



Health Infrastructure NSW  
Construction Waste Management Plan

Multi-Storey Car Park at  
The Children's Hospital at Westmead  
Labyrinth Road,  
Westmead, NSW

28 January 2021

56200/131474 Rev 0

JBS&G Australia Pty Ltd

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## Table of Contents

|   |    |
|---|----|
| Abbreviations.....                              | v  |
| 1. Introduction.....                            | 1  |
| 1.1 Scope .....                                 | 1  |
| 1.2 Objectives.....                             | 1  |
| 2. Project Description .....                    | 2  |
| 2.1 Background.....                             | 2  |
| 2.2 Location .....                              | 2  |
| 2.3 Existing Environment.....                   | 2  |
| 2.4 Demolition and Construction Activities..... | 3  |
| 2.5 MSCP Operational Activities.....            | 3  |
| 2.6 Commencement.....                           | 3  |
| 3. Legislative Requirements and Guidelines..... | 4  |
| 3.1 Legislation.....                            | 4  |
| 3.2 Guidelines.....                             | 4  |
| 3.3 Waste Management Policy.....                | 5  |
| 4. Waste Streams and Classification.....        | 7  |
| 4.1 EPA Waste Classification .....              | 7  |
| 4.2 Waste Streams and Classification .....      | 7  |
| 4.2.1 Hazardous Waste .....                     | 8  |
| 5. Construction Waste Quantities .....          | 9  |
| 5.1 Demolition.....                             | 9  |
| 5.2 Construction .....                          | 10 |
| 5.3 Operation .....                             | 11 |
| 6. Waste Management .....                       | 12 |
| 6.1 Waste Hierarchy .....                       | 12 |
| 6.1.1 Avoidance and Reduction of Waste.....     | 12 |
| 6.1.2 Reuse and Recycling.....                  | 13 |
| 6.1.3 Treatment and Disposal.....               | 13 |
| 6.2 Waste Stream Management Options.....        | 14 |
| 6.2.1 Concrete.....                             | 14 |
| 6.2.2 Asphalt .....                             | 14 |
| 6.2.3 Soils and Sand .....                      | 14 |
| 6.2.4 Rock and excavated stone .....            | 15 |
| 6.2.5 Metals .....                              | 15 |
| 6.2.6 Timber .....                              | 15 |
| 6.2.7 Plasterboard.....                         | 15 |

|        |                                  |    |
|--------|----------------------------------|----|
| 6.2.8  | Plastics.....                    | 16 |
| 6.2.9  | General Waste .....              | 16 |
| 6.2.10 | Hazardous Waste and SMF .....    | 16 |
| 6.2.11 | Other Considerations .....       | 16 |
| 6.3    | Special Waste .....              | 17 |
| 7.     | Implementation .....             | 18 |
| 7.1    | Roles and Responsibilities ..... | 18 |
| 7.2    | Training and Awareness .....     | 19 |
| 8.     | Monitoring and Reporting .....   | 20 |
| 8.1    | Corrective Action .....          | 20 |
| 9.     | Limitations .....                | 21 |
| 10.    | References .....                 | 22 |

## List of Tables

|  |    |
|--|----|
| Table 1.1: Waste Scope.....  | 1  |
| Table 2.1: Site Details.....   | 2  |
| Table 3.1: NSW Waste Legislation Summary .....                               | 4  |
| Table 3.2: NSW Guidance Summary .....  | 5  |
| Table 4.1: Potential Waste Types and Classifications.....                    | 8  |
| Table 5.1: Demolition Waste .....  | 9  |
| Table 5.2: Average Volume of Waste Produced by Different Project Types ..... | 10 |
| Table 5.3: Guideline to Waste Composition and Volumes - Construction .....   | 10 |
| Table 5.4: Waste Types and Indicative Volumes .....                          | 11 |
| Table 7.1: Roles and Responsibilities .....                                  | 18 |

## List of Figures

|          |               |
|----------|---------------|
| Figure 1 | Site Location |
| Figure 2 | Site Design   |

## Appendices

|            |                   |
|------------|-------------------|
| Appendix A | MSCP Design Plans |
|------------|-------------------|



## Abbreviations

| Term     | Definition  |
|----------|---|
| BCA      | Building Code of Australia  |
| CWMP     | Construction Waste Management Plan  |
| EIS      | Environmental Impact Statement  |
| EPA      | Environment Protection Authority  |
| MSCP     | Multi-Storey Car Park   |
| POEO Act | NSW <i>Protection of the Environment Operations Act 1997 and Amendment Act 2011</i> |
| PSB      | Paediatric Services Building  |
| SCHN     | Sydney Children's Hospital Network  |
| SEARs    | Secretary's Environmental Assessment Requirements                                   |
| SMF      | Synthetic Mineral Fibres  |
| WARR     | Waste Avoidance and Resource Recovery   |
| WSLHD    | Western Sydney Local Health District  |
| WRAPP    | Waste Reduction and Purchasing Policy   |

## 1. Introduction

JBS&G Australia Pty Ltd (JBS&G) was engaged by PricewaterhouseCoopers Australia (PWC) on behalf of Health Infrastructure NSW (HI, the client) to prepare a Construction Waste Management Plan (CWMP) for the proposed demolition of The Lodge and construction of a Multi-Storey Car Park (MSCP) on the grounds of The Children's Hospital at Westmead (CHW), located on Labyrinth Road, Westmead, NSW.

Pursuant to the *Environmental Planning and Assessment Act 1979*, and Regulation (2000), the project is considered a State Significant Development, requiring the preparation of an Environmental Impact Statement (EIS). This CWMP has been prepared to support the Environmental Impact Statement in response to waste management requirements for the project.

### 1.1 Scope

This CWMP has been developed to address Item 19 (Waste) of the Secretary's Environmental Assessment Requirements (SEARs) for State Significant Development Application (SSD-10434896) for the MSCP project. The SEARs waste management requirement is described in **Table 1.1** below.

**Table 1.1: Waste Scope**

| Key Issue | Requirement  |
|-----------|--|
| Waste     | <ul style="list-style-type: none"> <li>Identify, quantify and classify the likely waste streams to be generated during construction and operation.</li> <li>Describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.</li> </ul> |

In accordance with the SEARs requirements, this CWMP addresses the likely waste streams and indicative estimated quantities, and proposes management, reuse, recycling and disposal procedures during construction of the MSCP. Operational waste management for the MSCP will be covered in a separate report prior to construction.

### 1.2 Objectives

The key objectives of this CWMP are to identify the types and indicative quantities of potential waste streams, and to establish management measures to prevent environmental harm, minimise waste and maximise resource preservation.

This CWMP specifically aims to:

- Address the SEARs requirements for waste for the MSCP;
- Promote waste minimisation through avoiding and reducing waste generation;
- Promote the recycling of demolition materials wherever possible;
- Comply with legislative criteria and adhere to waste minimisation guidance and standards;
- Apply the waste management hierarchy (**Section 3.4**) throughout construction;
- Specify safe and appropriate management of hazardous and/or potentially contaminated wastes; and
- Appropriately direct any waste created through the operation of the MSCP to meet waste management requirements in accordance with NSW Health policies.

## 2. Project Description

### 2.1 Background

CHW forms part of the Sydney Children's Hospital Network (SCHN) and is committed to providing world-class paediatric health care in a family-focused, healing environment. CHW falls within the Westmead Precinct which is one of the largest health, education, research and training precincts in Australia and a key provider of jobs for the greater Parramatta and western Sydney region.

A master planning study of the Precinct was undertaken in November 2013 to inform planning and redevelopment of Westmead Hospital and CHW. The MSCP is being designed to be constructed in a single stage yet car parking will be staged operationally to come on-line with parking demand across the Precinct:

- The first stage of car parking operation would provide replacement car parking for the demolished P17 car park. There would be no net increase of parking on site under this stage.
- The second stage of car parking operation to serve the growth in hospital activity associated with the future PSB (subject to a separate SSDA) would only come on-line operationally with the PSB SSDA consent becoming operational, specifically at occupation. This would provide growth of around 280 additional spaces in line with hospital activity projections until 2031.

The Lodge is proposed to be demolished to facilitate the development of the MSCP and associated road upgrades for use by hospital staff and patrons.

### 2.2 Location

The Children's Hospital at Westmead is located 21 km west of the Sydney CBD. The Paramatta CBD is located 2 km southeast of the hospital precinct.

The Lodge (former Ronald MacDonald House) has been replaced by a new facility 50 m east of the site which was completed in 2018. Most recently, The Lodge has been utilised as both medical student housing and office spaces.

Information relating to the site is provided in **Table 2.1** below. The site location and proposed layout are shown in **Figures 1** and **2**, respectively.

**Table 2.1: Site Details**

|                             |   |
|-----------------------------|---|
| <b>Site Address</b>         | Labyrinth Way, Westmead NSW   |
| <b>Local Government</b>     | Paramatta City Council  |
| <b>Zoning</b>               | SP2 – Health Services Facility  |
| <b>Surrounding Land Use</b> | North – Labyrinth Way, with Toongabbie Creek further beyond.<br>South – Public open spaces, CHW main buildings and Cumberland Hospital West campus to the south-east.<br>East – Labyrinth Way and Ronald McDonald House.<br>West – CHW main buildings and Redbank Road. |

### 2.3 Existing Environment

The site is located within the bounds of the Westmead Hospital Precinct and is bound to the north by Toongabbie Creek, to the west and south by CHW and to the northeast by Ronald McDonald House.

The natural topography of the Westmead Hospital Precinct is downwards to the north and northwest, with surface levels ranging from approximately RL 32 m AHD in the south-western corner of the campus to about RL 10 m AHD along the Toongabbie Creek and Parramatta River; and about RL 18 m AHD in the north-eastern corner to approximately RL 10 m AHD along Darling Mills Creek and Parramatta River.

The Toongabbie Creek is a natural waterway situated along the northern boundary of the precinct. According to flood mapping undertaken by Parramatta City Council, the northwest development zone is located above the 1 in 100 year flood planning level, but within the probable maximum flood event level (average recurrence interval of between 10,000 to 100,000 years).

The Remedial Action Plan (RAP), developed by JBS&G to summarise previous contamination site conditions and provide a remedial strategy for the site, identified that asbestos impacted soils were known to be present at the site. Measures outlined in the RAP are being undertaken as a component of this SSDA approval.

## **2.4 Demolition and Construction Activities**

Demolition works will involve the removal of The Lodge and surrounding sheds, gazebos, pathways and landscaped gardens/outdoor areas. Materials generated by demolition are expected to be disposed of offsite or reused where possible.

Construction works will involve the following:

- Filling and cutting of material to facilitate the construction of the MSCP;
- Piling, foundation and other associated earthworks to form the base of the MSCP;
- Construction of an eight car parking storey MSCP (equivalent to the height of 5 storeys of the hospital), facilitating approximately 1,000 car parking spaces for staff and visitors;
- Construction of both an entry and exit access to the MSCP from Redbank Road and from Labyrinth Way; and
- Various landscaping/tree removal activities and ancillary retail facilities.

A copy of the MSCP design plan prepared by Billard Leece Partnership Pty Ltd (BLP, 2020) is provided in **Appendix A**.

## **2.5 MSCP Operational Activities**

The operation of the MSCP is expected to initially be limited to hospital staff followed by staff and visitors once the PSB is operational. There is expected to be minimal potential for waste generation based on the nature of use.

## **2.6 Commencement**

The project is anticipated to commence construction in 2021.

Prior to commencement of construction, detailed plans for environmental management and waste management during construction will be developed. These will be based on detailed design and construction planning and will supersede the information provided in this plan.

### 3. Legislative Requirements and Guidelines

#### 3.1 Legislation

This WMP has been prepared in accordance with the requirements of the *NSW Waste Avoidance and Resource Recovery Act 2001*, and the *NSW Protection of the Environment Operations Act 1997 and Amendment Act 2011* (POEO Act). These and other key legislation relevant to waste management at the site are provided in **Table 3.1**.

**Table 3.1: NSW Waste Legislation Summary**

| Legislation   | Purpose   |
|---|---|
| <i>Waste Avoidance and Resource Recovery Act 2001</i>   | <p>The Act promotes waste avoidance and resource recovery, and is administered by NSW EPA. The Act establishes a scheme to promote extended producer responsibility in place of industry waste reduction plans, and continues the Waste Fund for the purpose of funding relevant programs and NSW EPA. Objectives of the Act include:</p> <ul style="list-style-type: none"> <li>to encourage the most efficient use of resources and to reduce environmental harm;</li> <li>to ensure that resource management options are considered against a hierarchy (see <b>Section 6.1</b>);</li> <li>provide for the continual reduction in waste generation;</li> <li>to minimise the consumption of natural resources and the final disposal of waste;</li> <li>to ensure that industry shares with the community the responsibility for reducing and dealing with waste; and</li> <li>to assist in the achievement of the objectives of the Protection of the Environment Operations Act 1997.</li> </ul> |
| <i>Protection of the Environment Operations Act 1997 and Amendment Act 2011</i><br><i>Protection of the Environment Operations (Waste) Regulation 2014</i><br><i>Protection of the Environment Operations (General) Regulation 2009</i> | <p>The Act is the key piece of environment protection legislation administered by the NSW Environment Protection Authority (EPA). The object of the Act is to achieve the protection, restoration and enhancement of the quality of the NSW environment.</p> <p>The Act enables the Government to establish policy instruments for setting environmental standards, goals, protocols and guidelines.</p>  |
| <i>Environmental Planning and Assessment Act 1979</i><br><i>Environmental Planning and Assessment Regulation 2000</i>   | <p>The Act and the Regulation provide the overarching structure for planning in NSW. They provide for a number of other statutory documents to support the planning structure, including State Environmental Planning Policies and Local Environmental Plans. The objectives include:</p> <ul style="list-style-type: none"> <li>the proper management, development and conservation of natural and artificial resources; and</li> <li>to encourage ecologically sustainable development.</li> </ul>  |
| <i>Environmentally Hazardous Chemicals Act 1985 (NSW)</i>   | <p>The Act provides for control of the effect on the environment of chemicals and chemical wastes. The EPA is responsible for administering this legislation, in partnership with other state government agencies.</p> <p>It is the primary legislation for specifically regulating environmentally hazardous chemicals throughout their life cycle. The Act sets out requirements for:</p> <ul style="list-style-type: none"> <li>chemical control orders (CCOs) which are used to manage specified hazardous chemicals and chemical wastes;</li> <li>technology assessments, which ensure that premises treating or destroying chemicals are safe and appropriate for their purpose; and</li> <li>licensing of individuals or industries who manage chemicals that are subject to a CCO.</li> </ul>   |
| <i>Contaminated Land Management Act, 1997 and Amendment Act 2008</i>  | <p>The Act establishes a process for investigating and (where appropriate) remediating land that the EPA considers to be contaminated significantly enough to require regulation.</p>   |

#### 3.2 Guidelines

Guidance documents and policies considered in the preparation of this CWMP are included in **Table 3.2**.

