Billard Leece Partnership
Campbelltown Hospital Redevelopment Stage 2 Feasibility Concept Design Report

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Campbelltown Hospital Redevelopment
Stage 2 Concept Design Report
Volume 1

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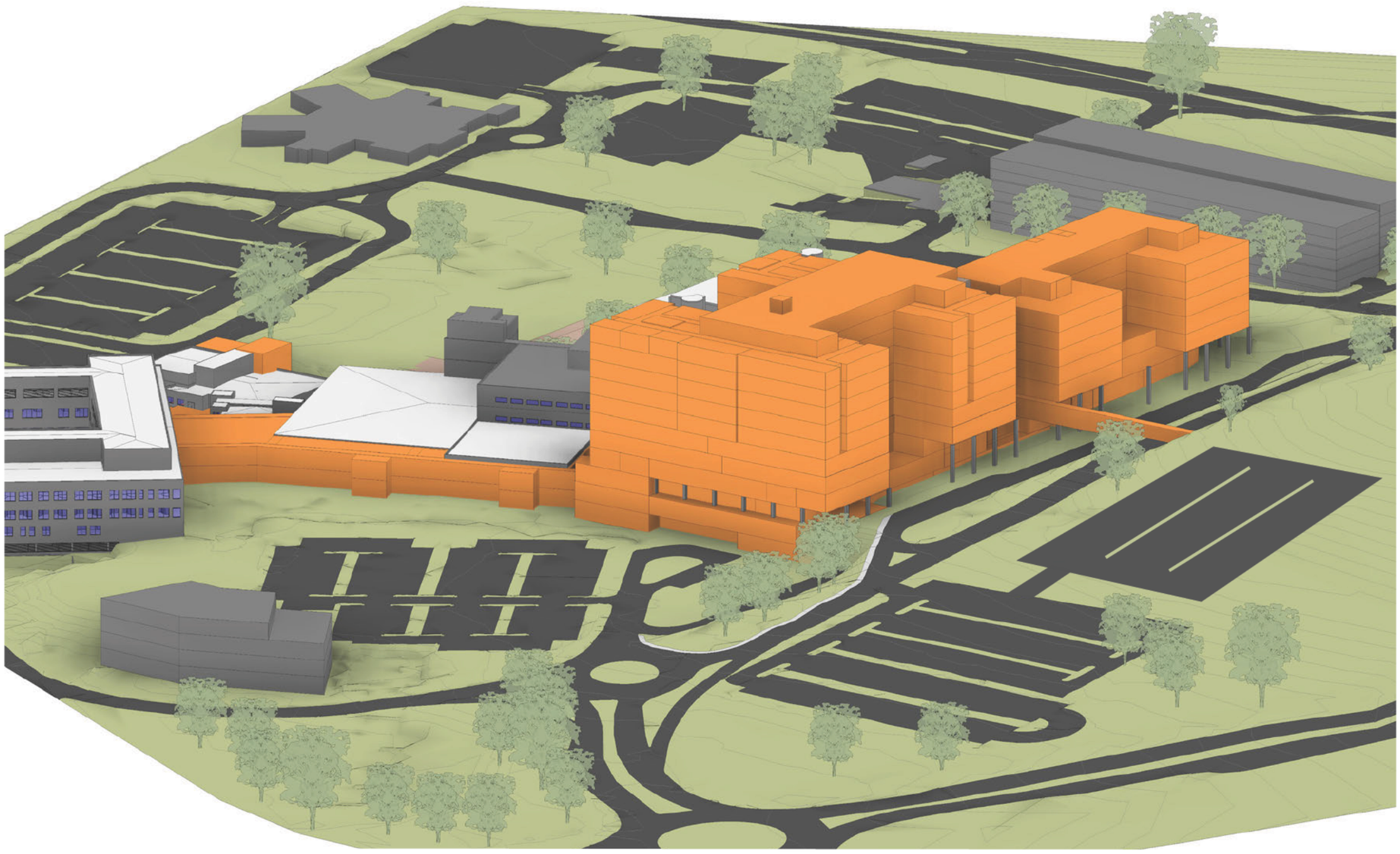

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Visual History & Context

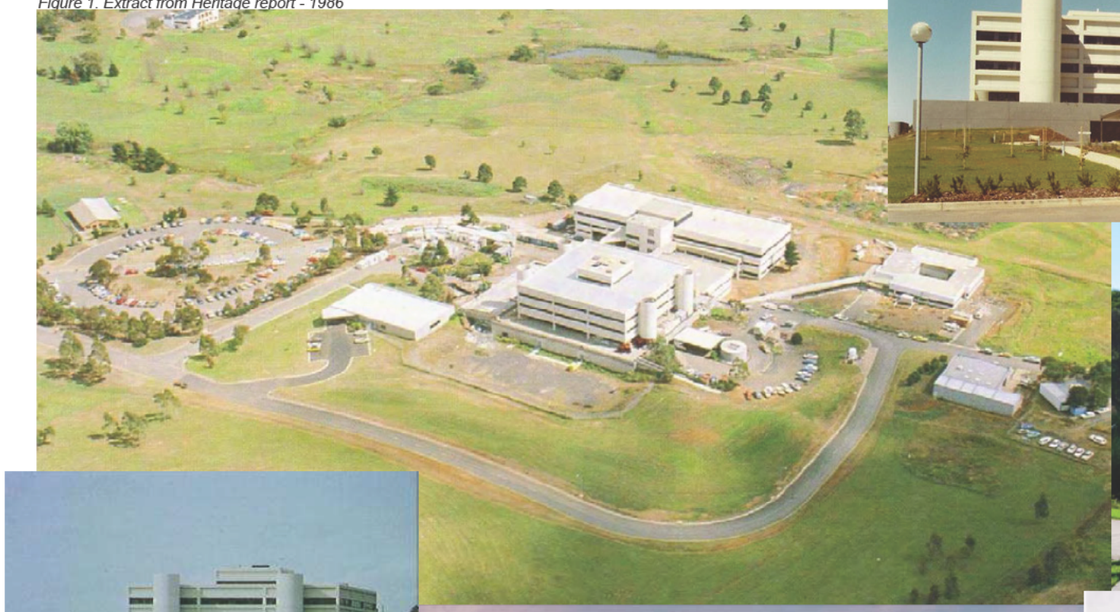


Figure 1. Extract from Heritage report - 1986

Figure 2. View of new Building D from Birunji Creek

Figure 3. Newest Additions to Campbelltown Hospital

Figure 4. Opening Day image - 1977

1.0 Executive Summary

1.1 Project Scope

This Concept Design Report documents the concept design of Stage 2 Redevelopment of the Campbelltown Hospital on behalf of Health Infrastructure NSW and the South Western Sydney Local Health District. The current project design team were commissioned in September 2017 to complete this design study task.

The project budget for Stage 2 is $632m.

The Stage 2 Redevelopment of Campbelltown Hospital is envisaged as a single project to be procured in a number of phases of work, providing services to meet projected needs in 2026/2027.

The project will occur in sequential stages - each enabling the next stage, with Stage 1 being the Multi-Deck Carpark project (currently out to tender) and Stage 2 the new Clinical Services Hospital redevelopment.

The concept design defines the scope, identifies the location of building works on the site, describes key clinical relationships to optimise and improve patient centred care and operational efficiencies, and looks at staging within the context of ensuring the existing facility can continue to function throughout the redevelopment of the site.

At the time of the report the project design team have made the following assumptions:

- Planning option based on working version of SoA (V2.2 - Issue 18.04.2018)
- Mental Health Civil Secure functional area allowance – 1990m2 (Gross Area 2027) subject to separate funding
- Mental Health Acute Older Persons functional area allowance – 1440m2 (Gross Area 2027) subject to separate funding

The objective of this concept design phase was to define the Stage 2 scope of the Campbelltown Hospital Redevelopment to allow the project to move forward into schematic design. In order for this to happen there were a number of items that were benchmarked to be incorporated and developed at the schematic design phase. A full list of these items can be found in section 13.3 of this report

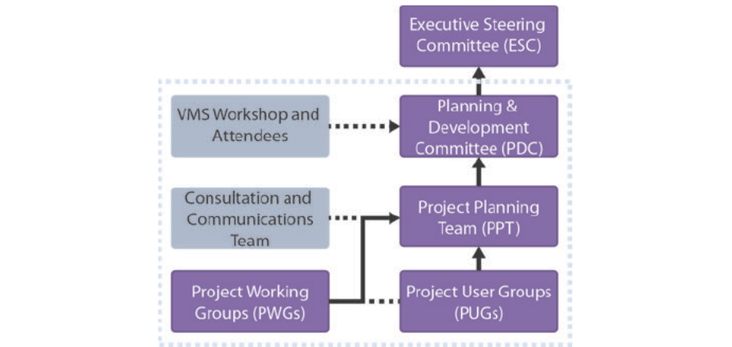
2.0 Terms of Reference

2.1 Project Team

The project team working on the feasibility & concept design phase for the Campbelltown Hospital Redevelopment Project (CHRP) is made up of representatives from the Sydney South West Area Health Service who forms part of the South West Sydney Local Health District, NSW Health Infrastructure, and the project design team.

2.2 Project Governance Structure

The Campbelltown Hospital Redevelopment Project utilises NSW Health Infrastructure's Standard Project Governance Structure which is compliant with NSW Health's Process of Facility Planning. The governance structure for the planning and concept design phase is shown in the figure below.



2.0 Terms of Reference

2.3 Methodology

The process undertaken by The Project Team for the feasibility concept design phase was focused on identifying a preferred cost option and site arrangement of department adjacencies for refurbishment that works with the overall site masterplan.

The selection process involved a detailed review and analysis including:

- Review of current documentation including site plans, service plans and other relevant documents.
- Review and consultation with Campbelltown Hospital, South Western Sydney LHD and HI regarding health service planning assumptions.
- Development and testing of options for funded and future stages of the project.

Various options were presented to the Campbelltown Hospital executive as well as South Western Sydney Local Health District and NSW Health Infrastructure including the Expert Review Group (ERG). On conclusion of the various presentations, it was determined that the option titled “Option 1.1” provided the most optimal strategy for the delivery of services and that Option 1.1 should be further refined for finalising the Business Case (Concept Design Option). Further information regarding the options that were presented can be found in the appendicies.

The development of the feasibility concept design was undertaken in consultation with representatives including:

- Campbelltown Hospital service
- South Western Sydney Local Health District
- NSW Health Infrastructure, including the Expert Review Group
- NSW Health
- Root Partnerships - Project Manager
- Billard Leece Partnership – Architects
- Aecom – Cost planning

The group interaction at master plan design phase was kept at an executive level to ensure that the information was strategic in nature and focused on a whole of hospital approach.

2.4 Documentation Review

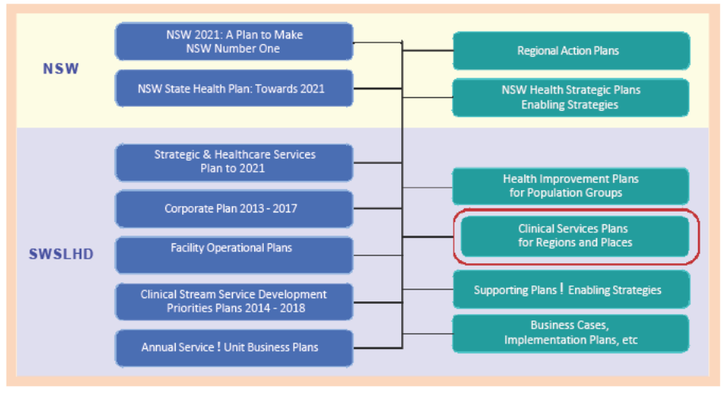
Documentation that has been undertaken for the concept design stage has included but is not limited to the following items:

- Documentation of existing conditions. This has included the refinment of existing floor plans that have been provided by HI to include further details of the existing facilities and whole site.
- Identification of facility location including clarification of services located around the site.
- Refinement of the master planning, including refinement of the location and placement of various option proposals.
- Documentation of site conditions, including detailed investigations of site levels, including terrain analysis and sectional studies.
- Documentation of the proposed multi- deck car parking facility alongside associated early works, staging and site works.
- Façade design and Building 1 envelope studies.

3.0 Service Planning Summary

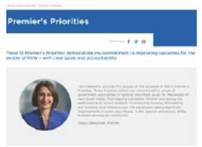
3.1 Links to Government Policy

Clinical Services Plans fit within the policy and planning frameworks of the NSW Government, NSW Ministry of Health and SWSLHD as follows:



Commonwealth and State Government health policy directions and service priority areas provide a framework for delivering health services in NSW. These are updated on a regular basis to reflect emerging international and national trends. Service planning activities in the health sector are informed by and aligned with, strategic plans that are linked to relevant system-wide policies, plans and programs. The proposed Campbelltown Hospital Redevelopment project and range of services aligns with the strategic priorities and objectives for health care in respect to the following:

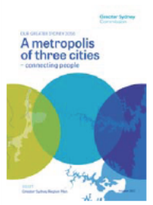
Strategic Priority/Objective	Key Points	Alignment with Project

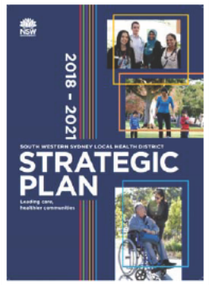
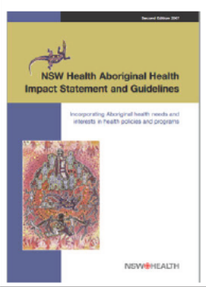
Premier's Priorities 	• **Improving service levels in hospitals**
	  ○ 81 per cent of patients through emergency departments within four hours by 2019
	• **Delivering Infrastructure**
	  ○ Key metropolitan, regional and local infrastructure projects to be delivered on time and on budget
	• **Improving government services**
	  ○ Improve customer satisfaction with key government services every year during this term of government to 2019
		• Expansion of emergency department and model of care for adults, children and persons with mental health issues
		• Identification of clinical infrastructure priorities and efficient built forms to maximise the impact of capital investment
		• Increase in broad range of services capacity and capability in the Macarthur region to provide localised healthcare, reverse flows from Liverpool and SCHN, and support other hospitals in the Macarthur region

NSW State Priorities 	• **Delivering Strong Budgets**
	  ○ Expenditure growth to be less than revenue growth
	• **Cutting wait times for planned surgeries**
	  ○ Increasing on-time admissions for planned surgery in accordance with medical advice
		• Integrated models of delivery and care for clinical and non-clinical services and departments to enable efficient cost structures (reflected in FIS)
		• Expansion of surgical capacity and capability (additional theatres and inpatient / day only spaces). Introduction of surgical technologies to enhance service throughput

NSW State Health Plan: Towards 2021 	• Keeping people healthy: providing world class clinical care; and delivering truly integrated care • Supporting and developing the workforce; supporting and harnessing research and innovation; enabling eHealth; and designing and building future-focussed infrastructure • Generating new evidence and translating knowledge into the delivery of a better health system to improve health	• Addressing the significantly high rates of preventable hospitalisation, and the high rates of obesity, cancer, renal disease and smoking-related health issues • Continue to collaborate with universities to attract, train and retain nursing and medical staff • Embed different, new and evolving models of care in to clinical and non-clinical services at policy setting, operational level, and through the functional briefing process

3.0 Service Planning Summary

Strategic Priority/Objective	Key Points	Alignment with Project
	region. • The Strategy outlines the following Growth Principles; o Confident & Self Driven o Connected Place o Centre of Opportunity o No grey to be seen o City & Bush o The Good Life	workers with increase in workforce and third party partnerships. • Environmentally sustainable design. • Landscape strategy in partnership with Mt Annan Botanical Gardens. • Engagement with community members, and overall sense of community in tertiary level hospital.
Campbelltown City Council Strategic Plan (2010-2020) 	• Goal 1 - Quality Living: a healthy and safe community through planning advocacy and compliance • Goal 2 - Leadership: investment in strong leadership through training and development; and a collaborative and flexible approach that enhances, supports and continuously improves service quality • Goal 3 - City Planning: planning aligned to local needs and State Plans; and, an effective Development Plan that is sustainable and builds strong communities • Goal 4 - Environmental Responsibility: opportunities to conserve energy and resources are maximised • Goal 5 - Local Economy: business and industry partnerships which support growth in the local economy; advocacy for local employment; and, promotion of community, events facilities, and attractions to enhance the local economy	• Significant increase in services capacity and capability across broad range of services • Workforce planning and research and education • Services align to the CSP through 2026/27 • Significant increase for employment and job opportunities locally in Campbelltown for clinical and non-clinical staff • Creation of local industry and business opportunities
Greater Sydney Commission Region Plan 	• Infrastructure supporting new developments • Working together to grow a Greater Sydney • Celebrating diversity and putting people at the heart of planning • Giving people housing choices • Designing places for people • Developing a more accessible and walkable city • Creating the conditions for a stronger economy • Valuing green spaces and landscape • Using resources wisely • Adapting to a changing world	• Significant targeted capital investment • Aligned to the GSC concept of three cities • High level of community participation as demonstrated by the Visioning Workshop and Consumer Representation in planning • Providing jobs locally where housing is more affordable • Embedding the principle of greenspace within the master plan. i.e. the collaboration zone

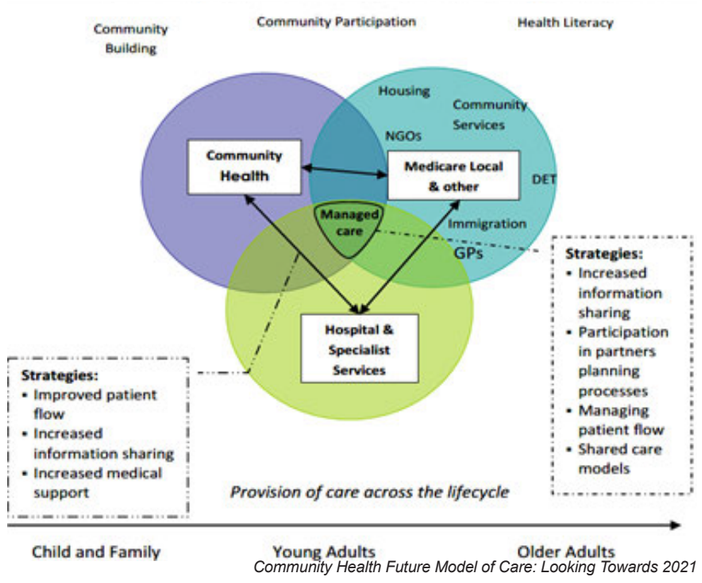
Strategic Priority/Objective	Key Points	Alignment with Project
SWSLHD Strategic Plan 	The new SWSLHD Strategic Plan (2018-2021) identifies six (6) Strategic Directions which will influence a comprehensive range of strategies aimed at supporting the implementation of this Vision: • Safe, Quality Care; • A Healthy Community; • Collaborative Partnerships; • A Healthcare System of the Future; • Our People Make a Difference; and • A Leader in Research and Teaching.	• Identification of clinical infrastructure priorities to provide capacity across broad range of high demand services whilst leveraging the benefits of Macarthur network of hospitals and the SCHN (complement not duplicate) • Continued collaboration partners such as universities and SCHN • Embed ICT strategies for eMR2, eHealth NSW, HealtheNet, eMeds, etc. • Focus on treating people in the community and hospital avoidance
State-wide Mental Health Infrastructure Program	• This Program is in the planning phase with a focus on prioritising investment in infrastructure to enable growth in Mental Health services. • Two new services are identified within the priority list to be established on the Campbelltown Hospital campus are: o Older Persons Mental Health Unit; and o Civil Secure Mental Health Service • The establishment of these units are to be funded through the Program and are in addition to the $632m	• Full range of services including services for children and adolescents, young people, adults and older people • Increase in role delineation to level 5/6 • Integrated services model • Older Persons MH Unit (LHD Network Service) • Civil Secure Mental Health Service (Statewide Referral) • Whilst funding for these units is outside the $632m, planning and design is progressing to ensure integration of the services.
Aboriginal Health Impact Statement 	• To keep people healthy • To provide the health care that people need • To deliver high quality health care • To manage health services well	• Improved service access and patient flows, and to provide the right care for right people at the right time and in the right location • Address the significantly high rates of preventable hospitalisation, and the high rates of obesity, cancer, renal disease and smoking-related health issues • Targeted service development for disadvantaged groups which improve timely access to services
Re-Imagining Campbelltown-Executive Summary (Draft)	• Draft strategy prepared to leverage growth, investment and opportunities for the Macathur	• Focus on integration and accessibility within the region. • Attraction of investment and

3.0 Service Planning Summary

3.2 Model of Care

To meet the challenges of the future, new and innovative ways of providing health services are required. Health services within Macarthur will be delivered within an integrated framework providing a continuum of care across a broad spectrum of community and hospital based services, with a need for coordination of care at the interface between primary, secondary and tertiary health care services.

Partnerships with government and non-government agencies, with the SWSPHN as the core major strategic partnership, will become increasingly important to manage the burden that an anticipated increase in mental illness, chronic and complex disease will create. Schematically, the model of care for the future is illustrated as follows:



Community Health Future Model of Care: Looking Towards 2021

The following facility-wide design principles will be adopted to ensure a more efficient model of care:

- Patient Centred Care
- Service Integration
- Technology
- Flows – patient and staff/service
- Security

These principles will be applied to all departments that require expansion, with the following departments being the key clinical and support services that require development:

Emergency Department
The new model of care will focus on reducing wait times and facilitating flow through the department, supported by a range of allied health services. The service will provide a rapid assessment, diagnostic and treatment service, with patients streamed from triage according to clinical acuity, predicted length of stay and likely departure destination. There will be separate flows for adult and paediatric patients.

Perioperative Services
A range of surgery models will be provided within the Perioperative Services including high volume short stay, Interventional Services and models for Emergency Operations and Emergency Caesarean Section. The separation of high turnover, routine surgery and emergency surgery will be scheduled to improve patient flow and prevent cancellations and delays

Cancer Services
Cancer services will be provided via a multidisciplinary team framework within tumour specific streams, with a model of care and design to enhance patient centred care and interdisciplinary collaboration.

Nuclear Medicine
The Nuclear Medicine Unit will be a discrete unit with the PET scanner collocated with other nuclear medicine services. Other medical imaging services will be located in the Main Medical Imaging Department, Satellite Emergency Department and Interventional Suite.

Mental Health – Adult, Child and Adolescent and Older Persons
Mental Health services at Campbelltown Hospital will be provided as part of a district-wide integrated, multidisciplinary Mental Health Service that includes inpatient, ambulatory and community based services.

The units will provide a safe and therapeutic environment for recovery, with treatment to include individual, family and group based interventions.

Note: Although space will be provided for the MH Civil Secure and Older Persons, the scope for these clinical services fall outside of the $632 M. budget allowance.

Maternity Inpatient Unit
Maternity Inpatient Unit will be based upon a multidisciplinary team, including a midwifery model of care supported by evidence-based protocols.

Paediatric Services
Paediatric services at Campbelltown Hospital will develop into a comprehensive paediatric service with adult and paediatric services integrated within the Campbelltown Hospital Services. The service will provide care for children up to 18 years of age.

3.0 Service Planning Summary

3.3 Current Services/throughputs & Future Demand

There is insufficient current health infrastructure in the Macarthur region to meet current and future demand, with hospitals and community health centres already operating at capacity and running at occupancy rates higher than accepted benchmarks. The Campbelltown Hospital Redevelopment needs to address the CSP Core Clinical Service Development Directions and Key Infrastructure Priorities to 2026/27 and provide the foundation for service development and subsequent investment to 2031 and beyond. The projected infrastructure requirements to 2026/27 (and 2031/32) are outlined in the table below.

Campbelltown Hospital			
Care Type Beds	Clinical Unit	Base Case	Scenario
Acute		[redacted]	
	Emergency Shortstay		
Overnight	ICU		
	Surgical		
	High Volume Short Stay Surgical Unit		
	Medical		
	Maternity		
	Paediatric		
	SCN		
	Subtotal Overnight Acute		
Day Only	Surgical		
	High Volume Short Stay Surgical Unit		
	Medical		
	Maternity		
	Paediatric (preliminary only)		
	Subtotal Day Only Acute		
Hospital in the Home (Adults)			
Hospital in the Home (Paediatric)			
Total Acute			
Mental Health			
	Acute Adolescent		
	PECC		
	Acute Adult - gender specific		
	Mental Health Intensive Care Unit		
	Acute Adult		
	Acute Youth		
	Acute Older Persons		
	Mental Health		
Sub-Acute			
Overnight	Rehabilitation		
	Palliatve Care		
	Maintenance/Other		
	Subtotal Overnight Sub-Acute		
Total Sub-Acute			
TOTAL BEDS			

Projected Infrastructure Requirements 2016/17 - 2026/27

3.0 Service Planning Summary

3.4 Project Drivers

The key drivers for change were identified in the Abridged Clinical Services Plan for Macarthur to 2031 and identify the lack of clinical capacity on and around the Campbelltown Hospital Campus. The Case for Change aligns with NSW Government's commitment to invest in the Project to provide additional capability and capacity through enabling health infrastructure and technologies.

The four key project drivers identified include; Growth, Health Status, Patient Needs and Capability. These drivers underscore the need for expanded and enhanced health infrastructure to support the development of services and meet the needs of the community and are detailed below.

1. Growth
The objective is to substantially expand the provision of services (range, capacity, and capability) to meet the significant growth in population, age profile and complexity of disease and poor health. The CHR Project will provide increase in capacity and capability across the broad range of services including emergency care (+80%), adult surgical inpatient (+17%), adult surgical day only (>6 fold), adult medical inpatient beds (+32%), medical oncology (+150%), paediatrics inpatient (+220%), mental health inpatient (+30%), maternity (+107%), renal (+69%) and ambulatory / outpatient services.

2. Health Status
To address the significantly high rates of preventable hospitalisation, and the high rates of obesity, cancer, renal disease and smoking related health issues, this project aims to improve service access and patient flows, and to provide the right care for right people at the right location. Macarthur residents will benefit from targeted service development for disadvantaged groups through innovative service development strategies, partnering with the community, and designing services which improve timely access to services. This will be facilitated by the overall increase in service capacity and with specific increase to the services of mental health, maternity, cancer (medical oncology and provision of linear accelerator), renal, ambulatory care / outpatients and HITH.

3. Patient Needs
The CHR Project will improve self-sufficiency in the provision of acute medical and surgical services for residents in the catchment area by the increase in services (capacity and capability), the ability to reverse flows from other hospitals (i.e. Liverpool and from within the SCHN) and support localised care outcomes within the Macarthur region and LHD network of hospitals (i.e. at Camden, Bowral and Oran Park). This will address the current situation were Macarthur residents travel out of Macarthur for 40% of the inpatient care that they receive and 50% of surgical care.

4. Capability
The key drivers around capability are to transition from a Level 4/5 to Level 6 tertiary hospital facility. This will occur through offering evolving models of care, sustainable services and greater service integration and collaboration. Investment in education and research and technology will aid the alignment of the increased workforce numbers to the changes in role delineation, models of care, range and complexity of services.

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4.0 Functional Briefing Context

4.1 Review of Functional Design Brief

This report is based on the Functional Design Brief (FDB - Version 8.1 – 19.03.2018) prepared by Carramar Consulting in consultation with the LHD and endorsed via Project Governance on 22 March 2018. The design team from BLP have undertaken a thorough review of the briefs and attended the final round of functional design brief Project User Groups (PUGs) to both familiarise themselves with the proposed model of care and to allow for further input from the clinical and architectural health design team.

Refer to Appendices – Functional Design Brief

4.0 Functional Briefing Context

4.2 Schedule of Accommodation

The Schedule of Accommodation (SoA) is summarised in the table below under Section 4.2. These areas represent net and gross department areas (i.e. including intra-departmental circulation) with travel and engineering listed as a separate building wide percentage line item below.

The SoA reflects the full 2026/27 Clinical Service Plan (CSP) scope of current and proposed services.

The SoA has been developed through consultation with project user groups including representatives from SWSLHD and HI.

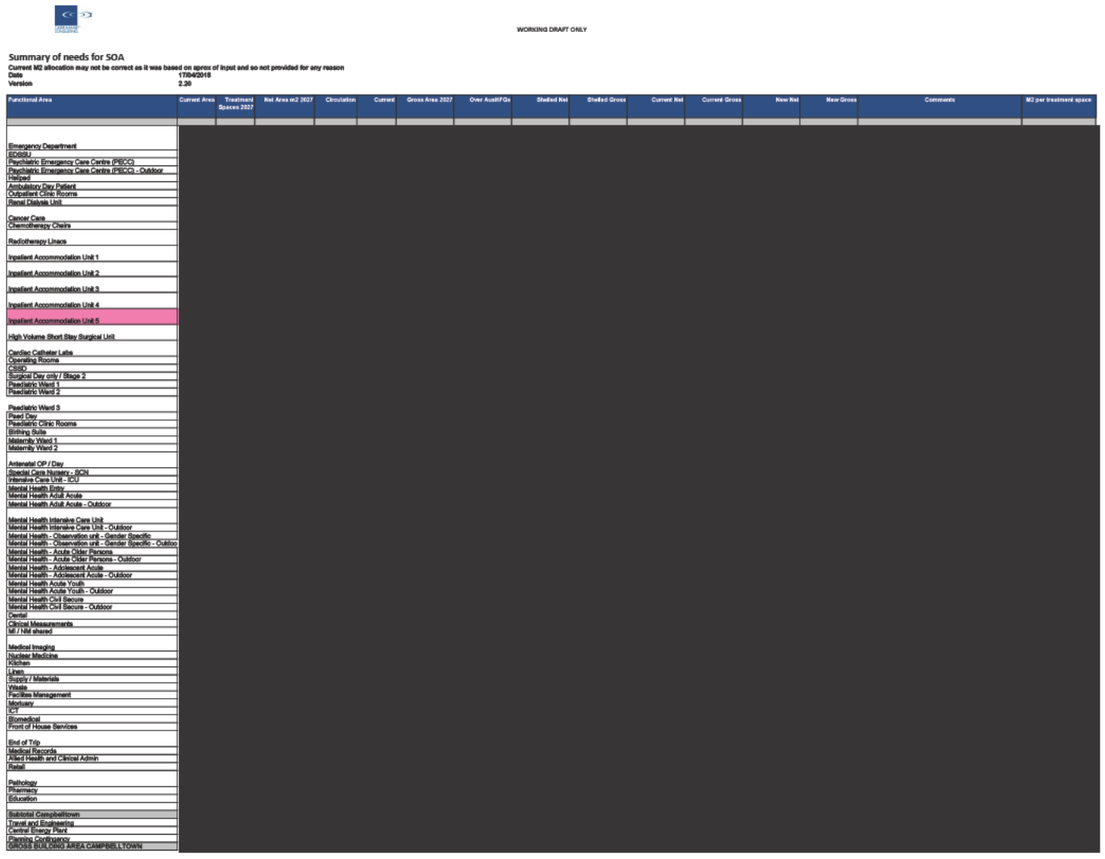
The SoA has been developed based on the Australasian Health Facility Guidelines (AusHFG).

Notes and Assumptions

Circulation percentages have been based on those within the AusHFG. Where circulation percentages were not available, they are based on like departments / previous experience.

- Travel and Engineering has been included
- Central energy plant allowance has not been included.
- Work remains ongoing in the LHD in regards to the requirements of all areas
- All ward areas are 60% single and 40% double - 2 larger rooms and 2 neg pressure.
- High Volume Short Stay Unit (HVSSU) 30% single and 70% double bedrooms. No ante rooms.

