

# ENVIRONMENTAL ASSESSMENT

Alterations and Additions to Sydney Adventist  
Hospital, Wahroonga

August 2010

urbis

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**URBIS STAFF RESPONSIBLE FOR THIS REPORT WERE:**

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# Statement of Validity

## Submission of Environment Assessment:

Prepared under Part 3A of the Environmental Planning and Assessment Act 1979.

## Environmental Assessment prepared by:

Names:	Jennifer Cooper (Associate Director)
Address:	Urbis Pty Ltd. Level 21, 321 Kent Street Sydney NSW 2000
In respect of:	Sydney Adventist Hospital

## Applicant and Land Details

Applicant:	Sydney Adventist Hospital
Applicant Address:	185 Fox Valley Road Wahroonga NSW 2076
Subject Site:	Sydney Adventist Hospital, Wahroonga
Land to be developed:	185 Fox Valley Road Wahroonga NSW 2076
Lot and DP	Lot 62 in DP 1017514
Project Summary:	<p>The Project comprises staged alterations and additions to the existing hospital, including:</p> <ul style="list-style-type: none"> <li>▪ Stage 1A – construction of first stage of CSB extension, multi-deck car park and extensions to at-grade car parks, temporary car park and perimeter road, landscaping works, upgrading of services and refurbishment works.</li> <li>▪ Stage 1B – construction of second stage of CSB, regrading and resurfacing of loading dock and landscaping.</li> <li>▪ Stage 2 – construction of concourse, arrival podium and main entry road works, education centre and refurbishment works.</li> <li>▪ Stage 3 – demolition of existing Shannon Wing and replacement with new wing and ancillary car parking, relocation of Bethel House and Memorial Fountain and refurbishment works.</li> </ul> <p>The proposed works comprise a total additional gross floor area of 27,993m<sup>2</sup> for the hospital and 3,490m<sup>2</sup> for the education centre. The combined works have a capital investment value of \$283.3 million. The project is expected to generate a significant number of employment opportunities, including an additional 375 staff, 166 doctors and 236 nurses on a normal peak day.</p>

Environmental Assessment

An Environmental Assessment is attached.

Declaration

I certify that the contents of the Environmental Assessment to the best of my knowledge, has been prepared as follows:

- ☐ In accordance with the requirements of the Environmental Planning and Assessment Act 1979 and Environmental Planning and Assessment Regulations 2000; and
- ☐ The information contained in this report is true in all material particulars and is not misleading.

.....  
Signature

Name: Jennifer Cooper

.....  
Date: 10 August 2010



## Executive Summary

This Environmental Assessment has been prepared in association with a Project Application for staged alterations and additions to the Sydney Adventist Hospital at 185 Fox Valley Road, Wahroonga.

The proposed development includes demolition, building construction, refurbishment works, car parking, landscaping and associated site works, including excavation and stormwater infrastructure. The proposed works will be undertaken in stages, as summarised below:

- Stage 1A – construction of first stage of CSB extension, multi-deck car park and extensions to at-grade car parks, temporary car park and perimeter road, landscaping works, upgrading of services and refurbishment works.
- Stage 1B – construction of second stage of CSB, regrading and resurfacing of loading dock and landscaping.
- Stage 2 – construction of concourse, arrival podium and main entry road works, education centre and refurbishment works.
- Stage 3 – demolition of existing Shannon Wing and replacement with new wing and ancillary car parking, relocation of Bethel House and Memorial Fountain and refurbishment works.

The capital investment value of the project is \$283.3 million (excluding GST). The project is expected to generate a significant number of employment opportunities, with an additional 375 staff, 166 doctors and 236 nurses on a normal peak day.

A total of 27,993m<sup>2</sup> of additional hospital floor space and a 3,490m<sup>2</sup> education centre will be provided in accordance with the provisions of the Wahroonga Estate Concept Plan. Each of the proposed buildings and structures has been designed to comply with the site-specific provisions of the Major Development SEPP. The proposal complies with the state, metropolitan and subregional strategic planning policies and complies with the local planning controls.

The potential environmental impacts have been subject to a rigorous and comprehensive assessment process and where required, mitigation measures are recommended to avoid any unacceptable impacts. The social and economic impacts of the proposal have also been assessed in detail. A social and economic benefits analysis has been undertaken to identify the considerable benefits of the project to the local and broader community. The potential impacts on the local community, particularly during the demolition and construction processes, have also been identified. All mitigation or management measures required to avoid any unacceptable impacts are included within the Draft Statement of Commitments.

The proposal is considered to be entirely suitable for the site, taking into account:

- The existing use of the site as a not-for-profit private hospital with associated health education activities.
- The appropriate location and design of the proposed buildings and structures to be compatible with and complementary to the existing campus-style development.
- Integration of landscaping and heritage interpretation measures to respect the existing site character and history.
- The permissibility of the proposed development in accordance with the Major Development SEPP.

Overall, the proposed development is considered to be in the public interest as it will provide significant social, health and economic benefits for existing and future employees, the local community and the broader metropolitan area.



# 1 Introduction

## 1.1 Background

This Environmental Assessment (EA) has been prepared in association with a Part 3A Project Application for alterations and additions to the Sydney Adventist Hospital, Wahroonga.

The application is lodged in accordance with the provisions of the Wahroonga Estate Concept Plan, which was approved by the Minister for Planning on 31 March 2010. This approval specifically included an additional 28,000m<sup>2</sup> of hospital floor space and 3,500m<sup>2</sup> for an upgraded faculty of nursing, subject to the lodgement and approval of a more detailed application under Part 3A or Part 4.

The Director-General of the Department of Planning issued correspondence on 13 May 2010 declaring the proposal to be a Project to which Part 3A of the Major Project SEPP (now known as the Major Development SEPP) applies. The Director-General's Environmental Assessment Requirements (DGRs) for the Part 3A Project were subsequently issued by the Department of Planning on 10 June 2010. This EA has been prepared in accordance with Part 3A of the Act and the provisions of the DGRs.

## 1.2 Project Objectives and Need

The Sydney Adventist Hospital (SAH) commenced operations in 1903 as the 'Sanitarium' and is now the largest single campus private hospital in NSW. It is a not-for-profit organisation with the following mission: '*Christianity in Action – caring for the body, mind and spirit of our patients, colleagues, community and ourselves*'. Over 2,200 hospital staff and 600 accredited medical practitioners care for more than 45,000 in-patients and 155,000 outpatients on an annual basis. The SAH offers surgical, medical, and emergency services supported by state-of-the-art diagnostic and treatment facilities ([www.sah.org.au](http://www.sah.org.au)).

The SAH is currently at capacity and in need of expansion and refurbishment to meet current and projected demand. The hospital regularly experiences an occupancy rate of 98-100% and during peak periods (in the lead-up to Christmas and during winter) it may operate in excess of 100% capacity. Operating theatres are regularly booked out. This is leading to significant constraints in relation to the hospital's provision of acute medical and surgical care.

It is proposed to refurbish and expand the existing hospital in stages to enable the ongoing operation of the hospital during construction. The refurbishment of the existing buildings and the proposed additions to the existing development will enable the SAH to continue to achieve its mission stated above and meet the demands of the local and regional community in a logical and rational manner.

## 1.3 Value of Project

Capital investment value (CIV) is defined in the Environmental Planning and Assessment Regulation 2000 as follows:

*capital investment value of a development or project includes all costs necessary to establish and operate the project, including the design and construction of buildings, structures, associated infrastructure and fixed or mobile plant and equipment, other than the following costs:*

- (a) *amounts payable, or the cost of land dedicated or any other benefit provided, under a condition imposed under Division 6 or 6A of Part 4 of the Act or a planning agreement under that Division,*
- (b) *costs relating to any part of the development or project that is the subject of a separate development consent or project approval,*
- (c) *land costs (including any costs of marketing and selling land),*

- (d) *GST (within the meaning of A New Tax System (Goods and Services Tax) Act 1999 of the Commonwealth).*

The CIV of the proposed development is \$283.3 million. A Quantity Surveyors Certificate of Cost report certifying CIV of the development is attached as **Appendix A**.

## 1.4 Director-General's Environmental Assessment Requirements

The following table provides a summary of the Director-General's Environmental Assessment Requirements issued by the Department of Planning on 10 June 2010. The table also identifies where each requirement has been addressed within the Environmental Assessment report. A copy of the DGRs is attached as **Appendix B**.

**Table 1 – Response to Director General's Environmental Assessment Requirements**

REQUIREMENT	REFERENCE
<b>KEY ISSUES</b>	
<b>1. Relevant EPI's policies and Guidelines to be Addressed</b> Planning provisions applying to the site, including permissibility and the provisions of all plans and policies including: <ul style="list-style-type: none"> <li>Objects of the EP&amp;A Act;</li> <li>State Environmental Planning Policy (Major Development) 2005;</li> <li>State Environmental Planning Policy No.55 – Remediation of Land;</li> <li>State Environmental Planning Policy No.33 – Hazardous and Offensive Development;</li> <li>State Environmental Planning Policy (Infrastructure) 2007;</li> <li>State Environmental Planning Policy No.19 – Bushland in Urban Areas</li> <li>NSW State Plan;</li> <li>Sydney Metropolitan Strategy 'City of Cities';</li> <li>Draft North Subregion Draft Subregional Strategy;</li> <li>Ku-ring-gai Planning Scheme Ordinance</li> <li>Relevant Development Control Plans; and</li> <li>Nature and extent of any non-compliance with relevant environmental planning instruments, plans and guidelines and justification for any non-compliance.</li> </ul>	Section 4.1
<b>2. Concept Plan</b> Consistency with the terms of approval of Concept Plan MP07_0166 and justify any areas of inconsistency.	Section 4.2
<b>3. Built Form and Urban Design</b> <ul style="list-style-type: none"> <li>Height, bulk and scale of the proposed development within the context of the Sydney Adventist Hospital Campus and adjoining development;</li> <li>Details of proposed open space and landscaped areas; and</li> <li>Design quality with specific consideration of the façade, massing, setbacks, building articulation, appropriate colours/materials/finishes, landscaping, safety by design and public domain.</li> </ul>	Section 4.3 Appendices C, D and E
<b>4. Environmental and Residential Amenity</b> <ul style="list-style-type: none"> <li>Impacts of the proposal on solar access, acoustic privacy, visual privacy, view loss and wind impacts on surrounding development and environment; and</li> <li>Details of the measures to be implemented to achieve a high level of environmental and residential amenity.</li> </ul>	Section 4.4 Appendices C, F, G and L
<b>5. Visual Amenity</b> Impacts on views into / out of the site.	Section 4.5 Appendix G
<b>6. Transport and Accessibility Impacts (Construction and Operational)</b> Provide a Transport & Accessibility Study prepared with reference to the Metropolitan Transport Plan – Connecting the City of Cities, the NSW State Plan, the NSW Planning Guidelines for Walking and Cycling, the Integrated Land Use and Transport policy package and the RTA's Guide to Traffic Generating Development, considering the following:	Section 4.6 Appendices H, I and J

REQUIREMENT	REFERENCE
<ul style="list-style-type: none"> <li>▪ Demonstrate how users of the development will be able to make travel choices that support the achievement of relevant State Plan targets;</li> <li>▪ Detail the existing pedestrian and cycle movements within the vicinity of the site and determine the adequacy of the proposal to meet the likely future demand for increased public transport and pedestrian and cycle access;</li> <li>▪ Identify potential traffic impacts during the construction stage of the project, and measures to mitigate these impacts;</li> <li>▪ Describe the measures to be implemented to promote sustainable means of transport including public transport usage and pedestrian and bicycle linkages in addition to addressing the potential for implementing a location specific sustainable travel plan;</li> <li>▪ Daily and peak traffic movements likely to be generated by the proposed development, including the impact on nearby intersections and the need / associated funding for upgrading or road improvement works (if required). The traffic impact assessment should consider base models with future traffic generated by the Sydney Adventist Hospital; and</li> <li>▪ Appropriate levels of on site car parking for the proposed development having regard to the Concept Plan Approval (MP07_0166), local planning controls and RTA guidelines (note: The Department supports reduced parking provisions, if adequate public transport is available to access the site).</li> </ul>	
<b>7. Ecologically Sustainable Development (ESD)</b> <ul style="list-style-type: none"> <li>▪ Detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development;</li> <li>▪ Include a description of the measures that would be implemented to minimise consumption of resources, water and energy, including an Integrated Water Management Plan which details any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design; and</li> <li>▪ Demonstrate that the development can achieve a minimum 4 Green Star rating, or any other suitably accredited rating scheme.</li> </ul>	Section 4.7 Appendices K and L
<b>8. Contributions</b> Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement.	Section 4.8
<b>9. Contamination</b> Demonstrate compliance that the site is suitable for the proposed use in accordance with SEPP 55.	Section 4.9 Appendices C, M and N
<b>10. Heritage</b> Consider any potential impacts of heritage, including a Heritage Impact Statement in accordance with the NSW Heritage Office publication "Statements of Heritage Impact".	Section 4.10 Appendices O, P and Q
<b>11. Aboriginal Heritage</b> The EA shall address Aboriginal Heritage in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005.	Section 4.11 Appendix R
<b>12. Drainage</b> <ul style="list-style-type: none"> <li>▪ Drainage issues associated with the proposal including stormwater and drainage infrastructure; and</li> <li>▪ Detailed plans of the proposed erosion and sediment control measures during demolition, construction and operation.</li> </ul>	Section 4.12 Appendices S and T
<b>13. Flooding</b> An assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity.	Section 4.13 Appendix S
<b>14. Bushfire</b> Demonstrate compliance with the relevant provisions of Planning for Bushfire Protection (PBP) 2006.	Section 4.14 Appendix U
<b>15. Utilities</b> In consultation with relevant agencies, the EA shall address the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure works.	Section 4.15

REQUIREMENT	REFERENCE
<b>16. Staging</b> Details regarding the staging of the proposed development including impacts within the context of Sydney Adventist Hospital Campus and surrounding development.	Section 4.16 Appendices C and D
<b>17. Flora and Fauna</b> <ul style="list-style-type: none"> <li>Address impacts on flora and fauna, including threatened species, populations and endangered ecological communities and their habitats and steps taken to mitigate any identified impacts to protect the environment; and</li> <li>Consistency with Biodiversity Management Plan as required under the approval of Concept Plan MP07_0166 (as modified).</li> </ul>	Section 4.17 Appendix V
<b>18. Noise and Vibration</b> Provide a quantitative assessment of the potential demolition, construction, operation and traffic noise impacts of the project.	Section 4.18 Appendix W
<b>19. Waste</b> <ul style="list-style-type: none"> <li>Identify, quantify and classify the likely waste streams to be generated during construction and operation;</li> <li>Describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste;</li> <li>Describe the measures to be implemented to manage the disposal of nuclear waste, if required; and</li> <li>Describe the measures to be implemented to manage the disposal of contaminated and potentially contaminated biological and sewage waste.</li> </ul>	Section 4.19 Appendices X and Y
<b>20. Hazards</b> <ul style="list-style-type: none"> <li>An assessment against State Environmental Planning Policy No 33 – Hazardous and offensive Development; and</li> <li>A description of the proposed storage, use and management of any hazardous material and measures to be implemented to manage hazards and risks associated with the storage.</li> </ul>	Section 4.20 Appendix Z
<b>21. Consultation</b> Undertake an appropriate and justified level of consultation in accordance with the Department's Major Project Community Consultation Guidelines October 2007.	Section 4.21
<b>GENERAL</b>	
The Environmental Assessment (EA) must include:	Page iii
1. An executive summary;	
2. A thorough site analysis including site plans, aerial photographs and a description of the existing and surrounding environment;	Section 2
3. A thorough description of the proposed development;	Section 3
4. An assessment of the key issues specified above and a table outlining how these key issues have been addressed;	Section 4
5. An assessment of the potential impacts of the project and a draft Statement of Commitments, outlining environmental management, mitigation and monitoring measures to be implemented to minimise any potential impacts of the project;	Section 5
6. The plans and documents outlined below;	Appendices
7. A signed statement from the author of the Environmental Assessment certifying that the information contained in the report is neither false nor misleading;	Page i
8. A Quantity Surveyor's Certificate of Cost to verify the capital investment value of the project (in accordance with the definition contained in the Major Projects SEPP; and	Appendix A
9. A conclusion justifying the project, taking into consideration the environmental impacts of the proposal, the suitability of the site, and whether or not the project is in the public interest.	Section 6

REQUIREMENT	REFERENCE
<b>PLANS AND DOCUMENTS</b>	
<b>1. An existing site survey plan</b> drawn at an appropriate scale illustrating; <ul style="list-style-type: none"> <li>the location of the land, boundary measurements, area (sq.m) and north point;</li> <li>the existing levels of the land in relation to buildings and roads;</li> <li>location and height of existing structures on the site; and</li> <li>location and height of adjacent buildings and private open space.</li> <li>all levels to be to Australian Height Datum.</li> </ul>	Appendix C
<b>2. A Site Analysis Plan</b> must be provided which identifies existing natural elements of the site (including all hazards and constraints), existing vegetation, footpath crossing levels and alignments, existing pedestrian and vehicular access points and other facilities, slope and topography, utility services, boundaries, orientation, view corridors and all structures on neighbouring properties where relevant to the application (including windows, driveways, private open space etc).	Appendix C
<b>3. A locality/context plan</b> drawn at an appropriate scale should be submitted indicating: <ul style="list-style-type: none"> <li>significant local features such as parks, community facilities and open space and heritage items;</li> <li>the location and uses of existing buildings, shopping and employment areas;</li> <li>traffic and road patterns, pedestrian routes and public transport nodes.</li> </ul>	Figure 2
<b>4. Architectural drawings</b> at an appropriate scale illustrating: <ul style="list-style-type: none"> <li>the location of any existing building envelopes or structures on the land in relation to the boundaries of the land and any development on adjoining land;</li> <li>detailed floor plans, sections and elevations of the proposed buildings;</li> <li>elevation plans providing details of external building materials and colours proposed;</li> <li>fenestrations, balconies and other features;</li> <li>accessibility requirements of the Building Code of Australia and the Disability Discrimination Act;</li> <li>the height (AHD) of the proposed development in relation to the land;</li> <li>the level of the lowest floor, the level of any unbuilt area and the level of the ground;</li> <li>any changes that will be made to the level of the land by excavation, filling or otherwise;</li> </ul>	Appendix C
<b>5. Other plans</b> (to be required where relevant): <ul style="list-style-type: none"> <li><b>Stormwater Concept Plan</b> - illustrating the concept for stormwater management;</li> </ul>	Appendix S
<ul style="list-style-type: none"> <li><b>Erosion and Sediment Control Plan</b> – plan or drawing that shows the nature and location of all erosion and sedimentation control measures to be utilised on the site;</li> </ul>	Appendix S
<ul style="list-style-type: none"> <li><b>Geotechnical Report</b> – prepared by a recognised professional which assesses the risk of Geotechnical failure on the site and identifies design solutions and works to be carried out to ensure the stability of the land and structures and safety of persons;</li> </ul>	Appendices AA and BB
<ul style="list-style-type: none"> <li><b>View Analysis</b> - Visual aids such as a photomontage must be used to demonstrate visual impacts of the proposed building envelopes in particular having regard to the siting, bulk and scale relationships from key areas;</li> </ul>	Appendix G
<ul style="list-style-type: none"> <li><b>Landscape plan</b> - illustrating treatment of open space areas on the site, screen planting along common boundaries and tree protection measures both on and off the site.</li> </ul>	Appendix D
<ul style="list-style-type: none"> <li><b>Shadow diagrams</b> showing solar access to the site and adjacent properties at summer solstice (Dec 21), winter solstice (June 21) and the equinox (March 21 and September 21) at 9.00 am, 12.00 midday and 3.00 pm.</li> </ul>	Appendix C
<b>DOCUMENTS TO BE SUBMITTED</b>	
<ul style="list-style-type: none"> <li>1 copy of the EA, plans and documentation for the Test of Adequacy;</li> <li>12 hard copies of the EA (once the EA has been determined adequate);</li> <li>12 sets of architectural and landscape plans to scale, including one (1) set at A3 size (to scale); and</li> <li>1 copy of the Environmental Assessment and plans on CD-ROM (PDF format), not exceeding 5Mb in size.</li> </ul>	Lodgement Documents

## 1.5 Proponent and Project Team

The Environmental Assessment has been prepared on behalf of Sydney Adventist Hospital, the proponent of the project. Key members of the consultant team include:

- Urban Planning, Visual Analysis and Social Planning – Urbis
- Architecture – Morris Bray Architects
- Ecologically Sustainable Design - Umow Lai
- Building Façade Treatment – Meinhardt Façade Technology
- Heritage – Graham Brooks & Associates
- Landscape Architecture – Site Image
- Flora and Fauna – Cumberland Ecology
- Bushfire Protection – Australian Bushfire Protection Planners Pty Ltd
- Stormwater and Construction Management – C&M Consulting Engineers Pty Ltd
- Structural and Civil Engineering – SCP Consulting
- Services – Warren Smith and Partners
- BCA – Steve Watson & Partners
- Access – Accessibility Solutions (NSW) Pty Ltd
- Transport, Traffic and Car Parking – Transport and Traffic Planning Associates
- Sustainable Transport Initiatives – GTA Consultants
- Acoustic Impact – Heggies Pty Ltd
- Site Contamination and Geotechnical – Coffey Environments, Environmental Investigation Services and Jeffrey and Katauskas Pty Ltd
- Quantity Survey – WT Partnership

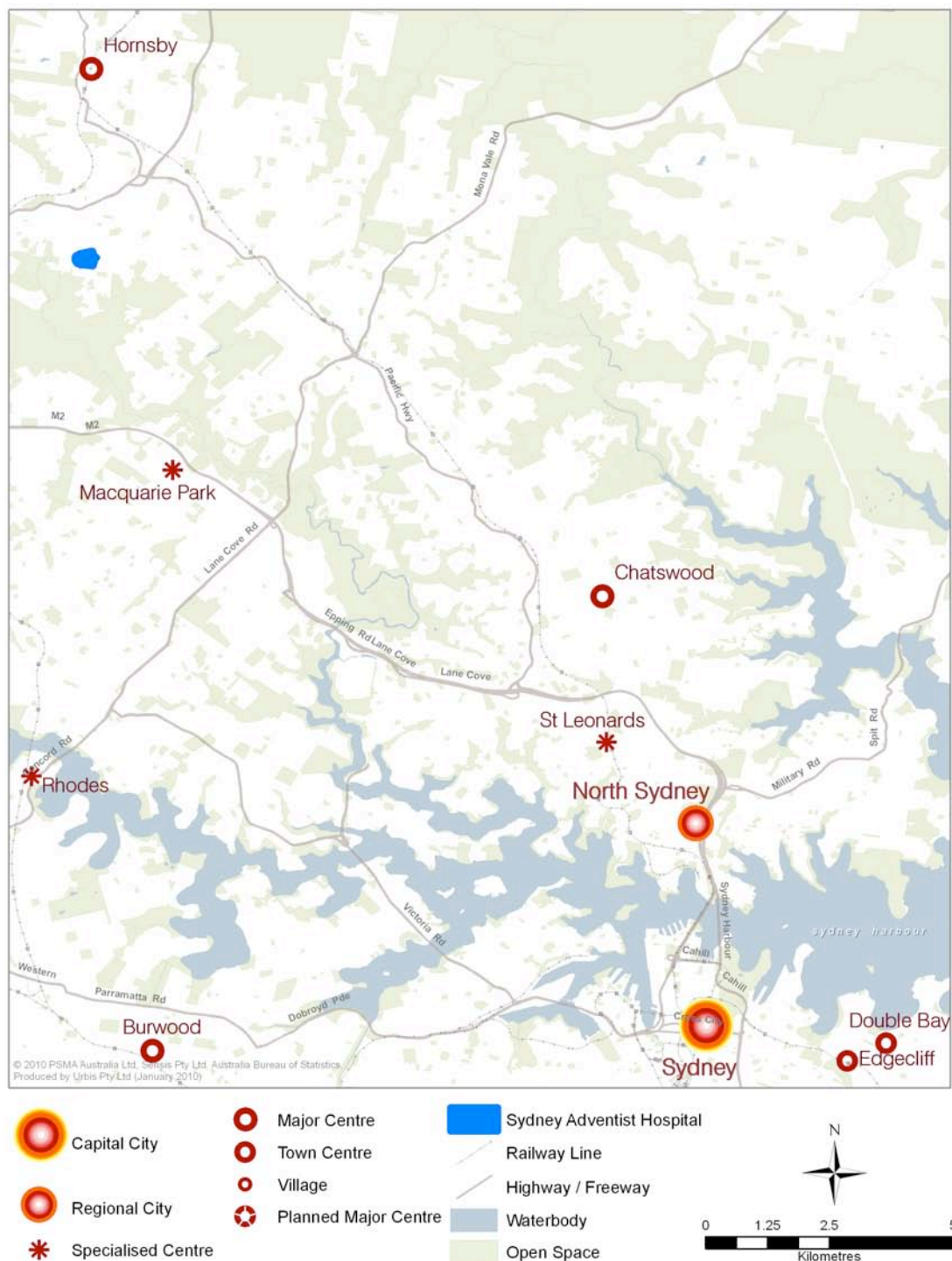


## 2 Site Context and Analysis

### 2.1 Regional Context

The Sydney Adventist Hospital is located on the Upper North Shore, approximately 18 kilometres north-west of the Sydney Central Business District and approximately 3 kilometres directly south of Hornsby Town Centre. The hospital site is located within the Ku-ring-gai local government area, in close proximity to its border with the Hornsby local government area.

**Figure 1 – Regional Context Map (Urbis)**



The hospital benefits from access to the regional road network. The site is located on the corner of Fox Valley Road and The Comenarra Parkway, which provide linkages to arterial roads to the north, east and west of the hospital. Fox Valley Road provides a direct link to the Pacific Highway to the north east. The F3 Freeway interchange is located a short distance to the north west along the Pacific Highway. The Comenarra Parkway provides a close and direct link to Pennant Hills Road to the west and a less direct link to Ryde Road further to the east.

Thornleigh is located approximately one kilometre to the west and provides for a range of local convenience services, as well as a railway station servicing the Main Northern Line. A bus service links the hospital to the railway stations at Thornleigh (and Hornsby) via The Comenarra Parkway. Warrawee and Turramurra are located approximately two kilometres to the north east of the hospital along Fox Valley Road. A bus service links the hospital with Turramurra railway station, which provides access to the railway stations on the Upper and Lower North Shore.

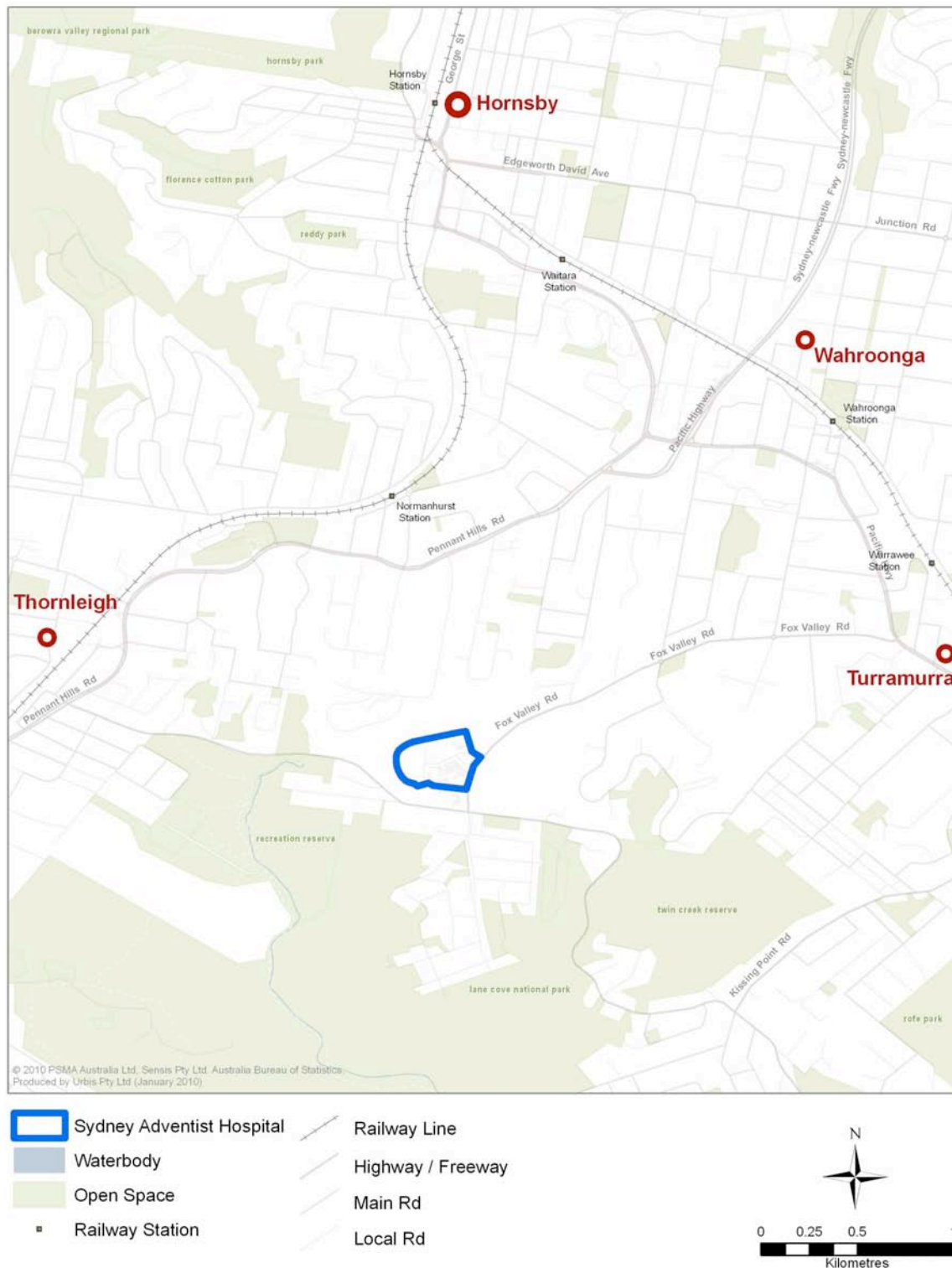
The public transport and road linkages enable the hospital to attract patients and staff from a wide catchment, including the Central Coast via the proximity of the site to the F3 Freeway.

The site is also well located in terms of its proximity to regionally significant open space and bushland. Lane Cove National Park, Thornleigh Park and Pennant Hills Park are located to the south of The Comenarra Parkway, providing excellent access to active and passive recreation opportunities. The riparian bushland located along Coups Creek immediately to the north west of the hospital provides a green link to the National Park. Further, there are several areas of bushland located along The Comenarra Parkway, which contribute to the amenity of the local area and the approach to the hospital from the east and west.

## 2.2 Local Context

The Sydney Adventist Hospital is located within the Wahroonga Estate. The Wahroonga Estate is a 62.4 hectare site comprising 59 separate property titles managed by the Australasian Conference Association (as property trustees of the Seventh Day Adventist Church) and two titles in private ownership.

**Figure 2 – Local Context Plan (Urbis)**



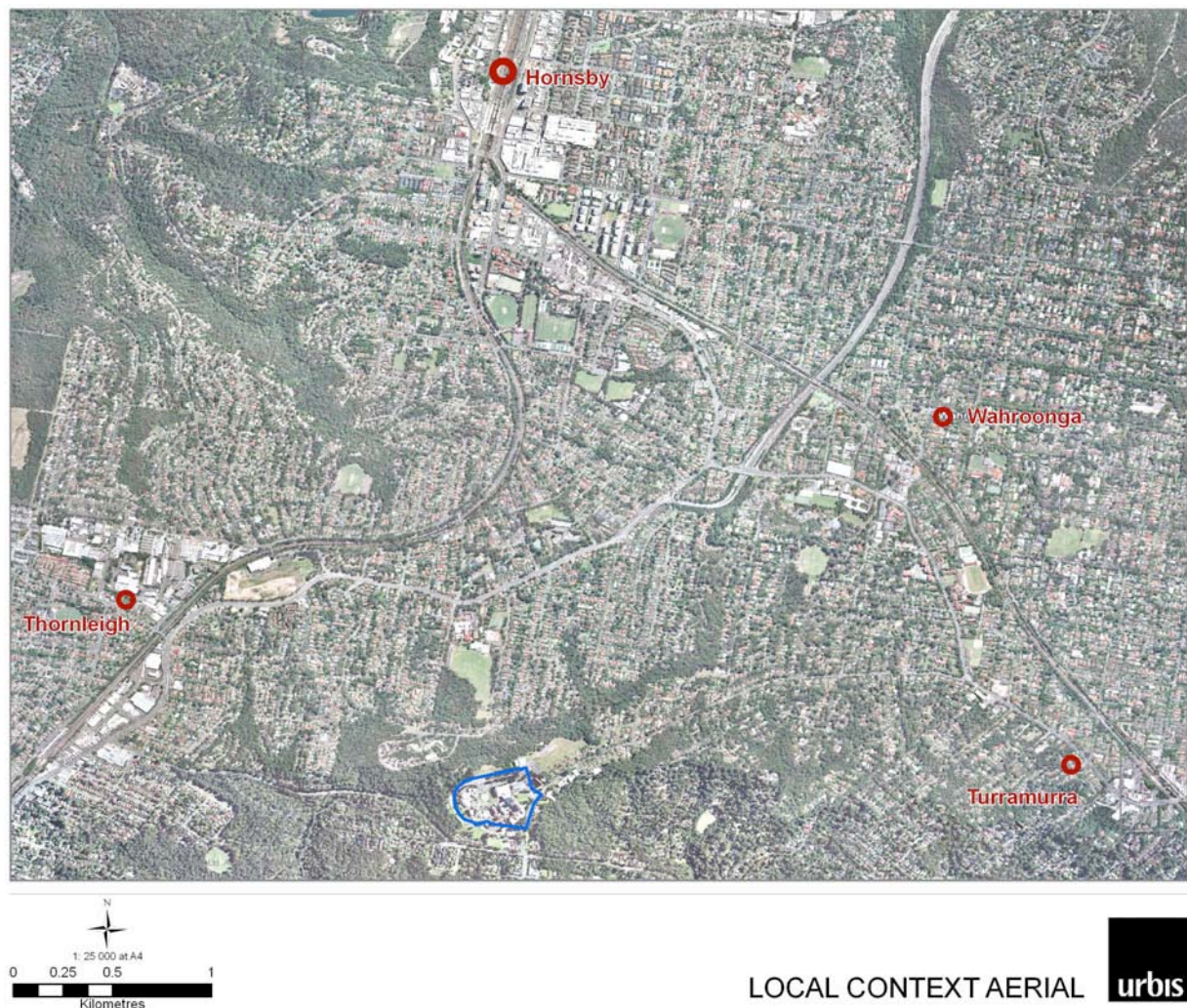


Approximately 60% of the Wahroonga Estate is currently developed and comprises:

- Residential, aged care and retirement accommodation in the Mt Pleasant Precinct, to the west of Coups Creek.
- The existing hospital development, a school, churches, residential accommodation and car parking within the Central Precinct, between Coups Creek and Fox Valley Road.
- Commercial and residential development to the east of Fox Valley Road.

The balance of the site comprises open space and bushland, ranging from managed landscaped gardens and open mown lawns to remnant urban bushland along riparian corridors and in the eastern portion of the Estate. The Coups Creek riparian corridor runs through the bushland to the north west of the hospital, extending across The Comenarra Parkway into the Lane Cove National Park in the south. Approximately 31.4 hectares of the Wahroonga Estate was recently rezoned Environmental Conservation under the recent amendment to the Major Development SEPP to list the Wahroonga Estate as a site of state significance (as discussed further in **Section 3.1** and **Section 4.1.2**).

**Figure 3 – Local Context Aerial Photograph (Urbis)**



LOCAL CONTEXT AERIAL

urbis

The future local context will be impacted by the approved redevelopment of the Wahroonga Estate under the provisions of the Concept Plan. The approval includes a mix of housing types to be developed within identified precincts, including residential flat buildings, townhouses and detached dwellings, as well as seniors living and student accommodation. A range of non-residential development is also included:

- A neighbourhood centre with retail and commercial uses.
- An expanded school servicing kindergarten through to Year 12
- A centralised church precinct with twice the floor space of the two existing churches.
- Expansion of the existing headquarters of the Sydney Adventist Church.

The land immediately surrounding the Wahroonga Estate comprises predominantly residential development, with large areas of native bushland as previously described in **Section 2.1**. The residential development in the immediate area generally comprises large detached dwellings with extensive gardens. Higher density forms of development are located along the Pacific Highway, including residential flat buildings.

## 2.3 Site Description

### 2.3.1 Sydney Adventist Hospital

The following information and statistics was sourced from the Sydney Adventist Hospital website ([www.sah.org.au](http://www.sah.org.au)) at the time of preparation of the report (July 2010)

The Sydney Adventist Hospital commenced operations in 1903 as the 'Sanitarium' and is now the largest single campus private hospital in NSW. It is a not-for-profit organisation with the following mission: '*Christianity in Action – caring for the body, mind and spirit of our patients, colleagues, community and ourselves*'. The SAH is one of the largest employers in the local area, with over 2,200 hospital staff and 600 accredited medical practitioners.

The SAH cares for more than 45,000 in-patients and 155,000 outpatients and is responsible for the delivery of over 2,000 babies on an annual basis. Emergency Care admits over 20,000 patients each year making it the largest and busiest private hospital Emergency Department in NSW. The SAH also offers acute surgical, medical and obstetric care including complex cardiac and orthopaedic procedures, including 12 operating theatre suites, three state-of-the-art Cardiac Catheterisation Laboratories, urology lasers and Australia's first dual source CT scanner.

**Figure 4** – Photographs of Sydney Adventist Hospital (Morris Bray)



**Picture 1** – Main Building (HE Clifford Tower)



**Picture 2** – Signalised entry to hospital and village green

Outpatient services include physiotherapy, radiology, ultrasound services for women, pathology, radiation oncology, nuclear medicine, wound care clinic, dietician services, a Children's Sleep Disorders Unit, the Hospital in the Home programme and on-site family medical and dental centre. Support



services include Cardiac Rehabilitation, San Cancer Support and Jacaranda Lodge which offers low-cost accommodation for outpatients and their families.

The SAH has recently undertaken a major refurbishment of inpatient ward areas to increase the number of private ensuite rooms for patients and provide a new children's ward, refurbished cancer ward, Emergency Medical Unit and purpose built facility for San Physiotherapy. Two state-of-the-art operating theatres with navigational technology were opened in 2007. The hospital opened the San Day Infusion Centre and Emergency Medical Unit and refurbished the San Physiotherapy Department in 2009.

On-site facilities include the San Clinic, which provides specialist consultant rooms for up to 100 specialists and the Wai Fong Poon Child Care Centre, which provides childcare for staff, local families and patients. The San College of Education is a registered training organisation which offers a range of nationally recognised certificate programs to San and other employees. The Avondale College Faculty of Nursing & Health is one of Australia's few on-site nursing schools and provides comprehensive nursing education in both under-graduate and post-graduate courses.

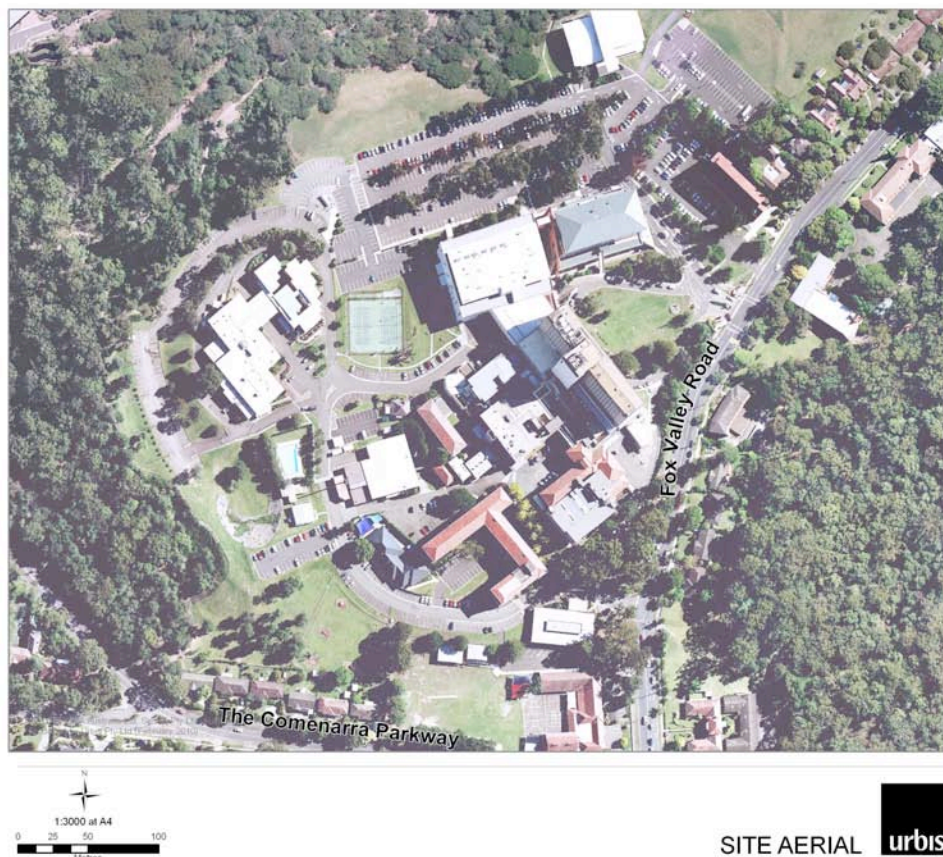
The Australasian Research Institute (ARI) was established in 2004 to facilitate, coordinate and fund innovative and developmental research within the Adventist Healthcare setting. The ARI cooperates with other organisations and individuals where possible to conduct or commission research into patient care, nutrition, healthcare and many related fields.