**Table 3.2: NSW Guidance Summary**

| Guideline   | Purpose  |
|---|--|
| <i>NSW Environment Protection Authority (EPA) Waste Classification Guidelines (Part 1) 2014</i>                             | The Waste Classification Guidelines have been established by the NSW EPA to assist waste generators to classify wastes. Wastes are classified into groups that pose similar risks to environment and human health. Waste classifications are discussed further in <b>Section 4.1</b> .   |
| <i>Building Code of Australia (BCA)</i>   | The BCA contains technical provisions for the design and construction of buildings and other structures, covering such matters as structure, fire resistance, access and egress, services and equipment, and energy efficiency as well as certain aspects of health and amenity.   |
| <i>NSW EPA's Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21</i>  | The WARR strategy provides a framework for waste management for the state until 2021. Key targets include: <ul style="list-style-type: none"> <li>• avoid and reduce waste generation;</li> <li>• increase recycling;</li> <li>• divert more waste from landfill;</li> <li>• manage problem wastes better;</li> <li>• reduce litter; and</li> <li>• reduce illegal dumping.</li> </ul>   |
| <i>NSW EPA's Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012</i> | The guide provides advice to assist architects, developers, council staff and building managers to incorporate better waste management practice into the design, establishment, operation and ongoing management of waste services in commercial and industrial developments.  |
| <i>NSW Government Resource Efficiency Policy 2014</i>   | The policy aims to reduce the operating costs of NSW Government agencies through resource efficiency, and ensure that they provide leadership in resource-productivity. The policy replaces the previous NSW Government Sustainability Policy and streamlines reporting under the Waste Reduction and Purchasing Policy (WRAPP).<br>Local government, state-owned corporations, public trading enterprises and public financial enterprises are strongly encouraged to adopt this policy's approach. |
| <i>Waste management Guidelines for health care facilities 1998 (NSW Health)</i>   | The Guidelines provide a minimum standard for safe and efficient waste management for NSW Public Health Care Facilities. They represent the result of consultation with the Environmental Protection Authority (EPA), WorkCover, Waste Industry and health workers.  |
| <i>How to manage and control asbestos in the workplace, SafeWork NSW Code of Practice, 2019 (NSW Government)</i>            | The Code of Practice is an approved code of practice under section 274 of the <i>Work Health and Safety Act 2011</i> .<br>The Code provides guidance on how to manage risks associated with asbestos and asbestos containing material at the workplace and thereby minimise the incidence of asbestos-related diseases such as mesothelioma, asbestosis and lung cancer.   |
| <i>Australian Government Construction and Demolition Waste Guide, 2011</i>  | The aim of the guide is to help develop effective markets for materials diverted or derived from the construction and demolition waste stream.   |
| <i>Australian Government Sustainable Procurement Guide, 2013.</i>   | The Guide aims to reduce the adverse environmental, social and economic impacts of purchased products and services throughout their life through considerations such as waste disposal and the cost of operation and maintenance over the life of the goods. The Guide was developed to assist Australian Government purchasers to include sustainability considerations in all stages of the procurement process, from identifying the business need to disposing of goods.                         |

### 3.3 Waste Management Policy

This CWMP takes into account the Sydney Children's Hospital Network (SCHN) Waste Management Policy (2015). The Waste Management Policy has been designed to familiarise SCHN employees with their responsibilities in waste management in order to comply with legislative requirements.

The policy is primarily focused on waste management associated with health care facilities and, in particular, hospital waste streams including waste related to general hospital activities as well as general waste. Management measures required for construction activities are generally not comparable with those outlined in the policy manual for hospital waste, with the exception of general (putrescible) waste. As such, this CWMP has been prepared as a stand-alone document to complement the policy manual.

The management of general waste described in the policy manual for non-clinical areas in a hospital setting is consistent with the requirements of general waste on the MSCP site. This includes management and appropriate segregation of products not able to be recycled (general food/household waste, confidential waste, trade waste) from those that are recyclable (paper, glass, plastic, e-waste etc). The construction contractor will liaise with SCHN to determine opportunities for storage and collection of general waste within the existing waste management system.

The SCHN commitment to provide a sustainable future, by supporting a waste management program that is safe, efficient, cost effective and protects the environment, is maintained throughout this waste strategy.

## 4. Waste Streams and Classification

### 4.1 EPA Waste Classification

As described in **Section 3.2**, the NSW EPA Waste Classification Guidelines (Part 1) provides for the classification of wastes into groups that pose similar risks to the environment and human health (NSW EPA 2014b), which are defined in the POEO Act. Classes of waste described in the guideline are described in **Table 4.1**.

Classes of waste described in the guideline are:

- Special waste
- Liquid waste
- Pre-classified waste:
  - Hazardous waste
  - Restricted solid waste
  - General solid waste (putrescible)
  - General solid waste (non-putrescible).

#### Special Waste

Special wastes are wastes that pose specific regulatory requirements due to the risks of harm to the environment and human health. These wastes include clinical and related waste, asbestos waste, waste tyres, and anything classified as special waste under an EPA gazettal notice. Special wastes associated with the MSCP are described further in **Section 6.3**.

#### Liquid Waste

Liquid waste is classified as any waste (other than special waste) that meets the following criteria:

- has an angle of repose of less than 5 degrees above horizontal;
- becomes free-flowing at or below 60 degrees Celsius or when it is transported;
- is generally not capable of being picked up by a spade or shovel; and/or
- is classified as liquid waste under an EPA gazettal notice.

#### Pre-classified Waste

Where the waste is neither liquid nor special waste; the EPA has pre-classified other commonly generated waste types, as defined in Schedule 1 of the *Protection of the Environment Operations Act 1997*. This includes hazardous waste, restricted solid waste, general solid (putrescible) and general solid (non-putrescible) waste. Putrescible waste is the component of the waste stream that is liable to become putrid, and usually refers to vegetative, food and animal products.

A list of all currently gazetted waste classifications are provided on the EPA website at: [www.epa.nsw.gov.au/waste/wastetypes.htm](http://www.epa.nsw.gov.au/waste/wastetypes.htm).

### 4.2 Waste Streams and Classification

Potential waste types and corresponding EPA classifications for the MSCP construction are summarised in **Table 4.1**.



**Table 4.1: Potential Waste Types and Classifications**

| Waste Type  | EPA Classification  | Generated during construction |
|---|---|-------------------------------|
| Concrete and grouts   | General solid waste (non-putrescible)   | ✓                             |
| Road materials (asphalt, rubble, crushed rock)                        | General solid waste (non-putrescible)   | Potential                     |
| Soils and sands   | General solid waste (non-putrescible), possibly VENM or ENM (in accordance with the Resource Recovery Order)  | ✓                             |
| Contaminated materials (including asbestos and contaminated soil)     | Special waste   | Potential                     |
| Rock and excavated stone  | General solid waste (non-putrescible), possibly VENM or ENM (in accordance with the Resource Recovery Order)  | Potential                     |
| Metals (steel, aluminium, stainless steel, and copper piping or wire) | General solid waste (non-putrescible)   | ✓                             |
| Timber  | General solid waste (non-putrescible)   | ✓                             |
| Plastic and foam packaging  | General solid waste (non-putrescible)   | ✓                             |
| Plastics – durables (non-packaging)                                   | General solid waste (non-putrescible)   | ✓                             |
| Plasterboard/fibre cement   | General solid waste (non-putrescible)   | ✓                             |
| Glass   | General solid waste (non-putrescible)   | ✓                             |
| Electrical (HV and LV)  | General solid waste (non-putrescible)   | ✓                             |
| Optic fibre wiring  | General solid waste (non-putrescible)   | Potential                     |
| Light bulbs   | Hazardous waste   | ✓                             |
| Batteries   | Hazardous waste   | Potential                     |
| Empty drums (e.g. oil, fuel, chemicals, paint, spill clean-up)        | Hazardous waste if the containers previously used to store Dangerous Goods (Class 1, 3, 4, 5 or 8) and from which residues have not been removed by washing or vacuuming.<br>General solid (non-putrescible) waste if containers cleaned by washing or vacuuming. | Potential                     |
| General refuse  | General solid waste (putrescible), and General solid waste (non-putrescible)  | ✓                             |
| PVC pipes (stormwater, electrical, optic fibre, sewer)                | General solid waste (non-putrescible)   | ✓                             |
| Site runoff (waste water)   | Liquid waste  | ✓                             |
| Sewage  | Liquid waste  | ✓                             |

#### 4.2.1 Hazardous Waste

A hazardous building materials survey (HBMS) was undertaken in June 2020 (JBS&G 2020<sup>1</sup>) and comprised a detailed inspection and sample collection with the objective to locate and identify areas of suspected hazardous materials.

Materials containing synthetic mineral fibres (SMF) are present and have been identified in a number of locations. In addition, the HBMS (JBS&G 2020) assumed that insulation batts, and insulated pipework and ducting observed in the ceiling cavity comprised SMF and that SMF insulation batts were also likely present in the building walls. Measures for dealing with hazardous waste are discussed further in **Section 6.2.10**.

<sup>1</sup> Hazardous Building Materials Survey, Old Ronald McDonald House, The Children's Hospital, Westmead, Labyrinth Way, Westmead NSW JBS&G Australia Pty Ltd, 13 July 2020, ref: 56200/130973 (Rev 0) (JBS&G 2020)

## 5. Construction Waste Quantities

### 5.1 Demolition

During the development of a detailed schedule of planned works, the quantity of waste generated, and the locations of temporary waste storage areas will be confirmed. Based on building material descriptions provided in the HBMS (JBS&G 2020) and the current estimated footprint of The Lodge scheduled for demolition, an estimate of waste quantities are provided in **Table 5.1**. JBS&G (2020) reports that the building was of fibre cement sheeting (non ACM) clad construction.

The NSW Department of Environment, Climate Change and Water (DECCW), *House Deconstruction Information Booklet* (DECCW 2010) provides typical compositions of houses of various material construction. DECCW provides the estimated mass of cladding, fittings, roof tiles plasterboard, timber, and concrete plus bricks plus footings for houses. Based on information available on Australian Bureau of Statistics website, the average sized house in 2008-2009<sup>2</sup> was approximately 245 m<sup>2</sup>. Taking into consideration the footprint of The Lodge building (approximately 1800 m<sup>2</sup>), estimates have been made for quantities of the various buildings materials to be generated during demolition. Noting the building was of concrete floor construction, the volume of concrete has been based on the building area, assuming a 0.1 m thick slab.

**Table 3.1: Demolition Waste**

| Waste Type  | EPA Classification   | Indicative Estimated Volume |
|---|--|-----------------------------|
| Concrete (2.4 t/m <sup>3</sup> )  | General solid waste (non-putrescible)                                      | 180 m <sup>3</sup>          |
| Bricks and roof tiles (1.2 t/m <sup>3</sup> ) (assumed 0.5 of typical amount due to concrete estimated below) | General solid waste (non-putrescible)                                      | 30 m <sup>3</sup>           |
| Fibre cement sheet (non ACM)  | General solid waste (non-putrescible)                                      | 10 m <sup>3</sup>           |
| Asphalt material (Assuming 30mm depth)  | General solid waste (non-putrescible)                                      | Unknown                     |
| Soils and sands (Topsoil and clay)  | General solid waste (non-putrescible)<br>Potentially asbestos waste.       | Minimal                     |
| Rock and excavated stone (Quarry material / engineered fill)  | General solid waste (non-putrescible)<br>Potentially asbestos waste.       | Unknown                     |
| Metals (steel, aluminium, stainless steel, and copper piping or wire)   | General solid waste (non-putrescible)                                      | Unknown                     |
| Timber (0.5 t/m <sup>3</sup> ) (assumed 0.5 of typical amount due to concrete floor)                          | General solid waste (non-putrescible)                                      | 39 m <sup>3</sup>           |
| Plastics (vinyl flooring)   | General solid waste (non-putrescible)                                      | 6 m <sup>3</sup>            |
| Plasterboard (0.8 t/m <sup>3</sup> )  | General solid waste (non-putrescible)                                      | 18 m <sup>3</sup>           |
| Glass   | General solid waste (non-putrescible)                                      | 1 m <sup>3</sup>            |
| Electrical wiring   | General solid waste (non-putrescible)                                      | Unknown                     |
| Green waste   | General solid waste (non-putrescible)                                      | Unknown                     |
| General refuse  | General solid waste (putrescible)<br>General solid waste (non-putrescible) | Unknown                     |
| Stormwater runoff   | Liquid waste   | Unknown                     |
| Sewage  | Liquid waste   | Unknown                     |

<sup>2</sup> <https://www.abs.gov.au/articles/characteristics-new-residential-dwellings-15-year-summary>

It is noted the above waste quantities are estimations only and will be updated once more accurate plans and dimensions are available.