Refer to Appendices – Schedule of Accommodation



WORKING DRAFT ONLY

Summary of needs for SOA

Current M2 allocation may not be correct as it was based on agreed of input and so not provided for any reason

Date 17/04/2018

Version 2.20

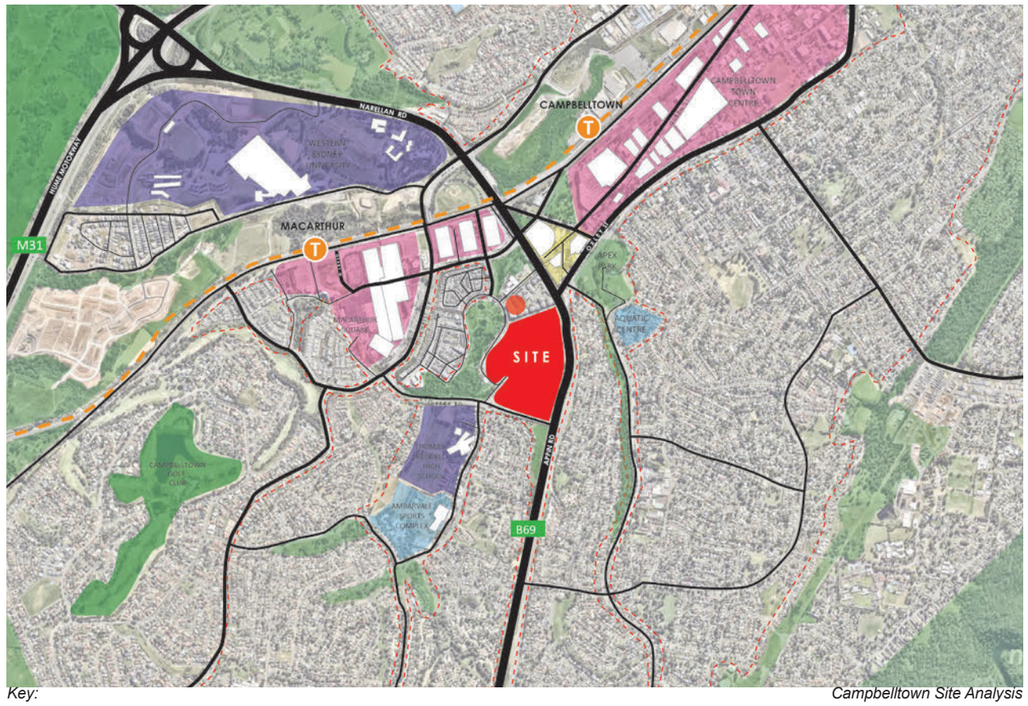
Functional Area	Current Area	Treatment Spaces 2027	Net Area m2 2027	Circulation	Current	Gross Area 2027	Over AusHFGs	Shelled Net	Shelled Gross	Current Net	Current Gross	New Net	New Gross	Comments	M2 per treatment space
Emergency Department															
EDMSU															
Psychiatric Emergency Care Centre (PECC)															
Psychiatric Emergency Care Centre (PECC) - Outdoor															
Helipad															
Ambulatory Day Patient															
Outpatient Clinic Rooms															
Renal Dialysis Unit															
Cancer Care															
Chemotherapy Chairs															
Radiotherapy Linacs															
Inpatient Accommodation Unit 1															
Inpatient Accommodation Unit 2															
Inpatient Accommodation Unit 3															
Inpatient Accommodation Unit 4															
Inpatient Accommodation Unit 5															
High Volume Short Stay Surgical Unit															
Cardiac Catheter Labs															
Operating Rooms															
CSSD															
Surgical Day only / Stage 2															
Paediatric Ward 1															
Paediatric Ward 2															
Paediatric Ward 3															
Paed Day															
Paediatric Clinic Rooms															
Birthing Suite															
Maternity Ward 1															
Maternity Ward 2															
Antenatal OP / Day															
Special Care Nursery - SCN															
Intensive Care Unit - ICU															
Mental Health Entry															
Mental Health Adult Acute															
Mental Health Adult Acute - Outdoor															
Mental Health Intensive Care Unit															
Mental Health Intensive Care Unit - Outdoor															
Mental Health - Observation unit - Gender Specific															
Mental Health - Observation unit - Gender Specific - Outdoor															
Mental Health - Acute Older Persons															
Mental Health - Acute Older Persons - Outdoor															
Mental Health - Adolescent Acute															
Mental Health - Adolescent Acute - Outdoor															
Mental Health Acute Youth															
Mental Health Acute Youth - Outdoor															
Mental Health Civil Secure															
Mental Health Civil Secure - Outdoor															
Overlap															
Clinical Measurements															
MI / NM shared															
Medical Imaging															
Nuclear Medicine															
Kitchen															
Linen															
Supply / Materials															
Waste															
Facilities Management															
Mortuary															
ICT															
Biomedical															
Front of House Services															
End of Trip															
Medical Records															
Allied Health and Clinical Admin															
Retail															
Pathology															
Pharmacy															
Education															
Subtotal Campbelltown															
Travel and Engineering															
Central Energy Plant															
Planning Contingency															
GROSS BUILDING AREA CAMPBELLTOWN															

Schedule of Areas - Version 2.2

5.0 Site Review

5.1 Context and Site Analysis

Campbelltown is a major center within the metropolitan area of Sydney and has a population of 163,000 with an expected growth to 273,500 by 2036 (ABS). It is located in the Greater-Western Sydney region and is approximately 51 km south-west of Sydney's CBD. Topographically Campbelltown is sited between two prominent ranges of hills. The western range is known as the Scenic Hills and is characterised by is complex rolling and undulating topography. The hills marking the eastern edge of Campbelltown are known as the East Edge Scenic Protection Lands. This area follows the main ridge line which defines the western edge of the Georges River Catchment Area. Campbelltown Hospital is one of the primary medical facilities with the Local Government Area and wider Macarthur region. It falls under the South Western Sydney Local Health District.



Campbelltown Site Analysis

Key:

- HIGHWAY
- MAJOR ROAD
- LOCAL ROAD
- TRAIN STATION
- TRAIN LINE
- RESIDENTIAL AREA
- MAJOR GREEN OPEN SPACE
- CAMPBELLTOWN PRIVATE HOSPITAL
- EDUCATION PRECINCT
- RETAIL/COMMERCIAL PRECINCT
- CULTURAL PRECINCT
- SPORTS AND RECREATION

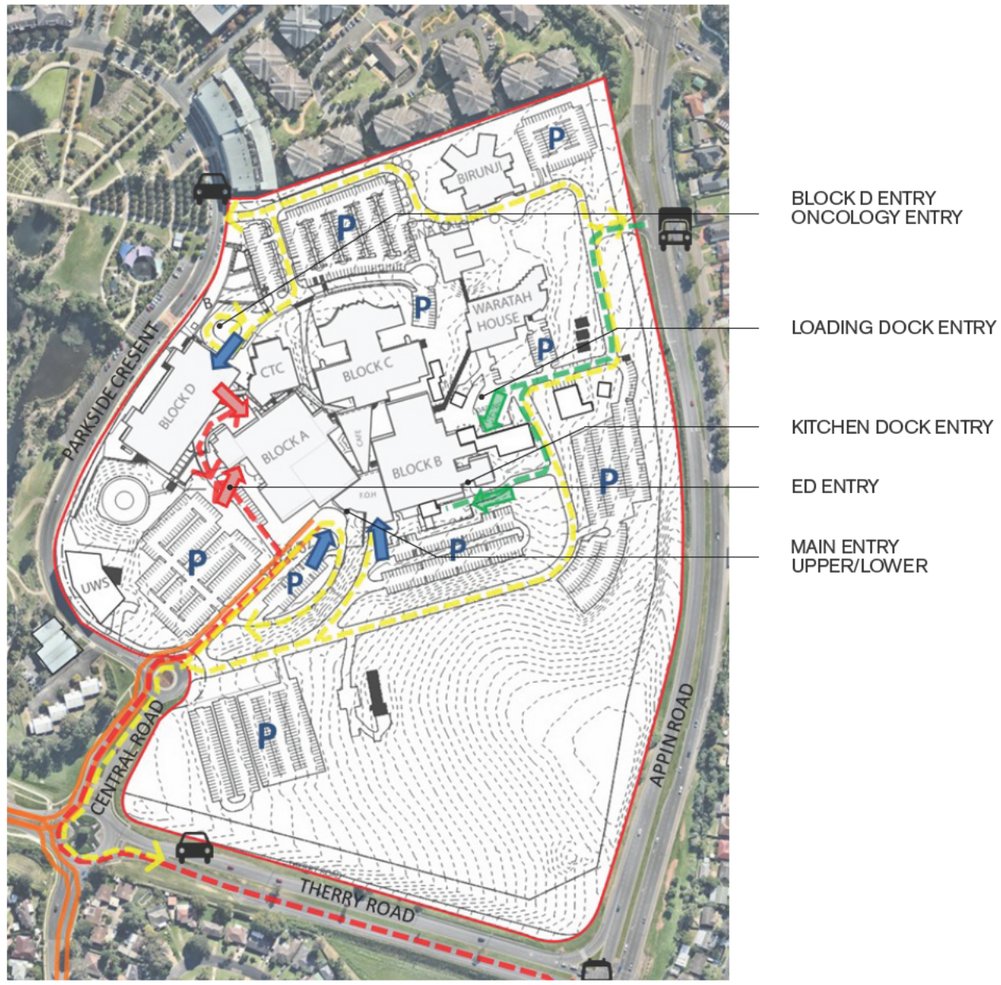
5.0 Site Review

5.2 Access to Site

The main hospital entry is located at the interface of Buildings A and B with access being from the south. This area consists of the public drop-off as a bus stop and taxi lay-by areas. A secondary entry through the recently completed Building D is available.

Vehicles, including ambulances, are encouraged to access the site from Central Road which connects directly onto Therry Road. Access is also available from Appin Road and Parkside Crescent, but control measures such as left in and left out restrictions have been applied. Traffic calming measures have been applied to Parkside Crescent as the council discourages high volume use of this road.

There are 2 loading docks that service the current facility. Both are connected to Building B. The kitchen has a dedicated loading dock for food delivery. The other dock is used for all other deliveries and dispatches and is located to the east of Building B.



Existing Site Access and Entries Plan - 2017

5.0 Site Review

5.3 Existing Buildings

The original facility opened in 1977 and has been progressively developed over the past 40 years from a single main complex to one that now comprises in excess of four major buildings.

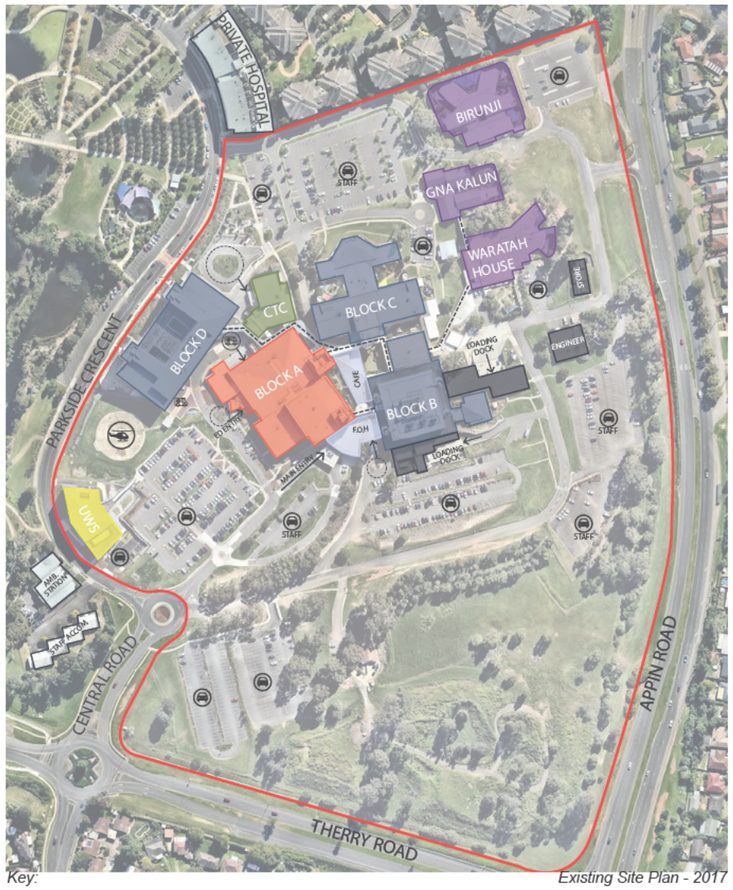
Building B is the original facility and has been expanded in a number of stages with Building C (Maternity, Birthing, Paediatrics) completed in 1986, Building A (Emergency, Theatres/Imaging/CSSD) completed in 2004 and more recently the completion of Building D (IPU/Allied Health/Pathology) in 2014.

Condition of Buildings
Facilities are well maintained and generally in good condition. The primary construction method has been concrete slab and column construction with intermediate block work walls with predominately steel framed roof construction.

A structural assessment of existing building assets concluded that Buildings A, B, C and D are all in good condition. Further investigations are to examine way finding strategies to manage multi-level access to buildings, and the change of levels across the site.

The following table provides a summary of current building facility function, including age and year of completion and rise in levels:
Note: Refer to Appendices for further commentary and analysis on the structural condition of existing building assets.

Building	No. Levels	Current Department/Function	Completion Date
Building A	5	ED/Imaging/Theatres/Clinics/ ICU/HDU/CSSD/DOSA/Dialysis	2004
Building B	4	Admin/BoH/Med. IPU/Allied Health/Kitchen/Loading Dock/ Stores	1977
Building C	3	Paediatrics/Birthing/Maternity/ Stroke/Cardiac/CCU	1986
Building D	6	Pathology/Allied Health/ Ambulatory Care/Medical Records/Surgical IPU/Shell	2016
Cancer Centre	1	Oncology/Bunkers	2004
WSU Clinical School	4	Education	2017
Waratah House	2	Psychiatric Unit	1986
Birunji	1	Youth Mental Health	2004
Gna Ka-Lun	1	Adolescent Mental Health	2003



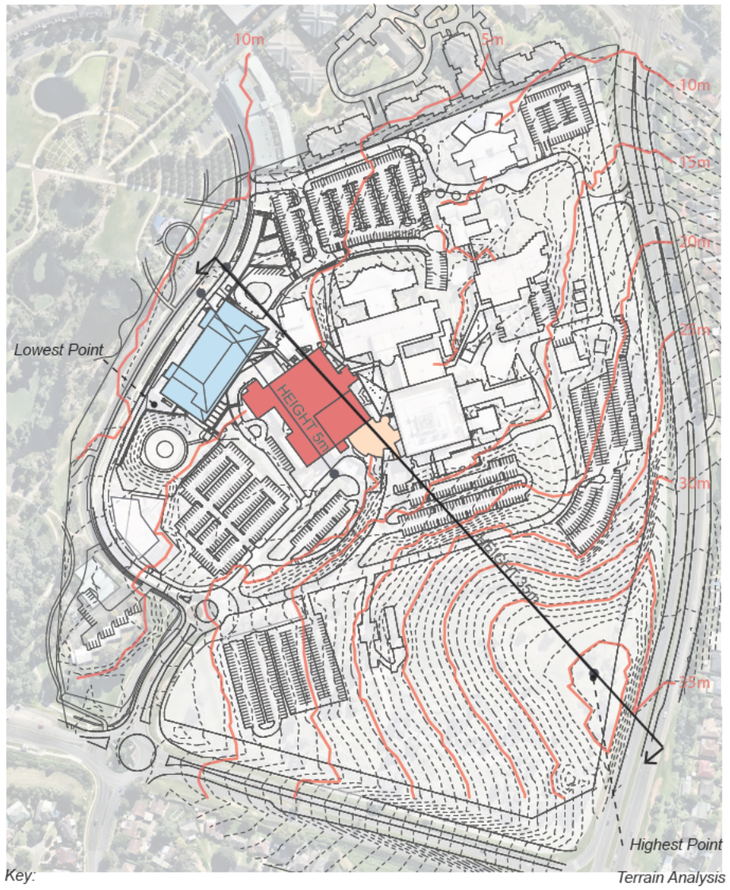
Existing Site Plan - 2017

Key:
- *Clinical Services*
- *Wards*
- *Education*
- *Mental Health*
- *Cancer Treatment*
- *BOH/Services*

5.0 Site Review

5.4 Features and Contours Survey

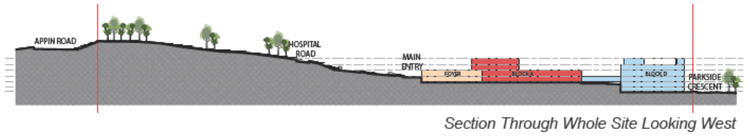
The site topography condition generally slopes down from a high point in south/east corner and falls approximately 35 metres toward the north/west over a distance of 480 metres. Within the vicinity of the main hospital complex, there is a terrain fall of around 15 metres. Development of the site toward the south/eastern corner would be problematic and costly as extensive site excavation would be required if levels and linkages to the existing hospital are to be maintained.



Terrain Analysis

Key:

Contour Interval At 5m



Section Through Whole Site Looking West

5.0 Site Review

5.5 Green Spaces

The Campbelltown hospital site is approximately a 10 min walk from the Macarthur train station. The site is located on the eastern side of the Birunji creek which forms the southern part of Marsden Park.

Marsden Park is a large green wetland park running directly adjacent to the western boundary of the Campbelltown Hospital Site. It boasts an abundance of native flora and fauna species with walking tracks, pedestrian links to surrounding residents and Macarthur train station. The park also offers BBQ facilities, outdoor gym, duck pond covered picnic facilities and a children's playground within close proximity of Building D.

In terms of green spaces on the hospital site, the south eastern corner is a steep incline of grassed hill littered with native Australian trees. The eastern site boundary is open green space acting as a buffer between Appin Road and the eastern most staff carpark on site.

5.6 Town Planning

The hospital site is within the Campbelltown City Council and is zoned SP2 Infrastructure (health Service facility) under the Campbelltown Local Environment Plan 2015. The future development of the hospital will need to take on board the following planning guidelines and policies:

- State Environmental Planning Policy (Sydney Region Growth Centres) 2006 (SEPP)
- State Environmental Planning Policy (State Significant Precincts) 2005.(SEPP)
- Campbelltown Local Environmental Plan 2015 (LEP)
- Campbelltown (Sustainable City) Development Control Plan 2015 (DCP)
- Engineering Design for Development
- Scenic Hills Preservation Policies

Development control zones abutting the Campbelltown Hospital site include Low Density Residential R2 toward the east and south sides (across Appin and Therry Roads), Public Recreation Zone RE1. Directly west (Marsden Park) and to the north are Commercial Core Zone B3 and High Density Residential Zone R4 (Macarthur Village/retirement home). Toward the western side of the park resides another High Density Residential Zone R4 cluster.

The council has previously advised that it wishes to keep the traffic volume along Parkside Crescent to a minimum in order to preserve the amenity of Marsden Park.

Marsden Park Aerial view circa. 2013

View of Building D from Marsden Park

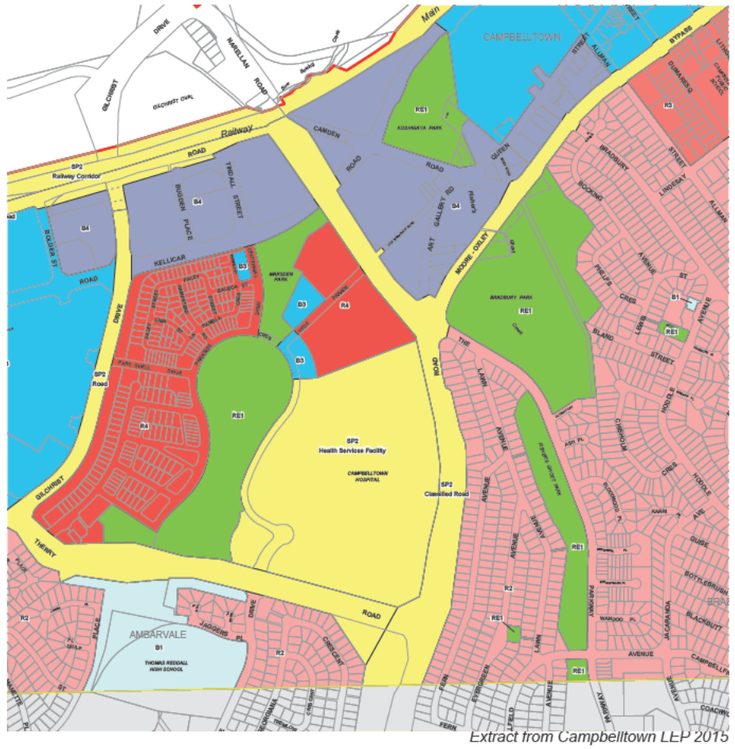
Marsden Park Facilities

5.0 Site Review

Key Planning Issues previously raised by Council, agencies, and the Department of Planning related to the Stage 1 Redevelopment (and likely to be recurring matters for Stage 2 Redevelopment to address) were:

- Car parking supply / traffic management and safety
- Drainage
- Built Form
- Aboriginal Archaeological and Cultural Heritage Impacts
- Development contributions

In addition, the site is in part affected by localised flooding impacts and in part as a mapped site subject to bush fire risk (limited section of western boundary opposite Building D). This is due to the adjacency to scrub land located around Birunji Creek and adjacent parklands to the west (Marsden Park/Central Park). Future development may require bush fire hazard management plans which will be required to comply with the specific building codes associated.



Extract from Campbelltown LEP 2015

Zone

B1	Neighbourhood Centre
B2	Local Centre
B3	Commercial Core
B4	Mixed Use
B5	Business Development
E1	National Parks and Nature Reserves
E2	Environmental Conservation
E3	Environmental Management
E4	Environmental Living
IN1	General Industrial
IN2	Light Industrial
R2	Low Density Residential
R3	Medium Density Residential
R4	High Density Residential
R5	Large Lot Residential
RE1	Public Recreation
RE2	Private Recreation
RU2	Rural Landscape
RU5	Village
SP1	Special Activities
SP2	Infrastructure
W1	Natural Waterways
DM	Deferred Matter
SEDP	SEPP (Major Development) 2005 Edmondson Park South
SWGC	South West Growth Centre

5.0 Site Review

5.7 Urban Design

Transport Network

The Campbelltown Hospital is easily accessible by road and conveniently accessible for pedestrians. The Hospital is located in close proximity to regional, precinct and local roads and is a walkable distance from Macarthur station.

The Campbelltown Hospital is bounded by Appin Road (B69) to the east and Therry Road to south. Appin Road is the main road connecting the residential areas to the southwest of Campbelltown with the Hospital. Appin Road is an extension of Narellan Road, also the B69. Narellan Road connects Campbelltown at the western end of the city centre to the Hume Motorway (5 minutes' drive) and to the broader region. The Hospital's main entry is from Central Road, which is off Therry Road. Therry Road connects with Appin Road and Gilchrist Dr.

Pedestrian access can be improved to the surrounding residential, retail and town centre (including Campbelltown Catholic Club) areas. Existing access from Macarthur station, through Macarthur Square shopping centre and Marsden Park will improve the pedestrian accessibility of the Hospital with the residential areas on the western side.

Open Space Network

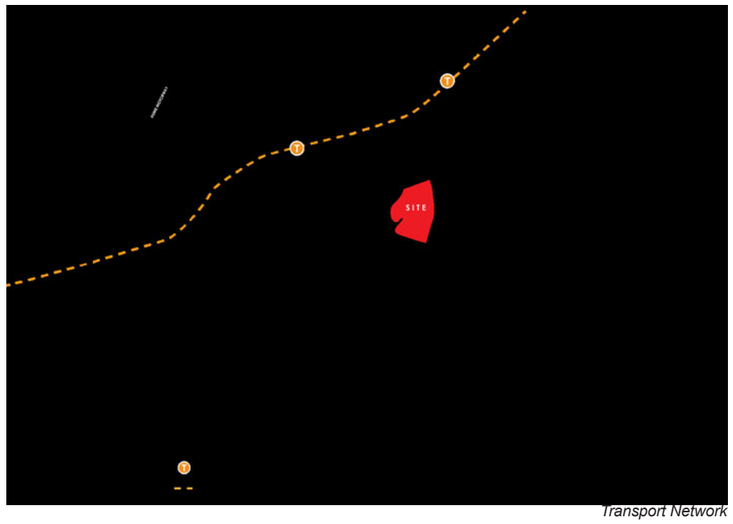
Campbelltown is situated in the Sydney Basin bioregion, which includes large areas of bushland and waterways, in particular the Cumberland Plain Woodlands. The aesthetic and natural values of the bushland and waterways are contributing factors toward attracting people to live within and visit the area.

Cumberland Plain Woodland is a threatened and protected collection of vegetation species. Throughout the urban development on the southwestern side of the city centre, the Cumberland Plain Woodland is being maintained where possible and integrated into a broader Open Space Network.

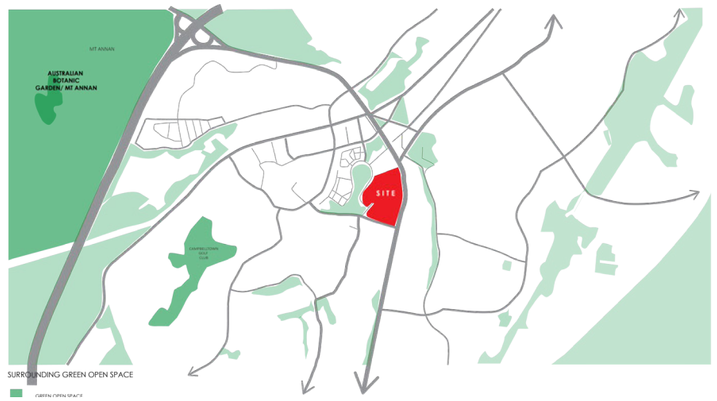
Marsden Park, which bounds the western edge of the Hospital, connects the Hospital to the broader Open Space Network of the region. The Open Space Network links to the Noorumba Reserve which is located about 3km south of the Hospital, on the edge of Campbelltown's urban development. The Reserve forms one of the largest areas of Cumberland Plain Woodland under public ownership in South Western Sydney, and provides habitat to a wide range of native wildlife.

Concentration of Activities

Campbelltown is structured in clearly defined precincts, or areas of activities. In



Transport Network



Green Space Network

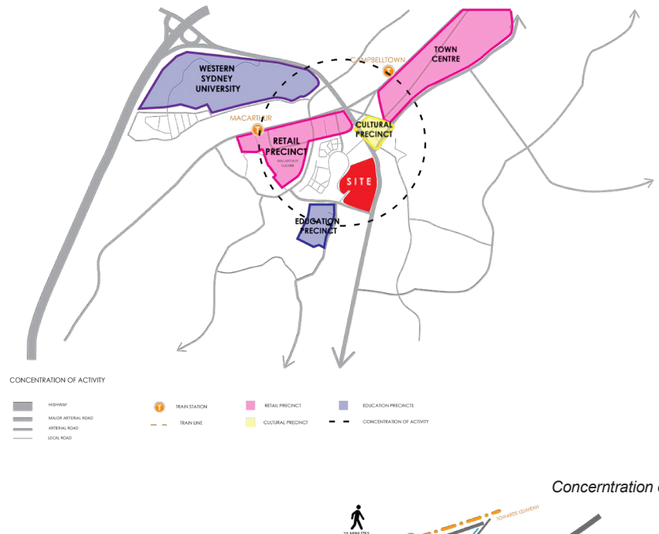
5.0 Site Review

the core lies the historic walkable city centre. To the east lies the sports precinct, including Campbelltown Sports Stadium. The western side of Campbelltown can be described as the Educational, Health, Cultural and Entertainment hub. The Campbelltown Hospital forms a major part of this precinct.

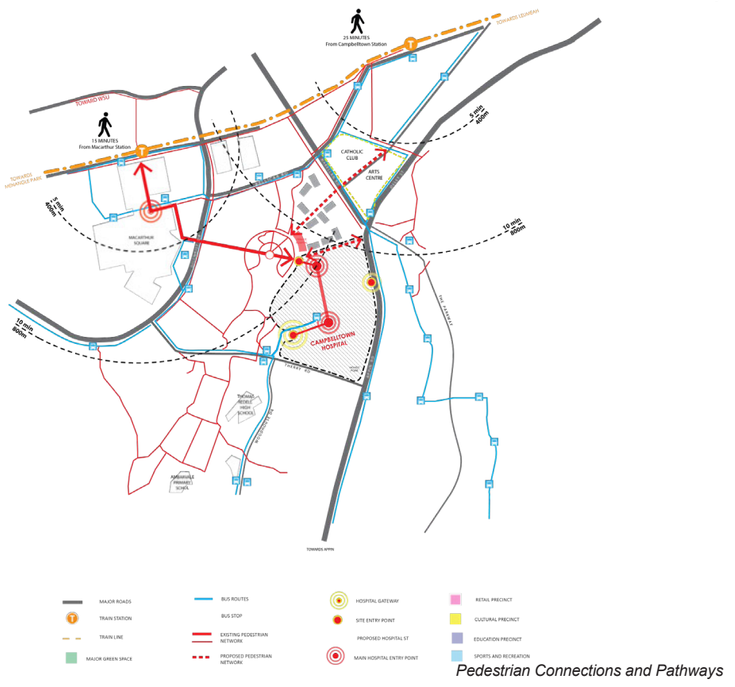
The area represents a strong concentration of activities due to its destination uses, however these uses are concentrated inwards and lack correlation and cohesion. Ways to improve this should be encouraged and the concentration of activities can be enhanced and structured into a future Campbelltown.

Local Drivers For An Integrated Hospital

- Improve the pedestrian connectivity and activation within the Activity Precincts:
- Support the existing pedestrian connection from Macarthur Station to the Hospital Precinct, through Macarthur Square and Marsden Park
- Strengthen the pedestrian connection between the Hospital Precinct and the Catholic Club and the Arts Centre by creating a new pedestrian link across Narellan Road.
- Establish a new street within the Hospital Precinct that connects the Hospital entry from Therry Road and Marsden Park. Well defined anchors to be established at either end of the street will ensure a legible and clear wayfinding within the Hospital Precinct.
- Create an engaging built and landscaped edge interfacing Marsden Park to the western edge of the Hospital precinct. This will improve activation as well as safety along Parkside Crescent.



Concerntration of Activity



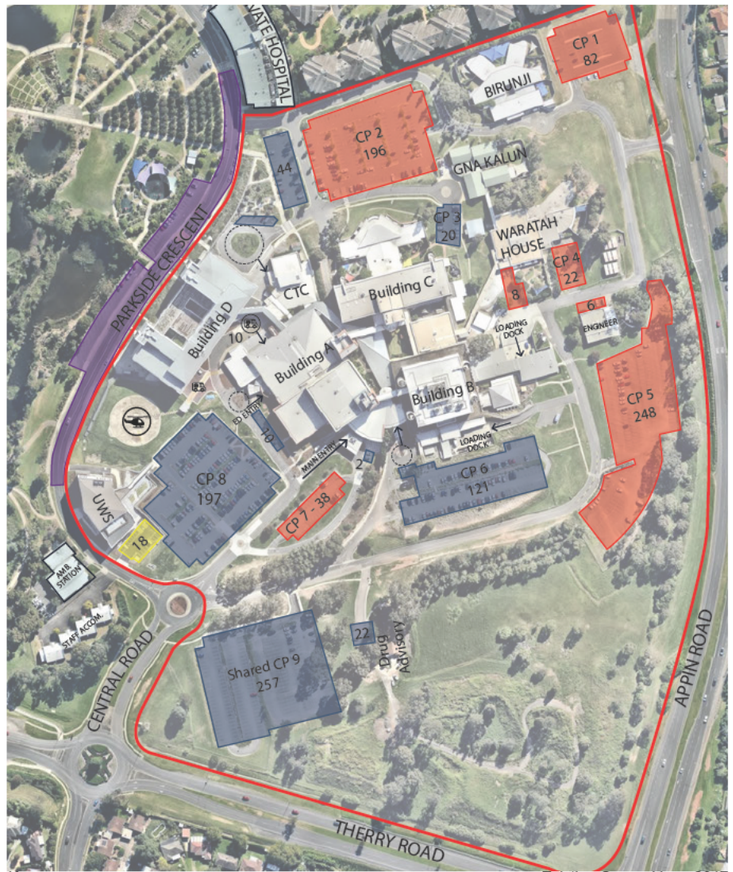
Pedestrian Connections and Pathways

5.0 Site Review

5.8 Traffic Engineering and Car parking

Vehicular access from both Appin Road and Parkside Crescent into and out of the hospital site is restricted as follows:

- Appin Road access is restricted to left in and left out. The RMS has imposed conditions on the access amenity in order to minimise impact upon the current speed and operation of this arterial road.
- Note: Current Appin Road access is considered temporary and continuation of access is not supported by RMS.It is proposed to relocate the existing access to a new location near the Multi Deck car park.
- Parkside Crescent has had traffic calming measures implemented by council which reduces speed, traffic volume and use. Measures include restricted access to the site (left in and left out), installation of speed humps, including pedestrian crossings and localized narrowing of road width. Speed limit is in place. The council wants to discourage use of Parkside Crescent as an access point to the hospital.
- Access to the existing main entry is via a one way loop road connection to Central Road. The road is used by public and emergency vehicle services. It is also the primary access point to the main public car park. The public transport buses also use this access road. The road is exposed to potential congestion and has no available expansion possibilities.



