehicles)		Maximum Hazard Vulnerability Classification at Driveway Entrances to Site
	River Road	St Vincents Road	
90	55 min	30 min	H5 – Unsafe for vehicles and people
60	40 min	25 min	H5 – Unsafe for vehicles and people
45	30 min	15 min	H5 – Unsafe for vehicles and people
30	25 min	10 min	H5 – Unsafe for vehicles and people
15	10 min	5 min	H5 – Unsafe for vehicles and people

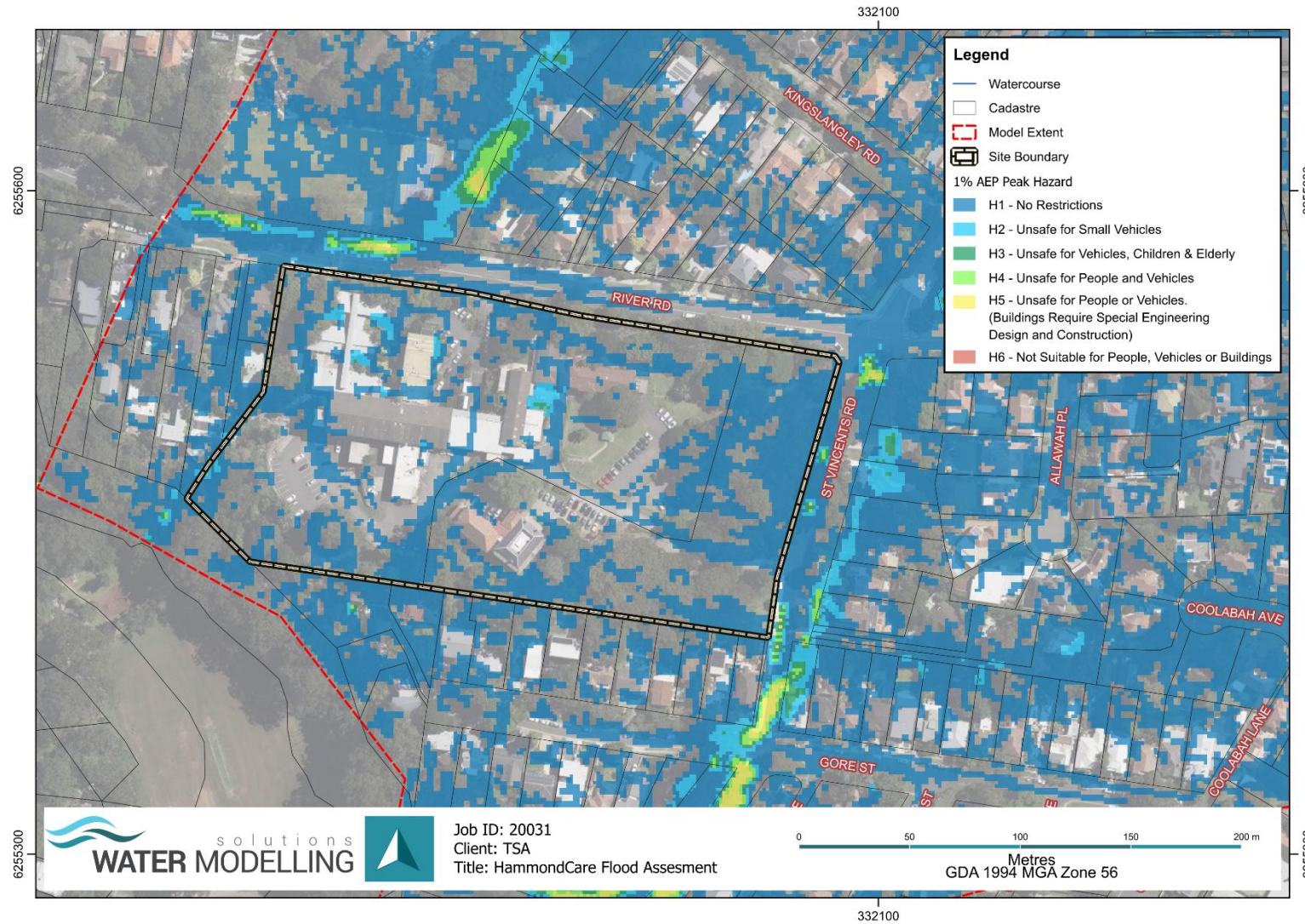


Figure 2-5 1% AEP Peak Hazard – Existing Conditions

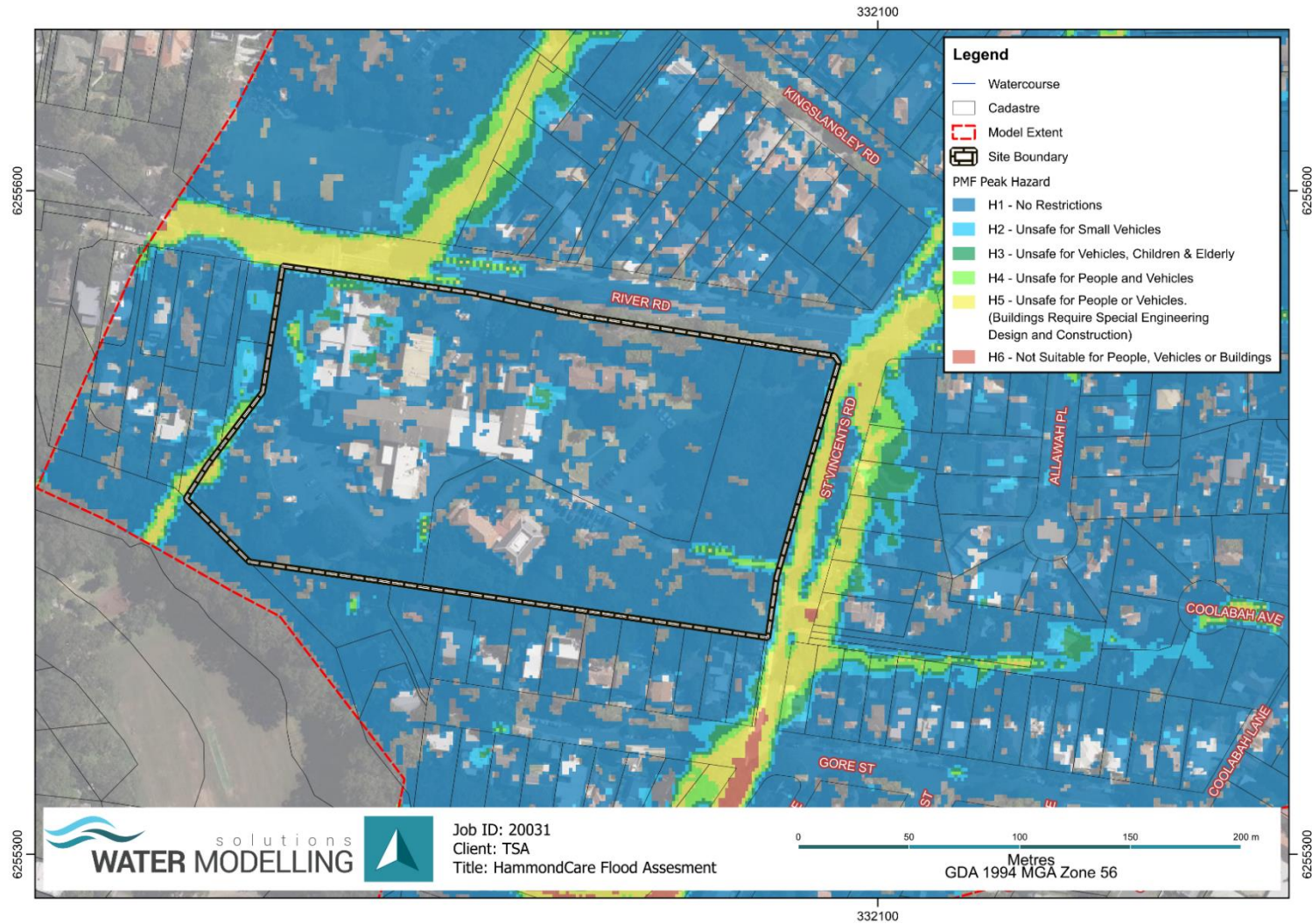


Figure 2-6 PMF Peak Hazard – Existing Conditions

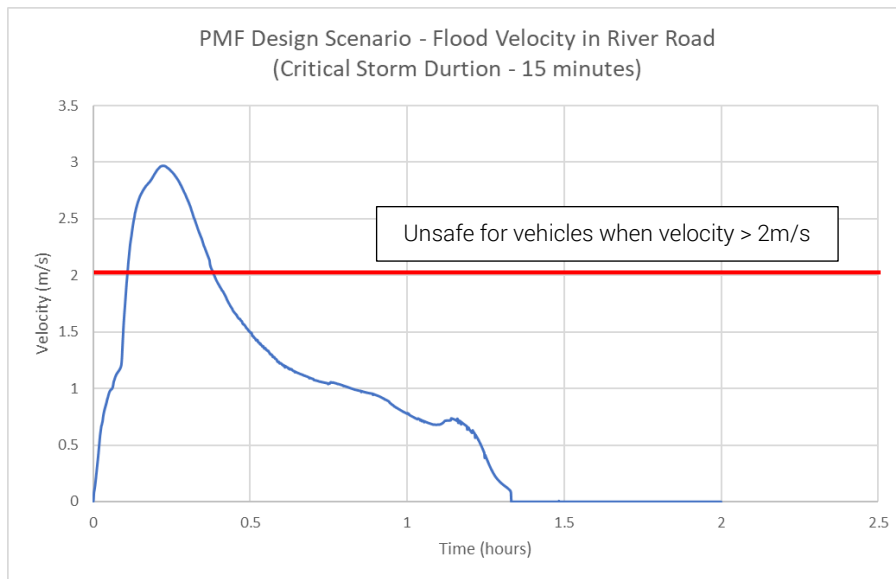
**Table 2-3** River Road Hazard Classification During PMF Event

Storm Duration	Hazard Vulnerability Classification (5-minute interval)																							
	[min]	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	...	115	120
90		H1			H5												H1							
60		H1			H5										H1									
45		H1			H5							H1												
30		H1		H5						H1														
15		H1		H5			H1																	

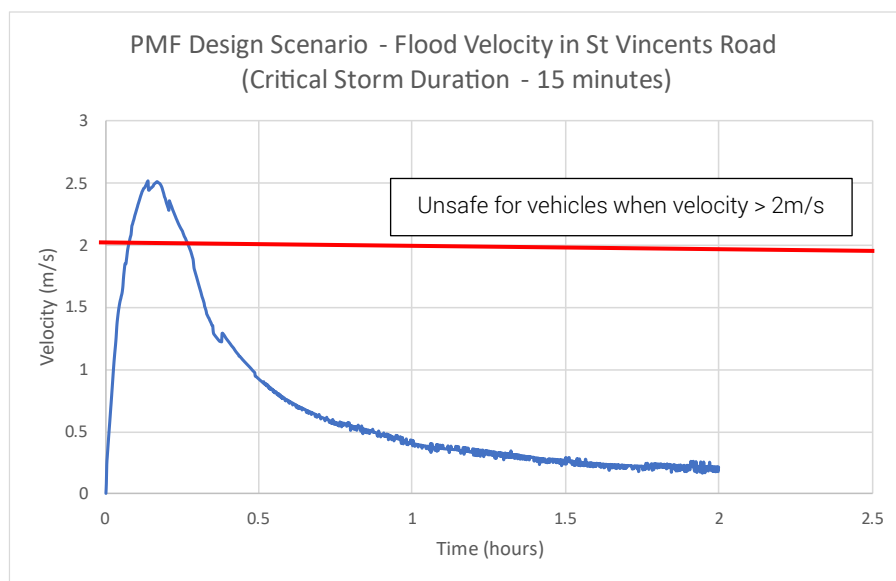
**Table 2-4** St Vincents Road Hazard Classification During PMF Event

Storm Duration	Hazard Vulnerability Classification (5-minute interval)																							
	[min]	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	...	115	120
90		H1			H5										H1									
60		H1			H5							H1												
45		H1			H5				H1															
30		H1		H5			H1																	
15		H1		H5			H1																	

<b>H1</b>	Generally safe for vehicles and people
<b>H5</b>	Unsafe for vehicles and people



**Figure 2-7** Flood Velocity in River Road for PMF Design Scenario



**Figure 2-8** Flood Velocity in St Vincents Road for PMF Design Scenario

### 3 SOURCES OF FLOOD INFORMATION, FORECAST AND WARNINGS

Monitoring weather forecasts is key to managing flood risk at the site and ensuring the CFERSP is enacted at the appropriate time. Information about current and impending flood risks can be found through the following sources.