The demolition schedule will be developed to ensure appropriate temporary waste storage areas are available for storage of demolition waste. If required, waste shall be periodically removed from the site (as per management measures outlined in **Table 5.1**) during the demolition works to ensure there is sufficient waste storage capacity available.

## 5.2 Construction

Indicative quantities of waste likely to be generated during construction (excluding excavation and other enabling works) have been calculated based on published waste generation rates for construction projects. Published data for total waste volumes per unit area and for waste composition have been used, and combined with the total areas of each component of the project to estimate waste generation.

Estimates of total waste volumes per unit area have been derived from benchmark data developed by the UK Building Research Establishment (see **Table 5.2**), which is based on waste generation at various construction projects including healthcare, commercial, industrial and public buildings. A value of 13 m<sup>3</sup> per 100 m<sup>2</sup> has been adopted for the MSCP, consistent with the industrial buildings project type, which most closely reflects this project component.

**Table 5.2: Average Volume of Waste Produced by Different Project Types**

| Project Type         | Average volume (m3) of waste per 100 m2 |
|----------------------|---|
| Residential          | 18.1                                    |
| Public buildings     | 20.9                                    |
| Leisure              | 14.4                                    |
| Industrial Buildings | 13.0                                    |
| Healthcare           | 19.1                                    |
| Education            | 20.7                                    |
| Commercial Other     | 17.4                                    |
| Commercial Offices   | 19.8                                    |
| Commercial Retail    | 20.9                                    |

Source: BRE (2012)

Indicative waste composition information shown in **Table 5.3** (derived from the Sustainability Victoria Waste Wise Tool Kit (2013)) has then been applied to the estimated total waste volumes to estimate quantities for each waste stream.

**Table 5.3: Guideline to Waste Composition and Volumes - Construction**

| Material        | Estimated Waste % | Conversion Factor (Density) (Tonne per m <sup>3</sup> ) |
|-----------------|-------------------|---|
| Hard material   | 32%               | 1.2   |
| Timber          | 24%               | 0.3   |
| Plastics        | 15%               | 0.13  |
| Cement sheet    | 9%                | 0.5   |
| Gypsum material | 6%                | 0.2   |
| Metals          | 6%                | 0.9   |
| Paper / card    | 4%                | 0.1   |
| Vegetation      | 3%                | 0.15  |
| Soil            | 1%                | 1.6   |
| Other           | 0.3%              | 0.3   |

**Table 5.4** summarises the waste types and indicative volumes that have been estimated for construction of the MSCP. The total waste volumes for the development has been estimated using the following floor area, which have been derived from the design plans in **Appendix A**:

- MSCP – Approximately 27 150 m<sup>2</sup>.

The quantities outlined in **Table 5.4** are high level estimates and are intended to provide an indication of potential waste generation quantities. It is expected that actual waste quantities and composition will vary depending on outcomes of detailed design, materials specification and construction planning and methods. Strategies that will be implemented to minimise waste generation and maximise reuse and recycling are outlined in **Section 6**.

**Table 5.4: Waste Types and Indicative Volumes**

| Material        | Estimated waste %<br>(see Table 5.3) | Estimated Waste (m3) | Estimated Waste (Tonnes) |
|-----------------|--------------------------------------|----------------------|--------------------------|
|                 |                                      | MSCP                 | MSCP                     |
| Hard material   | 32%                                  | 1132                 | 1358                     |
| Timber          | 24%                                  | 849                  | 255                      |
| Plastics        | 15%                                  | 530                  | 69                       |
| Cement sheet    | 9%                                   | 318                  | 159                      |
| Gypsum material | 6%                                   | 212                  | 42                       |
| Metals          | 6%                                   | 212                  | 191                      |
| Paper / card    | 4%                                   | 141                  | 14                       |
| Vegetation      | 3%                                   | 106                  | 16                       |
| Soil            | 1%                                   | 35                   | 57                       |
| Other           | 0.3%                                 | 11                   | 3                        |
| <b>TOTAL</b>    | <b>100%</b>                          | 3547                 | 2164                     |

It is understood that a final CWMP will be prepared by the appointed contractor prior to redevelopment of the site.

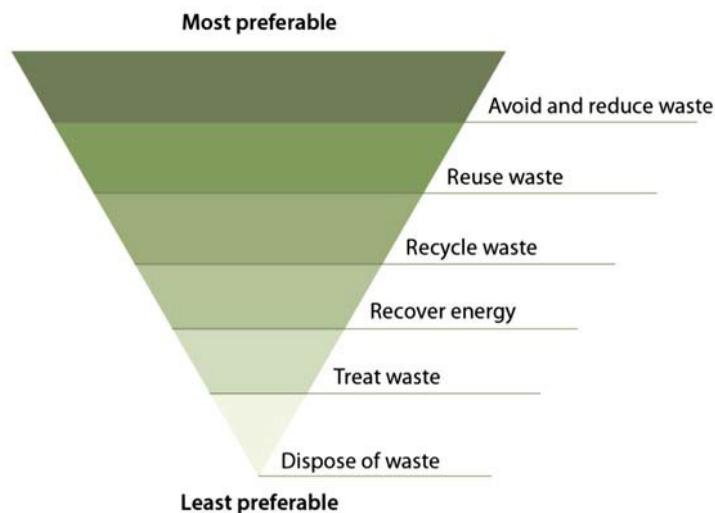
### 5.3 Operation

Design plans indicate that the MSCP will consist of eight car-parking levels and at full capacity will allow for parking of approximately 1,000 cars. It is expected that through carpark patronage some minor levels of GSW will be generated by private vehicle owners. Bins are recommended to be located throughout the car park, preferably in main thoroughfares, to cater for these minor amounts of GSW.

## 6. Waste Management

### 6.1 Waste Hierarchy

Waste management for the project should be undertaken in accordance with the waste hierarchy, which underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001* (NSW EPA 2014a). The waste hierarchy shown in **Diagram 6.1** demonstrates preferred approaches to waste management to ensure sustainable development and use of resources.



**Diagram 6.1: Waste Hierarchy**

The hierarchy also aims to maximise efficiency and avoid unnecessary consumption of resources. This WMP seeks to implement the waste hierarchy to minimise waste disposal and promote waste reduction in order of preference:

- Reduce or avoid waste through selection of items and design;
- Reuse materials without further processing;
- Recycle and process waste for reuse as a new product;
- Recover energy through combustion of materials where acceptable and in accordance EPA Regulations;
- Treat waste to stabilise the waste product for disposal or reuse; and
- Dispose of waste when no other management options are appropriate.

This section describes waste management measures in line with the hierarchy, and provides specific waste management strategies for the key waste classifications described in **Section 4**.

#### 6.1.1 Avoidance and Reduction of Waste

The demolition and construction contractor shall be required to avoid waste generation, and endeavour to reuse waste where possible.

During the construction phase, waste generation shall be avoided through strategic selection of materials during design and purchasing, taking into account options to reduce waste generation for the project. This includes consideration of procurement of materials which are prefabricated, use minimal packaging, and are suitable for reuse across the site. Selection of construction materials should also consider the use of recycled items where practicable.

Opportunities to avoid wastes generated by construction include:

- Develop a procurement policy which considers waste avoidance measures such as:
  - Order site specific or prefabricated items where practicable to minimise surplus material;
  - Consider packaging material provided by suppliers during purchasing and reduce this requirement where possible, or consider returnable packaging;
  - Material selection to consider recycled items;
- Refine waste stream estimates to ensure adequate on-site storage and waste segregation; and
- Refine estimated volumes of materials for construction.

#### **6.1.2 Reuse and Recycling**

To maximise opportunities for reuse of waste materials onsite, measures to separate waste streams shall be implemented. This includes segregating wastes into appropriate dedicated bins or areas for reclamation on site or transportation to a designated recycling facility.

Where practicable, uncontaminated spoil should be stockpiled for use during construction. Materials containing asbestos cannot be safely recycled, and direct treatment and/or disposal is the most appropriate option. ACM and asbestos impacted soils have been identified within the redevelopment area, if asbestos is encountered during the works the construction contractor shall liaise with a licensed asbestos removalist and local council to determine a suitable disposal facility. Asbestos contaminated soils will be disposed of and/or relocated within the site via remediation (refer to Section 6.3). Measures for dealing with hazardous waste are discussed further in **Section 6.3**.

Procedures to manage the reuse and recycling of waste materials during construction include:

- Incorporate waste management into development staging to promote reuse of materials across the site;
- Ensure areas for waste segregation are easily accessible and clearly defined;
- Ensure contractors are familiar with onsite waste storage areas for appropriate waste segregation;
- Determine suitability of materials generated during demolition for use in construction; and
- Consider opportunities for materials reuse in areas in proximity to the site or local construction activities where practicable.

#### **6.1.3 Treatment and Disposal**

Project wastes may require treatment to stabilise them for appropriate disposal to reduce the risk of harm to human health or the environment. These materials are not suitable for reuse or recycling and shall be segregated and disposed of via a suitably qualified contractor.

Wastes shall only be sent to landfill or disposal facilities where the prioritised management methods in the hierarchy cannot be implemented in a cost effective or practical manner. The demolition and construction contractor should liaise with the local council to determine appropriate disposal locations for potential waste streams.

Measures to manage the treatment and disposal of waste materials during construction include:

- Ensure wastes which cannot be reused or recycled and require disposal are clearly segregated from those which have the potential to be reused;

- Provide segregated bins for subcontractors to dispose of construction waste (i.e., metal, plastics and cardboard);
- Contractors and staff to be inducted into site waste management practices;
- Hazardous materials including asbestos to be disposed of in accordance with the handling and disposal requirements of SafeWork NSW and NSW EPA;
- General wastes to be disposed of in accordance with local council requirements; and
- Toilet facilities must be regularly serviced and emptied by a licensed contractor.

## **6.2 Waste Stream Management Options**

In addition to the waste management measures in **Section 6.1** aligned to the waste management hierarchy, waste stream specific management options will be implemented across the site to ensure appropriate waste handling.. Key waste streams identified for this project are discussed in more detail in this section to facilitate appropriate waste handling for each type of waste.

Each waste stream shall be separated and stored appropriately to ensure each type of waste is handled in the most appropriate and efficient way. The numbers and size of waste storage bins, containers, stockpile areas and loading zones on site should be determined by the demolition and construction contractor.

### **6.2.1 Concrete**

Concrete may be generated during the demolition works within the redevelopment area.

Options exist for recovery of components of concrete associated with excess concrete following each pour during construction. Approximately 1 – 2 m<sup>3</sup> may be expected at the end of each pour, during construction of the MSCP, particularly associated with construction of foundations, structural slabs, floors, columns, kerbs, walkways, access driveways and walls.

Concrete can be reprocessed and may, in some instances, be reused across site, however, the general practice is to crush the concrete and arrange for disposal to a recycling facility or disposal offsite.

Options may include disposal of excess concrete to a HDPE lined pit on site, to allow for regular crushing and reprocessing or disposal to a recycling facility; or to place wet supply back into supply trucks to return to the manufacturer at the cost of an additional fee.

The construction contractor will determine suitable disposal of concrete waste in accordance with the waste management hierarchy.

### **6.2.2 Asphalt**

Asphalt may be generated during the demolition works within the redevelopment area.

Excess asphalt as a result of road works and carpark construction will most likely be recycled at an appropriately licensed facility. Measures to identify an appropriate asphalt plant will be assessed and undertaken by the construction contractor. Asphalt may also be used across the site where practicable.

Asphalt that has set and dried is potentially 100 per cent recyclable, however, reprocessing is not as readily undertaken as concrete (DSEWPaC, 2011).

### **6.2.3 Soils and Sand**

Soils and sand excavated during footing and foundation construction which are designated as clean fill may be redistributed across the site for filling, levelling or landscaping provided they have not been in contact with asbestos containing materials. Where stockpiling is required prior to

redistribution, control measures to avoid sediment and erosion will be implemented where appropriate. This may include establishing a bund or lining of the base with an impermeable HDPE plastic liner.

Where excess soil cannot be redistributed or has been situated in proximity to asbestos containing materials, the sand and soils are required to be treated and/or disposed of as contaminated waste via a licensed transporter to a disposal facility.

#### **6.2.4 Rock and excavated stone**

Excavation during preparation of footings for the MSCP site may recover rock and stone. Depending upon the quantities and properties of the materials generated, materials may be used as aggregate or sub-base for other works across the site. The staging of the development as determined by the construction contractor will consider the timing of excavation and the construction of components of the redevelopment program to ensure availability and appropriate reuse of these materials across the site.

#### **6.2.5 Metals**

Metal wastes may be generated during demolition works within the redevelopment area.

Metal wastes will most likely result from excess materials purchased for the site such as steel reinforcement for construction purposes. The purchasing procedure will consider appropriate procurement of materials to ensure a reduction in metal wastes. Where excess materials are encountered, reprocessing of mixed steel is a straightforward and common practice in the construction industry (DSEWPaC, 2011). The construction contractor will investigate and determine appropriate storage and reprocessing of metals to reduce waste, including location and signage of skip bins onsite.

#### **6.2.6 Timber**

Timber wastes will be generated during demolition works within the redevelopment area.

Quantities of timber associated with preparation of concrete slabs during construction will be dependent on the formwork methods used. The use of a system such as Bondek, which is a steel structural decking and ceiling system for concrete slabs, would result in less timber and formwork waste. Where timber is used for formwork, this may be re-used across site, however, it is anticipated that much of it will require disposal throughout the construction program and at the end of the program as the product degrades.

Timber associated with builder's wastes and packaging will be reduced through implementation of the purchasing procedure. Where timber framework is required for construction, items may be salvaged where safe and cost effective to do so. Reclaimed timber can be used for a variety of applications or distributed to salvage yards for reuse. The construction contractor will determine the viability of this option in consideration of the waste hierarchy. This includes liaising with a timber recycling and recovery contractor for collection and reprocessing of timber. The contractor will determine options of reuse of reprocessed timber across the site, including the use of woodchips during landscaping.