Key: *Existing Car parking - 2017*

- Existing Visitor Parking
- Existing Staff Parking
- On street 3P
- Existing UWS Parking
- Existing Emergency Parking

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5.0 Site Review

5.9 Existing Site Services

Hydraulic/Fire/Medical Gas:
A hydraulic ring main services the site and includes potable water, gas, fire sprinkler and fire hydrant water supply. A section of the main, located toward the north east of the site, has yet to be constructed, but once completed, will form a full ring main around the site. A majority of which is located below the services roads.

The main hydrant booster pump connection is located on site adjacent to the roundabout intersection of Central Road and Parkside Crescent.

A Liquid oxygen tank compound is located adjacent to the main loading dock. This facility services the whole site. A dedicated refuelling vehicle lay by area is provided.

Electrical/Comms:
The hospital is serviced by two main electrical feeds into the site. Sub-stations are located north of Building A and north of Building B. High voltage lines enter the site from the east and north. A separate sub-station services Building D.

The main central energy plant is located within the basement level of Building B. The plant in this area mostly consists of chillers and boilers.

Main communications infrastructure is located in Building B. Communications aerials are located on the roof of this building and provide for emergency services communication for the local health district network.

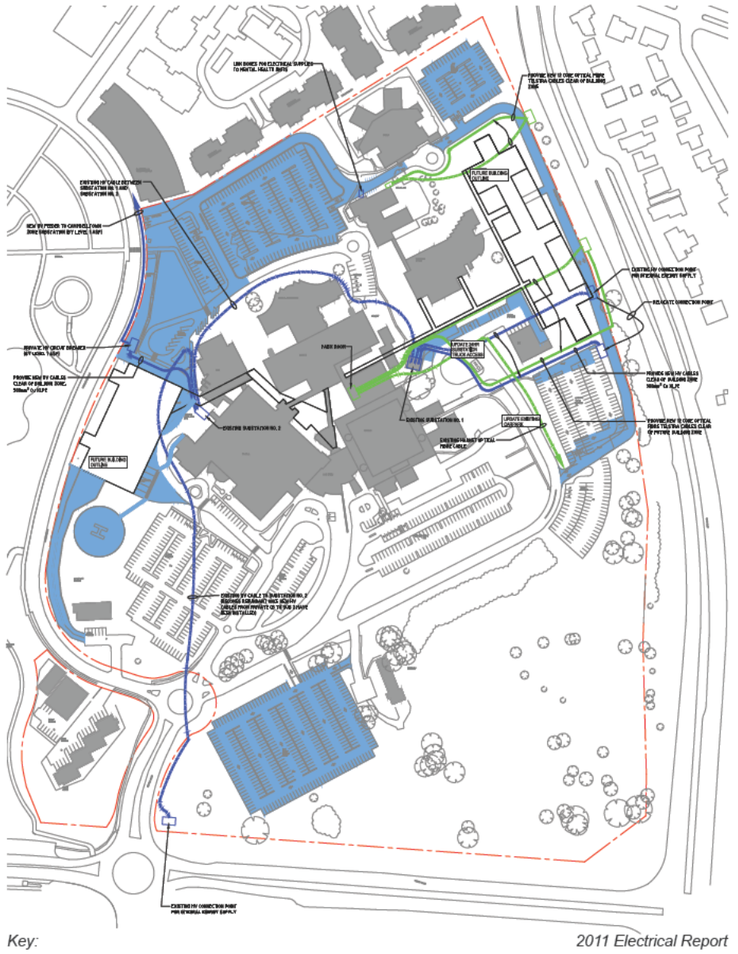
Main Plant:
The main central plant servicing the site is located within the basement of Building B and houses large chiller units and associated mechanical plant. Back-up emergency generators are also collocated. Building B plant services a majority of the buildings on site with the exception of Building D

The acute services Building A has a roof plant that houses equipment to service the operating theatres as well as the CSSD on the floor level below.

Building D is a recently completed ward and ambulatory services complex and contains both plant at lower ground and on the roof. This facility is essentially independent of the main hospitals central services plant located within Building B.

Further determination on specific load and upgrade requirements will be made once assessment has been undertaken by each consultant discipline.

Note: Refer to Campbelltown Hospital Redevelopment Existing Site Information Update (Sept. 2017) for further commentary and analysis of site services infrastructure.



Key:
- *Extent of early works*
- *Existing underground HV cables*
- *New underground HV cables*
- *Existing underground comms. cables*
- *New underground comms. cables*
- *Future building outline*

2011 Electrical Report

5.0 Site Review

5.10 Environmental Assessment

The Environmental Analysis looked at and determined:

- Local climatic conditions such as prevailing winds, solar aspect and the likely impact upon building design and site placement.
- Localised flora and fauna. Adjacent parklands and amenities.
- Site typographical condition, including site lines and views across and beyond the subject site.
- Overland flow paths, including Impact upon existing and proposed facility assets.

1984 Aerial Site photograph

2017 Aerial Site photograph

6.0 Development Proposal

6.1 Confirmation of Development Parameters

The development parameters applied to all development options include:

- Optimise use of retained buildings and consolidate where possible;
- Enable future development phases and opportunities;
- To meet the Clinical Services Plan 2026/27 requirements;
- Commence construction at the same time;
- Development commences in the same location on site;
- Enabling/early works are the same;
- Development outcome is a mix of retained, and refurbished facilities.

6.0 Development Proposal

6.2 Design Principles

The design principles governing this project are primarily aligned with the objective to meet the clinical service priorities required of the Campbelltown Hospital with consideration given to the budgetary allocation provided by the Government. With these guiding principles taken into account, the design team objective has been to facilitate a concept design that will culminate with the provision of a world class acute health facility which will become a civic focus for the community & people of the Campbelltown district.

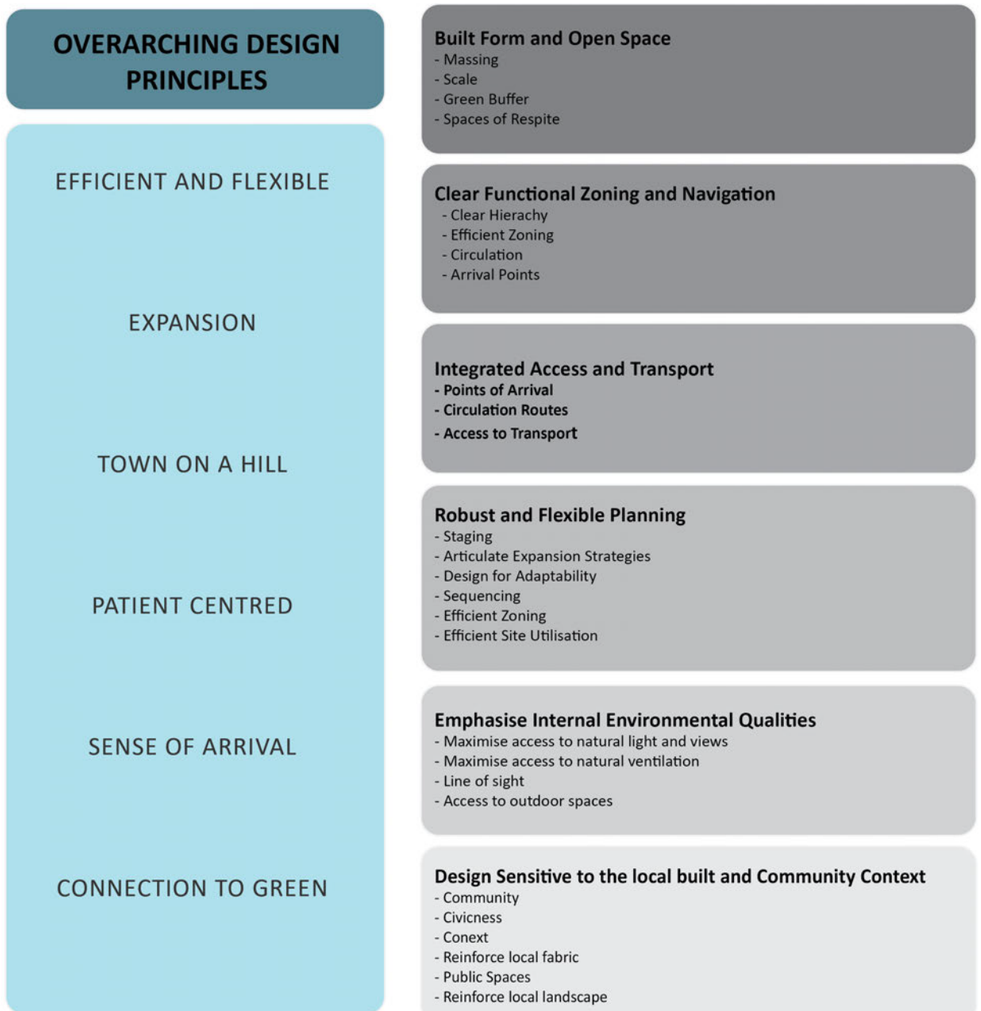
The design provides for efficiencies and flexibility for operation and function. It also provides for longer term expansion strategies.

In scale and form the new redevelopment reinforces the idea of the existing hospital campus as a 'town on a hill' which has been a prominent and familiar landmark feature of the Campbelltown skyline.

The new hospital design focuses on contemporary models of patient centred care. It is functionally planned to enhance communication between the multi-disciplinary staff team and to optimise clinical outcomes in a secure and safe environment.

The internal planning of the hospital creates a strong sense of entry with easy way finding. There are strong connections to external landscaped space for respite and therapy. Perimeter windows capitalise on natural light and views.

The following design responses have been developed from the overarching design principles described above:



7.0 Development Study Options

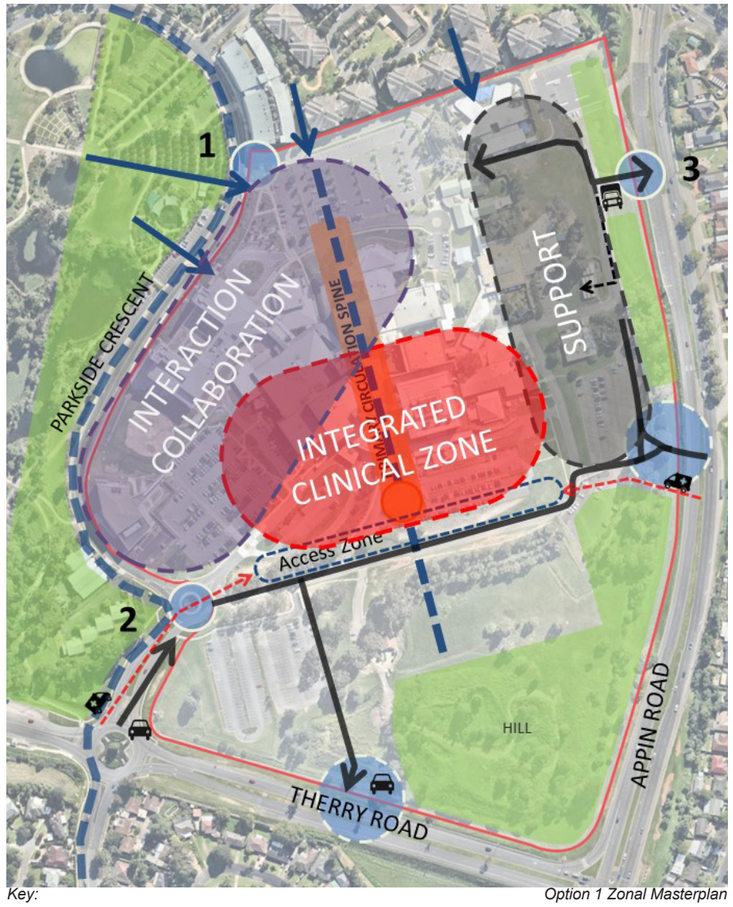
7.1 Proposed Zoning Options

Early establishment of the Site Structure Plan provided a planning guidance template which informed the development of various site zoning studies that have been tested against available briefing documentation and criteria assumptions identified at the time of reporting. Developed options have been subjected to rigorous client and peer workshop evaluation. This process has culminated in the selection of a number of key options which are investigated in further detail within the appendicies.

The site zoning options took into consideration the site access considerations and from this three main zones were formed, these include:

- Integrated Clinical Zone
- Interaction collaboration zone
- Support zone

Zoning Option 1 was chosen as the most preferred option in the masterplan report, it has therefore influenced the location of the site for a new integrated clinical building zone and main entry/drop off with the integrated north south hospital spine.



Key: *Option 1 Zonal Masterplan*

Green Space
Public/Pedestrian Access
Existing/Potential ED access/main entries
Clinical Zone
Community Interface Zone
Support Zone
Link Road

7.0 Development Study Options

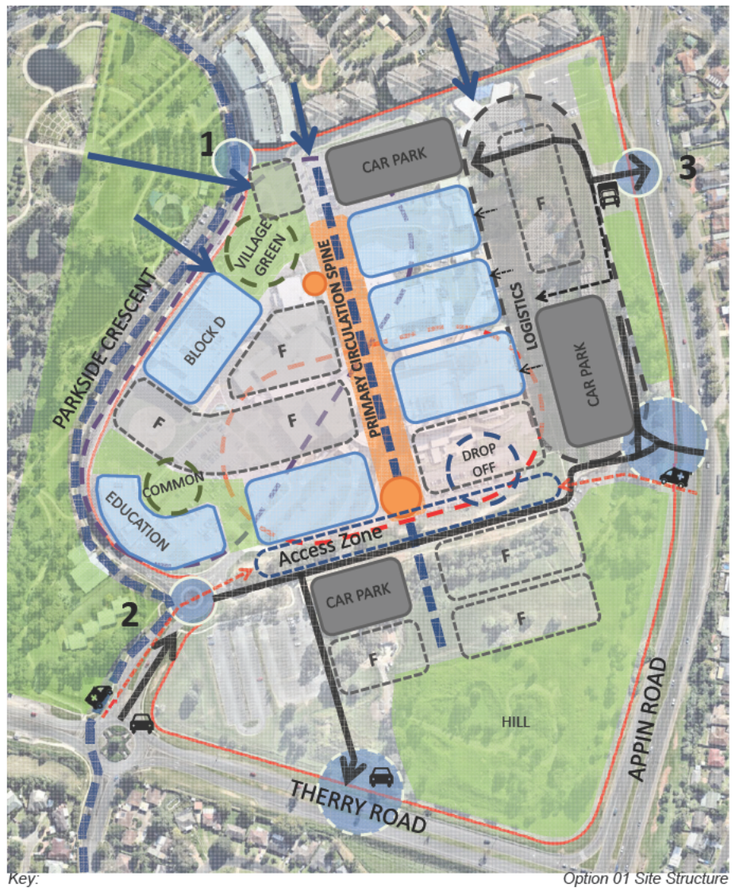
7.2 Site Structure

A Site Structure Plan was developed to provide master planning guidance for the on-going built form development of the Campbelltown Hospital site. The Site Structure Plan is aligned with the current master plan options being evaluated. It also investigates strategic staging opportunities that project beyond the 2031/32 reporting period.

Key elements of the Site Structure Plan include:

- Establishment of north/south circulation spine – 'Hospital Street'
- Defined main front entry
- Outline sequential staging opportunities aligned with current master planning options
- Defined clinical, access and logistic/BoH support zone (access zone)
- Identifies key entry points, both vehicular and pedestrian, including new connections
- Emergency department, including public and ambulance vehicle access
- Investigates multi-deck car parking locations
- Open space opportunities

Note: Additional access off Therry Road would be preferable at some point in the future. This will be further investigated during the next phase of design. The project however will not be reliant on this access prior to commissioning further studies.



Option 01 Site Structure

Key:

- Main entry
- Hospital building
- Other/support
- Green Space
- Public/Pedestrian Access
- Existing/Potential ED access/main entries
- Acute Zone
- Link Road
- F Future Expansion

7.0 Development Study Options

7.3 Department Adjacencies

At the time of report issue the following items have been identified as constituting design challenges with regard to department adjacencies:

- Maintain use of the existing theatres
- Connection between existing and new theatres within the new Clinical Services Building 01.
- Maintaining the existing clinical connection between theatres and Building D IPU's
- Clinical Measurements location/co-location
- Integration opportunities with mental health

These challenges will be further investigated in the Schematic Design Phase.

	Kitchen	Linen Services	Environmental Services	Supply Services	Intensive care Unit	Perioperative	CSSD	HVSSU	Interventional Radiology	Interventional Cardiology	MAU	SAU	Inpatient Medical Acute	Inpatient Surgical Acute	Mental Health Inpatient	PECC	Emergency Department	Clinical Investigations	Medical Imaging	Nuclear Medicine	Pharmacy	Pathology	Cancer Therapy Centre	Ambulatory Care and Ou	Women's Health Inpatie	Birthing Suites	Special Care Nursery	Paed Inpatient Acute	Paed Inpatient Short Sta	Paed Ambulatory	Paed Community Health	Administration	Security	Teaching/Research	Mortuary	External vehicular acces	Parking	Helipad
Kitchen		4	3	2									4	4			4								4			4	4							2		
Linen Services	4		4	2									4	4		4	4	4					4	4	4	4	4	4	4		4					2		
Environmental Services	3	4		2									4	4		4	4	4					4	4	4	4	4	4	4		4					2		
Supply Services	2	2	2																																			
Intensive Care Unit						2		2	2	2			2		3	3	1	3	2		4				4	3		3				4	4	4	3		4	1
Perioperative					2		1	1	1	1	3	3		2	4		2		4		4	4	4	3	3	2	3	3	3			4	4	4	4	3	4	3
CSSD						2		2	2	2	3	3	3	3	3	3	4	4						3	3	3	3	3	3	4		4						
HVSSU					2	1	1		2	2	3	3		3			2	3	4		4	4	4	3	3	4		3	3	3			4	4	4	3	4	
Interventional Radiology					2	3	1	2		2	3	3	3	3	3		2		4		4			3	3			3	3				4	4	4		4	
Interventional Cardiology					2	3	1	2	2		3	3	3				2	3	4		4	4		3	4								4	4	4	3		
MAU						3	4	3	3	3			4						3	3	3	3																
SAU						3	4	3	3	3			4						3	3	3	3																
Inpatient Medical Acute	4	4	4		3						4	4		2			3	3	3	2	3		2	3					3		4	4	4	3		4	
Inpatient Surgical Acute	4	4	4			2	4	2	2				2		4		2			2																	
Mental Health Inpatient	4	4	4			3		4	4	4			3	4		3	3		4		4	4		3								3			1	3	
PECC		4	4												3		3																	4		2		
Emergency Department	4	4	4		3	3	4	3	3	3	3	3	3	3	3	2			1		3	3			3	3		3	3			4	1	4	4	1	3	2
Clinical Investigations		4	4		3		4		2	2			3						4													4	4	4		4	
Medical Imaging					3	4		3	3	3	2	2	2	2	4	2	1	4		3	4		3	2	2		2	2	2	2		4	4	4			3	
Nuclear Medicine											3	3	3	3					3				4	4	3			3	3	4		4	4	4			4	
Pharmacy				2	4	4		4	4	4	3	3	3	3	4		3		4	4		4	4	2	4		4	4	4	3			4	4			4	
Pathology						4		4	4	4			4		4		3				4		2	2	4		4	4	4				4	4				
Cancer Therapy Centre		4	4			3		3	3	3			3				3		3		1	4		3									4		1	1	
mbulatory Care and Oupatients		4	4			4		4	4	4	3	3	3	3	3		3	3	4	4	3	1	3		2	2							4	4	4		3	4	
Women's Health Inpatient Unit	4	4	4			3	4	3	4	4					4		3		3	4	4	4		3		1	1							4	4	4		4	
Birthing Suites		4	4			2	4	4									3								2		1							4	4	4	3	4	
Special Care Nursery		4	4			2	4	2									3		3		4	4		3	2	1		3						4	4	4	4		4	3
Paed Inpatient Acute	4	4	4		3	3	4	3	4					3			3		3	3	4	4		3		2		2	2	4	4	4	4	4	4	3	4	3
Paed Inpatient Short Stay	4	4	4		3	3	4	3	4					3			3		3	3	4	4			3			2		2	4	4	4	4	4	3	4	3
Paed Ambulatory																	3		3	4	3			2				2	2		3	4	4	4		4	
Paed Community Health		4	4																									4	4	3		4	4	4		4	
Administration					4	4							4				4	4	4	4				4				4	4	4	4		4	4				
Security					4	4	4	4	4	4			4		3		1	4	4	4	4	4		4	4	4		4	4	4	4	4						2
Teaching/Research					4	4		4	4	4			4			4	4	4	4	4	4	4	4	4	4	4		4	4	4	4	4	4					
Mortuary					3	4		4	4	4			4			4								4	4	4									2			
External vehicular access	2	2	2			3		3		3					1	2	1						1	3		3		3	3						2		4	
Parking					4	4		4	4				4		3		3	4	3	4	4		1	4	4	4		4	4	4	4	4						
Helipad					1	3											2											3	3	3			2					

1	Immediate Acces (vertical or horizontal)
2	Direct Access time within 2 minutes
3	Ready Access within 10 minutes
4	Routine Access within 1 minute
	Adjacency not critical

Note: excludes adjacencies using pneumatic tube

7.0 Development Study Options

7.4 Entries and Connections

The site access investigation has determined that the most suitable 'access zone' for the hospital would be to the south of Building B and front the adjoining service road (as shown in the adjacent diagram). It is proposed that the service road be realigned and upgraded to provide suitable capacity and gradient to service the new Clinical Services building.

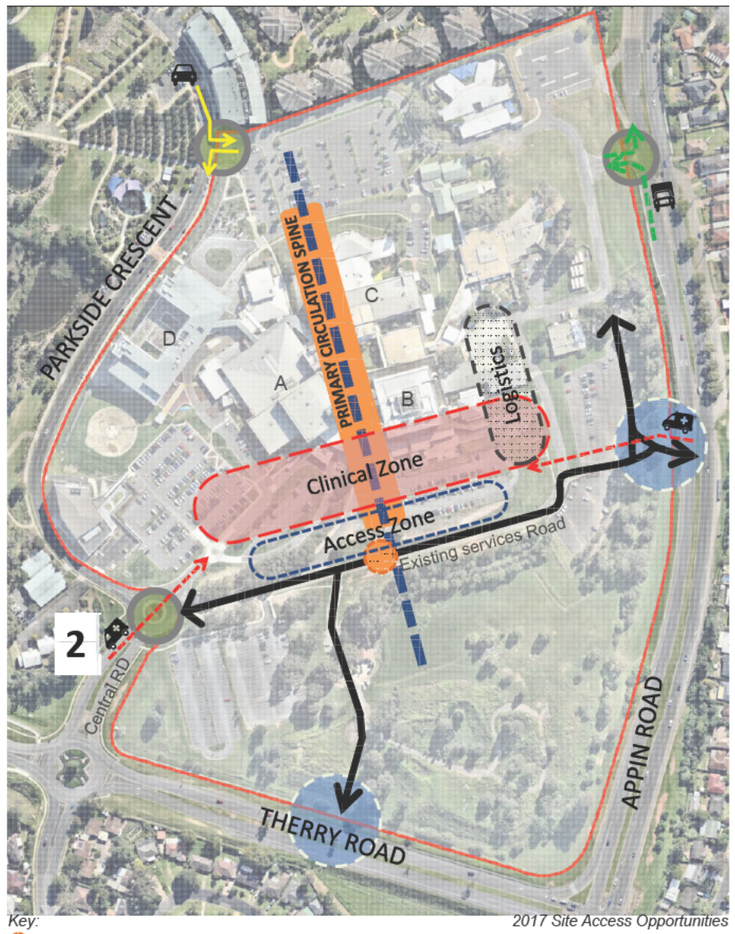
The master plan identifies an opportunity to provide a north/south circulation spine or 'Hospital Street' through the centre of the site. The 'Hospital Street' has the flexibility to be multi-leveled and the ability to connect a majority of buildings and departments across the campus. Main entries would be provided at both the northern and southern ends. The southern entry provides the primary entry to the hospital and would incorporate public drop-off as well as public transport service connection.

Short term public car parking would be provided within close proximity to this entry. A segregated entry for thev Emergency Department and ambulance access would be provided at a lower level. The northern entry will be secondary and provide access for ambulatory services. Current pedestrian circulation patterns indicate that the majority of movements into the site are from the north via Parkside Crescent. Campbelltown Private Hospital and mixed retail/office precinct is located within close proximity of the sites northern access point.

Pedestrian
Pedestrian/ambulatory access will remain to the north as there are dedicated pedestrian networks within the adjacent parklands and off street pedestrian links to the two surrounding train stations and community shops/services to the north.

Vehicular
Vehicular/Main entry would be maintained to the south existing entry from Central Road with the main entry drop off located within the access zone. There is also future potential to create another site entry directly off Appin road to the east creating a primary traffic thoroughfare for vehicles and buses (subject to RMS consultation).

Logistics
Logistics access zone would be located towards the eastern side and would utilise current back of house functions such as the loading dock, stores access, waste management and medical gas/oxygen tanks storage. Access to the logistics zone would be maintained via current use of the Appin Road connection located toward the north east of the site.



2017 Site Access Opportunities

Key:
- Main entry
- Clinical Zone
- Existing entry
- Potential ED access/main entries
- Potential Emergency zone due to adjacency to main access points
- Link Road

8.0 Preferred Development Option 1.1

8.1 Cost Plan Option/SOA

Option 1.1 is a single new build with refurbishment of some existing facilities.

The key features of the option include:

- Use of the existing theatres and new theatres;
- Clinical capacity and expansion capability to all clinical services to 2026/27;
- Expansion in Cancer Services (Medical & Radiation Oncology).

Option 1.1 project scope allows for the following facilities & departments:

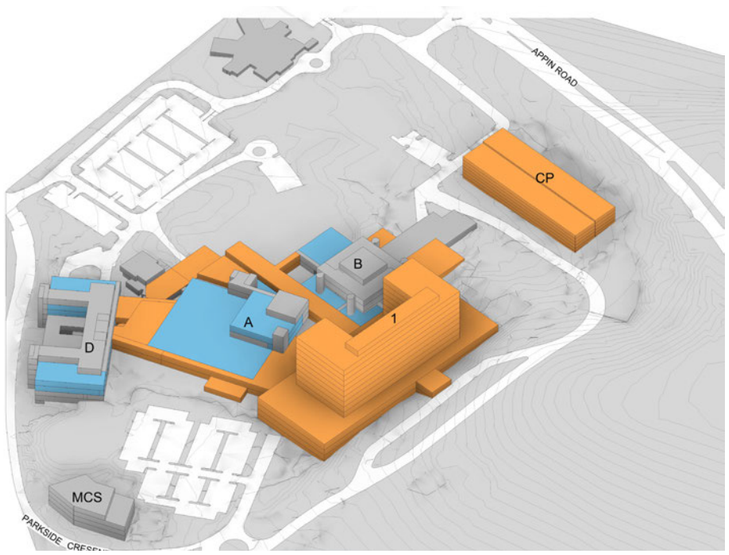
- Emergency Department (including EDSSU & PECC)
- Intensive Care Unit
- Medical Imaging Department
- Perioperative (Operating Theatres, Cath Labs, Interventional Radiology) – includes 15% expansion
- Surgical Day Only, High Volume Short Stay
- Maternity, Birthing, Special Care Nursery – includes 15% expansion
- Surgical Inpatient Units – includes 10% expansion
- Maternity Inpatient Units – includes 15% expansion
- Paediatric Inpatient Units
- Paediatric Day Only, Ambulatory, Outpatients & HITH
- Mental Health (Integrated)
- Dental – includes 50% expansion
- Cancer (Medical Oncology)
- Cancer (Radiation Oncology) – includes 1 x radiotherapy bunker shell

Option 1.1 project scope allows for the following facilities & departments in refurbished building footprints:

- Medical Inpatient Units – includes 10% expansion
- Renal
- Pathology
- Pharmacy
- Clinical Diagnostics
- Allied Health
- Administration
- Back of House

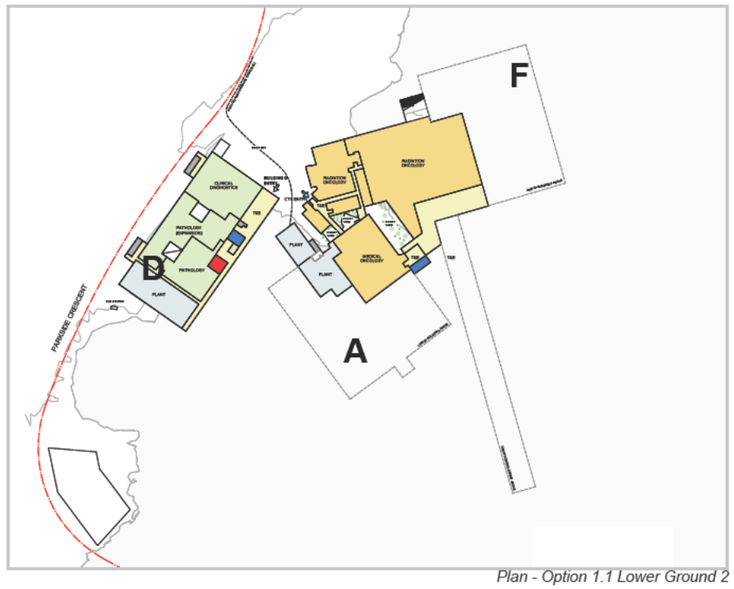
Note: This option relies upon the retention of the existing Operating theatres and medical imaging. Both these facilities will be integrated with the proposed Clinical Services Building.

