

HINDMARSH

Construction Environmental Management Plan (CEMP)

Greenwich Hospital Redevelopment

HammondCare | Revision C

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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

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

Company Name:	Hindmarsh Construction Australia Pty Ltd
ABN	15 126 578 176
Project:	Greenwich Hospital Redevelopment
Project No:	TBC
Address:	97-115 River Road, Greenwich, NSW
Client:	Hammond Care
Contract:	Modified AS4902-2000
Project Description:	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. 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: • Stage 1 – Early works and external works; • Stage 2 – New Hospital Buildings; • Stage 3 – Two new Seniors Living buildings; • Stage 4 – New Respite Care buildings;
Anticipated Start and Duration:	Stage 1 early works is proposed to commence January 2025, with completion by November 2025 Stages 2-4 TBC

SSDA 13619238 Condition C13 Requirements addressd in this plan:-

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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 propsed 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)

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 Pedestrain 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)*

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*.

Project Specific additional environmental and or sustainability objectives and targets are to be confirmed prior to the commencement of stage 2.

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	Zero environmental incidents reported to the regulator	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	Zero Environmental Complaints	Project Manager	Monthly Report	Monthly
Environmental Incidents	Zero environmental incidents reported to the regulator	Project Manager	Monthly 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.

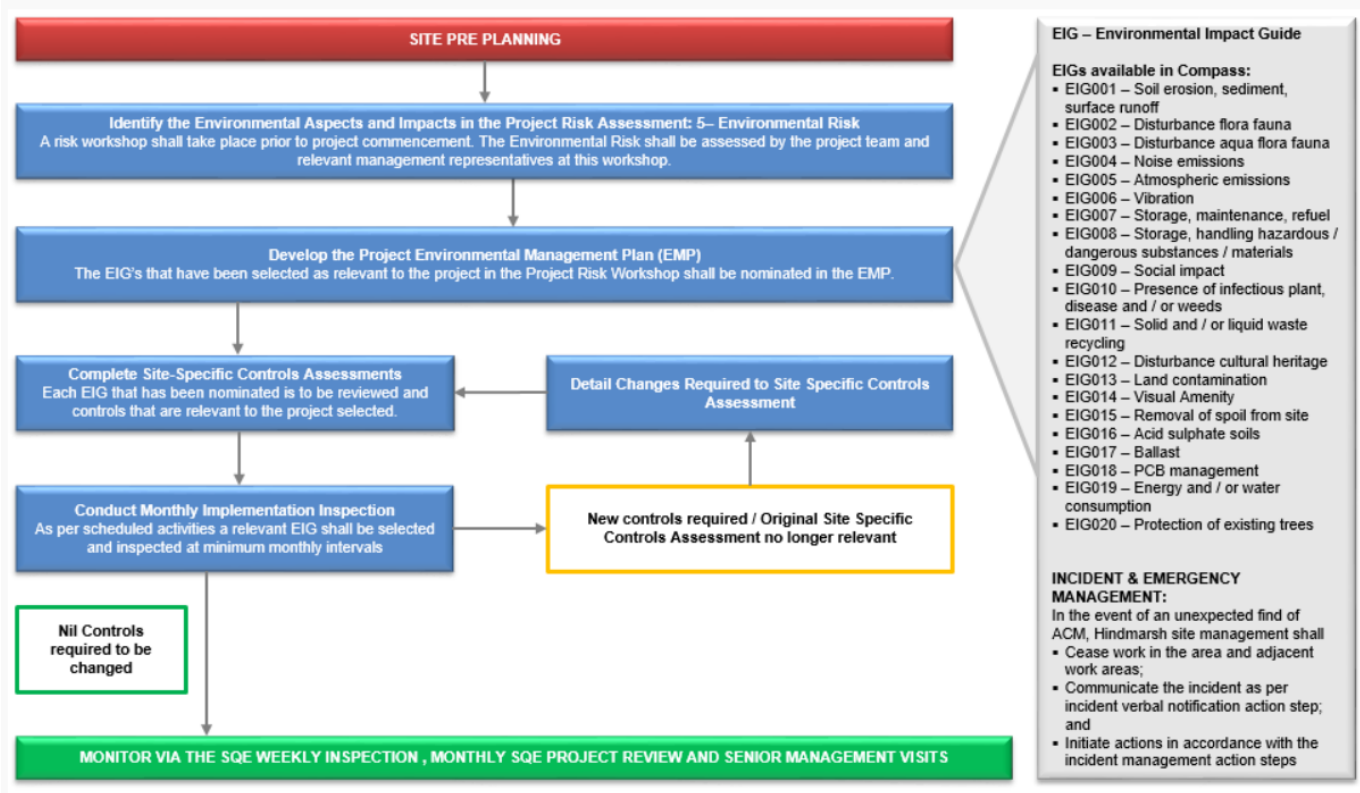
The *Project Risk Assessment* takes into account identified hazards (aspects) and impacts which are relevant to the project. The Project team has reviewed all available information (i.e., risk assessments, consultant reports, advice, papers, scope of works etc) to ensure the Project Risk Assessment accommodates 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
EIF015- Removal of Spoil from site
~~*EIG016- Acid Sulphate Soils*~~
EIG017- Ballast

EIG018- PCB Management
EIG019- Energy and or Water Consumption
EIG020- Protection of Existing Trees

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 – Via online Notification of Incident form	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:

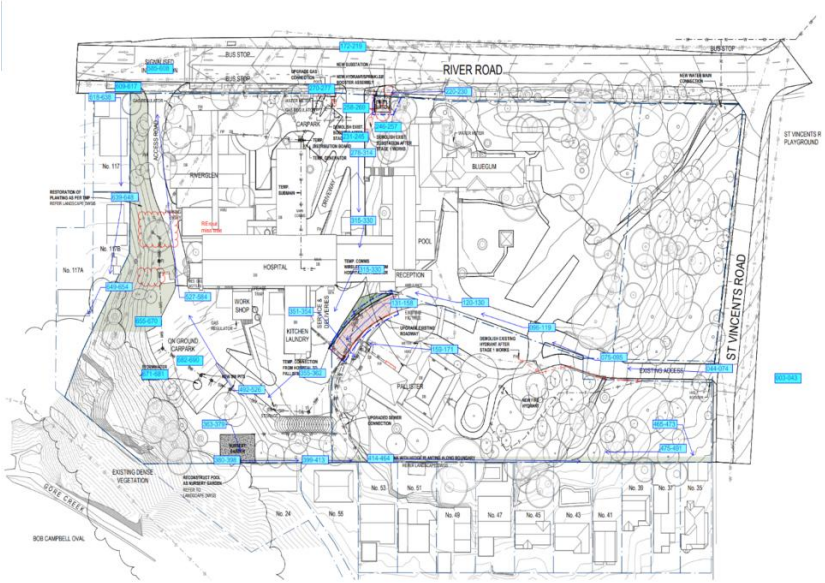
Arrangements may include one or more of the following:

- 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.



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

General

Subject	Action	Recipient	Frequency
CEMP	Project Manager	Internal	Quarterly
Environmental CAR	Team	Project Manager	As required
Audit	National SQE Manager	Project Manager	Notify 5 days prior

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Environmental performance	National SQE Manager	State Manager Construction	As scheduled via Internal Audit

Meetings

Type	Chair	Attendees	Frequency
Key Stakeholder Meeting	Project Manager	TBA	Weekly to Fortnightly
Toolbox Meetings	Site Manager	As Required	Weekly
Daily Prestart Meetings	Subcontractor Reps	As Required	As Required

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: • Performance Targets and Measurements • Contact and Service Provider Information	Project Manager	Permanent
	Site Diary – Site Manager / Foreman 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 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 dockets 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

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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.

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 Pedestrain 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:

- 3m3 food waste bin (collected weekly)
- 240L cardboard and paper recycling bin (collected fortnightly)
- 1,5m3 general site waste bins
- 10m3 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 and aditional mitigation measures updated accordingly based on conditions at the time.

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

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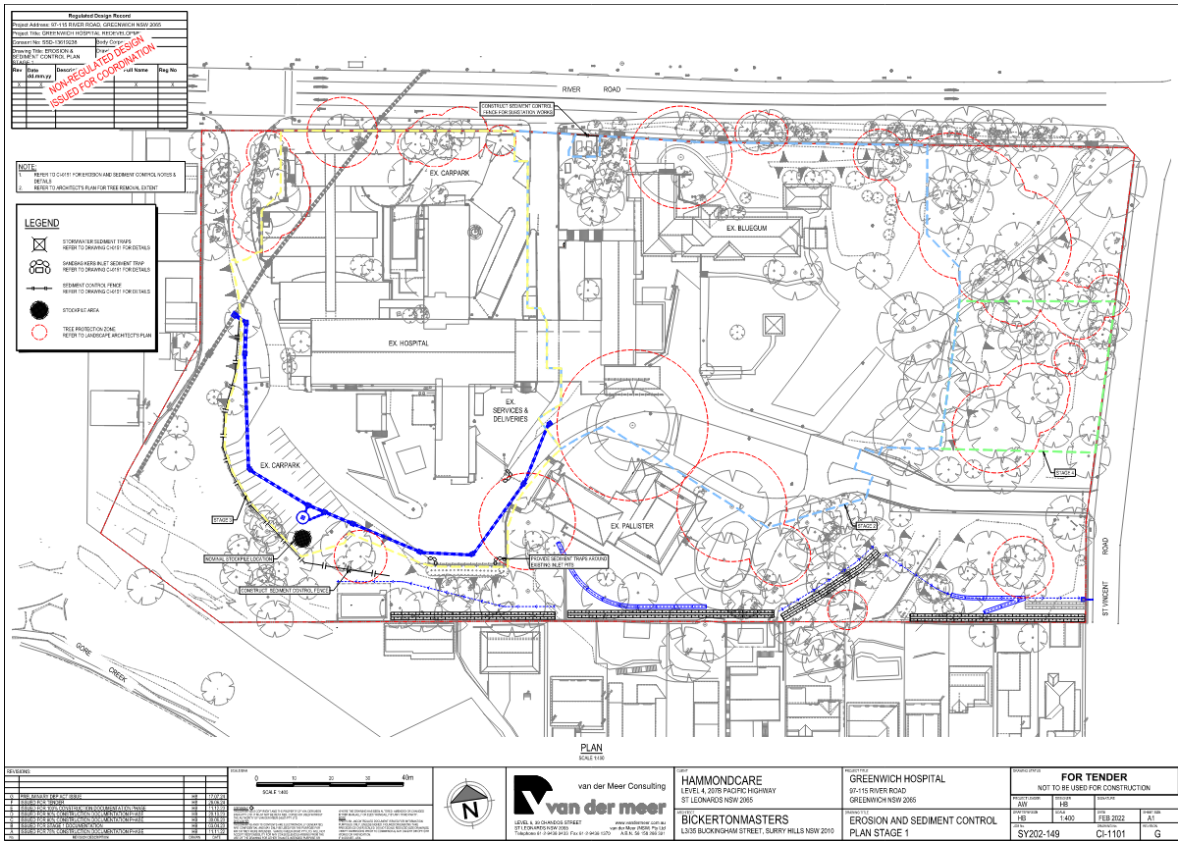
Appendix B – Environmental Features and Controls Layout



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

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Ref: 20352
Date: November 2024
Issue: D





Greenwich Hospital
Proposed Seniors Health Campus
River Road, Greenwich

Construction Traffic and Pesdestrian Sub-Management Plan

Transport and Traffic Planning Associates

Suite 604, Level 6, 10 Help Street
Chatswood NSW 2067
T (02) 9411 5660 **|** **E** info@ttpa.com.au
W ttpa.com.au

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1.0 Introduction

A Development Application (SSD-13619238) has been approved by the Department of Planning for demolition of existing hospital buildings and the staged construction of new hospital facilities with integrated healthcare uses at 97-115 River Road, Greenwich (Figure 1).

This report has been prepared in satisfaction of Consent Condition N° C15 of which requires submission of a Construction Traffic Management Plan as part of the Construction Certificate documentation.

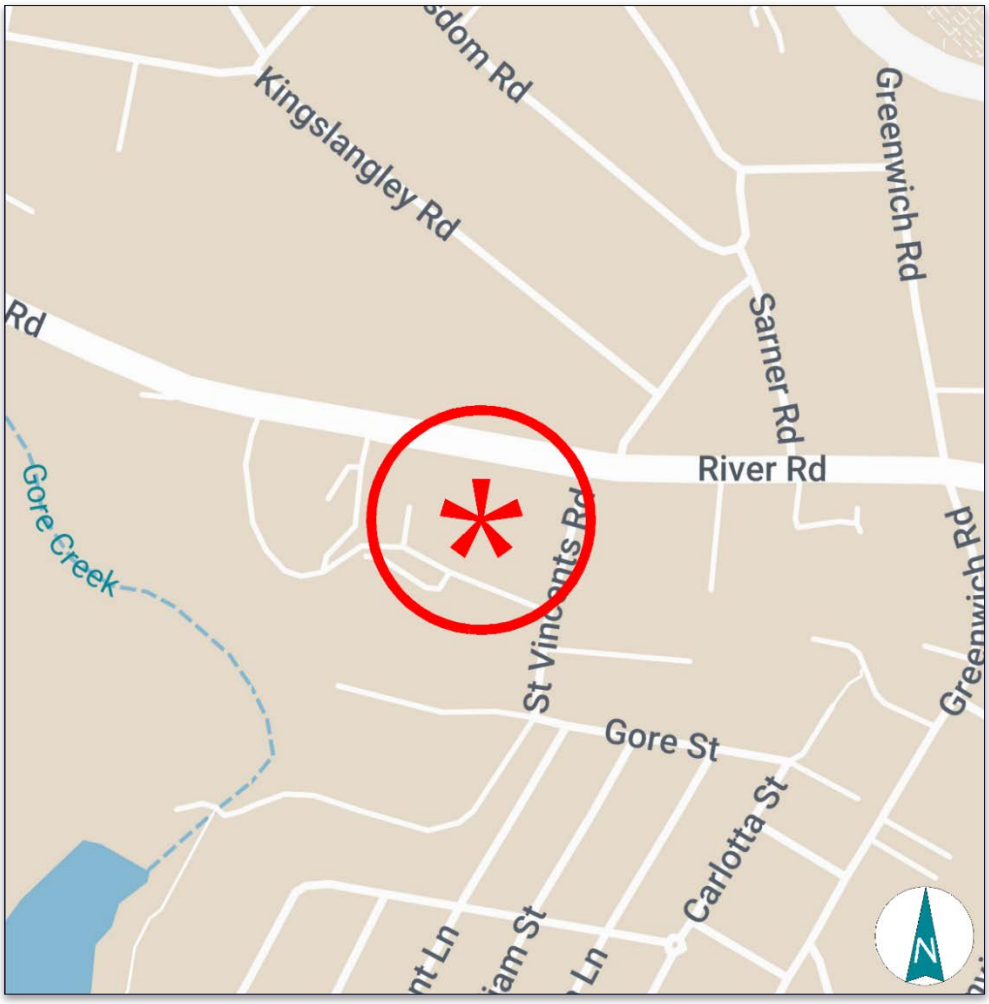


Figure 1 - Site Location

2.0 Proposed Development Scheme

2.1 Site, Context & Existing Circumstances

The Greenwich Hospital site (Figure 2) is a consolidation of Lots 3 & 4 in DP584287 which occupies an irregular shaped area of some 3.37ha located on the southern side of River Road adjacent to Gore Creek Reserve.



Figure 2 - Site Boundary

The surrounding landuses comprise medium/large single dwelling residential properties while other significant uses in the vicinity include:

- Greenwich Public School which is situated directly opposite the site on the northern side of River Road
- Lane Cove Country (Golf) Club located a short distance to the west of the site.
- Royal North Shore Hospital Precinct located to the north-east of the site.

The 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 various services provided by the Hospital are located in a number of buildings erected in a fragmented fashion throughout the site.

The Hospital has 74 beds and staff are rostered on over 3 shifts per day with a maximum day of 26 specialists and 75 staff. There are also:

- a hydrotherapy pool also available for outpatients
- outpatient palliative care
- overnight respite

Carparking is located throughout the site with a total of some 150 spaces.

Vehicle access comprises, a traffic signal controlled entry/exit connection to River Road at the western site boundary, a combined entry/exit driveway on St Vincents Road and another access driveway on River Road towards the centre of the frontage.

Details of the existing site development are provided on the plan in Appendix A.

2.2 Proposed Development

The approved development involves a 4 stage process which will permit the existing Hospital activities to continue to function throughout the construction processes. The proposed development stages which are incorporated in this CTMP comprise:

Stage 1	**Early Works** Early and Infrastructure works
Stage 2	**Main Hospital Building** Demolition of eastern wing of existing hospital, demolition of Bluegum Lodge and Construction of the new Hospital building
Stage 3	**Seniors Living (shown in the Appendix E plans as Stages 3&4)** Demolition of the remaining existing Hospital building and Riverglen and construction of the new Seniors Living buildings

Stage 4 which involves the contruction of a respite building is not being undertaken as part of the current works.

The completed development will comprise:

- 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.

Details of the approved development scheme are provided on the plans prepared by Bickerton Masters which are reproduced in part in Appendix B.

3.0 Road Network and Traffic Conditions

3.1 Road Network

The road network serving the site (Figure 3) comprises:

- *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 between Longueville and Crows Nest
- *Greenwich Road* – collector route which links to the Pacific Highway
- *St Vincents Road* – a local access road which connects across River Road

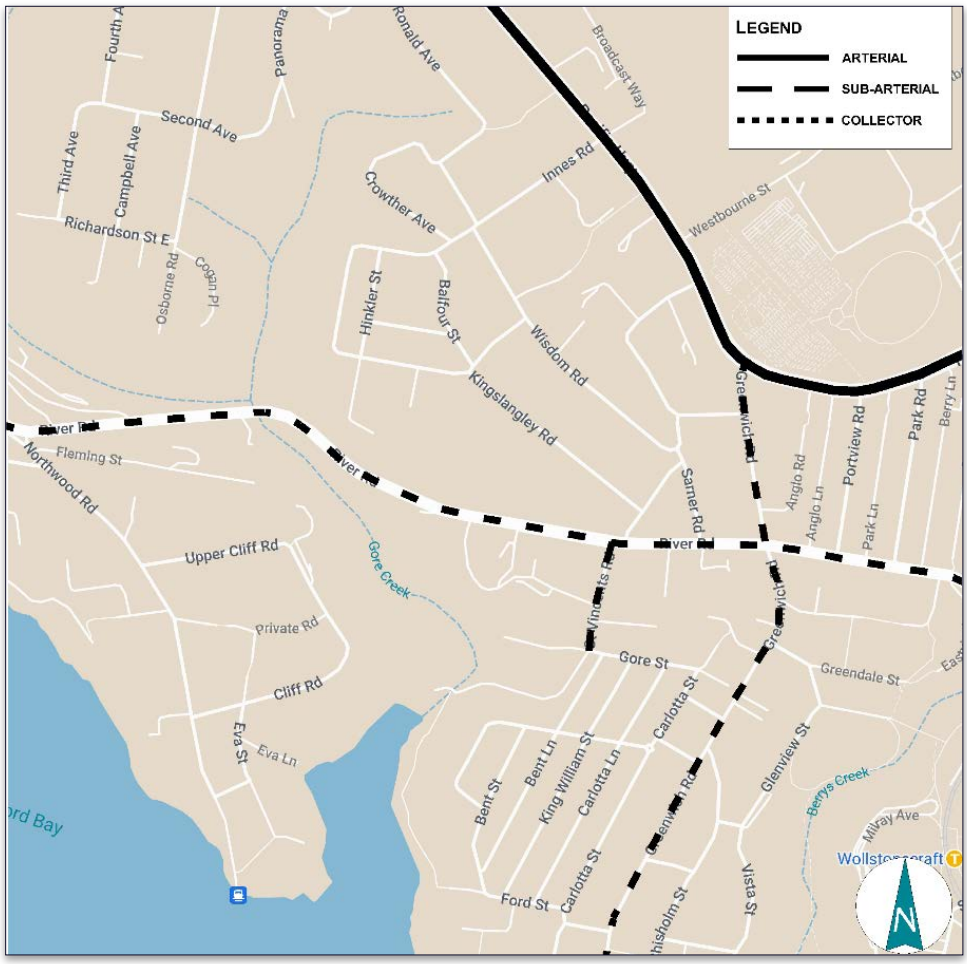


Figure 3 - Road Network

3.2 Traffic Controls

The traffic controls which have been applied to the road system in the vicinity of the site (Figure 4) comprise:

- the traffic signals at the River Road/Greenwich Road and Pacific Highway/Greenwich Road intersections
- the traffic signals on River Road at the main Hospital access (see details overleaf)
- the 50 kmph speed limit on St Vincents Road and River Road where there is a section of 40 kmph School Speed Zone in the vicinity of the Public School
- the GIVEWAY signage at the River Road and St Vincents Road intersection and pedestrian crossing over the northern side of St Vincents Road
- the BUS ZONES (with shelters) on each side of River Road adjacent to traffic signal controlled access and at St Vincents Road
- the "light traffic" restriction for vehicles travelling southerly from River Road along St Vincents Road however, this does not apply to vehicles accessing the hospital site due to the provisions of the Road Rules.



Figure 4 - Traffic Controls

2070.254.VV.2337

DATE IN SERVICE : 24/6/82

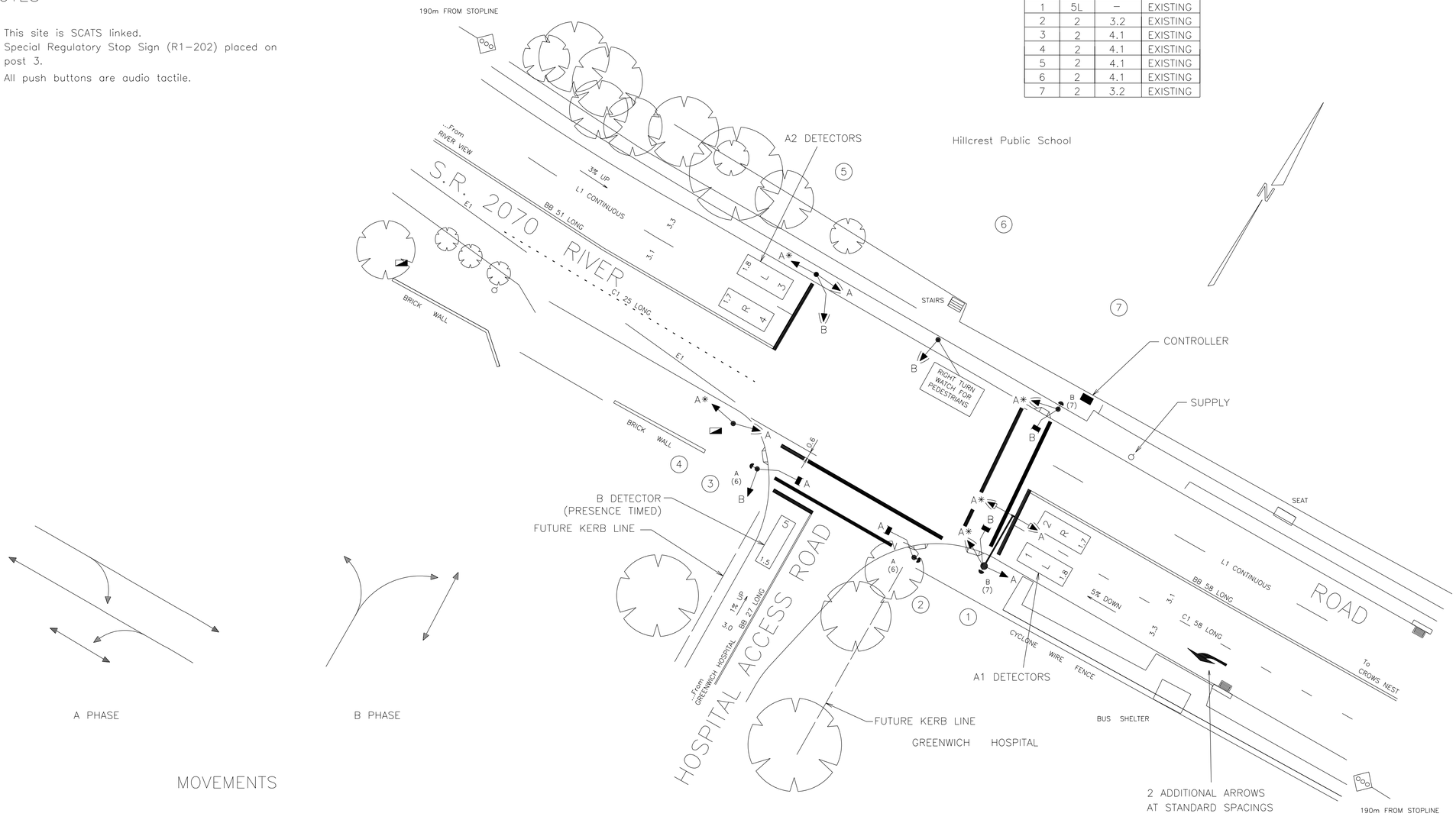
R T A

NOTES

1. This site is SCATS linked.
2. Special Regulatory Stop Sign (R1–202) placed on post 3.
3. All push buttons are audio tactile.

POSTS

POST	TYPE	LENGTH	REMARKS
1	5L	–	EXISTING
2	2	3.2	EXISTING
3	2	4.1	EXISTING
4	2	4.1	EXISTING
5	2	4.1	EXISTING
6	2	4.1	EXISTING
7	2	3.2	EXISTING



MOVEMENTS

DESIGN LAYOUT

A ORIGINAL ISSUE

'B' ISSUE – WAE
NEW SITE – WAE
POST 5 WAS 7SL.
POST 7 WAS 5SL.
BD SNOWCHEF

PUBLIC UTILITY LEGEND		REFERENCE PLANS	
HYDRANT	□	SYMBOLS/ABBS.	VD003–6
STOP VALVE	▲	STD POSIT	VD001–5
GAS VALVE	#	DET SCHED EXP	VD018–10
SEWER MANHOLE	⊗	PRES. DETECT	VC005–17
TELECOM PIT	◪	SSG DIS. SEQ.	VD018–8
ELECT LIGHT POLE	☾		
POWER POLE	○		
STAY POLE	⊘		
TELEPHONE BOX	T	SURVEYOR : ROSE ATKINS	
TELECOM PILLAR	◕	DATE : AUGUST 1996	

U.B.D. Ref. Map 215–K7
I.S.G. CO–ORDS E: 316540 N:1250670
DESIGNED G VARLEY– ProVision DRAFTING
CHECKED T LAWRENCE
SITE CHECKED
RECOMMENDED

APPROVED
T LAWRENCE
22–2–97
DATE
ACCEPTED
6–3–97
DATE

Roads and Traffic Authority, N.S.W

LANE COVE CITY COUNCIL
S.R.2070 RIVER ROAD
AND GREENWICH HOSPITAL ACCESS ROAD
GREENWICH

DESIGN LAYOUT TCS No 2337

DESIGN OFFICE PARRAMATTA – SYDNEY TECHNICAL SERVICES
CADD FILE: VV2337_4B.DGN
SCALE 5 0 (1:200) 5 10
ISSUE B
FILE 254 TS 123
SUPERSEDES SHEET/ISSUE 1
REGN. 2070.254.VV.2337
SHEET 4

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VV2337_04B.dgn 2/12/2008 2:24:41 PM

3.3 Transport Conditions

An indication of the existing traffic conditions in the vicinity of the site is provided by surveys undertaken as part of the traffic assessment undertaken for the SSDA application and the existing peak traffic circumstance are indicated on Figure 5 for the "network peak periods".

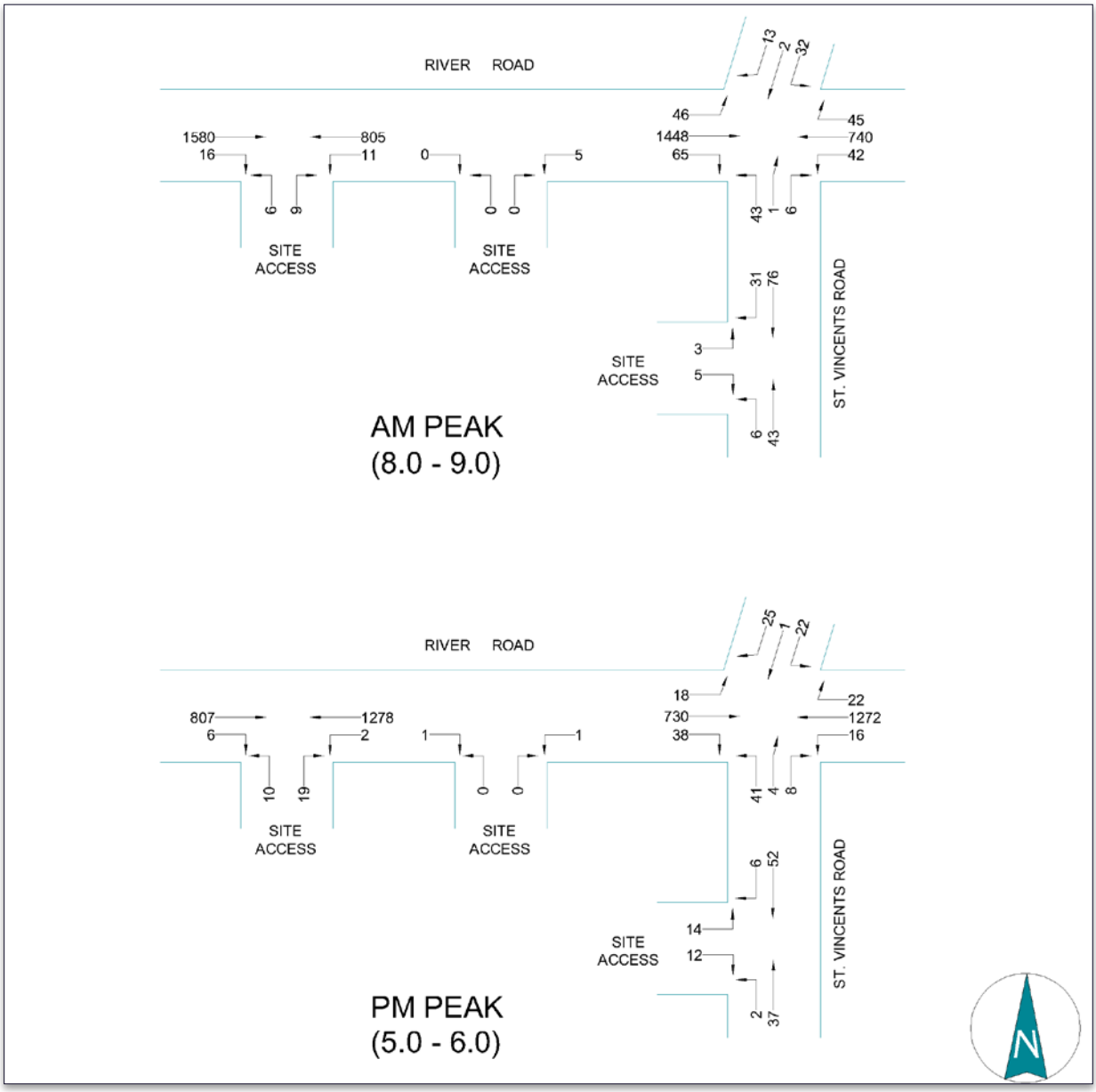


Figure 5 - Peak Traffic Movements

The operational performance of the River Road/Hospital access and River Road/St Vincents Road intersections has been assessed with SIDRA and the results of that assessment are summarised in the following while the criteria for interpreting SIDRA results is reproduced overleaf.

	AM		PM	
	LOS	**AVD**	**LOS**	**AVD**
River Road/Hospital Access	A	5.4	A	12.4
River Road/St Vincents Road	A-C	3.5	A-C	3.2

The SIDRA results indicate that these intersections operate quite satisfactorily at the present time.

3.4 Transport Services

The site is serviced by the Route 261 and 265 bus services which provide access to railway stations and interchange with other bus services (particularly those that operate along the Highway and at the railway stations). The Route 261 service 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.

The Route 265 service 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 at the River Road intersection.

Details of the Route 261 and 265 buses and the interconnecting services are provided in Appendix D.

3.5 Bicycles and Pedestrians

There are existing footpaths along River Road (southern side in part) and along St Vincents Road while pedestrian movements are also enhanced by the traffic signal-controlled crossings at the Hospital access signals, and the traffic signal-controlled crossings at the River Road and Greenwich Road intersection.

Criteria for Interpreting Results of SIDRA Analysis

1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs
'A'	Good	Good
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
'C'	Satisfactory	Satisfactory but accident study required
'D'	Operating near capacity	Near capacity and Accident Study required
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode

2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory but accident study required
D	43 to 56	Operating near capacity	Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode

3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals** both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

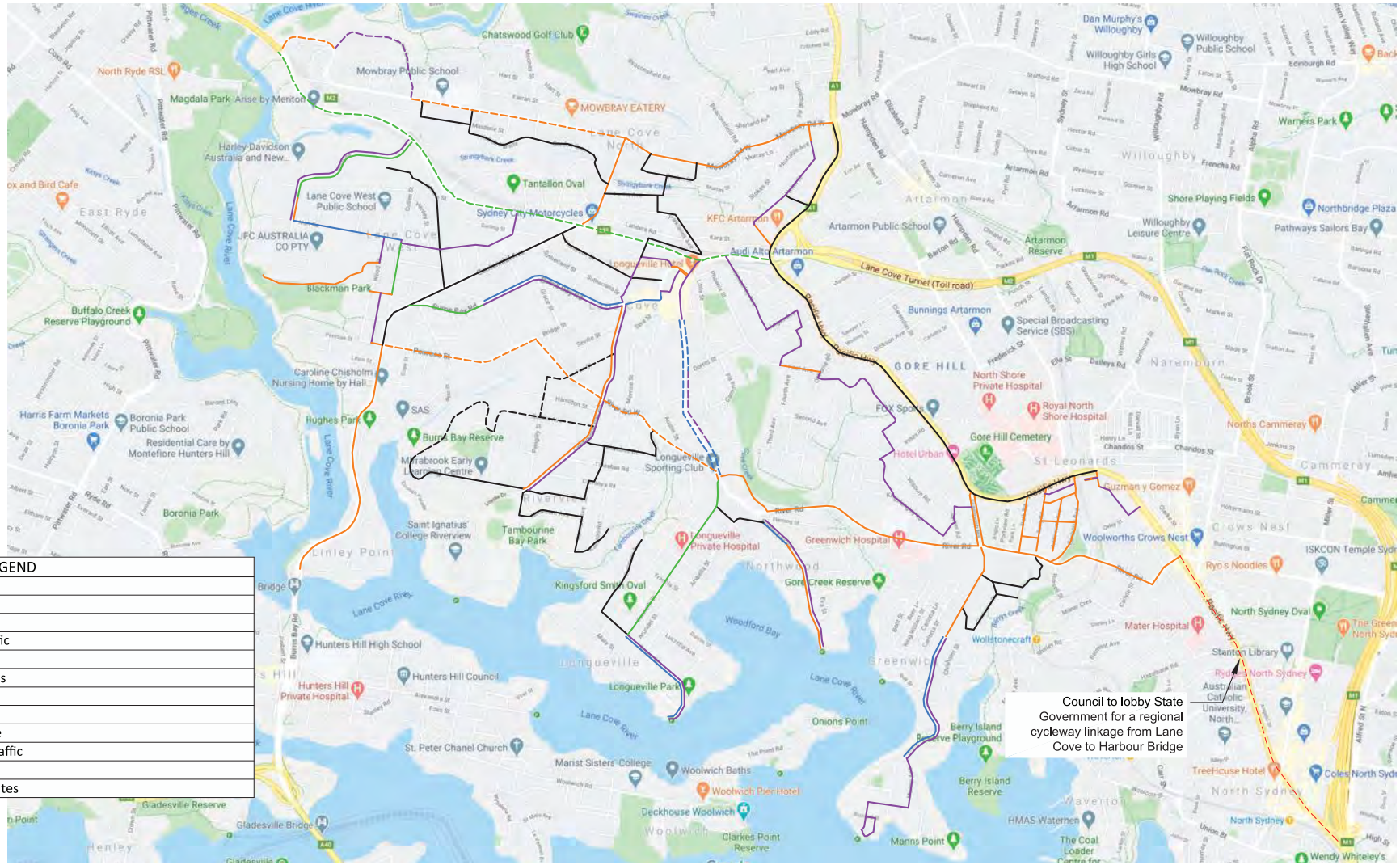
For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

There is an existing bicycle route along River Road/Penrose Street westwards from Longueville Road and it is proposed to extend this route easterly past the site to Greenwich Road with connection to the north, south and east from there as shown on the details overleaf.



Attachment 2 – Proposed Bicycle Routes

Short Term Routes



LEGEND	
Existing Routes	
	Existing Bike Path
	Existing Bike Lane
	Existing Mixed Traffic
	Existing SUP
	2013 Existing Routes
Proposed Routes	
	Proposed Bike Path
	Proposed Bike Lane
	Proposed Mixed Traffic
	Proposed SUP
	2013 Proposed Routes

4.0 Staging, Methodology and Processes

The proposed stages are identified on the plans provided in Appendix E while the proposed methodology and processes are described in the Construction Management Plan reproduced in Appendix F.

The envisaged timing for the stages is as follows:

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

5.0 Construction Traffic Management Plan

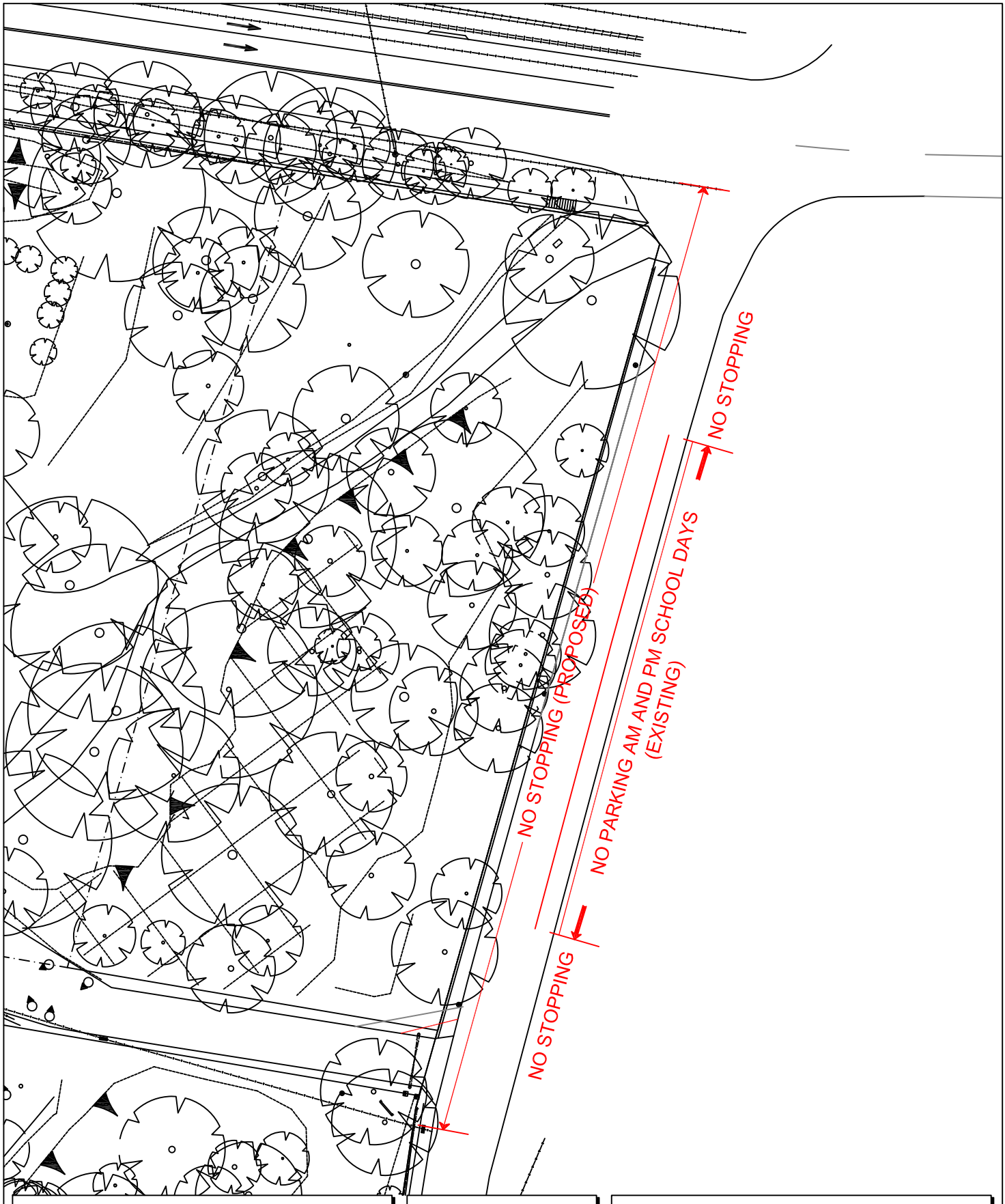
5.1 Mitigation Measures

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

- prohibit all right turn egress movements into River Road (including from St Vincents Road but excepting at the traffic signal controlled access) for all trucks associated with the construction works
- provide specific measures in St Vincents Road including:
  - prohibition of parking along the western kerb (See Figure 6)
  - widen Hospital access connection to accommodate large trucks
  - provide syncronised Traffic Controllers so that trucks are precluded from passing on St Vincents Road
- widen the Hospital access connection at the middle of the site frontage to accommodate large trucks
- provide "fenced off" Stage areas to restrict non-bonifide pedestrian and vehicle movements
- provide Traffic Controllers at each vehicle access point to ensure pedestrian and cyclists crossing safety
- prepare specific Traffic Management Plans for the infrequent access of any vehicles larger than Truck and Dog

5.2 Construction Vehicle Routes

All truck movements associated with the construction process will access the site via the routes illustrated in Figure 7 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. Trucks will only be required to use St Vincents Road during Stage 2 and will not access during school arrival & departure times (8:00am – 9:00am and 2:30pm – 3:30pm School days)



NOTE

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

N

PROPOSED PARKING SIGNAGE

FIG 6

5.3 Truck Movements

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

Vehicle Type	Length
Semi-Trailer (very infrequent)	19m
Truck & Dog	18.1m
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 trucks	8.8m
Concrete pump	8.8m
Excavator, Bobcat, Forklift, Manitou	< 8.8m
Utility vehicle/Van	5.2m (B99)

The envisaged truck movements will be:

Truck Visitations

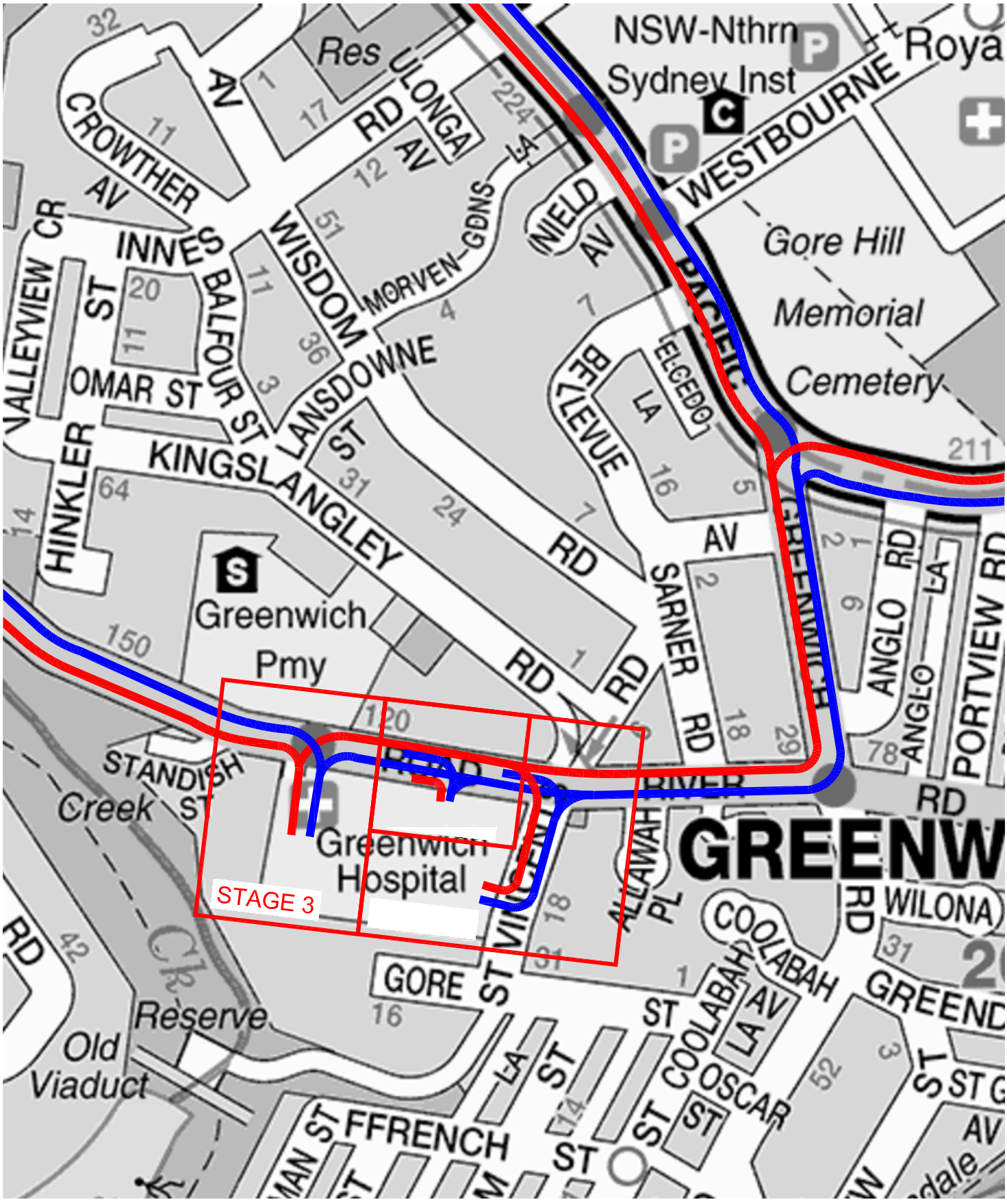
	Bulk Excavation	Structure	Fitout	Landscaping etc.
Per Day	30 – 40*	25 – 30**	30**	20**
Per Hour	6 – 8	5	6	4

* Truck and Dog units

** HRV and Smaller

The access movement of heavy vehicles will be specifically minimised and not allowed at all 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.

Details of the assessment of access truck movements are provided in Appendix G.



NSW-Nthrn
Sydney Inst
Roya
WESTBOURNE
Gore Hill
Memorial
Cemetery
PACIFIC
Res
ULONGA
RD
AV
CROWTHER
AV
INNES
WISDOM
MORVEN-GDNS
LA
NIELD
AV
BALFOUR ST
OMAR ST
LANSDOWNE
ST
KINGSLANGLEY
RD
HINKLER
ST
BELLEVUE
LA
ELCEDO
AV
SARNER
RD
GREENWICH
ANGLO RD
ANGLO LA
PORTVIEW RD
Greenwich
Pmy
STANDISH
ST
Creek
Greenwich
Hospital
STAGE 3
RIVER
RD
GREENW
ALLAWAH
PL
COOLABAH
WILONA
GREEND
GORE
ST
COOLABAH
AV
LA
OSCAR
ST
Reserve
Old
Viaduct
FFRENCH
ST

5.4 Construction Hours

The envisaged construction hours are:

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 acitivies may only be carried out between the following hours:

9:00 am and 12 pm	Monday to Friday
2:00 pm and 5:00 pm	Monday to Friday
9:00 am and 12 pm	Saturday

Construction activities may be undertaken outside of these hours subject to the conditions specified in Consent Conditions D5, 6 & 7.

Noise from construction activities shall comply with the Protection of the Environmental Operations (Noise Control Regulation 2017).

5.5 Works Zone

There will be no requirement for any on-street Works Zone for the works. There will be adequate space within the site for materials storage and truck manoeuvring, certified traffic controllers will be located on St Vincents Road at the site access points and within the site to assist with truck movements.

5.6 Site Induction

All workers and visitors employed on the site by the appointed contractor (including sub-contractors) will be required to undergo a formal 'site induction' process, and all the inductions will be performed specifically to each trade according to Workcover OH & S requirements.

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

5.7 Traffic Guidance Scheme

The TGS presents traffic management principles, with detailed information for work site operations contained in the TfNSW Traffic Control at Work Sites Technical Manual Version 6.1 dated 28 February 2022. The control of traffic at work sites must be undertaken with reference to WorkCover requirements and RCC Workplace Health and Safety Manuals.

The TGS is prepared by a Certified Traffic Controller (under TfNSW regulations) in accordance with Australian Standards 1742.3. The TGS includes:

- The proposed works site
- Traffic control signage

The TGSs for the construction processes are provided in Appendix H.

5.8 Pedestrian Management

Pedestrians walking along the site frontage and Stage boundaries will be protected by temporary construction fencing. TfNSW accredited traffic controllers shall always supervise all vehicle movements into and out of the site ensuring pedestrians have right of way and are seperated from the vehicle movements at all times.

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

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

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

5.10 Road Serviceability

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

The contractor will ensure that the roads in the vicinity of the site remain in clean and serviceable states during the construction. Any damage to kerbs, signage, trees, footpaths etc., will be repaired or replaced to the satisfaction of the Council.

5.11 Parking

Limited on-site parking will be provided for construction workers, and they will be:

- encouraged to utilise public transport or car pool
- provided with secure on-site storage for their tools and materials.

While Consent Condition C25 refers to the provision of consatruction worker parking on the site the circumstances will be somewhat unique in that it will be essential to provide parking in Stages 1&2 for the continuing operation of the hospital. This requirement and the limitations of the site result in the inability of producing any significant on-site parking for construction workers until such time that the basement carparking constructed in Stage 2 can be made available for workers.

Parking for hospital staff and visitors will be reduced in Stage 1 and 2 however, this will be offset by the temporary transfer of hospital elements (e.g. Hydrotherapy) and the reduction of some elements.

Following the completion of Stage 1 and 2, there will be some 200 parking spaces available for the new Hospital.

5.12 Materials Handling

All materials are to be unloaded and stored within the site at all times. Loading/unloading of materials will occur from the Loading Areas by crane or with the assistance of trolleys/forklifts. No materials will be placed or left on any Council road or footpath areas at any time.

5.13 Public Notification and Consultation

The building contractor would prepare on-going notification letters that would be emailed to the relevant authorities and adjoining property owners and the adjacent school to advise of the timeframes for each phase of the development/construction process and any related changes. The notification will be provided a minimum of 7 days prior to the implementation of any temporary traffic control measure or change to access, traffic or parking arrangements.

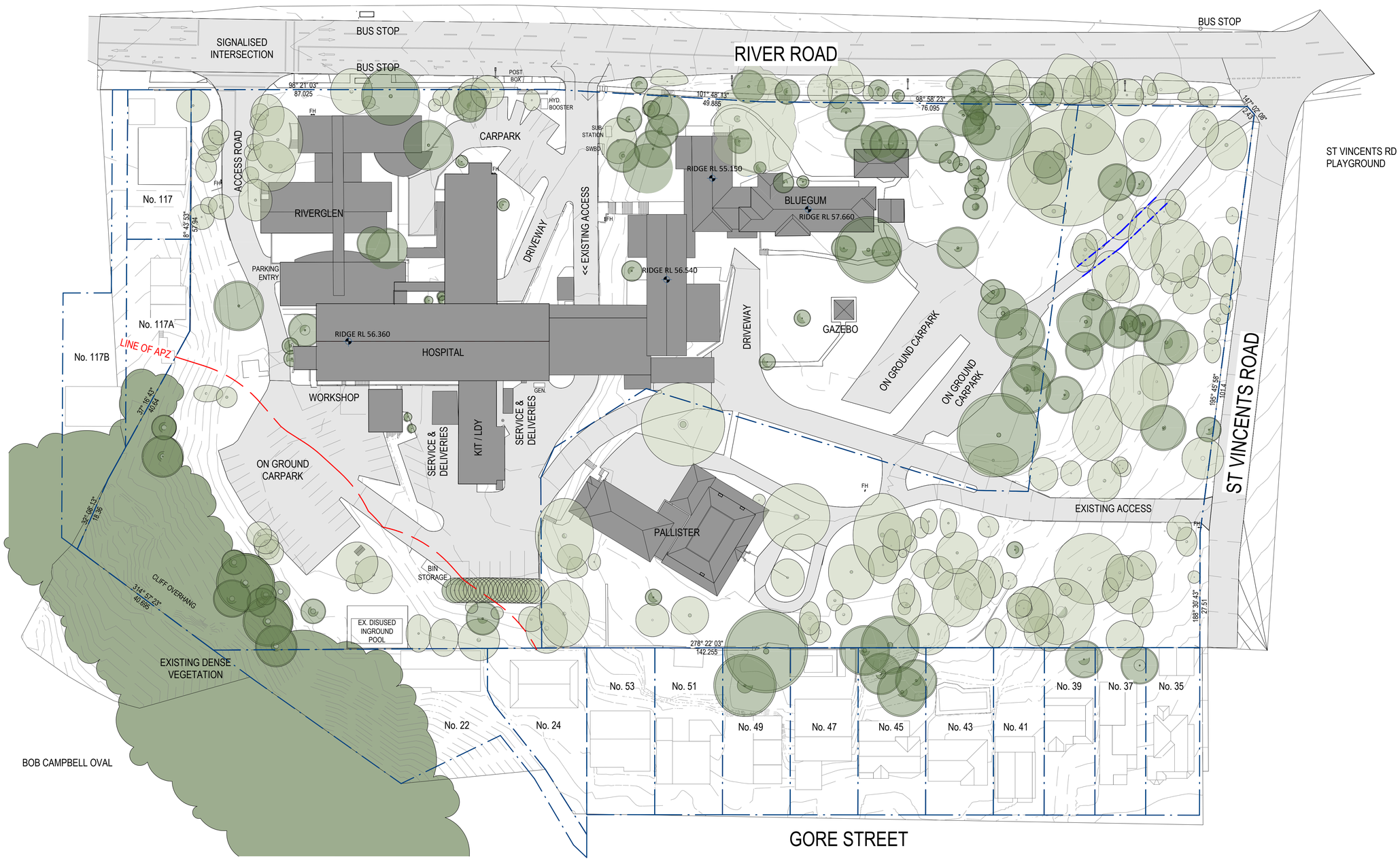
The CT&P Sub Management Plan was submitted to TfNSW and Council on 22.10.24. TfNSW responded on 30.10.24 and advised that "if they had any issues or concerns they would arrange a meeting". There has been no further correspondence from TfNSW. Council advised on 5.11.24 that because of the expressed concerns of residents they did not favour construction access on St Vincents Street. Subsequent to this the proposed truck access arrangements have changed so that trucks would only use St Vincents Street in Stage 2 and the Road Safety Audit has been completed.

5.14 Road Safety Audit

Consent Condition C15(c) requires the undertaking of a Road Safety Audit of St Vincents Road to address any identified safety concerns associated with construction vehicles accessing the site at this location. The completed Road Safety Audit is provided in Appendix I.

Appendix A
Plan of Existing

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994



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REV	DATE	DETAILS	INITIALS
P4	2021.06.16	ISSUE TO CONSULTANTS	NAH
P3	2021.04.20	CAD ISSUE	NAH
P2	2021.04.08	ISSUE TO CONSULTANTS	NAH
P1	2021.03.11	ISSUE TO CONSULTANTS	NAH

NORTH

C:\Users\nathanh\Documents\SW-AR-GREENWICH_nathanh@bmarch.com.au.rvt

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CLIENT: HammondCare Champion Life

PROJECT: 01605
GREENWICH HOSPITAL
REDEVELOPMENT
RIVER RD, GREENWICH

REVISION: P4
DATE: 01/06/21
DRAWING TITLE: EXISTING SITE PLAN

DRAWING No: SW-AR-0100

DRAWN: NAH CHECKED: SCALE: 1 : 500 @A1

NSW NOMINATED ARCHITECT: ANDREW MASTERS (9037)

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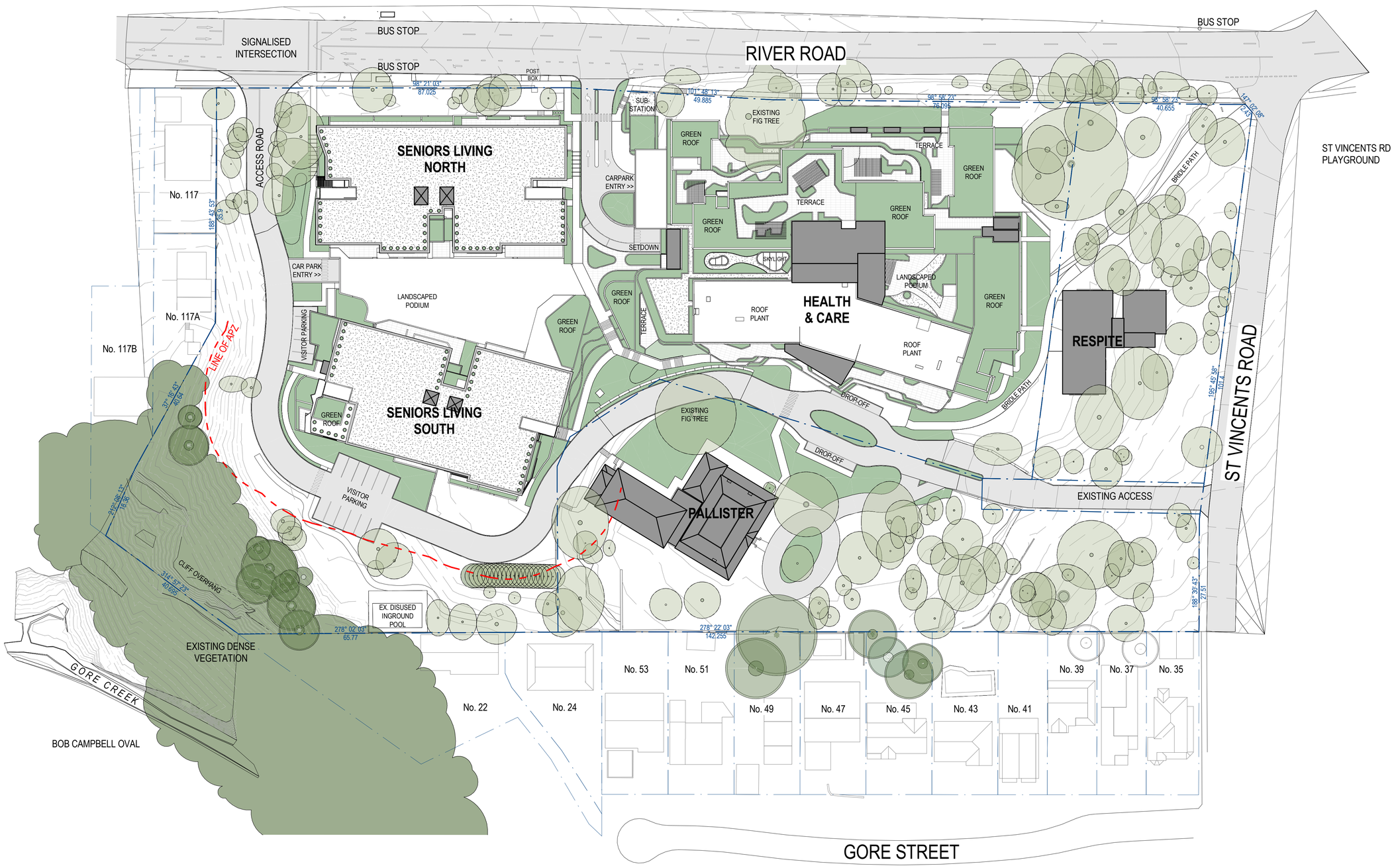
Appendix B
Development Plans

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994



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P19	2022.05.06	EIS LODGEMENT ISSUE	NAH
P18	2022.04.29	EIS LODGEMENT ISSUE FOR CLIENT REVIEW	NAH
P17	2022.04.14	UPDATED DRAFT LODGEMENT PACK	NAH
P16	2022.04.08	LODGEMENT ISSUE FOR CLIENT SIGNOFF	AMac
P15	2022.04.01	FINAL DRAFT LODGEMENT ISSUE	AMac

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RIVER RD, GREENWICH

REVISION: P19
DATE: 01/06/21
DRAWING TITLE: PROPOSED SITE PLAN

DRAWING No: DD-SW-0101

DRAWN: NAH **CHECKED:** **SCALE:** 1 : 500 @A1

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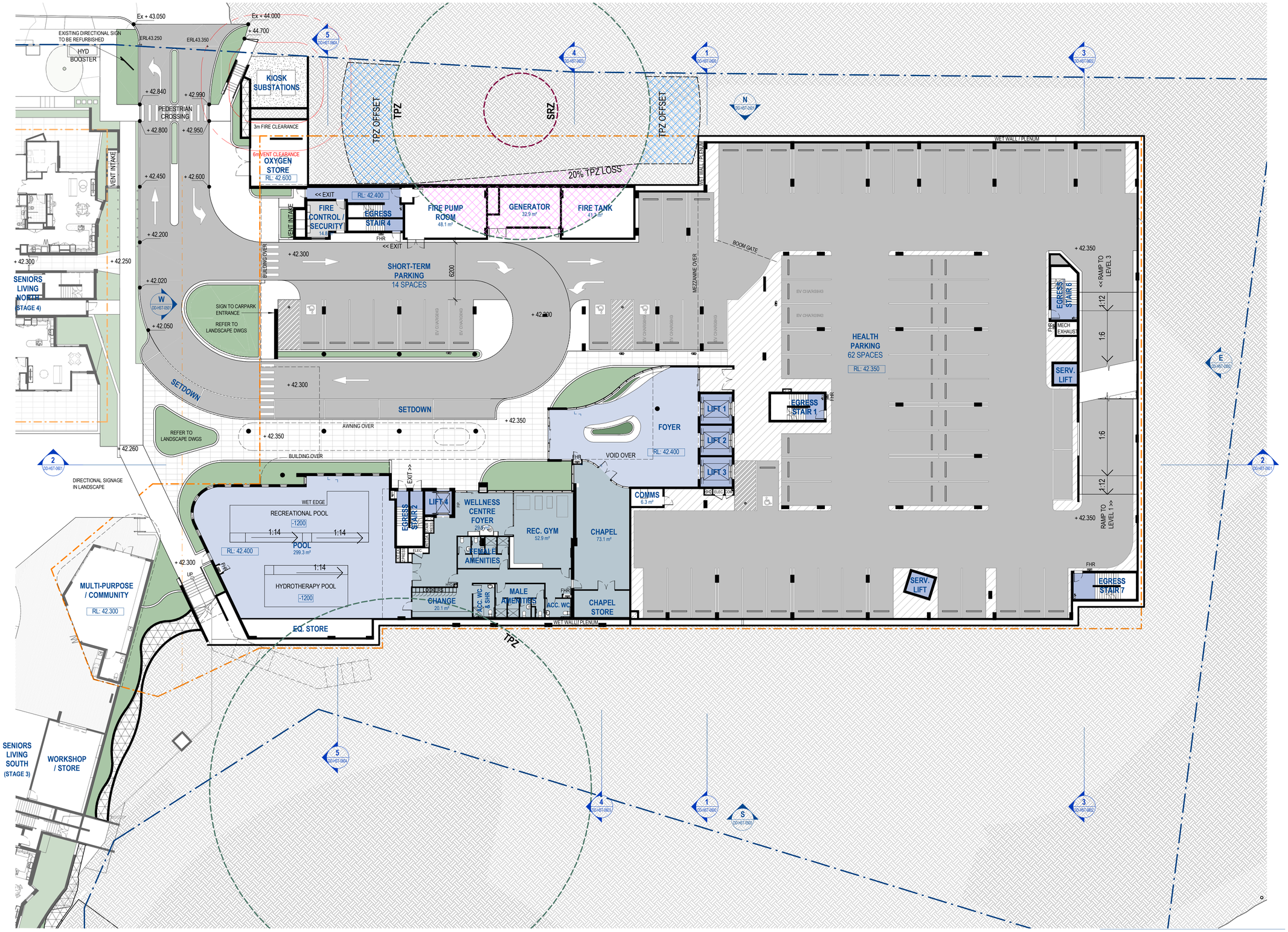

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P20	2022.04.29	EIS LODGEMENT ISSUE FOR CLIENT REVIEW	NAH
P19	2022.04.14	UPDATED DRAFT LODGEMENT PACK	NAH
P18	2022.04.08	LODGEMENT ISSUE FOR CLIENT SIGNOFF	AMac
P17	2022.04.01	FINAL DRAFT LODGEMENT ISSUE	AMac

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LEGEND - PLAN

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
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			Property Boundary
000 DD-HST-0000 SIM	Detail Number of Section / Elevation Sheet Number of Section / Elevation		

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DRAWING No: DD-HST-0101

DRAWN: NAH CHECKED: SCALE: 1 : 200 @A1

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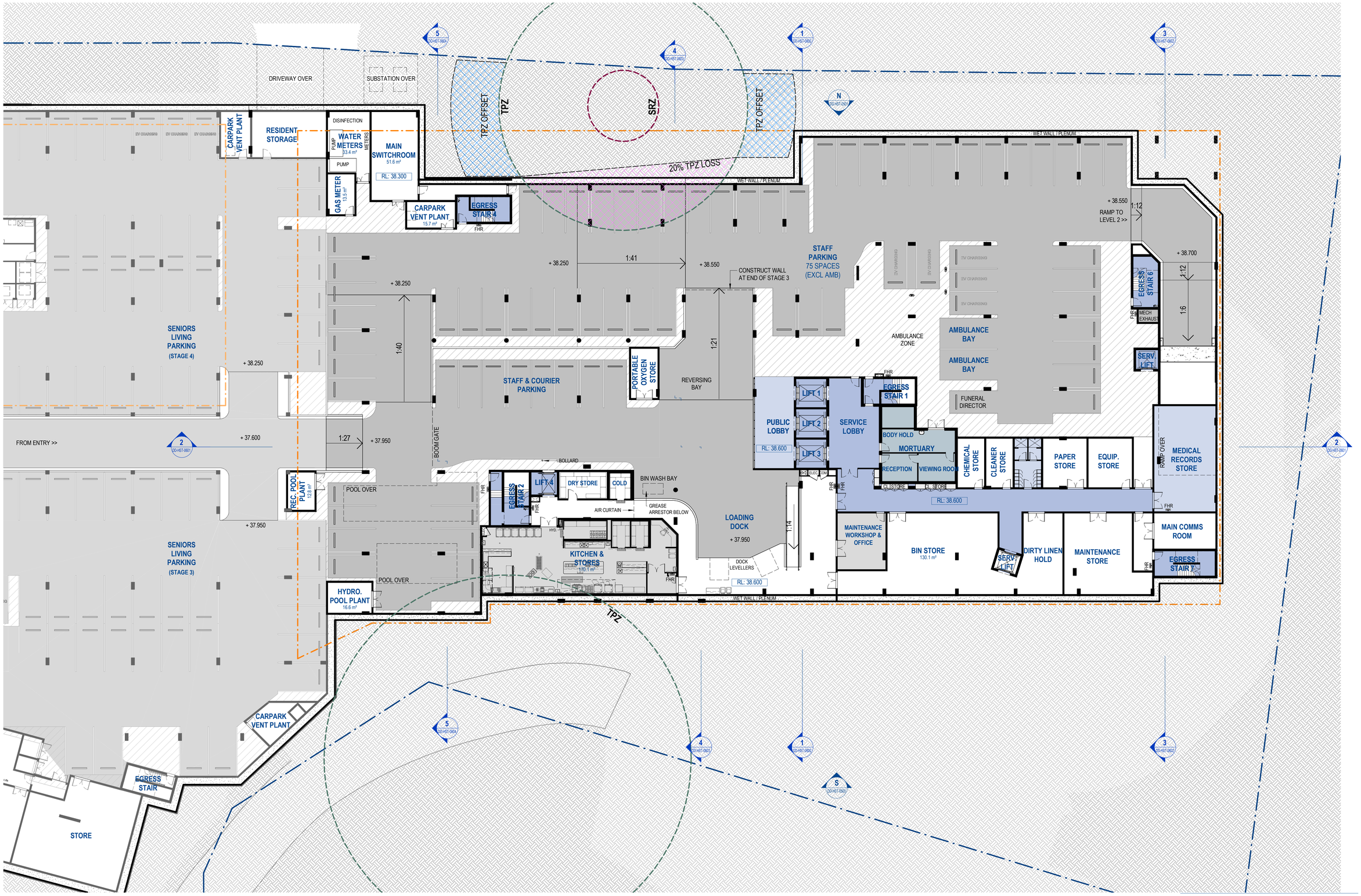

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P19	2022.04.08	LODGEMENT ISSUE FOR CLIENT SIGNOFF	AMac
P18	2022.04.01	FINAL DRAFT LODGEMENT ISSUE	AMac

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			Property Boundary
000 DD-HST-0000 SIM	Detail Number of Section / Elevation / Sheet Number of Section / Elevation		

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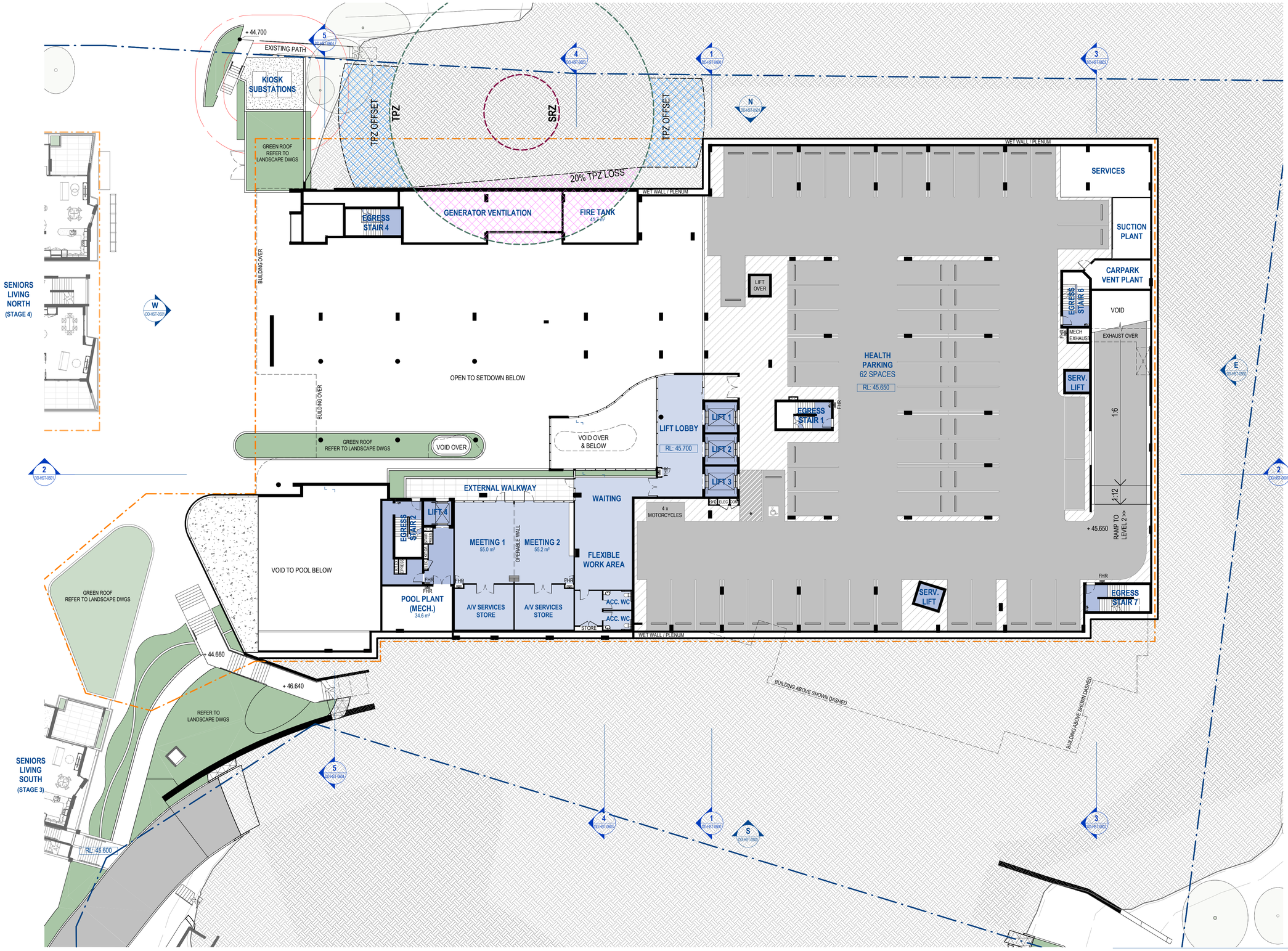

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P23	2022.04.29	EIS LODGEMENT ISSUE FOR CLIENT REVIEW	NAH
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P21	2022.04.08	LODGEMENT ISSUE FOR CLIENT SIGNOFF	AMac
P20	2022.04.01	FINAL DRAFT LODGEMENT ISSUE	AMac

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LEGEND - PLAN

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
ROOM NAME 000	Room Name Room Number		Planning Envelope
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P11	2022.04.29	EIS LODGEMENT ISSUE FOR CLIENT REVIEW	NAH
P10	2022.04.14	UPDATED DRAFT LODGEMENT PACK	NAH
P9	2022.04.08	LODGEMENT ISSUE FOR CLIENT SIGNOFF	MLL
P8	2022.04.01	FINAL DRAFT LODGEMENT ISSUE	MLL

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Appendix C
Traffic Survey Results

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994

R.O.A.R. DATA

Reliable, Original & Authentic Results

Ph.88196847, Mob.0418-239019

Client : BarkerRyanStewart

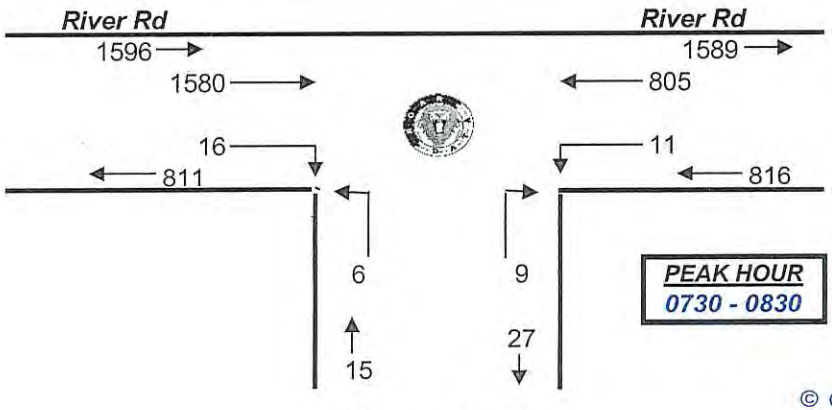
Job No/Name : 6595 GREENWICH HOSPITAL Counts

Day/Date : Thursday 12th October 2017

All Vehicles

	WEST		SOUTH		EAST		
	River Rd		*Western*		*River Rd*		
Time Per	T	R	L	R	L	T	TOTAL
0700 - 0715	282	4	0	0	3	122	**411**
0715 - 0730	395	4	1	3	1	183	**587**
0730 - 0745	378	4	1	3	4	165	**555**
0745 - 0800	380	5	1	2	2	187	**577**
0800 - 0815	428	5	2	3	2	214	**654**
0815 - 0830	394	2	2	1	3	239	**641**
0830 - 0845	329	3	0	1	1	161	**495**
0845 - 0900	384	2	1	0	3	198	**588**
Period End	**2970**	**29**	**8**	**13**	**19**	**1469**	**4508**

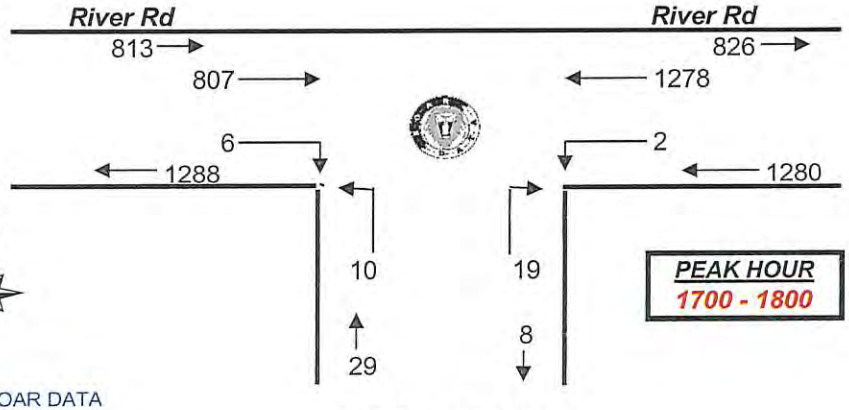
	WEST		SOUTH		EAST		
	River Rd		*Western*		*River Rd*		
Peak Per	T	R	L	R	L	T	TOTAL
0700 - 0800	1435	17	3	8	10	657	**2130**
0715 - 0815	1581	18	5	11	9	749	**2373**
0730 - 0830	1580	16	6	9	11	805	**2427**
0745 - 0845	1531	15	5	7	8	801	**2367**
0800 - 0900	1535	12	5	5	9	812	**2378**
PEAK HR	**1580**	**16**	**6**	**9**	**11**	**805**	**2427**



All Vehicles

	WEST		SOUTH		EAST		
	River Rd		*Western*		*River Rd*		
Time Per	T	R	L	R	L	T	TOTAL
1600 - 1615	173	1	8	9	1	308	**500**
1615 - 1630	176	2	11	10	2	257	**458**
1630 - 1645	168	2	9	7	1	321	**508**
1645 - 1700	161	1	5	2	1	319	**489**
1700 - 1715	191	2	3	7	1	331	**535**
1715 - 1730	179	3	4	7	0	285	**478**
1730 - 1745	228	0	1	2	0	379	**610**
1745 - 1800	209	1	2	3	1	283	**499**
Period End	**1485**	**12**	**43**	**47**	**7**	**2483**	**4077**

	WEST		SOUTH		EAST		
	River Rd		*Western*		*River Rd*		
Peak Per	T	R	L	R	L	T	TOTAL
1600 - 1700	678	6	33	28	5	1205	**1955**
1615 - 1715	696	7	28	26	5	1228	**1990**
1630 - 1730	699	8	21	23	3	1256	**2010**
1645 - 1745	759	6	13	18	2	1314	**2112**
1700 - 1800	807	6	10	19	2	1278	**2122**
PEAK HR	**807**	**6**	**10**	**19**	**2**	**1278**	**2122**



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Ph.88196847, Fax 88196849, Mob.0418-239019

Client :T.T.P.A.

