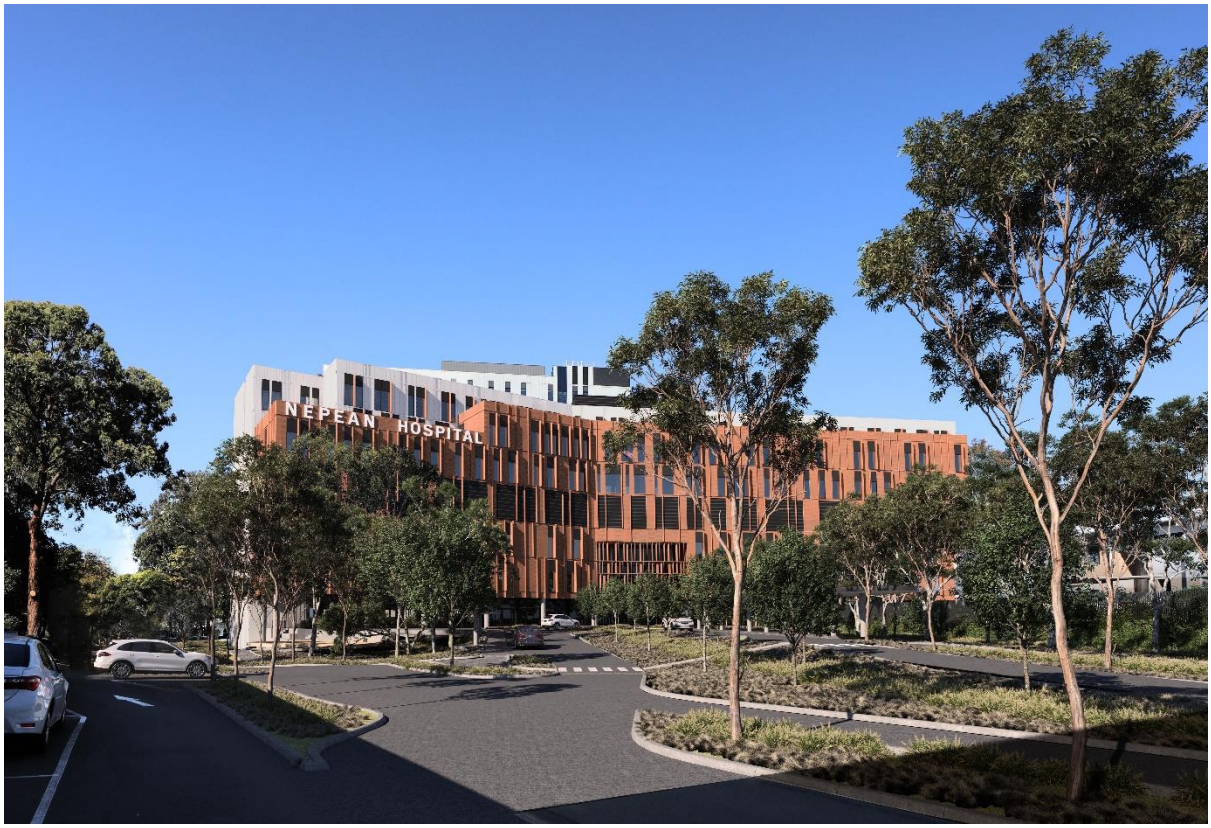
_planning

ENVIRONMENTAL IMPACT STATEMENT

Nepean Hospital Stage 2 Redevelopment

(SSD 16928008)



(BVN)

Submitted to
NSW Department of Planning, Industry & Environment
on behalf of

NSW GOVERNMENT | Health Infrastructure

Health Infrastructure

December 2021

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Environmental Impact Statement Declaration & Certification

This Environmental Impact Statement (EIS) has been prepared for Health Infrastructure (HI) and assesses the potential economic, environmental and social impacts which could arise from the development of the Stage 2 Redevelopment at Nepean Hospital at 35 Derby Street, Kingswood (SSD 16928008).

HI is the applicant for this DA. Its address is 1 Reserve Road, St Leonards NSW 2065.
HI's ABN is 89 600 377 397.

This EIS has been prepared in accordance with clauses 6 and 7 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation). It contains all available information that is relevant to the environmental assessment of the development to which the statement relates. The information contained in the statement is neither false nor misleading and provides a true and fair review of the activity / development in relation to its likely impact on the environment.

This EIS addresses the proposed development's SEARs as issued by the Department of Planning, Industry, and Environment (DPIE) on 22 April 2021. It further identifies and addresses the relevant statutory requirements for the project, including any relevant matters for consideration in environmental planning instruments.

This EIS has been prepared having regard to the DPIE's *State Significant Development Guidelines - Preparing an Environmental Impact Statement*. Accordingly, it contains a summary of the project as a whole, having regard to the economic, environmental and social impacts of the project and the principles of ecologically sustainable development and provides a consolidated description of the project. It also contains an accurate summary of the findings of any community engagement and of the detailed technical assessment of the impacts of the project as a whole.

Version	**Date**
Version 1 – Client / HI 99% Review	17 November 2021
Version 2 – Test of Adequacy	26 November 2021
Version 3 - Final - Lodgement	16 December 2021

_planning Pty Ltd operates under a quality management system. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

This report has been prepared and reviewed by:

Oliver Klein BA MURP MPIA RP
Director
_planning Pty Ltd
L4, 88 Foveaux Street
Surry Hills NSW 2010

Date: 16 December 2021

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1.0 Executive Summary

This Environmental Impact Statement (EIS) has been prepared by _planning Pty Ltd on behalf of Health Infrastructure (HI) and is submitted to the NSW Department of Planning, Industry & Environment (DPIE) in support of the State Significant Development DA for the construction and operation of the Stage 2 Redevelopment of Nepean Hospital. This stage of redevelopment is focussed on the new Stage 2 building, proposed to be located centrally within the hospital campus immediately adjacent to, and attached to, the Stage 1 Tower. See **Figures 1**-**4** showing the location and relationship of the subject development to that of the Stage 1 Tower.

As the development exceeds the $30 million threshold as set under clause 14 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) it is therefore classed as State Significant Development. The DA is also a Crown DA under the *Environmental Planning & Assessment Act 1979*.

This EIS addresses the Secretary's Environmental Assessment Requirements (SEARs) as issued by DPIE on 22 April 2021. In accordance with those SEARs, this EIS assesses the potential economic, environmental and social impacts which could arise from the development and sets out the undertakings made by HI to mitigate and manage any potential impacts arising from the development. Implementation of these mitigation measures will ensure any potential risks are ameliorated. The SEARs and the SEARs response / compliance table are each found at **Appendix A** and **B**, respectively.

The recently completed Stage 1 Redevelopment (Stage 1 Tower) was approved by the delegate of the Minister for Planning and Public Spaces in February 2019. In order to continue to provide first-class health services to Western Sydney and the Blue Mountains, cater for population growth, and provide for economic stimulus for the region, the NSW Premier announced the fast-tracking of funding for the commencement of the Stage 2 Redevelopment on 29 October 2020.

Building on the existing Nepean Hospital masterplan, the new building and other refurbishment works that are part of the Stage 2 Redevelopment, present the opportunity to improve and expand the clinical and non-clinical services on Nepean Hospital campus.

Figure 1 – The completed Stage 1 Tower to the left with the proposed Stage 2 Tower to the right (BVN)

Broadly, the suite of works under the wider scope of the Stage 2 Nepean Hospital Redevelopment will continue the major expansion and upgrade of hospital and community-based services.

The service objectives of Stage 2 are to:

- Improve patient flow and reduce length of stay in the hospital
- Provide more timely care to patients
- Meet community and clinician needs and deliver on the Clinical Service Plan
- Improve access for rural and remote communities in Western NSW
- Increase positive experiences by vulnerable community members i.e. individuals with multicultural and Aboriginal backgrounds and people with disability
- Attract and retain skilled and motivated staff
- Ensure minimal disruptions to the hospital by providing staff with timely information (and communication materials for distribution to patients) about future access changes, service relocations and demolition works

The Stage 2 Redevelopment subject of this DA seeks to deliver significantly enhanced acute services, as well as a new campus main entry and drop-off area. This will provide for a total transformation of the current Nepean Hospital campus.

The proposed Stage 2 building will be located west of, and connected to, the Stage 1 Tower. Portions of the North Block (north section) will be demolished with the remaining sections of the North Block (to the south of the Stage 2 building) to remain operational.

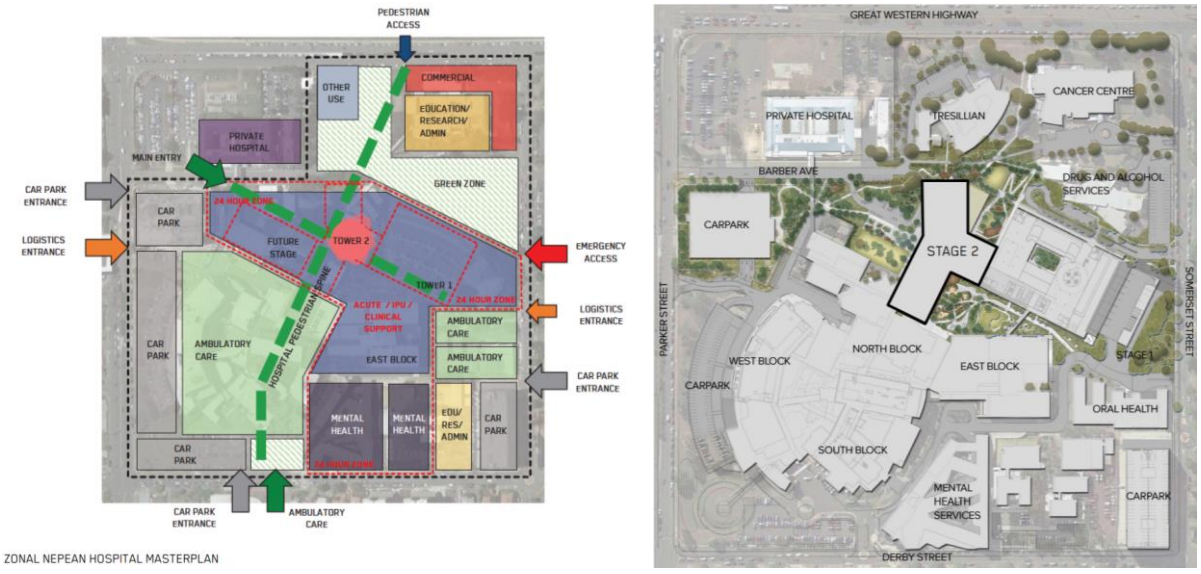


Figure 2 – Nepean Hospital Zonal Masterplan and campus plan each showing the centralised location of Stage 2 (BVN)

Departments to be provided in the new Stage 2 building include:

- Front of house, including retail
- Education and Training Services
- Transit Lounge
- Medical Imaging / Nuclear Medicine
- Interventional Radiology
- Intensive Care Unit and Close Observation Unit
- In-Centre Dialysis and Renal Inpatient Unit
- Paediatric In-patient Unit
- Plant areas
- Clinical Support areas
- Kitchen

The Stage 2 Redevelopment project scope includes:

- The Stage 2 building, being predominantly a 7-storey building, with rooftop plant
- Demolition of parts of the existing North Block and other satellite buildings directly within the Stage 2 building footprint (excluding other buildings already approved under the Stage 1 SSD consent)
- Demolition of the Total Asset Management (TAM) facility
- Reconfiguration of the loading dock area and back of house functions
- Landscaping and other associated at-grade works within the Stage 2 building's immediate vicinity including off campus High Voltage feeder upgrade
- Barber Avenue upgrade and access road to the Stage 2 building's forecourt, port cochere, and front of house area

The development will result in an increase of 78 overnight / in-patient beds.

A detailed description of the proposed development is set out in Section 4.0 of this EIS, with additional commentary on the design and environmental aspects of the development.

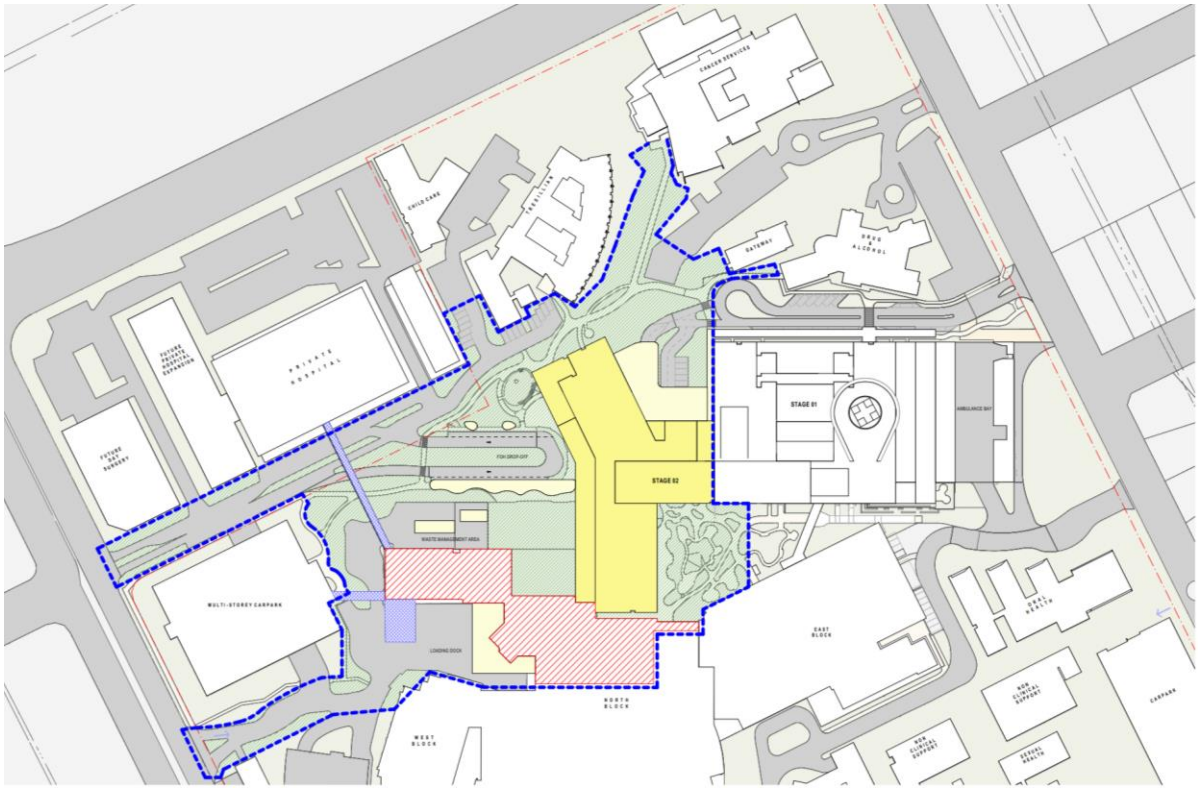


Figure 3 – The Stage 2 building footprint shown in yellow with scope of works generally within the blue outline (BVN)

Figures 5 and **6** provide both a photomontage and architectural render of the proposed appearance of the building when viewed from the west along Barber Avenue. This shows the relationship to the Stage 1 Tower and the proposed arrival area and front of house arrangements.

Figure 4 – Architectural render of the Stage 2 building from the north where it connects to the Stage 1 Tower (BVN)

Figure 5 – Photomontage of the Stage 2 building from the west (BVN)

Figure 6 – Architectural render of the Stage 2 building and its front of house and arrival area (BVN)

Other concurrent or related campus-wide works (outside of this SSD scope) facilitating the ongoing and efficient operation of the hospital include:

- The relocation of the pathology department to the undercroft area of the existing East Block
- Relocation of the pharmacy department within the existing North Block
- Expansion of the existing mental health services to deliver the Child and Adolescent Mental Health Services (CAMHS) facility
- Relocation of the Total Assessment Management (TAM) department
- In-ground services relocation and augmentation
- Minor at-grade car park adjustments adjacent to the Drug and Alcohol building

The proposed development is permissible and meets all relevant planning controls and legislation requirements that apply to the hospital and the development. None would limit or prevent the development as proposed. The development satisfies and supports all relevant strategic planning objectives and aims as they relate to provision of health services, the Penrith LGA and the Penrith Health and Education Precinct, and Western Sydney generally.

In relational to the likely environmental impacts of the development, those related to construction noise and vibration are likely to require specific management and mitigation, noting however that these impacts will be temporary and discontinuous. Construction traffic and parking will also need appropriate management to mitigate impacts upon localised areas and intersections. The operational development's impacts are generally lesser, but nonetheless require ongoing management. This is likely to be focussed on traffic and parking in particular, noting a Green Travel Plan and other public transport initiatives are likely to contribute to some modal shift away from private car use. Notwithstanding, the various environmental impacts arising would not prevent the Stage 2 Redevelopment, whether considered singularly or collectively.

From a social impacts perspective, the operation of the Stage 2 Redevelopment is likely to generate myriad long-term positive benefits that outweigh the few minor and short-term negative or adverse impacts likely to arise, mainly at construction. The positive impacts are generally focussed on the new and wide-ranging improvements to health and clinical services able to be provided. The socially-related consequences of not proceeding with the Stage 2 Redevelopment can only be identified as negative. The economic stimulus provided by the development during both construction and operation is founded on additional jobs growth and the multipliers that arise for the local and regional

communities. The planned growth of the Penrith Health and Education Precinct in particular relates directly to redevelopment opportunities at the Nepean Hospital campus.

During the preliminary phases of this project, and ongoing towards the finalisation of this EIS, the following parties were consulted regarding the project.

- Local Community and the hospital community, including its user groups
- Aboriginal community, including Register Aboriginal Parties via the ACHAR process
- NSW Government Architect and State Design Review Panel
- Penrith City Council
- Adjacent landowners – Nepean Private Hospital and Nepean Health Hub
- Transport for NSW (TfNSW)
- Sydney Water
- Endeavour Energy
- Jemena / Western Energy
- Telstra

Broad and general support was provided. Further engagement remains around individual detailed aspects of the development, whether related to Aboriginal cultural heritage, on-street parking demand and supply, connections to services, and the like. These however are reasonably commonplace and routine discussions that remain as part of the planning and detailed design process.

In light of the above, and the evident benefits of the proposed development, we recommend that consent be granted to this DA.

2.0 Introduction

2.1 Project Details

This Environmental Impact Statement (EIS) has been prepared by _planning Pty Ltd for Health Infrastructure (HI) and assesses the potential environmental, economic, and social impacts which could arise from the development of the Stage 2 Redevelopment at Nepean Hospital at 35 Derby Street, Kingswood (SSD 16928008).

The whole of the Nepean Hospital campus is located within a single land parcel - Lot 4 in Deposited Plan (DP) 1238301. The site is owned by the Nepean Blue Mountains Local Health District on behalf of the NSW Health Administration Corporation (HAC).

HI is the applicant for this DA. Accordingly, this DA is a Crown DA under the *Environmental Planning & Assessment Act 1979*. HI's address is 1 Reserve Road, St Leonards NSW 2065, whilst its ABN is 89 600 377 397.

As the development exceeds the $30 million threshold as set under clause 14 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) it is therefore classed as State Significant Development.

It is estimated that the development will generate some 823 construction jobs and deliver 500 full time equivalent (FTE) staff upon operation.

2.2 Nepean Hospital

Nepean Hospital sits within the Penrith City Council Local Government Area (LGA) and is situated approximately 1.7km south-east of the Penrith Central Business District (CBD) and approximately 50km west of the Sydney CBD. See the location of the hospital in relation to the Penrith CBD in **Figure 7**.

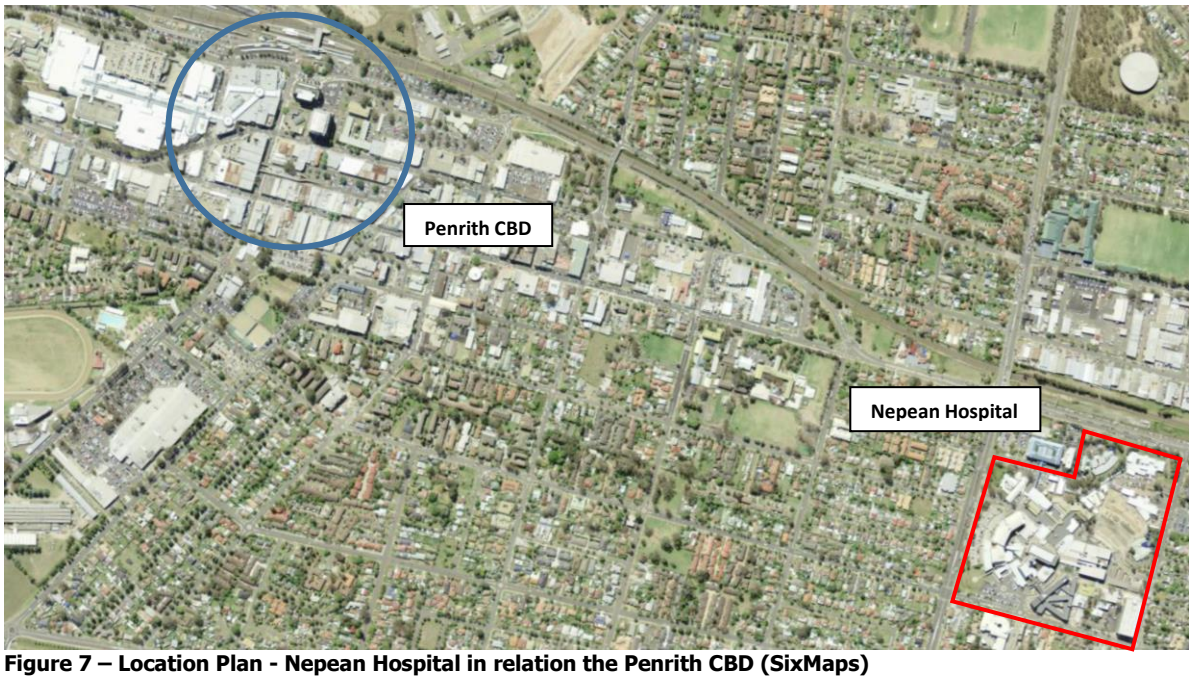


Figure 7 – Location Plan - Nepean Hospital in relation the Penrith CBD (SixMaps)

Nepean Hospital is located within the Nepean Blue Mountains Local Health District (NBMLHD), which is one of 18 Local Health Districts and Speciality Health Networks in NSW. The NBMLHD is responsible for providing community health and hospital care for people living in the Blue Mountains, Hawkesbury, Lithgow and Penrith LGAs as well as tertiary care to residents of the Greater Western Region.

Nepean Hospital is the Peer A1 tertiary referral hospital for the NBMLHD and a teaching hospital with strong links to several universities including the University of Sydney, Western Sydney University, University of Technology Sydney, Charles Sturt University, University of Notre Dame (Australia), and Charles Darwin University in the Northern Territory. The hospital functions collaboratively across the LHD Health neighbourhood to provide a network of services and continuum of care for the NBMLHD's catchment population and beyond.

Currently, Nepean Hospital provides district level as well as high-acuity inpatient and outpatient care. Inpatient services at Nepean Hospital generally have the capacity to manage high complexity patients who require specialist care.

2.3 Existing Development and Site Conditions

The hospital campus is generally bounded by the Great Western Highway and Barber Avenue to the north, Somerset Street to the east, Derby Street to the south and Parker Street to the west. Whilst not located on the campus, the existing Nepean Private Hospital is located immediately adjacent to the north of the campus and is physically connected to Nepean Hospital via a link bridge.

The hospital campus comprises a series of linked buildings which have been developed over the last 55 years. Buildings are organised according to their activity/function, with acute services generally concentrated at the centre of the campus. **Figure 8** provides a site plan of the hospital campus' buildings with the Stage 1 Tower identified as the 'construction site' for this purposes of that plan.

The existing buildings vary in scale from one storey to six storeys, with West Block and South Block at six storeys. Other remaining buildings making up the acute hospital core vary in height from two to four storeys. The outlying buildings across the eastern portion of the campus are all single storey in height, other than the multi-storey car park at the corner of Derby and Somerset Streets. The newer multi-storey car park at the corner of Parker Street and Barber Avenue is also some 6 split levels. The Stage 1 Tower is 14 storeys in height and is now the tallest building on the campus.

Within the last 10-12 years, the additions of East Block, Chapel infill, Mental Health Building, Oral Care, two multi-storey carparks and Total Asset Management (TAM) have all been completed. The Stage 1 Tower is the most recent new development at the campus.

The current gross floor area of the hospital's buildings is some 244,000m^2 as at August 2021.

The helipad originally located in the south-western corner of the campus was temporarily relocated to the top of the new Barber Avenue multi-storey carpark, however with the completion of the Stage 1 Tower the permanent helipad is now located at the rooftop level of that building. The rooftop of this car park will now be converted to additional car parking, as originally approved. See a recent aerial image at **Figure 9**. This shows the Stage 1 Tower and the cluster of existing buildings within the campus looking east.

2.3.1 Existing campus-wide works

Other existing, concurrent, or related campus-wide works (outside of this current SSD scope) facilitating the ongoing and efficient operation of the hospital include:

- The relocation of the pathology department to the undercroft area of the existing East Block
- Relocation of the pharmacy department within the existing North Block
- Expansion of the existing mental health services to deliver the Child and Adolescent Mental Health Services (CAMHS) facility
- Relocation of the Total Assessment Management (TAM) department
- In-ground services relocation and augmentation
- Minor at-grade car park adjustments and upgrade adjacent to the Drug and Alcohol building

These works are shown on the plan at **Figure 10**.

Figure 8 – Nepean Hospital Site Plan (NBMLHD)

Figure 9 – Nepean Hospital aerial view looking east (still from ABC TV – 7:30 Report)

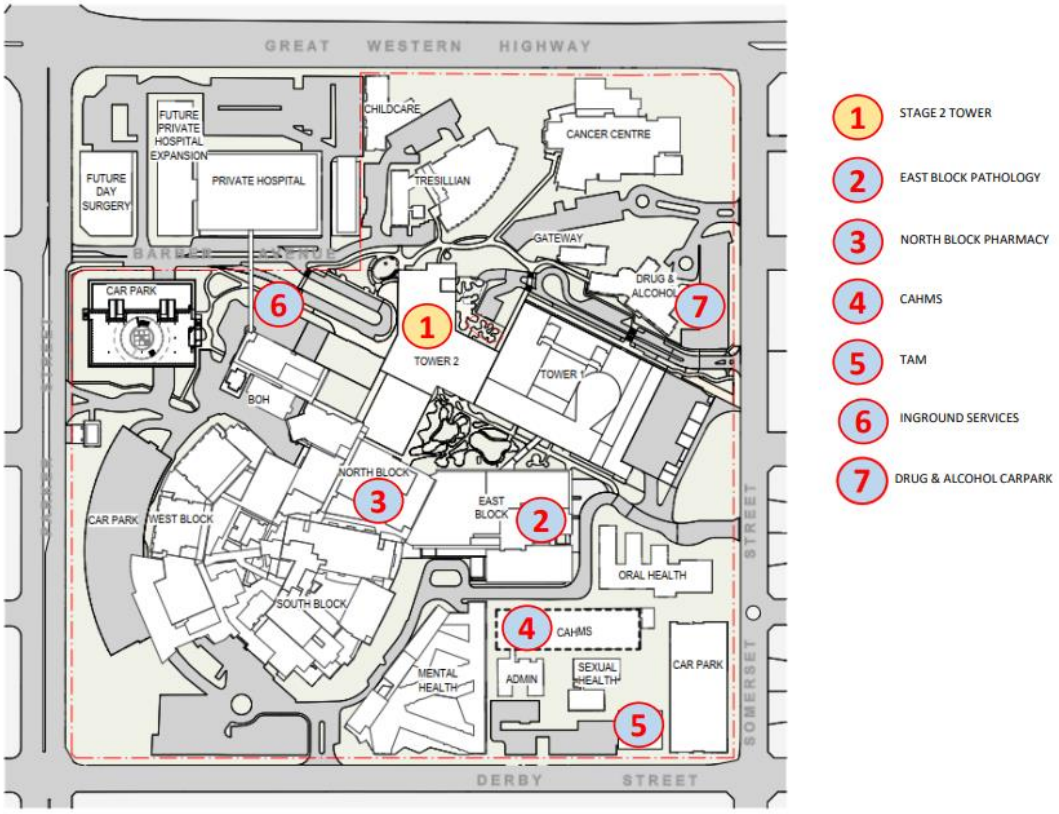


Figure 10 – Nepean Hospital Recent Campus-wide works (BVN)

The following also sets out a range of key physical or other relevant attributes or characteristics of the hospital campus.

2.3.2 Topography

The topography of the Nepean Hospital campus broadly appears flat to gently undulating, but is made up of a quadrant of stormwater catchments as discussed below that variously drain to the site's street edges from a general central high point. The north-east corner of the campus at the corner of Somerset Street and the Great Western Highway sits at RL 48, whilst the north-western corner at Parker and Barber Streets is at RL 50. The Parker and Derby Streets corner of the site to the south-west is at RL 53. The south-eastern corner at ther intersection of Derby and Somerset Streets sits at RL 49. Centrally located spot heights generally range from RL 53 to RL 57 around North Block and East Block. A survey is included at **Appendix C**.

2.3.3 Geology

Based on the Penrith 1:100,000 Geological Series Sheet 9030, the site is underlain by Bringelly Shale of the Wianamatta Group consisting of "shale, carbonaceous claystone, claystone, laminite, fine- to medium-grained lithic sandstone, rare coal and tuff". This profile does not take into account in-situ weathering or any earthworks that have taken place on the site.

The investigation undertaken by JK Geotechnics encountered a generalised profile comprising relatively shallow fill overlying residual silty clay which transitioned to weathered siltstone and claystone bedrock at depths ranging from 3.5m to 5.4m. JK Geotrechnics also discovered generally deeply weathered bedrock, with a periodic upper capping layer of sandstone bedrock of up to high strength.

With reference to the Department of Natural Resource's 1:100,000 Map of Salinity Potential in Western Sydney the site is located in an area where there is a moderate potential for soil and groundwater salinity to occur. See the Geotechnical Investigation at **Appendix D**.

The site does not contain Acid Sulfate Soils based on the Council's Planning Certificate and mapping under the Penrith LEP 2010. See the Planning Certificate at **Appendix E**.

2.3.4 Contamination

JK Environment's has undertaken a Preliminary Site Investigation (PSI) in relation to the development site in the context of the wider hospital campus and consistent with the requirements of SEPP 55 – Remediation of Land – see **Appendix F**.

The information reviewed by JK Environments for this PSI indicated that the site has historically been vacant or used for grazing/agricultural purposes, prior to it being developed as part of the wider hospital campus. The historical storage of flammable liquids (notably xylene), underground storage tanks (USTs) within the Stage 2 site area and the wider hospital campus, and detectable concentrations of xylene within groundwater were identified during previous investigations. These previous investigations did not identify significant, widespread contamination in fill. However, asbestos has been found in fill and at the ground surface, both within the Stage 2 site area and within the wider hospital.

Based on their assessment, JK Environments are of the opinion that there is a potential for site contamination but that the historical land uses and potential sources of contamination identified would not preclude the proposed development.

The potential source(s) of the hydrocarbons in groundwater has not been confirmed and there is uncertainty around the contamination status of the fill, particularly with regards to asbestos. Based on the potential contamination sources and areas of environmental concern identified, and the potential for contamination, further investigation of the contamination conditions is considered to be required.

JK Environments accordingly also undertook a Detailed Site Investigation (DSI) which established that remediation would be necessary. A Remediation Action Plan (RAP) was subsequently prepared.

The results of the DSI, and approach under the RAP, are further discussed in Section 7.0 of this EIS. See the DSI and RAP also at **Appendix F**.

2.3.5 Drainage / Flooding

Based on Bonacci's review of the site, the Nepean Hospital Campus broadly operates as four separate catchment quadrants – see **Figure 11** below.

The north-west quadrant includes portions of North Block, West Block, the new multi-storey carpark and adjacent service roads. This catchment discharges to Parker Street and Barber Avenue. Overland flow is directed to Parker Street.

The south-west quadrant comprises of the West Block car park, former at-grade helipad, portions of West Block and portions of South Block and discharges into the Council system in Parker Street.

The north-east quadrant is the largest and includes Cancer Care, Tresillian, Hope Cottage, portions of North Block, Doctor's Accommodation, Gateway, Drug and Alcohol, the new Stage 1 Tower and East Block. The storm water is discharged at the site boundary into a dual pipe system to Somerset Street opposite Rodgers Street.

The south-east catchment (which includes Mental Health, Maintenance, Oral Health and multi-deck car park buildings) discharges directly into Derby Street and Somerset Street via individual systems, each of which typically includes on site detention.

Figure 11 – Nepean Hospital Stormwater Catchments (Bonacci)

In terms of flooding, parts of Nepean Hospital Campus are flood affected. Penrith City Council has previously commissioned Flood Modelling for the area and identifies that the campus lies within the area subject of the College, Orth and Werrington Creek Flood Study.

The College, Orth and Werrington Creek Overland Flow Flood Study was completed by Catchment Management Solutions in June 2017. This study has recently been updated, with the release of the College, Orth and Werrington Creek Floodplain Risk Management Study (Catchment Simulation Solutions Public Exhibition Draft 7 May 2021).

The upstream catchment generally drains from the north-west to the south-east. The railway line immediately north of Great Western Highway acts as a weir, with flood flows through the rail corridor (via a pipe) and then through the north-eastern side of the hospital site via a 900mm diameter pipe. This connects to a stormwater pit located at the low point in Somerset Street, which is to the north east of the proposed Stage 2 site.

Further discussion on flood impacts is set out in Section 7.0 of this EIS. The Bonacci Stormwater and Flooding Assessment is found at **Appendix G**.

2.3.6 Biodiversity / Arboricultural Matters

The hospital campus is generally a highly disturbed urbanised environment having been subject to a series of phases of works and redevelopment. It is highly developed with little remaining vegetation or habitat and habitat connectivity. Notwithstanding there are areas of planted native and exotic species around the campus as well as isolated pockets of potentially remnant native vegetation.

A Biodiversity Development Assessment Report (BDAR) has been prepared by Total Earth Care (see **Appendix H**) which advises as follows with respect to the vegetation at the site.

> *The vegetation within the subject land is highly modified and generally comprises planted native and exotic species interspersed with few remnant native trees. The remnant trees are*

consistent with the Critically Endangered Ecological Community (CEEC) 'Cumberland Plain Woodland' (Plant Community Type (PCT)849), as listed under the NSW Biodiversity Conservation Act 2016 (BC Act), albeit in poor condition.

The subject land provides suitable habitat for some common bird and mammal species, yet little habitat for threatened fauna species. However, the availability of foraging resources provides opportunistic habitat for some threatened species as part of their broader range (i.e. Little Lorikeet, Grey-headed Flying-fox, Swift Parrot). Due to the highly modified landscape and soil profile, no suitable habitat is present for threatened flora. No threatened species were recorded in the subject land during the BDAR field surveys, or have been recorded in previous studies.

An Arboricultural Development Assessment Report has also been prepared by Moore Trees in relation to tree removal, retention, and protection within the development site – see **Appendix I**.

2.3.7 Bushfire

The hospital site is not located on bushfire prone land. Accordingly, the development does not rely upon an approval under section 100B of the *Rural Fires Act 1997* as a Special Fire Protection Purpose.

2.3.8 Heritage / Aboriginal Cultural Heritage

A Statement of Heritage Impact has been prepared by Extent Heritage – see **Appendix J**. This identifies, consistent with the Penrith LEP 2010, that Nepean Hospital is not a listed item on any statutory or non-statutory heritage register and does not sit within or adjacent to any conservation area.

An Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Comber – see **Appendix K**. This identifies that the Nepean Hospital campus has no identified Aboriginal sites and is not an Aboriginal place. This is consistent with recent AHIMS search results across the campus.

An AHIMS search was undertaken by Comber on 3 June 2021 which did revealed 10 Aboriginal sites in a 3 km radius of the hospital. The majority of sites revealed (90%) represent isolated finds of singular Aboriginal artefacts with one site representing a potential archaeological deposit (PAD). This result can be regarded as partially reflective of archaeological potential within the hospital and this radius, as it represents the state of archaeological research and heritage assessment in the local area only. It is possible that further unrecorded Aboriginal sites are present within the AHIMS search perimeter, closer to or within the hospital. See further assessment and discussion at Section 7.3.

2.3.9 Access and transport

The hospital is presently accessed by vehicle via a number of entry points to service the various car parking, loading dock, and emergency services areas of the hospital. ptc's Traffic Impact assessment (see **Appendix L**) identifies these based on incoming vehicle routes and as shown below in **Figure 12** at the commenement of operation of the Stage 1 Redevelopment / Stage 1 Tower.

Route 1: West – Inbound vehicles travel along the Great Western Highway, then onto Parker Street to access the hospital either via Barber Street or the hospital entrance (29% of Hospital arrivals originate from this direction).

Route 2: North – There is no vehicular access along the northern boundary of the hospital precinct.

Route 3: South – Inbound vehicles travelling along Derby Street can access the hospital via the Sydney Medical School entrance or utilise the off-street car park within the campus (30% of the hospital arrivals originate from this direction).

Route 4: East – Inbound vehicles travelling along Somerset Street are able to access the hospital via the hospital entrances at Somerset Street north of Hargrave Street and Somerset Street north of Rodgers Street, as well as via the multi-level car park entry off Somerset Street (41% of hospital arrivals originate from this direction).

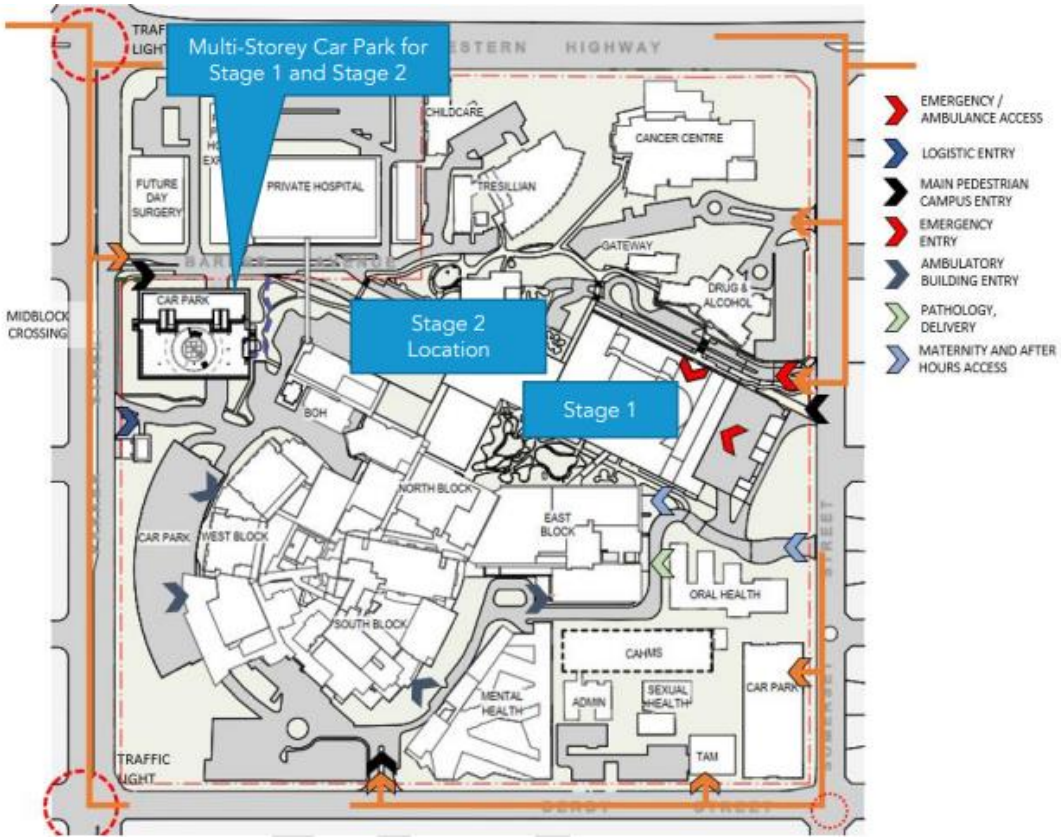


Figure 12 – Nepean Hospital Access Locations (ptc)

In terms of public transport access to the hospital, there are several options available in the vicinity of the hospital in the form of buses and rail. There are five bus stops within a 400m radius of the hospital serviced by five bus routes operating at regular frequencies seven days per week. Kingswood railway station is located approximately 400 metres (5 minute walk) from the eastern boundary of the hospital, which is within reasonable walking distance for staff and, potentially, outpatients and visitors. Walking and cycling options also exist to the hospital campus.

The existing on-site car park provision is 2,008 spaces across a number of multi-deck car parks and at-grade parking areas located across the campus.

2.3.10 Utilities Services

Existing electrical and communications services cater for current hospital needs. Spare capacity exists arising from the forward planning for services under the Stage 1 Redevelopment scope. Similarly, water, gas and sewer supply at the hospital upgraded as part of the Stage 1 Redevelopment will take advantage of spare available capacity.

Contemporary photographs of the Nepean Hospital site, including the new Stage 1 Tower are set out below in **Figures 13** and **14**.

Figure 13 – The newly completed Stage 1 Tower as seen from the north (left) and west (right)

Figure 14 – The newly completed Stage 1 Tower as seen from Barber Ave from within the development site

2.4 Surrounding Development

The locality surrounding Nepean Hospital is diverse in its built form, land uses, and character and is presently undergoing a level of transformation through a number of recently approved development applications.

The area to the north adjacent to the hospital is occupied by affiliated health services uses (mainly Nepean Private Hospital). Further afield across the Great Western Highway and the T1 Western railway line, land uses generally comprise a mix of low-density retail and light industrial uses.

To the east sits a mix of older low-rise low-density residential development and recent or emerging mid-rise and medium-density residential development, including some professional consulting rooms and affiliated health services, including recently approved medi-hotel.

The area south of the hospital is again typified by a mix of older low-rise low-density residential development and an emerging mid-rise and high-rise and medium-density residential development, including some professional consulting rooms and affiliated health services.

West of the hospital across Parker Street, is generally low-density detached dwellings and an emergence of 5+ storey apartment buildings.

Figure 15 – Residences in Somerset Street to the south of the hospital

Figure 16 – Somerset Specialist Centre at the corner of Somerset and Derby Streets

Figure 17 - 48-56 Derby Street to the south of the hospital

The hospital generally dominates its immediate urban context in terms of built form, building heights, and the general level of activity within the neighbourhood. This is amplified by the range of associated and supporting land uses whether food and beverage outlets, office and medical suite accommodation, medi-hotel style accommodation, and professional consulting rooms within former residential dwellings.

2.5 Objective, Design Principles and Summary of Proposed Development

Building on the Nepean Hospital masterplan and with the completion of the Stage 1 Tower, the new Stage 2 building and refurbishments that are part of the Stage 2 Redevelopment present a great opportunity to improve and expand the clinical and non-clinical services on the hospital campus. The Stage 2 Redevelopment provides significant enhanced acute services, as well as a new campus main entry and drop-off facilities in a total transformation of the current Nepean Hospital campus.

The Design Principles for the Stage 2 Redevelopment are derived from the aspirations set out in the Masterplan Report, and developed in response to the detailed site analysis contained within those reports and developed as part of the Concept and Schematic Design phases.

These key principles are:

- Improving Population Health - Inequalities and Localities
- Enhancing the patient experience - Clinical quality, Access and Safety
- Living within the Hospital's means - Financial performance
- Strengthening the Workforce - Culture & Organisational development
- Enhancing the Hospital's Services and Facilities
- Developing and Strengthening research capacities
- Establish robust governance and local decision making

The following universal Design Principles seek to respond to the NBMLHD's Key Strategic Directions:

- Human Centred
- Sustainable
- Connected
- Integrated
- Create Identity

The Stage 2 Redevelopment project scope includes:

- The Stage 2 building, being predominantly a 7-storey building, with rooftop plant
- Demolition of parts of the existing North Block and other satellite buildings directly within the Stage 2 building footprint (excluding other buildings already approved under the Stage 1 SSD consent)
- Demolition of the Total Asset Management (TAM) facility
- Reconfiguration of the loading dock area and back of house functions
- Landscaping and other associated at-grade works within the Stage 2 building's immediate vicinity including off campus High Voltage feeder upgrade
- Barber Avenue upgrade and access road to the Stage 2 building's forecourt, port cochere, and front of house area

The proposed Stage 2 building's GFA is some 33,650m^2. The development will result in an increase of 78 overnight / in-patient beds. A detailed description of the proposed development is set out in Section 4.0 of this EIS.

Figure 18 – The completed Stage 1 Tower to the left with the proposed Stage 2 building to the right (BVN)

Figure 19 – Architectural render of the entry foyer looking west (BVN)

3.0 Strategic Context

3.1 Strategic Basis for the Stage 2 Redevelopment

The strategic basis for the proposed Stage 2 Redevelopment is directly related to the continuing improvement of the quality, and the range, of health services provided at the hospital, and for and within the NBMLHD.

The trigger for growth and change comes from the Nepean Hospital Clinical Services Plan 2018 – 2031 (CSP). The CSP identifies several key drivers including meeting the future health care needs of Western Sydney, significant population growth and demographic change, changing population health issues, and socio-economic risk factors.

Common health challenges in the region include:

- A growing population
- Relatively large increases in the number of older people
- High smoking, obesity and stress levels
- Chronic illness is increasing
- 58% of the population are overweight or obese
- High rate of diabetes
- A large urban Aboriginal community with poorer health outcomes than non-Aboriginal people
- Socio-economic inequalities and poorer health outcomes

The delivery of the Stage 2 Redevelopment will futureproof capacity at the hospital to cater for population growth, future demand for services, and changed clinical and health needs whilst also providing a modern fit-for-purpose health facility.

The Stage 2 Redevelopment aligns with the Zonal Masterplan for the campus by further centralising acute services and clinical support functions within the hospital in tandem with the Stage 1 Redevelopment – as shown earlier in this EIS at **Figure 2**.

3.2 Strategic Planning Context

3.2.1 NSW State Priorities and Premier's Priorities

The NSW government has identified a series of 12 Premier's and 18 State priorities, targeting economic growth, infrastructure delivery, protection of the vulnerable, and improvement of public services across NSW. The priorities that are applicable to this development are considered and addressed below.

The Premier's priorities are:

- Creating jobs
- Building infrastructure
- Reducing domestic violence
- Improving service levels in hospitals
- Tackling childhood obesity
- Improving education results
- Protecting our kids
- Reducing youth homelessness
- Driving Public Sector diversity
- Keeping our environment clean
- Faster housing approvals
- Improving Government services

The NSW State priorities are:

- Making it easier to start a business
- Encouraging business investment

- Boosting apprenticeships
- Accelerating major project assessment
- Increasing housing supply
- Protecting our credit rating
- Delivering strong budgets
- Improving Aboriginal education outcomes
- Transitioning to the National Disability Insurance Scheme
- Better Government digital services
- Cutting wait times on planned surgeries
- Increasing cultural participation
- Ensuring on-time running of public transport
- Creating sustainable social housing
- Reducing violent crime
- Reducing adult re-offending
- Reducing road fatalities
- Improving road travel reliability

The proposal will deliver on key state priorities, including

- Creating jobs
- Building infrastructure
- Improving service levels in hospitals
- Cutting waiting time for planned surgeries
- Jobs closer to home
- Increased business investment.

The proposal will deliver new and improved health infrastructure that will reduce waiting times by improving capacity, allowing for greater integration of services, and creating greater efficiencies by incorporating state-of-the-art facilities and equipment.

The proposal will create job opportunities in manufacturing, construction and construction management during the project's construction phase of works, and job opportunities in health and administration at the project's completion.

The proposal will create jobs and apprenticeships for the construction sector through government infrastructure. It will generate up to 823 jobs over the construction phase and will facilitate the growth and support of a skilled health related workforce in the region. The proposal is estimated to deliver 500 full time equivalent (FTE) staff upon operation. Many of the new jobs created will be able to be sourced and filled by personnel within the local and regional catchments and from within the NBMLHD. The operational jobs number is the estimated new workforce arising from consultation during the development of the CSP and then reviewed via a Financial Impacts Statement. This FTE number has been calculated in consultation with 'NBMLHD Workforce, People and Culture' and other Government representatives. The total incremental and additional workforce increase by 2031/32 is based on the project scope, operational need (tied to the CSP) and the demographic change driving the types and nature of health services to be provided.

The economic and social multiplier effects of added Government investment in Nepean Hospital are likely to be palpable within the adjacent and nearby communities, including Penrith's Health and Education Precinct.

3.2.2 State Infrastructure Strategy 2018 – 2038 Building the Momentum

One of the key objectives of the NSW State Infrastructure Strategy is Investing in our health system. Given the announcement by the former Premier of the Stage 2 Redevelopment, this project is amongst those at the forefront of this objective.

The proposal will deliver on the strategic objective for NSW Health to plan and deliver world-class health infrastructure that supports a 21st century health system and improved health outcomes for the people of NSW and Western Sydney.

The drivers for change arising from the CSP directly relate to the targeted outcomes of the State Infrastructure Strategy.

The State Infrastructure Strategy also notes the budgeted commencement of the Penrith Health and Education Precinct redevelopment will contribute towards over $1.5 billion worth of investment in more than 20 projects for the Penrith Health and Education Precinct, which should generate an additional 12,000 jobs by 2036.

3.2.3 Future Transport Strategy 2056

The Future Transport Strategy 2056 is an update of the 2012 Long Term Transport Master Plan for NSW. It is a 40-year strategy, supported by plans for regional NSW and for Greater Sydney.

The Future Transport Strategy 2056 provides a framework for delivery of integrated and modern transport systems. The plan acknowledges the vital role transport plays in the land use, tourism, and economic development of towns and cities. It includes issue-specific and place-based supporting plans that shift the focus away from individual modes of transport, toward integrated solutions. The Future Transport Strategy 2056 is the first plan to unpack how the State can harness rapid advancements in technology and innovation to transform the customer experience and boost economic performance across NSW.

The Strategy provides a range of six State-wide outcomes to guide investment, policy and reform and service provision. The "six State-wide transport outcomes" identified by the Future Transport Strategy 2056 are extracted below:

- Customer focused
- Successful places
- A strong economy
- Safety and performance
- Accessible services
- Sustainable.

A key outcome for the Future Transport Strategy 2056 is to "support successful places" with a transport network across the State that better connects regional cities and centres and will increase access to regional jobs, services and education. The proposal will be better connected to transport and will support this outcome.

Of a more direct relationship to the hospital and its general locality is the upgrade and augmentation of the Northern Road (Parker Street) as part of the 'Western Sydney Infrastructure Plan, including the new M12'. This work is nearing completion.

Other initiatives, programs or works of relevance to the hospital campus and/or the Penrith Health and Education Precinct, include:

- Priority Cycleway links in the Western Parkland City (0-10 years committed)
    - Priority Cycleway links connecting centres including Penrith, to be developed and delivered in partnership with local councils where appropriate; will support walking and cycling as most convenient option for short trips around centres.
- North-south rail link in Western Parkland City: Cudgegong Road – St Marys – WSA – Badgerys Creek Aerotropolis (0-10 years committed south of St Marys / 0-10 years investigation north of St Marys)
    - New rail link linking Northwest and Southwest growth areas with WSA-Badgerys Creek Aerotropolis; will extend 30-minute train service catchment of Greater Penrith.
- Infrastructure to support rapid bus connections and improved bus connections between WSA-Badgerys Creek Aerotropolis and Penrith (0-10 years investigation)
    - New dedicated bus links or implementation of bus priority on existing and new roads; will enable efficient and reliable rapid bus travel
- Outer Sydney Orbital from Great Western Highway to WSA-Badgerys Creek Aerotropolis (10-20 years investigation)
    - Reservation for future north–south motorway and freight rail operations, with first stage to connect Great Western Highway to WSA-Badgerys Creek Aerotropolis; will

provide continuous bypass of Greater Sydney, ultimately connecting Illawarra, Sydney and Central Coast

See also discussion in the Cattell Cooper Transport Report at **Appendix M**.

3.2.4 Better Placed: An integrated design policy for the built environment of NSW

Better Placed - an integrated design policy for the built environment of NSW (Better Placed) was published by Government Architect NSW in August 2017 and is described as follows:

> *Better Placed is a policy for our collective aspirations, needs and expectations in designing NSW. It is about enhancing all aspects of our urban environments, to create better places, spaces and buildings, and thereby better cities, towns and suburbs. To achieve this, good design needs to be at the centre of all development processes from the project definition to concept design and through to construction and maintenance.*

Better Placed identifies seven Design Objectives for NSW including, better fit, better performance, better for community, better for people, better working, better value & better look and feel.