This option will be further explored in the schematic deisgn phase



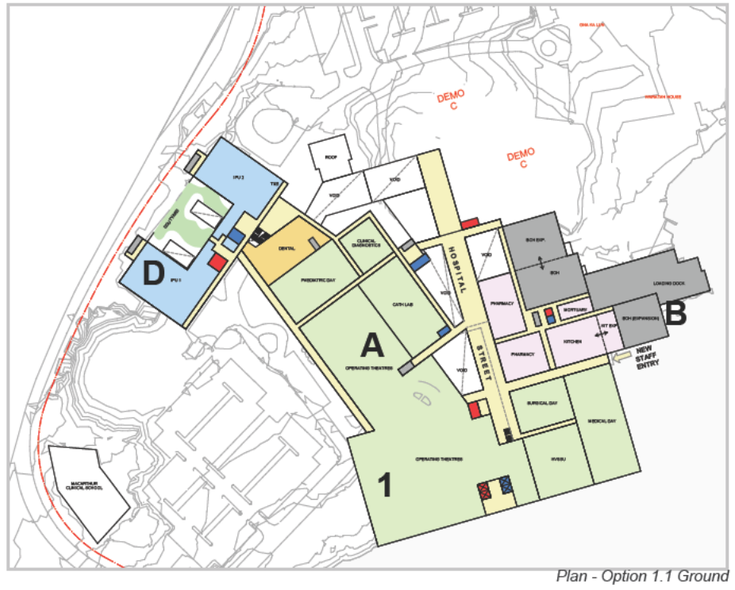
3D View - Option 1.1

8.0 Development Option 1.1

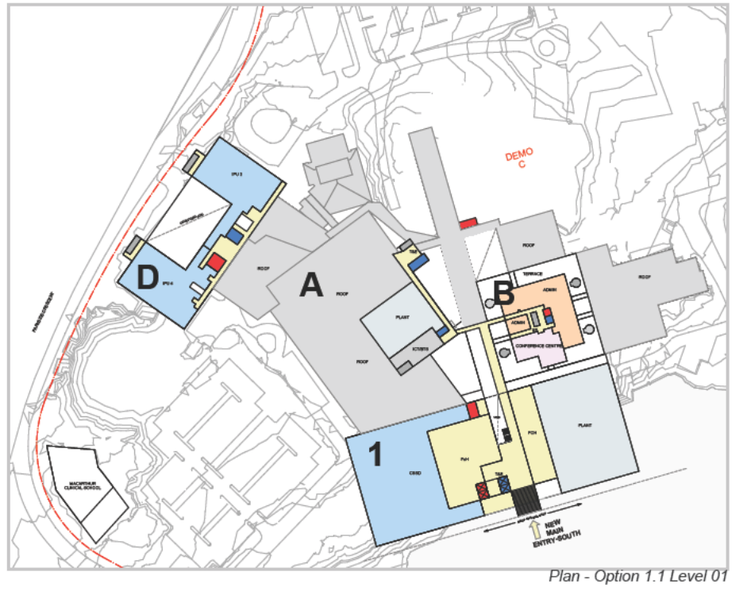


Plan - Option 1.1 Lower Ground 2

Plan - Option 1.1 Lower Ground 1



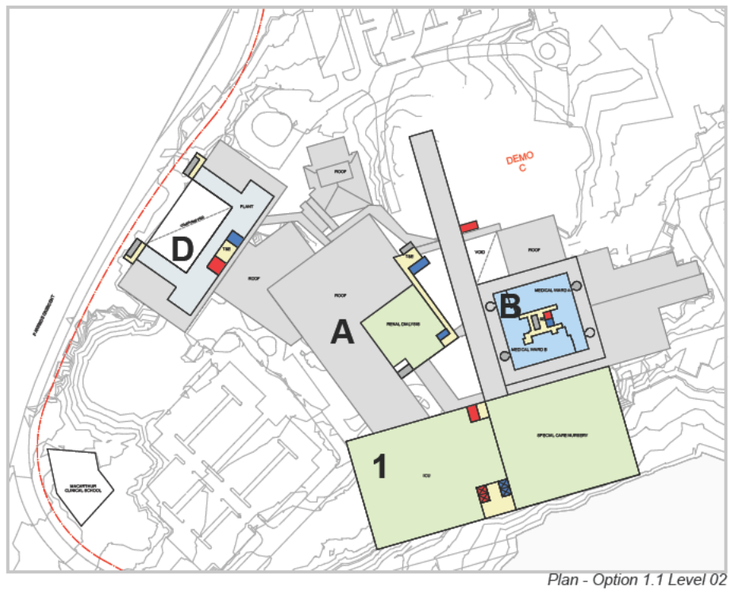
Plan - Option 1.1 Ground



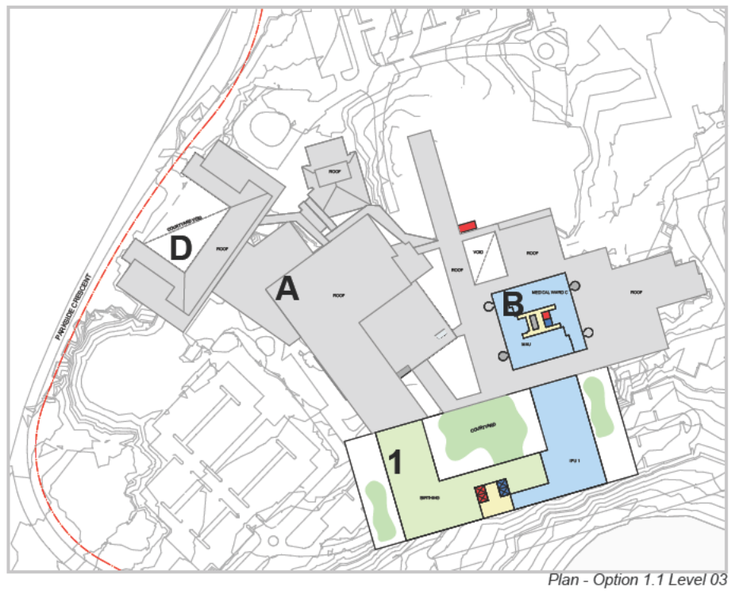
Plan - Option 1.1 Level 01

N

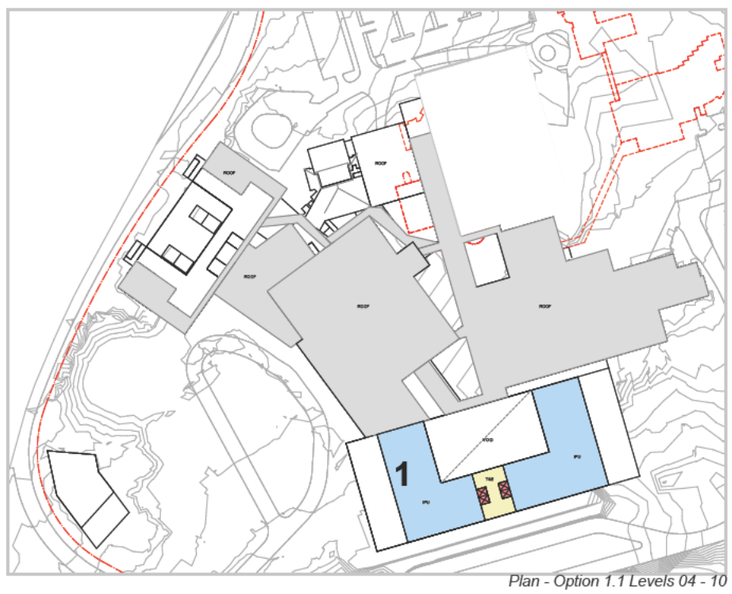
8.0 Development Option 1.1



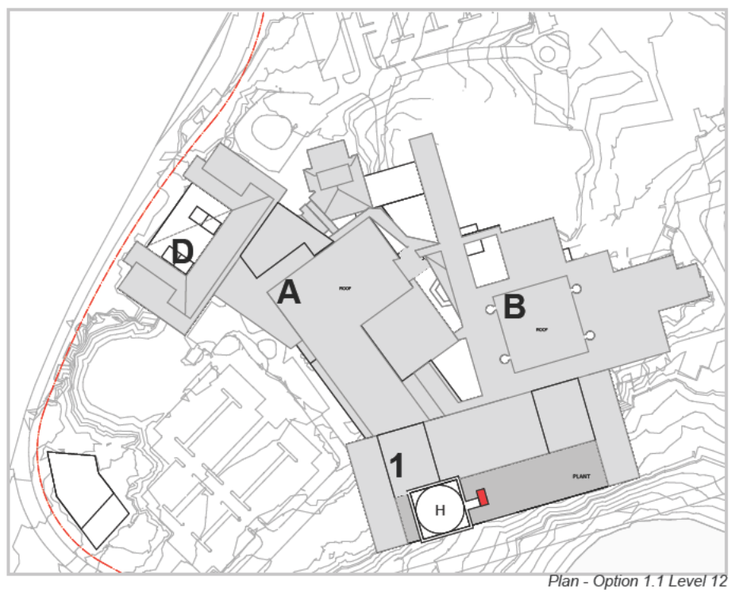
Plan - Option 1.1 Level 02



Plan - Option 1.1 Level 03



Plan - Option 1.1 Levels 04 - 10



Plan - Option 1.1 Level 12

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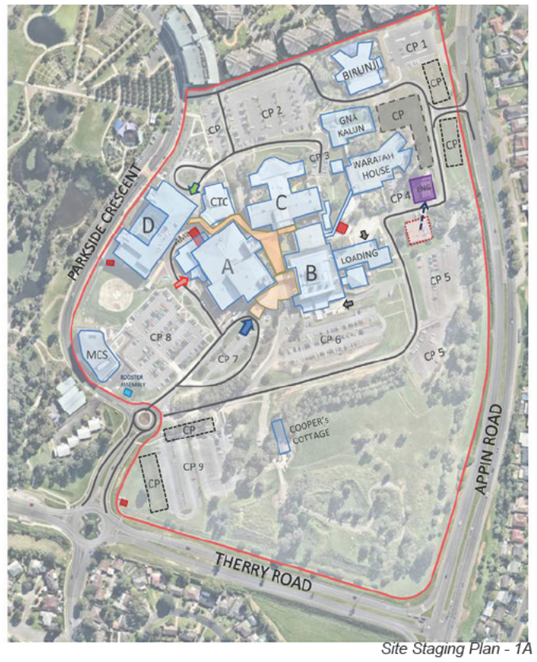
9.0 Options Site Staging

Stage 1A – New Multi-storey Car Park (Early Works)
- Construct new on-grade car parking
- Relocate Engineering Department

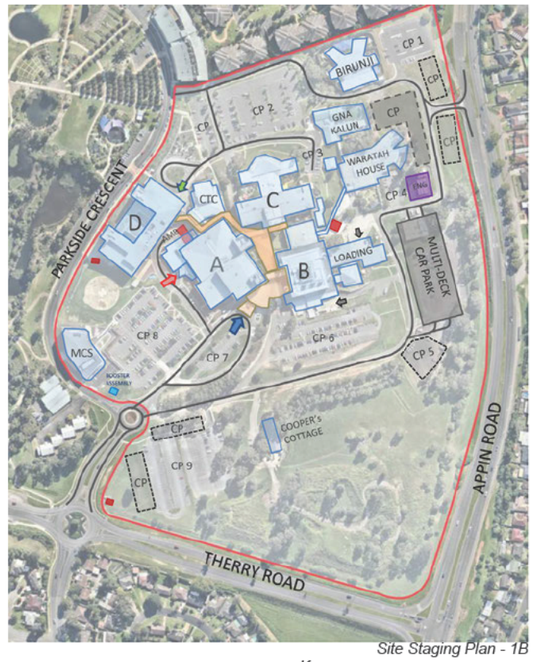
Stage 1B – New Multi-storey Car Park
- Demolish existing on-grade carpark CP5
- Construct new multi-storey car park
- Construct internal road infrastructure

Note: Stage 1A and 1B works not part of Stage 2 Redevelopment Scope

A further refinement of the site staging will be carried out within the Schematic Design Phase as a response to any design changes made in this Phase.



Site Staging Plan - 1A



Site Staging Plan - 1B

Key:

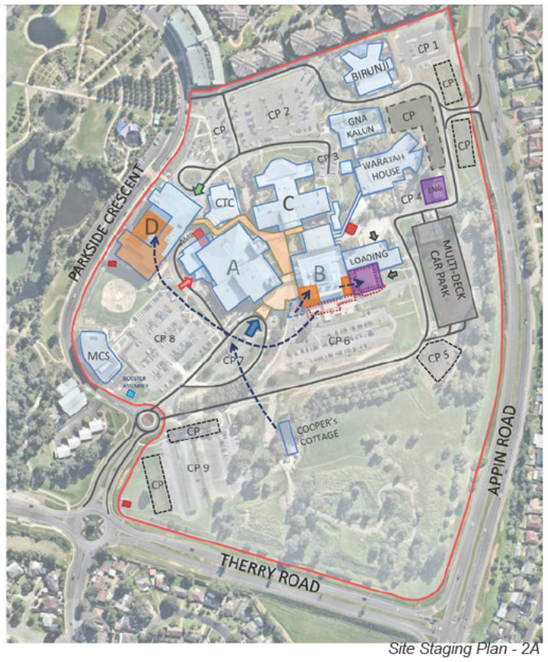
- Existing Logistics/BOH Entry
- Existing Main Entry
- Existing ED & Ambulance Entry
- Existing Building D Entry
- Existing Hospital Roads
- New Multi-storey Car Park
- New Hospital Buildings
- Demolished Buildings
- Existing Hospital Buildings
- Existing Substation
- Proposed Refurbishment
- New On-grade Car Park

N

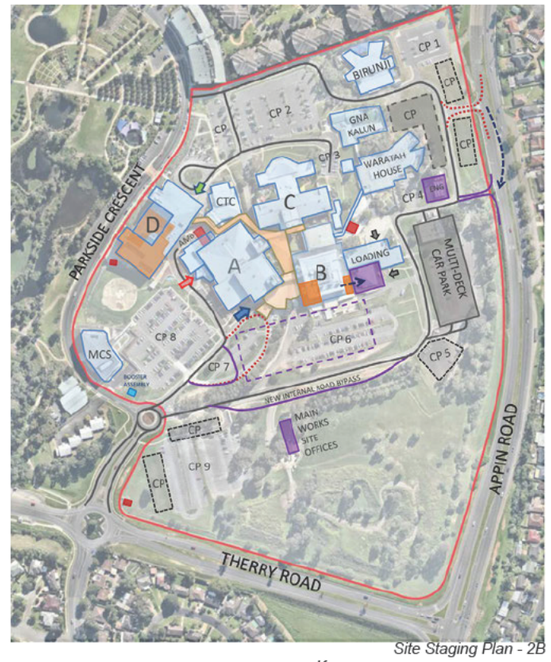
9.0 Options Site Staging

Stage 2A – Part Demo Building B & Building D Shell Space Fit-Out
- Demolish part Building B Back of House (BOH) areas:
- Allied Health (Admin)
- Kitchen (i.e. Cool rooms, stores, loading)
- Staff Canteen
- Construct new internal road and in-ground services infrastructure diversion
- Decant Allied Health (Admin) from Building B to fit out shell space of Building D
- Demolish existing egress Ramp and reconfigure egress from Building B
- Relocate existing Pharmacy service from FOH Level L00 to vacated Allied Health area in Building B on Ground level
- Relocate and construct new Appin Road entrance

Stage 2B – Building B BOH Refurbishment & Enabling Site Works
- Construct BOH expansion and reconfiguration works in Building B
- Close down Carpark 6 and redirect to Carpark 2 (change from staff to public use)
- Service diversions under new CSB Building 1
- Bulk excavation works and construction of internal bypass road
- Reconfigure internal road, main entry drop-off and on-grade car park CP7



Site Staging Plan - 2A



Site Staging Plan - 2B

Key:
- Existing Logistics/BOH Entry
- Existing Main Entry
- Existing ED & Ambulance Entry
- Existing Building D Entry
- Existing Hospital Roads
- New Multi-storey Car Park
- New Hospital Buildings
- Demolished Buildings
- Existing Hospital Buildings
- Existing Substation
- Proposed Refurbishment
- New On-grade Car Park

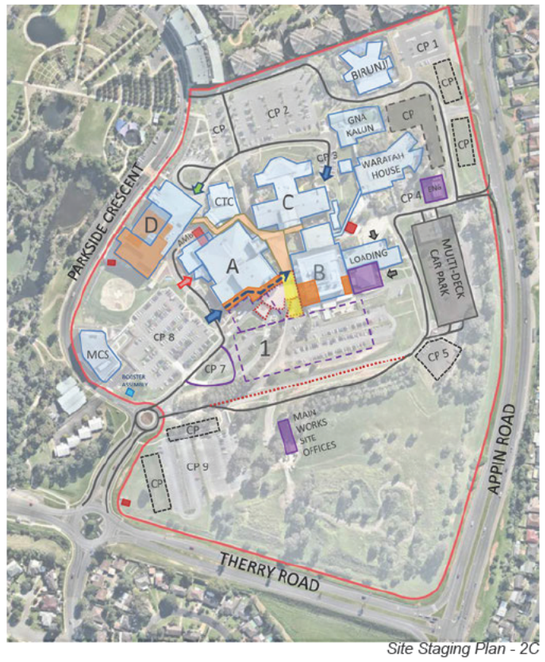
9.0 Options Site Staging

Stage 2C – Temporary Main Entry / New Clinical Services Building Link

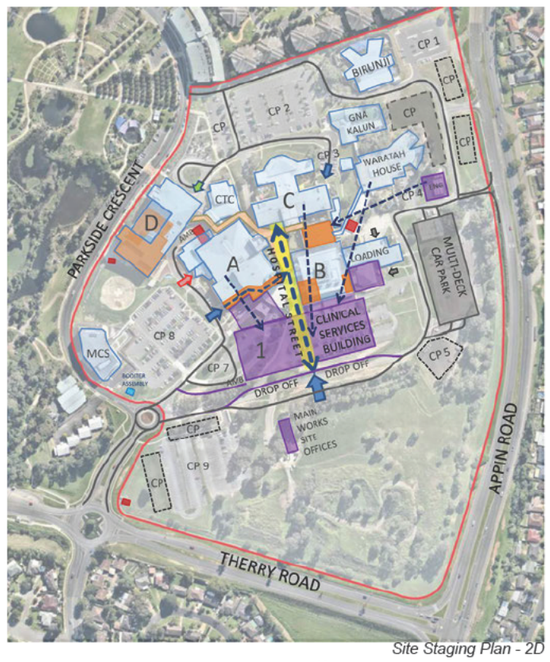
- Construct new temporary main hospital entrance at Level L00 through Building A during construction works
- Part demolish and reconfigure existing FOH areas between Buildings A & 1 including old Pharmacy and Day Surgery entry
- Utilise existing Building D entry as alternate main entry during construction works
- Utilise CP3 as temporary Day Surgery entry through Building C

Stage 2D – New Clinical Services Building 1

- Construct new Clinical Services Building 1 (CSB) incorporating new hospital main entry, ED, ICU, Maternity, Paediatrics, Surgical, Mental Health (Integrated), IPUs and expanded Perioperative services
- Construct new internal road infrastructure including Ambulance access & drop off
- Maintain temporary main hospital entrance through Building A for duration of Building 1 construction
- Relocate New Main Hospital Entrance at Level L02 of Building 1
- Construct new 'Hospital Street' from new build to existing café
- Retain Operating Theatres & Medical Imaging in Building A throughout construction
- Decant Clinical Services to Building 1
- Decant Mental Health from Waratah House to Building 1
- Decant Maternity from Building C to Building 1
- Decant Engineering to new area in Building B



Site Staging Plan - 2C



Site Staging Plan - 2D

Key:

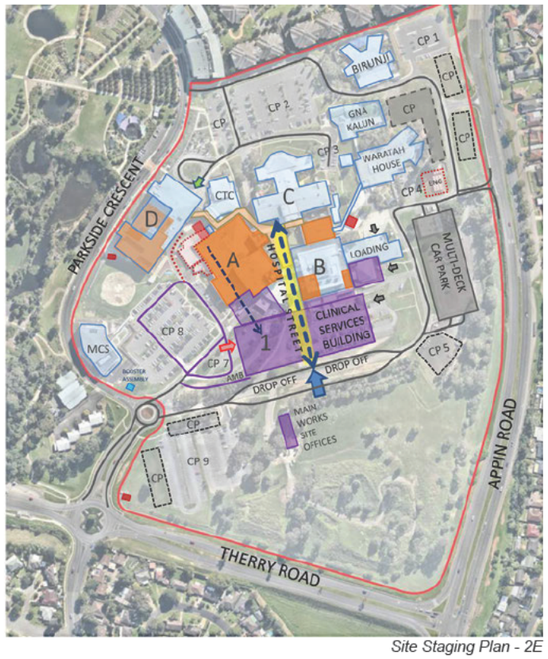
- Existing Logistics/BOH Entry
- Existing Main Entry
- Existing ED & Ambulance Entry
- Existing Building D Entry
- Existing Hospital Roads
- New Multi-storey Car Park
- New Hospital Buildings
- Demolished Buildings
- Existing Hospital Buildings
- Existing Substation
- Proposed Refurbishment
- New On-grade Car Park

N

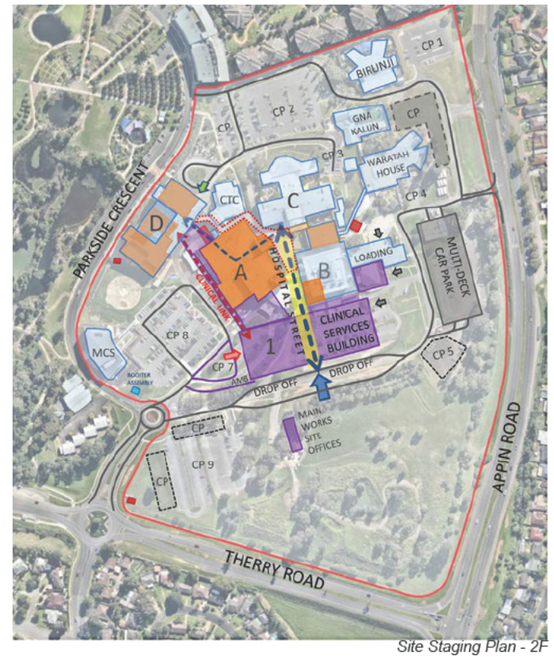
9.0 Options Site Staging

Stage 2E – Repurposing Building A + Integral Link to Building D
- Demolish old departmental areas in Building A for repurposing:
  - PECC/Ambulance Bays/ED Entry single storey external built areas at Level L00
  - CSSD internal fit out area at Level L01
  - Renal Dialysis internal fit out area at Level L02
  - ICU/HDU internal fit out area at Level L03
- Construct and reconfigure carpark CP8 and ED drop-off
- Decant CSSD from Building A into Building 1
- Demolish existing temporary Engineering Buildings

Stage 2F – Repurposing Building A + Integral Link to Building D
- Refurbish and repurpose areas in Building A:
  - Expand existing Medical Imaging into old Emergency Department at Level L00
  - Expand Perioperative services at Level L01
  - Establish new Nuclear Medicine service at Level L00
  - Fit out old Renal Unit for new ICT/BTS area at Level 01
  - Fit out old ICU for new Clinical Information/Offices at Level L03
- Construct new integral clinical link between Buildings A, D & 1
- Construct new public link between 'Hospital Street' through Building A to D
- Establish new 'Hospital Street' from new build to existing café
- Demolish existing external pre-fab 'zig-zag' pedestrian link to Building D
- Building A Commissioning Phase



Site Staging Plan - 2E



Site Staging Plan - 2F

Key:
- Existing Logistics/BOH Entry
- Existing Main Entry
- Existing ED & Ambulance Entry
- Existing Building D Entry
- Existing Hospital Roads
- New Multi-storey Car Park
- New Hospital Buildings
- Demolished Buildings
- Existing Hospital Buildings
- Existing Substation
- Proposed Refurbishment
- New On-grade Car Park

N

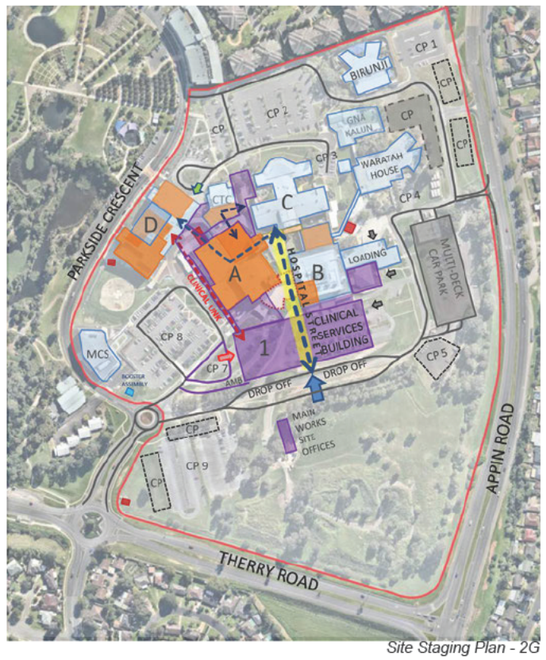
9.0 Options Site Staging

Stage 2G – Demolish Buildings MH & C
- Construct new Cancer Therapy Centre (CTC) Expansion at Level B01 and new northern entry incorporating retail/café areas at Level L00
- Refurbish existing CTC services in Level B01 of Building A
- CTC Commissioning and handover phase

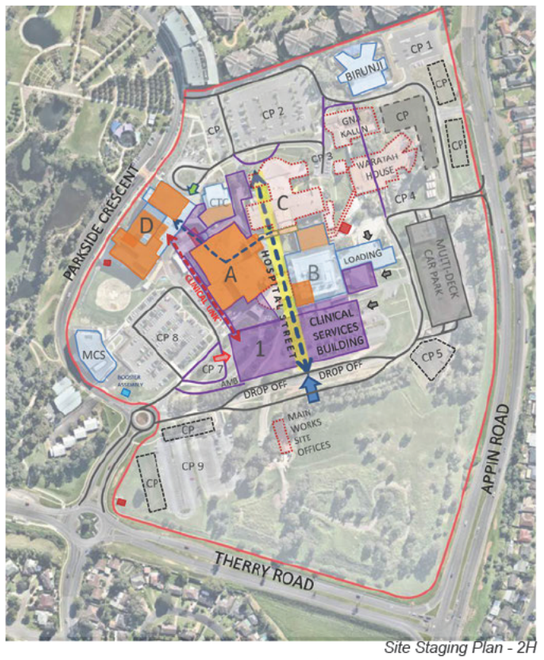
Stage 2H – Cancer Therapy Centre (CTC) Expansion
Demolish existing Building C and Mental Health buildings (Gna Kalun & Waratah House)

Extend new 'Hospital Street' from new build to northern end of the site

Construct new northern entry drop off zone



Site Staging Plan - 2G



Site Staging Plan - 2H

Key:
- Existing Logistics/BOH Entry
- Existing Main Entry
- Existing ED & Ambulance Entry
- Existing Building D Entry
- Existing Hospital Roads
- New Multi-storey Car Park
- New Hospital Buildings
- Demolished Buildings
- Existing Hospital Buildings
- Existing Substation
- Proposed Refurbishment
- New On-grade Car Park

N

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10.0 Preferred Planning Option

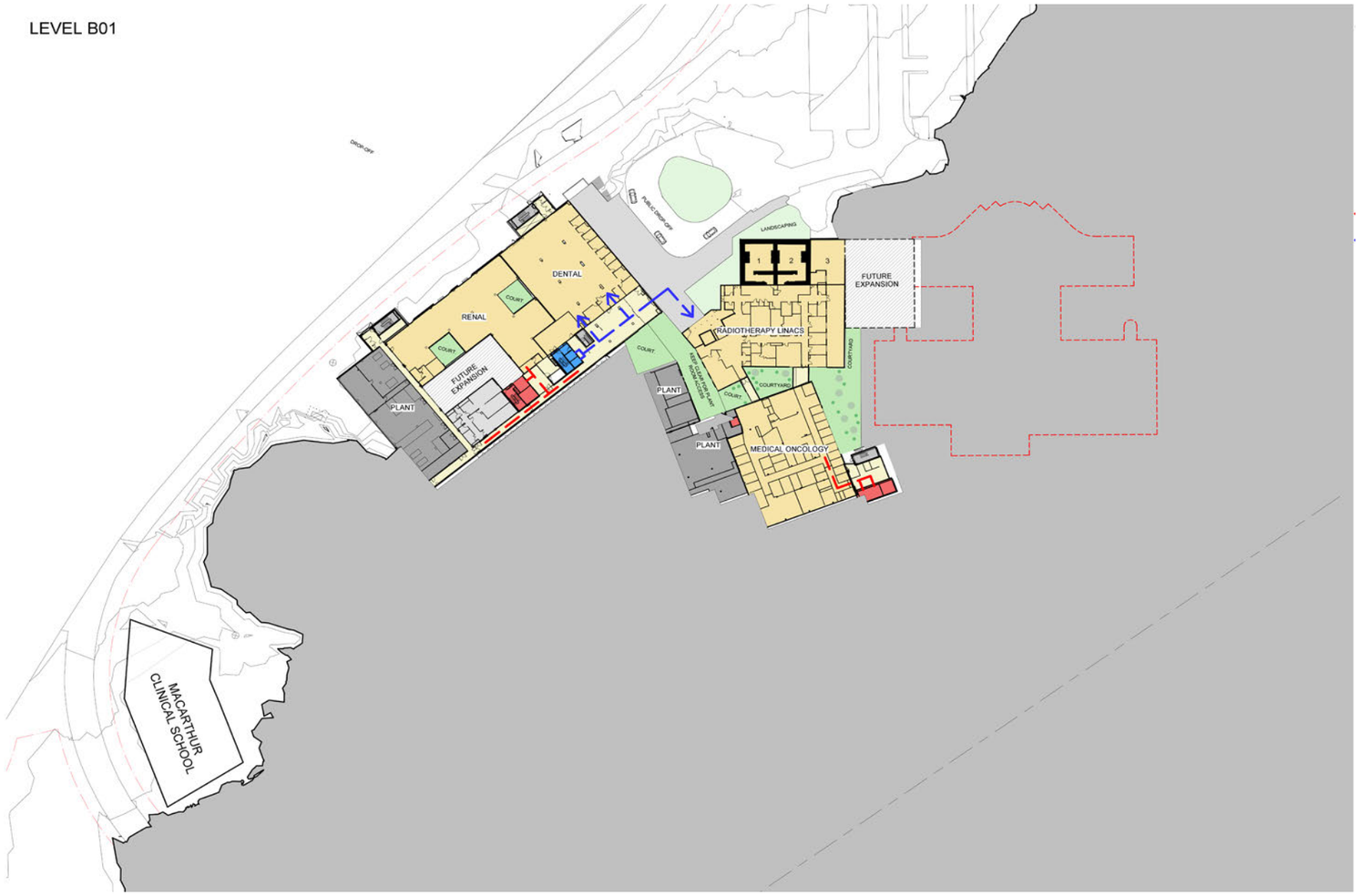
10.1 Blocking and Stacking

Level B01

Building D
- Existing Medical Records Relocated to Building B and new Dental into this location.
- Pathology relocated to Building A and new Renal into this location and shell area with future expansion capabilities.
- Existing plant and access retained.

CTC
- Radiation Oncology retained and expanded to include 1x new Radiation Linac Bunker
- New CTC entry
- Existing courtyards retained and enhanced
- Existing Electrical infrastructure plant and access retained.

Note: This planning will be further tested/refined within the Schematic Design Phase.



Preferred Stacking Option - Level B1

10.0 Preferred Planning Option

Level 00

Building 01
- New Emergency Department and ESSU
- New ambulance bays and access
- New Emergency department Public Drop off and public access to hospital street.

Building A
- Medical Imaging retained and expanded
- New Nuclear Medicine and Dental areas to occupy vacated ED
- Reconfiguring a more direct public link between Hospital Street and Building D, through Building A. This will be further considered in the Schematic Design Phase to maximise wayfinding and ease of patient/staff transport with a target to minimise excess travel and circulation in the design where appropriate.

Building D
- Existing Outpatient services retained and repurposed to accommodate for Adult and Pediatrics Outpatient services.