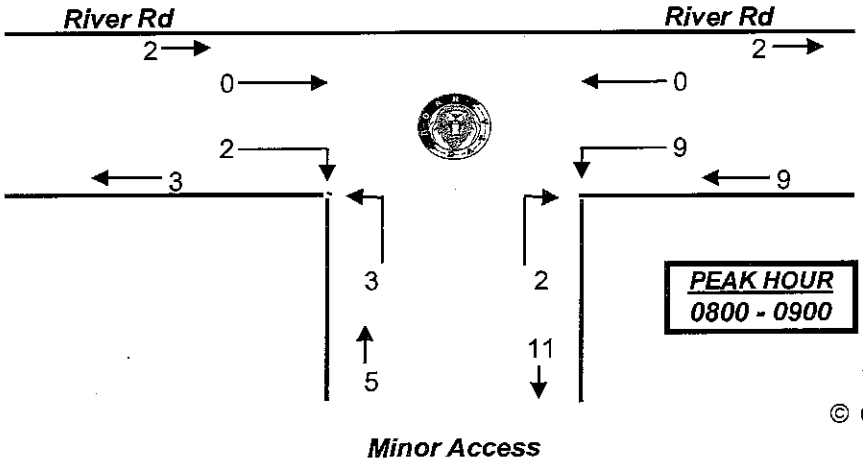
Job No/Name :1784 GREENWICH Hospital

Day/Date :Thursday 20th May 21

All Vehicles

	WEST		SOUTH		EAST		
	River Rd		*Minor Access*		*River Rd*		
Time Per	T	R	L	R	L	T	TOTAL
0700 - 0715		0	0	1	2		3
0715 - 0730		1	1	0	1		3
0730 - 0745		1	0	1	3		5
0745 - 0800		1	1	0	2		4
0800 - 0815		1	0	1	3		5
0815 - 0830		0	1	0	1		2
0830 - 0845		1	2	0	4		7
0845 - 0900		0	0	1	1		2
Period End	0	5	5	4	17	0	31

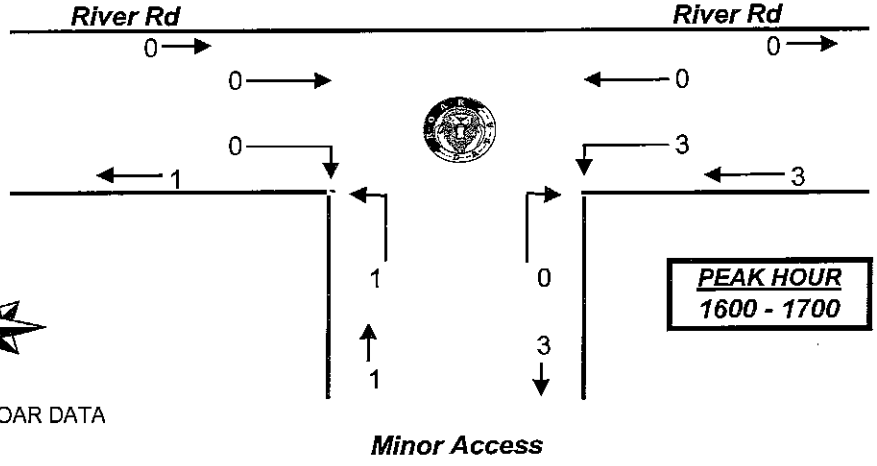
	WEST		SOUTH		EAST		
	River Rd		*Minor*		*River Rd*		
Peak Per	T	R	L	R	L	T	TOTAL
0700 - 0800	0	3	2	2	8	0	15
0715 - 0815	0	4	2	2	9	0	17
0730 - 0830	0	3	2	2	9	0	16
0745 - 0845	0	3	4	1	10	0	18
0800 - 0900	0	2	3	2	9	0	16
PEAK HR	0	2	3	2	9	0	16



All Vehicles

	WEST		SOUTH		EAST		
	River Rd		*Minor Access*		*River Rd*		
Time Per	T	R	L	R	L	T	TOTAL
1600 - 1615		0	1	0	1		2
1615 - 1630		0	0	0	1		1
1630 - 1645		0	0	0	0		0
1645 - 1700		0	0	0	1		1
1700 - 1715		0	1	1	2		4
1715 - 1730		1	1	0	1		3
1730 - 1745		1	0	1	1		3
1745 - 1800		0	0	0	0		0
Period End	0	2	3	2	7	0	14

	WEST		SOUTH		EAST		
	River Rd		*Minor*		*River Rd*		
Peak Per	T	R	L	R	L	T	TOTAL
1600 - 1700	0	0	1	0	3	0	4
1615 - 1715	0	0	1	1	4	0	6
1630 - 1730	0	1	2	1	4	0	8
1645 - 1745	0	2	2	2	5	0	11
1700 - 1800	0	2	2	2	4	0	10
PEAK HR	0	0	1	0	3	0	4



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Ph.88196847, Fax 88196849, Mob.0418-239019

Client :T.T.P.A.

Job No/Name :1784 GREENWICH Hospital

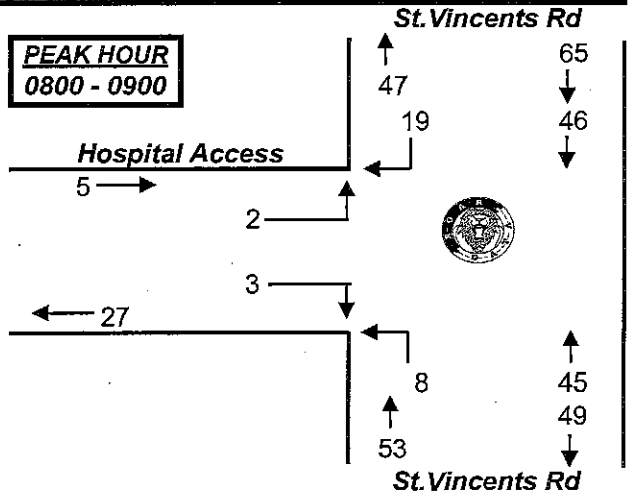
Day/Date :Thursday 20th May 21

All Vehicles

	NORTH		WEST		SOUTH		
	St.Vincents		*Hospital*		*St.Vincents*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0700 - 0715	8	3	2	0	2	4	**19**
0715 - 0730	10	3	1	1	1	5	**21**
0730 - 0745	11	2	2	2	2	10	**29**
0745 - 0800	9	2	1	0	2	10	**24**
0800 - 0815	14	3	1	2	4	9	**33**
0815 - 0830	9	7	0	1	2	12	**31**
0830 - 0845	11	7	1	0	0	10	**29**
0845 - 0900	12	2	0	0	2	14	**30**
Period End	**84**	**29**	**8**	**6**	**15**	**74**	**216**

	NORTH		WEST		SOUTH		
	St.Vincents		*Hospital*		*St.Vincents*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
0700 - 0800	38	10	6	3	7	29	**93**
0715 - 0815	44	10	5	5	9	34	**107**
0730 - 0830	43	14	4	5	10	41	**117**
0745 - 0845	43	19	3	3	8	41	**117**
0800 - 0900	46	19	2	3	8	45	**123**

PEAK HR	**46**	**19**	**2**	**3**	**8**	**45**	**123**

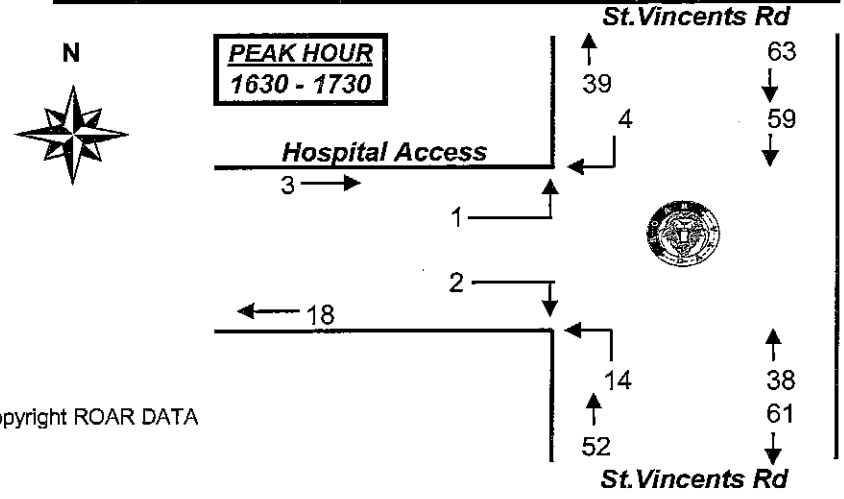


All Vehicles

	NORTH		WEST		SOUTH		
	St.Vincents		*Hospital*		*St.Vincents*		
Time Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1615	12	2	1	0	4	10	**29**
1615 - 1630	14	1	1	1	3	9	**29**
1630 - 1645	14	0	0	0	3	11	**28**
1645 - 1700	12	1	1	0	1	12	**27**
1700 - 1715	15	2	0	2	5	10	**34**
1715 - 1730	18	1	0	0	5	5	**29**
1730 - 1745	16	0	1	0	2	5	**24**
1745 - 1800	15	1	0	0	2	6	**24**
Period End	**116**	**8**	**4**	**3**	**25**	**68**	**224**

	NORTH		WEST		SOUTH		
	St.Vincents		*Hospital*		*St.Vincents*		
Peak Per	**T**	**R**	**L**	**R**	**L**	**T**	**TOTAL**
1600 - 1700	52	4	3	1	11	42	**113**
1615 - 1715	55	4	2	3	12	42	**118**
1630 - 1730	59	4	1	2	14	38	**118**
1645 - 1745	61	4	2	2	13	32	**114**
1700 - 1800	64	4	1	2	14	26	**111**

PEAK HR	**59**	**4**	**1**	**2**	**14**	**38**	**118**



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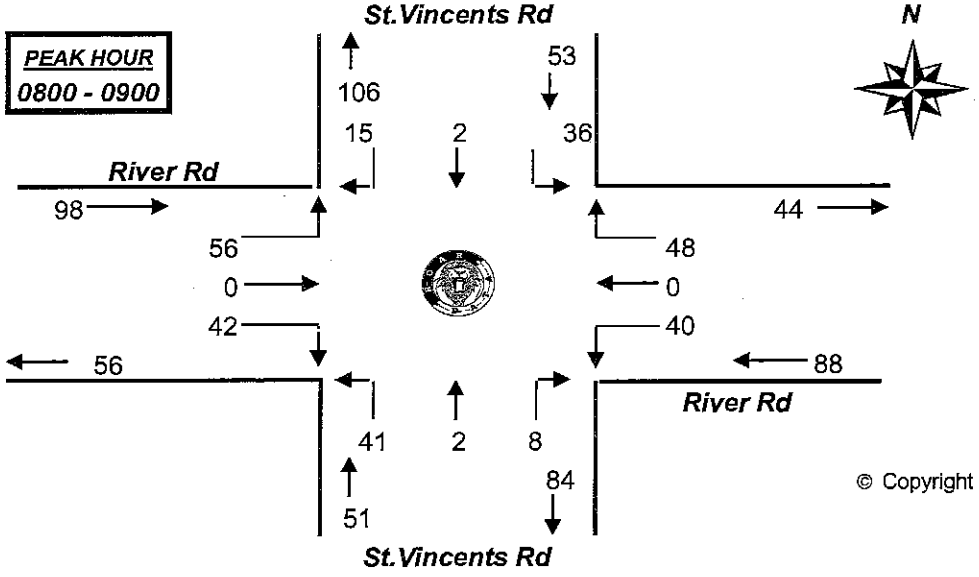
Client :T.T.P.A.
Job No/Name :1784 GREENWICH Hospital
Day/Date :Thursday 20th May 2021

All Vehicles	NORTH St.Vincents Rd			WEST River Rd			SOUTH St.Vincents Rd			EAST River Rd			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0715	3	0	1	3		8	5	0	0	1		6	27
0715 - 0730	4	0	3	3		9	5	0	0	5		7	36
0730 - 0745	6	0	2	6		12	9	0	1	4		7	47
0745 - 0800	8	0	5	9		8	10	0	0	3		9	52
0800 - 0815	12	1	5	12		12	7	1	2	8		12	72
0815 - 0830	5	0	5	15		6	9	1	1	12		10	64
0830 - 0845	8	1	4	13		12	13	0	4	12		14	81
0845 - 0900	11	0	1	16		12	12	0	1	8		12	73
Period End	57	2	26	77	0	79	70	2	9	53	0	77	452

All Vehicles	NORTH St.Vincents Rd			WEST River Rd			SOUTH St.Vincents Rd			EAST River Rd			
Time Per	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1615	3	3	6	3		11	8	0	2	3		2	41
1615 - 1630	6	0	6	4		11	9	1	0	3		3	43
1630 - 1645	9	0	2	7		18	13	0	0	4		3	56
1645 - 1700	12	1	7	5		20	12	1	0	3		4	65
1700 - 1715	8	1	6	7		19	6	1	2	3		7	60
1715 - 1730	7	0	5	7		18	10	0	2	3		5	57
1730 - 1745	11	0	3	5		13	6	1	3	6		6	54
1745 - 1800	6	0	3	5		10	5	0	1	4		4	38
Period End	62	5	38	43	0	120	69	4	10	29	0	34	414

	NORTH St.Vincents Rd			WEST River Rd			SOUTH St.Vincents Rd			EAST River Rd			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
0700 - 0800	21	0	11	21	0	37	29	0	1	13	0	29	162
0715 - 0815	30	1	15	30	0	41	31	1	3	20	0	35	207
0730 - 0830	31	1	17	42	0	38	35	2	4	27	0	38	235
0745 - 0845	33	2	19	49	0	38	39	2	7	35	0	45	269
0800 - 0900	36	2	15	56	0	42	41	2	8	40	0	48	290
PEAK HOUR	36	2	15	56	0	42	41	2	8	40	0	48	290

	NORTH St.Vincents Rd			WEST River Rd			SOUTH St.Vincents Rd			EAST River Rd			
Peak Time	L	T	R	L	T	R	L	T	R	L	T	R	TOT
1600 - 1700	30	4	21	19	0	60	42	2	2	13	0	12	205
1615 - 1715	35	2	21	23	0	68	40	3	2	13	0	17	224
1630 - 1730	36	2	20	26	0	75	41	2	4	13	0	19	238
1645 - 1745	38	2	21	24	0	70	34	3	7	15	0	22	236
1700 - 1800	32	1	17	24	0	60	27	2	8	16	0	22	209
PEAK HOUR	36	2	20	26	0	75	41	2	4	13	0	19	238



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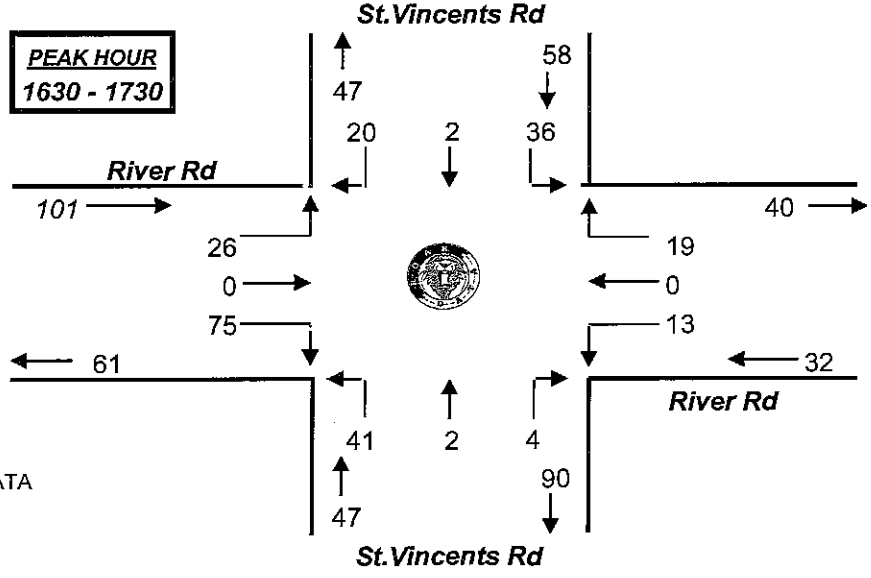
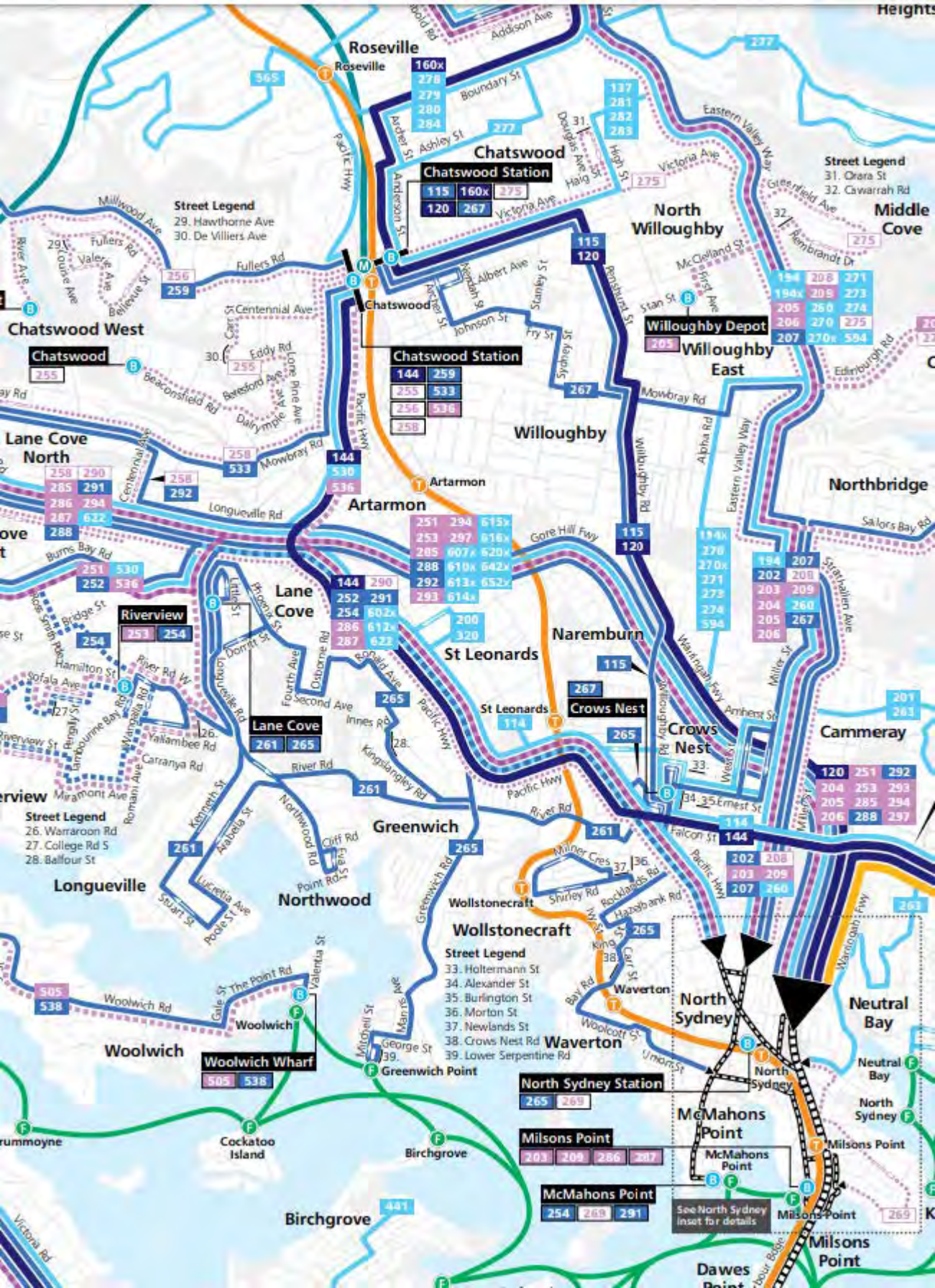


Appendix D
Public Transport Maps

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994



Roseville
Chatswood
Chatswood Station
115 160x 275
120 267
Street Legend
29. Hawthorne Ave
30. De Villiers Ave
Street Legend
31. Orara St
32. Cawarrah Rd
North Willoughby
Middle Cove
Willoughby Depot
205
Willoughby East
Chatswood West
Chatswood
255
Chatswood Station
144 259
255 533
256 536
258
Willoughby
Lane Cove North
258 290
285 291
286 294
287 622
288
258
292
144
530
536
Artarmon
Northbridge
251 294 615x
253 297 616x
285 607x 620x
288 610x 642x
292 613x 652x
293 614x
115
120
194x 278
270x
271
273
274
594
194 207
202 208
203 209
204 260
205 267
206
Riverview
253 254
254
Lane Cove
144 290
252 291
254 602x
286 612x
287 622
200
320
St Leonards
Naremburn
115
267
Crows Nest
St Leonards
114
265
Crows Nest
Cammeray
201
263
120 251 292
204 253 293
205 285 294
206 288 297
Lane Cove
261 265
Street Legend
26. Warraroon Rd
27. College Rd S
28. Balfour St
Longueville
Greenwich
Northwood
Wollstonecraft
Street Legend
33. Holtermann St
34. Alexander St
35. Burlington St
36. Morton St
37. Newlands St
38. Crows Nest Rd
39. Lower Serpentine Rd
Waverton
North Sydney
Neutral Bay
505
538
Woolwich
Woolwich Wharf
505 538
Greenwich Point
North Sydney Station
265 269
Milsons Point
203 209 286 287
McMahons Point
254 269 291
See North Sydney inset for details
Cockatoo Island
Birchgrove
Dawes Point

Route 261

B



Legend

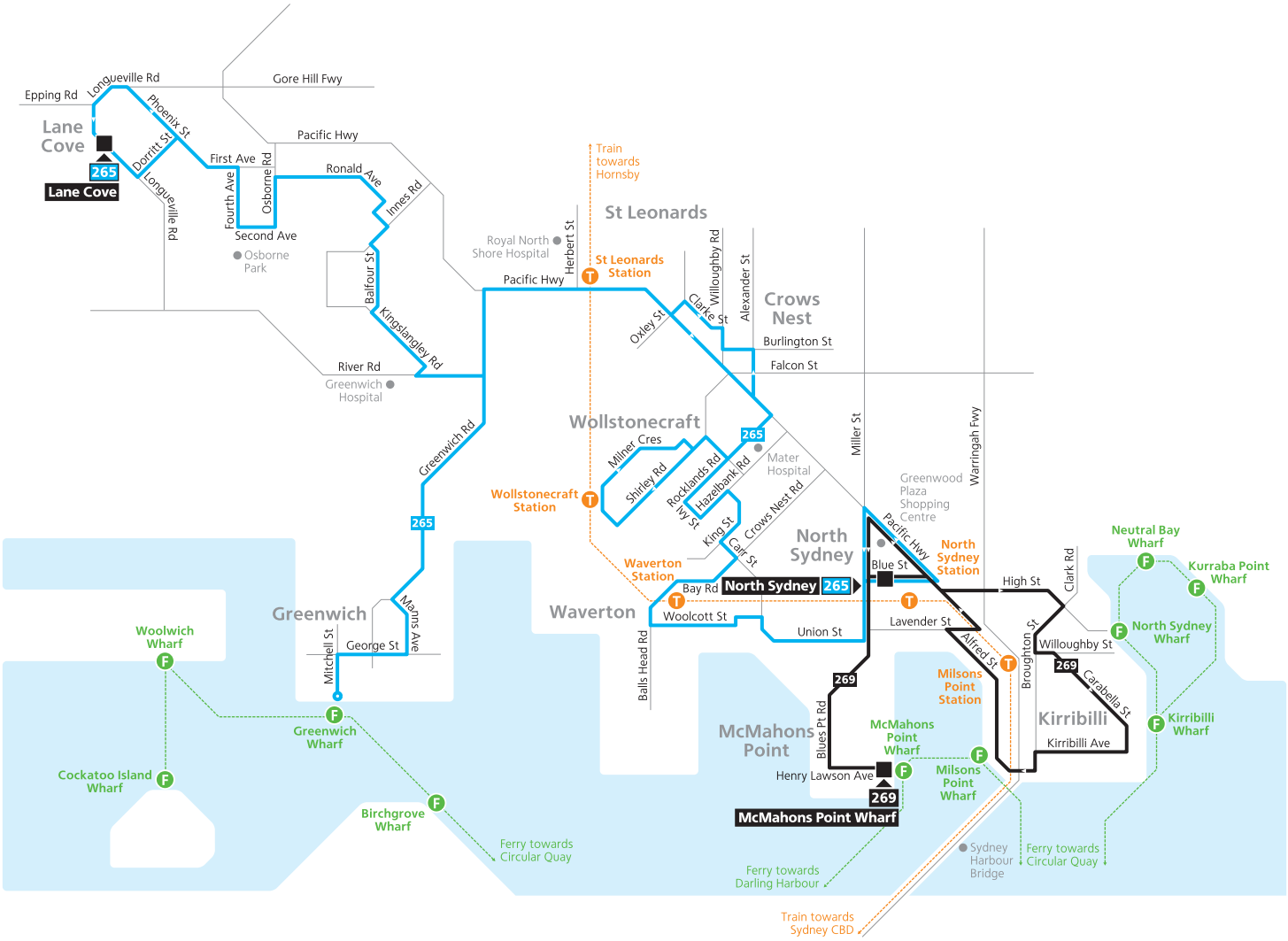
- Bus route
- Diversion/extended route
- 261 Bus route number
- Bus route start/finish
- Metro line/station
- Train line/station
- Ferry wharf

Diagrammatic Map
Not to Scale
North

NSW GOVERNMENT Transport

transportnsw.info

Routes 265, 269



Legend

- Bus route
- 265 Bus route number
- Bus route start/finish
- T Train line/station
- F Ferry route/wharf

Diagrammatic Map
Not to Scale
North

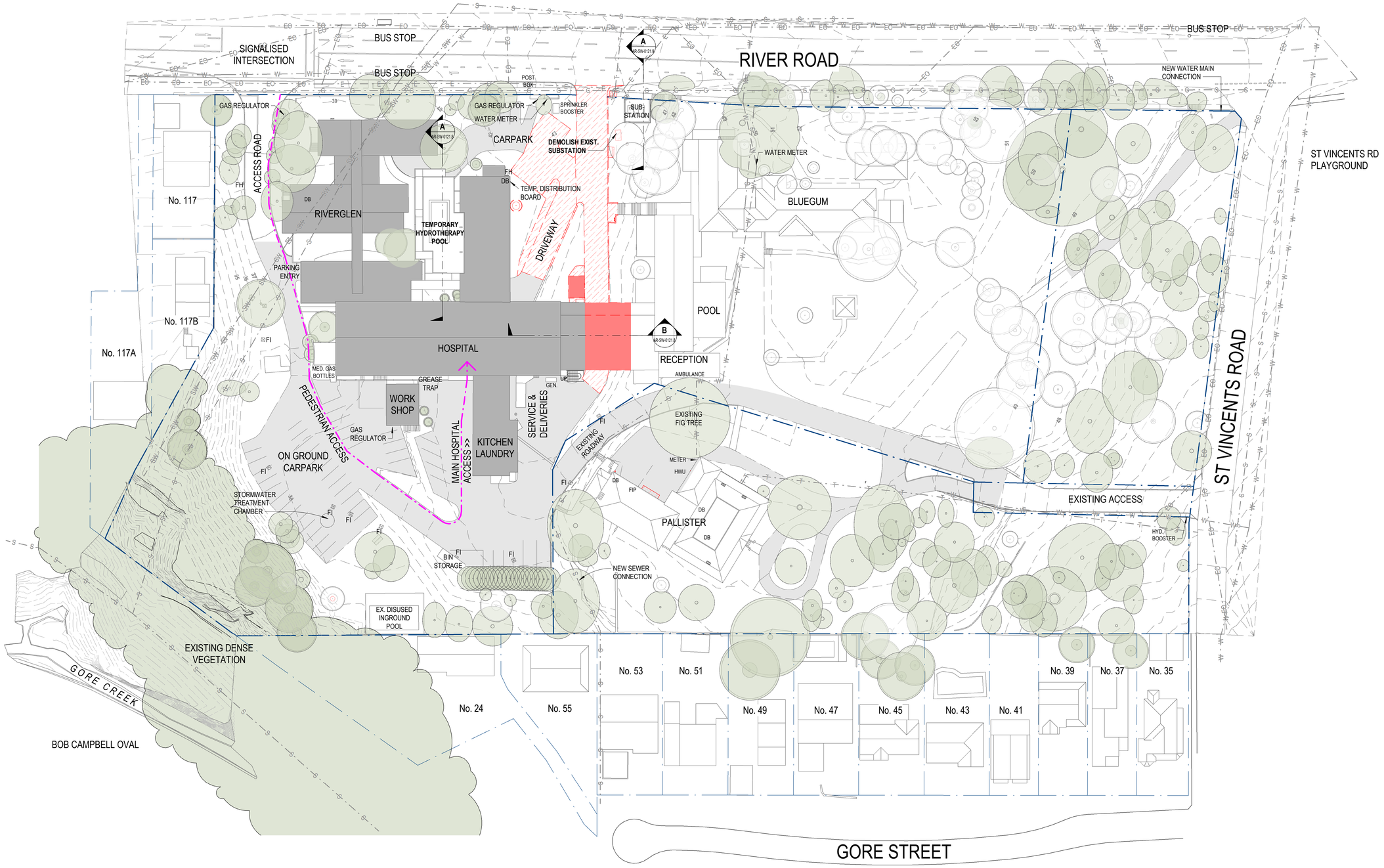
transportnsw.info

Appendix E
Construction Staging Plans

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994

STAGE 1 - SCOPE OF EXTERNAL DEMOLITION WORKS

- DEMOLISH EXISTING ROADWAY.
- DEMOLISH EXISTING BRIDGE LINK. REFER TO STRUCTURAL DWGS FOR TEMPORARY SUPPORT.
- DEMOLISH EXISTING BUILDINGS.



0m 10m 20m 30m 40m 50m

1 : 500 @ A1

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NSW NOMINATED ARCHITECT: ANDREW MASTERS **NSW ARB No. 9037**

REV	DATE	DETAILS	INITIALS
P2	2023.04.04	STAGE 1 - 100% ISSUE	NAH
P1	2023.01.16	75% ISSUE TO ROBERTS CO.	AMac

NORTH

NOTE: EXTENT OF DEMOLITION TO EXISTING HOSPITAL BUILDING DEMOLISHED IN STAGE 1 TO BE CONFIRMED.

PRELIMINARY ISSUE
NOT FOR CONSTRUCTION

SYDNEY
(02) 9261 8333
STUDIO 3, LEVEL 3
35 BUCKINGHAM STREET
SURRY HILLS 2010, NSW
www.bickertonmasters.com.au

CLIENT: HammondCare Champion Life

PROJECT: 01605
GREENWICH HOSPITAL REDEVELOPMENT
RIVER RD, GREENWICH

REVISION: P2
DATE: 11/30/22

DRAWING No: AR-SW-0121.7

DRAWING TITLE:
STAGE 1 - EXTERNAL WORKS - DEMOLITION

DRAWN: **CHECKED:** **SCALE:** 1 : 500 @A1

NSW NOMINATED ARCHITECT: ANDREW MASTERS (9037)

4/04/2023 8:46:03 AM

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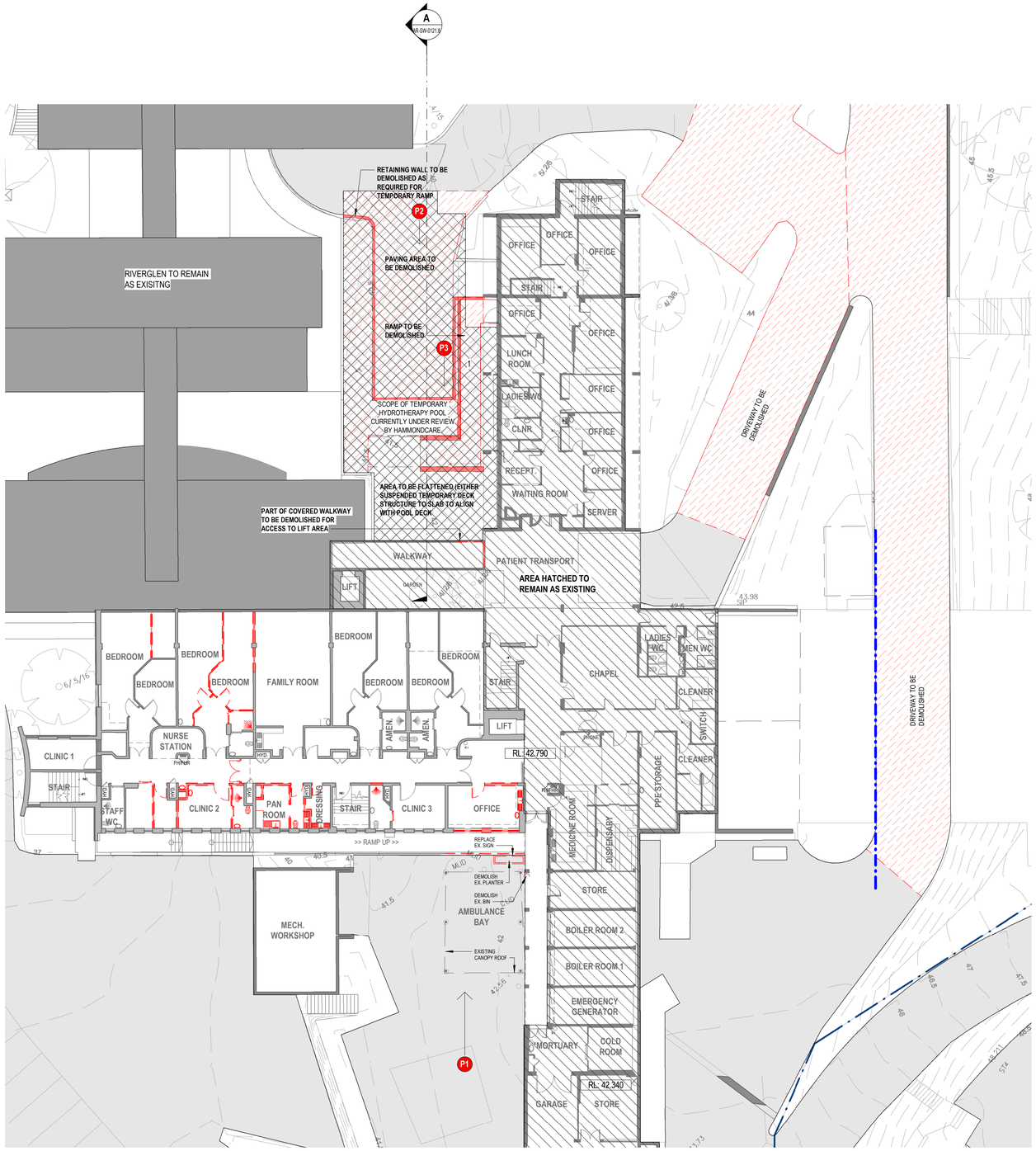



VIEW P1: RED HIGHLIGHTED AREA OUTLINES PART OF BUILDING TO BE DEMOLISHED IN STAGE 1



VIEW P2: RED HIGHLIGHTED AREA OUTLINES PART OF BUILDING TO BE DEMOLISHED IN STAGE 1



VIEW P3: RED HIGHLIGHTED AREA OUTLINES PART OF BUILDING TO BE DEMOLISHED IN STAGE 1

STAGE 1 - SCOPE OF INTERNAL DEMOLITION WORKS

- DEMOLISH EXISTING JOINERY, FIXTURES, AND FITTINGS.
- DEMOLISH EXISTING WALLS.
- REFER TO WRITTEN SCOPE OF WORKS FOR MORE DETAIL.

STAGE 1 - SCOPE OF EXTERNAL DEMOLITION WORKS

- DEMOLISH EXISTING ROADWAY.
- DEMOLISH EXISTING RAMPS AND RETAINING WALLS FOR TEMPORARY HYDROTHERAPY POOL
- REFER TO WRITTEN SCOPE OF WORKS FOR MORE DETAIL.

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NSW NOMINATED ARCHITECT: ANDREW MASTERS **NSW ARB No. 9037**

REV	DATE	DETAILS	INITIALS
P6	2023.04.14	STAGE 1 - 100% ISSUE - UPDATED	NAH
P5	2023.04.04	STAGE 1 - 100% ISSUE	NAH
P4	2023.02.17	ISSUE TO CONSULTANTS	NAH
P3	2023.02.03	ISSUE TO CONSULTANTS	NAH
P2	2023.01.31	ISSUE TO CONSULTANTS	NAH
P1	2023.01.16	75% ISSUE TO ROBERTS CO.	AMac

NORTH

LEGEND - DEMOLITION PLAN

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SITE BOUNDARY		DEMOLISHED (SURFACE)
	STAGING LINE		DEMOLISHED (CUT)
P1	SITE IMAGES		
1	DEMOLITION NOTES		EXISTING TO REMAIN

NOTE: EXTENT OF DEMOLITION TO EXISTING HOSPITAL BUILDING DEMOLISHED IN STAGE 1 TO BE CONFIRMED.

SYDNEY
(02) 9261 8333
STUDIO 3, LEVEL 3
35 BUCKINGHAM STREET
SURRY HILLS 2010, NSW
www.bickertonmasters.com.au

BIM

CLIENT: HammondCare Champion Life

PROJECT: 01605
GREENWICH HOSPITAL REDEVELOPMENT
RIVER RD, GREENWICH

REVISION: P6
DATE: 11/30/22
DRAWING TITLE: STAGE 1 - INTERNAL WORKS - GROUND FLOOR DEMOLITION
DRAWING No: AR-SW-0121.2
DRAWN: **CHECKED:** **SCALE:** 1 : 200 @A1

NSW NOMINATED ARCHITECT: ANDREW MASTERS (9037)

14/04/2023 3:00:06 PM

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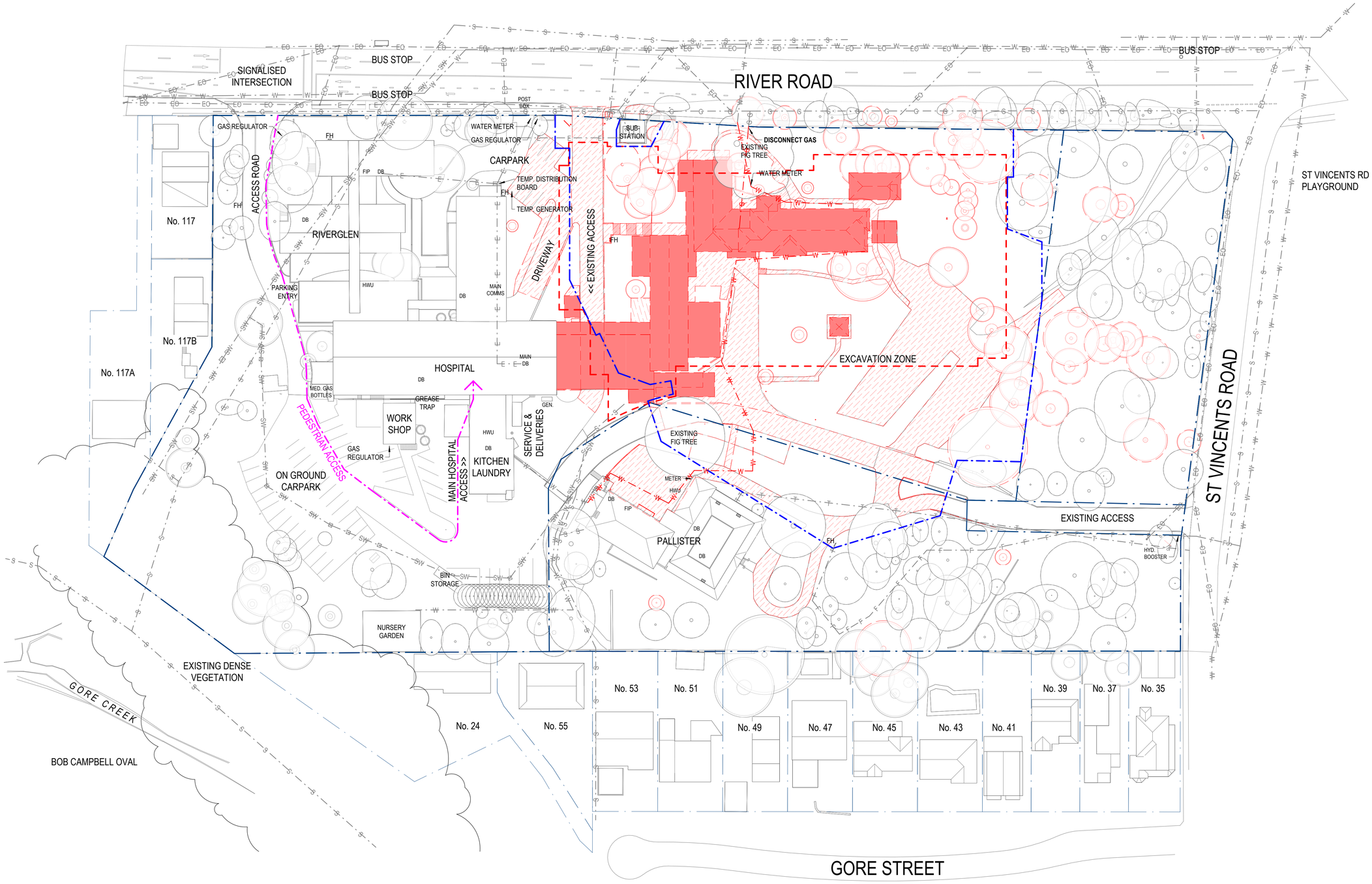

STAGE 2 - SCOPE OF EXTERNAL DEMOLITION WORKS

GENERAL
- DEMOLISH EXISTING ROADWAY.
- DEMOLISH EXISTING BRIDGE LINK. REFER TO STRUCTURAL DWGS FOR TEMPORARY SUPPORT.
- DEMOLISH EXISTING BUILDINGS.

HYDRAULIC
- ISOLATE AND CAP GAS SUPPLY TO BLUEGUM AND THE EXISTING HOSPITAL.
- LOCATE AND REMOVE THE EXISTING SEWER FROM BLUEGUM AND CAP THE SERVICE TO ENABLE STAGE 1 DEMOLITION.

STRUCTURAL
- PILING WALLS AS INDICATED ON STRUCTURAL DRAWINGS, PARTICULARLY TO SUPPORT THE EXISTING HOSPITAL.
- DETAILS INDICATING THE DEMOLITION OF THE EXISTING BRIDGE LINK AT THE UPPER LEVEL OF THE HOSPITAL AND SUPPORT TO EXISTING FOUNDATIONS AND ROOF BEING RETAINED THROUGH STAGE 2.

0m 10m 20m 30m 40m 50m

1 : 500 @ A1 THIS DRAWING IS IN COLOUR

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C1	02/09/2024	FOR CONSTRUCTION	SP
P11	08.07.2024	PRELIMINARY DBP ISSUE	ZB
P10	07.06.2024	STAGE 1 PRELIMINARY ISSUE	NAH
P9	29.02.2024	CLIENT ISSUE	ZB
P8	22.09.2023	90% ISSUE	NAH
P7	30.06.2023	80% ISSUE	NAH
P6	16.01.2023	75% ISSUE TO ROBERTS CO.	AMac

NORTH

LEGEND - SITE DEMOLITION PLAN

- SITE BOUNDARY
- STAGING LINE
- EXTENT OF EXCAVATION (APPROXIMATE)
- EXISTING TO REMAIN
- DEMOLISHED (SURFACE)
- DEMOLISHED (BUILDING)
- EXISTING SERVICE TO REMAIN
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CLIENT: HammondCare Champion Life

PROJECT: 01605
GREENWICH HOSPITAL
REDEVELOPMENT
RIVER RD, GREENWICH

REVISION: C1
DATE:
DRAWING No: AR-SW-0122
DRAWING TITLE: STAGE 2.1 PLAN - DEMOLITION

DRAWN: NAH CHECKED: SCALE: 1 : 500 @A1

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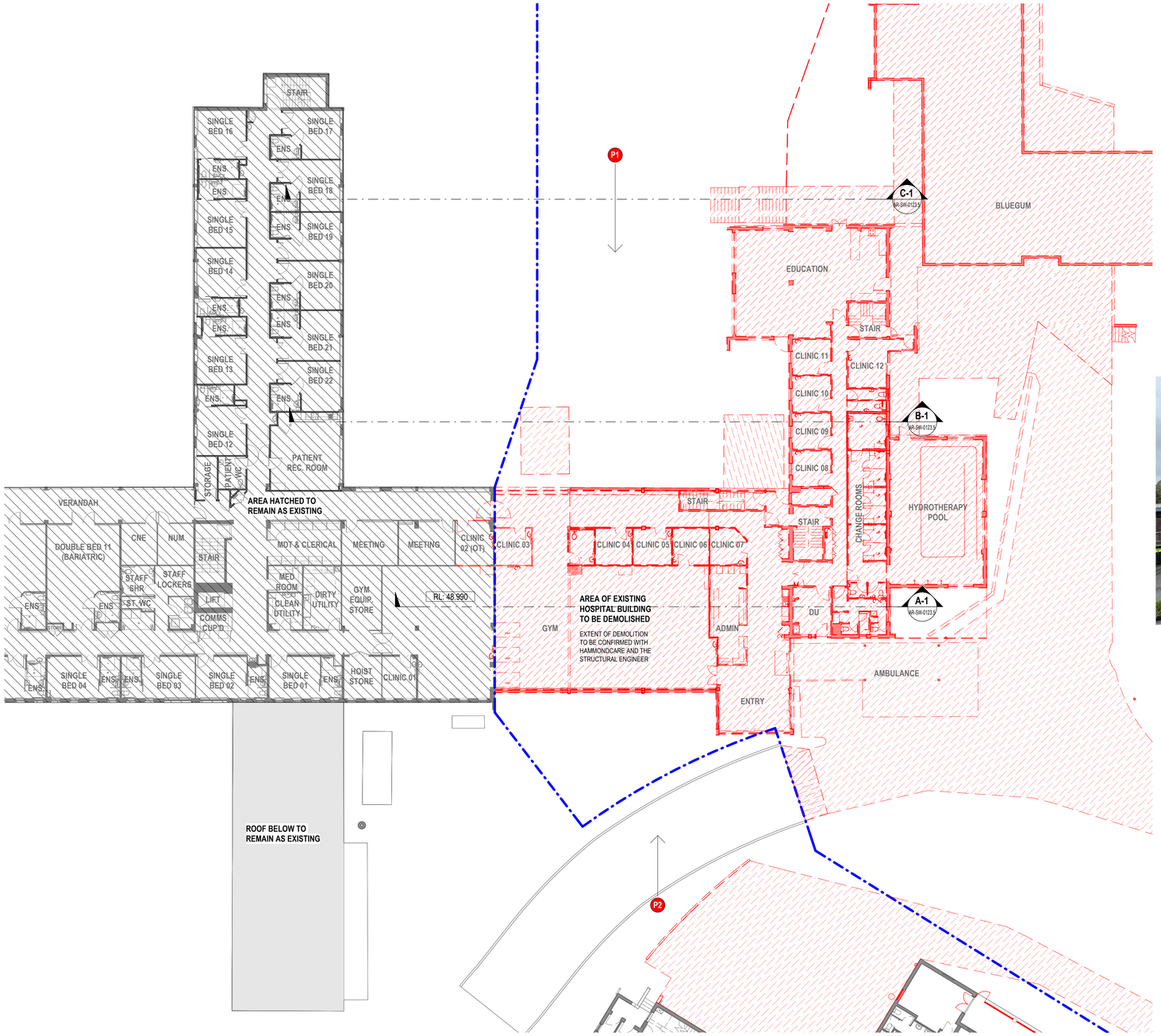



VIEW P1: RED HIGHLIGHTED AREA OUTLINES PART OF BUILDING TO BE DEMOLISHED IN STAGE 2



VIEW P2: RED HIGHLIGHTED AREA OUTLINES PART OF BUILDING TO BE DEMOLISHED IN STAGE 2

STAGE 2 - SCOPE OF INTERNAL DEMOLITION WORKS

- DEMOLISH EXISTING JOINERY, FIXTURES, AND FITTINGS.
- DEMOLISH EXISTING WALLS.
- REFER TO WRITTEN SCOPE OF WORKS FOR MORE DETAIL.

STAGE 2 - SCOPE OF EXTERNAL DEMOLITION WORKS

- DEMOLISH EXISTING ROADWAY.
- DEMOLISH EXISTING BRIDGE LINK. REFER TO STRUCTURAL DWGS FOR TEMPORARY SUPPORT.
- DEMOLISH EXISTING BUILDINGS.
- REFER TO WRITTEN SCOPE OF WORKS FOR MORE DETAIL.

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REV	DATE	DETAILS	INITIALS
P4	2024.06.07	STAGE 1 PRELIMINARY ISSUE	NAH
P3	2023.04.04	STAGE 1 - 100% ISSUE	NAH
P2	2023.02.17	ISSUE TO CONSULTANTS	NAH
P1	2023.01.16	75% ISSUE TO ROBERTS CO.	AMac

NORTH

LEGEND - DEMOLITION PLAN

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SITE BOUNDARY		DEMOLISHED (SURFACE)
	STAGING LINE		DEMOLISHED (CUT)
P1	SITE IMAGES		EXISTING TO REMAIN
1	DEMOLITION NOTES		

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RIVER RD, GREENWICH

REVISION: P4
DATE: 11/30/22
DRAWING TITLE: STAGE 2 - EXISTING HOSPITAL LEVEL 2 - DEMOLITION

DRAWING No: AR-SW-0123.3

DRAWN: ZB, NAH CHECKED: SCALE: 1 : 200 @A1

NSW NOMINATED ARCHITECT: ANDREW MASTERS (9037)

7/06/2024 9:49:42 AM

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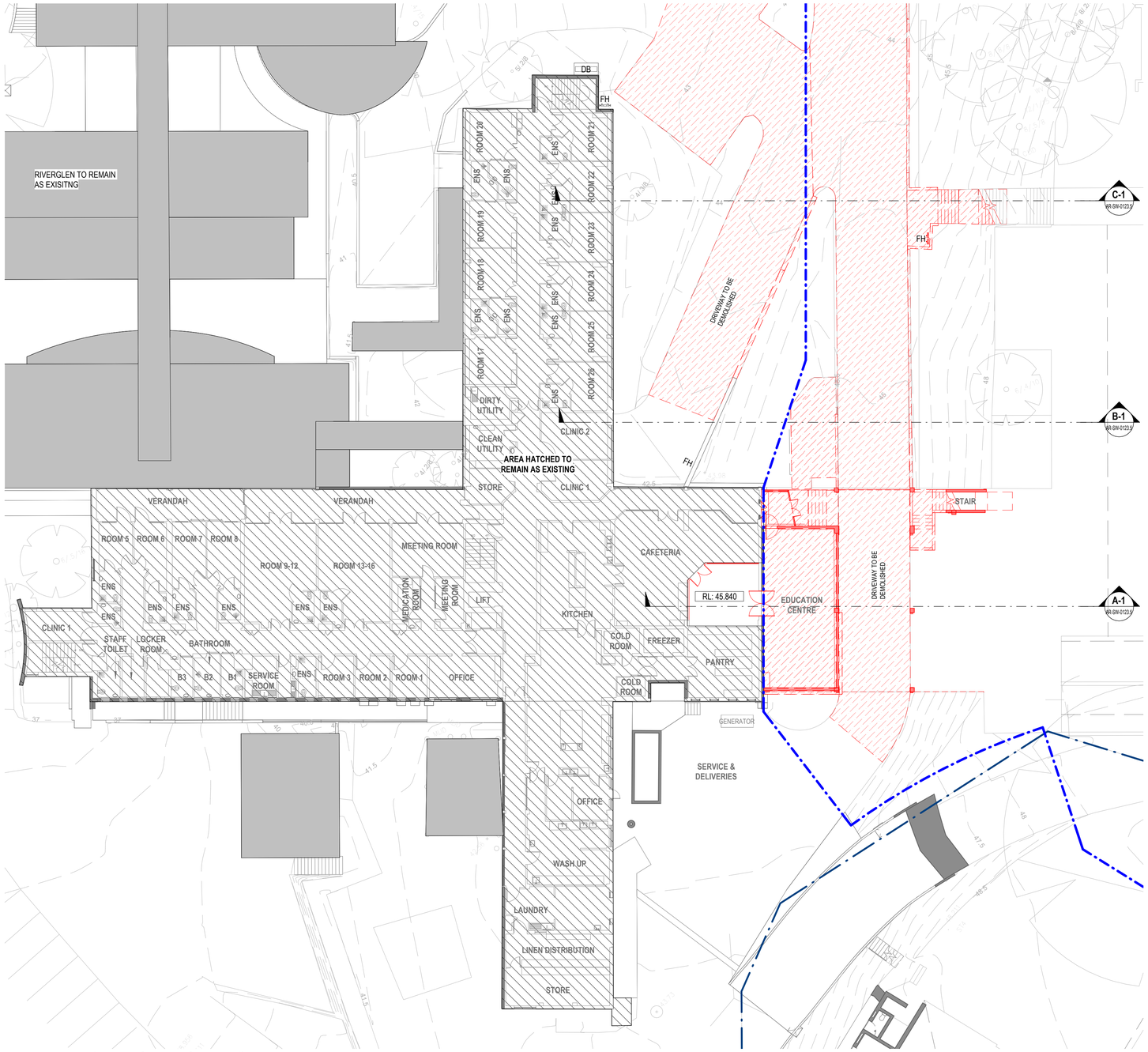

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REV	DATE	DETAILS	INITIALS
P2	2024.06.07	STAGE 1 PRELIMINARY ISSUE	NAH
P1	2023.11.06	UPDATES TO STAGE 1 DEMOLITION	ZB

NORTH

LEGEND - DEMOLITION PLAN

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SITE BOUNDARY		DEMOLISHED (SURFACE)
	STAGING LINE		DEMOLISHED (CUT)
P1	SITE IMAGES		EXISTING TO REMAIN
1	DEMOLITION NOTES		

STAGE 2 - SCOPE OF EXTERNAL DEMOLITION WORKS

- DEMOLISH EXISTING ROADWAY.
- DEMOLISH EXISTING BRIDGE LINK. REFER TO STRUCTURAL DWGS FOR TEMPORARY SUPPORT.
- DEMOLISH EXISTING BUILDINGS.
- REFER TO WRITTEN SCOPE OF WORKS FOR MORE DETAIL.

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REVISION: P2
DATE: 11/03/23
DRAWING TITLE: STAGE 2 - EXISTING HOSPITAL LEVEL 1 - DEMOLITION

DRAWING No: AR-SW-0123.1

DRAWN: ZB, NAH **CHECKED:** CM **SCALE:** 1 : 200

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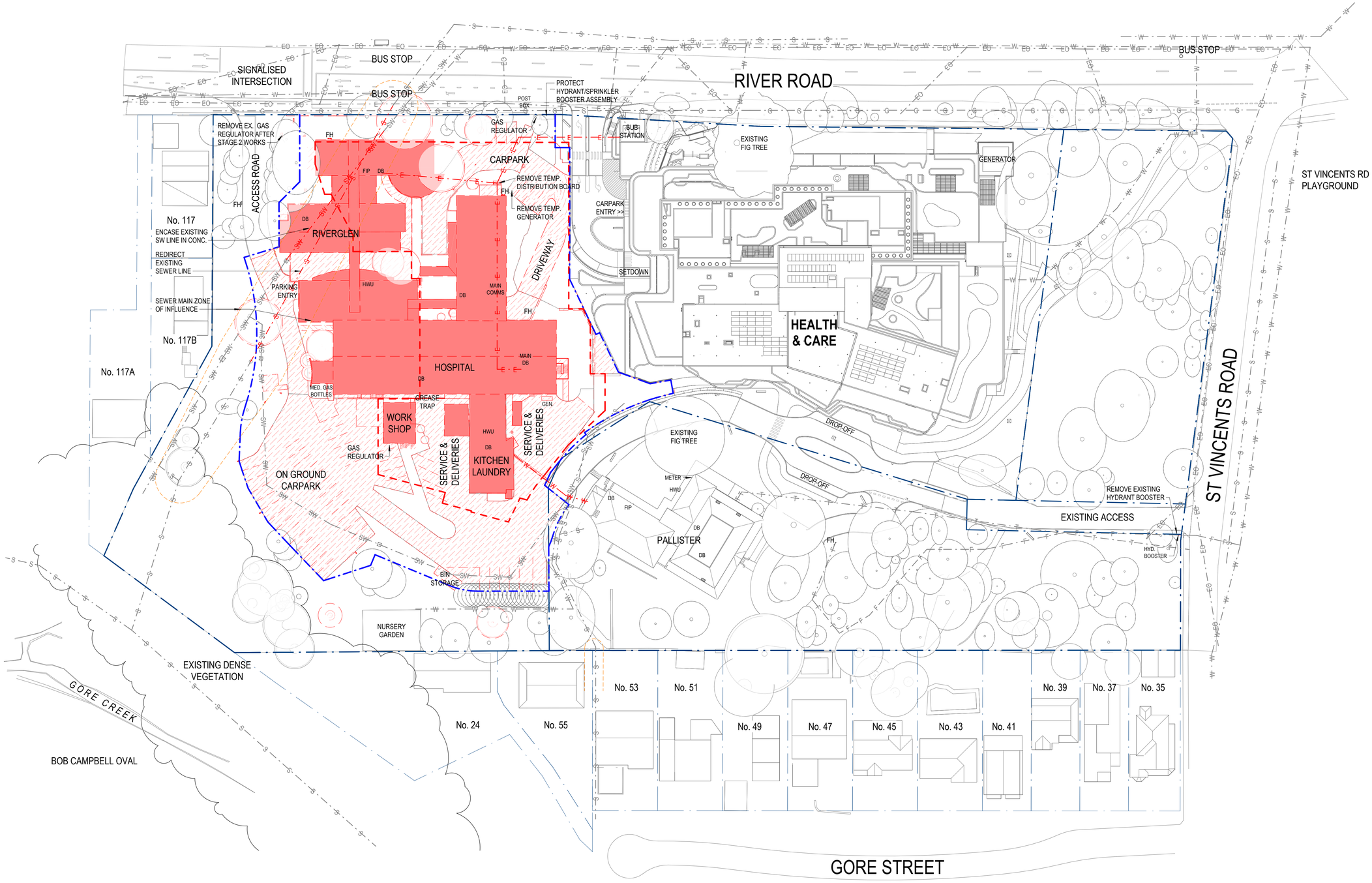

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NORTH

LEGEND - SITE DEMOLITION PLAN

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REVISION: C1
DATE:
DRAWING TITLE: STAGE 3.1 PLAN - DEMOLITION

DRAWING No: AR-SW-0124

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Appendix F
Construction Management Plan

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994



DRAFT Construction Management Plan
Greenwich Hospital Redevelopment

December 2022

roberts co

Document Details

Title	Construction Management Plan
Client	HammondCare
Document Reference Number	RCO-CMP-PLN-001
Principal Contractor	Roberts Co (NSW) Pty Ltd.
Roberts Co Project No.	21002
ABN	61 620 108 483
Project Address	97-115 River Road, Greenwich

Document Authorisation

PROJECT MANAGER	**SITE MANAGER**	**EHS MANAGER / COORDINATOR**
Date	**Date**	**Date**

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1 DOCUMENT CONTROL

All changes made to the Construction Management Plan are recorded in the amendment table below. The version number and date of revision for the current document revision are shown in the page 01-footer of the document.

1.1 Revision History

Revision	Date	Description of changes	Prepared by	Approved by
01	30/3/2022	Issue for review	PA	
02	11/4/2022	Show hospital traffic	PA	
03	14/04/2022	Amend Staging plans	PA	
04	05/05/2022	Amend - EU comments	PA	
05	09/06/2022	Add Staging Duration	PA	
06	14/12/2022	Staging Amended	PAnd	

1.2 Management reviews

Review date	Details	Reviewed by

1.3 Controlled copies

Name	Position	Date	Revision

2 PROJECT UNDERSTANDING

2.1 Proposed Project

2.2 The Site

This Construction 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 Proposed Site View

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:

- 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

2.3 Project Challenges

Our construction methodology has been developed with the mitigation of project challenges in mind, to maintain ongoing safety and managing day to day operations of the project, minimising disruption to the existing hospital operations, the public and site construction personnel.

From our review of the documentation and completed site visits we have identified the following key project challenges.

2.3.1 Demolition and Excavation

The project is divided into 4 stages as follows:

- 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

To facilitate the construction of Stage 2 (Main Hospital) the existing structures shown in red in the image below will need to be demolished first and will take up to 6 weeks to complete the scope.

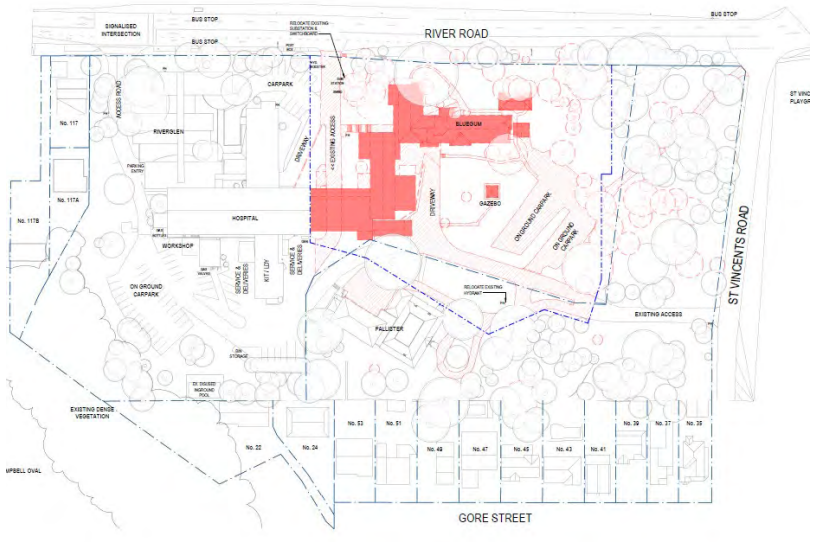


Figure 2 Demolition for Stage 2

Once the main hospital is complete (Stage 2), the remaining existing structures will need to be demolished in a live hospital environment to facilitate the construction of Seniors Living South and North (Stage 3) and the construction of the respite care building (Stage 4).



Figure 3 Demolition for Stage 3

Prior to demolition and excavation commencing, detailed dilapidation reports will be compiled on the neighbouring residences to the west. Consideration may also be given to compiling a similar dilapidation report on Pallister House. The dilapidation survey reports can be used as a benchmark against which to set vibration limits for rock excavation, and for assessing possible future claims for damage arising from the works. As dilapidation survey reports are relied upon for the assessment of potential future damage claims, they must be carried out thoroughly with all defects rigorously described (i.e. defect type, defect location, crack width, crack length etc) and defects photographed where practical.

Demolition and excavation will need to be carefully sequenced and completed in order to maintain the stability of the adjacent sections of existing buildings and structures within the site that will remain during the staged construction, the neighbouring buildings and structures and the fill batter slope over the western end of the site. This work will need to be completed using suitably experienced contractors. In this regard, we note that the excavations may extend below the base of adjacent footings supporting existing buildings and structures. We assume that the buildings and structures have generally been founded on bedrock. However, this must be confirmed during demolition by excavating test pits in order to expose the existing footings and confirm the foundation materials.

Based on inspection of these test pits by the structural and geotechnical engineers, the need and extent of underpinning, propping and/or wall strengthening measures can then be determined and detailed. Any

underpins that will be supporting the soil profile will need to be designed to resist lateral loading. During construction, plant, equipment or stockpiles of material must not operate and/or be located west of an exclusion zone defined by a theoretical failure plane line projected up from the toe of the fill batter slope at an angle no steeper than 1V in 2H. On the basis of the investigation results, following demolition, the proposed excavations will encounter the soil profile and penetrate weathered sandstone bedrock over the central and eastern portions of the proposed basement.

Due to the presence of poorly compacted fill, which may extend below Pallister House, its not recommend the use of rock breakers during demolition or rock excavation in close proximity to the building due to the potential for transmission of vibrations which could cause damage, unless the building is founded on, or underpinned to, bedrock. Based on the results of the test pit inspections described above, underpinning of the building may be required. The excavation of the soil profile and extremely weathered bedrock to be readily completed using bucket attachments to tracked excavators. We expect that excavation of low and higher strength bedrock will require small to medium size rock breakers and ripping attachments to the tracked excavators and possibly dozers with ripping tyne attachments. Alternative excavation techniques to reduce vibrations and therefore reduce vibration monitoring could include using a rock grinder on the excavator, or a large excavator mounted rock saw to grid saw the bedrock into blocks that could then be removed using a ripping tyne attachment to the excavator, or locally using drill and split techniques. We also note that ‘dropping’ of large sections of existing structure during demolition should also be avoided to prevent the generation of potentially damaging vibrations. (Content provided by JKGeotechnics 32507R2rpt).

2.3.2 Vibration & Ground Surface Movement Risks

There is a possibility that vibrations from excavation equipment and other site activities may cause damage to adjoining structures within or neighbouring the site if these adjoining structures are not founded on bedrock. The preference is to underpin any adjacent structures to rock. Where adjoining structures are founded on and/or underpinned to rock, the limit for vibrations provided below should be assessed by the structural engineer following review of the dilapidation reports.

Where rock breakers are used during demolition and to excavate bedrock, continuous quantitative vibration monitoring of the neighbouring buildings and structures to the west will be required, to confirm that the peak vibration velocity (Vi, max) falls within acceptable limits. Subject to review of the dilapidation reports described above, and assuming adjoining structures are founded and/or underpinned on bedrock, the Geotech engineer recommend that the Vi, max does not exceed 5mm/sec during bedrock excavation using rock breakers, subject to confirmation by the structural engineer.

JK Geotechnics also recommend that consideration be given to similar vibration monitoring of the adjacent sections of hospital buildings that will remain during bedrock excavation using rock breakers. Subject to confirmation by the structural engineer, they recommend that Vi, max’s do not exceed 3mm adjacent to Pallister House and 10mm/sec for the remaining hospital buildings. Should higher vibrations be measured they should be assessed against the Vibration Emission Design Goals as higher vibrations may be acceptable depending on the vibration frequency. JK Geotechnics note that the vibration limits recommended above will reduce the risk of vibration damage to the neighbouring and/or adjacent buildings and structures. However, these vibrations may still result in perceived discomfort or concern to occupants of the neighbouring buildings and/or the hospital buildings. (Content provided by JKGeotechnics 32507R2rpt).

2.3.3 Existing Ausgrid Substation

The site is currently being serviced by an existing substation (2386). The figure below shows the AUSGRID network map for this substation and the surrounding area.



Figure 4 Exisitng HV Network

Existing High Voltage Endeavour Energy network reticulates along River Road and into the current Greenwich site to supply the existing kiosk substation. We can also see that the substation on HammondCare's land also supports the LV street network on River Road. This LV provides power to street lights and residential houses on the opposite side of the road. When this substation is removed and new substation/s are provided for future works, it will be required as part of the certified Level 3 design to either support the existing LV electrical supplies off another substation or support them off the new substation. This will be part of the design process, staging arrangements, and co-ordination with AUSGRID.

There is also an existing electrical easement that encompasses both the existing kiosk substation and the Ausgrid cables that reticulate within HammondCare's property. These easements will require relinquishment as part of the Ausgrid coordination works with the new substations.

3 PRE-CONSTRUCTION

3.1 Mobilisation and Kick-off Meeting

A start-up workshop will be held and chaired post contract award to meet all project stakeholders and to introduce the RCo team. The workshop will establish an interpersonal framework of integrated goals, roles and processes to encourage cooperation and collaboration which will ultimately result in a successful project. We will also use this meeting to review the risks and mitigation strategies as well as discuss any opportunities for innovation.