The design process for the proposal has so far been extensive and through the involvement of a range of stakeholders the Design Objectives identified in Better Placed are able to be achieved by the proposal. The Stage 2 Redevelopment makes a further significant contribution to the hospital campus and will contribute to the creation of a more welcoming and equitable environment where the design focuses on the safety, comfort and requirements of people, as encouraged by the Better Placed Design Objectives.

BVN has provided detailed commentary around these seven Design Objectives in its Architectural Design Statement – see **Appendix N**. These are replicated below for ease of reference.

Better fit: contextual, local and of its place

The Nepean Hospital campus fulfils a central role within its immediate and wider context. The Penrith Health and Education Precinct also known as The Quarter, encompasses the Nepean Health Care and the University of Sydney and Western Sydney University as well as TAFE and aspires to be a leading centre for health and education that "will drive major jobs growth, economic prosperity, educational opportunities and improved health outcomes for a rapidly growing community".

The new Stage 2 building location and the associated public space has been strategically positioned to respond to Penrith City Council's control plan and the desire to establish and develop direct pedestrian links to Kingswood Station and to consider future medical mix use development along Somerset Street and Derby Street.

The location of the new Stage 2 building has been developed to identify and support the growth of the campus over its life time and to meet the aspirations of the NBMLHD with a focus on improving services across acute health care, ambulatory health care, research and education, mental health and community care services to 2032.

The design of the building embodies Nepean as a place, empathetic to its surroundings, materials and form. The building mass and façade strategy seek to ground the new building in its context, recognising and responding to the surrounding campus building heights and an inferred campus datum line.

Better performance: sustainable, adaptable and durable

Longevity, functionality and robustness underpin the new Stage 2 building design with the provision of the following:

- Selected façade materials/systems and interior finishes are resilient and low maintenance
- The new building promotes social sustainability on the Hospital Campus by providing public and green spaces for patients, staff and visitors
- Grid layout, core design, services reticulation and floor to floor heights will all be designed for future flexibility, providing an element of resilience into the design and ensuring it remains relevant well into the future - future proofing the building for changing clinical uses

- The new Stage 2 building is seeking to achieve a 5 Green Star equivalency rating.

Facade elements such as shading, insulation, and material selection will be considered in the context of the overall energy performance of the building.

The integration of the central atrium on Level 01 of the building provides a new main entry and public space with visual connectivity and access to natural daylight and ventilation to front of house areas.

The landscaped terrace on L01 provides amenity for staff and a dedicated indigenous outdoor garden space, whilst the southern courtyard will accommodate public art and a variety of landscape solutions to be used by visitors, patients and staff to provide respite to the internal hospital environment.

Better for community: inclusive, connected and diverse

Combining many functions into a single building, the new Stage 2 building will significantly alter the way people use the hospital, and aims to become the first point of arrival for many visitors to the campus. As such, it presents an exciting opportunity to create a unique, easily identifiable and memorable 'front door' - a landmark building which becomes synonymous within the Nepean and Blue Mountains health district.

The new Stage 2 building provides an opportunity to create a public entry/forecourt for the hospital. The integration of public space will establish a sense of entry and facilitate the development and appropriate identity for the hospital within the local community as it becomes a fundamental connector for pedestrians upon arrival.

The Stage 2 building will seek to respond to this aspiration by recognising pedestrian desire lines (existing and future) and ensuring the environment around the building provides a safe, sheltered and enjoyable experience for pedestrians.

Wayfinding principles incorporated in the design enables the ease of identification of major destinations by providing clear navigational choices through the creation of structured paths within the campus.

Better for people: safe, comfortable and liveable

Stage 2 has been designed with people's experience and safety at its core by providing the following:

- Integration of new public and green spaces enhancing the pedestrian experience, health and well-being
- Material selection and the importance of colour, texture and natural finishes consistent with the local environment and elements
- Legible entries ensure a clear and intuitive way finding experience
- Access to daylight for patients, staff and visitors
- Public corridors terminating in glazing ensure visitors remain oriented and connected to the outside at all times
- Views to the outdoors or to the shared central atrium ensure people retain a sense of being part of the whole even as they move through the building
- Integration of Arts and Cultural strategies within the Hospital's public spaces
- Application of the principles of Crime Prevention Through Environmental Design.

The building aims to "promote a healing, health promoting and ecologically sustainable environment." By providing a harmonious, stress-free user experience for patients, staff and visitors that harnesses the impact of the above design considerations.

Better working: functional, efficient and fit for purpose

Extensive user consultation to develop models of care which underpin the department plans and inform the design has been undertaken to create a building which will be functional, efficient and fit for purpose.

Construction of a standardised 8.4m grid ensures maximum flexibility for a variety of health-related uses long into the future.

The design supports the relocation of key functional areas that have critical relationships to existing departments which are remaining in their existing locations. The Stage 2 building provides a framework that addresses the Hospital's compromised patient, staff and public circulation flows by establishing a framework which de-conflicts cross overs and provides separate horizontal and vertical circulation for each of the constituent groups.

Positioning of the Stage 2 building also enhances the access to and from the Nepean Hospital campus in relation to existing public transport infrastructure and car parking facilities within the site.

Better value: creating and adding value
Replacing aging existing facilities with a modern, future-proofed building that promotes precinct-wide integration will provide ongoing value for the immediate and wider community long into the future.

Being a public hospital, the new Stage 2 building has been conceived and designed with a primary emphasis on whole of life costs and patient centric amenities such as green public spaces and courtyards to improve health and well-being of patients and staff.

Better look and feel: engaging, inviting and attractive
The Stage 2 building will be a significant new feature on the Nepean Hospital campus. Material selections are to reflect the building's prominent location and important civic role.

The new Stage 2 building seeks to provide an engaging, tactile and memorable experience through the provision of the following elements:

- A generously-scaled shared central atrium and entry zone
- Extensive use of textural materials throughout the new public spaces
- Consistency of wayfinding, look and feel across the campus and on floors to ensure continuity for visitors
- Integration of Arts and Cultural strategies with wayfinding and interior concepts.

3.2.5 Healthy Urban Development Checklist

The 2010 Healthy Urban Development (HUD) Checklist was prepared by NSW Health to help build the capacity of NSW Health to provide valuable feedback to local councils, and other relevant organisations, on health issues in relation to urban development plans and proposals.

The intended use of the Guideline is to facilitate strengthened partnerships and collaboration between NSW Health and urban planners and developers as part of NSW Health's initiatives to promote healthy communities in NSW.

The HUD is structured into ten chapters, each one focused on a characteristic that is important for healthy urban development. Each characteristic has up to five key considerations, formulated as questions. The checklist is principally about helping to answer the questions:

- What are the health effects of the urban development policy, plan or proposal? and
- How can it be improved to provide better health outcomes?

The types of plans and proposals that this checklist is intended for include:

- Master Plans (may also be called concept plans);
- Town Centre Plans; and
- Development applications for projects like large housing developments, shopping centres, and community and health care facilities.

Key themes under the checklist are:

- Healthy Food
- Physical Activity
- Housing
- Transport and Physical Connectivity
- Quality Employment
- Community Safety and Security
- Public Open Space
- Social Infrastructure

- Social Cohesion and Social Connectivity
- Environment and Health

In relation to this DA, the following are relevant considerations and comments:

- Existing levels of active transport will be maintained and further encouraged. This will be reinforced through travel demand measures arising from the approved Stage 1 Redevelopment
- Existing levels of public transport use and connectivity will be maintained and enhanced
- The design satisfies and enhances a sense of community safety and security
- The location of the development does not diminish the availability of open space to the wider community, and whilst it relates to a hospital development, passive open space areas within the campus will be increased and improved
- The development's design and location reinforces a strong sense of local identity and a sense of place, but also creates a new visual identity built upon the principles of design excellence;
- The development will maintain existing high levels of social interaction and connection among people of all ages
- Provides for an environmentally responsible response to water, energy, and non-renewable resources use.

With regard to the above, the proposal is consistent with the relevant provision of the HUD checklist.

3.2.6 Draft Greener Places Design Guide (GANSW)

The Draft Greener Places Design Guide sets out four principles to help deliver green infrastructure in NSW. These are:

- Integration - combine green infrastructure with urban development and grey infrastructure
- Connectivity - create an interconnected network of open space
- Multifunctionality - deliver multiple ecosystem services simultaneously
- Participation - involve stakeholders in development and implementation

These are supported by three key strategies of:

- Open space for recreation
- Urban tree canopy
- Connecting bushland and waterways

Of these the most relevant to the Stage 2 Redevelopment is Urban Tree Canopy.

The following sets out a response to the four principles as provided by Arcadia in its Landscape Report (see **Appendix O**), and in relation to the Urban Tree Canopy strategies.

Integration - combine green infrastructure with urban development and grey infrastructure

The Stage 2 landscape design weaves in green infrastructural aspects such as naturalistic WSUD systems via swales and dry-creek beds to soften pathways as well as slow down the movement of water. Additionally, the accompaniment of native canopy to avenues and key spaces for gathering help to soften hardscaped areas, cool spaces down by providing natural shelter, and integrating ecologically beneficial habitat with more human-centric habitat.

Connectivity - create an interconnected network of open space

Carrying through links from Parker Street to Barber Avenue to Somerset Street, the landscape design takes the loose threads of old linkages and consolidates them into more legible pathways. Along with this consolidated network are points of access into many respite and gathering spaces. Ecological connections are formed by the plethora of native and endemic planting that contributes to the overall network of native vegetation that harkens back to the Cumberland Plain and Blue Mountains National Park.

Multifunctionality - deliver multiple ecosystem services simultaneously

The landscape design provides a multitude of flexible spaces for current changing programs of activity and into the future as the needs of the hospital evolves. Knitted into the more people-orientated

aspects of the design are layers of ecological functionality through the many planted zones, WSUD and higher-order canopies from native trees. These ecological layers not only serve habitat for wildlife but feed into a patient-centred healing landscape as well as a cultural-centred landscape with opportunities for the users of the hospital as well as the public to be able to interact with country in tangible ways and find health benefits that experiencing nature can give.

Participation - involve stakeholders in development and implementation
In the Stage 2 landscape design's evolution there was engagement and consultation sought with interdisciplinary, governmental, and local stakeholders. All inputs, advice and ideas made in these collaborations have helped bring about a design that is equitable in its offerings, resilient in its integration within an existing setting, and healthy and responsive to user group needs.

Urban Tree Canopy strategy 1 - Protect, maintain, and enhance the existing urban tree canopy
The Nepean Hospital site is rich in ecological offering and habitat potential. Taking advantage of what the site currently has to offer, the Stage 2 landscape design enhances and builds on existing green links and vegetation patches with native and endemic tree species in accompaniment with native lower order planting. The Stage 2 redevelopment will be replacing many exotic specimens marked for removal and replacing them with more endemic and native trees at a greater ratio of new native trees to removed trees.

Urban Tree Canopy strategy 2 - Create an interconnected urban tree canopy across NSW
Using the network of access across the northern part of the campus as a guide for the planting formations, native trees are curated to follow these whilst also diverting off into patches consisting of tree copses, encirclements to gathering spaces, and as curated specimens to create distinction or focal points of interest. Overall, the trees have been considered and curated as a minor ecological scatternet of native and endemic tree species that in turn links to the greater green grid of NSW.

Urban Tree Canopy strategy 3 - Build knowledge and awareness of urban tree canopy across State and local government, and the community
Education and interpretation layers are included in the proposal and will be developed further in collaboration with First Nations partners in design development. These relate to Country and connection to the landscape, but especially the Cumberland Plain Forest Community

Further in addressing Objective 30 of The Greater Sydney Region Plan - A Metropolis of Three Cities, the proposed increased and enhanced planting of native and endemic trees are used throughout the design to aid in increasing the urban tree canopy cover. Canopy trees removed will be replaced at a ratio of better than 1.8:1 under the proposed landscape design.

3.2.7 The Greater Sydney Region Plan - A Metropolis of Three Cities
The Greater Sydney Region Plan: A Metropolis of Three Cities, was released by the Greater Sydney Commission (GSC) in March 2018 and is the first Region Plan by the Greater Sydney Commission.

The Plan encompasses a global metropolis of three cities – the Western Parkland City, the Central River City and the Eastern Harbour City. It is envisioned that people of Greater Sydney will live within 30 minutes of their jobs, education and health facilities, services and great places. The Nepean Hospital campus is located within the Western Parkland City.

The site and nearby Western Sydney University and TAFE facilities are located within the Greater Penrith Health and Education Precinct. The Nepean Hospital Redevelopment is identified in the Plan as a major hospital expenditure within the Western Parkland City.

The proposed Stage 2 Redevelopment will provide further essential health infrastructure services within the Penrith Education and Health Precinct and relieve stress on other medical services within the Precinct and NBMLHD. The redevelopment will also improve connectivity into the site and provide additional jobs during both construction and operation.

Over the next 20 years, as part of the Greater Sydney Commission's vision of a Metropolis of Three Cities, the Western City District Plan will drive growth in education, health, and industry sectors with employment hubs in Katoomba, Penrith, Richmond, and Windsor.

Penrith is a regional city of the Western District, housing The Quarter, which is one of Sydney's largest health and education precincts. The Quarter is committed to becoming an international destination for investment and excellence in health care, medical research, world-class education, and related technology, where the world's best and brightest come together to collaborate.

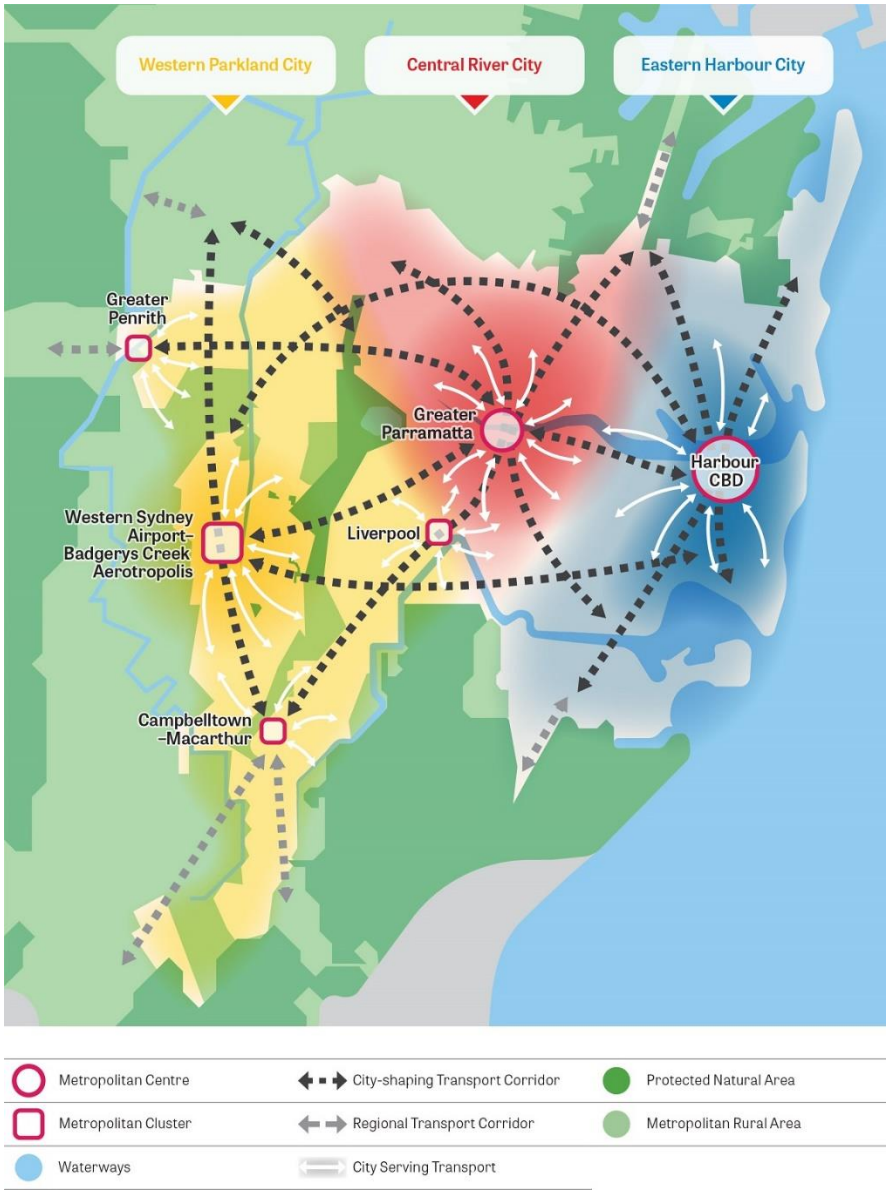


Figure 20 – A Metropolis of Three Cities (GSC)

The Pulse of Greater Sydney 2020

The Pulse of Greater Sydney 2020 provides a recent update on progress on key actions in delivering the Greater Sydney Region Plan: A Metropolis of Three Cities. Of relevance to the Western City District, Penrith, and Nepean Hospital in particular are the following actions and projects:

<u>Infrastructure and Collaboration</u>

- **Western Sydney City Deal**: The Australian and NSW Government jointly announced Stage 1 of the Sydney Metro (Western Sydney Airport) project (June 2020), which will provide a new rail connection from St Marys to Western Sydney Airport and the Aerotropolis. Rail for

the Western Parkland City is one of the commitments of the Western Sydney City Deal – see further below.

- **NSW Health**: The Nepean Cancer Centre and a childcare centre have been completed as part of the $1 billion Nepean Hospital redevelopment. Campbelltown Hospital Stage 2 is underway for the $632 million redevelopment. Construction of the Campbelltown Stage 2 Multi-Storey Car Park has been completed. NSW Health has carried out robust planning as to how ICU capacity will be increased if required to respond to the COVID-19 pandemic. NSW Health increased the capacity of virtual care services, such as telehealth and hospital in the home, in response to the COVID-19 pandemic.

Productivity

- **Health and Education Precincts**: A land use analysis and Masterplan for the Liverpool Innovation Precinct was released in October 2019, together with ICT and Investment Strategies. These aim to boost the profile of and attract investment to the Liverpool Innovation Precinct. Health and education precincts are also progressing in Penrith and Campbelltown.
- **Western Sydney Investment Attraction Fund**: Has been established to support business and jobs growth in the Western City District and unlock new investment.

Sustainability

- **Cumberland Plain Conservation Plan**: The draft Cumberland Plain Conservation Plan was released for consultation in August 2020. The draft Plan identifies strategically important biodiversity areas within the Cumberland subregion to offset the biodiversity impacts of future urban development – see also further below.

Many of the key highlights are shown in **Figure 21**.

The **Western City District City Deal** has also provided the following initiatives and infrastructure projects for the Western Parkland City / Western City District:

- Rail for the Western Parkland City
- Rapid Buses and an integrated transport program
- Connecting residents to jobs
- Education and skills
- Improve community health
- Aligning infrastructure to growth

3.2.8 Western City District Plan

For the purposes of the District Plans, Penrith LGA and Nepean Hospital sits within the Western City District.

The proposal is consistent with the following Planning Priorities in the Western City District Plan:

- Planning for a city supported by infrastructure
- Providing services and social infrastructure to meet people's changing needs
- Fostering healthy, creative, culturally rich and socially connected communities.

The Nepean Hospital campus is located within the Greater Penrith Collaboration Area, which is identified "as a Collaboration Area, Greater Penrith's growth will be supported by a whole-of-government approach to align the activities and investments of government and key stakeholders in the area."

The Collaboration Area aims to:

- develop an integrated land use and transport vision
- revitalise and grow the Penrith CBD
- develop a major tourist, cultural, recreational and entertainment hub
- protect and expand the health and education precinct
- address flooding issues
- implement Greater Sydney Green Grid projects and promote ecologically sustainable development
- improve housing diversity and provide affordable housing

- diversify the night-time economy
- implement healthy city initiatives and improve social infrastructure.

The Plan identifies that collaboration for health and education precincts "will lead to the development of plans that increase the attractiveness and productivity of each centre, coordinate and leverage urban renewal opportunities to deliver greater liveability outcomes, promote advanced technology and knowledge sectors on industrial and urban services land and align infrastructure delivery with urban renewal." The proposal will result in the further expansion of the existing campus and improve the health services facilities within the Health and Education Precinct. This will contribute to the productivity of the Precinct and deliver greater liveability outcomes through the increased provision of health services.

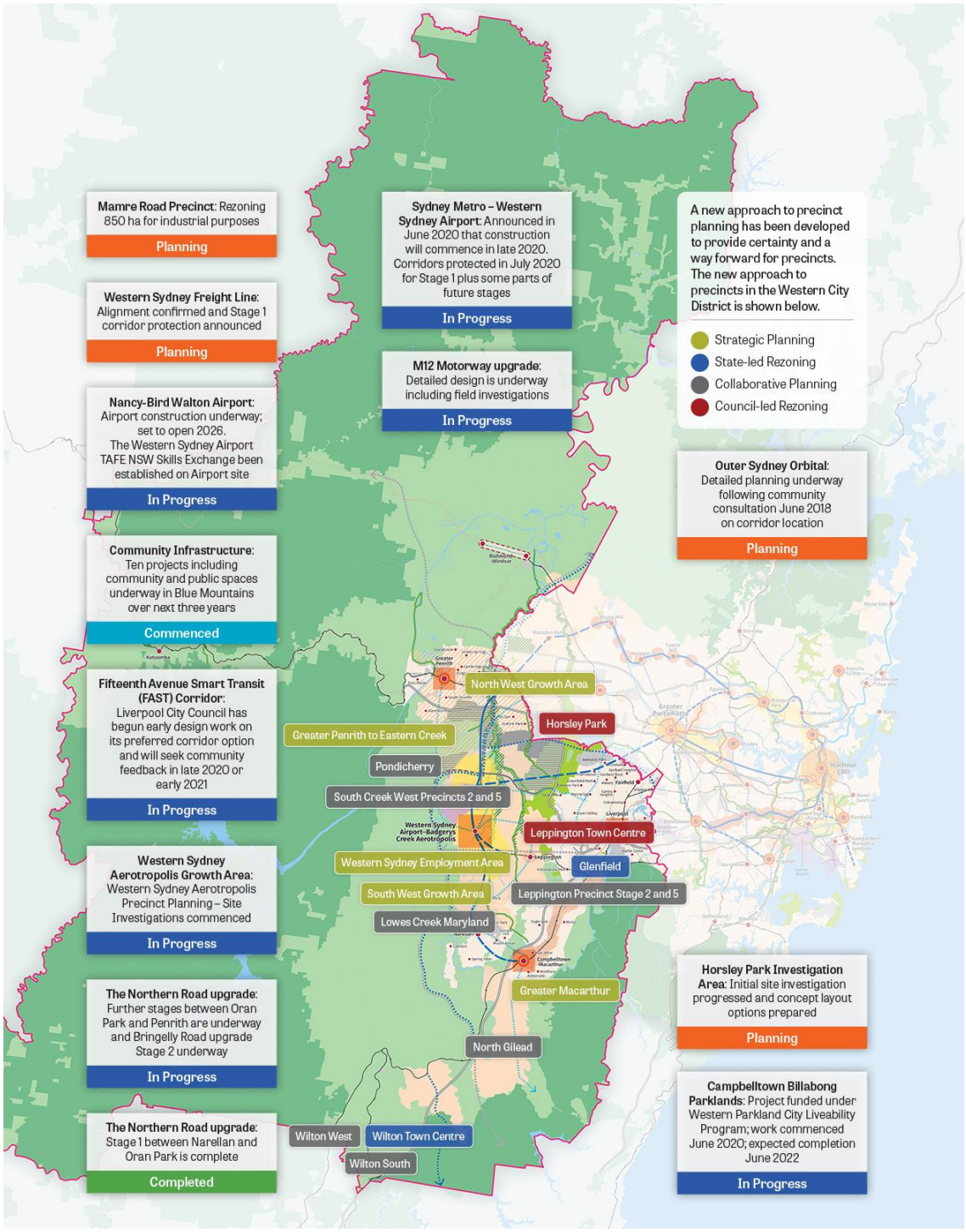


Figure 21 – Western City District Plan Implementation Update 2020 (GSC)

3.2.9 Penrith Local Strategic Planning Statement

Penrith City Council's Local Strategic Planning Statement (LSPS) - Planning for a Brighter Future, sets out the 20-year vision for land use in Penrith Local Government Area (LGA). The LSPS recognises the special characteristics which contribute to Penrith's local identity and how growth and change will be managed in the future. The LSPS came into force in March 2020 following endorsement by the Greater Sydney Commission and adoption by Council.

Overall, the LSPS provides a land use vision for Penrith LGA over the next 20 years taking into consideration the economic, social and environmental needs of the community. It aligns with and responds to the key priorities and directions set in the Greater Sydney Commission's (GSC) Greater Sydney Region Plan – A Metropolis of Three Cities and Western City District Plan. In doing so, it includes 21 planning priorities and 10 themes which reflect the shared community values to be maintained and enhanced. These are:

- Planning Priority 1 - Align development, growth and infrastructure
- Planning Priority 2 – Work in partnership to unlock our opportunities
- Planning Priority 3 – Provide new homes to meet the diverse needs of our growing community
- Planning Priority 4 – Improve the affordability of housing
- Planning Priority 5 – Facilitate sustainable housing
- Planning Priority 6 – Ensure our social infrastructure meets the changing needs of our communities
- Planning Priority 7 – Enrich our places
- Planning Priority 8 – Recognise and celebrate our heritage
- Planning Priority 9 – Support the North South Rail Link and emerging structure plan
- Planning Priority 10 – Provide a safe, connected and efficient local network supported by frequent public transport options
- Planning Priority 11 – Support the planning of the Western Sydney Aerotropolis
- Planning Priority 12 – Enhance and grow Penrith's economic triangle
- Planning Priority 13 – Reinforce The Quarter as a specialised health, education, research and technology precinct
- Planning Priority 14 – Grow our tourism, arts and cultural industries
- Planning Priority 15 – Boost our night-time economy
- Planning Priority 16 – Protect and enhance our high value environment lands
- Planning Priority 17 – Define and protect the values and opportunities within the Metropolitan Rural Area
- Planning Priority 18 – Connect our green and blue grid
- Planning Priority 19 – Create an energy, water and waste efficient city
- Planning Priority 20 – Manage flood risk
- Planning Priority 21 – Cool our city

The most vivid examples of the Stage 2 Redevelopment meeting the Planning Priorities of the LSPS are Planning Priorities 1, 2, 6, 12, and 13. Accordingly, the redevelopment and ongoing enhanced operation of Nepean Hospital plays a significant contribution to Penrith LGA's strategic planning outcomes.

Of note with respect to The Quarter, the LSPS states:

> *The Quarter is Penrith's Health and Education precinct. It is a collaboration of the leading health and education providers spanning 300ha between Penrith and St Marys. Already a major employment hub with over 6,000 jobs, the number of jobs in The Quarter is expected to double by 2026 to more than 12,000. To achieve this goal, The Quarter must look at ways to facilitate industry clustering and agglomeration in health and education. Creating this economic hub will help generate new jobs in Penrith and better serve the needs of our community. The benefits will result in the precinct having its own industry specialisations different to other places that will drive additional economic opportunities.*

The Quarter is anchored by the Nepean Hospital which is currently undergoing a $1bn renovation, and a significant education presence through TAFE NSW and Western Sydney University, as well as a significant private hospital presence which is also expanding. In recent years, these anchoring institutions have united with other health and education providers like Sydney University's Nepean Clinical School to work together on projects that can foster an ecosystem of innovation within the precinct; centred on research and development.

Council has recently united with these stakeholders to collaborate and actively attract new forms of investment in order to create more high value jobs, while providing high-quality health care and education services for our community, and the Western Sydney region.

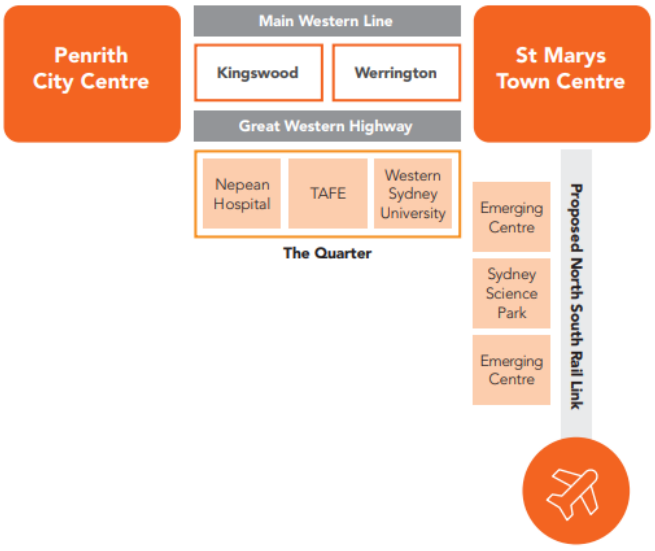


Figure 22 – Penrith's Economic Corridors and Centres, including The Quarter (Penrith City Council LSPS)

3.2.10 Draft Cumberland Plain Conservation Plan

The Draft Cumberland Plain Conservation Plan is proposed to provide biodiversity approvals for new housing and infrastructure corridors to support the delivery of the Western Parkland City. The Plan Area covers parts of eight local government areas: Blacktown, Camden, Campbelltown, Fairfield, Hawkesbury, Liverpool, Penrith and Wollondilly. The Nepean Hospital campus sits within the area covered by the Plan.

Within the area covered by the Plan is:

- More than 100 threatened species and ecological communities.
- Home to the largest koala population in the Sydney Basin with 600-1,000 koalas.
- 20,500 hectares of Cumberland Plain Woodland, a critically endangered ecological community that is found only in the Sydney Basin.

The draft Plan has been prepared to meet requirements for strategic biodiversity certification under the *Biodiversity Conservation Act 2016* (NSW) (BC Act) and strategic assessment under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act).

As part of the material and interactive tools available under the exhibition of the Plan, the ePlanning spatial viewer allows the viewer to review and determine:

- the urban capable land (to be certified) and other land categories including excluded, avoided and strategically assessed transport corridors
- planning controls, such as environmental conservation (E2) zoning
- vegetation mapping across the Plan Area
- important koala habitat

Based on the ePlanning spatial viewer's mapping, the hospital campus contains native vegetation in the form of Cumberland Plain Woodland – see **Figure 23**. No Koala habitat is mapped within the hospital noting also that the hospital and its environs are mapped as 'Excluded Land' meaning land which has been excluded from the Plan and for which NSW strategic biodiversity certification and approval through the Commonwealth strategic assessment will not be sought.

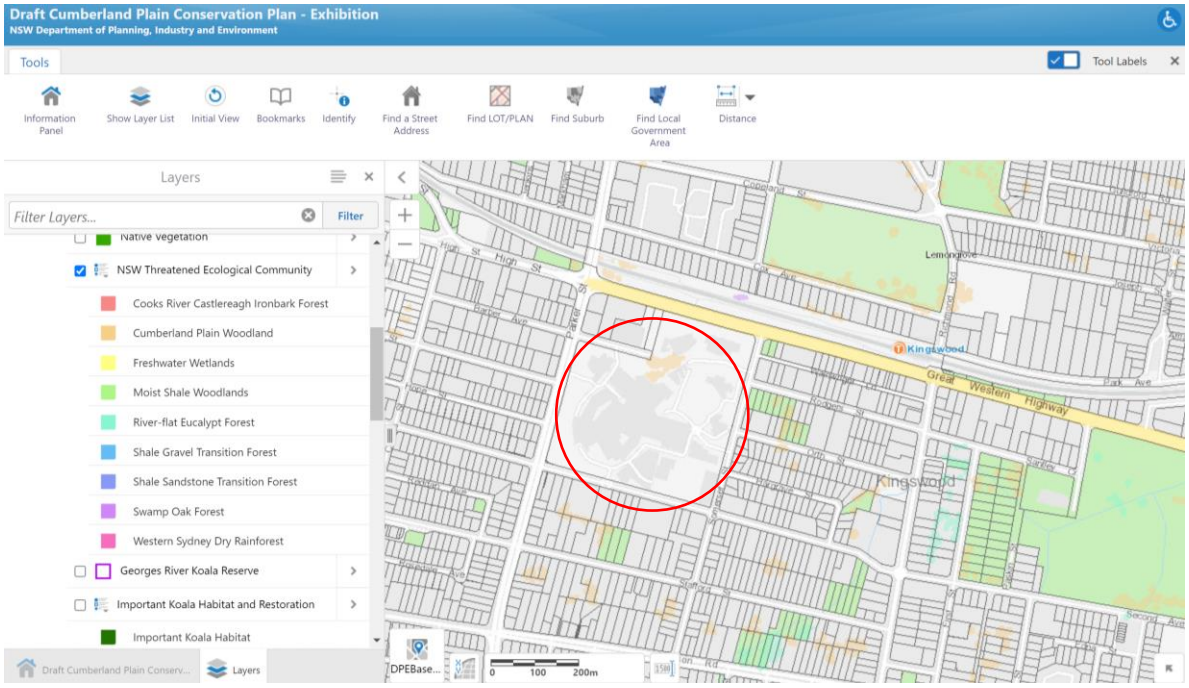


Figure 23 – Cumberland Plain Woodland within Nepean Hospital – Draft Cumberland Plain Conservation Plan

See also the project's Biodiversity Development Assessment Report (BDAR) at **Appendix H**. This confirms that the subject land is within the Draft Cumberland Plain Conservation Plan (NSW Government 2020) area, with the Cumberland Plain Woodland vegetation within the subject land mapped by the Plan. However, this vegetation is excluded land from the plan and is not part of the Strategic Conservation Area.

3.3 Key Strategic Issues

The key strategic issues related to the Stage 2 Redevelopment project include:

- satisfying the various Government strategies, policies and plans as set out within this section of the EIS
- satisfying the relevant plans that establish a regional or local land use planning context for the project
- the hospital's surrounding context and impact of it upon adjacent land uses and their impacts upon the redevelopment.

As set out above, the proposed development is entirely consistent with the various objectives, aims and desired outcomes arising from a range of Government strategies, policies and plans. In summary, the Stage 2 Redevelopment will seek to:

- Futureproof health services within the NBMLHD
- Further update hospital facilities and services in conjunction with the Stage 1 Redevelopment
- Directly and indirectly create jobs and bring jobs closer to homes
- Confirm and convert investment in health service infrastructure
- Improve hospital service levels
- Act as a business catalyst with multiplier effects to further reinforce the role the hospital plays within the LGA, and in particular within The Quarter (Penrith's Health and Education precinct)

- Deliver on priorities and actions within the Regional Plan, District Plan and LSPS whether directly in relation to the hospital or indirectly otherwise
- Deliver design excellence and high quality built form and green and landscaped outcomes, including enhancement of the site's green canopy over time
- Support biodiversity outcomes as far as relevant and possible to this urbanised site and its environs.

Key strategic issues are also further discussed in Table 3 of the DA's Social Impact Assessment as found at **Appendix P**. This considers the key themes of a range of strategic policy documents relevant to Penrith and the region and the implications of these in relation to community needs supported by the development. These include:

- Population growth, diversity and demographic change
- Supporting population growth and change in investment in infrastructure
- Improving health and wellbeing outcomes across Western Sydney and NSW
- The role of health infrastructure in supporting improved wellbeing
- Improving health outcomes and access to health services for the NBMLHD
- Greater Penrith Collaboration Area and growth of Greater Penrith Health and Education Precinct
- Delivering on the vision of a 30-minute city

The development will reinforce the opportunities within the adjacent areas of the hospital for investment in new businesses and supporting health services and its progressive conversion to complementary land uses as envisaged by the Penrith LEP, the LSPS and the growth of The Quarter.

There are no significant physical, natural or cultural impediments to the redevelopment as planned, including risks or hazards.

There are no feasible options or alternatives to the redevelopment project at the hospital other than to pursue the proposal in the form generally proposed, subject to the findings of this EIS and the consultant reports. To do-nothing is not a reasonable or feasible option given the strategic basis for the project in the first instance as established by the Nepean Hospital Clinical Services Plan 2018 – 2031 and business case for the project. The built form options are set out in Section 4.0 of this EIS.

4.0 Project Description

4.1 Project Overview

The Stage 2 Redevelopment project scope includes:

- The Stage 2 building, being predominantly a 7-storey building, with rooftop plant
- Demolition of parts of the existing North Block and other satellite buildings directly within the Stage 2 Tower footprint (excluding other buildings already approved under the Stage 1 SSD consent)
- Demolition of the Total Asset Management (TAM) facility
- Reconfiguration of the loading dock area and back of house functions
- Landscaping and other associated at-grade works within the Stage 2 building's immediate vicinity and off-campus High Voltage feeder upgrade
- Barber Avenue upgrade and access road to the Stage 2 building's forecourt, port cochere, and front of house area

The development site is shown in **Figure 24** below, with the Stage 2 building shown in yellow and loading dock and back of house locations in red.

The proposed Stage 2 building will have a gross floor area of approximately 33,650m^2. The development will result in an increase of 78 overnight / in-patient beds.

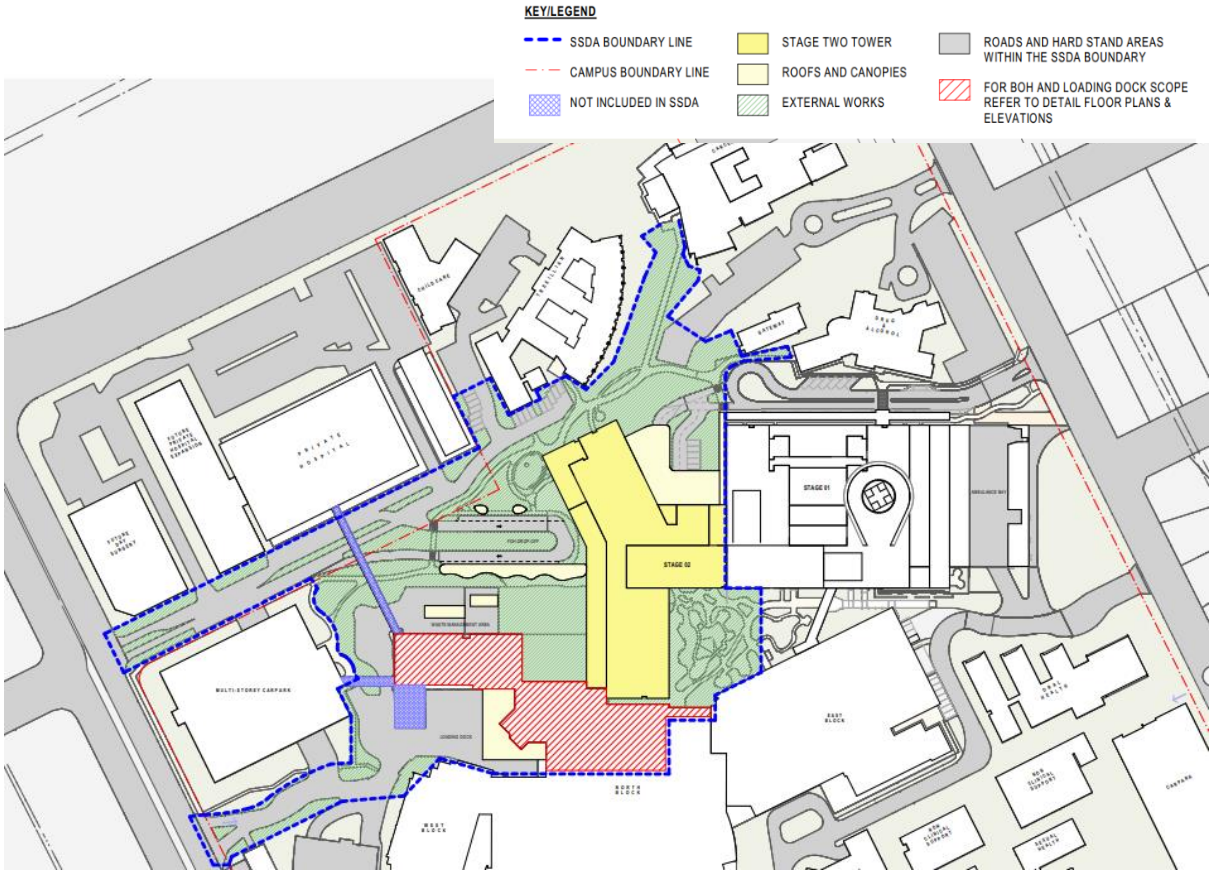


Figure 24 – Proposed development site and extent of works (BVN)

Departments to be provided in the Stage 2 building include:

- Front of house, including retail
- Education and Training Services
- Transit Lounge

- Medical Imaging / Nuclear Medicine
- Interventional Radiology
- Intensive Care Unit and Close Observation Unit
- In-Centre Dialysis and Renal Inpatient Unit
- Paediatric In-patient Unit
- Plant areas
- Clinical Support areas
- Kitchen.

See further below for a detailed description of the individual components of the demolition, civil engineering, landscaping, new Stage 2 building, and other works.

Figure 25 – Aerial photograph of the hospital with scope of works shown in red (Total Earth Care)

Figure 26 – Photomontage of the Stage 2 building from the west (BVN)

Figure 27 – Existing view towards the development site from the west along Barber Avenue

4.2 Need for the development

The need for the development is directly related to the continuing improvement of the quality, and the range, of health services provided at Nepean Hospital and within the NBMLHD. As discussed in the preceding section of this EIS, the key drivers for the development including meeting the future health care needs of the Western Sydney, significant population growth and demographic change, changing population health issues, and socio-economic risk factors.

The delivery of the Stage 2 Redevelopment will futureproof capacity at the hospital to cater for population growth, future demand for services, and changed clinical and health needs whilst also providing a modern fit-for-purpose health facility. The Stage 2 Redevelopment aligns with the Zonal Masterplan for the campus by further centralising acute services and clinical support functions within the hospital in tandem with the Stage 1 Redevelopment.

Self-evidently, to do nothing or to only plan for the short-term are not feasible courses of action at this time.

4.3 Options / alternatives

The placement / location of the Stage 2 building has been largely established or predetermined by the spatial planning for Stage 1 and the site's existing constraints and limited available development space. Based on the Zonal Masterplan, the main entry point onto the campus and new hospital facilities will be from the west. Additional access points have been established off Parker Street, Somerset Street and Derby Street which will enable separate and independent access and improved circulation on site. The location of Stage 2 to the west of Stage 1 is driven by connectivity and adjacency to clinical services within Stage 1, as well as the multi-storey car park in terms of accessibility.

The completed Stage 1 Tower and the new Stage 2 building collocates the majority of acute services, in-patient units (IPUs), and support functions within a centralised zone of the campus. This will enable efficient and discrete connections between all acute services contained within a 24 hour operational zone.

To that end, the location of the Stage 2 building embodies the critical clinical and urban design aspirations outlined in the Zonal Masterplan and meets these campus-wide objectives of providing a 'front door', a centralised hub and focal point within the campus, connectivity, consolidation of functionality, expansion opportunities, and the placement of taller buildings within the centre of the campus to reduce or remove impacts at the edges of the hospital.

From a built form and massing perspective BVN considered a range of options with the NBMLHD and HI. The siting and arrangement of the Stage 2 building seeks to:

- Accommodate functional brief requirements
- Minimise impact on existing clinical and non-clinical services maintaining the existing service provision to the community
- Reinforce the public address and access and connection to the existing acute core of the campus
- Allow for future growth expansion to the west to meet the needs of the Clinical Services Plan.
- Respond to solar access, vistas and existing topography of the campus
- Create significant accessible outdoor spaces.

Spatial arrangements and massing options explored are set out in the Architectural Design Statement, as well as over in **Figure 28**.

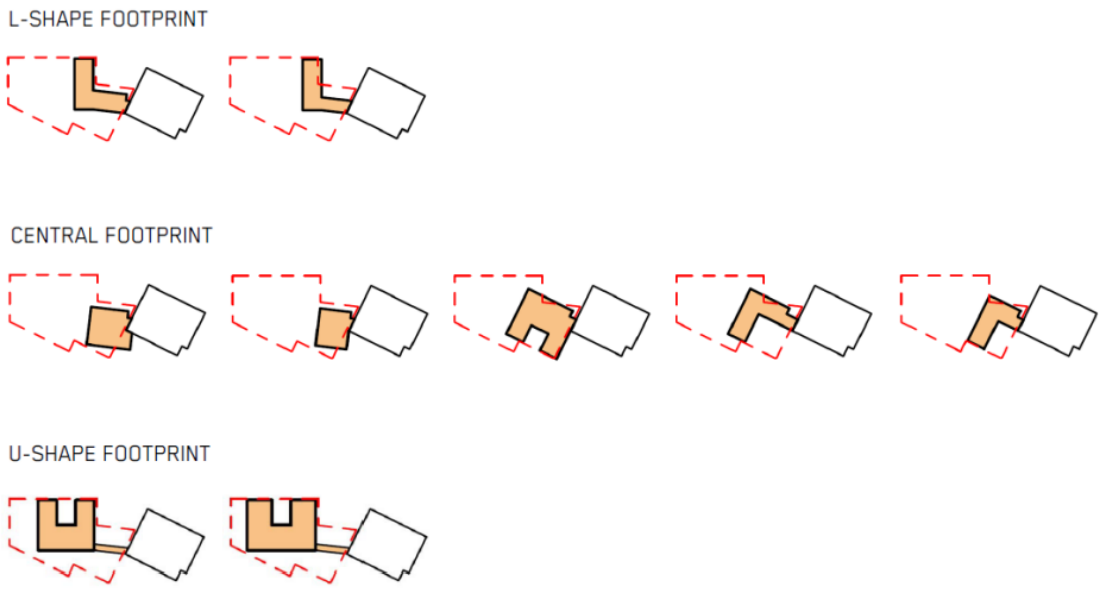


Figure 28 – Spatial arrangement options explored in the development of the preferred scheme (BVN)

The proposed development is the preferred massing option as it:

- Provides for a building positioned around existing acute functions and buildings to allow continued operation and staging
- Poses no impact or compromise upon existing clinical or clinical support functions and services
- Best promotes proximity and relationship to existing acute clinical services and clinical support in Tower 1 and North Block
- Aligns with the briefed requirements and cost parameters

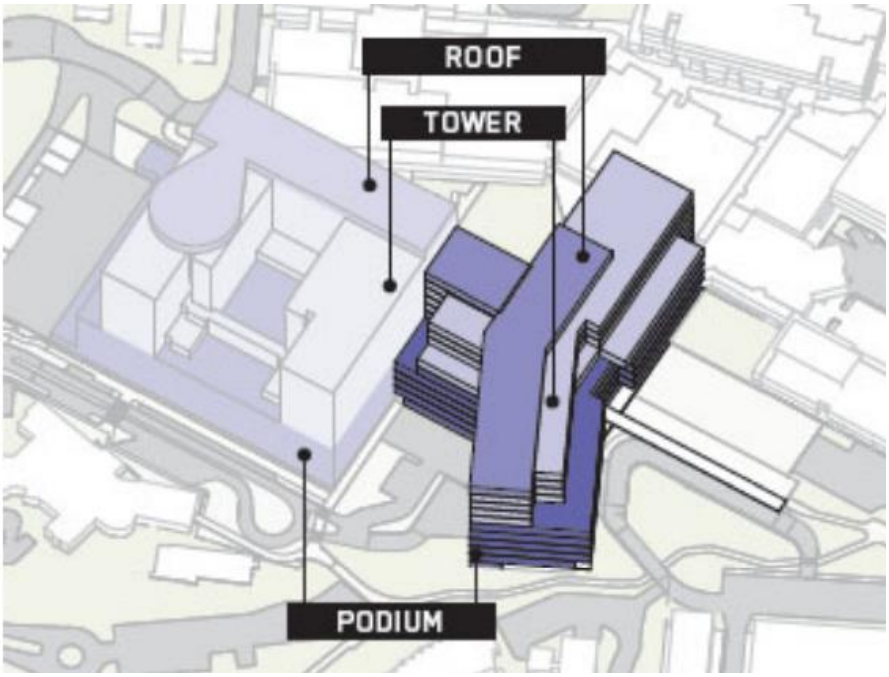


Figure 29 – Preferred Massing Option (BVN)

Figure 30 – The completed Stage 1 Tower to the left with the proposed Stage 2 building to the right (BVN)

Based on BVN's Architectural Design Statement's commentary of the preferred option, the massing strategy was developed to closely tie the Stage 2 building's built form and mass with that of the Stage 1 Tower and then further divide the overall mass into a finer grain of interconnected vertical solids of an appropriate scale within the urban context. Changes in façade type correspond to the massing strategy as each solid is developed with a consistent façade system and materiality.

There is a general strategy to divide and breakdown long elevations and large masses with the use of deep recesses. These respond to opportunities for natural light for internal planning purposes and assist in acting to reduce bulk and scale.

Being a building form of significant height, its locality within in the context of adjacent hospital buildings and surrounding neighbouring buildings is responsive to minimise adverse amenity and contrasting scales and appropriate to the current and future density of the urban context.

As noted, the position of the completed Stage 1 and proposed Stage 2 building further allows for the future expansion of clinical and non-clinical services over a zone towards the north-west portion of the existing campus consistent with the long-established Zonal Masterplan.

4.4 Architectural Design

Architectural plans for the proposed Stage 2 building and associated works have been prepared by BVN – see **Appendix N**. A selection of plans and elevations are included below to articulate the development's relationship to the Stage 1 Tower and its environs.

The table over sets out the proposed usage by floor within the Stage 2 building as well as other relevant information.

The overall height of the building is 41.8m.

The floor to floor heights are designed to directly tie into the connections with the Stage 1 Tower with the lift core positioned centrally between the Stage 1 Tower and Stage 2 building. The BVN Architectural Design Statement provides a detailed description of the functional connectivity and relationships between the two.

Figure 31 further over shows the relationship to the Stage 1 Tower and North Block as well as the ground level arrival point from the west.