### 2.3.2 Physical Description

The Sydney Adventist Hospital is located at 185 Fox Valley Road, Wahroonga. The legal description of the site is Lot 62 in DP10175814.

A site survey plan and the site analysis plans are included within the architectural drawings prepared by Morris Bray and held as **Appendix C**. An aerial photograph detailing the existing development is provided below in **Figure 5** and a building location plan is shown on the following page as **Figure 6**.

**Figure 5 – Site Aerial Photograph (Urbis)**



**Figure 6** – Building Location Plan ([www.sah.org.au](http://www.sah.org.au))

The campus-style hospital comprises a significant number of stand-alone buildings of varying ages and conditions. The original timber hospital building was built in 1903. It was subsequently demolished in 1973 to make way for the 10 storey HE Clifford Tower (**Pictures 1-3**).

The oldest remaining building is the Bethel Museum, which was built in 1915 and now accommodates the Merritt Kellogg Museum. The museum includes photographs, medical equipment and other historic items. It also has an archive of 6,000 photos and archival material. Other older buildings include the Shannon Wing (**Picture 5**) which was built in 1920 and the Maternity Wing which was built in 1933. The HE Clifford Tower (or Main Building) was built in 1973, as noted above. More modern buildings include the Operating Theatre Block/Clinical Services Building (CSB) and the San clinic (**Picture 4 and Pictures 6-8**) which were built in the late 1990s/early 2000s.

The principal vehicle entry to the hospital is via the signalised intersection on Fox Valley Road, adjacent to the village green (**Picture 2**). A secondary access point is located further to the south on Fox Valley Road. The main car parking area is north of the Clinical Services/Operating Theatre Building. Ingress and egress to the car park is controlled by boomgates to enable operation of a paid car parking system.



**Figure 7 – Photographs of Existing Hospital Buildings (Morris Bray)**



**Picture 3 – Main Building and entrance**



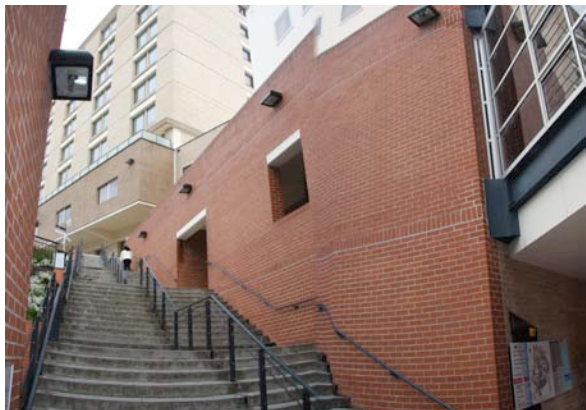
**Picture 4 – Main Building, CSB and San Clinic**



**Picture 5 – Main Building, CSB and Shannon Wing**



**Picture 6 – Aerial link between CSB and San Clinic**



**Picture 7 – Stairs from at-grade car park to main hospital entrance**



**Picture 8 – Stairs from main hospital entrance to at-grade car park**



## 3 Development Proposal

### 3.1 Background

The Wahroonga Estate, including the Sydney Adventist Hospital, benefits from a recent Concept Plan approval issued by the Minister for Planning under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979. The key milestones in the statutory planning process are listed below:

- A 'Clause 6 request' was submitted to the Department of Planning on 19 September 2007.
- The Minister declared the proposal to be a Major Project on 12 December 2007.
- The Director General's Environmental Assessment Requirements were issued on 9 April 2008.
- The proposal was declared a 'controlled action' under the Environmental Protection and Biodiversity Conservation Act 1999 on 5 November 2008.
- The State Significant Site listing was gazetted on 18 December 2009.
- The Wahroonga Estate Concept Plan was approved by the Minister for Planning on 31 March 2010.

The Concept Plan approval includes 28,000m<sup>2</sup> of additional floor space for the Sydney Adventist Hospital in the short to medium term. The State Significant Site listing includes site-specific planning controls for the hospital, including zone provisions, floor space limitations and maximum building height controls. Each of these matters is discussed further in **Section 4.1.2**.

A Project Approval is required to facilitate the construction of each of the buildings within the Wahroonga Estate Concept Plan, including the approved hospital additions. An appropriate level of detail is required to enable a more thorough assessment of the environmental, economic and social impacts of the individual components approved under the Concept Plan.

### 3.2 Proposed Alterations and Additions

The Sydney Adventist Hospital is proposing to undertake staged alterations and additions to the existing buildings to meet the current and ongoing future needs of the hospital, while maintaining its operations during construction. Refurbishment of the existing hospital buildings will also be undertaken in a staged manner.

The Project Application seeks consent for works in accordance with the architectural drawings attached as **Appendix C** and the landscape drawings attached as **Appendix D**. The works are also described below:

#### Stage 1A

- Expansion of the Clinical Services Building to the west of the existing structure and comprising a Surgical Precinct with the following features:

**Table 2** – Stage 1A Clinical Services Building Additions – Surgical Precinct

Level	Key Features
1	IT Centre servicing the new building and the existing hospital
2	Medical consulting rooms for surgeons Pre admissions clinic and waiting area Day infusion centre Compounding lab

Level	Key Features
3	ICU for 12 beds including circulation Medical imaging including circulation and waiting area Loading dock Medical gases Dirty and clean linen rooms Fire control panel Sprinkler valve room
4	Day surgery centre, including: <ul style="list-style-type: none"> <li><input type="checkbox"/> Endoscopy suite</li> <li><input type="checkbox"/> Flexible operating theatre</li> <li><input type="checkbox"/> Pre operative and post operative beds</li> <li><input type="checkbox"/> Waiting and change room facilities</li> <li><input type="checkbox"/> Pre admission office</li> <li><input type="checkbox"/> CSSD Expansion</li> </ul>
5	Operating Theatre Expansion, including: <ul style="list-style-type: none"> <li><input type="checkbox"/> Six theatres, including support scrub, anaesthetic and clean up rooms, set up area and pre operative beds (nb post operative beds in refurbished area of existing CSB)</li> <li><input type="checkbox"/> Waiting and change room facilities</li> </ul>
6	Plant Room above theatres with additional plant serving down to Level 1 and up to Level 10
7-10	28 bed typical surgical ward floors with central nurses station and all relevant clinical support and staff rooms, patient sitting rooms and visitors waiting room (total 112 beds)

- Provision of additional ancillary car parking on a permanent basis, including:
  - ☐ Construction of a multi-level car park with two flanking at-grade car parks in the general location of the existing at-grade car park to the north of the CSB. 922 spaces will be provided for use by hospital visitors and staff. A net additional 561 permanent on-site spaces will be achieved, taking into account the replacement of the existing 361 spaces with the new structure. The car park will be open deck and naturally ventilated.
  - ☐ Expansion of existing staff surface car parks to the west to provide an additional 86 spaces on a permanent basis.
- Provision of a temporary car park accommodating 258 cars during the construction of the staged development. This car park is located to the north east of the San Clinic and will be used by patients, visitors, staff and construction personnel. It is anticipated that it will be used for between four and seven years, depending on the final phasing of the restaged development.
- A new perimeter road will provide circulation around the multi-level car park, connecting to the existing main access road to the east and the existing service road to the west.
- Upgrade of fire services, power and water supplies to facilitate the staged expansion of the hospital. The existing oxygen tank will be relocated from the northern edge of the site to a permanent location adjacent to the secondary vehicle entry. A fire control centre will be established adjacent to the oxygen tank.
- Landscaping of the area overlooked by the consulting suites on Level 2 to provide a useable outdoor area to be enjoyed by staff and visitors.
- Refurbishment of the existing hospital buildings as described below:
  - ☐ Refurbishment of Level 4 Day Surgery to provide First Stage Recovery in the current location and an expanded Second Stage Recovery that can accommodate additional patients from the

new Endoscopy and Flex Theatres. A new Transfer Lounge will be located adjacent to the existing lifts to provide immediate access to the multi deck car parking structure.

- ☐ The doctors and nurses lounge, AMO lounge and changeroom facilities will be expanded to accommodate additional staff required to service the new theatres.
- ☐ A concierge station, public toilets and waiting area will be located adjacent to the arrival lifts to serve as a 'way finding' point between the new CSB Stage 1A wing and the existing Clifford Tower.
- ☐ The Central Sterilising Services Department (CSSD) will be rationalised to enable a clear connection to be made to the new expansion for CSSD, ensuring segregated dirty, clean and sterile flows can be achieved.
- ☐ The Level 5 Pre Operative and First Stage Recovery Area will be refurbished to accommodate a short and long term First Stage Recovery unit. It will serve the Stage 1A Wards, Stage 3 Shannon Wards and the existing Clifford Tower.
- ☐ The ICU/CCU will be expanded by up to 15 beds following relocation of the Pathology Department to Level 2.

### Stage 1B

- Further expansion of the Clinical Services Building to the west of the Stage 1A additions and comprising a Cancer Precinct with the following features:

**Table 3 – Stage 1B Clinical Services Building Additions – Cancer Precinct**

Level	Key Features
2	Radiation oncology cancer centre with associated bunkers for linear accelerators Day infusion centre Doctors consulting suites
3	Medical imaging expansion Medical suites for cancer centre doctors 16 bed ICU including circulation
4	Day surgery centre, including: <ul style="list-style-type: none"> <li><input type="checkbox"/> Endoscopy suite</li> <li><input type="checkbox"/> Flexible operating theatre</li> <li><input type="checkbox"/> Pre operative and post operative beds</li> <li><input type="checkbox"/> Waiting and change room facilities</li> <li><input type="checkbox"/> Pre admission centre</li> <li><input type="checkbox"/> CSSD Expansion</li> <li><input type="checkbox"/> Administration</li> </ul>
5	Operating theatre expansion, including: <ul style="list-style-type: none"> <li><input type="checkbox"/> Six theatres including support scrub, anaesthetic and clean up rooms</li> <li><input type="checkbox"/> Waiting and change room facilities</li> <li><input type="checkbox"/> Pre operative beds</li> <li><input type="checkbox"/> Associated sterile storage</li> </ul>
6	Plant Room above theatres with additional plant serving down to Level 2

- The truck turning area providing access to the loading Dock on Level 3 and running past the bunkers will be regraded and resurfaced to provide clear trucking access to the future Shannon materials handling area.

- The landscaped area to Level 2 will be developed as a visual release to the Radiation Oncology, Day Infusion and Consulting Suites.

### Stage 2

- Construction of the Concourse which is an open, covered walkway between the existing CSB and San Clinic buildings. It will provide a linkage to the main hospital entry and patient admissions area in the existing building via a series of stairs and escalators connecting Level 2, 3 and 4. Medical records storage will be provided on Level 1.
- Construction of the Arrival Podium to provide a new entry to the hospital and a link between the multi-level car park to the Clinical Services Building and SAN Clinic. The existing access to the car park (Level 0) to the main hospital entry (Level 4) is via a series of stairs and ramps. The vertical travel distance will be minimised by creating a new arrival podium at Level 2. The flanking access ramps from the main entry road and the discharge road from the west onto the ring road will be integrated.
- Construction of the Education Centre, which is a 3-4 storey building along The Comenarra Parkway frontage and accommodating the School of Nursing, The Australian Research Institute and other educational support facilities. Access to the Faculty of Nursing will be within the Campus and off the main circulation road.
- Refurbishment of Level 2 of the existing hospital building to accommodate the Pathology Department and Central Pharmacy following the relocation of the Faculty of Nursing to the new Education Centre.
- The main entry road from Fox Valley Road to the hospital car park will be updated to meet the demands of the additional floorspace. The ring road around the village green will be removed and upgraded with landscaping. The village green will continue to provide passive open space for staff, patients and visitors and for large community functions such as Carols by Candlelight.

### Stage 3

- The Shannon Wing, male residences and workshops are to be demolished once the Clinical Services Building has been constructed, including bunkers for the replacement lineal accelerators. This represents a reduction in the existing floorspace of 3,404m<sup>2</sup>.
- A new Shannon Wing and ancillary staff car parking (net additional 206 car parking spaces) will be constructed following demolition of the existing structures to accommodate the following uses and activities:

**Table 4 – Stage 3 Shannon Building**

Level	Key Features
0-2	Staff car parking
3	Materials handling accessible from trucking area between CSB and new Shannon Staff car parking
4	Void space over Level 3 creating a high level warehouse Lift stop area and storage
5	Eight birthing rooms Doctors, nurses and staff lounge and changeroom Direct connection to hot floor of theatres
6	Plant room above hot floor with additional plant serving down to Level 3 and up to Level 12 Ward rooms and maternity rooms
7-11	Typical 32 bed ward floors and maternity floors (total 160 beds)

- Relocate the Bethel House and Memorial Fountain to create the Merritt Kellogg Museum, with ancillary landscape works.
- Refurbishment of the existing hospital upon the decommission of the former doctors, nurses and staff lounge on Level 4 and relocation of facilities to Level 5 of the new Shannon wing as described above. The area created by the removal of the lounge and central pharmacy will be refurbished to:
  - ☐ Provide more direct access to the CSB expansion.
  - ☐ Open up the area for access to the Shannon Wing.
  - ☐ Provide a central location for patient services, waiting and support facilities such as a café, quiet areas and pastors/chapel.

### 3.3 Area Schedule

The following table provides a summary of the existing, demolition and construction areas, which will result in a net additional 27,993m<sup>2</sup> hospital floor space.

**Table 5 – Area Schedule Summary**

Description	GFA (+/-)
Existing hospital area	<b>58,448</b>
CSB Expansion (Stages 1A and 1B)	
<input type="checkbox"/> Stage 1A	+12,166
<input type="checkbox"/> Stage 1B	+6,652
<input type="checkbox"/> Total	<b>+18,818</b>
Concourse	
<input type="checkbox"/> Level 1	+220
<input type="checkbox"/> Level 2	+119
<input type="checkbox"/> Level 4 (chapel)	+74
<input type="checkbox"/> Total	<b>+413</b>
Shannon Wing	
<input type="checkbox"/> Demolition of existing Shannon wing and bunkers	-1,287
<input type="checkbox"/> Demolition of existing male residence	-969
<input type="checkbox"/> Demolition of existing workshop	-1,148
<input type="checkbox"/> New Shannon wing	+12,165
<input type="checkbox"/> Total (net)	<b>+8,762</b>
Total additional area (Stages 1, 1A, 2 and 3)	<b>+27,993</b>
Total hospital development area (following completion of Stages 1, 1A, 2 and 3)	<b>86,441</b>
Education centre	<b>+3490</b>



## 4 Key Issues

### 4.1 Environmental Planning Instruments, Policies and Guidelines

#### 4.1.1 Environmental Planning and Assessment Act 1979

The proposal is consistent with the relevant objects of the Environmental Planning and Assessment Act 1979 as the proposed development will promote the social and economic welfare of the community. The provision of improved and expanded health care services will benefit local residents and the broader population within the Sydney metropolitan area and NSW.

The proposed expansion will also encourage the orderly and economic use of the existing hospital site through the appropriate staging of construction. A range of employment opportunities will be generated as a result of the proposal, including a significant number direct and indirect jobs during the construction phase and increased health care related and other jobs in the operational phase. The potential benefits are discussed further in **Section 5.1.2**.

The proposed development has been sited and designed to avoid impacts on the significant areas of bushland that adjoin the hospital campus to the north. Further commentary with regard to threatened species, populations and ecological communities is provided in **Section 4.17**.

The proposal seeks to encourage the use of alternative means of transport to and from the site, including walking, cycling and public transport, as outlined in detail in **Section 4.6**. Other ecologically sustainable development initiatives that are being investigated in the detailed design process include passive building design, appropriate plant and equipment selection, water efficient fixtures, rainwater harvesting, building management systems to reduce energy demand and green star benchmarking. These are outlined in greater detail in **Section 4.7**.

#### 4.1.2 State Environmental Planning Policy (Major Development) 2005

The proposed development has been declared to be a Major Project under the provisions of Group 7 of Schedule 1 of the Major Development SEPP, which includes:

*Development that has a capital investment value of more than \$15 million for the purpose of providing professional health care services to people admitted as in-patients (whether or not out-patients are also cared for or treated there), including ancillary facilities for:*

- (a) *day surgery, day procedures or health consulting rooms, or*
- (b) *accommodation for nurses or other health care workers, or*
- (c) *accommodation for persons receiving health care or for their visitors, or*
- (d) *shops or refreshment rooms, or*
- (e) *transport of patients, including helipads and ambulance facilities, or*
- (f) *educational purposes, or*
- (g) *research purposes, whether or not they are used only by hospital staff or health care workers and whether or not any such use is a commercial use, or*
- (h) *any other health-related use.*

The project has a capital investment value of approximately \$283.3 million, which significantly exceeds the minimum threshold. Further, Schedule 3 of the Major Development SEPP was recently updated by listing the Wahroonga Estate, which includes the Sydney Adventist Hospital, as a State Significant Site. This listing means that the local planning provisions no longer apply to the site and the Major Development SEPP controls are now relevant to all future planning proposals.

The key controls contained within the SEPP are listed and discussed in **Table 6**. Extracts of the accompanying maps are provided further below as **Figures 8-10**.