#### 3.1 BUREAU OF METEOROLOGY (THE BUREAU)

The following types of warnings are provided by the Bureau and could provide an indication of increased flood risk at the site.

##### 3.1.1 Types of Warnings

###### *Severe Weather Warnings*

The Bureau issues Severe Weather Warnings whenever severe weather is occurring in an area or is expected to develop or move into an area. The warnings describe the area under threat and the expected hazards. Warnings are issued with varying lead-times, depending on the weather situation, and range from just an hour or two to 24 hours or sometimes more.

Severe Weather Warnings can contain the following information:

- Standard Emergency Warning Signal (SEWS) - sounded only for the most serious events
- List of severe weather phenomena expected in the warning area
- Threat area
- Warning issue time
- (Usually) Description of the weather pattern, including forecast developments of significant weather systems
- Description of the threat
- Action statements
- Advice of next issue time

As part of its Severe Weather Warning Service, the Bureau also provides warnings for severe weather that may cause flash flooding. State emergency services or local authorities may provide flash flood warnings in some locations.

**Note: The Bureau does not provide flash flood warnings (i.e., flooding that occurs within 6 hours of the rainfall).**

###### *Severe Thunderstorm Warnings*

The Bureau of Meteorology issues Severe Thunderstorm Warnings to alert communities of the threat of these more dangerous thunderstorms.

A severe thunderstorm is one that produces any of the following:

- Large hail (2cm in diameter or larger)
- Giant hail (5cm in diameter or larger)
- Damaging or destructive wind gusts (generally wind gusts exceeding 90 km/h)
- Heavy rainfall which may cause flash flooding
- Tornadoes

Most thunderstorms do not reach the level of intensity needed to produce these dangerous phenomena so the Bureau does not warn for all thunderstorms.

### 3.1.2 Accessing The Bureau Warnings

Bureau warnings can be accessed via the following:

- On the web at: [www.bom.gov.au/australia/warnings](http://www.bom.gov.au/australia/warnings)
- Via the Bureau mobile app: <http://www.bom.gov.au/app/>
- Through pre-recorded messages via the Bureau Telephone Weather Service. Charges apply. Key phone numbers relevant to the site are listed in **Table 3-1**. Full list can be found at: <http://www.bom.gov.au/other/tws/twsdir.shtml>

**Table 3-1 Bureau of Meteorology telephone weather service key phone numbers**

Service	Phone Number
Full State Service	1300 945 108
Sydney Metropolitan Service	1300 068 419
Sydney Local Waters Service	1300 871 802

### 3.2 NSW STATE EMERGENCY SERVICES (SES)

The NSW SES is the legislated lead combat agency for flooding in NSW. Any flood directive issued by the SES must be followed. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this CFERSP or as decided by the Facility Manager.

There are three warning levels within the Australian Warning System (AWS) that may be issued by the SES: Advice, Watch & Act and Emergency Warning. For each level, there are a series of clear action statements to guide positive action by the community. These include 'stay informed', 'prepare to evacuate' and 'move to higher ground' as shown below and in **Figure 3-1**:

- **Advice** - an incident has started. Stay up to date in case the situation changes.
  - Stay informed
  - Monitor conditions
  - Reduced threat: return with caution
- **Watch and Act** - conditions are changing and you need to start taking action now to protect you and your family.
  - Do not enter floodwater
  - Prepare to evacuate
  - Prepare to isolate
  - Avoid the area
- **Emergency Warning** - the highest level of warning. You may be in danger and need to take action immediately.
  - Evacuate now / Evacuate before [time]
  - Shelter now
  - Move to higher ground



Figure 3-1 AWS Warning Levels

NSW SES communications and warnings can be found in the following social media pages:

- NSW SES Facebook Page: <https://www.facebook.com/NSW.SES/>
- NSW SES Willoughby-Lane Cove Unit Facebook Page: <https://www.facebook.com/SESWilloughbyLaneCove/>

### 3.3 OTHER SOURCES

In each state, Flood Warnings, Watches and River Height Bulletins are available via some or all of the following:

- Local Response Organisations: these include the Council, Police, and NSW SES in the local area.
- Radio and television: radio stations, particularly local ABC and local commercial stations broadcast flood warning information as part of their new bulletins, or whenever practicable. Some of the local emergency broadcasters in Greenwich are:
  - ABC Sydney 702
  - 2day FM 104.1

## 4 EMERGENCY REPSONSE

The following emergency response is intended solely for construction staff and contractors to ensure the safety of all workers. Given that construction will be staged, existing patients, staff, and residents should adhere to the actions outlined in the *Greenwich Hospital Flood Emergency Response Plan* (WMS, 2023) for the redeveloped hospital.

### 4.1 SITE PREPARATION

Construction compounds and stockpile areas are to be located outside of 1% AEP flood extent in accordance with Section 2 of this report, in order to mitigate the impact of potential flooding during construction. The flood extent maps and modelling details can be found in the *Greenwich Hospital Flood Assessment* (WMS Engineering, 2023).

The following measures will be implemented to reduce the likelihood of damage to site equipment and the environment and to protect the safety of personnel:

- Every morning, check the Bureau of Meteorology weather forecast and warnings.
- The Bureau weather forecast and warnings for NSW were available at the following link: New South Wales Warnings Summary (<http://www.bom.gov.au/nsw/>).

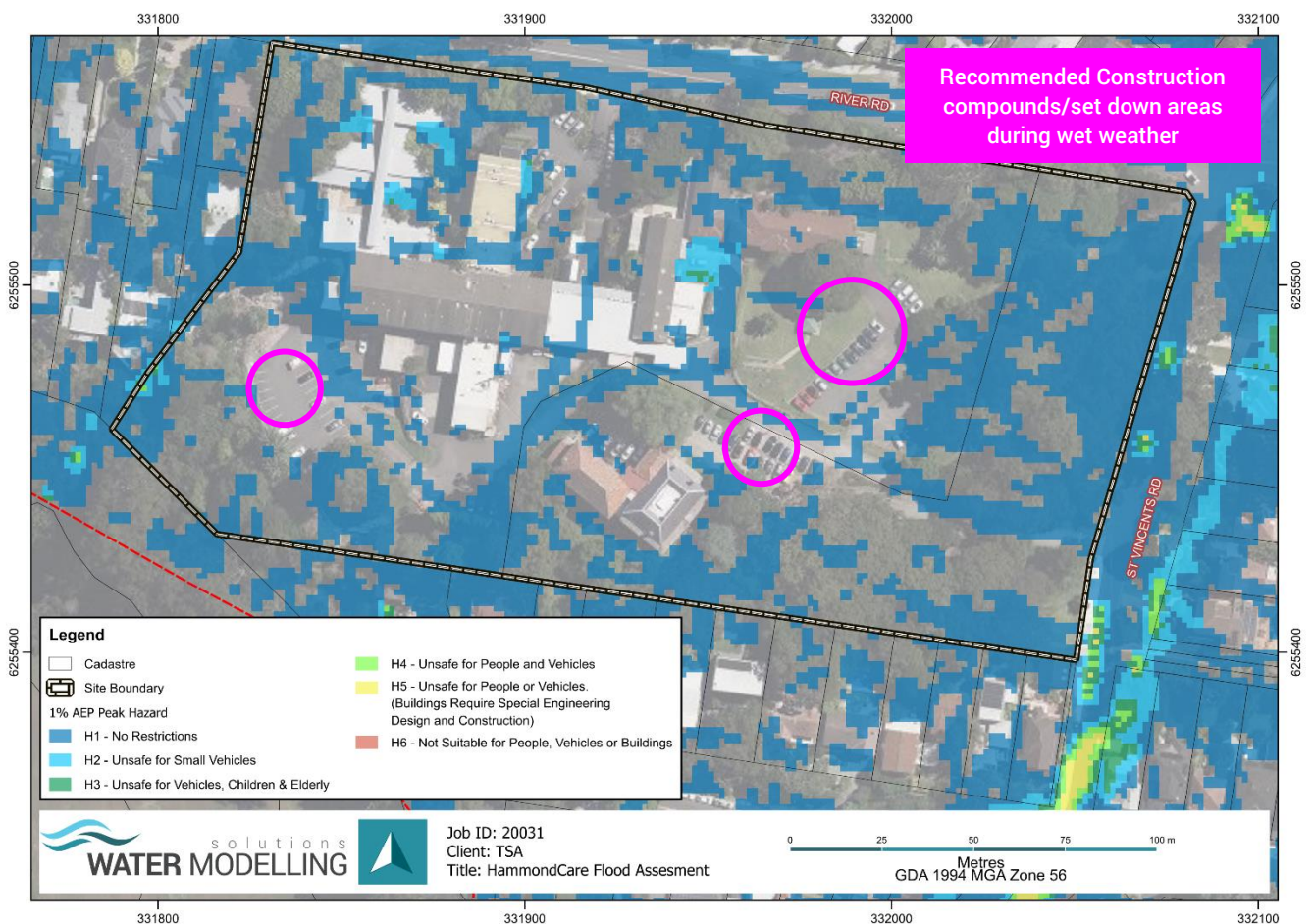


Figure 4-1 Site Preparation Guide

## 4.2 RECOMMENDED FLOOD RESPONSE

The site is subject to limited flood risk, as it is only associated with the overland flow path that traverses the northwestern corner of the site as discussed in Section 2.1. A summary of recommended strategies is provided in **Table 4-1** and a detailed Action Plan is provided in **Appendix A**. It is important to note that, regardless of flood risk, the construction site will often be closed during any rainfall, including light showers or when severe thunderstorms are expected, as the majority of construction activities are unable to proceed in bad weather conditions.

**Table 4-1** Flood Response Strategy Overview

Type of Warning Issued by BOM	Overview of Actions Required
Severe Weather/Thunderstorm Warnings	<ul style="list-style-type: none"> <li>All staff and contractors must be informed by the site project manager about the upcoming flood conditions.</li> <li>Construction equipment, extra materials, skips, and hazardous substances will be moved to higher ground.</li> <li>Loose materials must either be removed from flood-prone areas or secured.</li> <li>Emergency erosion and sediment controls will be put in place to minimize risk to nearby properties.</li> <li>Staff will be evacuated to a designated safe refuge away from flood-prone zones.</li> <li>Power will be turned off and the construction site will be closed.</li> <li>The Flood Wardens will closely monitor the flood situation and keep up to date with Severe Weather Warnings and Flood Warnings issued on the Bureau of Meteorology website and act on all advice provided by the NSW SES.</li> </ul>

## 4.3 PERSONNEL PREPARATION AND TRAINING

Construction teams should undergo flood awareness training as part of the site induction process. At a minimum training should include the following:

- Staff and contractors to be made aware of this CFERSP and where to find it.
- The locations of overland flow paths.
- The dangers of crossing flood waters.
- The action in severe weather/thunderstorm warnings.
- The recommended construction compounds/set down areas during wet weather.