Floor / Level	Function / Use	Floor to Floor Height (Floor RL)	Internal Circulation Flows
Level 00 (Ground Level North)	• Back of house (BOH) service facilities, including kitchen, loading dock, patient transport bays. • Emergency Department Clinical Support	4.5m (49.020)	Level 00 and L01 primarily dedicated to staff and BOH flows linking into Stage 1 and North Block
Level 01 (Ground Level West)	• Main Entry and Front of house • Staff facilities and Clinical Support • Education and Training Services • Transit Lounge	4.6m (53.520)	As above for Level 00 Level 01 and L02 primarily dedicated to public circulation linking into Stage 1 and North Block
Level 02	• Medical Imaging and Nuclear Medicine • Front of house (FOH) • Education and Training Services • Clinical Support	4.5m (58.120)	As above for Level 01 Links further to multi-storey car park.
Level 03	• Interventional Radiology • Clinical Support • Shell space for future Operating Theatres	4.5m (62.620)	Level 03-07 limited to patient circulation linking into Stage 1
Level 04	• Associated plant • Intensive Care Unit Clinical Support	4.8m (67.120)	
Level 05	• Intensive Care Unit (ICU) and Close Observation Unit • In-patient Unit (IPU)	4.5m (71.920)	
Level 06	• Paediatrics – IPU • Renal Incentre Dialysis and IPU • Paediatric and Renal Clinical Support	4.5m (76.420)	
Level 07	• Future IPU floor / Shell Space	4.5m (80.920)	
Level 08	• Roof / Plant and Lift Overrun	4.2m (85.120)	Top of Roof Max RL = (90.820)

Figure 31 – Render - Stage 2 building as viewed from the west showing the main entry and arrival point (BVN)

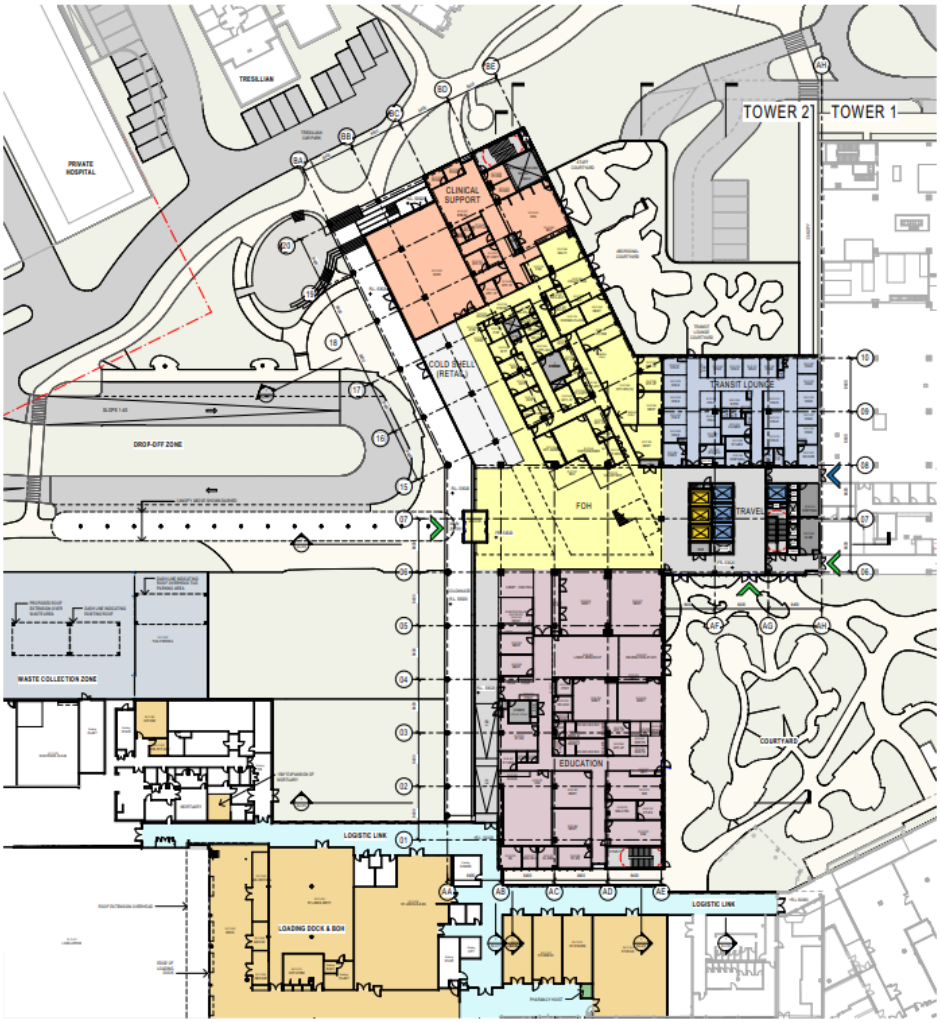


Figure 32 – Level 01 General Arrangement (BVN)

Figure 33 – North Elevation (BVN)

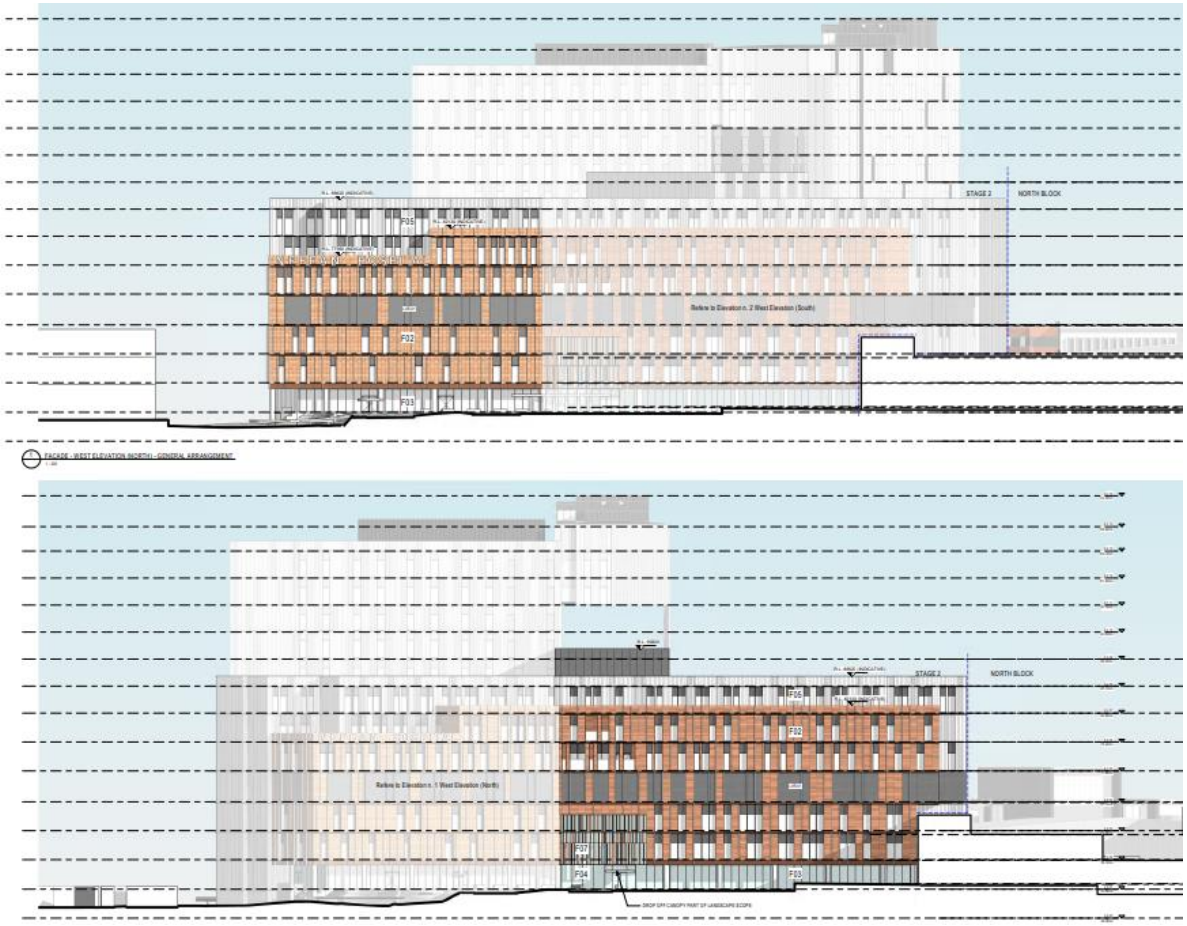


Figure 34 – West Elevation (North) and West Elevation (South) (BVN)

4.4.1 Façade, Materials and Finishes

The number of façade types has been kept minimal to ensure clarity in design and appearance and to tie into the façade language of the Stage 1 Tower whilst also allowing for construction efficiencies. The division of the massing solids corresponds to key circulation corridors developed in the internal planning. Full height glazing panels setback from the main façade line preserves views at the end of corridors facilitating intuitive way-finding and a connection to the outside.

There are essentially three façade types employed in the design (see **Figure 35**), these being the

- Tower façade type
- Podium façade type
- Ground plane facade type

Additionally, plant room louvres are generally integrated into the tower and podium façade systems working to the 1200mm module set out. This will provide a consistent legibility of the facades where large louvre areas are required for plant rooms on Level 4 and the roof.

Figure 35 – Façade Types (Tower, Podium and Ground Plane from left) (BVN)

The tower façade divides the design vertically by emphasising floor to floor design components including windows and a mix of smooth and profiled or ribbed metal panels to provide textural variance. To provide depth and visual relief, the façade system is further articulated with the use of recessed "urban markers" which respond to the internal planning. Windows and cladding panels are based on 1200mm wide modules, that can be accommodated within the building's 8.4m grid. Sill levels are set typically 200mm above floor levels and ceilings 2700mm above floor level. Full height vision glazing spans 2500mm between these levels with an insulated infill cladding panel above to visually extend the 'glazing zone' to the full height of the floor

Within the podium façade system, the location of glazed and solid elements is varied from floor to floor to help avoid an 'institutional' appearance. Vision glazing percentages vary around each façade depending on the internal planning. Glazing areas have been minimised and matched to the internal clinical requirements.

The intent is to utilise a large format prefinished tile cladding system (terracotta/natural) as cladding material. This product has a natural tonal variation, which will offset the 'flat' elevations resulting from the general building massing and to complement the aesthetics of the Stage 1 Tower.

The podium facade is primarily faces west. Sunshade terracotta louvres will be used to break up the "mass" of the podium façade as well as to help identify the main hospital entry. This integrated louvre system will help reduce potential glare inside the Front of House Atrium space, whilst vertical sunshade louvres are proposed on the west facade to reduce heating and cooling requirements. Windows and cladding panels are based on 1200mm wide modules that can be accommodated within the building's 8.4m grid. It is proposed that this facade will also be constructed with a varying reveal depth to provide further articulation and visual interest and relief.

The ground plane facade bounds the pedestrian routes and addresses key outdoor public spaces. A shop front glazing system is proposed along the colonnades at the entry level. The façade at the ground level seeks to be as transparent as possible, providing visibility into the building and permit ease of access.

A transparent and permeable facade will support the aspiration of creating an allied health and science centre and encouraging a blurring of boundaries between the various institutions. Operable facade sections will be considered where permitted by internal function to create an interaction with the landscape elements and outdoor furniture, creating an active and engaging building edge. The canopy elements will be used to help signify wayfinding and entries, provide gathering spaces, and to delineate the covered pedestrian path to the front of house entry point.

The façade and materials strategy has been founded on a range of principles to promote sustainability, durability, contextual appropriateness, human-centred scale and aesthetics, and the urban design aspirations for the campus arising from the Zonal Masterplan.

The details of the façade types are shown over. The materials chosen principally include:

- Varied format natural masonry / bricks
- Terracotta (Natural) tile system on steel frame
- Profile and flat metal cladding
- Shopfront glazing, transparent glazing and dark grey colourback glazing
- Horizontal metal louvres
- Sunshade terracotta louvre system

See the detailed elevations and façade system drawings in the Architectural drawing set. The façade sample board is replicated below.

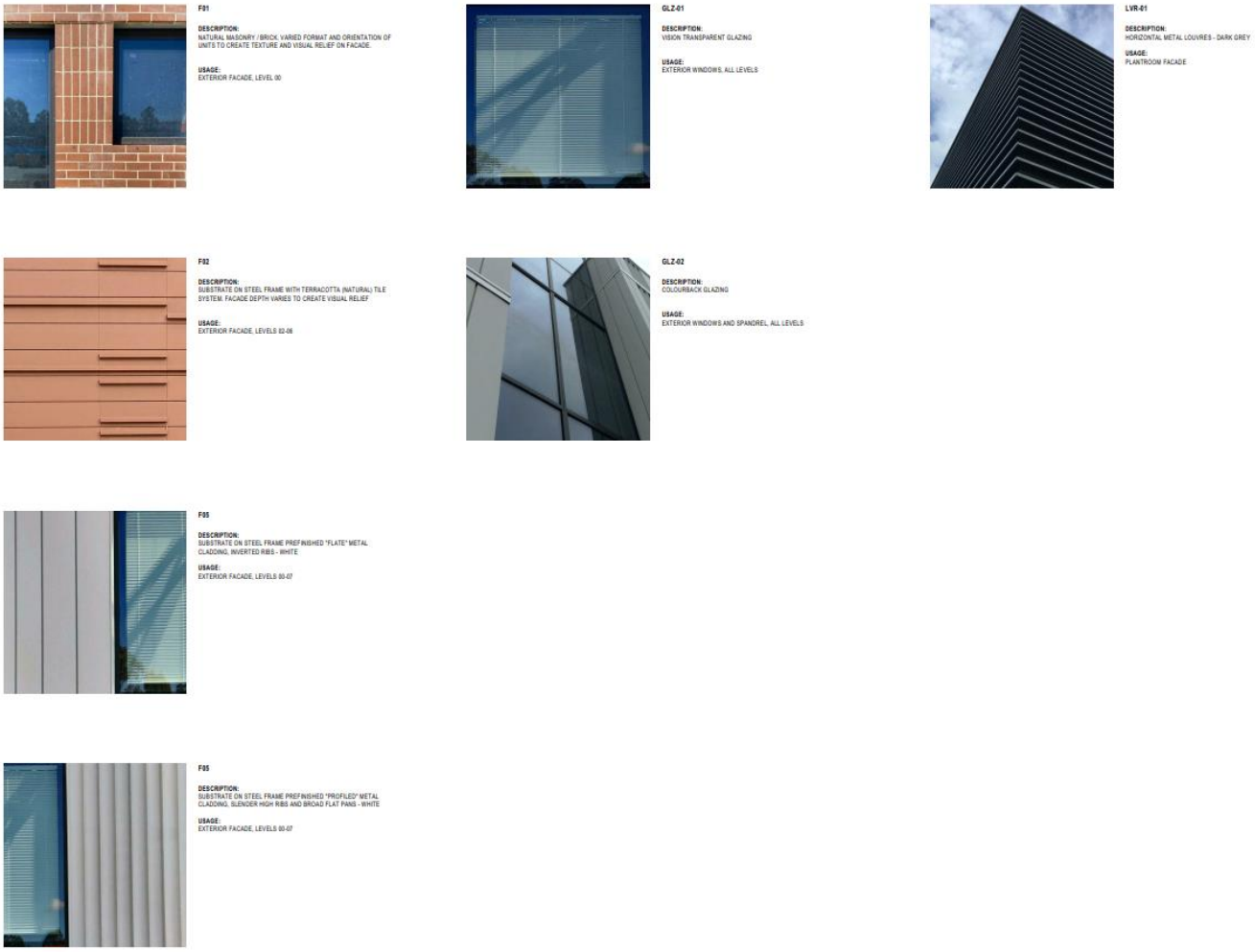


Figure 36 – Materials and finishes (BVN)

4.4.2 Proposed Loading Dock and Back of House

The existing loading dock and back of house area adjacent to North Block is to be reconfigured to service the Stage 2 Redevelopment and the balance of the hospital. The entry point is the existing access from Parker Street which is proposed to be retained and also reconfigured to enhance safe access and efficiency.

As part of the Stage 2 Redevelopment significant upgrades are proposed for the current support facilities, to ensure better hospital distribution connections between buildings and departments and to guarantee continuity of services. The works proposed include major upgrades to the following:

- Back of house (BOH) loading dock area to increase in capacity to become the new centrally located Campus Logistics Hub
- BOH linen services to be increased in capacity to service the existing Stage 1 and the proposed Stage 2 departments including all existing campus facilities
- BOH bulk goods storage area to be increased in capacity
- BOH waste area to be increased in capacity to better service the entire campus

Existing circulation routes from the dock, waste and linen area to the West Block lift cores are maintained, whilst overall connectivity will be improved. The works will be carried out in a staged manner in order to maintain loading dock access and function for the ongoing operation of the hospital.

The proposed scope of loading dock and back of house works is shown below in **Figure 37**. As noted this requires partial demolition of the existing North Block. This scope of works is further described below.

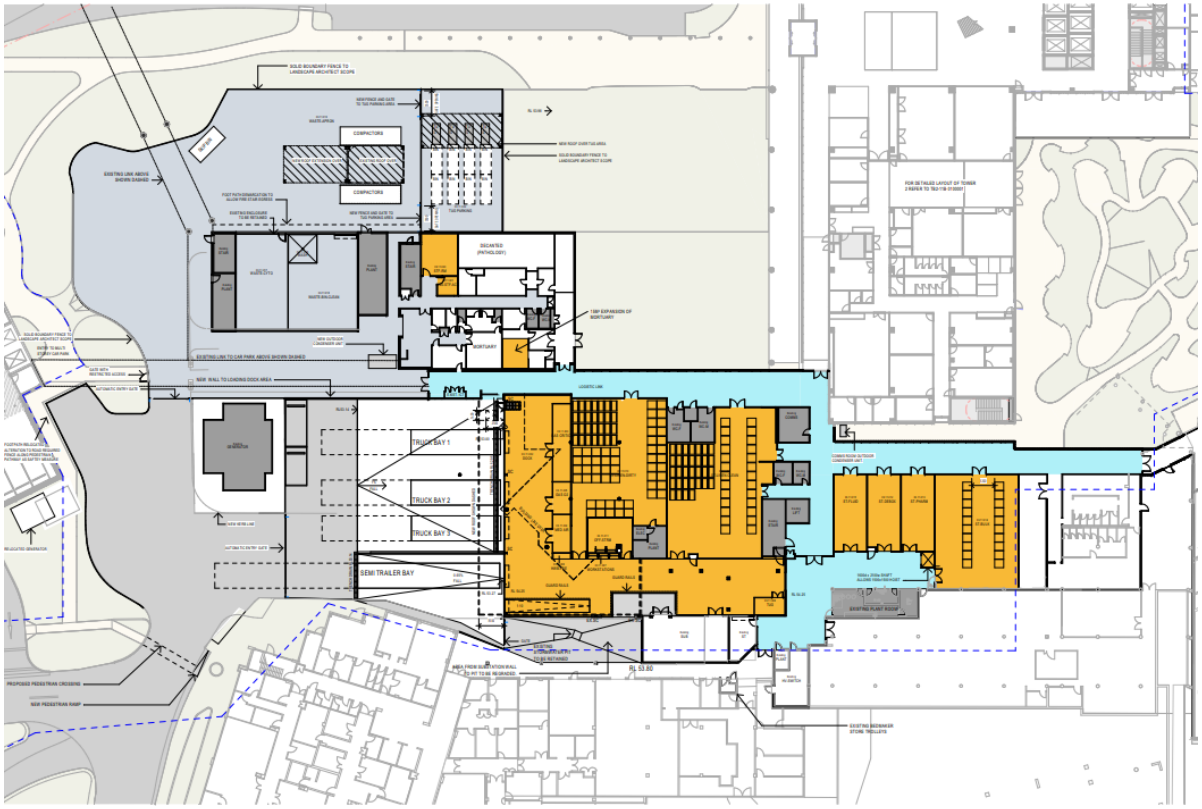


Figure 37 – Back of House scope of works (BVN)

4.5 Landscape Design

The proposed landscape design for the Stage 2 Redevelopment continues with, and builds upon, the masterplanning principles adopted for Stage 1. The landscape design's surrounding influences again reflect 'lookouts and exposed sandstone'; 'Cumberland Plain canopy and dappled lighting'; and 'shaded undercroft and microclimates' of the region.

A key tenet of the design has been to retain as many existing trees as possible and maximise canopy retention. Where this is not possible, replacement planting seeks to offset this on-site and further improve and enhance amenity and experience at the hospital. This is supported by improved water management within the landscape; pedestrian access, wayfinding and circulation; and planting responsive to functionality of spaces and attendant microclimates, particularly in exposed and shaded areas. The vision is to create a biophilic-related healing environment and experience.

Accordingly, based on the above, the landscape principles are:

- Retention of existing trees and landform
- Expand on green links
- Create an experiential pedestrian network
- Spaces that connect people to nature
- Integrate water sensitive urban design (WSUD)
- Landscape visual connection
- Provide a safe flow of vehicles

To deliver upon this, the design has focussed on the following areas as shown in the Stage 2 Masterplan in **Figure 38**:

- Car Park link (from multi-storey car park to front of house)
- Main Drop Off Entry
- Northern Courtyards and northern accessways
- Southern Courtyards
- Level 6 and 7 Upper Terraces
- Pathways and Tree amenity throughout the Stage 2 development site

Figure 38 – Stage 2 Masterplan (Arcadia)

The key focal points of the landscape component of the project is the Front of House area and adjacent courtyard, the Northern Courtyards and Southern Courtyards. These are shown in the figures that follow.

Figure 39 – Front of house landscaping (Arcadia)

Detail Plan - Northern Access & Northern Courtyards

Figure 40 – Northern Courtyards and Northern Access landscaping (Arcadia)

Detail Plan - Southern Courtyard

Figure 41 – Southern Courtyard (east side) landscaping (Arcadia)

The planting palette involves new canopy trees, other smaller trees, scrubs, grasses and groundcovers. New and replacement canopy trees include:

- Spotted Gum (56 trees of up to 25m in height at maturity)
- Brush Box (3 trees of up to 15m in height at maturity)
- Narrow-leaved Ironbark (4 trees of up to 25m in height at maturity)
- Cabbage Gum (4 trees of up to 30m in height at maturity)
- Red Ironbark (4 trees of up to 25m in height at maturity)
- Grey Box (7 trees of up to 25m in height at maturity)
- Forest Redgum (5 trees of up to 25m in height at maturity)

- Tallow Wood (10 trees of up to 45m in height at maturity)
- Sydney Blue Gum (12 trees of up to 30m in height at maturity)

See the Arcadia Stage 2 Landscape Report and drawings attached at **Appendix O**.

4.6 Signage and Wayfinding

The Stage 2 building will introduce a new main entry for the hospital campus and provide it with a new space character and identity.

This DA seeks approval of the proposed new building identification signage at Level 06 indicating 'Nepean Hospital'. This will be affixed to the building's façade facing west and be a face-illuminated building identification sign. Its proposed dimensions are 1.2m high x 19.575m in length - that is some 23.5m^2 in area. As this exceeds the relevant thresholds or criteria for Exempt Development under *State Environmental Planning Policy (Infrastructure) 2007*, it will need development consent and assessment under the relevant provisions of *State Environmental Planning Policy No 64—Advertising and Signage*. This assessment is set out in Section 7.0 of this EIS.

Figure 42 – Proposed building identification signage (BVN / Urbanite)

Figure 43 – Detail of proposed building identification signage (BVN / Urbanite)

At the human scale, a selection of identification and wayfinding signs are proposed to be located across the development site. These range from precinct entry signage at vehicular entry points to smaller pedestrian mapping and directional signage across the site area, indicating wayfinding information leading to the Stage 2 Tower and surrounding areas. These are set out in the Urbanite Signage Report at **Appendix Q**. This also addresses site interpretation and internal signage. These are provided in an indicative form only and are not proposed to form part of the scope of works for which consent is sought.

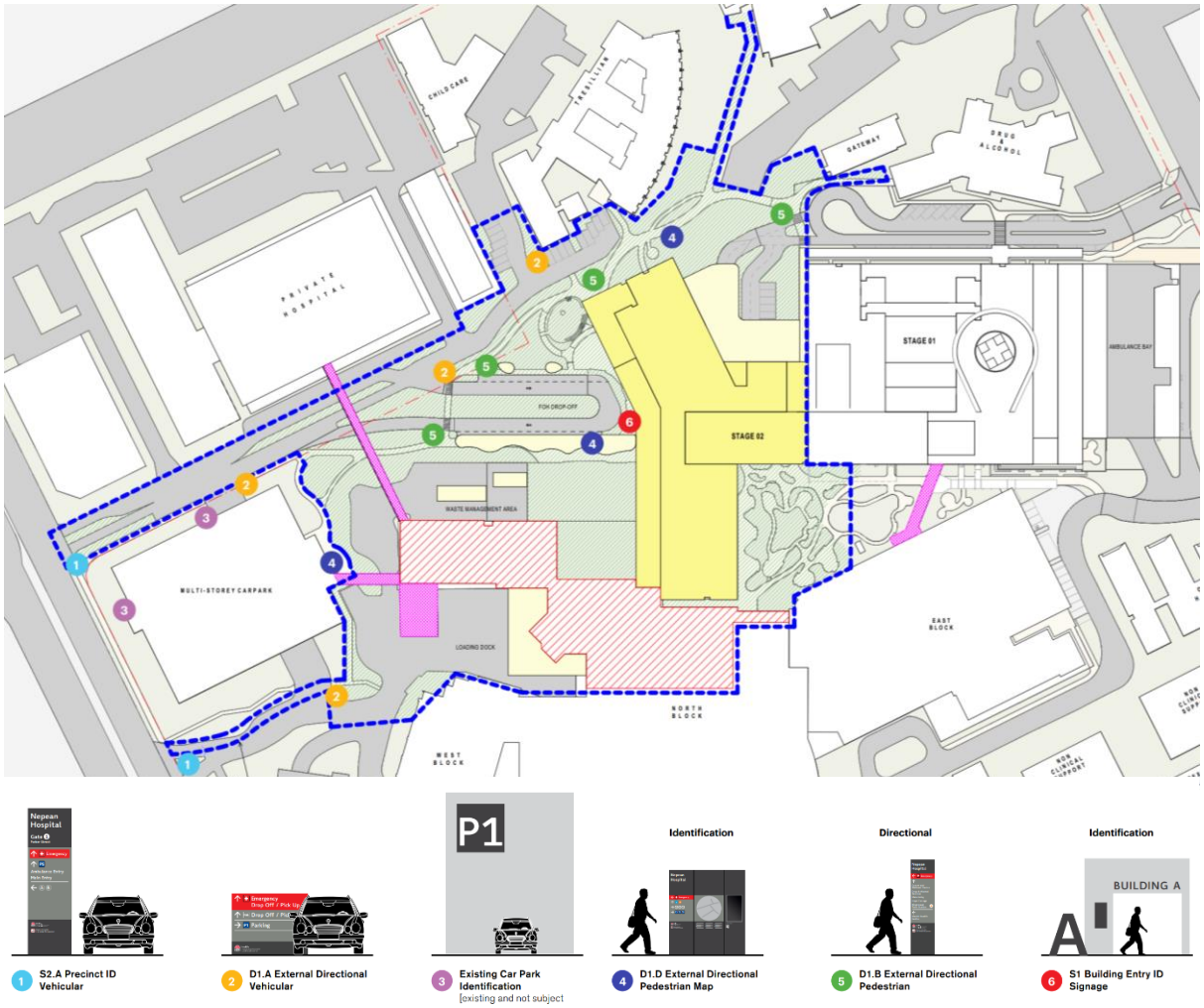


Figure 44 – Plan of indicative location and type of wayfinding signage (Urbanite)

4.7 Tree removal

There are some 81 trees, including two groups of trees located within the development site. Of these, 23 trees, including one group of trees, are to be retained, protected and incorporated in the site-wide landscaping. Correspondingly, it is proposed to remove 58 trees (including one tree group) to accommodate the development. Tree removal within the Stage 2 development site arises principally in relation to trees being within the footprint of the proposed development or otherwise affected by bulk earthworks and level changes proposed. The trees proposed for retention, protection and removal are shown on the Tree Protection Plan prepared by Moore Trees at **Figure 45**. Photographs of key trees are also included over.

The tree removal also relates to biodiversity values at the hospital campus. The assessment of tree removal and biodiversity values impacts is assessed further within Section 7.0 of this EIS.

Figure 45 – Tree removal and retention plan (Moore Trees)

Figure 46 - Trees 223, 220 and 221 (from left to right) – proposed to be retained

Figure 47 – Tree Group 279 – proposed to be removed

Figure 48 – Tree 387 (centre left) and Tree 380 (right) – proposed to be removed

4.8 Demolition works

The scope of demolition works under this DA is as follows:

- Demolition of the TAM building cluster (see location circled in red on **Figure 50**).
- Demolition of other satellite buildings within the footprint of the proposed Stage 2 building, including the existing pathology building (also circled red on Figure 50).
- Demolition of part of North Block – see detailed description below.
- Demolition of the temporary linkway between the Stage 1 Tower and North Block (also circled red on Figure 50).
- Demolition of parts of the existing accessways and roadways towards Parker Street under the civil engineering scope.

Figures 49 and **50** show the current site plan and the proposed demolition plan.

Note, a number of buildings within the development site already have approval for demolition under the Stage 1 Redevelopment Consent. These are excluded from this scope of works and not identified on the site plan or demolition plan. Additionally, the existing services generator in the vicinity of North Block is to be retained and will remain operational throughout the works.

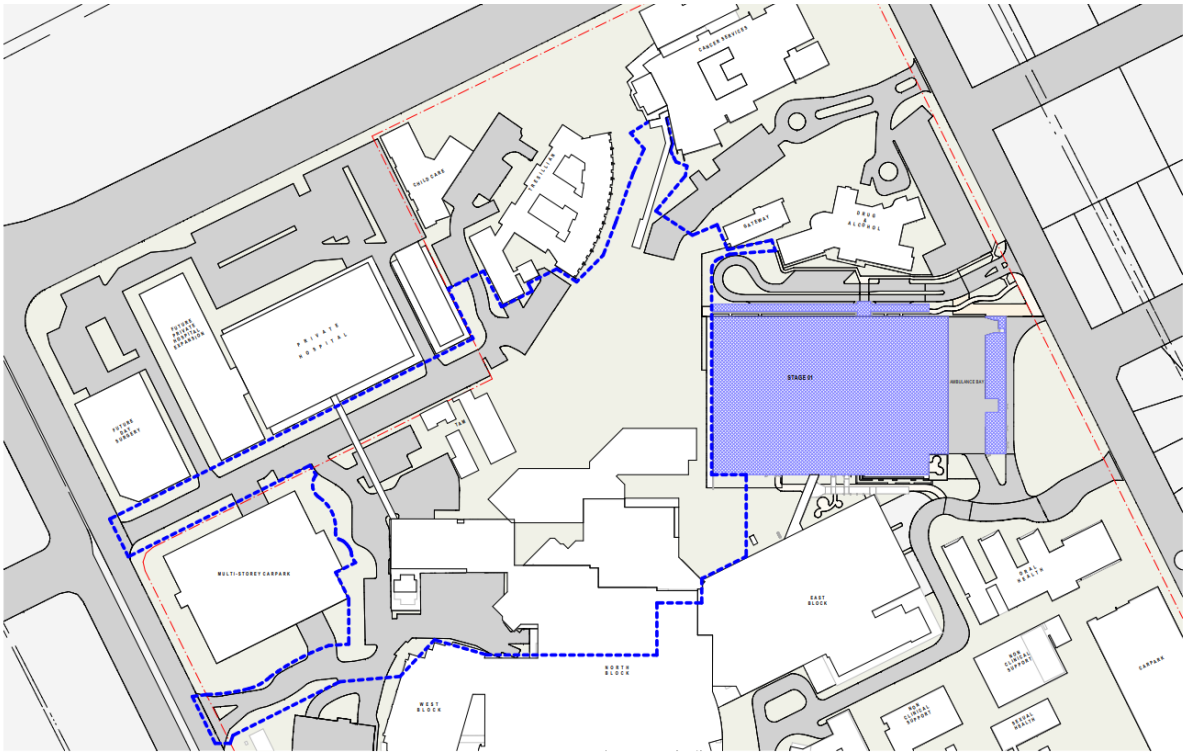


Figure 49 – Current Site Plan (BVN)

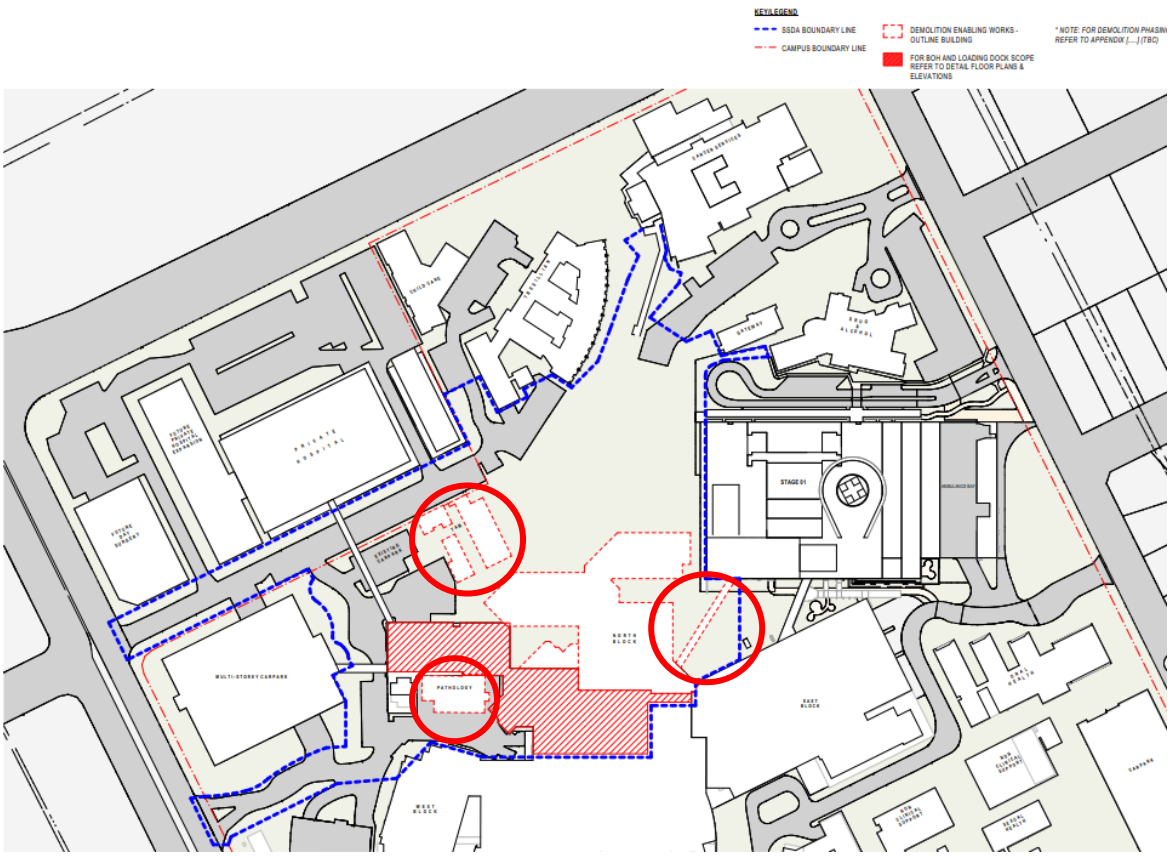


Figure 50 – Demolition Plan – with TAM cluster of buildings, pathology, and temporary linkway circled (BVN)

4.8.1 North Block Demolition Works

The northern extent of North Block is to be demolished to make way for the expanded back of house and loading dock area, as well as the Stage 2 building. The existing and proposed is shown in **Figures 51** and **52**. North Block will be secured via engineering and structural works as well as through a new façade where the new interface occurs.

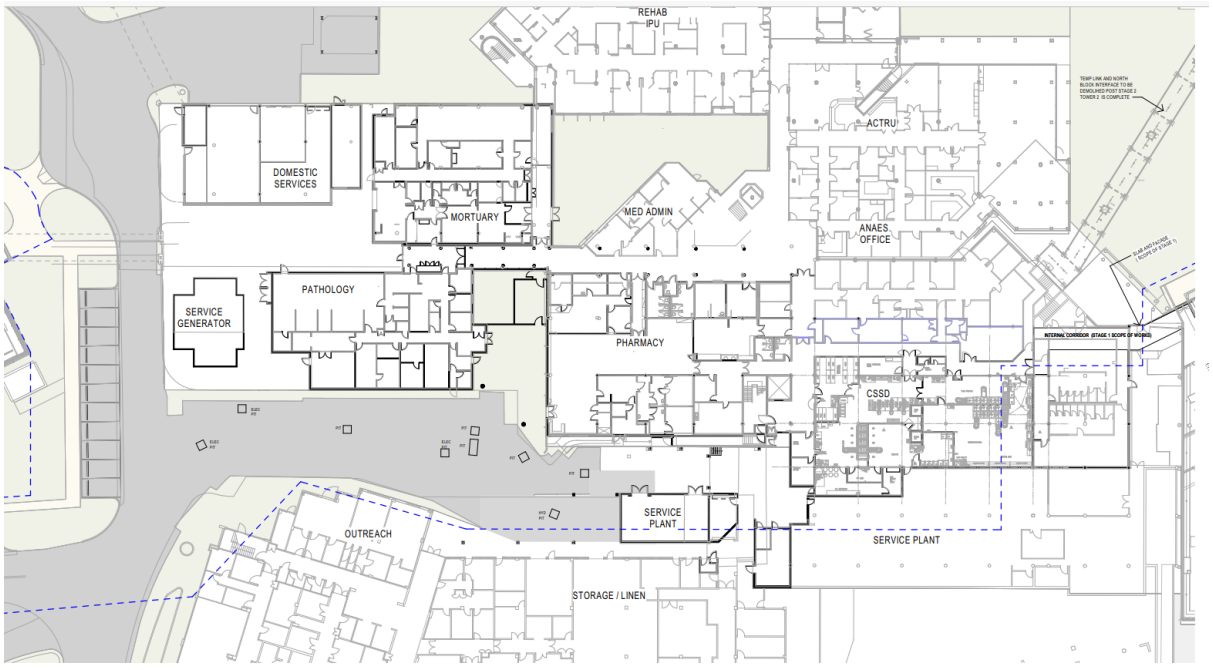


Figure 51 – Existing North Block layout (BVN)

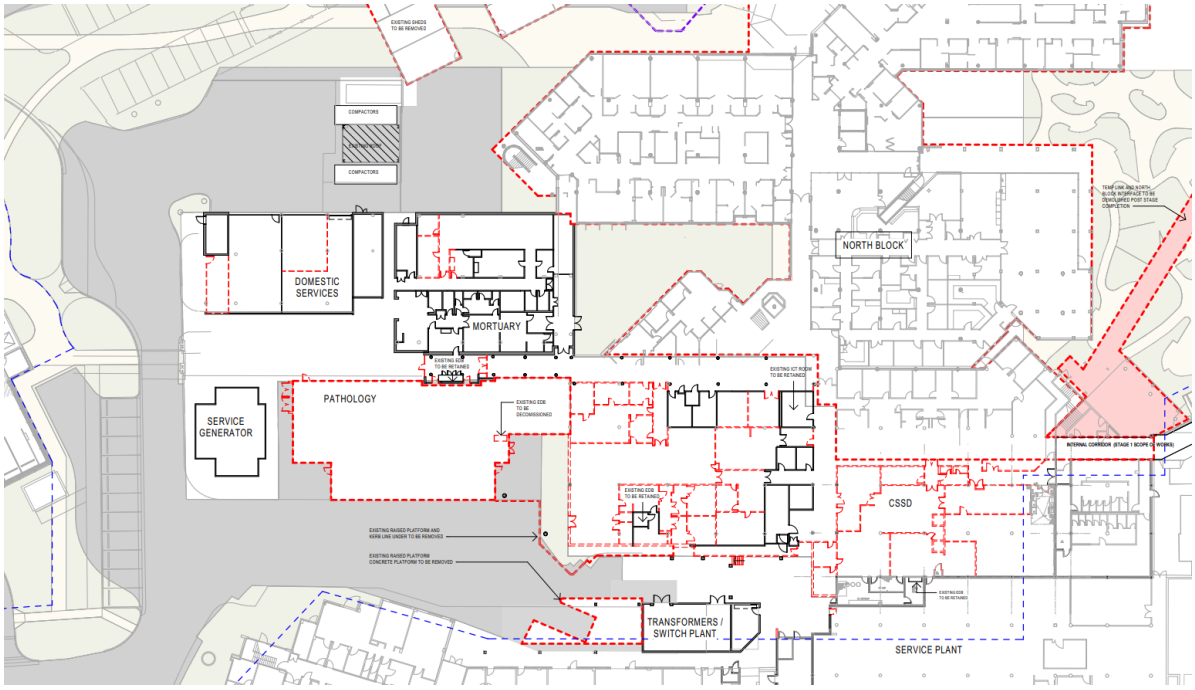


Figure 52 – Proposed North Block demolition works scope (BVN)

4.9 HAZMAT and Remediation works

4.9.1 HAZMAT

To address the above demolition scope, JK Environments undertook a Hazardous Building Materials Survey - see **Appendix R**. This found the following hazardous materials within the areas of proposed demolition.

Asbestos

Asbestos containing materials were identified within the exterior of the existing buildings and structures at the site at the time of the inspection. Only bonded (non-friable) asbestos containing materials were encountered at the site.

Lead in paint

Lead containing paint was identified on the metal air-conditioning units and associated ductwork within the plant room corridor located on the roof of North Block. The paint was deteriorated at the time of the inspection.

Lead in accumulated dust

This was not identified within the scope and limitations of the investigation.

Polychlorinated Biphenyls (PCBs)

Fluorescent light fittings potentially housing PCB containing capacitors were identified throughout the site. The fittings were visually inspected at the time of the inspection.

Synthetic Mineral Fibre (SMF)

Materials containing SMF were identified in the form of foil wrapped insulation, foil backed insulation, metal wrapped insulation, sprayed insulation, fire stopper insulation, vinyl sheeting and water heater systems at the site. All materials were in good condition at the time of the inspection.

Recommendations for removal and demolition

Works recommended to address these findings include:

- Any materials presumed to contain asbestos must be treated as such.
- Prior to demolition or refurbishment work the JK Environment's Hazardous Building Materials Survey must be provided as a register to the demolition/building contractor. Completion of the survey of the internal areas must also occur.
- All works associated with the disturbance and removal of asbestos containing materials must be undertaken by a Licenced Class B Asbestos Removalist.
- The asbestos removalist must prepare an Asbestos Removal Control Plan for the proposed works. The control plan should include an allowance for asbestos air fibre monitoring during the removal and thorough clean up works upon completion of the removal works.
- An asbestos management plan must be prepared for the proposed works in areas containing asbestos.
- A clearance inspection must be undertaken on completion of works and prior to any other construction activities being undertaken.
- If previously unidentified materials (suspected of containing asbestos) are identified during the demolition phase, works should cease and the material should be inspected and classified by an experienced consultant. The area should be isolated and barricaded until the material has been classified as non-hazardous or removed and the area cleared.
- All asbestos containing materials (and materials presumed to contain asbestos) must be removed in accordance with the relevant Regulations and Codes and by an experienced asbestos removal contractor.
- All identified lead containing paint films must be removed / treated in accordance with the relevant Regulations and Codes and by an experienced hazardous materials removal contractor. Completion of the survey of the internal areas in relation to lead paint must also occur.
- PCBs are a scheduled waste with strict guidelines regarding transport and handling. PCB work is to be conducted in accordance with the Environmental Protection & Heritage Council's Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.
- If any metal cased capacitors are found during demolition works that were previously unidentified they should be treated as containing PCBs. Details on storing, conveying and disposing of PCB material or PCB wastes can be found in Polychlorinated Biphenyls Management Plan, Environmental Protection & Heritage Council, Revised Edition April 2003.
- All SMF containing materials must be removed in accordance with the relevant National Standard and Codes and by an experienced hazardous materials removal contractor.

4.9.2 Remediation

Remediation works require consent due to the provisions of clause 11 of *Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River.* JK Environments has prepared a Detail Site Investigation which has determined that remediation will be needed at the site to address asbestos finds.

Based on sampling from 27 borehole locations and groundwater from four monitoring wells, asbestos was detected in fill soil at a concentration above the adopted human health-based Site Assessment Criteria (SAC) at one location only. Bonded asbestos was also encountered at the surface and in the top 0.1m of fill soil at two locations at the site, also deemed to be an exceedance of the human health-based SAC.

Elevations of heavy metals in groundwater were identified above the ecological SAC, however these were considered to be consistent with regional/background groundwater conditions. Overall, risks associated with groundwater contamination were assessed to be low.

Based on a Tier 1 risk assessment, potential risks from exposure to asbestos were identified by JK Environments. On this basis, and with due consideration to data gaps, it was recommended that a Remediation Action Plan (RAP) be prepared for the development.

JK Environments advises that the goal of the remediation is to render the site suitable for the proposed development from a contamination viewpoint. The primary aim of the remediation at the site is to reduce the human health risks posed by site contamination to an acceptable level.

The objectives of the RAP are to:

- Provide a framework to address the data gaps
- Provide a methodology to remediate and validate the site based on the risks identified during the DSI
- Outline site management procedures to be implemented during remediation work
- Provide a contingency plan for the remediation works, including an unexpected finds protocol and other relevant contingencies relating to remediation and validation.

The proposed (and preferred) remediation strategy for asbestos is excavation and off-site disposal. A data gap investigation is required following demolition and the outcome of that investigation is to be used to confirm the extent of remediation and the preferred strategy/strategies.

The RAP includes contingencies for remediating and validating the UST, should this be discovered during the demolition works. Contingencies for capping asbestos contaminated soil, whether in-situ, or within a borrow pit/containment cell, are also included.

JK Environments is of the opinion that the site can be made suitable for the proposed development. There is currently no requirement to report the contamination to the NSW EPA under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the *Contaminated Land Management Act 1997.*

See the DSI and RAP at **Appendix F**.

4.10 Civil Engineering and Utilities

4.10.1 Civil Engineering

The scope of civil engineering works entails earthworks, stormwater system upgrades, and upgrades and adjustments to Barber Avenue, as well as the creation of the front of house accessway. The scope is articulated below, as well as broadly shown in **Figure 53** and as described in the Bonacci Civil Engineering report at **Appendix S**.

- Works within Barber Avenue, including widening and new medians
- New Front of House accessway and drop-off area from Barber Avenue, with stormwater adjusted to meet new circumstances
- Stormwater upgrade works including new on-site detention and rainwater tanks and water quality treatment systems to address an increase in impervious area at the site
- Maintenance of the existing overland flow path from this part of the campus to the east to Somerset Street

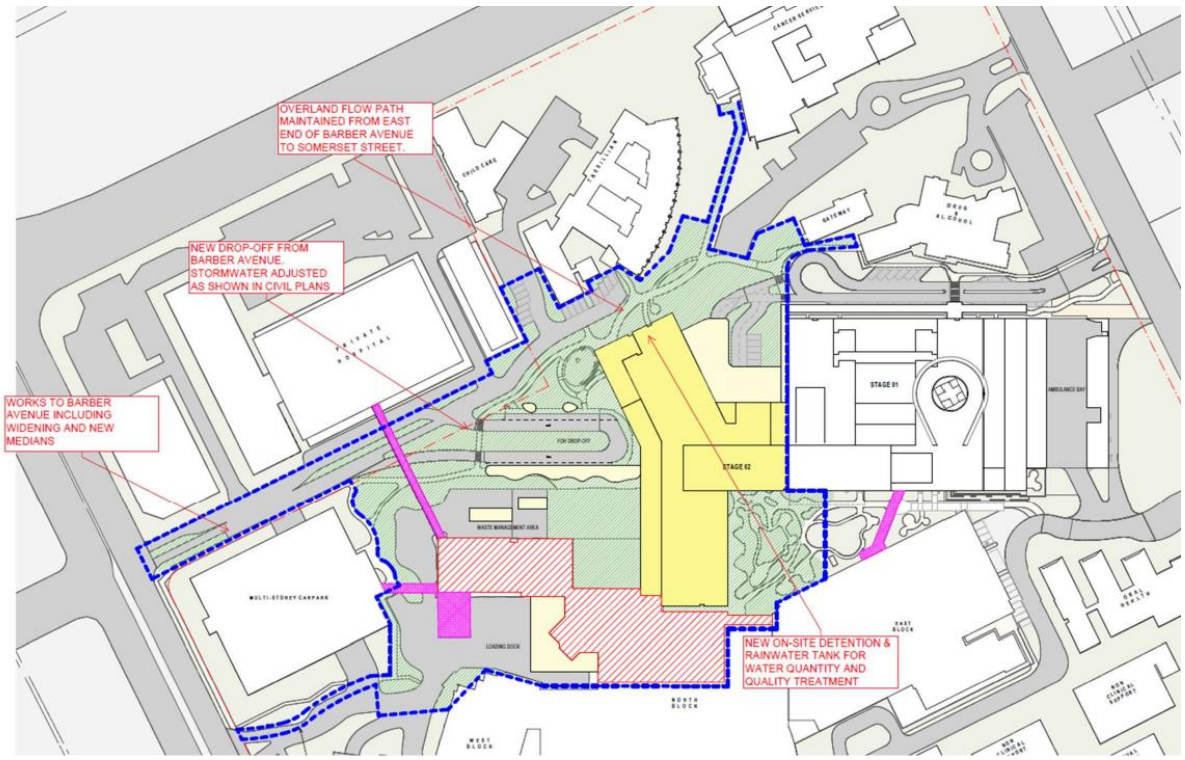


Figure 53 – Summary of civil works scope (Bonacci)

Stormwater system upgrades

The stormwater works proposed consist of:

- Barber Avenue pits and pipes, including adjustment of the connecting stormwater system within the Hospital Campus which conveys stormwater to the east, where it joins the Council stormwater network at Somerset Street (refer green outline in **Figure 54**)
- Adjusted stormwater system to the northern area of Stage 2 works, which connects to the Council pit and pipe system in Barber Avenue (refer orange outline in **Figure 54**)
- Stormwater system for Stage 2 building – which consists of the building footprint being directed to a combined On-site Detention (of 180m^3) to address increased impervious area at the site and Rainwater tank (of 20m^3) to provide for irrigation demand. These will be then connected to the main through-site stormwater system
- Water quality treatment devices to address are proposed to reduce pollutants consistent with Penrith City Council targets
- The treatment train operates as a complete system removing the target pollutants to the required level. The results of modelling have confirmed the effectiveness of the proposed treatment train which satisfies the requirements of Penrith City Council's Water Sensitive Urban Design (WSUD) Policy, December 2013.

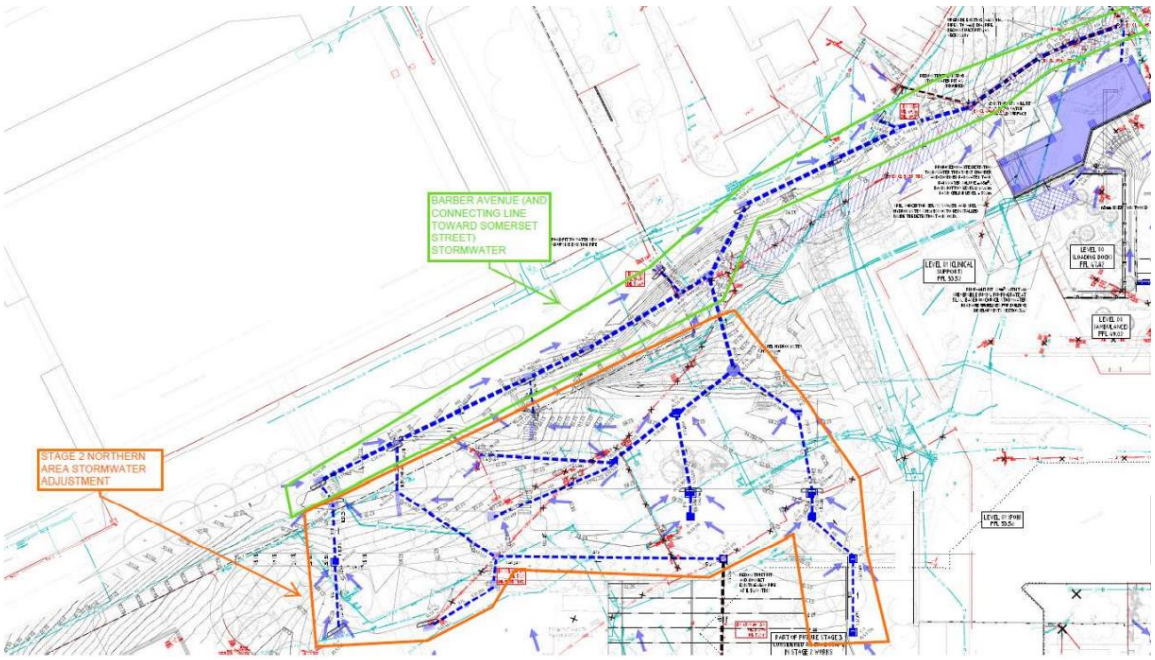


Figure 54 – Stormwater system upgrades and adjustments (Bonacci)

Earthworks

It is not intended that the earthworks extend significantly beyond the footprint of the new proposed building. The concept bulk earthworks for the proposed Stage 2 Tower and associated hardstand area will result in approximately 24,300m^3 of cut volume while some 1,900m^3 of fill volume is estimated as bulk earthwork quantities. An excess of some 22,400m^3 is anticipated to result. This includes a portion of the courtyard to the north of East Block as originally included in Stage 1 as temporary landscaping works. Stage 2 will complete this area with some earthworks. Similarly, some earthworks works will be required to Barber Avenue to allow for new front of house access and traffic flow in the revised road layout, as described below.