**Table 6 – Major Development SEPP – Key Controls**

Control	Application	Comments
<b>Land Use Zoning (Clause 14)</b>	<p>Zone SP1 Special Activities - Health Services Facility</p> <p>Development that is permitted only with development consent is limited to: earthworks; roads; the purpose shown on the Land Zoning Map, including any development that is ordinarily incidental or ancillary to development for that purpose.</p>	<p>The hospital was previously zoned 5(a) Special Uses (Hospital) under the provisions of Ku-ring-gai Planning Scheme Ordinance. The new zone under the SEPP listing represents a like-for-like swap, based on the provisions of the Standard Instrument.</p> <p>The proposed alterations and additions to the hospital are consistent with the zone objectives as the buildings have been sited and designed to avoid adverse impacts on the adjoining land.</p> <p>The proposed development is permissible with development consent as it is consistent with the 'Health Services Facility' purpose noted on the Land Zoning Map.</p>
<b>Height and Gross Floor Area Restrictions (Clause 18)</b>	<p>Height of buildings: 39.5 metres and 26.5 metres as shown on the Height of Buildings Map.</p> <p>Gross floor area: 115,000m<sup>2</sup> within the identified precinct as shown on the Gross Floor Area Map (excluding floorspace of dwellings).</p> <p>This clause does not apply to a Part 3A project where a concept plan has been approved with building (or buildings) that exceed the height and/or gross floor area restrictions.</p>	<p>The proposed development complies with the height and gross floor area controls.</p> <p>The height of the buildings is less than the existing main building, which is understood to have dictated the maximum building height for the hospital precinct.</p> <p>The total additional gross floor area for the hospital is 27,993m<sup>2</sup>, which equates to a total floorspace of 86,441m<sup>2</sup> once the staged additions have been completed, taking into account the demolition of the existing Shannon Wing and associated structures. The Education Centre has a total gross floor area of 3,490m<sup>2</sup>.</p>
<b>Preservation of Trees or Vegetation (Clause 23)</b>	<p>A person must not ringbark, cut down, top, lop, remove, injure or wilfully destroy any tree to which this clause applies without development consent or a permit from council.</p> <p>This clause does not apply to a tree that council is satisfied is dying or dead and is not required as the habitat of native fauna. It also does not apply to a tree that council is satisfied is a risk to human life or property.</p>	<p>The proposed development is generally located within the existing footprint of the existing hospital development, including the ancillary car park. Shade trees in the at-grade car park will need to be removed and development consent is sought for their removal as part of the Project Application. Further consideration of tree removal is included in <b>Section 4.3.2</b> and <b>Section 4.17</b>.</p>
<b>Public Utility Infrastructure (Clause 25)</b>	<p>Development consent must not be granted unless the consent authority is satisfied that any public utility infrastructure that is essential for the proposed development is available or that adequate arrangements have been made to make that infrastructure available when required, including:</p> <ul style="list-style-type: none"> <li>(a) supply of water,</li> <li>(b) supply of electricity or gas,</li> <li>(c) disposal and management of sewage</li> </ul> <p>This clause does not apply to providing, extending, augmenting, maintaining or repairing any public utility infrastructure.</p>	<p>Significant consultation has taken place with the relevant service authorities to ensure that adequate services are currently available or will be made available to meet the needs of the expanded hospital. Further detailed discussion regarding service provision is included in <b>Section 4.15</b> and <b>Section 4.21</b>.</p>



Figure 8 – Wahroonga Estate Land Zoning Map (Department of Planning)

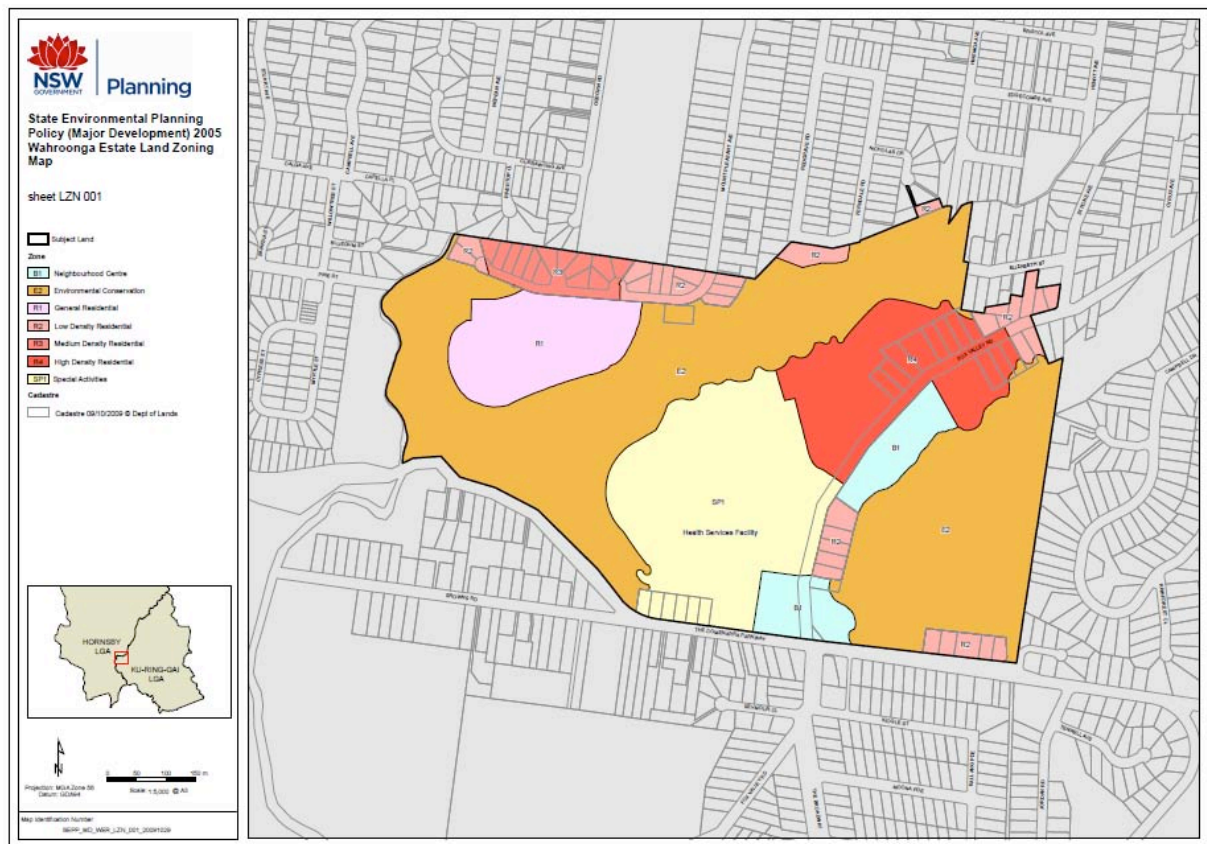
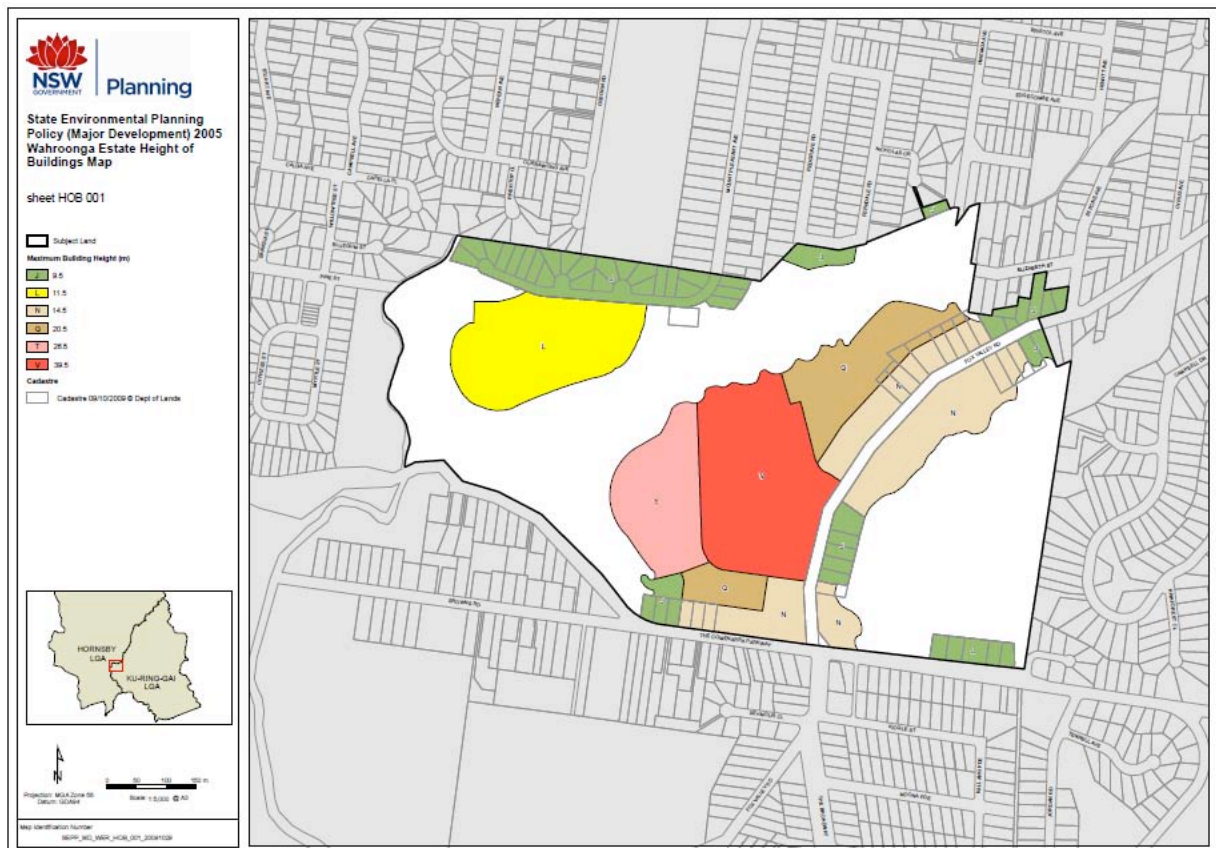
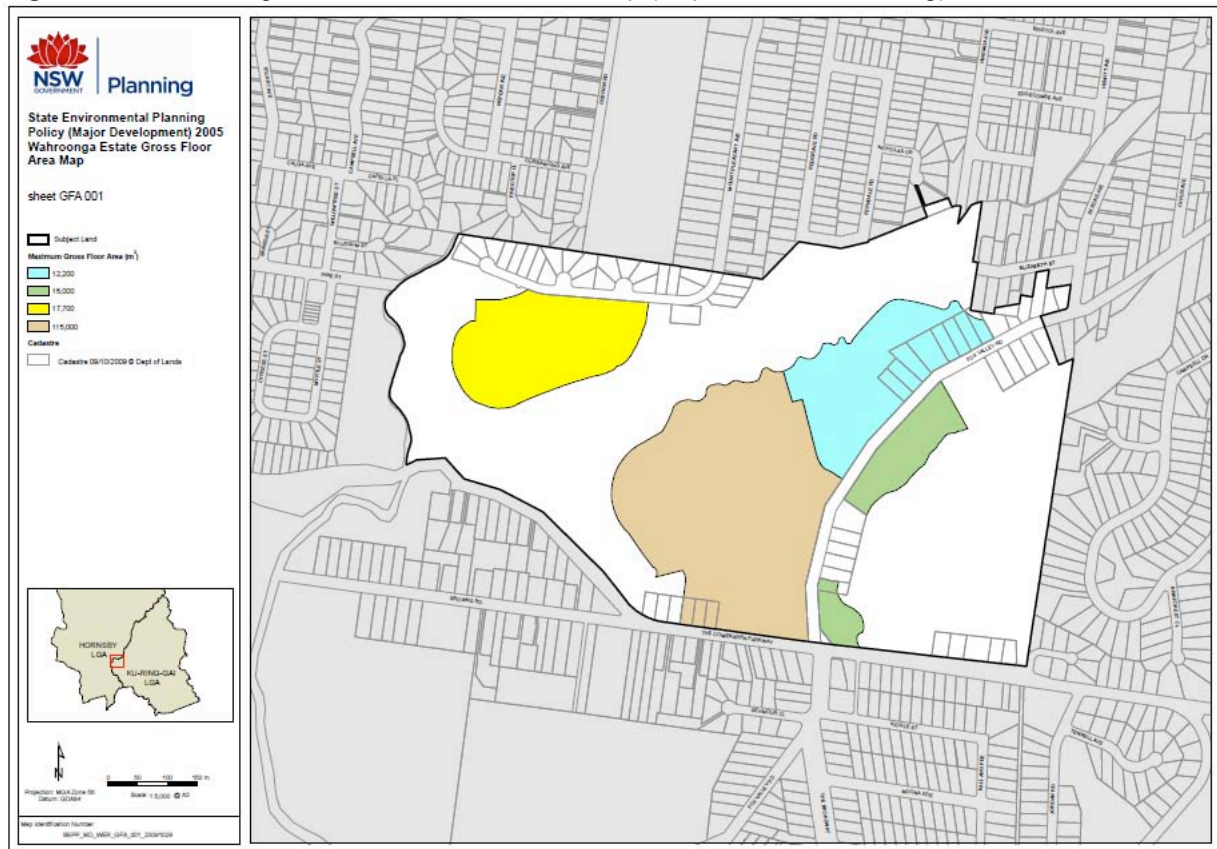


Figure 9 – Wahroonga Estate Height of Buildings Map (Department of Planning)



**Figure 10 – Wahoonga Estate Gross Floor Area Map (Department of Planning)**

Clause 6(2) of the State Significant Site listing for the Wahoonga Estate provides that Clauses 8–15, 17, 21–25 and 27 do not apply to a project to which Part 3A of the Act applies. The clauses that are specifically excluded include:

- Land use zones, objectives and permissibility.
- Subdivision consent requirements.
- Exceptions to development standards—other development (ie non-Part 3A).
- Bushfire hazard reduction.
- Preservation of trees or vegetation.
- Heritage conservation
- Public utility infrastructure.
- Temporary use of land.

#### 4.1.3 State Environmental Planning Policy 55 – Remediation of Land

SEPP 55 states that land must not be rezoned or developed unless contamination has been considered and, where relevant, land has been appropriately remediated.

Stage 1 assessments previously undertaken for the site have confirmed that the site is suitable for the proposed use. Coffey Environmental prepared a geotechnical and site contamination assessment in early 2008 and Environmental Investigation Services undertook another site contamination investigation in mid 2009. While the proposed development schemes at that time vary from the current proposal,

these reports provide sufficient information regarding the site conditions to enable an assessment in accordance with the provisions of SEPP 55.

The key findings and recommendations with regard to site contamination are provided in **Section 4.9** of this report.

#### 4.1.4 State Environmental Planning Policy No 33 – Hazardous and Offensive Development

SEPP 33 sets out the matters for consideration that need to be addressed in determining whether a development is a hazardous or offensive industry. The SEPP also sets out the matters for consideration to assess whether the development is hazardous or offensive and to impose conditions to reduce or minimise any adverse impact, as well as the requirements for the advertising of certain applications.

Further discussion regarding the storage and management of potentially hazardous waste is provided in **Section 4.19**. Details regarding the assessment and management procedures in accordance with the provisions of SEPP 33 are provided in **Section 4.20**. It is noted that the provisions of SEPP 33 do not apply to the proposed development.

#### 4.1.5 State Environmental Planning Policy (Infrastructure) 2007

The Infrastructure SEPP assists the NSW Government, local councils and the communities they support by simplifying the process for providing public infrastructure.

The proposed electricity substation does not require separate development consent as Section 41(1) enables development for the purpose of an electricity transmission or distribution network to be carried out by or on behalf of an electricity supply authority or public authority without consent on any land. Development for the purpose of an electricity transmission or distribution network includes demolition of existing works and construction of a new substation.

Schedule 3 of the SEPP requires a hospital development with 200 or more beds to be referred to the Roads and Traffic Authority. The proposal includes more than 200 beds and as such, the Project Application will require a referral to the RTA, even though the proposal is consistent with the Concept Plan approval.

#### 4.1.6 State Environmental Planning Policy No 19 – Bushland in Urban Areas

This SEPP aims to protect and preserve bushland within the urban areas. Development consent is required for any disturbance to bushland zoned or reserved for public open space purposes. The consent authority must be satisfied that any disturbance is essential for a public interest and there is no reasonable alternative.

The works proposed in this Project Application are well setback from the established bushland, which is located within an E2 Conservation Zone under the provisions of the Major Development SEPP. A comprehensive survey and assessment of the potential impact of the overall estate development on this bushland was undertaken as part of the Concept Plan assessment and approvals process. The current proposal is consistent with the provisions of the Concept Plan and Cumberland Ecology (who was previously engaged in association with the preparation of the Wahroonga Estate Concept Plan) has confirmed that the proposal is acceptable.

The proposed works will require the removal of some trees, primarily to facilitate construction of the multi-level car park in the general location of the existing at-grade car park. Further consideration of this tree removal is provided in the landscape concept design outlined in **Section 4.17**.

#### 4.1.7 NSW State Plan

The State Plan focuses on five activity areas for the NSW State Government:

- ***Rights, Respect and Responsibility*** – the justice system and services that promote community involvement and citizenship.
- ***Delivering Better Services*** – key services to the whole population including health, education and transport.
- ***Fairness and Opportunity*** – services that promote social justice and reduce disadvantage.
- ***Growing Prosperity Across NSW*** – activities that promote productivity and economic growth, particularly in rural and regional NSW.
- ***Environment for Living*** – planning for housing and jobs, environmental protection, arts and recreation.

The Plan includes goals for the Government to work towards, accompanied by priorities to achieve these goals. Targets have also been set, where possible. The goals, targets and priorities that are relevant to the proposed expansion of the Sydney Adventist Hospital are listed below:

**Table 7 – Achievement of State Plan Goals, Priorities and Targets**

Goal	Priority	Target	Comment
<b>Healthy Communities</b>	Improved access to quality healthcare	Achieve national benchmarks for timely access to emergency departments and surgical treatment by 2008.	The proposed expansion of the Sydney Adventist Hospital will result in indirect benefits to public hospitals, including Hornsby Hospital, through the provision of additional healthcare that benefits the local area and the broader region.
<b>An Effective Transport System</b>	Increasing share of peak hour journeys on a safe and reliable public transport system	Increase the journeys to work in the Sydney metropolitan region by public transport to 25% by 2016.	A Workplace Travel Plan has been prepared in accordance with the provisions of the Concept Plan approval for the Wahroonga Estate, including initiatives to increase use of public transport, cycling, walking and car pooling.
<b>NSW: Open for Business</b>	Increased business investment. More people participating in education and training throughout their life.	Increase business investment in NSW. Increase participation in vocational education and training from 11.7 to 16% by 2016.	The proposed expansion will result in a substantial investment being made in NSW and the creation of additional high skilled and high wage employment opportunities, in line with the Government objectives. The construction of the Faculty of Nursing will result in improved education opportunities.
<b>Improved Urban Environments</b>	Jobs closer to home.	Increase the number of people who live within 30 minutes of a city or major centre by public transport in metropolitan Sydney.	The Sydney Adventist Hospital is well located in terms of access to a highly skilled workforce. It is anticipated that the proposed expansion of the hospital, combined with the approved residential development on the balance of the Wahroonga Estate, will make a significant contribution in terms of providing jobs closer to home.

#### 4.1.8 Sydney Metropolitan Strategy

The Sydney Metropolitan Strategy aims to guide growth and change in the Sydney Metropolitan Region over the next 25 years. The Strategy has been prepared with five aims, three of which are directly relevant to the proposed redevelopment of this site and discussed further below:

- **Economic competitiveness** – the Strategy aims to maintain or increase the value of Sydney's contribution to Gross Domestic Product. The proposed expansion of the hospital will have a number of positive economic impacts, taking into account the increased employment and both direct and indirect spending.
- **Protect the environment** – the Strategy aims to avoid any increase in Sydney's environmental footprint per capita. It is considered that the provision of a significant investment in an existing hospital facility is a positive environmental outcome, taking into account the upgrade and ongoing use of existing facilities and infrastructure.
- **Improve governance** - it is considered appropriate to utilise the Part 3A legislation to advance the proposal to enable the timely delivery of the proposed additions and allow for the expanded health services.

The Department of Planning recently released Sydney Towards 2036. This document is intended to inform the five year review of the Metropolitan Strategy and was publicly exhibited from 17 March 2010 to 30 April 2010. The chapters of the discussion paper that are of particular relevance to this proposal are listed and briefly discussed below:

- **Making Sydney climate change ready** – the proposed redevelopment is aligned with objectives for the continuing economic development of the Sydney North Subregion. It is also consistent with the provisions of Sydney Towards 2036, including the objective of clustering jobs and other activities.
- **More jobs in the Sydney region** – the Sydney Adventist Hospital is one of the major employers within the Ku-ring-gai local government area. It is considered that the provision of additional jobs within an existing facility and within walking distance of a planned residential development is entirely consistent with the provisions of the discussion paper.
- **Growing Sydney's value** – the proposed expansion is consistent with the objectives to develop the local economy and boost employment, make better use of existing infrastructure and increase the convenience of and access to social services.

#### 4.1.9 Draft Subregional Strategy for North Subregion

Ku-ring-gai local government is located within the North Subregion as defined by the Sydney Metropolitan Strategy. The draft North Subregional Strategy was on exhibition for community comment until 8 February 2008. The proposed expansion of the hospital is consistent with the key strategies and actions of the Draft Subregional Strategy for the North Subregion as outlined below.

- **Economy and employment** – the Draft Strategy recognises the importance of health, community services and education in being a major source of employment within the North subregion. The proposed expansion of the Sydney Adventist Hospital will provide for additional local employment, making a significant contribution to achieving the target of 13,500 jobs within the North subregion by 2031.
- **Transport** – the Workplace Travel Plan prepared in association with the Project Application includes a variety of transport initiatives to reduce car reliance and increase modal share by public transport, cycling and walking. Further, a Pedestrian and Bicycle Connections Plan has been prepared in accordance with the Concept Plan approval to improve connections to, from and within the Wahroonga Estate.
- **Environment, heritage and resources** – the Draft Strategy recognises the extensive areas of National Parks, bushland and open space within the subregion. The proposed buildings have been sited and designed to avoid any impacts on the existing bushland area to the west and where



possible, significant trees within the existing car park and land surrounding the existing hospital buildings. The Draft Strategy also locates the hospital located within the Lane Cove River sub-catchment. Soil and erosion sediment control measures will be implemented during the future construction to avoid any impacts on the water quality of Coups Creek or further downstream.

#### 4.1.10 Ku-ring-gai Planning Scheme Ordinance

Clause 5 in the site-specific listing of the Wahroonga Estate under the provisions of Schedule 3 of the Major Development SEPP includes the following statement:

*The only environmental planning instruments that apply, according to their terms, to land within the Wahroonga Estate site are:*

- (a) *this Policy, and*
- (b) *all other State environmental planning policies, other than State Environmental Planning Policy No 1—Development Standards.*

Accordingly, the Ku-ring-gai Planning Scheme Ordinance no longer applies to the site and is not relevant to the preparation or assessment of this Project Application. The Major Development SEPP and the Wahroonga Estate Concept Plan provide the detailed planning provisions for development at the Wahroonga Estate, including the Sydney Adventist Hospital.

However, we have considered the objective of the Ku-ring-gai PSO with regard to guiding the future development and conservation of Ku-ring-gai. The state significant site listing of the Wahroonga Estate introduced a comprehensive set of planning controls that did not previously exist within the PSO. Accordingly, the Major Development SEPP will now guide future development and achieve the principal objective stated with the local environmental planning instrument.