## 5 REFERENCES

NSW Government (2016). Evacuation Decision Guidelines for Private Health and Residential Care Facilities

WMS (2023). Greenwich Hospital Flood Assessment

# **APPENDIX A**

# **ACTION PLAN**

## A.1 BEFORE A FLOOD

Trigger/ Frequency	Action
Always	The Site Project Manager will make all staff on site aware of the possibility of flooding and the procedures to be followed in a flood.
	The Site Project Manager will appoint a Flood Warden. This should be a senior staff member who is familiar with this Flood Emergency Response Plan and who is always on site when the site is open. If necessary, to ensure that at least one Flood Warden is always on site, the Site Project Manager may appoint two or more Flood Wardens.
	An airhorn will be kept on site at all times. This is to be used to alert everyone on site in case of emergency if there is a power outage. All staff on site will be trained during their site induction to immediately go to the muster point at the front of the site when the airhorn sounds.
	A set of at least two wireless radio communication transceivers with charged spare batteries will be kept on site at all times. The Flood Warden will make sure that the main and spare batteries are changed at all times.
	A flood warning sign will be kept on the premises. The sign should read a message to this effect: "The site is temporarily closed due to flood risk. For your own safety, leave the area immediately. You will be notified once it is safe to come back"
	The Site Project Manager and Flood Warden are to always have a smartphone/tablet available, with 3G/4G/5G internet access and at least 12 hours independent power supply.
Daily	Every morning, the Site Project Manager will check the Bureau of Meteorology weather forecast and warnings. At the time this report was prepared, the Bureau weather forecast and warnings for NSW were available at the following link: New South Wales Warnings Summary ( <a href="http://bom.gov.au">bom.gov.au</a> ).
Always	An emergency contact sheet will be kept in hardcopy format on site. A suggested format for these details and other necessary contact details is provided in Appendix B.
Always	The Site Project Manager will keep an updated register of the people who are on site at all times. The list will have to include as a minimum name, mobile number, and emergency contact details.
Always	The Site Project Manager will maintain an emergency kit including a portable radio and torch with spare batteries and a first aid kit.
Annually	The Site Project Manager will host a Flood Emergency Response Drill, in which Shelter in Place arrangements are practised by flood wardens.

## A.2 WHEN A FLOOD IS POSSIBLE AND DURING A FLOOD

Trigger/ Frequency	Action
<i>During working hours</i>	The Site Project Manager will notify the Flood Warden(s) that there is a risk that the site may flood and the procedures to be followed in a flood.
<b>When a BOM Severe Weather and Thunderstorm Warnings is issued.</b>	The Site Project Manager and the Flood Warden(s) will notify everyone on site, as well as any workers arriving to the site later in the day, that there is a risk that the site may flood and the procedures to be followed in a flood.
	The Flood Wardens will closely monitor the flood situation and keep up to date with Severe Weather Warnings and Flood Warnings issued on the Bureau of Meteorology website and act on all advice provided by the NSW SES.
<i>Outside working hours</i>	The Site Project Manager will monitor the Severe Weather Warnings and Flood Warnings issued on the Bureau of Meteorology website every two hours, and one last time one hour before any works commence at the site.
	Upon opening of the site, the actions to be undertaken during working hours, listed above, will apply.

Trigger/ Frequency	Action
Thunderstorm Warnings is issued.	The Site Project Manager will keep monitoring the THE BUREAU Severe Weather Warnings and Flood Warnings every two hours.

### A.3 AFTER A FLOOD

Trigger/ Frequency	Action
When the BOM cancels the Severe Weather and Thunderstorm Warnings	<ul style="list-style-type: none"> <li>• The Site Project Manager will inspect the site to check if access roads are clear and if the site was affected by flooding.</li> <li>• If access roads are clear and the site was not affected, the emergency has passed and the site can re-open.</li> <li>• If access roads are not clear, the Site Project Manager will return for an inspection after at least two hours. Under no circumstances should the Site Project Manager drive through floodwaters.</li> <li>• If access roads are clear but site was affected by flooding, the Site Project Manager will organise access to the seniors housing development making sure that any precautionary measures recommended by the NSW SES are put in place.</li> <li>• Extra care of potential slips on muddy floors will be taken if floodwaters have entered the mobile offices or other structures.</li> <li>• All flood-affected parts of the premises will be appropriately cleaned, and utilities checked by professionals before anyone can return to the site.</li> <li>• A hazard assessment will be undertaken for the clean-up, safe work methods statements will be prepared, and personal protective equipment supplied consistent with the known hazards which can be associated with floods: slips, trips and falls; sharp debris; venomous animals; contaminated water and sediments.</li> <li>• Following the re-commencement of the site, a de-brief will be held with key management staff and may involve Council flood staff or the NSW SES. The flood event and response, including the use of this CFERSP and any emergency procedures will be reviewed.</li> <li>• Changes may be made to the CFERSP and the requirements for future emergency response should the review identify any improvements which may be made.</li> </ul>

## **APPENDIX B**

# **EMERGENCY CONTACT LIST**

## B.1 EMERGENCY CONTACT LIST

Category	Contact Name	Contact Phone Number
Emergency Services and Sources of Information	Emergency – Police, Fire, Ambulance	000
	NSW SES	132 500 <a href="https://www.ses.nsw.gov.au/">https://www.ses.nsw.gov.au/</a>
	NSW Live Traffic	<a href="https://www.livetraffic.com/">https://www.livetraffic.com/</a>
	Lane Cove Council	Phone: (02) 9911 3555 Email: <a href="mailto:service@lanecove.nsw.gov.au">service@lanecove.nsw.gov.au</a> <a href="https://www.lanecove.nsw.gov.au/Home">https://www.lanecove.nsw.gov.au/Home</a>
	Emergency Broadcasters	ABC Sydney 702 2day FM 104.1
	Bureau of Meteorology	1300 659 217 NSW Warnings: <a href="http://www.bom.gov.au/nsw/warnings/">http://www.bom.gov.au/nsw/warnings/</a>
	Utilities and Providers	Electricity Retailer
Electricity Distributor		
Gas Retailer		
Water and Sewer Retailer		
Doctor		
Insurance		Policy Number: Contact Phone:
Key On-Site Personnel ( <i>Add as necessary</i> )		Project Manager
	Deputy Wardens	

## **APPENDIX C**

# **CFERSP REVIEW RECORD**



# **APPENDIX D**

## **SITE MANAGEMENT PLAN**

# Appendix I – Road Safety Audit

# Greenwich Hospital - Proposed Seniors Health Campus River Road, Greenwich

## **Project Phase: Construction Road Safety Audit Report**

Prepared for: Hammond Care Pty Ltd

November 2024

Report No: PT124067r01\_V5

# TABLE OF CONTENTS

<b>1.</b>	<b><i>Introduction</i></b> .....	<b>4</b>
<b>2.</b>	<b><i>Existing Road Development / Conditions</i></b> .....	<b>5</b>
2.1	Site Location .....	5
2.2	Classification Criteria .....	7
2.3	Existing Road Network .....	7
<b>3.</b>	<b><i>Project Description</i></b> .....	<b>11</b>
<b>4.</b>	<b><i>Supporting Information</i></b> .....	<b>12</b>
4.1	Construction Traffic and Pedestrian Sub-Management Plan / Construction Traffic Management Plan (CTMP).....	12
4.2	St Vincents Road Arrangements .....	13
4.3	Reference Materials.....	18
4.4	Road Safety Audit Program .....	19
4.4.1	Background .....	19
4.4.2	Audit Stage .....	19
4.4.3	Audit Program.....	19
4.5	Audit Objectives .....	19
4.6	Audit Process Summary .....	21
<b>5.</b>	<b><i>Audit Findings &amp; Recommendations</i></b> .....	<b>22</b>
5.1	General Comments .....	22
5.2	Deficiency Log .....	22
<b>6.</b>	<b><i>Design Issues</i></b> .....	<b>24</b>
6.1	Item 1 – Inconsistent CTMP / TGS Plans MED.....	24
6.2	Item 2 – On Street parking in St Vincents Road - HIGH..... Error! Bookmark not defined.	
6.3	Item 3 – TGS Plan - MED .....	25
6.4	Item 4 – Protection of pedestrians on south – west corner of St Vincents Road intersection - HIGH	25
6.5	Item 5 – Driveway Access Grades - MED .....	26
6.6	Item 6 – School Communications Strategy - MED.....	27
6.7	Item 7 – Access By Large Vehicles School Communications Strategy - HIGH .....	28
<b>7.</b>	<b><i>Formal Statement &amp; Sign Off</i></b> .....	<b>29</b>

**8. Appendix A – Site Inspection Photographs..... 31**



## List of Figures

Figure 1 – Site Location & Access Driveways

Figure 2 – St Vincents Road Driveway Access

Figure 3 – Eastern Driveway River Road

Figure 4 – Western Signalised Driveway River Road

Figure 5 - Stage 2 Construction Traffic Management Arrangements

Figure 6 – Truck & Dog Right Turn River Road into St Vincents Road Turn Path

Figure 7 – Truck & Dog Left Turn River Road into St Vincents Road Turn Path

Figure 8 – Truck & Dog Left Turn St Vincents Road into River Road Turn Path

Figure 9 – Truck & Dog Right Turn St Vincents Road into Site Turn Path

Figure 10 – Truck & Dog Left Turn Site into St Vincents Road Turn Path

Figure 12 – Stage 2 Traffic Guidance Scheme St Vincents Road

Figure 13 – Truck & Dog Left Turn Site into St Vincents Road Turn Path

## List of Tables

Table 1 - Deficiency Log

## List of Photos

Photo 1 - School Peak Parking Restrictions Southbound St Vincents Road

Photo 2 – Existing 2.0m All Weather Path Eastern Side St Vincents Road with Marked Footcrossing South of Driveway Access

Photo 3 – Existing 1.2m All Weather Path Western Side St Vincents Road

Photo 4 - Queued Vehicles Waiting for Passing Traffic in St Vincents Road Due to Parallel Parked Vehicles

Photo 5 – Poor Condition Footpath – South / Western Corner of St Vincents Road Intersection with River Road

Photo 6 – Steep Driveway Access

## 1. Introduction

This report presents findings of a Pre-Construction Road Safety Audit Report of the proposed construction traffic arrangements to support the redevelopment of the Greenwich Hospital to provide a Senior Health Campus.

The preparation of this report has been based on both a review of the Construction Traffic Management Sub Plan (sub CTMP) report prepared by Transport and Traffic Planning Associates dated October 2024 and site visit of the location. Further, the draft Construction Management Plan prepared by Roberts Co dated December 2022.

The need for the Road Safety Audit is a requirement of the following State Significant Development Application (SSDA) condition of consent:

*“a road safety audit of St Vincents Road and incorporate any measures required to address any identified safety concerns associated with construction vehicles accessing the site from this street.”*

The aim of the audit is to independently examine the road environment and in this instance construction arrangements and identify potential risks to public safety as a result of the proposed construction and therefore reduce the likelihood of accidents on and around the road precinct. The audit will attempt to identify any associated road safety hazards, for all road users, and offer recommendations for corrective actions.



## 2. Existing Road Development / Conditions

The following presents a summary of existing site and traffic conditions.

### 2.1 Site Location

The existing hospital is located on the south – west corner of the priority controlled intersection of the River Road / St Vincents Road and includes three (3) entry / exit driveways serving the site. The driveway in St Vincents Road is located immediately north of an existing pedestrian crossing and allows for all movements. A further driveway is located centrally to the frontage in River Road and allows for all movements. No specific turn lane facilities are provided in this location. A third vehicle access is located adjacent to the western boundary of the site and is controlled by traffic signals and allows for all movements. The site location and access driveways are shown below in **Figure 1**:

**Figure 1 – Site Location & Access Driveways**



The existing driveway arrangements of the site are shown below in **Figure 2**, **Figure 3** and **Figure 4**.

Figure 2 – St Vincents Road Driveway Access



Figure 3 – Eastern Driveway River Road



**Figure 4 – Western Signalised Driveway River Road**

## 2.2 Classification Criteria

It is usual to classify roads according to a road hierarchy in order to determine their functional role within the road network. Changes to traffic flows on the roads can then be assessed within the context of the road hierarchy. Roads are classified according to the role they fulfil and the volume of traffic they should appropriately carry. The RTA has set down the following guidelines for the functional classification of roads.

- Arterial Road – typically a main road carrying over 15,000 vehicles per day and fulfilling a role as a major inter-regional link (over 1,500 vehicles per hour)
- Sub-arterial Road – defined as secondary inter-regional links, typically carrying volumes between 5,000 and 20,000 vehicles per day (500 to 2,000 vehicles per hour)
- Collector Road – provides a link between local roads and regional roads, typically carrying between 2,000 and 10,000 vehicles per day (250 to 1,000 vehicles per hour). At volumes greater than 5,000 vehicles per day, residential amenity begins to decline noticeably.
- Local Road – provides access to individual allotments, carrying low volumes, typically less than 2,000 vehicles per day (250 vehicles per hour).