We will review preparation, submission and approval of RCO's project-specific plans including:

- Work, Health & Safety management plan
- Workplace Relations management plan
- Quality management plan
- Design management plan
- Environmental management plan
- Training management plan
- Traffic & pedestrian management plan
- Noise & vibration management plant
- Contract construction program
- Waste management plan
- Risk Management plan

Following the kick-off meeting, a regular monthly Project Control Group Meeting will be held to discuss matters including:

- Onsite work, health and safety matters
- Anticipated completion date
- Design and Construction works completed to date
- Construction status against the contract programme
- Matters affecting the Project deliverables
- Potential delays
- Current or pending variations to the Contract
- Progress claims
- Weekly programme reports
- Site instructions required from the Principal.

3.2 Industrial Relations

3.2.1 Overview

Roberts Co is committed to the effective and proactive management of industrial relations and we recognise that this, coupled with employee and contractor engagement, is a key contributing factor to the successful completion of the project.

We encourage greater flexibility and productivity with the aim of ensuring our Clients get maximum value from the projects we deliver. To achieve this, we will establish a positive and stable industrial relations environment from the start of the project by identifying requirements and providing guidance for Roberts Co and all participants on the project.

Our project team have experience of successfully managing industrial and employee relations on projects. At a minimum, the Company, our subcontractors undertaking works on the project, suppliers and consultants will be managed in accordance with the requirements of the WRMP.

The plan will do this by ensuring a constant focus on the following:

- Consistent and regular communication
- Implementation of initiatives that positively engage the workforce, our stakeholders and the community
- Ensuring the stakeholder relationships are based on transparency, respect and trust;
- Strong Environmental, Health and Safety (EHS) performance
- Provide and foster a work environment that supports cooperative working relationships and reduces the potential for workplace conflict
- Clear and concise processes and procedures that adhere to the legislation governing Industrial Relations, that foster stakeholder understanding and encourage the right behaviours.

This approach is supported by our Industrial Relations Policy.

3.2.2 Compliance

Roberts Co will comply with:

- The NSW Code of Practice for Procurement January 2005 (‘NSW COP’);
- New South Wales Industrial Relations Guidelines, Building and Construction Procurement, September 2017 (‘Guidelines’); and
- Code for the Tendering and Performance of Building Work 2016 (‘Code’), as amended from time to time.

Roberts Co has a current code compliant Enterprise Bargaining Agreement with our workers and the CFMEU that came into effect in October 2020.

The Project Manager has overall responsibility for ensuring compliance with the WRMP as part of our obligations in relation to contractual requirements, applicable legislation, industrial instruments, Codes and guidelines.

We will:

- Ensure on-site practices and procedures comply with the NSW COP and Guidelines, the Code, the health and safety management plan and WRMP
- Ensure that our subcontractors comply with the NSW COP and Guidelines, the Code and the WRMP; including reviewing their responses to the invitation to tender documentation
- Comply with any reasonable request for access and information from the Construction Compliance Unit (CCU)
- Report all suspected breaches of the Guidelines, or Code, to the CCU and the client agency within 24 hours of becoming aware of the suspected breach
- Allow the CCU to monitor and investigate compliance by interviewing any person, inspect any work, material, machinery, appliance, article or facility; or inspect and copy any record relevant to the project
- Require subcontractors to demonstrate they are meeting their obligations under the WRMP.

The nominated project team have experience in successfully delivering projects with no delays or industrial issues through developing positive working relationships with clients, stakeholders, employees, subcontractors and their representatives. Roberts Co are currently delivering all our live projects in compliance with the Code and Guidelines and are well aware of the requirements in our works.

3.2.3 Workplace Relations Management Plan

Project works will be undertaken in accordance with a site specific WRMP (RCo's internal document and not part of this EIS). The WRMP provides the framework for successful delivery of the project with no delays or industrial issues. The framework includes:

- Clear project roles and responsibilities
- Workplace Relations Risk Assessment and Management
- Site Establishment guidelines
- Subcontractor Management standards and procedures
  - Tender evaluation process and review (discussed in more detail within the Procurement Plan section)
  - Contract documentation
  - Subcontractor compliance
  - Managing subcontractor non-compliance
  - Productivity measurement
  - Direct labour management
- Inductions and Mobilisation
- Labour Productivity and Fatigue Management
- Freedom of Association
- Right of Entry
  - Training of staff in right of entry
  - Site security and access
  - Managing right of entry

  - Monitoring right of entry
  - Employee Representatives
- Grievance Management
- Management of unlawful industrial action

3.3 Procurement

To ensure program compliance is maintained at the level of quality required for the proposed hospital redevelopment it is essential the right subcontractors are selected to perform the works who can meet the demands of the project.

Critical packages identified for this project include:

- **Jumpform** – the procurement and erection of the jumpform is critical to achieving the programme dates. As the jumpform will be one of the first elements required on site following hand over of an excavated site, quick design finalisation and procurement of the jumpform will be required. We will award this separately to the Jumpform supplier to secure the system and then novate to the formworker.
- **D&C Services trades** – these will need to be selected prior to Contract award and engaged immediately upon contract award. Services trades will be required to review, verify and develop design to allow core designs to be finalised. Services trades are also critical for finalising inground hydraulic services and basement plantrooms designs.
- **Civil & Retention structures**– the design of the site retention systems and method of excavation is crucial to commence quite early
- **Post Tension** the final design of the structure and have shop drawings coordinated with the services trades is important to maintain program
- **Façade** – early procurement will be key to ensure there is sufficient time to design, prototype and procure the façade elements.

We will adopt a range of approaches in the procurement and subcontractor management phases of the project. These include:

- Preferred trade partners who can bring expertise, value and market experience to the design and delivery of the project will be selected on the basis of their experience, corresponding expertise, safety performance, quality, capacity (both in design and on site) and value for money.
- Key subcontractors that have the capacity and capability to deliver the balance of the trade packages will be invited to tender the works in a competitive environment. These subcontractors will be assessed and only invited to tender if we believe they have the capacity to undertake the works.

Our procurement programme is derived from lead times determined from the overall construction program. Initial focus will be on D&C service subcontractors, structure and façade packages with this early procurement critical to ensure and secure the best fit subcontractor for the respective trade packages.

Procurement of all consultant and subcontractors will be completed in accordance with Roberts Co Procurement Procedure and Procurement Guidelines. Conformance with these guidelines will ensure that subcontractors and suppliers meet the safety, environmental and quality requirements determined by the organisation. We recognise that a robust supplier, service provider and subcontractor network is a key element of a successful and safe business.

Roberts Co has a process for early engagement with the supply chain, including subcontractors. To increase certainty of performance, we will select subcontractors who have been proven on projects and shown their capacity to comply with the relevant legislation and the NSW Code and Guidelines.

The assessment process includes a detailed review of the subcontractor's:

- Track record of industrial relations management on previous projects
- Administration processes and capability (payroll etc)
- Status in relation to any industrial instrument(s)
- Ability to allocate adequate resources that will ensure timely delivery of works on the project
- Experience in delivering the type of project that is being tendered
- History of engagement with employees and their representatives
- Ability to manage employee grievances and industrial relations disputes
- Plan to drive productivity gains on their projects
- Management of their workforce while providing a high quality of work
- History of compliance with applicable legislation, codes and guidelines, as well as any industrial arrangements in place that covers their workers terms and conditions

All potential subcontractors are required to complete a Subcontract Tender Details (STD) form in addition to setting out scope of work requirements that forms part of the Invitation to Tender (ITT) documents issued for each package of works. This is designed so that we can assess compliance with:

- The New South Wales Code and Guidelines
- Employment obligations under the Fair Work Act
- Any industrial instrument(s)
- Work Health and Safety requirements and legislation, as well as past performance
- Contractual obligations as prescribed in the standard forms of contract
- Workforce capacity
- Level of insurances
- Current project workload

The STD document consists of:

- Invitation to Tender Letter (Conditions of tendering, including the NSW model tender and contract documentation)
- Technical scope of works
- Subcontractor Tender Details document that requires tenderers to answer questions relating to:
  - Organisational structure
  - Project and company insurances
  - Types of management plans in place
  - Current workload
  - Workplace health and safety, environmental, quality and industrial relations
  - Permission to allow financial auditing by Roberts Co
- Conditions of contract
- Questions relating to workplace health and safety, environment and quality

4 CONSTRUCTION STRATEGY

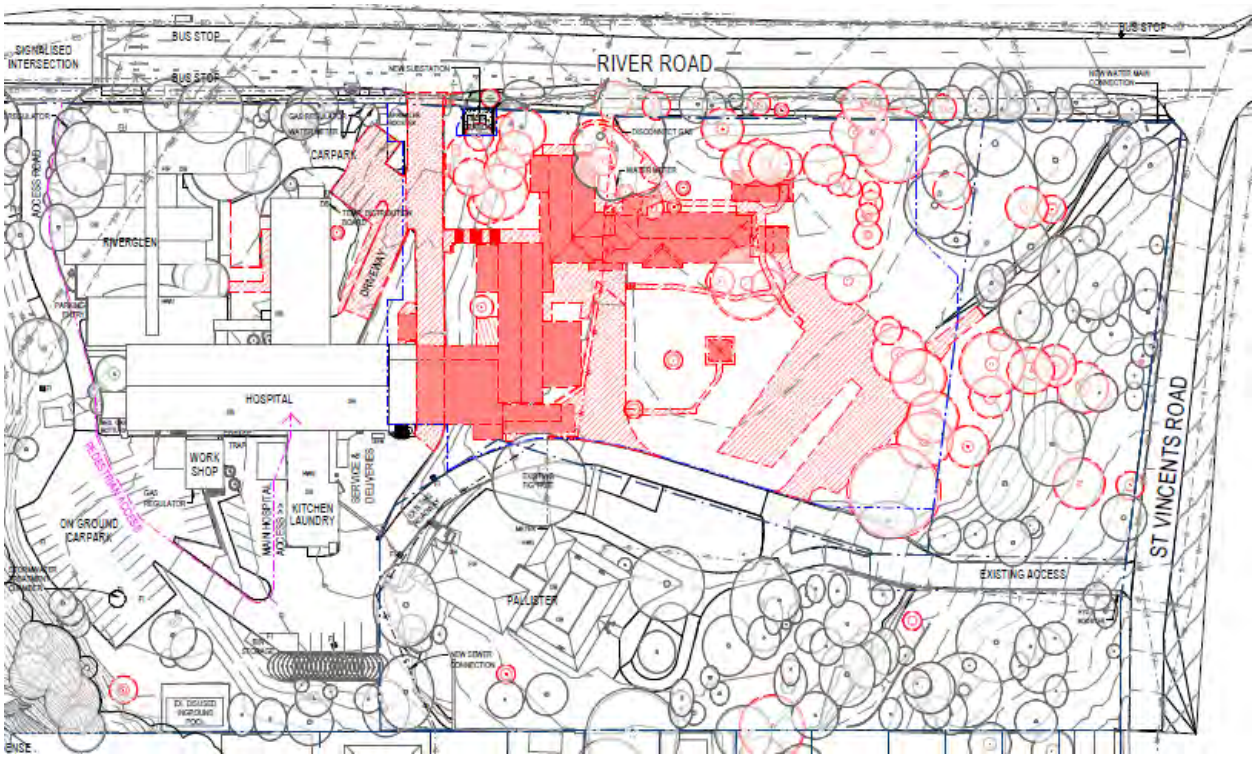
4.1 Site Establishment

4.1.1 Site Boundaries

The site compound will fully enclose the works using a combination of A class and B Class Hoardings, as shown on the Site Establishment drawings for all the stages.

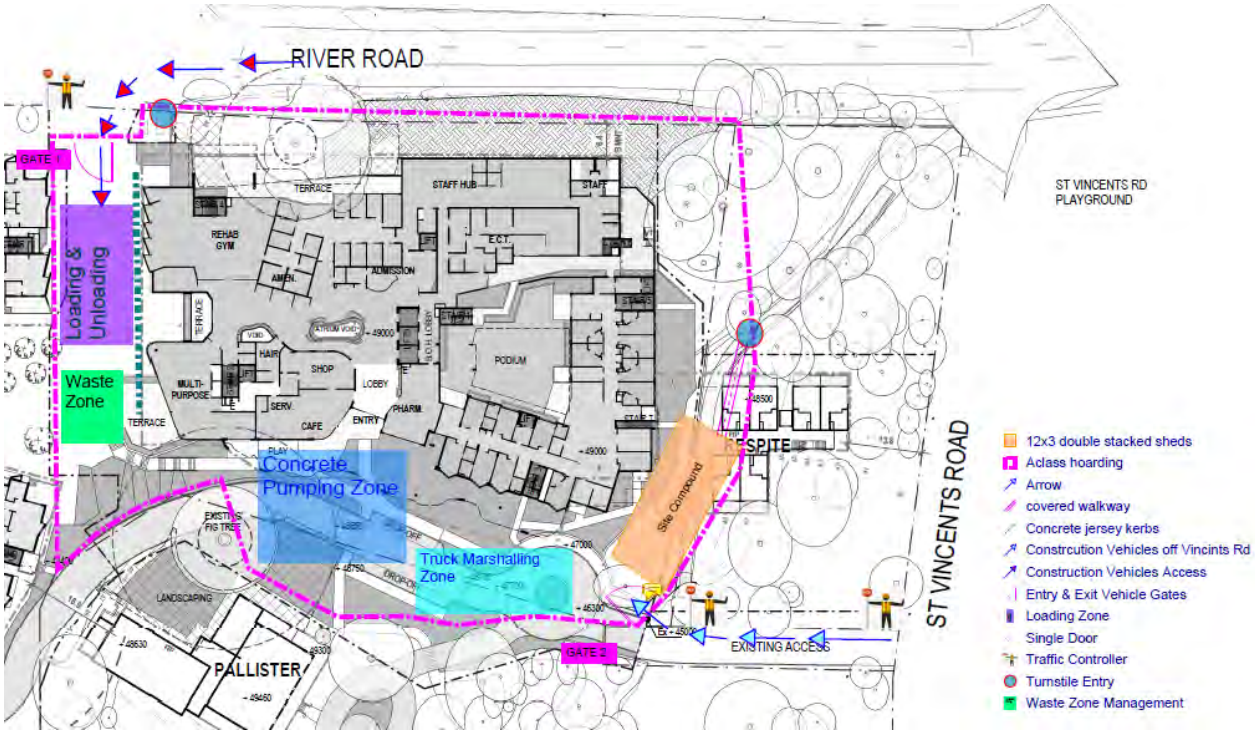
Prior to the installation of A Class Hoardings, we will install temporary fencing. This will be used to demarcate required exclusion zones during the demolition of the structures. Once the demolition of the existing buildings is complete, A Class Hoardings will be erected.

4.1.1.1 Stage 1



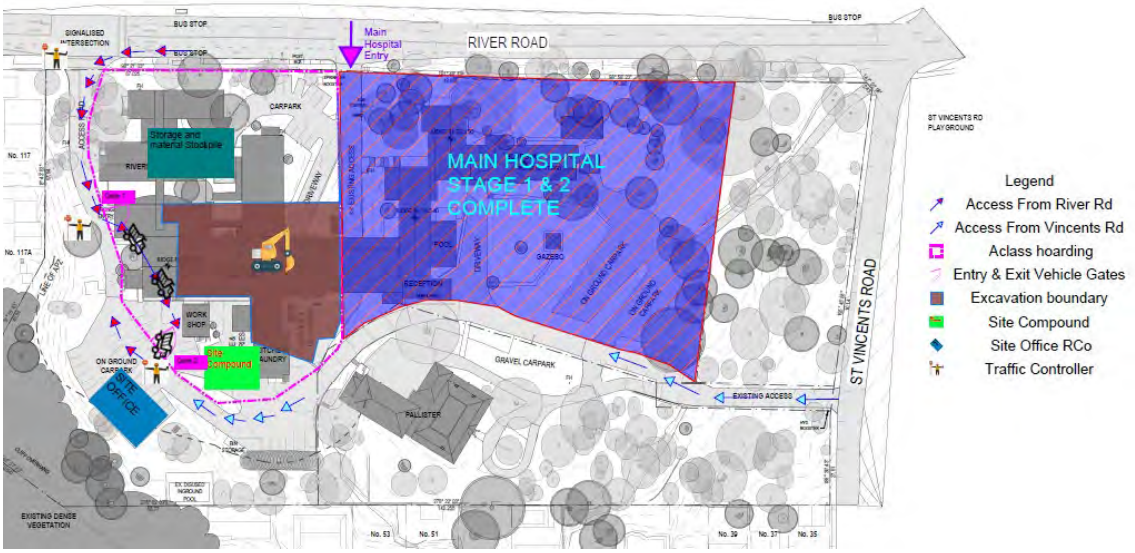
Stage 1 incorporates early works and external works. The scope of works for this stage involves external works (services decommissioning and capping, temporary MSB, new substation, potable water supply, and temporary power and comms supply to hospital and Pallister House). Temporary services to support Stages 2 & 3, temporary hydrotherapy pool and miscellaneous internal works will also be carried out.

4.1.1.2 Stage 2



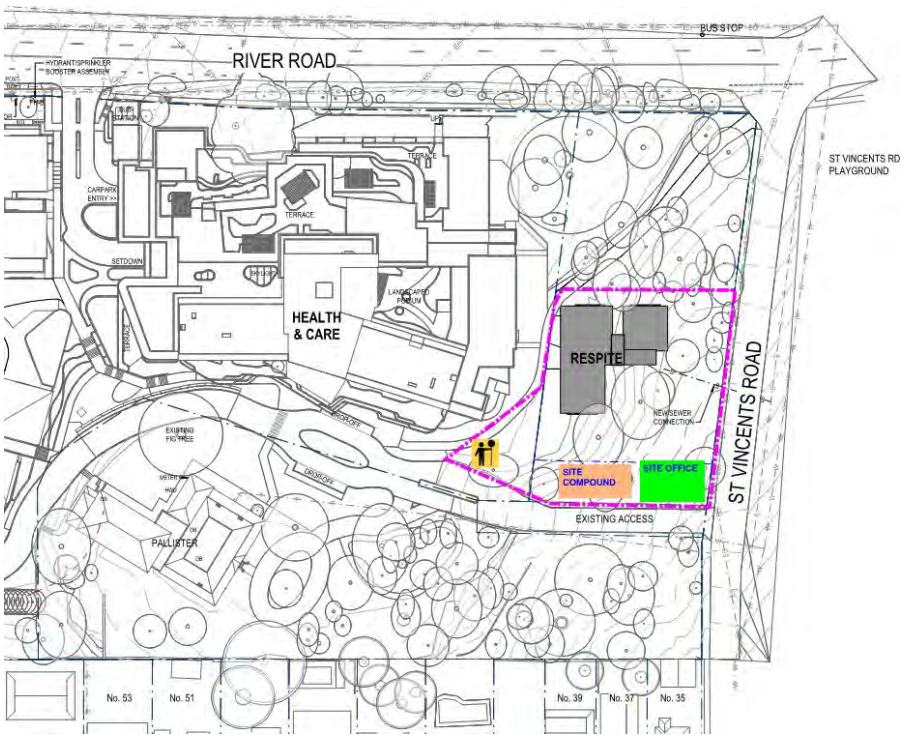
The image above shows the site boundary for Stage 2 which includes two access gates for construction vehicles and two turnstile gates for workers.

4.1.1.3 Stage 3



Stage 3 boundary will encapsulate the future Stage 3 (Senior Living Buildings) site and provide an area for material handling and storage.

4.1.1.4 Stage 4



4.1.2 Traffic Management

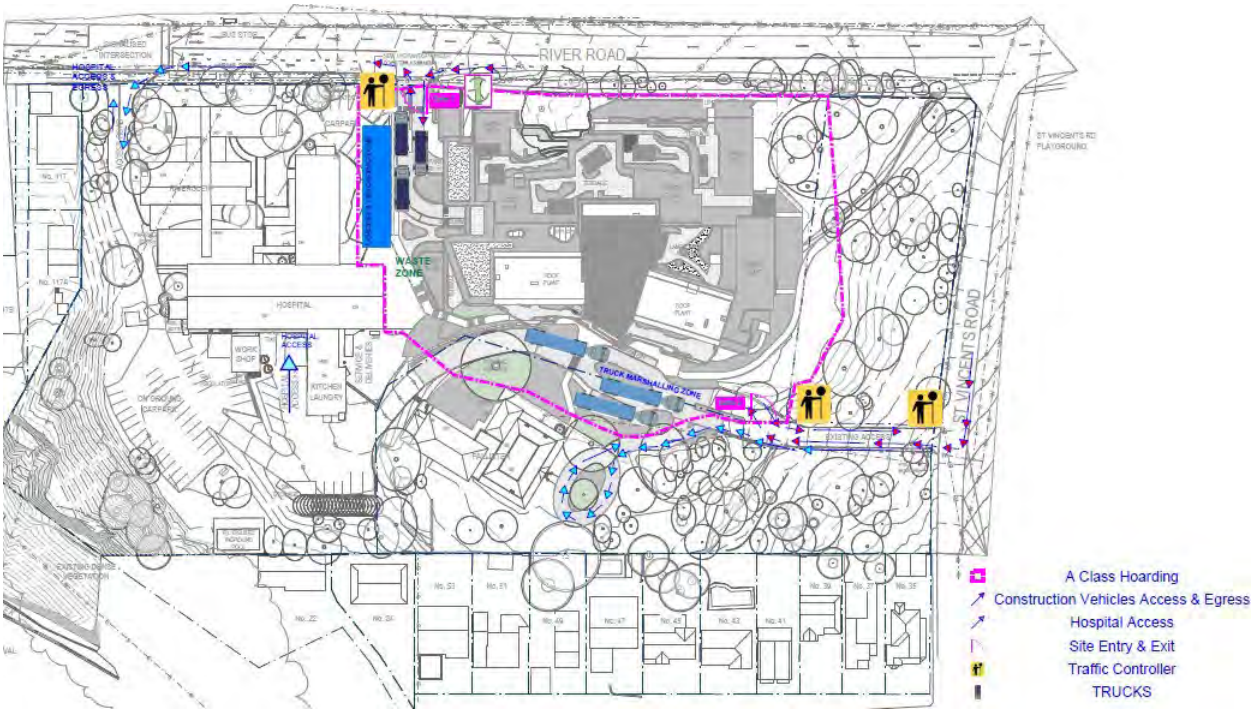
We understand the importance of providing a seamless transport management strategy to ensure construction works do not impede the operation of the Hospital and the public with the following construction vehicle impacts have considered:

- Reducing impacts to residents on surrounding streets.
- Maintaining vehicle and pedestrian access along St Vincent Road and River Road.

A Construction Traffic Management Plan will be included as part of the final CMP outlining all requirements for construction vehicles during construction works. The Construction Traffic Management Plan will highlight approach and exit routes for construction vehicles to the site as well as confirm swept paths for all construction vehicles within the site. The CMP will be in accordance with TTPA Greenwich Traffic and Parking Assessment, ref 20352.

Subject to Traffic Engineer's input and approval, RCo are considering the following traffic management routes for each stage:

4.1.2.1 Stage 2



For Stages 1 & 2, during all phases of construction, access for construction vehicles will be via St Vincent's Road and River Road.

Based on the scale of the development and the proposed construction programme, the following number of vehicles are expected as summarised in the table below. These construction vehicle volumes are indicative only and would be confirmed following the procurement of subcontractors.

Description	Stage			
	Bulk Excavation	*Structure*	*Fitout and finishes*	*Landscaping / external works*
Deliveries per day	30-40 per day	25-30 per day	30 per day	20 per day
Deliveries per hour	6 - 8 per hour	5 per hour	6 per hour	4 per hour

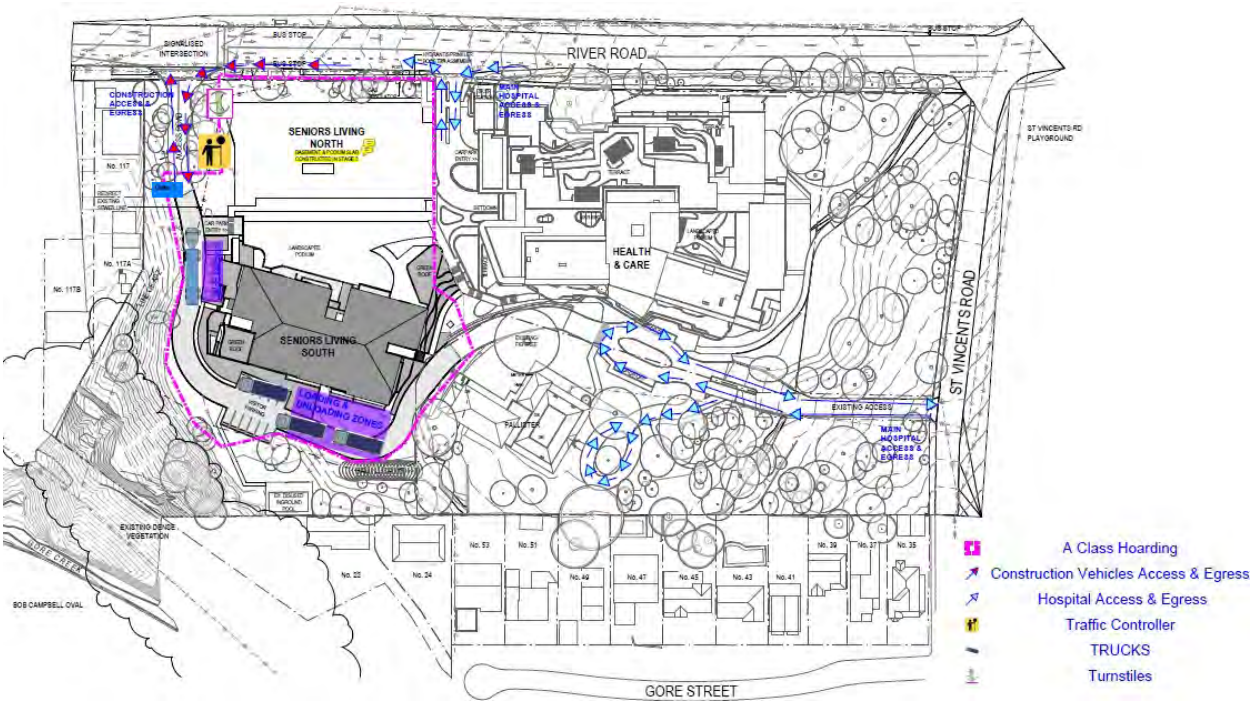
The following vehicle types as outlined in Australian Standards AS2890.2 are expected to be used during the project across all stages:

- 19m Single Articulated Vehicles (AVs) or truck and dogs;
- 12.5m Heavy Rigid Vehicles (HRVs)
- 8.8m Medium Rigid Vehicles (MRVs)
- 6.5m Small Rigid Vehicles (SRVs);
- Utes/vans

The maximum truck size that will likely access the site is a 19m Articulated Vehicle which will carry large construction material. There is provision on-site for these vehicles to turn around and so they will be able to access the site directly and will not require a Works Zone on the adjacent public road system.
All heavy goods such as machinery plant will need to be delivered outside of peak traffic hours.

4.1.2.2 Stage 3

Subject to approval from HammondCare, the construction traffic access and egress to construct Stage 3 will be via River Road and St Vincent's Road as noted below.



4.1.2.3 Construction Vehicle Interface with the Public

There will be multiple occasions where construction vehicles will require interface with the public. RCo have developed a site plan and staging to minimise these interfaces and where unavoidable will have strategies in place to ensure there is clear separation between construction and public zones. These strategies include:

1. **Traffic Control**
   The primary control for all construction vehicles will be traffic control including traffic controllers and signage. Through a well-planned an effective traffic management strategy we can manage all vehicles entering and existing the site. Traffic Controllers will manage the site gates on River Rd and St Vincent's Rd

2. **Timing of Deliveries**
   Deiveries will be scheduled during off peak times where possible to minimise the impact of construction on public traffic.

3. **Slip Lane**
   Concrete Pumping activities will be completed from within the site boundary which will further reduce the interface of construction activities with the public.

4.1.3 Scaffold

The leading-edge protection will predominately be provided through implementation of perimeter captive scaffold for all stages, main hospital, and senior living buildings.

4.1.4 Materials Handling

4.1.4.1 Cranage

A crane analysis has been undertaken to ensure the model, position of the cranes and jib radii are the most efficient solution for the building. The tower cranes will have a max radius of 60m will be erected from the main hospital entry off River Rd using a mobile crane.

The exact type of the cranes and the capacity at max radius is yet to be determined once the design has progressed further towards the 50%

No lifting of loads will take place over adjacent properties. The bases of the tower cranes will be secured with a non-climbing screen, preventing the potential for any member of public accessing the cranes. The machine deck access hatches shall be secured at the end of each day and motion detectors shall be installed within the towers with a back to base alarm notifying of any unauthorised persons gaining access to the towers.

The below images show the location of the tower crane for each stage. The erection and dismantling position for the crane for all stages will be using the Hospital Main entry suspended slab.



Figure 5 Stage 2 Tower crane location

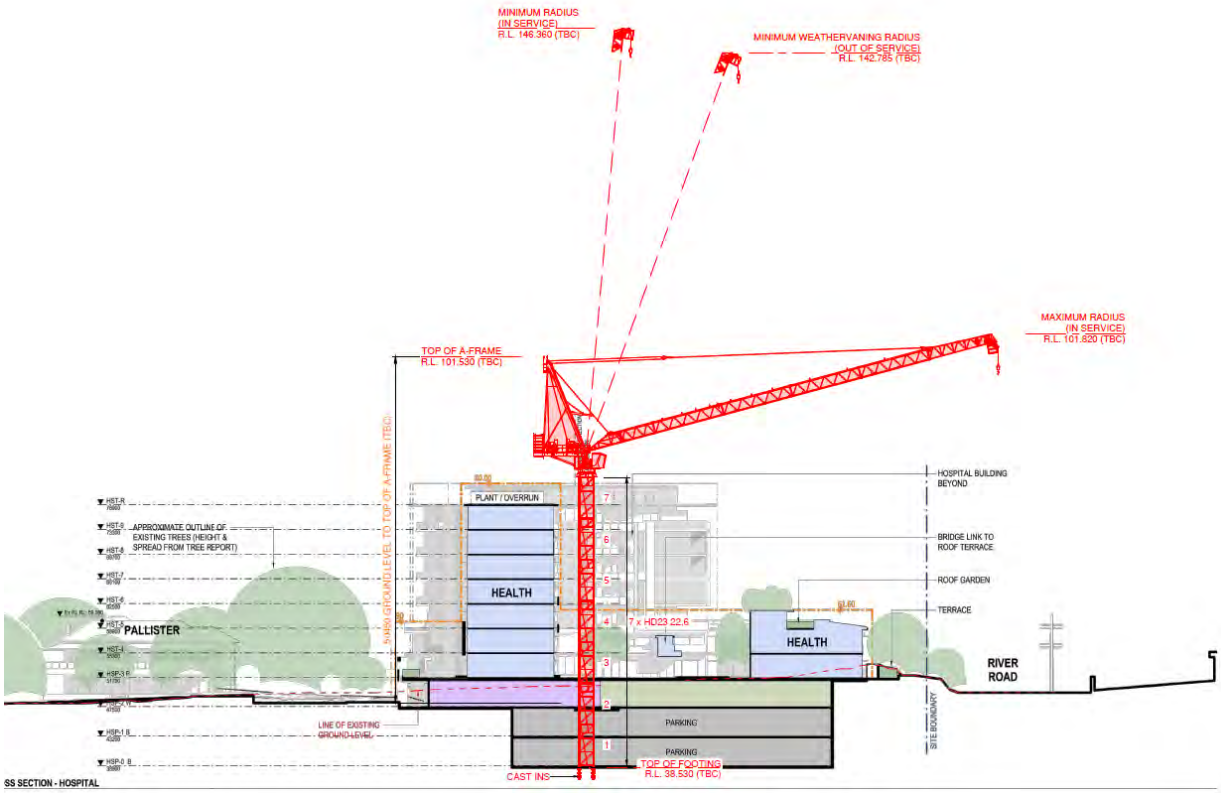


Figure 6 Stage 2 crane elevation



Figure 7 Stage 3 TC location

4.1.4.2 Loading Platform

To feed the project with materials, we will install industry standard retractable loading platforms. They will initially be used to crane formwork, falsework and materials from the floors as the structure is completed. They will then be used to pre-load services trade materials (i.e. duct, pipework, cable tray and the like) and finishing trades materials including the unitised curtain wall façade panels.

Loading platforms will be placed on each level past level 5 of the main hospital.

4.1.4.3 Hoists

One Twin Hoists will be provided on the project servicing the main hospital Stage 2 with one single hoist servicing Stage 3. These hoists will be to service the movement of construction workers throughout the project. The hoist will be high-speed ensuring efficiency throughout the floors. At each hoist location there will be temporary interconnecting scaffold bridges joining both buildings which will also help streamline the movement of workers across the job.

4.1.4.4 Concrete Deliveries & Placement

The suspended slabs and structure will be poured using two 36m Static boom pumps which will be installed on the project. There will be one static boom for each tower which will enable flexibility across the project and enable both vertical and horizontal structural elements to be poured on the same day. The concrete pumps that feed the static tower booms will be set up within the site which will allow full utilisation of the pump's capacity. Each Pump will be arranged so that both pumps can run a two-truck feed whilst maintaining the other loading zone for other critical deliveries. Refer to image below.

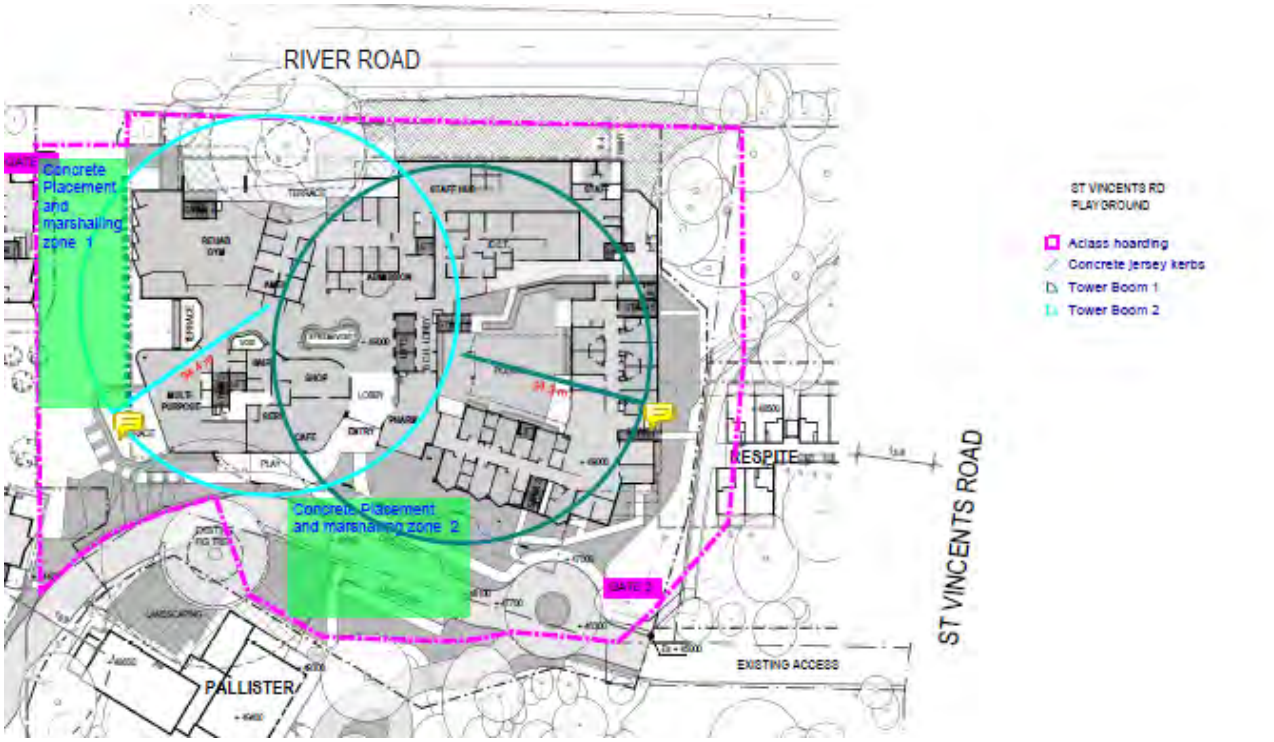


Figure 8 Stage 2 Concrete Placing Booms and Zones

As for Stage 3, the concrete placement will be placed using a 48m concrete boom truck.

4.1.4.5 On Site Storage

On site storage of materials and equipment will be kept to a minimum. Materials and equipment required for site will be delivered to site when required to be incorporated into the construction works. Materials and equipment that do need to be stored on site for a short period shall be stored within the site compound, be neatly stacked and securely strapped. Laydown areas within the job will be nominated and managed.

4.1.4.6 Site Amenities

Temporary site accommodation and amenities for the construction workforce will be provided according to the project staging. The site amenities will include:

- Site accommodation including lunch and change rooms
- Male and female ablution facilities
- Multi-purpose induction, training and meeting rooms
- First Aid facility
- Parent nursing room
- Covered walkways and access stairs.
- Roberts Co Office facilities.

4.2 Project Sequencing

The detailed project sequencing for each stage will be described once the design has progressed further into 30% design. In future iterations of this CMP, the sequencing will describe and explain RCo's approach to

- Additional investigation and site acceptance
- Treatment and protection of existing trees
- Early works
- Site Establishment Demolition
- Site retention and excavation
- Substructure
- Superstructure
- Façade
- Services
- Fitout & Finishes
- External works

4.3 Staging and Timing

At this stage of the design, it is anticipated that the following Staging and Timing will apply:

- Stage 1
  - All activities 12 weeks
- Stage 2
  - Site establishment 6 weeks
  - Demo 5 weeks
  - Excavation 18 weeks
  - Construction 114 weeks
- Combined Stage 3
  - Site establishment 3 weeks
  - Demo 10 weeks
  - Excavation 12 weeks
  - Construction 70 weeks
- Stage 4
  - Site Establishment 2 weeks
  - Excavation 2 weeks
  - Construction 30 weeks

4.4 Site Management

4.4.1 Work Hours

We will ensure strict compliance with approved working hours during construction activities. Any requirement for works to take place outside of the approved hours will be sought through the relevant authorities in conjunction with communication protocols for stakeholders and the community. Working hours for the project are:

- 7.30am to 5.30pm Monday to Friday and 7.30am to 3.30pm Saturday.
- No work is to be carried out on Sunday or public holidays without prior approval.

The delivery programme for the works has incorporated the above time constraints and forms the basis of the proposed construction methodologies and overall construction sequencing. Where specific works require extensions of the above times, we will identify works early and communicate with the PCA and Council to ensure all necessary approvals are obtained.

4.4.2 Site Security

Roberts Co will ensure there is controlled and secure access to all areas of the site, at all times throughout the duration of the project.

The site will be secured, and access will only be via the turnstiles which operates via a QR code. No one will be able to enter the site without a QR code which is issued after undertaking a site induction via the RCO Subbie App; this includes visitors sign-in. The data we have from the app is very accessible and informative, so we know exactly who is on site and when.

Out of normal hours, we have allowed for regular drive by security inspections of the site. For the last few months of the project, we have allowed for a night-time security guard to protect the Site. We will also have security measures installed around the base of the tower crane to prevent any unauthorised personnel climbing the crane.

4.4.3 Subcontractor Management Strategy

Effective subcontractor management is a critical factor in the successful delivery of the project's objectives and outcomes. We will implement our commercial, contractual and risk management procedures providing governance necessary to manage subcontractors that are engaged for the project. These procedures coupled with the allocation of experienced resources will ensure subcontractors are appropriately selected and managed to achieve the required project outcomes.

Jobpac will be the commercial ERCO system we use to manage subcontractors and the administration of projects commercial functions. Jobpac is a critical software package that will assist the team to manage subcontractor contracts, commitments, progress claims, variations and compliance with administrative requirements. Aconex will manage all correspondence and drawing transmittals on the project.

4.4.4 Stakeholder Management Strategy

Roberts Co appreciate the importance of open and effective communication required to successfully deliver Greenwich Hospital Redevelopment. Communications will be built on the principle of cooperative contracting, enhanced communication, clear definition of roles, responsibility for outcomes, and promoting best practice.

Communication between Roberts Co and the Principal will be honest and sincere and built on respect and trust. With a foundation of effective communication between us and TSA Project Management, communication with stakeholders and the community will prosper.

Our strategic principles for Greenwich Hospital Redevelopment include acting as a good neighbour and ensuring business continuity for surrounding neighbours. We recognise that any works which may impact neighbours and greater community must be communicated early and, in a manner that non construction individuals will be able to understand to enable an informed response.

As part of our planning of the works, the team will identify any disruptive works which will require notification to neighbours and the community. These works may include but are not limited to HV consumer mains works, stormwater connection to existing Sydney Water Assets to the North of the site, authority connections in River Rd and installation and removal of tower cranes. In addition, our engineers will assess impact of works on a case-by-case basis while developing Work Packs for individual activities. As part of the development of Work Packs, the site team will be required to assess impact on neighbours and whether notification is required.

4.4.5 Risk Management

Roberts Co understand the challenges associated with the project. The project has critical construction and services interfaces and requirements that must be understood and managed to successfully deliver the project while providing continuity of surrounding businesses.

Roberts Co will manage risks by implementing our Safety, Quality and Environmental Risk Management processes and will work collaboratively with the TSA and HammondCare in planning construction activities so that any impact, disruption, and potential risk is identified, reviewed, mitigated, planned and communicated as required.

Roberts Co will take the lead role on the disruption risks with site coordination managed by a formal meeting framework comprising of Project Review Group Meetings, Project Meetings, Stakeholder meetings, weekly coordination meetings and specific Risk Workshop Meetings.

As previously highlighted in this document, we have identified the following activities that have the potential to significantly impact the surrounding precinct if not managed effectively and communicated proactively with stakeholders:

- Ausgrid Substation Works
- Authority Mains connections
- Demolition and Excavation
- Tower crane installation and Removal

A formalised Risk Register will remain a live document updated and reviewed throughout the course of the project.

4.4.6 Health, Safety, Environment and Quality

4.4.6.1 WHS Management Plan

Roberts Co considers health and safety as the number one priority on all projects. Our policies and procedures provide a framework to manage risk and accident prevention at the company's workplaces. The Health, Safety and Environment Management System (HSEMS) identifies the positions within the company that are responsible for designing, developing, implementing and enforcing health, safety and welfare in accordance with legislation.

Our team has reviewed the construction activities required for the Project works and have identified high risk construction work activities as defined in the NSW WHS Regulations:

- Risk of a person falling more than 2 metres
- Work likely to involve disturbing asbestos
- Work in or near a shaft or trench deeper than 1.5 m or a tunnel
- Work on or near energised electrical installations or services
- Work in an area with movement of powered mobile plant
- Temporary load-bearing support structures
- Work on or near pressurised gas pipes or mains
- Work on, in or adjacent a road or other traffic corridor in use by traffic other than pedestrians

As an essential step in successfully managing these high-risk constructions activates, our team will create and maintain a Project Risk Register to ensure risks are monitored and catered for at any time. Following the review of our initial risk assessment during tender, our experienced site management team and our EH&S Manager will invite the selection of subcontractors to discuss their Safe Work Method Statement (SWMS) and arrangements to be put in place to make sure the high-risk construction work is performed safely in accordance with the SWMS. Our site team will then monitor the implementation of the SWMS 'on the ground'.

4.4.6.2 Environmental Management

As part of our commitment to acting as a good neighbour on behalf of HammondCare, Roberts Co is committed to ensuring our site activities do not impact negatively on the environment in the project area.

Upon award, will prepare a fully detailed Site Environmental Management Plan that outlines the processes for managing environmental aspects and impacts in accordance with ISO 14001:2015, Protection of Environment Operations Act 1997 and the Protection of Environment Operations (Noise Control) Regulation 2008.

We have identified the following key environmental concerns along with their management strategies to ensure the successful delivery of the works:

Identified Environmental Concern	Management Strategy
Dust & Airborne Contaminates – During Excavation Works	– Use water suppression during demolition, cutting and removal of materials from site – Cover stockpiles and using water to prevent dust generation – Use tarpaulins or equivalent on trucks arriving and leaving the site
Noise and Vibration – During Construction	– Select and apply the best work practices to minimise noise impacts, including choice of plant, construction methodologies, timing of activities – Identify noise impacts at sensitive land uses – Monitor noise and vibration during high decibel activities
Sediment and run off – During Excavation	– Develop and implement Site Erosion and Sediment Control Plans (ESCP) – Use sand bagging and geo fabric cloth over drains, silt-traps, along with a sediment basin if required, wheel wash/ cattle grid – Implement stormwater contamination management plan
Dewatering	– Develop Early Works contractor Dewatering Management Plan to collect, treat and remove water from within the excavation
Pollution and / or contaminants (Paint or Solvents) – During Construction	– Apply wash out drums, small trade waste bins, overflow bunds, proper storage of chemicals in cupboards and, as a last resort, spill kits
Waste Disposal – During Construction	– Implement waste management plan throughout project

	– Minimise waste, separate materials, reuse and recycle.
Hazardous Materials – Prior during trenching excavation works	– Remove and dispose of all hazardous materials, including Asbestos Containing Materials in accordance with Safe Work NSW and EPA NSW requirements with minimum impact to the surrounding areas – Prepare and implement hazardous waste management plan
Site Entry Environmental Control – Pedestrian management and plant/ person separation	– Provide dedicated pedestrian walkways, exclusion zones and staging zones to separate plant and person and lower risk of flammable atmospheres, and artificial extreme temperatures – Maintain detailed public and construction pedestrian access routes for site.

An Environmental Control Plan will be developed which includes but is not limited to defining:

- Site layout and boundary, including entry/exit points, pedestrian access ways, internal roads, and clearing limits
- Nearest noise sensitive buildings
- Location and type of sediment and erosion control measures, including size / capacity of detention basins, and wheel wash facilities (specifically during demolition works)
- Identification and management of HAZMAT materials through a contaminated management plan including inspection, sampling, treatment and disposal
- Location of spill containment and clean-up equipment
- Location of worksite waste management facilities
- Hours of work applicable to the worksite (including deliveries, any restrictions on high noise generating activities).
- Location of environmentally sensitive areas (e.g. threatened species, critical habitat, contaminated areas, heritage zones, etc)
- Vegetation and trees to be protected as identified in the Arborist Report
- Location of stormwater drainage and watercourses
- Specific environmental management requirements from licenses, approvals or permit conditions
- Key environmental risk issues and the specific mitigation measures.

The plan will be used in inductions and support site set-up, to review ongoing environmental performance, will be included as information in tender documents to subcontractors (where applicable) and applied in support of ancillary environmental approvals.

Key site entry environmental controls include:

- Security site access gates
- Shaker bays at exits
- Class A and B perimeter hoarding for site separation
- Site security cameras
- Traffic management and traffic controllers

Roberts Co will implement a project specific Plant and Equipment Management Plan for all items on site to ensure maintenance checks are conducted appropriately and when required in accordance with both legislative requirements and our IMS procedures and standards. The following requirements apply:

- Plant will be inspected prior to operation on site, particularly fuel lines, hydraulic hoses, or other items with the potential to impact the environment. Items found to be worn, damaged or otherwise degraded are to be replaced prior to operation
- Plant will be serviced, re-fuelled, and washed down only in approved areas where hydrocarbons can be captured and then properly disposed
- Fuelling will be carried out in bunded areas when fuelling from bulk tanks (where applicable)
- Plant and equipment will be maintained to prevent / fix oil leaks
- Plant will be driven and operated only in approved areas
- Plant will have effective pollution control and sound attenuation devices fitted
- Dedicated Cattle Grid and Wash Down Points will be implemented.

The expected plant and equipment required for the delivery of the project works include, but are not limited to:

- Tower cranes
- 40t, 60t, 100t Mobile Crane
- Fork Lift
- Telehandler
- Man and Materials Hoists
- Formwork hoists
- 2 x Concrete tower booms
- 5t, 14t, 20t and 30t excavators
- 1t Maeda Crane

Project wide environmental risks, obligations, and impacts will be identified and assessed prior to the commencement by the Project Manager and project team, and documents as required, including Project Risk Assessment (PRA); Environmental Risk Action Plans (ERAPs); SWMS, Inspection and Test Plans / check sheets (as appropriate), and Work instructions or procedures (e.g. refuelling and servicing).

All plans will be live and adapted to meet the client's requirements to improve the day to day running of the project.

4.4.6.3 Environmental Record

Roberts Co have not had any fines, incidents or investigations over the previous 3 years and pride ourselves on our exemplary Environmental record. This is largely attributed to our focused and planned approach to environmental management on the projects that ensure all project staff take ownership and responsibility of environmental outcomes.

This approach is supported from Senior Management with the implementation of our Environmental Policy.

4.4.6.4 Waste Management

Roberts Co believes that a tidy site is a safe site, and this principle will be maintained throughout the construction duration. Rubbish bins/skips will be provided at strategic positions around the site, where all subcontractors will be required to clear their rubbish as it accumulates. These bins will be brought down the building in the construction hoists or via the tower crane and loaded via forklift into the large skips. The current location of the waste management compound is to the south west corner of the site establishment zone.

A specific Waste Minimisation Plan will be developed in accordance with the Environmental Management Plan to ensure optimum waste management initiatives are implemented.

Our Waste Management Plan (WMP) is included as a sub plan of the Environmental Management Plan for the Project. The aim of this plan is to work at best practice in minimising the amount of waste produced during the development and manage that waste in order to reduce the amount going to landfill.

The Waste Management Plan will meet regulatory requirements and utilise a waste contractor that has been independently verified for compliance with minimum standards of reporting in accordance with Green Star Benchmarks. In setting standards and to achieve waste re-use and recycling onsite, the site-specific Waste Management Plan will be implemented.

Subcontract trade packages will be prepared and tendered to ensure optimum recycling through waste management achieves the required targets. Due to the restricted site requirements, Roberts Co proposes to have mixed waste bins that will be sorted and recycled off site. This eliminates the potential for comingled waste entering recycling bins. In accordance our Waste Management Plan, detailed recycling programs will be developed for all phases of the works. The site subcontractors will be required to report on extent of recycling achieved and be subject to Environmental Audits.

4.4.6.5 Noise, Dust and Vibration Management

Monitoring of noise emissions, vibration and air quality during the redevelopment works is necessary to maintain the health and wellbeing of people who are involved in the works and of those surrounding the project. In addition, vibration sensitive equipment and assets must also be protected during the works.

Roberts Co's objective is to understand stakeholder's noise and vibration limitations and develop strategies to work within those limits, or where exceedance of the limitations cannot be avoided, investigate with stakeholders' ways to manage planned exceedances at appropriate times. We have identified primary works which will require noise and vibration considerations including demolition and excavation works.

The project team will employ a Noise and Vibration Management Plan which includes:

- Detailed assessment of background conditions to accurately assess noise and vibration impacts of the works
- Provide a direct line of communication between stakeholders to RCo Project Manager
- On site attendance of the Acoustic Engineer to take noise measurements at critical receiver locations
- On site attendance will be conducted during periods of the job expected to generate the most vibration (Inground Works)
- Site attended measurements at key periods will provide a better identification of the noise and any impact to the surrounding environment.

4.4.6.6 Dust Management

Dust shall be suppressed wherever possible to ensure air quality, and to avoid health and safety issues and nuisance to occupants. All waste to be removed from site shall be adequately covered by suitable means to minimize air-borne dust.

The following dust control measures implemented on the project:

- Water hoses during demolition the process for dust suppression
- Regular periodic clean-up of work and staging areas
- Drilling or cutting shall utilise low vibration wet cutting and drilling to further reduce dust emissions
- Other cutting or drilling shall be carried out behind debris screens
- Vacuum attachments to cutting, drilling and grinding tools shall be implemented to further control dust emissions.

4.4.6.7 Air Quality Management

The project team will implement controls to suppress dust and other suspended particles in accordance with legislation and risk management requirements minimising the generation of dust on site and potential emission issues relating to plant and equipment.

The Air Quality Management plan is included within the project EH&S plan. Our strategy would include the installation of air quality monitors where required for civil earthworks. These monitors will record air quality levels. They are also capable of sending a real-time alarm to the project manager to notify of any activities that exceed the limits.

Dust shall be suppressed wherever possible to ensure air quality, and to avoid health and safety issues and nuisance to occupants. All waste to be removed from site shall be adequately covered by suitable means to minimise air-borne dust. Where dust is identified as a risk, strategies to minimise impacts on the public will be used such as additional screening/filters at air intake points to ensure dust does not enter other buildings or residences.

The following dust control measures implemented on the project:

- Clear definition of trafficable and material storage areas to prevent unnecessary vehicle movement into other areas
- Installation of wheel shaker grid and / or wash down facilities at vehicle egress point
- Regular periodic clean-up of work and staging areas
- Drilling or cutting shall utilise low vibration wet cutting and drilling to further reduce dust emissions
- Other Cutting or drilling shall be carried out behind debris screens
- Provide filters to air intake vents
- Road sweepers to maintain the cleanliness of the surrounding roads.

4.4.6.8 Soil and Water Management

We will ensure there is appropriate erosion and sediment control and truck wash facilities for the duration of the demolition and excavation stages. These will be actively managed by the Civils contractor.

In addition, we will ensure dewatering management systems are in place during the construction phase.

4.4.6.9 Hazardous Materials Storage

Some construction materials are classified as hazardous materials, the type of product will determine the method they are to be handled and the storage requirements of the materials.

Roberts Co propose to store all the hazardous materials in a central position that does not pose a threat to the disruption of the surrounding buildings.

Wherever possible alternate materials will be selected that are less hazardous, for instance water-based products in lieu of solvent based products. This is not always practicable and hazardous materials are required to complete the works.

The hazardous material storage area shall be a secure, locked device. It shall include provision for containment of hazardous material as well as spill or leak control – (e.g. bunding to limit the spread of a liquid; warning devices that detect a gas leak). Fire control and emergency response – these are the steps to be taken if containment fails. The hazardous materials storage area will form part of the Site Emergency Plan, in the case of an incident the storage area shall be easily accessible to emergency services and incorporate fire control and monitoring devices relevant to the hazardous materials.

Ventilation of the storage area will be carefully considered in accordance with the requirements of the hazardous material. The location of the storage area shall be located away from any existing building window or intake vent. The area shall be adequately sign posted with warning signs and protected by barriers to prevent inadvertent collisions with vehicle and equipment. The area will undergo regular maintenance, inspections and cleaning to ensure the controls are current for the materials being stored.

The hazardous material storage area shall be in accordance with the Safe Work Australia Code of Practice 2005.

4.4.6.10 Progressive Inspections

To ensure a defect free product is delivered at the completion of the project, Roberts Co will conduct progressive inspections with a range of stakeholders throughout the construction works to ensure any potential defects are identified during construction where they can be rectified efficiently. Progressive inspections will be conducted with:

- TSA
- HammondCare
- Design consultants
- BCA and DDA consultants
- PCA
- F&R NSW
- Authorities including: Ausgrid, Sydney Water, Jemena and Council

RCo's methodology is based on being open and transparent. By engaging stakeholders early and conducting inspection we believe that we can provide the best outcome for the project. Stakeholders are afforded the opportunity to provide feedback on the works, provide input based on their experience while also generally feeling part of the project team as opposed to walking at the end of the project.

We welcome the client and its representative to visit the site as often as they like and to contact the Project Manager to arrange a time.

4.4.6.11 Defects Management Methodology

Eliminating defects that arise during construction, or at the very best resolving defects in a timely manner prior to completion, requires the application and proven processes designed to identify and resolve defects in real time. To reduce the occurrence of defects and to ensure they are dealt with in an appropriate and timely manner, we will implement a defects management plan that forms part of the overall Handover and Finalisation Plan. (Internal RCo Quality management Document)

The defects management plan will provide the structure for the site team and subcontractors team that will be designed to:

- Ensure defects and quality issues are not allowed to accumulate
- Ensure inspections are carried out by the workface and that links are established with the company's quality assurance systems
- Ensure tradesmen and their direct line of supervisors see quality as their responsibility to enable quality issues to be resolved at the lowest possible level.
- Our defects methodology is designed to eliminate defects rapidly without the need for excessive paperwork and administration. We will undertake the following processes utilising real-time data capture of defects and non-conformances as they occur, mitigating the risk of a substantial number of defects at completion.

This system enables:

- A focus on getting things right first time – eliminating the need for costly revisit and rework, as a Roberts Co representative can undertake inspections and sign offs simply via the application, resulting in greater vigilance
- The option to invite consultants to monitor the quality of workmanship and finishes during the course of construction, provides a third level of inspection and reporting prior and during a defect's resolution.
- Defects and Quality inspections to be administered via the one application, with all information in one central repository
- Notification of defects to the applicable tradesmen and direct line supervisors; identifying the exact defect site location on the relevant drawing, the description, images and documentation, along with the required timeframe for rectification
- Ability to report and close out defects at the defect location via the application, using a lightweight mobile device on site, such as iPad or mobile phone, ensuring the defect is closed out only when rectified (not in a site office)
- Enables Roberts Co and TSA to track the closure of all defects and a defects current status
- Maintains real time history of all actions including when the defect was created, when the responsible party took action, and determine programme and cost impacts
- All defects, whether open or closed to be filtered by trade, location and time frame, to ensure holistic overview and review

The defect methodology process via the Roberts Co defects management application will be rigorously applied to the Project and site level quality awareness will be reinforced with quality inspections by the Design Consultants and this process will be an integral part to the installation, commissioning and handover process.

Zutec Field will be used as Defect Management software for the project. This software allows us to manage defects, handover documentation and in the field fire penetration status to provide a single source of truth.

4.4.6.12 Handover Documentation

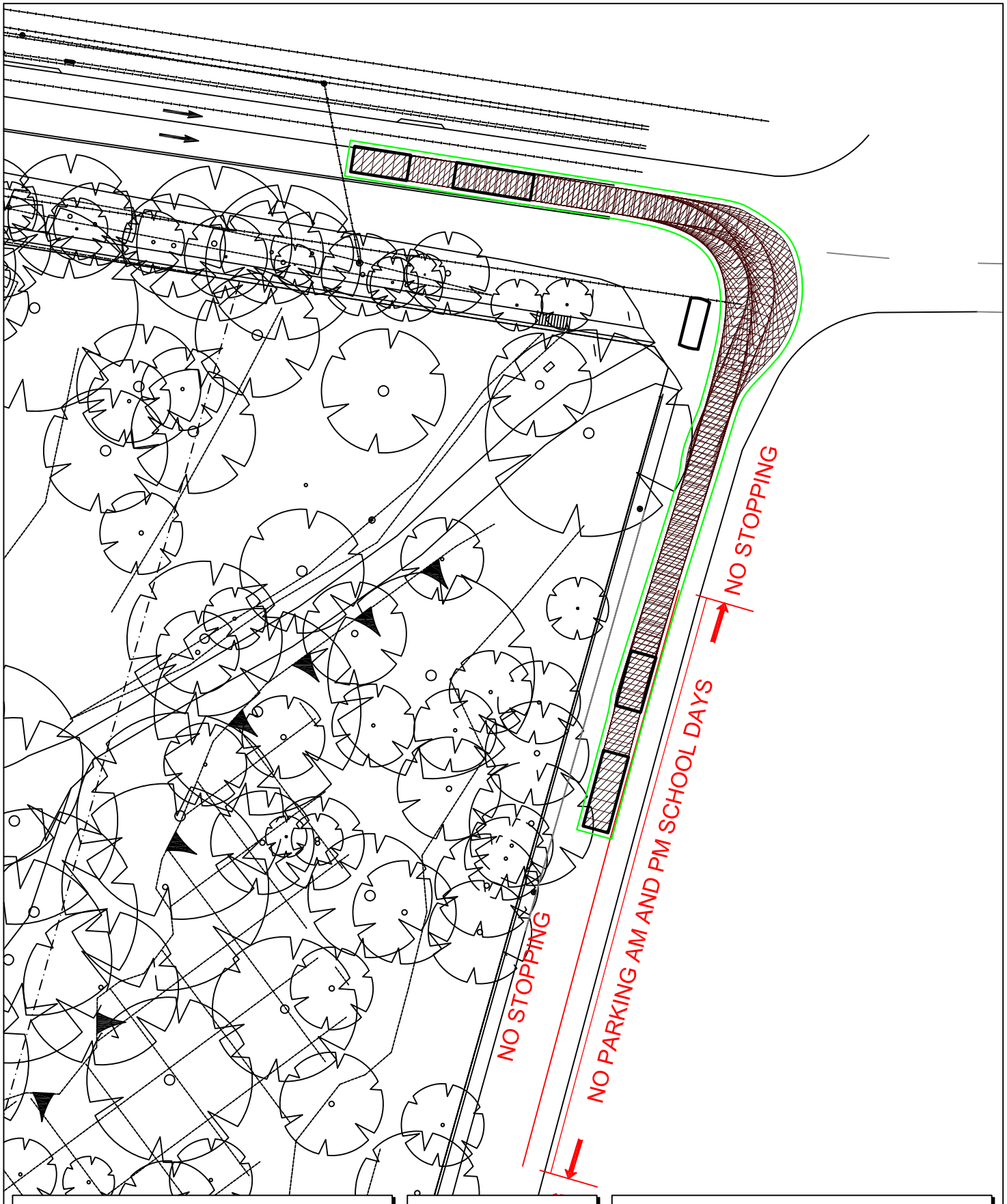
We will issue the following in hard copies and digital format:

- Draft submission of all Operation and Maintenance Manuals for Principal review – 10 weeks prior to Practical Completion
- Final submission of all Operation and Maintenance Manuals within 4 weeks post Practical Completion
- Draft submission of the Warranties & Spares Register for Principal review – 3 Months Prior to Practical Completion
- Final submission of the Warranties & Spares Register for Practical Completion
- Final BIM model of the Works within 6 weeks of (the later of) Date of Practical Completion and issuance of the Occupancy Certificate

The documentation will be managed using the digital platform Zutec. This software incorporates staged submission of documents as well as a digital workflow process that allows the client and its consultants or representatives to review documentation where required. Handover of the documentation will follow the requirements outlined in the PPR.

Appendix G
Turning Path Assessment

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994



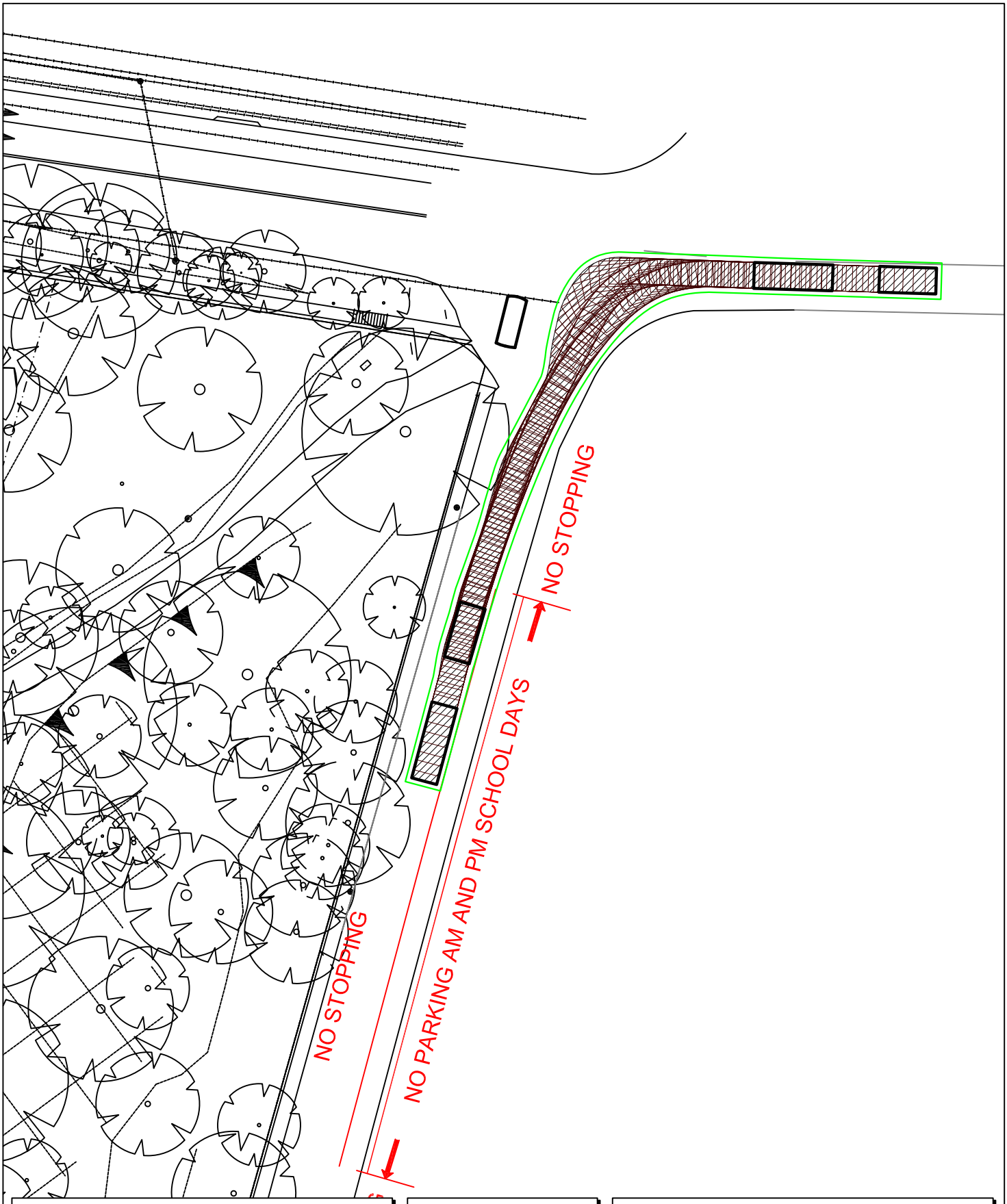
NOTE

This drawing has been prepared using vehicle modelling computer software AutoTrack V5.00a in conjunction with AutoCAD 2013. The vehicle used is based upon vehicle data provided by Austroads and incorporates a reasonable degree of tolerance. However, it is not possible to account for all vehicle types/characteristics and/or driver ability.