Salvaging timber from the construction works is a difficult process due to occupational health and safety requirements and the diminished quality of the refuse timber. Where reuse of timber is not feasible, the construction contractor will organise disposal of the timber to a licensed waste facility.

#### **6.2.7 Plasterboard**

Plasterboard will be generated during demolition works within the redevelopment area.

The MSCP development will mainly be constructed of concrete with steel reinforcement. There is potential that a small quantity of plasterboard may be used in construction of ancillary retail spaces



associated with the MSCP. Uncontaminated plasterboard (e.g. offcuts) or material with low levels of contamination such as nails and screws is completely recyclable and can be recycled for use in new plasterboard or the gypsum used in agricultural soil conditioners. The construction contractor will investigate and determine appropriate storage and recycling of plasterboard to reduce waste, including location and signage of skip bins onsite.

#### **6.2.8 Plastics**

Plastic wastes associated with packaging for construction materials can be recycled or in some cases returned to the supplier of the materials for reuse. The construction contractor will determine the approach to management of these plastics through correspondence with suppliers. Where possible, plastic (non-durable) wastes will be reduced through the procurement process.

#### **6.2.9 General Waste**

Wastes such as food waste, organics and biodegradable material will be created as a result of worker activity on site. Non-putrescible wastes are generally inert, or solid, and are not able to be composted, recycled, reprocessed or reused.

The construction contractor will liaise with SCHN to determine an appropriate means of putrescible waste disposal, and options for disposal within the existing waste management system at the hospital. If this option is not viable, the construction contractor will determine an appropriate waste disposal facility, and ensure adequate bins are provided on site for putrescible waste. This is particularly important around worker congregation areas, site office areas and toilet facilities.

It is likely that general waste will increase at times of internal and service fittings during construction, primarily associated with excess packaging materials and workers on site. The construction contractor will determine the location of skip bins, and specify waste stream separation measures across the site. It is anticipated that a skip bin approximately 10 m<sup>3</sup> specifically allocated to general waste will be required on each building level.

Where possible, co-mingled recycling bins will be provided in common areas at work sites for plastic and glass bottles, soft drink cans, aluminium and tin cans to avoid these items being disposed to landfill. Specialised bins for cigarette butts will also be provided outside lunchrooms and nearby common areas at work sites.

#### **6.2.10 Hazardous Waste and SMF**

SMF were observed and identified in a number of locations as noted in the HBMS (JBS&G 2020). Small quantities of hazardous wastes may be generated (e.g. light bulbs, batteries). Separate containers for the safe storage of these wastes will be provided where applicable, prior to removal offsite by an appropriately licensed contractor for recycling or disposal at a licensed facility.

The HBMS (JBS&G 2020) assumed that insulation batts, and insulated pipework and ducting observed in the ceiling cavity comprised SMF and that SMF insulation batts were also likely present in the building walls. Appropriate PPE including the use of P2 respirator is to be used as a minimum requirement and appropriate removal methodology as outlined in NOHSC: 1004(1990) and NOHSC: 2006(1990)

#### **6.2.11 Other Considerations**

To ensure waste is not unintentionally tracked offsite, the vehicles or trailers used to transport waste or excavated spoil from the site shall be covered before leaving the site to prevent spillage or escape of dust, waste or spoil from the vehicle or trailer. Any mud, splatter, dust and other material that is likely to be released from the wheels, underside or body of vehicles, or plant leaving the site shall also be removed through a shaker bay or wash down area prior to leaving the site.

### 6.3 Special Waste

Soils on site are known to be impacted with asbestos. Asbestos poses a risk to human health through exposure of loose fibres when damaged or disturbed. As such, asbestos is classified as special waste under the *Protection of the Environment Operations Act 1997*, and the EPA Waste Classification Guidelines (Part 1) 2014. Special wastes pose unique regulatory requirements due to the management responsibilities to minimise risk of harm.

Asbestos impacted soils will be managed in accordance with the Remedial Action Plan (RAP). Where safe and practicable, this will involve a cap and contain remedial strategy where asbestos materials are present. Where encapsulation is not possible, waste will be transported and disposed of in accordance with the requirements of the *Protection of the Environment Operations (Waste) Regulation 2014*, with disposal undertaken by a suitably qualified contractor.

It is possible that asbestos waste removal may be required where excavation is necessary for construction of footings for the MSCP. Further detailed design and geotechnical assessment will determine the likelihood and potential volumes of asbestos waste. Handling and removal of asbestos waste will be undertaken in accordance with the RAP.

## 7. Implementation

This CWMP forms the basis of all waste management on site for the MSCP redevelopment. It is a living document which will be reviewed and revised upon further site investigation and design following engagement of a construction contractor. Review of the CWMP will provide for accurate estimates of waste quantities to ensure appropriate onsite waste management in accordance with the waste management hierarchy.

A detailed schedule and planned work staging will also provide opportunities for waste reuse across the site and determine the requirements for temporary waste storage.

### 7.1 Roles and Responsibilities

It is expected that all demolition and construction personnel will commit to the CWMP and be responsible for their own actions in adhering to the waste management objectives.

A Construction Site Manager will be the key person responsible for ensuring implementation of the CWMP and adherence to applicable legislation, guidelines, licensing and project conditions outlined herein.

**Table 7.1** presents the proposed responsibilities for waste management. Refer to the project Construction Environmental Management Plan (CEMP) for the finalised responsibility matrix.

**Table 7.1: Roles and Responsibilities**

| Role                                    | Responsibility   |
|---|--|
| Project Manager                         | Review the CWMP in light of any changes to construction activities or further information which may alter waste management practices.<br>Ensure waste management objectives are adhered to.<br>Undertake auditing of contractor waste management against the requirements of the WMP and initiate corrective action by the contractor (as necessary)   |
| Environmental Management Representative | Compliance with applicable environmental licences, legislation and project conditions.<br>Ensure environmental management plan(s) across the site are adhered to and accurate to site conditions.<br>Undertake visual inspections daily to ensure waste management controls are implemented and maintained across the site<br>Undertake auditing of waste management across the site as a component of broader environmental site monitoring   |
| Construction Site Manager               | Ensuring workers and subcontractors are inducted into the CWMP along with other applicable management plans.<br>Responsible for undertaking procurement of construction materials in accordance with the waste management hierarchy.<br>Segregation/classification of waste streams where required to ensure appropriate use, reuse, treatment and/or disposal.<br>Ensure waste quantities generated are recorded, including tracking of receipts from waste recycling or disposal via the appointed waste contractor.<br>Record waste classification and testing results.<br>Review the CWMP with the Project Manager in light of any changes to construction activities or further information which may alter waste management practices.<br>Undertake visual inspections daily to ensure waste management controls are implemented and maintained across the site. |
| Health and Safety Manager               | Safety inductions for all staff, workers and visitors.<br>Work with Construction Site Manager to determine safe handling of asbestos waste in compliance with regulatory requirements.<br>Undertake visual inspections daily to ensure waste management controls for hazardous materials (e.g. asbestos) are implemented and maintained across the site  |
| Site Workers                            | Responsible for acting in accordance with the WMP and site inductions.<br>Informing the Construction Site Manager of any waste management incidences and Health and Safety Manager of any safety issues associated with on-site activities.  |

## 7.2 Training and Awareness

Staff present on site during the construction stage of the project shall be required to undertake induction and awareness training inclusive of the CWMP and site-specific waste management. This includes:

- Induction to the waste management hierarchy and use across the site;
- Details of responsibilities for waste management and key personnel;
- Site specific waste management practices relevant to the project stage such as:
  - Waste storage and stockpiling locations;
  - Waste disposal requirements;
  - Hazardous or special wastes;
  - Record of waste disposal details and receipts; and
- Knowledge of emergency response procedures and contacts.

Signage will be provided on site to ensure waste management measures are communicated across the site, particularly for contractors and visitors who are not regularly on site. Signage should highlight correct procedures for separating wastes where required, locations of bins and waste storage areas, labelling of designated bins, potential hazards associated with the waste streams and handling, and contact details should any issues be encountered.

Signage shall be prepared and located on site in accordance with the Australian Standard (AS 1319) for safety signs, and the NSW EPA and Australian Standard for recycling signage.

## 8. Monitoring and Reporting

The following activities will be undertaken to inform the onsite waste management process and to determine the success of the CWMP:

- Ensure waste quantities generated are recorded, including tracking of receipts from waste recycling or disposal via the appointed waste contractor;
- Record waste classification and testing results;
- Review the CWMP in light of any changes to construction activities or further information which may alter waste management practices;
- Undertake auditing of waste management across the site as a component of broader environmental site audits;
- Undertake visual inspections daily to ensure waste management controls are implemented and maintained across the site;
- Implementation of enough waste disposal bins for the operational needs of the MSCP; and
- Undertake final review of the CWMP upon project completion to ensure information accurately reflects site activities, and to assist future waste management.

Outcomes of audits and waste tracking will be reported to Health Infrastructure NSW, potentially through weekly or monthly reporting to ensure waste management objectives are adhered to.

### 8.1 Corrective Action

Where formal auditing, daily visual inspections or incident reporting identify incorrect storage or disposal procedures, or maintenance or waste management issues, observations shall be promptly reported to the Construction Site Manager and recorded. The Construction Site Manager shall determine appropriate measures to rectify the issues in a timely manner in consultation with the Environmental Management Representative and Health and Safety Manager where required.

## 9. Limitations

This report has been prepared for use by the client who has commissioned the works in accordance with the project brief only, and has been based in part on information obtained from the client and other parties.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G, and should not be relied upon by other parties, who should make their own enquires.

## 10. References

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## Figures





#### Legend:

  Approximate Site Boundary



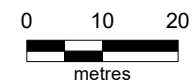
Job No: 56200

Client: Health Infrastructure

Version: R05 Rev A    Date 24/11/2020

Drawn By: JA    Checked By: JS

Scale 1:1,000



Coord. Sys. GDA 1994 MGA Zone 56

**Old Ronald McDonald House  
Westmead, NSW**

**SITE LAYOUT**

**FIGURE 1**





#### Legend:

- ▬ Approximate Site Boundary
- Proposed Road Upgrade
- MSCP Building Footprint



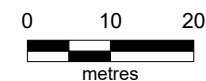
Job No: 56200

Client: Health Infrastructure

Version: R05 Rev A    Date 24/11/2020

Drawn By: JA    Checked By: JS

Scale 1:909



Coord. Sys. GDA 1994 MGA Zone 56

**Old Ronald McDonald House  
Westmead, NSW**

**DESIGN PLAN**

**FIGURE 2**



## Appendix A MSCP Design Plans



# The Children's Hospital at Westmead

## Stage 2 Redevelopment

HAWKESBURY ROAD, WESTMEAD, NSW, 2145

FOR INFORMATION                      APPLICATION    SSD-10434896

LEGEND:

→

PERSPECTIVE  
VIEWPOINT LOCATION

—

SITE OF WORKS



| SHEET LIST - DEVELOPMENT APPLICATION |  |            |
|--------------------------------------|--|------------|
| SHEET NO.                            | SHEET NAME                               | Issue Date |
| CHW-AR-DG-MCP-DA000                  | COVER SHEET AND DRAWING LIST             | 15/01/21   |
| CHW-AR-DG-MCP-DA003                  | SITE ANALYSIS PLAN - EXISTING TOPOGRAPHY | 21/12/20   |
| CHW-AR-DG-MCP-DA004                  | SITE ANALYSIS PLAN - EXISTING TREES      | 21/12/20   |
| CHW-AR-DG-MCP-DA005                  | SITE ANALYSIS PLAN - CIRCULATION         | 21/12/20   |
| CHW-AR-DG-MCP-DA006                  | SITE ANALYSIS PLAN - SOLAR STUDY         | 21/12/20   |
| CHW-AR-DG-MCP-DA007                  | SITE PLAN - EXISTING                     | 21/12/20   |
| CHW-AR-DG-MCP-DA008                  | SITE PLAN - DEMOLITION                   | 21/12/20   |
| CHW-AR-DG-MCP-DA009                  | SITE PLAN - PROPOSED ROOF LEVEL          | 21/12/20   |
| CHW-AR-DG-MCP-DA010                  | SITE PLAN - SOLAR STUDY - SHEET 01       | 21/12/20   |
| CHW-AR-DG-MCP-DA011                  | SITE PLAN - SOLAR STUDY - SHEET 02       | 21/12/20   |
| CHW-AR-DG-MCP-DA012                  | SITE SECTIONS AND ELEVATIONS             | 21/12/20   |
| CHW-AR-DG-MCP-DA031                  | PROPOSED PARKING LEVEL - P1 PLAN         | 21/12/20   |
| CHW-AR-DG-MCP-DA032                  | PROPOSED PARKING LEVEL - TYPICAL PLAN    | 21/12/20   |
| CHW-AR-DG-MCP-DA039                  | PROPOSED PARKING LEVEL - ROOF PLAN       | 21/12/20   |
| CHW-AR-DG-MCP-DA040                  | PROPOSED ELEVATIONS - SHEET 01           | 15/01/21   |
| CHW-AR-DG-MCP-DA041                  | PROPOSED ELEVATIONS - SHEET 02           | 21/12/20   |
| CHW-AR-DG-MCP-DA050                  | PROPOSED SECTIONS - SHEET 01             | 15/01/21   |
| CHW-AR-DG-MCP-DA051                  | PROPOSED SECTIONS- SHEET 02              | 15/01/21   |
| CHW-AR-DG-MCP-DA060                  | FACADE TYPES                             | 21/12/20   |
| CHW-AR-DG-MCP-DA095                  | PERSPECTIVE VIEWS - SHEET 01             | 21/12/20   |
| CHW-AR-DG-MCP-DA096                  | PERSPECTIVE VIEWS - SHEET 02             | 21/12/20   |
| CHW-AR-DG-MCP-DA097                  | PERSPECTIVE VIEWS - SHEET 03             | 21/12/20   |
| CHW-AR-RT-MCP-DA098                  | ARCHITECTURAL DESIGN REPORT              | 21/12/20   |
| CHW-AR-SC-MCP-DA092                  | SCHEDULE - MATERIAL                      | 21/12/20   |

|  |                      |          |
|--|----------------------|----------|
| D  | SSDA For Information | 15/01/21 |
| C  | SSDA For Information | 21/12/20 |
| B  | SSDA For Information | 27/11/20 |
| A  | Draft SSDA Issue     | 16/11/20 |
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www.hinfra.health.nsw.gov.au