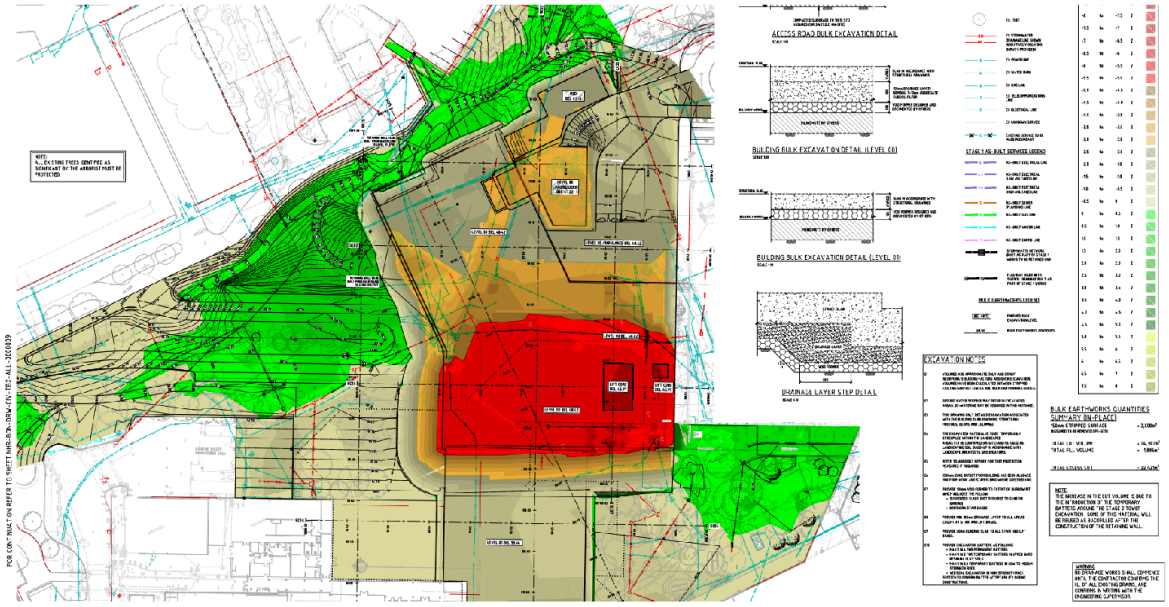


Figure 55 – Bulk earthworks cut and fill plan (Bonacci)

Roadworks / Front of House accessway

The adjustments to Barber Avenue are proposed consistent with the Kingswood Public Domain Technical Manual. The final road adjustment layout will be confirmed during consultation with Penrith

City Council – the requirement to allow for the new entry to the Stage 2 building, whilst maintaining access to the adjacent Private Hospital and multi-storey carpark. This will limit the amount of on-street parking on the Nepean Hospital side of Barber Avenue. Road widening on the Nepean Hospital side of Barber Avenue is proposed to cater for a 2m wide footpath and carriageway lanes as shown below.

In summary the works (as shown in **Figure 56**) will include:

- A new median within Barber Avenue at various extents
- A right-turn lane from Barber Avenue into the hospital's multi-storey carpark
- 2m wide footpaths
- Parking layout within the road reserve
- A through-lane to access the new Stage 2 Tower front of house and existing hospital campus and adjacent health facilities
- Retention of existing private medical facilities parking and drop-off areas
- New intersection to provide access to the new Stage 2 Tower front of house and existing hospital campus and adjacent health facilities
- Entry lane and access loop to the Stage 2 building's front of house and drop-off, temporary and short-term parking areas and exit lane back to Barber Avenue.

These new access arrangements for the Stage 2 drop-off area will result in the removal of 43 on-street parking spaces with their partial replacement only with short-term and drop-off parking. The impact of this is considered in Section 7.0 of this EIS.

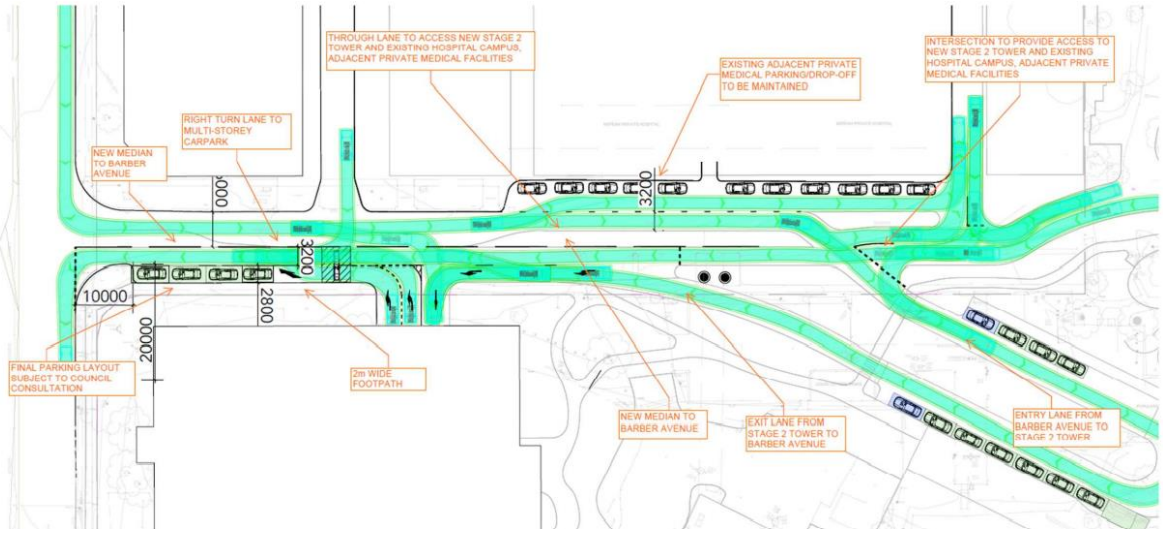


Figure 56 – Barber Avenue adjustments (Bonacci)

4.10.2 Utilities

The following key infrastructure works will be associated with the new Stage 2 building, noting a significant degree of futureproofing within the Stage 1 Redevelopment means high levels of leveraging of existing spare capacity exists for the implementation of utilities and services for Stage 2. The electricity and ICT scope is based on JHA's advice (see **Appendix T**) and Arup's advice on hydraulic and fire-related infrastructure (at **Appendix U**).

Electricity and ICT

With respect to electricity and communications (ICT) the following is proposed under this DA:

- New incoming High Voltage (HV) infrastructure – Endeavour Energy high voltage feeder to supply the site

- New internal HV infrastructure – High voltage private chamber substation and associated HV cabling
- New telecommunications lead-in pit and conduit network to facilitate a second telco lead-in service to the new Stage 2 lead-in room
- Distributed Antenna System (DAS) coverage throughout the Stage 2 building for mobile phase / device coverage
- Diversion and/or decommissioning of existing in ground services infrastructure including electrical and telecommunications cabling to facilitate demolition works associated with the introduction of the new Stage 2 building
- External lighting, inclusive of internal roadways, pathways, pedestrian areas and the like. These works are to form a seamless solution with those implemented under the Stage 1 program, requiring the use of similar fittings and fixtures.

All works are to be carefully staged so that operations on campus within other active buildings can be maintained with limited disruption. This scope is shown in **Figure 57** below. See also the JHA Electrical Services report at **Appendix T** which includes further drawings setting out the stage of works under this DA as well as the works in delivering the electrical and communications systems.

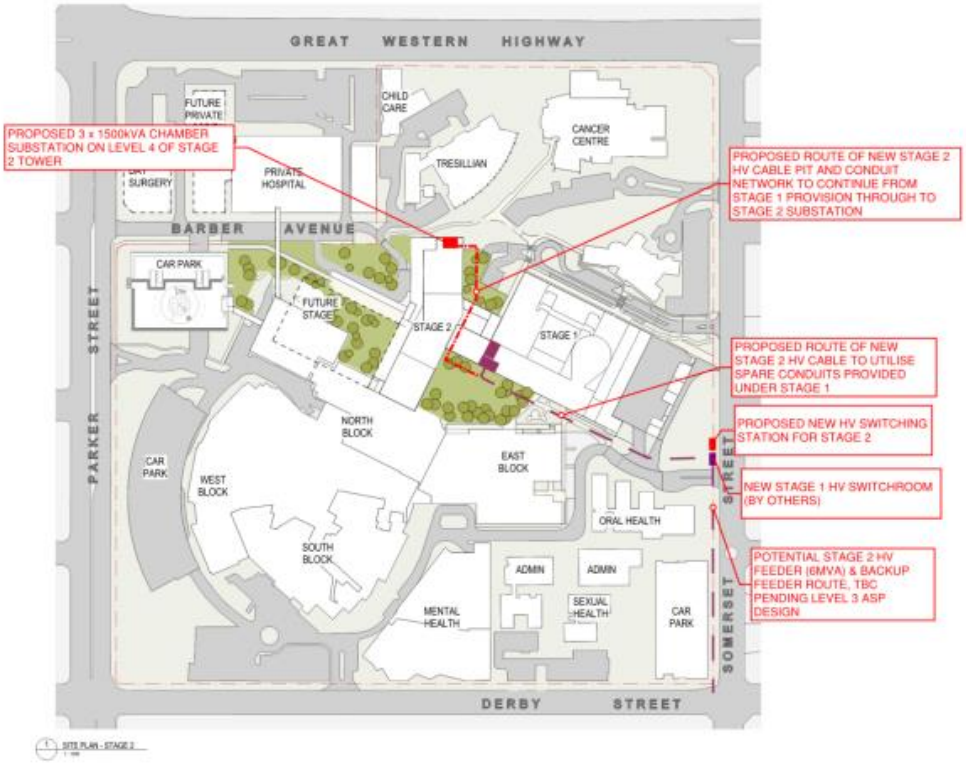


Figure 57 – Overview of electrical and ICT scope of works (JHA)

Photovoltaic (PV) System

It is proposed that a new PV system be installed on the new Stage 2 building roof. At this stage, the Stage 2 project team is designing and provisioning for installation of a system in the order of up to 125kW.

External Lighting

The external lighting design requirements will be determined in design development and detailed design, but will be required to satisfy the following:

- Lighting control systems shall be IP based and be able to readily interface with the site BMS for timing, switching, control and monitoring etc.
- The nature and positioning of the lighting shall follow the lighting selected in the Stage 1 Development. However, should the lighting selection from the Stage 1 Development not

conform to latest statutory requirements, the lighting strategy will be adjusted so that compliance is met.

- Automation and control of the lights across each area is important to ensure a seamless appearance. Lights are to be time switch controlled in combination with photoelectric cells. It is assumed a common time clock philosophy will be utilised across all campus buildings to ensure that lights are activated at the same time, with master control via the BMS. The use of separate photoelectric cells on each building may result in a staggered activation of lights; however, this can be mitigated utilising timeclock override where desired.
- Exterior lighting will be provided in accordance with NSW Health's policy manual, 'Protecting People and Property (noting that lighting will be connected to the generator supply and not the UPS), as well as compliance to AS 1158.3.1 and AS 4282. Lighting designs will achieve recommended light levels for safety and security, while allowing for full function of CCTV surveillance.
- All external lighting local to Stage 2 will be connected to the generator supply. As noted above all external lighting associated with the Stage 2 Development will be designed in accordance with both AS/NZS 1158.3.1 Lighting for roads and public spaces series and AS 4282 Control of Obtrusive Lighting. Careful consideration will be given to not only neighbouring sites, but also existing buildings and infrastructure internal to the Campus, in order to establish an overall lighting design and aesthetic that minimises glare and undesirable illumination levels to surrounding sensitive receivers and where necessary, includes mitigation management measures.

Cold Domestic Water

The Stage 2 building water supply will connect into the 200mm capped connection installed during the Stage 1 works. This is located adjacent to the north-western corner of the Stage 1 Tower under the Emergency driveway. This 200mm service connects into the 150mm cast iron cement mortar lined (CICL) Sydney Water town main in Somerset Street, and was sized during the Stage 1 design to accommodate the demands of both Stage 1 & 2 buildings. North Block is served by the campus private cold water ring main. This existing ring main will require relocating to suit the partial demolition of North Block. No increase in water demands are expected as part of these works.

Natural Gas

The Stage 2 building natural gas supply will connect into the 200mm 100kPa capped connection installed during the Stage 1 works. This is located adjacent to the north-western corner of the Stage 1 Tower under the Emergency driveway. This 200mm service formed part of the gas infrastructure works within the Stage 1 works package. The gas infrastructure works comprised of extending the existing gas connection from Parker Street (Jemena Authority, 200mm @ 1050kPa) to the private gas mains infrastructure.

The Stage 1 gas infrastructure works assumed a natural gas allowance of 394m^3/hr for the Stage 2 building. The peak gas demand (based on the above values) is expected to be 325m^3/hr. The existing 200mm service is sufficient to accommodate the gas demands for the Stage 2 building.

North Block is served by the 100kPa campus natural gas supply. Natural gas supplies to existing buildings being demolished will need to be capped and removed. No increase in gas demands are expected as part of these works.

Sanitary Drainage (Sewer)

The Stage 2 building's sanitary drainage service will connect into the 300mm capped connection installed during the Stage 1 works. This is located adjacent to the north-western corner of the Stage 1 Tower under the Emergency driveway. This 300mm service connects into the 300mm vitrified clay Sydney Water town main in Somerset Street, and was sized during the Stage 1 design to accommodate the demands of both Stage 1 & 2 buildings.

Based on the expected peak sewer discharge of 8.47 L/s (95% of the peak water consumption), the existing 300mm service is more than sufficient to accommodate the sewer demands for both the Stage 1 & 2 buildings. This was endorsed/approved by Sydney Water during the Stage 1 design process.

North Block is served by existing in-ground sewer drains. These branch drain locations may need to be modified as part of the proposed ground level changes in the area, however this will not impact the main drains. No increase in sewer demands are expected as part of these works.

Rainwater Drainage

The Stage 2 building will be provided with downpipes for rainwater drainage. Using the BOM 2016 Rainfall IFD data system, a 1:100 storm event (adjusted to account for heavier rainfall events in the future) would result in a maximum roof drainage flow rate of 500 L/s. This water will be detained within the 180m^3 on-site detention tank before discharging to the Authority network. This has been documented by Bonacci in its drawings set (see **Appendices G** and **S**).

Modifications to the existing rainwater drainage system will be required for the North Block loading dock roof extensions. This small additional catchment will connect to the existing stormwater pipework. No new connections to authority infrastructure are required.

Fire Hydrant and Sprinkler services

The hospital campus is serviced from a private fire services ring main which is supplied from the following utilities:

- 225mm/250mm CICL/uPVC/DICL Sydney Water town main in Barber Avenue
- 150mm/100mm CICL/uPVC Sydney Water town main in Derby Street
- 150mm CICL Sydney Water town main in Somerset Street.

As part of the Stage 1 works, a new water supply from the Barber Avenue town main was connected to the existing ring main to consolidate the system. The configuration also incorporates an above ground storage tank and pump-sets.

The Stage 2 building's combined fire hydrant & sprinkler service will connect directly into the Stage 1 infrastructure, which is supplied from the abovementioned ring main. This imposes no additional loadings to the current system, and no additional connections into Authority mains are required.

North Block's fire hydrant system is currently provided from the existing fire services ring main. This service is to remain with small modifications required to suit the proposed layout, however no additional loadings are required. The new North Block sprinkler system will be supplied from the abovementioned combined infrastructure. No additional connections to authority mains are required.

Arup has prepared a report addressing the above-related hydraulic and fire-related services as well as providing a plan of the location of the works under a combined services infrastructure plan for the Stage 2 Redevelopment prepared in conjunction with JHA – see **Appendix T**.

4.11 Building works / Staging

Following the completion of the Stage 1 Tower and the transfer / relocation of existing hospital departments into the building, the following general staging of works is likely to proceed. These are set out in the table below and continuing over.

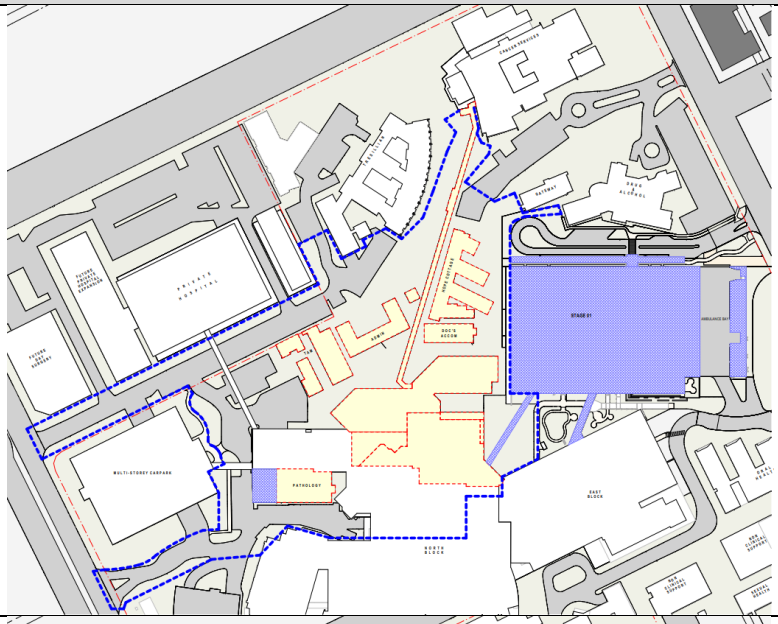
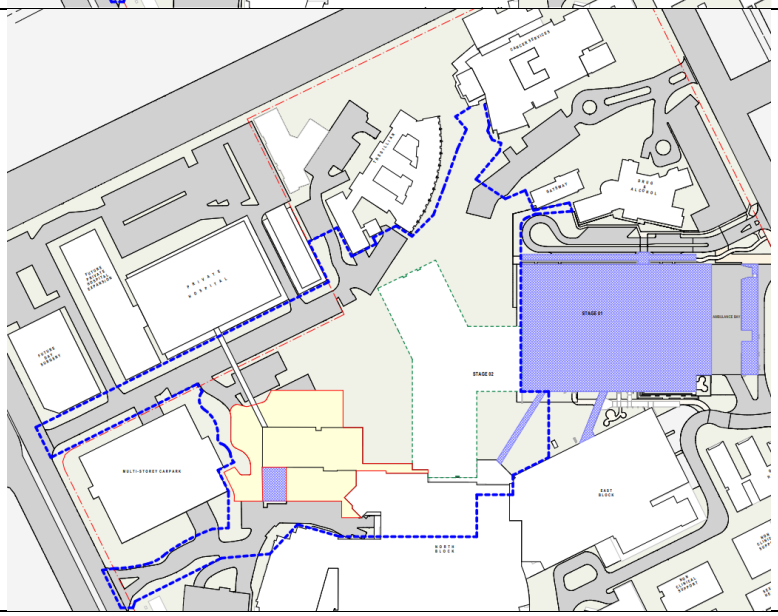
Construction is expected to be undertaken between May 2023 and July 2025, with the development ready to be operational in October 2025.

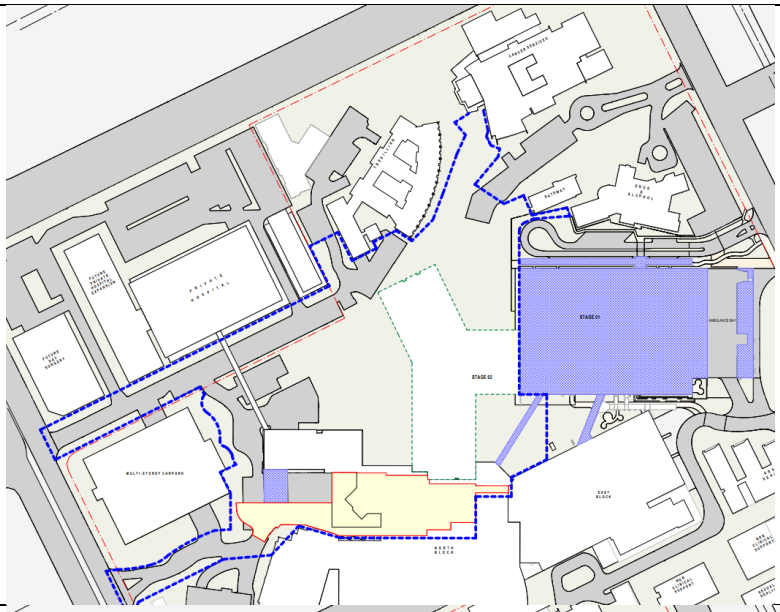
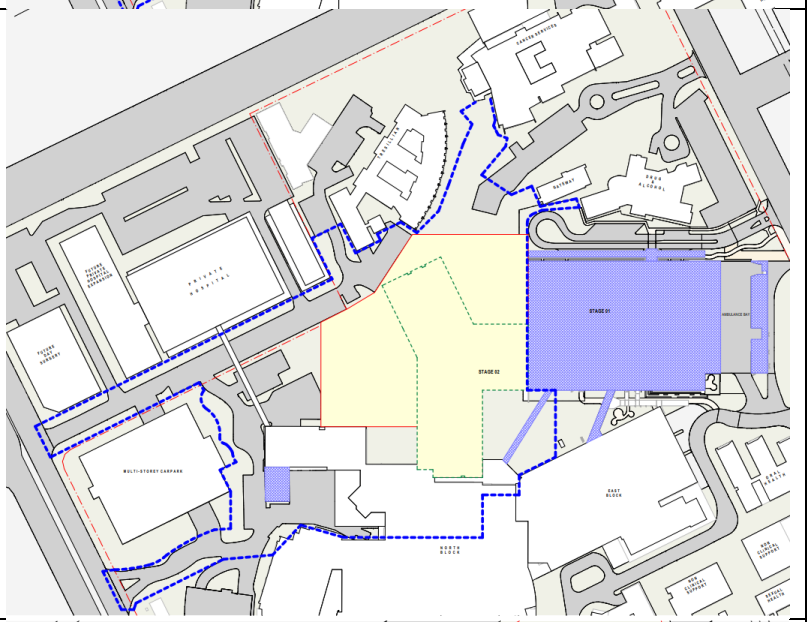
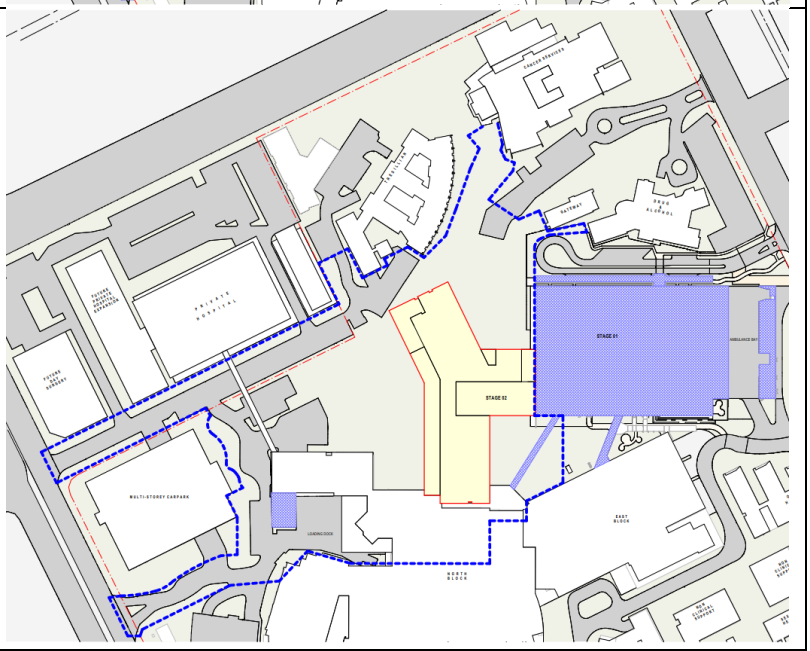
The works would be undertaken in five main stages, as follows:

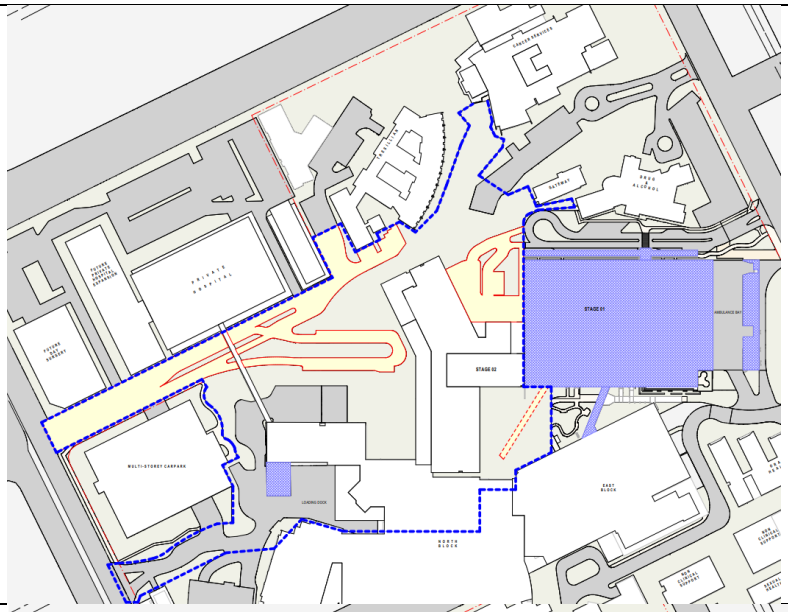
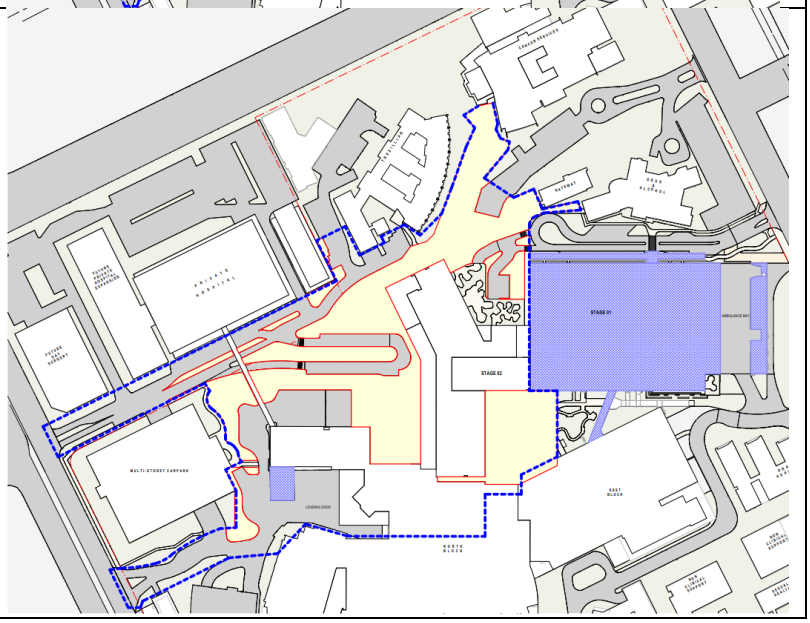
- **Phase 1**: Demolition of satellite buildings, pathology building and portion of North Block
- **Phases 2a & b**: Construction of loading dock including new truck bays, waste area and associated rooms and hard stand areas, bulk storage and commissioning

- **Phase 3**: Establishment of Stage 2 building site and compound, installation of retention wall system, bulk excavation works, sub-structure piling
- **Phase 4**: Construction of Stage 2 building, commencement of progressive commissioning
- **Phase 5a & b**: Construct new internal road infrastructure, demolish temporary link between North Block and Stage 1, landscaping, external wayfinding, lighting and security.

The relevant area of works by phase is shown in yellow on the diagrams. See also the BVN drawing set as well as the preliminary Construction Management Plan which set this out in further clarity and detail.

Phase / Scope of Works		
1	Demolish satellite buildings and portion of North Block – make good North Block building interface with new façade Demolish Pathology building after decanting into East Block	
2a	Construction of loading dock (north section) incl. new truck bays, waste area and associated rooms and hard stand areas To note: southern loading dock area remains operational	

2b	Construction of loading dock (south section) inc. new truck bays, canopy, bulk storage, clean & dirty linen, hard stand areas BOH corridor upgrade works Commissioning	
3	Establishment of site and site compound Installation of retention wall system Bulk excavation works Sub-structure piling	
4	Construct new Clinical Services Building / Stage 2 building Commissioning	

5a	Construct new internal Road Infrastructure / Civil Works Demolish temporary link between North Block and Stage 1 – make good façade and internal works	
5b	Remaining external works including hard and soft landscaping and other completion works External Wayfinding completion External Lighting and Security completion Completion of project	

4.12 Construction jobs

The construction of the development is estimated to employ some 823 workers over the duration of the works / construction. The methodology to estimate the possible number of construction jobs is contained within the CIV report separately provided to the Department.

4.13 Operational aspects

The hospital will continue to operate 24 hours per day and 7 days per week. The Stage 2 Redevelopment will maintain this noting other operations and functions within the proposed building, such as retail, café, and other non-clinical or acute services, will operate during normal weekly business hours.

The Stage 2 Redevelopment will generate some 500 additional staff by 2031 and result in an increase of 78 overnight / in-patient beds.

No additional car parking is proposed under this DA as both the Stage 1 and Stage 2 Redevelopment projects involve the displacement of health services, building floor area and parking spaces. It is also noted that the campus provides a range of interconnected health services and facilities. In this regard, a traditional floor area-based assessment of the traffic generation and the parking provision

associated only with the Stage 2 expansion is not suitable, particularly given that the multi-storey car park adjacent to Parker Street was constructed and partially opened in 2019 to accommodate for the planned demands associated with both Stages 1 and 2.

This car park was completed and opened for use in 2019 with the exception of the roof level, which is being used to house the helipad until it can be relocated to the roof of the Stage 1 building. This will increase the parking supply from 621 to the approved 729 spaces within that car park. Overall, some 2,008 car parking spaces are available on site.

A new access arrangement is proposed via Barber Avenue as part of the Stage 2 Redevelopment. A drop-off area is proposed on the western side of the Stage 2 building, which will be accessed from Barber Avenue in the form of separated entry and exit lanes. The access serving the multi-storey car park enables access from Barber Avenue so that vehicles can be parked after dropping off a passenger, without needing to pass back on to the road network. The drop-off area has also been designed to accommodate shuttle / mini-buses.

The vehicular access, circulation, aisle width and car space dimensions comply with AS 2890.1 & 2890.6. Two-way circulation is provided inside the car park, pick-up and drop-off and vehicular access points, thus no potential queuing on public roads will result.

The access arrangements for the various user groups and transport modes is presented in the following figure, noting that new pedestrian / cyclist links are proposed along the northern side of the Stage 2 building to connect with Stage 1 and the eastern part of the campus.

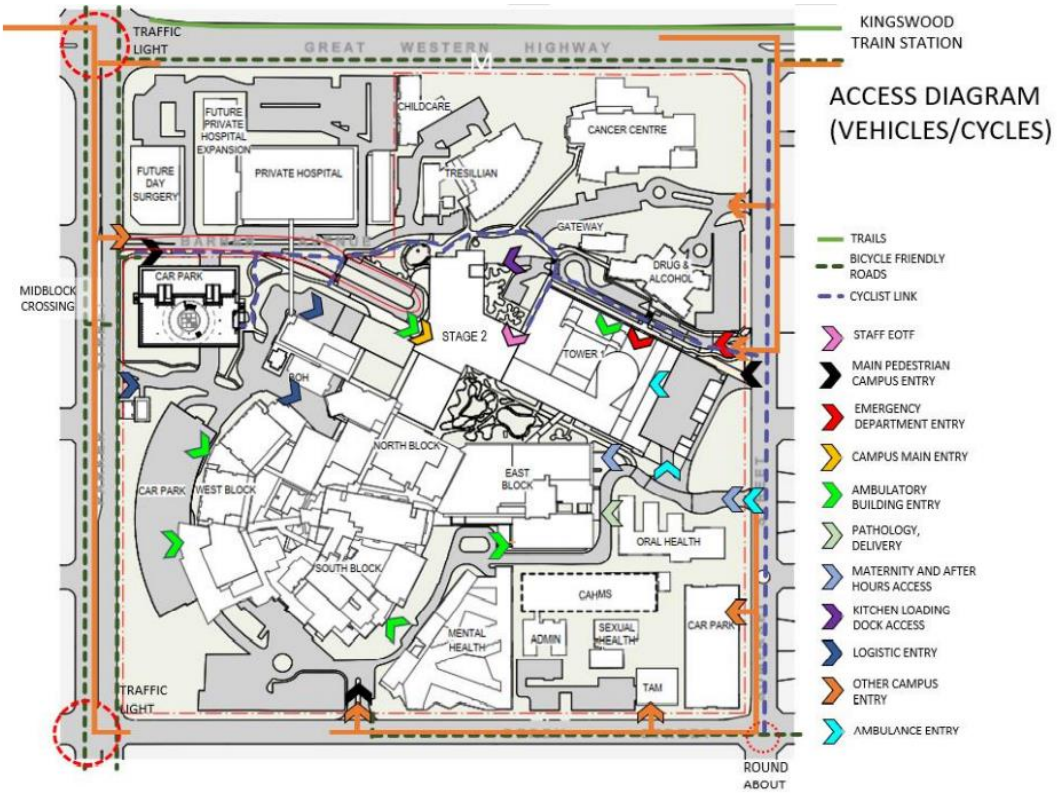


Figure 58 – Proposed hospital campus vehicular access arrangements following Stage 2 (ptc)

The Stage 2 Redevelopment provides an opportunity to connect multiple access routes for pedestrians, including the landscaped east-west connection between Stage 2 and Stage 1, Tresillian, and Cancer Centre. Access from the Barber Avenue multi-storey car park is provided along a continuous footpath to the main entrance of the Stage 2 building.

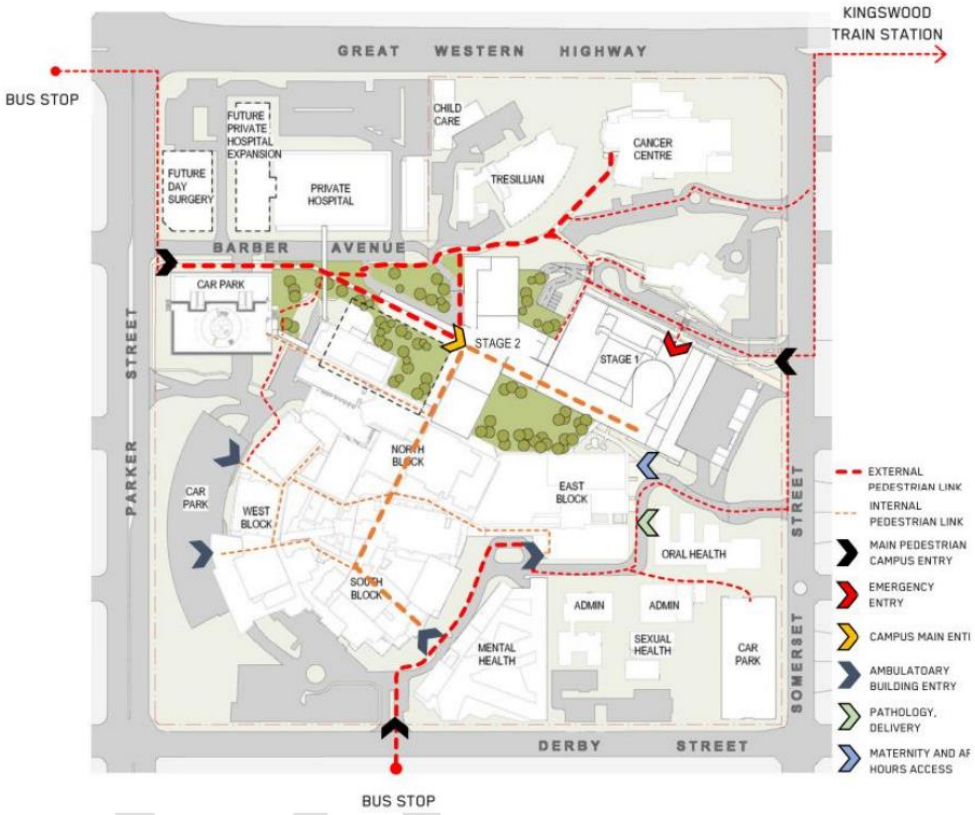


Figure 59 – Proposed hospital campus pedestrian access arrangements following Stage 2 (ptc)

4.14 Campus-wide works

Other existing, concurrent or related campus-wide works (outside of this current SSD scope) facilitating the ongoing and efficient operation of the hospital include:

- The relocation of the pathology department to the undercroft area of the existing East Block
- Relocation of the pharmacy department within the existing North Block
- Expansion of the existing mental health services to deliver the Child and Adolescent Mental Health Services (CAMHS) facility
- Relocation of the Total Assessment Management (TAM) department
- In-ground services relocation and augmentation
- Minor at-grade car park adjustments and upgrade adjacent to the Drug and Alcohol building

These works are shown on the plan at **Figure 60**.

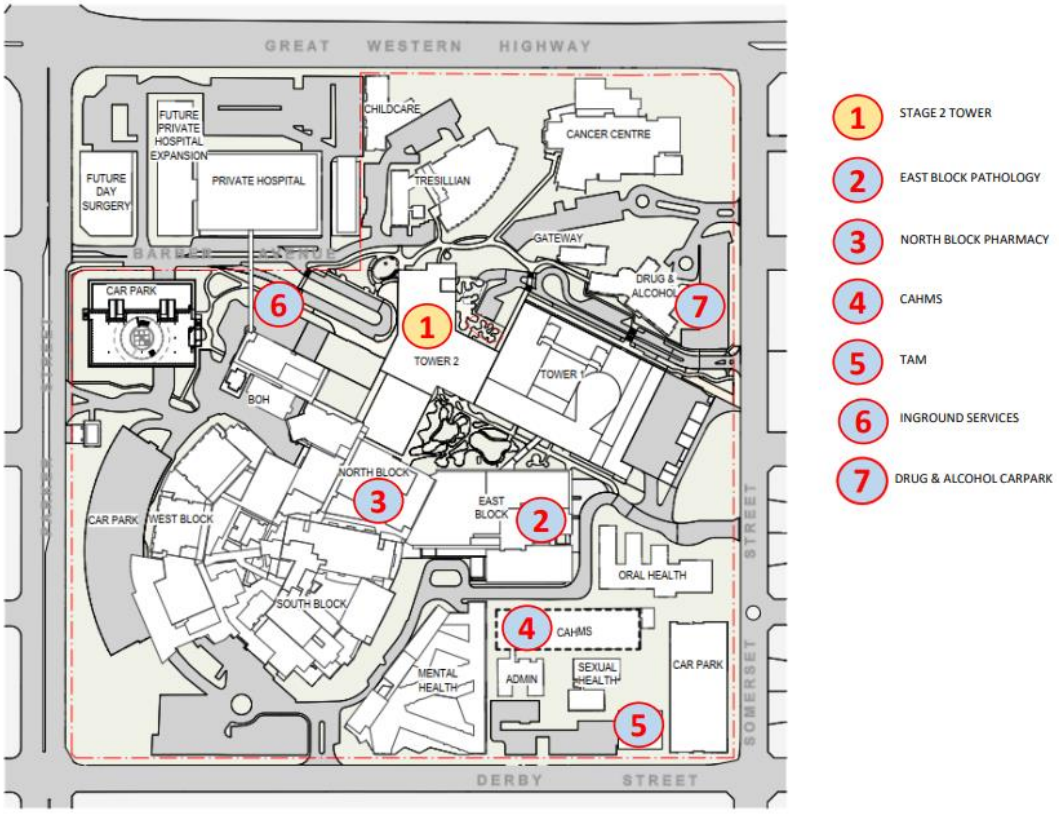


Figure 60 – Nepean Hospital Recent Campus-wide works (BVN)

4.15 Summary table

Key Aspects	Description
Project Area	The development site sits wholly within the existing Nepean Hospital Campus (Lot 4 – DP 1238301. The development site forms a portion of the overall hospital campus. None of the hospital campus is identified as having heritage or Aboriginal heritage value. No heritage or Aboriginal items are listed or mapped as associated with the hospital. Part of the development site will impact remnant vegetation which is mapped / listed as Critically Endangered Ecological Community (CEEC) 'Cumberland Plain Woodland' (Plant Community Type (PCT) 849), as listed under the NSW Biodiversity Conservation Act 2016 (BC Act), albeit in poor condition. See relevant plans and maps in corresponding appendices to this EIS.
Physical layout and design	The Stage 2 Redevelopment project scope includes: • The Stage 2 building, being predominantly a 7-storey building, with rooftop plant • Demolition of parts of the existing North Block and other satellite buildings directly within the Stage 2 building footprint (excluding other buildings already approved under the Stage 1 SSD consent) • Demolition of the Total Asset Management (TAM) facility • Reconfiguration of the loading dock area and back of house functions • Landscaping and other associated at-grade works within the Stage 2 building's immediate vicinity • Barber Avenue upgrade and access road to the Stage 2 building's forecourt, port cochere, and front of house area Biodiversity offsets will apply.

Uses and activities	The use involves the expansion of existing health services facility-related uses at the hospital, including ancillary uses. The hospital (including the proposed Stage 2 Redevelopment) will continue to operate 24 hours per day, 7 days per week. Ancillary uses within the Stage 2 building (such as retail uses and other administrative or teaching uses) will operate during normal weekly business hours.
Timing	
Staging	The development will be delivered in one stage but over a number of phases to maintain effective operation of the hours during construction works. • Phase 1: Demolition of satellite buildings, pathology building and portion of North Block • Phases 2a & b: Construction of loading dock including new truck bays, waste area and associated rooms and hard stand areas, bulk storage and commissioning • Phase 3: Establishment of Stage 2 building site and compound, installation of retention wall system, bulk excavation works, sub-structure piling • Phase 4: Construction of Stage 2 building, commencement of progressive commissioning • Phase 5a & b: Construct new internal road infrastructure, demolish temporary link between North Block and Stage 1, landscaping, external wayfinding, lighting and security.

5.0 Statutory Context

5.1 Relevant statutory requirements

The key and relevant statutory planning legislation, instruments, and development control plan applicable to the site and proposed development include:

- *Environmental Planning and Assessment Act 1979 and Regulation 2000*
- *Biodiversity Conservation Act 2016*
- *State Environmental Planning Policy (State and Regional Development) 2011.*
- *State Environmental Planning Policy (Infrastructure) 2007.*
- *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020.*
- *State Environmental Planning Policy No.33 – Hazardous and Offensive Development.*
- *State Environmental Planning Policy No.55 – Remediation of Land.*
- *State Environmental Planning Policy No.64 – Advertising & Signage.*
- *Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997)*
- *Draft State Environmental Planning Policy (Remediation of Land).*
- *Draft State Environmental Planning Policy (Environment).*
- *Penrith Local Environmental Plan 2010.*
- Penrith Development Control Plan 2014.

Further discussion on compliance and relevant assessment with each of the above is set below and in Section 7.0 as relevant. A summary of permissibility, the relevant approvals regime, pre-conditions to granting consent, and mandatory matters for consideration is set out in **Appendix V**. Detailed discussion on relevant legislation follows or is otherwise addressed in Section 7.0 of this EIS.

5.1.1 Environmental Planning and Assessment Act 1979

The objects of the Act are:

> *(a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State's natural and other resources,*
> *(b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment,*
> *(c) to promote the orderly and economic use and development of land,*
> *(d) to promote the delivery and maintenance of affordable housing,*
> *(e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats,*
> *(f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage),*
> *(g) to promote good design and amenity of the built environment,*
> *(h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants,*
> *(i) to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State,*
> *(j) to provide increased opportunity for community participation in environmental planning and assessment.*

The proposed development satisfies these objects as detailed in the sections of this EIS that follow.

The proposed development and the documentation and assessment under this EIS also satisfy the relevant provisions of the Act and Regulation as set out elsewhere and throughout this EIS.

5.1.2 Environmental Planning and Assessment Regulation 2000

The principles of ecologically sustainable development as set out in Clause 7(4) of Schedule 2 of EP&A Regulation are addressed in Section 7.7 of this EIS as part of the assessment of, and response to, ESD. The assessment considers and addresses:

- the precautionary principle
- inter-generational equity
- conservation of biological diversity and ecological integrity
- improved valuation, pricing and incentive mechanisms

5.1.3 Other approvals

Under section 4.41 EP&A Act, several other approvals are integrated into the SSD approval process, and consequently, are not required to be separately obtained for the proposal. Under section 4.42 EP&A Act, several further approvals are required, but must be substantially consistent with any development consent for the proposal. In this instance only approval for works under the *Roads Act 1993* within Barber Avenue, and potentially in relation to the High Voltage feeder upgrade works, trigger this requirement.

5.1.4 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* applies to the State with the purpose of maintaining a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecologically sustainable development. In particular, amongst other things, it aims to:

- conserve biodiversity at bioregional and State scales, and
- maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations, and
- improve, share and use knowledge, including local and traditional Aboriginal ecological knowledge, about biodiversity conservation, and
- support biodiversity conservation in the context of a changing climate, and
- assess the extinction risk of species and ecological communities, and identify key threatening processes, through an independent and rigorous scientific process, and
- regulate human interactions with wildlife by applying a risk-based approach, and
- support conservation and threat abatement action to slow the rate of biodiversity loss and conserve threatened species and ecological communities in nature.

In accordance with section 7.9(1) the *Biodiversity Conservation Act 2016*, any SSD DA must be accompanied by a biodiversity development assessment report (BDAR) unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.

In this instance a BDAR Waiver has not been sought, and a BDAR has been prepared to address the requirements of the *Biodiversity Conservation Act 2016.* See the BDAR at **Appendix H** and assessment and discussion on related matters at Section 7.2 of this EIS.

5.1.5 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 identifies development that is State Significant Development (SSD). Clause 14(a) of Schedule 1 of the SEPP specifies *development that has a capital investment value of more than $30 million for any of the following purposes— (a) hospitals*, to be State Significant Development.

The project qualifies as a State Significant Development (SSD) by virtue of its classification as a hospital and the CIV being substantially beyond the $30 million threshold.

Further, clause 11 of this SEPP excludes the application of development control plans from SSD DAs. Notwithstanding, Section E12 Penrith Health and Education Precinct – Part A – Hospital Precinct is considered within this EIS.

5.1.6 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) commenced in 2007 with the aim of facilitating the effective delivery of infrastructure across the State. In doing so, it provides for alternative approval pathways for a range of health services facilities projects. However, none are able to be utilised in this instance due to the scale and scope of this project / development.

In consideration of other provisions of the Infrastructure SEPP, clause 57(1) serves to confirm the permissibility of the development within the existing SP2 – Health Services Facility zone at the site, given this is a prescribed zone under clause 56 of the SEPP.

The only other relevant provision is clause 104 (and its co-related Schedule 3) in relation to traffic-generating development. The proposed development is not traffic-generating development for the purposes of this SEPP as it only accommodates an increase in 78 overnight / in-patient beds and does not seek to increase the number of parking spaces on the campus. The relevant thresholds in this instance are 100 or 200 additional beds and 50 or 200 additional car parking spaces (whether ancillary to the principal purpose or not).

Notwithstanding, consultation with, and notification to, Transport for NSW is seen as a relevant part of this planning process. See also engagement with TfNSW in the section of this EIS that follows.

5.1.7 State Environmental Planning Policy (Western Sydney Aerotropolis) 2020

This SEPP, amongst other things, aims to:

(a) to facilitate development in the Western Sydney Aerotropolis in accordance with the objectives and principles of the Western Sydney Aerotropolis Plan,

(b) to promote sustainable, orderly and transformational development in the Western Sydney Aerotropolis,

(c) to ensure development is compatible with the long-term growth and development of the Western Sydney Airport (including in relation to the operation of the Airport 24 hours a day) and other critical transport infrastructure,

Council's planning certificate indicates this SEPP applies as the land may be subject to its planning controls set out below.

Planning Control	Affected?
(a) Subject to an ANEF or ANEC contour of 20 or greater	No
(b) Affected by the Lighting Intensity and Wind Shear Map	No
(c) Affected by the Obstacle Limitation Surface (OLS) Map	Yes
(d) Affected by the "public safety area" on the Public Safety Area Map	No
(e) Within the "3km zone" or the "13km zone" of the Wildlife Buffer Zone Map	Yes

With respect to the above, the hospital campus sits just inside the OLS Map's Outer Horizontal Surface line of 230.5m AHD. Given the development sits at a maximum RL of 90.82m AHD (lower than the existing Stage 1 Tower), the development will continue to be well below this RL 230.5 threshold for notification to Air Services Australia and the Commonwealth. The development will not penetrate the prescribed airspace and the provisions of clause 24 of the SEPP require no further action.

Further, the campus sits at the periphery of the mapped area in relation to the Wildlife Buffer Zone. The campus sits on the 13km Wildlife Buffer Zone line / boundary. Accordingly, the hospital is identified as sitting at the extremities of land surrounding the Airport where wildlife may present a risk to the operation of the Airport. The proposed development does not involve a land use that encourages or fosters wildlife and thereby risk to operations of the airport. No further action under clause 21 of the SEPP is warranted.

5.1.8 State Environmental Planning Policy No.33 – Hazardous and Offensive Development

SEPP 33 commenced in 1992 with aims, amongst other things, to ensure that in determining whether a development is a hazardous or offensive industry, any measures proposed to be employed to reduce the impact of the development are taken into account, and that in considering any application

to carry out potentially hazardous or offensive development, the consent authority has sufficient information to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact.

Under clause 13 of the SEPP, in determining an application to carry out development to which this Part applies, the consent authority must consider (in addition to any other matters specified in the Act or in an environmental planning instrument applying to the development)—

(a) current circulars or guidelines published by the Department of Planning relating to hazardous or offensive development, and
(b) whether any public authority should be consulted concerning any environmental and land use safety requirements with which the development should comply, and
(c) in the case of development for the purpose of a potentially hazardous industry—a preliminary hazard analysis prepared by or on behalf of the applicant, and
(d) any feasible alternatives to the carrying out of the development and the reasons for choosing the development the subject of the application (including any feasible alternatives for the location of the development and the reasons for choosing the location the subject of the application), and
(e) any likely future use of the land surrounding the development.

To address clause 13 and the relevant SEPP 33 Guidelines, both an initial screening assessment and a subsequent Preliminary Hazard Analysis was carried out by Riskcon (see both at **Appendix W**). The results of these are assessed at Section 7.12.

5.1.9 State Environmental Planning Policy No.55 – Remediation of Land and draft State Environmental Planning Policy (Remediation of Land) 2017

State Environmental Planning Policy No. 55 – Remediation of Land provides for a State-wide planning approach to the remediation of contaminated land. A consent authority must consider whether the land subject of a proposal is contaminated and, if the land is contaminated, be satisfied that the land is suitable in its contaminated state for the use proposed. If the land requires remediation to be made suitable for the proposed purpose, the determining authority must be further satisfied that the land will be so remediated before the land is used for that purpose.

Subclause 7(4) of the SEPP specifies land in relation to which the consent authority must consider the findings of a preliminary investigation of the land carried out in accordance with the contaminated land planning guidelines before determining a development application for change of use.

(4) The land concerned is:

(a) land that is within an investigation area,

(b) land on which development for a purpose referred to in Table 1 to the contaminated land planning guidelines is being, or is known to have been, carried out,

(c) to the extent to which it is proposed to carry out development on it for residential, educational, recreational or child care purposes, or for the purposes of a hospital—land:

(i) in relation to which there is no knowledge (or incomplete knowledge) as to whether development for a purpose referred to in Table 1 to the contaminated land planning guidelines has been carried out, and

(ii) on which it would have been lawful to carry out such development during any period in respect of which there is no knowledge (or incomplete knowledge).

The recently exhibited draft Remediation of Land SEPP (an update to SEPP 55) will not substantially alter the fundamental requirements of the legislation. At present a DA is required for any Category 1 remediation works, that is works which amongst other things are Designated Development (with a volumetric threshold of 30,000m^3 of contaminated earth).

Under the new exhibited, but yet to commence, draft Remediation of Land SEPP, Category 1 remediation works are at this stage proposed to be reduced to a volumetric threshold of 3,000m^3, amongst a range of other criteria.

As noted in Sections 4.9.2 and 7.1 of this EIS, the findings of JK Environments concluded the site can be made suitable for the proposed development, subject to remediation to address isolated asbestos finds. Remediation works require consent due to the provisions of clause 11 of *Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River.*

5.1.10 State Environmental Planning Policy No.64 – Advertising & Signage

State Environmental Planning Policy No 64-Advertising and Signage seeks to ensure that signage (including advertising) is compatible with the desired character of an area, provides effective communication in suitable locations, and is of high-quality design and finish. SEPP 64 does not regulate the content of signage.

The proposed building identification signage triggers the need for a detailed assessment under the provisions of clauses 6 and 8 and Schedule 1 of the SEPP. Section 7.16 of this EIS assesses the proposed signage's compliance and satisfaction of these provisions and matters for consideration. See also the proposed signage as shown in the BVN drawing set at **Appendix N** and the Urbanite documentation at **Appendix Q**.

5.1.11 Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River

This plan applies to certain land in the Greater Metropolitan Region and includes Penrith LGA. The aim of this plan is to protect the environment of the Hawkesbury-Nepean River system by ensuring that the impacts of future land uses are considered in a regional context.

This includes strategies for Total Catchment Management, Environmentally Sensitive Areas, Water Quality, Water Quantity, Cultural heritage, Flora and Fauna, Riverine Scenic Quality, Agriculture and Aquaculture and fishing, Rural residential development, Urban Development, Recreation and Tourism, and Metropolitan Strategy.