## 2.3 Existing Road Network

The existing / future road network around the site is described below:

River Road – is a Regional Road and sub-arterial route which connects between Longueville and Crows Nest. Across the frontage of the site, the road includes a carriageway width of some 12.0m with a two travel lanes in each direction and a posted speed limit of 60km/hr. The road is a key bus corridor through the area. The intersection of River Road / St Vincents Road includes a priority controlled intersection with no separate turn lanes.

St Vincents Road – is a local street linking River Road in the north with a peninsular of residential development to the south. The road includes a carriageway width of some 7.5-8.0m north of the existing pedestrian crossing to 6.0m to the south of the pedestrian crossing. Parallel parking is permitted on both sides of the street. However, southbound on street parking is restricted during school peak periods as shown below in **Photo 1**.

**Photo 1 - School Peak Parking Restrictions Southbound St Vincents Road**



St Vincents Road includes a 2.0m wide all weather path on its eastern side which connects to a raised marked footcrossing immediately south of the driveway access to the hospital. A narrower 1.2m wide path is provided on the western side and connects to River Road as shown below in

**Photo 2 – Existing 2.0m All Weather Path Eastern Side St Vincents Road with Marked Footcrossing South of Driveway Access**



**Photo 3 – Existing 1.2m All Weather Path Western Side St Vincents Road**



Of note, Greenwich Public School is located directly opposite the subject site in River Road which is expected to be the source of the school peak parking restrictions with parents parking in St Vincents Road and making their way to / from the school via the existing traffic signals at the Greenwich Hospital western vehicle access.



### 3. Project Description

As stated in the CTMP report<sup>1</sup>, at the completion of the development, the hospital will include the following:

- *Hospital RACF complex on the eastern part of the site with:*
  - *Administration Staff 60*
  - *Specialists 56*
  - *Sub-acute hospital with 65 inpatient beds and 25 staff*
  - *12 Consulting Rooms staff included above*
  - *RACF with 65 beds and 15 staff*
  - *Ancillary elements (café etc.)*
  - *Porte cochere and short term parking*
  - *Basement parking*
  - *Respite with 10 beds and 6 staff*
- *The Supported Seniors Living complex in 2 blocks on the western part of the site:*
  - *Seniors apartments*
  - *10 x 1 bed*
  - *64 x 2 bed (or 1 bed and study)*
  - *15 x 3 bed*
  - *Total 89 apartments*
  - *Staff are included in hospital administration staff numbers*
  - *Ancillary elements*
  - *Basement car parking with supplementary at-grade visitor parking.*

*The vehicle access arrangements will largely remain as existing although the driveway near the centre of the River Road frontage will be modified and limited to left turn IN/OUT only (apart from emergency vehicles). The hospital porte cochere will connect to this access and there will be internal circulation roadway with connections to the various parking areas and loading dock. Importantly, interconnection will enable all vehicles to utilise the traffic signal-controlled access point on River Road.*

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<sup>1</sup> Greenwich Hospital Proposed Seniors Health Campus River Road, Greenwich CTMP Report – TPA October 2024

## 4. Supporting Information

### 4.1 Construction Traffic and Pedestrian Sub-Management Plan / Construction Traffic Management Plan (CTMP)

As stated above, the basis of this RSA is the Construction Traffic Sub Management Plan (sub CTMP) report prepared by Transport and Traffic Planning Associates dated October 2024 and a draft Construction Management Plan prepared by Roberts Co dated December 2022.

In particular, the proposed arrangements in St Vincents Street given its current supporting road in providing a component of parent parking for Greenwich Public School.

The project original was divided into four (4) stages as described below:

- Stage 1 – Early works and external works
- Stage 2 – New Hospital building
- Stage 3 – Two new Seniors Living buildings
- Stage 4 – New Respite Care building

The sub CTMP report identifies the following stages of construction:

#### Stage 1

- Early Works - 50 weeks

#### Stage 2

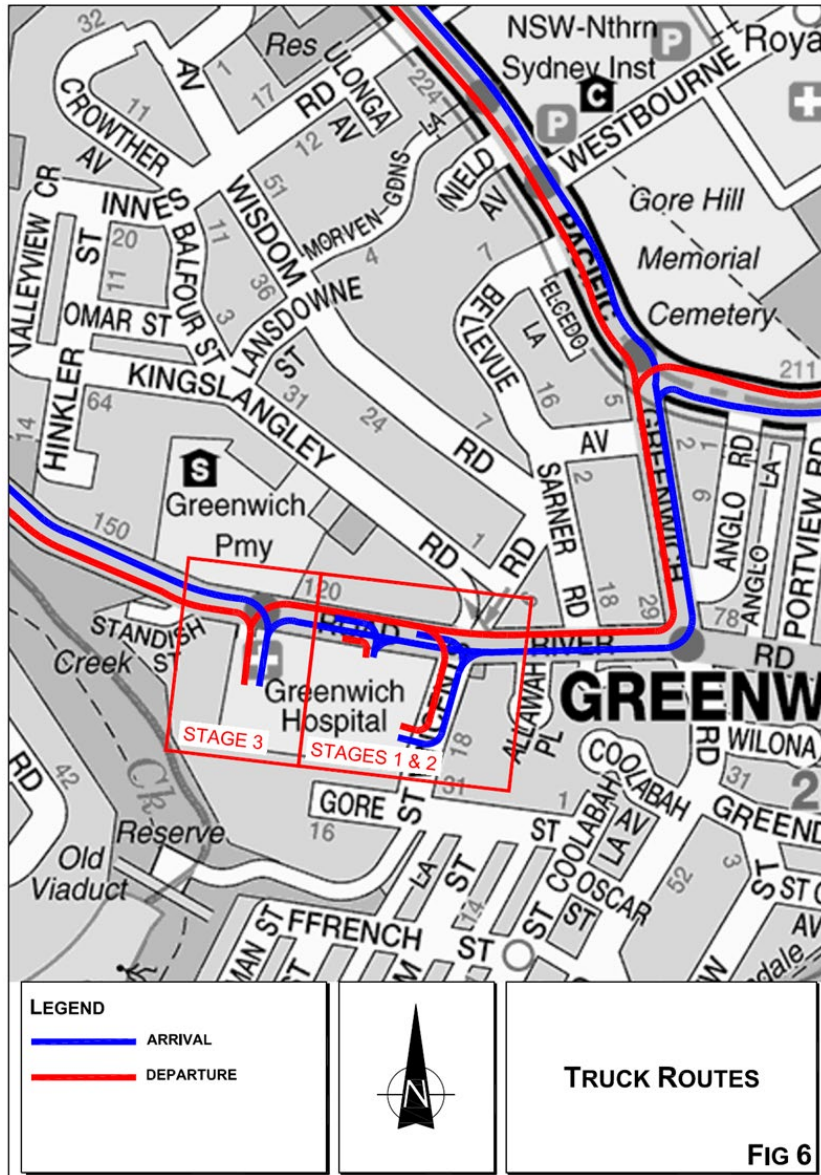
- Site Establishment - 6 weeks
- Demolition - 5 weeks
- Excavation - 18 weeks
- Construction & Fitout - 114 weeks

#### Stage 3

- Site Establishment - 3 weeks
- Demolition - 10 weeks
- Excavation - 12 weeks
- Construction - 70 weeks

As confirmed above, Stage 4 is *not* part of the approved SSDA.

All truck movements associated with the construction process will access the site via the routes illustrated in Figure 6 for any potential concurrent heavy vehicle movements entering and exiting the site, there will be “call up” procedures in place with a site gatekeeper organising truck movements via UHF to minimise potential queuing on site.



Of note, access via St Vincents Road is proposed for only Stage 1 and Stage 2 of construction. All access for Stage 3 would occur via the western signalised intersection access in River Road.

#### 4.2 St Vincents Road Arrangements

Following a review of the CTMP report, the following is noted on matters pertaining to access and management of St Vincents Road during each phase of construction.