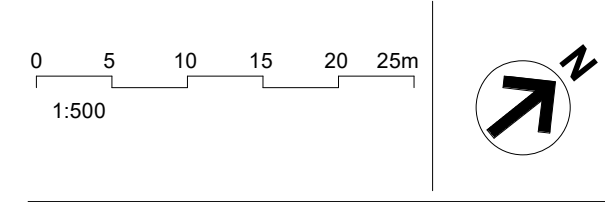
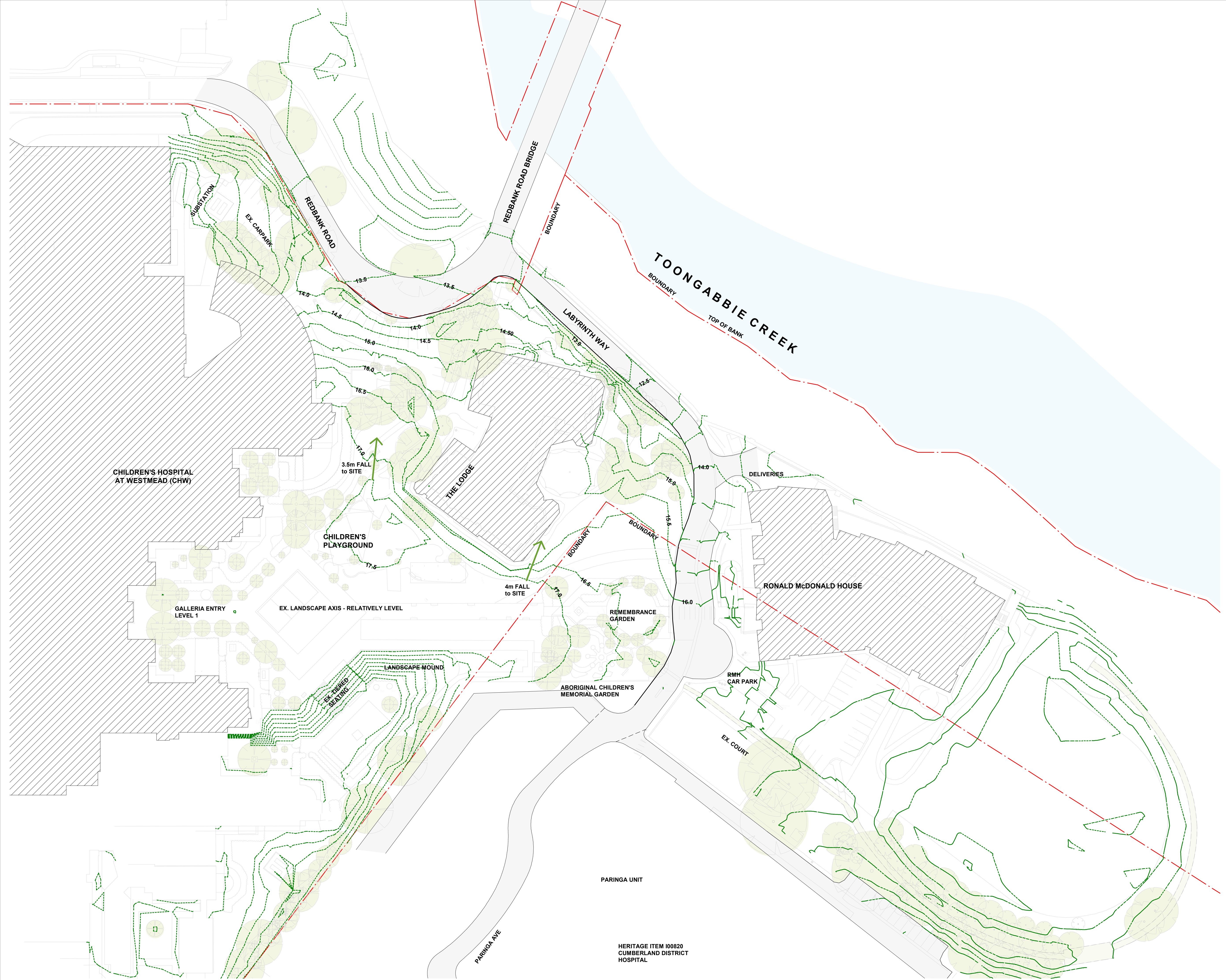
PROJECT  
The Children's Hospital at Westmead  
Stage 2 Redevelopment

Sheet Name  
**COVER SHEET AND DRAWING LIST**

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|------------|-----------|------------|----------|
| Scale      | 1:2000@A1 | Date       | 15/01/21 |
| Drawn By   | PH        | Checked By | SC       |
| Project No |           | Revision   | D        |
| Drawing No |           |            | 19038    |

CHW-AR-DG-MCP-DA000  
FOR INFORMATION





|                                      |                      |  |
|--------------------------------------|----------------------|--|
| C                                    | SSDA For Information | 21/12/20   |
| B                                    | SSDA For Information | 27/11/20   |
| A                                    | Draft SSDA Issue     | 16/11/20   |
| REV                                  |                      |  |
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|                                      |                      | enquiries.sdy@stantec.com  |
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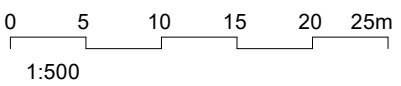
**blp**  
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Level 6, 1 Reserve Road  
St Leonards, NSW 2065  
T +61 2 9978 5402  
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**NSW Health**  
PROJECT  
The Children's Hospital at Westmead  
Stage 2 Redevelopment

|   |            |            |                     |
|---|------------|------------|---------------------|
| Sheet Name                                      |            | Date       |                     |
| <b>SITE ANALYSIS PLAN - EXISTING TOPOGRAPHY</b> |            | 21/12/20   |                     |
| Scale   | 1 : 500@A1 | Drawn By   | PH                  |
| Checked By                                      | SC         | Revision   | C                   |
| Project No                                      | 19038      | Drawing No | CHW-AR-DG-MCP-DA003 |
| FOR INFORMATION                                 |            |            |                     |

BM 360/CHW-Stage 2/CHW-BLP-MDL-APC-MCP-BLD.rvt  
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|     |                      |          |
|-----|----------------------|----------|
| C   | SSDA For Information | 21/12/20 |
| B   | SSDA For Information | 27/11/20 |
| A   | Draft SSDA Issue     | 16/11/20 |
| REV |                      |          |

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PROJECT  
The Children's Hospital at Westmead Stage 2 Redevelopment

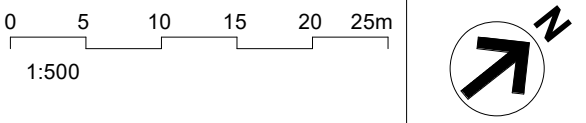
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SITE ANALYSIS PLAN - EXISTING TREES

|            |            |            |          |
|------------|------------|------------|----------|
| Scale      | 1 : 500@A1 | Date       | 21/12/20 |
| Drawn By   | PH         | Checked By | SC       |
| Project No |            | Revision   | C        |
| Drawing No |            |            | 19038    |

CHW-AR-DG-MCP-DA004

FOR INFORMATION





- LEGEND:**
- EXISTING
  - PEDESTRIAN CIRCULATION
  - VEHICULAR CIRCULATION

|                                      |                      |  |
|--------------------------------------|----------------------|--|
| C                                    | SSDA For Information | 21/12/20   |
| B                                    | SSDA For Information | 27/11/20   |
| A                                    | Draft SSDA Issue     | 16/11/20   |
| REV                                  |                      |  |
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PROJECT  
The Children's Hospital at Westmead  
Stage 2 Redevelopment

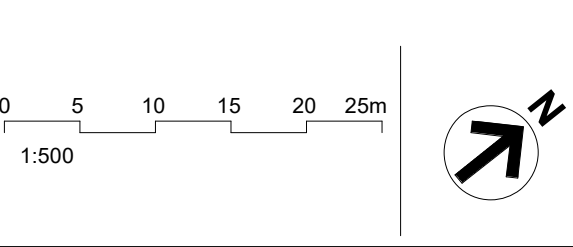
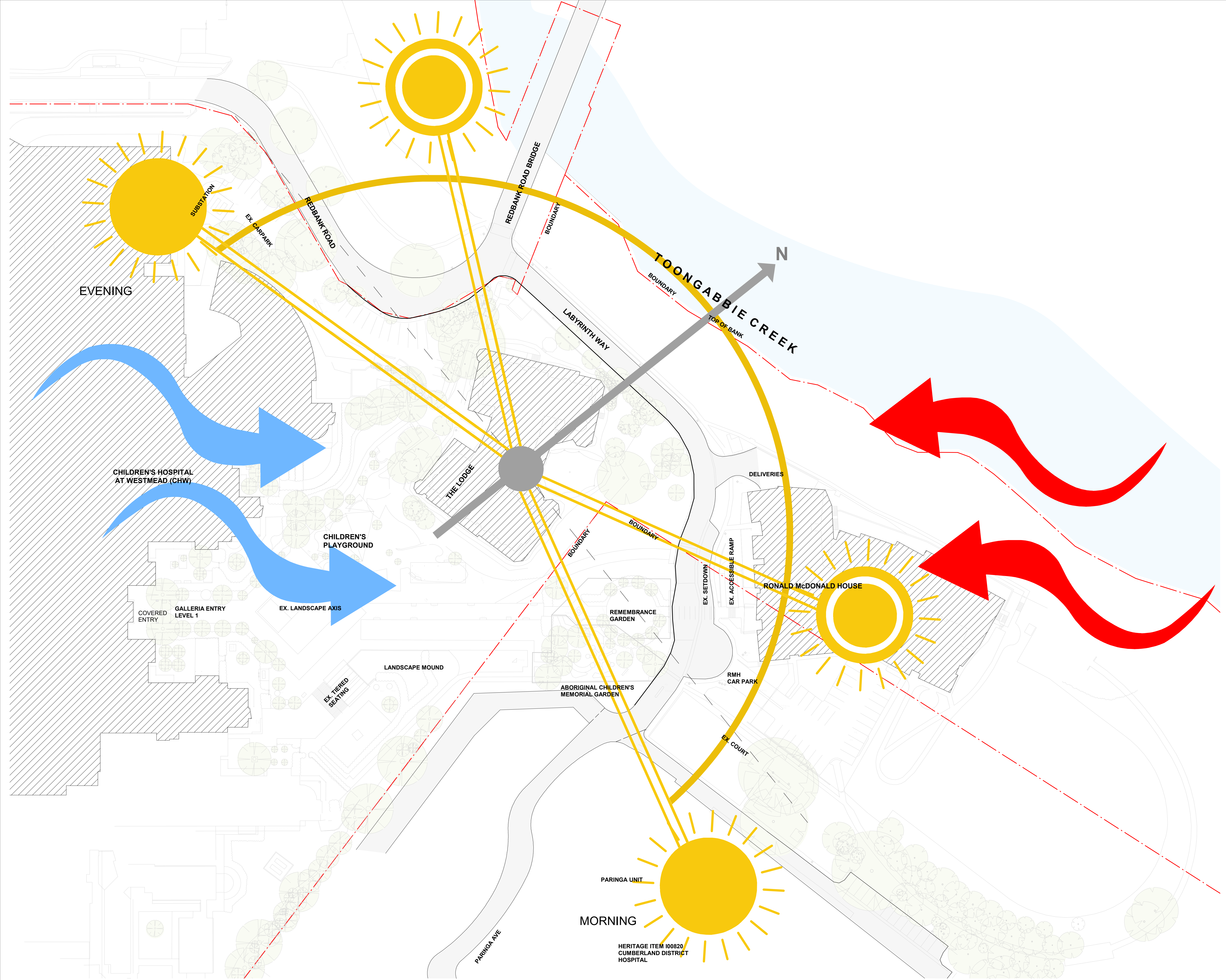
Sheet Name  
**SITE ANALYSIS PLAN - CIRCULATION**

|            |                     |          |
|------------|---------------------|----------|
| Scale      | Date                |          |
| 1:500@A1   | 21/12/20            |          |
| Drawn By   | Checked By          | Revision |
| PH         | SC                  | C        |
| Project No | 19038               |          |
| Drawing No | CHW-AR-DG-MCP-DA005 |          |

FOR INFORMATION

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- LEGEND:**
- CAMPUS PRECINCT BOUNDARY
  - SUN PATH - SUMMER
  - SUN PATH - WINTER
  - WARM NORTH-EAST SUMMER WINDS
  - COOL SOUTH-WEST WINTER WINDS

|                                      |                      |  |
|--------------------------------------|----------------------|--|
| C                                    | SSDA For Information | 21/12/20   |
| B                                    | SSDA For Information | 27/11/20   |
| A                                    | Draft SSDA Issue     | 16/11/20   |
| REV                                  |                      |  |
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**PROJECT**  
The Children's Hospital at Westmead  
Stage 2 Redevelopment