The relevant provisions of these strategies to this development relate largely to water quality and quantity considerations. These are addressed in Section 7.4.3 of this EIS through MUSIC and DRAINS modelling undertaken for the project by Bonacci and as included at **Appendix G**.

Clause 11(4) of this deemed SEPP relates to remediation of contaminated land and which states all remediation works require consent (i.e. no Category 2 works under SEPP 55 are possible).

As set out above, remediation will be required at the site. Despite a range of isolated and limited asbestos finds the remediation will be Category 1 remediation works on account of this planning instrument required consent for remediation.

5.1.12 Draft State Environmental Planning Policy (Environment)

The NSW government has been working towards developing a new State Environmental Planning Policy for the protection and management of the natural environment (the Environment SEPP). Changes proposed include consolidating and updating the following seven existing SEPPs:

- State Environmental Planning Policy No. 19 – Bushland in Urban Areas
- State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011
- State Environmental Planning Policy No. 50 – Canal Estate Development
- Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment
- Sydney Regional Environmental Plan No. 20 – Hawkesbury-Nepean River (No.2-1997)
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005
- Willandra Lakes Regional Environmental Plan No. 1 – World Heritage Property.

The Environment SEPP was on exhibition from 31 October 2017 until the 31 January 2018 but has so far not further progressed towards gazettal and implementation. Note only Sydney Regional Environmental Plan No. 20 – Hawkesbury-Nepean River applies to this site and development as discussed above.

Of the drafted provisions of the Environment SEPP itself, it is intended to set out provisions under four parts being:

- Catchments
- Waterways
- Bushland
- Protected areas

Again, the Hawkesbury-Nepean Catchment applies to the site and is addressed via Section 7.4 of this EIS through MUSIC and DRAINS modelling undertaken for the project by Bonacci and as included at **Appendix G**.

5.1.13 Penrith Local Environmental Plan 2010

The relevant or applicable provisions of Penrith LEP 2010 are generally limited to the following:

- Part 2 - Zone objectives and land uses for SP2 – Infrastructure zone
- Part 4 – Principal development standards
    - Clause 4.3 – Height of buildings
    - Clause 4.4 – Floor space ratio
- Part 5 – Miscellaneous
    - Clause 5.10 – Heritage conservation
    - Clause 5.21 – Flood planning
- Part 7 – Additional local provisions
    - Clause 7.11 – Penrith Health and Education Precinct

These are addressed as follows in, or by, this EIS.

Part 2 - Zone objectives and land uses for SP2 – Infrastructure zone

As discussed previously, the hospital is zoned SP2 – Health Services Facility and the development is permitted with consent in the zone. The zone objectives are set out as follows in the LEP.

- *To provide for infrastructure and related uses.*
- *To prevent development that is not compatible with or that may detract from the provision of infrastructure.*

The proposed development clearly satisfies these zone objectives, for the reasons set out in this EIS in establishing the need for the development. No further consideration is warranted.

Part 4 – Principal development standards

No building height or FSR controls apply to the Nepean Hospital site. No further consideration is warranted other than assessment of the possible impacts of the development as set out in Section 7.0.

Part 5 – Miscellaneous - Clause 5.10 – Heritage conservation

A Statement of Heritage Impact has been prepared by Extent Heritage – see **Appendix J**. This identifies, consistent with the Penrith LEP 2010, that Nepean Hospital is not a listed item on any statutory or non-statutory heritage register and does not sit within or adjacent to any conservation area.

Part 5 – Miscellaneous - Clause 5.21 – Flood planning

Under clause 5.21(2), development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—

> *(a) is compatible with the flood function and behaviour on the land, and*
>
> *(b) will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and*
>
> *(c) will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and*

(d) incorporates appropriate measures to manage risk to life in the event of a flood, and

(e) will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

Clause 5.21(3) stipulates that in deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—

(a) the impact of the development on projected changes to flood behaviour as a result of climate change,

(b) the intended design and scale of buildings resulting from the development,

(c) whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,

(d) the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.

Assessment of this is provided by the Bonacci reports at **Appendix G** and **Appendix S** as well as in Section 7.4 of this EIS.

Part 7 – Additional local provisions - Clause 7.11 – Penrith Health and Education Precinct
This clause applies to Nepean Hospital as it is included within the "Penrith Health and Education Precinct" map under the LEP. The objectives of this clause are as follows—

(a) to encourage a built form that is suitable for both residential and health services facilities,

(b) to encourage adaptive reuse of residential buildings for health services facilities in the Penrith Health and Education Precinct where the residential use within the building ceases in the future.

Only part (a) of these objectives applies. The built form proposed is commensurate with the project need, its vision and objectives, and the relevant planning controls in place under the LEP, noting no height or FSR controls apply. A further provision allowing for bonus or additional building height accordingly does not apply in this circumstance. No further consideration is warranted.

5.1.14 Commonwealth Environment Protection and Biodiversity Conservation (EPBC) Act 1999

As set out in the proposed development's BDAR (see **Appendix H**), the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as Matters of National Environmental Significance (MNES). Under the EPBC Act, approval is required for actions that have, will have, or are likely to have a significant impact on MNES.

The bilateral agreement has been made under EPBC Act which allows NSW to assess development applications on behalf of the Australian Government, removing the need for a separate assessment and reducing duplicative processes. The Biodiversity Offsets Scheme (BOS) has been endorsed by the Commonwealth Government and enables like-for-like offsetting under the BOS to also offset Commonwealth listed threatened species and communities.

Several MNES are present within 5km of the hospital. However, the proposal is not likely to have a significant impact on any MNES, as such no referral the Minister for Environment is required. No further action is required under the EPBC Act.

5.1.15 Penrith Development Control Plan 2014

As set out in clause 11(a) of the SRD SEPP, Development Control Plans (DCPs) do not apply to SSD DAs. Notwithstanding, Section E12 Penrith Health and Education Precinct – Part A – Hospital Precinct is considered below.

This section of the DCP applies to the hospital which is mapped as forming part of the Hospital Precinct within the wider Penrith Health and Education Precinct.

Overall, the proposed development satisfies, meets or otherwise is not inconsistent with the Aims and General Objectives of this section of the DCP.

The controls within the Hospital Precinct are broken into three character areas by land use type: Commercial Mixed Use; Medical Mixed Use; and Residential Edge. The hospital itself is not mapped as being subject to any of these three character areas. Consequently, none of the corresponding land use controls, built form controls or other controls apply within the hospital. The focus of the DCP provisions is broadly to guide development and built form outcomes around the hospital's periphery and wider environs.

The Kingswood Public Domain Manual is referred to within the DCP for all public domain works. In this instance only the Barber Avenue works are relevant. As noted by Bonacci's civil works report, the design of the new roadworks broadly satisfies a range of design objectives and parameters.

5.1.16 Part 3A Approvals or Staged or Concept DAs

No Part 3A Concept Plan or Staged DA / Concept DA applies to the Nepean Hospital site.

5.2 Development contributions

There are 11 current Development Contributions Plans in force within the Penrith City LGA. The most relevant is the 'Penrith City Section 7.12 Citywide Development Contributions Plan for Non-Residential Development'. The plan applies to the LGA and to any non-residential development with a proposed cost of more than $100,000 that is not otherwise subject to a s7.11 contribution, authorised by a s7.11 contributions plan adopted by the Council.

Exemptions apply under the plan and this Plan does not apply to the following types of developments:

- Repair and replacement of structures impacted by natural forces and unpreventable events such as fire, flooding, earthquakes, lightning etc.
- Development for the purposes of any form of seniors housing defined in *State Environmental Planning Policy (Housing for Seniors or People with a Disability) 2004* that is provided by a social housing provider
- Development exempted from contributions under section 7.17 of the EP&A Act by way of a direction made by the Minister for Planning.

Based on the limited nature of these exemptions, the plan applies to the proposed Stage 2 Redevelopment.

It should also be noted, and recalled, that no development contributions would be expected to apply to the development given it is a Crown DA and for the purposes of a health services facility / hospital, a social good in its own right.

The DA would have been subject to the operation of the Department's Circular D6. Circular D6 no longer remains in force, having been repealed by the Minister for Planning in 2020. Consideration of replacement of Circular D6 has included the work leading to the release of the final report on the Review of Infrastructure Contributions in NSW by the NSW Productivity Commission. The *Environmental Planning and Assessment (Infrastructure Contributions) Bill 2021* has also since been released.

On 28 October 2021, DPIE further released the suite of documents related to the exhibition of the draft *Environmental Planning and Assessment Amendment (Infrastructure Contributions) Regulation 2021*. Clause 25J of the draft Regulation states as follows (with emphasis added in bolded text):

> ***25J Development and land in relation to which local infrastructure conditions and local levy conditions may be imposed***
> ***(1) A local infrastructure condition and local levy condition must not be imposed on a development consent in relation to development for the following purposes—***
> *(a) public housing within the meaning of the Housing Act 2001,*
> *(b) seniors housing carried out by or on behalf of a social housing provider,*
> *(c) affordable housing carried out by or on behalf of a social housing provider,*
> ***(d) development carried out by or on behalf of the State for the purposes of*** *schools,* ***health services facilities****, emergency services facilities or public administration buildings*

Given this emerging policy stance (to support the findings of Review of Infrastructure Contributions in NSW by the NSW Productivity Commission and the continuation of the longstanding operation of Circular D6) it is anticipated that no contributions would continue to apply to development at Nepean Hospital. It is further anticipated that the Regulation as amended would be gazetted prior to the determination of this DA to further reinforce this.

Additionally, for clarity, there are no voluntary planning agreements (VPAs) in place. Furthermore, a VPA is not considered to be necessary or appropriate in this instance given the proposal is for a public benefit in the form of enhanced public health services.

6.0 Engagement

The following sets out a summary of the scope of engagement carried out in the development of the design of the Stage 2 Redevelopment.

Key stakeholders that engagement has been carried out with is set out below. The Consultation Summary Report and its attachments is found at **Appendix X** and further sets out details of engagement, which is also tabulated for ease of reference. Engagement has been carried out consistent with the Department's Undertaking Engagement Guidelines for State Significant Projects (July 2021).

Hospital Community / Local Community / General Public / Aboriginal community
Consultation on the Stage 2 Redevelopment project commenced with the hospital and hospital-related local communities in 2019 with the development of the Clinical Services Plan, this has matured and focussed on specific details over time through the Functional Design Brief, Concept Design, Schematic Design and final Business Case phases. Consultation with this group will continue through the Detailed Design phase. This is embodied by the following graphic articulating the type of engagement with the relevant types of stakeholders.

The general methods of engagement have involved:

- Community Engagement Presentation (upon request and/or programmed)
- Nepean Redevelopment Stage 2 – Community Participation Forms
- Nepean Redevelopment Stage 2 – Dedicated Webpage and links to engage
- Social Pinpoints
- Instagram posts
- Community Flyers and mail-outs

The Engagement Report appended to the Consultation Summary Report sets out further details of this community-related engagement.

Engagement approach

Inform	Involve	Consult	Collaborate/ co-design
NSW Health Infrastructure NSW Treasury / Finance Local Govt. Member NBMLHD Board Local and metro media	General public Local non-government community groups (i.e., Probus, Rotary, Men's Shed) Local Councils The Quarter (Health & Ed precinct) Somerset Cottage Tresillian Unions (HSU, Skilled Trade, etc.) Oral Health Western Sydney University Primary Health Network Local GPs Westmead Redevelopment Katoomba Hospital Lithgow Hospital Springwood Hospital Nepean Private Hospital Hawkesbury Private Hope Cottage Community transport	Patients and consumers NBLHD Consumer Council (with consumer representation) NBMLHD staff not directly involved in user groups Local neighbours Penrith Access Committee Community/ patient representatives for (disability, aged, carers, Aboriginal, multicultural, and surrounding suburbs) NSW Ministry of Health Transport for NSW NSW Ambulance Roads and Maritime Services NSW Water NSW Police NSW Tafe NSW Communities and Justice NSW office of Environment and Heritage NSW Department of Planning, Industry and Environment Agency of Clinical Innovation NBMLHD Planning and Finance	Redevelopment Consumer Committee Aboriginal Health Unit Multicultural Health Unit Clinical Governance Group Medical Staff Council Change Steering Committee members NBMLHD staff involved in department design/ user groups NBMLHD exec Health Infrastructure exec NBMLHD Head of Departments NBMLHD Nurse Managers NBMLHD Allied Health Managers
We will keep you informed with relevant information in a timely manner and involve you in key milestone activities	**We will keep you informed and make decisions in your best interests**	**We will consult with you to ensure that your needs are understood and influence design decisions. We will provide feedback on how your input was used.**	**We will work with you to design and deliver the project. We will provide feedback on how your input influenced decisions made by the program team.**

Aboriginal community engagement during the design process commenced in 2019. This has included:

- Face-to-face meetings around the design of the development and the model of care
- Surveys / Online Survey around the design of the development and the model of care
- A series of face-to-face meetings to discuss Darug language responses to the design and wayfinding and flora and fauna / biophilic incorporation into the project.

See the Aboriginal Consultation Report also forming part of the overall Consultation Summary Report attached as part of **Appendix X**.

The general community or community groups engagement also commenced in 2021. This has included:

- Online surveys to seek the preferred format for ongoing engagement on the design and model of care
- Social pinpoint posts to seek engagement of the design of the front of house; public transport requirements; hospital artwork, colours and themes; open and gathering spaces; waiting rooms and public areas design; and design of spaces for carers and patients to improve experience when attending clinical appointments.
- Meeting with Penrith Access Committee to ensure access arrangements are suitably improved.

The key issues and project responses outcomes established through this engagement process have been the following:

Key issue	**Project Response**
Site location to cater for future demand	The Clinical Services Plan developed for the project provides a needs assessment until 2030 and demonstrates the current project will meet that demand.
Overshadowing due to the scale of building in residential area	Setbacks Green space
Access & Public Transport Requirements	Independent traffic assessment together with consultation and ongoing discussion with Penrith City Council and Transport for NSW are underway to ensure any access issues that arise are managed in a holistic manner.
Wayfinding / Signage	Signage orientation to enable clear visibility / access to all have been addressed in the campus wide wayfinding package. The Darug Language Signage project was created to develop an Aboriginal signage program to support wayfinding through the campus. This included providing signage that could be directly translated into the Darug language and phonetic pronunciation.
Hospital Artwork and Colour themes	Extensive consultation with Arts Working Group with multicultural aboriginal and local community engagement.
External courtyard, planting, gathering spaces	The landscape design has provided for all areas of the community; seating for gatherings, private spaces and rest; information plaques; planting and feature paving.
Front of House, waiting and public areas	Extensive consultation with the project Consumer Committee and User Group has ensured the required spaces have been catered for within the design
Culturally appropriate indoor spaces	Aboriginal family / lounge and multi-purpose rooms with art installations by a local indigenous artist have been proposed. An external Aboriginal courtyard space has been provided where extended family members can gather

Culturally appropriate outdoor spaces	The landscape design has provided for aboriginal elements; Acknowledgment to Country; seating areas for rest and storytelling; information plaques; gathering places for ceremonies; and feature paving.
Flora and fauna	Aboriginal medicinal planting has been incorporated into the redevelopment landscaping. With seedlings being sourced from the indigenous community.
Artwork	The selection of Aboriginal Art is an ongoing process that is being coordinated by the Project Team, the Aboriginal Support team and Health Infrastructure.

Aboriginal cultural heritage engagement

Further specific and detailed engagement has also been carried out in the preparation of the development's Aboriginal Cultural Heritage Assessment Report (ACHAR). This engagement is consistent with the requirements of *Aboriginal cultural heritage consultation requirements for proponents 2010*.

This includes:

- Determining which Aboriginal people or organisations who may hold cultural knowledge with respect to the site and the area, including the Local Aboriginal Land Council (LALC) - in this instance the Deerubbin LALC.
- Written notification to organisations and people identified by the LALC, as well as an advertisement in a local newspaper circulating in the area of the development. 63 organisations and people were sent letters or emailed in June 2021. The newspaper advertisement was also published in June 2021.
- 13 organisations / people registered an interest in consultation on the development – these being the Registered Aboriginal Parties (RAPs) – see the ACHAR at **Appendix K** for additional details.
- Due to COVID-19 a meeting was not held to present the project, ascertain significance, artefact management, and any other issues of concern. Instead, an information package including methodology and archaeological assessment was provided to the RAPs for comment.
- Commentary was received from the RAPs which was incorporated into a refined ACHAR ahead of its finalisation - see the ACHAR at **Appendix K** for additional details.

Penrith City Council

Engagement with Council has centred on the traffic management strategy for Barber Avenue. A meeting was held on 18 October 2021 to present the current concept for the Stage 2 project.

Further consultation will be held with Council on the traffic management arrangements in late 2021 / early 2022 during design development.

TfNSW

Consultation commenced in early 2021. This included a meeting to discuss a new B-Line bus route between Penrith and the Aerotropolis. Several attempts were made to have a further meeting with TfNSW in October 2022, although not successful. Attempts continue in the aim to arrange a meeting with TfNSW representatives.

See also the Consultation section of the Cattell Cooper Transport Assessment at **Appendix M**. The preparation of that report involved further consultation with TfNSW (as well as Penrith City Council) on a range of land use planning and development matters tied to precedent projects, Nepean Hospital-specific matters, and strategic and forward planning initiatives for the LGA and/or region.

Adjacent landowners - Nepean Private Hospital (Healthscope) & Nepean Health Hub
A meeting was held on 26 November 2020 to present the Barber Avenue strategy (Barber Avenue sitting adjacent to Nepean Private Hospital and the Nepean Health Hub). Both Healthscope and the Nepean Health Hub were supportive of the proposed strategy and requested further consultation as the design progresses. Further consultation will occur during the design development phase of the NR Stage 2 project.

Sydney Water
A feasibility application was lodged with Sydney Water on 10 December 2020 and three key meetings held with Sydney Water to discuss Stage 1 and Stage interface and approvals matters; update on the evolution of the project; and specifics trade waste and documentation requirements.

Jemena / Western Energy
An application for new gas connection associated with Stages 1 and 2 of the Nepean Hospital Redevelopment (as well as existing gas loads) was made in December 2020. A presentation to Jemena and Western Energy was held on 18 October 2021 to provide an overview of the Stage 2 project, the location of the tower within the Nepean Hospital precinct, and the major services to be connected. Details are set out in the Consultation Summary Report.

Endeavour Energy
An application for connecting an additional HV feeder associated with the Stage 2 Redevelopment was submitted to Endeavour Energy on 14 April 2020. A Supply Offer (Standard Connection Service letter offer) was received from Endeavour Energy on 8 May 2020. A presentation to Endeavour Energy was also held on 20 October 2021 to provide an overview of the Nepean Hospital Redevelopment Stage 2 project. Details are set out in the Consultation Summary Report.

Telstra
A presentation to Telstra was held on 14 October 2021 to provide an overview of the Nepean Hospital Redevelopment Stage 2 project. Progress and details of the design and implementation of the Digital Antenna System (DAS) was discussed, including timing and incorporation of the Stage 1 and Stage 2 projects into available capacities and infrastructure.

On 9 November 2021, Telstra advised that the DAS is to be designed / installed to MCF2021 standards and activated with only 4G Radio Base Station Equipment, but allowing for a 5G capable system to be added later once Stage 1 has (in the future) also been upgraded for 5G coverage.

State Design Review Panel (SDRP) process
The project team has met with the State Design Review Panel on three (3) occasions in the preparation of the architectural and landscape plans for this DA / EIS. A summary of the topics discussed, and resolved through the evolution of the design, is set out below with specific details of each meeting and the design response set out in each of the Architectural Design Statement (see **Appendix N**), the Landscape Report (see **Appendix O**), and the Consultation Summary Report and its attachments as found at **Appendix X**.

<u>SDRP Meeting No.1 – 26 August 2020</u>
This meeting addressed:

- The Concept Masterplan
- Landscape and external circulation
- Architecture
- Sustainability
- Aboriginal Culture/Heritage and Art Strategy

SDRP Meeting No.2 – 7 April 2021
This meeting addressed:

- Landscape and Masterplan
- Architecture and Public Domain
- Carpark and Transport Connections

SDRP Meeting No.3 – 8 September 2021

- Landscape and Open Space
- Architecture and Public Domain

Relevantly, at this stage the GANSW indicated that a fourth meeting pre-lodgement would not be necessitated. GANSW will review the proposal as it moves through the planning system.

Engagement still to be carried out or to be continued

Further engagement is still proposed with:

- Penrith City Council
- TfNSW
- Nepean Private Hospital (Healthscope) & Nepean Health Hub
- Sydney Water
- Endeavour Energy
- Jemena / Western Energy
- Hospital community and user groups, including the Aboriginal community

7.0 Assessment of Impacts

7.1 Contamination, HAZMAT and Geotechnical Matters

7.1.1 Site Contamination

Preliminary Site Investigation

JK Environment's has undertaken a Preliminary Site Investigation (PSI) in relation to the development site in the context of the wider hospital campus and consistent with the requirements of SEPP 55 – Remediation of Land – see **Appendix F**.

The information reviewed by JK Environments for this PSI indicated that the site has historically been vacant or used for grazing/agricultural purposes, prior to it being developed as part of the wider hospital campus. The historical storage of flammable liquids (notably xylene), underground storage tanks (USTs) within the Stage 2 site area and the wider hospital campus, and detectable concentrations of xylene within groundwater were identified during previous investigations. These previous investigations did not identify significant, widespread contamination in fill. However, asbestos has been found in fill and at the ground surface, both within the Stage 2 site area and within the wider hospital.

Based on their assessment, JK Environments are of the opinion that there is a potential for site contamination but that the historical land uses and potential sources of contamination identified would not preclude the proposed development.

The potential source(s) of the hydrocarbons in groundwater has not been confirmed and there is uncertainty around the contamination status of the fill, particularly with regards to asbestos. Based on the potential contamination sources and areas of environmental concern identified, and the potential for contamination, further investigation of the contamination conditions is considered to be required.

JK Environments accordingly also undertook a Detailed Site Investigation to establish whether remediation is necessary, as set out below.

Detailed Site Investigation

JK Environments has prepared a Detail Site Investigation which has determined that remediation will be needed at the site to address isolated and limited asbestos finds.

Based on sampling from 27 borehole locations and groundwater from four monitoring wells, asbestos was detected in fill soil at a concentration above the adopted human health-based Site Assessment Criteria (SAC) at one location only. Bonded asbestos was also encountered at the surface and in the top 0.1m of fill soil at two locations at the site, also deemed to be an exceedance of the human health-based SAC.

Elevations of heavy metals in groundwater were identified above the ecological SAC, however these were considered to be consistent with regional/background groundwater conditions. Overall, risks associated with groundwater contamination were assessed to be low.

Based on a Tier 1 risk assessment, potential risks from exposure to asbestos were identified by JK Environments. On this basis, and with due consideration to data gaps, it was recommended that a Remediation Action Plan (RAP) be prepared for the development.

Remediation Action Plan

JK Environments has prepared a RAP and advises that the goal of the remediation is to render the site suitable for the proposed development from a contamination viewpoint. The primary aim of the remediation at the site is to reduce the human health risks posed by site contamination to an acceptable level.

The objectives of the RAP are to:

- Provide a framework to address the data gaps
- Provide a methodology to remediate and validate the site based on the risks identified during the DSI
- Outline site management procedures to be implemented during remediation work
- Provide a contingency plan for the remediation works, including an unexpected finds protocol and other relevant contingencies relating to remediation and validation.

The proposed (and preferred) remediation strategy for asbestos is excavation and off-site disposal. A data gap investigation is required following demolition and the outcome of that investigation is to be used to confirm the extent of remediation and the preferred strategy/strategies.

The RAP includes contingencies for remediating and validating the UST, should this be discovered during the demolition works. Contingencies for capping asbestos contaminated soil, whether in-situ, or within a borrow pit/containment cell, are also included.

JK Environments is of the opinion that the site can be made suitable for the proposed development. There is currently no requirement to report the contamination to the NSW EPA under the NSW EPA Guidelines on the Duty to Report Contamination under Section 60 of the *Contaminated Land Management Act 1997.*

7.1.2 HAZMAT

As discussed in Section 4.9.1 of this EIS, the following hazardous materials were identified within the areas of proposed demolition works of the development site.

Asbestos

Asbestos containing materials were identified within the exterior of the existing buildings and structures at the site at the time of the inspection. Only bonded (non-friable) asbestos containing materials were encountered at the site.

Lead in paint

Lead containing paint was identified on the metal air-conditioning units and associated ductwork within the plant room corridor located on the roof of North Block. The paint was deteriorated at the time of the inspection.

Lead in accumulated dust

This was not identified within the scope and limitations of the investigation.

Polychlorinated Biphenyls (PCBs)

Fluorescent light fittings potentially housing PCB containing capacitors were identified throughout the site. The fittings were visually inspected at the time of the inspection.

Synthetic Mineral Fibre (SMF)

Materials containing SMF were identified in the form of foil wrapped insulation, foil backed insulation, metal wrapped insulation, sprayed insulation, fire stopper insulation, vinyl sheeting and water heater systems at the site. All materials were in good condition at the time of the inspection.

Recommendations for removal and demolition

As part of the demolition scope of works, JK Environments have recommended the following (see **Appendix R**):

- Any materials presumed to contain asbestos must be treated as such.
- Prior to demolition or refurbishment work the JK Environment's Hazardous Building Materials Survey must be provided as a register to the demolition/building contractor. Completion of the survey of the internal areas must also occur.

- All works associated with the disturbance and removal of asbestos containing materials must be undertaken by a Licenced Class B Asbestos Removalist.
- The asbestos removalist must prepare an Asbestos Removal Control Plan for the proposed works. The control plan should include an allowance for asbestos air fibre monitoring during the removal and thorough clean up works upon completion of the removal works.
- An asbestos management plan must be prepared for the proposed works in areas containing asbestos.
- A clearance inspection must be undertaken on completion of works and prior to any other construction activities being undertaken.
- If previously unidentified materials (suspected of containing asbestos) are identified during the demolition phase, works should cease and the material should be inspected and classified by an experienced consultant. The area should be isolated and barricaded until the material has been classified as non-hazardous or removed and the area cleared.
- All asbestos containing materials (and materials presumed to contain asbestos) must be removed in accordance with the relevant Regulations and Codes and by an experienced asbestos removal contractor.
- PCBs are a scheduled waste with strict guidelines regarding transport and handling. PCB work is to be conducted in accordance with the Environmental Protection & Heritage Council's Polychlorinated Biphenyls Management Plan, Revised Edition April 2003.
- If any metal cased capacitors are found during demolition works that were previously unidentified they should be treated as containing PCBs. Details on storing, conveying and disposing of PCB material or PCB wastes can be found in Polychlorinated Biphenyls Management Plan, Environmental Protection & Heritage Council, Revised Edition April 2003.
- All SMF containing materials must be removed in accordance with the relevant National Standard and Codes and by an experienced hazardous materials removal contractor.

7.1.3 Geotechnical Matters

A Geotechnical Investigation in relation to the proposed development was carried out by JK Geotechnics in late 2020 – see **Appendix D**. The purpose of the investigation was to obtain geotechnical information on subsurface conditions as a basis for comments and recommendations on excavation conditions, retention, bearing pressures for footings, and potential settlements. The investigation has accordingly been considered and applied by the design team throughout the ensuing design process, as well as by other disciplines, including civil engineering.

With respect to likely sub-surface impacts that may arise as a result of works, the investigation provides commentary on salinity and groundwater. Acid Sulfate Soils are not addressed as there is no known occurrence of these soils at or near the site. Council's Planning Certificate also indicates that none are likely to occur on the site or be exposed during earthworks.

Groundwater was discovered by JK Geotechnics in one of five boreholes only at a depth of 6.35m. Other boreholes were dry. Despite this and the potential for irregular results, further groundwater monitoring is recommended. Notwithstanding, the low permeability of the silty clay and claystone bedrock at the site, JK Geotechnics does not expect that seepage volumes into the excavation will be significant. As such, during construction, such flows will likely be controllable by conventional sump and pump techniques. Higher flows should be expected along the soil-rock interface particularly following periods of wet weather. Seepage may need to be treated prior to disposal into stormwater systems and any requirements should be checked with the environmental and hydraulic consultants.

With reference to the Department of Natural Resource's 1:100,000 Map of Salinity Potential in Western Sydney, JK Geotechnics advises that the site is located in an area where there is a moderate potential for soil and groundwater salinity to occur. Salinity can affect the longevity and appearance of structures as well as causing adverse horticultural and hydrogeological effects.

Penrith City Council's DCP includes a section on managing salinity impacts – see Section 4.5 of Chapter C4 – Land Management. Should the site be identified as being subject to a potential risk of

salinity (refer to the map Salinity Potential in Western Sydney 2002) a detailed salinity analysis will be required to avoid or mitigate the impacts of development on salinity processes to prevent any degradation in soils, groundwater or vegetation; damage to buildings and infrastructure; and ensure development will not significantly increase the salt load in existing watercourses.

Relevant mitigation measures should be employed to address the groundwater and salinity matters raised by JK Geotechnics.

7.2 Arboricultural and Biodiversity Matters

7.2.1 Biodiversity

As required for SSD under legislation, unless waived, a Biodiversity Development Assessment Report (BDAR) has been prepared in relation to the Stage 2 Redevelopment – see **Appendix H**. As noted in Section 2.3.6 of this EIS, whilst the hospital campus is generally a highly disturbed urbanised environment having been subject to a series of phases of works and redevelopment with little remaining vegetation or habitat and habitat connectivity, there remain areas of planted native and exotic species around the campus as well as isolated pockets of potentially remnant native vegetation.

In its BDAR, Total Earth Care advises that:

> *The vegetation within the subject land is highly modified and generally comprises planted native and exotic species interspersed with few remnant native trees. The remnant trees are consistent with the Critically Endangered Ecological Community (CEEC) 'Cumberland Plain Woodland' (Plant Community Type (PCT) 849), as listed under the NSW Biodiversity Conservation Act 2016 (BC Act), albeit in poor condition.*
>
> *The subject land provides suitable habitat for some common bird and mammal species, yet little habitat for threatened fauna species. However, the availability of foraging resources provides opportunistic habitat for some threatened species as part of their broader range (i.e. Little Lorikeet, Grey-headed Flying-fox, Swift Parrot). Due to the highly modified landscape and soil profile, no suitable habitat is present for threatened flora. No threatened species were recorded in the subject land during the BDAR field surveys, or have been recorded in previous studies.*

BDAR Assessment

The BDAR has been prepared in accordance with the Biodiversity Assessment Method (BAM) (DPIE 2020) with sections assessed under both:

- Streamlined assessment module – Small area (site-based)
- Streamlined assessment module – Planted native vegetation.

The requirements of this BDAR under the two streamlined assessment modules are outlined in Table 1-1 and Table 1-2 of the BDAR and in accordance with the BAM. Further justification of the use of the planted native vegetation module is provided in Section 1.5.1 of the BDAR.

In short, to satisfy this assessment method, the hospital and development site have been identified as:

- Land not mapped on the Biodiversity Values Map as core koala habitat identified in a plan of management under the *State Environmental Planning Policy (Koala Habitat Protection) 2021*.
- Less than 40 ha but not less than 1 ha.
- Being ~0.01ha maximum in terms of satisfying the small development area clearing limit of ≤2 ha.
- Containing remnant native species located within the plantings which have been isolated and considered as a separate Plant Community Type (PCT). The remaining vegetation is obviously planted due to positioning, age and species. The composition of the species are not consistent with a local PCT.

- Containing vegetation that has been planted for aesthetic landscaping and is not consistent with a PCT, or for the purposes of conservation or rehabilitation.
- Containing no threatened flora species, with the majority of the species within the planted areas being cultivated native and exotic species frequently used for landscaping.

PCT 849 - Cumberland shale plains woodland

A survey of the site by Total Earth Care has identified a highly modified environment generally comprised of planted native and exotic species interspersed with few remnant native trees. The remnant trees are consistent with the Critically Endangered Ecological Community (CEEC) 'Cumberland Plain Woodland' (Plant Community Type (PCT) 849). See the location of these remnant trees in **Figure 61** over.

PCT 849 generally comprises the isolated patches of remnant eucalypts including *Eucalyptus moluccana* (Grey Box) and *Eucalyptus tereticornis* (Red Forest Gum). There is no native middle stratum and the ground stratum comprises a mixture of native and exotic grasses and herbs such as *Lolium perenne* (Perennial Ryegrass) and *Cynodon dactylon* (Common Couch). This PCT classification is consistent with previous mapping of the site (Abel Ecology 2018) and is classified as a CEEC.

PCT 849 is classified as the 'Critically Endangered' TEC 'Cumberland Plain Woodland in the Sydney Basin Bioregion' under both the *Biodiversity Conservation Act 2016* and *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

With respect to consideration under the Biodiversity Conservation Act, although the patch of PCT 849 is small and in poor condition, it is considered consistent with the Cumberland Plain Woodland CEEC BC Act listing. The final determination (DPIE 2019) does not state that there is a minimum number of species required for consistency and that 'derived' native grasslands which result from removal of the woody strata from the woodlands and forests can be included. Although there is little suitable vegetation remaining, the few remnant *Eucalyptus moluccana* (Grey Box) and *Eucalyptus tereticornis* (Red Forest Gum) trees are representative of the community and the landscape features (i.e. topography, soil type) are consistent.

The patch of PCT 849 within the subject land is not consistent with the EPBC Act listing. This is due to the patch not meeting the minimum size requirements of at least 0.05 ha and the perennial understorey vegetative cover present is not made up of at least 50% native species.

Biodiversity Impacts

Based on the above and the proposed development, the proposal would require the permanent removal of the following vegetation:

- 589 m^2 (0.059 ha) of PCT 849 (Cumberland Plain Woodland CEEC)
- 1175 m^2 (0.112 ha) of planted native vegetation
- 671 m^2 (0.067 ha) of non-native vegetation.

The proposal would also result in modification and indirect impacts of a further 374 m^2 (0.037 ha) of PCT 849 (Cumberland Plain Woodland CEEC) in adjacent areas. No key habitat features (i.e. hollow bearing trees, bush rock) would be impacted. The removal of vegetation would result in the direct loss of foraging habitat for local fauna and increase localised fragmentation within the subject land. Due to the small amount of vegetation removal and the highly modified landscape, the greater impacts to fragmentation on a landscape scale is negligible. Additional indirect impacts include increased noise, vibration, light spill and the spread of weeds and pathogens.

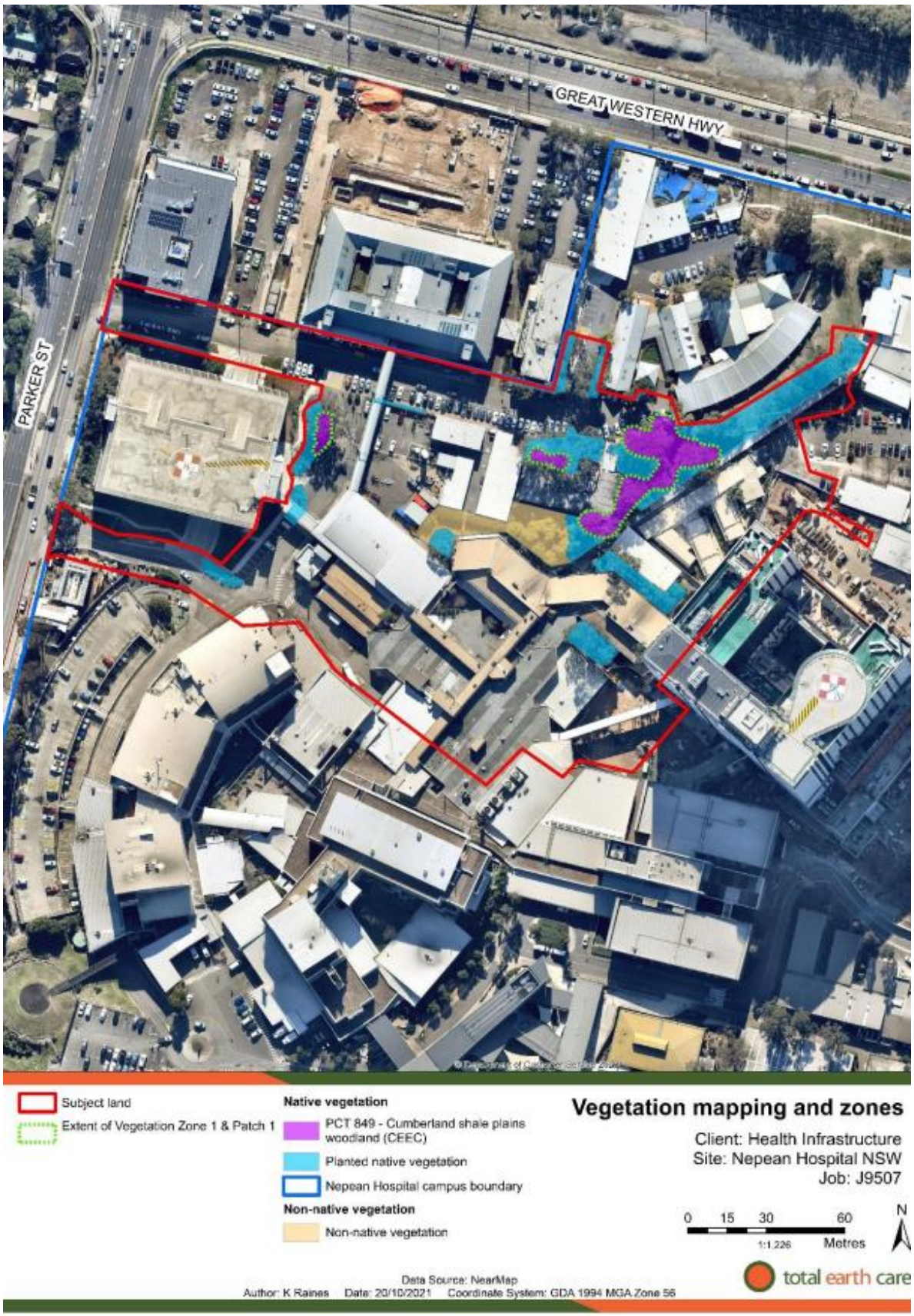


Figure 61 – Vegetation mapping (Total Earth Care)

Mitigation and Offsetting

The location of the proposal, particularly the Stage 2 building, has been chosen to minimise impacts on native vegetation. The northern extent of the Stage 2 building has attempted to retain several remnant trees in PCT 849 (Cumberland Plain Woodland CEEC). Revegetation and landscaping works would be planned to increase the extent of PCT 849 (Cumberland Plain Woodland CEEC) by utilising relevant species and creating structural vegetation layers. Nevertheless, unavoidable impacts (vegetation removal) to PCT 849 (Cumberland Plain Woodland CEEC) would require offsetting

To address the permanent loss of 589m^2 of PCT 849, Total Earth Care has had to round up the loss to 0.1 ha in using the Biodiversity Assessment Method Calculator (BAM-C). The result is the following ecosystem credit as derived by Total Earth Care from the BAM-C.

The balance of vegetation removal requires no offsetting, and no species credits are required for the proposal.

Entity	Status	SAII entity	No. of Credits	Biodiversity risk rating	Like-for-like options	Price per Credit*
PCT 849 - Cumberland shale plains woodland	Cumberland Plain Woodland in the Sydney Basin Bioregion TEC – CEEC under BC Act	Yes	2	2.5	Cumberland Plain Woodland in the Sydney Basin Bioregion (PCT 849, 850). In Cumberland, Burragorang, Pittwater, Sydney Cataract, Wollemi and Yengo IBRA regions or any IBRA subregion that is within 100 km of the outer edge of the impacted site	$33,697.42

* This is the price per credit on the day of the credit calculation (23rd of September 2021). It is subject to change.

Matters of National Environmental Significance

The EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places defined in the Act as Matters of National Environmental Significance (MNES).

Under the EPBC Act, approval is required for actions that have, will have, or are likely to have a significant impact on MNES. The bilateral agreement has been made under EPBC Act which allows NSW to assess development applications on behalf of the Australian Government, removing the need for a separate assessment and reducing duplicative processes. The Biodiversity Offsets Scheme (BOS) has been endorsed by the Commonwealth Government and enables like-for-like offsetting under the BOS to also offset Commonwealth listed threatened species and communities. Several MNES are present within 5km of the subject land, however, the proposal is not likely to have a significant impact on any MNES, and as such no referral the Minister for Environment is required.

Draft Cumberland Plain Conservation Plan

As previously noted in this EIS, under the draft Cumberland Plain Conservation Plan, the hospital and its environs are mapped as 'Excluded Land' meaning land which has been excluded from the Plan and for which NSW strategic biodiversity certification and approval through the Commonwealth strategic assessment will not be sought.

Further, the hospital is located about 1km from the nearest waterway, and no impacts to waterways or fisheries are likely. Accordingly, no permits or approvals under the *Fisheries Management Act 1994* or *Water Management Act 2000* are required.

Aside from the offsets required in relation to the Biodiversity Conservation Act 2016, no other mitigation measures are required in relation to biodiversity impacts associated with the development.

7.2.2 Arboricultural matters

As set out in Section 4.7 of this EIS, there are some 81 trees, including two groups of trees located within the development site. Of these, 23 trees, including one group of trees, are to be retained, protected and incorporated in the site-wide landscaping. Correspondingly, it is proposed to remove 58 trees (including one tree group) to accommodate the development. Tree removal within the Stage 2 development site arises principally in relation to trees being within the footprint of the proposed development or otherwise affected by bulk earthworks and level changes proposed. The Arboricultural Development Assessment Report prepared by Moore Trees has assessed the health and condition of these trees and two clusters of trees in relation to the proposed development – see **Appendix I.**

The report sets out which trees are proposed to be removed and of those to be retained, the relevant tree protection measures to be employed during works – see **Figure 62** below. The retained trees are shown with green circles and specific tree protection measures in blue.

Figure 62 – Retained and protected trees shown on composite architectural and civil plans (Moore Trees)

Moore Trees advises that the *majority of the trees on site were found to be in good health and condition. The main trunks, first and second order branches are free of cracks, splits, or fruiting bodies. Old pruning wounds are showing good occlusion, a sign that the tree is photosynthesizing effectively. New extension growth was noted with leaf colour showing good vitality. The subject trees would be considered to have 95% live canopies. The basal area and woody root zone were free of any ground heaving, or lifting. A handful of trees had suffered from minor storm damage but, in general, the site trees have been well maintained.*

Current civil works plans had not been finalised at the time of the arborist's report and as such to retain these trees, revised civil works plans will need to show no level changes or services trenches through the TPZ of these trees. Old underground services to be made redundant, where they pass through a TPZ of any tree will need to be retained and left in situ, where possible. Trees to be retained will be required to be fenced for the demolition and construction period. The entire TPZ area within the fenced area shall be mulched with 100mm of leaf and woodchip mulch for the duration of the works. For Trees 220, 221 and 223, a temporary irrigation system will be installed for the duration of the works ensuring the TPZ area is watered twice per week for two (2) hours.

In terms of tree canopy loss, Moore Trees estimates approximately 40% of the existing tree canopy of this part of the hospital will be lost.

Trees retained are proposed to be protected during works by applying standard measures under Australian Standard AS 4970-2009. This includes determining Tree Protection Zones, Structural Root Zones, applying fencing and relevant signage and the like.

It is noted that the landscape design by Arcadia proposes a significant canopy tree replacement consistent with HI and NSW Government policy of new canopy plantings – as set out in Section 3.0 of this EIS.

The planting palette involves new canopy trees, other smaller trees, scrubs, grasses and groundcovers. New and replacement canopy trees include:

- Spotted Gum (56 trees of up to 25m in height at maturity)
- Brush Box (3 trees of up to 15m in height at maturity)
- Narrow-leaved Ironbark (4 trees of up to 25m in height at maturity)
- Cabbage Gum (4 trees of up to 30m in height at maturity)
- Red Ironbark (4 trees of up to 25m in height at maturity)
- Grey Box (7 trees of up to 25m in height at maturity)
- Forest Redgum (5 trees of up to 25m in height at maturity)
- Tallow Wood (10 trees of up to 45m in height at maturity)
- Sydney Blue Gum (12 trees of up to 30m in height at maturity)

This on its own will suitably replace and substantially augment the previous tree canopy lost and the number of trees removed. With some 58 removed trees (many being exotic species) and 105 replacement canopy trees, this is a replacement ratio of about 1.8:1. The native species removed will be replaced with the same species, as well as with further locally endemic species to improve the biodiversity outcomes at the redeveloped campus.

7.3 Heritage

7.3.1 Aboriginal cultural heritage

A campus-wide Aboriginal Cultural Heritage Assessment Report (ACHAR) has been prepared by Comber (see **Appendix K**). This includes an Aboriginal archaeological assessment undertaken with background research and a site inspection.

Aboriginal archaeological potential

An AHIMS search undertaken by Comber on 3 June 2021 revealed the hospital to not be an Aboriginal site and not an Aboriginal place. However, 10 Aboriginal sites in a 3 km radius of the hospital were revealed by this search. The majority of sites revealed (90%) represent isolated finds of singular Aboriginal artefacts with one site representing a potential archaeological deposit (PAD). This result can be regarded as partially reflective of archaeological potential within the hospital and this radius, as it represents the state of archaeological research and heritage assessment in the local area only. It is possible that further unrecorded Aboriginal sites are present within the AHIMS search perimeter, closer to or within the hospital.

Following the site inspection, and due to the disturbed nature of the site, Comber concluded that the site does not contain Aboriginal archaeological potential and that it is unlikely that Aboriginal objects

would be disturbed by the proposal. Accordingly, there are no constraints to the proposed Nepean Hospital Stage 2 Redevelopment in respect of Aboriginal archaeology. Recommendations are nonetheless made with respect to an unexpected finds protocol during works and induction and procedures related to addressing any finds.

Consultation

The ACHAR details the Aboriginal consultation undertaken for the project in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)*. This consultation is broadly summarised below.

- Determination of which Aboriginal people or organisations who may hold cultural knowledge with respect to the site and the area, including the Local Aboriginal Land Council (LALC) - in this instance the Deerubbin LALC.
- Written notification to organisations and people identified by the Deerubbin LALC, as well as an advertisement in a local newspaper circulating in the area of the development. 63 organisations and people were sent letters or emailed in June 2021. The newspaper advertisement was also published in June 2021.
- 13 organisations / people registered an interest in consultation on the development – these being the Registered Aboriginal Parties (RAPs).
- The RAPs involved with this project are:
    - Steve Randall, Deerubbin LALC
    - Paul & Lilly Carroll, Didge Ngunawal
    - Rodney Gunther, Wawaar Awaa
    - Daniel Chalker, Wori Wooliwa
    - Phil Khan, Kamilaroy Yankuntjatjara
    - Carolyn Hickey, A1 Indigenous Services
    - Details Withheld
    - Details Withheld
    - Jamie Eastwood, Aragung
    - Ryan Johnson, Murrabidgee Mulangari
    - Justine Coplin, Darug Custodian
    - Arika Jolomaki, Yulay Cultural Services
    - Vicky Slater, Wurrumay
- Due to COVID-19 a meeting was not held to present the project, ascertain significance, determine artefact management and any other issues of concern. Instead, an information package including methodology and archaeological assessment was provided to the RAPs for comment.
- Commentary was received from the RAPs which was incorporated into a refined ACHAR ahead of its finalisation, including that related to a review of the draft ACHAR.

Consultation with RAPs to date has garnered the following responses:

- *The study area has significance to the Aboriginal community as there are intangible and aesthetic aspects that arise within the area. We have a spiritual connection to the land, sky and water ways, this connection is still present even if there is disturbance to the land, more so because we feel something towards the destruction of the land. Our sites have been destroyed all over Sydney and it is sites like this that get missed due to high disturbance meaning our cultural heritage is lost.*

  For this reason, we recommend monitoring by RAPs to be undertaken as a last chance to uncover our cultural heritage. We would also highly recommend a cultural interpretation plan, which could be done in the form of design, native landscaping, art, and digital displays interpreting Australian's long ancient history of the land and its use. We would like to agree to your recommendations, and we support your methodology, we look forward to further consultation on this project.
- Wawaar Awaa supports the ACHAR methodology.

- Kamilaroi-Yankuntjatjara Working Group supports ACHAR methodology and requested archaeological monitoring of works – as set out above.
- A1 requested a site visit, which was not possible due to COVID-19 restrictions but further information was provided about the nature of the proposed landscaping.

With respect to the draft ACHAR, the following responses were received:

- Jamie Eastwood, Aragung who supported the ACHAR and agreed with the recommendations. In particular, he supports the recommendations by KYWG to monitor works
- Rodney Gunther, Waawaar Awaa Aboriginal Corporation supports the recommendations.
- Marilyn Carroll-Johnson, Corroboree Aboriginal Corporation who supports the recommendations.
- Kamilaroi-Yankuntjatjara Working Group supports the ACHAR.
- Justine Coplin, Darug Custodian Aboriginal Corporation.

Interpretation of Aboriginal cultural heritage significance into the Stage 2 Redevelopment

The following documents have been developed to address interpretation of Aboriginal cultural heritage:

- A Landscape Design Report by Arcadia which includes plantings that respond to Connecting to Country and includes interpretative opportunities such as "Healing Landscapes" and "The Story of the Mulgoa People".
- An Arts & Culture Strategy which includes an Indigenous Walk and Multi-Purpose Room with the engagement of a Darug artist to create concepts responding to the cultural heritage of the Darug Nation and reference to Aboriginal medicinal use of vegetation for healing. The Indigenous Walk is to acknowledge Aboriginal connection to Country including the rivers and valleys of the Nepean and Hawkesbury Rivers.
- The Architectural Schematic Design responds to Connecting to Country and interpretation through taking inspiration from Country with elements such as "Sky/Blue Haze", "Valley/Earth", "Flora & Fauna", "River/Water" and landmarks of importance to the community such as "Yandhai Bridge-Nepean River", "Claustral Canyon" and "Cliff Top Walk".

The ACHAR's recommendations in full are:

- There are no constraints to the proposed Nepean Hospital Stage 2 redevelopment in respect of Aboriginal archaeology.

- The Kamilaroi-Yankuntjatjara Working Group (KYWG) are concerned that previously undetected or unrecorded Aboriginal objects may be harmed during ground disturbance and have requested that monitoring of excavations be undertaken by the Registered Aboriginal Parties.
    - Please contact Kadibulla Khan direct on 0402 525 636 to arrange monitoring by the KYWG.
    - Jamie Eastwood at: james.eastwood@y7mail.com to arrange monitoring by of Aragung.

    An archaeologist is not required for this monitoring.

- The RAPs requested that an interpretation strategy and plan be developed and implemented that details the Aboriginal history of the site and the Penrith area. The history and data contained in this report could underpin the interpretation. The interpretation should be undertaken in a range of innovative ways including artworks, landscaping and digital displays.

    The following documents have been developed to address interpretation of the landscape. Extensive Aboriginal consultation was undertaken by NSW Health Infrastructure's Aboriginal Liaison Officers with Aboriginal patients, families and visitors to the hospital in the development of these documents. Such consultation is detailed in an Aboriginal Consultation Report prepared by NSW Health Infrastructure. Consultation is also to be undertaken with the Registered Aboriginal Parties in respect of these documents:

  - A Landscape Design Report by Arcadia which includes plantings that respond to Connecting to Country and includes interpretative opportunities such as "Healing Landscapes" and "The Story of the Mulgoa People".
  - An Arts & Culture Strategy which includes an Indigenous Walk and Multi-Purpose Room with the engagement of a Darug artist to create concepts responding to the cultural heritage of the Darug Nation and reference to Aboriginal medicinal use of vegetation for healing. The Indigenous Walk is to acknowledge Aboriginal connection to Country including the rivers and valleys of the Nepean and Hawkesbury Rivers

- Another recommendation from the RAPs was that the design and landscaping should consider the Connecting to Country and Designing with Country framework developed by the Government Architect's Office, in the design and interpretation to ensure that consideration of Aboriginal understanding of landscape and environment is included.