Figure 5 - Stage 2 Construction Traffic Management Arrangements

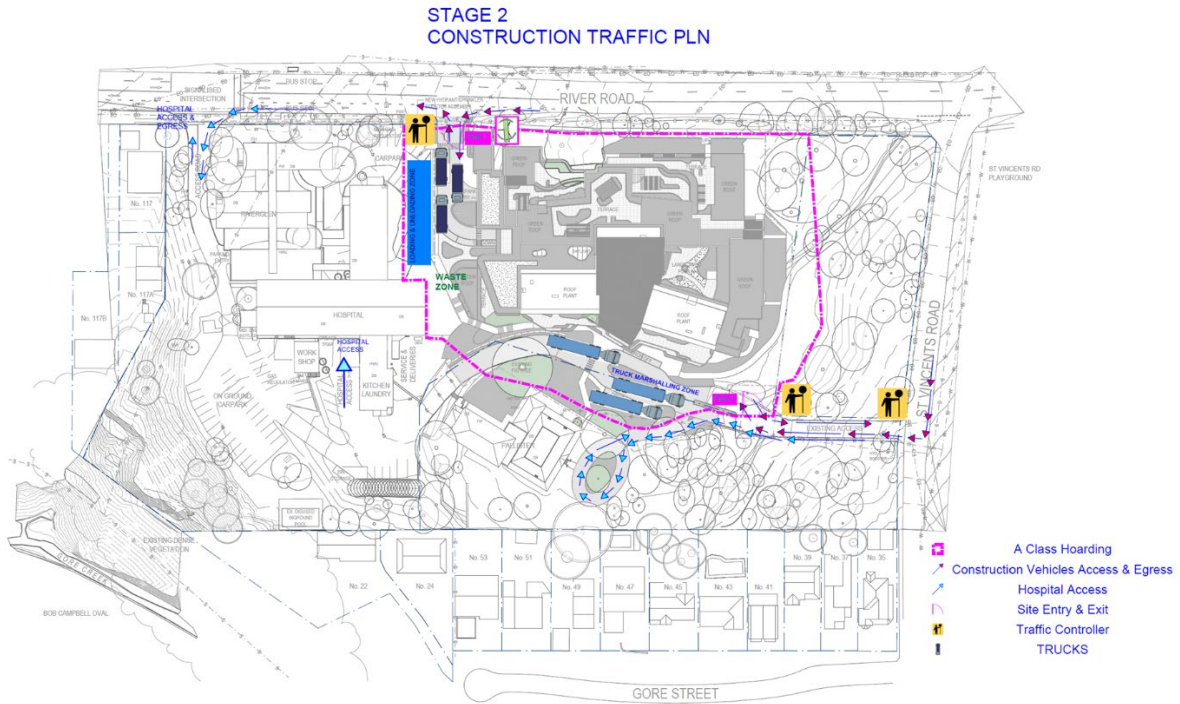


Figure 6 – Truck & Dog Right Turn River Road into St Vincents Road Turn Path

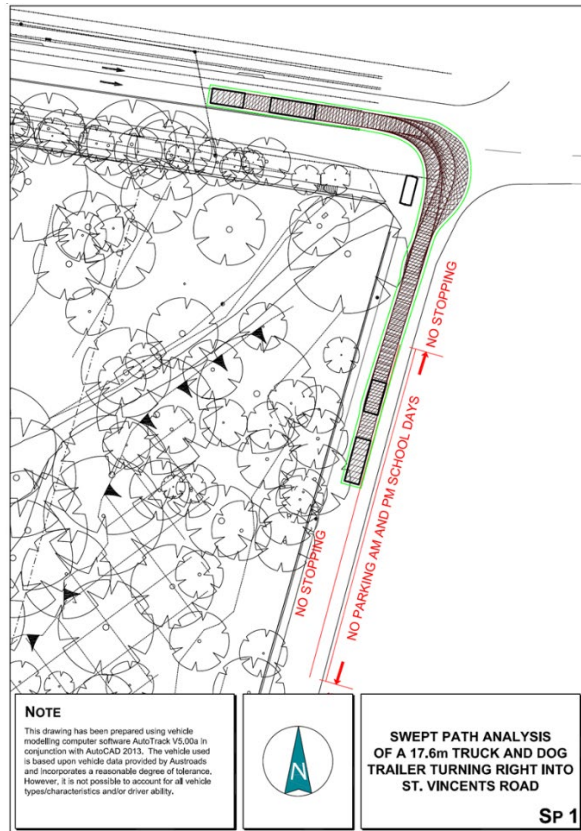


Figure 7 – Truck & Dog Left Turn River Road into St Vincents Road Turn Path

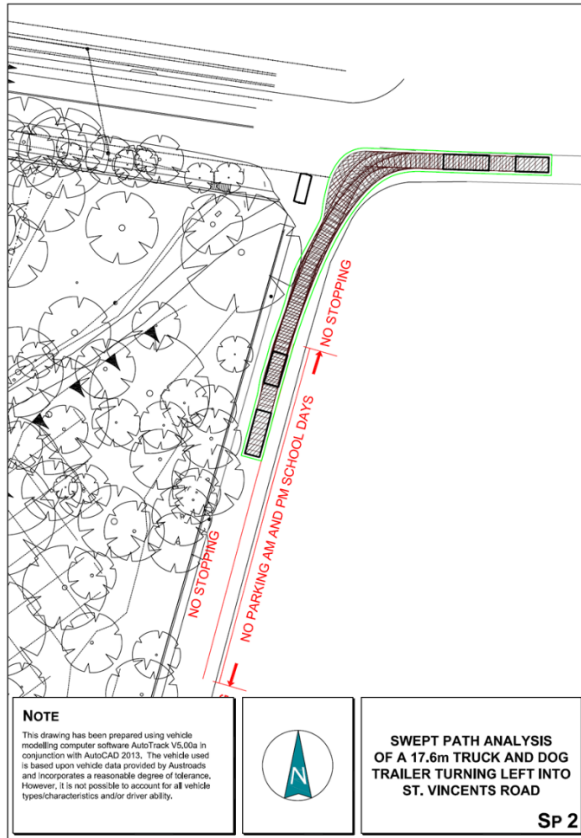


Figure 8 – Truck & Dog Left Turn St Vincents Road into River Road Turn Path

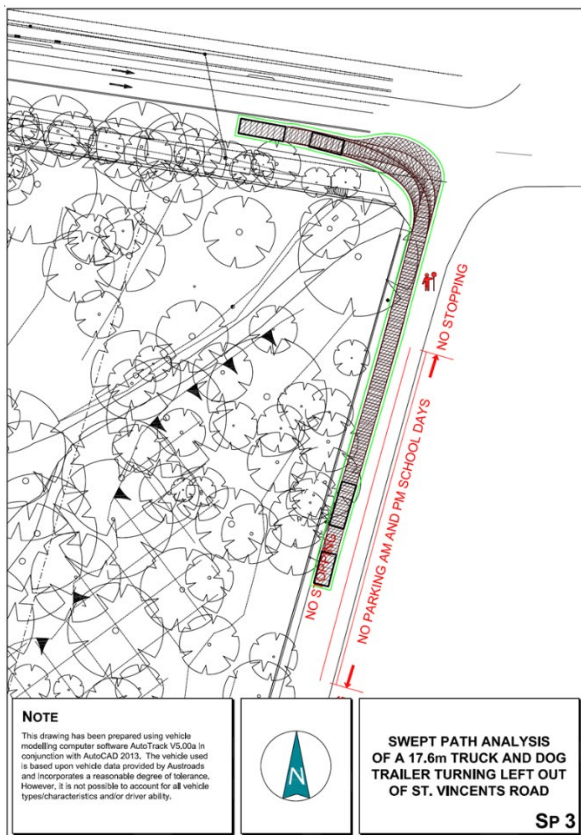


Figure 9 – Truck & Dog Right Turn St Vincents Road into Site Turn Path

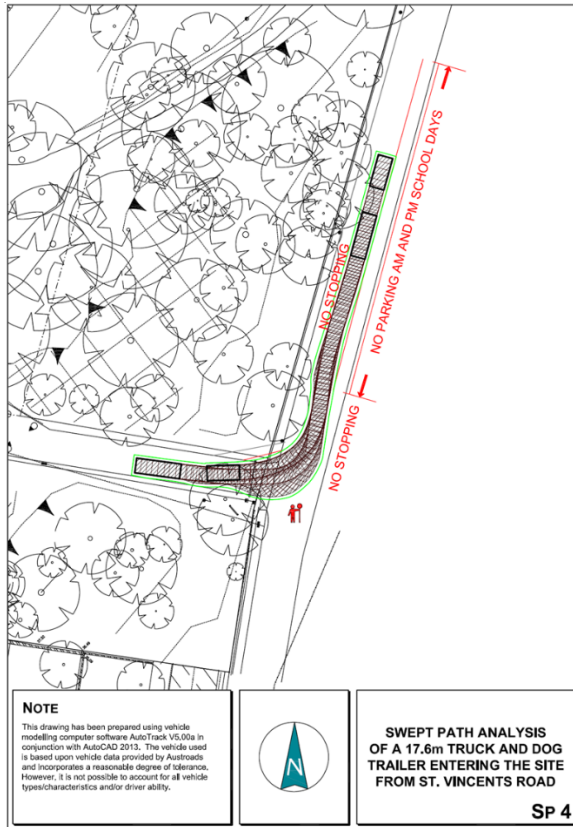
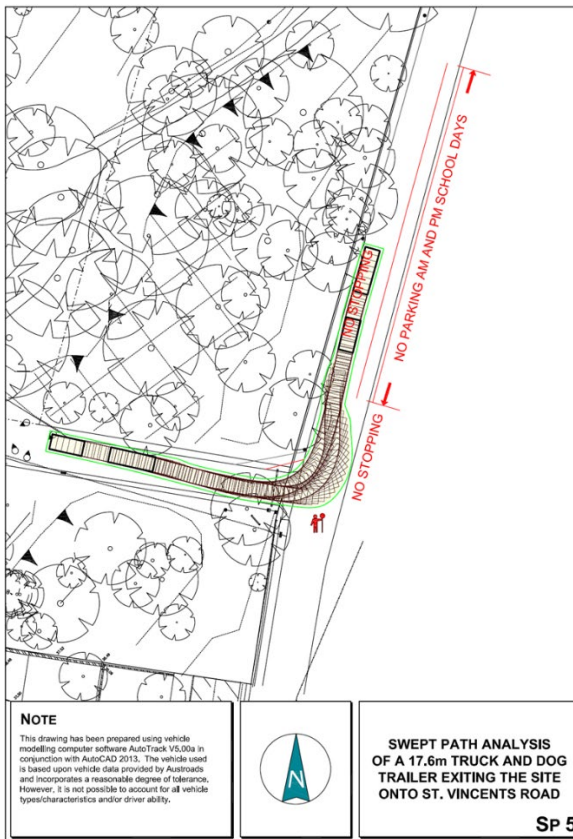
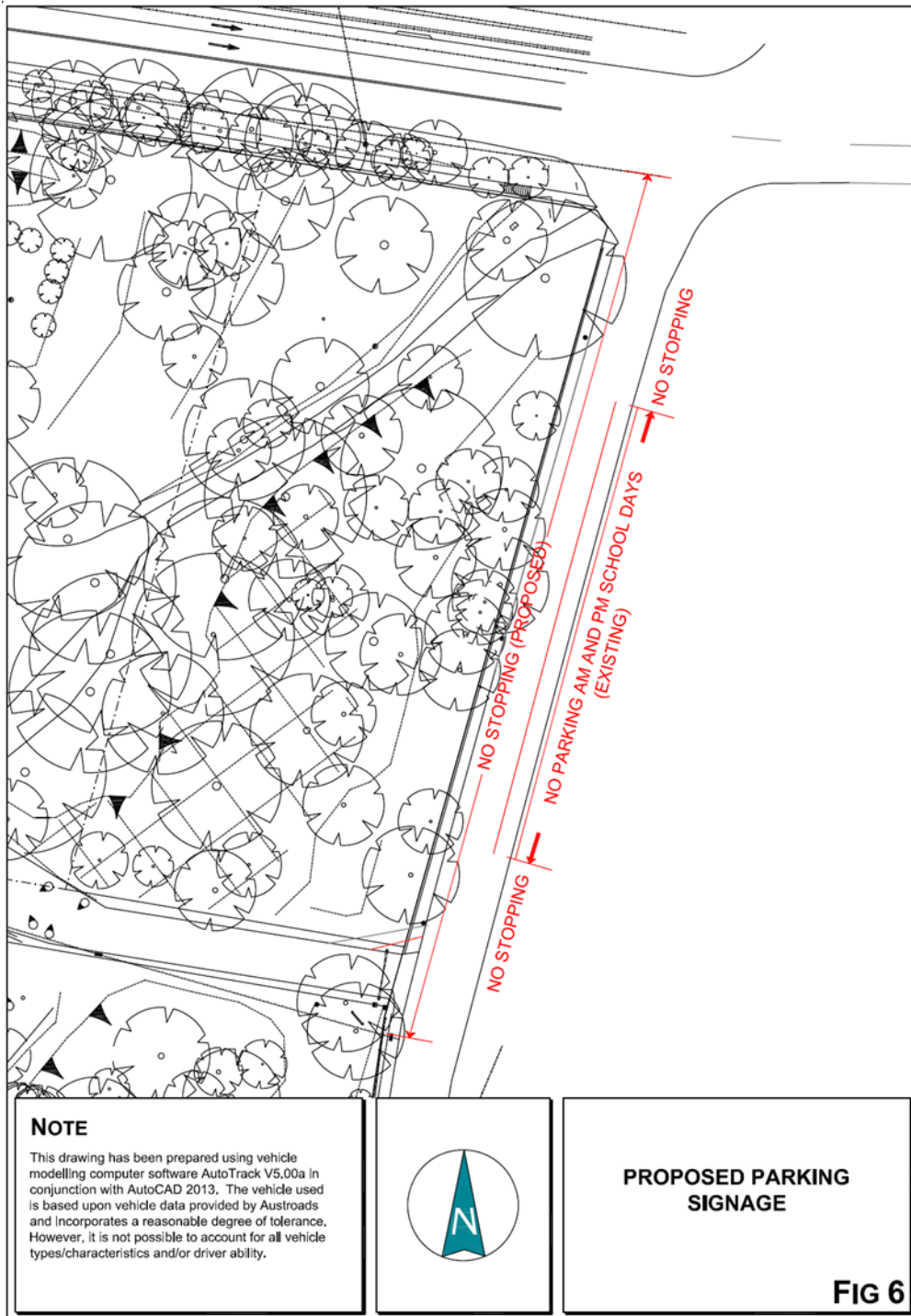


Figure 10 – Truck & Dog Left Turn Site into St Vincents Road Turn Path



It is also noted that a No Stopping zone is proposed along the western side of St Vincents Road between the access driveway to the site and River Road to provide greater width of trafficable pavement during construction. This is shown below in **Figure 11**.

**Figure 11 – No Stopping Zone Proposed Western Side of St Vincents Road During Construction**



**Figure 12 – Stage 2 Traffic Guidance Scheme St Vincents Road**

The following elements were not reviewed as part of this audit;

- Underground Utility plans and proposals;
- Geotechnical information and pavement specifications;
- Landscaping Design Specifications; and
- Street Lighting.

### 4.3 Reference Materials

The project was audited in accordance with both the Roads and Traffic Authority NSW (RTA) – TD 2003/RS03-V2 - Technical Direction for Road Safety Practitioners - Policy for road safety audits of construction and reconstruction projects (August 2005) and Austroads - GUIDE TO ROAD SAFETY - Part 6: Road Safety Audit (2009).