N

SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER TURNING RIGHT INTO ST. VINCENTS ROAD

SP 1



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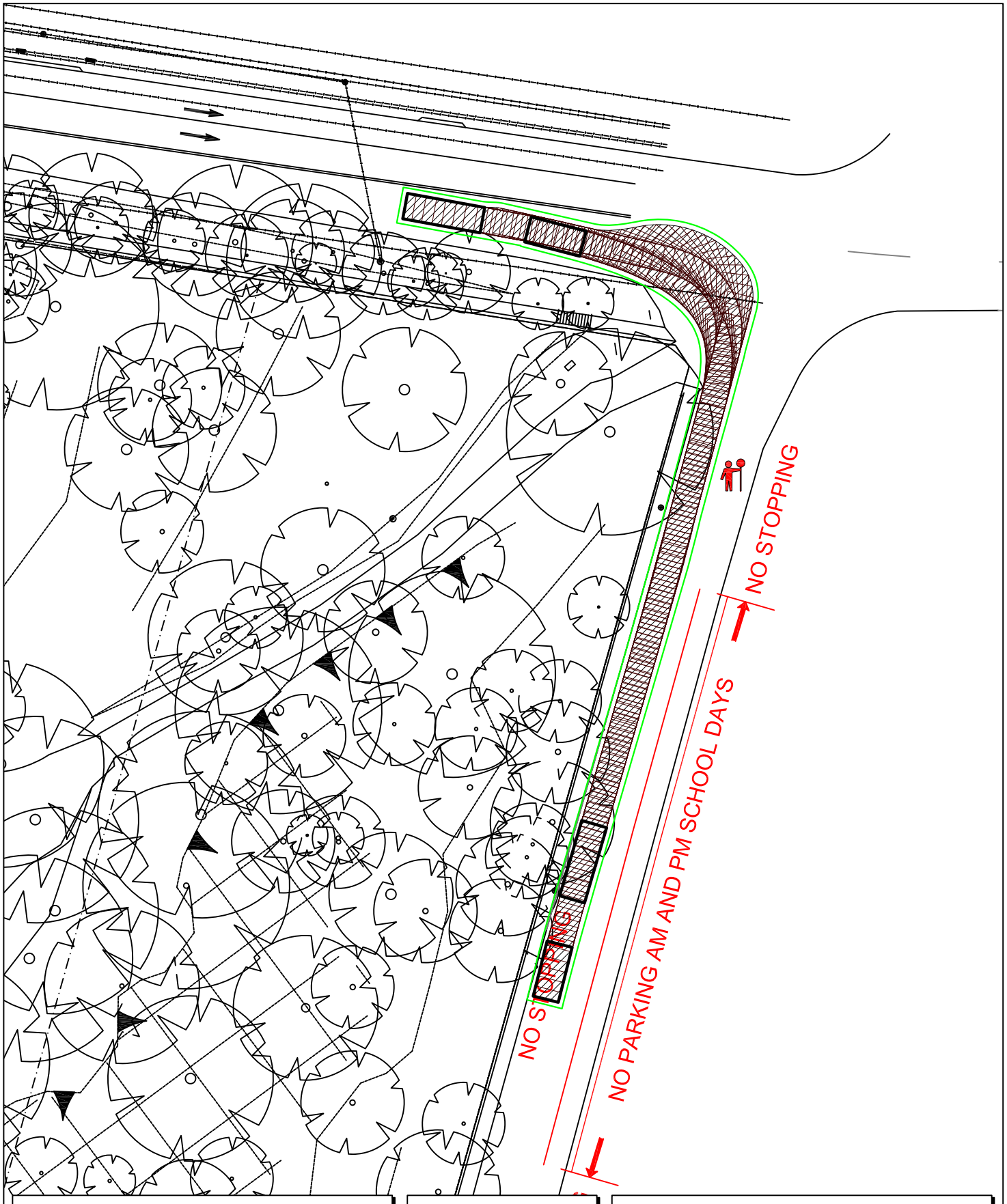
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER TURNING LEFT INTO ST. VINCENTS ROAD

SP 2



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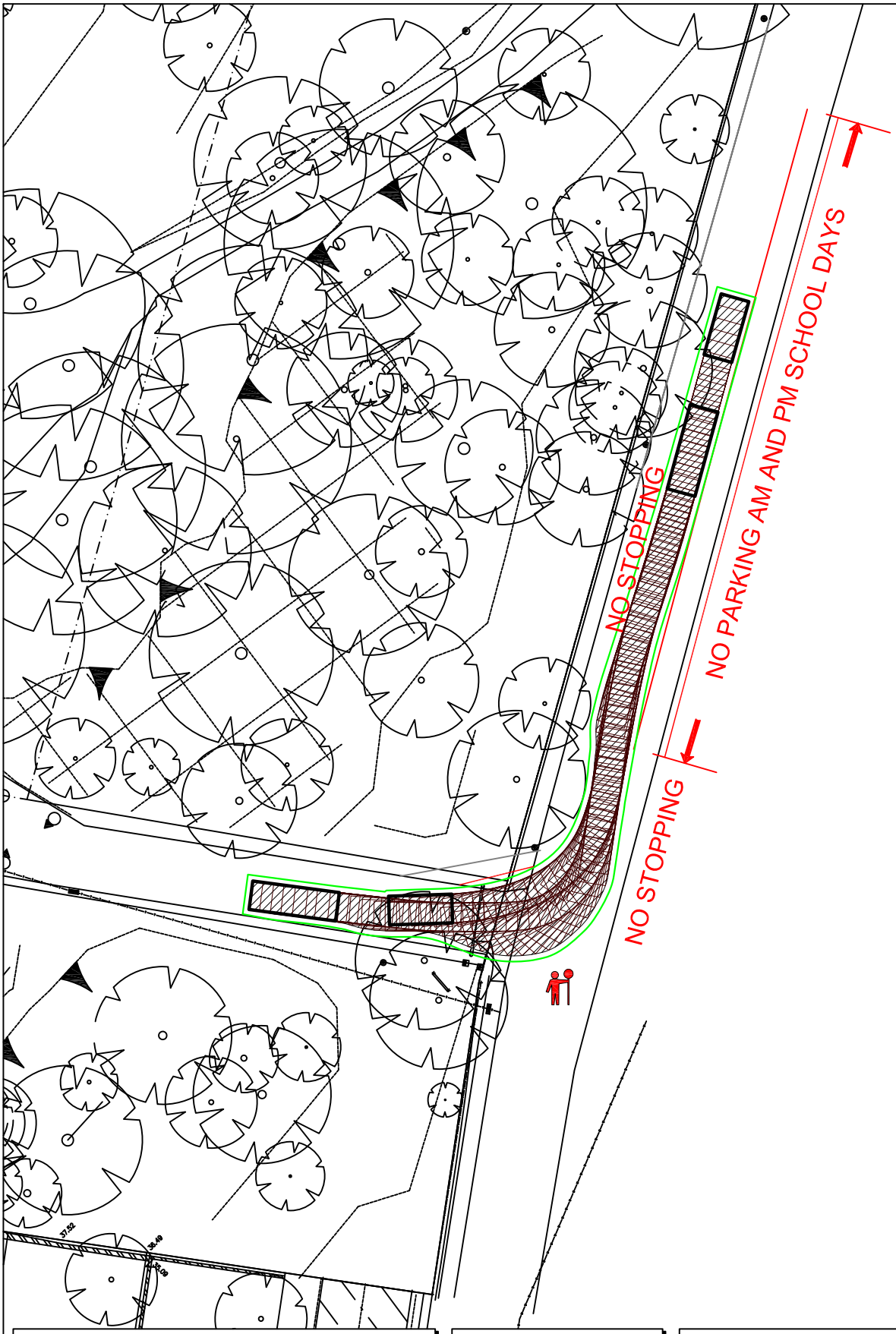
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER TURNING LEFT OUT OF ST. VINCENTS ROAD

SP 3



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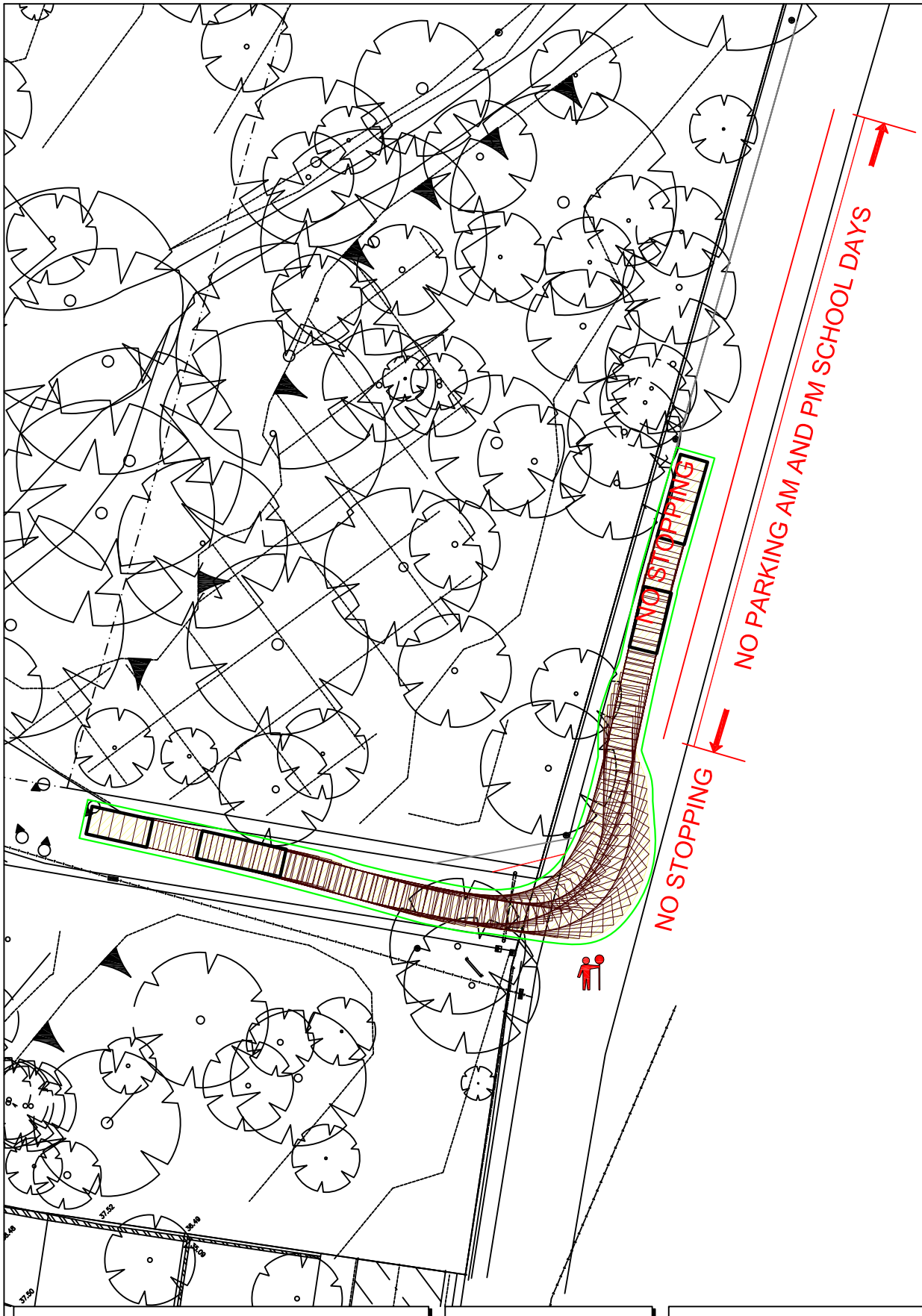
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER ENTERING THE SITE FROM ST. VINCENTS ROAD

SP 4



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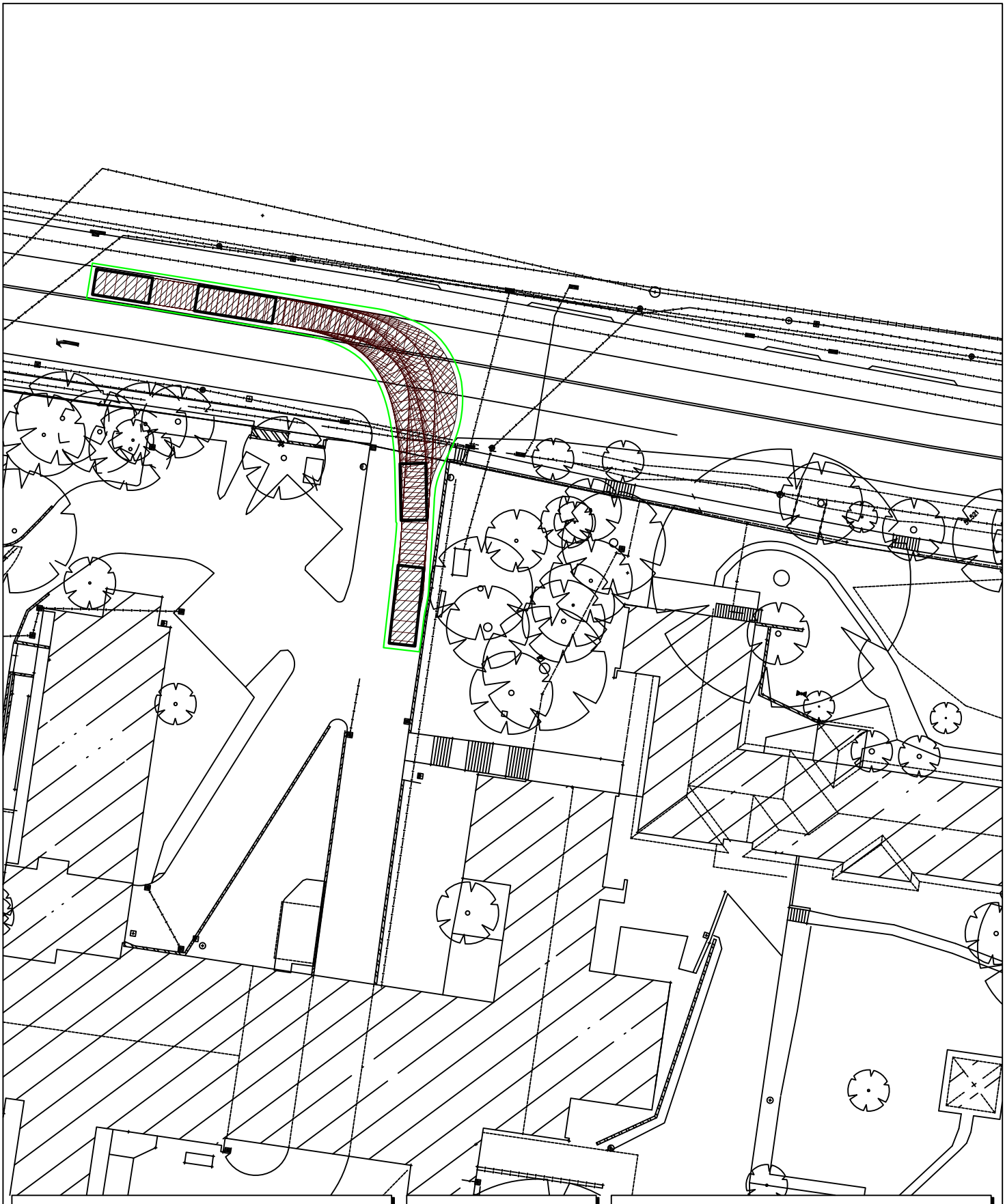
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER EXITING THE SITE ONTO ST. VINCENTS ROAD

SP 5



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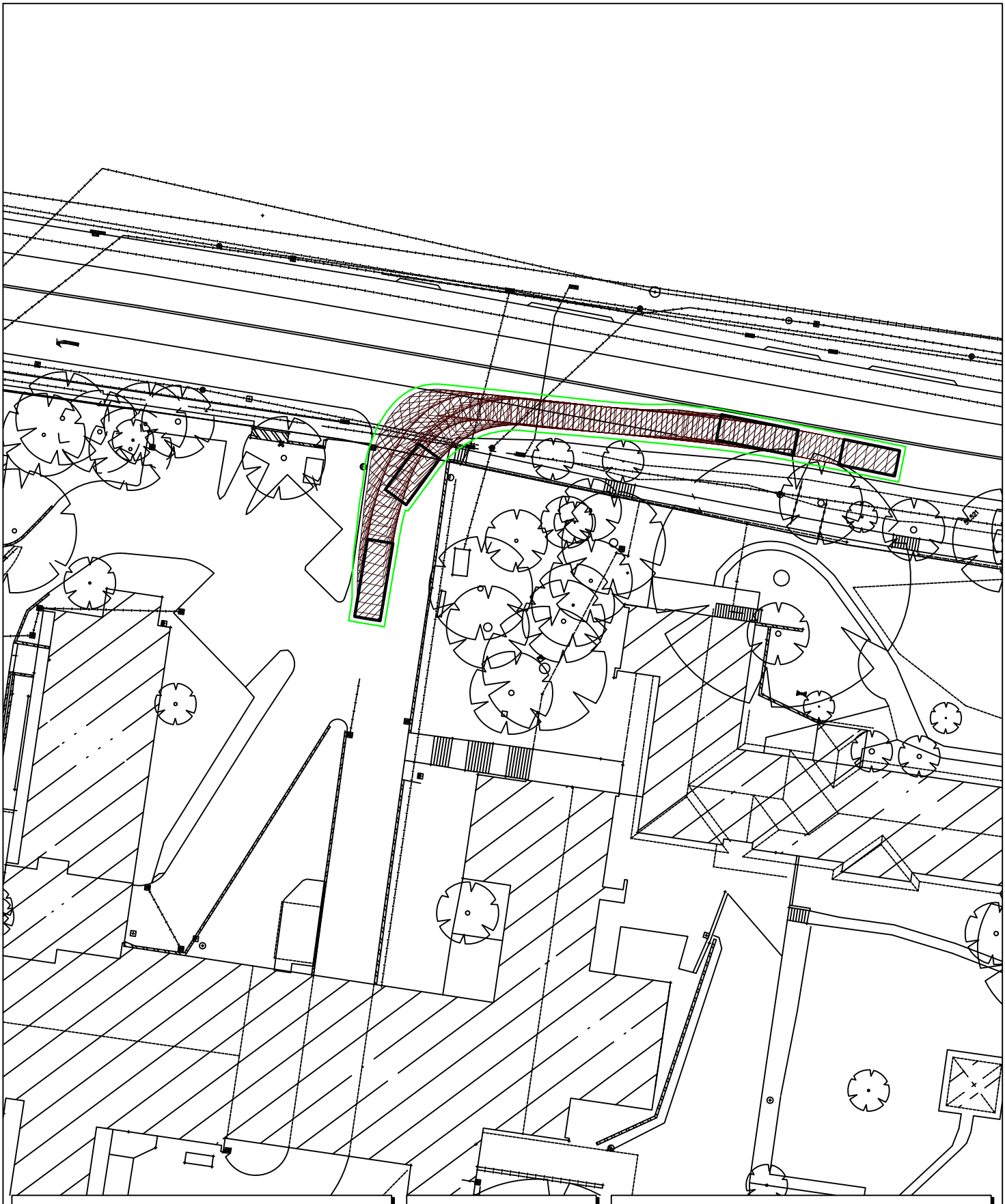
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER ENTERING THE SITE

SP 6



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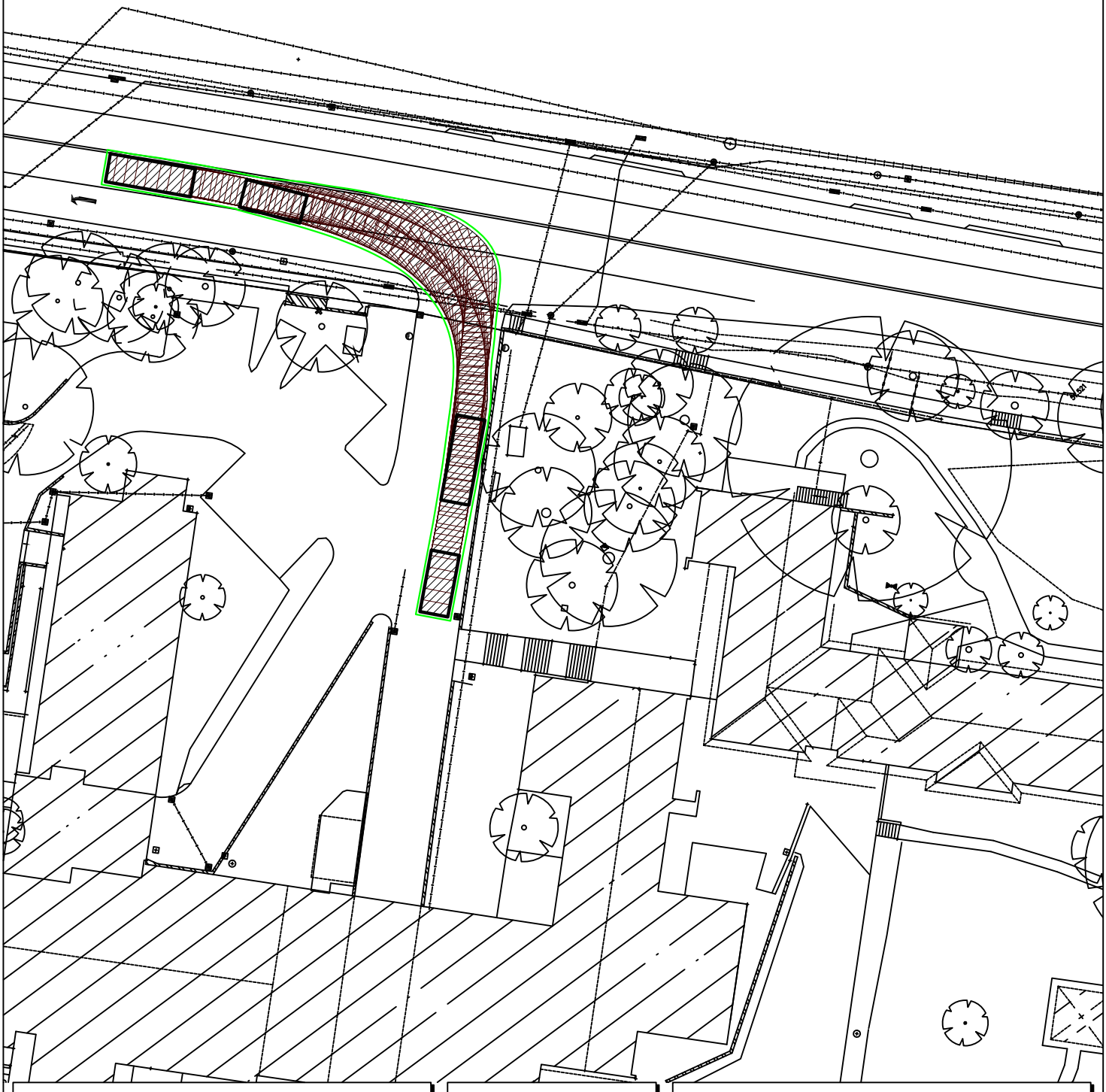
N

SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER ENTERING THE SITE

SP 7



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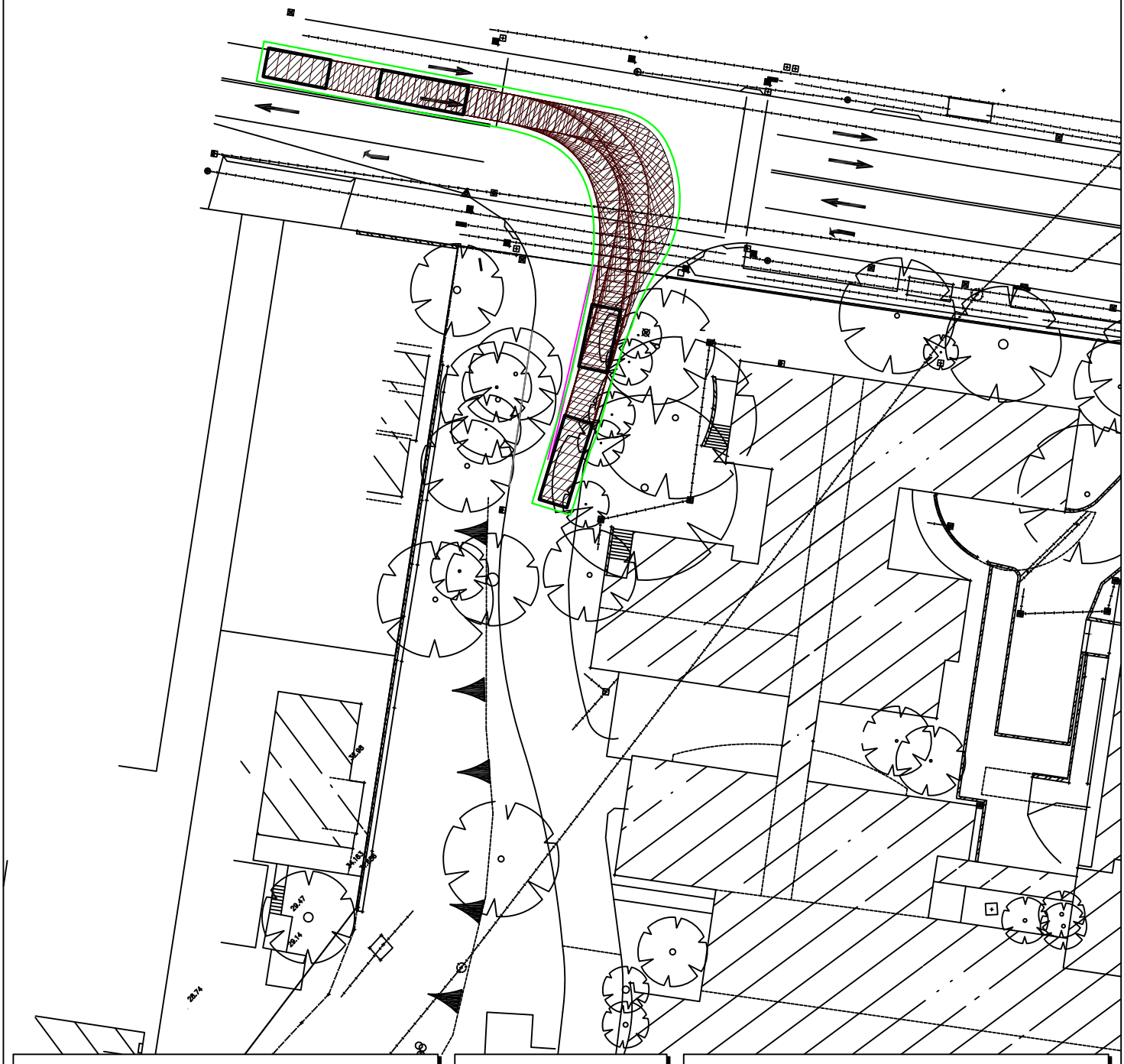
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER EXITING THE SITE

SP 8



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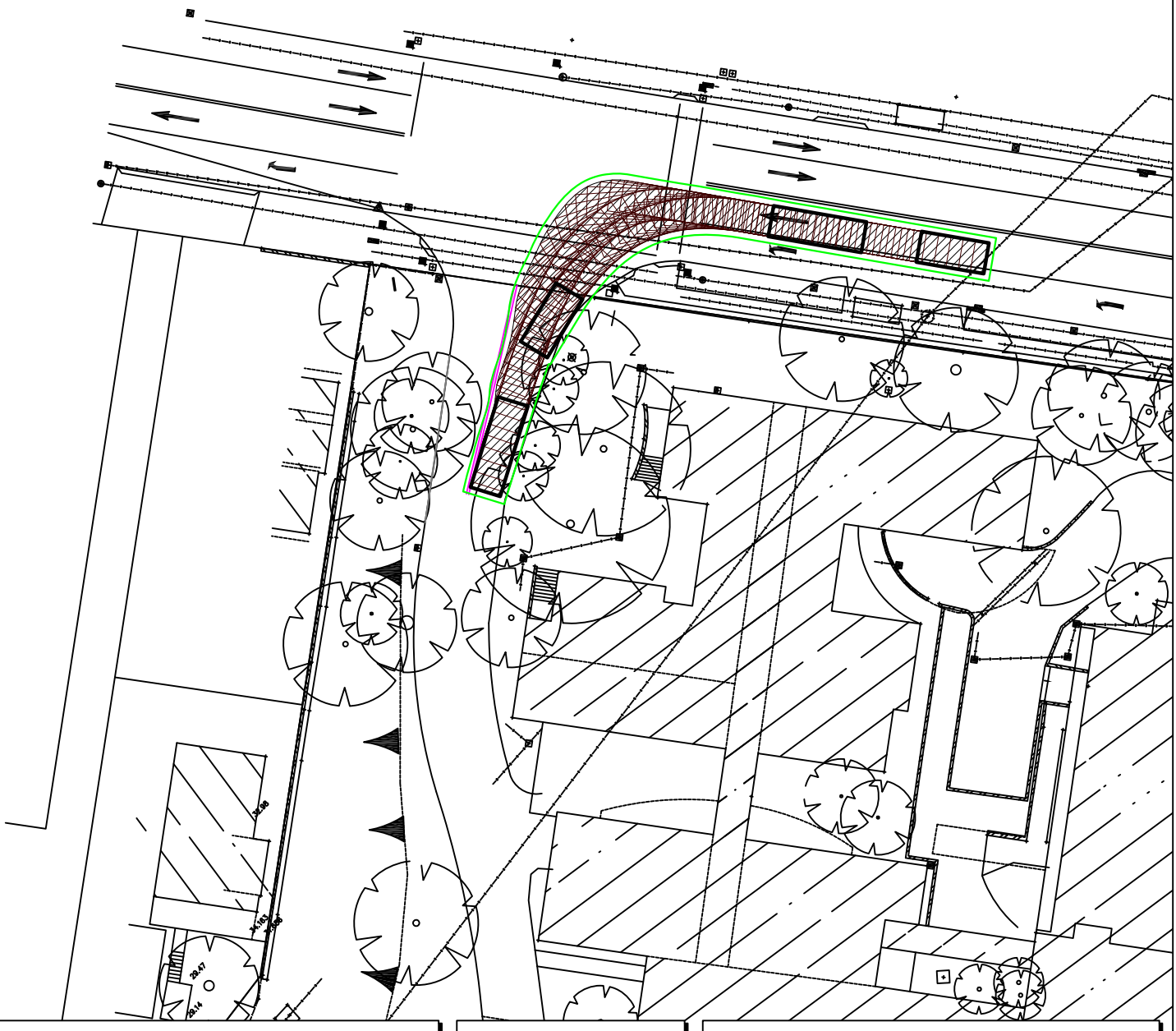
N

SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER ENTERING THE SITE

SP 9



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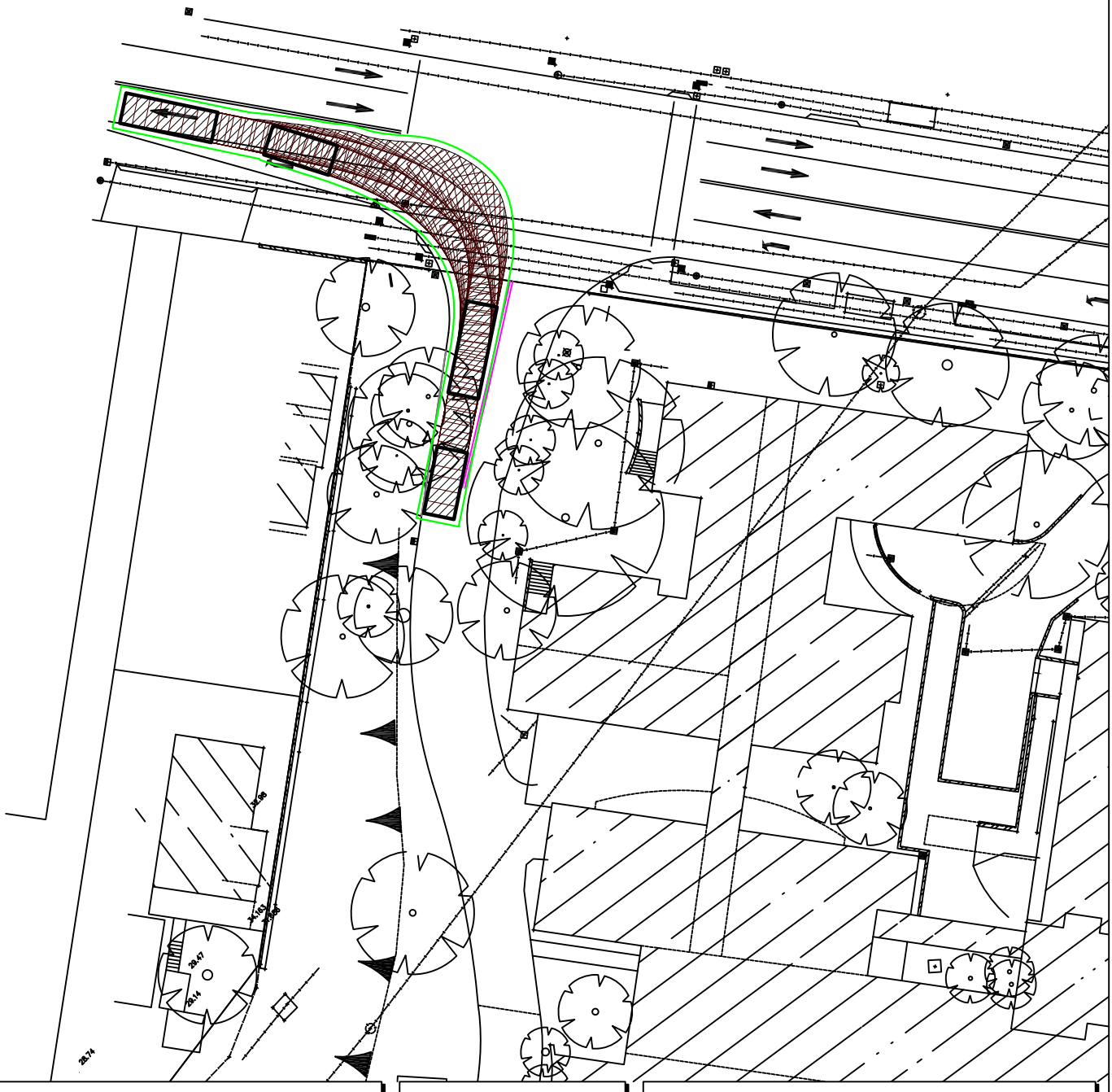
SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER ENTERING THE SITE

SP 10



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N

SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER EXITING THE SITE

SP 11



NOTE

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N

SWEPT PATH ANALYSIS OF A 17.6m TRUCK AND DOG TRAILER EXITING THE SITE

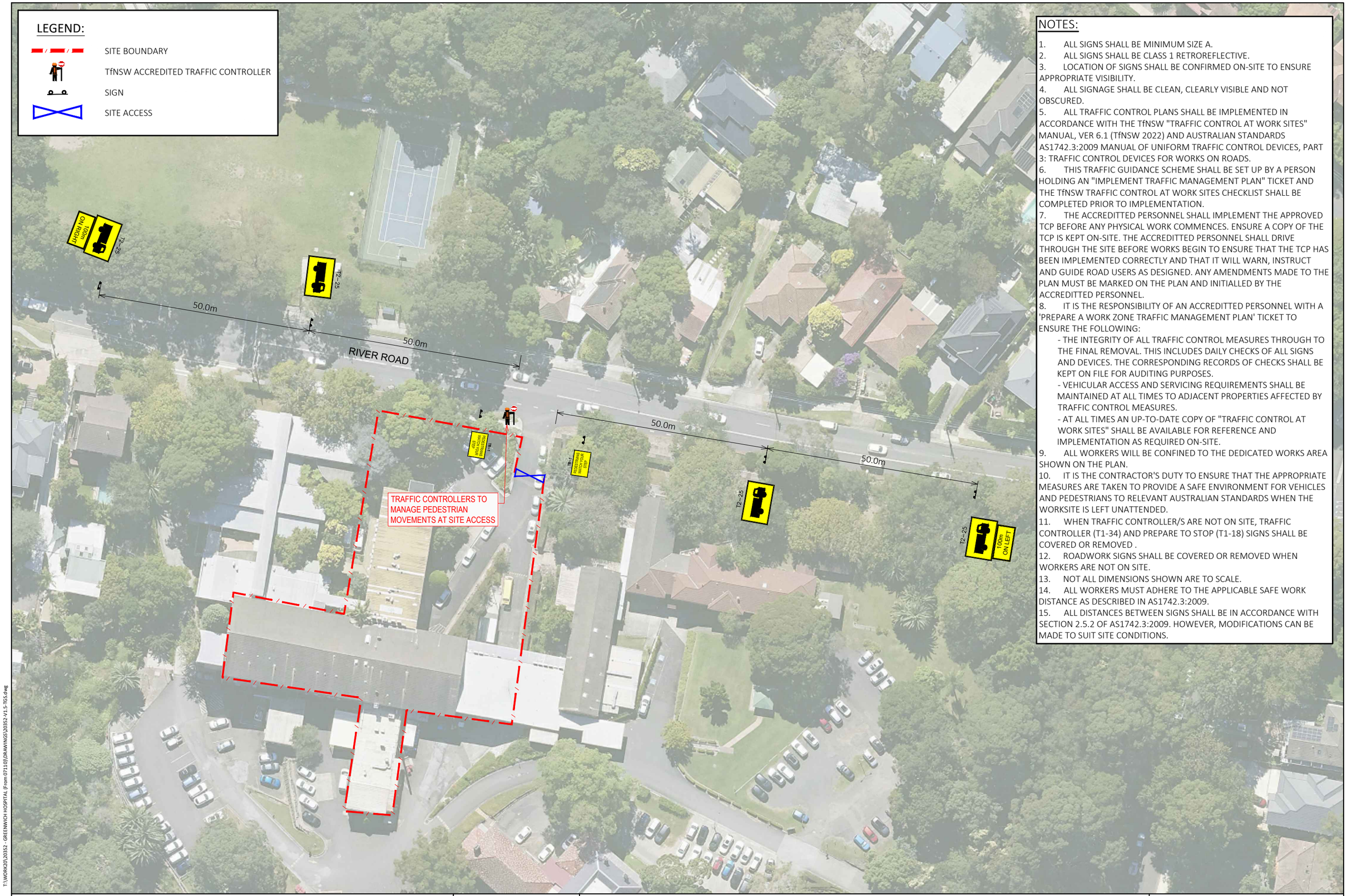
SP 12

Appendix H
Traffic Guidance Schemes

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994

LEGEND:

- SITE BOUNDARY
- TfNSW ACCREDITED TRAFFIC CONTROLLER
- SIGN
- SITE ACCESS



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

97-115 RIVER RD, GREENWICH NSW 2065
STAGE 1 EARLY WORKS
TRAFFIC GUIDANCE SCHEME

DRAWING REF NO. 20352-V1.5-TGS SHEET NO. 01 OF 03 ISSUE DATE 26 November 2024

SCALE A3

0 8.0 16.0 1:800

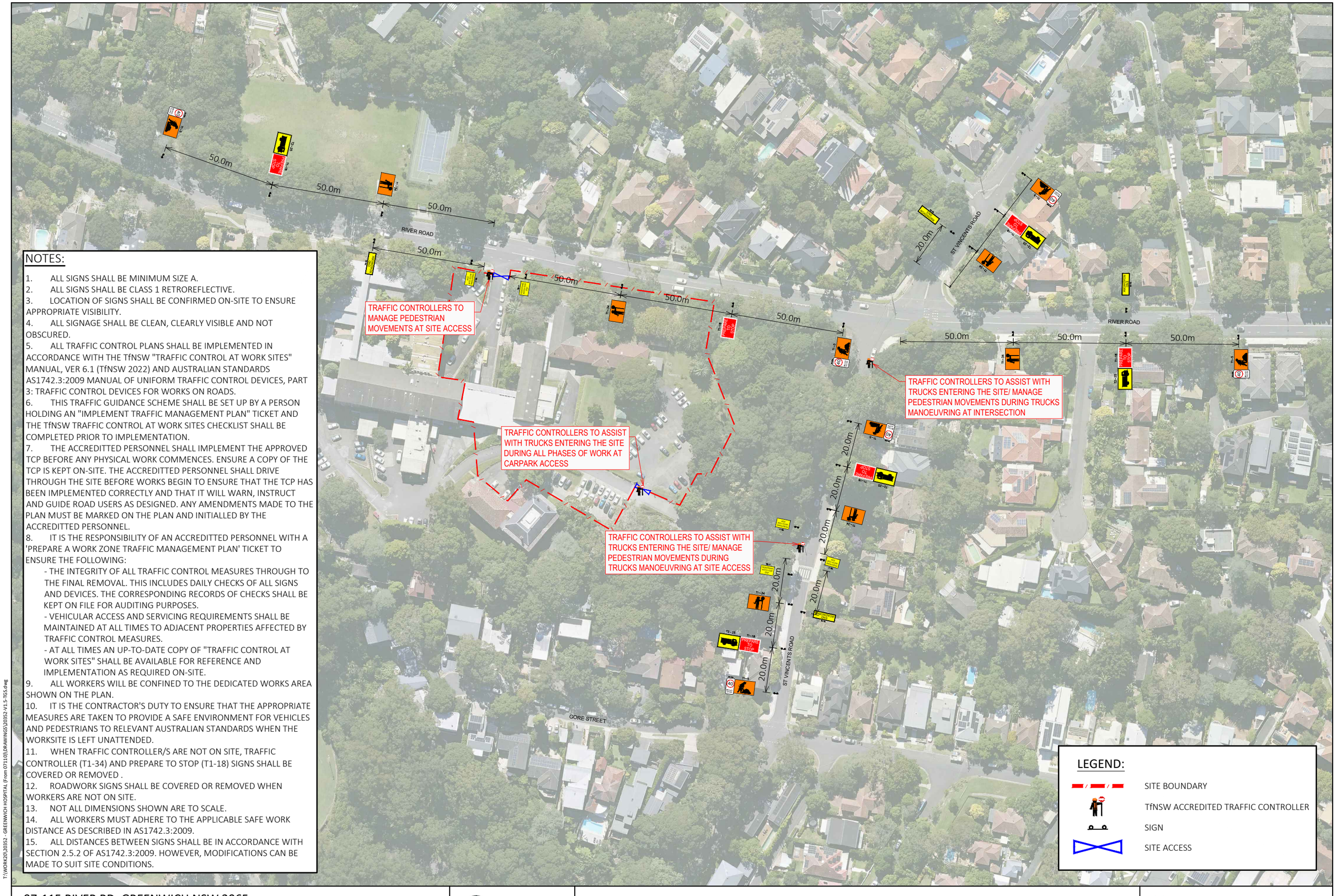
CERTIFICATION

THE DESIGNER AND THE REVIEWER ARE CURRENT CARDHOLDER OF TRAFFIC CONTROL WORK: PREPARE WORKS ZONE

DESIGNER:		
NAME:	AIDAN GARDNER	
CARD NO.:	TCT1053356	
CLASS:	PREPARE WORK ZONE	
REVIEWER:		
NAME:	LACHLAN ELLSON	
CARD NO.	TCT0041903	
CLASS:	PREPARE WORK ZONE	

ttpa TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994
Address: Level 6, Suite 604, 10 Help Street, Chatswood NSW 2067
P: (02) 9411 5660 E: info@ttpa.com.au W: www.ttpa.com.au

T:\WORK20\20352 - GREENWICH HOSPITAL (From 07110)\DRAWINGS\20352-V1.5-TGS.dwg
Plotted by Lachlan



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LEGEND:

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- TfNSW ACCREDITED TRAFFIC CONTROLLER
- SIGN
- SITE ACCESS

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Plotted by Lachlan

97-115 RIVER RD, GREENWICH NSW 2065
STAGE 2 MAIN HOSPITAL BUILDING
TRAFFIC GUIDANCE SCHEME

DRAWING REF NO. 20352-V1.5-TGS SHEET NO. 02 OF 03 ISSUE DATE 26 November 2024

SCALE A3

0 15.0 30.0

1:1500

CERTIFICATION

THE DESIGNER AND THE REVIEWER ARE CURRENT CARDHOLDER OF TRAFFIC CONTROL WORK: PREPARE WORKS ZONE

DESIGNER:
NAME: AIDAN GARDNER
CARD NO.: TCT1053356
CLASS: PREPARE WORK ZONE

REVIEWER:
NAME: LACHLAN ELLSON
CARD NO. TCT0041903
CLASS: PREPARE WORK ZONE

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Address: Level 6, Suite 604, 10 Help Street, Chatswood NSW 2067
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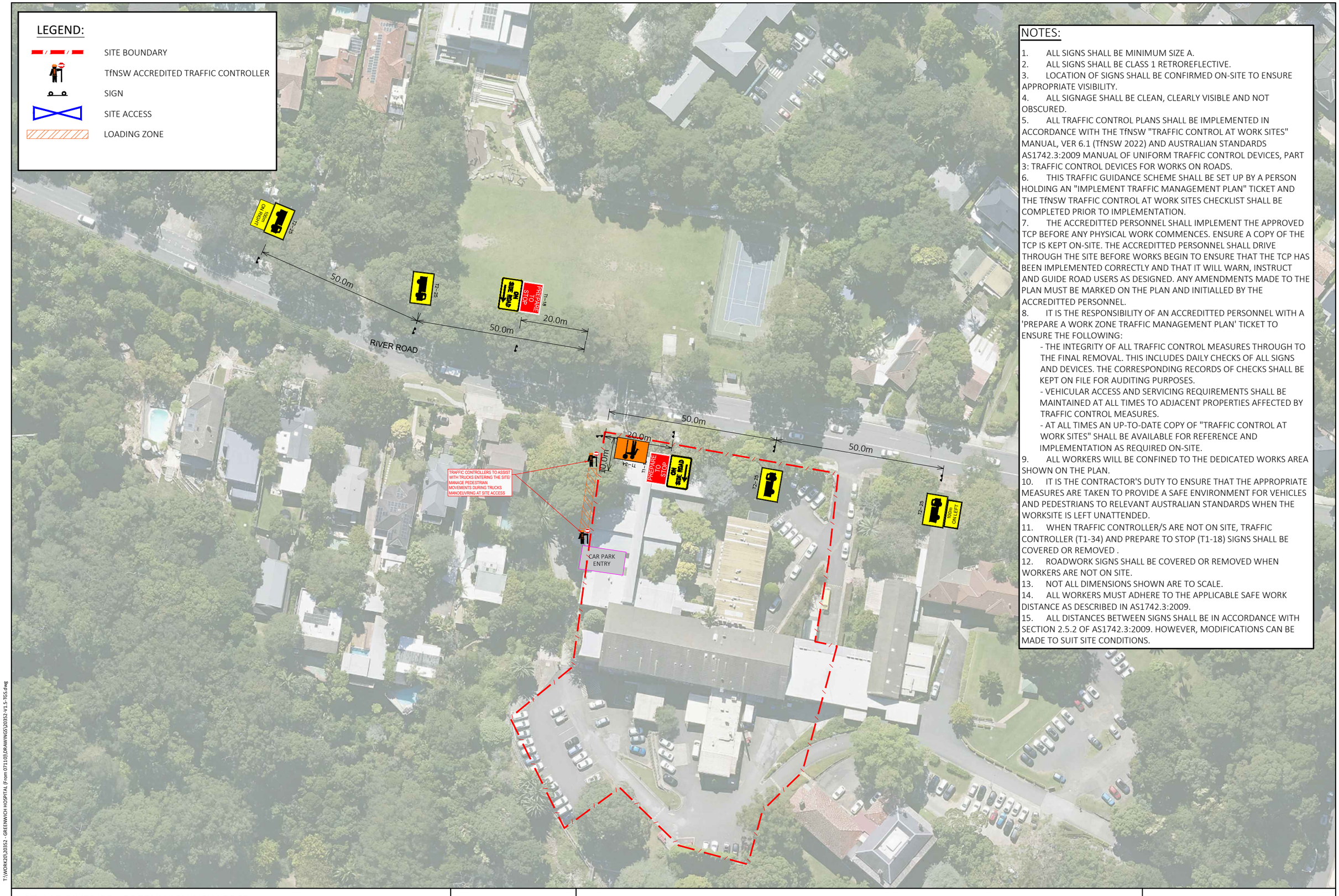

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5. ALL TRAFFIC CONTROL PLANS SHALL BE IMPLEMENTED IN ACCORDANCE WITH THE TfNSW "TRAFFIC CONTROL AT WORK SITES" MANUAL, VER 6.1 (TfNSW 2022) AND AUSTRALIAN STANDARDS AS1742.3:2009 MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES, PART 3: TRAFFIC CONTROL DEVICES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

97-115 RIVER RD, GREENWICH NSW 2065
STAGE 3 SENIORS LIVING
TRAFFIC GUIDANCE SCHEME

DRAWING REF NO. 20352-V1.5-TGS SHEET NO. 03 OF 03 ISSUE DATE 26 November 2024

SCALE A3
0 10.0 20.0
1:1000

CERTIFICATION

THE DESIGNER AND THE REVIEWER ARE CURRENT CARDHOLDER OF TRAFFIC CONTROL WORK: PREPARE WORKS ZONE

DESIGNER:
NAME: AIDAN GARDNER
CARD NO.: TCT1053356
CLASS: PREPARE WORK ZONE

REVIEWER:
NAME: LACHLAN ELLSON
CARD NO. TCT0041903
CLASS: PREPARE WORK ZONE

ttpa TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994
Address: Level 6, Suite 604, 10 Help Street, Chatswood NSW 2067
P: (02) 9411 5660 E: info@ttpa.com.au W: www.ttpa.com.au

Plotted by Lachlan T:\WORK20\20352 - GREENWICH HOSPITAL (From 07110)\DRAWINGS\20352-V1.5-TGS.dwg

Appendix I
Road Safety Audit

TRANSPORT AND TRAFFIC PLANNING ASSOCIATES
Established 1994

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_V7

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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

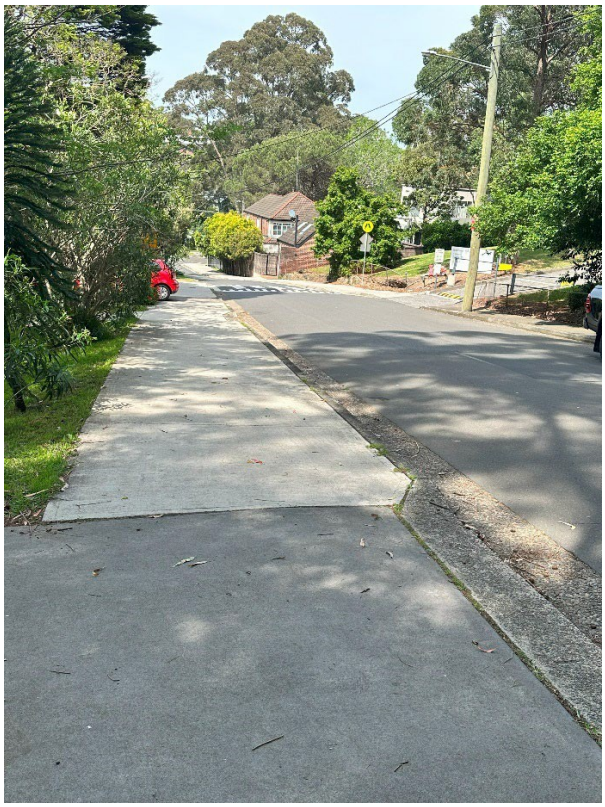


Photo 3 – Existing 1.2m All Weather Path Western Side St Vincents Road



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[1], 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.

[1] Greenwich Hospital Proposed Seniors Health Campus River Road, Greenwich CTMP Report – TTPA 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:

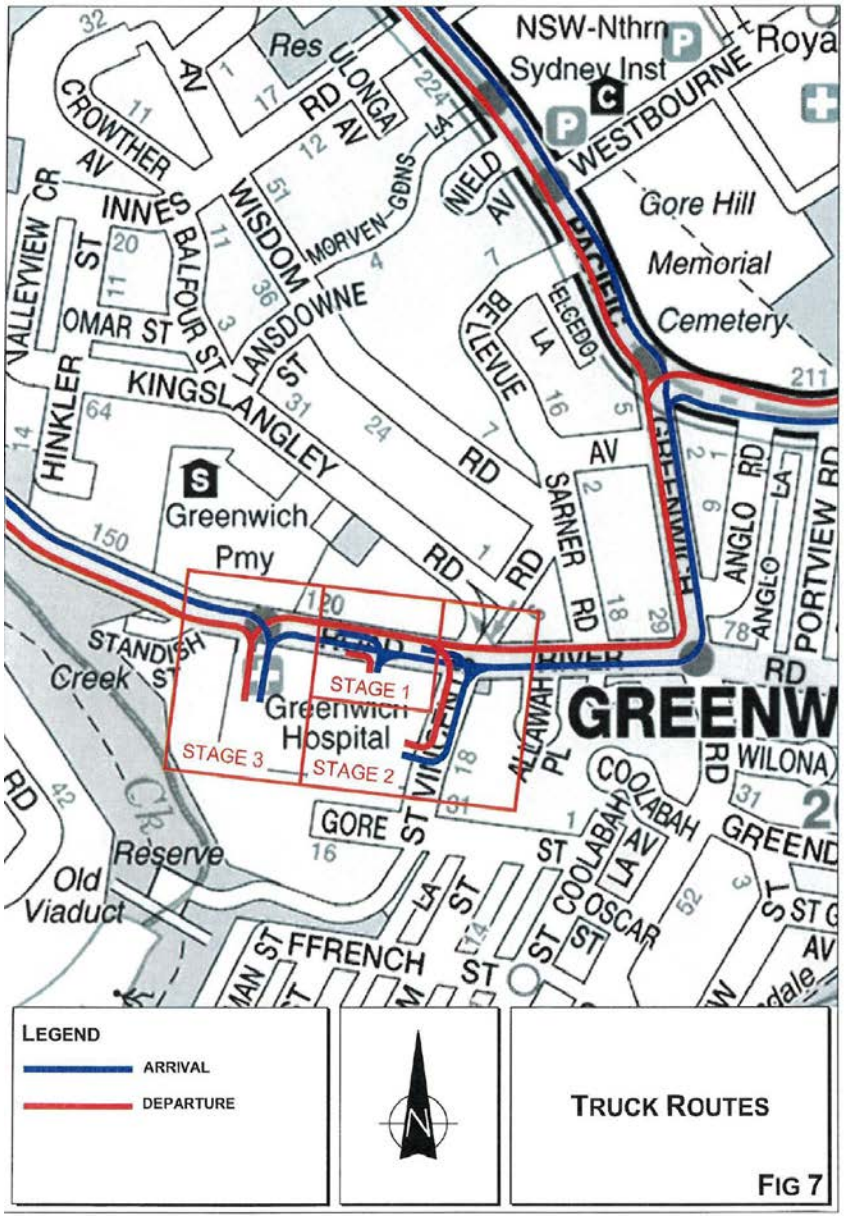
Stage 1
- Early Works - 50 weeks

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 current proposed works.

All truck movements associated with the construction process will access the site via the routes illustrated in Figure 7 below 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.



As confirmed above access via St Vincents Road would only occur during 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 Stage 2 of construction.

Figure 5 - Stage 2 Construction Traffic Management Arrangements

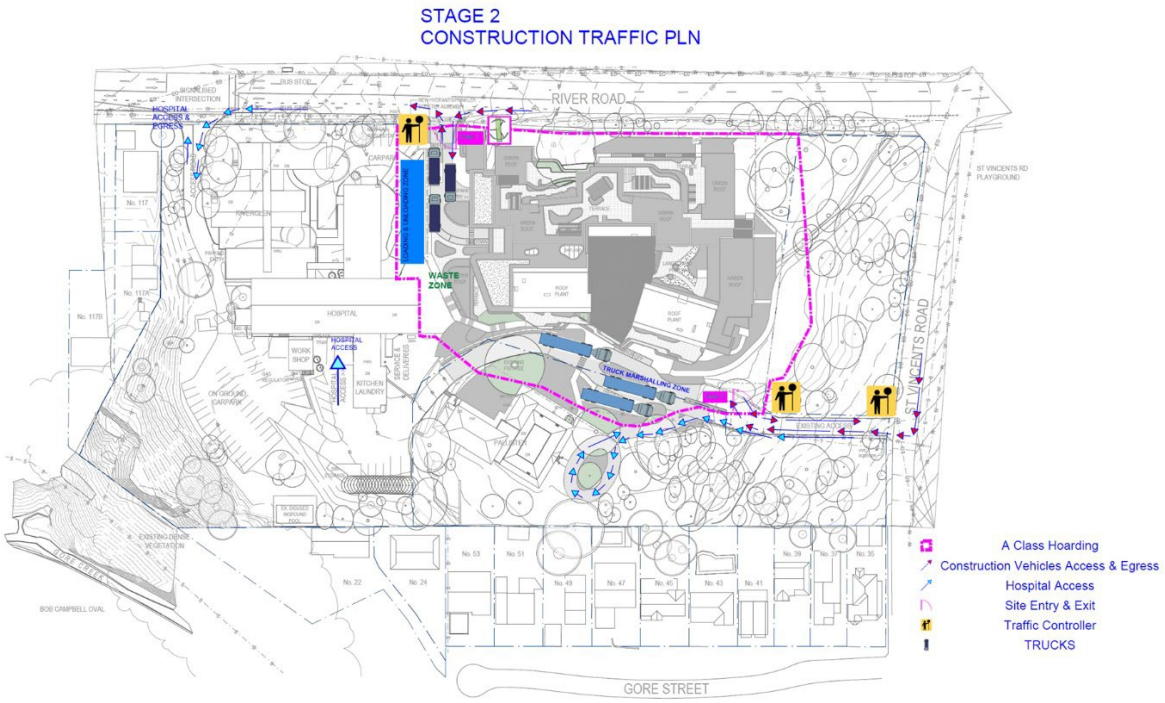


Figure 6 – Truck & Dog Right Turn River Road into St Vincents Road Turn Path

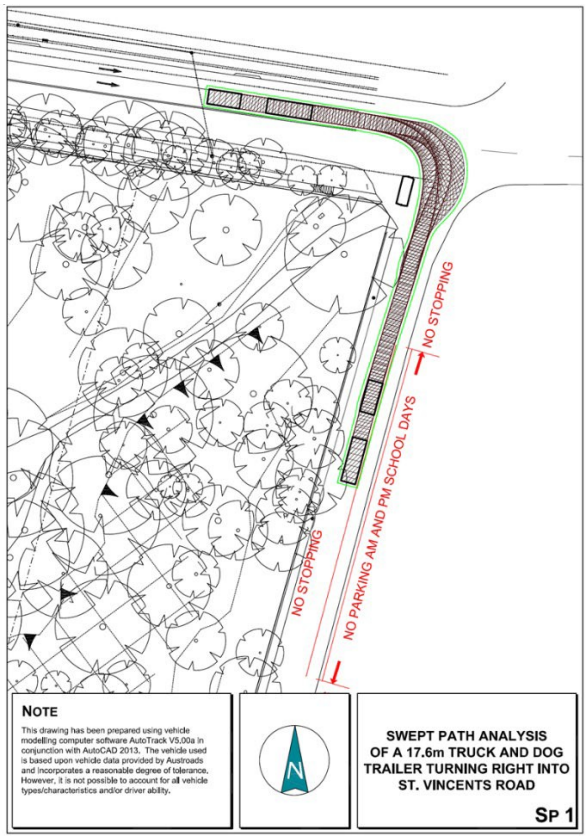


Figure 7 – Truck & Dog Left Turn River Road into St Vincents Road Turn Path

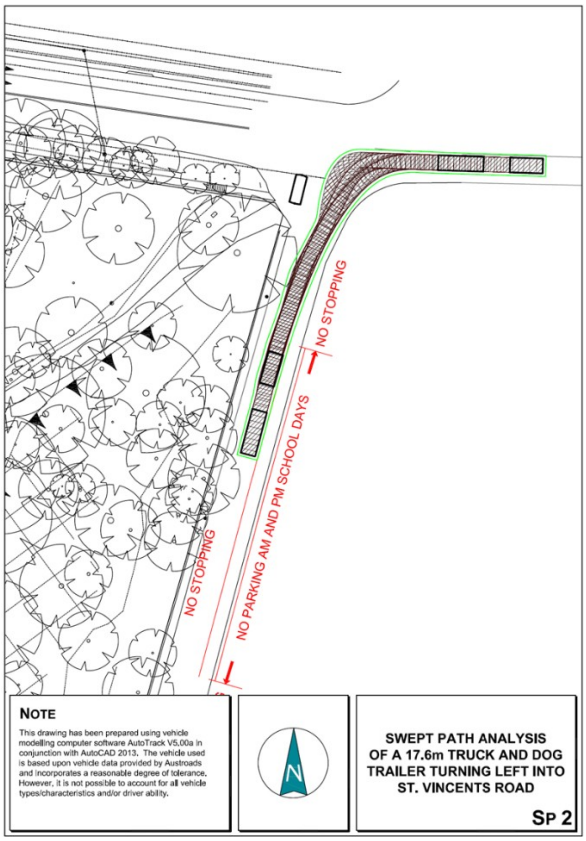


Figure 8 – Truck & Dog Left Turn St Vincents Road into River Road Turn Path

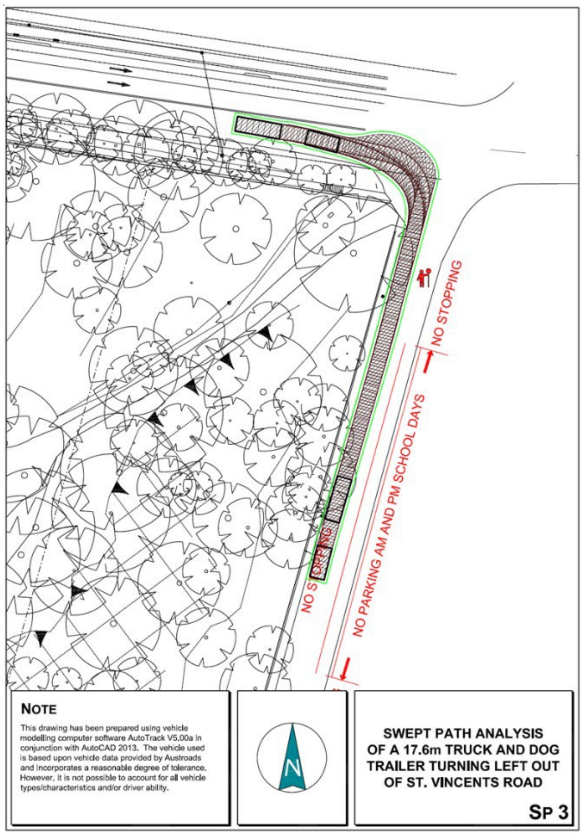


Figure 9 – Truck & Dog Right Turn St Vincents Road into Site Turn Path

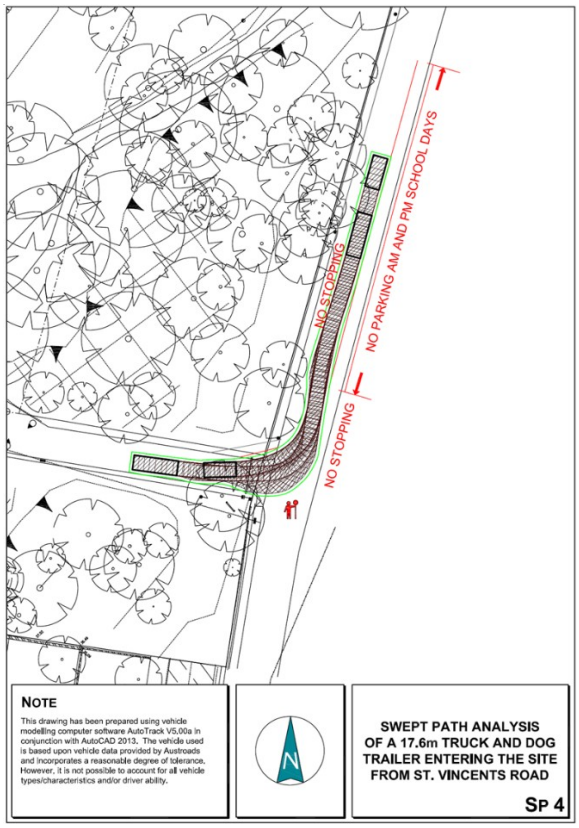
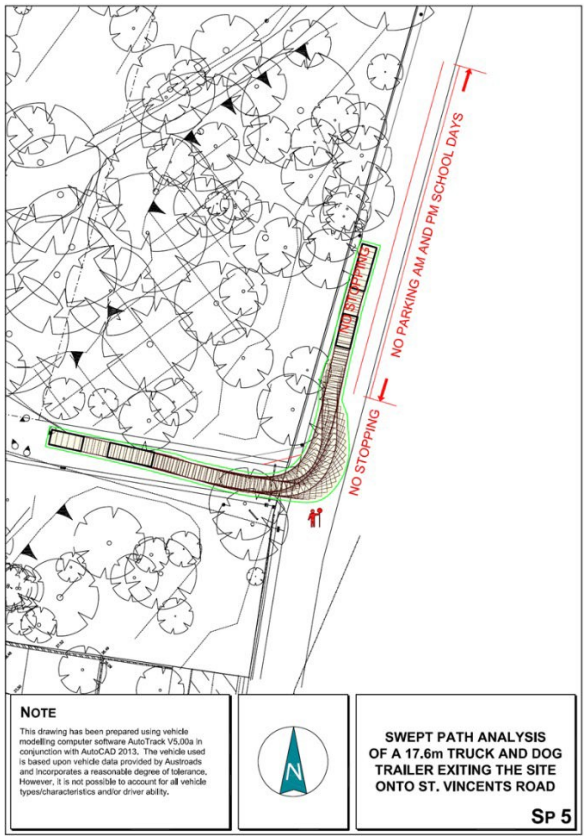


Figure 10 – Truck & Dog Left Turn Site into St Vincents Road Turn Path



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 Construciton

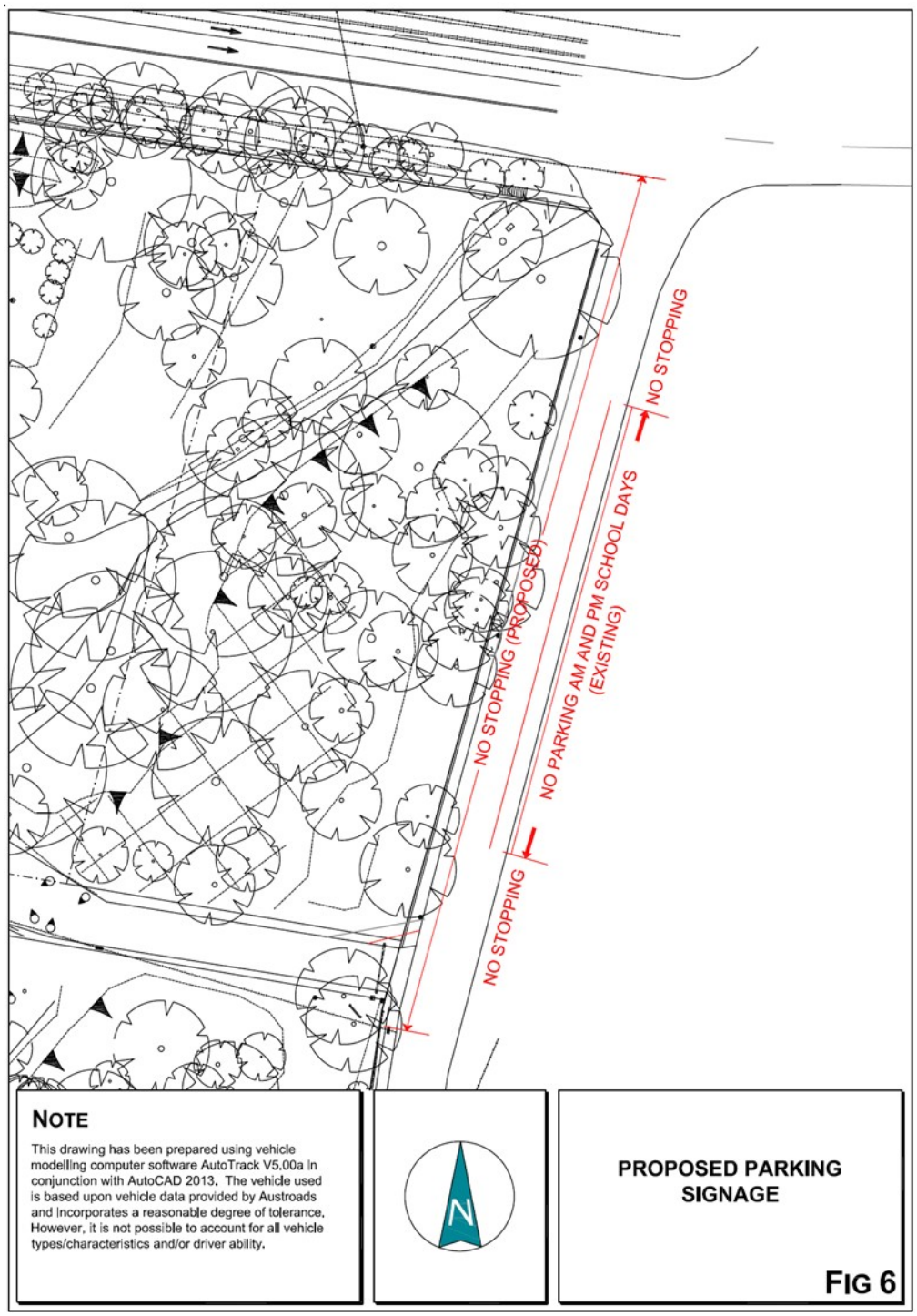


Figure 12 – Stage 2 Traffic Guidance Scheme St Vincents Road



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.
- AUSTROADS - Guide to Road Design - Part 3 – Geometric Design
- AUSTROADS - Guide to Road Design - Part 4: Intersections and Crossings – General
- AUSTROADS - Guide to Road Design - Part 6A: Pedestrian and Cyclist Paths

- AUSTROADS - 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 too 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 **4.1**
Audit For:	Hammond Care Pty Ltd
Project Manager: Positive Traffic Pty Ltd	Dean Brodie Phone: 0414 462247 Dean@positivetraffic.com.au
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 (**Appendix 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 Stage 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	The CTMP was only a draft document prepared for the SSDA. In terms of traffic control and signage, it is superseded by the TGS and the CT&P Sub-Management Plan
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	The Trucks Turning signage at the River Road/St Vincents Road intersection have been added to the TGS.
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.	The use of the water filled barriers would be problematic due to the narrow width of the footpath. It is proposed to extend the existing "pipe rail" fence (see Photo 4) around the corner to terminate just before the Truck Load restriction sign where pedestrians will be able to cross St Vincents Road.

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	The builder (Hindmarsh) has considered this issue, and the response is provided on the letter reproduced overleaf indicating that the grade of the access road will not present a problem for construction vehicles.
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	Section 5.13 of the Sub-Management Plan has been upgraded to specifically deal with communications with the school.
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	Section 5.3 of the Sub-Management Plan has been amended to clarify this.

26 November 2024

Mr Ross Nettle
Transport and Traffic Planning Associates
Suite 604, Level 6
10 Help Street
Chatswood NSW 2067

Greenwich Hospital - RSAR Item 6.4, Access Driveway Gradient

Dear Ross,

In response to the Road Safety Audit Item 4 deficiency (Ramp-grade) I have reviewed the site survey and confirm that the maximum grade is 1:6.36 and this is within the AS2890.2 maximum criteria of 1:6.5. I note that the AS2890.2 grade and transition criteria are very conservative and I have inspected the road with our experienced truck operators. Excavations in particular often involve steeply graded accesses and it is our consensus that trucks will not experience any difficulties accessing particularly as:

- they will enter upgrade unloaded and exit downgrade loaded
- the surface of the road is scored to enhance traction

The proposed site procedures in relation to the access will include:

- regular inspection to ensure safe conditions at all times
- ensuring that any spoil and leaves are quickly removed (a condition of the Environmental Management Plan)
- the installation of standard “grade warning” signage

It is apparent that tips are normally closed during inclement weather, and this will be constrained when demolition and spoil can be removed. The existing speed hump will be removed as recommended in the RSA.

Yours Sincerely,



Mark Reynolds
Senior Project Manager
State: NSW

6. Design Issues

6.1 Item 1 – Inconsistent CTMP / TGS Plans LOW

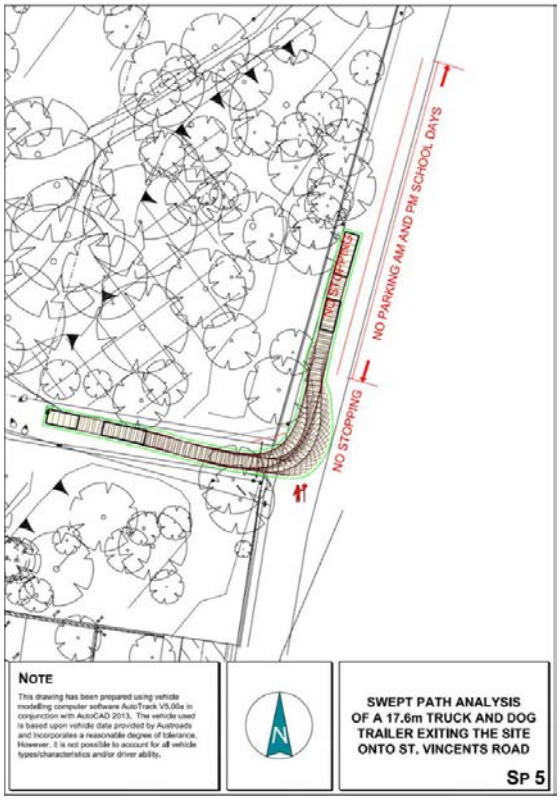
It is noted that the plans provided in the sub CTMP report and CTMP report do not match in terms of the placement of stop / go personnel during periods of access via St Vincents Road. In addition, all TGSs should be prepared in accordance with the latest AS 1742.3, TCAWS or Austroads. For example, the 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 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.

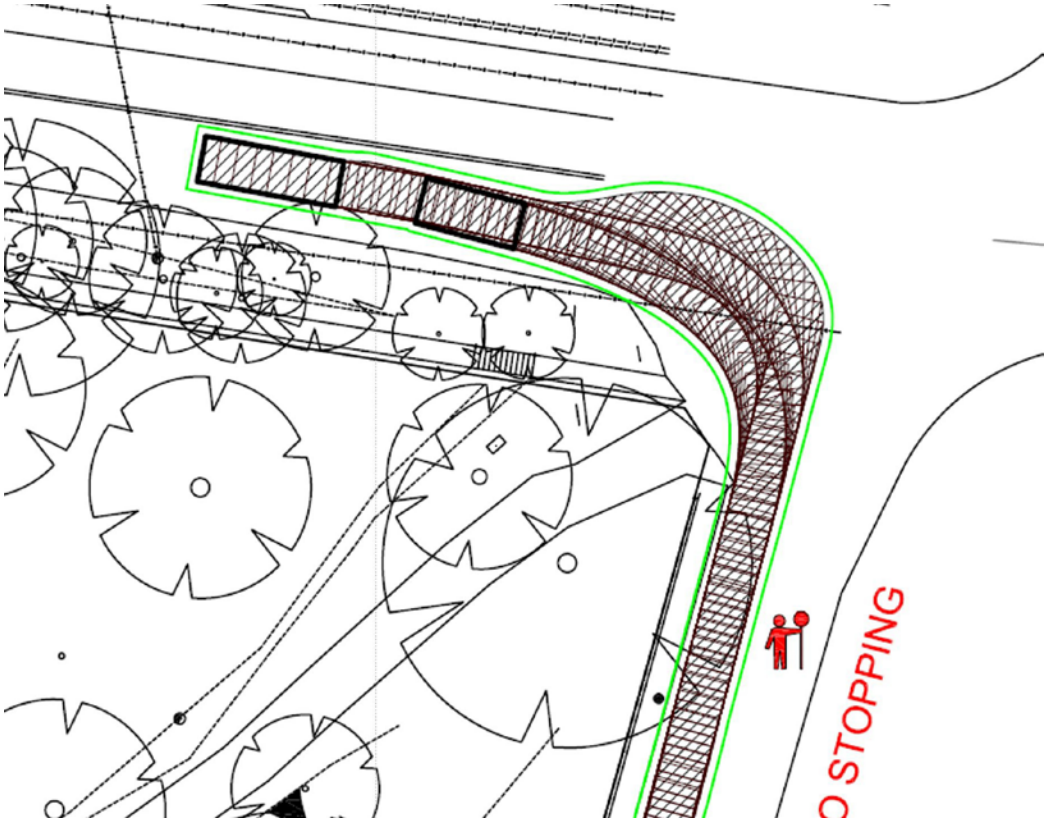
The poor condition footpath is shown below in **Photo 5**.

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.

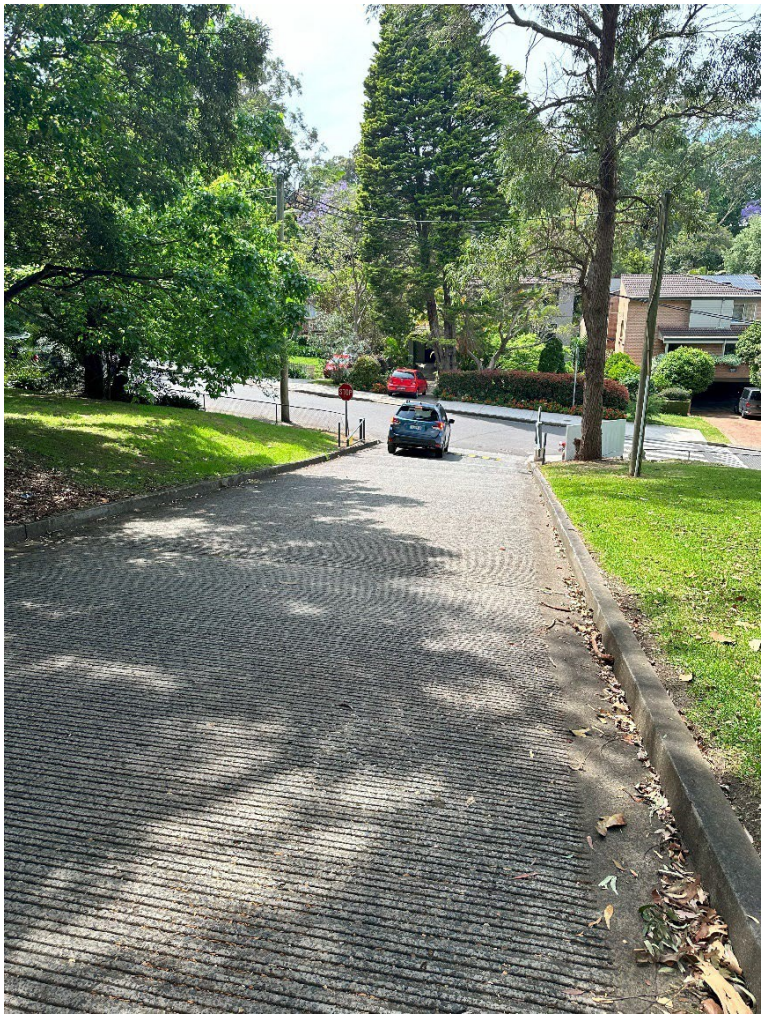


On the basis the truck movements do not occur during school peak times, there would be no trucks present along St Vincents Rd at the same time there are heightened school pedestrian movements.