Building B
- Relocate Medical Records into vacated Junior Medical Offices(JMO) area
- Existing JMO to be relocated in new end of trip facilities in CS01
- Existing Plant and Access retained

Hospital Street
- New Hospital Street to serve as new pedestrian circulation spine connecting Buildings 01, A, B, CTC and D. The wayfinding and amenity strategy to be further developed through the Schematic Design Phase.
- New on grade Northern public entry and drop off
- Existing Courtyard areas retained, enhanced and expanded
- Existing FOH and main entry removed and reconfigured

CTC
- Existing plant and access retained and expanded

Building C
- Demolished

Helipad
- The current on grade helipad is to be relocated to the top of the new clinical services building. A potential future research centre can be constructued in this location with new on grade connections to the Macarthur Clinical School

LEVEL 00

Preferred Stacking Option - Level 00

10.0 Preferred Planning Option

Level 01

Building 01
- New Operating and Interventional Suites
- New CSSD
- New Mortuary and external access
- New BOH connections

Building A
- Existing CSSD area vacated and repurposed as new Surgical Day Only
- Existing Operating Suites retained and refurbished
- Existing Cardiac Catheter Labs retained

Building D
- Retain existing IPU 1 and repurpose IPU 2 as HVSSU.

Building B
- Retain Existing Loading dock and reconfigure BOH services
- Demolish/repurpose existing staff canteen
- Part demolish, reconfigure and expand existing Kitchen
- Existing Allied Health, Discharge Lounge and admin areas vacated and repurposed as new expanded Pharmacy
- Existing Special Care Nursery vacated and repurposed as new Engineering and Facilities Management or similar support service

Hospital Street
- New Hospital Street to serve as new pedestrian circulation spine connecting Buildings 01, A and B

Preferred Stacking Option - Level 01

10.0 Preferred Planning Option

Level 02

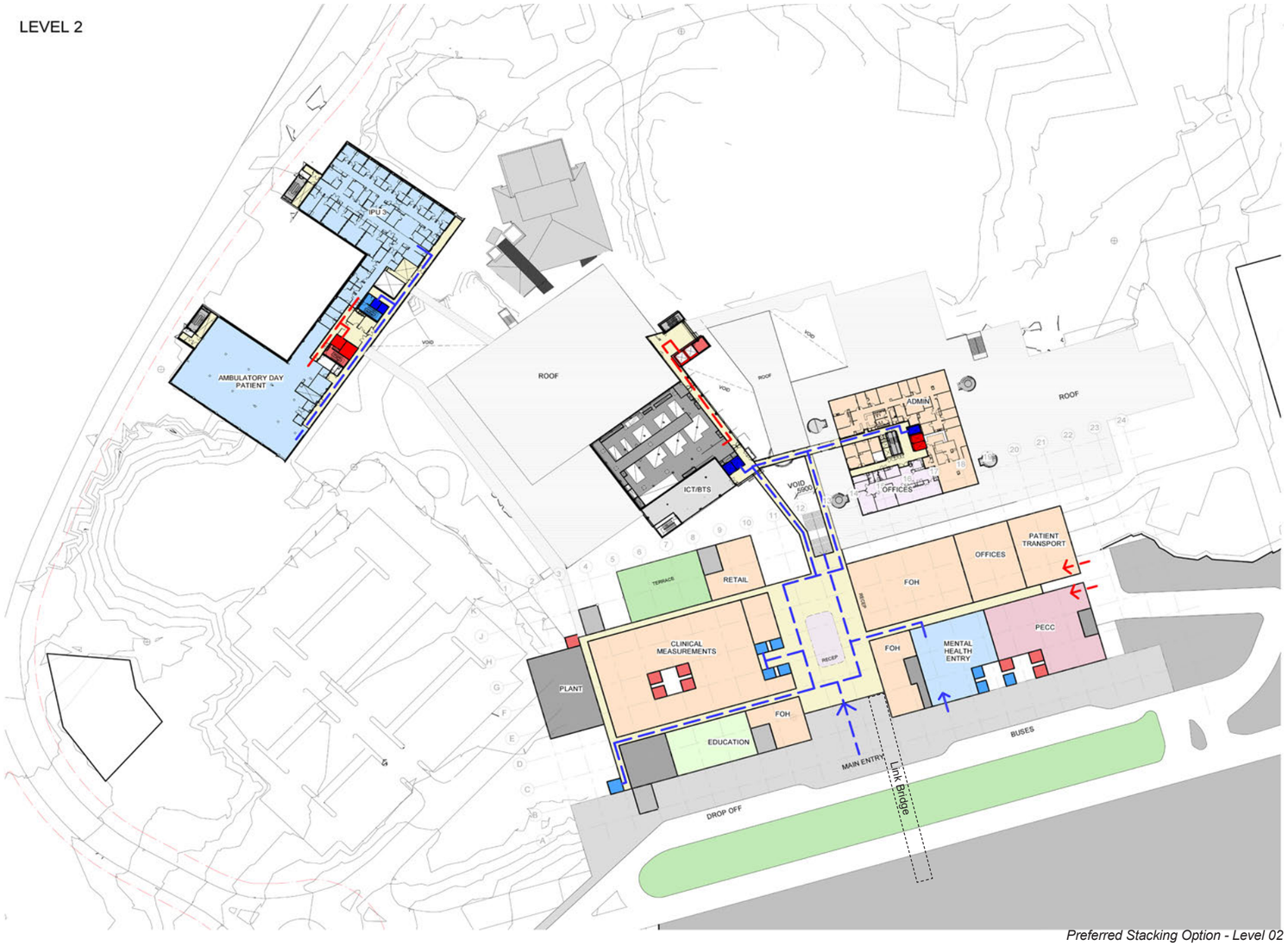
Building 01
- New Northern Hospital Main Entry, Public Drop off and Bus Stop facilities
- New Clinical Measurements
- New Retail and FOH services
- New Education area
- New Patient Transport
- New PECC and Mental Health shared areas with secure entry/ access to eastern end

Building A
- Existing Plant Retained
- Existing Renal vacated and reconfigured for new ICT and BTS (Bio Medical)

Building D
- Existing IPU 3 retained
- Existing IPU shell area repurposed for new Ambulatory Day Patient area

Building B
- Existing Admin areas retained
- Conference Centre relocated to Building 01

Hospital Street
- New public connection between Emergency Department (L00) and Main entry/ Hospital Street
- New Hospital Street to serve as new pedestrian circulation spine connecting Buildings 01, A and B
- New overhead link bridge. This will be furhter explored in the Schematic Design Phase to allow for separated access flows for visitos and patients to vehicles



Preferred Stacking Option - Level 02

10.0 Preferred Planning Option

Level 03

Building 01
- New Intensive Care Unit
- New Central Plant area

Building A
- Existing ICU and HDU vacated and repurposed for new Pathology

Building D
- Existing Plant retained

Building B
- Existing IPU's (Medical Wards A and B) retained

Note: Ipu configuration options will be further explored within the Schematic Design Phase

Preferred Stacking Option - Level 03

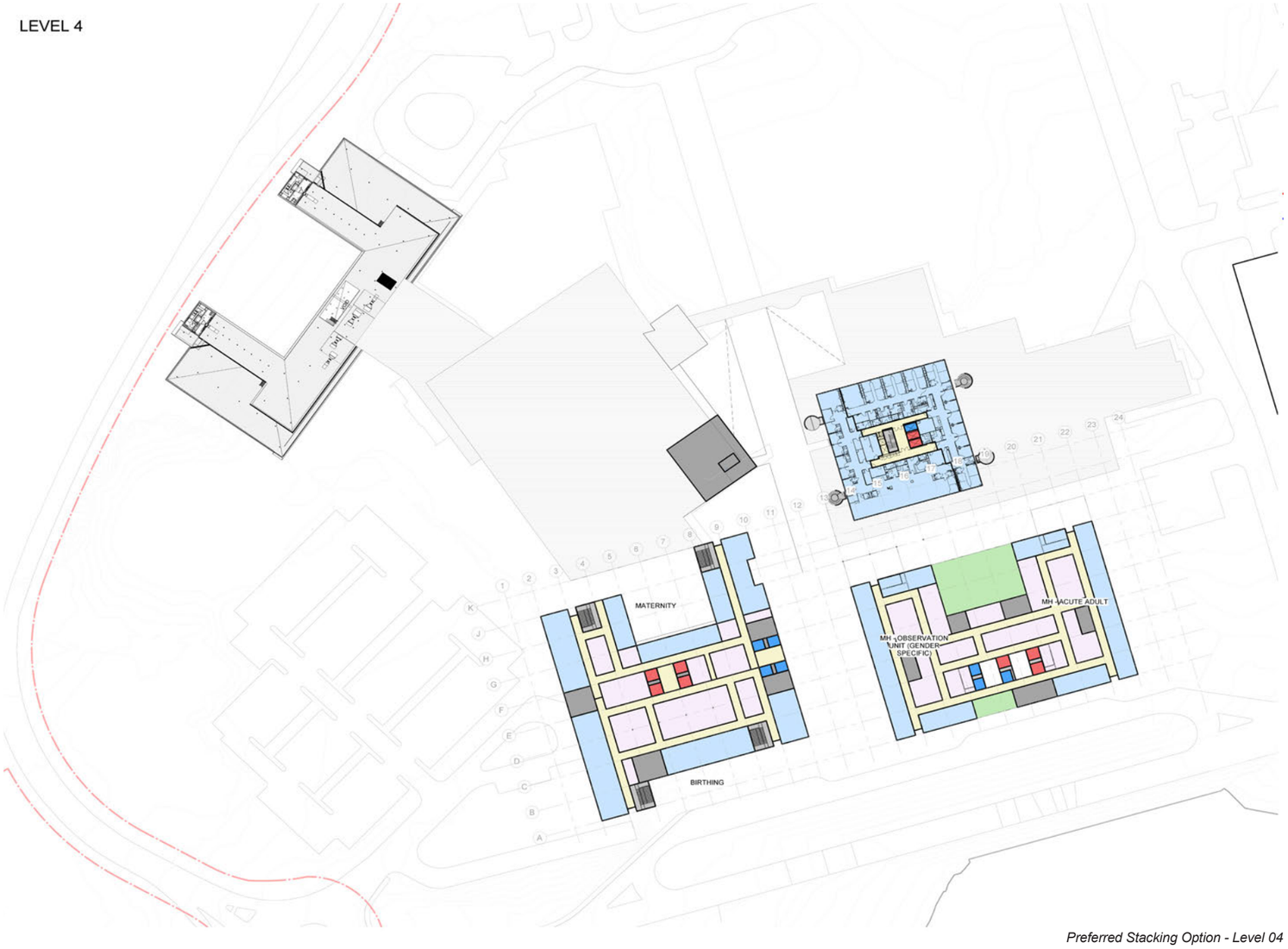
10.0 Preferred Planning Option

Level 04

Building 01
- New Birthing Suites
- New Maternity IPU 1 (34 beds)
- New Mental Health Observation Unit – Gender Specific (20 beds)
- New Mental Health Adult Acute

Building A
- Existing Plant retained

Building B
- Existing IPU's (Medical Wards C and D) retained



Preferred Stacking Option - Level 04

10.0 Preferred Planning Option

Level 05

Building 01
- New Paediatrics Day
- New Mental Health Intensive Care Unit (6 beds)
- New Mental Health Older Persons (20 beds)

Preferred Stacking Option - Level 05

10.0 Preferred Planning Option

Level 06

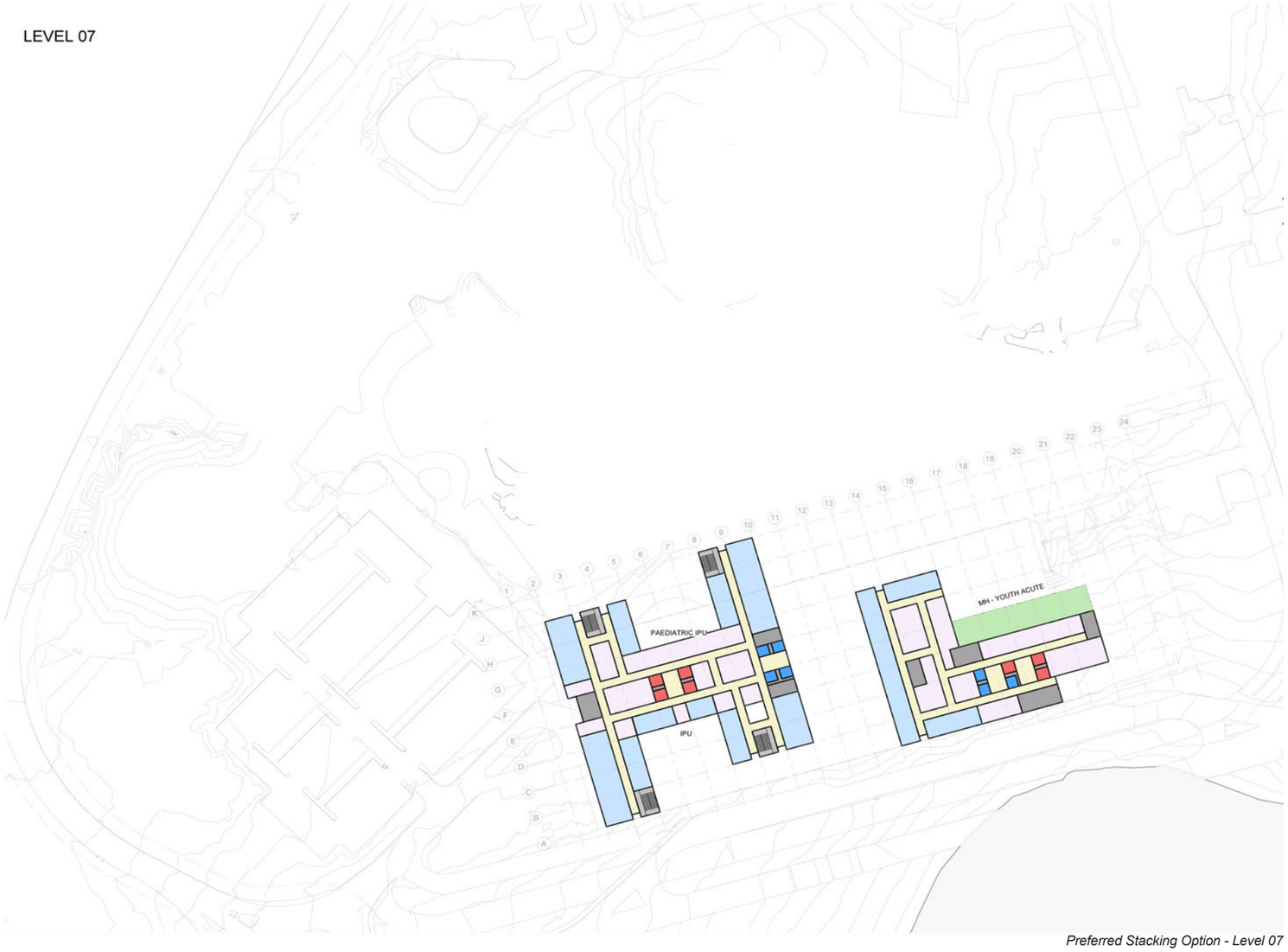
Building 01
- New Maternity IPU 2 (34 beds)
- New Special Care Nursery
- Mental Health Civil Secure (20 beds) – currently not within project scope

Preferred Stacking Option - Level 06

10.0 Preferred Planning Option

Level 07

Building 01
- New Paediatrics IPU 1, (24 beds)
- New Surgical IPU 1, (32 beds)
- New Mental Youth Acute (20 beds)



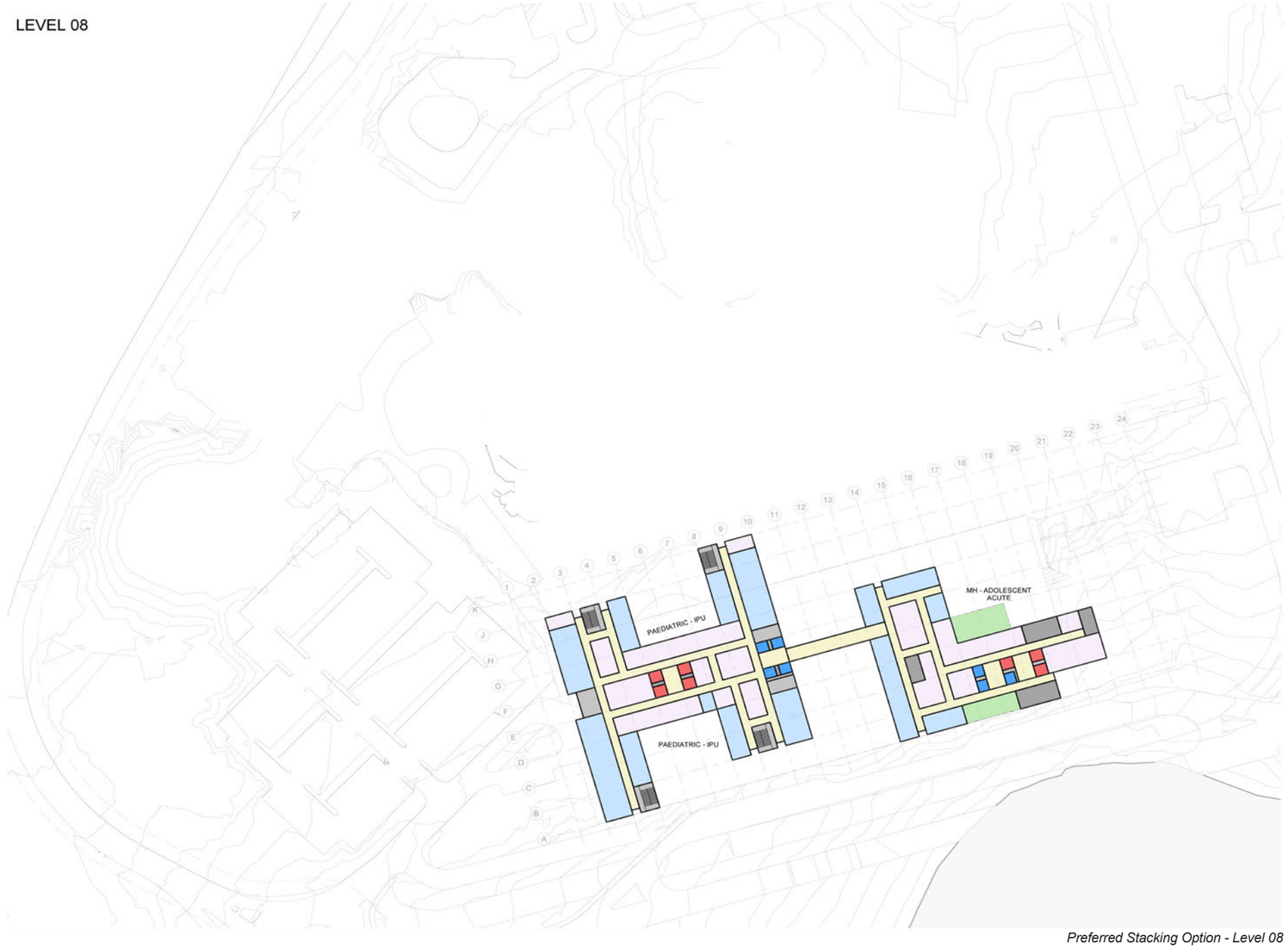
Preferred Stacking Option - Level 07

10.0 Preferred Planning Option

Level 08

Building 01

- New Paediatric IPU's 2 (24 beds) and 3 (23 beds +10 day only beds for recovery)
- Mental Health Adolescent Youth (18 beds)

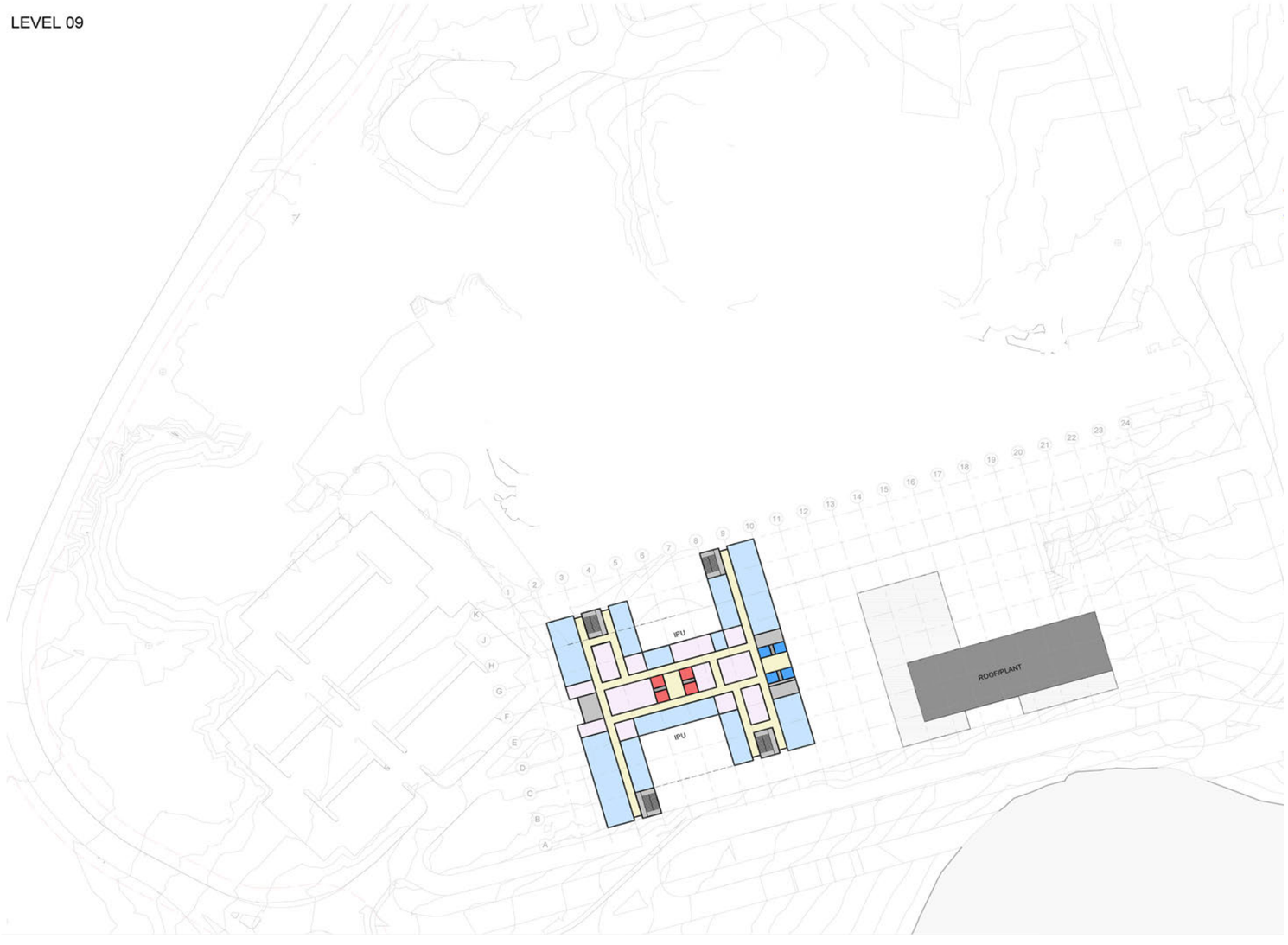


Preferred Stacking Option - Level 08

10.0 Preferred Planning Option

Level 09

Building 01
- New Surgical IPU's 2, 3 (32 beds)
- New roof plant

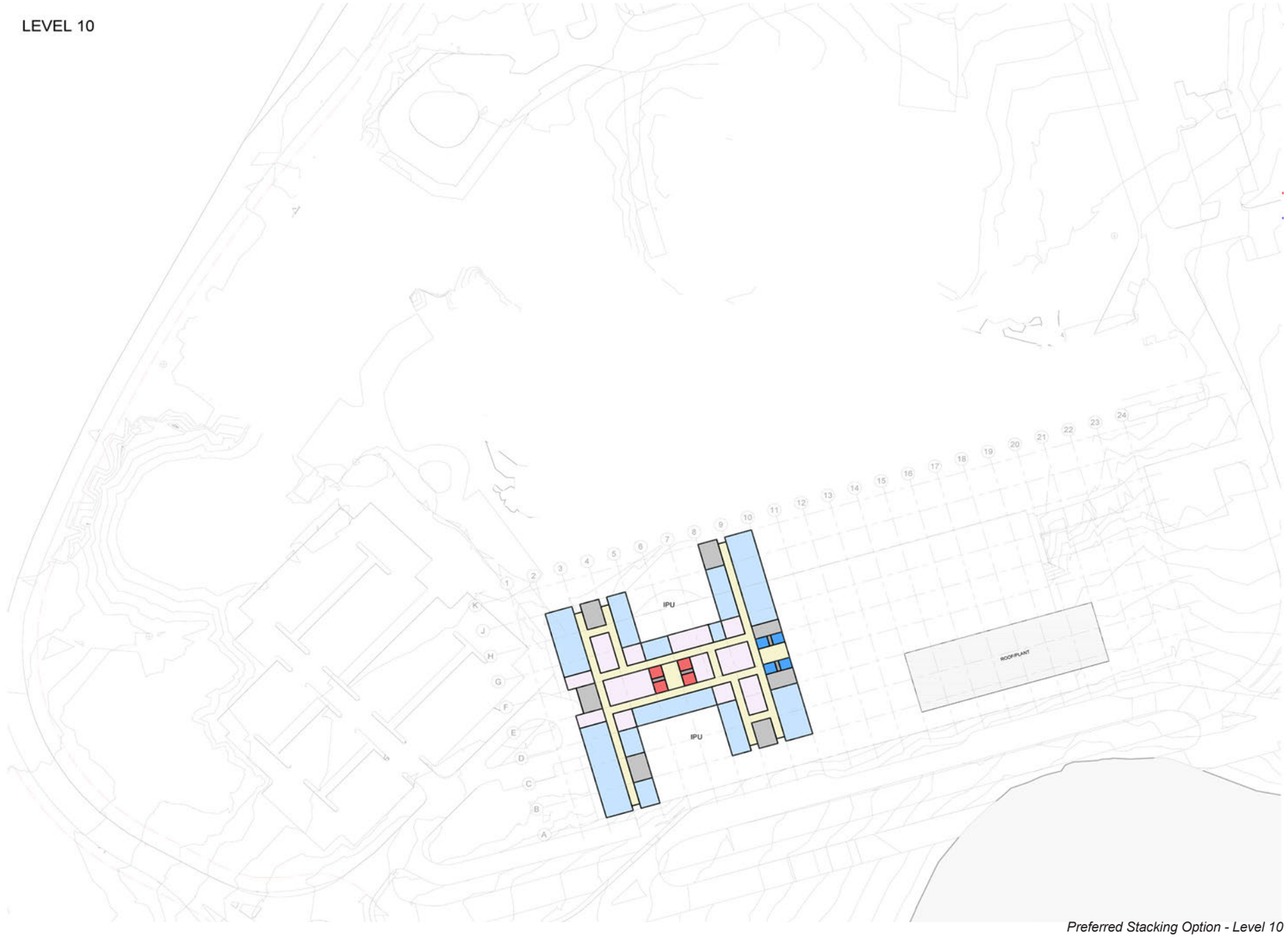


Preferred Stacking Option - Level 09

10.0 Preferred Planning Option

Level 10

Building 01
- New IPU 4 (32 beds) and 5 (Shell)

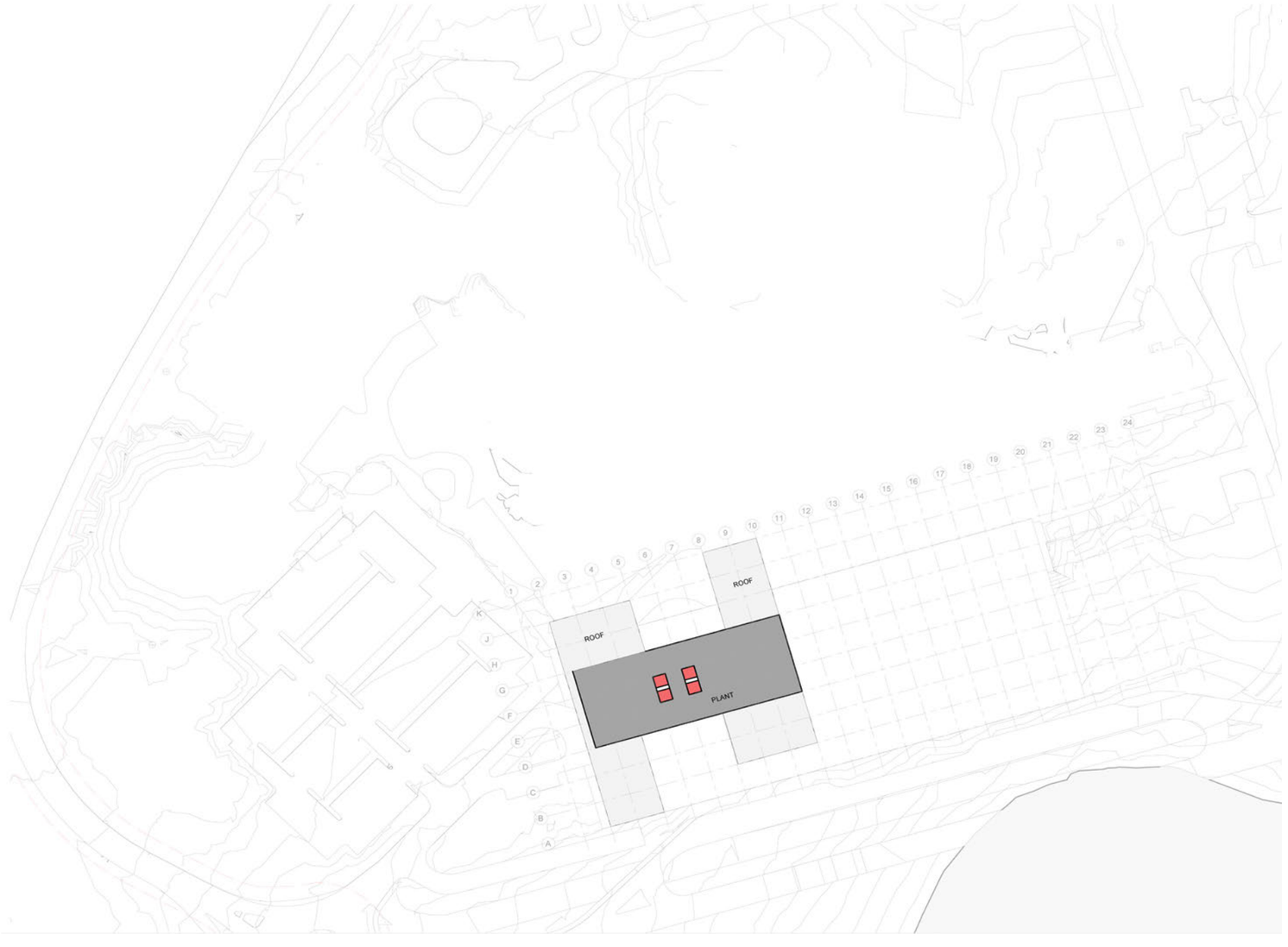


Preferred Stacking Option - Level 10

10.0 Preferred Planning Option

Level 11

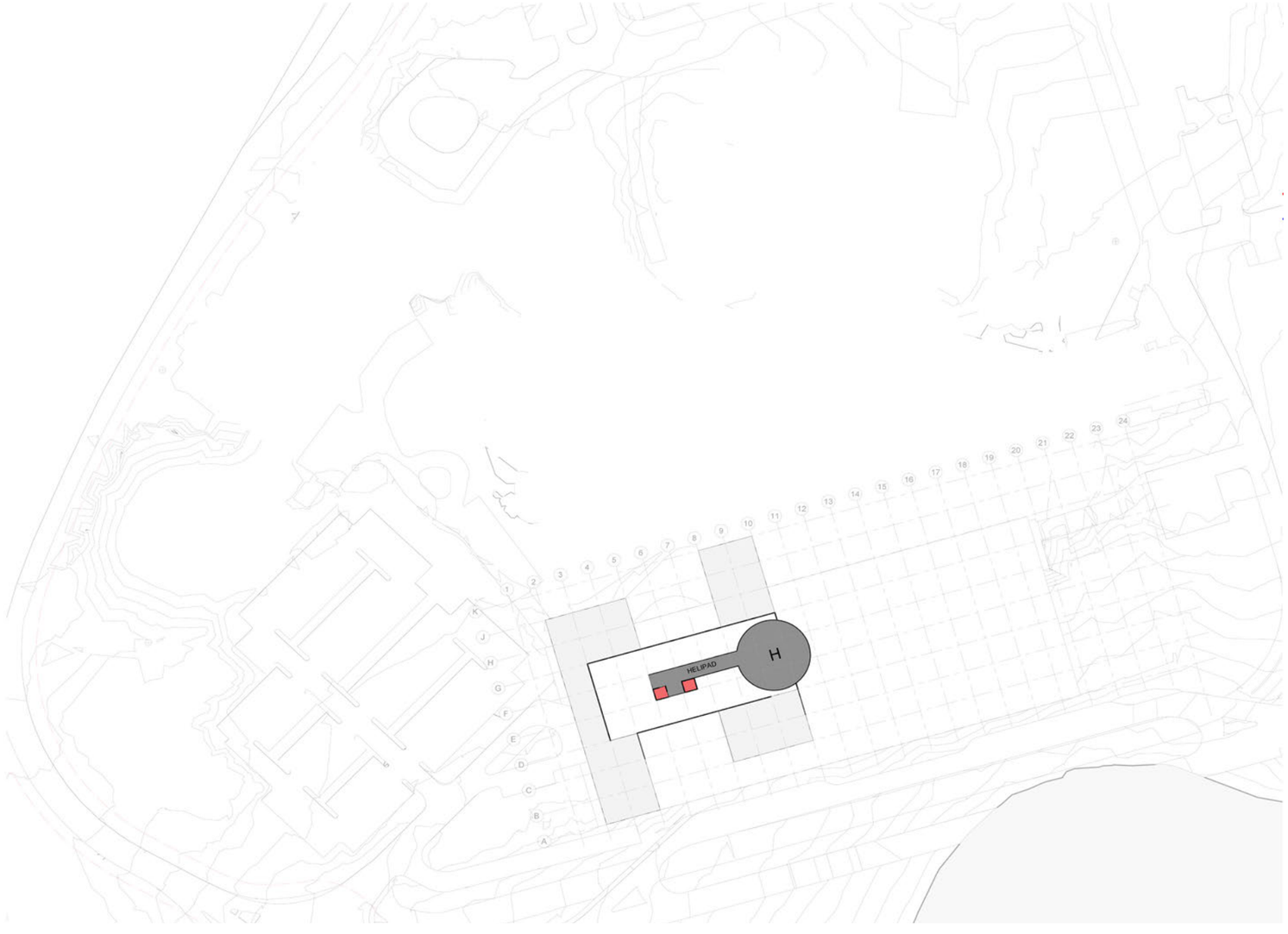
Building 01
- New roof plant



10.0 Preferred Planning Option

Level 12

Building 01
- NewHelipad



11.0 Architectural Design Concept

11.1 Concept Drivers

The Concept Drivers for the Campbelltown Hospital Redevelopment are to:

- Provide modern, contemporary hospital facilities with high quality care standards;
- Enhance and integrate Paediatric and Mental Health services;
- Facilitate the delivery of improved health, education, research and community facilities on site;
- Provide improved access to and between different health and community services on site;
- Provide flexible building design to allow for future modification and expansion to meet anticipated growth in demand for services and changes in clinical practice and models of care;
- Enable new ways of working by leveraging through technology and innovation;
- Ensure development provides harmony and balance with the surrounding areas;
- Provide a high quality urban environment through careful design of buildings, enhanced landscaping and a well-designed public domain;
- Improve and enhance the public domain, including a variety of public areas and pedestrian and vehicular connections through the site;
- Record any significant heritage items that are required to be demolished;
- Encourage public transport use by enhancing access to walking, cycling and bus networks;
- Provide adequate car parking on site;
- Provide improved access to the site and minimise or manage appropriately any adverse impacts on the surrounding main and local streets;
- Manage traffic though the site so that pedestrians can move freely and safely within an appropriate amenity;
- Adopt the principles of Environmentally Sustainable Design (ESD) in accordance with NSW Health and State Government policy; and

11.0 Architectural Design Concept

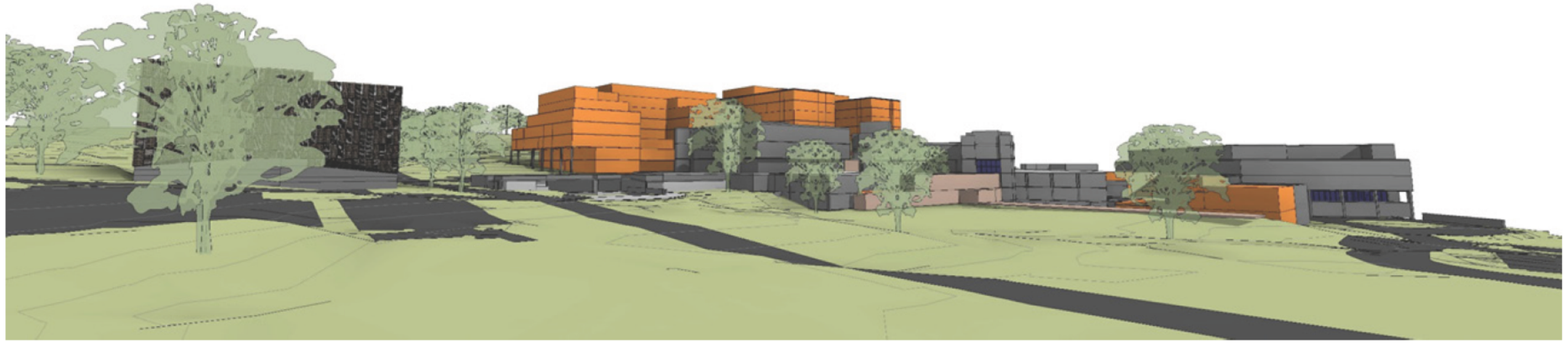
11.2 Concept

The proposed new Stage 2 clinical services complex will be an eleven-storey building that has been designed in accordance with the NSW Hospital Building Development Guidelines. The floor plate & structural support has been based upon an 8.4 metre column grid.

Site Urban Design Context
The existing Campbelltown Hospital campus is an agglomeration of buildings from different era's and styles all concentrated towards the centre of the site with a handful of at-grade parking areas dispersed on the perimeter. The existing buildings on site are staggered and terraced as a reaction to the slope of the topography creating references to a 'citadel' or town on the hillside. With the addition of multiple buildings over the years the campus has spread out. An intricate network of zigzagging circulation links to Building D has created a sense of disconnect across the site.

The proposed redevelopment brings an orderly structure to the site with the pedestrian spine 'Hospital Street' redefining the campus planning and acting as the main public thoroughfare. The new Clinical Services Building (Building 01) will allow for the consolidation of buildings on site and provide a greater civic connection into the hospital and rationalise wayfinding of entry points into the hospital.

The new redevelopment and its built form aims to capture and strengthen the idea of a town on the hillside by embracing the existing disparate built elements and creating a higher level of cohesion on the site. The new built form is also a reaction to its surroundings as it will become a prominent beacon within the community. Working with the natural topography of the site is an opportunity to utilise this vantage point and elevate the hospitals local importance and civic presence in the local Campbelltown Community.



11.0 Architectural Design Concept

11.2 Concept

Built Form Concepts

The design concept of the proposed built form design concepts is distilled down into the following three design elements:

Plinth (Podium)

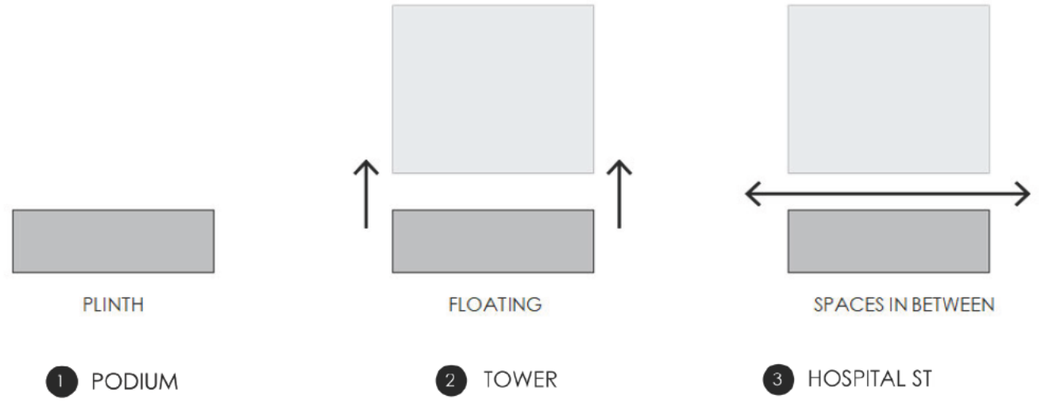
The lower levels of the redevelopment include the construction of a plinth for the proposed clinical services building that maintain existing connecting elements across the site. These elements will define the site location and structure of the new development and will result in the establishment of a continuous horizontal site datum lines across the entire site. The plinth acts as an anchoring point aiding the new clinical services building to comfortably sit in and amongst the landscape and seamlessly tie into the existing facades on the site. Deep reveals and punched openings into the plinth will indicate main entries and access points into the building. The material selection for the plinth is still in concept design phase but is likely to be heavy gestures of natural and raw looking solid masonry type materials that will reinforce its grounding to the site nature. Some examples of these may include but are not limited to concrete, masonry and stone.

Floating (Tower)

Floating above this plinth area are two 'H shaped' towers centrally linked at each level. From a distance the towers will appear to be floating above the plinth/ podium a structural colonnade aids this illusion by allowing the towers to appear as though they are overhanging the form below. The material selection for the towers is still in concept design phase but is likely to be lightweight materials that reflect or appear transparent to reflect the natural surrounds (i.e. sky). Some examples of these materials may include but are not limited to glass, aluminium, steel.

Spaces in Between (Hospital Street/Open Spaces)

The main public pedestrian spine 'Hospital Street' and spine will act as the primary pedestrian circulation network. It will connect the proposed development into all the existing buildings on site with pockets of green spaces, courtyards and terraces spilling off to its sides. These in between spaces are vital to the project and will act as the bonding agent which links the new with the old. These spaces will have an abundance of activity and natural vibrancy within them. The material elements associated with the space are likely to reflect this action and make playful references to subtle colours and textures that can be found in the natural environment.



Concept Diagram: 3 Key Ideas

11.0 Architectural Design Concept

11.2 Concept

Built Form and Site Density

The masterplan provides a robust framework for the development of the site. The new clinical services building aligns with the masterplan framework and will concentrate the greatest site density centrally located on the campus. The existing medium height and low height buildings to the north will aid in stepping down the built form scale across the site. A landscaped edge is proposed for the eastern and southern boundaries of the site.

The built form for the new clinical services building is eleven-storey in height arranged in two 'H shaped' towers with a roof plant and four levels of podium. The tower split enables the necessary clinical separation of public (adult & paediatric), mental health and staff cohorts in the one building. The new building is linked to the existing hospital through a new hospital street running north south along the centre of the site.

The proposed redevelopment also expands the built form across the front of Building A with two additions to either side of it linking Buildings D with A and the proposed Building 01. The redevelopment also includes the single storey expansion of the existing Cancer Therapy Centre (CTC) and BoH services to the east respectively.

Proposed Site Density

11.0 Architectural Design Concept

11.3 Site Access

Vehicular access will be provided/maintained via the existing roadway network that circumnavigates the hospital site. Main access will continue via use of Central Road which links south to Therry Road. Secondary access connection to Parkside Crescent will be maintained to the north. This connection will remain restricted to left in and left out movements. Traffic speed restrictions, imposed by the local council are applied to Parkside Crescent in order to discourage use and minimise speed. A third access point connects the site to Appin Road to the far north east of the site. This intersection is restricted to left in and left out access. It is envisaged that this intersection be decommissioned on completion of an alternative access located further south (subject to acceptance by RMS).

Internal road network upgrades are proposed to service the new development. Most of this work will involve construction of a new drop off and link road located directly south of the new clinical services building. The roadway in this vicinity will require terrain regrading works to ensure alignment with the proposed new main public entry. It is envisaged that the new drop off will incorporate public bus stop and additional vehicle layby zones. A new direct north/south road link is proposed at the completion of the main works once the vacated mental health facilities (Gna Kalun and Waratah House) have been demolished. This road will provide a more direct and simplified ring road to the east of the site.

The existing access road to the current public entry will be significantly modified to provide public access to the new Emergency Department.

Ambulance Access
Ambulance access will utilise the existing and proposed internal roadway system. The new ambulance bay area will have a dedicated access road connection back to Central Road. This road will be placarded as ‘Emergency Vehicle Access Only’. Alternative access connections are to be further investigated during Schematic Design, including provision of unrestricted ambulance access from Appin Road.

Traffic capacity investigations recommend that a new connection to Appin Road would be ideal in the future. Similar to the existing northern connection it would replace this intersection and provide an alternative access to the hospital this is subject to ongoing consultation and approval with RMS. A full access controlled (signalised) intersection would be preferred. The intersection would be located directly north/east of the proposed multi-deck car park. The new intersection location would be integrated into the existing roadway network and would provide ample zone for traffic queuing at the signalised intersection. An alternative restricted left in left out intersection could also be implemented, but would be less desirable as it will not provide the same flexibility or capacity as would a signalised intersection.

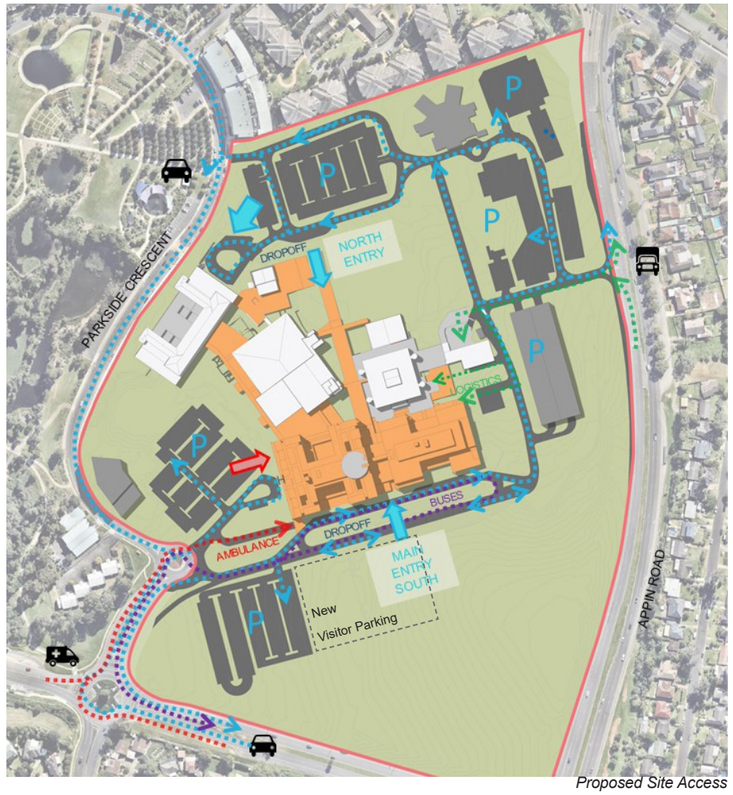
Vehicular Access
Most vehicular access points to existing car parking areas will be maintained with the new development. A new multi-deck car park is being delivered separately to the main project.

Patient Transport
Patient transport services will be located in Building D. The existing drop-off and pick up area located to the north/east side of this building will be utilised for this service.

Loading Dock
The current loading dock is located directly East of Building B with an undercover connection back to the hospital at Level 1. The current facility will be maintained in this location for the foreseeable future. Delivery access will be maintained using the current, albeit partially reconfigured internal road network. Initial investigations suggest that the current capacity facility will likely meet expected demand for the next few years. A separate logistic investigation will identify future expansion strategies.

Helipad
The helipad facility is currently located in the south/western quadrant and will be decommissioned on completion of the stage 2 redevelopment project. The new helipad will be located on the roof of the proposed clinical services building. The facility will have direct connection to the theatre and emergency department floors located below. For further detail on the helipad, refer to Aviation Consultant Report in Appendices.

24 Hour Access
24 Hour access will be maintained on site and the emergency department will be accessed sepparately to the main hospital entry though its own dedicated public drop off zone and public entry. The remained of the hospital can be accessed via the Southern main entry though a dedicated 24 hour access zone, the main security department will also be located within this zone.



Proposed Site Access

11.0 Architectural Design Concept

11.4 Building Access

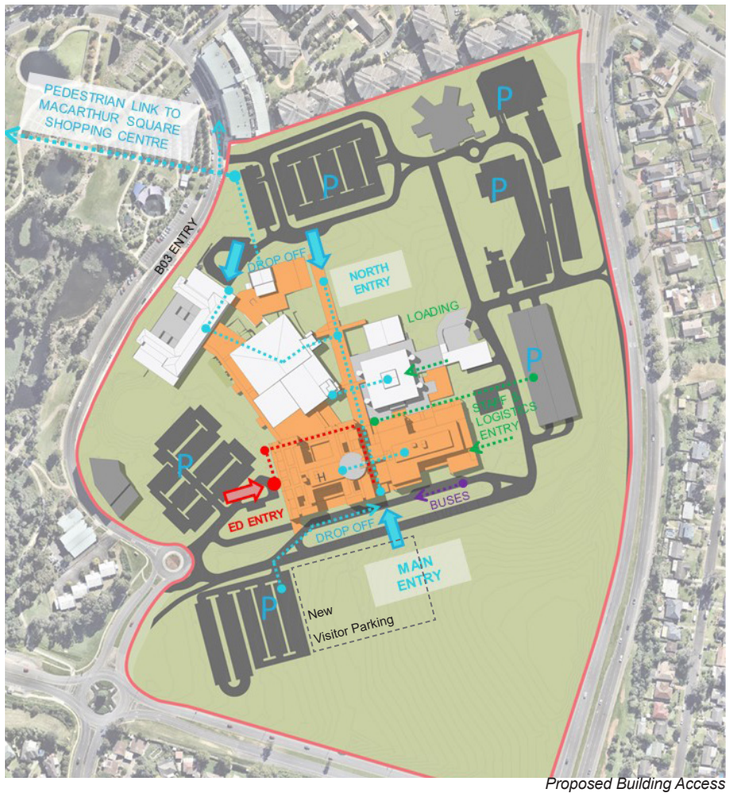
The proposed Stage 2 redevelopment will incorporate a new main public entry to be located toward the south of the site and will have direct on-grade access to a new vehicular drop off, including bus stop. The entry will be situated at the current Level 1 and will connect directly to a 'Hospital Street'. This circulation thoroughfare will traverse the site from north to south and will be multi-levelled and will include double height voids in certain locations as well as cafes, retail outlets and other public concessions. Landscaped courtyard spaces will also connect with the 'Hospital Street'. Integral with the new multi-storey Clinical Service Building (CSB), the 'Hospital Street' will have direct connections to Buildings A, B, D and the Cancer Therapy Centre. The split level design of the 'Hospital Street' provides for good separation on clinical/BOH house flows with that of public flow. A second main entry will be located to the northern end of this public link and will be mostly used for outpatient services.

The existing public entry to Building D will be maintained and will include a new shared access linking back to an expanded Cancer Therapy Centre located adjacent. Patient transport services will be relocated to Building D and will share the same entry and drop-off/pick up facility.

A new Emergency Department (ED) will be located at the lower level of the proposed CSB. This facility will be situated adjacent to the existing imaging department. The ED floor level will be set lower than the existing Level Lower Ground 1 by approximately 500mm and will require a 1 in 40 gradient ramp connection back to Building A (existing) at this level. ED public access will be situated on the western side of the new CSB podium block. Ambulance access will be situated adjacent toward the south/western corner and will form part of the 24 hour zone.

The new Mental Health complex will be located on the eastern side of the new CSB complex. A separate public entry will be provided to the Mental Health facility on the southern side and be located on the same street front and level as that for the new main entry (existing Level 1). A secure vehicular access dock for mental health patients will be provided on the eastern side. This access point will be shared with the PECC facility.

The existing goods and services loading dock, located toward the eastern side of the site, will be maintained, including access and circulation path connections back to Building B. At the time of reporting, determination on loading dock capacity expansion requirements had yet to be determined. The redevelopment will require demolition of the existing kitchen loading/delivery and waste handling area. This external facility will be relocated directly east of the existing/expanded Kitchen unit and will have a dedicated vehicular access/delivery area. The mortuary will be relocated to an area south of the proposed Kitchen loading apron. Segregated vehicular access will be provided to this facility.



Proposed Building Access

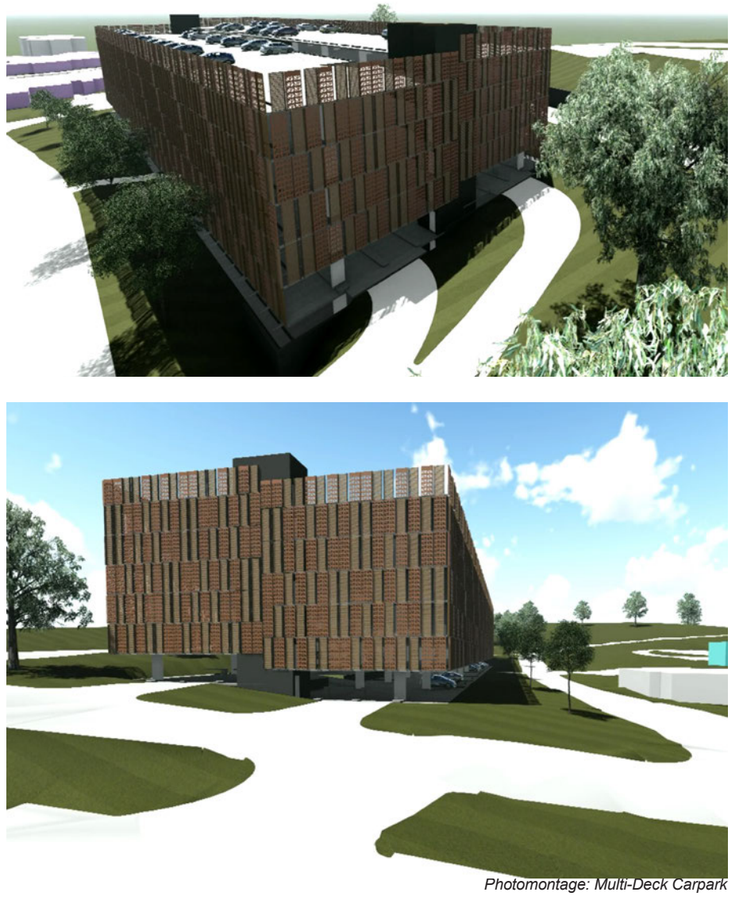
11.0 Architectural Design Concept

11.5 Car Parking

A common concern with hospital developments is the provisioning/availability of car parking for both staff & public usage. Campbelltown On grade car parking is currently provided in various locations throughout the hospital site. The majority of current car parking is designated for staff use (879) with the remainder set aside for public use (401). The Campbelltown Hospital site is unique in that it currently has the highest car transport access utilisation rate for a non-rural hospital in NSW. The proposed Stage 2 redevelopment project will have a building footprint which will assume an area currently occupied by the car park (located directly south/adjacent to Building B). Replacement of these public car parking spaces will be provided by redesignation of the existing staff parking located to the north. A majority of the existing on grade parking areas will be maintained with the completion of the new redevelopment. The existing main public car park will be maintained, but will likely be designated (part only) for Emergency Department use. The existing south western car park will likely be used as the main public car parking facility once the redevelopment project is completed.

As part of an enabling works for the Stage 2 development, a new multi-deck car park facility will be built. This facility will be designated for staff use, but has been designed so that it can be transferred to public use if required at a future date. In addition to the new multi-deck, a number of on grade parking areas will be expanded. These new facilities are being delivered separately to the main works. On completion, there will be a net increase in car parking numbers equating to approximately1950 spaces across the site. To provide for future capacity expansion, a 2nd multi-deck facility will be provided. This complex is identified in the site master plan and is proposed to be located south of the new clinical services building. An additional area for car parking facility expansion has been identified to the north of the main hospital complex.

For further detail on site car parking, including access, refer to Parking and Traffic Engineering Report in Appendices.



Photomontage: Multi-Deck Carpark

11.0 Architectural Design Concept

11.6 Safety in Design

Safety in design has been considered at the concept planning stage.

This includes:

- Security area located with in close proximity of the ED public waiting area.
- Ensuring that all entry areas are situated in locations that have maximum observation.
- No through access of Paediatrics ward.
- Segregation of public & clinical circulation.
- At-grade entries provided.

At Schematic Design stage, further work will be conducted on safety in design, including adherence to Crime Prevention through Environmental Design (CPTED) principles as well as the addressing the following:

- Material & finishes selections.
- Maintenance and access (facade, plant and roof).
- Landscape design.
- Traffic.
- Lighting.

Risk Rating Table

SEVERITY RATING

LIKELIHOOD RATING	VL (VERY LOW)	L (LOW)	M (MODERATE)	H (HIGH)	VH (VERY HIGH)
VL (VERY LOW)	VL	L	M	H	H
L (LOW)	L	L	M	H	VH
M (MODERATE)	L	M	H	VH	VH
H (HIGH)	M	H	H	VH	VH
VH (VERY HIGH)	H	H	VH	VH	VH

LIKELIHOOD
VL (VERY LOW) = Extremely unlikely to occur
L (LOW) = Unlikely to occur
M (MODERATE) = Likely to occur
H (HIGH) = Likely to occur frequently
VH (VERY HIGH) = Will occur very regularly

SEVERITY
VL (VERY LOW) = No treatment required or very minor first aid
L (LOW) = First aid and/or minor medical treatment
M (MODERATE) = Injury or illness
H (HIGH) = Major injury or illness
VH (VERY HIGH) = Death or severe incapacitation

RISK RATING
VL (VERY LOW) = Acceptable risk
L (LOW) = Acceptable risk if managed by 'routine' procedures
M (MODERATE) = Tolerable risk if controlled by 'special' measures
H (HIGH) = Unacceptable risk. Reduce risk and apply mitigation
VH (VERY HIGH) = Unacceptable risk. Reduce risk.

Proposed Building Access

11.0 Architectural Design Concept

11.7 24 Hour Zone

The 24 hour zone consists of the Emergency Department (ED), Imaging Department, Perioperative Suite/Theatres (when in use), ICU and Maternity/ Birthing Departments. These clinical departments are located on the lower floor levels of the proposed Stage 2 development. Emergency & Imaging Departments are collocated on current Lower Ground 01 (proposed Level 00 floor level). Perioperative Suite/Theatres are located directly above on the Level 01 of Building 1 (CSB) and existing Building A.

The ED public entry area is located on the western side of the development at Level 00 will provide 24 hour access and will act as the main after hours entry to the Hospital. Ambulance access is located further south along the western side of the new CSB building. Adjacent to the public ED entry area will be the security room. Security will be located here so that it will have clear uninterrupted observation of the public entry point as well as the public waiting areas of the Emergency Department facility.

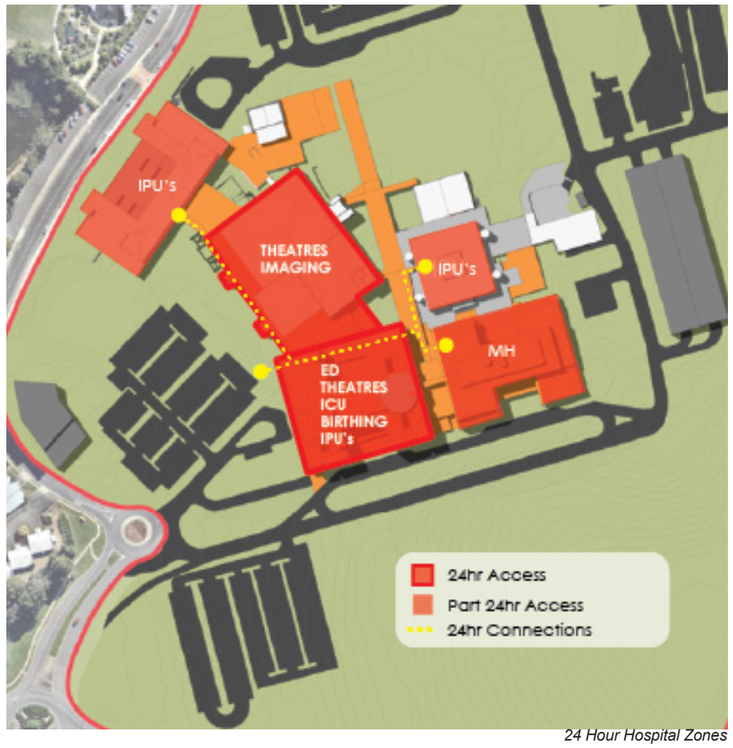
The design of these areas will allow the Hospital to effectively shut down zones that do not operate 24 hours a day, therefore minimising the operational need for staffing and security services. After hours access to the upper levels from the ED public entry will be either via staff corridor at Level 00 to public lifts for direct connections to ICU and Maternity, or alternatively via a 24 hour public corridor at the new Main Entry level (Level 02) connecting to the Hospital Street and public lifts to patient care areas (i.e. IPUs) in the upper levels of Building 1.

A broader 24 hour zone will include linkages to the existing Medical IPUs in Buildings B & D.

Subsequent design will ensure that suitable connection between new and existing facilities is provided.

Future proofing in longer term planning will also maintain and enhance this 24 hour zone.

After hours access strategies and wayfinding will be furthere developed through the Schematic Design Phase with a potential view to activate tha main entry and where possible divert people from attending the Emergency Department after hours for general access.



24 Hour Hospital Zones

11.0 Architectural Design Concept

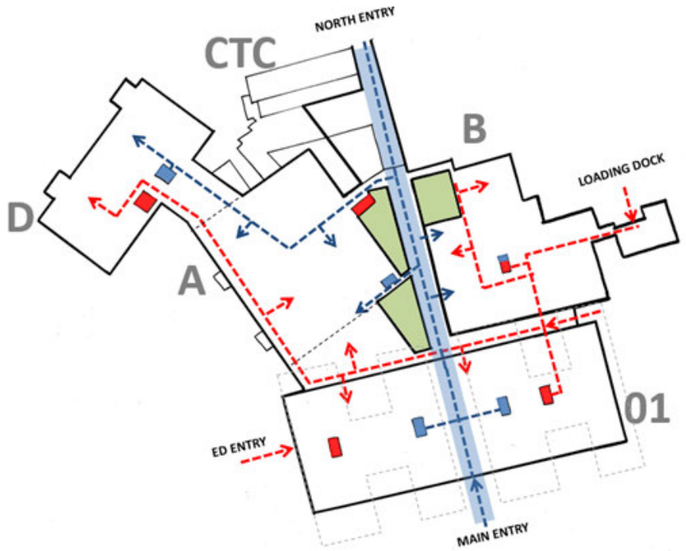
11.8 Circulation

Overall, the design provides for a new “framework” for the facility that clearly and intuitively articulates spaces meant for public access and those meant for staff and ‘Back of House’ functions. The design will improve the way finding experience for the public and improve patient privacy and dignity for patients being moved between functions within the hospital.