  The documents listed below have been developed to address Connecting to Country and Designing with Country. Extensive Aboriginal consultation was undertaken by NSW Health Infrastructure's Aboriginal Liaison Officers with Aboriginal patients, families and visitors to the hospital in the development of these documents. Such consultation is detailed in an Aboriginal Consultation Report prepared by NSW Health Infrastructure. Consultation is also to be undertaken with the Registered Aboriginal Parties in respect of these documents:
  - A Landscape Design Report by Arcadia which includes plantings that respond to Connecting to Country and includes interpretative opportunities such as "Healing Landscapes" and "The Story of the Mulgoa People".
  - An Arts & Culture Strategy which includes an Indigenous Walk and Multi-Purpose Room with the engagement of a Darug artist to create concepts responding to the cultural heritage of the Darug Nation and reference to Aboriginal medicinal use of vegetation for healing. The Indigenous Walk is to acknowledge Aboriginal connection to Country including the rivers and valleys of the Nepean and Hawkesbury Rivers.
  - The Architectural Schematic Design responds to Connecting to Country through taking inspiration from Country with elements such as "Sky/Blue Haze", "Valley/Earth", "Flora & Fauna", "River/Water" and landmarks of importance to the community such as "Yandhai Bridge-Nepean River", "Claustral Canyon" and "Cliff Top Walk"

- If any previously unrecorded or undetected Aboriginal objects are unexpectedly uncovered, all work must cease in the vicinity of that object, the area secured, and further advice sought from the consultant and the Aboriginal monitor. Unexpected finds or objects can include Aboriginal artefacts made from stone, glass or other post contact material such as electricity conductors; shell, burials, hearths etc.

- An induction should be provided by an archaeologist to all employees, contractors or sub-contractors engaged on this project, detailing their responsibilities under the National Parks & Wildlife Act 1974 in respect of Aboriginal archaeology and heritage and should include advice:
  - That it is an offence to harm an Aboriginal object without a permit.
  - How to identify an Aboriginal object.
  - If an Aboriginal objects is unexpectedly uncovered, all work must cease in the vicinity of that object, the area secured and the consultant contacted immediately.

Other than the above recommendations, as it is not expected that Aboriginal objects will be impacted upon by the proposed works, no specific mitigation measures are required.

7.3.2 Non-Aboriginal cultural heritage

A Statement of Heritage Impact has been prepared by Extent – see **Appendix J**. It confirms, consistent with mapping under Penrith LEP 2010, that the hospital campus is not a listed item on any statutory or non-statutory heritage register. A number of local heritage items are however located near or in the general locality of the hospital as shown in **Figure 63**. No heritage conservation areas are located within this general area.

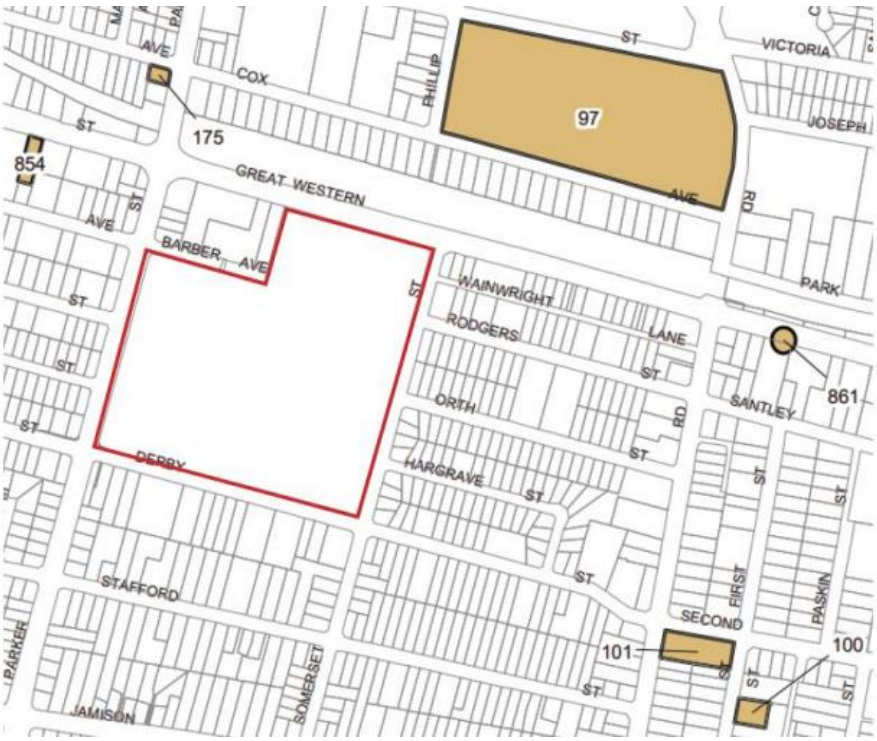


Figure 63 – Local heritage items in the vicinity of Nepean Hospital campus – shown bounded in red (Extent)

Extent has considered the heritage significance of the hospital as built heritage and concluded that *based on the historical and physical context, the buildings on the site of the Nepean Hospital do not meet any of the above significance criteria for local or state heritage listing*.

In further considering any potential impact upon any possible heritage significance of the hospital itself, Extent states:

The proposed works will have no impact on any items of built heritage significance. The buildings that will be decanted and/or demolished for the proposed works are not considered significant structures from a historic, aesthetic or architectural/technological value perspective. Aerial photographs … demonstrate that the majority of buildings involved in this proposal are relatively recent developments, the earliest having been erected sometime in the 1980s. Major developments in this area of the Campus occurred in the 1990s. In considering the pattern of development in the hospital buildings over time, it is clear that these buildings are representative of the reactive nature of hospital growth in response to the growing community.

The proposed works will have no impact on the study area's curtilage or subdivision.

In its assessment of heritage impact upon the nearby local heritage items Extent advises that:

Spatially, these heritage items are approximately 200m to 300m distance from the area of the proposed tower, however, the urban landscape separating these items minimises any visual or aesthetic impact on these heritage items. Additionally, there are several multi-storey developments in the immediate area, including private residential towers, the five-storey Somerset Specialist Centre, and the 13-storey Stage 1 Tower of the Nepean Hospital Redevelopment, which effectively creates an existing high-rise landscape for the new proposed tower to be inserted into. The current visibility of the Stage 1 Tower, which is higher than Stage 2, provides a base for which to assess the impact the Stage 2 Tower views will have on the heritage in the vicinity.

The following table is a summary of the likely impacts assessed by Extent in relation to the nearest items to Nepean Hospital – see **Figure 63** above for location via the Item Number reference.

Item Name	Item Number	Address	Significance	Impact of proposed development
"Kelvin Brae"	854	142 High Street, Penrith	Local	**No substantial new or direct impacts**, given these are isolated private residences set in amongst highly modified, mixed-use areas.
Weatherboard cottage	175	71 Parker Street, Penrith	Local	
Penrith General Cemetery	97	Land bounded by Copeland and Phillips Streets, Richmond Road and Cox Avenue, Kingswood	Local	**Negligible**, given the screened views from the site to the hospital. The heritage item is located on the north side of the railway line and set within a highly modernised mixed residential, commercial and industrial area, with large 2 to 3-storey warehouses lining almost the full length of Cox Avenue.
Milestone	861	Great Western Highway, Kingswood	Local	**Negligible**, as it is set fully within the modified highway streetscape remote from the hospital
St Phillips Anglican Church	101	32 Bringelly Road, Kingswood	Local	**No substantial new or direct impacts**, given the church is an isolated heritage item set amongst highly modified, low and medium density suburban areas.

Archaeological potential at the site has been assessed Nil to Low by Extent on the basis of the highly disturbed and urbanised nature of the site and progressive loss of soil integrity across the campus from periods of intensive works.

Notwithstanding, the conclusions drawn by Extent in the Statement of Heritage Impact, recommendations are made in relation to unexpected archaeological finds and other items that may be of social importance in relation to the hospital, individuals or communities attached to the hospital. These items when salvaged or found could be collected, reused, returned or reinstated as part of the redevelopment.

Extent recommends:

An Unexpected Archaeological Finds Procedure should be prepared and in place to guide any event for managing unexpected archaeological finds. The procedure should consist of the following steps:

- *Should a suspected archaeological relic be discovered during works, stop work in the area, notify the Project Manager and protect the find;*
- *Engage an archaeologist to assess the find, starting with the submission of a photograph to undertake a preliminary assessment. The archaeologist may require a site visit to undertake further assessment;*
- *Gain advice from archaeologist on how to proceed. Subject to the archaeological assessment, work may proceed or notification to Heritage NSW, Department of Premier and Cabinet may be required;*
- *If an assessment (following notification) indicates that the material exposed is of State or local significance and requires management under the 'relics' provisions of the Heritage Act, the following steps should be taken:*
    - *Preparation of an Archaeological Assessment and Research Design as a supporting document in order to obtain an Excavation Permit under Section 139 of the Heritage Act 1977.*

- *Monitoring and/or salvage (where appropriate) to be carried out under the relevant conditions attached to the Excavation Permit.*
- *A final report on the archaeological findings, if any, should be prepared at the completion of works.*

- *Seek clearance to resume works.*

7.4 Earthworks, Structural and Water Management

7.4.1 Earthworks

A range of civil engineering works and earthworks is proposed within the development site. The concept bulk earthworks for the proposed Stage 2 building and associated hardstand area will result in approximately 24,300m^3 of cut volume while some 1,900m^3 of fill volume is estimated as bulk earthworks quantities. An excess of some 22,400m^3 is anticipated to result. This includes a portion of the courtyard to the north of East Block as originally included in Stage 1 as temporary landscaping works. See the bulk earthworks plan as part of the civil engineering package at **Appendix S**. Soils leaving the site will be required to be appropriately classified prior to removal and disposal.

See also the Structural Report at **Appendix Y** which details the retention likely to be required within the vicinity of North Block resulting from the deep excavation adjacent to the remaining North Block structure.

A Soil and water management plan will be implemented during construction. The design of these measures will be in accordance with the Landcom "Blue Book". In general, where there is less than 150m^3 per year of soil loss, the building of a sediment retention basin can be considered unnecessary (see Section 6.3.2 of the "The Blue Book").

Nonetheless, the excavation of the Stage 2 building may act as a sediment basin to provide an opportunity to further improve water quality. Additionally, the following measures are provided to minimise the risk of sediments being washed into neighbourhood property and erosion of the site.

- A sediment fence/catch drain (or diversion bund) around the site
- Sandbag/Geotextile pit filters to be placed at stormwater inlet pits
- Temporary access to site with shaker pad
- An indicative stockpile area with sediment fence around it during construction. The stockpile must be located out of water flow paths (and be protected by earth banks/drains as required).

As noted, to manage the tracking of dirt onto roads, construction entries and exits with shaker grates are to be employed.

7.4.2 Structural matters

A Structural Report has been prepared by Bonacci in relation to the structural works for the Stage 2 building and the retention system and other works required in proximity to North Block's retained structure. This report is attached at **Appendix Y**.

Its key findings are that:

- The building has been designed to be structurally independent to the Stage 1 Tower and cater for future expansion if needed
- The building's structure is to be supported by a piled foundation into rock
- A retention system and shoring walls will be required for the lowest sub and ground levels.
- The superstructure is a reinforced concrete braced frame with columns following a standard 8.4m x 8.4m grid. This grid is consistent with HI's guidelines to suit clinical spaces, operating theatres, and the like and meet future-proofing requirements
- Whilst independent of the Stage 1 Tower, a structural connection will be made between the two to take slab gravity loads
- Minor structural and other ancillary works are required to North Block at its interface with the Stage 2 building, including external and internal works to provide for propping, support, access, and finishing of newly exposed areas.

The Structural Report also otherwise deals with the demolition interfaces and new works at the existing pathology building and upgraded Back of House area.

7.4.3 Water Management

Stormwater Management

As set out in Section 2.3.4 of this EIS, based on Bonacci's review of the site, the Nepean Hospital Campus broadly operates as four separate catchment quadrants – see **Figure 11**.

The north-west quadrant includes portions of North Block, West Block, the new multi-storey carpark and adjacent service roads. This catchment discharges to Parker Street and Barber Avenue. Overland flow is directed to Parker Street.

The south-west quadrant comprises of the West Block car park, former at-grade helipad, portions of West Block and portions of South Block and discharges into the Council system in Parker Street.

The north-east quadrant is the largest and includes Cancer Care, Tresillian, Hope Cottage, portions of North Block, Doctor's Accommodation, Gateway, Drug and Alcohol, the new Stage 1 Tower and East Block. The storm water is discharged at the site boundary into a dual pipe system to Somerset Street opposite Rodgers Street.

The south-east catchment (which includes Mental Health, Maintenance, Oral Health and multi-deck car park buildings) discharges directly into Derby Street and Somerset Street via individual systems, each of which typically includes on site detention.

The stormwater management works proposed consist of:

- Barber Avenue pits and pipes, including adjustment of the connecting stormwater system within the Hospital Campus which conveys stormwater to the east, where it joins the Council stormwater network at Somerset Street
- Adjusted stormwater system to the northern area of Stage 2 works, which connects to the Council pit and pipe system in Barber Avenue
- Stormwater system for Stage 2 building – which consists of the building footprint being directed to a combined On-site Detention and Rainwater tank and then connected to the main through-site stormwater system.

Penrith City Council's stormwater drainage specification for building developments recommends that the stormwater drainage is to be designed in accordance with the following design criteria:

- Minor System Drainage (Underground Piped Network) 1 in 20 year ARI.
- Major System Drainage (Overland Flow Path) 1 in 100 year ARI.

Water Quantity

Penrith City Council policy is that post-development stormwater flows must not exceed pre-development peak flows. This is the strategy that has been adopted for this development. The existing impervious area has been compared with the proposed impervious area within the Stage 2 extent of works footprint. The proposed impervious area exceeds the existing impervious area, indicating that peak flows from the proposed development will exceed pre-development flows without mitigation. An underground on-site detention tank (catering for a 180m^3 volume) coupled with a (20m^3) rainwater tank (and other Water Sensitive Urban Design (WSUD) landscaping features is proposed to mitigate the increased peak flows from the proposed development.

The capacity of the underground on-site detention tank has been determined via DRAINS modelling. This is set out in the Bonacci Stormwater and Flooding Assessment (see **Appendix G**). This demonstrates the peak discharge results both with, and without, the tank. Without the tank, the post-development flow would exceed those of the pre-development scenario.

To that end, in terms of urban run-off within the regional context of the Hawkesbury-Nepean River system, the water quantity measures proposed satisfy the relevant parts of clauses 5 and 6 of SREP

20 as the river system's environment is further protected; the impact of the development has been considered, including its cumulative impact in reducing flows to below existing levels; and by using stormwater retention devices and water reuse.

Water Quality

Water quality modelling has also been carried out using the MUSIC link model to address Penrith City Council's water quality targets, as set out below.

- Reduction of Mean annual Load of Gross Pollutants – 90% (greater than 5mm)
- Reduction of Mean annual Load of Total Suspended Solids – 85%
- Reduction of Mean annual Load of Total Phosphorous –60%
- Reduction of Mean annual Load of Total Nitrogen – 45%

To address these targets, the proposed water quality strategy provides water quality measures specifically for the new building and associated infrastructure.

WSUD measures have been incorporated in the proposed development in accordance with best practice (including providing, where possible, opportunity for infiltration of stormwater runoff).

The water quality treatment measures for the site are provided to reduce pollutant loads. The water quality strategy for the site incorporates a rainwater tank, OceanGuard (or similar or equivalent) pit baskets and stormfilter cartridges. The Stage 2 building roof will be directed to a 20kL rainwater tank (for irrigation reuse only), with the overflow to a detention tank with a stormfilter cartridge chamber for treatment.

Locations of downpipes and connection to the proposed rainwater tank and any roof area that will bypass the rainwater tank are be coordinated with the hydraulic engineer. There is an existing hardstand area where an overland flow path has been designed to bypass the stormfilter chamber. This area is to be treated by OceanGuard (or similar or equivalent) pit inserts, which are to be installed in the existing stormwater pits. The remainder of the hardstand area, including the Front of House drop off area is captured and filtered by an OceanGuard (or similar or equivalent) in each stormwater inlet pit before passing through a Stormfilter (or similar or equivalent) chamber to meet Council's water quality targets.

The treatment train operates as a complete system removing the target pollutants to the required level. The results of modelling (as set out below) have confirmed the effectiveness of the proposed treatment train which satisfies the requirements of Penrith City Council's Water Sensitive Urban Design (WSUD) Policy, December 2013.

- Gross Pollutants – 90% (greater than 5mm) target / **100%** achieved
- Total Suspended Solids – 85% target / **96.6%** achieved
- Total Phosphorous –60% target / **85.7%** achieved
- Total Nitrogen – 45% target / **59.8%** achieved

Again, the relevant parts of clauses 5 and 6 of SREP 20 have been considered and addressed through the proposed water quality strategy and infrastructure. In particular, whilst remote from the Hawksbury-Nepean River system itself, the proposal has quantified, and assessed the likely impact of, any predicted increase in pollutant loads on receiving waters; and considered and applied the water quality goals of Council.

Flooding impacts and mitigation

The hospital campus is identified by Penrith City Council as being partially flood-affected. See **Appendix G** for assessment of floor-related matters as prepared by Bonacci.

Penrith City Council has previously commissioned Flood Modelling for the area and identifies that the campus lies within the area subject of the College, Orth and Werrington Creek Flood Study. The College, Orth and Werrington Creek Overland Flow Flood Study was completed by Catchment Management Solutions in June 2017. This study has recently been updated, with the release of the College, Orth and Werrington Creek Floodplain Risk Management Study (Catchment Simulation Solutions Public Exhibition Draft 7 May 2021).

The upstream catchment generally drains from the north-west to the south-east. The railway line immediately north of Great Western Highway acts as a weir, with flood flows through the rail corridor (via a pipe) and then through the north-eastern side of the hospital site via a 900mm diameter pipe. This connects to a stormwater pit located at the low point in Somerset Street, which is to the north east of the proposed Stage 2 site.

The current (2021) modelling shows the hospital's ground surface partway through the excavation for the construction of the Stage 1 Tower, revealling a large depression on the campus. This has had the effect of distorting results as they apply to the hospital – see the surface model used in flood modeling below.

Figure 64 - Surface Model Used in Flood Modelling (Catchment Simulation Solutions Floodplain Risk Management Study Draft 7-5-2021) – (Bonacci)

The low point towards the eastern boundary to Somerset Street, opposite Rodgers Street, is affected by flooding as shown in **Figure 65** (1% AEP Level Flood Map Excerpt). Bonacci believes this to be a localised depression unrepresentative of actual flood behaviour following completion of the Stage 1 Tower and associated works.

The flooding in the region of the Stage 1 and Stage 2 buildings is discontinuous to Somerset Street, indicating that the Stage 2 site is not affected by mainstream flooding. This is confirmed by flood mapping shown in **Figure 66**, which shows flooding through the Drug and Alcohol Building and a flood depth over 2m in the Stage 1 building location. This is an anomaly in the model as 2m of flooding in this location is not possible with ponding given the site levels and Stage 1 design levels.

Figure 65 – Peak Flood Levels 1% AEP (Catchment Simulation Solutions Floodplain Risk Management Study Draft 7-5-2021) - (Bonacci)

Figure 66 – Peak Flood Depths PMF (Catchment Simulation Solutions Floodplain Risk Management Study Draft 7-5-2021) - (Bonacci)

Notwithstanding, based on the above figures, the area subject of the Stage 2 Redevelopment would generally be free of flooding impacts.

The updated Council Flood Study also shows flooding impacts likely to arise through Climate Change scenarios. This is a sensitivity check to identify flooded areas most affected by Climate Change. For

the worst-case scenario modelled (23% Increase in Intensity in 1% Rainfall), flood levels increase within the Nepean Hospital campus (remote from Stage 2 building) by approximately 50mm to the north-east of the Stage 1 Tower (that is towards Somerset Street and the Great Western Highway). This will not impact any flood affectation upon the Stage 2 Redevelopment, due to the minor increase in flood level and discontinuous nature of mainstream flooding from Somerset Street into the campus toward Stage 2.

Overall, there are no flood impacts likely to arise because of the Stage 2 Redevelopment. Potential impacts (including increased flows resulting from the development) have been addressed through provision of the on-site detention tank which will limit post-development peak flows to less than pre-development peak flow rates. Overland flow paths have been provided in the Stage 2 design which ensures that flood risk on-site is managed and is lower than the existing flood risk. The provision of an upgraded stormwater trunk drainage system (replacement of existing pipe with 600mm diameter stormwater pipe) through the site, as noted in the Bonacci report and civil engineering drawings, is another measure provided by the proposed development to lower flood risk on-site and up-stream.

Based on the above, and Bonacci's report, under the matters of consideration of clause 5.21 Flood Planning of Penrith LEP 2010, the proposed development satisfies these provisions as it:

- Is compatible with the flood function and behaviour on the land
- Will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties
- Will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood
- Incorporates appropriate measures to manage risk to life in the event of a flood
- Will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.

Further, the impact of the development's design on projected changes to flood behaviour as a result of climate change have been considered and are likely to be negligible in the local context. The development will not alter or adversely affect existing and known evacuation routes in the event of a flood, or further contribute to any risk of life.

7.5 Built form, environmental amenity, and CPTED

7.5.1 Height, density, bulk and scale, and setbacks

The Nepean Hospital campus is not subject to any height or density (FSR) controls. No setback controls apply to the development.

Notwithstanding, in assessing the bulk and scale of the development, the NSW Land and Environment Court Planning Principle in relation to height and bulk has been considered. This is set out below.

Planning principle: assessment of height and bulk

- *Are the impacts consistent with impacts that may be reasonably expected under the controls?*
- *How does the proposal's height and bulk relate to the height and bulk desired under the relevant controls?*
- *Does the area have a predominant existing character and are the planning controls likely to maintain it?*
- *Does the proposal fit into the existing character of the area?*
- *Is the proposal consistent with the bulk and character intended by the planning controls?*
- *Does the proposal look appropriate in its context?*

As there are no relevant controls, the consideration of bulk and scale rests in considering the massing of the development in reducing impacts, the desired or emerging character of the locality, and the context of the development in that character.

The Stage 2 building sits some 180-200m off all boundaries of the hospital campus. It is centrally-located within the campus and sits adjacent to, but lower than the Stage 1 Tower. The Stage 1 Tower has set the new built form context for the campus. This in part has set the maximum height parameter within the immediate locality in conjunction with the relevant height controls around the campus under the Penrith LEP which is presently set at 18m and 24m (approximately 6 and 8 storeys / levels). The Stage 2 building at 8 levels (7 storeys plus rooftop plant) is not inconsistent with this adjacent development control.

The bulk and scale of the building is a direct function of the necessary efficient layout, siting and orientation required to complement the Stage 1 Tower to which it is attached and shares clinical functions. The building bulk steps down from the Stage 1 Tower appropriately and proportionately relative to the site area and setbacks off the boundaries, particularly to the west, where the building addresses Barber Avenue and Parker Street. The building is otherwise shielded or obscured by other development to the east and south, and sits obliquely with its 'narrow' frontage to the north.

The existing campus already comprises a cluster of buildings interrelated and connected with each other to the greater part. The Stage 2 building will reinforce this clustering and further reinforce the Zonal Masterplan of taller buildings and acute services to the campus' core, with parking structures and lower buildings to the fringes. Note, the two multi-storey car parks (each of 6+ split levels) located at the campus' edges have set this height datum at the perimeter, again consistent with the adjacent height controls on neighbouring land.

The Stage 2 building is not out of context or character with the hospital's existing built form, nor is it out of character of the desired and emerging built form of the locality and the Penrith Health and Education Precinct, which is progressively evolving with several recent development consents for new buildings at the LEP height controls.

The consideration of the impacts of bulk and scale, including overshadowing, solar access, privacy, and overlooking, is further addressed below.

7.5.2 Design quality

As noted in Section 3.2.4 of this EIS, the GANSW 'Better Placed' guideline has been applied by BVN in designing the building. Similarly, the 'Greener Places' guideline has also been applied by Arcadia in devising the landscape design.

The State Design Review Panel (SDRP) process has been used in the design evolution with three meetings held. At this point, the SDRP and GANSW are each broadly satisfied with the progress made in attaining design quality and design excellence.

7.5.3 Environmental Amenity

Solar access / overshadowing

The summer and winter solstice shadows arising from the Stage 2 building have been modelled by BVN – see **Figure 67**.

This demonstrates that all shadows arising from the development will be contained within the hospital campus. No external (sensitive) land use will be impacted by overshadowing from the development.

Within the hospital itself, the shadows will generally fall on existing buildings (North Block and East Block) and in part, dependent upon the time of day and year, on the southern courtyard between the Stage 1 Tower and the Stage 2 building. This courtyard has been designed with this assumed microclimate in mind, with a planting schedule to represent deep valleys of the nearby Blue Mountains.

Figure 67 – Overshadowing modelling (BVN)

Visual impacts / visual amenity

The likely visual impacts or visual amenity arising from the development is considered below with reference to the surrounding public domain, landscape, and heritage. View loss (as a 'private' impact) is separately addressed.

The visual impact of the development has been considered from the public domain outside of the hospital, effectively the visibility of the development from the street edges at the campus' perimeter. The campus and the surrounding area is generally flat to gently undulating and in theory the Stage 1 Tower (at 14 levels) will be highly visible within this view catchment. The Stage 2 building will sit to the west of the Stage 1 Tower at near half this height and so from the east and south-east the building will be not visible, or will not be visible as a complete building or mass. As described above, the building will be well set back from the campus' boundaries and in part obscured by existing development. From the south, a similar result is likely to occur with only minimal visibility and glimpses to the building through or past other buildings including North Block and East Block.

The principal views to the building with be from the west, north and north-east. Photomontages prepared by BVN at **Figures 68** to **70** show these indicative views.

As seen in these indicative views, the Stage 2 building will be significantly lower and less bulky than the Stage 1 Tower and generally appear subordinate to that building in the context. The massing of the building will step down and away from the Stage 1 Tower. This is particularly true of the northern public views into the hospital. The articulation, shadowplay, and breaking of long and continuous facades and massing will help reduce the visual bulk of the Stage 2 building from the north. The obliquely-set positioning of the building further removes the impression of bulk and visual impact.

The main and dominant view of the building will be from the west where it is also designed to operate as a welcoming front of house to the development and hospital campus more generally and assist in wayfinding and ease of orientation. To facilitate this, it must also inherently have some form

of address and visual presentation beyond the campus to encourage new desire lines into the campus.

Figure 68 – Photomontage of indicative view of the Stage 2 building from Barber Avenue from the west (BVN)

Figure 69 – Photomontage of indicative view of Stage 1 and Stage 2 from the north within the hospital (BVN)

Figure 70 – Photomontage of indicative view of of Stage 1 and Stage 2 from the north-east (BVN)

To that end, whilst presenting a new address and presentation to Parker Street and Barber Avenue in particular, the building is not likely to visually dominate in an adverse or negative sense. Landscaping (and the distance) between the multi-storey car park and Parker Street will assist in buffering and moderating the appearance of the building. The generous setback from Parker Street coupled with the proportionate height and scale of the building will also moderate any sense of bulk and visual impact. The building will not dominate, jar or overwhelm from the Parker Street frontage. The choice of materials and colours (including earthy tones) and the ratio of fenestration to solids will assist in presenting an interesting and variable façade that will not dominate in a way a blank and uniform façade might.

Extent has also considered the bulk, scale and visual impact of the Stage 2 building in its Statement of Heritage Impact (see **Appendix J**). Extent advises as follows:

> *The proposed works are located within the larger Nepean Hospital Campus, which occupies several large blocks. The buildings, thoroughfares, open spaces and buffer zones within this Campus quite clearly presents as a hospital or public institution facility. The proposed building will fit in with this vision. The Nepean Hospital site occupies a gently elevated area at the intersection of The Northern Road and The Great Western Highway, where the Northern Road crosses over the Western Railway Line. The land falls away in every direction from this high point. As the hospital commands an elevated position at the top of a hill in all directions, the new structure will dominate the immediate skyline in a similar respect to the Stage 1 Tower which is currently under construction (Figure 17), and the newly completed 8-storey carpark at the corner of the Northern Road and Somerset Street. Nonetheless, this landscape is highly developed and within the Hospital Campus and in the immediate vicinity, there are multiple large developments up to 10-storeys, particularly high-density residential developments. This cumulation of structures has effectively changed the landscape of the area to one that is populous, active and progressive. The new proposed tower is a moderate addition and amplification to an already heavily impacted landscape. There are no historic or*

sensitive heritage landscapes, views and settings in this area that will be impacted by the new development.

Overall, the visual impact, of what is already a highly modified landscape and visual catchment is moderate and appropriate to the locality and the existing built form of the hospital. The visual impact of the development is commensurate with the desired future character of the hospital and the locality.

View loss

View loss from private development arising from the Stage 2 building is likely to be negligible to minimal given the flat to moderately undulating topography of the area, lack of iconic views and other natural features in the locality such as waterways and water views (other than distant westerly views to the Blue Mountains' foreslopes and silhouette), and the generally low-rise nature of the majority of existing development around the hospital's perimeter. Few developments located around the hospital will have views into and through the campus. Existing taller development likely to enjoy views and glimpses through and over the campus occur to the south, west, and east.

Notwithstanding, a NSW Land and Environment Court Planning Principle, has again been applied. On this occasion in relation to view loss.

> ***The first step is the assessment of views to be affected.*** *Water views are valued more highly than land views. Iconic views (eg of the Opera House, the Harbour Bridge or North Head) are valued more highly than views without icons. Whole views are valued more highly than partial views, eg a water view in which the interface between land and water is visible is more valuable than one in which it is obscured.*
>
> ***The second step is to consider from what part of the property the views are obtained.*** *For example the protection of views across side boundaries is more difficult than the protection of views from front and rear boundaries. In addition, whether the view is enjoyed from a standing or sitting position may also be relevant. Sitting views are more difficult to protect than standing views. The expectation to retain side views and sitting views is often unrealistic.*
>
> ***The third step is to assess the extent of the impact.*** *This should be done for the whole of the property, not just for the view that is affected. The impact on views from living areas is more significant than from bedrooms or service areas (though views from kitchens are highly valued because people spend so much time in them). The impact may be assessed quantitatively, but in many cases this can be meaningless. For example, it is unhelpful to say that the view loss is 20% if it includes one of the sails of the Opera House. It is usually more useful to assess the view loss qualitatively as negligible, minor, moderate, severe or devastating.*
>
> ***The fourth step is to assess the reasonableness of the proposal that is causing the impact.*** *A development that complies with all planning controls would be considered more reasonable than one that breaches them. Where an impact on views arises as a result of non-compliance with one or more planning controls, even a moderate impact may be considered unreasonable. With a complying proposal, the question should be asked whether a more skilful design could provide the applicant with the same development potential and amenity and reduce the impact on the views of neighbours. If the answer to that question is no, then the view impact of a complying development would probably be considered acceptable and the view sharing reasonable.*

In addressing the steps above, the only likely view to be affected in a minor way is that towards the Blue Mountains. This will only affect taller development to the east of the hospital. The impact upon these distant views will only be marginal or negligible given the presence of the Stage 1 Tower and

the clustering of development within the hospital with other taller buildings to the west of the hospital. Any view to the Blue Mountains is a distant view, unlikely to capture an unbroken or holistic view of the Blue Mountains foreslopes and silhouette. These will only be filtered views or glimpses in the context of the urban development of Kingswood and the distance between Kingswood and the Blue Mountains.

As noted above, the proposed Stage 2 Redevelopment is not subject to any development controls, but is of a height that is representative of the development controls adjacent to the hospital site. The building's proposed height would not be a relevant factor in considering view loss in that regard, noting it is also adjacent to, and from a majority of views (where they exist into and through the hospital campus) shielded by the Stage 1 Tower and the other cluster of buildings within the campus.

Visual privacy

Given the significant distance of the Stage 2 building from all hospital boundaries, no visual privacy impacts are likely to arise with respect to residential properties facing the hospital. This includes the potential for overlooking into private open space.

Acoustic separation

Similarly, acoustic impacts from the operation of plant from Level 4 and rooftop are likely to be shielded by the Stage 1 Tower in various directions and unlikely to be discernible above other background noise given distances from boundaries. As set out in Section 7.11.3 of this EIS, the plant would be acoustically treated in the first instance without any additional screening or supplementary measures and further detailed design and incorporation of supplementary measures (where and when needed) will ensure noise levels are able to meet required standards. Acoustic treatments are typical and would be considered in further detail with the development of the mechanical scheme.

Lighting impacts

As noted in Section 4.10.2 of this EIS, all external lighting local to the Stage 2 Redevelopment will be designed in accordance with both AS/NZS 1158.3.1 Lighting for roads and public spaces series and AS 4282 Control of Obtrusive Lighting. Careful consideration will be given to not only neighbouring sites, but also existing buildings and infrastructure internal to the hospital campus, in order to establish an overall lighting design and aesthetic that minimises glare and undesirable illumination levels to surrounding sensitive receivers and where necessary, includes mitigation management measures.

7.5.4 Crime Prevention through Environmental Design

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients (law, offender, victim or target, opportunity) from intersecting in time and space (source: NSW Police – Safer by Design).

Based on information made available on the NSW Bureau of Crime Statistics and Research (BOCSAR) webpage, Kingswood (and Nepean Hospital) is generally identified as being subject to low to moderate levels of crime and anti-social behaviour, particularly in comparison to adjacent areas. In summary, BOCSAR's 2020/2021 rating for different types of crime at Kingswood (postcode 2747) is:

- Assault – moderate
- Homicide – low
- Robbery - low
- Sexual Offences - moderate
- Theft – moderate
- Malicious Damage to property – low
- Disorderly Conduct – very low
- Drug Offences – moderate
- Other Offences – moderate

In general, the Kingswood postcode would not be considered to be a high or very-high risk area under any measure of crime. Broadly it is a low to moderate risk crime area. The operation of the hospital as a 24 hours / 7 days per week institution that sits prominently within the locality is likely to positively contribute to this risk status. This is likely to be reinforced by the positive design and management measures to be implemented under this Stage 2 Redevelopment.

The relevant CPTED Principles under the NSW Police Safer by Design guidelines are:

- Territorial Reinforcement
- Natural Surveillance
- Access Control
- Space Management

These principles are addressed in turn below and in the CPTED section of the Architectural Design Report at **Appendix N** and the same section of the Landscape Report at **Appendix O**.

Territorial Reinforcement

The Nepean Hospital Campus and the proposed new Stage 2 Redevelopment design has put a significant focus on community ownership of the public spaces to ensure they do provide positive signals, make people feel comfortable and are more likely to be visited as they feel owned and cared for.

Well frequented places also reduce opportunities for crime whilst increasing the level of risk to criminals. Community ownership also increases the likelihood that people who witness crime will respond by quickly reporting it or by attempting to prevent it.

Territorial reinforcement can be achieved through:

- Designs that encourages people to gather in a public space and to feel some responsibility for its use and condition
- Design with clear transitions and boundaries between public and restricted spaces
- Clear design cues on who is to use a space and what it is to be used for.

Part of the intention of the landscape design is to create opportunities for existing and established communities to intersect and create a sense of place through spatial opportunities. From family and visitor gatherings to staff breakout and educational spaces, to patient/ visitor experiential enjoyment and healing, in conjunction with signage the design aims to give the users something which they can establish a sense of ownership through these uses the design provides them.

Natural Surveillance

The attractiveness of crime targets can be reduced by providing opportunities for effective electronic and natural surveillance. Good surveillance means that people can see what others are doing and is an effective deterrent to criminals from committing crimes in places that are well supervised. Natural surveillance is a by-product of well-planned, well-designed, and well-used spaces. This is achieved when normal space users can see and be seen by others.

The Nepean Hospital Stage 2 architectural design has implemented natural surveillance in a considered building layout and orientation, site location and amenities, landscaping and security lighting. Electronic surveillance will be achieved through the use of Security Cameras, Video Recordings, and Intercoms. The strategic positioning of the security lighting and cameras is a major factor for deterring criminal behaviour and the prevention of anti-social behaviour.

The Stage 2 landscape design aims to reduce the attraction of crime through a combination of design strategies that work with attracting the intended users. Natural and experiential connection to nature that attracts visitors and staff. The implementation of visual permeability is unmitigated by planting, which has been purposefully kept low. Seating and gathering spaces are directed to views that overlook entrances, pathways, and adjacent gathering places. In addition, the design includes a combination of legibility through lighting, reduced entrapment spaces and places to hide. Overall preventing the opportunity for unwanted activity.

Access Control

The Nepean Hospital Campus and the proposed new Stage 2 development have applied electronic access control measures that will restrict, channel, and encourage people into, out of and around facilities, combined with way-finding signage and formal/informal routes, that will reduce criminal activity.

Natural access control includes the tactical use of landforms, design measures including building configuration; formal and informal pathways, landscaping, fencing and gardens. By making it clear where people are permitted to go or not go, it becomes difficult for potential offenders to reach and victimise people and their property.

Effective access control can be achieved by creating effective:

- landscapes and physical locations that channel and group people into supervised areas
- restricted access to internal areas or high-risk areas
- mechanical access control includes the deployment of security counter-measures.

The landscape design uses a combination of hierarchical path network, key landscape features, directional landform, and visual connection throughout to guide individuals across the site in a way that passively deters from entering high-risk or secure areas. In further collaboration with architectural, signage, and lighting strategies the design actively delineates access between public and restricted access areas.

Space Management

The Nepean Hospital proposed Stage 2 Redevelopment's architectural design has taken into consideration and applied the need for space management, which involves the formal supervision, control, and care of the development. Popular public spaces are often attractive, well maintained and well used spaces and the proposed design wants to ensure that the space is appropriately utilised and will be well cared for.

Space management strategies applied to the proposed development and the Nepean Hospital Campus include activity coordination, site cleanliness, rapid repair of vandalism and graffiti, replacement of faulty security lighting and the removal or refurbishment of decayed physical elements.

Management of the landscape space works with a combination of formalised care and supervision; active anti-vandal, cleaning, and repair strategies; and ongoing user activity. The overlaying of the variety of activities designed into the landscape include the aforementioned egress and visual connectivity, tangibly interacting with the planting via bush tucker patches and resting points, a coordinated activity involving staff or visitors.

7.6 Transport, Traffic and Parking

A Traffic Impact Assessment (TIA) has been prepared in relation to the proposed development. This addresses the existing transportation facilities; the existing and likely future car parking demand and supply at the campus; the impact of the development upon daily and peak hour activity; intersection performance at and near the hospital arising from the development; proposed servicing arrangements; and mode share and content for a Green Travel Plan for the campus – see **Appendix L**. ptc has also provided a separate preliminary Construction Traffic Management Plan (CTMP) – also found at the same appendix reference.

To supplement and complement this TIA, Cattell Cooper has prepared a Transport Report which reviews and addresses the development and operation of the Nepean Hospital campus from a wider, higher level, strategic planning context in relation to the region / Western Sydney. This report (found at **Appendix M**) further addresses future transport and access matters that assist in defining roles and responsibilities towards transport and traffic improvements, including those that the hospital and NSW Health have influence over through such things as a Green Travel Plan, and those that require wider support.

7.6.1 Existing

As noted by ptc, in determining the existing traffic and parking scenario at the site and the development's impacts and parking demand, it is important to review the project in the context of the wider hospital campus, the Stage 1 Tower, and other recent actions undertaken to improve parking supply. The following diagram summarises the process undertaken since 2017 to improve parking supply, and is further explained below.

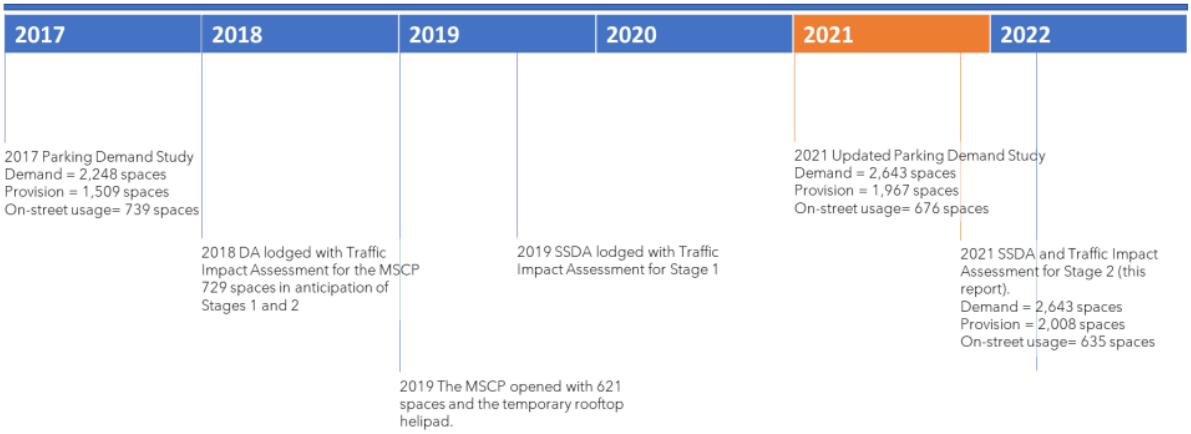


Figure 71 – Traffic and parking assessment timeline 2017-2022 (ptc)

As both the Stage 1 and Stage 2 expansion projects involve the displacement, replacement and augmentation of health services and building floor area on the campus which operates within a range of interconnected and co-dependent buildings and facilities, a traditional floor area-based assessment of the traffic generation and the parking provision associated only with the Stage 2 building is not suitable. This is amplified by the construction and operation of the Barber Avenue multi-storey car park (MSCP). This car park was opened in 2019 to accommodate the planned demands associated with both Stages 1 and 2. Once the rooftop helipad is moved to the Stage 1 Tower, this carpark's full allocation of spaces will become available. A chronology provided by ptc is set out below.

> **2016 - 2017** – ptc prepared a parking demand analysis for HI to determine the parking provision and demand for the entire public hospital campus (i.e. the Nepean Private Hospital is not included). At that time, it was concluded that the hospital accommodated 1,509 parking spaces and produced a peak demand of 2,248 spaces. The study also established the on-street parking supply within a 500m radius of the campus to conclude that this was able to accommodate the additional demand. The study included a projected future parking demand based on the planned expansion of the hospital (Stages 1 and 2), with reference to the Clinical Services Plan and staff population projections established by the NBMLHD. The ptc assessment was used by HI in the car park business plan process, which underpinned the proposal to construct the MSCP to cater for the planned growth.
>
> **2018** - ptc prepared a Traffic Impact Assessment to accompany a Development Application to Penrith City Council for the construction of the MSCP on the corner of Parker Street and Barber Avenue. The car park accommodates 621 spaces with a temporary rooftop helipad, in line with the ptc parking demand assessment. The traffic analysis included peak hour modelling of the existing road conditions at that time, plus a post development and horizon model of 2026.
>
> **2019** - ptc prepared a Traffic Impact Assessment to accompany an SSD DA for the Stage 1 Tower. This was shortly after the MSCP assessment and therefore the MSCP TIA was referenced as the basis for the Stage 1 traffic impact assessment. Approval for Stage 1 was granted in 2019 and the project is currently under construction and nearing completion.

2019 – the MSCP was completed and opened for use with the exception of the roof level, which is being used to house the temporary helipad until it can be relocated to the roof of the Stage 1 Tower. This will increase the parking supply from 621 to the approved 729 spaces.

2021 – ptc prepared a revised parking demand assessment based on updated health projections and clinical health plan. The revised parking projections are referenced in the TIA report and form the basis of the traffic analysis.

The above is summarised in the following table.

	2017	2021	2022
Parking Demand	2,248 spaces	2,643 spaces	2,643 spaces
Parking Supply	1,509 spaces	1,967 spaces	2,008 spaces
On-street usage	739 spaces	676 spaces	635 spaces

The existing off-campus / on-street supply is some 1,080 spaces within the local road network (within a 500-metre radius) of the hospital.

Existing parking provision on the campus is shown in **Figure 72**, and details provided in the following table.

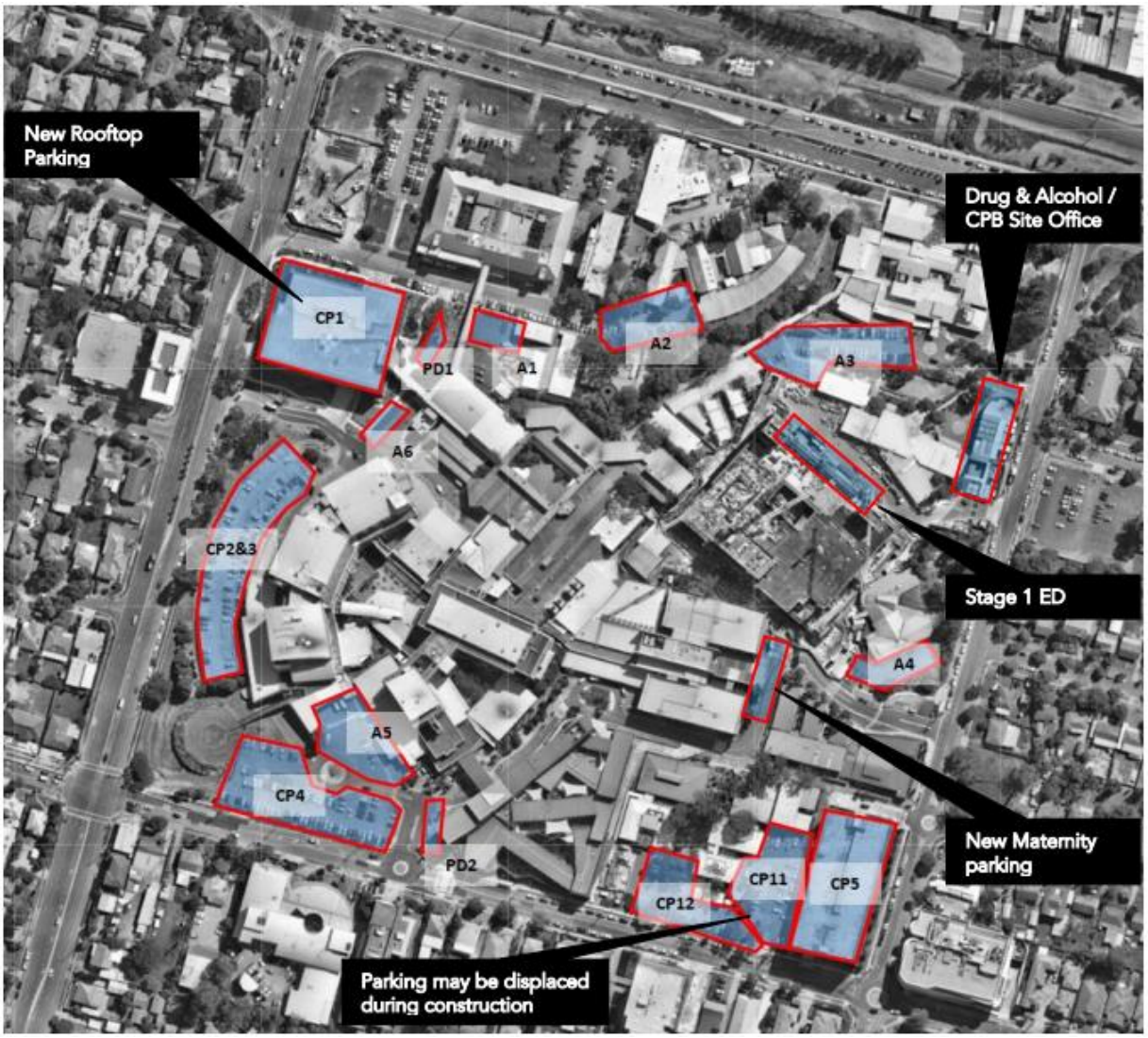


Figure 72 – Existing campus-wide parking provision (ptc)

It is important to note the Stage 2 Redevelopment involves some additional parking spaces within the proposed front of house drop-off area. Other additional parking within the campus is being provided as part of the Stage 1 completion works, along with the opening of the roof-level of the MSCP and other changes in the parking arrangements within the campus. These are summarised in the following table to provide an overview of the existing parking provision and the projected provision following the completion of Stage 2.

Table 1 – Existing and Planned Parking Supply

Main Car Parks	Staff / Public	DDA	Fleet	Other	Total
CP1 - Barber Avenue MSCP (with helipad)	607	14			**621**
CP2 - WB Upper	77	13			**90**
CP3 - WB Lower	167				**167**
CP4 - South-west	89	2			**91**
CP5 - Somerset MSC	632	21			**653**
CP11- Fleet Vehicles*			42	4	**46**
CP12- Derby Street *	23				**23**
Sub Total - Main Car Parks	**1595**	**50**	**42**	**4**	**1691**
Other Car Parks					
PD1 - 10min Pickup/Dropoff				4	**4**
PD2 - Drop off				3	**3**
A1 - Maintenance				14	**14**
A2 - Tresillian	16				**16**
A3 - Cancer Care Centre	38	2		6	**46**
A4 - Childcare	6	1			**7**
A5 - Near Emergency				20	**20**
A6 - Near Loading Dock				11	**11**
Total - Other Car Parks	**60**	**3**	**0**	**58**	**121**
Known Future Car Parks					
CP1 MSCP upper level (removal of helipad)	108				**108**
Drug & Alcohol	50	2			**52**
Stage 1 ED	17	1			**18**
Stage 2 ED	12				**12**
VMO (Kitchen Loading Dock)	5				**5**
New Maternity (East block)	12				**12**
A2 - Tresillian (adjustment, no gain/loss)	0				**0**
A6 - Near Loading Dock (removal)				-11	**-11**
Total - Future Car Parks	**204**	**3**	**0**	**0**	**196**
Grand Total	**1,836**	**56**	**42**	**51**	**2008**

* maybe temporarily displaced during the construction of the future CAHMS and TAM projects

As set out in Section 2.3.9 of this EIS, the hospital is presently accessed by vehicles via a number of entry points to service the various car parking, loading dock, and emergency services areas of the hospital.

Route 1: West – Inbound vehicles travel along the Great Western Highway, then onto Parker Street to access the hospital either via Barber Street or the hospital entrance (29% of Hospital arrivals originate from this direction).

Route 2: North – There is no vehicular access along the northern boundary of the hospital precinct.

Route 3: South – Inbound vehicles travelling along Derby Street can access the hospital via the Sydney Medical School entrance or utilise the off-street car park within the campus (30% of the hospital arrivals originate from this direction).

Route 4: East – Inbound vehicles travelling along Somerset Street are able to access the hospital via the hospital entrances at Somerset Street north of Hargrave Street and Somerset Street north of Rodgers Street, as well as via the multi-level car park entry off Somerset Street (41% of hospital arrivals originate from this direction).

In terms of public transport access to the hospital, there are several options available in the vicinity of the hospital in the form of buses and rail. There are five bus stops within a 400m radius of the hospital serviced by five bus routes operating at regular frequencies seven days per week. Kingswood railway station is located approximately 400 metres (5 minute walk) from the eastern boundary of the hospital, which is within reasonable walking distance for staff and, potentially, outpatients and visitors. Walking and cycling options also exist to the hospital campus.

Existing mode share as provided in the ptc TIA is summarised below.

Mode	Staff	Outpatients	Visitors
Car (sole as driver)	94.7%	85.4%	83.7%
Car (as passenger / carpool)	-	-	-
Public Transport (bus / rail)	1.8%	6.6%	7.6%
Taxi	0%	2.2%	4.8%
Walk	2.0%	1.4%	0.5%
Cycle	1.5%	4.4%	3.4%

In relation to the timing of staff trips (being the vast majority of trips undertaken in relation to the hospital) to and from the hospital, Cattell Cooper advises that:

> *Staff surveys indicate that, of all the people working in the hospital, on any weekday at least 40% travel to and from work during the daytime, if this period is defined as between 7am to 6pm and therefore comprises administrative staff and clinical staff on a day shift. In contrast, at most 60% travel to and/or from work outside of these hours; this percentage comprises all other shift workers, an unspecified number of whom – in non-clinical roles – work a day shift* (Cattell Cooper p.49)

7.6.2 Operational Traffic Impacts

Parking

As set out above, the existing parking supply of 2,008 spaces has been planned to cater for the completion of both Stages 1 and 2. This represents a net increase of approximately 500 spaces over the provision in place prior to the MSCP, and the Stage 1 and Stage 2 projects. Given peak parking demand at the campus, there is a reliance upon some 635 of 1,080 spaces within the local road network (within a 500-metre radius). The reliance upon on-street parking has been continuously reducing over time. The aim is to have no net impact upon the surrounding on-street parking once Stage 2 is completed and operational.

The overall parking demand of the campus is projected to increase as a result of the Stage 2 project, however, the parking provision will concurrently increase by a greater amount resulting in a reduction in the use of on-street parking by 104 spaces compared to the period prior to the MSCP, Stage 1 and Stage 2 projects. Note this is also prior to the adjustments made as a result of the Green Travel Plan to reduce car usage among staff, which is being implemented as a condition of the Stage 1 development consent.