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:

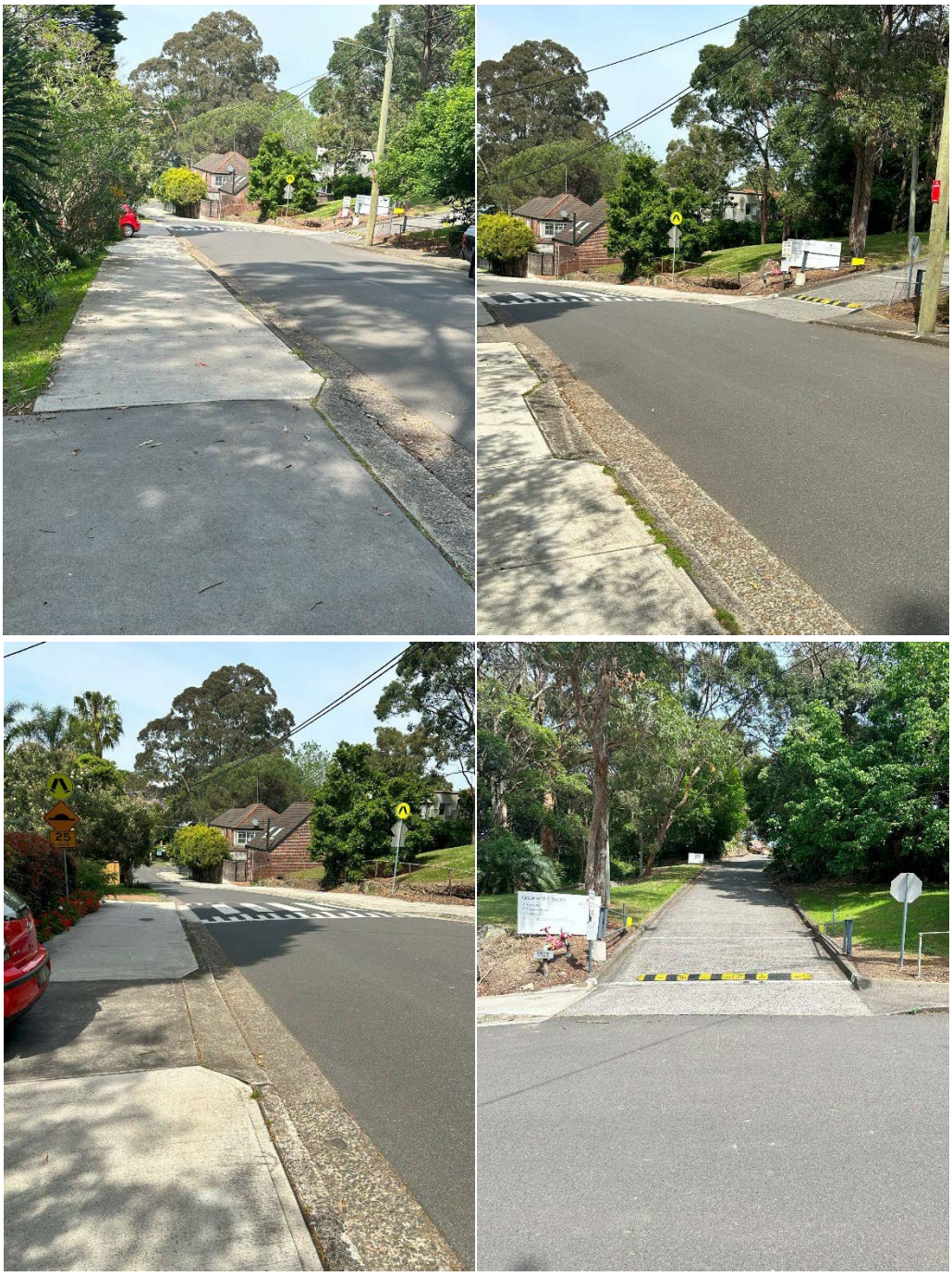
8. Appendix A – Site Inspection Photographs



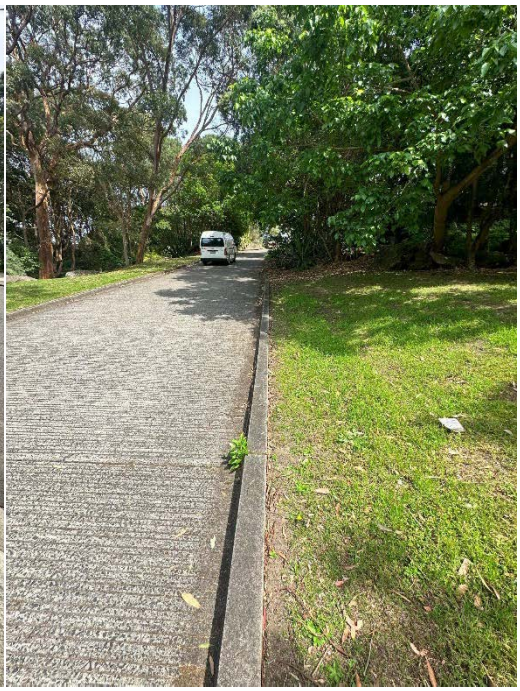


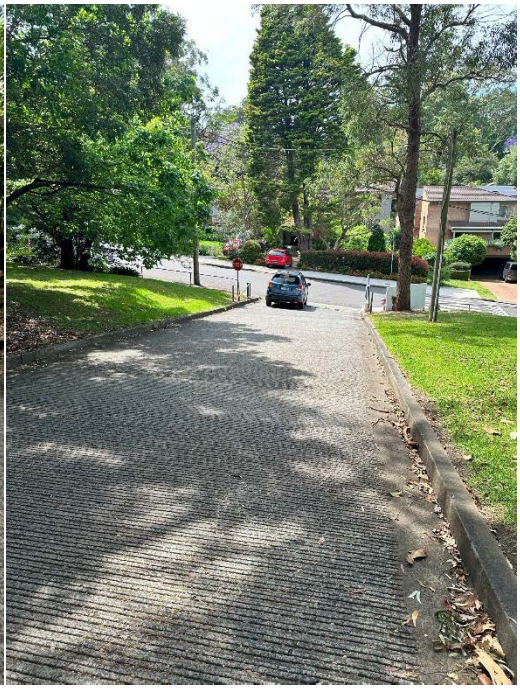






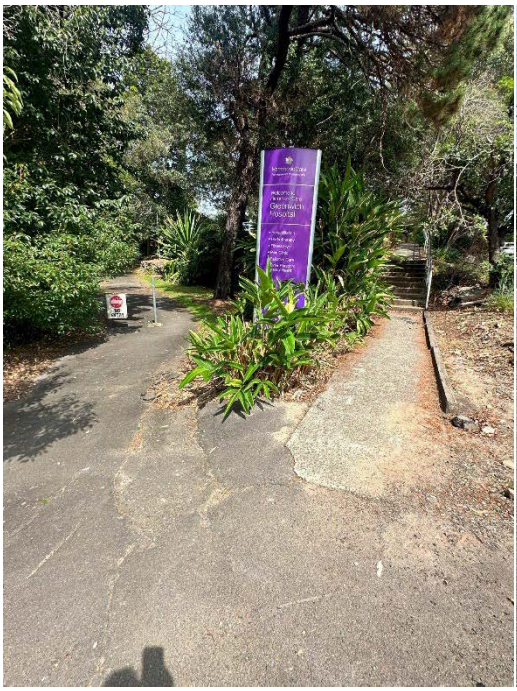


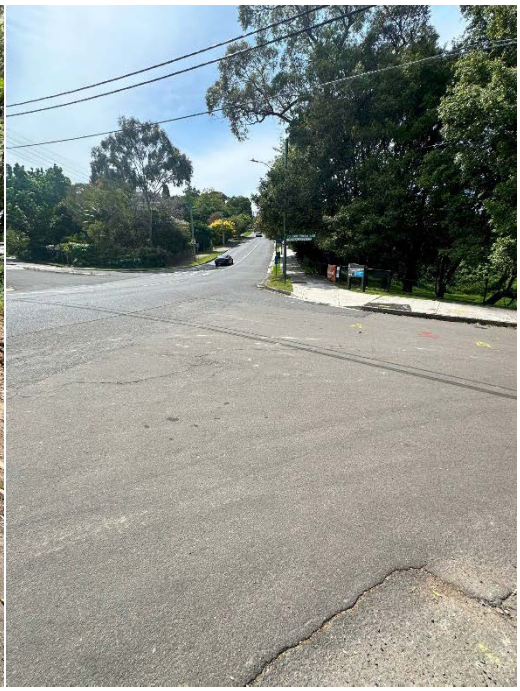



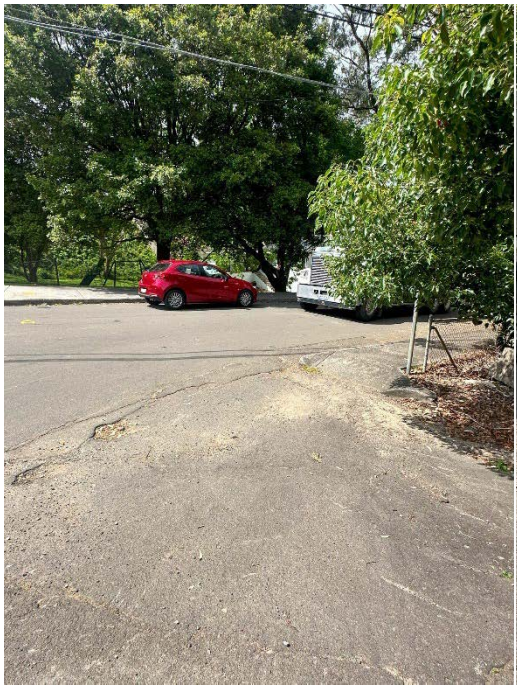




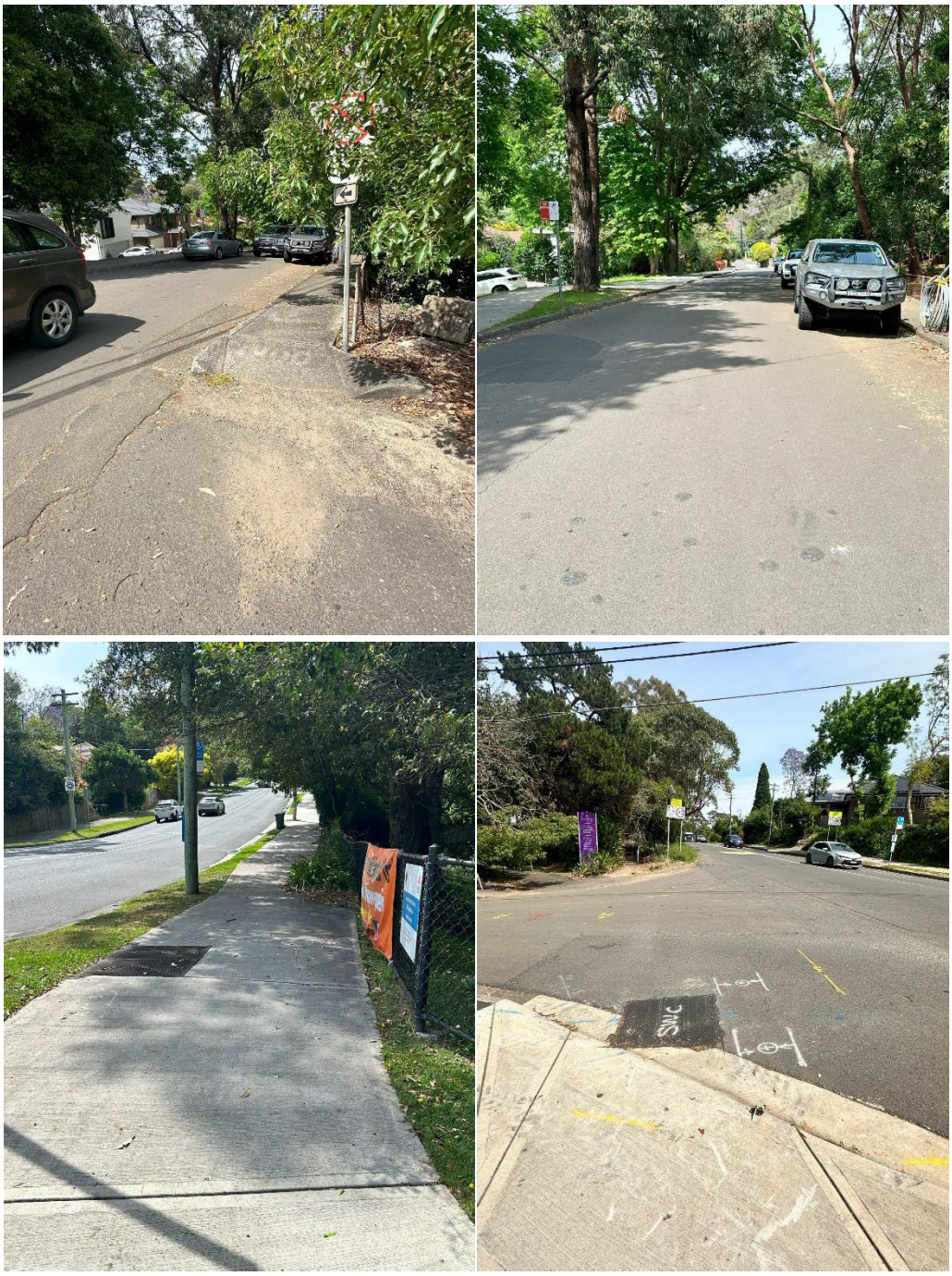















NO
STOPPING

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

www.hindmarsh.com.au

ACOUSTIC LOGIC

MATTHEW PALAVIDIS

VICTOR FATTORETTO

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Greenwich Hospital Redevlopment

Construction Noise & Vibration Management Plan

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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

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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' ("**IGNG**") 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 om 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.

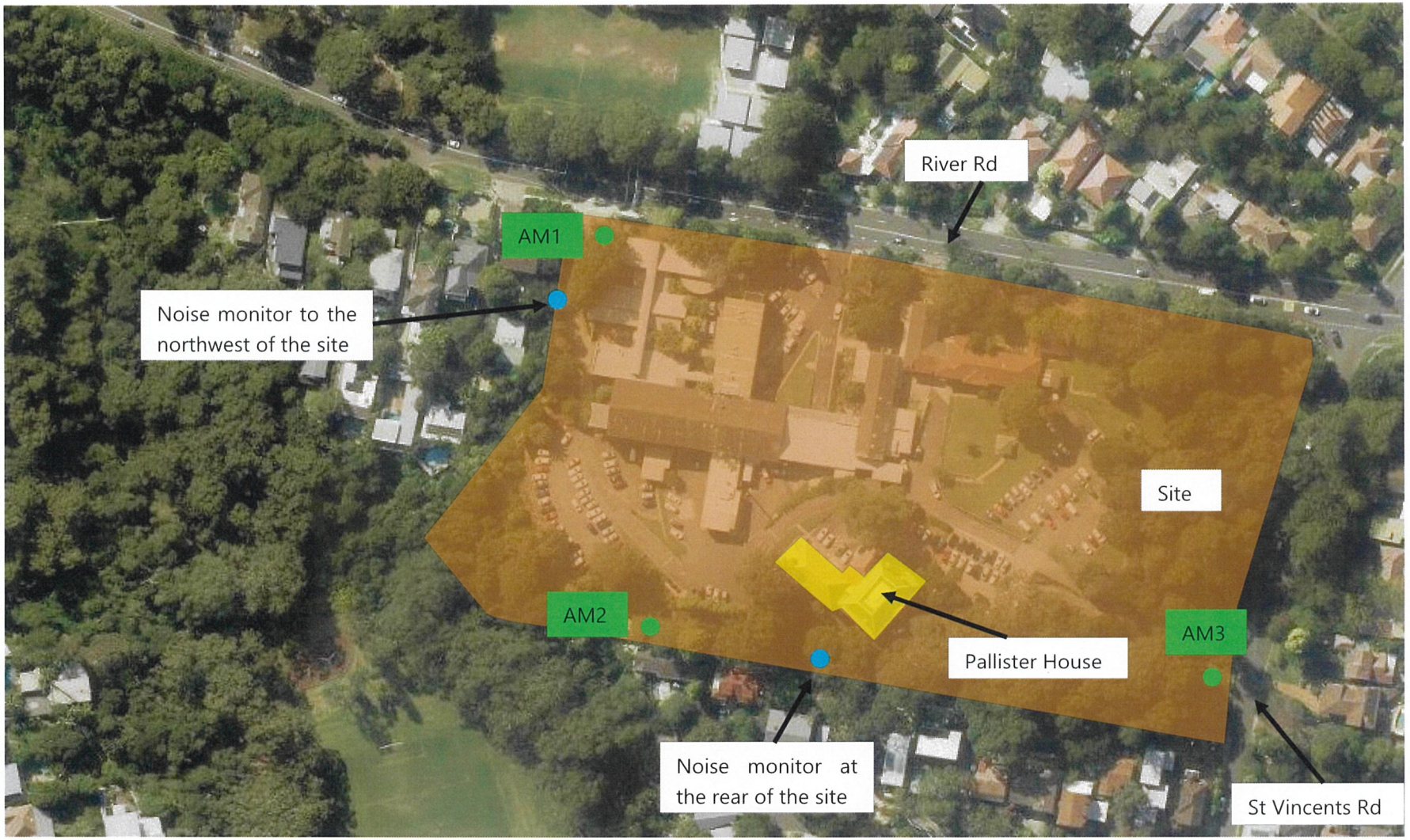


Figure 1 – Site Description (source: Google Maps)

Subject Site
Pallister House
Attended noise measurement locations
Unattended noise measurement

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

EQUIPMENT /PROCESS	SOUND POWER LEVEL dB(A)
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 (Sat1pm – 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^2) 1-80Hz

Location	Assessment Period [1]	Preferred values		Maximum Values	
		z-axis	x- and y-axes	z-axis	x- and y-axes
Continuous Vibration					
Critical areas[2]	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
Impulsive Vibration					
Critical areas[2]	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

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. 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 ($m/s^{1.75}$)

Location	Daytime[1]		Night-time[1]	
	Preferred value	Maximum Value	Preferred value	Maximum Value
Critical areas[2]	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 [a]	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 **and** 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[b]

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)

Activity	Predicted Noise Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Noise Management Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Comment
Excavator with Rock Breaker Attachment	70-80	≤ 58 (Standard construction hours) ≤ 49 (Saturdays 7:30am – 8am) ≤ 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		Causes an intermittent exceedance of Noise Management Level. However, the predicted noise levels are still less than 75dB(A) 'Highly Noise Affected Level'.
General Trucks	58-68		
Pilling Rig	58-68		
Excavator with Bucket Attachment	55-65		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		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.
Man & Material Hoist	46-56		
Powered Hand Tools (Externally)	45-55		
Powered Hand Tools (Internally)	30-40		Compliant

*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)

Activity	Predicted Noise Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Noise Management Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Comment
Excavator with Rock Breaker Attachment	64-74	≤ 54 (Standard construction hours) ≤ 49 (Saturdays 7:30am – 8am) ≤ 48 (Saturdays 1pm – 3:30pm)	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.
Pilling 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		
Powered Hand Tools (Externally)	39-49		Compliant*
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)

Activity	Predicted Noise Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Noise Management Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Comment
Excavator with Rock Breaker Attachment	70-82	≤ 54 (Standard construction hours) ≤ 49 (Saturdays 7:30am – 8am) ≤ 48 (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 southern boundary of the site. See Section 8 for mitigation measures.
Hand Held Jackhammer	70-82		
Angle Grinder / Tile Cutter	64-76*		Causes an intermittent exceedance of Noise Management Level. However, the predicted noise levels are still less than 75dB(A) 'Highly Noise Affected Level'.
General Trucks	58-70		
Pilling 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		Causes an intermittent exceedance of Noise Management Level when working close to the southern boundary of the site.
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)

Activity	Predicted Noise Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Noise Management Level dB(A)$L_{eq(15min)}$ *(External Areas)*	Comment
Excavator with Rock Breaker Attachment	66-92	≤ 58 (Standard construction hours) ≤ 49 (Saturdays 7:30am – 8am) ≤ 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 western boundary of the site. See Section 8 for mitigation measures.
Hand Held Jackhammer	66-92		
Angle Grinder / Tile Cutter	60-86		
General Trucks	54-80		
Pilling 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		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 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.

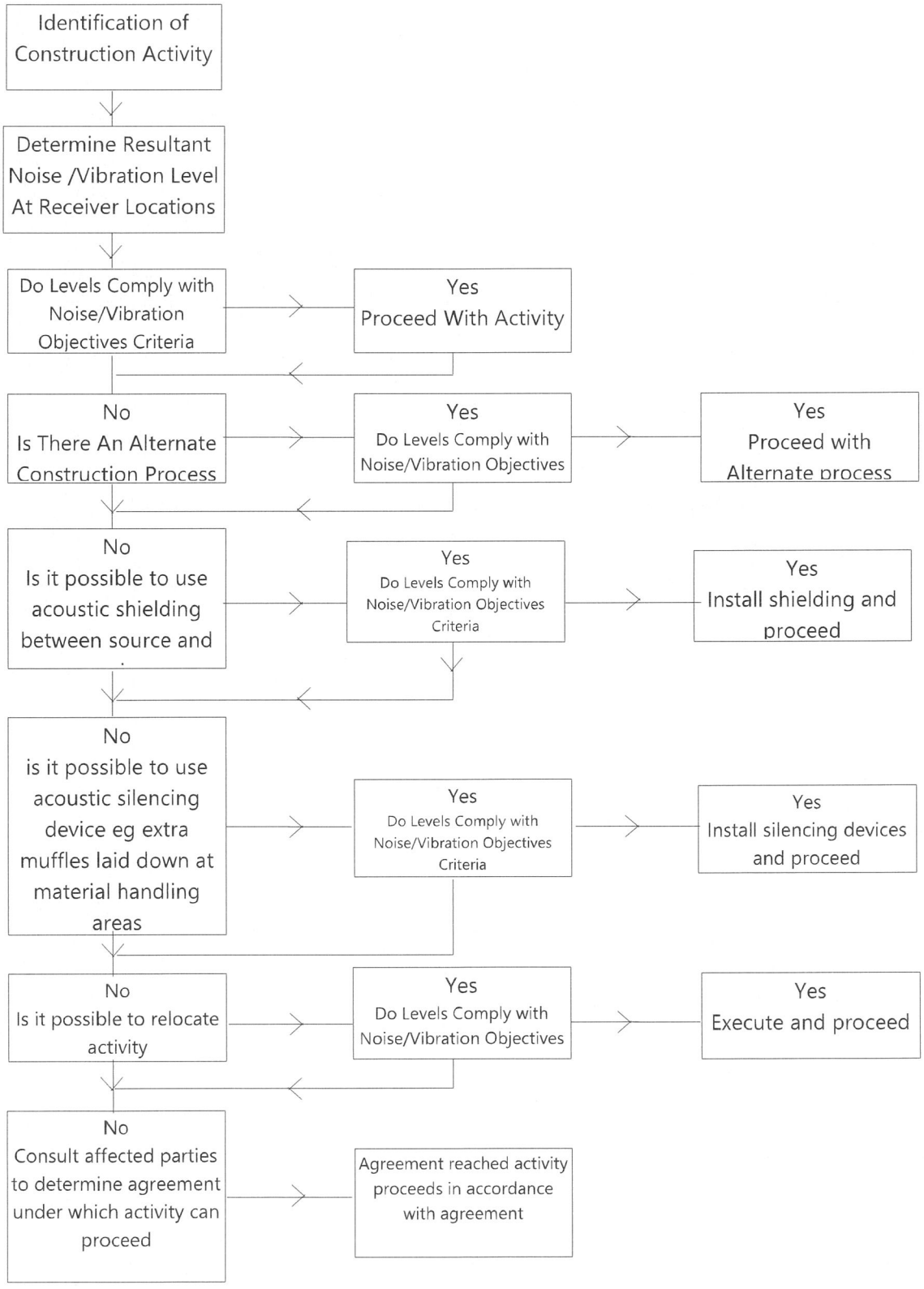


Figure 2 – Process Flowchart

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

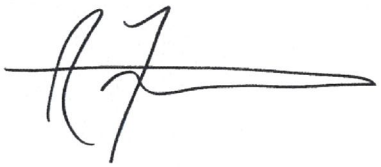
This report assesses potential construction noise and vibration impacts from the Greenwich Hospital redevelopment project. The assessment uses the methodology contained in the EPA IGNG to determine appropriate noise and vibration management levels and identify those activities that are likely to impact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



Acoustic Logic Pty Ltd
Ross Ferraro

APPENDIX 1 – ENGAGEMENT OUTCOMES REPORT DETAILING COMMUNITY ENGAGEMENT UNDERTAKEN

HammondCare
Champion Life

Report to
HammondCare
Greenwich Health Campus project

TSA
Advisory

Engagement Outcomes Report



May 2022

Best for Project

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

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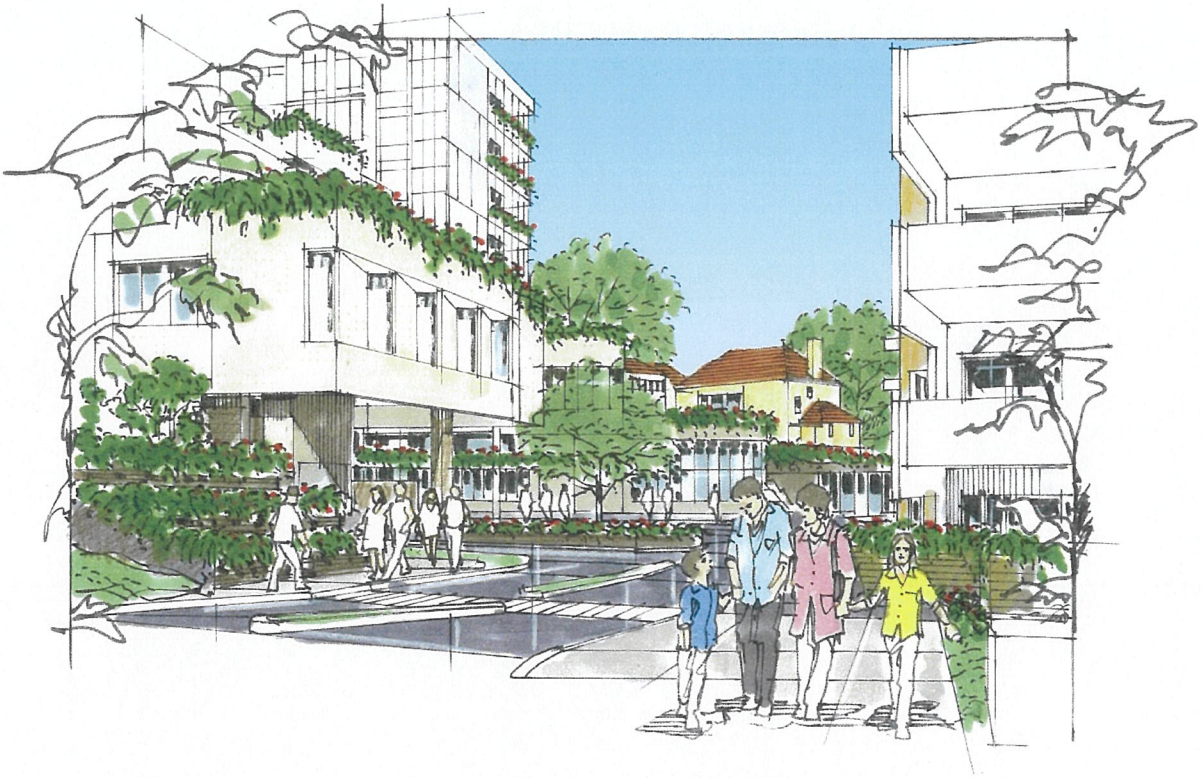

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Appendix A: Project newsletter

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-19n 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
- Overviewing / 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

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
- Overviewing
- 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 week 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	
Queries about the impact of the development on tree removal and bushland more broadly. Query about how many trees will be removed / retained.	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. 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. 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.
Building height and mass	
Queries included how tall the buildings will be, and whether the height of the Seniors Living buildings has been reduced from earlier plans.	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. 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. 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. 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

	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.
Traffic management and safety	
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	
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.
Water run-off/drainage	
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.
Construction impacts – timeline, hours, staging	
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.
Further information on process	
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.
Service provision	
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.
Future of Pallister House	
Generally seeking surety that heritage-protected Pallister House will be retained for future use.	There are no changes proposed for Pallister House. 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.
Further opportunity for engagement and input	
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

Appendix A: Project newsletter

March 2022

HammondCare Champion Life

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.

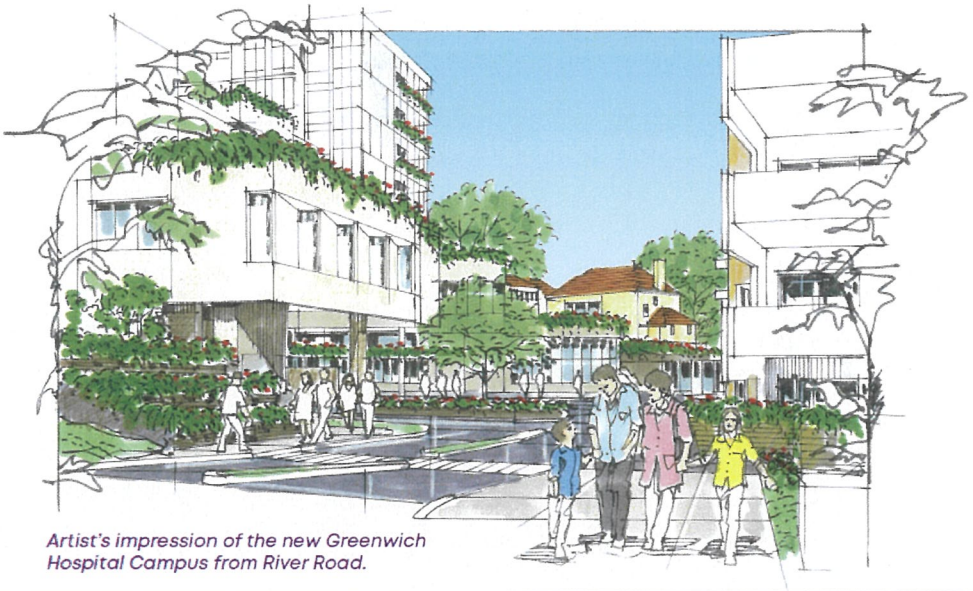
Serviced Seniors Living units are an important aspect of the project, offering 24/7 access to health services for older people with chronic health conditions who wish to live independently.

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.

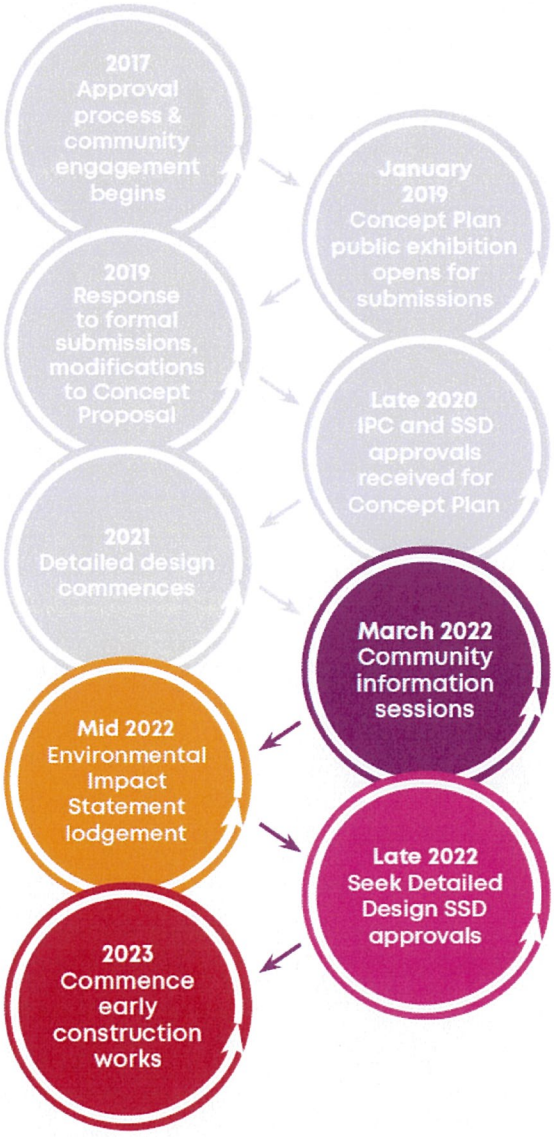
As an independent Christian charity, HammondCare champions life.

TSA Advisory

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

Keeping you updated

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

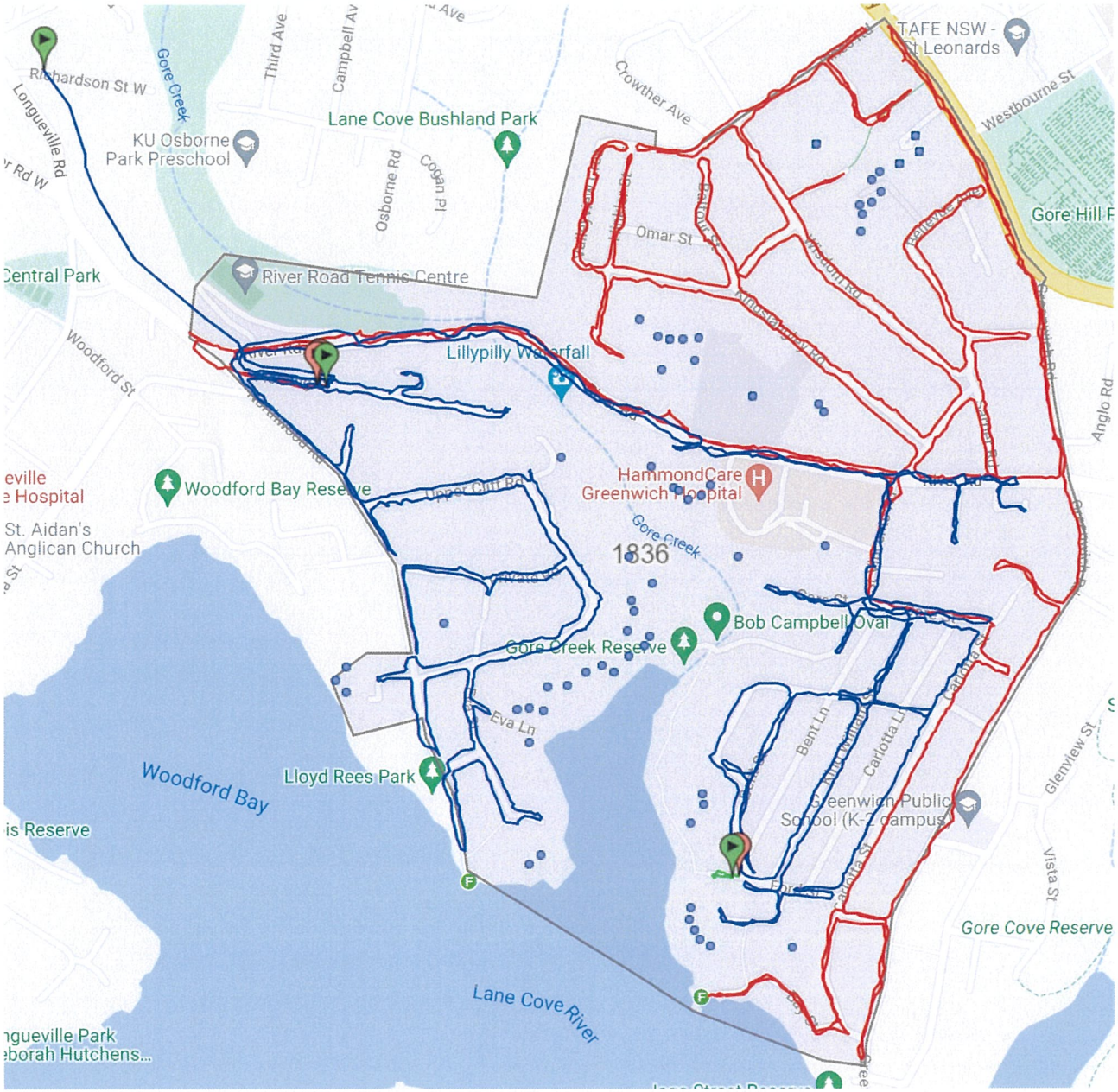
www.hammond.com.au/greenwich

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

Appendix B: Distribution area



Appendix C: Media release

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 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

TSA
Advisory

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 Practicioners 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

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Media: For more information contact Kelvin Bissett on 0418 222 107 or email at 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.

Appendix D: Copy of media coverage



Source: https://www.facebook.com/northshoretimes/posts/detailed-designs-have-been-released-for-the-redevelopment-of-the-1960s-greenwich/10158881035393719/?msclkid=b04059fdc51111ec90e64a15ce4da8fd

IN THE COVE

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.

TSA Advisory



When Will the Redevelopment Be Completed?

HammondCare on their websites 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.

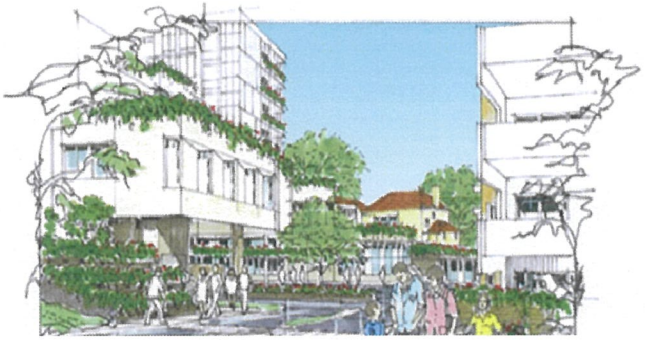
Depending on approvals, HammondCare expects construction to begin in 2023. The hospital will continue to operate during construction."

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/

TSA Advisory

THE WEEKLY SOURCE — The Business of Ageing



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.

Best for Project

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

www.hindmarsh.com.au



HINDMARSH

Construction Waste Management Sub-Plan (CWMSP)

Greenwich Hospital Redevelopment

Revision 02

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Hindmarsh would like to acknowledge the Traditional Custodians of the Land on which we live and work and pay our respects to their Elders past and present.

1. Details of Revision Amendments

1.1 Document Control

The Project Manager is responsible for ensuring that this plan is reviewed and approved. The Project Environmental Manager or Project Manager as available is responsible for updating this plan to reflect changes to environmental, legal and other requirements, as required.

1.2 Amendments

Any revisions or amendments must be approved by the Project Manager and/or client before being distributed / implemented.

1.3 Revision Details

Approved revisions to this document may be independently issued.

Date Issued	Revision	Details	Section	Page
12/09/2024	v1	Initial CWMSP	All	All
25/10/2024	V2	CWMSP Issued for use: • Draft text removed • Stage 1 Establishment Plans added	 Section 9 Appendix A	 p.17 p.26-45

2. Introduction

2.1 Context

This Construction Waste Management Plan (CWMP) is a sub plan to the Construction Environmental Management Plan (CEMP) and outlines how we will achieve acceptable waste management and associated environmental outcomes across delivery of the Greenwich Hospital Redevelopment Project through the application of the Hindmarsh's Environmental Management System.

This report has been prepared to address the requirements of the Minister's Conditions of Approval (CoA), project approvals, applicable guidance advice and legislation.

2.2 Project Specifics

Company Name:	Hindmarsh Construction Australia Pty Ltd
ABN	15 126 578 176
Project:	Greenwich Hospital Redevelopment
Project No:	T24017
Location:	97-115 River Road, Greenwich
Client:	HammondCare
Contract:	*TBA

2.3 Approval for Implementation

This revision of the Construction Waste management Sub Plan (CWMSP) has been reviewed by the Project Manager and complies with environmental aspects of Hindmarsh Compass System and contractual obligations, 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.

2.4 Induction

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

Key elements of this CWMSP 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.

2.5 Precedence

This Construction Waste Management Plan (CWMSP) does not in any way override any provisions of the Project Brief, or brief issued by the Client. Where there is found to be a conflict in this CWMSP with any requirements of the Project Brief, the conflict is to be referred to the Project Manager for direction.

2.6 Abbreviations Used

AFC	Approved for Construction	AS	Australian Standard
BCA	Building Code of Australia	CC	Construction Certificate
CCD	Competition Concept Design	CD	Contract Documentation
CoA	Conditions of Approval	D&C	Design and Construction
CEMP	Construction Environmental Management Plan	CWMSP	Construction Waste Management Sib-Plan
DA	Development Application / Approval	DD	Detailed Design
DM	Design Manager	DMP	Design Management Plan
DOS	Design Options Study	DR	Documentation Readiness (for tender)
ESD	Environmentally Sustainable Design	FDB	Functional Design Brief
FRD	Functional Relationship Diagram	PCA	Principle Certifying Authority
HCA	Hindmarsh Construction Australia	PM	Project Manager
PCG	Project Control Group	PSA	Professional Services Agreement
PDC	Principal Design Consultant	QS	Quantity Surveyor / Cost Planner
PMP	Project Management Plan	RL	Reduced Level
QA	Quality Assurance	SSD	State Significant Development
RAP	Remediation Action Plan	SQE	Safety Quality and Environmental
R&O	Risk and Opportunity (Financial focus)	WOL	Whole of Life
SD	Schematic Design	Compass	Hindmarsh Management System
SoA	Schedule of Accommodation	ACONEX	Web-based Information Management System
VM	Value Management		

2.7 SSD Condition Satisfaction Table

Condition	Condition Requirement		Document / Sub-Plan Reference
C10	**Ecological Sustainable Development**		
	Prior to the commencement of each stage of construction that includes demolition, demolition work plans required by AS 2601-2001 The demolition of structures (Standards Australia, 2001) must be accompanied by a written statement from a suitably qualified person that the proposals contained in the work plan comply with the safety requirements of the Standard. The work plans and the statement of compliance must be submitted to the Certifier and be made available to the Planning Secretary within seven days upon request.		-
C12	**Environmental Management Plan Requirements**		
	Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE April 2020). • The Environmental Management Plan Guideline is available on the Planning Portal at: https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval. • The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.		Refer to CEMP
C13	**Construction Environmental Management Plan**		
	Prior to the commencement of construction, the Applicant must submit a Construction Environmental Management Plan (CEMP) to the Certifier and provide a copy to the Planning Secretary within seven days upon request. The CEMP must include, but not be limited to, the following:		Refer to CEMP
C17	**Construction Waste Management Sub-Plan**		
	The Construction Waste Management Sub-Plan (CWMSP) must address, but not be limited to, the procedures for the management of waste, comprising:		-
	(a)	the recording of quantities, classification (for materials to be removed) and validation (for materials to remain) of each type of waste generated during construction and proposed use;	Refer to Appendix B
	(b)	information regarding the recycling and disposal locations; and	Refer to Section 9
	(c)	confirmation of the contamination status of the development areas of the Site based on the validation results.	As required and addressed under the Remediation Action Plan

3. Purpose and Scope of CWMSP

The scope of this plan is to describe how HCA proposes to manage waste and resource recovery during construction of the project. Operational waste management measure do not fall within the scope of this plan and therefore are not included within the processes contained within this plan.

Environmental management system overview is described within the CEMP.

This plan addresses the following CoA; C12 - Management plans required under this consent must be prepared having regard to the relevant guidelines, including but not limited to the Environmental Management Plan Guideline: Guideline for Infrastructure Projects (DPIE April 2020).

- The Environmental Management Plan Guideline is available on the Planning Portal at: *https://www.planningportal.nsw.gov.au/major-projects/assessment/post-approval.*
- The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.

This plan addresses the management and reporting of waste streams generated on the project, with the objective to:

- identify, quantity and classify waste streams to be generated during construction;
- assist in the prevention of unauthorized environmental harm
- comply with relevant waste management and environmental legislation
- identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site;
- ensure storage and collection of waste is designed and managed having appropriate regard to space, location, amenity, and ongoing management of waste management facilities;
- describe measures to be implemented to manage, reuse, and recycle and safely dispose of the waste;
- maximise reuse and recycling of demolition and construction materials, and materials from development;
- encourage building design techniques in general which minimise waste generation; and
- minimise the amount of waste being deposited to landfill with targets to reuse or recycle at least 90% of construction and demolition waste.

Activities conducted on the project that have the potential to generate waste are provided in the following table:

Project Activity	Environmental Hazard	Environmental Risk
Construction and demolition processes	Generation of waste product Onsite storage of waste	Soil and water contamination Visual impact, littering Odours Increase in pets Wind-blown waste leaving site
Plant maintenance	Generation of waste materials and contaminants e.g. oil	Soil and water contamination
Operation and maintenance of site offices and related facilities	Generation of general waste	Unnecessary load on landfill
Waste transport	Handling waste	Noise and dust impacts Mud tracking on roads Unlicensed facilities transporting or receiving waste

5. Proposal

5.1 Project Overview

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.

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 are as follows:

- Stage 1 – Early works and external works;
- All activities 12 months;
- Stage 2 – New Hospital Buildings;
- Site establishment 6 weeks;
- Demolition works 5 weeks;
- Construction 114 weeks;
- Stage 3 – Two new Seniors 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; and
- Construction 30 weeks.

The following figure illustrates the overall staging intended for the project.

The boundaries and hoarding for the various stages are indicative only and the location and specification of fencing is to be confirmed upon engagement.

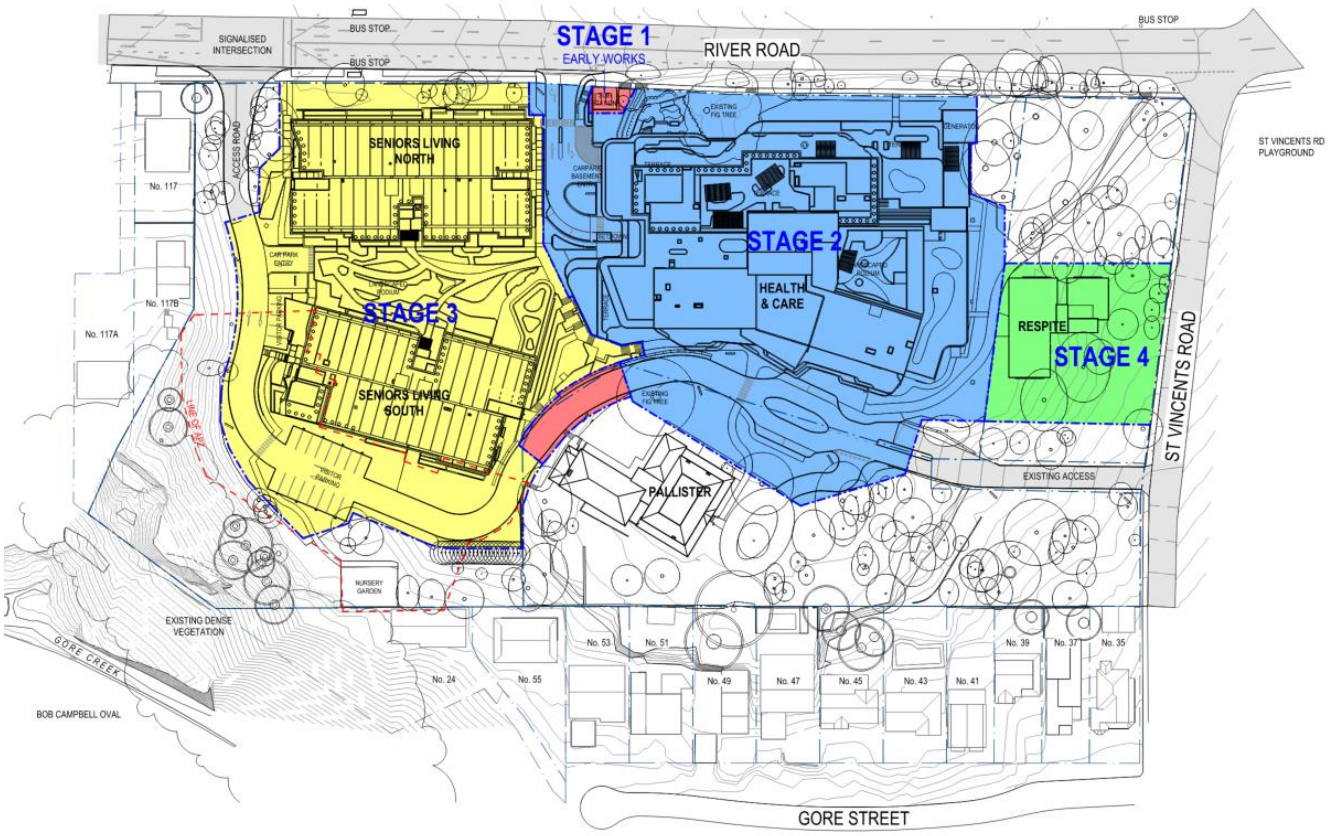

Figure 1 – Proposed Staging Plan

It is noted that as part of the delivery of the project, the HCA will implement multiple stages in accordance with the Construction Certificates required to be implemented for the project.

The approved development will include the following:

- Demolition of the existing hospital building and associated facilities at the site 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; and
- Preservation of Pallister House which will continue to house dementia care and administrative functions.

The works are programmed to commence in end 2024 with anticipated completion of Stage 1 external works late 2025.

Commencement of subsequent Main Works Stages will be further developed in collaboration with HammondCare.

5.2 Hours of Operation

Site operating hours for construction activities will be in accordance with the SSD CoA, except as may be agreed with the Planning Secretary and local authorities for any out of hours work.

Construction, including the delivery of materials to and from the site, may only be carried out between the following hours:

- Between 7:30 am and 5:30 pm, Mondays to Fridays inclusive;
- Between 8:00 am and 1:00 pm, Saturdays; and
- No work may be carried out on Sundays or public holidays.

Construction works may be undertaken outside of the hours if works achieve construction noise management levels for 'Outside recommended standard hours' detailed in the Interim Construction Noise Guideline (DECC, 2009) as follows:

- Between 1:00pm and 3:30pm, Saturdays.

Construction activities may be undertaken outside of the hours (noted above) in accordance with the approved SSD Condition C4 and C5 if required:

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

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

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

- 9:00am to 12:00pm, Monday to Friday;
- 2:00pm to 5:00pm Monday to Friday; and
- 9:00am to 12:00pm, Saturday.

6. Site Description

The site is located in the suburb of Greenwich, within the Local Government Area (LGA) of Lane Cove Council. It comprises a total of two allotments, which are legally described as Lots 3 and 4 in DP584287. Lot 3 accommodates the existing Hospital building, and Lot 4 accommodates Pallister House. In total, the site is 33,763m2 in size and irregular in shape.

The site is bounded by River Road to the north, St Vincents Road to the east, and existing residential housing to the south and west. The site is characterised by a sloped and varied topography. Site levels rise towards the centre from its southwestern and southeastern boundaries, with a steep fall at the southwestern end, towards Gore Creek Reserve.

Existing development on the site comprises the current Greenwich Hospital complex. Existing buildings at the site range between 1-5 storeys in height and are interconnected through a series of internal corridors and external pathways. This includes the Main Hospital Building, which provides patient hospital beds, general healthcare, and palliative care services, the Riverglen building which provides sub-acute mental health services for older persons, and the Blue Gum Lodge, which is currently used for pain clinic and community care healthcare services. Near the southern end of the site, within Lot 4 in DP584287, is the State Heritage-listed 'Pallister House' building (SHR 00574). This two-storey Victorian house currently houses the hospital's dementia and research facilities, and education facilities.

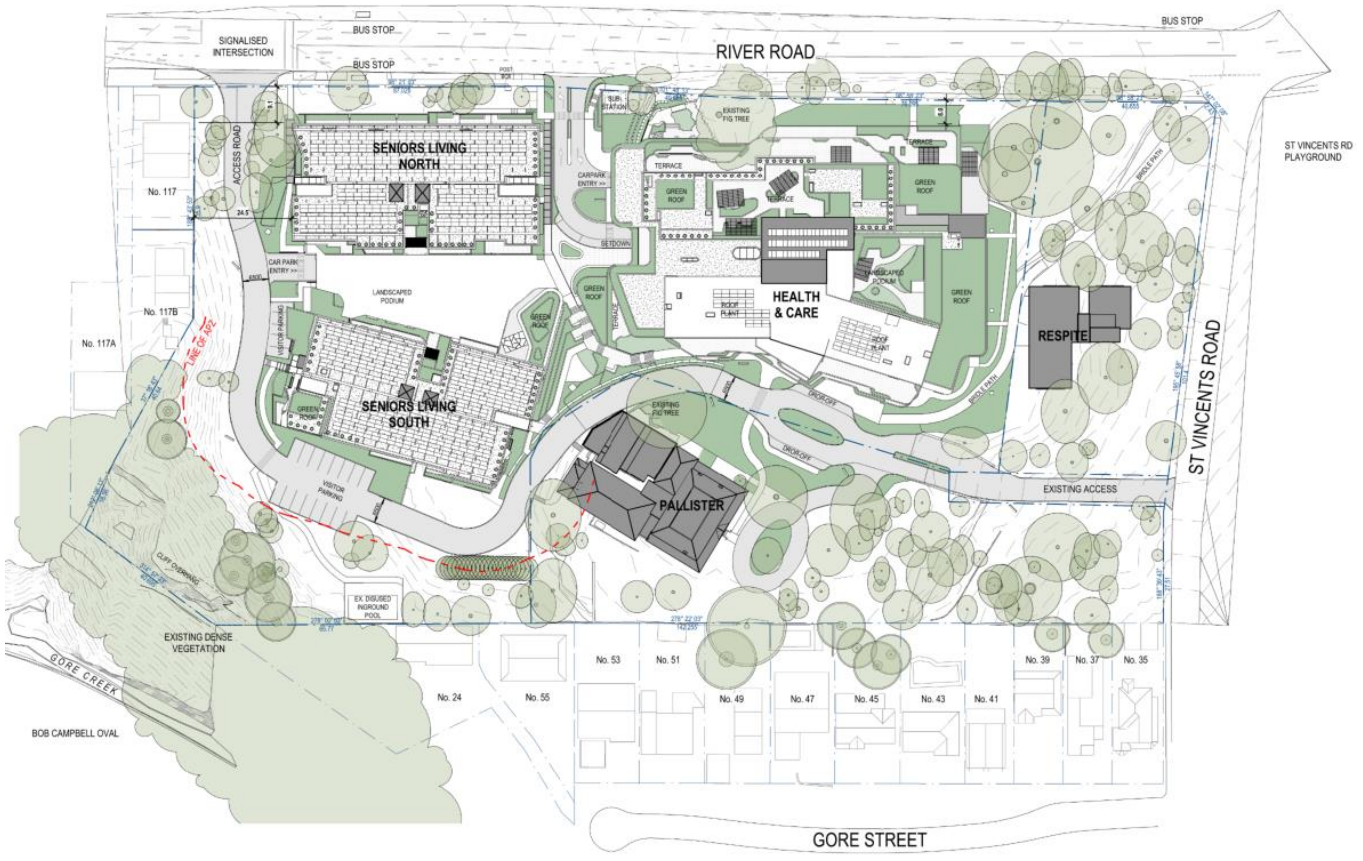

Figure 2 – Approved Site Plan

7. NSW Legislation Requirements & Guidelines

Relevant key legislation and guidelines applicable to the project include:

- Protection of the Environment Operations Act 1997;
- Protection of the Environment (General) Operations Act 1998;
- Waste Avoidance and Resource Recovery Act 2014;
- Protection of the Environment Operations (Waste) Regulation 2014;
- Waste Classification Guidelines (EPA, 2014);
- Work Health and Safety Act 2011 (NSW); and
- NSW Department of Planning and Environment.
- NSW Waste and Resource Recovery Strategy 2014-21 (EPA, 2014),
- NSW Government Resource Efficiency Policy (GREP) (OEH 2014),
- Waste Classification Guidelines (EPA 2014),
- AS2601: 2001 The Demolition of Structures,

8. Servicing Arrangements

The current legislation determines that the generator of waste is the owner of the waste until the waste crosses a calibrated weighbridge into a licensed facility. Waste contractors to demolition and construction contractors are the primary transporters of waste off-site, accordingly, waste contractors are required to provide verifiable monthly reports on waste reused, reprocessed, or recycled (diverted from landfill) or waste sent to landfill. These reports have a direct bearing on the generator's compliance with the relevant regulations. This CWMSP will be implemented onsite throughout including singularly or collectively the demolition, excavation, construction and fit out phases.

A Waste Data File must be maintained on-site, and all entries are to include:

- The classification of the waste;
- The time and date of material removed;
- A description of and the volume of waste collected;
- The location and name of the waste facility that the waste is transferred to; and
- The vehicle registration and the name of the waste contractor's company.

The Waste Data File will be made available for inspection to any authorized officer at any time during the life of the site works. At the conclusion of site works, the designated person will retain all waste documentation and make this validating documentation available for inspection.

Arrangement's will be made with the Waste Contractor to increase bin supply if there is an unexpected increase in waste generation.

8.1 Waste Management Equipment, Bin Sizes & Collection Frequency

All waste will be removed by a licensed waste contractor using up to 15-meter bins on site, with waste being removed when bins are full and within construction site hours to reduce disturbance of the neighbours.

8.2 Waste Management Targets

The project has been set the following Waste Management performance targets.

Metric/Measure	Objective	Timeframe	Accountability
% of waste quantified in waste management reports	100%	At all times	Project Manager
% of regulated hazardous wastes for which transfer certificates are retained	100%	At all times	Project Manager
Number of enforcement notices and penalties received from regulators and/or client	Zero	At all times	Project Manager
% waste recycled	90%	12 months	Project Manager

8.3 Roles and Responsibilities

The waste management strategy for the project will operate over the design, procurement, and construction including fit out of the project, and is detailed in table below.

Table 3: Breakdown of Tasks and Responsibilities

Management Strategies	Responsibilities
Design:	
Design for materials to standard sizes.	Architect, Subcontractors.
Design for operational waste minimisation.	Architect & Builder.
Consider ways to avoid, reuse and recycle construction wastes.	Subcontractors.
Procurement:	
Select recycled and reprocesses materials.	Architect, Engineer, Builder & Subcontractors.
Select components that can be reused after deconstruction. Prioritise suppliers that take back offcuts and unused product.	
Encourage contractors and subcontractors that use unneeded offcuts and unused product for use on other jobs.	Architect, Engineer, Builder & Subcontractors.
Ordering the right quantities of materials (Purchasing Policy); include prefabrication of materials.	Subcontractors.
Pre-construction:	
Waste management plan to be reviewed & approved prior to construction.	Builder.
Contract a Waste Contractor.	Waste Contractor.
Construction on-site:	
Use the avoid, reuse, reduce, recycle principles. Minimisation of recurring packaging materials. Returning packaging to the supplier.	Builder, Waste Contractor & Subcontractors.
Separation of recycling for materials, off-site audit & monitor the correct usage of bins.	Builder, Waste Contractor & Subcontractors.
Audit and monitor the Waste Contractor.	Builder & Waste Contractor.
Avoiding construction waste:	
Reduce extraneous packaging use reusable padding and careful packing.	Builder.
All packaging generated on site should be captured for reuse or recycling wherever possible.	
Reuse formwork.	
Use reuse non-returnable containers on the job site to the maximum extent possible.	

8.4 Training

All personnel, including employees, contractors and utility staff working on site will undergo site induction training relating to waste management issues. The induction training will address elements related to waste management including:

- Existence and requirements of this Sub-plan,
- Existence and requirements of other management plans and guidelines such as the Unexpected Contaminated Lands and Asbestos Finds Procedure, the Sustainability Strategy and the Sustainability Management Plan,
- Relevant legislation and guidelines,
- Roles and responsibilities for waste management,
- Incident response, management and reporting,
- Waste reporting requirements,
- Requirements of the waste hierarchy,
- Waste/recycle storage requirements,
- Energy and resource use efficiency best practices,
- Potential for contaminated material to be present on site and management requirements if such material is identified, and
- Expectations for targets relevant to waste and resource management including ISCA targets.

Targeted training in the form of toolbox talks or specific training will also be provided to personnel with a key role in waste management.
Further details regarding staff induction and training are outlined in Section 3.5 of the CEMP.

8.5 Waste Management Hierarchy

To achieve positive waste and resource management outcomes, the project will adopt waste management strategies in accordance with the waste hierarchy and requirements identified in the CoA, EIS, SPIR, NSW Waste Avoidance and Resource Recovery Act 2001 (WARR Act) and the NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA 2014).

Waste generated during delivery of the project will be dealt with in accordance with the following priorities (in order of preference):

- Waste generation is to be avoided, and where avoidance is not reasonably practicable, waste generation is to be reduced;
- Where avoiding or reducing waste is not possible, waste is to be reused, recycled, or recovered; and
- Where re-using, recycling or recovering waste is not possible, waste is to be treated or disposed of at a waste management facility (premise lawfully permitted to accept the materials), in accordance with a Resource Recovery Exemption or Order issued under the Protection of the Environment Operations (Waste) Regulation 2014, or to any other place that can lawfully accept such waste.

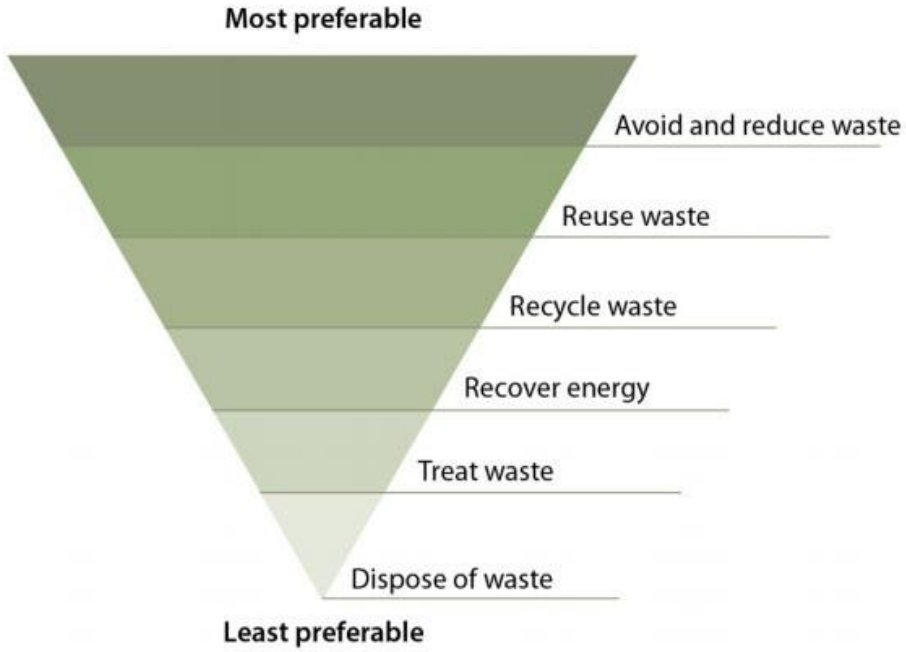

Figure 3 – Waste management hierarchy (NSW Waste Avoidance and Resource Recovery Strategy 2014-21 (EPA,2014)

8.6 Waste Avoidance and Reduction

As demonstrated the waste hierarchy (which governs the management of waste during construction of the Project) nominates avoidance of waste as the most important priority. During the construction phase, the following measures will be implemented to avoid creation of waste:

- Ensuring that the necessary planning is undertaken to enable efficient management of the delivery and storage of materials, to avoid spoilage of materials,
- Wherever possible, establishing agreements with suppliers for 'take back' arrangements for packaging/pallets/drums,
- Highlighting the minimisation of packaging as an important factor in the product procurement process,
- Ensuring correct types and quantities of materials are ordered, essentially avoiding excess material waste,
- Coordinating site activities to minimise waste through utilisation of unused materials,
- Employing trained and qualified plant and machinery operators to avoid damage to materials and reduce wastage of consumables during plant and machinery maintenance,
- Ensure that stored supplies are properly protected from the weather, and
- Where feasible and reasonable suppliers that can demonstrate sustainable practices will be selected e.g. locally sourced, produced with sustainable practices, EMS accredited.

9. On-Site Waste Management Requirements

There will be a designated waste storage area for the disposal and storage of construction waste prior to collection. This area will be located conveniently for demolition and construction work team to use the bins as well as for waste contractors to collect. An indicative location has been provided in Appendix A – Site Establishment & Waste Location.

Other requirements include:

- The routes for movement of waste between work site and waste storage area are to be kept obstruction-free;
- The routes for movement of bins and waste between storage and collection points are marked in the site drawing and will be kept obstruction-free (if waste is moved between the waste storage area(s);
- The waste bin collection point provided will be accessible for waste collection vehicles. There are no obstructions to turning or reversing, pulling up vehicles and lifting bins;
- Access for waste collection vehicles will not be compromised by construction-related activities vehicles or other consequences of construction staging;
- All waste not being reused on site will be removed during, or at the completion of, the construction stage;
- No waste will be left on site unless it is part of valid reuse on site, which is integral to and in place in the design;
- In order to manage noise levels, collection of waste from the construction site will only occur during hours approved for construction work;
- All vehicles entering or leaving the site must have their loads covered;
- All vehicles, before leaving the site, to be cleaned of dirt, sand, and other materials, to avoid tracking these materials onto public roads; and
- At the completion of the works, the work site is left clear of waste and debris.

Throughout the construction phase Hindmarsh will engage a waste contractor such as Just Skips or equivalent to provide waste bins for the collection and separation of waste on site bins expected to be onsite include:

- 3m3 food waste bin (collected weekly);
- 660L cardboard and paper recycling bin (collected fortnightly);
- Concrete slurry bin for the collection of concrete pump excess concrete;
- 1.5m3 general site waste bins;
- 660L general site waste bins; and
- 240L general site waste bins.

All the site general site waste bins will be used to collect all site waste from the building area. These smaller site bins will then be tipped into the appropriate large site bins ready for truck collection and transportation to a recycling facility. The waste collection contractor will be contracted to ensure a minimum of 90% of all waste is recycled.

Construction waste will be taken to facilities for disposal or recycling as may be appropriate:

The facility will have the capacity to separate project waste into such categories as:

- Metals;
- Cardboard;
- Timber;
- Concrete;
- Plasterboard;
- Soils;
- Plastics; and
- Landfill.

Every month the facility will provide a log and waste recycling report for all materials delivered from our site to the facility.

9.1 Monitoring

Waste data is to be collected on the project to allow monthly reporting of the following:

- The quantity of each type of waste sent to landfill;
- The quantity of each type of waste recycled;
- The quantity of each type of waste reused;
- The quantity of each type of hazardous/regulated waste generated on the project and:
    - Its method of treatment and disposal;
    - The location of treatment and disposal; and
    - Copies of records confirming the legal transport, treatment and disposal.
- Measurement of any reduction in waste generation that has been achieved.

The quantities for solid waste is measured by weight and liquid waste by volume, with records to be provided by the transport contractor.

10. Contamination / Remediation Reports

There are a number of Site Investigation undertaken by HammondCare with reports having been made available to the project.

These reports in summary below will be utilised by the project to generate work practices in supplementing the management of waste.

- JHA vA 05 May 2022 Preliminary Screening Report – Dangerous Goods
- JK Environments v1 05 May 2022 Remediation Action Plan (RAP)
- JK Environments v2 05 May 2022 Additional Site Investigation
- JK Environments v2 05 May 2022 Hazardous Building Materials Survey
- JK Environments v2 05 May 2022 Acid Sulfate Soil Assessment
- JK Environments v1 08 April 2022 Salinity Investigation

The above-mentioned documentation is available upon request.

11. Construction

The presence of hazardous materials on the site determines the need to implement and closeout project work practices in alignment to a RAP provided by JK Environments v1 05 May 2022.

11.1 Pre-Commencement

The project team is to have a pre-commencement meeting to discuss the sequence of remediation, and the remediation and validation tasks. The site management plan for remediation works should be reviewed by the project manager and remediation contractor, and appropriate steps are to be taken to ensure the adequate implementation of the plan.

11.2 Remediation and Associated Tasks

The following general sequence of works is anticipated:

- Preparation of Asbestos Management Plan (AMP) for the proposed development. JKE note that this is a requirement of the JKE HAZMAT report;
- Site establishment and demolition;
- **Hold Point** – A site inspection should be completed by the validation consultant on completion of demolition to identify any additional sources of contamination such as ACM, USTs etc. An LAA should be appointed to provide a site clearance certificate. Any such areas identified should be targeted as part of the DGI;
- Completion of the DGI as outlined in JK Environments v1 05 May 2022 RAP Section 4;
- Completion of the HHRA for HGG, based on the results of the DGI;
- Preparation of a RWP based on the data gap investigation and HHRA;
- Decommissioning and removal of the USTs, backfill and associated infrastructure, followed by excavation and off-site disposal of soils associated with the tank pit and other impacted areas; and
- Remediation of TRH impacted fill and residual soil in the south-west of the site. Validation of the works would occur progressively throughout the remediation program.

Details in relation to the above are outlined in the following subsections.

Asbestos Management Plan

An AMP will be prepared for the site by a LAA and implemented for the site demolition, remediation and development works. The AMP should include the minimum PPE, WHS and other requirements outlined in the documents published by Safe Work Australia, WorkCover Authority of NSW, National Occupational Health and Safety Commission, and other relevant authorities as applicable.

Site Establishment and Demolition

The remediation contractor (yet to be appointed) is to establish on site as required to facilitate the remediation. Consideration must be given to the work sequence and extent of remediation so that the site establishment (e.g. site sheds, fencing, access points etc.) does not inhibit the remediation works.

The hazardous building materials in the existing structures should be demolished in accordance with the relevant codes and standards.

An AMP is to be prepared prior to the commencement of demolition of buildings associated with the project.

A clearance certificate is to be obtained from a LAA by the demolition contractor following the removal of any hazardous materials. The concrete slabs should be inspected for potential ACM post-demolition by the LAA.

All waste from the demolition is to be disposed to facilities that are licenced by the NSW EPA to accept the waste. The demolition contractor is to maintain adequate records and retain all documentation for such activities including:

- A summary register including details such as waste disposal dates, waste materials descriptions, disposal locations (i.e. facility details) and reconciliation of this information with waste disposal docket numbers;
- Waste tracking records and transport certificates (where waste is required to be tracked/transported in accordance with the regulations); and
- Disposal dockets for the waste. Legible dockets are to be provided for all waste materials so they can be reconciled with the register.

The above information is to be supplied to the validation consultant for assessment and inclusion in the site validation report.

Tank Remediation

The UST and associated infrastructure (i.e. underground pipe work, vent pipes etc) are to be removed from the site in accordance with the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation (2019)14, Guidelines for the Implementation of the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2019 (2020)15 and the Australian Standard for The Removal and Disposal of Underground Petroleum Storage Tanks (AS4976-2008)16. Reference is also to be made to the UPSS Technical Note: Decommissioning, Abandonment and Removal of UPSS (2010)17 and the UPSS Technical Note: Site Validation Reporting (2010)18.

It is noted that various guidelines are outdated and/or are currently being updated to reflect the UPSS Regulation 2019. The remediation is to occur in accordance with the current regulation and best practice guidelines available when the remediation commences.

Procedures for removal and disposal of materials associated with this element are detailed in the JK Environments v1 05 May 2022 RAP to be adhered to.

Excavation and Disposal of THR-Imacted Fill and Residual Soil/Bedrock

Procedures for removal and disposal of materials associated with this element are detailed in the JK Environments v1 05 May 2022 RAP to be adhered to.

Remediation Documentation

The remediation contractor must retain all documentation associated with the remediation, including but not limited to:

- Waste register;
- Asbestos management documentation, including all relevant notifications and monitoring reports;
- Photographs of remediation works;
- Waste tracking documentation (where applicable);
- Survey information; and

- Imported materials documentation from suppliers, including any routine analysis reports, product specifications and dockets for imported materials.

Copies of these documents must be forwarded to the project manager and the validation consultant on completion of the remediation for inclusion in the validation report.

Waste Register

All waste removed from the site is to be appropriately tracked and managed in accordance with the relevant regulations. The remediation contractor (and/or their nominated construction contractor) is to maintain adequate records and retain all documentation for waste disposal activities including:

- A summary register including details such as waste disposal dates, waste materials descriptions, disposal locations (i.e. facility details) and reconciliation of this information with waste disposal docket numbers; and
- Waste tracking records and transport certificates (where waste is required to be tracked/transported in accordance with the regulations); and
- Disposal dockets for the waste. Legible dockets are to be provided for all waste materials so they can be reconciled with the register.

Any soil waste classification documentation is to be prepared in accordance with the reporting requirements specified by the NSW EPA. Reports are to include:

- The full name, address, Australian Company Number (ACN) or Australian Business Number (ABN) of the organisation and person(s) providing the waste classification;
- Location of the site where the waste was generated, including the source site address;
- History of the material and the processes and activities that have taken place to produce the waste;
- Potential contaminating activities that may have occurred at the site where the waste was generated;
- Description of the waste, including photographs, visible signs of contamination, such as discolouration, staining, odours, etc;
- Quantity of the waste;
- Number of samples collected and analysed;
- Sampling method including pattern, depth, locations, sampling devices, procedures, and photos of the sample locations and samples;
- Contaminants tested;
- Laboratory documentation – chain-of-custody (COC), sample receipt, laboratory report;
- All results regardless of whether they are not used in the classification process;
- Results of sample mean, sample standard deviation and the 95% upper confidence limit (UCL) where relevant;
- Brief summary of findings including discussion of results; and
- A clear statement of the classification of the waste as at the time of the report.

A soil volume analysis should be undertaken on completion of remediation and reconciled with the quantities shown on the soil disposal dockets. This information is to be reviewed by the validation consultant on completion of the works and an assessment of the quantities of soil disposed off-site (e.g. comparison with the estimated and actual volumes) is to be included in the validation report. A review of the disposal facility's licence issued under the Protection of the Environment Operations (POEO) Act (1997)20 should also be undertaken to assess whether the facility is appropriately licensed to receive the waste.

11.3 Construction Waste Generally

Waste building materials generated from demolition or construction activities will be recycled as far as practicable, and Hindmarsh will comply with the requirements of all relevant Authorities in relation to the disposal of all waste material.

The following measures will be adopted to encourage management and reduction of waste, with the objective to minimise the loss of natural resources and landfill space:

- Emphasise the importance of recycling and waste reduction;
- Encourage the use of recycled materials where it is reasonably practical;
- Minimise the use of packaging materials and recycle packaging materials where possible;
- Waste concrete to be sent to a concrete recycling plant where possible;
- Separate removed native vegetation from general construction waste, mulch, and stockpile for re-use; and
- Dispose of any non-recyclable general waste at approved waste disposal facilities.