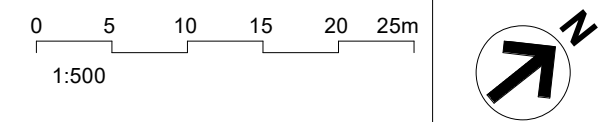
Sheet Name  
**SITE ANALYSIS PLAN - SOLAR STUDY**

|                 |                     |          |
|-----------------|---------------------|----------|
| Scale           | Date                |          |
| As indicated@A1 | 21/12/20            |          |
| Drawn By        | Checked By          | Revision |
| PH              | SC                  | C        |
| Project No      | 19038               |          |
| Drawing No      | CHW-AR-DG-MCP-DA006 |          |

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- LEGEND:**
- EXISTING
  - EXISTING TO BE PROTECTED
  - EXISTING PLAYGROUND

REFER TO THE DETAIL SURVEY PLANS FOR FURTHER EXISTING DETAIL

EXISTING

|                         |                      |  |
|-------------------------|----------------------|--|
| C                       | SSDA For Information | 21/12/20   |
| B                       | SSDA For Information | 27/11/20   |
| A                       | Draft SSDA Issue     | 16/11/20   |
| REV                     |                      |  |
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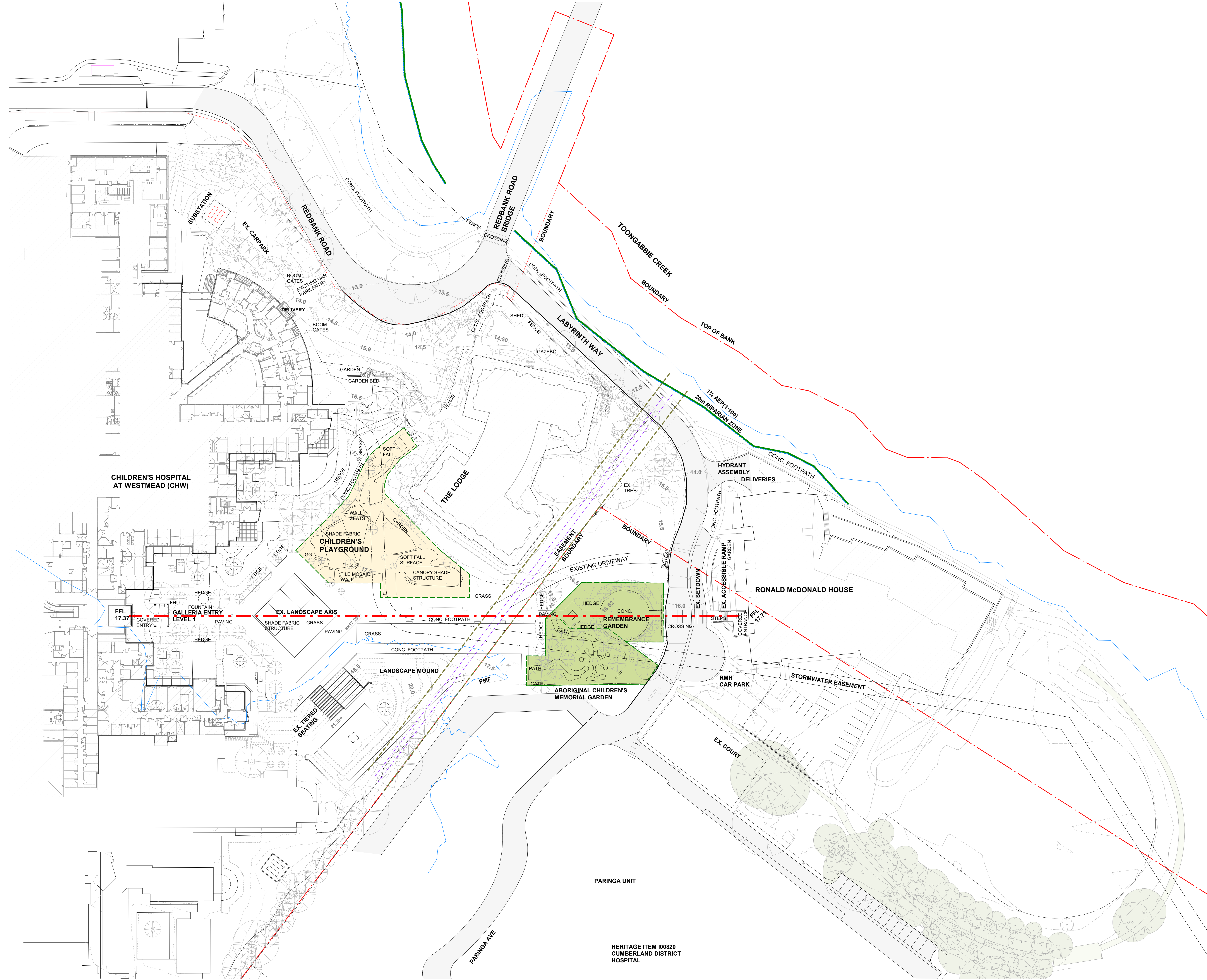
**Health Infrastructure NSW**  
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**The Children's Hospital at Westmead Stage 2 Redevelopment**

Sheet Name  
**SITE PLAN - EXISTING**

|                     |          |            |          |
|---------------------|----------|------------|----------|
| Scale               | 1:500@A1 | Date       | 21/12/20 |
| Drawn By            | PH       | Checked By | SC       |
| Project No          |          | Revision   | C        |
| Drawing No          |          |            | 19038    |
| CHW-AR-DG-MCP-DA007 |          |            |          |

FOR INFORMATION

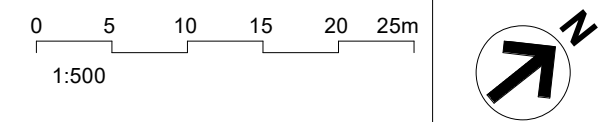


PARINGA UNIT

HERITAGE ITEM I00820  
CUMBERLAND DISTRICT HOSPITAL

BIM 360/CHW-Stage 2/CHW-BLP-MDL-APC-MCP-BLD-14  
16/12/2020 3:40:32 PM





- DEMOLITION NOTES:**
- NOTE 1. DEMOLISH EXISTING BUILDING.
  - NOTE 2. REMOVE EXISTING TREES (TYPICAL).
  - NOTE 3. PART DEMOLISH EXISTING CAR PARK.
  - NOTE 4. REMOVAL OF PLAYGROUND EQUIPMENT AS EXEMPT DEVELOPMENT.
  - NOTE 5. EXTENT OF PART EXISTING ROAD DEMOLITION.
  - NOTE 6. PART DEMOLISH EXISTING FOOTPATH AND ADJACENT LANDSCAPE FOR PROPOSED ROAD ALTERATION WORKS.

- LEGEND:**
- TO BE DEMOLISHED
  - EXISTING / RETAINED
  - INDICATIVE HOARDING LINE
  - EXISTING TO BE PROTECTED
- REFER TO THE DETAIL SURVEY PLANS FOR FURTHER EXISTING DETAIL

# DEMOLITION

|                                      |                      |  |
|--------------------------------------|----------------------|--|
| C                                    | SSDA For Information | 21/12/20   |
| B                                    | SSDA For Information | 27/11/20   |
| A                                    | Draft SSDA Issue     | 16/11/20   |
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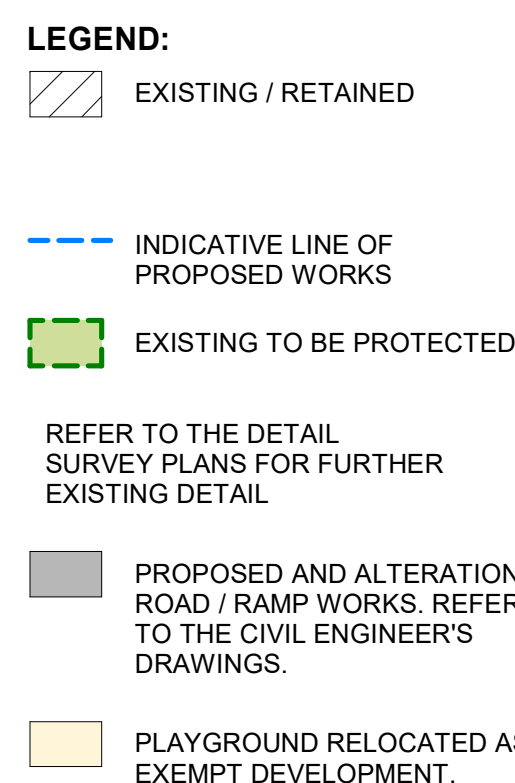
**The Children's Hospital at Westmead Stage 2 Redevelopment**  
PROJECT

|            |                     |                        |          |
|------------|---------------------|------------------------|----------|
| Sheet Name |                     | SITE PLAN - DEMOLITION |          |
| Scale      | 1:500@A1            | Date                   | 21/12/20 |
| Drawn By   | PH                  | Checked By             | SC       |
| Project No | 19038               | Revision               | C        |
| Drawing No | CHW-AR-DG-MCP-DA008 |                        |          |

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PROPOSED

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**PROJECT**  
The Children's Hospital at Westmead  
Stage 2 Redevelopment

Sheet Name  
**SITE PLAN - PROPOSED ROOM**  
**LEVEL**

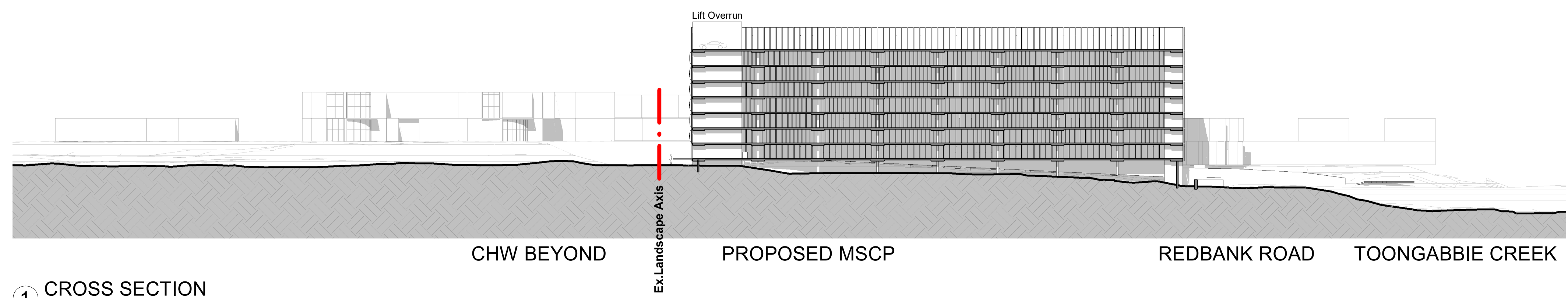
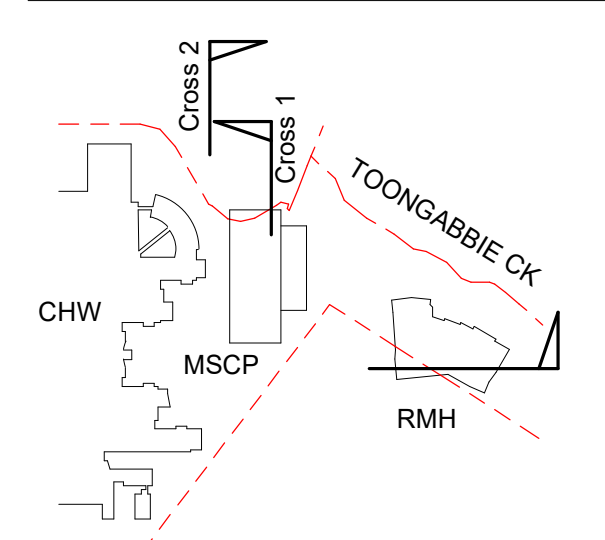
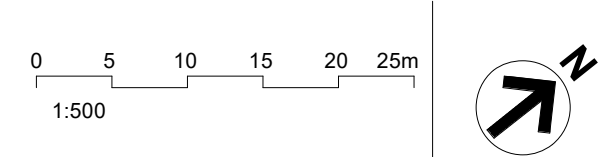
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| Drawn By<br>PH    | Checked By<br>SC |
| Project No        | Revision<br>C    |
|                   | 19038            |

Drawing No  
**CHW-AR-DG-MCP-DA009**

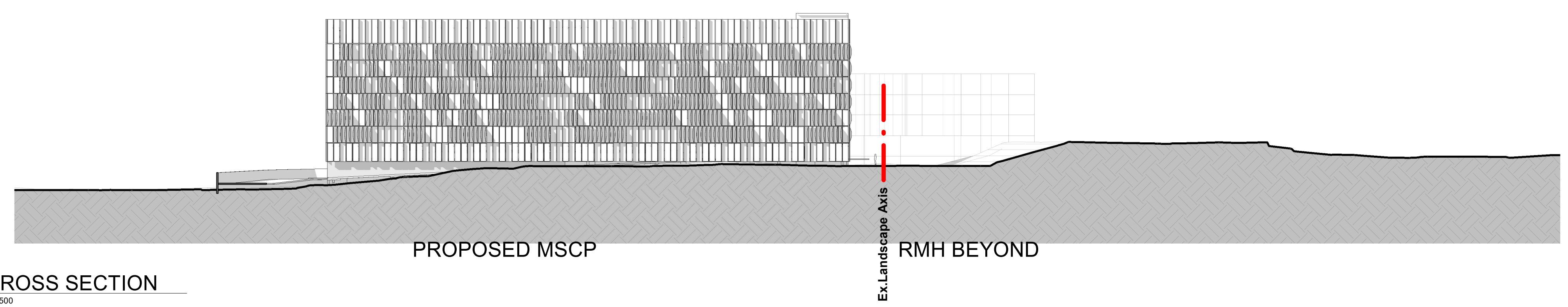
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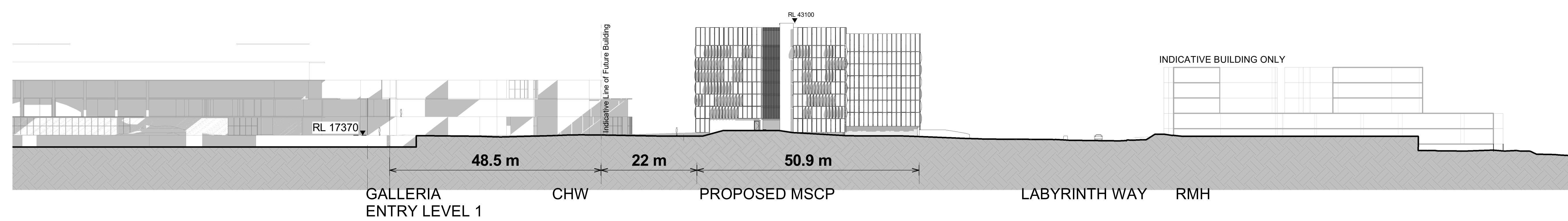