#### 4.1.11 Development Control Plans

It is appropriate to consider the proposed development in accordance with the provisions of the development control plans so that the development meets local expectations and technical criteria applied elsewhere within the LGA.

Each of the development control plans that are considered to be of relevance to the proposed alterations and additions to the hospital have been considered as outlined below.

- **Ku-ring-gai Development Control Plan No 31 – Access** – this DCP aims to ensure that equitable access is provided to all public buildings and spaces. The proposed development will comply with all relevant access requirements, taking into account the specific needs of patients, people with disabilities and parents with prams. The findings of the Access Report prepared by Accessibility Solutions and dated 13<sup>th</sup> July 2010 are discussed in **Section 4.3.3**.
- **Ku-ring-gai Development Control Plan No 40 - Construction and Demolition Waste Management** – the demolition works to facilitate the proposed development are outlined in the Demolition Site Plan provided with the architectural drawings attached as **Appendix D**. A Waste Management Report has been prepared to outline the approach to waste minimisation and management, as outlined in **Section 4.19** of this report.
- **Ku-ring-gai Development Control Plan No 43 – Car Parking Code** - a comprehensive review of car parking has been undertaken as part of the Assessment of Transport, Traffic and Parking Implications report, taking into account the staging of the development and construction and operational phases. Further discussion regarding car parking is provided in **Section 4.6**.
- **Ku-ring-gai Development Control Plan No 47 – Water Management** - an integrated water cycle management strategy, addressing the principles and requirements of on-site detention for flood control and requirements to control the rate of stormwater runoff, was adopted under the Concept Plan approval and in accordance with Ku-ring-gai DCP 47. Stormwater drainage and flooding is addressed in detail in **Section 4.12** and **Section 4.13** of this report.

#### 4.1.12 Non-Compliances with EPIs, Plans and Guidelines

The proposed development has been carefully and specifically designed to be fully compliant with the site-specific provisions listed in the Major Development SEPP, having particular regard to the core height of buildings and gross floor area controls.

## 4.2 Concept Plan

The Concept Plan for the Wahroonga Estate did not include a significant amount of detail regarding the proposed alterations and additions to the hospital. The Concept Plan approved 28,000m<sup>2</sup> of additional floor space for the hospital, with a maximum building height of 39.5 metres (as per the state significant site listing). However, the siting and design of that floor space was generally deferred to the detailed design phase associated with the preparation of the Project Application.

A table outlining the compliance of the Project Application with the relevant provisions of the Concept Plan approval is provided below.

**Table 8 – Concept Plan Compliance**

Condition	Response	Complies
<b>A1 Development Description</b> (1) Concept Plan approval is granted only to the carrying out of development <...> including: (a) An additional 28,000m <sup>2</sup> of floor space (providing a total of 94,000m <sup>2</sup> ) for upgrade and expansion of the Sydney Adventist Hospital (g) 3,500m <sup>2</sup> for expansion of the Faculty of Nursing in the Central Hospital Precinct	The Project Application has been prepared to fully comply with the approved additional floor space within the Concept Plan approval. The staged alterations and additions will result in an additional 27,993m <sup>2</sup> being created for the hospital and 3,490m <sup>2</sup> for the Education Centre.	Yes
<b>A2 Development in Accordance with Plans and Documentation</b> (1) The development shall generally be in accordance with the following plans and documentation (including any appendices therein): (a) Wahroonga Estate Redevelopment Incorporating Sydney Adventist Hospital Environmental Assessment and Concept Plan dated April 2009, as amended by the Wahroonga Estate Redevelopment Incorporating Sydney Adventist Hospital Final Preferred Project Report and Concept Plan dated January 2010, and the appendices of the document titled Wahroonga Estate Redevelopment Incorporating Sydney Adventist Hospital Preferred Project Report and Concept Plan dated September 2009, prepared by Urbis Except as otherwise provided for in the Department's administrative terms of approval and further assessment requirements as set out in this Schedule.	The only minor variation to the Concept Plan relates to Figure 39 in the Preferred Project Report, which included an indicative schedule of buildings that were proposed to be retained and demolished. This schedule was based on the additional development that was forecast across the entire Wahroonga Estate at the time of lodgement of the Concept Plan, including a preliminary (and outdated) concept for the proposed redevelopment of the hospital. Morris Bray was subsequently engaged by the Sydney Adventist Hospital and developed a comprehensive design brief for the immediate and long-term development of the hospital campus through an eight month iterative process with the hospital executive committee and the project management office. As a result of this process, it was resolved to pursue the demolition of the Shannon Wing, taking into account the issues with maintenance, particularly in relation to the management of pigeon infestation and bird lice. The Heritage Impact Statement prepared in association with the Project Application also states: <i>The building's integrity has been eroded by a series of alterations and additions, including: the removal of the balcony wrapping around the eastern facade, to allow construction of the Clifford Tower Block, the removal of the roof level, replacement roofing, the portico and Radiation / Oncology additions, and covered</i>	Yes – minor variation not considered to be of any significance and fully justified

Condition	Response	Complies
	<p><i>links to the other hospital buildings. Little evidence of early health care practices remain in the Shannon Wing.</i></p> <p>On the basis of the above, the proposed modification to the Concept Plan is considered to be justified and appropriate. Given the absence of any detail in the balance of the PPR with regard to the hospital redevelopment, the proposal is considered to be generally consistent with the Concept Plan approval and does not require a modification under the provisions of Section 75W of the Act.</p>	
<p><b>A3 Gross Floor Area</b></p> <p>(1) The maximum gross floor area for each precinct is detailed in the following table: Precinct C: Central Hospital 115,000m<sup>2</sup></p> <ul style="list-style-type: none"> <li>□ 94,000m Hospital &amp; Facilities</li> <li>□ 3,500m<sup>2</sup> Faculty of Nursing</li> </ul>	<p>The Project Application has been prepared to fully comply with the approved additional floor space within the Concept Plan approval. The staged alterations and additions will result in an additional 27,993m<sup>2</sup> being created for the hospital and 3,490m<sup>2</sup> for the Education Centre.</p>	Yes
<p><b>B1 Urban design</b></p> <p>(1) Future development applications are to be generally consistent with the following elements which are indicative in the approved Concept Plan:</p> <ul style="list-style-type: none"> <li>(a) Building footprints</li> <li>(b) Asset Protection Zone widths</li> <li>(c) Internal road location</li> <li>(d) Detention basin location</li> </ul> <p>(2) Buildings are to be sited to avoid critically / endangered ecological communities, achieve balance between cut and fill, minimise earthworks, provide adequate solar access and minimise impacts on privacy and overshadowing of residential uses within and surrounding the site.</p>	<p>The Project Application has been designed in accordance with the Concept Plan approval, taking into account the established APZ widths, internal roads and OSD system.</p> <p>Each of the identified matters has been addressed in the siting and design of the proposed buildings, as assessed in detail in <b>Section 4.3</b>.</p>	Yes
<p><b>B2 Proposed hospital facilities</b></p> <p>(1) Any future application for the hospital is to address the following:</p> <ul style="list-style-type: none"> <li>(a) Layout of hospital buildings and associated facilities</li> <li>(b) Design of buildings and relationship with surrounding development</li> <li>(c) Traffic management measures (including facilities such as stopping bays, bus facilities, car parking and vehicular access arrangements).</li> </ul>	<p>The Project Application addresses each of the matters listed in Condition B2. The proposal includes a comprehensive set of architectural drawings that detail the location of the existing and the proposed buildings. Further, the traffic analysis includes recommendations to provide additional transport and traffic facilities to meet the demands of the proposed development.</p>	Yes
<p><b>B4 Biodiversity</b></p> <p>(1) A Biodiversity Management Plan is to be prepared by the Proponent and approved by DEWHA prior to determination of the first project or development application. The Plan is to include:</p> <ul style="list-style-type: none"> <li>(a) Vegetation Management Plan</li> <li>(b) Pest and Weed Plan</li> <li>(c) Hydrology and Nutrient Management Plan</li> </ul>	<p>The Biodiversity Management Plan is continuing to be progressed. It is acknowledged that approval of the Plan is required to facilitate determination of the Project Application.</p>	Yes



Condition	Response	Complies
(d) Habitat Corridor and Linkages Management Plan (e) Fire Management Plan (f) Management Plan outlining public access and impacts on the conservation land (E2 Environmental Conservation zone) (g) Ownership, management, maintenance and monitoring responsibilities for conservation land (E2 Environmental Conservation zone) and funding arrangements.		
<b>B5 Bushfire protection</b> (1) All Asset Protection Zones are to be located outside of the conservation land as shown in the approved Concept Plan unless required for development constructed prior to the date of this instrument. (2) Uses constituting 'Special Fire Protection Purposes' as defined in Planning for Bushfire Protection 2006 are to be undertaken in consultation with the NSW Rural Fire Service. (3) All Asset Protection Zones and other bushfire protection measures are to comply with Planning for Bushfire Protection 2006.	Australian Bushfire Protection Planners was engaged to undertake a bushfire protection assessment for the Project Application. ABPP was also engaged in association with the Wahroonga Estate Concept Plan. The key findings are outlined in <b>Section 4.14</b> of this report. In summary, it has been agreed with the NSW RFS that: <ul style="list-style-type: none"> <li><input type="checkbox"/> The new entry to the hospital facing the Coups Creek corridor is acceptable, subject to the emergency exits discharging to the forecourt of the existing HE Clifford Tower or Main Building.</li> <li><input type="checkbox"/> The proposed multi-level car park is a non-core hospital use and can intrude into the flame zone setback, subject to provision of shielding devices and mesh to reduce radiant heat levels and entry of embers into the structure.</li> <li><input type="checkbox"/> The Stage 1B Clinical Services Building cannot encroach the 100 metre wide Asset Protection Zone (APZ) setback.</li> <li><input type="checkbox"/> The Education Centre (or Faculty of Nursing) is acceptable within the outer part of the APZ occupying the existing managed land to the west of the last dwelling on The Comenarra Parkway.</li> </ul> Overall, the proposed alterations and additions have addressed the relevant provisions of Planning for Bushfire Protection 2006.	Yes
<b>B6 Road design and construction</b> (1) The final internal road network design should avoid critically / endangered ecological communities, respect existing natural topography and minimise earthworks. (3) The internal road network is to be designed and constructed in accordance with relevant Council Development Control Plans and to the satisfaction of the relevant roads authority. (4) Road works are to be carried out in accordance with the construction standards prescribed in Planning for Bushfire Protection 2006.	The internal road network has been designed to meet the relevant requirements listed in Condition B6.	Yes
<b>B7 Agency road requirements</b> (1) A binding Deed of Agreement is to be entered into between the Proponent and the	Ongoing discussions have been held with the RTA regarding the Deed of Agreement and the deliver of upgraded traffic infrastructure to meet	Yes

Condition	Response	Complies
<p>RTA to undertake the following works, as detailed in the Authority's submission on the Environmental Assessment dated 18 June 2009:</p> <ol style="list-style-type: none"> <li>1. Reconstruction / upgrading of the existing traffic signals at the following locations: <ol style="list-style-type: none"> <li>a) The Comenarra Parkway / Fox Valley Road</li> <li>b) Pacific Highway / Fox Valley Road</li> <li>c) The Comenarra Parkway / Kissing Point Road</li> </ol> </li> <li>2. Intersection improvements at the following locations: <ol style="list-style-type: none"> <li>(a) Fox Valley Road with site accesses to the Precinct</li> </ol> </li> <li>3. Widening The Comenarra Parkway to provide two traffic lanes in each direction between Fox Valley Road and Browns Road.</li> <li>4. Widening Fox Valley Road between The Comenarra Parkway and the northern boundary of the site to accommodate two travel lanes in each direction. In addition, two southbound travel lanes must be provided along Fox Valley Road from the Pacific Highway to the site.</li> </ol> <p>The Agreement is to outline the extent of work including lane configuration, timing of work and costs, and is to be signed and executed prior to the release of the first Construction Certificate for the site.</p>	<p>the needs of the development. It is acknowledged that a Deed of Agreement will need to be in place to facilitate release of the first Construction Certificate.</p>	
<p><b>B8 Transport</b></p> <p>(1) A Work Place Travel Plan and Transport Access Guide are to be submitted for approval with development applications proposing employment generating activities (eg. for commercial development in the Central Hospital and Fox Valley Road East Precincts, the proposed school, Faculty of Nursing and hospital activities)</p> <p>(3) A Bicycle and Pedestrian Linkages Plan for the site is to be submitted for approval with the first project or development application in the Central Hospital or Central Church precincts. The plan is to include details in relation to:</p> <ol style="list-style-type: none"> <li>(a) Internal linkages within the site;</li> <li>(b) Linkages between the Mount Pleasant precinct and other areas within the site;</li> <li>(c) Linkages to existing formal Council networks for pedestrians and cyclists.</li> </ol>	<p>A Work Place Travel Plan and Transport Access Guide have been submitted for approval with the Project Application for the proposed hospital alterations and additions an Education Centre. A Bicycle and Pedestrian Linkages Plan has also been submitted, addressing each of the identified matters (refer to <b>Section 4.6</b> of this report).</p>	Yes
<p><b>B9 Car parking</b></p> <p>(3) The consent authority is to have regard to the provisions of the relevant Council Development Control Plan regulating car parking at the time of the application, the final Preferred Project Report and any other relevant traffic, transport and car parking reports when determining car parking requirements for employment generating land uses.</p> <p>(4) Applications for non-residential land uses</p>	<p>The Assessment of Transport, Traffic and Parking Implications report prepared by Transport and Traffic Planning Associates (TTPA) assesses the appropriateness of the proposed car parking arrangements, taking into account previous parking surveys and additional demand arising from the proposed alterations and additions.</p> <p>The proposed car parking is considered to be adequate for the peak demand circumstances.</p>	Yes

Condition	Response	Complies
must be accompanied by a traffic and car parking assessment prepared by a suitably qualified traffic planner, demonstrating that sufficient car parking has been provided having regard to the RTA's Guide to Traffic Generating Developments and Council's DCP requirements.	Paid car parking will be retained for patients and visitors and may be extended to staff and nurses using the multi-level structure.	
<b>B11 Stormwater management</b> (1) A Stormwater Management Plan is to be submitted for approval with all project and development applications for building works as relevant, and is to demonstrate that water sensitive urban design measures have been integrated into the development. (2) The consent authority is to consider Ku-ring-gai Council's DCP 47 – Water Management and Hornsby Councils Sustainable Water DCP during the assessment of development applications.	A Stormwater Management Plan has been prepared and is submitted with the Project Application for approval. The Plan has been prepared in accordance with the provisions of Condition B11, including the Ku-ring-gai DCP.	Yes
<b>B12 Geotechnical issues</b> (2) The consent authority is to be satisfied that future project or development applications demonstrate that filled areas (especially along the northern edges of the car parks associated with the hospital) have been reviewed for stability.	Geotechnical investigations were undertaken by Coffey Geotechnics across the development site, including the existing car park. The report recommendations have been included within the Draft Statement of Commitments in <b>Section 5.2</b> .	Yes
<b>B13 Contamination</b> (1) A Phase 2 Detailed Site Contamination Assessment in accordance with State Environmental Planning Policy No 55 – Remediation of Land and associated guidelines is to be submitted for approval with the first project or development application for development in or adjacent to potentially affected areas identified in the Phase 1 Contamination Assessment.	The previous site contamination investigations have indicated that the site is suitable for the proposed use. The Draft Statement of Commitments includes provision for additional investigations, if considered necessary.	Yes
<b>B14 Construction management and staging</b> (1) A Construction Management Plan addressing impacts on traffic, local amenity, noise, vibration, sediment and erosion control is to be submitted for approval with all project and development applications. (2) A Staging Plan including details of proposed bulk earth works is to be submitted for approval with the first project or development application for building works in each precinct.	The proposed development is to be staged over a number of years and as such, a Construction Management Plan will be required for each individual stage. A Statement of Commitments has been provided that requires submission of a CMP for each stage (or updating a prior CMP) that addresses the following matters: <ul style="list-style-type: none"> <li><input type="checkbox"/> Erosion and sediment control.</li> <li><input type="checkbox"/> Dust control.</li> <li><input type="checkbox"/> Noise and vibration management.</li> <li><input type="checkbox"/> Construction traffic.</li> <li><input type="checkbox"/> Water quality control.</li> <li><input type="checkbox"/> Complaints handling.</li> </ul> In the meantime, the consultant reports address the relevant construction management requirements, including traffic, amenity noise/vibration and sediment and erosion control. Further, a Staging Plan has been prepared outlining the future earthworks.	Yes

## 4.3 Built Form and Urban Design

### 4.3.1 Height, Bulk and Scale

The height, bulk and scale of the proposed development have been designed to respond to the existing Sydney Adventist Hospital, the existing and approved development within the Wahroonga Estate and the surrounding locality.

The Sydney Adventist Hospital is a campus-style hospital development with a series of buildings of various ages, heights and configurations located within a landscaped setting, as outlined in **Section 2.3.2**. The existing Main Building (or HE Clifford Tower) is the tallest building and comprises a 1970s precast clad building setback from Fox Valley Road. This building is oriented towards the village green, providing the main entrance to the hospital. The natural ground level varies across the site, with the existing Main Building generally located at the highest point.

The Major Development SEPP prescribes a maximum building height of 39.5 metres for development located within the hospital precinct of the Wahroonga Estate. The proposed staged alterations and additions to the Sydney Adventist Hospital have been designed to achieve full compliance with the provisions of the SEPP and respond to the site topography. The natural ground level surrounding the CSB Expansion Building Stage 1A varies between RL 167.534 and RL 164.00. The level measured to the top of the cooling tower screen walls is RL 203.465 or 39.465 meters above the lowest RL. Accordingly, the CSB Expansion is within the maximum permissible height limit. The Shannon Wing sits on the higher ground level of RL 168.00 and at 9 levels the upper most level is at RL 207.5 or 39.5 meters high. The Shannon Wing also complies with the maximum building height.

The perspectives provided with the architectural drawings held at **Appendix C** and **Figure 11** below show the existing and proposed development within the local context. The proposed buildings sit comfortably within the existing hospital buildings. The Main Building will remain the dominant built form within the hospital campus, having regard to its height and location at the highpoint of the site.

**Figure 11** – Perspective – Aerial from North-East (Morris Bray Architects)





### 4.3.2 Open Space and Landscaping

Site Image was engaged to prepare a landscape concept design that responds to the staged redevelopment of the proposed alterations and additions to the hospital. A copy of the landscape drawings and accompanying report are attached as **Appendix D**. An extract is provided as **Figure 12**.

**Figure 12** – Landscape Masterplan (Site Image)



The Landscape Design Statement provides a comprehensive description of the proposed landscape treatment, taking into account the existing landscape character, landscape design objectives and key changes to the development site in terms of the proposed buildings, car parking areas, etc. Overall, the proposed landscape treatment incorporates a staged approach, responding to each of the proposed buildings and car parking areas and setting out clear design principles and materials for the future detailed design.

Particular consideration is given to the proposed treatment of the CSB expansion (Stages 1A and 1B), having regard to the provision of a courtyard that offers recuperation, relaxation and respite for patients, staff and visitors. Opportunities to incorporate the interpretative heritage elements are addressed, including climbers, pergola design and the 'temporary' grid planting of small trees to reflect the vineyard and orchard that existed in this part of the site.

The proposed treatment of the multi-deck car park and the permanent and temporary at-grade car parks are also considered in detail, taking into account opportunities to soften their potential visual appearance, while also responding to the bushfire protection measures for the Class 7 structure. A 'green wall' effect is proposed for a significant portion of the southern façade, which will complement the proposed graphic/mesh wall identified in the Interpretation Strategy prepared by Graham Brooks & Associates.

The elevated podium arrival will have a large plaza adjacent to the entry, overlooking a large stand of trees and to the bushland beyond, providing a physical and visual connection to the bushland and landscape character of the site. The roadway approach also provides views to the bushland and lower part of the site. Large landscape planters allow for a large accent canopy tree opposite the entry, as well as a series of vertical trees for visual screening. A passive recreation open space area is provided adjacent to the plaza and new main entry. Stairs and lift access will be provided, with composite rubber paving to protect existing trees and provide a safe child-friendly surface.

Further details regarding the proposed landscaped treatment are provided in the Landscape Design Statement held as **Appendix D**. The Draft Statement of Commitments incorporates the recommendations provided in the report, including a requirement for further detailed design plans to be produced prior to release of Construction Certificates for individual stages.

### 4.3.3 Design Quality

As previously noted in **Section 2.3.2** and **Section 4.3.1**, the Sydney Adventist Hospital comprises a series of buildings of various ages, heights and configurations located within a landscaped campus-style setting.