Removal of hazardous and dangerous materials from the site shall be in accordance with State and Federal legislation, including WorkSafe requirements and further Health Infrastructure Design Guidance Notice no.015 Asbestos and Hazardous Materials. Asbestos / soil waste will be removed (if applicable) according to WorkSafe Guidelines and placed in double-lined bins before being disposed of at a licensed landfill by a licensed transporter.

Waste material shall be stored on site neatly, in appropriate bins or stockpiles, in such a manner that stormwater run-off does not come into contact with waste.

Waste segregation areas and temporary storage locations for skips / waste for recycling / re-use / disposal shall be selected so as to minimise safety risks to site workers and to minimise adverse impact on the visual amenity of the site.

For external bins, self-closing lids shall be installed to ensure waste does not become airborne.

Waste collection shall only occur during permitted hours.

Litter and debris trapped against the site fence shall be regularly cleaned away.

Burning off on site will be prohibited.

All waste disposed of (whether it be for recycling / re-use or landfill disposal) will be recorded on forms which will be part of the project records. Recycler and landfill disposal dockets will be used for confirmation of tonnages and proof of lawful disposal.

Hindmarsh shall be responsible for reporting any incident which causes, or threatens to cause, material environmental harm or breaches approval requirements to relevant project stakeholders as soon as possible.

12. Regulatory Reporting Requirements - EPA

An Environmental Incident is an unexpected event that may result in harm to the environment and requires some action to minimise the impact or restore the environment. An Environmental incident can include (but not be limited to) the following:

- spills of waste, fuels, oils, chemicals, and other hazardous materials;
- overflow of sediment basin or other containment devices;
- failure of temporary erosion and sediment controls;
- contamination of waterways or land;
- accidental starting of fire or fire breaking out of containment;
- breach of licence, permit or approval requirement;
- breach of legislative requirements;
- illegally dumped waste;
- unplanned disturbance of acid sulphate soils (or subsequent pollution);
- accidental harm to vegetation, fauna, or habitat (e.g., hollow logs);
- accidental harm to heritage items or locations (Aboriginal and non-Aboriginal); and
- public complaints arising from activities (relating to environmental issues).

There is a duty to report pollution incidents under section 148 of the Protection of the Environment Operations Act 1997 (POEO Act). Pollution incidents causing or threatening material harm to the environment must be notified. A 'pollution incident' includes a leak, spill or escape of a substance, or circumstances in which this is likely to occur. 'Pollution incident' is defined in the Dictionary to the Act as an incident or set of circumstances during or as a consequence of which there is or is likely to be a leak, spill or other escape or deposit of a substance, as a result of which pollution has occurred, is occurring or is likely to occur. It includes an incident or set of circumstances in which a substance has been placed or disposed of on premises, but it does not include an incident or set of circumstances involving only the emission of any noise.

If you observe a major pollution incident that presents an immediate threat to human health or property, such as toxic fumes or a large chemical spill, call 000 to report it to emergency services. As first responders, Fire and Rescue NSW, the NSW Police and the NSW Ambulance Service are responsible for controlling and containing incidents. Then all matters must be reported to the EPA NSW:

EPA State Name: EPA New South Wales
Telephone: 131 555
Fax: N/A
Email: *info@epa.nsw.gov.au*

In the event of a reportable environmental incident the Project Manager (PM) must refer to the Injury, Illness and Incident Management and Reporting flow chart for detailed guidance regarding the management and reporting of environmental incidents.

13. Review and Improvement

13.1 Continuous Improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance,
- Determine the cause or causes of non-conformances and deficiencies,
- Develop and implement a plan of corrective and preventative action to address any non- conformances and deficiencies,
- Verify the effectiveness of the corrective and preventative actions,
- Document any changes in procedures resulting from process improvement identified through the following:
    - As a result of any investigations into any exceedances or non-conformances that determine changes to this Plan are required to prevent reoccurrences,
    - To take into account changes to the Environment or generally accepted environmental management practices, new risks to the Environment, any Hazardous Substances, Contamination or changes in Law, and
    - In response to internal or external audits or annual management reviews.
- Where requested or required by the DPIE or any other Authority,
- Make comparisons with objectives and targets, and
- Meet approval requirements and conditions such as EPL requirements.

13.2 CWMSP Update and Amendment

The processes described in the CEMP may result in the need to update or revise this Plan. Any revisions to the CWMSP will be in accordance with the process outlined in the CEMP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure of the CEMP.

Appendix A – Site Establishment & Waste Collection Locations

REFER FOLLOWING PAGES


SITE ESTABLISHMENT - STAGE 01 - PHASE 01 - ZONE 01
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
BUS STOP
SIGNALISED INTERSECTION
RIVER ROAD
ACCESS ROAD
RIVERGLEN
ARKING ENTRY
DRIVEWAY
EXISTING ACCESS
BLUEGUM
PARKING LOST FROM BOTTOM CARPARK IS TO BE RELOCATED/ DIRECTED HERE FOR THE DURATION OF STAGE 01 WORKS
ST VINCENTS ROAD
G1
HOSPITAL
POOL
RECEPTION
AMBULANCE
WORK SHOP
G2
SERVICE & DELIVERIES
KITCHEN LAUNDRY
ZONE 01
G3
PALLISTER
EXISTING ACCESS
LIGHT TRAFFIC ONLY GIVEN GRADIENTS AT ENTRANCE TO ST VINCENTS ROAD
N
HammondCare
GREENWICH HOSPITAL REDEVELOPMENT
RIVER RD, GREENWICH
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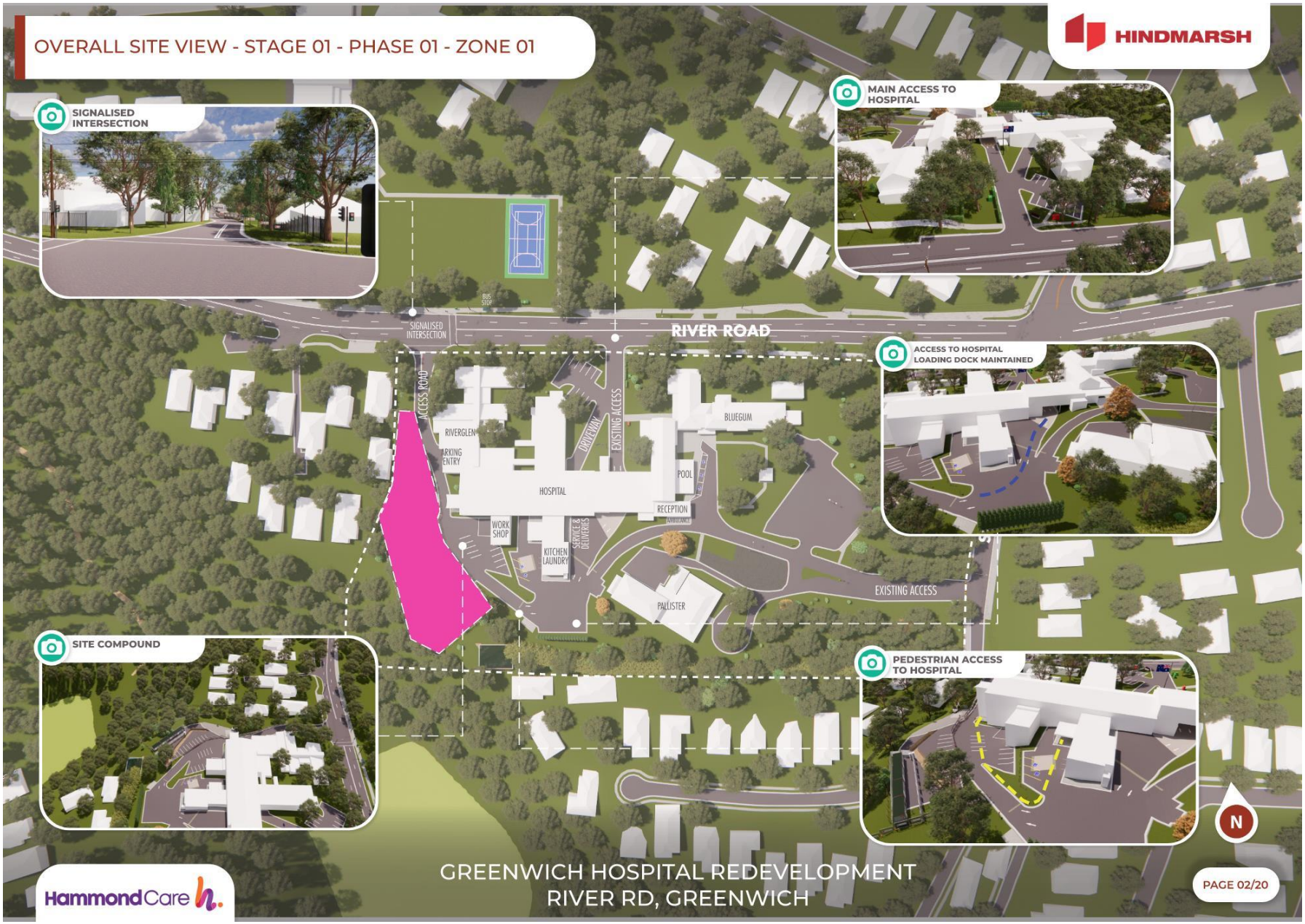
OVERALL SITE VIEW - STAGE 01 - PHASE 01 - ZONE 01
HINDMARSH
SIGNALISED INTERSECTION
MAIN ACCESS TO HOSPITAL
ACCESS TO HOSPITAL LOADING DOCK MAINTAINED
PEDESTRIAN ACCESS TO HOSPITAL
SITE COMPOUND
RIVER ROAD
ACCESS ROAD
EXISTING ACCESS
DRIVEWAY
BUS STOP
RIVERGLEN
BLUEGUM
HOSPITAL
POOL
RECEPTION
WORK SHOP
KITCHEN LAUNDRY
SERVICE & DELIVERIES
PALLISTER
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GREENWICH HOSPITAL REDEVELOPMENT
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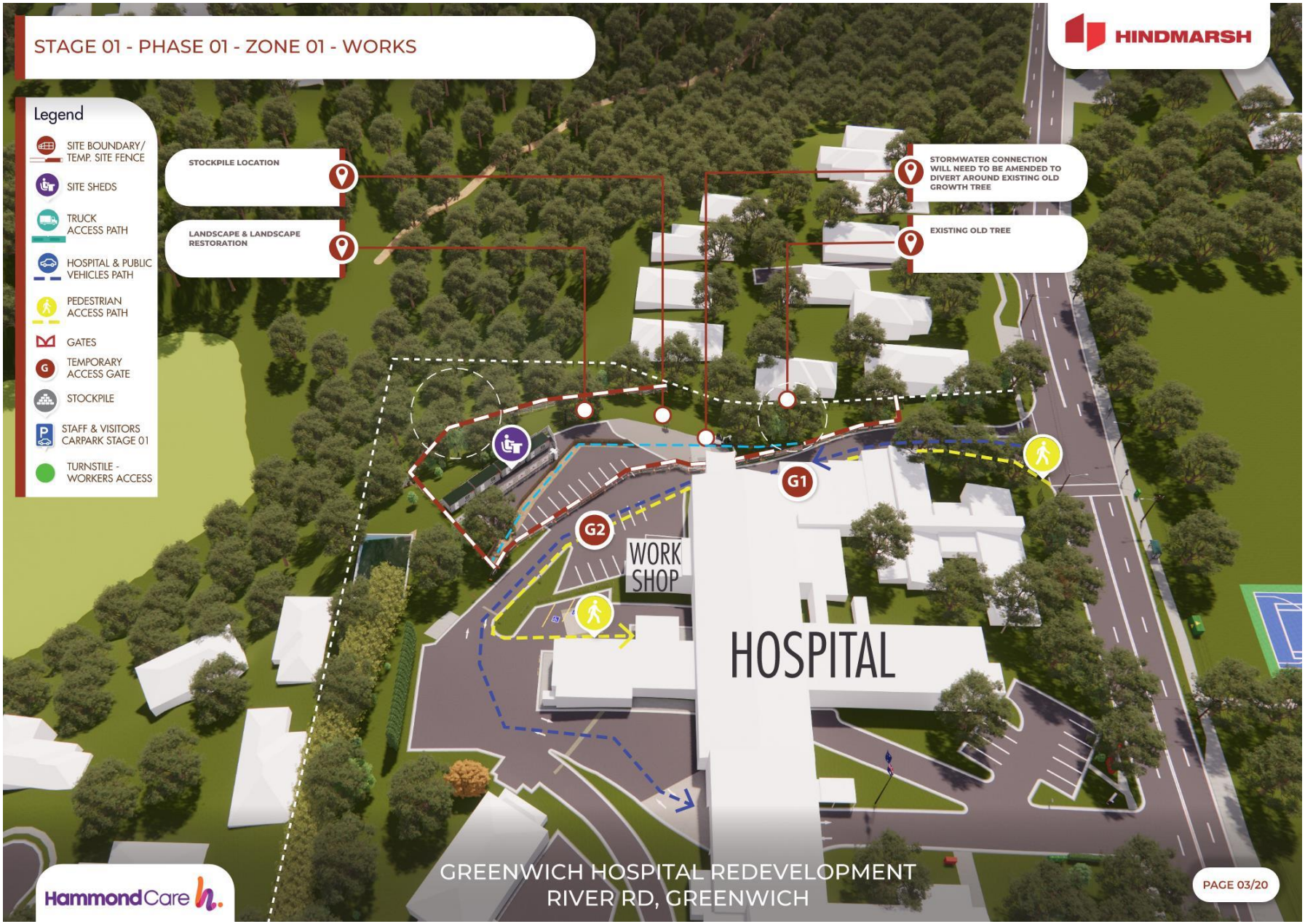
STAGE 01 - PHASE 01 - ZONE 01 - WORKS
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
STOCKPILE LOCATION
LANDSCAPE & LANDSCAPE RESTORATION
STORMWATER CONNECTION WILL NEED TO BE AMENDED TO DIVERT AROUND EXISTING OLD GROWTH TREE
EXISTING OLD TREE
G1
G2
WORK SHOP
HOSPITAL
HammondCare
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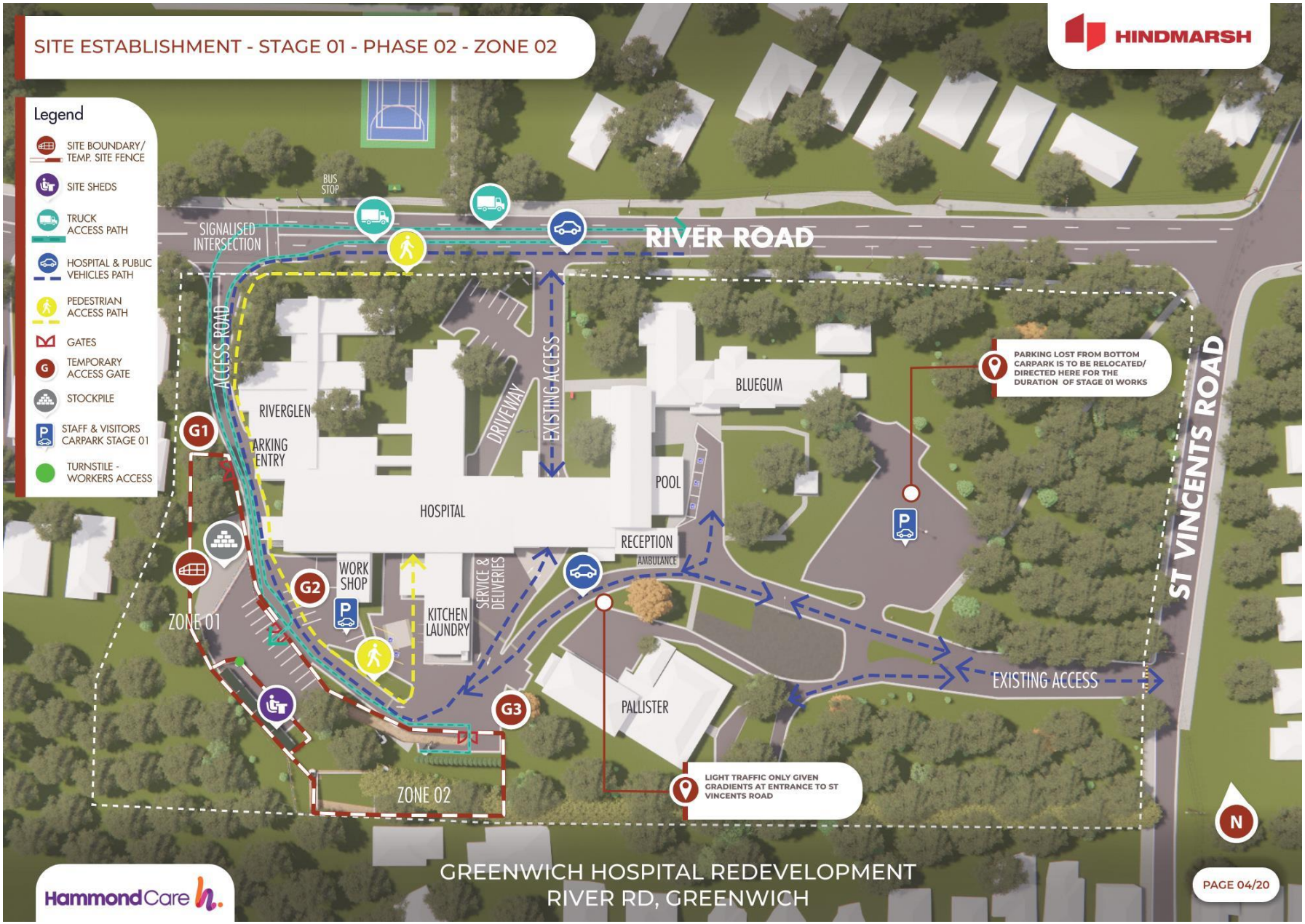
SITE ESTABLISHMENT - STAGE 01 - PHASE 02 - ZONE 02
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
BUS STOP
SIGNALISED INTERSECTION
RIVER ROAD
ACCESS ROAD
RIVERGLEN
ARKING ENTRY
DRIVEWAY
EXISTING ACCESS
BLUEGUM
POOL
HOSPITAL
RECEPTION
AMBULANCE
WORK SHOP
SERVICE & DELIVERIES
KITCHEN LAUNDRY
ZONE 01
ZONE 02
G1
G2
G3
PALLISTER
EXISTING ACCESS
ST VINCENTS ROAD
PARKING LOST FROM BOTTOM CARPARK IS TO BE RELOCATED/ DIRECTED HERE FOR THE DURATION OF STAGE 01 WORKS
LIGHT TRAFFIC ONLY GIVEN GRADIENTS AT ENTRANCE TO ST VINCENTS ROAD
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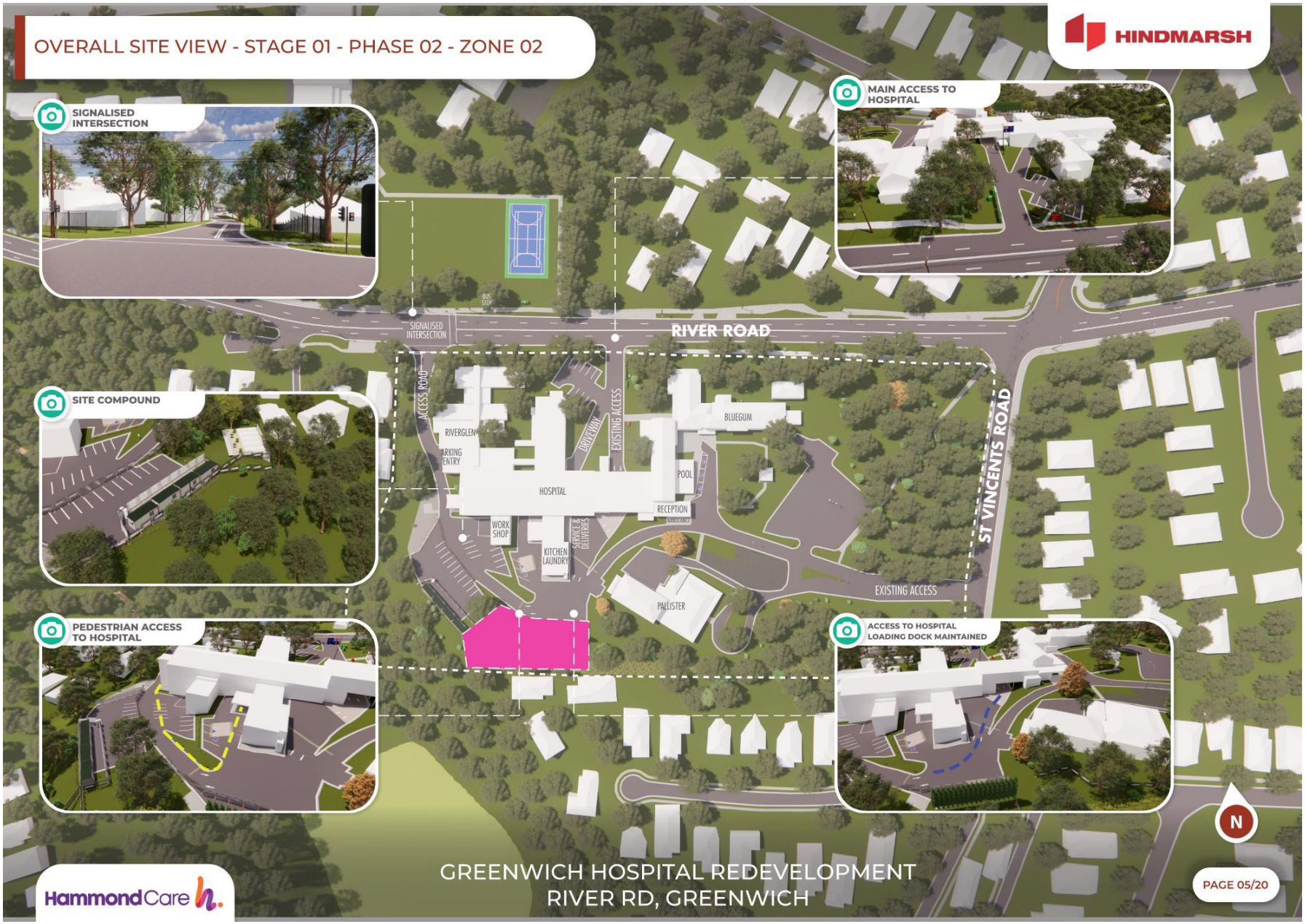
OVERALL SITE VIEW - STAGE 01 - PHASE 02 - ZONE 02
HINDMARSH
SIGNALISED INTERSECTION
MAIN ACCESS TO HOSPITAL
SITE COMPOUND
PEDESTRIAN ACCESS TO HOSPITAL
ACCESS TO HOSPITAL LOADING DOCK MAINTAINED
RIVER ROAD
SIGNALISED INTERSECTION
BUS STOP
ACCESS ROAD
RIVERGLEN
PARKING ENTRY
DRIVEWAY
EXISTING ACCESS
BLUEGUM
HOSPITAL
POOL
RECEPTION
WORK SHOP
KITCHEN LAUNDRY
SERVICE & DELIVERIES
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STAGE 01 - PHASE 02 - ZONE 02 - WORKS
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Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
SERVICES:
- STORWATER WORK
- WATER MAIN EXTENSION WORKS
G1
G2
NURSERY WORKS:
- STRUCTURAL
- LANDSCAPING
COMPLETE WORKS
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SITE ESTABLISHMENT - STAGE 01 - PHASE 03 - ZONE 03
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SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
BUS STOP
SIGNALISED INTERSECTION
RIVER ROAD
ACCESS ROAD
RIVERGLEN
ARKING ENTRY
DRIVEWAY
EXISTING ACCESS
BLUEGUM
PARKING LOST FROM BOTTOM CARPARK IS TO BE RELOCATED/ DIRECTED HERE FOR THE DURATION OF STAGE 01 WORKS
POOL
HOSPITAL
RECEPTION
AMBULANCE
WORK SHOP
SERVICE & DELIVERIES
KITCHEN LAUNDRY
G1
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PALLISTER
EXISTING ACCESS
ST VINCENTS ROAD
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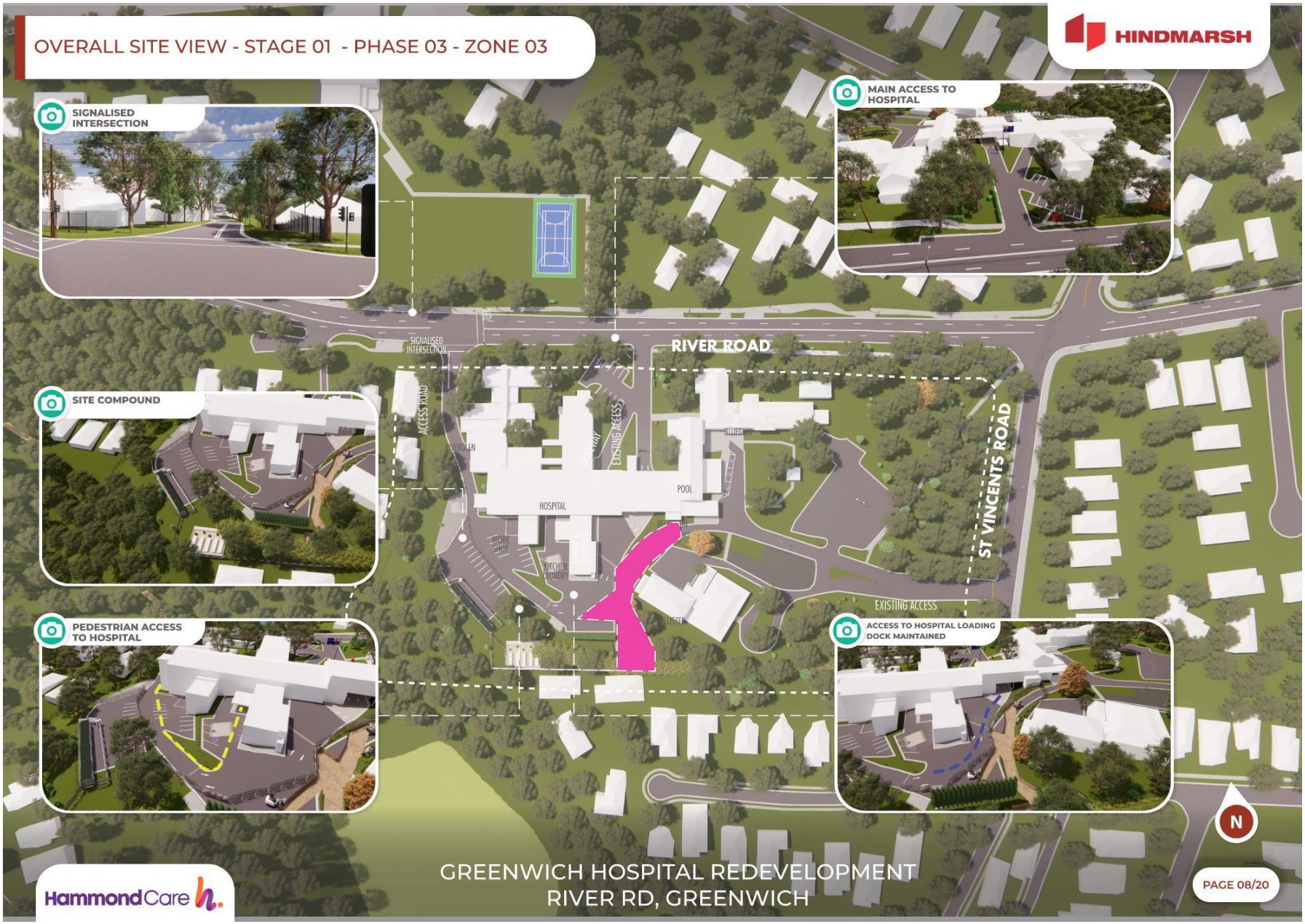
OVERALL SITE VIEW - STAGE 01 - PHASE 03 - ZONE 03
HINDMARSH
SIGNALISED INTERSECTION
MAIN ACCESS TO HOSPITAL
SITE COMPOUND
PEDESTRIAN ACCESS TO HOSPITAL
ACCESS TO HOSPITAL LOADING DOCK MAINTAINED
RIVER ROAD
ACCESS ROAD
EXISTING ACCESS
HOSPITAL
POOL
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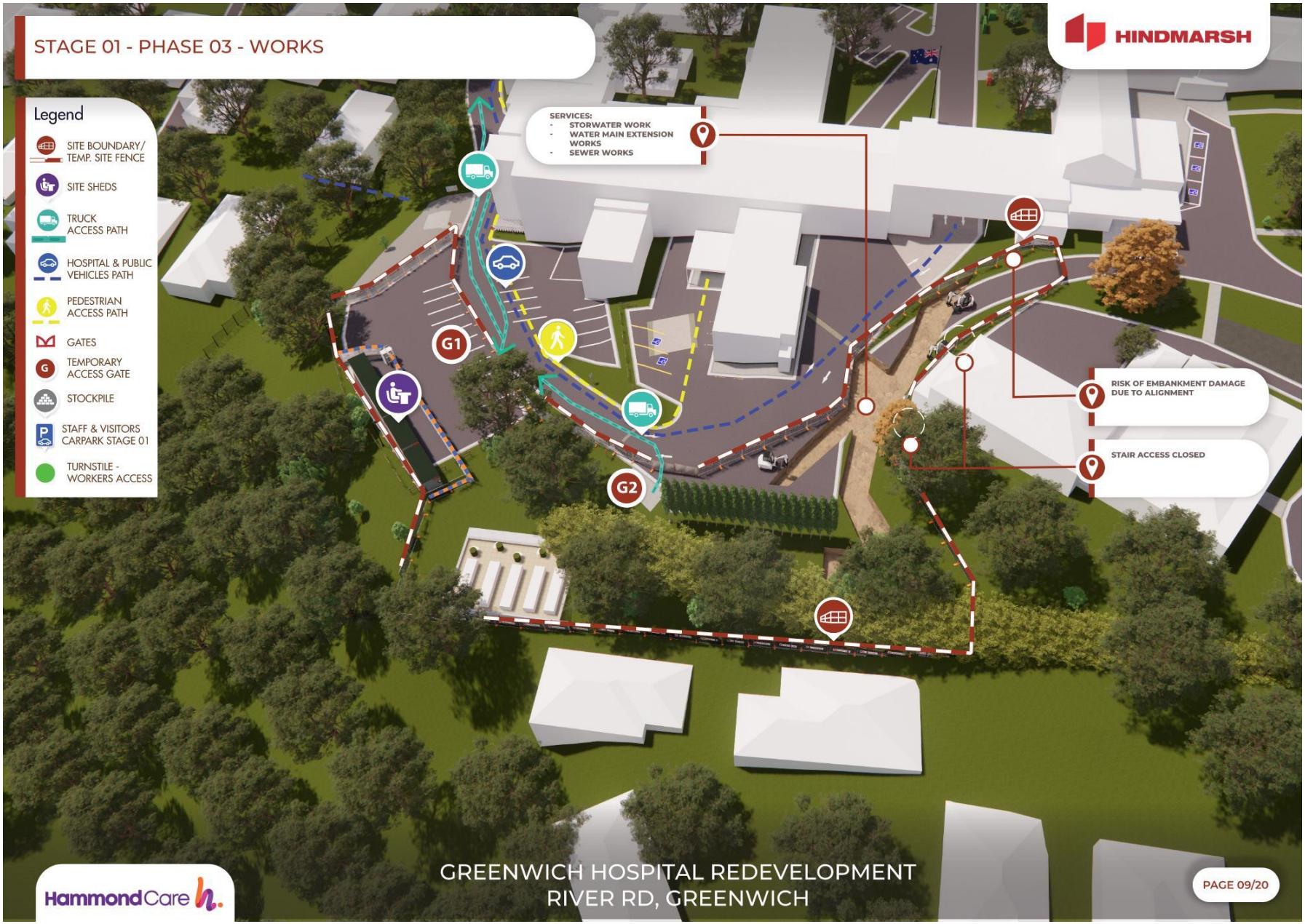
STAGE 01 - PHASE 03 - WORKS
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
SERVICES:
- STORWATER WORK
- WATER MAIN EXTENSION WORKS
- SEWER WORKS
G1
G2
RISK OF EMBANKMENT DAMAGE DUE TO ALIGNMENT
STAIR ACCESS CLOSED
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SITE ESTABLISHMENT - STAGE 01 - PHASE 03 - ZONE 04
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
BUS STOP
SIGNALISED INTERSECTION
RIVER ROAD
ACCESS ROAD
RIVERGLEN
ARKING ENTRY
DRIVEWAY
EXISTING ACCESS
BLUEGUM
POOL
HOSPITAL
RECEPTION
AMBULANCE
WORK SHOP
SERVICE & DELIVERIES
KITCHEN LAUNDRY
ZONE 03
G1
G2
PALLISTER
EXISTING ACCESS
ZONE 04
PARKING LOST FROM BOTTOM CARPARK IS TO BE RELOCATED/ DIRECTED HERE FOR THE DURATION OF STAGE 01 WORKS
ZONE 3 AND 4 CAN OCCUR CONCURRENTLY
ST VINCENTS ROAD
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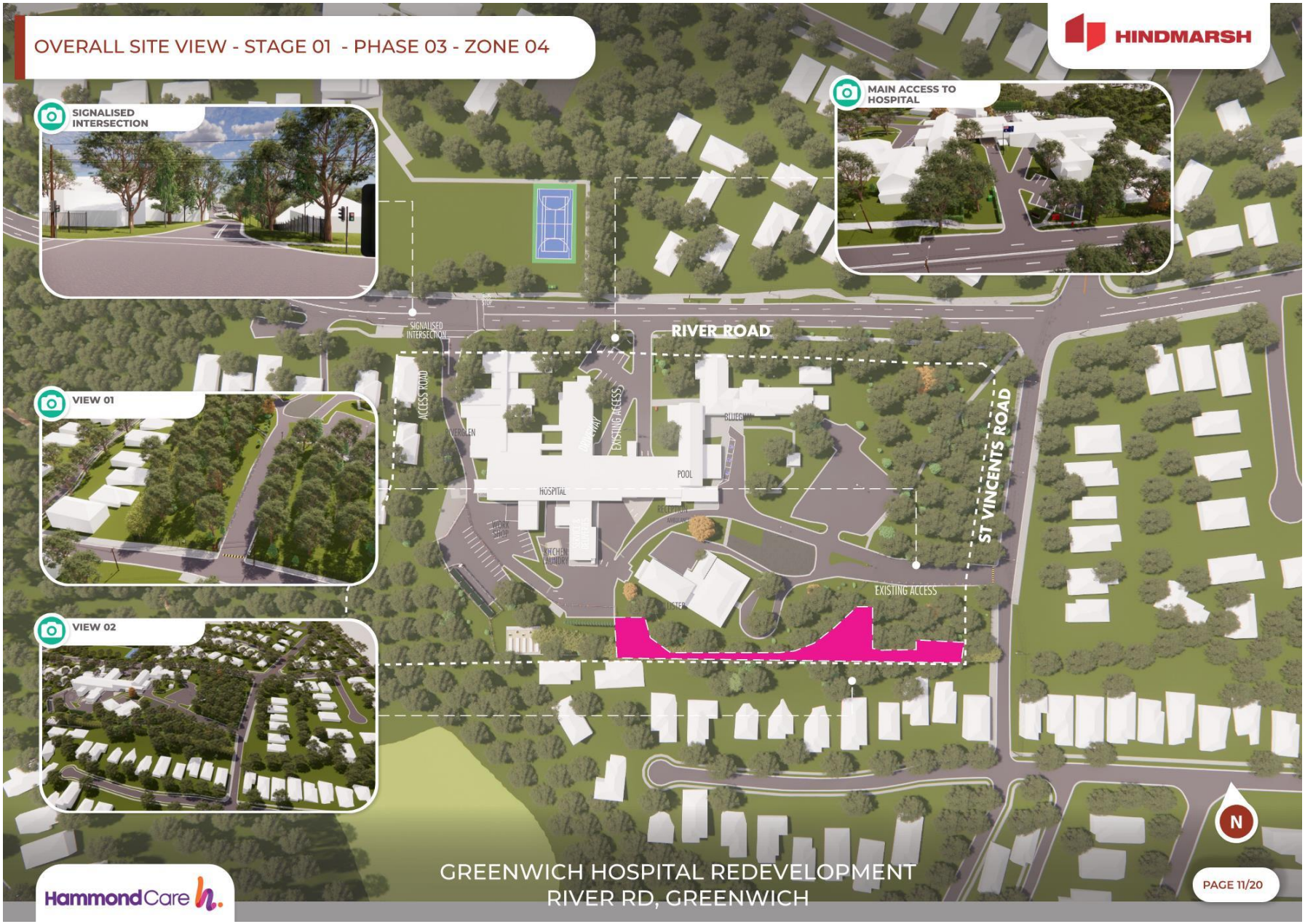
OVERALL SITE VIEW - STAGE 01 - PHASE 03 - ZONE 04
HINDMARSH
SIGNALISED INTERSECTION
MAIN ACCESS TO HOSPITAL
VIEW 01
VIEW 02
RIVER ROAD
ACCESS ROAD
EXISTING ACCESS
ST VINCENTS ROAD
HOSPITAL
POOL
EXISTING ACCESS
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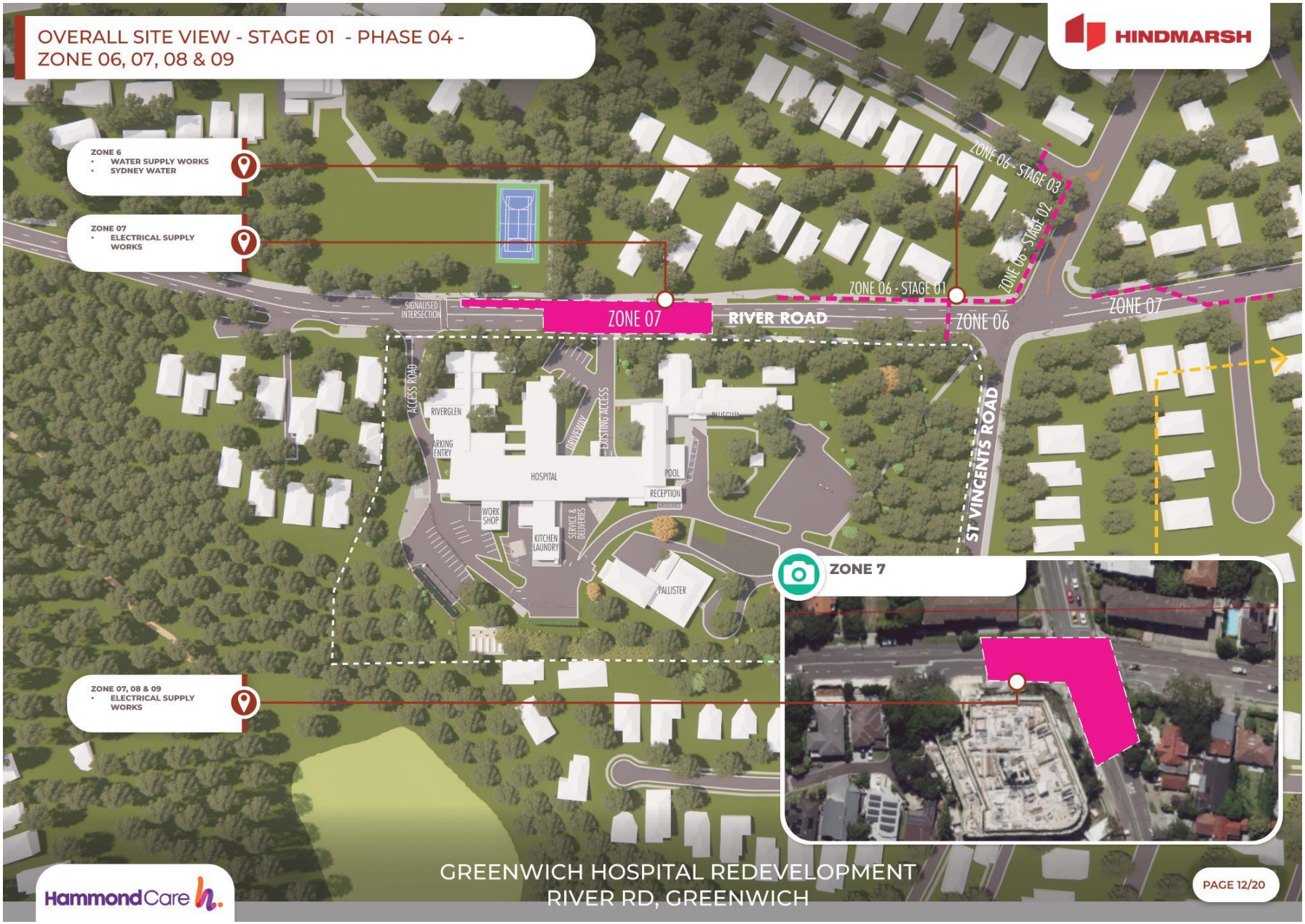
OVERALL SITE VIEW - STAGE 01 - PHASE 04 -
ZONE 06, 07, 08 & 09
HINDMARSH
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• SYDNEY WATER
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• ELECTRICAL SUPPLY WORKS
ZONE 07, 08 & 09
• ELECTRICAL SUPPLY WORKS
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ZONE 06 - STAGE 02
ZONE 06 - STAGE 01
ZONE 07
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SIGNALISED INTERSECTION
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DRIVEWAY
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SERVICE & DELIVERIES
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ST VINCENTS ROAD
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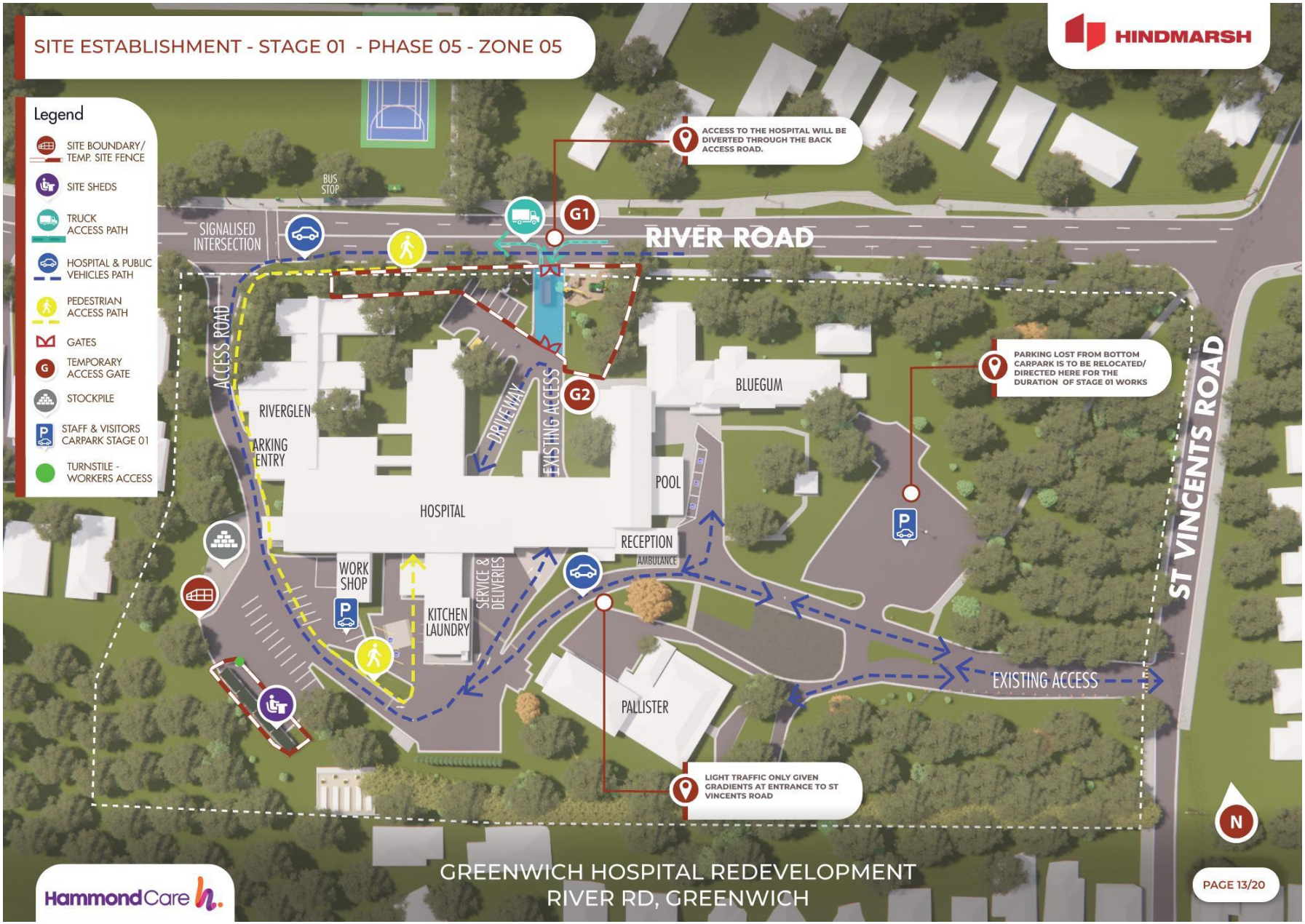
SITE ESTABLISHMENT - STAGE 01 - PHASE 05 - ZONE 05
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
TURNSTILE - WORKERS ACCESS
ACCESS TO THE HOSPITAL WILL BE DIVERTED THROUGH THE BACK ACCESS ROAD.
BUS STOP
SIGNALISED INTERSECTION
G1
RIVER ROAD
ACCESS ROAD
RIVERGLEN
ARKING ENTRY
DRIVEWAY
EXISTING ACCESS
G2
BLUEGUM
PARKING LOST FROM BOTTOM CARPARK IS TO BE RELOCATED/ DIRECTED HERE FOR THE DURATION OF STAGE 01 WORKS
POOL
HOSPITAL
RECEPTION
AMBULANCE
WORK SHOP
SERVICE & DELIVERIES
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OVERALL SITE VIEW - STAGE 01 - PHASE 05 - ZONE 05
HINDMARSH
SIGNALISED INTERSECTION
MAIN ACCESS TO HOSPITAL
RIVER ROAD
SIGNALISED INTERSECTION
BUS STOP
ACCESS ROAD
RIVERGLEN
PARKING ENTRY
DRIVEWAY
EXISTING ACCESS
BLUEGUM
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ACCESS TO HOSPITAL LOADING DOCK MAINTAINED
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STAGE 01 - PHASE 05 - DEMOLITION WORKS
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SITE SHEDS
TRUCK ACCESS PATH
HOSPITAL & PUBLIC VEHICLES PATH
PEDESTRIAN ACCESS PATH
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ACCESS TO THE HOSPITAL WILL BE DIVERTED THROUGH THE BACK ACCESS ROAD.
TEMPORARY GENERATOR INSTALLED
G2
G1
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STAGE 01 - PHASE 05 - CUT WALL WORKS
HINDMARSH
Legend
SITE BOUNDARY/ TEMP. SITE FENCE
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PEDESTRIAN ACCESS PATH
GATES
TEMPORARY ACCESS GATE
STOCKPILE
STAFF & VISITORS CARPARK STAGE 01
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ACCESS TO THE HOSPITAL WILL BE DIVERTED THROUGH THE BACK ACCESS ROAD.
G2
NEW HYDRANT EXCAVATION WORKS
CUT WALL - MASONRY CUT AND EXCAVATED INTO THE ROCK
G1
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STAGE 01 - PHASE 05 - STRUCTURAL WORKS
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STAGE 01 - PHASE 05 - EQUIPMENT INSTALLATION
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STAGE 01 - PHASE 05 - COMPLETE
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STAGE 01 COMPLETE
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Appendix B – Estimate of Waste Quantities

Anticipated volumes of waste 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.

Demolition Waste - Expected Materials Streams

Materials on Site		Destination/Treatment		
Type of Material	**Estimated m3**	**Onsite (Reuse/Recycle)**	**Offsite (Reuse/Recycle)**	**Disposal (Landfill)**
Excavated Soil, Rock	13,600	Possible onsite reuse in landscaping works	Material to be taken to facility for processing for reuse at other sites	No disposal to landfill
Bricks	1,000	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
Trees & Vegetation	200	Possible onsite reuse	Material to be taken to organic waste facility for processing for reuse in landscaping works	No disposal to landfill
Roof Tiles	100	No on-site reuse or recycling	Sent for reuse if feasible and/or recycling depending on condition	No disposal to landfill
Bitumen	100	No on-site reuse	Collected by contractor for recycling at dedicated facility	No disposal to landfill
Concrete	60	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

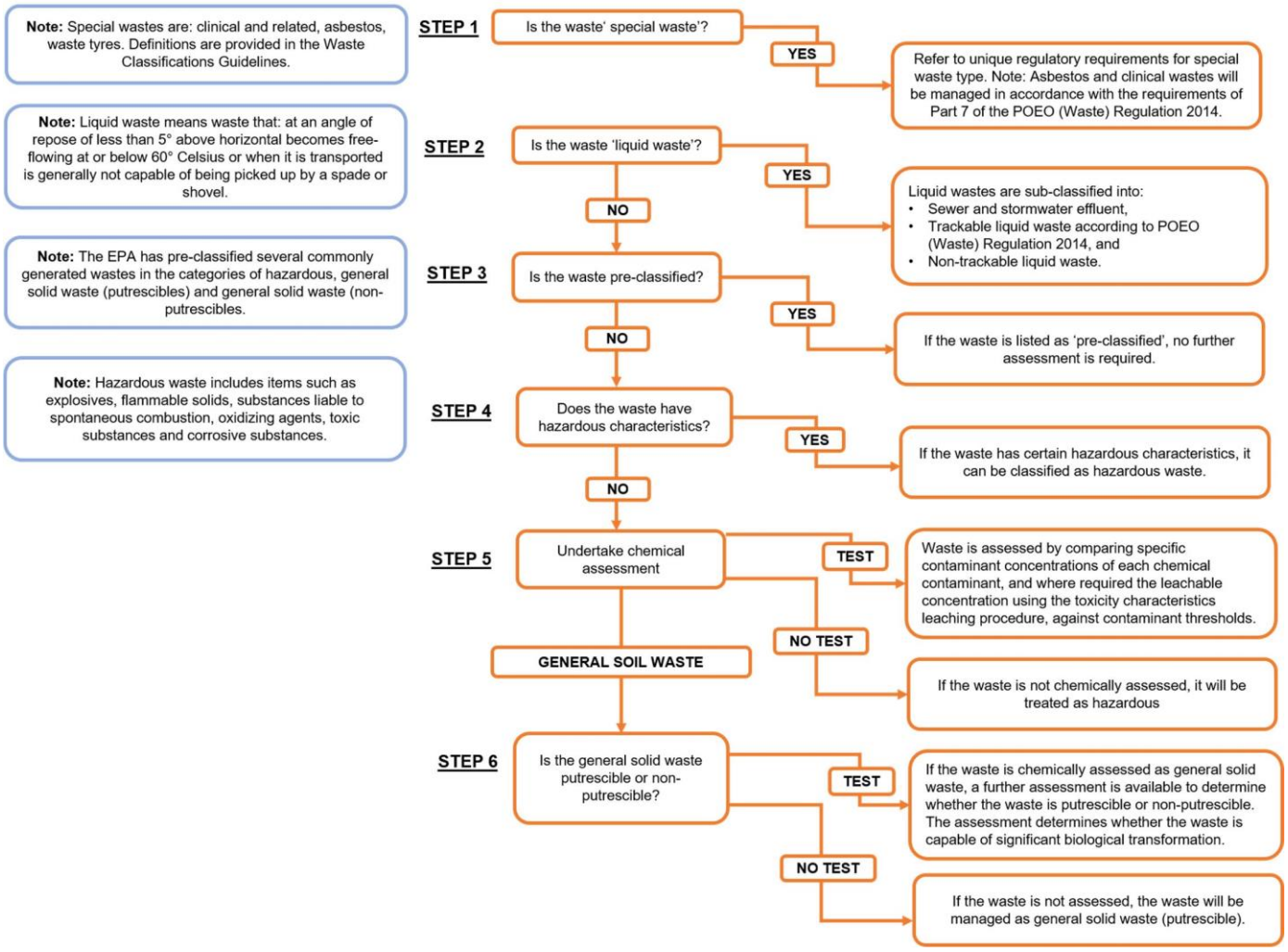
Metals	60	No on-site reuse	Collected by contractor for separation into different metal types for recycling	No disposal to landfill
General Waste (All Materials Unsuitable for Reuse/Recycling)	60	No on-site reuse or recycling	Collected by the waste contractor for disposal at landfill	Disposal to landfill
Floor Coverings	60	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
Structural & Fencing Timber	50	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
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
TOTAL MATERIALS	15,540	The development's demolition phase will produce around 15,540 m3 of waste materials, of which 15,540 m3 or 99% can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

Construction Waste - Expected Materials Streams

Materials on Site		Destination		
Type of Material	Estimated m^3	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
TOTAL MATERIALS	589 m^3	The development's construction phase will produce around 589 m^3 of waste materials, of which 534 m^3 or 90.2% can potentially be diverted from landfill, by being reused on site, or recycled off-site at a dedicated facility.		

Appendix C – Waste Classification Process

Waste Classification Process (Part 1, of the Waste Classification Guidelines EPA, 2014)



Appendix D – Environmental and Sustainability Policy

HINDMARSH
Leadership at work

Environment and Sustainability Policy

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

Hindmarsh seeks to meet its own environmental needs and the needs and expectations of clients, stakeholders, employees and the community by:

- Setting and continually reviewing measureable 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 facilitate the more efficient use of energy and material resources and improved waste management, waste avoidance, re-use and recycling.
- Seek to minimise construction related aspects and 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.

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

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Appendix F – Construction Soil and Water Management Sub-Plan (CSWMSP)

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van der meer

CONSTRUCTION SOIL AND WATER MANAGEMENT SUB-PLAN

Greenwich Hospital Redevelopment

97-115 River Road

Greenwich NSW 2065

Document Control Record

Prepared by:	Max Yu
Reviewed by:	Hary Budhi
Approved by:	Andrew Wallis
Position:	Associate Director
Signed:	
Date:	09/10/2024
Job No.	SY202-149

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A	Issued for Approval	09/10/2024	Hary Budhi

Recipients are responsible for eliminating all superseded documents in their possession.

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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 (4th 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 (4th 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
Construction Environmental Management Plan	**C18.** The Construction Soil and Water Management Sub-Plan (CSWMP) must address, but not be limited to the following: a) be prepared by a suitably qualified and experienced expert, in consultation with Council and adjoining landowners b) describe all erosion and sediment controls to be implemented during construction, as a minimum, in accordance with the publication Managing Urban Stormwater: Soils & Construction (4th edition, Landcom 2004) commonly referred to as the "Blue Book" 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) d) provide mechanisms to facilitate communication between the Applicant, Council and adjoining affected landowners during the construction of the development e) detail all off-site flows from the Site, including on to adjoining land

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	• Ensure appropriate resources are implemented and maintain soil and water management key objectives • Adhering to the soil and water management plan • Carrying out mitigation measures to ensure and promote soil and water controls are properly maintained
Site Foreman	• Carry out reports and inspections • Liase with the Project Manager that all mitigation measures are taken in accordance with the soil and water management plan
Project/Site Engineer	• Ensure all appropriate measures are implemented and maintained on site
All Construction Workers	• Notify site foreman of any soil and water management issues that appear

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

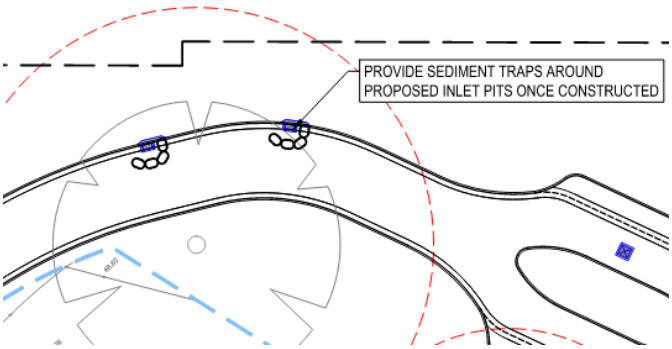
3.2 Soil Erosion and Sediment Control Plan

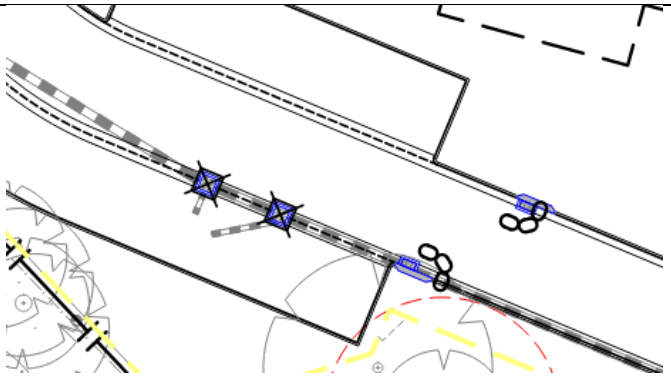
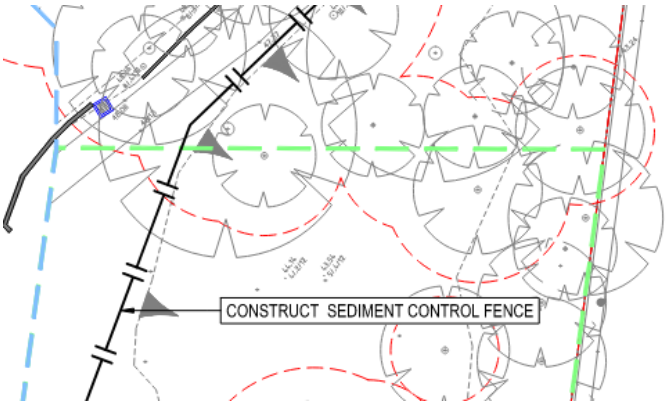
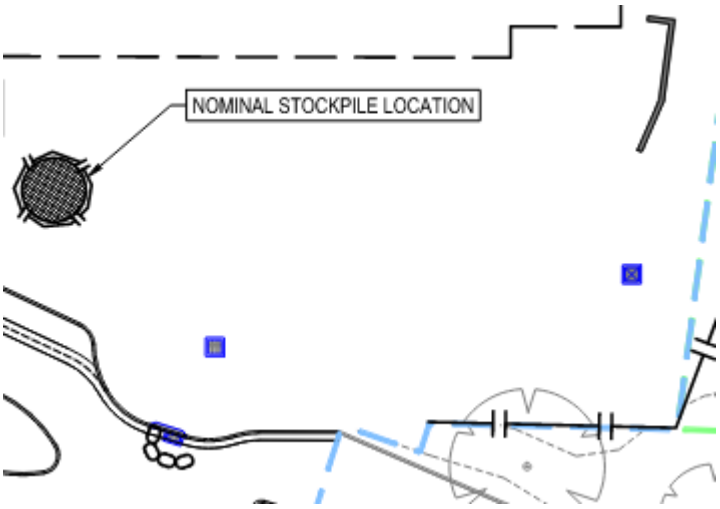
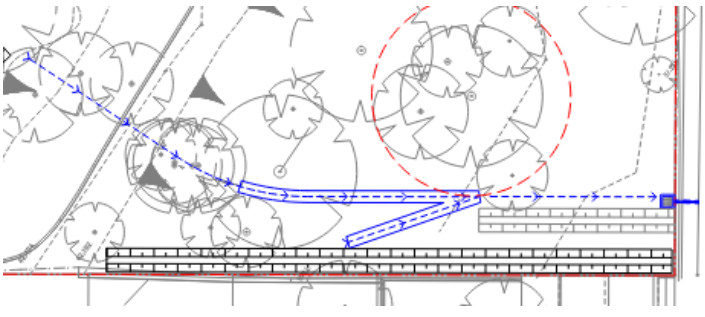
A soil erosion and sediment control plan has been developed for the construction site associated with the Greenwich Hospital Redevelopment in accordance with the Reference Documents. This will ensure that a significant portion of sediments and attached nutrients can be contained on site during construction.

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. • Sandbags along kerb inlet pits. • Geotextile filter fabrics around drop inlet pits	

		
Sediment Control Fences	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.	
Stockpiles	Nominate suitable locations for stockpiling materials in accordance with Section 4.3.1 of the Blue Book.	
Diversion Banks & Drains	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.	

Tree Protection Zones	Retain as much existing vegetation as possible through designating tree protection zones.	

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	Sufficient storage capacity is available in the event of wet weather conditions which will include: • Controls are correctly in place and maintained • Sheds and containers will be placed in existing handstand pavements
Stabilisation of the site	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.
Weather Monitoring	• Designate a team member responsible for weather monitoring • Subscribe to local weather alerts • Establish trigger points for plan activation: • Light rain (0-10mm predicted)

	• Moderate rain (10-30mm predicted) • Heavy rain (>30mm predicted)

Equipment Management	• Storage Procedures
	  ○ Relocate portable equipment to covered areas:
	  ○ Hand tools
	  ○ Power tools
	  ○ Electrical equipment
	  ○ Sensitive instruments
	  ○ Cover stationary equipment with waterproof tarps:
	  ○ Generators
	  ○ Compressors
	  ○ Material stockpiles
	  ○ Secure crane booms and other tall equipment
	  ○ Move vehicles to higher ground if flooding is possible
	• Electrical Safety
	  ○ Disconnect non-essential power equipment
	  ○ Verify GFCI protection on all circuits
	  ○ Inspect and secure temporary power installations

Site Stabilization	• Erosion Control
	  ○ Install additional erosion control measures:
	  ▪ Sediment fences
	  ▪ Straw bales
	  ▪ Erosion control blankets
	  ○ Check and reinforce existing erosion controls
	  ○ Clear all drainage paths and sediment traps
	• Excavation Protection
	  ○ Cover open excavations with plastic sheeting
	  ○ Install temporary berms to divert water flow
	  ○ Ensure dewatering equipment is operational and on standby
	  ○ Check stability of excavation walls
	• Material Protection
	  ○ Cover all exposed stockpiles:
	  ▪ Sand
	  ▪ Gravel
	  ▪ Topsoil
	  ▪ Cement
	  ○ Secure lightweight materials that could become airborne
	  ○ Elevate materials susceptible to water damage

Safety Measures	• Worker Safety
	  ○ Issue appropriate PPE for wet conditions
	  ○ Identify slip hazards and mark clearly
	  ○ Establish safe walking paths with non-slip surfaces
	  ○ Review lightning safety protocols
	• Access Control
	  ○ Designate safe entry/exit points
	  ○ Install additional lighting for poor visibility
	  ○ Identify and mark areas prone to flooding

Work Continuity	• Alternative Work Plans
	  ○ Identify indoor work that can continue during wet weather
	  ○ Prepare contingency schedule for critical path activities
	  ○ Plan for extended work hours during dry periods
	• Quality Control
	  ○ Establish procedures for checking work affected by rain
	  ○ Document all weather-related delays and impacts
	  ○ Adjust concrete pour schedules based on forecast
	•

Post-Event Procedures	• Inspect site for water damage • Pump out flooded areas • Check stability of temporary structures • Document any weather-related damages • Update project schedule to reflect delays
Communication Protocol	• Establish chain of communication for weather events • Prepare notification templates for different severity levels • Maintain emergency contact list for key personnel • Schedule daily toolbox talks during wet weather periods
Environmental Compliance	• Monitor site runoff • Check sediment control measures twice daily • Document all environmental inspections • Report any non-compliance issues immediately
Review and Update	• Review this plan monthly during wet seasons • Update based on lessons learned from each event • Conduct regular drills to test plan effectiveness

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: • Degradation of property landscape • Property damage	• Diversion banks along the southern and south-eastern boundary to intercept runoffs flowing off the site. • Diversion drains along the southern and south-eastern boundary to carry

	• Decrease in health and quality of life for residents.	intercepted runoffs towards a proposed outlet drain.
117 River Road (W of site) 	Residential properties. Runoff and site erosion resulting in sediments and chemicals entering properties: • Degradation of property landscape • Property damage • Decrease in health and quality of life for residents.	• Sediment traps along all existing and to be built inlet pits. • Sediment control fence along the western and south-western boundary to contain sediments. falling off the site.
St Vincents Road (E of site) 	Existing roadway. Runoff and site erosion resulting in sediments and chemicals entering the road and existing stormwater systems. • Roadway hazards for motorists from obstructions and loss of traction caused by sediments. • Local flooding along roadways from stormwater blockage caused by sediments. • Pollution of community waters from the existing stormwater system.	• Sediment traps along all existing and to be built inlet pits. • Sediment control fence along the eastern boundary to contain sediments falling off the site.
Gore Creek Reserve (SW of site)	Natural watercourse and public recreational area. Runoff and site erosion resulting in sediments and chemicals entering the creek and park.	• Sediment traps along all existing and to be built inlet pits • Sediment control fence along the western and south-western boundary

	• Contamination of waters and soil of the surrounding environment. • Decrease in water quality and ecosystem function. • Degradation of public facilities.	to contain sediments falling off the site.

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

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

Regulated Design Record				
Project Address: 97-115 RIVER ROAD, GREENWICH NSW 2065				
Project Title: GREENWICH HOSPITAL REDEVELOPME				
Consent No: SSD-13619238		Body Corpo		
Drawing Title: EROSION & SEDIMENT CONTROL DETAILS		Drawi		
Rev	**Date dd.mm.yy**	**Descrip**	**Full Name**	**Reg No**
X	X		X	X

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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.

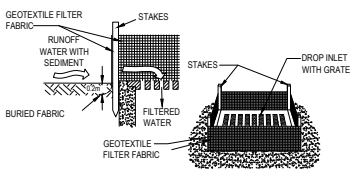
B8. REVEGETATE ALL TRENCHES IMMEDIATELY UPON COMPLETION OF BACKFILLING.

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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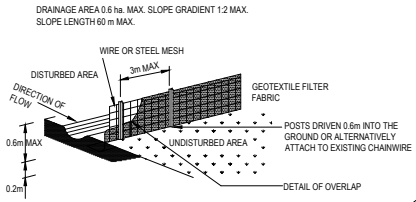
N.T.S.



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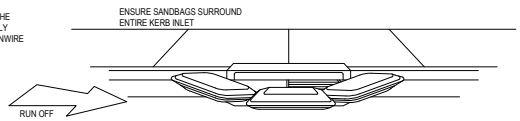
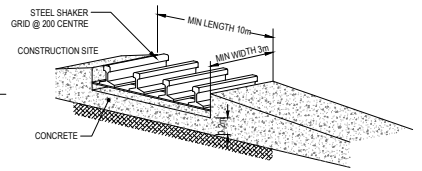


SANDBAG KERB INLET SEDIMENT TRAP
NTS



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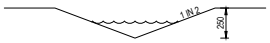

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PROJECT TITLE
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97-115 RIVER ROAD
GREENWICH NSW 2065

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Consent No: SSD-13619238	Body Corpo
Drawing Title: EROSION & SEDIMENT CONTROL PLAN STAGE 1	Drawi

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NOTE:
1. REFER TO CI-0151 FOR EROSION AND SEDIMENT CONTROL NOTES & DETAILS
2. 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
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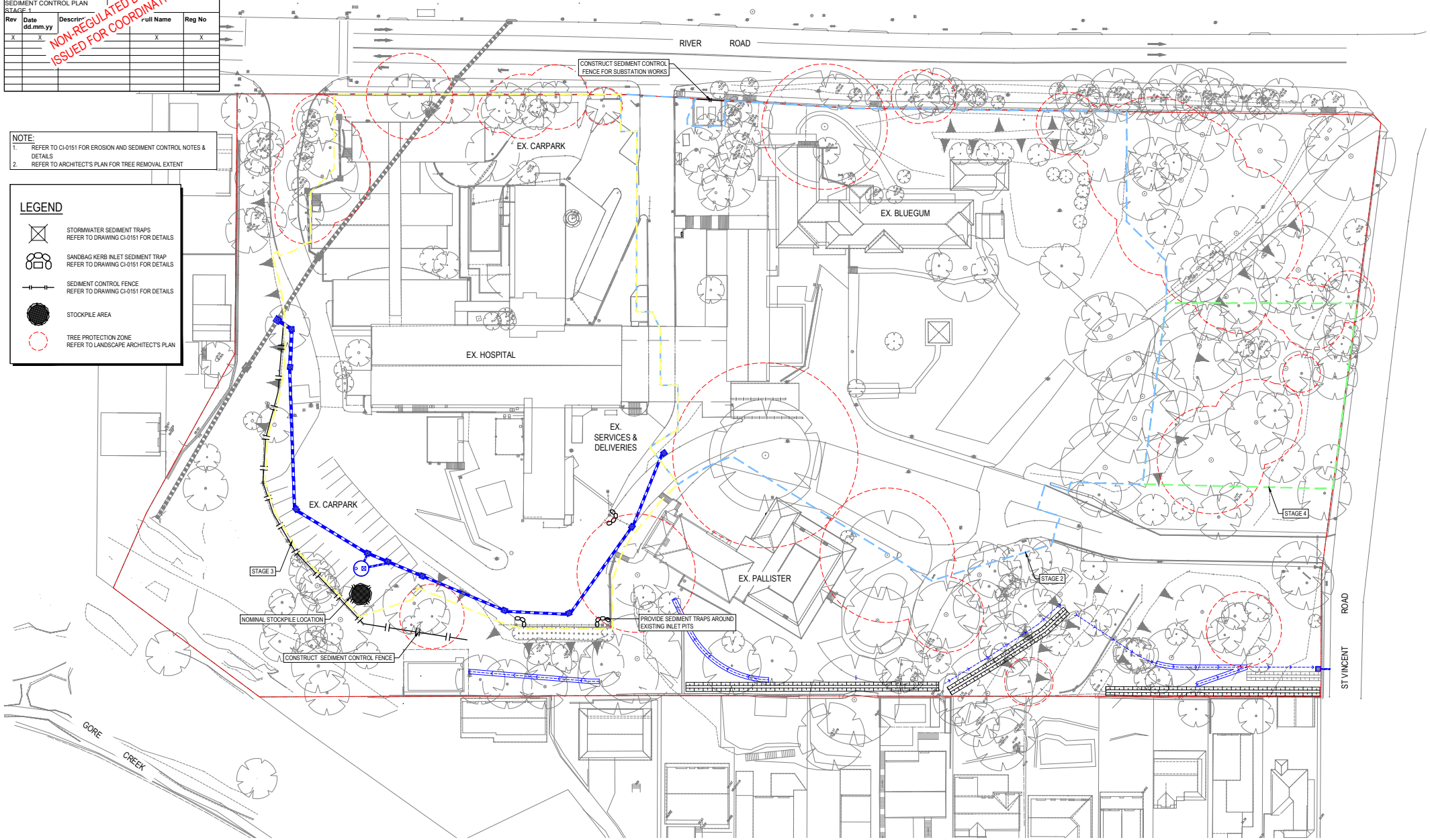
- TREE PROTECTION ZONE REFER TO LANDSCAPE ARCHITECT'S PLAN



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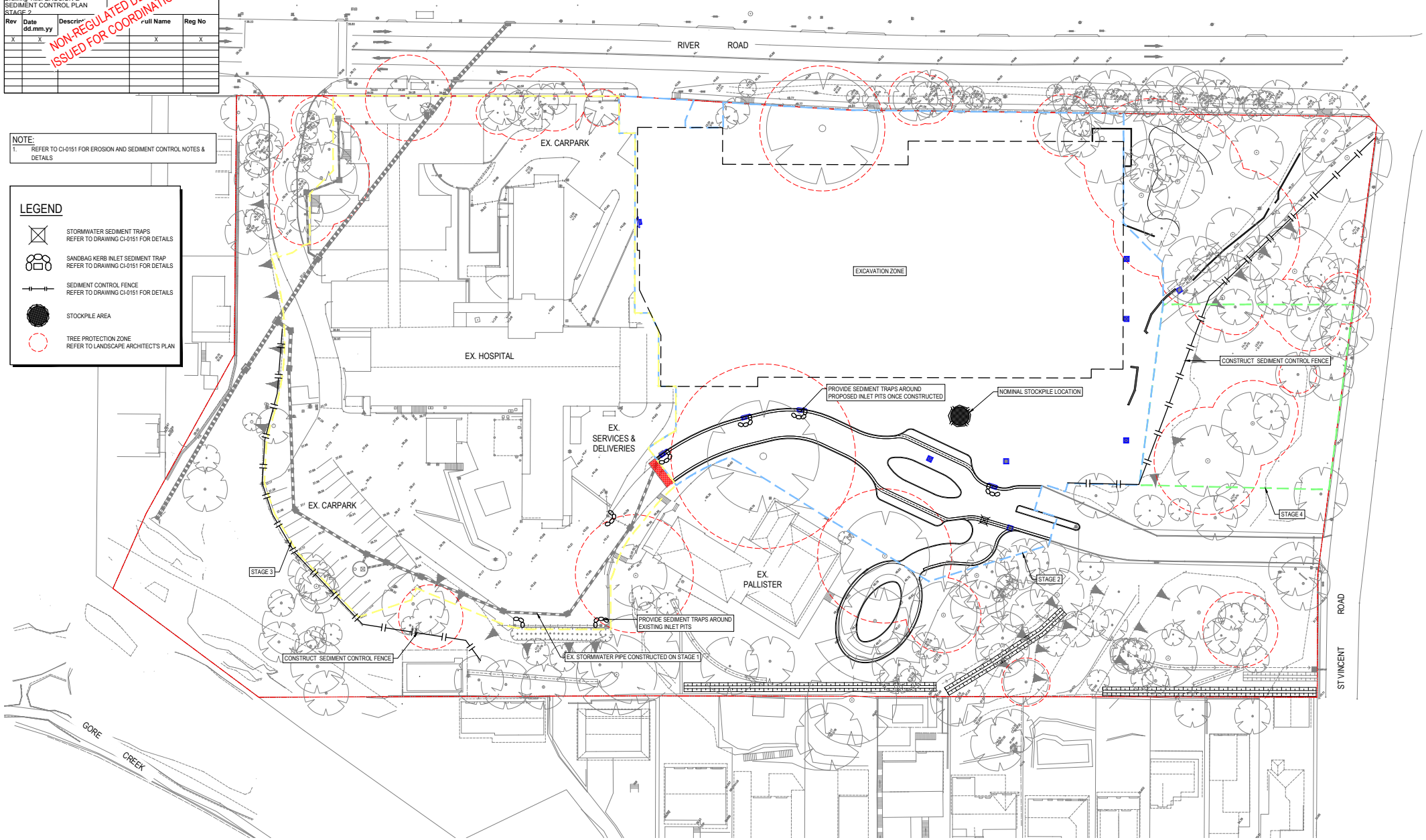

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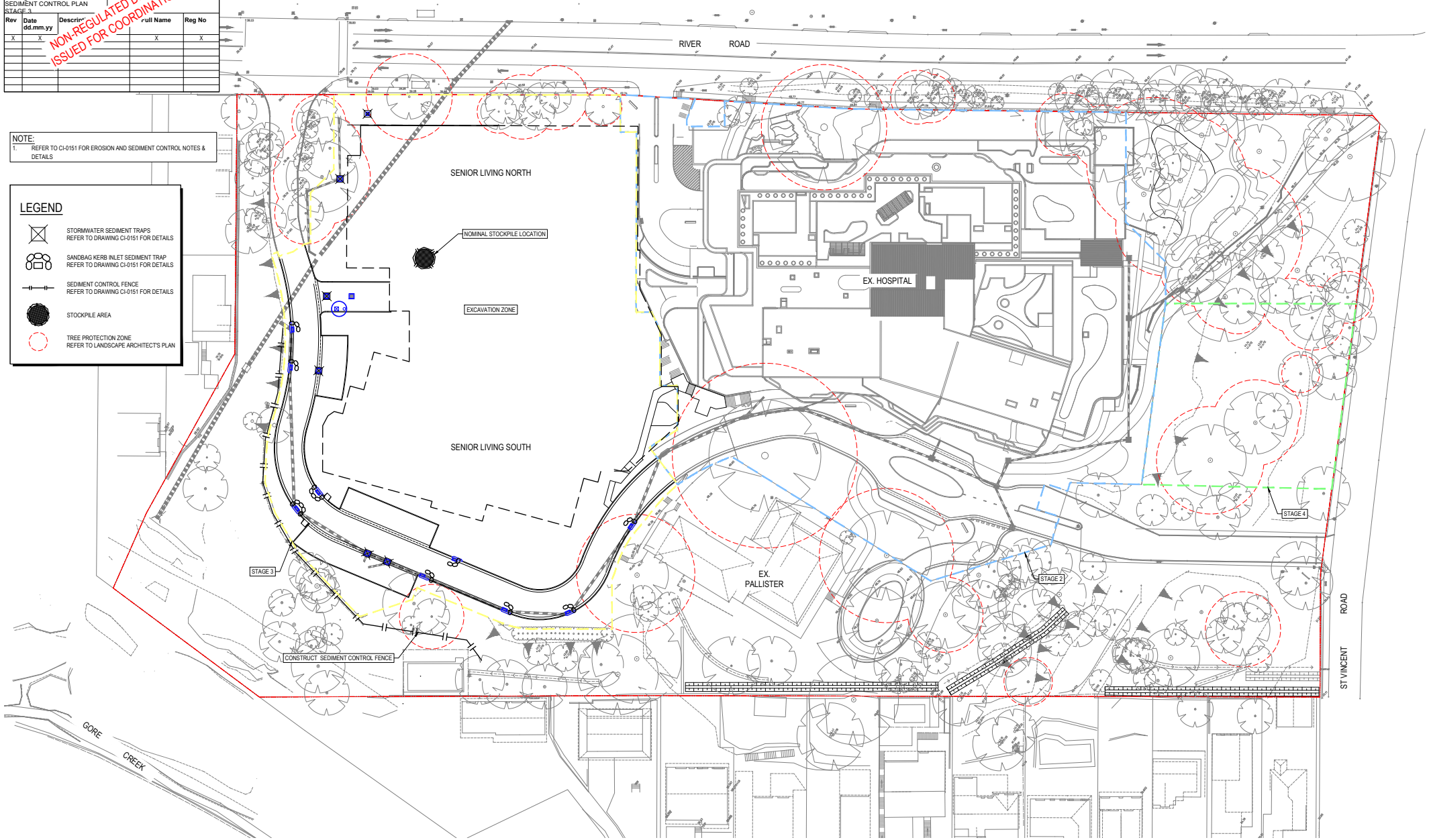

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Mark Reynolds

From: Christopher Shortt <CShortt@lanecove.nsw.gov.au>
Sent: Tuesday, 19 November 2024 3:41 PM
To: Don Wang
Cc: Yousheng Li; Hary Budhi; Karen Armstrong; Iain Macfarlane
Subject: RE: Greenwich - SSD 13619238 and SSD 8699 - Consent Condition C18

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon Don,

No further comment.