1 CROSS SECTION  
1:500



2 CROSS SECTION  
1:500



3 SITE SECTION THROUGH LANDSCAPE AXIS  
1:500

# SITE SECTIONS

|  |                      |          |
|--|----------------------|----------|
| C  | SSDA For Information | 21/12/20 |
| B  | SSDA For Information | 27/11/20 |
| A  | Draft SSDA Issue     | 16/11/20 |
| REV  |                      |          |
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**PROJECT**  
The Children's Hospital at Westmead  
Stage 2 Redevelopment

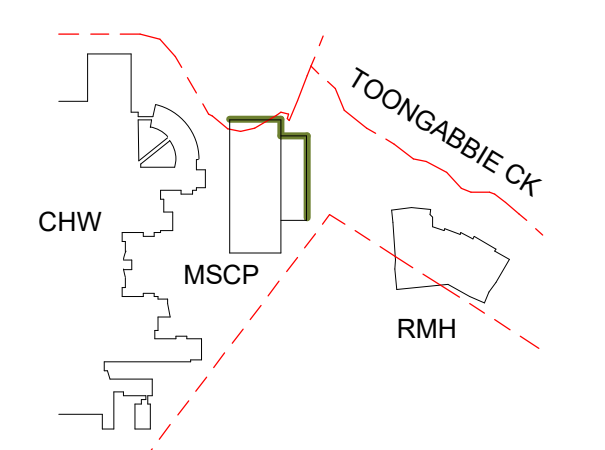
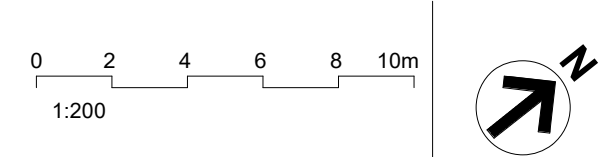
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**SITE SECTIONS AND ELEVATIONS**

|                     |            |
|---------------------|------------|
| Scale               | Date       |
| 1:500@A1            | 21/12/20   |
| Drawn By            | Checked By |
| PH                  | SC         |
| Project No          | Revision   |
|                     | C          |
| Drawing No          | 19038      |
| CHW-AR-DG-MCP-DA012 |            |

FOR INFORMATION

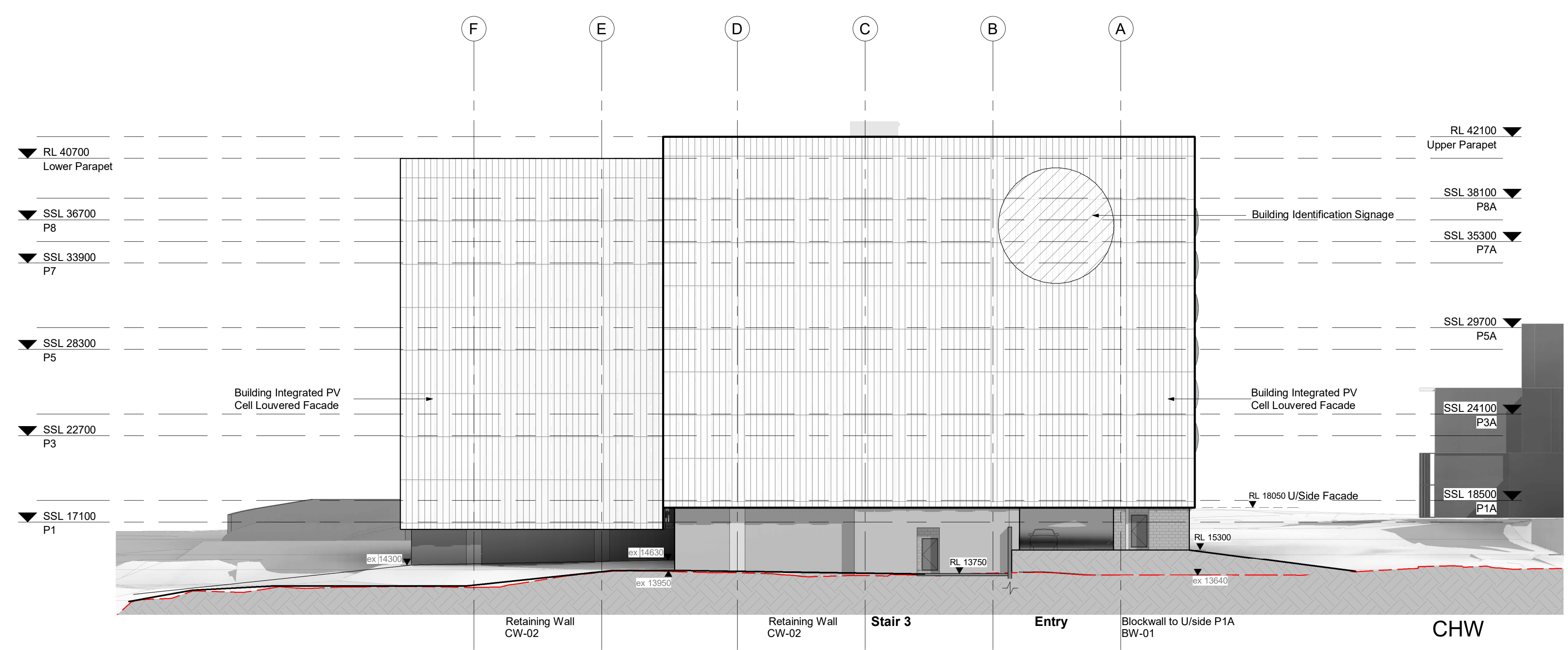
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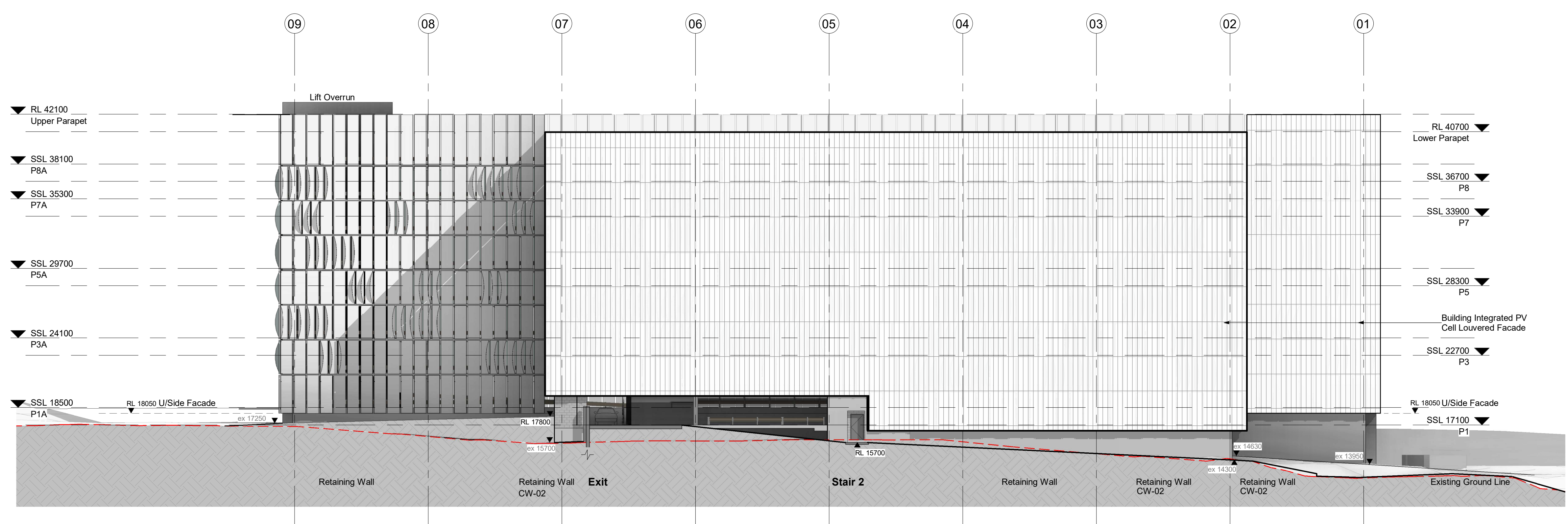


**GENERAL NOTE:**  
TO BE READ IN CONJUNCTION WITH  
FACADE TYPES DRAWING DA060.  
SCHEDULE - MATERIAL DA092.

**KEY:**  
AS MARKED IN GREEN ON THE KEY  
PLAN ABOVE, BIPV CELL LOUVRED  
FACADE APPLIED TO THE NORTH AND  
EAST ELEVATIONS.



1 PROPOSED ELEVATION - NORTH  
**North**



2 PROPOSED ELEVATION - EAST  
**East**

|     |                      |          |
|-----|----------------------|----------|
| F   | SSDA For Information | 15/01/21 |
| E   | SSDA For Information | 21/12/20 |
| D   | SSDA For Information | 27/11/20 |
| C   | Draft SSDA Issue     | 16/11/20 |
| B   | FOR INFORMATION      | 23/10/20 |
| A   | FOR INFORMATION      | 11/09/20 |
| REV |                      |          |

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PROJECT  
**The Children's Hospital at Westmead Stage 2 Redevelopment**

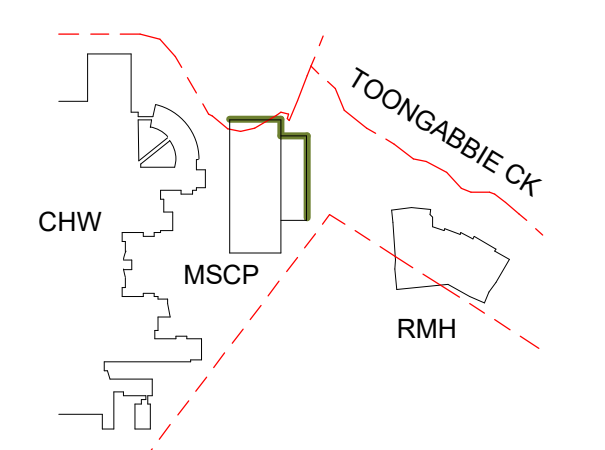
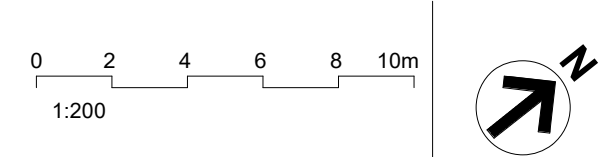
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**PROPOSED ELEVATIONS - SHEET 01**

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|------------|---------------------|------------|----------|
| Scale      | 1 : 200@A1          | Date       | 15/01/21 |
| Drawn By   | PH                  | Checked By | SC       |
| Project No | 19038               | Revision   | F        |
| Drawing No | CHW-AR-DG-MCP-DA040 |            |          |