Other specific reference documents, papers, and manuals utilised during the course of the audit are detailed as follows: -

- RTA Road Design Guide - 2002
- RTA TD 2003/RS03-V2 (August 2005) - Technical Direction for Road Safety Practitioners - Policy for road safety audits of construction and reconstruction projects.
- AUSTRROADS - Guide to Road Design - Part 3 – Geometric Design
- AUSTRROADS - Guide to Road Design - Part 4: Intersections and Crossings – General
- AUSTRROADS - Guide to Road Design - Part 6A: Pedestrian and Cyclist Paths

- AUSTRROADS - Guide to Road Safety - Part 3: Speed Limits and Speed Management
- Australian Standards AS 1742 (Parts 1 and 2) - Manual of Uniform Traffic Control Devices
- Australian Standards AS 1428 – Access for Persons with Disabilities
- Australian Standards AS 2890.1 – Off Street Car Parking Facilities
- Australian Standards AS 2890.2 Parking Facilities for Commercial Vehicles

## 4.4 Road Safety Audit Program

### 4.4.1 Background

A Road Safety Audit is a series of formal checks of road and traffic works, both existing and future, in relation to their accident potential and safety performance. It is conducted by a team independent to the project to provide an independent and objective safety assessment. The purpose of this audit process is to pro-actively manage road safety by identifying and addressing risks associated with road safety deficiencies.

### 4.4.2 Audit Stage

This Pre Construction Road Safety Audit Report examined sub CTMP and CTMP reports as stated in Section 4.1 of this report prepared Transport and Traffic Planning Associates and Roberts Co respectively. The audit was undertaken in accordance with both the RTA – TD 2003/RS03-V2 - Technical Direction for Road Safety Practitioners - Policy for road safety audits of construction and reconstruction projects (August 2005) and Austroads – Guide to Road Safety - Part 6: Road Safety Audit (2009).

### 4.4.3 Audit Program

The audit focuses on a desktop audit of the proposed construction management arrangements in particular for Stages 1 and 2 where access via St Vincents Road is proposed. The audit was conducted by a Level 3 and Level 2 Accredited Road Safety Auditors, currently listed with the Register of Road Safety Auditors, NSW.

## 4.5 Audit Objectives

This road safety audit is limited in assessing potential road safety risks i.e. accident potential, for all users of the project, irrespective of the design standards adopted. The Road Safety Audit does not rate a project, check compliances with standards nor substitute for proper design checks. A Road Safety Audit does not specify details of corrective actions required in a design but may make specific recommendations for follow up by the design team.

The objectives of the audit are therefore to: -

- Identify and eliminate potential safety hazards for all road users likely to use the roadway, including traffic, pedestrians and cyclists.
- Ensure that measures to eliminate or reduce future safety problems are fully considered, prior to the roadwork commencing.
- Improve safety risks associated with the project and prevent the development of new accident locations.
- Make recommendations to remove or reduce identified road safety deficiencies.

- Provide a Risk Assessment rating of identified safety deficiencies that is a product of the likelihood of an accident occurring (probability/exposure) and the severity of the outcome should an accident occur.



## 4.6 Audit Process Summary

Audited Project:	Greenwich Hospital - Proposed Seniors Health Campus Pre Construction
Detail Design Drawings:	As detailed in Section <a href="#">4.1</a>
Audit For:	Hammond Care Pty Ltd
Project Manager: Positive Traffic Pty Ltd	Dean Brodie Phone: 0414 462247 <a href="mailto:Dean@positivetraffic.com.au">Dean@positivetraffic.com.au</a>
Audit Team:	Dean Brodie (Accredited Auditor Level 3) Audit ID: RSA-02-0606 Julius Boncato (Accredited Auditor Level 2) Audit ID: RSA-02-1420
Audit Type:	Pre Construction
Inspection Date:	23 October 2024 ( <a href="#">Appendix A</a> for Site Inspection Photos)
Audit Date:	24 October 2024
Completion Date:	12 November 2024

## 5. Audit Findings & Recommendations

### 5.1 General Comments

In response to the applicable condition of consent repeated below for reference:

*“a road safety audit of St Vincents Road and incorporate any measures required to address any identified safety concerns associated with construction vehicles accessing the site from this street.”*

Overall, construction vehicle access to / from St Vincents Road for Stages 1 and 2 of the project is considered a viable method of access which can be safely managed. The turning path assessments of the largest vehicle for construction, a truck and dog 17.6m long vehicle, at the intersection of River Road / St Vincents Road indicates no specific issues with safety. Sight distance in both directions for exiting traffic is satisfactory to the east and less so to the west.

However, exiting trucks would benefit from breaks in traffic flow generated by the traffic signals in River Road to the west of St Vincents Road.

The following provides areas of concern with the documentation which details the traffic management of St Vincents Road

### 5.2 Deficiency Log

The identified deficiencies noted in the signage and line marking drawings for the proposed access arrangements are tabulated below.

**Table 1 - Deficiency Log**

No.	Item	Description	Risk	Audit Team Assessment/Comment	Client Representative Comment
1.	Inconsistent CTMP / TGS Plans	Discrepancies in TGS and CTMP traffic management plans	Low	Consistency of information in particular placement of traffic controls and signage should be considered across all plans to avoid confusion	
2.	TGS Plan	Advisory signage for trucks turning around St Vincents Road intersection	Med	Consideration for expansion of TGS signage plan to include 'trucks turning' advisory signage for St Vincents Road / River Road intersection	
3.	Protection of pedestrians on south – west corner of St Vincents Road intersection	Provision of barrier separation of pedestrians using poor condition pathway on south – west corner of St Vincents Road intersection	High	Consideration for removable barriers to provide separation to pedestrians / large vehicles.	

No.	Item	Description	Risk	Audit Team Assessment/Comment	Client Representative Comment
4.	Driveway Access Grades	Existing steep grade of St Vincents Road access	High	Confirm suitability of driveway for large vehicle access having regard to existing steep grades and limited grade transitions	
5.	School Consultation	Plan of Management for School communications	Med	Consideration of an ongoing communications strategy for school parents / staff parking advisory of any changes to on-street parking availability and construction activities	
6.	Movement of large vehicles during school peak periods	Ambiguity of sub CTMP references to heavy vehicle access during school peak periods	High	Access by large heavy vehicles during school peak periods should be avoided in all instances	

## 6. Design Issues

### 6.1 Item 1 – Inconsistent CTMP / TGS Plans **LOW**

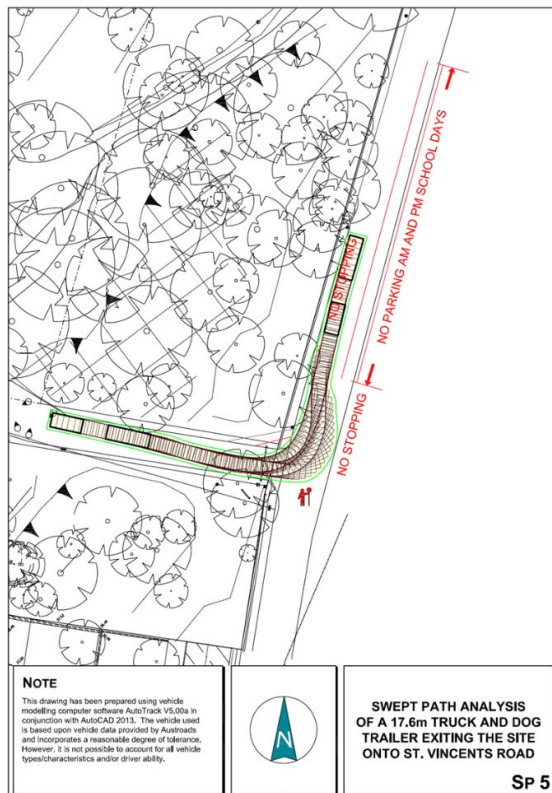
It is noted that the plans provided in the sub CTMP report and CTMP report do not match in terms of the placement of stop / go personnel during periods of access via St Vincents Road. In addition, all TGSs should be prepared in accordance with the latest AS 1742.3, TCAWS or Austroads. For example, the notes on the TGS reference sign spacing to be in accordance with AS 1742.3:2009. However, the latest version no longer mentions sign spacing.

As shown in **Figure 12** above, stop / go personnel are proposed at the driveway access and the intersection of St Vincents Road / River Road. However, in the plans provided the sub-CTMP report, these same personnel are shown either as a single person near the driveway access or two (2) personnel internally managing the steep driveway.

The provision of a stop / go person at the intersection of St Vincents Road / River Road is not ideal and would be near an environment of a high volume undulating road (River Road). It would also not be ideal to hold traffic in River Road given its topography.

The turn path assessment of a truck and dog vehicle exiting the access driveway shows the full width of St Vincents Road is required to exit the site of which the proposed temporary No Stopping zone on the western side of St Vincents Road would benefit large vehicle egress. The exit movement by large vehicles would benefit from provision of a stop / go person on the northern side of the access driveway. This is shown below.

**Figure 13 – Truck & Dog Left Turn Site into St Vincents Road Turn Path**



On the basis that stop / go personnel are present on both sides of the access driveway in St Vincents Road, the arrangements would be considered a safely manageable arrangement. Further, relevant advanced warning signs would be required for placement on approach to the traffic controllers.

### 6.2 Item 2 – TGS Plan - MED

During the period of Stage 1 / Stage 2 of construction where St Vincents Road would be utilised by large trucks, motorists would benefit from advisory signage in River Road and in St Vincents Road south of 'trucks turning'.

### 6.3 Item 3 – Protection of pedestrians on south – west corner of St Vincents Road intersection - HIGH

The desire line between the school and St Vincents Road is along the southern side of River Road and initially to the footpath on the western side of St Vincents Road. However, as the existing school peak No Parking zone promotes the kerbside as Kiss and Drop, students / parents seek to cross St Vincents Road at River Road to its eastern side which no facility is provided and safety is compromised with the increase in large turning vehicles.

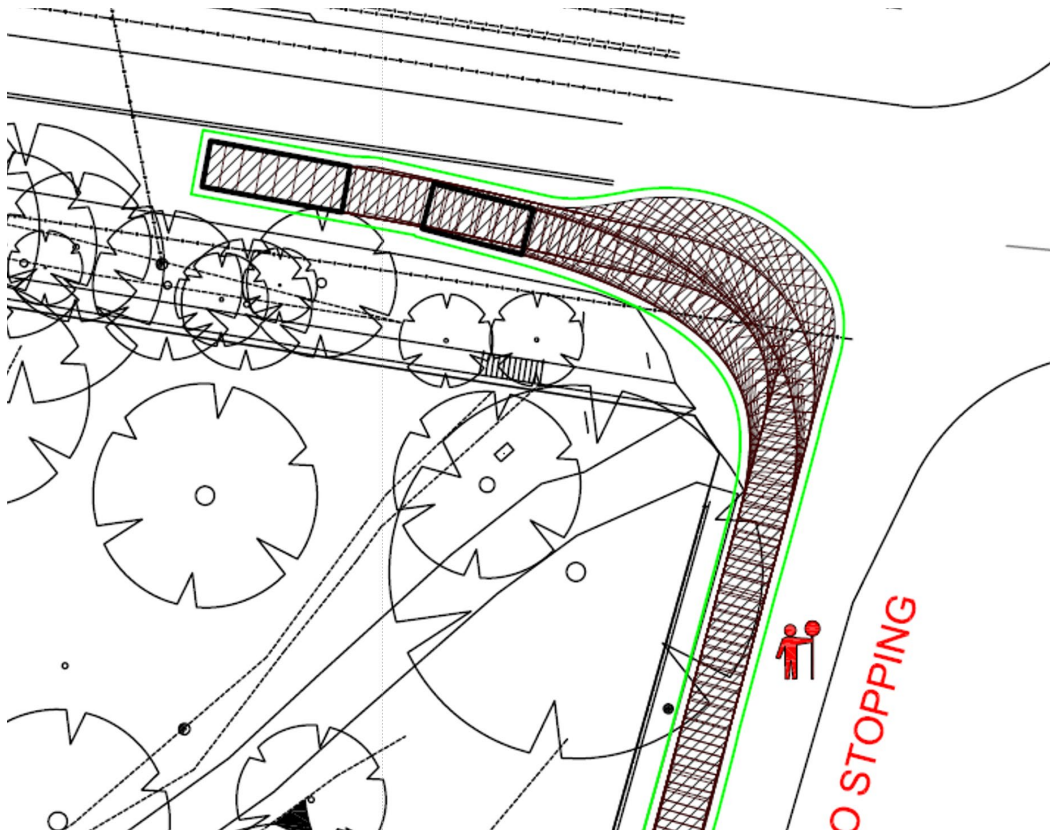
The poor condition footpath is shown below in [Photo 5](#).