Sincere regards

Chris

Lane Cove Council

Christopher Shortt
Senior Town Planner
48 Longueville Road Lane Cove
9911 3522
CShortt@lanecove.nsw.gov.au

From: Don Wang <don.wang@tsariley.au>
Sent: Tuesday, November 19, 2024 3:36 PM
To: Christopher Shortt <CShortt@lanecove.nsw.gov.au>
Cc: Yousheng Li <yli@ethosurban.com>; Hary Budhi <hary.budhi@vandermeer.com.au>; Karen Armstrong <karmstrong@ethosurban.com>; Iain Macfarlane <iain.macfarlane@tsariley.au>
Subject: FW: Greenwich - SSD 13619238 and SSD 8699 - Consent Condition C18

You don't often get email from don.wang@tsariley.au. Learn why this is important

Hi Chris,

Hope you are well.

Following up on below, if there is no comment on the Construction Soil and Water Management Plan, we'll proceed on this basis.

Cheers,

Don Wang
Project Manager

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TSA Riley acknowledges the Aboriginal and Torres Strait Islander peoples of Australia, the Traditional Owners of the lands and waters where our team live and work. We pay ou

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From: Don Wang
Sent: Tuesday, 12 November 2024 3:59 PM
To: CShortt@lanecove.nsw.gov.au
Cc: yli@ethosurban.com; Hary Budhi <hary.budhi@vandermeer.com.au>; Karen Armstrong <karmstrong@ethosurban.com>; Iain Macfarlane <Iain.Macfarlane@tsariley.au>
Subject: Greenwich - SSD 13619238 and SSD 8699 - Consent Condition C18

Hi Chris,

Hope you are well.

We are preparing commencement of Stage 1 early works for the Greenwich Hospital Redevelopment SSD 13619238 and SSD 8699. As required by the consent condition C18 (below), we have prepared the attached Construction soil and water management sub-plan. Could you please let us know if you have comments by 19 November 2024? So that we can finalize the report.

C18. The Construction Soil and Water Management Sub-Plan (CSW limited to the following:

(a) be prepared by a suitably qualified and experienced exp and adjoining landowners;

(b) describe all erosion and sediment controls to be impleme minimum, in accordance with the publication *Managing* (*Construction* (4th edition, Landcom 2004) commonly refe

(c) provide a plan of how all construction works will be mana

Thanks in advance.
Cheers,

Don Wang
Project Manager

TSA Riley

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Appendix G – Biodiversity Management Sub-Plan (BMSP)

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TRAVERS BUSHFIRE & ECOLOGY

A TBE ENVIRONMENTAL COMPANY

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

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Schedule 1 – Biodiversity Management Actions
Attachment 1 – Audit and Compliance Certification Table



Figure 1 – Study area (red)

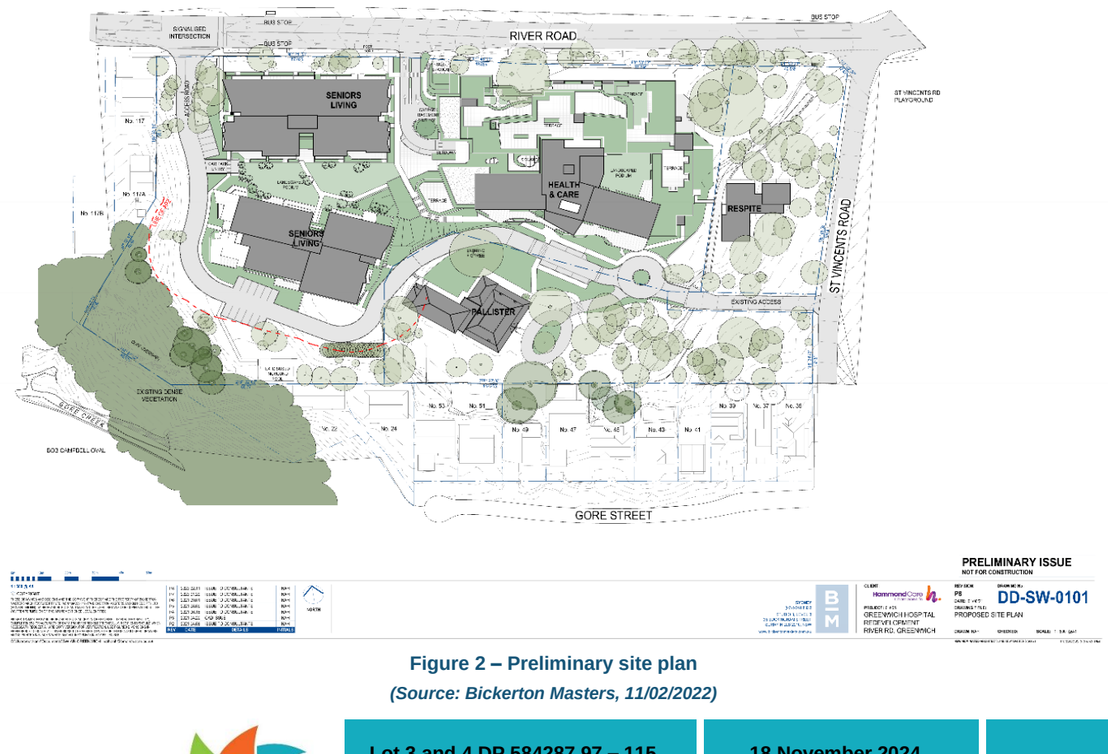


Figure 2 – Preliminary site plan

(Source: Bickerton Masters, 11/02/2022)

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 Gymea 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

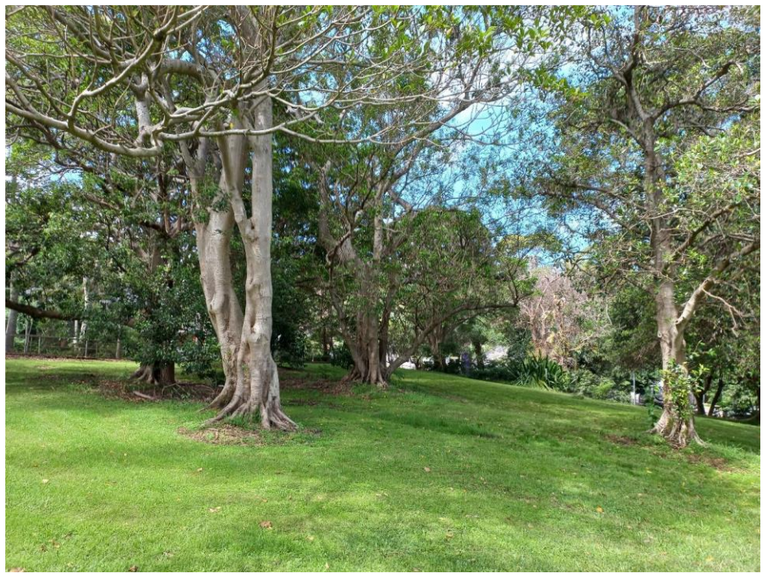
This vegetation is comprised mostly of planted native trees and shrubs. It is likely that some of these are remnant or self-established plants (Site Photo 2) from the indigenous, remnant vegetation, but it is not possible to distinguish which are planted or not with great level of certainty. The understorey 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 *Platycerium bifurcatum* are found growing on trees along with *Asplenium australasicum* growing on rocks.



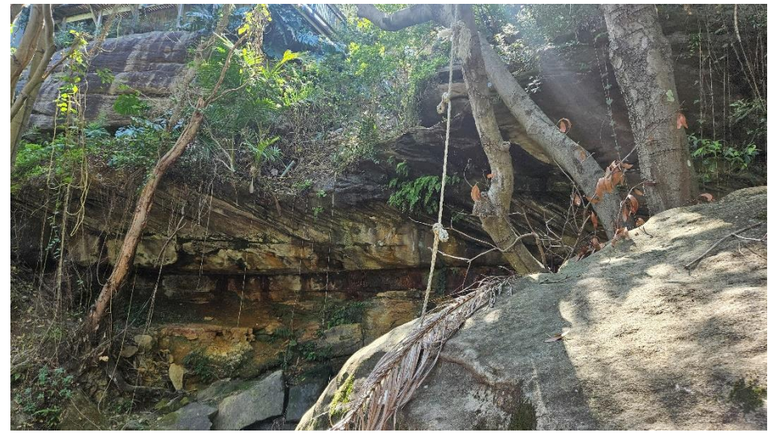
Site Photo 1 – Fair condition PCT 1841 – Coastal Enriched Sandstone Moist Forest



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

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 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
Canopy Planting	
Angophora costata	Sydney Red Gum
Eucalyptus pilularis	Blackbutt
Eucalyptus piperita	Sydney Peppermint
Eucalyptus saligna	Sydney Blue Gum
Sub-canopy	
Allocasuarina torulosa	Forest Oak
Ceratopetalum apetalum	Coachwood
Elaeocarpus reticulatus	Blueberry Ash
Glochidion ferdinandi	Cheese Tree
Pittosporum undulatum	Sweet Pittosporum
Shrub Planting	
Acacia longifolia	Sydney Golden Wattle
Dodonaea triquetra	Hop-bush
Polyscias sambucifolia	Elderberry Panax
Notelaea longifolia	Large Mock-olive
Breynia oblongifolia	Coffee Bush
Groundcover Planting	
Grasses and grass-like species	
Calochlaena dubia	Rainbow Fern
Entolasia marginata	Bordered Panic
Entolasia stricta	Wiry Panic
Microlaena stipoides	Weeping Grass
Poa affinis	-
Forbs	
Dianella caerulea	Blue Flax-Lily
Dichondra repens	Kidney Weed
Einadia hastata	Berry Saltbush
Goodenia hederacea	Forest Goodenia
Lobelia purpurascens	White Root
Lomandra longifolia	Spiky-headed Mat-rush
Climbing	
Clematis aristata	Old Man's Beard
Hardenbergia violacea	Purple Coral Pea

Table 2 – Weed species identified within the study area

Scientific name	Common name	Weed Control Priority
TREES		
Ochna serrulata	Ochna	HIGH
Cinnamomum camphora	Camphor Laurel	MEDIUM
Morus alba	White Mulberry	MEDIUM
Liquidambar stryraciflua	Liquidambar	MEDIUM
Phoenix canariensis	Pheonix Palm	MEDIUM
SHRUBS		
Senna pendula var. glabrata	Cassia	MEDIUM
Ligustrum sinense	Small leaved Privet	MEDIUM
*Lantana camara**	Lantana	HIGH
Solanum mauritianum	Wild Tobacco	MEDIUM
VINES		
*Anredera cordifolia**	Madeira Vine	VERY HIGH
Ipomoea purpurea	Morning Glory	MEDIUM
GROUNDCOVERS		
*Asparagus aethiopicus**	Asparagus Fern	HIGH
Ageratina adenopjhora	Crofton Weed	MEDIUM
Tradescantia fluminensis	Wandering Trad	MEDIUM
Cenchrus clandestinus	Kikuyu	HIGH
Chloris gayana	Rhodes Grass	LOW
Bidens pilosa	Cobbler's Pegs	LOW
Coreopsis lanceolata	Tickseed	LOW
Conyza sumatrensis	Tall Fleabane	LOW
Sida rhombifolia	Arrowleaf Sida	LOW
Argemone mexicana	Prickly Poppy	LOW
Ehrharta erecta	Panic Veldt Grass	MEDIUM
Solanum nigrum	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 ACTIVIES

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.

<u>European Red Fox</u>

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 domestics 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:

<u>Prior to commencement of vegetation clearance</u>

- 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.

<u>Post vegetation clearance</u>

- 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.

<u>Post completion of excavations, cut and fill works</u>

- 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.

<u>Post construction - Bushland protection works</u>

- 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 cinnamomic*)
- **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;
- **<u>Do not</u>** 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, **<u>do not</u>** 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.



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).

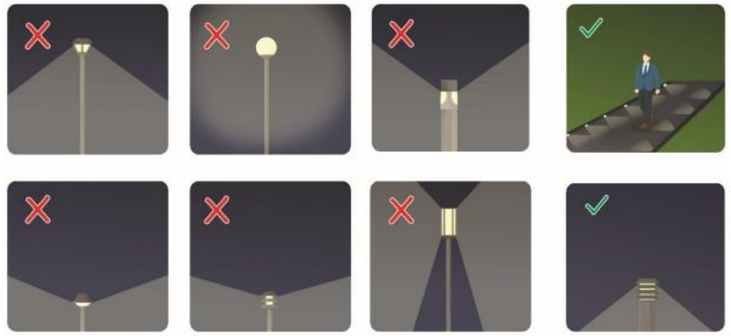


Figure 5 – Examples of outdoor wildlife friendly lighting for accessways

(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.

- 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	-

See figures 7-12 for nest box diagrams and examples of augmented hollows



Figure 6 - Southern Myotis

REFERENCES

EPA (2020) *1080 Pest Control, Order*

Pesticide control orders (nsw.gov.au)

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

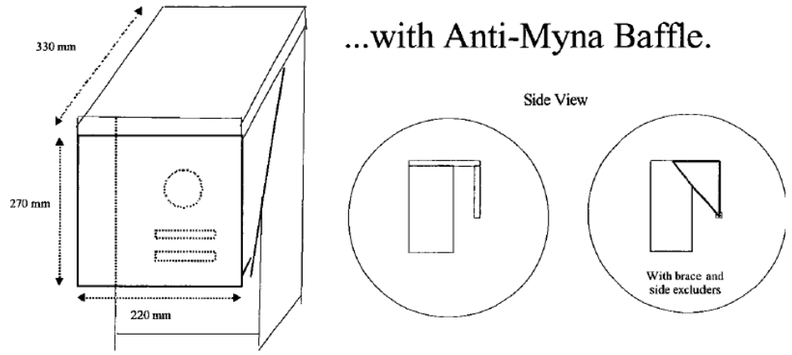


Figure 7 – Anti-Myna baffle

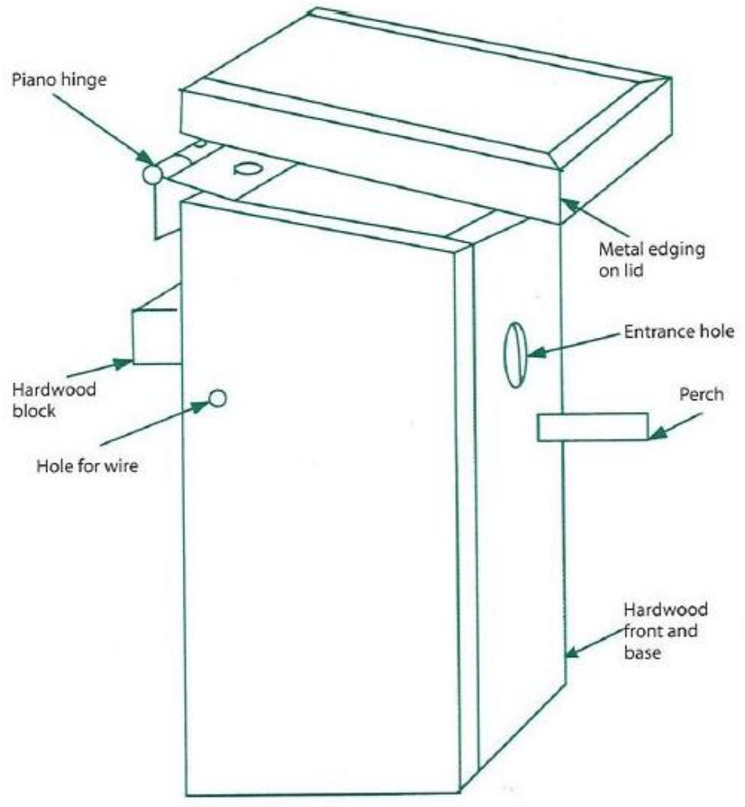


Figure 8 – A Generic nest box design
(Source - From Alan and Stacey Franks, 2003)

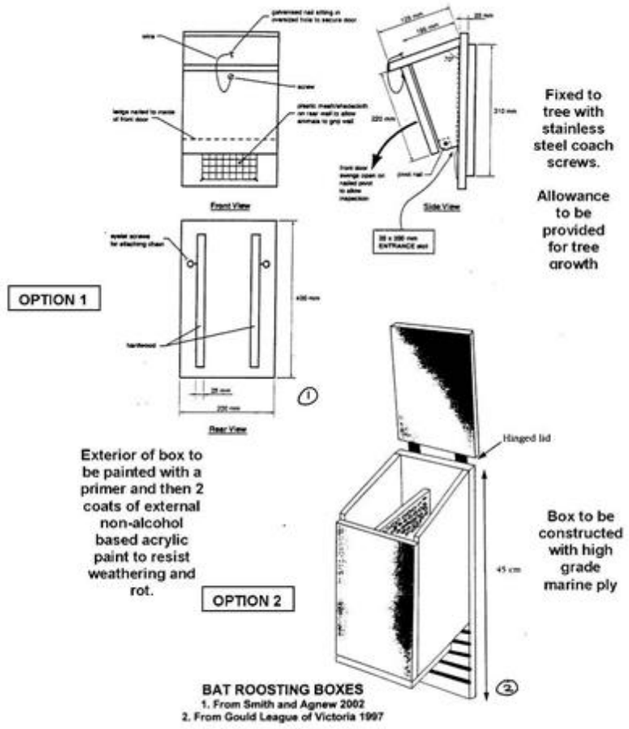


Figure 9 – Microbat nest box detail (*Option 1 & 2*)

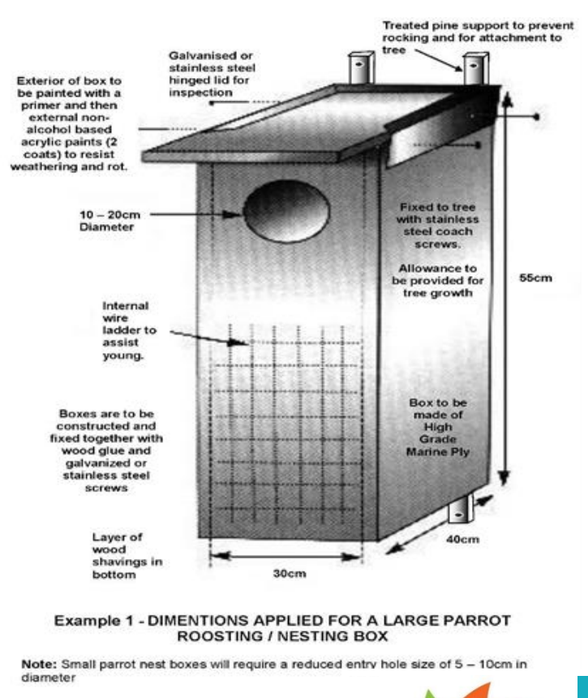


Figure 10 – Typical dimensions for large parrot box



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/)

PROGRAM OF WORKS

The program of works Table (Table 5) is aimed at providing a management framework for enacting works such as undertaking maintenance, monitoring and review works required for the site. Site works, including sediment and erosion control and weed control works are to be undertaken in accordance with the Schedule 1 – Biodiversity Management Actions. A typical timeline of works is shown on Table 6.

Table 5 – Program of works

Stage 1 – Pre-restoration works	
Formation of site management team and establish supervision and consultation processes – minimum project ecologist, qualified bushland restoration contractor and site manager	Site project manager
Erection of erosion control fencing	Site manager / project ecologist
Installation of primary exclusion / protection fencing and access gates	Project manager
Baseline vegetation condition assessment and establishment of monitoring plots	Project ecologist
Commencement of primary weed control	Suitably qualified bushland restoration contractor
Commencement of seed collection and propagation contracts	Bushland restoration contractor / project ecologist
Provide certificates of compliance to the appointed project certifier and council	Project ecologist
Stage 2 – Restoration Works	
Supervision of any vegetation and management works	Site project manager in association with the project ecologist
Monitor erosion control measures (monthly – especially after heavy rain) and replace if required	Contractor with advice of project manager
Waste removal and soil amelioration works to control weed infestations and provide suitable restoration soil base.	Bushland restoration contractor
Complete revegetation works	Bushland restoration contractor / project manager
Commencement of secondary weed control and maintenance weed control	Contractor / bushland restoration contractor
Maintenance of fencing and signage around protected vegetation	Contractor
Continuation of primary restoration and revegetation works	Contractor / suitably qualified bushland regenerator
Provide certificates of compliance at practical completion	Project ecologist
Stage 3 – Post Restoration Works	
Further enrichment planting within revegetation areas if required.	Bushland restoration contractor with advice of project ecologist
Continuation of regeneration and weed control maintenance.	Contractor / bushland regenerator
Monitoring of retained vegetation at six (6) months, twelve (12) months and annually for five (5) years post construction stage.	Project ecologist
Conduct maintenance beyond five (5) years if required	Site manager with advice of project ecologist
Provide certificates of compliance at end of each year during the 5-year maintenance period	Project ecologist

The following typical timeline (Table 6) is provided to indicate a possible overall timing of restoration works. The commencement of the maintenance period of five (5) years is subject to the completion of primary restoration works as certified by the project ecologist. A certificate of practical completion will be required as evidence of satisfactory completion prior to the commencement of the maintenance period.

The successful implementation of restoration works may affect the release of any required bonds as required. Upon engagement, contractors are expected to meet the following typical schedule of works**.**

Table 6 – Typical Restoration works timeline

ID	Task Name	Duration
1	**PROJECT INITIATION**	
1.1	Preparation of project restoration plan	1 month
1.2	Preparation of contract schedules	1 month
1.3	Project restoration plan signoff	2 weeks
1.4	Confirmation of pricing/quotations	2 weeks
2	**WEED CONTROL**	
2.1	Primary weed control	1 month
2.2	Secondary weed control	6 months
2.3	Follow-up weed control	60 months
3	**PRECONSTRUCTION WORKS**	
3.1	Survey vegetation clearance boundaries and mark trees to be retained or removed	2 weeks
3.2	Habitat searches and relocation of affected wildlife	2 weeks
3.3	Supply and installation of artificial nest boxes	2 weeks
3.4	Dismantling of hollow bearing trees and relocate fauna and salvaged hollows	4 weeks
3.5	Installtion of hollows	4 weeks
3.6	Installation of temporary tree protection and APZ fencing/bunting	2 weeks
3.7	Kangaroo management (if required)	ongoing
3.8	Dam dewatering	2-4 weeks
4	**REVEGETATION WORKS (Only if required)**	
4.1	Site preparation	
4.1.1	Seed collection	12 months
4.1.2	Plant propagation (initial and contingency)	6-9 months
4.1.3	Site stabilisation	1 week
4.1.4	Install site irrigation system (if required)	2 weeks
4.1.5	Installation of permanent protective and erosion control fencing	1 week
4.1.6	Commence pest control (rabbit, fox, cat, dog)	6 months
4.2	Tube-stock planting and initial maintenance	
4.2.1	Pre-planting weed & waste clearance	2 weeks
4.2.2	Planting & guarding	2 weeks
4.2.3	Initial watering and maintenance	3 months
5	**5 YEAR MAINTENANCE PERIOD**	
5.1	Watering, weed control and repairs	60 months
5.2	Ongoing pest control (rabbit) and kangaroo management	60 months
6	**CONTRACT MANAGEMENT**	
6.1	Contractor supervision	60 months
6.2	Monitoring	60 months
6.3	Prepare and submit audit reports	60 months
6.4	Prepare and submit compliance certificates	60 months
7	**CONTINGENCY PLANTING (Only if required)**	
7.1	Site preparation	1 week
7.2	Replacement or contingency planting	1 week
7.3	Watering and maintenance	3 months
7.4	Medium term maintenance	6 months

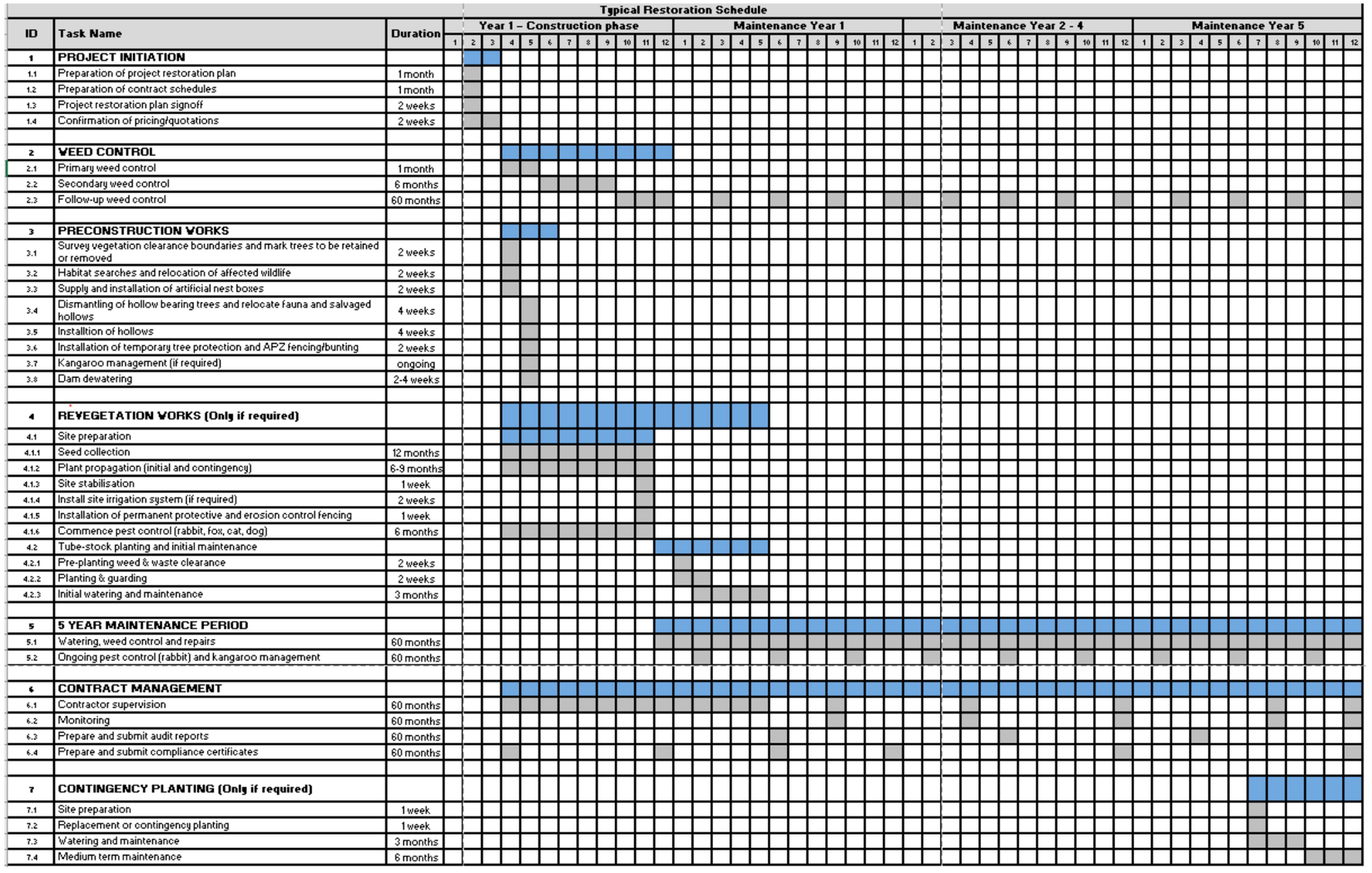




Figure 13 - Site map

Plant Community Type	IMPACT APZ	DEV	Indirect	TOTAL(HA)
PCT 1841 (remnant/unmanaged)	0.48	0.16	0.05	0.69
PCT 1841 (managed/planted)	0.18	0.13	0.04	0.35
Non-native trees & shrubs	0.13	0.26	0.06	0.45
TOTAL (HA)	0.79	0.55	0.15	1.49



Figure 14 – Flora and fauna survey effort and results

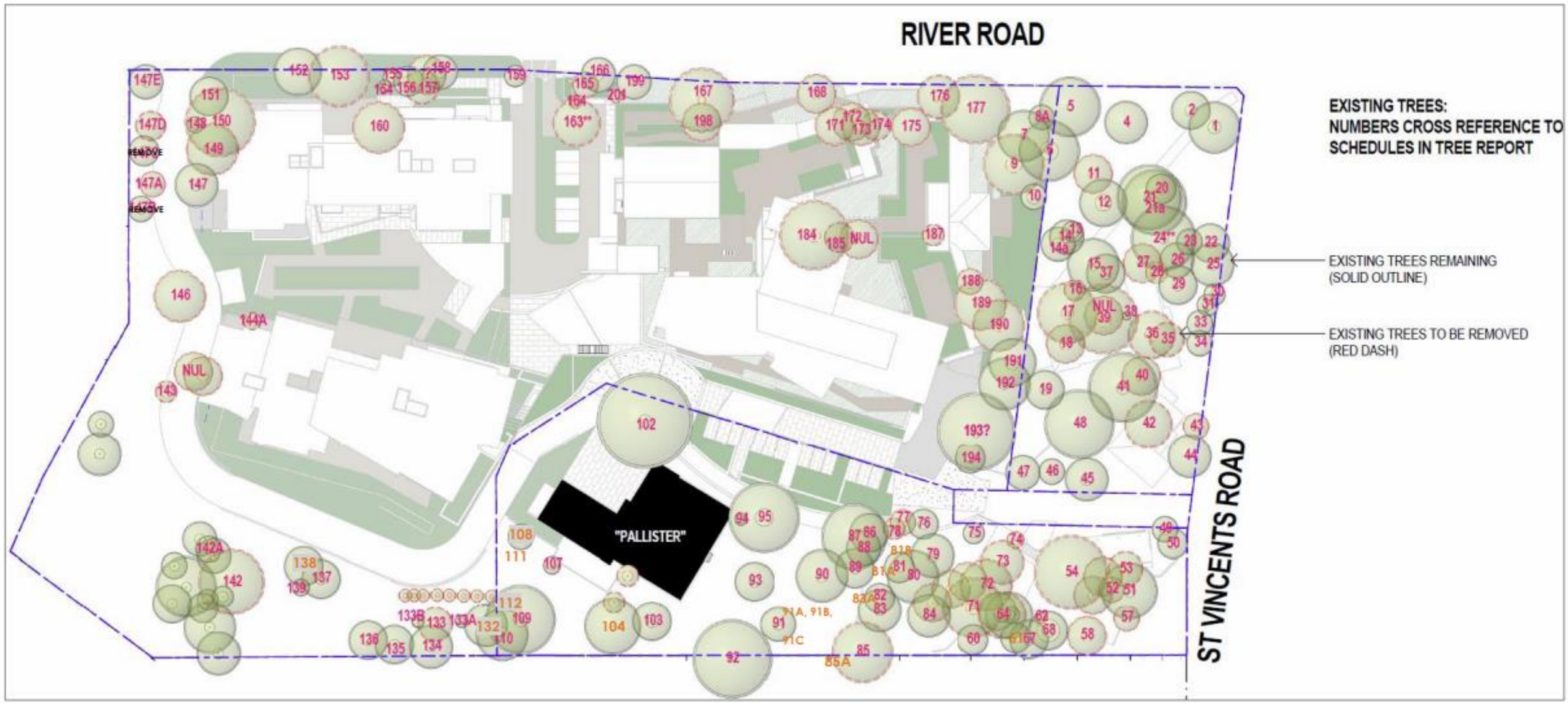


Figure 15 - Tree retention and removal plan

ATTACHMENT 1 – AUDIT & COMPLIANCE CERTIFICATION TABLE

Audit items	Timing	Responsibility	Rectification works required? Yes/No	Works required	Completion Date	Compliant Yes/No
Preconstruction works (Prior to CC)						
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				
During Construction (Post issuance of CC)						
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				
Year 1 Maintenance						
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				
Year 2 Maintenance						
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				
Year 3 Maintenance						
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				
Year 4 Maintenance						
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				
Year 5 Maintenance						
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				
Handover or extended maintenance period						
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 Biodivsersity Performance Targets	Every 12 months	Project Ecologist				

Appendix H – Construction Flood Emergency Response Plan (CFERP) & Greenwich Hospital Flood Emergency Response Plan

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GREENWICH HOSPITAL – CONSTRUCTION FLOOD EMERGENCY RESPONSE SUB-PLAN

NOVEMBER 2024

PREPARED FOR

HammondCare

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Prepared for	HammondCare
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Revision	**Description**
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1	Final Report

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LIST OF ABBREVIATIONS

BOM	Bureau of Meteorology
CFERSP	Construction Flood Emergency Response Sub-Plan
DCP	Development Control Plan
LEP	Local Environmental Plan
LGA	Local Government Area
PMF	Probable Maximum Flood
SES	State Emergency Service
WMS	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.

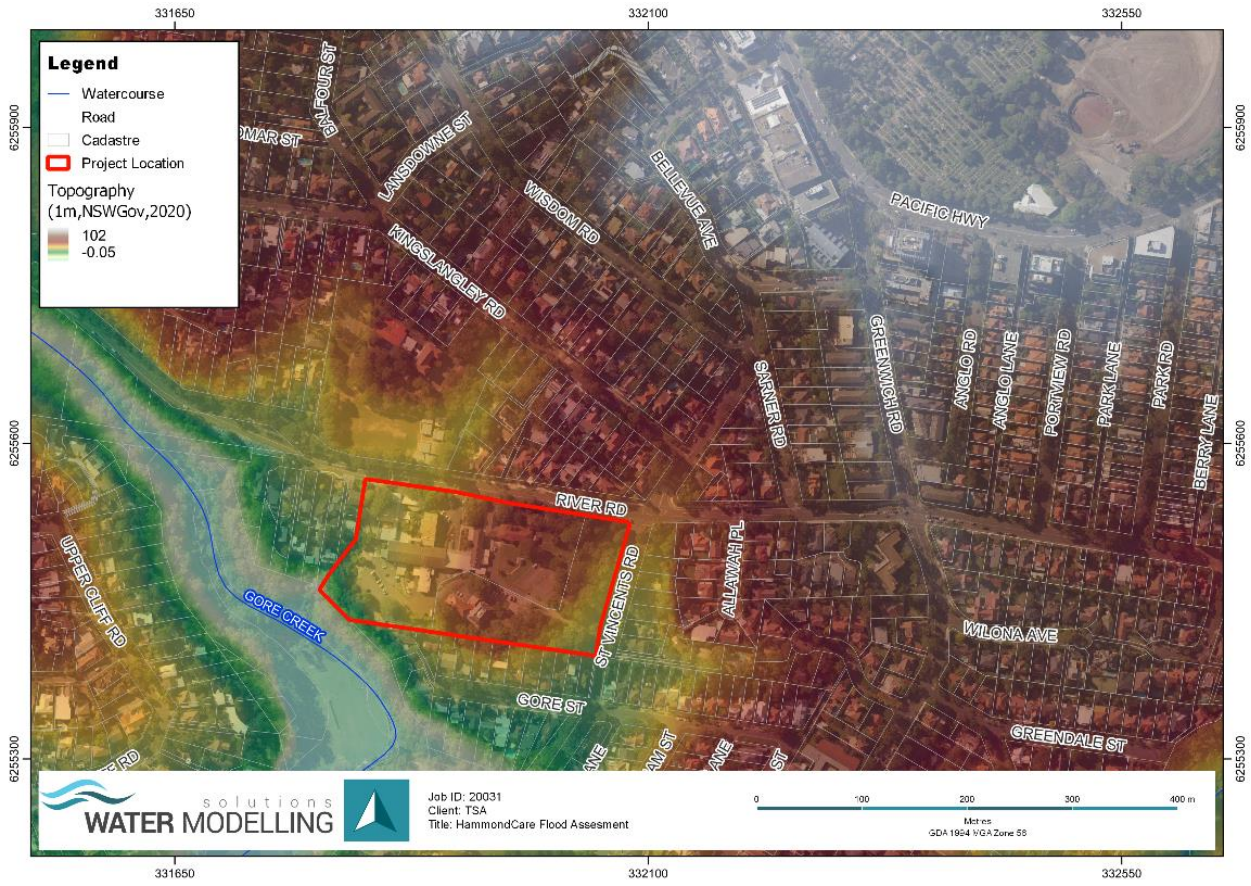

Figure 1-1 Subject Site Topography

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.

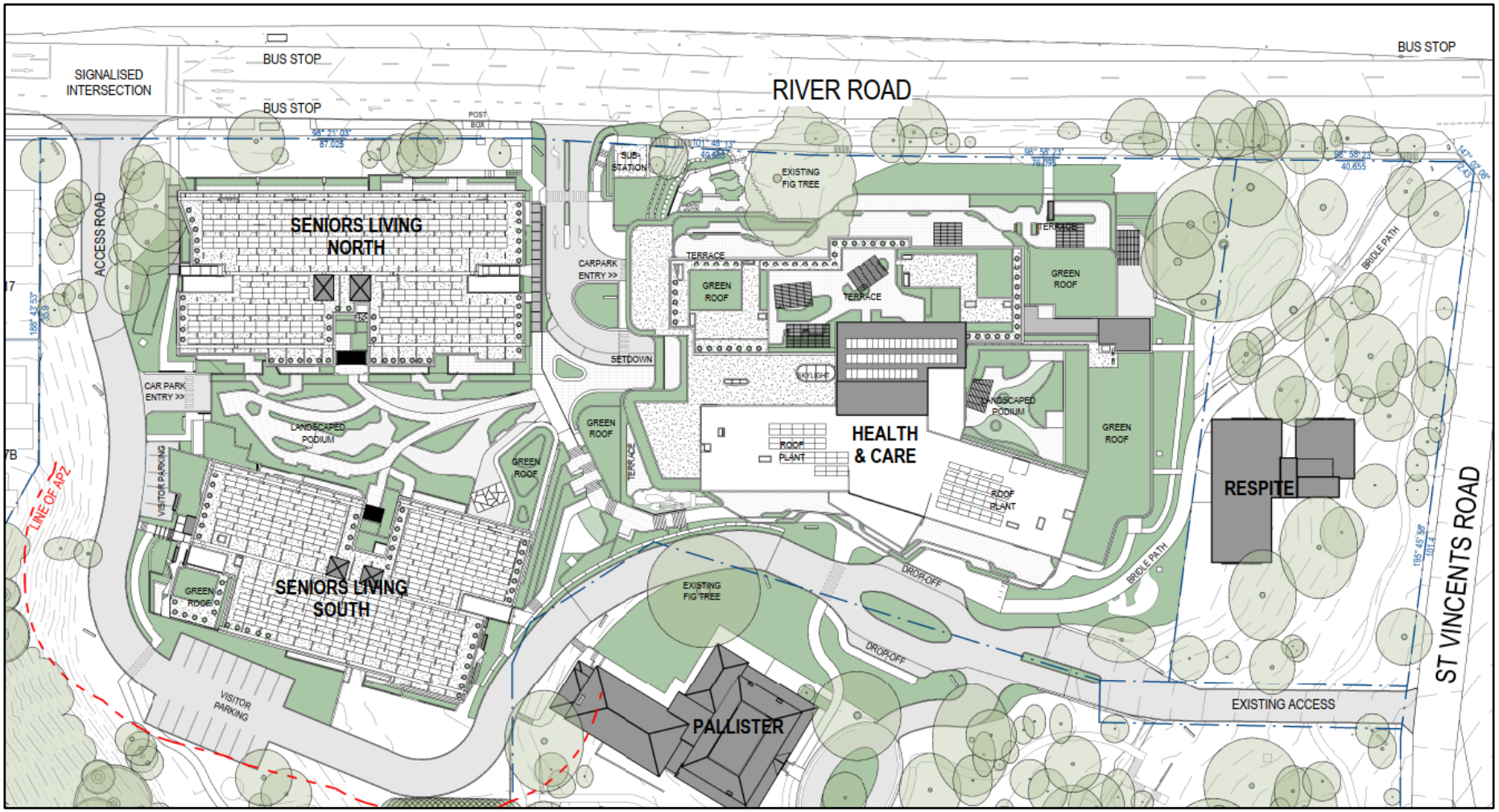

Figure 1-2 Proposed Site Plan

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 are 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.

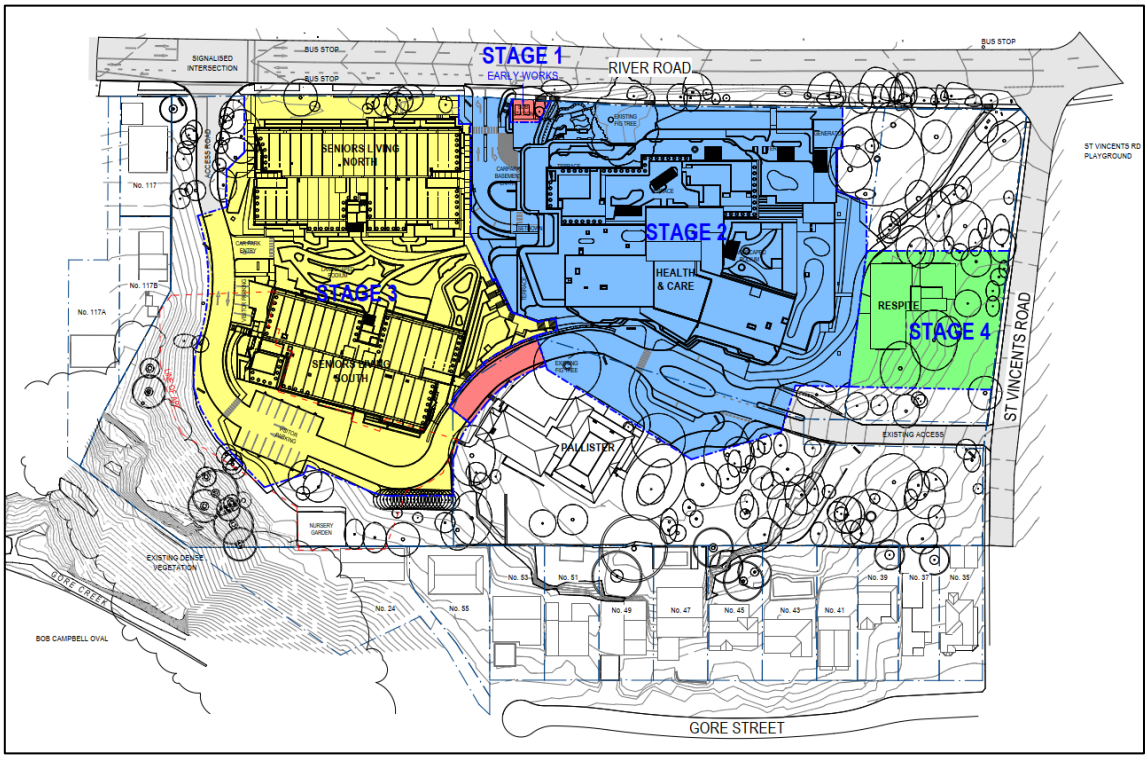

Figure 1-3 Proposed Staging Plan (Bickerton Masters, Drawing No. AR-SW-0120, Rev.P11, 08/07/2024)

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 destructed 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	The Site Project Manager is responsible for: • Ensuring that all deputy wardens who are on site are aware of the flood risks and the flood management procedures detailed in this CFERSP; • Support the wardens in their duties; • Maintain a register of all staff and subcontractors on site at all times, including contact details and emergency contacts; • Lead the annual shelter in place/ flood emergency response drill (to be undertaken with the Deputy Wardens only, not other staff); • Monitor flood warnings and alert mode triggers in accordance with this CFERSP; • Escalate alert modes in accordance with the relevant triggers set in this CFERSP; • Communicate flood response messages to Wardens and staff in accordance with this CFERSP; • Coordinate all flood emergency procedures; • Participate in a review of this CFERSP annually and following a major flood.
Flood Wardens (at least 2)	• Assist the Site Project Manager to implement flood emergency procedures as required; • Assist in distributing communications from the Site Project Manager to all staff on site; • Participate in the annual flood emergency response drill; • Participate in a review of this CFERSP annually and following a major flood.
All other staff and contractors	• Follow directions of the flood wardens; • Report any concerns to their respective flood warden.

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.

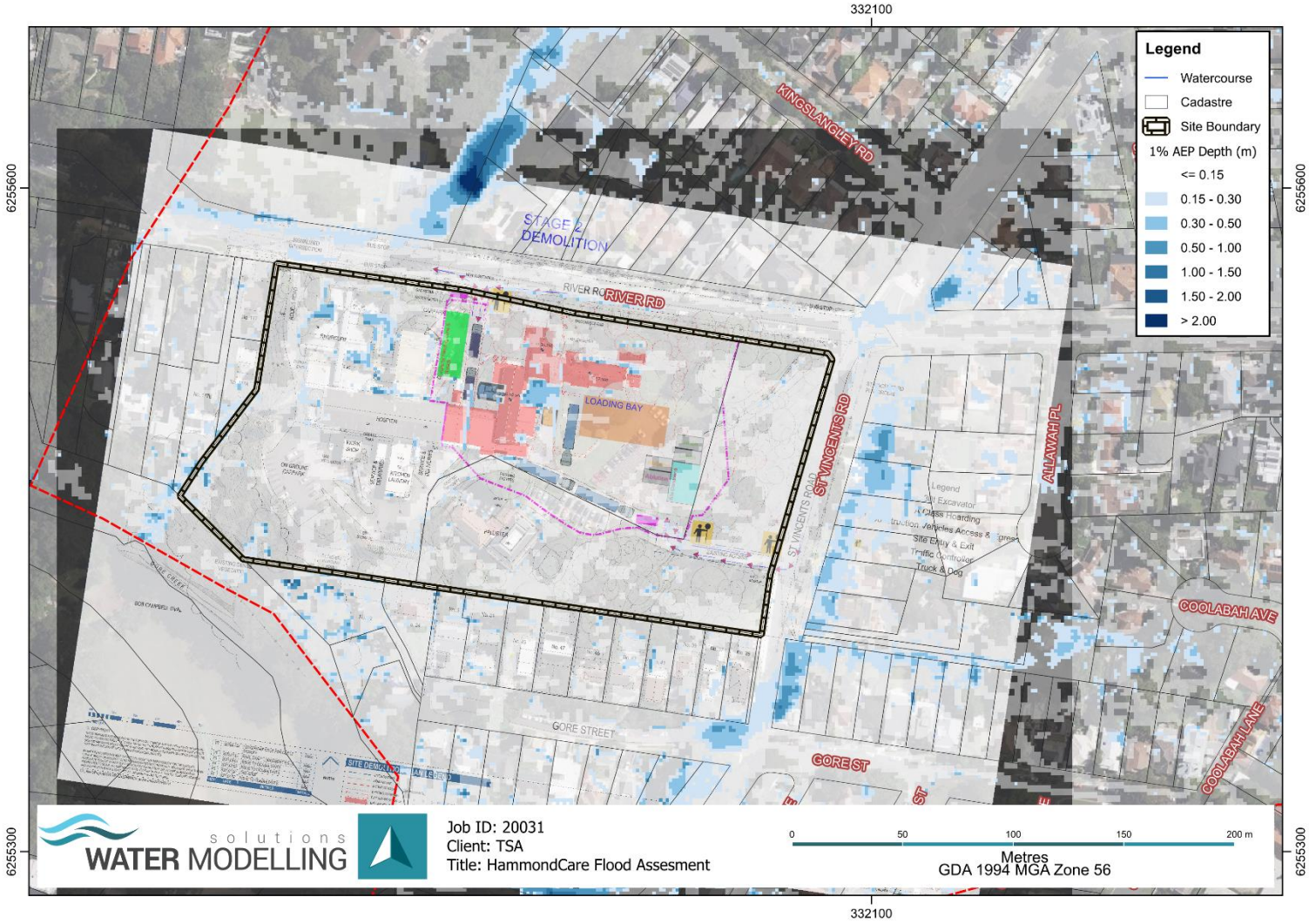

Figure 2-1 Existing Conditions 1% AEP Peak Depth with Stage 2 Demolition Plan

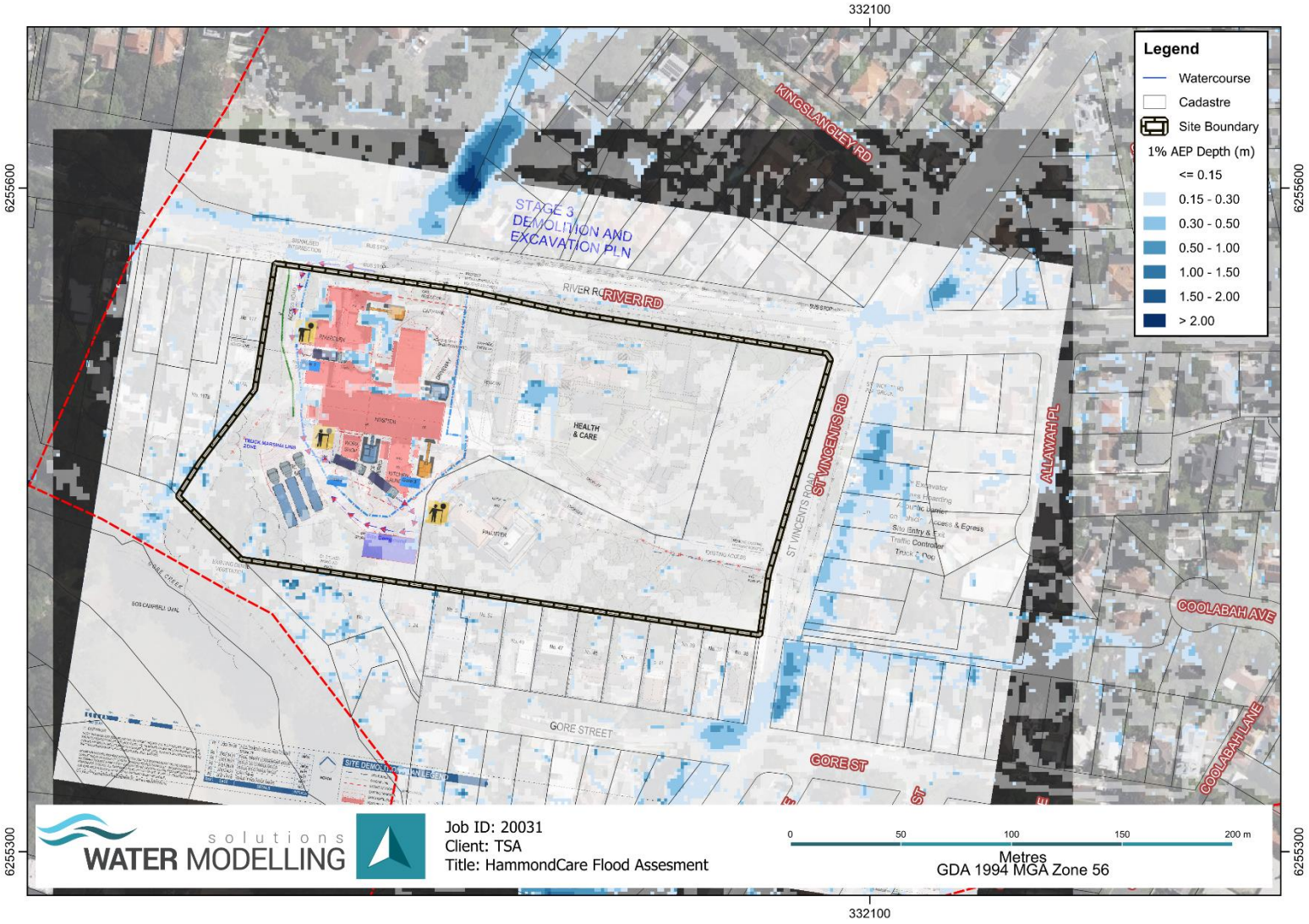

Figure 2-2 Existing Conditions PMF Peak Depth with Stage 3 Demolition Plan

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.

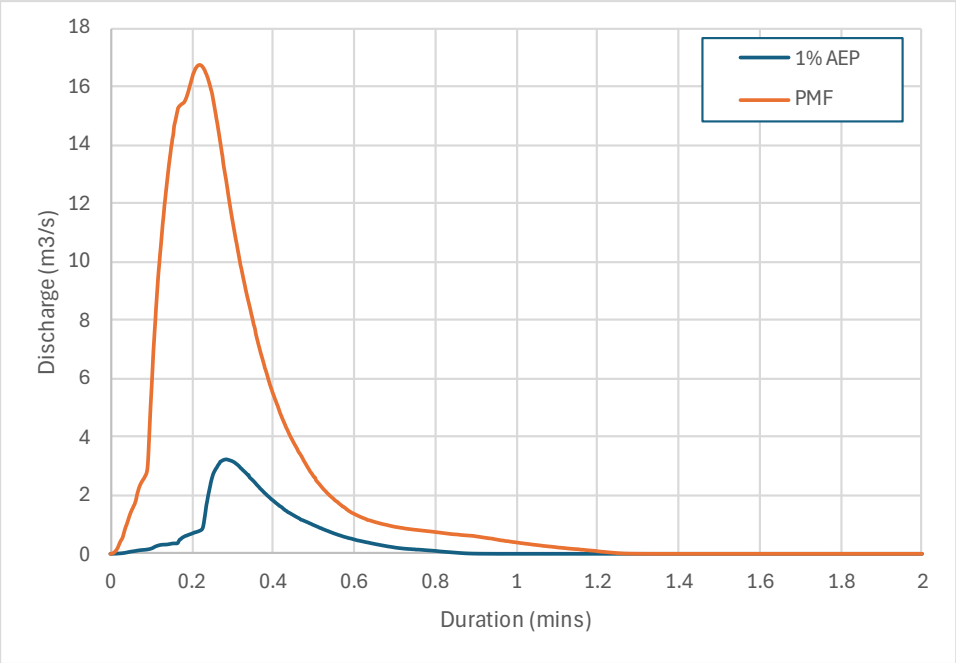

Figure 2-3 Hydrographs – Flow path west of River Road

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.

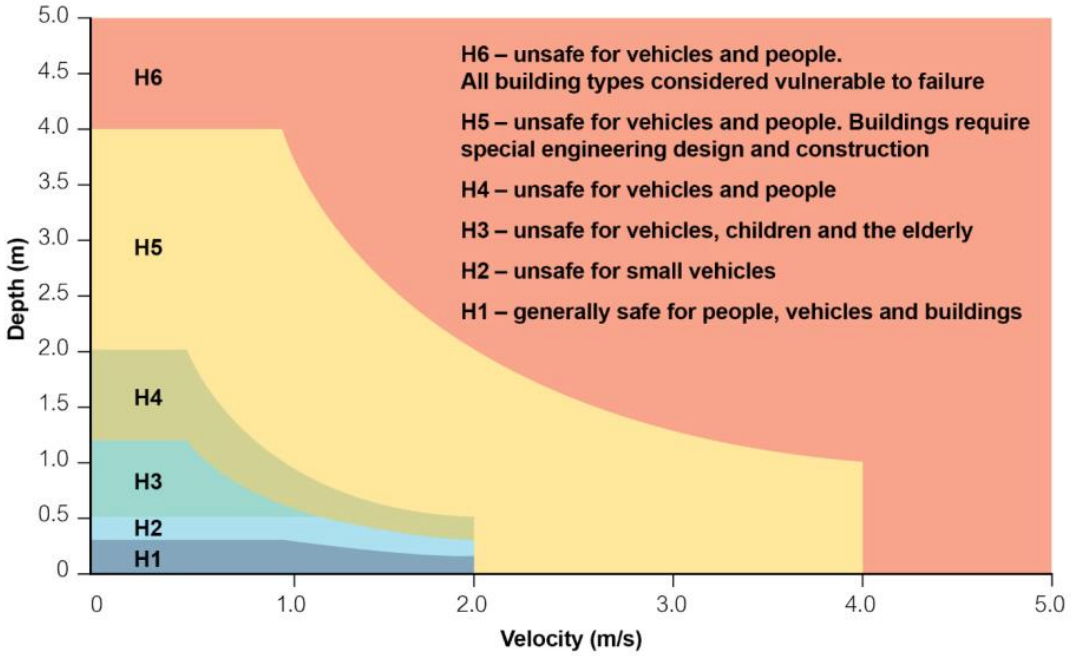

Figure 2-4 General Flood Hazard Vulnerability Curve (AIDR, 2017)

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

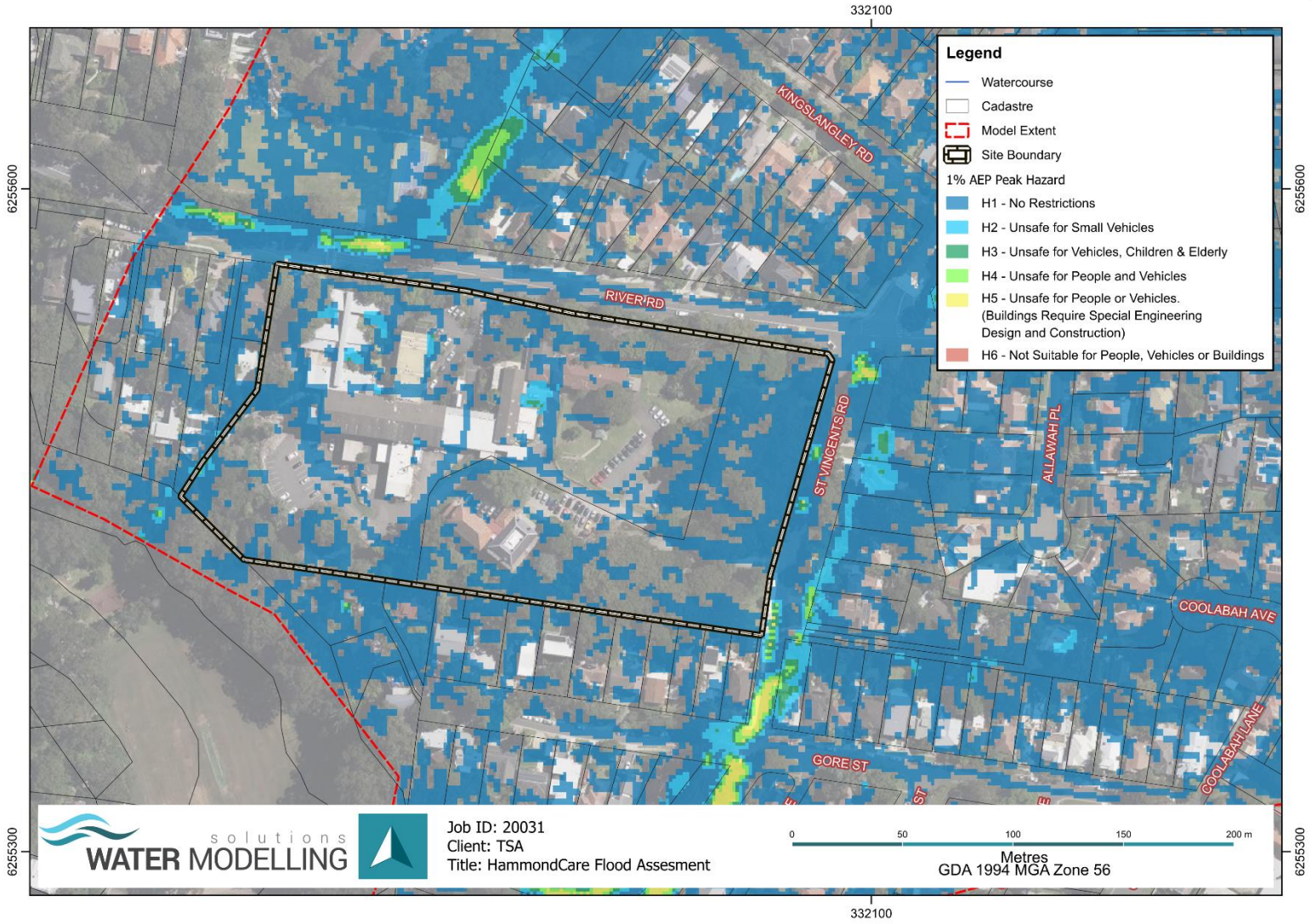

Figure 2-5 1% AEP Peak Hazard – Existing Conditions

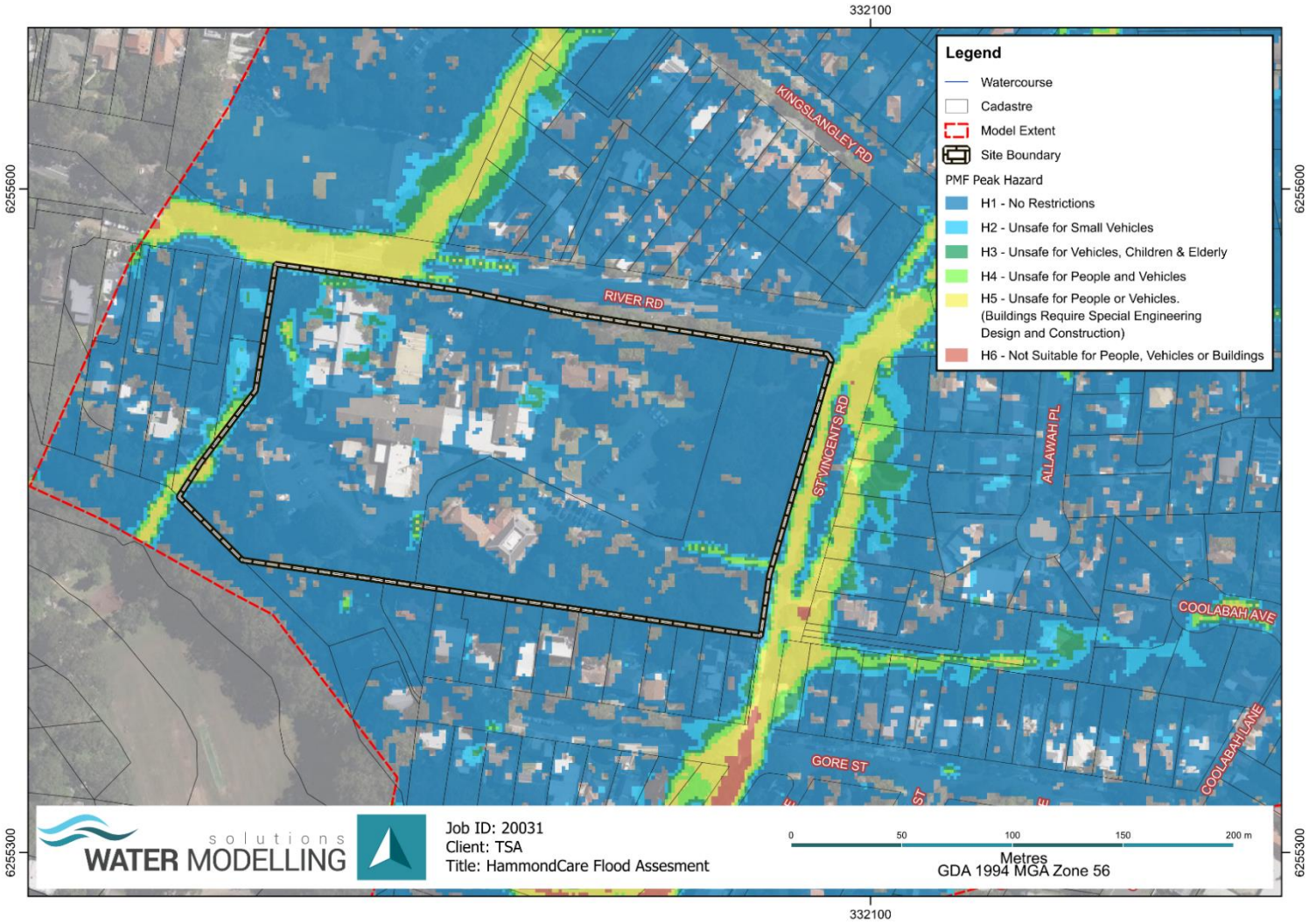

Figure 2-6 PMF Peak Hazard – Existing Conditions

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							

H1	Generally safe for vehicles and people
H5	Unsafe for vehicles and people

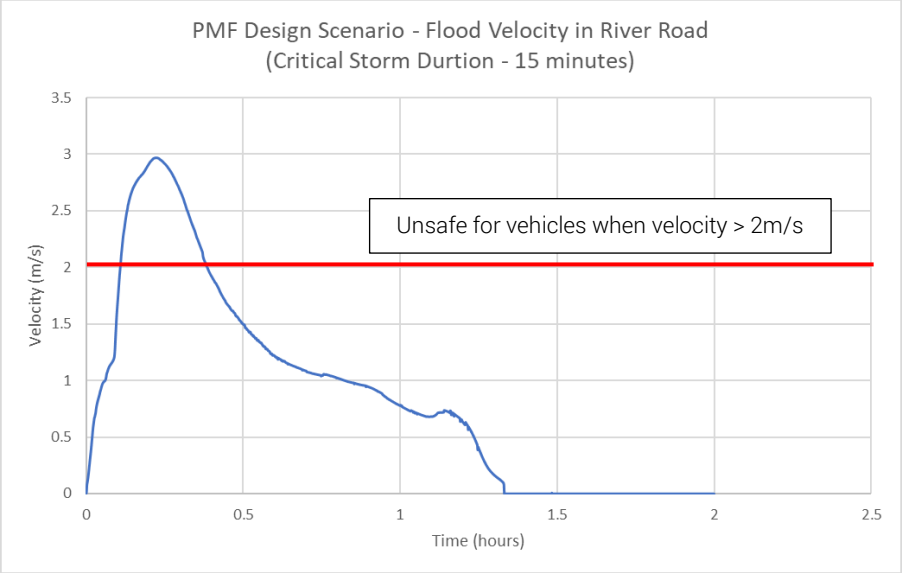

Figure 2-7 Flood Velocity in River Road for PMF Design Scenario

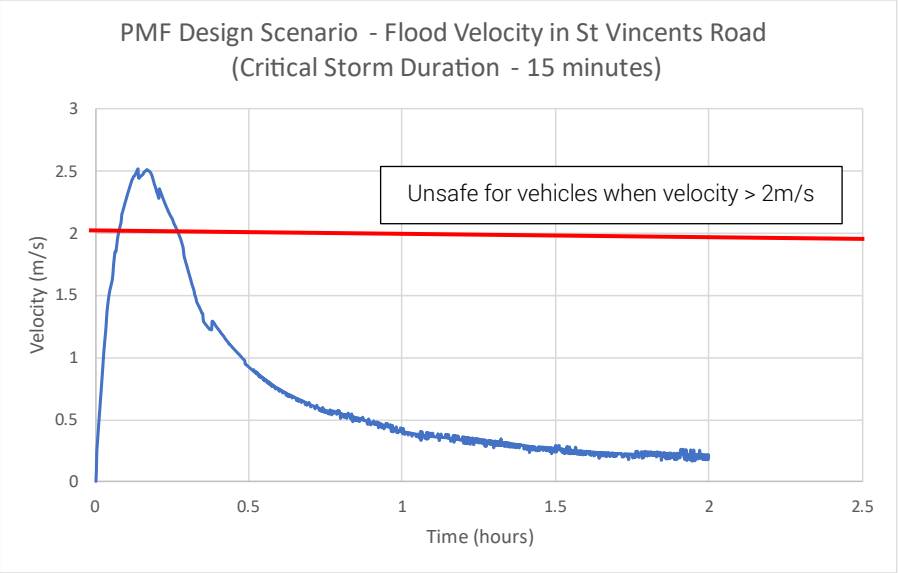

Figure 2-8 Flood Velocity in St Vincents Road for PMF Design Scenario

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
- 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/).