A public interface zone will be located through the centre of the campus through the establishment of a new pedestrian spine ‘Hospital Street’ (highlighted in blue) that is accessed from a new main entry at Level 02 on the southern side of the new Building 1 and from the northern end past Cancer Therapy Centre (CTC). The central ‘Hospital Street’ traverses over three levels than branches off connecting new and existing Buildings along its length. Staff and ‘Back of House’ (BoH) links will be provided to the existing hospital to the west. The public link connection will utilise the existing main east/west corridor. Clinical flow is segregated from public flows. The clinical/BoH link is located south of the public interface zone link. Separate lifts for public & BoH/clinical are to be provided, making a total of 4 new lifts (2 for Clinical/BoH & 2 for Public).

Public ED access, including ambulance will be from the western side. ED & Imaging are located on Level 00. These areas along with the Perioperative/ICU form part of the 24 hour zone.

Existing loading dock/kitchen & linen facilities are to be maintained. Access will be via a lower ground floor connection located to the south/west of the new Clinical Services Building. Design detail will be further refined at Schematic Design stage & through the User Group consultation process.



Proposed Site Circulation Strategy

11.0 Architectural Design Concept

11.9 Expansion

Provision for expansion of the proposed Clinical Services Building (Building 01) has been made for short and long-term development opportunities.

Short term expansion can occur within the immediate confines of the new building and refurbished areas.

The location of soft spaces (i.e. Administration areas) between and at the edges of clinical departments will also facilitate this soft expansion.

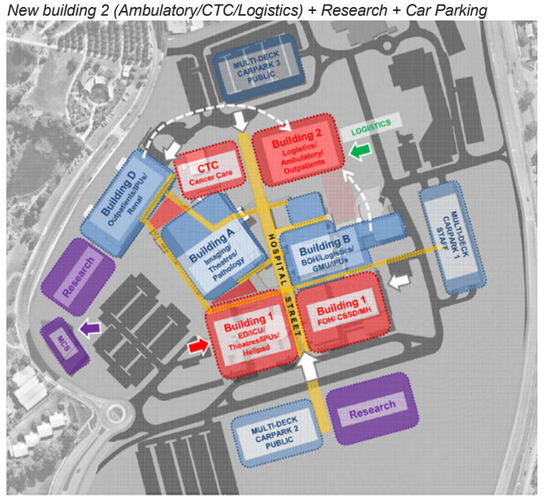
Two specific zones have been identified as possible expansion areas:

- An extension zone on the ED Entry Level (Level 00) level can be provided directly west of the ED & Theatres for minor expansion.
- The other future expansion zone that has been identified is the expansion of CTC (i.e. 1 x radiation Linac) with the demolition of Building C.

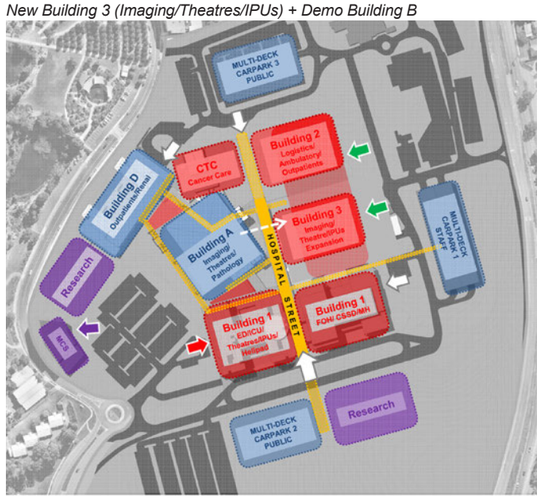
Roof and Podium level plantrooms are being designed with capacity to take into account the future replacement of existing plant serving existing Buildings A & B from Building 01 and can be re-used when those Buildings are demolished.

Longer term, the main expansion zones have been identified in accordance with the Masterplan strategy for the Campbelltown Hospital campus. At the completion of the Stage 2 scope of works the campus is set up for the next development site vacated by Building C at the northern of the site. This would follow the strategy to demolish Buildings B, A, CTC and repurposing of Building D.

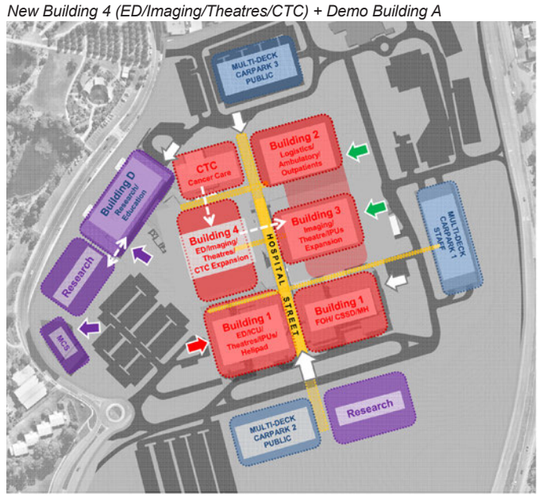
STAGE 3: -
New building 2 (Ambulatory/CTC/Logistics) + Research + Car Parking



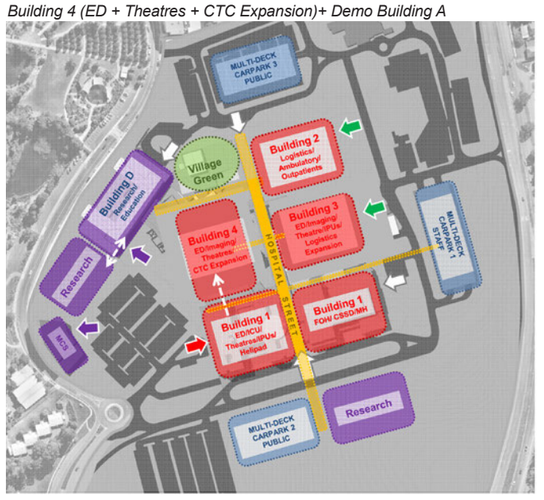
STAGE 4: -
New Building 3 (Imaging/Theatres/IPUs) + Demo Building B



STAGE 5: -
New Building 4 (ED/Imaging/Theatres/CTC) + Demo Building A



STAGE 6: -
Building 4 (ED + Theatres + CTC Expansion)+ Demo Building A



11.0 Architectural Design Concept

11.10 Building Levels

Overall, the design provides for a new “framework” for the facility that clearly and intuitively articulates spaces meant for public access and those meant for staff and ‘Back of House’ functions. The design will ultimately improve way finding experience for the public and improve patient privacy and dignity for patients being moved between functions within the hospital.

A public interface zone will be located through the centre of the campus through the establishment of a new pedestrian spine ‘Hospital Street’ that is accessed from a new main entry at Level 02 on the southern side of the new Building 1 and from the northern end past Cancer Therapy Centre (CTC). The central ‘Hospital Street’ traverses over three levels that branches off connecting new and existing Buildings along its length. Clinical staff circulation flows and ‘Back of House’ (BoH) links will be provided at the eastern and western edges. The staff link connection from the new multi-deck car park (Stage 1 scope of works) will utilise the existing east/west corridor. Clinical flow is segregated from public flows. Separate lifts for public, mental health direct IPU access & BoH/clinical are to be provided.

Public ED access, including ambulance will be from the western side at Level 00. These areas along with the Perioperative/ICU form part of the 24 hour zone.

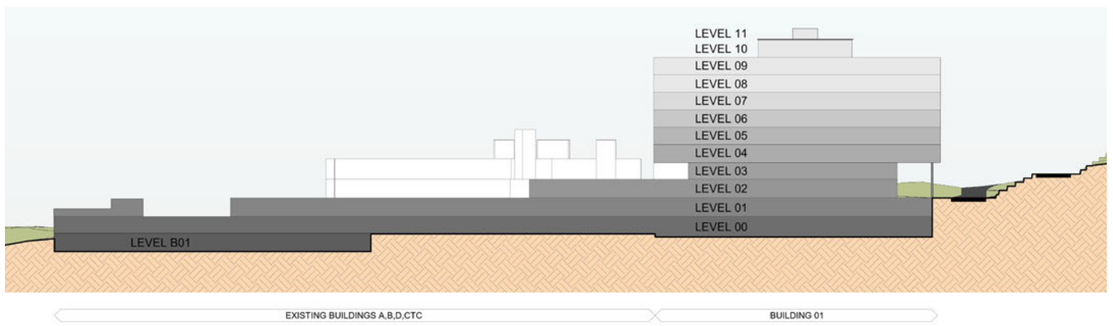
Existing BoH (i.e. loading dock/kitchen & linen facilities) are to be maintained and enhanced. Access will be via east-west connections at the lower levels located to the north edge of the proposed Building 01. Design detail will be further refined at Schematic Design stage & through the User Group consultation process.

17075_Campbelltown Hospital Redevelopment Stage 2
Building Floor Levels Schedule

Date: 15.02.2018

	Building FFL / Floor to Floor Height (m)											
Existing / Proposed Level	**Building 01**		**Building A**		**Building B**		**Building C**		**Building D**		**Building CTC**	
B02									**76.130**	3.310		
B01			**79.430**	4.260					**79.440**	4.290	**79.400**	4.330
L00 (ED)	***83.200***	4.500	**83.690**	4.000	**83.700**	3.990	*83.700*	*3.990*	**83.730**	3.980	**83.730**	4.240
L01 (OT)	**87.700**	4.500	**87.690**	4.500	**87.690**	4.500	*87.690*	*3.950*	**87.710**	4.510	87.970	
L02 (Main Entry)	**92.200**	4.500	**92.190**	4.480	**92.190**	4.480	*91.640*	*3.750*	**92.220**	4.500		
L03 (ICU/Central Plant)	**96.700**	4.500	**96.670**	4.100	**96.670**	3.990	*95.390*	*5.070*	**96.720**	6.400		
L04 (Birthing/MH)	**101.200**	4.200	**100.770**	5.260	**100.660**	3.650	*100.460*		103.120			
L05 (SCN/MH)	**105.400**	4.200	106.030		**104.310**	4.760						
L06 (IPU/MH)	**109.600**	4.200			109.070							
L07 (IPU/MH)	**113.800**	4.200										
L08 (IPU/MH)	**118.000**	4.200										
L09 (IPU/Roof Plant)	**122.200**	4.200										
L10 (Roof Plant)	**126.400**	4.200										
L11 (Helipad)	**130.600**	4.200										
L12 (Lift Overrun)	134.800											
Building Height (m) - L00-L11		*51.600*		*26.600*		*25.370*		*16.760*		*26.990*		*8.570*

Notes
1. Building 01 (Level L00) - lower floor level by maximum 500mm to maintain 4500mm floor to floor in Emergency Department.
2. Building C - to be demolished



Proposed Building Levels

11.0 Architectural Design Concept

11.11 Building Fabric

The form hierarchy builds on the inherent site characteristics. The site's horizontal datums allow for the overall form to be broken down into three distinct striations- the podium, an intermediary zone and the towers. The ordering device of a street, allows for movement through the site and to connect across differing datums. The spaces between buildings, 'the negative spaces,' are conceived as green spaces of respite. These green spaces occur across various datums and up through the towers to allow for access to green throughout.

Materiality

The three distinct striations of the overall form have differing material treatments:

The Podium (The Plinth)
Levels 1 and below forms part of the 'podium'. This is conceived as a 'solid element' that carves, folds and merges with its surrounding landscape.

To create this sense of solidity the material palette may incorporate precast concrete elements or prefinished compressed fibre cement sheeting fixed to a sub framing system.

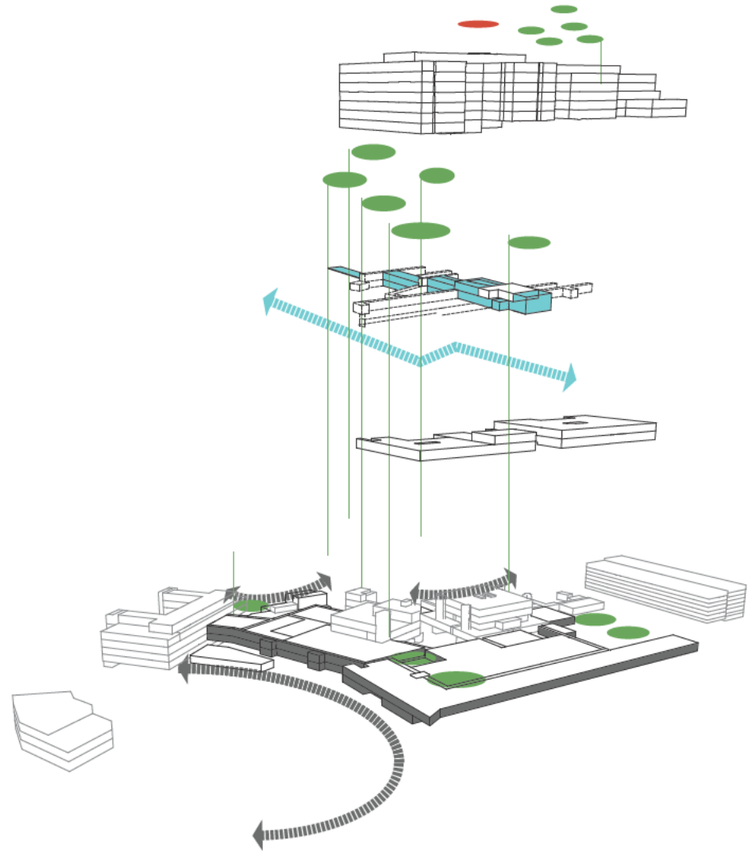
Openings within the facade are conceived as an abstracted pattern of punched rear glazed units. Canopies would be folded, angular elements of the same material. The western link to Building D would be punctuated with full height glazing units and expressed vertical circulation elements.

The Podium: Intermediary Zone
The 'Intermediary zone' Levels 2 and 3 forms parts of the podium but is setback in parts. This zone articulates a separation of the 'solid' podium levels and the lighter 'floating' glass boxes above.

A shop front system is proposed, with a combination of glazed and aluminium, banded horizontal louvred elements (to plant areas). This would be designed to differ (eg in colour, frit, proportion) and be recessive to the tower element. The colour palette would be darker in contrast to the lighter floating towers and the hospital street.

The Street
The Street weaves itself across several levels and varies in height along its length. This space is predominantly defined by the buildings that feed in and off it.

Two key elements will be used to define this space, expressed structural columns and the roof/ceiling. The walls are envisaged to be secondary, simple glazing elements, that maximise light and connection to the adjacent green spaces. These elements will extend as an external canopy to the north.



Exploded Axonometric

11.0 Architectural Design Concept

The Tower (Floating Boxes)
Levels 4 and above form the 'Tower', envisaged as a series of articulated linear fingers. These 'floating boxes' hover above the podium and merge with the sky.

The predominant material palette of glass will be further explored to refine the fingers, as the internal planning progresses.

The vertical and horizontal breakdown has been designed to cater for varied internal functional possibilities, as well as, allowing for further external material options explorations.

Initial studies have been undertaken to investigate how the tower facades can be manipulated to create distinct, varied and dynamic expressions within simple rectilinear forms.

The Tower Form Exploration

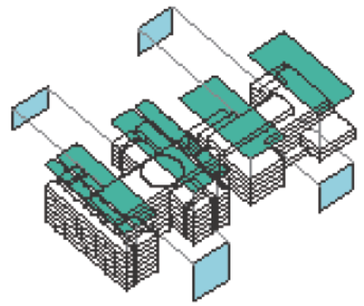
Three treatments of the overall tower form have been explored:

Expressed Fingers
The Tower can be broken down into four simple rectilinear fingers, running south west. The facades between (running east west) would be treated differently (recessive and simpler) to further accentuate these fingers.

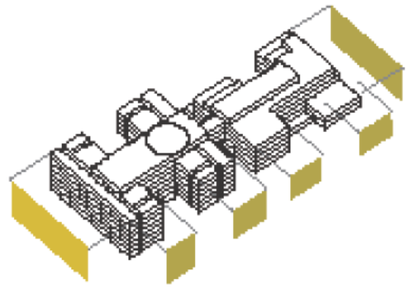
The differing orientations, aspect and functional requirements would also allow the scale of these fingers to be further broken down, as the planning develops.

Hierarchy of Facades
Differing orientations, aspect and address allow for the potential of creating a hierarchy of facade treatments. For instance, the key facades that could be treated differently are, those that are south facing and form the main public address; the south western finger and facades which are the main visible faces on approach to the hospital; and the whole western façade composition which forms the main address to the hospital's emergency entry and the vehicular approach to the hospital.

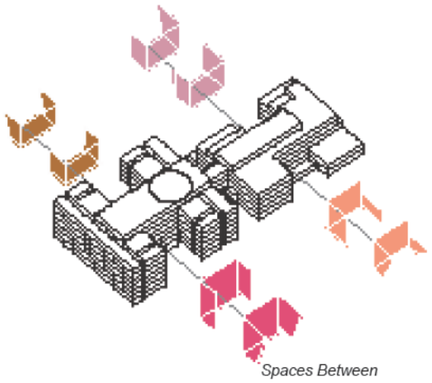
Spaces Between
The spaces between the fingers could be treated differently, with varying coloured patterning in contrast to a simpler external shell. This will aid in articulating the forms, wayfinding and speak to the green spaces that they bound. It also allows occupants with these aspects, to have outlook onto more expressive facades. The colour treatment can also be non-uniformed, with angled edges to the fingers to create the illusion of dynamism within a simple rectilinear form.



Expressed Fingers



Hierarchy of Facades



Spaces Between

11.0 Architectural Design Concept

The Tower Fabric Exploration

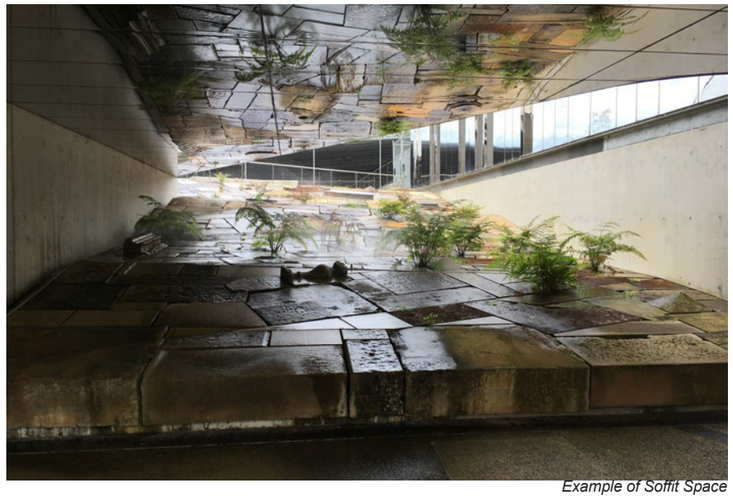
Two approaches have initially been explored- a unitised front glazed curtain wall system and a conventional stick system. In both instances, the façade has been designed in its vertical and horizontal breakdown to cater for either system and the varied internal functions.

There are two main horizontal (sill) datums for the vision panel heights above the internal finished floor of 150mm and 750mm. The spandrels vary in height of 1500mm or 2100mm. The vertical datums of 1050mm or 2100mm accommodate an 8400mm grid and a 6300mm grid (for the 2-bedroom toe to toe template).

The use of colour has been explored employing a palette based on dye sampling of native tree barks and leaves not to dissimilar in species found in the remnant local Cumberland Plains Woodlands. It is envisaged that a local plant species colour palette be developed further along the design process. For instance, each 'finger' could have its own subtle variant colour palette to create its own identity and to enhance wayfinding.

Also building on the idea of 'flights of colour', that occurs in a bushland setting by the sudden and fleeting burst of native flora and fauna, it is intended that this is translated within incidental and unexpected spaces (eg soffits, spaces between buildings) to engage the senses as one moves through the built forms.

Flight of Colour



Example of Soffit Space

11.0 Architectural Design Concept

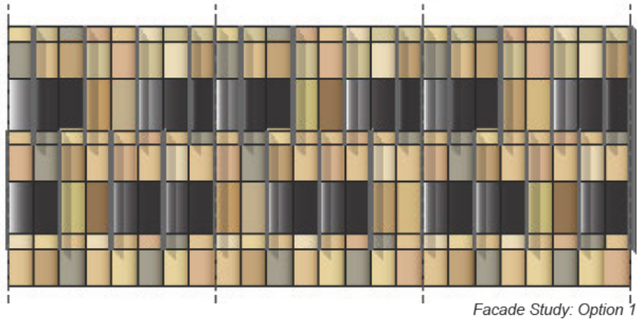
Two colour approaches have been explored- applied in either the spandrel zones or in the shading elements.

In a unitised curtain wall system, it is intended that the colour is applied in the spandrel zones (applied to the back pan). The intent is that the vision panels with the coloured spandrels would form a uniformed, continuous facade appearance as opposed to punched openings in a facade. In a conventional stick system, colour would be introduced in spandrel zones using varying anodised aluminium sheeting. The vision zone could be treated as a banded zone of vision glass and colour backed glass (with a back pan) or vision glass and anodised aluminium sheeting. If shading devices are required this would be of a singular colour.

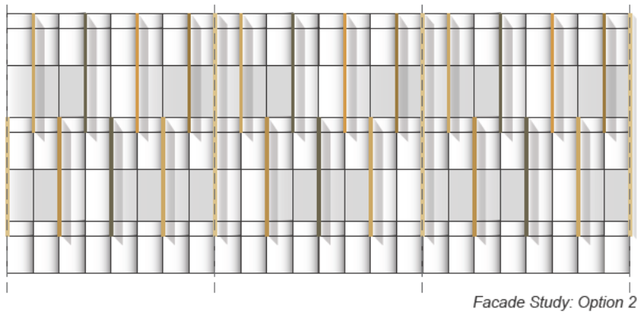
Alternatively, the subtle variant colour palette could be used in the shading devices whilst keeping the (backdrop) façade more neutral.

All louvres, for plant areas within the façade, would follow the datum break up (1050mm intervals) and be vertical in orientation.

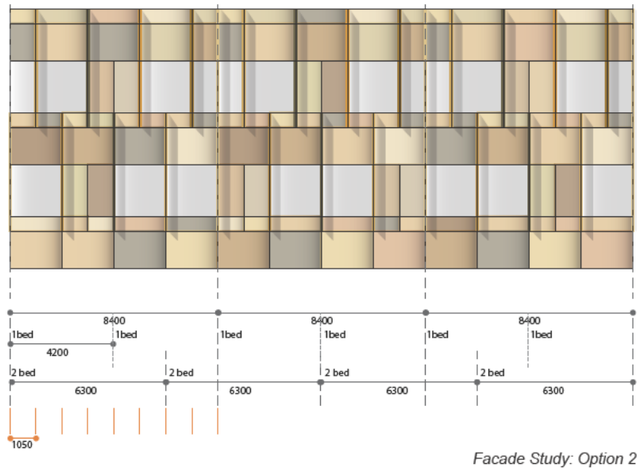
In public and respite areas, such as, waiting areas and lounge areas, it is proposed to use an extended mullion (articulated forward of the main façade) to highlight areas of importance.



Facade Study: Option 1



Facade Study: Option 2



Facade Study: Option 2

11.0 Architectural Design Concept

11.12 Landscaping

The landscape proposition for the Campbelltown Hospital Master Plan, seeks to unify the site and compliment the structure of the Architectural approach to achieve a legible, comfortable and accessible place for patients, visitors, staff and the community. The landscape will also tie into the existing connection between Marsden park to the North-Western corner of the site

Core to the organisation of the master plan is the establishment of the Hospital Street running north south through the precinct. The street is both an indoor and outdoor space and blurs the line between landscape and architecture. It connects a number of larger landscape spaces and buildings allowing people to experience different areas with each visit

The landscape approach considers the site at a macro level, from the functional requirements of a health based campus and the user experience of individual landscape spaces. Each layer and consideration will be interrelated and principles addressed at all scales.

Priority focus

As a priority for the Stage 2 works the landscape will look at achieveing the following aspirations:

- Supportive wayfinding landscaped features
- Patient/visitor friendly spaces
- Activating spaces and courtyards (Building D courtyard to be re activated)
- Establish a potential partnership with Mount Annan Botanical Gardern
- Establishing Indigenous strategies for the site
- Establishing Landscape of new/existing courtyards along the hospital street and within the new Clinical services building

Master Plan

In preparation of the landscape concept plan, the site and its broader systems have been analysed with the intention to enhance and improve with the new development. High level principles have been established to guide development with the view to meet the overarching landscape intent for the site. These broad level considerations relate to movement, water, vegetation and land form. Holistically they will form the landscape system of the hospital.

Health Principles

As a key driver for the project, the landscape draws heavily on principles of restoration - in relation to its potential for providing respite and healing for the users of the site and also the remediation of the hospital land itself

To reinforce the restorative approach the following principles have been identified:

- Promote Healing and Restoration through biophillic design
- Provide a varied landscape experience from all areas of the hospital
- Promote healthy living and a healthy campus
- Encourage comfort and social cohesion
- Improve and enhance the existing ecological quality of the site

Site Landscape Masterplan/Concept Design - Planting is Indicative only

11.0 Architectural Design Concept

11.13 Wayfinding

Definition
Wayfinding in context with architecture, landscape, artworks and signage will enhances intuitive wayfinding and create the legible layer for this self-navigating environment.

Campbelltown Hospital Current Situation
Campbelltown Hospital is situated in a semirural/suburban environment on a hillside and it has a relaxed and friendly atmosphere.The current hospital comprises a number of connected multilevel blocks terraced into the hillside.

Campbelltown Hospital Redevelopment
The Hospital will be in operation with a new primary building, Clinical Services. A north- south major circulation axis, or Hospital Street, will connect two opposite main entries and connect all blocks on different levels. Therefore, for the first time, the new and existing blocks become one interconnected hub.

- The Hospital Street is built into the terrain and existing buildings and is serving levels G, 1 and 2.
- Main Entry South will be on Level 2 and Main Entry North will be on Ground Level.
- The Hospital Street will feature two sets of stairs, galleries and bridges as well as easy access to lifts.
- This main transport artery is also public space where level 1 extends into the open and integrates landscaping and artwork with the visitor experience.

In this environment where so many disciplines evolve, wayfinding signage is merely the information layer.

Wayfinding - Best Practices
Wayfinding has the purpose to inform so that visitors have a menu from where to make the correct decision and are guided along a path by unambiguous information and re-assurance.

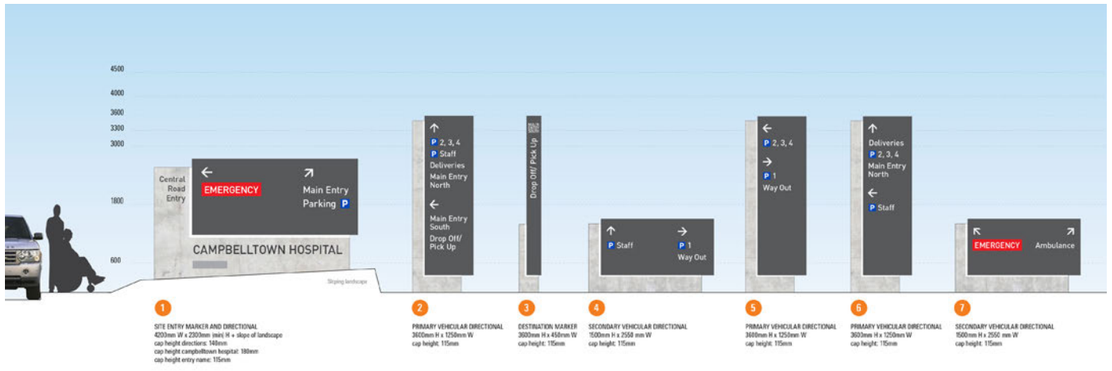
A visit may include several destinations and will include a return journey out of the hospital.

Wayfinding - Principles
The wayfinding signage information and design will follow best practice and evidence based design. A consistent family of signs, touchscreen kiosks and self-check-in kiosks will provide the network for on-site information. Main Entry South will feature a reception.

The hospital environment will be an inclusive and self-navigating environment.

Best Practices - Naming Convention
All destinations and services which are communicated by voice, email, website, letters, referrals, and signs need to feature relevant, short, simple and language, one that also clearly differentiates between departments and services.

A study of the existing and new environment including services and departments will also establish a clear and unambiguous language for blocks, levels, lifts and spaces.



Proposed External Signage Options

12.0 Engineering and Technical

12.1 Parking and Traffic Engineers

The Traffic Impact Assessment (TIA) evaluates the parking and traffic considerations as part of Campbelltown Hospital Stage 2 Main Works. As part of the traffic generation methodology, it is assumed that the Hospital Main Works will not generate any additional operational traffic and that traffic generation is instead linked to the proposed increase in parking provision due to the construction of the multi-deck car park. However, construction traffic is still a consideration and if construction of the Main Works coincides with other development at the Hospital (i.e. multi-deck car park), a Cumulative Construction Management Plan may be required.

The capacity of the multi-deck car park was determined through assessment of the parking demand generated by the existing Hospital and the projected growth.

As part of Stage 2 Development, three at-grade car parks will be constructed prior to the construction of the multi-deck car park to offset the loss of parking from the removal of car parks 5 and 5A, creating 183 parking spaces, of which 74 are temporary and will be removed once the multi-deck car park is completed. These spaces may be left in place for some time longer to provide parking areas for the main CSB contractors (yet to be determined).

The multi-deck car park will provide circa 805 spaces once complete. Overall with the addition of one permanent at-grade car park, the multi-deck car park, and the loss of car parks 5 and 5A, there will be a net increase in parking of 660 spaces.

This net increase in parking is used to determine the traffic generation with 370 inbound / 159 outbound trips in the AM peak and 159 inbound / 370 outbound trips in the PM peak. SIDRA modelling was performed and found that all surveyed intersections operate at a Level of Service A pre- and post-development. Thus, it is unlikely that the development will generate any significant negative impact on the local road network.

The future road layout, both external and internal, has also been considered. The opportunity to construct slip lanes for access and egress to the Hospital from Therry Road was considered. SIDRA modelling showed that the benefit from doing so is marginal and the construction of the slip lanes is not recommended at this stage. The recommended internal road layout also creates benefits in improved access to the multi-deck car park, greater flexibility for staff and public access, improved capacity of the loop road, and potential for future expansion opportunities.

A preliminary Construction Traffic Management Plan (CTMP) is outlined within the TIA to outline the construction traffic measures to improve site safety to the public and workers. It is envisaged that this will be continually reviewed and amended if required, due to changes in design, or additional requirements of DPE, Council, RMS or any other authority requirements. It outlines the high-level considerations for the construction of the proposal and for Construction Certification (CC), an updated CTMP will be required.

Proposed Site Access

12.0 Engineering and Technical

12.2 Structural

This report outlines the structural engineering requirements and impact of the proposed Campbelltown Hospital Stage 2 Redevelopment (CHR) project for the structural systems for the works covering the following:

- Structural systems and conditions or existing buildings impacted by the development.
- Structural engineering design parameters and system options for the development.
- Key structural engineering issues and risks.

This Concept Design Report has been prepared to set the basis for planning and delivery phases of the structural engineering requirements for the proposed redevelopment of the Campbelltown Hospital.

Enstruct have carried out a high-level site review of the existing buildings affected by the development on the site, including a search through the drawing archive for the structural documentation of the existing buildings. Buildings affected by the proposed development are of various ages – with some building stock dating from the 1970's and 1980's to recently constructed structures. The condition of the existing buildings is generally satisfactory, with a level of defects appropriate to the age of the various structures. Construction on the site has taken place in various stages throughout the life of the hospital and that multiple modifications have also been made to building structures since the time of their original construction.

Several geotechnical investigations have been carried out on the site for the various buildings on the site. A geotechnical investigation specific to the location of the new Clinical Services Building (CSB) that is the primary element of the CHR works has been carried out and can be referred to in the appendicies.

Early Works
It is expected that some of the project works will be carried out in an Early Works Package.

Bringing forward some construction of some elements may allow programme benefits to be realised, facilitate decanting, or allow staging of the works to be carried out to minimise disruption to Hospital operations during the course of the works.