The proposed development has been designed to complement the existing built form, taking into account the existing visual dominance of the Main Building (HE Clifford Tower) and the potential impact of additional buildings being provided within the existing campus. The new buildings are well setback from Fox Valley Road and behind the Main Building to limit their potential impact.

The general mass and form of the proposed CSB expansion been designed to line up with the existing buildings to provide a seamless functioning interior. Further, the façade treatment of has been designed to express a vertical rhythm that is a complementary and contemporary reference to the vertical expression of the existing Main Building. This treatment is reflected in the future design for the new Shannon Wing. The projected floor at Level 5 of the existing CSB will be continued into the new building to create a continuity of form, wrapping the development to act as a device for tying the buildings together from the different periods.

A 'loggia' has been introduced to the base of the buildings to form a podium or colonnade like structure that stands independent to the existing and new buildings. The 'loggia' will have a consistent rhythm of vertical masonry elements at regular spacing and capped of with a metal top. The 'loggia' will form a podium and appear as a solid element when viewed from oblique angles and permeable when viewed in a front on direction. This will create a sense of a bottom or base to the building especially at a pedestrian level so on a micro scale a unity is created. A weather protection canopy will provide cover for vehicular, taxi and bus drop off points. The 'loggia' can be further developed in stages, enabling buildings to present a timely appearance.

The Concourse will provide a clear link between the arrival podium on Level 2 and the rest of the hospital, giving clear direction to the different hospital activities and creating a clear separation between the public circulation and the patient/ back of house circulation. The Concourse will also create a sense of arrival and will help to express the 'Mission' of the hospital (Caring, Uniting, Educating, Sharing and Healing) with the installation of sculptural elements along with the sense of a relaxed active space. The roof of the Concourse will act as a marker or way finder to give direction toward the Level 4 patient admission area. Level 4 will be the main distribution level, providing public access to the expanded CSB ward wing and the new Shannon Wing.

The Concourse provides a direct engagement with the natural environment in line with the hospital philosophy. It acts as a unifying element, connecting to the Village Green and the entry forecourt. The Village Green will be preserved as an open space for use of staff, patients and visitors. It may be adapted for use for large community functions (eg fetes, Carols by Candlelight) with a temporary stage installed on the access road and the Village Green functioning as an amphitheatre. Other opportunities to connect to the outside have been developed around the Radiation Oncology Bunkers and the garden space adjacent to these functions. Views from the CSB and Shannon Wing to the bushland are important connections to the natural environment.

The multi-deck car park has been located to ensure the main hospital entry to the Concourse is free and open to engage with the bushland backdrop. The paved open forecourt will be integrated with the arrival podium at Level 2 and provide a clear pedestrian link from the car park to the Concourse.

The site topography and development design enable the car park to appear as a two level structure above the new circulation street. The street is formed via the car park, arrival podium and the CSB building. Landscaping will be provided between the arrival podium and the car park. Level 2 of the car park interfaces with the arrival podium and enables the allocation of the accessible car parking spaces to people with a disability or mobility issues. An attached covered footpath provides easy access to the forecourt and hospital entry.

The car park will be screened with a perforated mesh to the southern hospital elevation. Input will be sought from specialist heritage consultants, the local community and/or staff with regard to the proposed treatment, in line with the strong community based philosophy of the Sydney Adventist Hospital and interpretative elements.

Safer-by-design principles have been incorporated into the overall design of the proposed alterations and additions. Clear sightlines are provided to and from the main entry to the hospital, achieving natural surveillance of the entry and adjoining internal and external areas, including the arrival podium and associated car parking. The Concourse is provided predominantly of glass and contains active uses, which will facilitate a high level of surveillance over the village green and pedestrian circulation areas. The multi-deck car park and the adjoining at-grade car parks will continue to be controlled by boom gates, providing improved security for vehicles parked on site, particularly for extended periods.

The vertical and horizontal accessways to, between and within the proposed buildings and the car parks have been designed to address the relevant provisions. The Access Report prepared by Accessibility Solutions and dated 13<sup>th</sup> July 2010 (attached as **Appendix E**) acknowledges that further detailed design will be required at the construction certificate stage. However, overall, it is concluded that the development shall provide accessible environments for patients, residents, staff and visitors in a manner that promotes appropriate health and living outcomes consistent with contemporary standards, BCA, Council's Access DCP 31 and the Disability Discrimination Act.

## 4.4 Environmental and Residential Amenity

### 4.4.1 Solar Access

Morris Bray undertook a thorough analysis of solar access taking into account both the existing site conditions and the potential impacts of the proposed buildings. A copy of the Site Analysis Plan Solar Access Plan are included within the architectural drawings attached as **Appendix C**. Shadow diagrams have also been prepared for 9.00am, 12.00 noon and 3.00pm at the winter and summer solstices (21 June/21 December) and the equinox (21 March/September). The shadow diagrams are also attached with the architectural drawings at **Appendix C**.

Overall, it can be seen that the shadow impacts of the proposed development will generally be contained within the hospital site. While some of the buildings will be impacted during various parts of the day, the general location and orientation of the buildings, as well as the provision of service areas on the lower levels, should mean that the habitable spaces (ie wards) will achieve good levels of solar access throughout the day.

The large landscaped spaces will also generally achieve high levels of solar access. For example, the Village Green will be largely unaffected, taking into account the location of the proposed buildings and the orientation of this large area of open space. The existing swimming pool may be affected in the early morning during winter, however, it is unaffected by overshadowing during the summer months. The bushland areas are located to the north and east of the proposed development and will not be impacted by the proposed buildings or the multi-deck car park.



#### 4.4.2 Acoustics

Heggies was engaged to prepare an Acoustic Report to assess the potential demolition, construction operation and traffic noise impacts of the proposed development. A detailed summary of the key findings and recommendations arising from the noise impact assessment is provided in **Section 4.18**.

*A structural engineering report has been prepared by SCP Consulting Pty Ltd to assist the project team advance the detailed design for Stage 1A, in anticipation of obtaining approval under Part 3A. A copy of this report is attached as **Appendix F**. It is also discussed further in Section 4.18.*

#### 4.4.3 Visual Privacy and View Loss

Urbis was engaged to undertake a Visual Impact Analysis of the proposed development on views to the site. A comprehensive visual landscape analysis was undertaken to identify the key viewpoints to the site and assess the potential impacts on the amenity of those areas. This analysis, including key findings and recommendations, is described in detail in **Section 4.5.1**.

Morris Bray assessed the potential impacts on views from the site. An analysis of the existing and proposed view paths was undertaken to establish the likely impact of the proposed buildings, including the multi-level decked car park, on views of the bushland from the hospital. This analysis is described in detail in **Section 4.5.2**.

#### 4.4.4 Wind Impacts

The façade concept design prepared by Meinhardt Technology Pty Ltd in association with the ESD measures is outlined in detail in **Section 4.7**. This design included a preliminary review of potential wind impacts, taking into account the building design requirements. This report states:

*Wind loads will be calculated in accordance with AS1170 Part 2, with low level shielding from surrounding buildings.*

*The floor to floor height and glass modulation are reasonable, so we do not envisage wind loading having a significant impact on the cost of the façade. Glass will be typically 6/12/6mm HS Insulating Glass Units IGU's and mullions will be around 120mm deep, based on single anchorage points each floor.*

Further, the Performance Requirements listed in Table 1 include a commitment to design to the Australian Standard (AS1170 Part 2) for a minimum 50 year return period.

The Structural Engineering report (attached as **Appendix F**) provides the following assessment with regard to wind impacts:

*Design shall be in accordance with AS1170.2 – 2002 using the parameters set out in the Site Wind Analysis in Appendix C.*

*Design event for wind shall be 1/500 for ultimate wind and 1/25 for serviceability wind.*

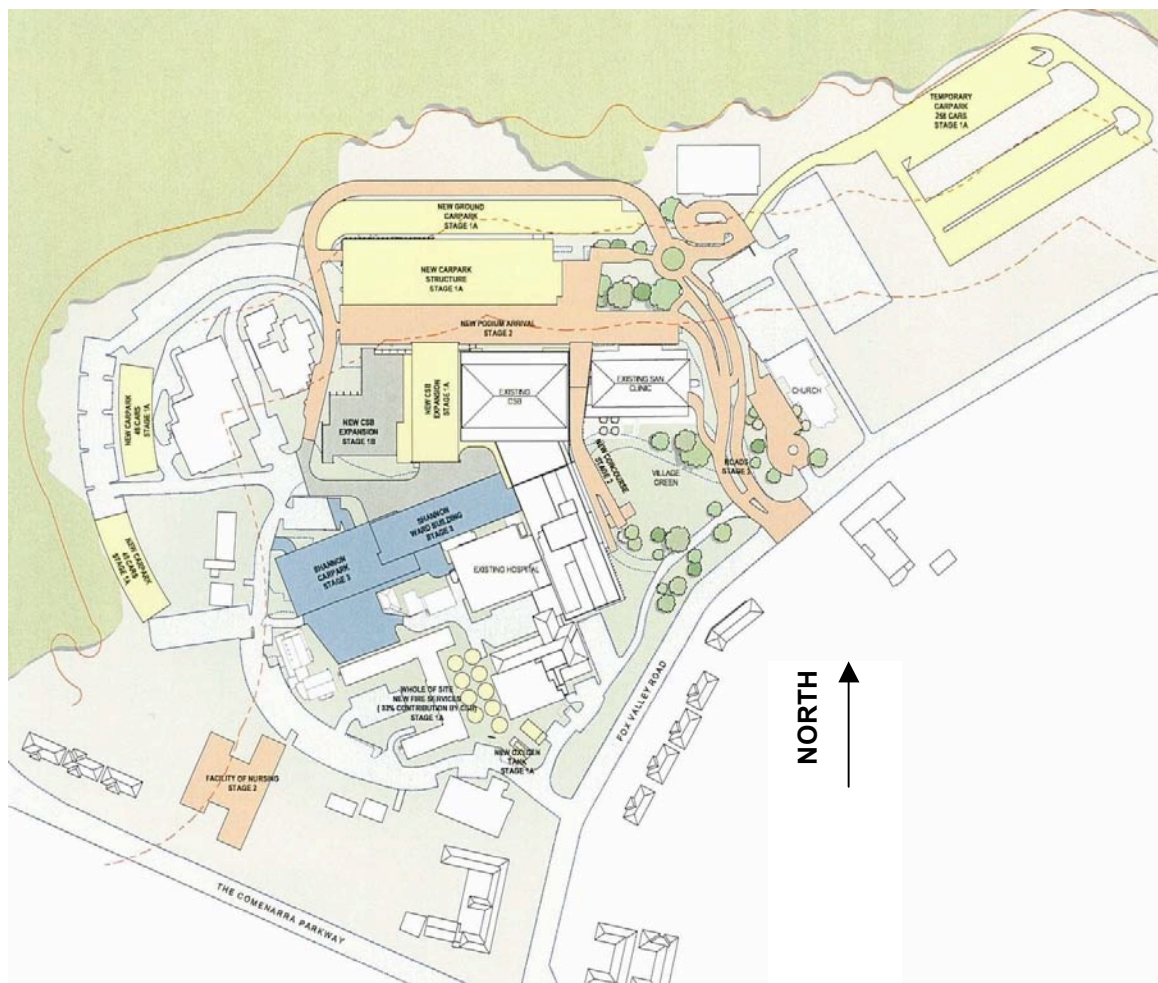
*The design of façade elements and their connections to the structure shall make provision for all local peak wind pressures effects, calculated using AS 1170.2 local pressure factors.*

*Projecting canopies and awnings, particularly at street level shall be designed to resist the wind forces caused by deflected pressure flows from the surrounding buildings, using the method nominated in AS1170.2 (2002).*

Appendix C of the report (as referred to in the above extract) is also provided below.

Importance Level	=	3	(Buildings designed to contain large number of people)
Annual Probability Exceedence	:	1 in 1000	– ultimate
Region	:	A2	1 in 25 – serviceability

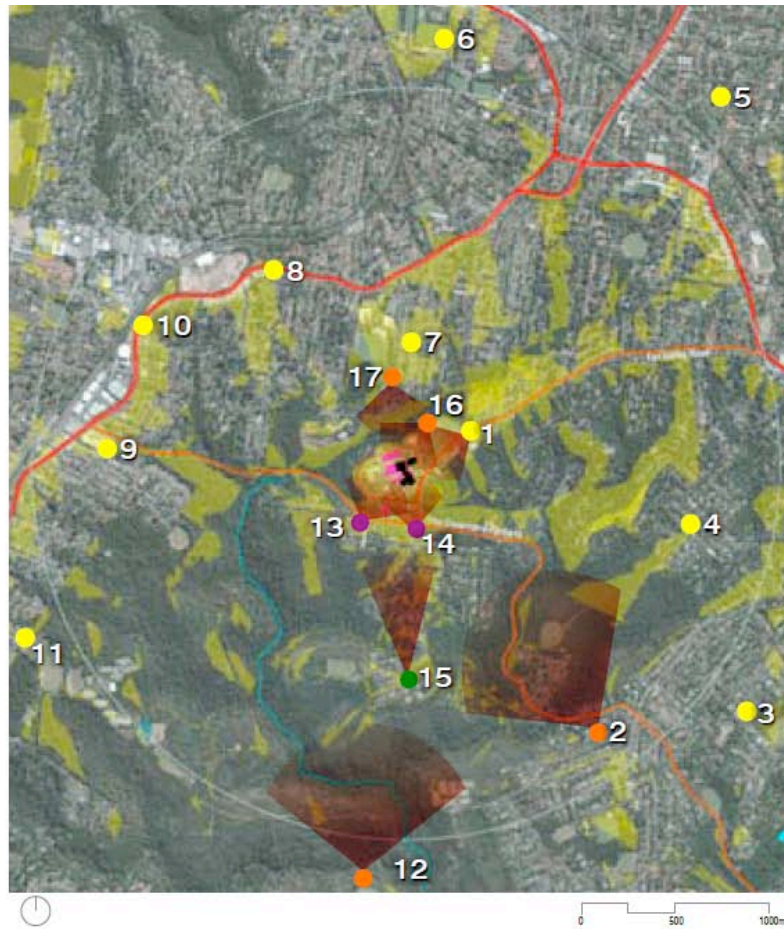
V25 – serviceability limit state = 37 m/s



*Shielding Multipliers* – 1.00

#### 4.5.1 Views to the Site

The Visual Impact Analysis was undertaken on the basis of comprehensive visual landscape analysis, including both desktop (GIS) and fieldwork (site inspections) to identify and assess the key viewpoints to the site. A comprehensive assessment was then undertaken with regard to the potential impacts of the height, bulk and scale of the proposed buildings with regard to each of the 17 selected viewpoints, as shown in Figure 13 on the following page.

**Figure 13 – Viewpoint Analysis (Urbis)****Figure 47 – Viewpoint Analysis**

The principal findings with regard to the proposed building height are summarised below:

- The visual impacts are less disruptive as the additional built form has been expanded horizontally rather than vertically in line with the tree line which is considered the element most valuable to the identified views.
- Views further than one kilometre from the site are minimally impacted, as the development appears distant behind a horizon line of trees. The additional bulk will be difficult to distinguish, particularly at a distance. A small upper part of the proposed development may be visible from View Points 2, 12 and 15, however, this is considered to have minimal visual impact in context of the entire view.

- Accordingly, the proposed heights are considered reasonable and acceptable, subject to the proposed development being well designed in terms of form and finishes that respond to the vegetated surrounds.

The report concludes that bulk and scale of the proposed development will add to the prominence of the built form, which may be considered to detract from the visual landscape when viewed from the identified locations. However, there is opportunity to relate the development to its context utilising sympathetic colours, material and finishes to provide a more subtle transition between built form and landscape than the existing development.

The key recommendations to reduce the visual impact are listed below:

- Careful selection of colours, material and finishes particularly on upper storeys to avoid reflectivity, visual prominence and disturbance to views. Colours, material and finishes that assist with softening the interface between the vegetated ridgeline should be adopted.
- Retain existing vegetation and individual valuable trees on site where possible and practical, to soften the visual prominence of development from edges of site and retain the existing visual character.
- Any clearing should be appropriately offset with replanting
- Retain trees that contribute to the vegetated ridge line as experienced from views identified in this report.

Each of the above recommendations has been incorporated into the Draft Statement of Commitments in **Section 5.2** of this report.

#### 4.5.2 Views from the Site

Morris Bray Architects undertook an assessment of the development with regard to views from the site. The existing and proposed view paths are shown in **Figure 14**.

The main views are from the ward levels (Levels 6 to 12) in the Main Building. As the tallest building in the locality, it enjoys 360 degree views, including views to the bushland to the north and distant views to the city to the south-east. The lower levels have views across the village green. Levels 1 to 4 of the CSB and San Clinic also enjoy views to the bushland to the north.

The expanded CSB and Shannon Wing enjoy 270+ degree views from the ward levels (Levels 6 to 11). These buildings have been located so that views are predominantly maintained for the wards in the Main Building. Views from the existing San Clinic and Levels 4 to 5 of the CSB are maintained. Levels 1 to 3 of the existing and expanded CSB will have internal views to the proposed landscaping, which is acceptable as these accommodate support services (rather than wards). The upgrade to the village green will provide high quality views for the lower levels of the Main Building and proposed Concourse.

**Figure 15** shows the proposed view paths in an elevational format and as described below:

- Figure 1 demonstrates that the ward levels (Levels 7 to 11) in the Shannon Wing will have views to the north over the proposed CSB expansion and out to the bushland. The existing views to the south will be maintained.
- Figure 2 shows that the ward levels in the first stage of the CSB expansion (Stage 1A) will have views to the east and west over the existing CSB (Levels 1 to 5) and the second stage of the CSB (Stage 1B).
- Figure 3 shows that the northern views to the bushland from the ward levels of the first stage of the CSB expansion (Stage 1A) will be uninterrupted by the multi-level decked car park, which is below the eyeline of lowest ward level (Level 7).

Overall, it is considered that the proposed impacts of the proposed development on the views from the hospital are acceptable, having regard to the maximum heights of the existing and proposed buildings and the sloping topography of the site.