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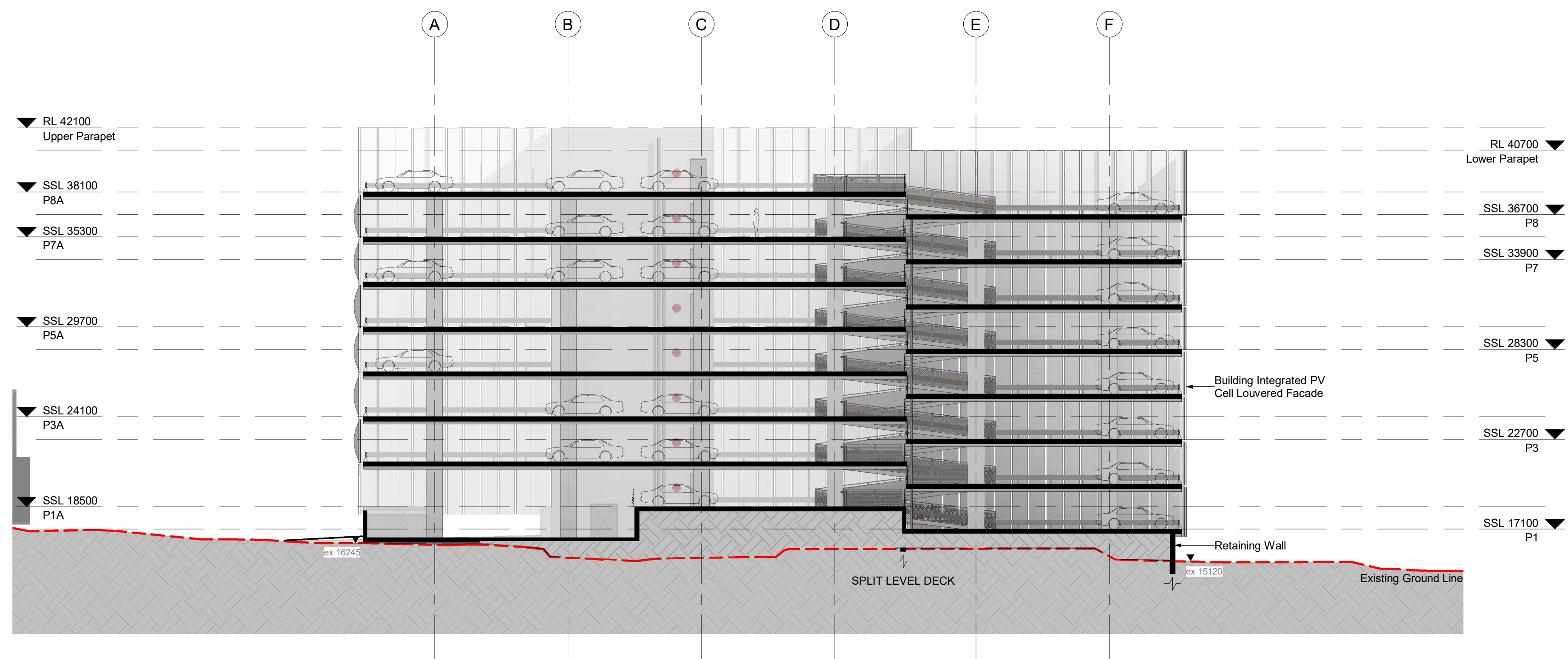
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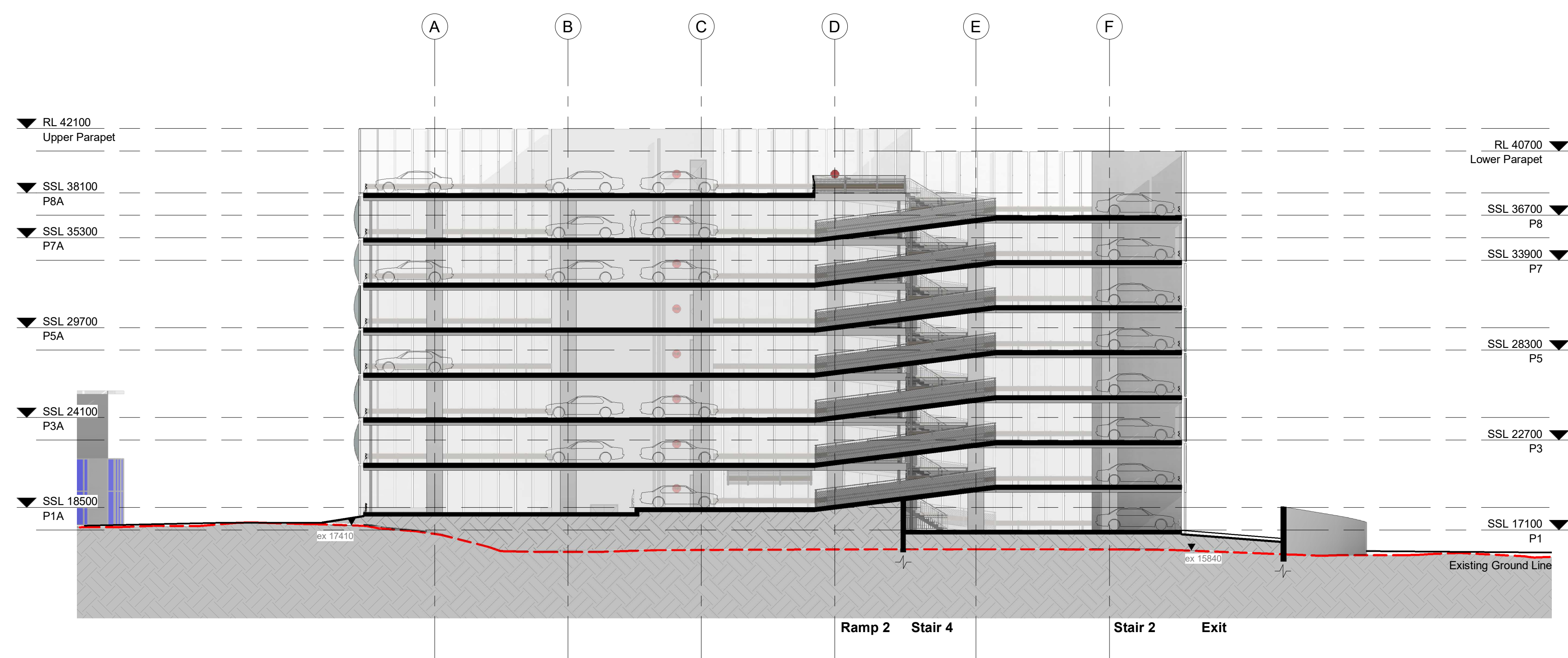


**GENERAL NOTE:**  
TO BE READ IN CONJUNCTION WITH  
FACADE TYPES DRAWING DA060.  
SCHEDULE - MATERIAL DA092.

**KEY:**  
AS MARKED IN GREEN ON THE KEY  
PLAN ABOVE, BIPV CELL LOUVRED  
FACADE APPLIED TO THE NORTH AND  
EAST ELEVATIONS.



SECTION 1  
Section 1



SECTION 2  
Section 2

|     |                      |          |
|-----|----------------------|----------|
| F   | SSDA For Information | 15/01/21 |
| E   | SSDA For Information | 21/12/20 |
| D   | SSDA For Information | 27/11/20 |
| C   | Draft SSDA Issue     | 16/11/20 |
| B   | FOR INFORMATION      | 23/10/20 |
| A   | FOR INFORMATION      | 11/09/20 |
| REV |                      |          |

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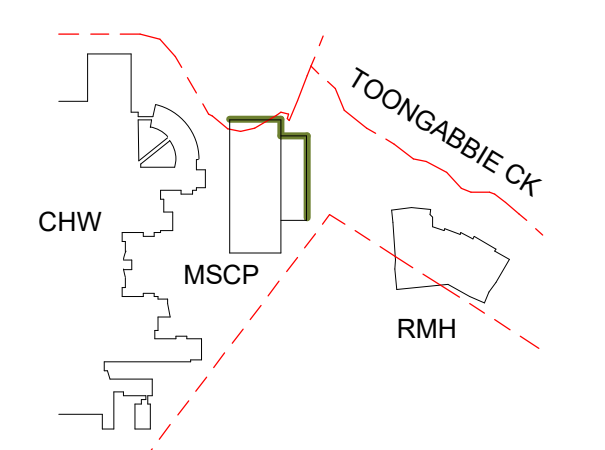
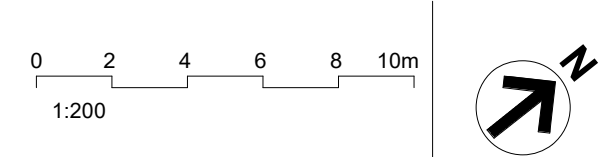
PROJECT  
The Children's Hospital at Westmead Stage 2 Redevelopment

|   |                  |               |
|---|------------------|---------------|
| Sheet Name<br><b>PROPOSED SECTIONS - SHEET 01</b> |                  |               |
| Scale<br>1 : 200@A1                               | Date<br>15/01/21 |               |
| Drawn By<br>PH                                    | Checked By<br>SC | Revision<br>F |
| Project No<br>19038                               |                  |               |
| Drawing No<br><b>CHW-AR-DG-MCP-DA050</b>          |                  |               |

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**KEY:**  
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| REV | DESCRIPTION          | DATE     |
|-----|----------------------|----------|
| F   | SSDA For Information | 15/01/21 |
| E   | SSDA For Information | 21/12/20 |
| D   | SSDA For Information | 27/11/20 |
| C   | Draft SSDA Issue     | 16/11/20 |
| B   | FOR INFORMATION      | 23/10/20 |
| A   | FOR INFORMATION      | 11/09/20 |

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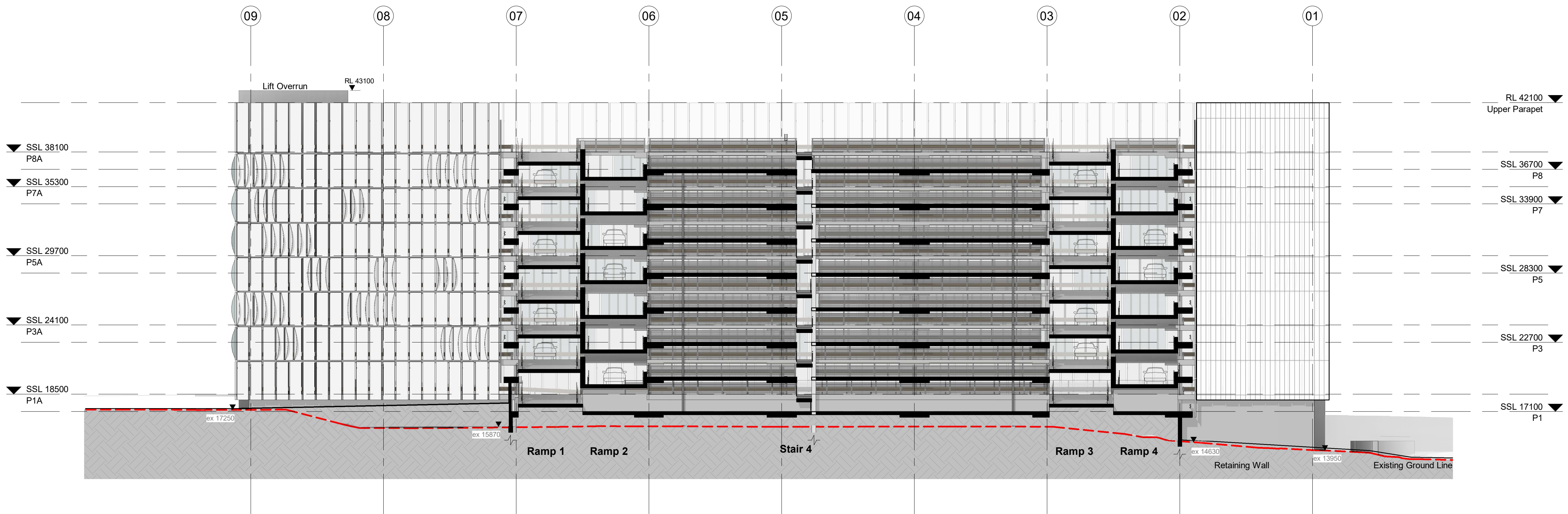
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www.hinfra.health.nsw.gov.au

PROJECT  
**The Children's Hospital at Westmead Stage 2 Redevelopment**

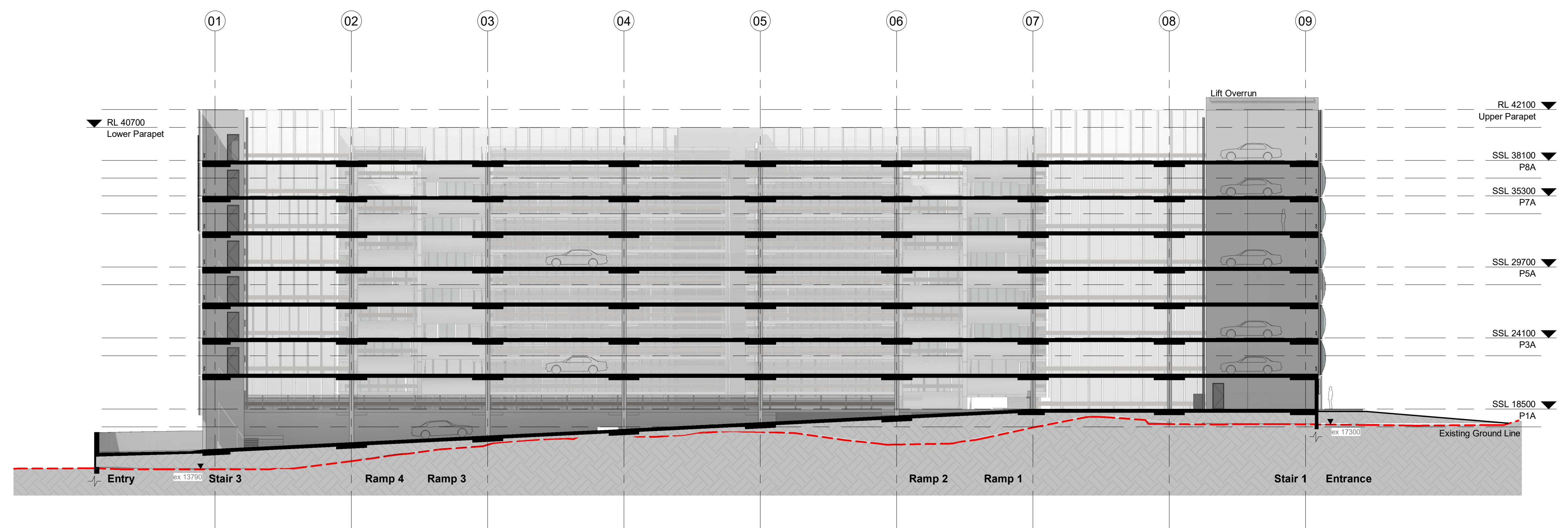
Sheet Name  
**PROPOSED SECTIONS- SHEET 02**

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| Drawn By            | PH         | Checked By | SC       |
| Project No          |            | Revision   | F        |
| Drawing No          |            |            | 19038    |
| CHW-AR-DG-MCP-DA051 |            |            |          |

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SECTION  
3  
Section 3



SECTION  
4  
Section 4



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#### Document Status

| Rev No. | Author                             | Reviewer        | Approved for Issue      |                         |            |
|---------|------------------------------------|-----------------|-------------------------|-------------------------|------------|
|         |                                    | Name            | Name                    | Signature               | Date       |
| A       | Joshua Stainlay/<br>John De Martin | Jessica Staehli | Draft for Client Review | Draft for Client Review | 1/12/2020  |
| 0       | Mitchell Hodgins                   | John De Martin  | John De Martin          | <i>J. De Martin</i>     | 28/01/2021 |