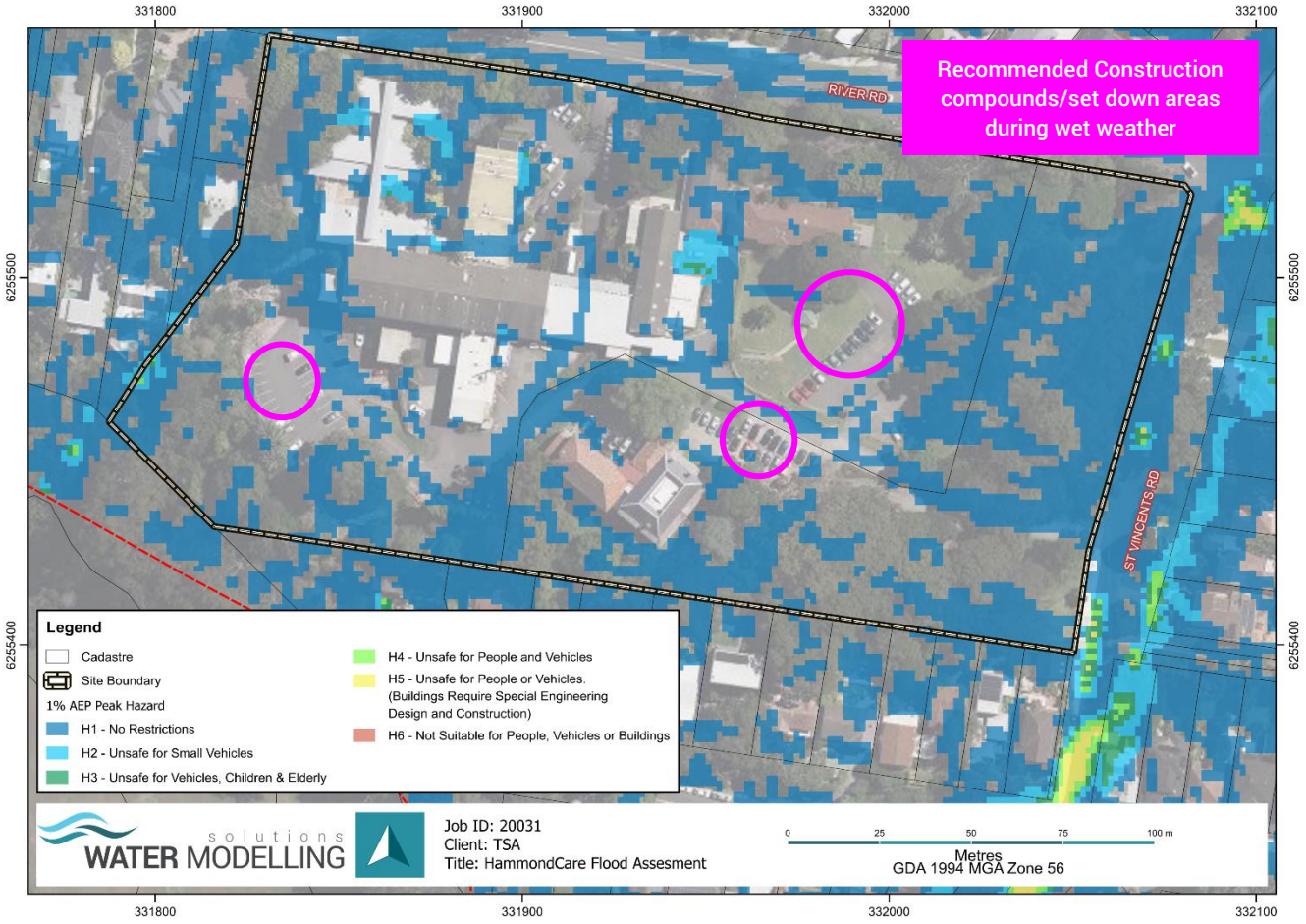

Figure 4-1 Site Preparation Guide

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	• All staff and contractors must be informed by the site project manager about the upcoming flood conditions. • Construction equipment, extra materials, skips, and hazardous substances will be moved to higher ground. • Loose materials must either be removed from flood-prone areas or secured. • Emergency erosion and sediment controls will be put in place to minimize risk to nearby properties. • Staff will be evacuated to a designated safe refuge away from flood-prone zones. • Power will be turned off and the construction site will be closed. • 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.

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 (bom.gov.au).
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
During working hours **When a BOM Severe Weather and Thunderstorm Warnings is issued.**	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.
	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.
Outside working hours **When a BOM Severe Weather and**	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	• The Site Project Manager will inspect the site to check if access roads are clear and if the site was affected by flooding. • If access roads are clear and the site was not affected, the emergency has passed and the site can re-open. • 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. • 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. • Extra care of potential slips on muddy floors will be taken if floodwaters have entered the mobile offices or other structures. • All flood-affected parts of the premises will be appropriately cleaned, and utilities checked by professionals before anyone can return to the site. • 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. • 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. • Changes may be made to the CFERSP and the requirements for future emergency response should the review identify any improvements which may be made.

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 https://www.ses.nsw.gov.au/
	NSW Live Traffic	https://www.livetraffic.com/
	Lane Cove Council	Phone: (02) 9911 3555 Email: service@lanecove.nsw.gov.au https://www.lanecove.nsw.gov.au/Home
	Emergency Broadcasters	ABC Sydney 702 2day FM 104.1
	Bureau of Meteorology	1300 659 217 NSW Warnings: http://www.bom.gov.au/nsw/warnings/
Utilities and Providers	Electricity Retailer	
	Electricity Distributor	
	Gas Retailer	
	Water and Sewer Retailer	
	Doctor	
	Insurance	Policy Number: Contact Phone:
Key On-Site Personnel *(Add as necessary)*	Project Manager	
	Deputy Wardens	

APPENDIX C

CFERSP REVIEW RECORD

C.1 GREENWICH HOSPITAL – CFERSP REVIEW

Reviews of this CFERSP are required annually and following major flood events. Rows to be added as required.

Date	Changes Made	Made by:	Action Required	Action Completed by & date
13/09/2024	Initial Draft	WMS	NA	NA

APPENDIX D

SITE MANAGEMENT PLAN



GREENWICH HOSPITAL – FLOOD EMERGENCY RESPONSE PLAN

JULY 2023

PREPARED FOR

HammondCare

Project Details	
Title	Greenwich Hospital – Flood Emergency Response Plan
Prepared for	HammondCare
Document Name	20031-R01-TSA-HammondCare-FERP

Document Control					
Revision	**Author**	**Reviewer**	**Approved for Issue**		
			Name	**Signature**	**Report Date**
0	AC	JW	J Woodlock		20/07/2023

Revision Status	
Revision	**Description**
0	Draft issued for Client Review

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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.

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LIST OF ABBREVIATIONS

BOM	Bureau of Meteorology
DCP	Development Control Plan
FERP	Flood Emergency Response Plan
LEP	Local Environmental Plan
LGA	Local Government Area
PMF	Probable Maximum Flood
SES	State Emergency Service
WMS	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 by WMS in Flood Assessment Report.

In accordance with the Land Cove Local Environmental Plan (LEP) and Development Control Plan (DCP), before operations and occupation can commence, a Flood Emergency Response Plan (FERP) must be completed and implemented as a condition of the development approval.

This FERP is consistent with the relevant NSW SES "Floodsafe" Guides, and addresses the following specific actions:

- Preparing for a flood;
- Responding when a flood is likely, including evacuation routes and when to leave;
- Responding during a flood, including what to do if isolated; and
- Recovery after a flood.

1.2 STUDY DETAILS

1.2.1 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.

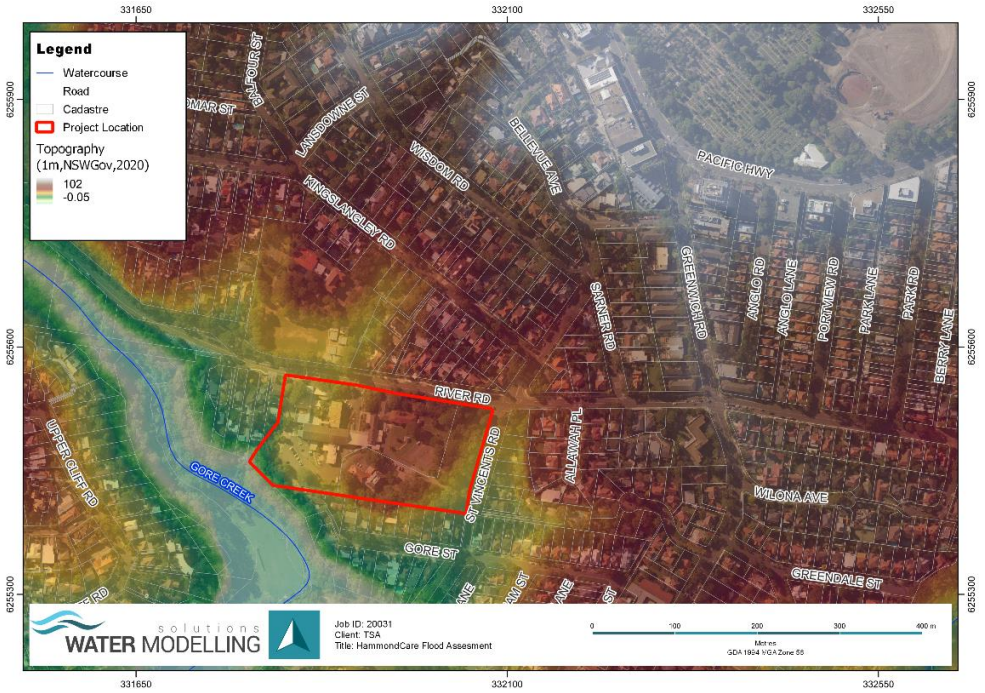

Figure 1-1 Subject Site Topography

1.2.2 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.

1.2.3 Site Usage and Occupancy

Table 1-1 shows a matrix of indicative occupancy rates provided by BrickertonMasters.

Table 1-1 Building uses and occupants per level

Building	Level	Department/ Household	Area (m^2)	No. Residents/ Patients
Health & Care	1	Kitchen	167.3	Nil - staff only
		Level 1 Entry	45.2	Circulation area
		Staff Area & Stores	420.7	Nil - staff only
	2	Foyer / Chapel	254.9	Foyer is predominantly circulation. Assume occupancy of the chapel is approx. 60-80 people
		Rec. Gym / Hyd. Pool	524	Under NCC, capacity could be up to 120 people based on the floor area. However, it is likely that the occupancy would be much less. We would rely on information from HammondCare to confirm number of patients + staff to these areas.
	3	Level 3 Staff	212.1	Nil - staff only
	4	ECT	332.3	Layout suits a maximum of 12 patients + staff
		Foyer / Green Heart	614.9	Circulation area with waiting area to accommodate approximately 50-60 people
		Gym / Consult	749	Under the NCC capacity could be up to 50 people based on the floor area. However, it is likely that the occupancy would be much less. We would rely on information from HammondCare to confirm number of patients + staff to these areas.
		Level 4 Household	811.8	13 residents + staff and visitors
		Multi-purpose / Cafe / Shop / Dining etc	535.1	Space can accommodate 90 people to café, dining, and multipurpose, with additional people to the shop and hair and beauty etc.
		Pharmacy	116.1	Under the NCC capacity could be up to 12 people to the Front of House Pharmacy areas
		Staff Hub	528.5	Nil - staff only
	5	Residential Care Household - South	1352.6	13 residents + staff and visitors
		OPMHU - East	530.2	10 patients + staff and visitors
		OPMHU - West	668.4	10 patients + staff and visitors

Building	Level	Department/ Household	Area (m^2)	No. Residents/ Patients
Health & Care	6	Residential Care Household - South	1351.4	13 residents + staff and visitors
		Residential Care Household - North	758.4	13 residents + staff and visitors
	7	Residential Care Household	1044.8	13 residents + staff and visitors
	8	Rehab Health Unit	1040.6	15 patients + staff and visitors
	9	Rehab Health Unit	1084.3	15 patients + staff and visitors
	10	Palliative Care Health Unit	1084.5	15 patients + staff and visitors
Seniors Living North	Levels 1-5	Total GFA for - Seniors Living North	5573.4	Between 73-84 residents (based on 1-2 residents per 1 bed apartment and 2 residents for 2 bed apartments) + staff and visitors
Seniors Living South	Levels 1-6	Total GFA for - Seniors Living South	6573.9	Between 90-94 residents (based on 1-2 residents per 1 bed apartment and 2 residents for 2 bed apartments) + staff and visitors

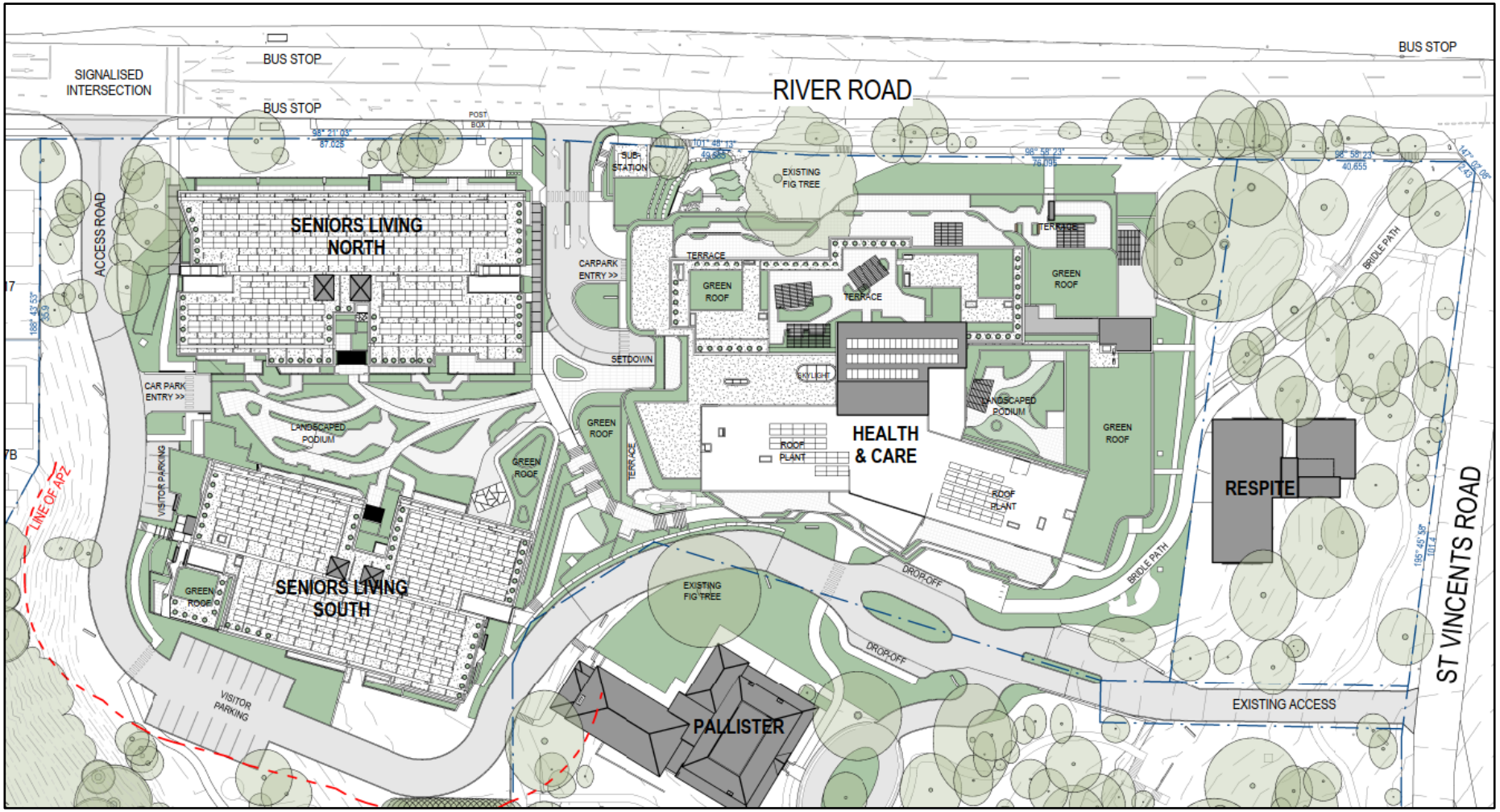

Figure 1-2 Proposed Site Plan

1.3 ROLES AND RESPONSIBILITIES

The key persons responsible for implementing this FERP are defined in Table 1-2.

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 FERP.

Successful implementation of this FERP is the responsibility of the Facility Manager, assisted by Flood Wardens. There is to be two Flood Wardens appointed for each occupied level of the building excluding car parks. These may be the same persons nominated as Fire Wardens if appropriate.

Table 1-2 Key Roles and Responsibilities used in this FERP

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 building occupants. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this FERP or as decided by the Facility Manager.
Facility Manager (AKA Chief Warden)	The Chief Warden is responsible for: • Ensuring that all deputy wardens who are on site are aware of the flood risks and the flood management procedures detailed in this FERP; • Support the wardens in their duties; • Maintain a register of all tenants, staff and subcontractors on site at all times, including contact details and emergency contacts; • Lead the annual shelter in place/ flood emergency response drill (to be undertaken with the Deputy Wardens only, not building occupants); • Monitor flood warnings and alert mode triggers in accordance with this FERP; • Escalate alert modes in accordance with the relevant triggers set in this FERP; • Communicate flood response messages to Wardens and occupants in accordance with this FERP; • Coordinate all flood emergency procedures; • Participate in a review of this FERP annually and following a major flood.
Flood Wardens (at least 2 per level)	• Assist the Facility Manager (Chief Warden) to implement flood emergency procedures as required; • Assist in distributing communications from the Facility Manager to occupants on each floor; • Participate in the annual flood emergency response drill; • Participate in a review of this FERP annually and following a major flood.
All other occupants, visitors, and contractors	• Follow directions of the flood wardens or PA announcements; • Report any concerns to their respective flood warden.

1.4 MAINTENANCE OF THIS FERP

This FERP shall be reviewed and updated on an annual basis by the Facility Manager (or nominated representative) and following all major flood events that trigger implementation of the FERP. 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 FERP 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. Overland flow in the upper reaches of the catchments travel 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).

2.1.1 Flood Planning Levels

Design overland flow flood behaviour was modelled via the use of a 2D hydraulic modelling program, TUFLOW. All model development details can be found in Greenwich Hospital Flood Assessment.

The Flood Planning Levels have been established based on the top water levels of the PMF. The PMF has been selected for the basis of Flood Planning Levels based on best practice floodplain risk management in NSW and acknowledges the vulnerable nature of the aged care occupancy of the proposed development. It is therefore considered appropriate to manage both the risk of flood damage to buildings and risk to life to the PMF level. Application of the PMF level is not considered overly conservative and is able to be achieved whilst meeting accessibility requirements of the Disability Discrimination Act (DDA).

Unless specified, building entrances are not subject to overland flow, rather local runoff within the site is to be managed by internal stormwater drainage. Council requires floor levels to be 150mm above the adjacent ground level. Aprons to be designed at entrances sloping away from the building that achieve this requirement are appropriate.

The resulting Flood Planning Levels have been summarised in Table 2-1 below.

Table 2-1 Flood Planning Levels

Location	Flood Risk	Flood Planning Level (mAHD) (based on adjacent PMF level)	Proposed Floor Level (mAHD)
SL CP - Seniors Living Carpark Entrance	Carpark entrance location not subject to overland flow	37.50	37.95
SLN1 - Seniors Living North north-western corner	Building entrance location not subject to overland flow	150mm above adjacent ground level	38.30
SLN2 - Seniors Living North western side	Building entrance location subject to overland flow, FPL set at the PMF level	38.25	38.30
SLN3 - Seniors Living North western side	Building entrance location subject to overland flow, FPL set at the PMF level	38.20	38.30

2.1.2 Rate of Rise and Duration of Inundation

Flooding of this nature would typically occur rapidly with minimal warning time and would be of a shorter duration (~1 hour).

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 2-1 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.

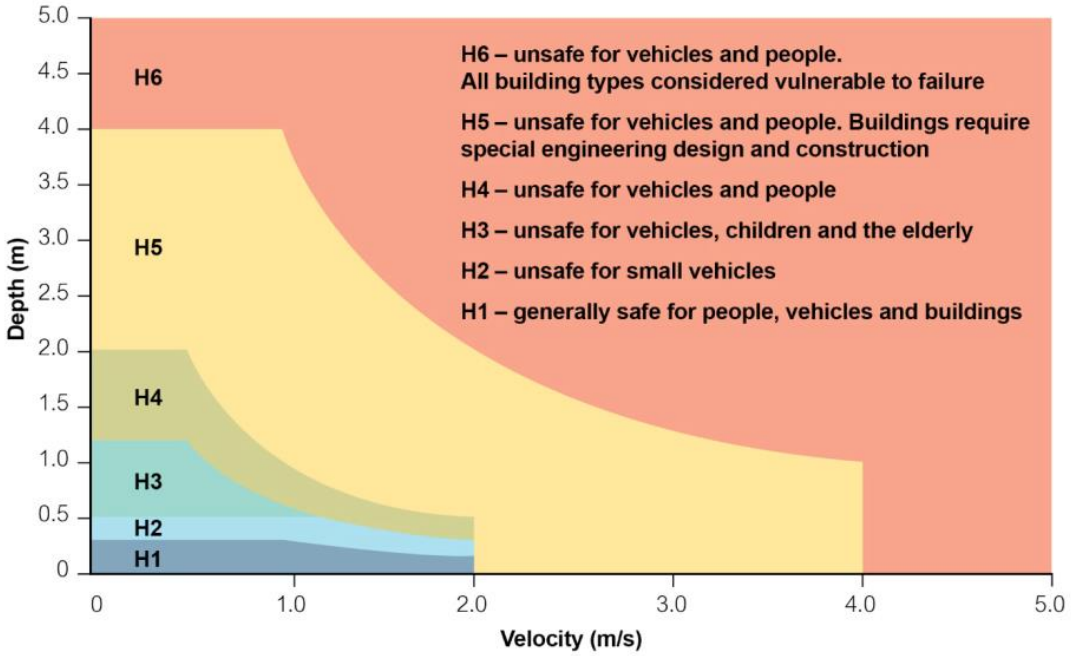

Figure 2-1 General Flood Hazard Vulnerability Curve (AIDR, 2017)

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 2-2 and Figure 2-3 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

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												

H1	Generally safe for vehicles and people
H5	Unsafe for vehicles and people

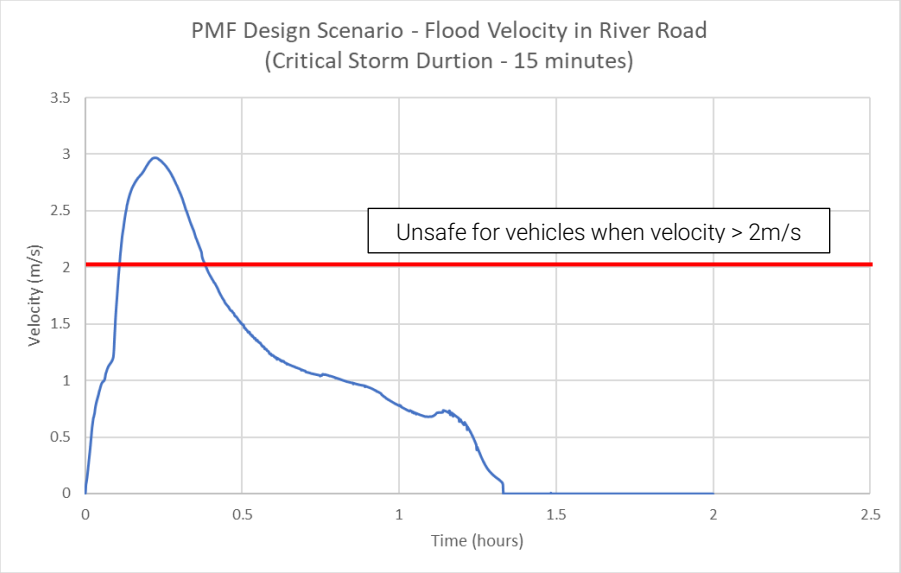

Figure 2-2 Flood Velocity in River Road for PMF Design Scenario

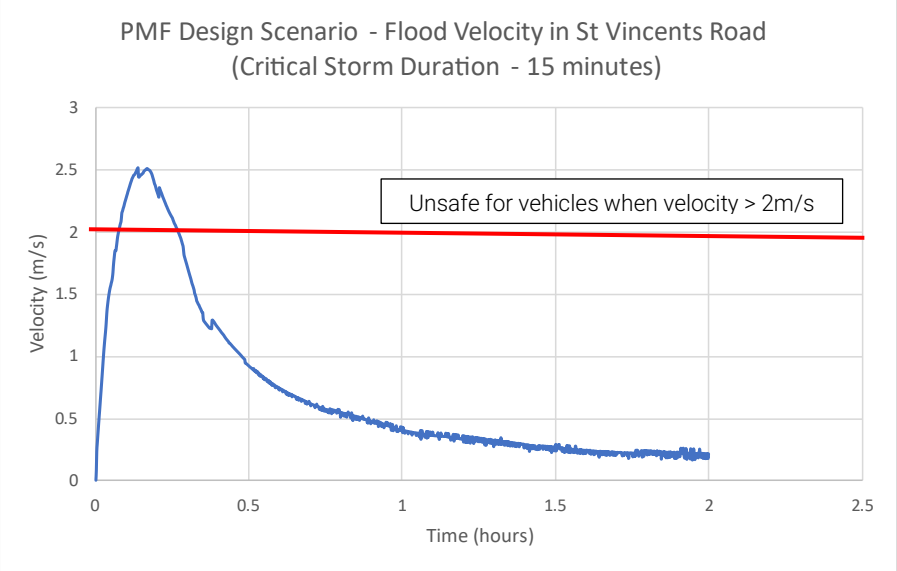

Figure 2-3 Flood Velocity in St Vincents Road for PMF Design Scenario

3 SOURCES OF FLOOD INFORMATION, FORECAST AND WARNINGS

Monitoring weather forecasts is key to managing flood risk at the site and ensuring the FERP 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 (BOM)

The following types of warnings are provided by the BOM and could provide an indication of increased flood risk at the site.

3.1.1 Types of Warnings

3.1.1.1 Flood Watch

The BOM issues a Flood Watch to provide early advice of a developing situation that may lead to flooding. A Flood Watch is not a warning of imminent flooding. A Flood Watch provides information about a developing weather situation including forecast rainfall totals, catchments at risk of flooding, and indicative severity where required. It also provides links to weather warnings, other BOM flood-related products, and contact details and information of relevant emergency services.

Although there is uncertainty attached to a Flood Watch, its early dissemination can help individuals and communities to be better prepared should flooding eventuate. A Flood Watch may discuss possible snowmelt, local flooding or tidal impacts but a Flood Watch will not be issued solely on the basis of these phenomena.

A Flood Watch is generally issued up to four days in advance of the expected onset of flooding. A Flood Watch can be issued before, during and after the rainfall has occurred, depending on the level of maturity of the flood warning systems and services, and flood impact information made available from the local emergency services or state agency.

Flood Watches are updated at least daily and finalised once all areas are covered by flood warnings or the risk of flooding has passed.

3.1.1.2 Flood Warning

Flood Warnings are issued by the BOM to advise that flooding is occurring or expected to occur in a geographical area based on defined criteria. Flood Warnings may include either qualitative or quantitative predictions or may include a statement about future flooding that is more generalised. The type of prediction provided depends on the quality of real-time rainfall and river level data, the capability of rainfall and hydrological forecast models and the level of service required.

A quantitative or qualitative flood warning of Minor, Moderate or Major flooding is provided in areas where the Bureau has specialised warning systems. The meaning of this classification is provided in Table 3-1 below. They provide advanced warning about the locations along river valleys where flooding is expected, the likely class of flooding and when it is likely to occur. Predictions of expected water levels and the timing of flood peaks are provided at key forecast locations.

The Bureau also provides generalised flood warnings when there is not enough data to make specific predictions or in the developing stages of a flood. They typically rely on forecast rainfall and knowledge of historical flood response. Generalised warnings contain statements advising that flooding is expected in particular river valleys but do not provide information about flood class nor precise locations.

Table 3-1 Flood warning classification explained

Classification	Meaning
Minor Flood Warning	A Minor Flood Warning means floodwater can: • Reach the top of the river banks • Come up through drains in nearby streets • Cover low-lying areas including riverside camping areas • Affect some low-lying caravan parks • Cover minor roads, tracks and low level bridges • Spread across land or go into buildings on some properties and farms

Classification	Meaning
Moderate Flood Warning	A Moderate Flood Warning means floodwater can: • Spill over river banks and spread across low-lying areas • Start to threaten buildings, roads, rail, power and other developments • Require evacuation in some areas • Cover main roads
Major Flood Warning	A Major Flood Warning means floodwater can: • Cause widespread flooding • Threaten many more houses and businesses • Cause properties and whole areas to be isolated by water • Disrupt major roads and transport routes • Require many evacuations

3.1.1.3 Severe Weather Warnings

The BOM 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 BOM 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 BOM does not provide flash flood warnings (i.e., flooding that occurs within 6 hours of the rainfall).

3.1.1.4 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 BOM does not warn for all thunderstorms.

3.1.2 Accessing BOM Warnings

BOM warnings can be accessed via the following:

- On the web at: www.bom.gov.au/australia/warnings
- Via the BOM mobile app: http://www.bom.gov.au/app/
- Through pre-recorded messages via the BOM Telephone Weather Service. Charges apply. Key phone numbers relevant to the site are listed in **Table 3-2.** Full list can be found at: http://www.bom.gov.au/other/tws/twsdir.shtml

Table 3-2 BOM 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 by all building occupants. This includes any order to evacuate the site, or not evacuate the site, irrespective of the instructions given in this FERP or as decided by the Facility Manager.

Leading up to and during a flood, NSW SES can issue:

- **Flood Bulletins** that provide information on likely flood consequences and what actions you should take to protect yourself and your property.
- **Evacuation Warnings** that warn when evacuation routes are likely to be cut or when floodwaters are expected to inundate property. These warnings aim to get people prepared to evacuate and to respond quickly if an Evacuation Order is issued.
- **Evacuation Orders** that advise people what to do in an evacuation and where to go. Evacuations orders are transmitted on radio stations, or by automated telephone and/or SMS, NSW SES social media, or door knocks.

It is vital that all occupants leave the site if an Evacuation Order is received.

NSW SES communications and warnings can be found in the following social media pages:

- NSW SES Facebook Page: https://www.facebook.com/NSW.SES/

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 Hammondville are:
  - ABC Sydney 702
  - 2day FM 104.1

4 EVACUATION PROCEDURE

4.1 TYPES OF EVACUATION

The two main types of evacuation in a flood emergency are:

- "Horizontal Evacuation" – occupants exit the site and make their way (walking is likely to be safest) to an area above the reach of flood waters. This is the NSW SES preferred response, provided that the risks of evacuating are deemed acceptable.
- "Vertical Evacuation", also referred to as "Shelter in Place" – occupants remain in the building and wait until floodwaters have receded. Shelter in Place is to be considered an alternative to horizontal evacuation only when it is safer to remain in the building than it is to evacuate horizontally. For example, in flash flood catchments where roads can become unsafe due to flooding for periods less than 60 minutes, it can be safer to shelter in place until the flood recedes rather than driving in floodwaters.

4.2 RECOMMENDED EVACUATION PRACTICES

The site is subject to limited flood risk, as it is only associated with the overland flow path that traverses the north western corner of the site. Flood risk is managed with a retaining wall that prevents overland flow from entering the courtyards on the northern side of the Seniors Living North building, and by ensuring entries along the western face of the building are above the adjacent PMF level.

With all proposed finished floor levels above the adjacent PMF levels around the site, occupants will be able to safely shelter in place during a flood event. Furthermore, flooding in this area is likely to be 'flashy' in nature, that is, rising and falling in less than 60 minutes in response to local rainfall, and external evacuation would pose a greater risk to occupants and staff than sheltering in place.

Therefore, in accordance with NSW Shelter in Place Draft Guidelines, Shelter in Place is the most appropriate emergency management response, especially when evacuation via vehicle may not possible.

A summary of the recommended strategies is provided in Table 4-1.

Table 4-1 Evacuation Overview

Minor or Moderate Flood	Major Flood
• Site not subject to inundation, formal evacuation not necessary. • Residents and patients are advised to shelter in place during storm. Visitors can evacuate on foot via River Road and St Vincents Road to north. • Monitor BOM warnings and SES advice and leave with care when storm subsides. Local roads/ paths may be inundated or slippery.	• Overland flow from the upper catchment is likely to reach the site. However, no building will be affected. • The River Road and St Vincents Road will be cut off. • Vertical evacuation (Shelter in Place) should be carried out. Occupants, patients, stuff and visitors are advised to shelter in place during storm.

4.3 SHELTER IN PLACE ARRANGEMENTS

In the event a Major Flood Warning is received via BOM, shelter in place is considered the safest form of evacuation, as there will likely be insufficient warning. The following actions are to occur:

- A 'Refuge Shelter' is to be established in all buildings at Ground Floor and above (see description in Section 4.4);
- Occupants in basement are to make their way to the Refuge Shelter at Ground Floor and above, guided by the Flood Wardens;
- Occupants on Ground Floor and above are to remain on those levels;
- Access to drinking water and bathroom facilities is available on Ground Floor and above;
- All occupants are to remain at Ground Floor and above, for the duration of the flooding. This is expected to be less than one hour.

Refer to Appendix A for the detailed action plan to be followed before, during and after a flood.

4.4 REFUGE SHELTER ESTABLISHMENT

When preparing the Refuge Shelter, it should be assumed that the building may lose power for some or all of the duration of the flood. The Flooding Refuge Shelter is to be established and maintained in perpetuity in accordance with NSW SES and Health Guidelines, supplied with the following items (note this list is not exhaustive):

- Drinking water;
- Functioning sewer system
- Food;
- First Aid supplies;
- Candles and waterproof matches;
- Seating;
- Blankets;
- Portable Radio with spare batteries;
- Emergency Kit – including hardcopies of this FERP

Although the duration of inundation is expected to be less than 1 hour, provision should be made to shelter occupants for an extended period (up to 72 hours).

Due to the shelter in place arrangements, adequate fire-fighting equipment and medical emergency equipment are to be provided on-site and with adequate maintenance schedules. This is to ensure that, should firefighting services be required during a major storm event, firefighting services can still be carried out onsite. Operation report and advice will be provided from the operations consultant at OC stage.

5 REFERENCES

Department of Planning and Environment (2022). NSW Shelter in Place Draft Guidelines

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	Person Responsible	Resources Required
Always	The Facility Manager/ Chief Warden will make all staff on site aware of the possibility of flooding and the procedures to be followed in a flood.	Facility Manager	N/A
	The Facility 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 Facility Manager may appoint two or more Flood Wardens.	Facility Manager and Flood Warden(s)	N/A
	The building is to be equipped with a siren and PA system. In addition, 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/siren sounds.	Facility Manager	Airhorn Siren & PA System
	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.	Facility Manager	Wireless radios with batteries
	A flood warning sign will be kept on the premises. The sign should read a message to this effect: "In the event of a flood, proceed to Level 02 (or above). Do not enter floodwaters"	Facility Manager	Flood Warning Sign
	The Facility 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.	Facility Manager and Flood Warden(s)	Smartphone or tablet, internet and back-up power
Daily	Every morning, the Facility Manager will check the Bureau of Meteorology weather forecast and warnings. At the time this report was prepared, the BoM weather forecast and warnings for NSW were available at the following link: New South Wales Warnings Summary (bom.gov.au).	Facility Manager and Flood Warden(s)	Smartphone or tablet, internet and back-up power
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.	Facility Manager	Emergency Contact Sheet
Always	The Facility 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.	Facility Manager	Register of people on site
Always	The Facility Manager will maintain an emergency kit including a portable radio and torch with spare batteries and a first aid kit.	Facility Manager	Emergency kit with radio, torch, batteries, and first aid kit
Annually	The Facility Manager will host a Flood Emergency Response Drill, in which Shelter in Place arrangements are practised by flood wardens.	Facility Manager	FERP

A.2 WHEN A FLOOD IS POSSIBLE AND DURING A FLOOD

Trigger/ Frequency	Action	Person Responsible	Resources Required
Active BOM Flood Watch	The Facility 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.	Facility Manager and Flood Wardens	N/A
	The Facility Manager and the Flood Warden(s) will notify all tenants and occupants via PA system that there is a risk that the site may flood and the procedures to be followed in a flood.	Facility Manager and Flood Wardens	Phones
	The Flood Warden will monitor the BoM warning webpage every 30 minutes.	Flood Wardens	Computer, smartphone or tablet, internet and power

A.3 AFTER A FLOOD

Trigger/ Frequency	Action
When the BOM cancels the Flood Watch or Flood Warning	• The Facility Manager will inspect the facility to check if access roads are clear and if the site was affected by flooding. • If access roads are clear and the site was not affected, the emergency has passed and the site can re-open. • If access roads are not clear, the Facility Manager will return for an inspection after at least two hours. Under no circumstances should the Facility Manager drive through floodwaters. • If access roads are clear but the seniors housing development was affected by flooding, the Facility Manager will organise access to the seniors housing development making sure that any precautionary measures recommended by the NSW SES are put in place. • Extra care will be taken of potential slips on muddy floors or footpaths. • All flood-affected parts of the premises will be appropriately cleaned, and utilities checked by professionals before anyone can return to the site. • 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. • Structural and electrical safety assessment to be carried out before return to normal activities. • 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 FERP and any emergency procedures will be reviewed. • Changes may be made to the FERP and the requirements for future emergency response should the review identify any improvements which may be made.

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 https://www.ses.nsw.gov.au/
	NSW Live Traffic	https://www.livetraffic.com/
	Lane Cove Council	Phone: (02) 9911 3555 Email: service@lanecove.nsw.gov.au https://www.lanecove.nsw.gov.au/Home
	Emergency Broadcasters	ABC Sydney 702 2day FM 104.1
	Bureau of Meteorology (BOM)	1300 659 217 NSW Warnings: http://www.bom.gov.au/nsw/warnings/
Utilities and Providers	Electricity Retailer	
	Electricity Distributor	
	Gas Retailer	
	Water and Sewer Retailer	
	Doctor	
	Insurance	Policy Number: Contact Phone:
Key On-Site Personnel *(Add as necessary)*	Principal	
	Deputy Wardens	

APPENDIX C

FERP REVIEW RECORD

C.1 GREENWICH HOSPITAL – FERP REVIEW

Reviews of this FERP are required annually and following major flood events. Rows to be added as required.

Date	Changes Made	Made by:	Action Required	Action Completed by & date
20/07/2023	Initial Draft	WMS	NA	NA

Appendix I – Road Safety Audit

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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

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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[1], 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.

[1] Greenwich Hospital Proposed Seniors Health Campus River Road, Greenwich CTMP Report – TTPA 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:

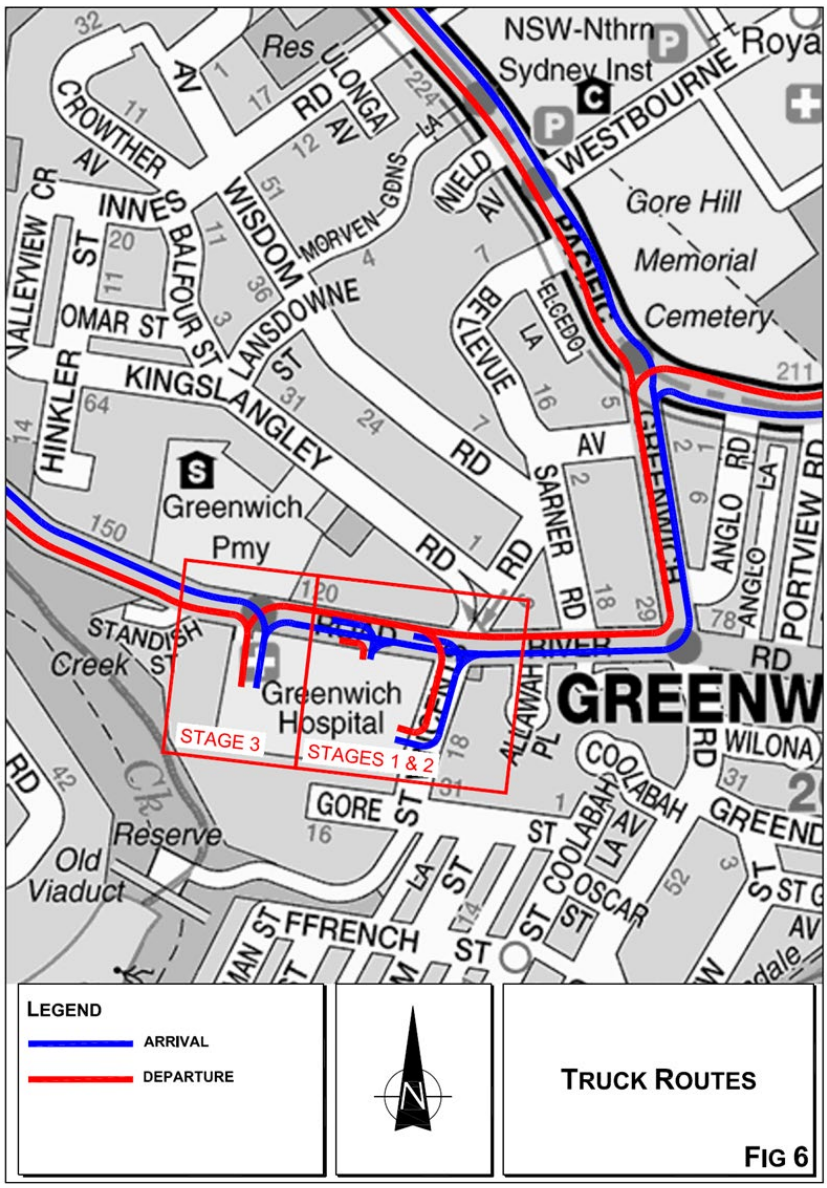
Stage 1
- Early Works - 50 weeks

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

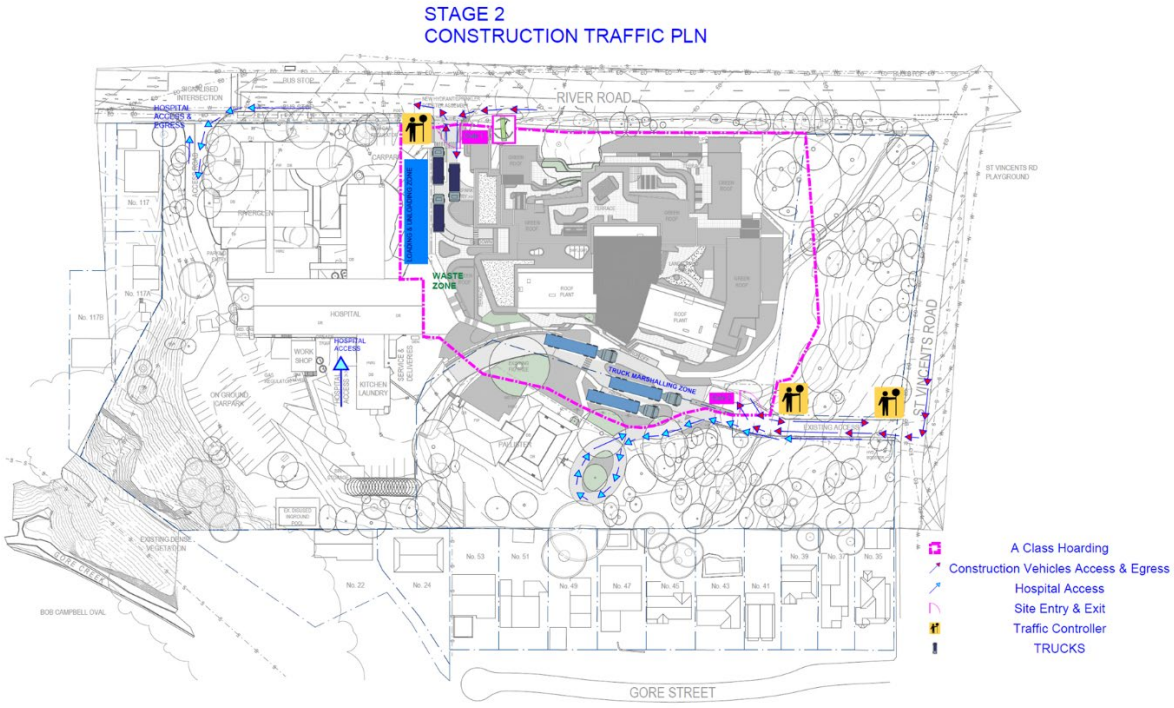


Figure 6 – Truck & Dog Right Turn River Road into St Vincents Road Turn Path

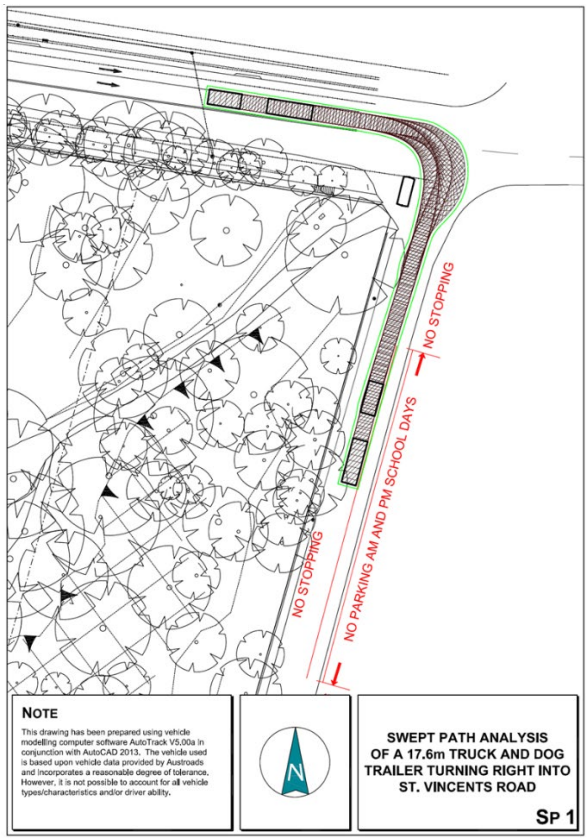


Figure 7 – Truck & Dog Left Turn River Road into St Vincents Road Turn Path

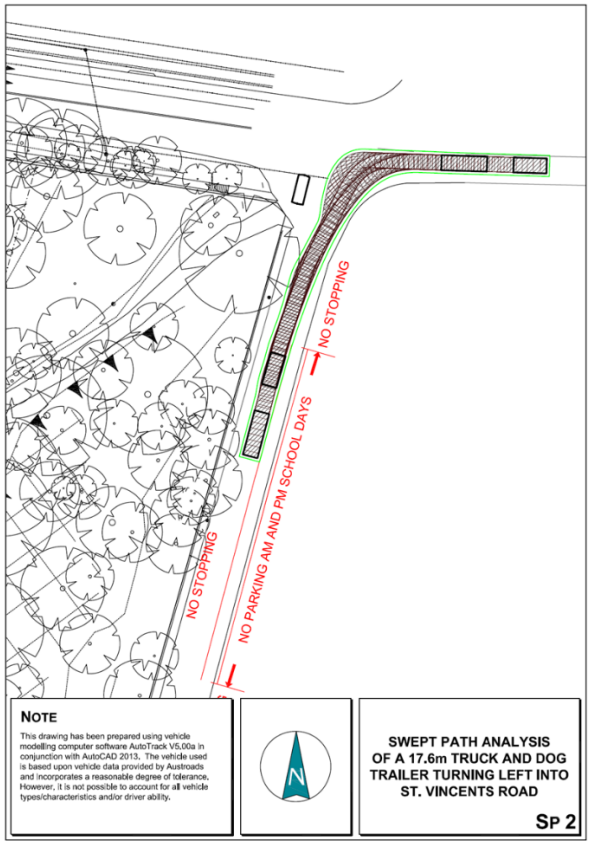


Figure 8 – Truck & Dog Left Turn St Vincents Road into River Road Turn Path

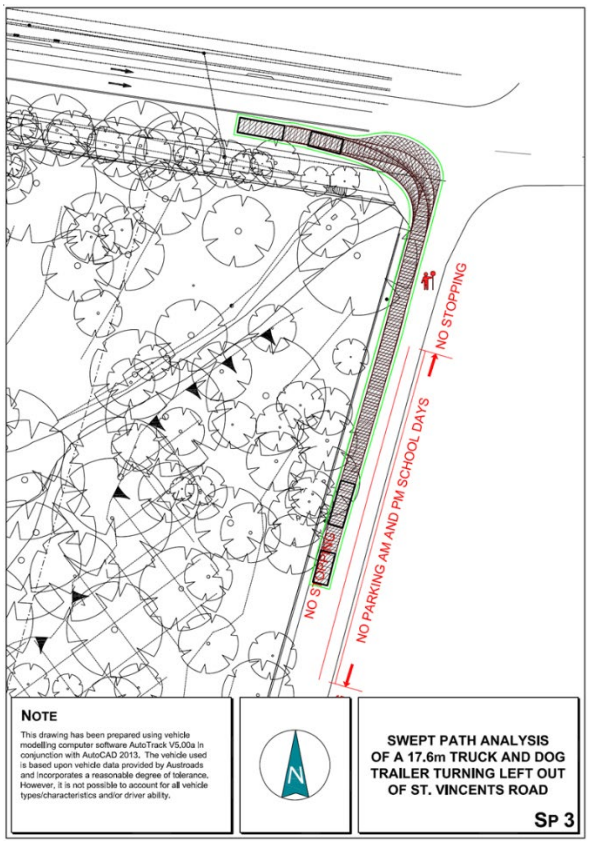


Figure 9 – Truck & Dog Right Turn St Vincents Road into Site Turn Path

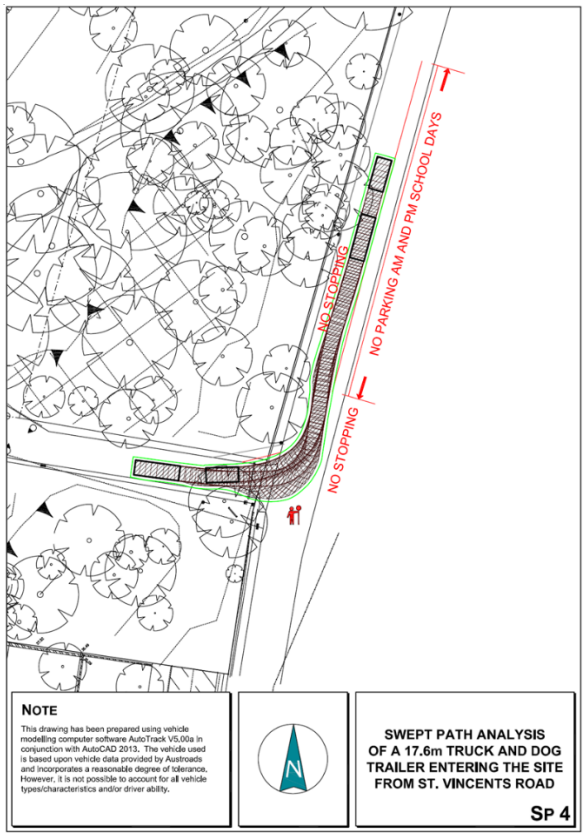
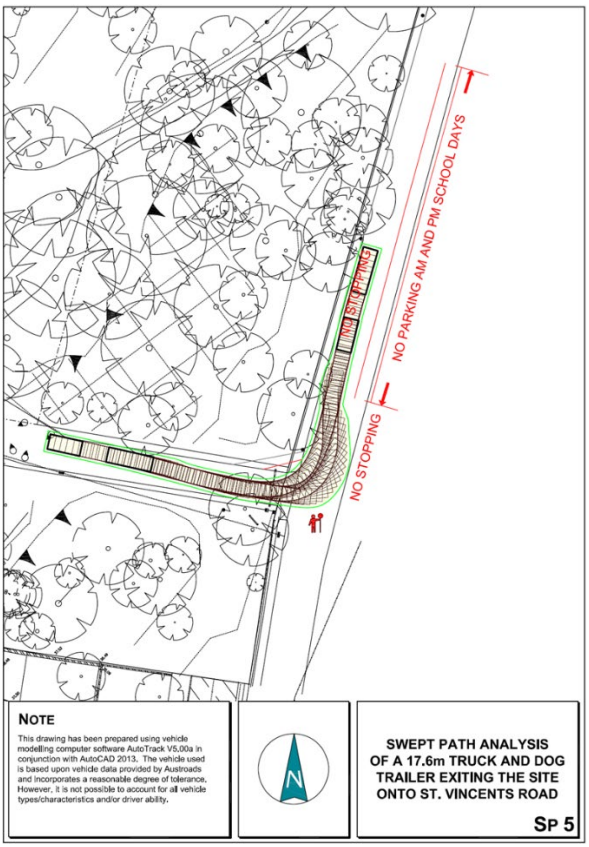


Figure 10 – Truck & Dog Left Turn Site into St Vincents Road Turn Path



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 Construciton

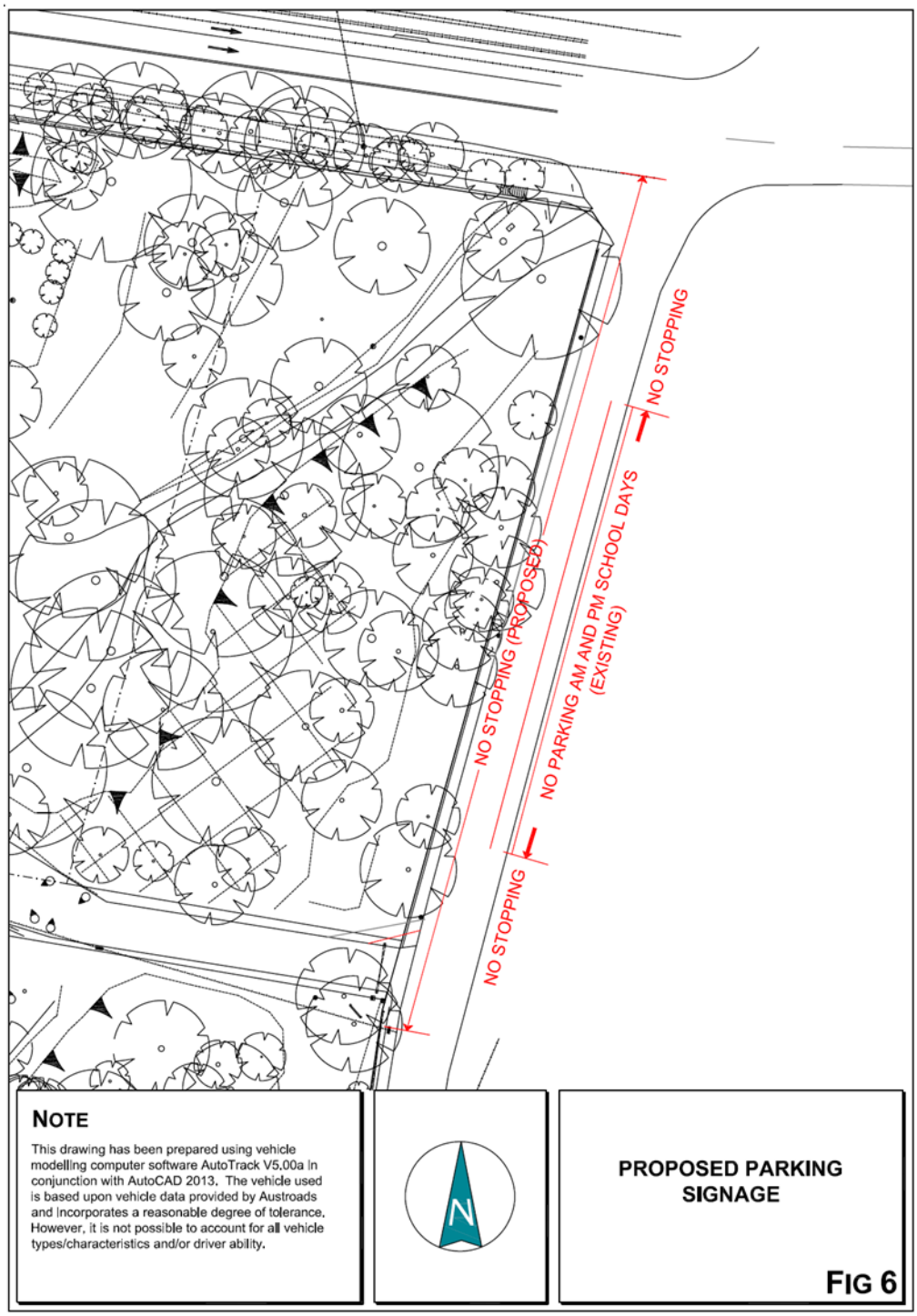


Figure 12 – Stage 2 Traffic Guidance Scheme St Vincents Road



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.
- AUSTROADS - Guide to Road Design - Part 3 – Geometric Design
- AUSTROADS - Guide to Road Design - Part 4: Intersections and Crossings – General
- AUSTROADS - Guide to Road Design - Part 6A: Pedestrian and Cyclist Paths

- AUSTROADS - 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 too 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 **4.1**
Audit For:	Hammond Care Pty Ltd
Project Manager: Positive Traffic Pty Ltd	Dean Brodie Phone: 0414 462247 Dean@positivetraffic.com.au
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 (**Appendix 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

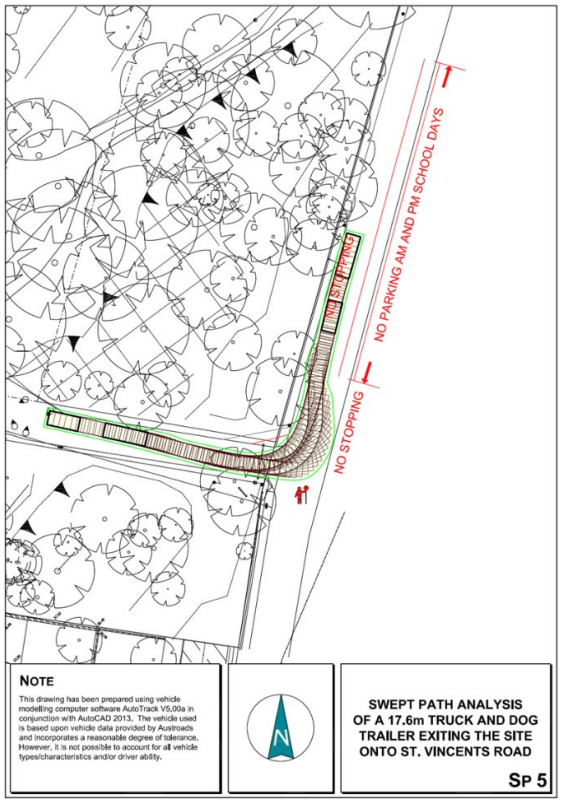
It is noted that the plans provided in the sub CTMP report and CTMP report do not match in terms of the placement of stop / go personnel during periods of access via St Vincents Road. In addition, all TGSs should be prepared in accordance with the latest AS 1742.3, TCAWS or Austroads. For example, the 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.

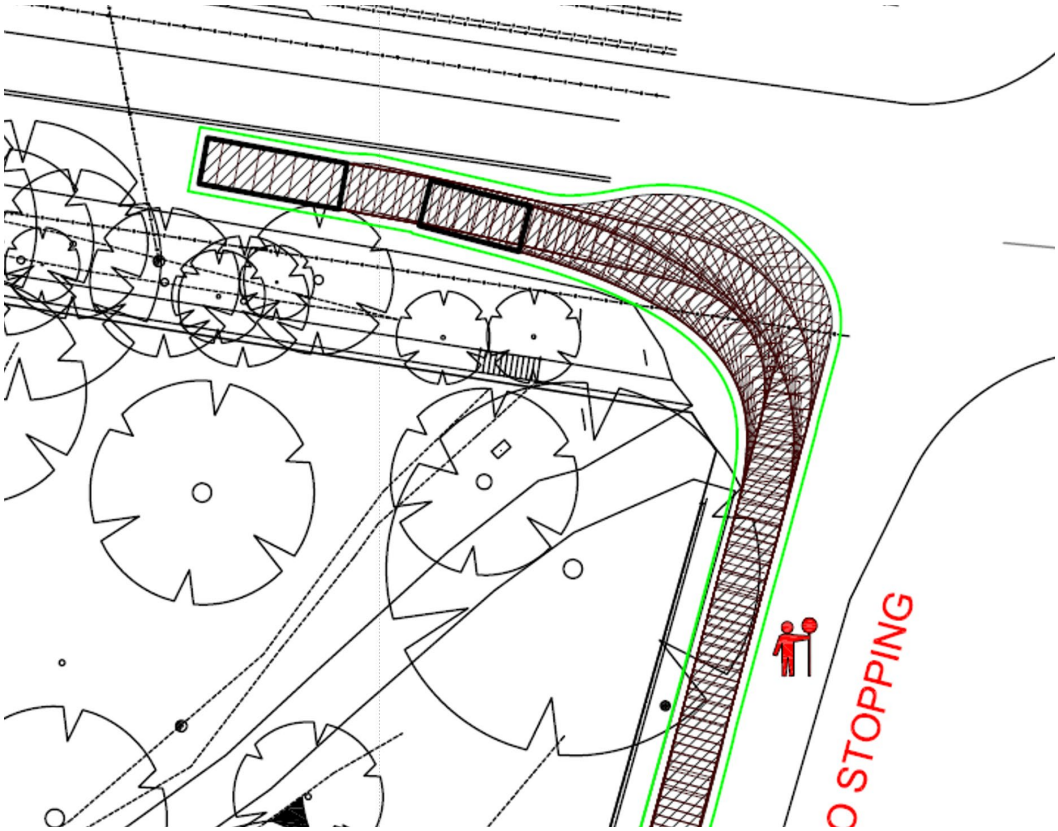
The poor condition footpath is shown below in **Photo 5**.

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.

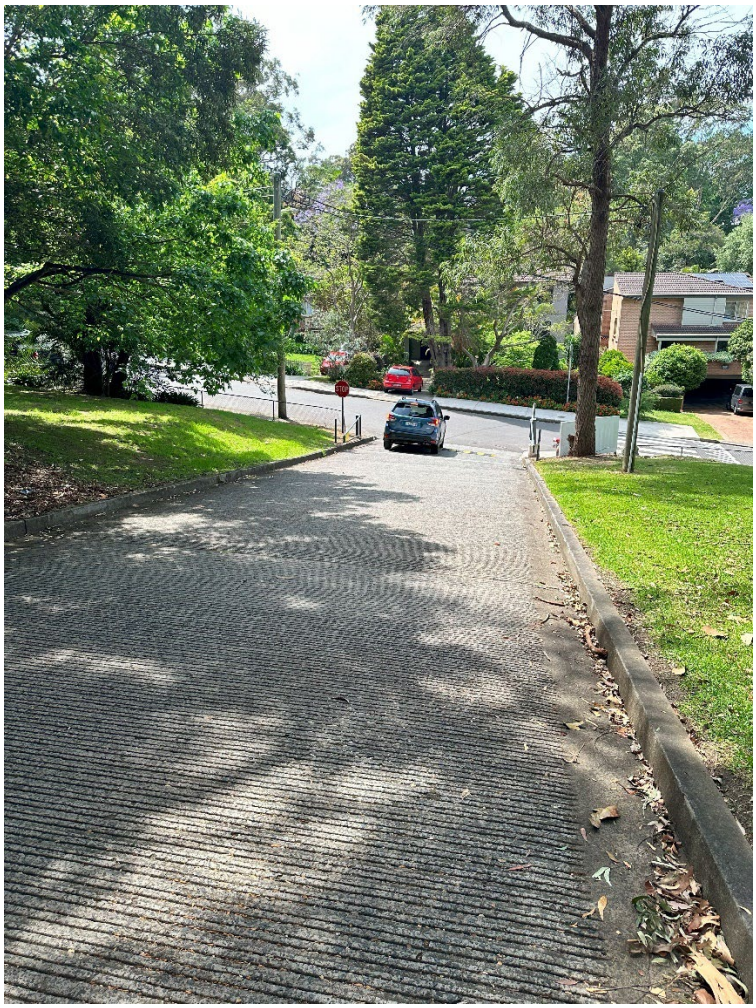


On the basis the truck movements do not occur during school peak times, there would be no trucks present along St Vincents Rd at the same time there are heightened school pedestrian movements.

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



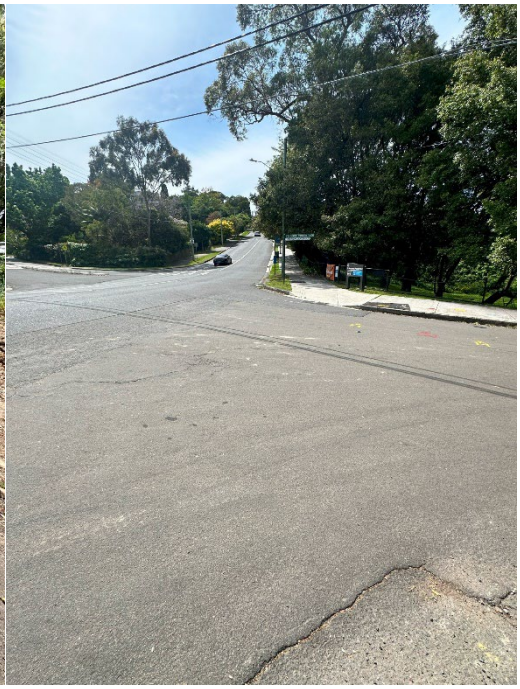
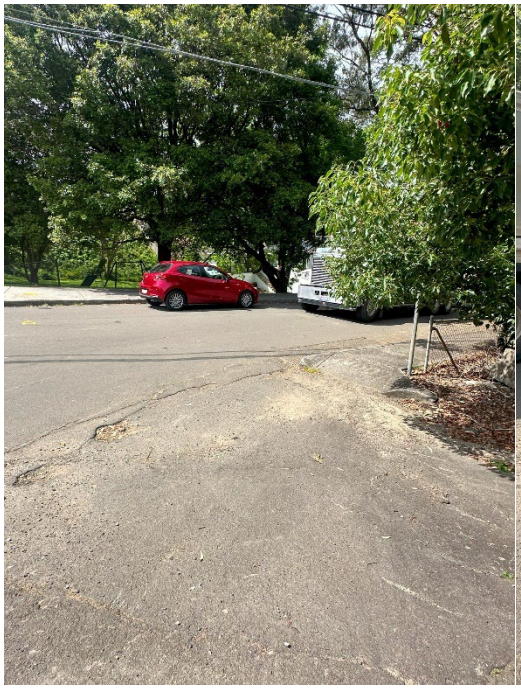
















NO
STOPPING

Appendix J Community Communication Strategy Plan – Construction to Operational Phase

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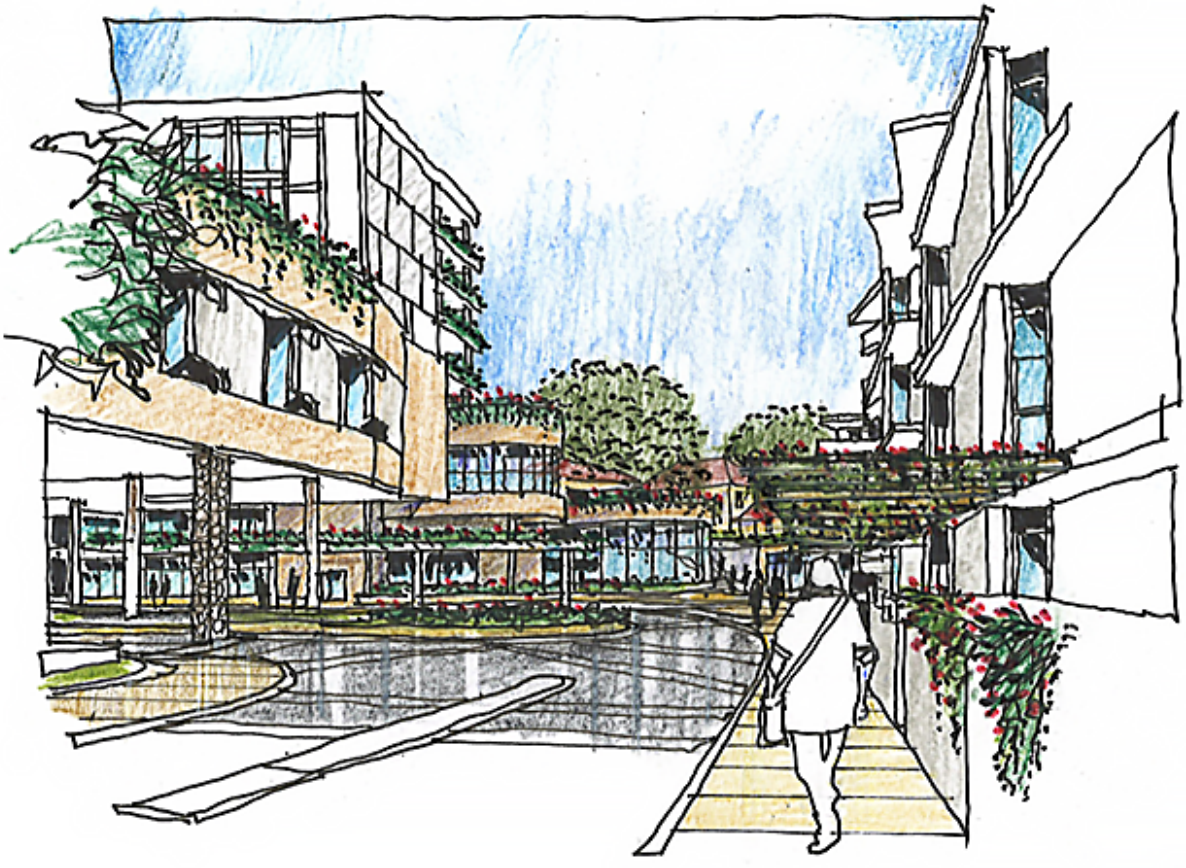
H

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 experiences on adjoining properties.

A Water Management Plan is required that providers 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 equivalent0 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
Information line – use existing **1300 426 666**	Dedicated project information line managed by HammondCare.	Promoted on all communications to be accessible and maintain open lines of communication.
Email address – use existing **AskGreenwich@hammond.com.au**	Dedicated project email account managed by HammondCare.	Project-specific email address on newsletter, encouraging community members to email should they want to be involved in the process and have their say. Quick and easy way to contact the project team if want to report any issues or ask questions.
Information session	If required, convene local community and interested stakeholders to provide an update on project progress, design changes and invite further feedback.	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).
Briefings	If required, provide update on project to Council, Elected Members and Members of Parliament. Discuss constituent feedback on project.	Opportunity to discuss constituent views and attitudes toward the development, how the project fits in with local policy and initiatives.
Face-to-face meetings with local action groups	If required, discussions with key stakeholder groups to address specific issues which require additional time outside of the information sessions (meetings or doorknocking).	Ongoing relationship management.

Supporting communications

Tool	Description	Purpose
Newsletter	Distributed to 1,800 addresses per previous communications. Provide copies to Council reception and Electorate Offices to respond to queries about project or information session.	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
Project website	Source of truth for project	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
Visual presentation	Powerpoint presentation to illustrate project for briefings and one-on-one sessions	Communicates in visual form project and benefits
Social Media	Monitor social media (Facebook, Twitter, etc.)	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
Media release	Communicate to media	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
Information boards	Developed for staff, patients and volunteers	Communicate project updates. Details of AskGreenwich inbox and 1300 426 666 hotline. AskGreenwich and hotline will be monitored by Sally Grosvenor and Kelvin Bissett
Sod turn, opening event	Developed for staff, patients and volunteers	Communicate project updates
Communication tools	Developed as needed.	Well-designed communications, maps and/or infographics to help better communicate project updates

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
Kylea Tink MP, Federal Member for North Sydney	Project falls within electorate	Newsletter Briefing if desired
Hon Anthony Roberts MP, State Member for Lane Cove	Project falls within electorate	Newsletter Briefing if desired
Lane Cove Council and Elected Members	Project falls within Council boundary Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletter Briefing if desired
Lane Cove Council Director – Planning and Sustainability – Mark Brisby	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
Greenwich Community Association	Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage /traffic	Newsletters Hotline Information line Website One-on-one meetings
Greenwich Public School Parent's and Citizens Association	Site neighbour interested in safety, relationship with school, project opportunities (café)	Newsletters Hotline Information line Website One-on-one meetings if requested
Greenwich St Leonards (GSL) Action Group	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
Lane Cove Bushland and Conservation Society	Interest in vegetation /tree canopy/heritage	Newsletters Hotline Information line Website One-on-one meetings if requested
Lane Cove North Residents Association	Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletters Hotline Information line Website One-on-one meetings if requested

Longueville Residents Association	Opposed approval Interest in vegetation / tree canopy / noise / stormwater/ flooding / heritage/ traffic	Newsletters Hotline Information line Website One-on-one meetings if requested
Northwood Action Group	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

Stakeholders	Key interests/issues	Engagement tool
Greenwich Hospital staff	Job uncertainties Staging Parking and public transport	Briefings Staff email Workplace Information boards Website
Greenwich Hospital patients	Staging Construction impacts on services	Briefings Information boards Website
Greenwich Hospital volunteers	Staging Construction impact on services Parking and public transport	Briefings Email Information boards Website

Other

Stakeholders	Key interests/issues	Engagement tool
Greenwich Public School	Site neighbour Accessibility, construction impacts	Newsletters Hotline Information line Website One-on-one meetings if requested
Lane Cove Chamber of Commerce	Business impacts and opportunities	Newsletters Hotline Information line Website One-on-one meetings
Heritage Council of NSW	Heritage preservation, specifically as it relates to Pallister House	Newsletters Hotline Information line Briefing if requested
Immediate neighbouring residences in Greenwich	Visual impact and sightlines, construction impacts including noise, vegetation (including screening), stormwater runoff and erosion	Newsletters Hotline Information line One-on-one meetings
Broader Greenwich / Lane Cove / North Sydney communities	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
Media, including In the Cove, North Shore Times, Sydney Morning Herald and Daily Telegraph	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@hammnond.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 42666 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

HammondCare

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