Barber Avenue parking changes

The access arrangement for the Stage 2 drop-off area will involve the rearrangement of the Barber Avenue frontage and the removal of 43 on-street parking spaces. ptc has advised that in order to assess whether this will alter the parking demand and provision ratio of the campus (including Barber Avenue) it is important to summarise the parking provision within the campus in the context of the calculated parking demand.

> *The demand assessments indicate that based on the Clinical Services Plan and other inputs associated with staff population and the services to be provided on the campus, the parking provision has increased more than the demand comparing the situation prior to the completion of the MSCP and the projected situation following the completion of the Stage 1 development. The demand for on-street parking over this period is reduced by approximately 100 spaces. In this regard the removal of parking from Barber Avenue still results in a net reduction in parking demand associated with the entire campus in the order of 50 spaces. The parking provision within Barber Avenue has been considered throughout the design process, and the layout of Barber Avenue has been developed in the context that its role has changed, and will further change following Stage 2, to provide the primary access road to both the public and private hospitals, plus the new development fronting Parker Street. In this regard it must perform as an efficient and safe roadway, which is not necessarily compatible with its current use as a pseudo parking aisle and the associated pedestrian activity that this brings.*

Servicing and Loading Dock activity

The project provides for an opportunity to revise and upgrade servicing and loading dock arrangements at the campus. The revised back of house and loading dock area replaces the existing loading area, which is undersized due to the staged expansion of the hospital over many years.

The opportunities for a significant relocation of the loading dock area are however limited by a combination of the layout of existing buildings; internal and external access arrangements; parking areas; internal road sizes, grades and geometry; and building clearance heights. The alternatives to the existing Parker Street access were explored, however, given the constraints of the site, while recognising the need to manage the impact of service vehicle traffic on the road network, the existing access was maintained but is subject to widening and partial reconfiguration under this application.

A servicing strategy has been established, which relocates some clinical services/storage areas to an available area off Somerset Street, thereby moving some servicing activity to the eastern side of the campus, which in turn allows for an increase in the storage areas around the western dock.

The proposed arrangements will improve the use of the loading area, and affect the number of service vehicles in three ways:

- Larger storage areas will reduce the truck turnover
- Formalised and expanded loading areas with loading docks will accommodate peak activity
- The relocation of the bulk gas storage and the pathology department will remove and disperse some activity from the western side of the campus.

The new dock will provide a safer and more formalised area for the unloading of vehicles, while a larger storage area and the ability to accommodate larger vehicles concurrently will offset the increased goods being moved, maintaining the current number of daily vehicle trips. Other factors such as the relocation of the kitchen servicing and gas storage areas will also assist in containing the impacts on the Parker Street activity.

The kitchen servicing dock for the Stage 2 Redevelopment will further segregate and disperse servicing activities across the campus, to assist in managing peak daytime servicing movements. See the proposed servicing locations set out in **Figure 73**.

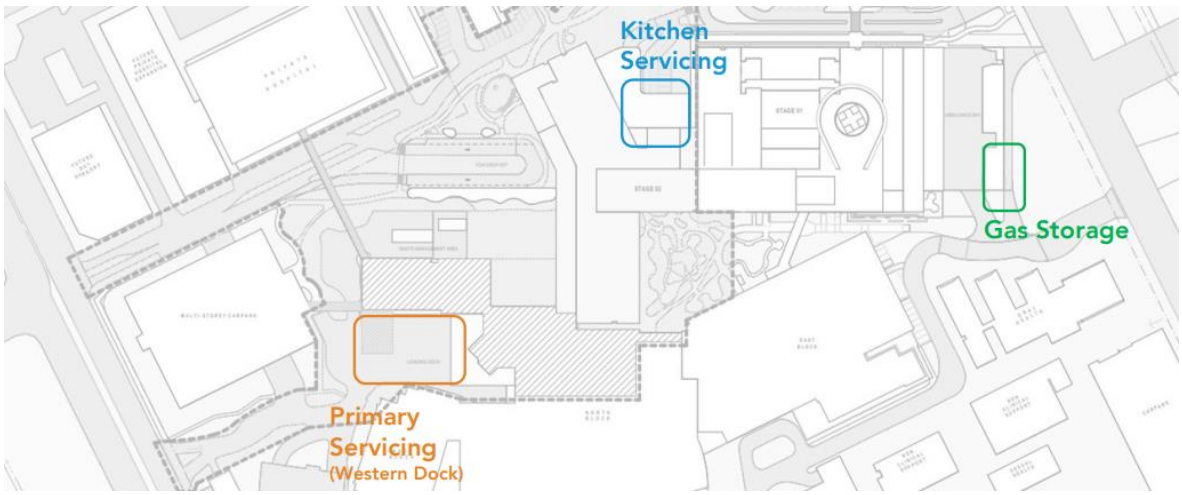


Figure 73 – Proposed servicing locations (ptc)

Emergency vehicles

Emergency access for the public and ambulances has been provided within the Stage 1 Redevelopment scope and is not impacted in any way by the Stage 2 Redevelopment.

Under the new arrangements for access to the hospital's Emergency Department, access has been relocated from Derby Street to Somerset Street, where ambulances will be separated from the private vehicle drop-off area. Somerset Street will be more readily accessible than Derby Street to ambulances coming from the Great Western Highway.

Daily traffic activity and increases

Based on a 2021 travel demand assessment for Nepean Hospital, and other reliable data for similarly sized hospitals (despite COVID-19 conditions) ptc was able to determine the likely usual daily traffic activity at the hospital in relation to staff and public movements.

Based on 77% of traffic movements being staff-related and with each space turned over during the day 1.2 times, and with 23% of traffic movements being public-related with each space turned over 2.81 times, ptc was able to calculate some 3,349 staff movements and 2,342 public movements. Calculating the post Stage 2 scenario with 2,008 parking spaces at the campus and applying the same rates, some 3,710 staff movements would arise with 2,586 public movements per day. This equates to a daily increase of 361 and 244 movements of staff and visitors, respectively.

This represents a total increase in daily traffic activity of 605 vehicle movements, which occur at various times throughout each weekday.

In terms of weekend activity, 37% of the weekday staff population on campus on weekends and public parking demand is 68% of the weekday activity. This approximates to an increase of 411 daily movements following the same process, made up of 134 additional staff movements and 166 public movements.

It should be noted that some of this projected activity is associated with Stage 1 (parking to be replaced within the construction site) and the MSCP once the roof level is opened. As such, the majority of this traffic activity has been previously modelled up to 2026 (further details are provided within the Peak Hour traffic assessment presented in the following section).

Peak period vehicle movements / intersections

In modelling traffic scenarios arising at the hospital, a new scenario for the 10-year horizon (2031) has been undertaken. To establish the net impacts of the Stage 2 project in 2031, the modelling includes a with and without development scenario for the AM and PM peaks. The results demonstrate that the traffic activity associated with the Stage 2 Redevelopment has very little impact on the road network and nearby intersections.

The traffic activity associated with the Stage 2 Redevelopment has already been assessed in that the proposed MSCP has been assessed and approved as a separate application. The MSCP project determined the traffic activity based on the generation rate of parking within the campus, which was then applied to the new car park. This was subsequently applied in the Stage 1 Redevelopment DA. However, a new scenario (Scenario 6) to satisfy this DA's SEARs to provide a 10-year model has been provided by ptc. The various modelling scenarios are set out below from the ptc TIA. With the results of this modelling set out in the table that follows.

Table 7 - Traffic Modelling Scenarios

Scenario	Year	Network description
S1	2017	As existing – do nothing
S2	2021	As existing – do nothing – 1.5% Growth
S3	2021	As existing + Hospital Development (Stage 1) – 1.5% Growth
S4	2026	As existing – do nothing – 1.5% Growth
S5	2026	As existing + Hospital Development (Stage 2) – 1.5% Growth
S6	2031	S5 + 1.5% Growth and 0.5% Development Growth

The relevant comparison to account for the Stage 2 Redevelopment within the modelling is columns S3 (Scenario 3 - Post Development 2021 (complete MSCP including the Stage 1 traffic activity)) and S5 (Scenario 5 - 10 years background growth plus development (5% growth P/A for Stage 1 and 2 between 2017 and 2026 to represent the gradual increase in services up to the completion of Stage 2)). S6 then proves the 10-year modelling to 2031.

Table 8 - Traffic Modelling Scenarios

Intersection	Peak Period	Existing Scenario	Previous Scenarios				New Scenario (10-years to 2031)
		S1	S2	S3	S4	S5	S6
1. Great Western Highway / Parker Street	AM	B	B	B	B	B	C
	PM	B	C	C	C	D	F
2. Parker Street / Barber Road	AM	A	A	A	A	A	A
	PM	A	A	A	A	A	A
3. Parker Street / Hospital Entrance	AM	A	A	A	A	A	A
	PM	A	A	A	A	A	A
4. Parker Street / Derby Street	AM	B	B	B	B	C	C
	PM	D	E	F	F	F	F
5. Derby Street / Hospital Entrance (south)	AM	A	A	A	A	A	A
	PM	A	A	A	A	A	A
6. Derby Street / Somerset Street	AM	A	A	A	A	A	A
	PM	A	A	A	A	A	A
7. Somerset Street / Hospital Entrance 1 (east)	AM	A	A	A	A	A	A
	PM	A	A	A	A	A	A
8. Somerset Street / Hospital Entrance 2 (east)	AM	A	A	A	A	A	A
	PM	A	A	A	A	A	A
9. Somerset Street / Great Western Highway	AM	B	B	B	C	B	C
	PM	D	F	E	F	F	F

As seen from the modelling between S3 and S5, only modest changes to the level of service of the relevant intersections arises to 2026 during peak periods with the commencement of operation of Stage 2

Relevantly, for the Parker Street / Derby Street intersection, ptc advises that the PM peak performance of this intersection is subject to pre-existing saturation through background growth that that will pre-date Stage 2, with Stage 2 having only a further limited impact upon this intersection's performance.

Similarly, the Great Western Highway / Somerset Street intersection will operate at Level of Service F in the PM peak in 2021 under the 1.5% growth scenario without the development traffic.

Modal split / Green Travel Plan

A campus-wide Green Travel Plan (GTP) is under preparation by ptc (see **Appendix L**) and has established the target mode share in conjunction with a hospital working group.

The objective is to reduce the rate of staff car use as single drivers in particular and also to reduce outpatients and visitors car use generally. Increased carpooling by staff and an overall increase in public transport and active transport modes will assist in reducing car use. Contributing to these objectives and series of initiatives will be the new bike parking and end-of-trip facility within the Stage 2 building. In addition, Government initiatives such as the Western Sydney City Deal Rapid Bus Project, which includes the Penrith Rapid Bus Route from Penrith Station to the Western Sydney Airport and Aerotropolis via the Great Western Highway, Parker Street, The Northern Road, M12 and Badgerys Creek Road, is planned to service the area at and around the hospital. With higher frequency services this will provide significantly improved access to/from Nepean Hospital.

The Mode Share Initiatives being presently pursued are set out in Section 6 of the ptc TIA and include:

- Public transport
    - Increase journeys to work by public transport
        - Creation of a map identifying the location of bus stops and routes and make this available to all residents.
        - Improved promotion of public transport on the hospital website. It currently refers to public transport but does not provide maps or links to transport websites.
        - Discussion with relevant stakeholders about the feasibility of providing entry to the western end of Platform 2 of Kingswood Station.
- Cycling
    - Increase journeys to site by cycling
        - Provision of an End-of Trip facility to facilitate the campus and the projected population of circa 4,000 staff. With a target of just 8%, this could result in 320 people cycling to work.
        - Creation of maps and bike routes, which link to surrounding key amenities and available facilities
        - Provision of facilities on-site for staff and visitors to repair bikes. Ensure visitor bicycle racks are positioned in an accessible and sheltered location that provides good passive surveillance and is easily recognisable to visitors.
- Walking
    - Encourage staff and visitors to walk to work as part of their journey
        - Work in partnership with Council and TfNSW to determine whether there are opportunities to improve the pedestrian connectivity to the Hospital. For example, ensure that pedestrians are considered within the proposed TfNSW road upgrades.

- Car pooling / Car share
    - Improve accessibility to car share
        - Work with carpooling networks (e.g. Western Sydney Carpool or the Liftango carpooling app) to increase the ability for staff to carpool.
        - Promote the existence of car share within the building and surrounding areas, via potential promotional campaigns on site.
        - Engage with a car share provider to provide spaces/pods within the Hospital. This would provide staff with the ability to undertake short trips during their shift, without having to bring a vehicle to the campus.

Conclusions

In summary, ptc's TIA concluded as follows with respect to the operational traffic impacts of the Stage 2 Redevelopment:

- To accommodate the increased parking demands associated with the overall Nepean Redevelopment Program, a MSCP has been constructed within the Hospital campus, adjacent to Barber Avenue. The MSCP was designed in the context of the overall Nepean Redevelopment Program of which the Stage 2 Redevelopment forms part.
- The parking demand associated with the Stage 2 Redevelopment will be accommodated within the completed MSCP, following the relocation of the temporary helipad to the rooftop of the Stage 1 Tower in 2021/2022. In this regard, the traffic implications associated with the Stage 2 Redevelopment have been previously assessed and accepted through the DAs for the MSCP and the Stage 1 Redevelopment.
- Modelling of a 10-year horizon to 2031 scenario demonstrates that the Stage 2 Redevelopment has little impact on the road network compared to the background growth occurring on the network.
- With regard to parking demand and the overall provision, the parking demand assessment undertaken by ptc and the projected parking provision within the campus demonstrated that the on-street parking demand associated with the hospital will reduce following the Stage 2 project compared to the situation prior to the MSCP, Stage 1 and Stage 2 projects. The decrease in on-street parking demand is primarily due to the MSCP and other new parking areas being created within the campus as a result of the Stage 1 and 2 projects as well as within the Nepean Private Hospital where new parking has been completed and is now available.
- Drop-off parking demand will be accommodated by a new front of house drop-off area on the north-western side of the Stage 2 building. The arrangement will enable drop-off at the main Stage 2 entrance, with a short distance to return to the MSCP so that the drop-off area remains for short term parking only.
- Servicing will be accommodated within the existing location of the primary dock, although this has been remodelled to increase capacity and improve compliance with current design standards. A separate kitchen loading dock is proposed having access from the Stage 1 drop-off area, while the Bulk Gas area is being relocated to the eastern side of the campus. While there will be an increase in deliveries associated with Stage 2 Redevelopment, the three locations balance and disperse the traffic activity across the road network rather than retaining a concentration of this to the western side of the campus only.

7.6.3 Construction

Preliminary CTMP

A preliminary Construction Traffic Management Plan (CTMP) has been prepared by ptc and is attached at **Appendix L**. The CTMP has been prepared to describe the likely construction traffic measures associated with the construction project. Given a principal contractor has not been awarded the project and as details of the construction methodology will need to be confirmed in the final CTMP, at this stage of the project the plan can only be preliminary in nature.

The aims of the CTMP are to:

- Minimise the impact of the construction vehicle traffic on the overall operation of the road network
- Ensure continuous, safe and efficient movement of traffic for both the general public and construction workers
- Install appropriate advance warning signs to inform users of the changed traffic conditions
- Provide a description of the construction vehicles and the volume of these construction vehicles accessing the construction site
- Provide information regarding the changed access arrangement and also a description of the proposed external routes for vehicles including the construction vehicles accessing the site
- Establish a safe pedestrian environment in the vicinity of the site during works.

ptc's key considerations in relation to the CTMP are:

- Trucks up to 19m 'truck and dogs' and 19m articulated vehicles (AVs) are likely to continue to be used at the site
- All construction vehicles are to enter and exit the site in a forward movement. In the event of an emergency or where a large vehicle cannot turn around within the confines of the site, a reverse manoeuvre to enter and exit the site can be performed at the direction of TfNSW accredited traffic controllers
- All construction vehicles accessing and departing the subject site will be constrained to the State and Regional road network wherever practicable
- Construction vehicles travelling to the site from the north are able to travel southbound along Parker Street, turn east into Barber Avenue towards the site. Vehicles travelling from the east and west are able to utilise the Great Western Highway, turn south onto The Northern Road / Parker Street, into Barber Avenue towards the site. For egress routes, vehicles travelling towards the south, east and west will be able to travel south along Parker Street, turn to access the M4 Motorway or continue south
- Due to the close proximity of train and bus services as well as site constraints, construction staff parking will not be provided on-site. The principal contractor will be encouraged to assist with the transportation of staff, and site personnel will be made aware of the available public transportation. Site personnel will also be encouraged to consider car-pooling.

Relevantly, there will be no adverse impact of traffic generated upon the bus and rail networks, that cannot be appropriately managed where impacts are likely to occur. Impacts upon the road network and upon pedestrians and cyclists is still to be determined once the contractor has been engaged and the construction methodology has been established.

7.7 Ecologically Sustainable Development (ESD)

The following sets out the ESD response of the Stage 2 Redevelopment, addressing the principles of ESD as established by the EP&A Act and Regulation as well as the design-specific measures and targets of the development. This includes the development's response to climate change considerations and future-proofing and climate resilience measures. These matters are all covered by LCI's ESD Report at **Appendix Z**.

The report demonstrates that a myriad of ESD initiatives have been incorporated within the current project design and that the development also complies to the NSW HI ESG and Design Guidance Note (DGN) 058 - Ecological Sustainable Design. The Stage 2 Redevelopment has implemented the HI ESD Evaluation Tool to demonstrate an equivalent 5-star Green Star Design & As-Built v1.3 pathway (see Appendix A of the LCI Report). This represent a preliminary pathway that will be tested and refined as the project progresses through its detailed design and construction phases.

7.7.1 Principles of ESD

Clause 7(4) of Schedule 2 of the EP&A Regulation sets out the principles of ecologically sustainable development (ESD) as follows:

(a) the ***precautionary principle***, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment; and (ii) an assessment of the risk-weighted consequences of various options.

In response, the precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful consideration and evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any unknown or serious threats or irreversible damage to the environment and therefore the precautionary principle is not relevant in this case.

(b) ***inter-generational equity***, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations.

Intergenerational equity is concerned with ensuring the health, diversity and productivity of the environment can be maintained or enhanced for the benefit of future generations. The proposal satisfies this by providing a means to providing enhanced environmental conditions on the site compared to the current scenario, whether through additional canopy tree planting, offsetting, or water management and other ESD measures. Above all the development facilitates the site's redevelopment for further social infrastructure and crucial health services facility uses in a highly populated part of Sydney for the next decades.

(c) ***conservation of biological diversity and ecological integrity***, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration.

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration for any development. The proposal will have no detrimental effect upon this, given the disturbed and modified nature of the site within which the works are proposed and the poor existing condition of vegetation with biodiversity value. Given the significant retention, protection, and replanting of trees and vegetation within the development site and removal of exotic vegetation enhanced opportunities for biological diversity and ecological integrity arise as far as they relate to this fragmented segment of modified environment.

(d) ***improved valuation, pricing and incentive mechanisms***, namely, that environmental factors should be included in the valuation of assets and services, such as (i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement; (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste; and (iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources that may be affected by a proposal, including air, water, land and living things. Mitigation measures are included in this EIS for avoiding waste and ensuring where possible reuse, recycling and managing waste occurs, as far as may be relevant to this scope of works.

LCI has also further addressed and considered the Principles of ESD in Section 3.1 of its report.

7.7.2 Design measures and ESD-related features of the development

Consistent with meeting the HI DGN 058 requirements (as set out in more detail below with respect to Green Star and Section J targets), the development has been designed to reduce the operational energy of the development and enhancing the thermal comfort of the occupied spaces. Each of the services have strategies to improve the environmental performance. Direct and indirect ESD measures have been included through the following – as summarised:

- Passive cooling and heating design
    - The design has adopted passive cooling and heating design principles to reduce the building's reliance on the mechanical HVAC system to reduce energy consumption. This includes building orientation to avoid direct solar radiation in summer and maximise winter solar access and optimising the solid to void (masonry to window) ratios for improved thermal qualities within the building.

- Mechanical services
    - To achieve a 10% improvement under Section J of the NCC, a range of mechanical strategies are employed including a Building Management Control System (BMCS) to be installed with automatic intelligent controls to optimise plant efficiency, and monitor and record energy consumptions to reduce energy wastage; centralised mechanical plant configuration, which allowing for diversity and improves energy efficiency; and selection of the most efficient equipment to meet life cycle costs and ducting and other pipework systems designed to avoid leakage and energy wastage.

- Electrical services
    - Robust, long-life LED lighting with automatic lighting control system to reduce energy wastage – lighting control strategies may include implementation of area dimming, time clock, daylight sensors, subject to room function. Reduced reliance of artificial light, and major energy uses to be sub-metered by end use, and function area / department.

- Hydraulic services
    - Water efficient design features including high-efficiency rated hardware, such as showerheads, taps, toilets, urinals, dishwashers and the like. Rainwater capture and reuse and potable water sub-metering to be connected to the BMCS to reduce wastage through identifying leaks or poor operational performance. Sub-meters for each department will be considered.

- Civil Engineering services
    - Water Sensitive Urban Design (WSUD) are embodied within the civil engineering and landscape designs for the exterior of the development.

- Sustainable materials and reducing waste
    - Waste reduction and building materials choice includes specifying engineered wood products with low or no formaldehyde limits; locally-sourced or origin products and implementing sound procurement practices; green concrete and steel options; minimising the volume of materials used; specifying recycled or salvaged materials; and promotion of off-site prefabrication to limit construction waste impacts.

- On-site renewable energy
    - A photovoltaic system of up to 125 kW (based on the JHA design) will be designed for the roof to generate electricity from solar energy.

7.7.3 Green Star Equivalency / 10% improvement Section J National Construction Code

The Stage 2 Redevelopment (like all contemporary HI projects) will not be targeting official Green Star certification, rather it will follow the aims and requirements of specific credits to achieve the equivalent standards of a 5-star Green Star Design and As-built v1.3 rating as required by the HI DGN 058 Ecological Sustainable Design. DGN 058 employs the HI ESD Evaluation Tool which uses the same scoring system as Green Star.

Green Star is a voluntary scheme administered by the national, not-for-profit organisation, Green Building Council of Australia (GBCA). The Green Star suite of tools provides an environmental sustainability rating of a building's performance. The tools are performance based and assess the environmental attributes of new and refurbished buildings in every state across Australia. The Green Star rating system is scaled to a star level from 0 to 6 stars.

HI's 5-star target is the equivalent of at least 60 points and identified as "Australian Excellence". The alignment of Green Star principles will be peer reviewed by a third party to ensure compliance with the targeted star rating.

LCI has provided the DGN 058 scoresheet with respect to the 5-star Green Star target at Appendix A of its report. This shows a targeted score of 68 points at this stage having applied the design features and ESD-related measures of the development as set out above. This sits comfortably within the 5-star Green Star rating.

In addition to Green Star, the National Construction Code (NCC): Building Code of Australia (BCA) 2019 Section J Energy Efficiency sets minimum energy performance requirements for all new developments, including the performance of building fabric and building sealing, glazing thermal performance, heating, air conditioning and ventilation systems, artificial lighting and power, and heating water supplies. The project will be targeting an improvement in performance of at least 10% over NCC 2019 Section J DTS requirements, as mandated by the HI ESG requirements. Thus, the project will comply with NCC 2019 Section J.

7.7.4 NARCliM

The Stage 2 Redevelopment has been designed to futureproof itself from the potential impacts of climate change as set out in the NARCliM Climate Change Projections.

The NSW Office of Environment and Heritage, now part of DPIE, has developed the NSW and ACT Government Regional Climate Modelling (NARCLiM) climate change projections to provide a dataset for detailed near future (2020-2039) and far future (2060-2079) projections.

Generally, it determines that there will be:

1. more hot days and fewer cold nights;
2. an increase the number of heatwave events;
3. more hot days above 35°C; particularly in Spring and Summer;
4. an increase in rainfall in Summer and Autumn and a decrease in Winter and Spring; and
5. a change in rainfall patterns that will affect drought and flooding events.

Additionally, the Intergovernmental Panel on Climate Change (IPCC) published four greenhouse gas (GHG) concentration trajectories known as Representative Concentration Pathways (RCPs) which are used by CSIRO for climate projection modelling at a regional scale within Australia.

The four RCPs and its definitions include:

- **RCP 2.6** – Emissions peak 2010-2010, decline substantially – 1.0°C of Global Warming Mean and likely temperature range of 0.3°C – 1.7°C
- **RCP 4.5** – Emissions peak around 2040, then decline – 1.8°C of Global Warming Mean and likely temperature range of 1.1°C – 2.6°C

- **RCP 6.0** – Emissions peak around 2060, then decline – 2.2°C of Global Warming Mean and likely temperature range of 1.4°C – 3.1°C
- **RCP 8.5** – Emissions continue to rise throughout the 21st century – 3.7°C of Global Warming Mean and likely temperature range of 2.6°C – 4.8°C

LCI has applied the RCP 4.5 scenario to provide realistic design advice from a medium range scenario for 2030 climate predictions. In considering this 'mild' 2030 scenario and more 'extreme worst-case' 2070 scenario applying RCP 8.5, LCI has developed a climate adaption plan for the redevelopment around a range of impact categories based on the NARCliM Climate Change Projections.

The project response are set out in detail in Section 3.4 and Table 3 of the LCI Report, as replicated in the table over.

7.7.5 Integrated water management plan

The proposed development has implemented a water management plan that incorporates water conservation and water sensitive urban design principles. This includes the use of low consumption sanitary fixtures with high WELS ratings, including taps, urinals, toilets, showers and dishwashers.

As described in Section 7.4 of this EIS, rainwater will be captured within the proposed 20m^3 rainwater tank and reused for landscape irrigation in order to further reduce the project's impact on water resources. This is integrated with the proposed OSD tank in the stormwater system and other water sensitive urban design (WSUD) features within the Bonacci Civil Design. The stormwater system will be designed such that the post-development stormwater flows will be less than pre-development stormwater flows.

Separate water meters for each department will also be considered to enable monitoring of water consumption, which will assist with determining areas of high water use during operation. The fire safety system is also served by a central plant in the Stage 1 Tower, which may recapture fire systems testing water.

7.8 National Construction Code and Access

Blackett Maguire & Goldsmith (BM+G) has undertaken a high level assessment of the architectural documentation at 100% Schematic Design for the proposed Stage 2 building against the Deemed-to-Satisfy (DtS) provisions of Parts C, D, E, F, G & J of the BCA 2019 Amendment No. 1 as well as Access to Premises Standards 2010. Its aim was to identify any key BCA compliance issues that will require resolution/attention for the proposed redevelopment. This report is included at **Appendix AA**.

As a general conclusion, BM+G is satisfied that the project design can satisfy the requirements of the BCA2019 Amendment No. 1 if the works are designed and constructed in accordance with the requirements of the BCA Report and subsequent Fire Engineering Report prepared by the Fire Safety Engineer and Access Report and Performance Solutions prepared by Access Consultant. These matters will be further reviewed as the detailed design of the building progresses.

7.9 Utilities and Servicing

As set out in Section 4.10.2, a range of works are proposed to connect and service the development with the relevant and necessary utilities, including water, sewer, gas, fire services, electricity and communications. The range of works in part require minor earthworks and trenching. The impacts of these are addressed by the project-wide sediment and erosion controls measures as would be employed at a localised level in each circumstance. Similarly, any internal works within North Block will be subject to the same considerations as made in the Hazardous Material Building Survey. The impacts accordingly as addressed are unlikely to generate any new of significant mitigation or management measures not already addressed in other reports herein.

Table 3: Climate change projections and response initiatives for Nepean Hospital Redevelopment Stage 2

Climate Change Projections	Project Responses
Increased average temperature and duration of heatwaves	**Mechanical System Provision** The climate futures matrix in Table 2 predicts that under both climate scenarios RCP for 2030, it is highly likely that higher maximum daily temperatures will be experienced. To reasonably future proof the building, the mechanical design has considered a suitable peak temperature to calculate the required cooling load of the building. The cooling plant will be sized based on AIRAH critical summer outdoor temperature and comfort summer outdoor temperatures. Sizing of plant rooms according to a summer outdoor temperature increase of 1.9°C to fit larger plant installed in the future will be considered. The risk of cooling equipment derating has also been considered, but this is unlikely to be an issue as the summer design indoor temperature of 24°C is expected to only be marginally exceeded. The heat rejection equipment will be arranged to maximise their effectiveness. **Architectural Design** An increase in hot days will increase the risk of heat island effect. Mitigation measures considered to address this include increasing vegetation cover and the application of low emissivity coatings to hard surfaces. Increase in hotter ambient temperature is combated via use of high-performance façade with reduced WWR to improve overall thermal resistance, minimising radiation penetrating the building, which affects energy consumption and thermal comfort. In addition, external shadings are to be implemented to further reduce direct solar radiation. **Electrical System Provisions** Increases in temperatures may cause blackouts or brownouts as electrical equipment servicing the hospital and the surrounding areas as the temperatures may exceed the rated operating temperatures of these systems. Mitigation measures for this include the provision of generators to support life safety and business-critical essential loads, the provision of a centralised UPS to supply critical loads such as ICT equipment, and the use of natural ventilation to ventilate the substation room, with intake fans to maintain positive pressure within the room. Transformers with relatively higher design temperatures will be considered, which would reduce the magnitude of derating if this is exceeded.
Increased flood risk	The increase in flood risk may result in the flooding of low-level comms equipment during extreme events. The stormwater system is designed for a 100-year flood. Pumps and pumpout pits will be considered. These mitigation measures will also reduce the risk of flooding of ground levels which will impact pedestrian access. Sufficient overland flow paths are also provided to allow for flows that exceed the capacity of the pit and pipe system. The flood study undertaken for Penrith City Council (College, Orth and Werrington Creeks Catchment Overland Flow Flood Study) assessed the impact of Climate Change. For the upper bound climate change increase (notional 30% increase in rainfall intensity), mapping in the Flood Study indicated that there is approximately a 10mm increase in the 1% AEP flood level in the region of Nepean Hospital. This is considered to be a negligible increase that can be accommodated in the provided overland flow paths.
More extreme rainfall events	Extreme rainfall events run the risk of the drainage systems being overloaded. One mitigation measure considered is to size rainwater gutters and downpipes for an equivalent one in 100-year storm to cater for additional rainfall intensity in 2070. Rainwater outlets, gutters, and downpipes are proposed to be periodically inspected and cleared to ensure the system operates at maximum capacity.
Increased bushfires	Higher temperatures will increase the likelihood and intensity of bushfires. The smoke generated by bushfires will cause a health risk for building occupants, and may also trigger false fire alarms. To minimise the risk of poor indoor air quality as a result of the smoke, smart detectors will be considered for the smoke detection systems. These would automatically adjust the sensitivity of smoke detectors and their obscuration limits to account for overall changes in air conditions, which would reduce the chance of false alarms. To reduce frequency of filter replacement due to capture of bushfire smoke particles, operational procedures during bushfires will be considered, including the replacement of fresh air intake filters with temporary construction coarse filters. Regular checks of filters with replacement as needed will be considered in order to ensure that the filters do not get blocked. High efficiency filters of MERV 15 and above will be considered for air handling systems to improve filtration efficiency.

7.10 Construction Air and Water Quality

Construction-related air, soil and water quality management has been addressed by the Preliminary Construction Management Plan along with a range of other environment and amenity impacts (see **Appendix BB**).

The final Construction Management Plan can only be implemented once the principal contractor has been engaged and the relevant conditions of this consent in relation to environmental and construction management have been addressed through the relevant and accepted documentation.

Notwithstanding, the following commitments in relation to construction management and the environment and amenity have been established by the Preliminary Construction Management Plan:

- Works are proposed during normal HI-related hours as consistent with the Stage 1 consent, namely:
    - Monday to Fridays - 7:00am to 6:00pm - works preparation activities permitted from 6:30am to avoid construction and hospital shift overlaps and conflicts
    - Saturdays - 7:00am to 5:00pm
    - Sunday / Public Holidays - No Work
- Hazardous materials management and handling procedures (as otherwise further recommended by the Hazardous Building Materials Survey)
- Noise and Vibration management (as further addressed in the section that follows)
- Dust, sedimentation and erosion controls (as set out in the civil engineering drawings)
- Odour control
- Tree Protection (as otherwise set out in the arborist's report)
- Stormwater management (as set out in the civil engineering drawings)

Specific to air and water quality, the Principal Contractor will develop a strategy for dust control, and a comprehensive Soil and Water Management Plan, both of which will be included in the Environmental Management Plan. This strategy will include control measures and document how these measures are to be implemented and monitored. Odours associated with the works will be assessed and minimised. All plant and machinery involved in the project will be regularly serviced and checked for exhaust emissions - catalytic converters are to be utilised.

7.11 Noise and Vibration

A Noise and Vibration Impact Assessment has been prepared by Indigeco/EMM consistent with relevant policies and guidelines to address the potential noise impacts arising from the construction and operation of the development, as well as vibration impacts arising from the construction phase – see **Appendix CC**. These matters are addressed in turn below.

Noise sensitive locations and land uses external to the hospital were considered by Indigeco/EMM. These are shown in blue on **Figure 74** over.

Existing ambient noise conditions at assessment locations surrounding the site are generally categorised by the following:

- Dwellings along Parker Street to the west are impacted by high road traffic noise levels. Some level of mechanical plant noise from the hospital campus is also expected at this location, however likely to be comparatively low in context with the road traffic noise environment; and
- Dwellings along Somerset Street and Derby Street are impacted by more moderate and intermittent road traffic noise levels.

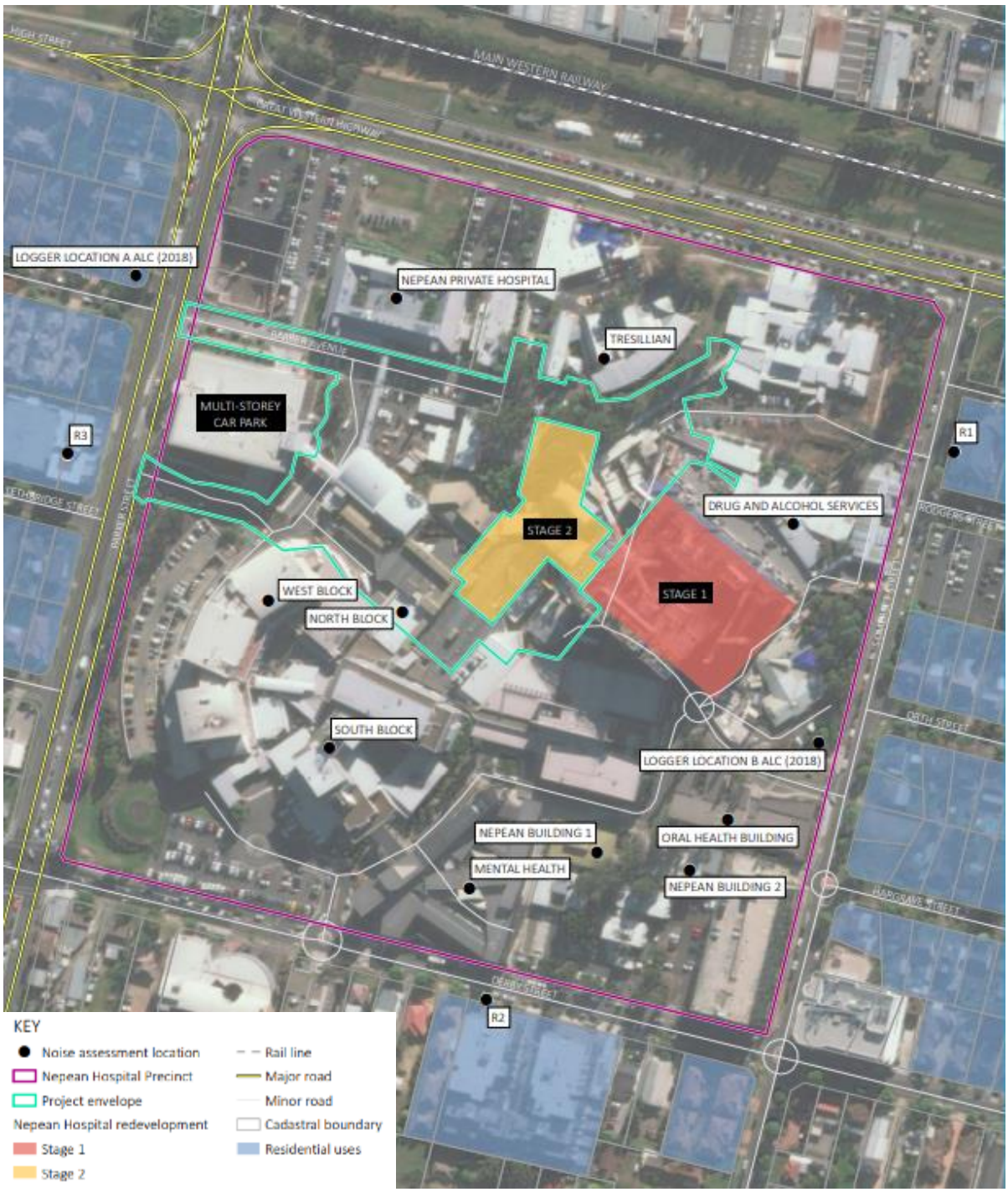


Figure 74 – Noise Assessment Locations / Sensitive Off-Campus Receivers (Indigeco/EMM)

Some level of mechanical plant noise from the hospital campus is also expected at these locations. Consideration of existing mechanical plant noise was included in the Acoustic Logic (2018) report for the Stage 1 Redevelopment in determining suitable noise emission objectives for this Stage 2 Redevelopment.

Given COVID-19 restrictions and the ongoing noise sources associated with redevelopment at that time of Stage 1, existing ambient noise conditions were derived from the original Acoustic Logic assessment prior to and for Stage 1. The rating background noise level applied is as follows (see Table 3.1 of the the Indigeco/EMM assessment).

	Rating Background Noise Level (RBL) (dB)		
	Day	**Evening**	**Night**
Logger A - 15 Barber Street	48	47	38
Logger B - Somerset Street	47	41	37

7.11.1 Construction Noise

Indigeco/EMM has applied the quantitative assessment methodology as set out in the Interim Construction Noise Guideline (ICNG) (DECC 2009). This relates to major construction projects of greater than three weeks duration. The alternative qualitative methodology is not appropriate in the circumstance.

A summary of the established Noise Management Levels or Recommended Noise Levels for sensitive uses at and around the hospital is summarised from the Indegico/EMM assessment below.

Type of occupancy / activity	**Recommended noise level, dB $LA_{eq\ 15min}$**	
	Internal (AS2107)	**External (+20 dB)**
Hospital wards and operating theatres (ICNG)	45	65
Consulting Rooms	45	65
Dental Clinics	45	65
Office Areas	45	65
Waiting Rooms, reception areas	50	70

Period	**Assessment Location**	**RBL, dB(A)**	**NML**	**HNL, dB(A)**
Day (standard ICNG hours)	Somerset Street and Derby Street residences	47	57	75
• Monday to Friday 7.00 am to 6.00 pm; • Saturday 8.00 am to 1.00 pm; and • no construction work is to take place on Sundays or public holidays.	Parker Street Residences	48	58	75

The Noise Management Level (NML) is the above shown RBL + 10dB, whereas the Highly Noise Affected Level (HNL) is set at 75 dB(A) and is applied in the circumstances where there may be strong community reaction to noise, respite periods may be applied to very noisy activities if the community is prepared to accept a longer period of construction in exchange for restrictions on construction times.

The noise impact assessment carried out by Indigeco/EMM can only be preliminary at this stage as the construction methodology has not been established. Accordingly, a worst case scenario has been applied across a series of construction stages with anticipated plant and equipment related to those stages and their respective sound power levels. A cumulative noise level has been applied based on any number of these pieces of plant and equipment being used concurrently.

Based on the stages of construction and cumulative noise levels produced, the following provides a summary table of the worst-case and loudest predicted noise levels as established by Indigeco/EMM relative to the NML and HNL in the table above.

Area	**Land Use**	**Assessment Location**	**Predicted cumulative construction noise level, dB $LA_{eq\ 15min}$**	**'Noise affected' NML, dB $LA_{eq\ 15min}$**	**'Highly noise affected' HNL level, dB $LA_{eq\ 15min}$**
Demolition Works Stage					
Somerset St	Residential	43-45 Rodgers St	58	57	75
Derby St		Omega Apartments	53	57	75
Parker St		Onyx Apartments	48	58	75
Nepean Private Hospital	Healthcare	Nearest façade to works	75	65	n/a

Tresillian		Nearest façade to works	75	65	n/a
Formwork and Concrete Works Stage					
Somerset St	Residential	43-45 Rodgers St	47	57	75
Derby St		Omega Apartments	46	57	75
Parker St		Onyx Apartments	47	58	75
Nepean Private Hospital	Healthcare	Nearest façade to works	63	65	n/a
Tresillian		Nearest façade to works	67	65	n/a
General Construction and Finishing Trades Stage					
Somerset St	Residential	43-45 Rodgers St	52	57	75
Derby St		Omega Apartments	49	57	75
Parker St		Onyx Apartments	50	58	75
Nepean Private Hospital	Healthcare	Nearest façade to works	67	65	n/a
Tresillian		Nearest façade to works	67	65	n/a

As noted, the most affected residences will be to the east of the hospital, but likely only with marginally exceeded NML during demolition works. No works affect residential properties to the point of exceeding the HNL. Healthcare uses to the north of the hospital will be most affected over the course of all of the construction stages. However, again, this is most likely to be during the earliest stage of works.

The proponent will manage construction noise levels where exceedances of NMLs have been identified. The construction noise management methods will be detailed in a construction noise and vibration management plan (CMVMP) as recommended by Indigeco/EMM. The ICNG recommends the following where NMLs are predicted to be exceeded:

- Application of feasible and reasonable work practices to minimise noise; and
- Informing potentially impacted residents or other noise sensitive receivers (ie hospital operators) of the nature of the works to be carried out, expected noise levels and duration and relevant contact details.

7.11.1 Construction Vibration

Safe working distances have been estimated by Indigeco/EMM based on the likely plant equipment and machinery to be used in the construction of the building and associated civil works. Safe working distances consider both cosmetic damage of buildings under certain geotechnical conditions and human comfort.

With regard to cosmetic damage, the plant and equipment assumed by Indigeco/EMM will generally satisfy the minimum offset distances for receivers external to the site including Nepean Private Hospital and Tresillian. Consideration should be given to adjoining structures on the campus as part of the main works contractor's Construction Noise and Vibration Management Plan (CNVMP). Human response vibration limits should be considered with the preparation of the detailed CNVMP. Consideration should be given to existing patient wards and consultation rooms within Nepean Private, Tresillian and the larger campus particularly where vibration sensitive equipment such as microscopes and the like are utilised. At this stage it assumed that there is likely to be some vibration impact during the various periods of the works that needs further detailed consideration and potentially mitigation.

7.11.3 Operational Noise

Operational noise generated by the development will be generally associated with loading dock operations and mechanical plant operation. Car parking or traffic related noise is not anticipated to significantly be altered for the reasons set out in the traffic and transport part of this EIS.

Loading Dock

Loading dock operations resulting from the expanded and upgraded back of house and logistics area at North Block will result in increased capacity and additional servicing, including an increase in the size of heavy vehicles. These increased movements however will be confined to daytime hours only.

The predicted noise levels upon the nearest sensitive receivers adjacent to the hospital (the Onyx Apartments on Parker Street to the west of the loading dock and Tresillian to the north) will however still be below the relevant noise criteria, largely due to distances from the loading docks area and screening of other buildings or built form between. No further mitigation is warranted in this instance.

Mechanical Plant

As is typical at this stage of the development process, the selection of plant is yet to be determined. However, assumptions can be made regarding noise emissions and likely mitigation measures required relative to sensitive adjacent land uses.

Mechanical plant as part of the Stage 2 building will be generally located in the following locations:

- Level 4 plant room, incorporating air handling units and emergency generator; and
- Level 8 (rooftop), incorporating cooling towers, kitchen exhaust fans, exhaust fans, smoke exhaust and stair pressurisation.

Within the mechanical plant to located on Levels 4 and 8, these are proposed to be acoustically treated in the first instance without any additional screening or supplementary measures and further detailed design and incorporation of supplementary measures (where and when needed) will ensure noise levels are able to meet required standards. Acoustic treatments are typical and would be considered in further detail with the development of the mechanical scheme. A detailed review of mechanical plant has been recommended by Indigeco/EMM to be undertaken as part of the detailed design and construction phases to ensure that cumulative noise emissions comply with the project-noise trigger levels (PNTLs) provided in Table 4.8 and Table 4.9 of the Noise and Vibration Impact Assessment.

External Noise sources

Based on modelled and assumed traffic volumes on both the Great Western Highway and Parker Street, and the predicted worst-case traffic noise levels upon the Stage 2 Redevelopment façade, the development will be acoustically treated to achieve levels of acoustic comfort for sensitive areas within the building. The treatments will be defined as part of the detailed design and construction phases and will likely involve specified glazing and other façade construction types.

7.11.4 Conclusion and mitigation measures

Noise predictions indicate some marginal exceedance of the project noise management levels at residential dwellings external to and east of the site early in the construction process and moderating thereafter. Exceedances of the project noise management levels may also be experienced at the Nepean Private Hospital and Tresillian to the north of the development site given proximity. It is noted that the 'highly affected' noise management level is not expected to be exceeded and that works will be limited to standard hours only. This is not atypical for a project of this size which is being constructed in proximity to sensitive land uses.

Vibration generated by heavy construction works are expected to generally comply with cosmetic damage limits excepting select pieces of machinery for receivers external to the campus.

A detailed construction noise and vibration management plan (CNVMP) should be prepared as part of the main works contract to ensure that noise and vibration impacts from proposed construction methodologies are minimised as far as practicable.

A review of operational noise impacts by Indigeco/EMM indicates the following:

- Noise from on-site vehicle movements will comply with the noise emission requirements of the EPA Noise Policy for Industry
- A preliminary review of noise impacts associated with mechanical plant operation has been undertaken. It is expected that mechanical plant noise can be suitably treated using relatively standard acoustic treatments such as lined ductwork, acoustic attenuators and the like such that the acoustic requirements of the EPA Noise Policy for Industry are achieved. Noise from mechanical plant is reviewed as part of the detailed design and construction phases and as such is generally conditioned within the project consent. It is expected that a similar condition would be included in this case
- Road traffic noise from Parker Street and the Great Western Highway upon the development has been assessed against the requirements of the Department of Planning (DoP) Development Near Rail Corridors and Busy Roads - Interim Guideline ('interim guideline'). Traffic noise intrusion into the hospital can be suitability mitigated using relatively standard building constructions typical to a hospital development.

Indigeco/EMM concludes that noise and vibration generated by the construction and operation of the development would be suitably managed to achieve the requirements of the DECC Interim Construction Noise Guideline, EPA Noise Policy for Industry, and DECCW Road Noise Policy. Noise intrusion requirements applicable to the Project can be reasonably met in accordance with the DoP interim guideline.

Mitigation measures during construction include:

- Construction noise is predicted to satisfy noise management levels at residential assessment locations. Marginal excursions of criteria are predicted for non-residential assessment locations and hence nominal measures should be considered where feasible and reasonable. A CNVMP should be prepared as part of the main works contract to ensure that all feasible and reasonable treatments and management conditions are considered to minimise noise and vibration from the site.
- This would address or include such matters as:
    - Stakeholder and community consultation
    - Site hoarding
    - Temporary noise barriers
    - Scheduling of works
    - Plant and equipment choice and operation
    - Work practices

Operational noise mitigation measures include:

- No additional mitigation measures are required to address noise generated by the use of the new loading dock beneath the Stage 2 tower and the refurbished loading dock on the western side of North Block.
- A detailed review of mechanical plant should be undertaken as part of the detailed design and construction phases to ensure that cumulative noise emissions comply with the project-noise trigger levels (PNTLs) provided in Table 4.8 and Table 4.9 of the Indigeco/EMM report.

Mitigation measures in relation to noise intrusion from external noise sources to the campus include:

- Road traffic noise intrusion into the development has been assessed. In-principle acoustic treatments have been determined in Section 7.3 of the Indigeco/EMM report to sufficiently mitigate road traffic noise intrusion. Constructions included in this assessment based on the most exposed façade on the worst case floor will suitably mitigate road traffic noise to meet the requirements of the Department of Planning Development Near Rail Corridors and Busy Roads - Interim Guideline.
- The detailed design of the façade is to be undertaken as part of the detailed design and construction stages of the project to ensure that the requirements of the interim guideline are met.

7.12 SEPP 33 - Hazardous Goods

Initial screening report

Riskcon were engaged to prepare an initial screening assessment to determine if SEPP 33 applies to the proposed development based on the threshold quantities of dangerous goods proposed to be stored at Nepean Hospital as a result of, and following, the Stage 2 Redevelopment.

Based on the 'Applying SEPP 33 – Hazardous and Offensive Development' guidelines to identify the storage location or quantity triggers of SEPP 33, and likely vehicular movements thresholds associated with the delivery of those goods / materials, Riskcon determined that a Preliminary Hazard Analysis (PHA) would be required. This was principally based on the SEPP 33 storage threshold for oxidising substances being exceeded at the campus, with all other categories significantly below the relevant thresholds.

With respect to the vehicular movement of transportation of dangerous goods, Riskcon concluded that as the quantities to be stored are primarily less than SEPP 33, a high turnover of stored product would be required to exceed the transport movements associated with the corresponding storage. Although the oxidising substances exceed the value of SEPP 33, it is unlikely that the rate of turnover necessary to exceed the acceptable vehicular movements would be achieved; hence, it is considered that the transport screening thresholds of SEPP 33 would not be exceeded.

Preliminary Hazard Analysis

A Preliminary Hazard Analysis (PHA) was carried out by Riskcon to evaluate offsite risk levels in the event of emergency or major failure scenario.

The aim of the report was to:

- Provide a PHA assessment of the offsite hazards and risks associated with the facility in accordance with the Hazardous Industry Planning Advisory Paper (HIPAP) No. 6
- Determine the risk levels for offsite impacts to community and environment associated with the proposed facility.
- Provide guidance and recommendations for mitigation of hazards.
- Demonstrate compliance with the accepted risk criteria for hazardous industry as outlined in HIPAP No. 4.

The scope of the study included an assessment of the Nepean Hospital including both the existing dangerous goods storages and operations and the new storages and operations as part of the redevelopment.

Using the Level 2 'Partial Quantitative Analysis' assessment option, based on types of dangerous goods handled at Nepean Hospital, a qualitative assessment of those dangerous goods of lesser quantities and hazard, and a quantitative approach for the more hazardous materials to be used on-site was applied.

Based on the assessment carried out by Riskcon, *a hazard identification table was developed for Nepean Hospital to identify potential hazards that may be present at the site as a result of the storage of materials. Based on the identified hazards, scenarios were postulated that may result in an incident with a potential for offsite impacts. Postulated scenarios were discussed qualitatively and any scenarios that would not impact offsite were eliminated from further assessment. It was determined that no scenarios would have offsite impacts, hence none were carried forward for consequence analysis.*

Based on the analysis conducted, it was concluded that the risks at the site boundary are not considered to exceed the acceptable risk criteria; hence, the proposed redevelopment does not increase the risk profile of the overall site to an unacceptable level; hence, the proposed additions would be permitted within the current land zoning for the site.

Both assessments are found at **Appendix W** of this EIS.

To address the statutory requirements of SEPP 33, clause 8 has been satisfied by Riskcon in applying the Department's guidelines to determine whether a PHA would be required and whether the development is a hazardous storage establishment, hazardous industry or other potentially hazardous industry. Riskcon has not identified the hospital as a hazardous storage establishment, hazardous industry or other potentially hazardous industry. Accordingly, under clause 11 of the SEPP, Part 3 of the SEPP does not apply. This includes matters for consideration under clause 13.

Notwithstanding, consistent with the relevant matters for consideration, the PHA prepared will be considered by the consent authority in determining this DA and the likely future land uses surrounding the site are not likely to significantly change to render the proposed development un-approvable in the context of the low risk identified in the PHA.

Based on its assessment, notwithstanding the results and conclusions made, Riskcon makes the following recommendations:

- Ensure all hazardous chemical storage facilities onsite comply with the relevant Australian Standards.
- Undertake a Hazardous Area Classification (HAC) for the hospital precinct where flammable gases (Class 2.1) or flammable liquids (Class 3) are stored.
- Prepare the documentation required for the hospital precinct per Part 7.1 of the Work Health and Safety Regulation 2017.