**Photo 4 – Poor Condition Footpath – South / Western Corner of St Vincents Road Intersection with River Road**



The provision of a removal barrier (water filled barrier, barrier boards) around the bend on the western side of the intersection would prevent students / parents from crossing near the intersection and instead make their way to the safer crossing point in the form of the raised marked footcrossing to the south of the driveway access. As this would be controlled by stop / go personnel, the movement of pedestrians across the driveway access can also be managed safely.

Any barrier should be below driver height of 1.15m to avoid any restriction to sight lines for exiting traffic. The barrier would also provide a physical separation between pedestrians within this desire line and large left turning vehicles.



On the basis the truck movements do not occur during school peak times, there would be no trucks present along St Vincents Rd at the same time there are heightened school pedestrian movements.

#### 6.4 Item 4 – Driveway Access Grades - MED

The steep nature of the driveway access which is proposed for use by heavy laden large vehicles was noted to not include any grade transitions between St Vincents Road and into the site. This is shown below in [Photo 6](#).

**Photo 5 – Steep Driveway Access**

The deep groove brushed finish of the driveway also confirms its steep nature. That is, the maximise traction for vehicles in particular during inclement weather.

Consideration should be given for the temporary removal of the existing rubber speed hump at the base of the ramp to remove the potential for large heavy vehicles to loss traction with the pavement.

On the basis the driveway grade is known (sourced from the survey), confirmation with vehicle operators should be considered confirm the access driveway grade is suitable for heavy laden truck / dog vehicles during fine and inclement weather periods.

#### **6.5 Item 5 – School Communications Strategy - MED**

Given the role of St Vincents Road for parent vehicle parking and pedestrian students, the safety of both parents and students would benefit from an ongoing understanding of any changes to parking in St Vincents Road and construction activities and when they are to occur. Safe routes of travel should be considered as part of such types of communications.

#### 6.6 Item 6 – Access By Large Vehicles School Communications Strategy - HIGH

Given the role of St Vincents Road for the parking of parent vehicles and includes the direct all weather pathway connection to the school (via the River Road traffic signals), it would be prudent to ensure that no movement of heavy vehicles occurred during morning and afternoon school peak periods.

It is noted that the sub CTMP report stated the following on this matter:

*The access movement of heavy vehicles will be specifically minimised during the school arrival/departure times (8.00 am – 9.00 am and 2.30 pm – 3.30 pm) while the delivery/dispatch of any heavy plant will occur outside of normal commuter peak times. Any infrequent required access movements for semi-trailers (large structured components or machinery) will be subject to separate specific traffic management plans.*

To minimise risk to students and parents during morning and afternoon school peak periods (during the operation of the No Parking zone in St Vincents Road) that no heavy vehicle access is available via St Vincents Road.



## 7. Formal Statement & Sign Off

We, Dean Brodie and Julius Boncato declare that we have reviewed the material and data listed in this report, inspected the site and identified the safety and operational deficiencies noted. The team assessing these drawings are all accredited Road Safety Auditors.

We declare that the audit team have had no involvement, nor provided any input into the preparation of the sub CTMP or CTMP reports for the proposed redevelopment of the Greenwich Hospital.

It should be noted that while every effort has been made to identify potential safety hazards, no guarantee can be made that every deficiency has been identified. We recommend that the issues identified in the Deficiency Log be assessed, signed off and actions implemented, where considered necessary, by the design team prior to finalisation of the design drawings.

Signed:



**Dean Brodie**  
**Road Safety Auditor - Level 3**  
**Lead Auditor**  
**RMS Id: RSA-02-0606**  
**November 2024**  
**Positive Traffic Pty Ltd**



**Julius Boncato**  
**Road Safety Auditor – Level 2**  
**RMS Id: RSA- RSA-02-1420**  
**November 2024**  
**PDC Consultants Pty Ltd**

**Client Representative**

I have reviewed the material and data in this report, assessed the deficiencies noted, commented and discussed in conjunction with the Design Team. Corrective actions have been taken where required.

Signed:

Date:



## 8. Appendix A – Site Inspection Photographs



















# Appendix J Community Communication Strategy Plan – Construction to Operational Phase

H



# Greenwich Health Campus

Community Communication Strategy  
– Construction to operational phase



# 1. Document introduction

This Community Communication Strategy (CCS) has been developed to provide a framework for communications and engagement activities for the Greenwich Health Campus project during the project delivery phase and into operation. Hindmarsh Constructions will engage in construction activities on behalf of HammondCare. TSA Riley has been appointed project manager.

HammondCare, one of Australia's most innovative health and aged care providers, acknowledges the Greenwich Hospital site located at 95-115 River Road, Greenwich is a valuable community asset both for the care services provided and its leafy urban amenity. HammondCare understands there is an expectation from neighbouring residents, the broader community, Lane Cove Council and state and federal governments that construction work will be undertaken responsibly with intention to minimise impacts on the local neighbourhood and broader community.

HammondCare has been committed to best-practice community engagement and consultation, resulting in significant project modifications, since first engaging with the community on the Greenwich Health Campus proposal in 2017.

By informing and engaging with key stakeholders and the community throughout the construction phase of the project, HammondCare will ensure there is appropriate awareness and understanding of what work is being carried out and how it will be performed. We understand that keeping the community informed and involved wherever possible generally helps generate goodwill and should enable HammondCare to complete the work with minimal delays arising from stakeholder concerns or opposition. Where matters give rise to a complaint, HammondCare will seek to promptly resolve matters.

On March 28, 2024, the NSW Independent Planning Commission handed down its reasons for approving the Greenwich Hospital Redevelopment – Detailed Design and Concept Proposal Modification SSD-13619238 and SSD-8699 MOD 1. The Commission found the project is consistent with the existing strategic planning framework as it will provide healthcare for an ageing population and housing to support ageing in place. It also found the project was in accordance with the Environmental Planning and Assessment Act and is in the public interest.

Key issues identified by the IPC related to built form and urban design, sustainability, landscaping and the public domain, transport and traffic impacts, flooding and stormwater.

HammondCare notes that the Commission, when granting approval, has imposed conditions of consent to management and mitigate impacts, including requiring appropriate consultation with adjoining properties on noise and stormwater impacts, short-term noise monitoring, implementation of appropriate stormwater mitigation measures and ensuring appropriate levels of flood protection for the development throughout each stage of construction.

## 2. Objectives and aim of this CCS

The aim of this CCS is to provide an overall strategy and plan of how the Community and key Stakeholders are to be engaged throughout the construction phase of the Greenwich Health Campus. The objectives of this document are to:

- Provide background information on the Greenwich Health Campus and its associated stakeholder and communications management considerations;
- Outline the mechanisms to facilitate communication between the Applicant, Authorities and the community (including adjoining affected landowners and others directly impacted by the development) during the construction stage of the development and for a minimum 12 months following completion of construction;
- Identify key stakeholders, their known concerns and how they be engaged';
- Set out procedures and mechanisms through which the community can discuss or provide feedback to HammondCare; through which HammondCare can respond to enquiries or feedback from the community; and resolve any issues and mediate disputes that may arise in relation to construction and operation of the development, including disputes regarding notification or compensation;
- Identify general consent conditions for construction and operational noise, stormwater and flooding, landscaping, traffic and ecological sustainability: and,
- Be a live document that will be updated regularly as stakeholder, environmental and social issues and needs change throughout the Project.

## 3. Context:

HammondCare has a long-term vision to transform Greenwich Hospital from a dated, 1960s facility into an integrated, contemporary health campus capable of providing specialised care services.

This vision will assist HammondCare, an independent Christian charity with a proud history of providing quality care and supporting people in need for 91 years, fulfill our ambition to set the global standard for people with complex needs and to increase our care for those that others can't or won't.

Care services to be provided in the new Greenwich Healthcare Campus include:

- Palliative care
- Older persons mental health
- Rehabilitation
- Residential aged care
- Serviced seniors living
- GP & outpatient clinics
- 24/7 onsite care

There is no comparable integrated health campus in Northern Sydney.

The project involves demolition of the existing hospital building and associated facilities, construction of a new hospital facility and integrated health care uses and services including:

- A new main hospital building up to seven stories above ground level offering 130 beds
- Two new Serviced Seniors Living buildings up to six offering a total of 89 units
- A respite care building over 3 storeys
- Construction of associated site facilities and services such as pedestrian and vehicular access and basement car parking for 330 cars
- Site landscaping and infrastructure works
- Preservation of the heritage listed Pallister House which will continue to provide research and administrative functions

## 4. Conditions of Consent

The Commission has imposed conditions of consent to manage and mitigate impacts. More detail is included in the Independent Planning Commission's Statement of Reasons for Decision of 28 March 2024. Matters canvassed include the following:

**Construction noise:** Standard construction hours of 7:30am to 5.30pm Monday to Friday inclusive and Saturdays 8am to 1pm are a condition of the approval. No work will be carried out on Sundays or public holidays. Additional works can be done 1pm to 3.30 Saturdays if construction works achieve noise management levels for "Outside recommended standard hours" detailed in the Interim Construction Noise Guideline.

High noise generating activities including rock breaking, rock hammering, sheet piling, pile driving and other similar activities are limited to 9am to 12 pm and 2pm to 5pm Monday to Friday

A Construction Noise and Vibration Management Sub Plan will be required to ensure adequate engagement with adjoining residential receivers and adequate monitoring of noise impacts for each stage of development.

Construction methodology for excavation has not been determined. However, excavation will need to meet the noise management levels in the EPA's Interim Construction Noise Guideline and implement measures to manage high noise generating works. Community consultation will need to be undertaken where construction noise exceeds the highly noise and vibration affected level with short-term monitoring and a complaints management system needs to be put in place.

**Operational noise:** A Combined Operational, Demolition and Construction Waste Management Plan will restrict waste collection noise to between 7am to 7pm for waste collection. Waste collection will be relocated to the basement loading dock, providing improved noise outcomes compared to the present at-grade location.

**Flooding and stormwater:** As the site is mapped as flood affected, there is a requirement for a Construction Flood Emergency Response Sub-Plan to outline emergency responses for the construction phases of the development, available onsite during construction at all times.

During operation of the development, a Flood Emergency Response Plan is required to provide guidance on flood risks, including predicted flood levels, flood warning time and notification, assembly points, evacuation routes and intended evacuation and refuge protocols.

All entrances to the buildings and habitable levels must be above the 1 per cent AEP level and buildings must be designed to withstand the impact of floods up to and including the PMF events.

A Construction Soil and Water Management Sub-plan will be developed after consultation with adjoining landowners, and there should be mechanisms to facilitate communication between HammondCare and adjoining affected landowners during construction to ensure no overland flow impacts are experienced on adjoining properties.

A Water Management Plan is required that provides mechanisms for neighbouring landowners to communicate with the Applicant on stormwater and overland flow matters during operation of the development, as well as requiring applicants to implement permanent measures if stormwater runoff or overland flow impacts are identified on adjoining properties.

**Traffic impacts:** The Commission is satisfied the project will not have unacceptable traffic impacts on the existing road network. The eastern River Road entrance was designed in consultation with Greenwich Public School and there are no changes to the existing access arrangements or the driveway at St Vincents Road.

HammondCare is required to undertake a Road Safety Audit to assess the suitability of the St Vincents Road access during construction.

A Construction Traffic and Pedestrian Management Sub-plan will be prepared to ensure safety and efficiency of the road network.

**Public transport:** A Green Travel Plan is required to detail measures to reduce private vehicle usage, including the provision of a free shuttle bus to local retail centres and public transport nodes. The plan needs to address lack of public bus transport past the site on Sundays

**Landscaping:** The proposed plantings of more than 86 trees, and at a ratio of greater than 1:1 to existing tree numbers, meets the requirements of the Concept Approval. There was also approval that 46 per cent of the property would be deep soil.

The Commission was satisfied with the benefits of co-locating proposed PV solar panels and green roof as a sustainability measure.

A revised Landscape Plan is required for the bush regeneration areas that requires the location, species, maturity at time of planting should be devised. There is also a requirement that endemic species be included.