Figure 14 – Existing View Paths (Morris Bray Architects)

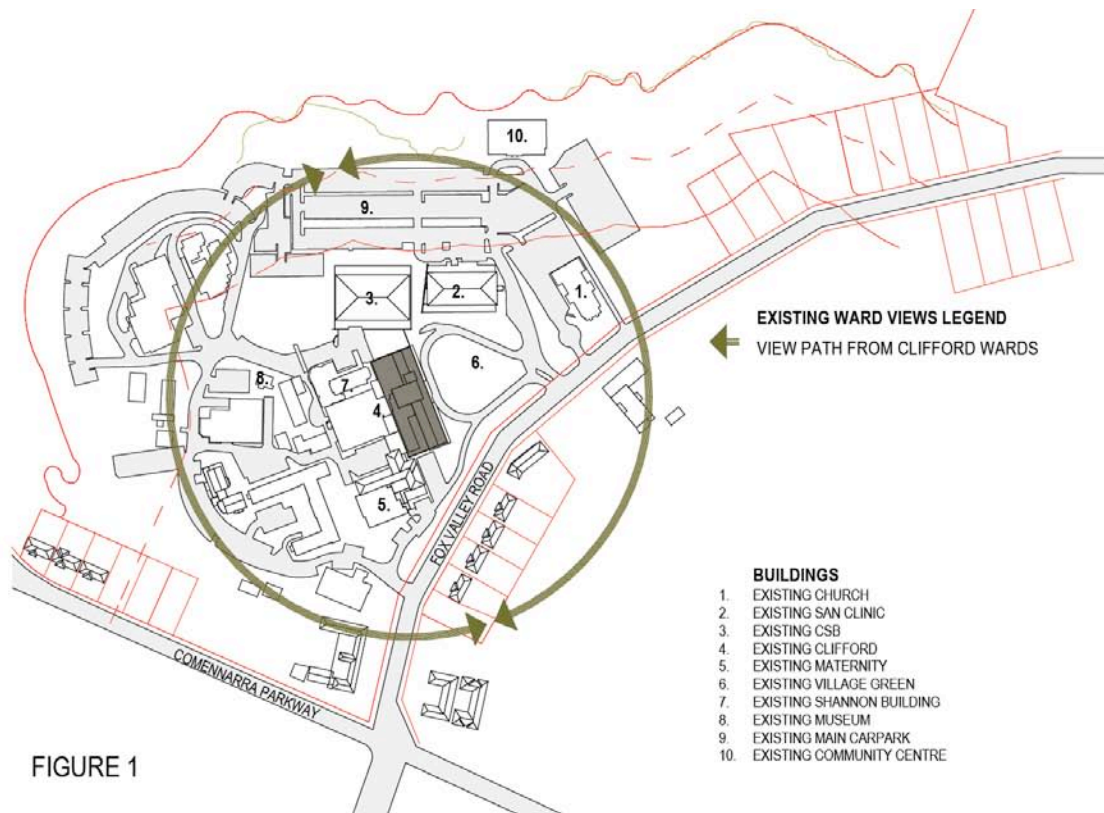


FIGURE 1

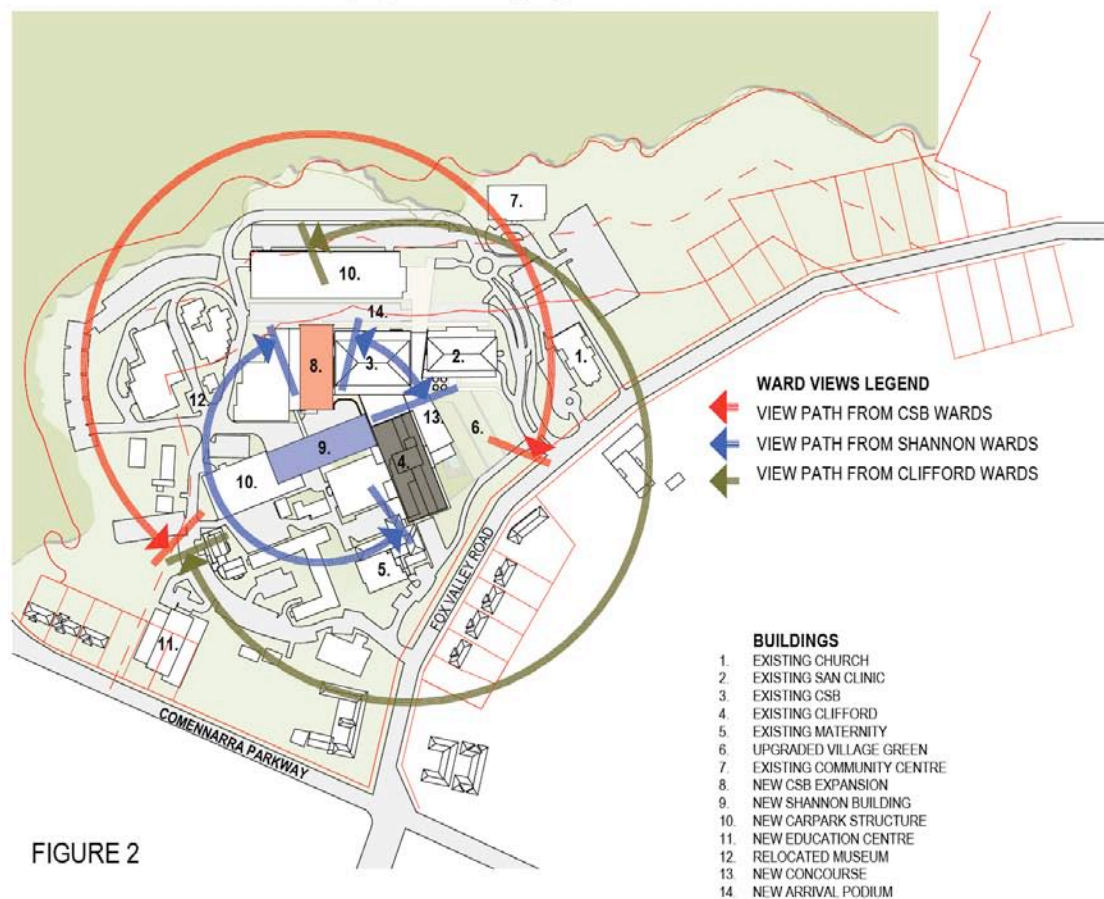
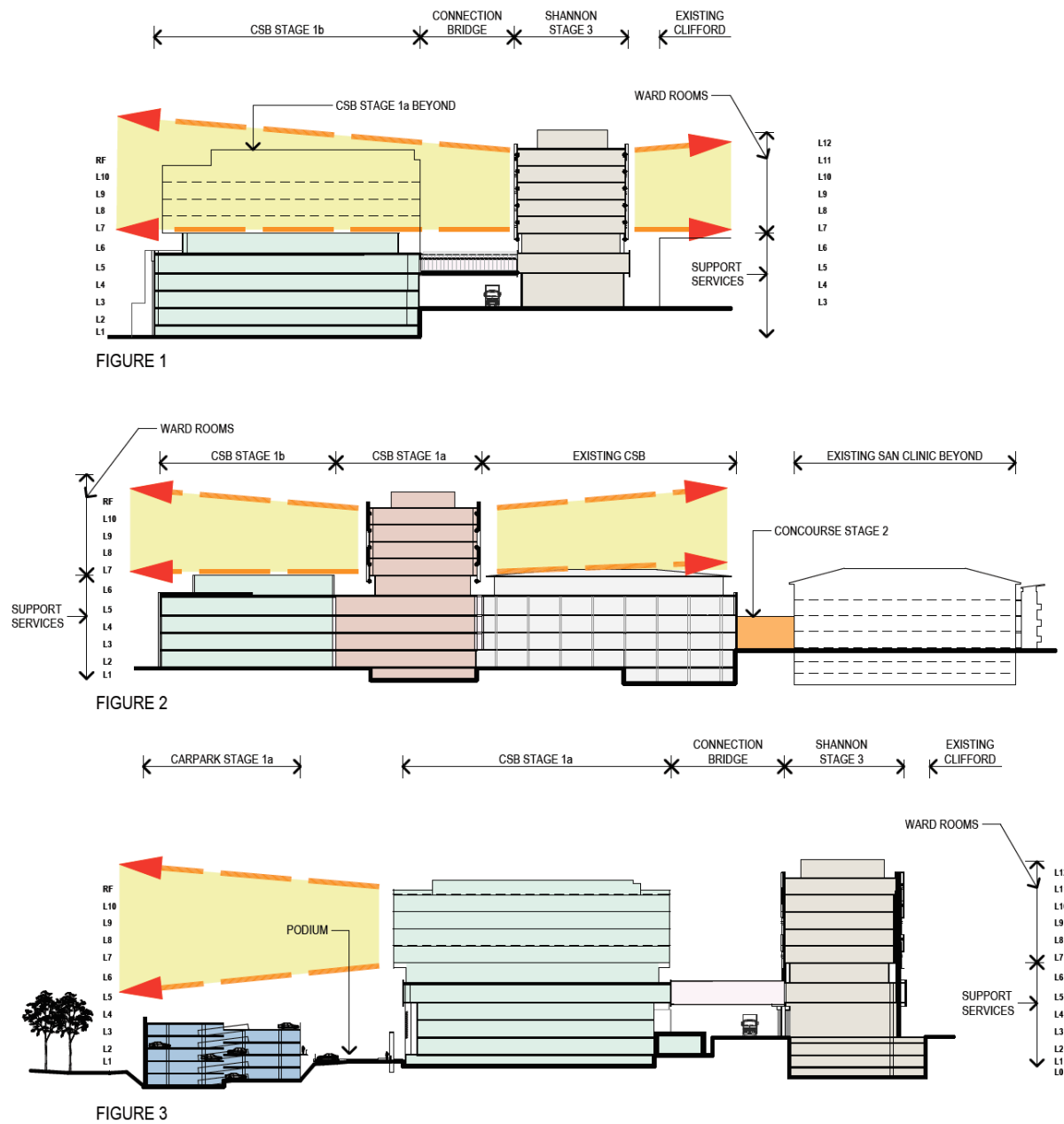


FIGURE 2

**Figure 15 – Proposed View Paths (Morris Bray Architects)**

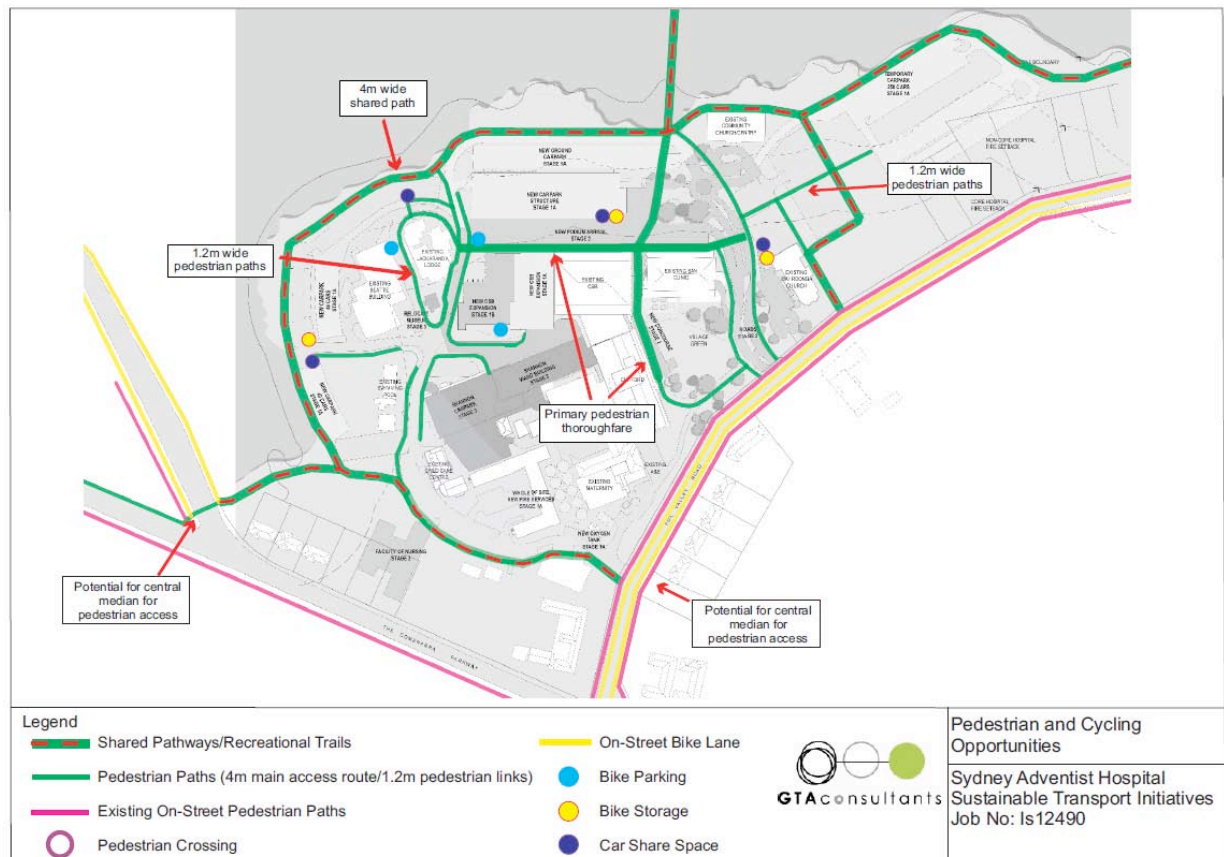
## 4.6 Transport and Accessibility Impacts (Construction and Operational)

Transport and Traffic Planning Associates (TTPA) was engaged to prepare a Transport and Accessibility Study in accordance with the provisions of the DGRs. A copy of the Assessment of Transport, Traffic and Parking Implications is attached as **Appendix H**. TTPA was also engaged to prepare a Transport Access Guide and Workplace Travel Plan in accordance with the Concept Plan approval. The Transport Access Guide and Workplace Travel Plan is attached as **Appendix I**.

The Assessment of Transport, Traffic and Parking Implications has been prepared with reference to each of the State and Metropolitan transport planning policies identified in the DGRs. The Assessment is consistent with the key findings and recommendations provided in the Transport Access Guide and Workplace Travel Plan. A coordinated summary of the response to the key issues listed in the DGRs is provided below:

- The Assessment of Transport, Traffic and Parking Implications, Transport Access Guide and Workplace Travel Plan outline a number of initiatives to encourage staff and visitors to the site to make travel choices that support the achievement of the State Plan targets. The nature of the hospital activities means that it will remain inherently difficult for some visitors (ie patients) to use non-car based travel, taking into account their physical limitations and/or temporary ailments that necessitate a hospital visit. However, it is proposed to review and extend the current sustainable transport initiatives undertaken by the SAH to reduce reliance on car based travel, and in particular single occupant car based travel, as a means of access. These include:
  - Increasing the share of peak hour journeys by public transport: the Transport Access Guide and Workplace Travel Plan aims to facilitate increased use of public transport, where practical and feasible. The proposed initiatives include the promotion of public transport services and investigations of potential improvements to public transport infrastructure, increasing frequency of service and incentives for staff to use public transport services. Provision of improved end-of-trip services for cyclists may also have the potential to increase public transport use, by offering greater opportunity to cycle to/from nearby railway stations.
  - Increasing jobs closer to home: as previously outlined in **Section 4.1.7**, the Sydney Adventist Hospital is well located in terms of access to a highly skilled workforce. It is anticipated that the proposed expansion of the hospital, combined with the approved residential development on the balance of the Wahroonga Estate, will make a significant contribution in terms of providing jobs closer to home. This may offer the opportunity to increase the proportion of people accessing the site by walking and/or cycling
- The Sustainable Transport Initiatives report was prepared by GTA Consultants (attached as **Appendix J**) in association with the Pedestrian and Bicycle Opportunities Plan (refer to **Figure 16**) details the existing pedestrian and cycle movements within the vicinity of the site and provides recommendations for improved linkages to, from and within the Wahroonga Estate. The Transport Access Guide also identifies the existing transport options available for staff and visitors, including car, train/bus, bus, bicycle and pedestrian travel options. The Work Place Travel Plan sets clear targets with implementation timeframes to encourage the use of alternative forms of travel.
- The Assessment of Transport, Traffic and Parking Implications identifies the potential traffic impacts during the construction stage of the project and mitigation measures which have been adopted in the Draft Statement of Commitment. These include:
  - Submission (and approval) of Traffic Control Plans for intersection upgrades and associated roadworks.
  - Construction of a temporary car park that will accommodate 258 cars during the construction phase.
  - Preparation and submission of detailed Construction Traffic Management Plans prior to the release of Construction Certificates for each stage.



**Figure 16 – Pedestrian and Cycling Opportunities Plan (GTA Consultants)**

- The Transport Access Guide and Workplace Travel Plan identifies a significant number of measures to be implemented to promote sustainable means of transport. These include:
  - ☐ Accurately establishing the existing travel modes and influences.
  - ☐ Increasing the use of public transport services by facilitating, informing and encouraging.
  - ☐ Increasing travel by walking and cycling by facilitating and encouraging.
  - ☐ Increasing car pooling.
  - ☐ Investigating bus linkages with the other hospitals.

The Workplace Travel Plan will be implemented over two years and progress/change will be evaluated by repeat survey and audit after three years and five years.

- The Assessment of Transport, Traffic and Parking Implications report provides a detailed assessment of the traffic movements likely to be generated by the staged alterations and additions to the existing hospital development. The report identifies opportunities to upgrade key intersections to achieve appropriate Levels of Service and avoid unreasonable impacts on the existing operation of the local and regional road network. These works include:

#### Stage 1A

- ☐ Initial upgrade at The Comenarra Parkway/Fox Valley Road intersection.
- ☐ Install 'No Parking' along Fox Valley Road. The extent of this signposting and whether it will be full time or peak period would be determined by Ku-ring-gai Traffic Committee and Council.

### Stage 2

- ☐ Upgrade the hospital access intersection with additional egress lane (LT 'slip lane').

### Stage 3

- ☐ Ultimate upgrade at The Comenarra Parkway/Fox Valley Road intersection.
- ☐ Upgrade scheme at Pacific Highway/Fox Valley Road intersection.
- The Assessment of Transport, Traffic and Parking Implications report assesses the appropriateness of the proposed car parking arrangements, taking into account previous parking surveys and additional demand arising from the proposed alterations and additions. A staged approach to on-site car parking provision is proposed to respond to:
  - ☐ Increased staff numbers arising from the proposed building additions.
  - ☐ Operational characteristics of the hospital, including significant overlap between shift changes.
  - ☐ Future displacement of on-street car parking in Fox Valley Road in accordance with the Wahroonga Estate Concept Plan.

The proposed car parking is considered to be adequate for the peak demand circumstances. Paid car parking will be retained for patients and visitors and may be extended to staff and nurses using the multi-level structure.

Each of the recommendations provided in the Transport and Accessibility documentation have been incorporated into the Draft Statement of Commitments in **Section 5.2**.

## 4.7 Ecologically Sustainable Development (ESD)

Umow Lai Consulting Engineers was engaged to document the ecologically sustainable design initiatives that could be employed to achieve a 4 Star Green Star rating in accordance with the Green Star Healthcare Version 1 tool produced by the Green Building Council of Australia. Their assessment has concluded that a 4 Star Green Star Rating is achievable, with a range of credits able to be achieved in the future detailed design. A copy of the ESD Concept Design Report is attached as **Appendix K**.

Meinhardt Technology Pty Ltd was engaged to prepare a façade concept design report for the initial Stage 1A works. A copy of the Façade Concept Design Report is attached as **Appendix L**. A summary of the principal findings and recommendations is provided below:

- The façade systems developed as part of the detailed design for Stage 1A can be used as templates for the future stages. A draft statement of commitment has been included that requires individual façade concept design reports to be prepared prior to commencement of construction of each future stage to address specific issues as these stages are initiated.
- The Stage 1A concept design includes 20 façade systems, which may be adopted within future stages, as noted above. The different methods of façade fabrication and installation to be adopted for each façade type is briefly outlined below:
  - ☐ Curtain wall systems – either the stick system approach (site-assembled) and/or unitised approach (factory assembled) may be used, depending on cost, appearance, timescale and access limitations.
  - ☐ Curtain wall bracket fixings – anchorage to the floor slab can be achieved by face of slab or top of slab fixing, depending on construction requirements and costs.
  - ☐ Aluminium cladding – non-glazed areas of the building facades are to include aluminium cladding, principally to achieve design outcomes.
  - ☐ Sunshades – sunshading devices are typically integrated into the curtain wall system and aluminium framed, where possible, to reduce weight and reduce risk of corrosion.

- Louvres – these will be provided between the expressed columns on the north elevation entry, around the Level 6 plant areas and at roof level.
- Precast concrete facades – these may be used as a cladding element or as a structural element, providing durable and high quality finishes to the external façade and excellent thermal and acoustic barriers.
- The façade is to implement clever climate control technology to heat and cool the interior of the building, maximising the amount of light entering the building without compromising energy efficiency. The key factors to be considered include:
  - Solar/thermal performance – solar controlled glass, overhangs/sunshades, recesses, angled glazing or external louvers and internal blinds can be used to control solar radiation. As there are minimal overhangs, sunshades will be used, including horizontal and vertical blades.
  - Natural ventilation to rooms – as patients may have little or no mobility, natural ventilation is to be integrated into each room to avoid any feeling of claustrophobia.
  - Acoustic considerations – ingress of external noise is to be minimised, in addition to noise from adjacent rooms and between floors.
  - Safety glazing – tempered glass is preferred in critical areas of buildings where there is a risk of impact as it does not shard when it breaks. Safety glass can be either toughened or laminated glass can be used, however, toughened glass should not be used where failure could be dangerous (eg skylights).
  - Wind loading – wind loads will be calculated in accordance with AS 1170 Part 2 with low level shielding from surrounding buildings. It is not expected that wind loading will have a significant impact on costing, having regard to floor to floor height and glass modulation.
  - Maintenance – the majority of maintenance will be achieved through abseiling.

The performance requirements for the façade systems, which range from design life to structural silicone, have been included in the Draft Statement of Commitments with regard to the future stages of the project.

Consultation with Sydney Water regarding the potable water demand has been based on the implementation of water saving initiatives, as outlined in **Section 4.15.1**. The Stormwater Management Plan has also incorporated water sensitive urban design and water demand measures, including rainwater harvesting, which is discussed further in **Section 4.12**. These initiatives have been included within the Draft Statement of Commitments

Overall, it is acknowledged that the initiatives outlined in the ESD Concept Report have been broadly adopted and incorporated into the other specialist documentation to enable a cohesive and rational approach to achieving an Ecologically Sustainable Development.