7.13 Wind Impacts

A detailed study of localised wind impacts of the proposed development have been assessed by Windtech – see **Appendix DD**.

This Pedestrian Wind Environment Study was completed with wind tunnel testing of a 1:300 scale detailed model of the development. Its objective was to determine the wind environment of outdoor trafficable locations around the building and peak wind gusts and mean wind speeds based on the known regional wind climate, the effect of nearby buildings and land topography, and existing local conditions. The testing excluded any building details which may act as wind ameliorating devices such as screens, balustrades and vegetation.

The results of the study indicate that wind conditions for the majority of trafficable outdoor locations within and around the development will be suitable for their intended uses. However, some areas will experience strong winds which will exceed the relevant criteria for comfort and/or safety.

Windtech suggests treatments as described below:

- Inclusion of densely foliating evergreen trees, capable of growing to 3m high and wide, at the north-eastern corner of the Stage 2 Redevelopment along Level 00
- Inclusion of densely foliating evergreen shrubs/hedge planting, capable of growing to 2m high, on the north-eastern terrace along Level 01.

With the inclusion of these treatments to the final design, it is expected that wind conditions for all outdoor trafficable areas within and around the development will be suitable for their intended uses. These locations are shown in **Figure 75.**

Figure 75 – Wind Tunnel Results - without wind amelioration treatments (Windtech)

No further mitigation measures are considered relevant with these being resolved at the detailed design stage.

The development is not expected to have any wind impacts outside of the Nepean Hospital campus.

7.14 Aviation Matters

An Aviation Impact Statement has been prepared by AviPro with respect to the development's impact upon the Stage 1 Tower's helipad operations, other aviation movements generally, and noise impacts – see **Appendix EE**.

Airspace Operations generally

AviPro advises that the Stage 2 Redevelopment is located outside all major airport airspace areas including any planned flight path airspace for the new Second Sydney Airport as referenced by clause 7.9 of the *Penrith Local Environment Plan 2010* , as well as RAAF Richmond. It is therefore not considered to be within "prescribed airspace" as defined in the *Airports (Protection of Airspace) Regulations 1996*.

As noted in Section 5.1.8 of this EIS, the hospital campus sits just inside the *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020* Obstacle Limitation Surface (OLS) Map's Outer Horizontal Surface line of 230.5m AHD. Given the development sits at a maximum RL of 90.82m AHD (lower than the existing Stage 1 Tower), the development will continue to be well below this RL 230.5 threshold for notification to Air Services Australia and Commonwealth. The development will not penetrate the prescribed airspace and the provisions of clause 24 of the SEPP require no further action.

The positioning and proposed development will not incur any negative air traffic or protected airspace factors or considerations. There are no constraints imposed by prescribed airspace associated with airports or airport instrument approach and standard departure profiles. As a consequence, the development of the Stage 2 building, and in particular vertical obstructions such as cranes, can be

addressed from a "safety to flight" requirement for helicopters operating into/from the Stage 1 Tower and aircraft transiting in the vicinity.

Based on the above, no consultation will be required with any of the Civil Aviation Safety Authority, AirServices Australia, the Western Sydney Aerotropolis, or RAAF Richmond with respect to the building's height and location.

Operation of the Stage 1 Tower's helipad

AviPro advises that the planned flight path for access to and from the Stage 1 Tower's helipad is clear of the proposed Stage 2 Redevelopment with the building well below the actual helipad height. The Stage 2 Redevelopment, when built, will not impact access to/from the Stage 1 Tower's helipad. Cranes associated with the Stage 2 Redevelopment will still allow access to the helipad as long as the arc of a crane does not cross the dashed line illustrated in **Figures 76** and **77** below.

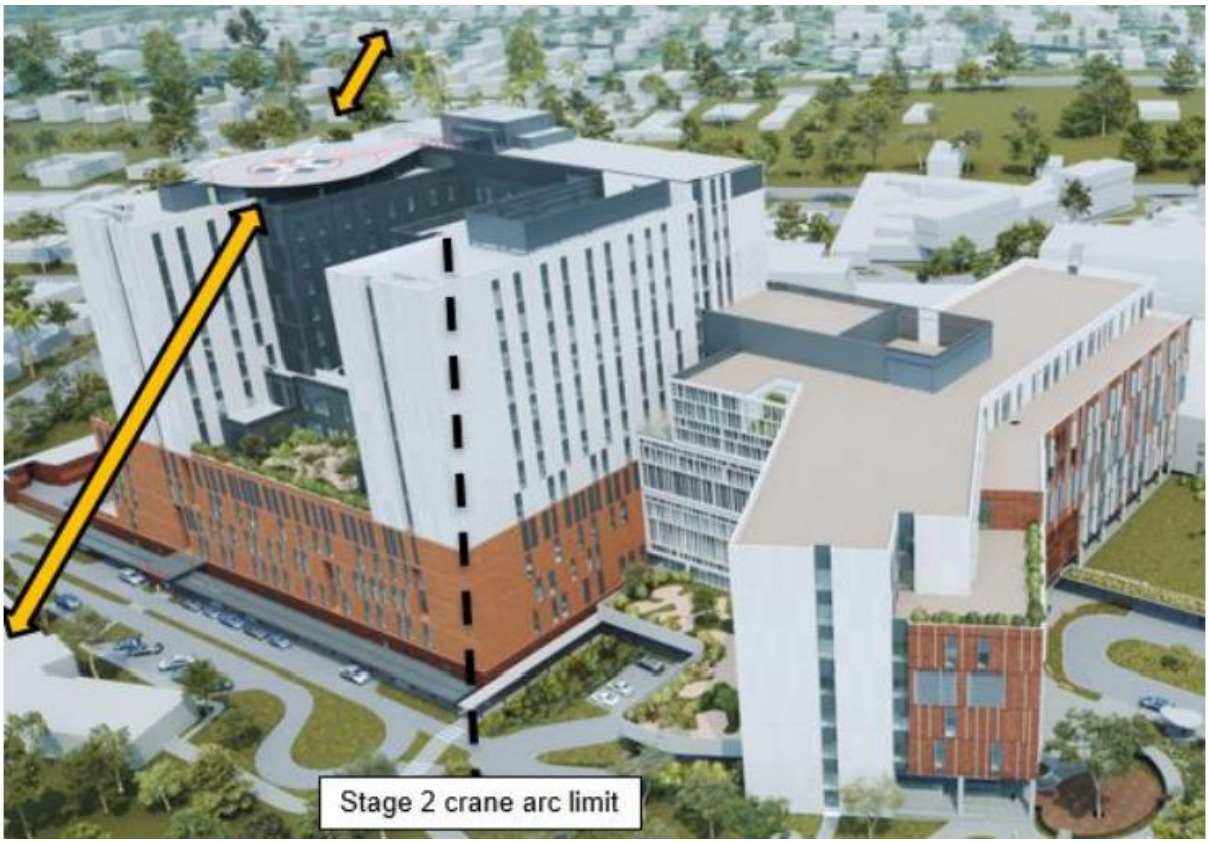


Figure 76 – Approach and Departure flight path and recommended crane arc limit (AviPro)

Figure 77 –Crane arc limits for continued operation of the Stage 1 Tower helipad (AviPro)

Noise impacts

No noise impacts from helicopter movements relate to the Stage 2 Redevelopment as no helipad is associated with this development. These matters were all considered during the assessment of the Stage 1 Redevelopment.

Notwithstanding, Indigeco/EMM in undertaking its Noise and Vibration Impact Assessment (see **Appendix CC**) considered impacts of helicopter noise on adjacent development, including the hospital. Indigeco/EMM advised, that there is no mandatory requirement for addressing noise from emergency helicopter movements. As such, noise measurements have not been undertaken of helicopter movements which would necessitate the use of AS 2363 - Australian Standard 2363 Acoustics – Measurement of noise from helicopter operations.

AviPro indicates that the total noise event associated with emergency helicopter movements can be summarised as follows:

Helicopter arrival:

- minute approach and land, and
- 2 minutes engine idle (then shutdown).

Helicopter departure:

- minute start-up,
- minute hover and backup, and
- minute departure.

Total elapsed noise event is approximately 6 minutes

The hospital also sits well beyond the 20-25 ANEF contours associated with each of RAAF Richmond and the Western Sydney Aerotropolis – see Section 5.5 of the AviPro Report.

To manage and protect helipad operations on the Stage 1 Tower, AviPro has indicated that

there is a need to manage crane-helicopter interfaces during construction. It is important that a crane be lit, even though it does not infringe the helicopter flight paths. The requirements of the National Airports Safeguarding Framework Guideline H – Protecting Strategically Important Helicopter Landing Sites are applicable in this regard.

Based on the information provided by both AviPro and Indigeco/EMM, no further mitigation measures are relevant with respect to helipad operations and noise impacts of or upon the Stage 2 Redevelopment.

7.15 Waste Management

7.15.1 Construction

During construction the typical construction-related waste streams are anticipated. Materials likely to be removed during demolition and construction include:

- Concrete
- Asphalt
- Bricks / pavers
- Tiles
- Timber (treated and untreated)
- Metal (ferrous)
- Metal (non-ferrous)
- Glass
- Fixtures and fittings
- Plasterboard
- Floor coverings
- Garden organics (vegetation)
- Residual waste (general refuse)
- Hazardous building materials
- Excavation material
- Packaging (used pallets, pallet wrap)
- Paper/Cardboard

Waste minimisation, sorting, and recycling will be fundamental expectations to be undertaken by the principal contractor for the works. Of the above, disposal will only be expected in relation to hazardous building materials and residual waste. The balance of the waste stream has a high potential for reuse and and/or recycling – see the Waste Management Plan prepared by MRA Consulting Group (see **Appendix FF**). MRA anticipates up to 550m^3 of demolition waste to be generated, of which only a small proportion cannot be reused or recycled. Excavation and construction is likely to generate a further 10,000m^3 of excavation material (which could be reused on of off-site) and 800m^3 of other materials which again can be largely re-used and/or recycled.

Based on the Preliminary Construction Management Plan (see **Appendix BB**), the principal contractor will be required to recycle and reuse materials, where possible aligned to this MRA Waste Management Plan. The principal contractor will be required to arrange for the sorting and recycling of waste materials and packaging to ensure maximum recycling is achieved. The principal contractor will be committed to achieving compliance with the EPA guidelines. All packaging is to be removed before materials are delivered to site to minimise waste generation on site.

7.15.2 Operational

A Waste Management Plan has been prepared by MRA Consulting Group (see **Appendix FF**) to address the likely waste streams arising from the development and how to better manage, reuse, recycle waste to meet identified State objectives and targets, Council's sustainable waste management policies, statutory requirements, as well as further assisting the development to attain its ESD / 5-star Green Star equivalency target.

The objectives and guiding principles in the preparation of the Waste Management Plan have been to:

- Facilitate sustainable waste management within the City of Penrith in accordance with the principles of Ecologically Sustainable Development
- Manage waste in accordance with the 'Waste Hierarchy' to:
    - Avoid producing waste in the first place
    - Minimise the amount of waste produced
    - Re-use items as many times as possible to minimise waste
    - Recycle once re-use options have been exhausted
    - Dispose of what is left, as a last resort, in a responsible way to appropriate waste disposal facilities.
- Assist in achieving Federal and State Government waste minimisation targets as set out in the Waste Avoidance and Resource Recovery Act 2001 and NSW Waste Avoidance and Resource Recovery Strategy 2014-21
- Minimise the overall environmental impacts of waste by:
    - Encouraging development that facilitates ongoing waste avoidance and complements waste services offered by both Council and/or private contractors;
    - Requiring on-site source separation and other design and siting standards which assist waste collection and management services offered by Council and/or the private sector;
    - Encouraging building designs and construction techniques that minimise waste generation;
    - Maximising opportunities to reuse and recycle building and construction materials as well as other wastes in the ongoing use of a premise; and
    - Reducing the demand for waste disposal.

Waste likely to be generated by the development includes medical and related wastes, such as:

- Special waste
- Liquid waste
- Hazardous waste
- Restricted solid waste
- General solid waste (putrescible)
- General solid waste (non-putrescible)

These will fall into the following waste streams which will be managed or have the potential to be managed:

- General waste
- Paper and cardboard
- Commingled recycling
- Secure document recycling
- Clinical (and related) waste
- Printer cartridges
- Food waste
- Pharmaceutical Waste
- Soft Plastics
- Mixed metals
- Containers
- Textiles
- Maintenance waste

During operation, the total conservatively estimated daily waste stream volumes (other than for secure waste which is weekly) have been predicted by waste mapping carried out by MRA – see **Figure 78** over.

Level	General Waste (L)	Clinical Waste (L)	Cytotoxic Waste (L)	Commingle (L)	Paper/ cardboard (L)	Secure document (L)	Food	Total
LV 00	858	0	0	528	528	396	3,564	5,874
LV 01	880	264	0	440	0	792	0	2,376
LV 02	3,421	858	0	1,166	528	792	0	6,765
LV 03	396	264	264	132	264	528	0	1,848
LV 04	264	0	0	0	0	528	0	792
LV 05	528	528	528	0	528	264	0	2,376
LV 06	660	528	528	264	528	792	0	3,300
LV 07	528	528	528	264	528	528	0	2,904
Total	**7,535**	**2,970**	**1,848**	**2,794**	**2,904**	**4,620**	**3,564**	**26,235**

Figure 78 – Waste Stream mapping and forecast data (MRA)

Based on a review of the volumes of waste, likely waste streams, and the waste handling requirements, MRA has confirmed that the back of house and loading dock areas of the development will likely need the following areas devoted to waste handling processes:

- Approximately 130m^2 of space dedicate to waste storage, bin washing and decanting waste activities
- Approximately 100m^2 space for the management of cytotoxic and clinical related waste materials
- Two compact units, one each for general waste and recycling
- Bin tug and trailer parking area
- Space for skip bins (for bulk and fitout related wastes).

The BVN architectural drawing set generally satisfies these requirements, however it is likely these matters / spaces will be further refined during the detailed design phase to optimise waste handling within the Stage 2 Redevelopment.

7.16 Signage

As noted in Section 4.6 of this EIS, a new sign is proposed at Level 06 indicating 'Nepean Hospital'. This will be affixed to the building's façade facing west and be a face-illuminated building identification sign. Its proposed dimensions are 1.2m high x 19.575m in length - that is, some 23.5m^2 in area. As this exceeds the relevant thresholds or criteria for Exempt Development under *State Environmental Planning Policy (Infrastructure) 2007*, it will need development consent and assessment under the relevant provisions of *State Environmental Planning Policy No 64—Advertising and Signage*. The proposed sign is shown in the architectural plan set and signage and wayfinding report at **Appendix Q**. Consent is otherwise not sought for what is at this point indicative wayfinding provided in this EIS for context only.

The SEPP only applies to signage that is not Exempt Development under any environmental planning instrument. Given it exceeds the 3.5m^2 threshold set by Schedule 1 of the Infrastructure SEPP, the relevant provisions of SEPP 64 will apply. Note, the sign is also not advertising as defined by SEPP 64.

Clause 8(a) requires that the signage is consistent with the objectives of the SEPP as set out in clause 3 (1) (a), and clause 8(b) requires that the signage satisfies the assessment criteria specified in Schedule 1.

Each are addressed in turn below.

Clause 3(1)(a) states:

> *(a) to ensure that signage (including advertising):*
>
> *(i) is compatible with the desired amenity and visual character of an area, and*
>
> *(ii) provides effective communication in suitable locations, and*
>
> *(iii) is of high quality design and finish, …*

The signage is appropriately scaled and is compatible with the desired amenity and visual character of the hospital and the area as it relates directly and solely to the operation of the proposed hospital, which is a permitted land use at the site.

The sign will provide effective communication of the hospital's location (in tandem with other traffic and directional signage around the hospital and on major roads leading to the hospital) as well as the location of the new main front of house to the wider hospital. The sign will complement and enhance the appreciation of the site as a hospital by being suitably located at and addressing the main entry and be appropriately scaled, yet suitably prominent, to provide an identity and address to the site.

Schedule 1 assessment is set out in the following table.

Provision	**Compliance / Commentary**
Schedule 1	
1 Character of the area • Is the proposal compatible with the existing or desired future character of the area or locality in which it is proposed to be located? • Is the proposal consistent with a particular theme for outdoor advertising in the area or locality?	As set out above, the proposal is compatible with the existing or desired future character of the area or locality in which it is proposed to be located. The proposal does not involve outdoor advertising and is for Nepean Hospital's identification only.
2 Special areas • Does the proposal detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, rural landscapes or residential areas?	The proposal is not in a special area and does not detract from the amenity or visual quality of any environmentally sensitive areas, heritage areas, natural or other conservation areas, open space areas, waterways, or rural landscapes. The area that the signage is to be located in is not a special area and the signage is consistent with its existing or desired future character as set out above.
3 Views and vistas • Does the proposal obscure or compromise important views? • Does the proposal dominate the skyline and reduce the quality of vistas? • Does the proposal respect the viewing rights of other advertisers?	The signage is proportionate in scale and shape and is located where it does not in itself affect views, vistas or skylines. It is 1.2m in height running along the podium parapet of the Stage 2 building within the property boundary. The signage does not affect views or vistas, including any significant views or vistas. The signage does not affect views of skylines and is not in itself a sign to affect a skyline. The sign does not affect advertisers in the area.
4 Streetscape, setting or landscape • Is the scale, proportion and form of the proposal appropriate for the streetscape, setting or landscape? • Does the proposal contribute to the visual interest of the streetscape, setting or landscape? • Does the proposal reduce clutter by rationalising and simplifying existing advertising? • Does the proposal screen unsightliness? • Does the proposal protrude above buildings, structures or tree canopies in the area or locality? • Does the proposal require ongoing vegetation management?	The scale, proportion and form of the proposal is appropriate for the streetscape, setting and its landscaping. The sign is appropriately proportioned in relation to the building upon which it is proposed to be located. The sign contributes to the street / public domain in principally distinguishing and identifying the hospital from other uses and providing an address and way finding for visitors and servicing of the site, that require to attend front and back of house locations within the Stage 2 building. It is in a standardised and contemporary design, and is of the type, colours and materials that sit compatibly with the use and context. Given its elevated location above tree tops and laterally away from tree tops it is unlikely that ongoing vegetation management would be necessitated.
5 Site and building	As above, the sign is compatible with the proposed development, the site, and its use. It is appropriately

• Is the proposal compatible with the scale, proportion and other characteristics of the site or building, or both, on which the proposed signage is to be located? • Does the proposal respect important features of the site or building, or both? • Does the proposal show innovation and imagination in its relationship to the site or building, or both?	scaled and provides a proportionate relationship between the street, public domain and the scale of the development and size of the Nepean Hospital campus.
6 Associated devices and logos with advertisements and advertising structures • Have any safety devices, platforms, lighting devices or logos been designed as an integral part of the signage or structure on which it is to be displayed?	The lettering and colouring is appropriately incorporated into the overall design of the sign. There is no advertising associated with the sign.
7 Illumination • Would illumination result in unacceptable glare? • Would illumination affect safety for pedestrians, vehicles or aircraft? • Would illumination detract from the amenity of any residence or other form of accommodation? • Can the intensity of the illumination be adjusted, if necessary? • Is the illumination subject to a curfew?	The sign is to be face-illuminated and is of a scale that would not affect traffic, pedestrians, or aircraft. The sign would be incidental in view and would not dominate.
8 Safety • Would the proposal reduce the safety for any public road? • Would the proposal reduce the safety for pedestrians or bicyclists? • Would the proposal reduce the safety for pedestrians, particularly children, by obscuring sightlines from public areas?	The sign is located away from key sightlines within the road reserve and is within the property boundary. The sign would not reduce any aspect of public safety.

7.17 Cumulative impacts and interactions with other development

7.17.1 Staging

The staging of works as set out in Section 4.11 of this EIS has been conceived to minimise impacts upon the operational hospital, whilst allowing for a logically and efficient redevelopment process.

7.17.2 Campus-wide works

A range of campus-wide works are proposed ahead of, and in part concurrently with, the Stage 2 Redevelopment. These works are set out in Section 4.14 of this EIS. These works are generally remote from the Stage 2 Redevelopment by relocating and decanting a range of hospital-related uses or infrastructure and allowing them to be operational ahead and outside of the Stage 2 Redevelopment timeframe.

7.17.3 External to the campus

Recent works to Parker Street / The Northern Road have been completed by TfNSW and will not be affected by the works. Other works to The Northern Road to the south of the hospital and towards the M4 Motorway are significantly advanced and also nearing completion.

The recent redevelopment of a new private hospital / clinic (The Nepean Health Hub) by Cornerstone at the corner of Parker Street and Barber Avenue will be completed and operational ahead of consent being granted to this DA.

A review of the Department's Major Project's webpage reveals no current development's near Nepean Hospital. A review of the Sydney and Regional Planning Panels register and Penrith City Council DA

tracker for any recent DAs of note in Kingswood and near the hospital has however garnered the following:

- DA20/0810 – 34-36 Somerset Street, Kingswood (approved 29 October 2021)
    - Construction of a Five (5) Storey Private Health Facility Containing a 90 Bed Mental Health Hospital and Associated Health Services With Three (3) Levels of Basement and Lower Ground Parking for 92 Cars and a Roof Terrace

- DA20/0767 – 28-32 Somerset Street, Kingswood (approved 24 September 2021)
    - Demolition of Dwelling, Construction of a Seven (7) Storey Accommodation Hotel with Rooftop Bar and Restaurant, 3 Levels of Basement Parking for 63 Vehicles, Ground Floor Reception, Lounge and Dining, and Associated Site Works with Consolidation of Three Lots

- DA19/0801 – 39-43 Orth Street, Kingswood (approved 20 April 2020)
    - Demolition of Existing Structures and Construction of a 5 Storey Private Hospital with 2 Levels of Basement and Parking for 65 Cars

The 28-32 and 34-36 Somerset Street development sites are located diagonally opposite the Somerset Street multi-storey car park at the corner with Derby Street. These sites have been vacated and are partially cleared for redevelopment. No construction activity appears to have commenced at the time of writing. The 39-43 Orth Street development site sits opposite the completed Stage 1 Tower also to the east of the hospital. This development has commenced construction and is well advanced at the time of writing. Construction access to these three sites is likely to use Somerset Street southbound from the Great Western Highway.

The only significant development overlap with the Stage 2 Redevelopment would be construction traffic management. However, given the forthcoming commencement of operation of the Stage 1 Tower, construction access for Stage 2 will be from the west via Parker Street. To that end any construction traffic overlap with these three developments is likely to only be on the nearby State roads (chiefly the Great Western Highway) where the impact will be negligible.

7.18 Environmental Risk Assessment

Environmental Risk Assessment matrix

The following matrix and table sets out the method for assessing an environmental risk. The assessment determines the likelihood or probability of an environmental risk occurring and the likely magnitude of the consequence. This assists in determining further action required to manage or mitigate risks, or whether certain actions or events are unacceptable and must be avoided due to their high risk or severe or catastrophic consequences.

The risks assessed relate to both the construction and operation of the Stage 2 Redevelopment based on the specialist reports and documentation prepared for the development as set out earlier in this section of the EIS. A Mitigation Measures table related to recommendations within these documents and arising from this environmental risk assessment is found at **Appendix GG**.

Risk Matrix

Probability		**A** **Almost Certain**	**B** **Likely**	**C** **Possible**	**D** **Unlikely**	**E** **Rare**
Consequence						
1	**Severe**	**Very High**	**Very High**	**High**	**High**	**Medium**
2	**Major**	**Very High**	**High**	**High**	**Medium**	**Medium**
3	**Moderate**	**High**	**High**	**Medium**	**Medium**	**Low**
4	**Minor**	**Medium**	**Medium**	**Medium**	**Low**	**Low**
5	**Negligible**	**Low**	**Low**	**Low**	**Low**	**Low**

	Risk Control Actions
High – Very High	The risk is unacceptable. Eliminate the design feature
High	High priority for action
Medium	Responsibility to be allocated
Low	Manage by routine procedure and control

7.18.1 Existing environment and baseline conditions

The existing environment within the development site is an operational hospital, with much of the Stage 2 Redevelopment replacing, upgrading, augmenting, and improving a range of existing functions, operations, and management procedures.

The site is itself is a highly modified, disturbed and urbanised site with no (or little opportunity for) heritage or cultural value, poor or low biodiversity value, and no natural scenic or highly valued environmental qualities.

The environment surrounding the hospital is also highly urbanised and under transformation into a burgeoning Health and Education Precinct. Residential and other mixed use activities dominate within the existing and planned environs of the hospital campus. There is a reasonably high residential population density, notwithstanding the hospital's visual and functional dominance within its locality.

7.18.2 Assessment of potential impacts

The types of impacts that may arise as a result of the development are set out below.

General

- Contamination
- Salinity
- Heritage

Construction

- Hazardous building materials
- Acid Sulfate Soils
- Biodiversity loss
- Tree removal / protection
- Aboriginal heritage
- Stormwater management - sediment and erosion control
- Traffic and parking
- Amenity - air quality (dust / odours)
- Amenity – noise
- Amenity – vibration
- Aviation
- Waste generation

Operation

- Stormwater management – water quantity
- Stormwater management – water quality
- Flooding
- Visual impacts / visual amenity
- View loss
- Amenity – privacy
- Amenity – overshadowing
- Amenity - lighting
- Amenity – noise
- Amenity - wind

- Safety and security
- Traffic and parking
- ESD measures / climate change
- Hazardous goods (SEPP 33)
- Aviation
- Waste generation

General - Contamination
Based on the PSI and DSI there is a likelihood of contamination at the site with a negligible and low-level risk consequence as the remediation works are able to be employed, where required, to ensure the site remains suitable for use. Overall, the risk is considered to be **low**.

General - Salinity
Salinity is a known issue affecting development in parts of Western Sydney, including Kingswood. At this point the likelihood of salinity at the site has not been quantified but it is possible that it may occur on the Nepean Hospital site. The consequences in general are likely to be moderate, presenting as a **medium** risk to the development and the environment. Mitigation measures are imposed to identify and manage salinity, should it arise.

General - Heritage
The Nepean Hospital campus is not a heritage item and does not sit within a conservation area. The impact of the development upon nearby heritage items as been identified as negligible and of no new direct impact. Accordingly, the risk to heritage is **low**. An unexpected finds protocol will apply in the event of any finds during works.

In summary, the general impacts arising with respect to contamination, salinity and heritage generally are likely to be **low** to **medium** in nature. These impacts and risks would not prevent the Stage 2 Redevelopment, whether singularly or collectively.

Construction - Hazardous building materials
Given the known presence of some hazardous building materials in parts of North Block and other buildings proposed for demolition. With structured removal and handling processes as proposed as mitigation measures, the risk would be described as **low**.

Construction - Acid Sulfate Soils
As there is no known or mapped occurrence of Acid Sulfate Soils at the site, the risk is low of these being exposed during earthworks is **low**.

Construction - Biodiversity loss
The loss of existing fragmented, isolated, and poor condition Cumberland Plain Woodland vegetation is likely but of a minor consequence given the required offsetting of the lost vegetation through the BAM under the Biodiversity Conservation Management Act. Accordingly, the risk is identified as **medium** and will be managed through the formalised offsetting process.

Construction - Tree removal / protection
Tree loss is inevitable given the scope of works. A significant number of trees have been retained, however some 58 will require removal. The 'almost certain' probability coupled with a moderate consequence given the general disturbed nature of the site makes this a **high** risk action. The compensatory canopy tree planting proposed aims to replace and augment the lost tree canopy with additional endemic species to improve habitat and the lost (but low) biodiversity values at the site. Replacement planting at a currently proposed 1.8:1 will garner some 105 replacement canopy trees. This significantly reduces the likely risk rating of this action to **medium** or **low**.

Construction - Aboriginal heritage / heritage
Given the highly disturbed nature of the site, it has been identified as having no Aboriginal archaeological potential and that it is unlikely that Aboriginal objects would be disturbed by the proposal. The risk profile in this regard is **low**, however, notwithstanding, through detailed engagement with Aboriginal communities through the ACHAR process, induction and monitoring during the construction process is proposed along with the routinely-applied unexpected finds protocol to protect and salvage any items that may be discovered. Further, an interpretation strategy and plan is proposed along with further arts and culture and landscape development to reflect Connecting to Country and Designing with Country.

Construction - Stormwater management - sediment and erosion control
The impacts of sediment and erosion arising from the works have been reduced through the proposed implementation of standard sediment and erosion control measures around the site. The likelihood of impacts arising are accordingly **low**.

Construction - Traffic and parking
Construction traffic impacts are possible and would have a moderate consequence upon the local transport network and local traffic. This is mainly because the access to the Stage 2 Redevelopment must come from the west and therefore principally relies upon the State Road network on which the additional traffic loads would largely be negligible. Possible impacts upon the hospital's immediate environs and intersections arises, but the consequences are likely to be minor making this risk **medium**. A final Construction Traffic Management Plan will be required to be devised to address likely risks and impacts.

No parking will be provided on-site for workers and there is a strong reliance on public transport and carpooling. There is possible risk that workers will seek to drive and park in the surrounding streets having a moderate impact on parking supply and posing a **medium** risk.

Construction - Amenity - air quality (dust / odours)
During works impacts upon the amenity of the neighbourhood will be controlled through management and mitigation of air population, whether through dust or odours. The likelihood of air pollution is reduced to unlikely and of having a minor consequence. The risk level of this is **low**, subject to the appropriate mitigation measures being imposed.

Construction - Amenity – noise
Construction noise is 'almost certain' to occur. The levels of impact upon residential and health care neighbours vary depending upon proximity and the stage of the demolition and construction works. Construction noise management methods will be detailed in a construction noise and vibration management plan prior to commencement of works. This will detail the relevant management and mitigation measures necessary to limit noise impacts. As noted in this EIS no works affect residential properties to the point of exceeding the highly noise affected levels, and whilst not applicable to healthcare premises, this level is also not anticipated to be exceeded in this regard. The noise impacts are therefore likely to be moderate and result in risk rating of **high**, but which can be reduced through management and implementation of the construction noise and vibration management plan.

Construction - Amenity – vibration
Some vibration is likely to occur discontinuously at various stages of the construction program. This has the potential to affect some sensitive uses, in particular, those closest to the hospital, including Tresillian and the Nepean Private Hospital. Vibration consequences are accordingly likely with moderate, albeit temporary, impacts making this a **high** risk matter. The proposed Construction Noise and Vibration Management Plan prior to construction will better address specific vibration management and mitigation measures.

Construction - Aviation
No general aviation impacts are likely during construction. Any crane employed for the Stage 2 Redevelopment will need to be erected and operated within the crane arc limits seek by the aviation consultant. The probability of aviation impacts are rare with a minor impact only making this a **low** risk item.

Construction - Waste generation
Construction waste will be managed and reused and recycled where this is possible. This would be a **low** risk item given the overall desire to reduce waste and associated costs.

In summary, of the various construction-related impacts related to the development, only those related to noise and vibration are likely to be high risk, noting however that these impacts will be temporary and discontinuous in their impact. Traffic and parking impacts will likely be of a medium risk rating. The balance of matters are likely to be generally low in rating as these will be able to be most effectively managed or mitigated, where this is required due to the probability of a risk to occur. These impacts and risks would not prevent the Stage 2 Redevelopment, whether singularly or collectively.

Operation - Stormwater management – water quantity
The likelihood of stormwater management impacts arising in the completed development are unlikely and would have only negligible consequences as the development has been designed to cater for the increased impervious area though implementation of on-site detention and slow release water flows with Water Sensitive Urban Design and landscape features. A **low** risk rating applies in this regard.

Operation - Stormwater management – water quality
Similarly, water quality measures incorporated into the design of the development's stormwater system will satisfy each of Council's water quality targets. It is unlikely that the finished development will adversely impact upon water quality at the site and accordingly the consequences are likely to be minor. The risk rating is **low**.

Operation - Flooding
Based on the information provided in this EIS, whilst the hospital campus is partially flood affected to and at its north, it is unlikely that the Stage 2 Redevelopment itself will be affected. The impact of flooding upon the development is likely to be minor as a consequence. The risk rating is **low** in this regard.

Operation - Visual impacts / visual amenity
As the Stage 2 Redevelopment is mid-rise in height, centrally-located within the campus, and partly shielded / concealed by the Stage 1 Tower, the likelihood of impacts upon visual amenity is possible from the west and north only and the consequences are minor in the context. The risk rating for visual impacts is **low** to **medium** at worst.

Operation - View loss
There are no key views at or around the hospital likely to be impacted and the probability of view loss is rare with the consequences correspondingly negligible in the context. The risk rating is **low**.

Operation - Amenity – privacy
Given the significant distance of the building from all boundaries and any likely sensitive residential receivers, impacts on privacy are **low**.

Operation - Amenity – overshadowing
No shadowing occurs from the development outside of the hospital site. The risk related to overshadowing is **low**.

Shadows internal to the hospital will generally only impact existing building facades (eg North Block and East Block) and the new southern courtyard. Shadowing will generally only affect this part of the hospital in mid-winter with full sunlight available in these areas by mid-summer. The design of the courtyard has considered the impacts of overshadowing in the planting schedule and achievement of an appropriate microclimate. The risk rating is **low** in this regard.

Operation - Amenity - lighting
External light spill from the development is unlikely to adversely affect premises outside of the hospital as it has been designed to minimise glare and undesirable illumination levels to surrounding sensitive receivers in accordance with Australian Standards. The unlikely probability coupled with a minor consequence makes this a **low** risk rating.

Operation - Amenity – noise
Operational noise associated with the development is yet to be quantified. However, mechanical plant and loading dock noise mitigation is able to be designed and addressed through appropriate management and treatment measures in detailed design. At this point the profile of operational noise impacts is **medium** as the impacts are still possible but likely to be minor in the context.

Operation - Amenity - wind
Wind impacts are confined to within the hospital and in isolated locations at and around the building. With suitable design features on the façade of the building and in the landscaped elements surrounding the building, wind impacts are able to be mitigated to be both unlikely and of a minor isolated impact. Accordingly, the risk rating is **low**.

Operation - Safety and security
In general, the neighbourhood at and around the hospital is a lower risk area for crime and anti-social behaviour compared to other nearby places. This may be the result of the hospital's 24 hours per day and 7 day per week operation and its dominant presence within the locality. The Stage 2 Redevelopment offers a further opportunity to reinforce and clarify territorial reinforcement within the campus, improve surveillance, manage access to parts of the campus, and manage space in general. The development offers a significant opportunity to further reduce crime and anti-social behaviour at or around the campus. Safety and security risk is therefore possible but reduced to unlikely which may have a minor consequence. The risk rating is **low** in this context.

Operation - Traffic and parking
Given the Stage 2 Redevelopment has been factored into all recent parking and traffic analyses the likelihood of new or increased impacts arising from this development alone is unlikely. The consequence of impacts arising should be minor as the design of parking supply and intersections have been modelled to accommodate demand arising from Stages 1 and 2, with Stage 2 being the culmination of the calculated parking and traffic demand scenario. The risk rating tied to parking and traffic demand impacts is **low** based on the advice and modelling carried out by ptc.

Operation - ESD measures / climate change
The development is seeking to limit its impacts upon the environment through measures tied to design, operation, and building performance in attaining an equivalent 5-star Green Star rating and better than 10% improvement upon the NCC 2019 Section J DTS requirements. The development also seeks to positively and effectively respond to NARCliM Climate Change Projections through mechanical and electrical systems and architectural design to address increased average temperature and duration of heatwaves, as well as measures to tackle increased flood risk, more extreme rainfall events, and bushfire (should it occur at this campus). The impacts of climate change remain possible but the consequences have been addressed to reduce the risk to minor. The risk rating is **medium** in this regard.

Operation - Hazardous goods (SEPP 33)
The development is unlikely to generate a hazardous goods risk within its locality, the consequence of which remains minor. The risk rating in this respect is **low**. Mitigation measures are proposed to ensure this risk rating remains low.

Operation - Aviation
The Stage 2 Redevelopment will have no impact upon general aviation and hospital-related helicopter traffic. The probability of an impact is rare and the consequence negligible. The corresponding risk rating is **low**.

Operation - Waste generation
Operational waste generated by the development, whether by type or volume is unlikely to impact upon the environment in a way that is anything other than minor. The risk rating is **low**.

In summary, the operational development's risk profile is generally low across a range of considerations. The development is unlikely to generate any new significant impacts that cannot otherwise be managed. The matters generating a medium risk (the highest rating) relate to noise (which still requires further detailed consideration at the detailed design stage) and climate change where the forecasting and likely impacts are unable to be quantified in a specific and detailed manner for the hospital. The visual impact of the development raises a low to medium risk only. These impacts and risks would not prevent the Stage 2 Redevelopment, whether singularly or collectively.

7.18.3 Cumulative impacts
The likely cumulative impacts of the above impacts when considered to occur concurrently in relation to construction are likely to focus primarily upon traffic and noise and vibration management. This is not atypical of a project of this scale and through the development of the Stage 1 Tower, the site and locality has demonstrated the capacity to manage and mitigate impacts within the context of an operational hospital. Adjacent and concurrent developments and works (as set out in Section 7.17) are able to be suitably managed, noting in this instance traffic and construction activity is able to be segregated and dispersed around the campus to the west way from construction in Somerset Street in the east due to the commencement of operation of the Stage 1 Tower.

Similarly, operational traffic is able to be dispersed across and around the campus to limit impacts in any one place and generate a more efficiently-operating hospital environmental in relation to movement. Given the generally low rating of impacts at operation it is unlikely any significant aggregation of hospital activities will generate new or unforeseen impacts of a significant magnitude.

7.18.4 Proposed mitigation measures and monitoring
A summary of proposed mitigation measures and any required monitoring arising from this assessment and specialist studies in support of this EIS are set out in the table at **Appendix GG**.

7.18.5 Alternative measures
There are few alternative measures relevant or available to the development given the predominance of low risk rated impacts.

In terms of avoiding risk and impacts by employing the do nothing option or leaving the redevelopment to another time, is not possible or available given the necessary and acute need to futureproof health services in this LHD and part of Sydney. To delay the development would have other more serious social costs.

Development of a new or different site (where exposure to impacts is less than at the current hospital site) is also not a feasible alternative at this time given this will act to fragment rather than enhance or consolidate services. There is a potential this would have a likely greater impact upon the

environment in the range of impacts and risks assessed above given the attendant risks in this location are broadly low.

A different design would not remove or reduce impacts given the existing low risks associated with its height, siting, design, and operational capacity. There would be no additional benefit from a reduced scope from an environmental perspective. The current scale of the development satisfies clinical need and to pare-back the scale of the development would generate new or different risks within the near future of replicating this redevelopment process.

Different technologies to limit impacts are unlikely to be found and be cost-effective in their context given the employment of a significant scope of current and accepted technologies to reduce waste, inefficiencies, pollution, and enhance ESD principles and targets.

7.19 Social Impacts

The positive social impacts of the proposed development in delivering the CSP are deemed to be significant. The delivery of the Stage 2 Redevelopment will future proof capacity at the hospital to cater for population growth, future demand for services, and changed clinical and health needs whilst also providing a modern fit-for-purpose health facility. Accordingly, the health care outcomes and wider social benefits which will arise from investment in new health infrastructure are self-evident and palpable. From a physical infrastructure perspective, the new Stage 2 Redevelopment will become an immediate NBMLHD-community asset.

To quantify the social impacts and benefits, Ethos Urban has prepared a Social Impact Assessment (SIA) consistent with the Social Impact Assessment Guideline for State Significant Projects (NSW DPIE 2021) (see **Appendix P**).

The SIA considered the potential impact on the community and social environment should the social impacts envisaged occur, compared to the baseline scenario of the existing use of the site and social context.

The purpose of the social impact analysis was to:

- Identify, analyse and assess any likely social impacts, whether positive or negative, that people may experience at any stage of the project lifecycle, as a result of the project
- Investigate whether any group in the community may disproportionately benefit or experience negative impacts and proposes commensurate responses consistent with socially equitable outcomes
- Develop social impact mitigation and enhancement options for any identified significant social impacts.

The two main types of social impacts that may arise as a result of the proposed development are the direct and indirect impacts caused by the project. Direct impacts may lead to changes to the existing community, as measured using social indicators, such as population, health and employment. Indirect impacts are generally less tangible and more commonly related to matters such as community values and identity and sense of place.

The SIA has identified the following key social factors relevant to the assessment of social impacts of the project:

- **Way of life**: how people live, get around, work, play and interact with one another each day
- **Community**: its composition, cohesion, character, how it functions, resilience, and people's sense of place
- **Accessibility**: how people access and use infrastructure, services and facilities (private, public, or not-for-profit)
- **Culture**: both Aboriginal and non-Aboriginal - people's shared beliefs, customs, practices, obligations, values and stories, and connections to Country, land, waterways, places and buildings
- **Health and wellbeing**: people's physical, mental, social and spiritual wellbeing – especially for people vulnerable to social exclusion or substantial change, psychological stress (from financial or other pressures), access to open space and effects on public health

- **Surroundings**: access to and use of natural and built environment, including ecosystem services (shade, pollution control, erosion control), public safety and security, as well as aesthetic value and amenity
- **Livelihoods**: including people's capacity to sustain themselves through employment or business

With respect to impacts on **decision-making systems**, Ethos Urban concluded that these were negligible and did not further assess this in its SIA.

The key affected communities considered to experience social impacts and/or benefits included:

- Hospital communities (staff, volunteers, suppliers etc)
- Patients attending the health facilities within the hospital precinct, their carers and visitors
- Teachers and trainers
- Neighbouring residents
- Neighbouring businesses
- Local area workers
- Visitors to other health care facilities, institutions, and businesses within walking distance of the area
- Users of Great Western Highway, and Parker Street
- Users of Kingswood Station
- Temporary construction workers in the area

Each impact was considered on the magnitude and likelihood to occur and attributed a score from 'low' to 'very high' as per Tables 7-9 of the SIA (see 46). The impacts were also split between during construction and during the operation of the Stage 2 Redevelopment.

The following provides a summary of Ethos Urban's findings arising from its SIA, and applying the above methodology.

Way of Life

The overall impact of improved access to high quality health care facilities at Nepean Hospital would be a significant positive benefit to way of life. The redevelopment of the site, if impacts associated with construction are well mitigated (e.g. staging plan to minimise disruption), will ensure positive social way of life outcomes for the community. Negative social impacts associated with way of life are medium during construction, but low during operation:

- Construction: Medium (possible moderate)
- Operation: Low (unlikely minimal)

Health and Wellbeing

Overall improved health facilities at Nepean Hospital site would have a significant positive benefit to health and wellbeing, and are highly likely. The Stage 2 works, if impacts associated with construction are well mitigated, will ensure positive health and wellbeing outcomes for the community. Negative social impacts associated with health and wellbeing are medium during construction, but low during operation:

- Construction: Medium (possible moderate)
- Operation: Low (unlikely minimal)

Accessibility

Overall improved access to high quality health facilities and services at the Nepean Hospital site would have a significant positive benefit to accessibility and are highly likely. Negative social impacts associated with accessibility are medium during construction, but low during operation:

- Construction: Medium (possible minor)
- Operation: Low (unlikely minimal)

Livelihoods

Provision of new contemporary health care facilities at this location would have a significant positive benefit to livelihoods, and are highly likely. The redevelopment of the site, if impacts associated with construction are well mitigated, will ensure positive social outcomes in terms of increased

employment opportunities and improved viability of local businesses. Negative social impacts associated with livelihoods are low, both during construction and operation:

- Construction: Low (unlikely minimal)
- Operation: Low (unlikely minimal)

Community, including its composition, cohesion, character, sense of place

Overall improved high quality health care facilities at The Nepean Hospital would have a significant positive benefit to community. The refurbishment and expansion of the site, if impacts associated with construction are well mitigated, will ensure positive social outcomes for the broader community. Any negative social impacts on the community composition and cohesion are medium during construction, but low during operation:

- Construction: Medium (possible minor)
- Operation: Low (unlikely minimal)

Culture: shared beliefs, customs, values and stories, and connections to land, places, buildings

Overall improved high quality health care facilities and community spaces at The Nepean Hospital would have a significant positive benefit to culture. The refurbishment and expansion of the site, if impacts associated with construction are well mitigated, will ensure positive social outcomes for the broader community. Negative social impacts associated with culture are low during construction and operation:

- Construction: Low (unlikely minor)
- Operation: Low (unlikely minimal)

Surroundings – amenity

Provision of high quality health facilities at this location would have a significant positive benefit to surroundings. Positive impacts of the proposed development are highly likely, if strategic and design briefs are executed well, and negative impacts are mitigated during construction (e.g. staging plan to minimise disruption). Negative social impacts associated with surroundings are medium during construction, but low during operation:

- Construction: Medium (possible moderate)
- Operation: Low (unlikely minimal)

Conclusion

Generally, the impacts associated with the construction phase are likely to be low to medium and of a minor to moderate scale only, principally as the works are temporary and are able to be broadly managed and mitigated to avoid any more significant impacts.

The operation of the Stage 2 Redevelopment is likely to generate only low impacts of a minor scale. The myriad long-term positive benefits of the operation of the development outweigh the few minor and short-term negative or adverse impacts likely to arise, mainly at construction. The main social benefits arising, based on Ethos Urban's SIA are:

- Positive impacts to the way of life and amenity associated with improvements to clinical and non-clinical working, learning, and care, and visitor environments of the Nepean Hospital. The proposal would deliver high quality, contemporary health facilities, including enhanced acute care services, new medical imaging facilities, new ICU & COU spaces, and new radiology services. Non-clinical spaces include end-of-trip facilities and transit lounge, staff courtyard, new staff education and training centre and library, retail spaces, and landscaping.
- Positive health and wellbeing impacts associated with increased capacity and quality of health infrastructure at this site.
- Positive impacts associated with improved accessibility of health and education services in the NBMLHD through addition of services and increased capacity of existing services.
- Potential positive impacts to culture, community cohesion, health and wellbeing, and sense of place for the staff, patients, and visitors of the Nepean Hospital community Specifically, the creation of an Indigenous courtyard/walk and multipurpose room, and new front of house facility that contains wayfinding infrastructure, and incorporates art and placemaking strategies, have potential to enhance comfort and convenience and staff and visitor satisfaction, celebrate culture, and encourage connection to Country.

The few short-term impacts arising relate chiefly to construction and would be managed through appropriate mitigation measures as identified by this EIS, as well as construction management and ongoing consultation during the construction phase.

Accordingly, the consequences of not proceeding with the development of the Stage 2 Redevelopment at this site can only be identified as negative.

7.20 Economic Impacts

The Stage 2 Redevelopment will generate a significant level of economic activity both during the construction and the operation of the development. These positive impacts are both immediate and short-term as well as more durable and long-term. The positive economic impacts also likely to be visible and tangible at a localised level and across the region.

It is anticipated some 823 construction jobs will be generated with an operational workforce of 500 FTE staff generated. Indirectly, additional construction-related manufacturing jobs and ancillary trades are likely to be generated by the development. This is amplified through the choice of sustainable building materials locally produced and through maximising locally manufactured materials through the supply chain as set out in this development's ESD report in attaining the equivalent 5-star Green Star points target.

From a Precinct-based perspective, the State Infrastructure Strategy also notes the budgeted commencement of the Penrith Health and Education Precinct redevelopment will contribute towards over $1.5 billion worth of investment in more than 20 projects for the Penrith Health and Education Precinct, which should generate an additional 12,000 jobs by 2036. Nepean Hospital as a principal contributor to this Precinct will play a primary role in this investment and job generation (whether directly or indirectly).

The economic multipliers at a local level are already visible, with numerous specialist consulting rooms, food and beverage establishments, and other associated health and education developments around the hospital's perimeter. This has been amplified with the recent approval of the medi-hotel development at Somerset Street and additional private hospital developments at Parker Street and Somerset Street.

Again, to forego the development would have significant and lasting direct and indirect economic impacts upon the locality, the Penrith Health and Education Precinct, and the region more generally.

7.21 Suitability of the site

The site's suitability for the proposed development is demonstrated through:

- the permissibility of the development in accordance with both Penrith LEP 2010 and the Infrastructure SEPP, as well as the proposal's consistency with the relevant zone objectives, noting no development controls apply to limit the development
- the site's urban context and location within a precinct that is under transformation into a stronger more visible Health and Education Precinct
- the development's general consistency with key strategic planning policies of both the State and Council relevant to Metropolitan Sydney, the Western City District region, and LGA, and for this type of development
- the site's location as part of the ongoing and progressive redevelopment of the Nepean Hospital campus in enhance capacity and functionality
- the site's general lack of significant or prohibitive environmental issues including contamination, natural hazards, heritage, biodiversity, stormwater management and flooding, and hazardous or offensive development thresholds that cannot otherwise by suitably managed or else offset or mitigated

- the proposal's relative benign nature in terms of environmental impacts upon other uses within the locality and the site's immediate vicinity in terms of streetscape, visual impacts, operational traffic and noise generation, and environmental impacts
- the low level and short term negative social impacts that are likely to occur which are offset by the more significant long-term social and economic benefits arising, and the public interest in carrying out and operating the development.

7.22 The Public Interest

The proposed development involves the continued planned growth and redevelopment of Nepean Hospital consistent with the long-established Zonal masterplan and consistent with the current Clinical Services Plan. The delivery of the Stage 2 Redevelopment will futureproof capacity at the hospital to cater for population growth, future demand for services, and changed clinical and health needs whilst also providing a modern fit-for-purpose health facility.

The proposed development ensures NBMLHD is able to continue its services to the highest contemporary levels and meet the specialised needs of its clientele and the community.

The proposal suitably addresses or mitigates impacts upon the environment and the amenity of its neighbours. It provides for upgrades to services, infrastructure, amenity, and connectivity as well as built form appropriate to its use and location. It is clear, based on the information provided in this EIS and its appendices, that to forego the development as proposed would not be in the public interest.

8.0 Project Justification / Conclusion

This Stage 2 Redevelopment project is justified as it will have significant positive social and economic impacts for the locality, the Penrith Health and Education Precinct, the region and NBMLHD, and Western Sydney generally. The environmental impacts are broadly likely to be low to medium only across both the construction and operational phases of the development. Any more significant impacts identified, such as construction noise and traffic, are able to be suitably managed and mitigated to reduce impacts and environmental risks.

The development as a whole satisfies the principles of ecologically sustainable development. The design of the development will seek to meet the equivalent of a 5-star Green Star rating and seek to exceed a 10% improvement upon the NCC 2019 Section J DTS requirements. Biodiversity offsetting is required under legislation, albeit for a poor and degraded fragmented portion of remnant Cumberland Plain Woodland remaining on the hospital campus.

The existing hospital campus is a highly modified, disturbed and urbanised site with no (or little opportunity for) heritage or cultural value, poor or low biodiversity value, and no natural scenic or highly valued environmental qualities. The continued redevelopment of the campus to future proof capacity at the hospital to cater for population growth, future demand for services, and changed clinical and health needs whilst also providing a modern fit-for-purpose health facility is suitable and justified in the context.

The development satisfies and supports all relevant strategic planning objectives and aims as they relate to the provision of health services, the Penrith LGA and the Penrith Health and Education Precinct, and Western Sydney generally. There are no planning controls, legislative and prerequisite requirements and environmental risks or impediments that would limit or prevent the development as proposed.

Community consultation and engagement, as well as consultation with relevant stakeholders has so far broadly supported the Stage 2 Redevelopment. Further engagement remains around individual detailed aspects of the development, whether related to Aboriginal cultural heritage, on-street parking demand and supply, connections to services, and the like. These however are reasonably commonplace and routine discussions that remain as part of the planning and detailed design process.

The findings of this EIS and its supporting studies and reports is that the development will generally be of a low impact and with environmental risks relative to the project's scale and complexity. Suitable measures have been proposed throughout to address a range of environmental and operationally-related impacts that would arise from the construction and operation of the development. Ongoing communication with the immediately-affected community is proposed (as was the case with the recent preceding Stage 1 Redevelopment) in relation to a number of construction-related impacts, chiefly from noise, vibration, and traffic management. Monitoring for previously undetected or unrecorded Aboriginal objects and other heritage or archaeology is also planned in dialogue with, and involvement of, the community.

The design and siting of the development has sought to not only meet the immediate clinical and health services needs of the hospital and NBMLHD, but also sought to avoid or minimise the impacts of the project, applying mitigation measures were needed or required under legislation.

We recommend that the Stage 2 Redevelopment at Nepean Hospital be approved.