**Asset Protection Zone:** The Commission is satisfied that the revised Asset Protection Zone (APZ) is satisfactory as the tree canopy cover is limited to 15 per cent of the Inner Protection Zone.

The revised APZ area, including cover extended to an area of cleared and managed land between the formerly proposed APZ and the adjoining property to the south, will be designed and constructed in accordance with Appendix 4 of Planning for Bushfire Protection 2019. An update is required of the Vegetation Management plan to include planting details, APZ measures and vegetation protocols for the remainder of the site as a condition of consent.

**Ecologically sustainable development:** There is a requirement that the main hospital building, and respite building achieve a minimum 4-star Green Star rating (or equivalent) through an alternative certification process. While the seniors housing buildings are not subject to Green Star rating certification, it must meet BASIX standards and be in compliance with Section J of the NCC.

## 5. Previous engagement

This Community Consultation Plan acknowledges there has been strong interest in the Greenwich Hospital Redevelopment among the local community, especially among residents immediately surrounding the site, since it was first envisaged in 2017 through the progressive stages of approval through SEARS, Concept Approval and Detailed Design.

Throughout this process through to the Detailed Design and Concept Proposal Modification approval in March 2024, HammondCare has engaged in best-practice community engagement and consultation, with a commitment to be responsive to feedback. This has resulted in significant project modifications such as:

- Minimising visual impact on neighbours and the heritage-protected Pallister House
- Reduction in bulk and scale of serviced seniors living buildings
- Protection of tree canopy through greater retention and commitment to revegetation
- Undergrounding car parking to maximise greenspace and ground level connectivity

Previous consultation has featured public drop-in events at Pallister House for one-on-one community interaction plus face-to-face meetings and briefings with Lane Cove Council, state and federal MPs, Greenwich Public School representatives and local community groups. There have been letterboxed newsletters to more than 1500 homes, a project website, a hotline and inbox. There has been media releases with coverage in the North Shore Times, In the Cove local news website sector media and a feature news story on Nine News, Sydney.

There have also been a number of one-on-one meetings with neighbours to address specific concerns, including stormwater run-off and site traffic movements.

## 6. Timelines

This Community Consultation Plan acknowledges there has been strong interest in the Greenwich Hospital Redevelopment among the local community, especially among residents immediately surrounding the site, since it was first envisaged in 2017 through the progressive stages of approval through SEARS, Concept Approval and Detailed Design.

This consultation strategy applies cross the construction and implementation period. Modifications to this timeline may arise as construction methodology is confirmed and lack of certainty in sub-contractor and building materials availability arising from heated local development conditions.

The present timelines are the following:

**Stage 1** – November 2024 to November 2025: Enabling works.

**Stage 2** – December 2025 to January 2028: Health and Community Services building.

**Stage 3** – January 2025 to May 2029. Seniors Living buildings.

**Stage 4** – May 2029 to July 2030. Respite building.

## 7. Engagement tools

For the construction phase and beyond, HammondCare will continue to engage with the community and specific stakeholders in the following way:

## Engagement

Tool	Description	Purpose
<p><b>Information line – use existing</b></p> <p><b>1300 426 666</b></p>	<p>Dedicated project information line managed by HammondCare.</p>	<p>Promoted on all communications to be accessible and maintain open lines of communication.</p>
<p><b>Email address – use existing</b></p> <p><b>AskGreenwich@hammond.com.au</b></p>	<p>Dedicated project email account managed by HammondCare.</p>	<p>Project-specific email address on newsletter, encouraging community members to email should they want to be involved in the process and have their say.</p> <p>Quick and easy way to contact the project team if want to report any issues or ask questions.</p>
<p><b>Information session</b></p>	<p>If required, convene local community and interested stakeholders to provide an update on project progress, design changes and invite further feedback.</p>	<p>Continuation of feedback loop by sharing how previous community feedback has been adopted (or where it hasn't, why and articulate what the project constraints are).</p>
<p><b>Briefings</b></p>	<p>If required, provide update on project to Council, Elected Members and Members of Parliament. Discuss constituent feedback on project.</p>	<p>Opportunity to discuss constituent views and attitudes toward the development, how the project fits in with local policy and initiatives.</p>
<p><b>Face-to-face meetings with local action groups</b></p>	<p>If required, discussions with key stakeholder groups to address specific issues which require additional time outside of the information sessions (meetings or doorknocking).</p>	<p>Ongoing relationship management.</p>

## Supporting communications

Tool	Description	Purpose
<b>Newsletter</b>	<p>Distributed to 1,800 addresses per previous communications.</p> <p>Provide copies to Council reception and Electorate Offices to respond to queries about project or information session.</p>	<p>Initially to be distributed when enabling works commence. Then regular project updates at six monthly intervals, or as required, including details of AskGreenwich inbox and 1300 426 666 hotline. AskGreenwich and hotline will be monitored by Sally Grosvenor and Kelvin Bissett</p>
<b>Project website</b>	<p>Source of truth for project</p>	<p>Provides factual information on project, regularly updated. Details of AskGreenwich inbox and 1300 426 666 hotline. AskGreenwich and hotline will be monitored by Sally Grosvenor and Kelvin Bissett</p>
<b>Visual presentation</b>	<p>Powerpoint presentation to illustrate project for briefings and one-on-one sessions</p>	<p>Communicates in visual form project and benefits</p>
<b>Social Media</b>	<p>Monitor social media (Facebook, Twitter, etc.)</p>	<p>Identify any issues raised via social media and provide timely responses as needed. Details of AskGreenwich inbox and 1300 426 666 hotline. AskGreenwich and hotline will be monitored by Sally Grosvenor and Kelvin Bissett</p>
<b>Media release</b>	<p>Communicate to media</p>	<p>Discussion of latest key messages. Details of AskGreenwich inbox and 1300 426 666 hotline. AskGreenwich and hotline will be monitored by Sally Grosvenor and Kelvin Bissett</p>
<b>Information boards</b>	<p>Developed for staff, patients and volunteers</p>	<p>Communicate project updates. Details of AskGreenwich inbox and 1300 426 666 hotline. AskGreenwich and hotline will be monitored by Sally Grosvenor and Kelvin Bissett</p>
<b>Sod turn, opening event</b>	<p>Developed for staff, patients and volunteers</p>	<p>Communicate project updates</p>
<b>Communication tools</b>	<p>Developed as needed.</p>	<p>Well-designed communications, maps and/or infographics to help better communicate project updates</p>

## 8. Key stakeholders

This consultation plan identifies the following stakeholders and their key interests/ concerns at the construction phase of the project:

### Government

Stakeholders	Key interests/issues	Engagement tool
<b>Kylea Tink MP, Federal Member for North Sydney</b>	Project falls within electorate	Newsletter Briefing if desired
<b>Hon Anthony Roberts MP, State Member for Lane Cove</b>	Project falls within electorate	Newsletter Briefing if desired
<b>Lane Cove Council and Elected Members</b>	Project falls within Council boundary  Opposed approval  Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletter Briefing if desired
<b>Lane Cove Council Director – Planning and Sustainability – Mark Brisby</b>	Planning, design changes  Key point of contact to advise on engagement with Council committee(s)	Newsletter Briefing if desired

## Local community/action groups

Stakeholders	Key interests/issues	Engagement tool
<b>Greenwich Community Association</b>	Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage /traffic	Newsletters Hotline Information line Website One-on-one meetings
<b>Greenwich Public School Parent's and Citizens Association</b>	Site neighbour interested in safety, relationship with school, project opportunities (café)	Newsletters Hotline Information line Website One-on-one meetings if requested
<b>Greenwich St Leonards (GSL) Action Group</b>	Opposed approval Unknown if still operational Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletters Hotline Information line Website One-on-one meetings if requested
<b>Lane Cove Bushland and Conservation Society</b>	Interest in vegetation /tree canopy/heritage	Newsletters Hotline Information line Website One-on-one meetings if requested
<b>Lane Cove North Residents Association</b>	Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletters Hotline Information line Website One-on-one meetings if requested

<b>Longueville Residents Association</b>	Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletters Hotline Information line Website One-on-one meetings if requested
<b>Northwood Action Group</b>	Opposed approval Strong focus on visual amenity from Northwood, also tree canopy	Newsletters Hotline Information line Website One-on-one meetings if requested

**Within HammondCare**

<b>Stakeholders</b>	<b>Key interests/issues</b>	<b>Engagement tool</b>
<b>Greenwich Hospital staff</b>	Job uncertainties Staging Parking and public transport	Briefings Staff email Workplace Information boards Website
<b>Greenwich Hospital patients</b>	Staging Construction impacts on services	Briefings Information boards Website
<b>Greenwich Hospital volunteers</b>	Staging Construction impact on services Parking and public transport	Briefings Email Information boards Website

## Other

Stakeholders	Key interests/issues	Engagement tool
<b>Greenwich Public School</b>	Site neighbour Accessibility, construction impacts	Newsletters Hotline Information line Website One-on-one meetings if requested
<b>Lane Cove Chamber of Commerce</b>	Business impacts and opportunities	Newsletters Hotline Information line Website One-on-one meetings
<b>Heritage Council of NSW</b>	Heritage preservation, specifically as it relates to Pallister House	Newsletters Hotline Information line Briefing if requested
<b>Immediate neighbouring residences in Greenwich</b>	Visual impact and sightlines, construction impacts including noise, vegetation (including screening), stormwater runoff and erosion	Newsletters Hotline Information line One-on-one meetings
<b>Broader Greenwich / Lane Cove / North Sydney communities</b>	Users / future users of health care provision at Greenwich site, accessing health care and/or residential care services	Hotline Information line One-on-one meetings if requested Media release
<b>Media, including In the Cove, North Shore Times, Sydney Morning Herald and Daily Telegraph</b>	Communication of key milestones to wider community	Media release

Other stakeholders identified for consideration are:

- Traditional Owners with an interest into the significance of the Greenwich site and connection to country. Specifically, the Cammeraygal people – traditional owners of the North Sydney area or representative body
- Greenwich Senior Citizens Association
- Lane Cove Senior Citizens Club
- Dementia Australia
- North Sydney Local Health Network

## 9. Complaints management

During project delivery, a complaint is defined as in regard to construction impacts including safety, dust, noise, traffic, congestion, loss of amenity, hours of work, property damage, property access, service disruption, conduct or behaviour of construction workers, or other environmental impacts, unplanned or uncommunicated disruptions.

As noted above, the primary means to receive feedback from the community will be the AskGreenwich@hammond.com.au inbox or the 1300 426666 information line. These two means of communication have been in place through other phases of the project's approval process. Complaints may also be communicated verbally to Greenwich Council or to the Hindmarsh construction team.

Both the AskGreenwich@hammond.com.au inbox and the 1300 426666 information line mechanisms will be clearly stated on the project website, in all newsletters or other project updates.

In the first instance, complaints received will be managed by a HammondCare Marketing representative with TSA being informed for prompt resolution of the project-related matter. The HammondCare Property and Capital Works team will similarly be informed.

Where matters remain unresolved within seven days, the matter will be escalated to a representative of the HammondCare General Manager Independent Living, Property and Homelessness . This HammondCare representative will also decide whether rectification and/or compensation may be needed where circumstances warrant.

As outlined in 8. Engagement Tools, there is scope for one-on-one meetings with either individuals or community groups to resolve conflicts on site. Alternatively, there can also be opportunities for briefings ahead of time.

An ongoing register of complaints will be maintained through the construction phase by a HammondCare Marketing representative. This register will record date and time complaint received, name of complainant (if known), nature of complaint, and how the matter was resolved.

Last Review Date:

Owner:

Portfolio Responsible:

Version: 1.0



## ADELAIDE

Level 6, 45 Grenfell Street  
Adelaide  
SA 5000  
T +61 8 8228 4188  
F +61 02 6247 8898  
sa@hindmarsh.com.au

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## CANBERRA

Level 1, 41/65 Constitution Avenue Campbell  
ACT 2612  
T +61 2 6129 1500  
F +61 2 6247 8898  
act@hindmarsh.com.au

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## SYDNEY

Suite 2, Level 27  
100 Miller Street  
North Sydney NSW 2060  
T +61 2 9274 1100  
F +61 2 6247 8898  
nsw@hindmarsh.com.au