Structural Principles/Systems
The structural principles developed specifically address the following:

- The new structures will use the HI systemised design approach;
- Design in accordance with HI floor vibration requirements;
- Structures to be designed in accordance with current Australian Standard requirements;
- Structure to be efficient and make adequate allowance for future flexibility in accordance with HI guidelines; and
- Structural systems will be developed to minimise disruption to existing services on site.

The proposed structural systems for the new buildings are as follows:

High level pad foundations are preferred over piled foundations (final selections will be subject to detailed site-specific geotechnical investigation and advice);

- Either steel or concrete framed buildings;
- Shear wall/core lateral system; and
- New elevated linkages between buildings to be steel framed.

Refurbishment
The project includes a level of refurbishment and re-use of some of the existing building stock on site.

To date, only limited structural documentation for the existing buildings affected by refurbishment on the site is available. Obtaining accurate structural documentation of the existing buildings will significantly de-risk the design approach and will significantly reduce the time and cost associated with carrying out investigation works to assess the capacity and suitability of the existing structures to accommodate the proposed works.

Given the lack of available "for construction" documentation, the review of the existing structures has been based on the very limited documentation that is currently available and the visible condition of the existing buildings.

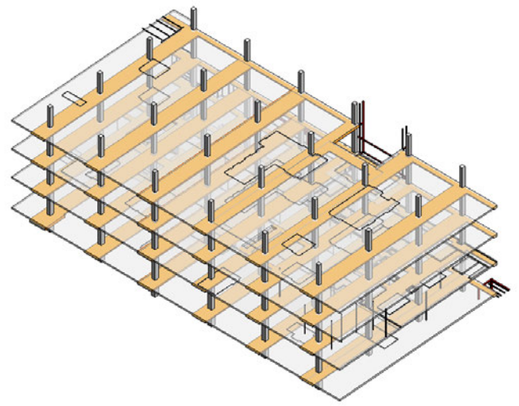
It is noted that as is the case with all works on existing structures until construction works are commenced and the existing structure is fully exposed, there remains a risk of additional structural works being required due to unexpected deterioration and/or changes to the arrangement of the existing structure (eg, post-construction modifications). To minimise this risk, ongoing investigation into the existing structure will be undertaken during the Schematic Design Phase of the works. Again it is important to note that the risk cannot be eliminated until such time as the structure is completely exposed during construction works.

For buildings without significant structural defects it is expected that where the usage, loading and arrangement of the primary structure is unchanged from the original design any non-compliances with current codes do not need to be rectified from a statutory approval perspective provided the design was compliant with the current codes and statutory legislation at the time of construction. It will be up to the discretion of HI and the Hospital to decide whether upgrades to meet existing code requirements are to be implemented to any refurbished buildings which do not meet current structural codes. During the detailed planning and delivery stages of the project any non-compliances of existing buildings to be refurbished would be detailed to allow HI and the Hospital to make an informed decision on upgrading the building structure.

For existing structures to be refurbished in which floor loadings are increased or design criteria changed, localised strengthening works are likely to be required. Detailed review of areas subject to change of usage will be required for heavy load areas (eg compactus or heavy equipment), and also for areas subject to higher levels of vibration control (eg, medical imaging or operating theatres).

Key Issues
As outlined above, the key structural issues for the project at this stage are :

- Obtain relevant structural documentation for the existing buildings affected by the proposed refurbishment works. Given the extent of refurbishment works, and the multiple interfaces between new and existing buildings, significant investigatory works will be required if this information is not available.
- Determine which works are to be included in an early works package and the basis of design for these components.



Banded Slab Design Concept

12.0 Engineering and Technical

12.3 Civil

This report describes the proposed civil engineering strategy to meet the requirements of the Campbelltown Hospital Redevelopment (CHR), covering the following:

- Condition of existing site;
- Proposed redevelopment;
- Council requirements for access road and stormwater design;
- Flooding considerations.

Existing Site Conditions

The total site area is approximately 22.4 ha and the catchment is approximately 45% impervious in its existing state. The site generally falls from south-east to north-west. The existing buildings' drainage comprises of roof gutter downpipes which discharge to surface pits. Stormwater from hospital buildings and roads discharges to several piped drainage networks throughout the site.

The site is part of the Birunji Creek catchment and immediately to the west of the site is a catchment detention basin. It is expected that the Council stormwater pipe network will be able to convey stormwater runoff generated for events up to the 10% AEP with larger events being conveyed by the existing road networks and controlled overland flow routes. The site has three piped connection points to the Birunji Creek detention basin.

There are two existing access roads off Therry Road leading to western hospital access roads Central Road and Parkside Crescent. An access driveway from Appin Road exists north-east of the site.

Surveys and Investigations

Existing site survey and investigations include:

- Concept Stormwater Drainage Plan and Integrated Water Management Plan prepared by C&M in 2012
- Geotechnical Investigations undertaken by Douglas Partners Pty Ltd. in 2005 to 2017.
- Contamination Assessment undertaken by Douglas Partners Pty Ltd. in 2017
- Traffic and Parking Assessment by PTC in 2017.
- Arborist Report by CPE Tree Services in 2015
- An overall survey of the existing site by LTS Lockley in 2017.

A more detailed site survey is required to provide the line and level for the back, lip and invert of kerb of all existing roads on site.

Further underground investigations are required to provide the cover level, invert level, pipe diameter and direction of flow of all stormwater pipes on site. The underground investigations should also provide the location and level of all other in-ground services on site.

Proposed Redevelopment

A hospital masterplan developed by Health Infrastructure NSW encompasses the required expansion to accommodate the projected population growth across the local government areas (LGAs) comprising Macarthur (Campbelltown, Camden and Wollondilly) over the next decade. The Hospital is expected to undergo significant expansion over the next 15 years in response to the above drivers.

This project is specific to the development of a new Clinical Services Building (CSB) and associated access roads and parking.

Flooding

Following existing topography, the site generally drains from the higher southern end along Appin and Therry Roads towards the lower northern corners. The north-west corner of the site drains into Birunji Creek pond.

Advice provided from Council notes that the site is affected by the 1% AEP overland flow event from the local catchment from Appin Road that traverses the site. In order to further investigate the flooding condition, a request has been made to Council and an advice letter was obtained. The advice from Council states that the hospital site may be affected/at risk by flooding from a 1 % AEP flood due to overland flow from the local catchment traversing the property. The Council's flood model identifies several ponding areas up to 0.5m depth within the site, however it does not indicate the locations nor the flood levels. Council recommended that an overland flow flood model should be constructed for the proposed site development locations.

OSD

It is expected that the site will not require on-site stormwater detention for the proposed development areas due to the proximity of the open watercourse which the catchment discharges to. OSD may however be required if existing downstream pipe networks within the site are found to be inadequate to convey drainage from the proposed development.

WSUD

The new development will significantly increase impervious area. Thus, the new development requires pollution reduction measures incorporated within the design to remove potential contaminants from the system.

A detailed water quality analysis has been undertaken to develop the Water Sensitive Urban Design (WSUD) strategy for the proposed development to meet Council's water quality targets.

The development will achieve the pollution reduction targets identified in Campbelltown Regional Council's DCP by utilising WSUD treatment initiatives.

12.0 Engineering and Technical

12.4 Mechanical

At the time of this report the following critical items were assumed and the remaining outstanding items will be further investigated/refined within the Schematic Design Phase:

Annual fire safety certificates have been provided but these documents do not decribe how the systems operate. A fire matrix for all existing buildings (A and B as a minimum) is required. If unavailable, detailed site survey and point-to-point testing of existing systems will be required to verify design assumptions made from non-obtrusive inspections conducted.

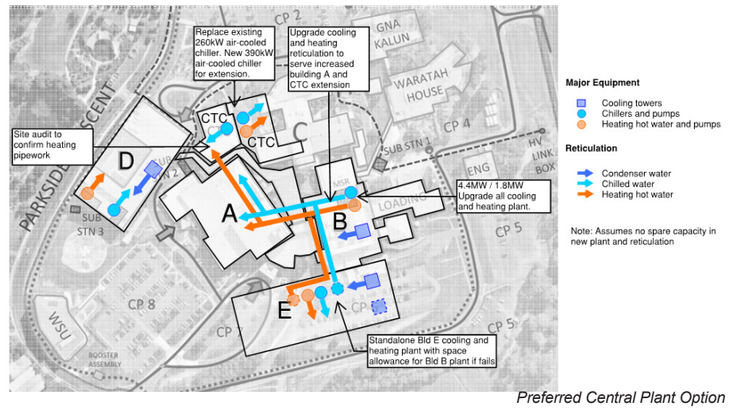
- Building B medical gas services documentation is not available. Detailed site survey within the proposed refurbishment areas is required to serve as the basis for design.
- BCA report confirming building classifications, fire compartments and extent of upgrades to existing buildings as being life safety only or full compliance to current standards.
- LHD disaster recovery brief to confirm critical services function during various disaster scenarios to determine services redundancy and standby power.

The existing services are in reasonable working condition given their age. The two largest chillers in Building B which serve Buildings A, B and C and the existing CTC building air cooled chiller will need to be replaced by the LHD as part of ongoing maintenance as they are expected to reach the end of their life prior to completion of the Stage 1 Master Plan in 2027. Pipework infrastructure from Building 1 to the existing precinct distribution and spatial provision within Building 1 will be provided to accommodate the replacement chillers so these can be installed with minimal disruption to the existing building operation..

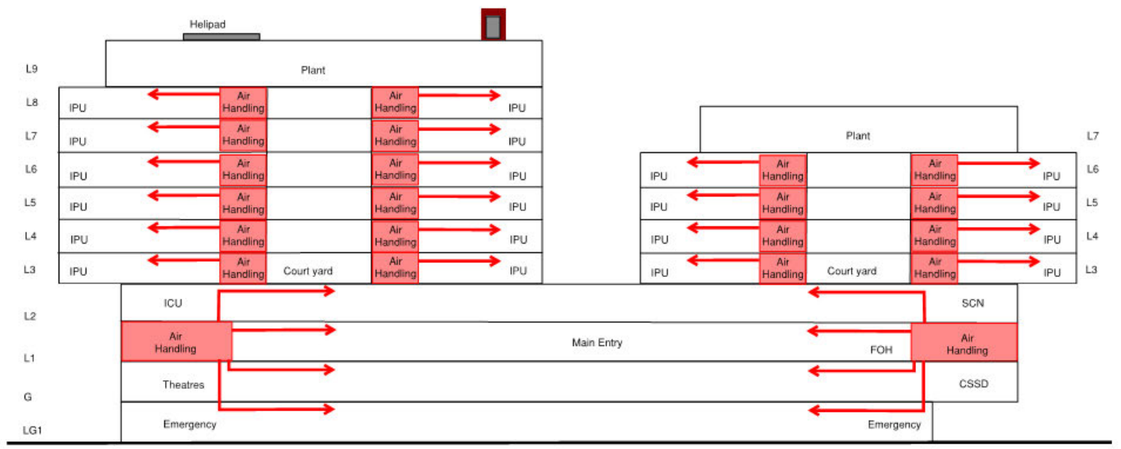
The capacity of existing mechanical services is adequate for existing use with no spare capacity for expansion. Demand calculations have been completed to establish the new loads and used the basis for design of new building infrastructure. Additional bulk oxygen tanks will be required to serve Building 1 based on assessment of existing and new demand, with spatial provision made in the new building for other medical gases.

The preferred development option is considered feasible for development with a favourable orientation for passive design, access to daylight and views, and maintaining site access. The new helipad can be accommodated on the roof of the Building 1. Air intakes will be provided with manual shut off control to maintain air quality during aircraft movements. Air handling units will be provided on a floor by floor basis in the tower and adjacent to clinical departments in the podium. This increases the separation of intakes from the helipad to further minimise risks to air quality and allows for simplicity in zone smoke control.

No major plant is to be located on the eastern roof of Building 1 to allow for two storeys of future expansion space which will be served by independent roof plant.



Preferred Central Plant Option



Building 1 AHU Strategy

12.0 Engineering and Technical

12.5 Hydraulic & Fire

General
Campbelltown Hospital will be connected to the existing infrastructure within the site. The services that are being provided will be generally compliant with BCA. There will need to be some input from the BCA consultant as the project moves through concept design and into schematic design to determine how the fire services requirements are addressed for the new and old portions of the site.

Sanitary Plumbing and Drainage
There are sewer services serving the site on located in or adjacent to Parkside Crescent. It is envisaged the new building will connect to the existing sewer via new manholes.

Domestic Cold Water
The site is fed from 2 water supplies, 1x150 and 1x225 connected to the authorities watermain located in the Parkside Crescent and Appin Road. Potable water to the new building will be provided from the existing reticulated system. The two services are interconnected within the site. The system has been installed as a ringmain with isolation valves throughout the ringmain to enable the closure of sections of the main without disrupting the cold water supply to the whole facility. The ring main is approximately 80% compete and will need to be completed. Isolation valves will be installed within the existing piped system to enable the new works to proceed with little disruption to the operation of the hospital.

Domestic Hot Water
It is proposed to locate a centralised modular gas fired hot water plant within the roof level plant room with flues extending to atmosphere and the lower level plant area. Hot water will be supplied to the building via a series of ring mains. Temperature control will be provided by thermostatic mixing valves with thermal flush and Smartflow monitoring.

Gas Services
The site is fed from a high pressure main and is reticulated through the site as a medium pressure installation. The new building will connect to the existing gas main via a new tee and valve. Amplification of the meter set will be required.

Reverse Osmosis (RO) Water
RO water will be provided to the CSSD and to the Renal Department.

Fire Hydrant System
The existing Fire hydrant system to the hospital is from a 150mm dia connection to the authorities watermain located in the Parkside Crescent. Fire protection is from external and internal hydrants. The system has been installed as a ringmain with isolation valves throughout the ringmain to enable the closure of sections of the main without disrupting the fire hydrant water supply to the whole facility. The ring main is approximately 80% compete and will need to be completed. A new fire hydrant supply will connect to the existing system via a new tee and valve. Pumps and tanks will be installed as part of a dual supply to the new building.

Fire Sprinkler System
The existing Fire sprinkler system to the hospital is from a 150mm dia connection to the authorities watermain located in the Parkside Crescent. The system has been installed as a ringmain with isolation valves throughout the ringmain to enable the closure of sections of the main without disrupting the fire hydrant water supply to the whole facility. The ring main is approximately 80% compete and will need to be completed. A new sprinkler supply will connect to the existing system via a new tee and valve. Pumps and tanks will be installed as part of a dual supply to the new building. An alarm valve rom will be provided.

The extent of fire sprinklers within the existing hospital building is limited to building D, the basement plant area of Block B and some wall wetting drenchers between block A and D.

Fire Hose Reels
Fire hose reels will be provided throughout the building. Hose reels will be located within 4m of exits and adjacent to on floor fire hydrants.

Dry Fire
Fire detection and SSISEP systems will be provided to the new building. The new building will also contain a new site fire control room. The existing main site FIP and SSISEP will require decommissioning. Sub FIP and MECP are proposed to be located in the new main entry to the building.

Fire Extinguishers
Co2 fire extinguishers will be provided throughout the building. Extinguishers will be compliant with Health Policy Directive PD2010-024. Supplementary extinguishers will be provided as required to complete the coverage required by BCA and AS2444.

12.0 Engineering and Technical

12.6 Electrical/ICT/Comms

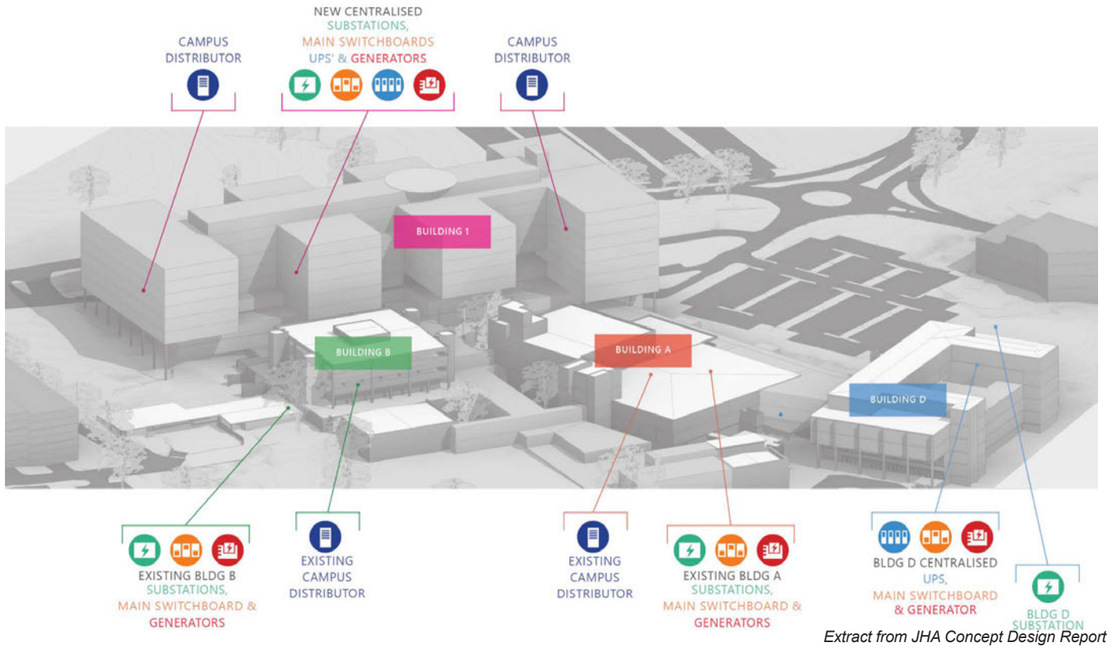
The proposed Stage 2 redevelopment will increase the electrical demand of the site from its current peak of 3.2MVA to a new peak of 9MVA. The site is currently served by a single high voltage feeder (rated at 4.5MVA capacity) with switching facilities to form an external ring main arrangement. It is proposed that an additional high voltage feeder will be introduced from the local zone substation to accommodate the proposed Stage 2 load of 9MVA.

The existing electrical infrastructure on site (substations, main switchboards and generators) serving Buildings A, B & D are considered adequate to accommodate the proposed alterations / expansions / refurbishments under Stage 2. All such existing infrastructure is aged in the order of 20 years and approaching the end of its design life expectancy. While this infrastructure is somewhat aged it is well maintained and have no reported history of failure. On this basis it is proposed that this existing infrastructure be retained and maintained under a strict maintenance regime for a further 10 years when it is expected that the next stage of development will take place. It is recommended that the existing electrical infrastructure serving Buildings A & B be replaced under this future stage. Note, this does not apply to the original main switchboard within Building B. This existing switchboard is 43 years old, well past its design life and it is recommended that it be replaced under the Stage 2 works.

The existing telecommunications infrastructure (particularly the 2 off Campus Distributors within Buildings A & B) will be impacted by the proposed refurbishment / demolition works. These existing Campus Distributors are antiquated, overcrowded and generally not compliant with NSW Health ICT guidelines. On this basis it is proposed that both existing Campus Distributors will be decommissioned and replaced by two new combination Campus Distributors / Building Distributors / DAS rooms within diverse locations of the new Building 1. These new nodes will serve all new and existing Floor Distributors throughout the Hospital via physically diverse telecommunications backbone cabling. This proposed new telecommunications configuration will ensure the site's longevity and robustness and strictly comply with the NSW Health suite of ICT guidelines.

The existing security infrastructure is a hybrid of new and antiquated technology, with the current security room situated remote from the main entrance and in a location identified for refurbishment / demolition. It is proposed that the security room be relocated to the new main entry region of Building 1 and that the following security augmentation take place:

- CCTV system (with the exception of Building D) be replaced with a new IP based system
- Electronic access control in new and refurbished areas be an extension of the current system currently being rolled out across the campus.



Extract from JHA Concept Design Report

12.0 Engineering and Technical

12.7 Fire Safety

The fire safety engineering report outlines the elements of the design that will need to be addressed within the fire engineering brief during schematic design and then in the fire engineering report, as the design develops. The aim of the fire strategy will be to provide a design which meets the performance requirements of the Building Code of Australia (BCA) for the new works and integrates the new building into the existing buildings in a way that doesn't reduce the level of safety for existing parts and minimizes requirements or existing building upgrades.

During the schematic design stage, any BCA deemed to satisfy non-compliances will be resolved to either made compliant, or fire engineering performance solutions developed to satisfy the Performance Requirements of the BCA.

Existing Buildings A and B are due to undergo major refurbishment as part of this project. It is understood that:

- The areas which are undergoing refurbishment in the existing buildings needn't necessarily comply with the Performance Requirements of the BCA if the risk of the area is being 'reduced' (patient care to non-patient care), but may need to comply if the use of the area is being 'intensified' (non-patient care to patient care). In any case, the level of fire safety is not to be reduced because of the refurbishment works.
- Any additional floor area which is created by expanding the existing buildings (e.g. the link corridor to the west of building A) must comply with the Performance Requirements of the BCA.
- The new Building 1 and hospital street will need to comply with the Performance Requirements of the BCA.

The key issue which needs to be resolved within the fire safety strategy therefore, is the interface between the new areas and the existing buildings.

Neither Building A or B are currently provided with sprinkler protection. The requirement for retrofitting sprinklers in the existing buildings will need to be established during the schematic design stage, but are recommended at this stage based on the following key points:

- If sprinklers are not provided in the existing buildings it may be necessary to provide fire rated construction between the new and existing portions of the development, so that they can be considered in isolation and the principles outlined above adopted for the respective areas. On the basis that the retained external walls to Building A and Building B will form the bounding walls between the new and existing areas, it may be difficult if not impossible to achieve fire resisting separation in these locations.
- If it is necessary to demonstrate that the works in the refurbished areas do not increase the current level of fire risk or require Performance Solutions, it is unlikely that a strategy could be developed without sprinkler protection being provided.

Refer to Appendices for Fire Safety Report

12.0 Engineering and Technical

12.8 Vertical Transportation

The vertical transportation services for Stage 2 redevelopment will be required for the existing buildings A, B & D and proposed new Building 1.

Buildings A, B, C & D have a total of fourteen existing lifts (Lift No.1 – 14), Nine of these lifts are as installed by original equipment manufacturers and Five are as installed by original equipment manufacturers with subsequent comprehensive component upgrades for modernisation completed in the past 5 – 6 years.

Lift No.1 – 14 are currently being comprehensively maintained by Kone Elevators subject to the terms & conditions of a South Western Sydney Primary Health Network portfolio agreement for vertical transportation services.

The lifts are at various stages of their economic and operational life cycle and were installed AS1735 code compliant and appear to generally comply with NCC BCA 2016 for lift installations with non-compliances identified.

The lift equipment is in well maintained condition with minimal life cycle wear & tear indicating these lifts are in a low to medium usage hospital environment

Building 1 will be a newly constructed clinical building where design is currently massed for approx. 60000 m² comprising of one tower rising ten storeys + plant room level + Helipad for a total rise of approx. 50 metres with twelve levels to be served and one tower rising eight storeys + plant room level for a total rise of approx. 36 metres with nine levels to be served by vertical transport.

The vertical transportation services for this new building will be designed for NSW Health Infrastructure Guidelines & Requirements, compliance to the relevant Australian Standards and National Construction Code Building Code of Australia 2016 and will have stakeholder input into specific design requirement for functional operation.

Note: The following Schematic Design phase will ensure the investigation and forecast flows/management of a 24 hour hospital verticle transport plan with smart lift opportunities.

12.0 Engineering and Technical

12.9 BCA

A preliminary high level Building Code of Australia (BCA) 2016 assessment has been undertaken as part of the proposed submission to the Department of Planning as part of the State Significant Development Application.

The following documentation has been reviewed, referenced and/or relied upon in the preparation of this report:

- Building Code of Australia 2016
- Guide to the Building Code of Australia 2016.
- Access to Premises Standards 2010
- Concept Architectural Drawings prepared by Billard Leece Partnership Pty Ltd.

The following table presents a summary of relevant building classification items of the proposed new Clinical Services Building:

BCA Classification:	Class 9a (Health-care Building) Class 5 (professional consultation)
Storeys Contained	The total number of storeys contained is eleven (11)
Rise in Storeys:	The building has a rise in storeys of eleven (11).
Effective Height:	> 25m & < 50m
Type of Construction:	Type A Construction
Sprinkler System Installed Throughout	Yes – New building is proposed to be protected throughout with an Automatic Fire Suppression System. The Automatic Fire Suppression is to be extended to all new building works including additional floor area to existing buildings.
Importance Level	Importance Level 4
Climate Zone:	Energy Efficiency Zone 6
Maximum Floor Area:	Max 5,000m² compartments for Class 9a Health Care buildings. Note: 2,000m² compartments applies to all Patient Care Areas within the building.
Maximum Volume:	Max 30,000m³ compartments for Class 9a Health Care buildings.
Largest Fire Compartment	TBC

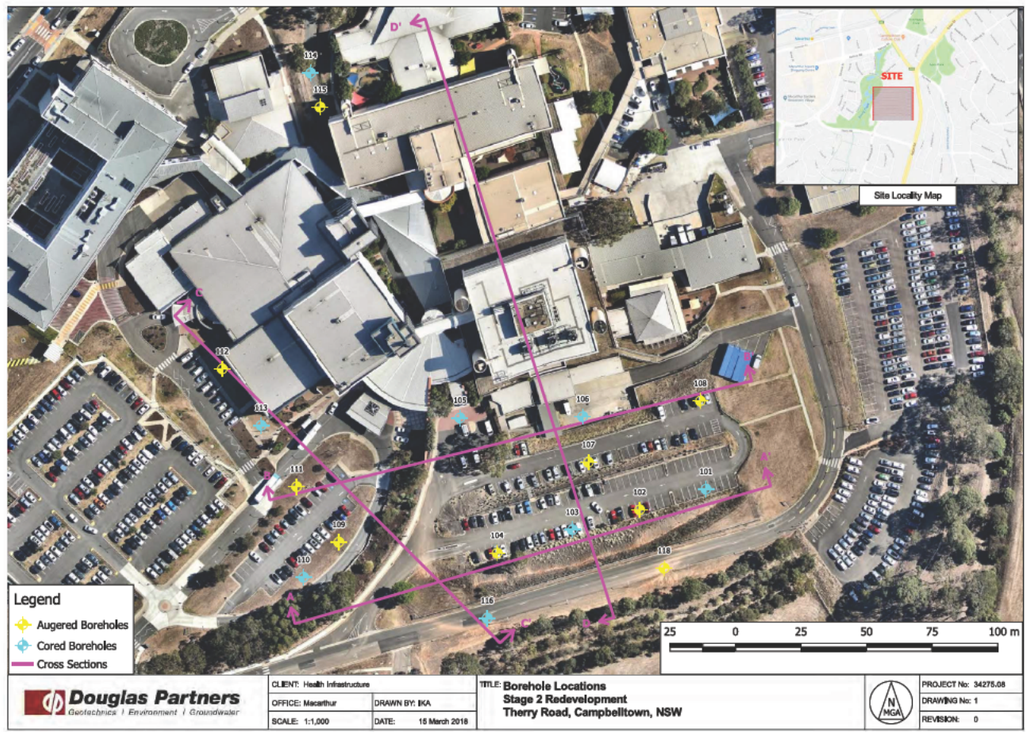
12.0 Engineering and Technical

12.10 Geotechnical & Contamination

A geotechnical investigation at the Campbelltown Hospital site was carried out. The main investigation area for the study was to the South of building B where the new CSB is proposed and directly east of the CTC. Refer to the image adjacent for bore hole locations.

The rock classifications at these depths generally grade from Class 3 to class 2 siltstone however rock strength and quality are expected to vary significantly within the footprint of the proposed building area.

For full report details please refer to appendices.



12.0 Engineering and Technical

12.11 Aviation

The development of the Campbelltown Hospital Option 1.1 site will not directly impact flight operations into/from the existing on-grade Helicopter Landing Site (HLS).

The flight path used to the south east of the HLS is in close proximity to the construction site and as a consequence, there will need to be a coordination protocol between the hospital ED and the construction site to ensure construction personnel are aware of pending helicopter movements.

Noise and helicopter rotor wash may impact the construction site during the use of the HLS. It is recommended construction personnel are made aware of this during their induction processes.

The development of a Helicopter Services Management Plan will be necessary to ensure the communications protocol and safety awareness concerning helicopter operations is populated with the construction teams.

It is recommended:

- Normal flight operations continue to the Campbelltown Hospital HLS during the construction of the Option 1.1 development, and
- A Helicopter Services Management Plan is developed as part of the Planning Phase.

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13.0 Summary

13.1 Recommendations

It is recommended that this report is used as a basis for the Schematic Design Phase for the poject to proceed. Schematid Design must also be informed bu the endorsed planning phase FDB and SoA documents.

13.0 Summary

13.2 Preferred Option

The preferred Planning Option 1.1 was refined and presented at further review workshops attended by PDC/PPT/ERG members and executive representatives to agree on the current block and stack planning layout and departmental adjacencies.

Adjustments were made to this planning option and subsequently presented to the HI Executive Steering Committee (ESC) in April 2018 for endorsement of the Concept Design.

Based on this process, the development of the preferred Planning Option into the Schematic Design stage will be subject to the resolution of the issues identified in Section 13.3 below.

13.0 Summary

13.3 Next Steps

This Concept Design Report has presented a strong development planning option for a more consolidated health service on the current Campbelltown Hospital site.

Through more detailed research and resolution, the next project phases for a staged redevelopment will unlock further potential for development and delve into further testing of clinical adjacencies, their operational efficiencies and improved clinical flows.

The next stage will include the development of the clinical planning through the SD project user group process and will need to include a full consultant team including building engineering services, structural engineers, traffic engineers, BCA consultant, town planner and cost planner, all fully engaged to progress the design through the Schematic Design stages.

In addition to the above, it has been determined that the following components will be developed through the duration of the schematic design phase. These are as follows:

- Schematic Design (SD) to include for a grade-separated pedestrian link bridge and an associated new visitor car park to the south of the new Clinical Services Building (CSB). This design is to be in line with the architectural concepts shown in “ESC Design Response Presentation V3 (Site Entry)”.
- SD to include for a canopy link between the Clinical School, Building A and the new CSB in line with the architectural concepts shown in “ESC Design Response Presentation V3 (Site Entry)”.
- Horizontal links between the Clinical Services Building towers are to be further resolved in SD with the intention for a link to occur at every level however the nature of the links (staff only, public only, patient only, patient transit, etc.) is to be confirmed through design.
- The intention is to maintain the current ‘Block and Stack’ concept. However, the final clinical order of the mental health stack is to be considered early in SD to capatilise on the opportunity to provide functionality, integration, maximise outdoor mental health spaces, and provide an adaptable design for future growth.
- Road street entry points (incl. the existing roundabout) are to be further reviewed to maximise the performance of these access points. Particular attention is to be paid to functionality, capacity, safety and appropriate directional wayfinding. A similar comment applies to the internal road network requirements. Further traffic analysis and implications of the analysis is to be explored early in SD.
- Location and requirements for theatre plant is to be further reviewed and developed early in the SD phase to ensure that the plant is located and configured appropriately. The size / location requirements for service risers is also to be critically reviewed.
- Refurbishment scope in regards to Renal / Pathology is to be reviewed early in SD, in particular the potential to leave Pathology in its current existing location. The design team is to test both options (i.e. moving Pathology and leaving Pathology) more fully and determine pros/cons to allow a considered decision to be made to get the best outcome for the project.
- Wherever possible, appropriate innovation is integrated into the SD to cater for research.
- The strategy for wayfinding (internal and external) is required to be developed early in SD.
- Relocate ambulance bays – early in SD, the project team is to review the relocation, or reconfiguration, of the ambulance bays to reduce the quantum of bulk excavation required.
- Refurbish existing cafeteria – The opportunity to refurbish the existing café (circa 370m2) in lieu of providing a new circa 500m2 expansion. This is to be further explored during SD, but being cognisant of any future service requirements needed below the existing café slab.`