## 4.8 Contributions

The Wahroonga Estate Concept Plan approval includes the following condition:

### **B7 Agency road requirements**

- (1) *A binding Deed of Agreement is to be entered into between the Proponent and the RTA to undertake the following works, as detailed in the Authority's submission on the Environmental Assessment dated 18 June 2009:*
  1. *Reconstruction / upgrading of the existing traffic signals at the following locations:*
    - a) *The Comenarra Parkway / Fox Valley Road*
    - b) *Pacific Highway / Fox Valley Road*

- c) *The Comenarra Parkway / Kissing Point Road*
- 2. *Intersection improvements at the following locations:*
  - (a) *Fox Valley Road with site accesses to the Precinct*
- 3. *Widening The Comenarra Parkway to provide two traffic lanes in each direction between Fox Valley Road and Browns Road.*
- 4. *Widening Fox Valley Road between The Comenarra Parkway and the northern boundary of the site to accommodate two travel lanes in each direction. In addition, two southbound travel lanes must be provided along Fox Valley Road from the Pacific Highway to the site.*

*The Agreement is to outline the extent of work including lane configuration, timing of work and costs, and is to be signed and executed prior to the release of the first Construction Certificate for the site.*

The Sydney Adventist Hospital is negotiating a preliminary deed to enable the release of the Construction Certificate for the first stage of work proposed in this Project Application. Ongoing discussions have been held between the RTA and the traffic consultants engaged by the Hospital. It is acknowledged that the Deed will need to be signed and executed to enable construction to commence.

Ku-ring-gai Section 94 Contributions Plan 2004-2009 - Residential Development - Amendment No 2 does not apply as the proposal does not include any residential development or any increase to the permanent residential population.

Ku-ring-gai Town Centres Development Contributions Plan 2008 does not apply as the Sydney Adventist Hospital is located outside of the catchment boundaries for this Plan.

Ku-ring-gai Council Section 94 Development Contributions Plan No 1 1993 previously applied to all forms of residential and commercial development. However, the adoption of the above two Contributions Plans means that it now applies only to a few limited centres outside the six town centres, with levies payable for child care centres and car parking. The hospital is located outside of the nominated town centres and as such, the Plan does not apply.

Regardless of the above, it is noted that the existing hospital development includes child care facilities and all existing and future demand for car parking can be met on site. Subject to resolution of the Deed of Agreement with the RTA, it is considered that no further contributions will apply to the Project.

## 4.9 Contamination

A number of Stage 1 assessments have been undertaken for the site confirming that the site is suitable for the proposed use.

Coffey Environmental prepared a geotechnical and site contamination assessment dated 30 May 2008 (held as **Appendix M**) which assessed the general location of the multi-level decked car park and the expansion of the two existing car parks. Environmental Investigation Services subsequently undertook a site contamination investigation dated April 2009 (held as **Appendix N**) which assessed the Concourse, multi-level decked car park and temporary car park.

A Boreholes Investigation Summary diagram that identifies the location of each of the boreholes is provided with the Morris Bray architectural drawings held as **Appendix C**.

Each of the reports concludes that the likelihood for the areas assessed to be affected by contamination is low and the sites are suitable for the proposed use. The Draft Statement of Commitments in **Section 5.2** adopts the recommendations provided in these reports and commits to further investigations upon demolition of the Shannon Wing in Stage 3.

## 4.10 Heritage

Graham Brooks and Associates was engaged to prepare a Statement of Heritage Impact that addresses the potential impacts of the proposed development on the Adventist Administration Building, Bethel House, the Shannon Wing and the Maternity Wing in accordance with the provisions of the Concept Plan approval. This Statement has also been prepared in response to the DGRs for the proposed hospital expansion, which state:

*Consider any potential impacts of heritage, including a Heritage Impact Statement in accordance with the NSW Heritage Office publication "Statements of Heritage Impact".*

The key findings and recommendations contained within the Statement of Heritage Impact are provided below. A copy of the Statement of Heritage Impact is attached as **Appendix O**.

- The Statement of Heritage Impact (SHI) addresses the potential impact of the proposed works on 'Bethel' House and the Shannon wing. The report does not address the Adventist Administration Building or the Maternity Wing, having regard to the physical and visual separation between these buildings and the proposed alterations and additions.
- The potential impacts on Bethel House and the Shannon Wing have been considered in accordance with the provisions of the Wahroonga Estate Concept Plan. Neither of these buildings is currently listed as heritage items in a statutory instrument. The Adventist Administration Building is the only building in the vicinity that is a locally listed heritage item. As noted above, the hospital is physically separated from the heritage item and assessment of the potential impact of the proposed works on this building is not warranted.
- 'Bethel' House and the Merritt Kellogg Museum collection are to be relocated as part of Stage 3 of the proposed development. All of the significant elements of 'Bethel' House and its museum collection are to be retained and re-located. It is also proposed to demolish the existing Shannon Wing, as part of Stage 3, to allow the construction of a new multi-storey hospital ward building.
- As a result of earlier hospital upgrading and expansion programs, both 'Bethel' House and the Shannon Wing have lost their original setting and context, and have had their integrity compromised. As such, in the context of the planned future hospital expansion and redevelopment the re-location of 'Bethel' House and the demolition of the Shannon Wing is supported.
- An archival photographic recording of 'Bethel' House and the Shannon Wing has been completed in accordance with the Statement of Commitments for the Wahroonga Estate Concept Plan. It is considered that this adequately mitigates the impact of the relocation and demolition. A Copy of the Archival Recording Report is attached as **Appendix P**. Hard copies of the photographs are provided for the public exhibition of the Project Application. Digital copies are also submitted with the documentation package.
- An Interpretation Strategy for the Seventh Day Adventist Hospital and its associated buildings has also been prepared in accordance with the Statement of Commitments for the Wahroonga Estate Concept Plan.

The preparation of the Interpretation Strategy mentioned above was also undertaken by Graham Brooks and Associates. A copy of the Interpretation Strategy is attached as **Appendix Q**. The key findings and recommendations are listed below:

- This Interpretation Strategy has been prepared in relation to the main hospital precinct, including the Shannon Wing, Bethel House and the Maternity Wing. A separate strategy will be prepared for the balance of the Wahroonga Estate, including the residences and buildings along Fox Valley Road and the Administration Block.
- The Strategy provides a foundation for the preparation of interpretive devices, including selection of appropriate media, siting of devices, material specification and suggested image and text content. It takes into consideration the contextual history and development of the overall site and hospital buildings, the cultural significance of specific buildings and associated historical themes.

- The subsequent implementation stage will entail the final selection and production of specific historical data and images and provide details as to the graphics, materials, dimensions, fixings, etc of installations to be tailored for the site. As part of this process, it is recommended that:
  - Key aspects of future interpretive devices should include the integration of interpretation into the future use and activities carried out on the site and maximising the sustainability of interpretive devices in the subject environment.
  - Should Aboriginal or European archaeological material be revealed in site work, a revised Interpretation Strategy should be prepared in order to present and analyse a themes and topics pertinent to the site and which include new archaeological information.
  - The selection of locations for interpretive devices and appropriate media should be resolved once the final design and details for the redevelopment are complete.
  - Interpretation of the site should address the site as both an individual place and within the broader context as part of the Wahroonga area.
  - At minimum, interpretation of the place should consist of: heritage plaque(s), interpretive panels and interpretive text, relocation of 'Bethel' and its curtilage elements and the housing of the archival photographic recording as part of the Merritt Kellogg Collection.

The Interpretation Strategy was reviewed by Morris Bray and Site Image during the final preparation of the architectural and landscape drawings. Elements of the final proposal that have incorporated the above recommendations include:

- Provision of interpretative signage and sculpture elements in the perimeter open space network.
- Relocation of the memorial sundial, rose garden and memorial element from Jacaranda Lodge.
- Grid planting of small trees to reflect the previous vineyard and orchard.
- Installation of the graphic on the southern side of the multi-deck car park.

The Draft Statement of Commitments in **Section 5.2** includes specific commitments with regard to heritage impact and interpretation.

## 4.11 Aboriginal Heritage

An Aboriginal Cultural Heritage Survey was undertaken by Australian Museum Business Services, accompanied by Aboriginal community representatives, in association with the Wahroonga Estate Concept Plan. The Concept Plan included an additional 28,000m<sup>2</sup> of floorspace for the hospital, which is the subject of this Project Application.

The survey methodology included pedestrian transects of undeveloped sections of the study area, including along Coups Creek, along the tributary of the Lane Cove River and within the area containing the Blue Gum High Forest. The fieldwork methodology, proposed development and available mapping information were discussed with all Aboriginal community representatives prior to fieldwork. Copies of topographic maps and aerial photographs were made available to all participants to guide the survey. The findings of the survey and recommendations were discussed with all representatives in the field and no objections were raised.

The key findings and recommendations presented in the AMBS report with regard to Aboriginal heritage are attached as **Appendix R** and as extracted below:

*No new Aboriginal sites were located during the survey. However, Registered Site 45-6-2040 is located adjacent to Coups Creek. The areas adjacent to the creekline are characterised by sandstone outcrops and dense vegetation traversed by existing formal and informal pathways and service lines. These areas have potential archaeological or cultural sensitivities. The Master Plan identifies that this creekline area of the Wahroonga Estate Redevelopment will remain undisturbed and undeveloped. However, should it be determined that the development*

*will encroach into these areas, additional consultation with the local Aboriginal community groups and survey to identify any archaeological sites will be required before any works are proposed.*

#### *Recommendation 1*

*Registered Site 45-6-2040 and the undisturbed areas adjacent to Coups Creek should remain undeveloped, in accordance with the Wahroonga Estate Redevelopment Master Plan. Should development of these areas be proposed in the future, an Aboriginal Heritage Impact Assessment, in consultation with the local Aboriginal community groups, including archaeological survey of the area, should be prepared prior to design finalisation, in accordance with heritage best practice guidelines.*

The report does not include any recommendations for additional investigations or recommendations for the hospital land. The report makes a number of conclusions regarding the potential presence and location of Aboriginal heritage sites within the landscape of the study area, which are primarily based on the undeveloped land along Coups Creek and/or stone outcrops. The report also makes a number of comments with regard to the sites that are not likely to be found in the study area, including the following statement:

*ceremonial sites (including stone arrangements and bora grounds) are unlikely to be present in the area given the long history of disturbance resulting from the development of the hospital and residential areas.*

The current proposal includes alterations and additions to the existing hospital, primarily involving the extension of existing buildings and the redevelopment of existing at-grade car park. Based on the conclusions arising from the previous investigations and the developed nature of the site, it is understood that no additional investigations are required to facilitate the current proposal.

A draft statement of commitment has been included in **Section 5.2** with regard to the appropriate management of any potential archaeological relics detected during the demolition and construction phases of the development. The draft statement of commitment is consistent with Recommendation 5 of the AMBS report.

## 4.12 Drainage

C&M Consulting Engineers Pty Ltd was engaged to prepare a Stormwater Management Plan to outline the stormwater management works required for the proposed development. A copy of the Stormwater Management Plan and accompanying drawings (including earthworks, stormwater management and erosion and sediment control measures) are attached as **Appendix S**

The key features of the proposed stormwater management system are summarised below:

- A pipe network system will collect minor storm runoff from surface areas and minimise nuisance flooding.
- An on-site stormwater detention system will detain storm flows so they can be slowly released over time to ensure peak flows do not exceed that of the existing site and/or overload the existing drainage infrastructure.
- Bio-retention basins will provide significant water quality treatment to runoff from impervious areas and provide additional stormwater detention.
- Stormwater Quality Improvement Devices (SQIDs) will be provided including:
  - Hydrodynamic separation via Humeceptor Device(s) to provide water quality treatment to runoff from road and car park areas by removing sediment, oils and hydrocarbons.
  - EnviroPods installed in pits in car parking areas to capture gross pollutants at source;



- Rainwater harvesting and retention system will allow rainwater reuse, as well as providing improvement to the quality and volume of stormwater runoff from the site.
- Vegetated swales will convey storm flows while providing water quality treatment via filtration.
- Overland flow paths (such as roads and swales) will carry major storms through the site without causing damage to property from flooding.

An accompanying Civil Engineering report has also been prepared by C&M Consulting Engineers that broadly outlines the structural and civil engineering works required for the proposed development, including:

- Sediment and erosion control.
- Bulk earthworks and soil contamination.
- Stormwater drainage and stormwater quality.

A copy of the Civil Engineering report is attached as **Appendix T**.

Overall, the results from the investigations and modelling indicate that the proposed works and WSUD strategy and management can help provide a safe and ecologically sustainable environment. Erosion and sediment control measures will also be put in place to manage potential impacts during the demolition and construction phases.

## 4.13 Flooding and Climate Change

C&M Consulting Engineers Pty have addressed flooding within the Stormwater Management Report attached as **Appendix S**.

The report notes that the hospital is located at one of the higher points within the local drainage catchment, falling towards Coups Creek to the north. The northern extent of the site includes a steep 'drop-off' that falls down into the Coups Creek valley, approximately 30 metres below the lowest point of the hospital site. As the creek is retained by deep, well defined valleys that are significantly lower than the hospital site, the site is not considered to be flood affected. By adopting Ku-ring-gai Council's on-site stormwater detention (OSD) policy, the rate of stormwater runoff and peak storm flows being discharged from the hospital site will be controlled to ensure that the proposed development has no affect on flooding within the Coups Creek system.

Potential sea-level rise has also been considered. The NSW State Government policy projects a sea level rise relative to the 1990 mean sea level of 0.4 metres by 2050 and 0.9 metres by 2100. Due to height difference between the creek and the hospital site, there is no additional risk of flooding to the proposed development from potential sea level rise.

While it is possible that an increase in rainfall intensity could potentially increase flooding within Coups Creek, there is not expected to be any increase in flooding would be significant enough to have a flooding impact on the hospital. Good drainage practice, including defined overland flow paths along the internal road network, will protect the hospital from any local flooding that may occur in future from increased rainfall intensities.

## 4.14 Bushfire

Australian Bushfire Protection Planners was engaged to undertake a bushfire protection assessment of the proposed alterations and additions to the hospital. It is noted that ABPP was also engaged in association with the previous bushfire assessment associated with the Wahroonga Estate Concept Plan. A copy of their report regarding the current proposal is attached as **Appendix U**. The key findings and recommendations are summarised as follows:

- The proposed development includes 'core hospital' and 'non-core hospital' uses, as agreed by the NSW Rural Fire Service during the assessment of the Wahroonga Estate Concept Plan and pre-lodgement consultation for the Project Application.
- 'Core hospital' uses are assessed under the provisions of the Special Fire Purpose Development as defined by the Planning for Bushfire Protection (PBP) 2006. All other uses are assessed using the requirements of the specific land use classification defined by the Building Code of Australia and the specific requirements of this classification as defined by the Planning for Bushfire Protection 2006.
- Draft development plans for the staged redevelopment of the hospital have been reviewed by the NSW Rural Fire Service (RFS) on a number of occasions and it has been agreed that:
  - The new entry to the hospital facing the Coups Creek corridor is acceptable, subject to the emergency exits discharging to the forecourt of the existing HE Clifford Tower or Main Building.
  - The proposed multi-level car park is a non-core hospital use and can intrude into the flame zone setback, subject to the provision of shielding devices and mesh to reduce radiant heat levels and entry of embers into the structure.
  - The Stage 1B Clinical Services Building cannot encroach the 100 metre wide Asset Protection Zone (APZ) setback.
  - The Education Centre (or Faculty of Nursing) is acceptable within the outer part of the APZ occupying the existing managed land to the west of the last dwelling on The Comenarra Parkway.
- The report provides recommendations regarding APZs to the buildings, emergency access/egress, fire fighting access and water supplies, construction standards of the buildings, management of APZs/residual vegetation and evacuation protocols necessary to address the bushfire risk to future occupants of the hospital to address the PBP 2006 and advice provided by the RFS.

The final plans and other specialist consultant reports lodged with the Project Application address the recommendations and relevant requirements listed in the Bushfire Protection Assessment. Further, the Draft Statement of Commitments has included a number of matters incorporated the requirements for post-lodgement design and/or post-construction, including the facade design/construction requirements and landscape maintenance.

Overall, the proposed alterations and additions have addressed the relevant provisions of Planning for Bushfire Protection 2006 in accordance with the provisions of the DGRs.

## 4.15 Utilities

### 4.15.1 Water

The Sydney Adventist Hospital is currently serviced by a 150mm diameter Sydney Water main located in Fox Valley Road. The development will generate additional demand for potable cold water and a Section 73 Feasibility Report from Sydney Water has concluded that a water main amplification is required to supply the proposed development.

A Section 73 Application to Sydney Water will be submitted to confirm adequacy of the Sydney Water mains to supply the new development, taking into account initiatives to reduce the potable cold water demand, including:

- On-site potable cold water storage tanks to reduce peak demand supply from the water main. Water tanks will provide a minimum three hours storage to provide a continuous supply of potable cold water during maintenance procedures or water main failure.
- On-site rainwater harvesting achieved through run-off from all new major roof areas being directed to a recycling/non potable water storage tank. Non potable water will be used for irrigation purposes and sanitary flushing throughout the CSB extension.
- Water saving conservation devices incorporated within the development, including:
  - 3/4.5 Litre WC cisterns
  - 0.8 L/sec automatic urinal flushing
  - Low flow tapware and appliances
- Potable and non potable cold water service will be designed and constructed in accordance with AS 3500.1, National Plumbing and Drainage Part 1: Water Supply, New South Wales Code of Practice and Sydney Water requirements.

#### 4.15.2 Sewer and Trade Waste

The Sydney Adventist Hospital is currently serviced by a 400mm diameter Sydney Water sewer adjacent to Coups Creek. A 225mm diameter house service sewer drainage line connects the hospital to the 400mm sewer.

The proposed development will constitute an additional flow of sewage/waste water discharge to the sewer main. A Section 73 Feasibility Report from Sydney Water has concluded that their sewer main is adequate to drain the proposed Development.

A Section 73 Application to Sydney Water will be submitted to confirm adequacy of the Sydney Water main to drain the new development.

The sewer drainage systems will be designed and constructed in accordance with AS 3500.2, National Plumbing and Drainage Part 2: Sanitary Plumbing and Sanitary Drainage, New South Wales Code of Practice and Sydney Water requirements.

A number of waste water systems will require pre-treatment prior to discharge into Sydney Water's sewer drainage system. Table 8 depicts the pre-treatment requirements for sewer disposal.

**Table 9 – Pre-Treatment Requirements for Sewer**

Process	Threats to Sewerage System	Minimum Pre-Treatment Requirements
Commercial Kitchens & Cafeterias	BOD, suspended solids, grease, and high temperature water	Appropriate sized grease arrestor
X-rays	Trade waste drainage – silver, ammonia, sulphite – on-site containment.	Rinse water discharge only
Laboratory waste	Chemicals	Dilution pit with dosing
Plaster casts	Suspended solids	Dilution pit with dosing
Commercial laundry Boiler blow down	High temperature hot water	Cooling pit
Nuclear medicine waste	Radioactive Waste (Iodine 131)	Storage detention and dilution

The Trade Waste Drainage Systems will be designed and constructed in accordance with. AS 3500.2, National Plumbing and Drainage Code Part 2: Sanitary Plumbing and Sanitary Drainage, New South Wales Code of Practice, Sydney Water and EPA requirements.

#### 4.15.3 Electricity

Connect Infrastructure has been engaged by the Sydney Adventist Hospital to design the electrical infrastructure to meet Energy Australia requirements.

Connect Infrastructure is liaising with Energy Australia in respect to the augmentation and extension of Energy Australia's network to meet the additional load of the proposed development at this site. Additional substations are to be placed strategically throughout the development connected by a underground high voltage underground ring main cable to provide a reliable supply.

#### 4.15.4 Natural Gas

The Hospital is currently serviced by a 'Jemena' 100mm diameter high pressure secondary main (1,050 kPa) at the corner of Fox Valley Road and the Comenarra Parkway and a 75mm diameter medium pressure main (210 kPa) in Fox Valley Road.

The development will constitute additional demands for natural gas. Mechanical heating boilers, kitchen appliances and potable hot water heaters will be supplied with natural gas. Jemena has confirmed that there is adequate capacity within their local network to service both the existing and proposed future hospital development.

#### 4.15.5 Telecommunications

Telstra has existing communication infrastructure providing copper and fibre services the site. This cabling will be augmented and extended to suit the requirements of the new development.

Main Distribution Frames for new supplies will be incorporated within the buildings to service the new development.

### 4.16 Staging

The staging of the proposed alterations and additions to the Sydney Adventist Hospital is clearly articulated within the architectural drawings prepared by Morris Bray and held as **Appendix C**.

These drawings have formed the basis of the assessment and preparation of development documentation by the other specialist consultants. This approach has enabled the staging to be replicated and addressed within the landscape concept design, stormwater management system, façade concept design and the like. The staging has also been used to assess the potential impacts of the development, including traffic and acoustic impacts, on a staged/cumulative basis, taking into account the forecasted conditions at the anticipated time of the future building works.

The Sydney Adventist Hospital project is the first stage of development that was approved by way of the Wahroonga Estate Concept Plan. It is our understanding that there are no immediate plans to advance any other elements of the Concept Plan at this stage. Further, it is acknowledged that the future development will be planned to enable the retention of the temporary car park until such time as the multi-deck car park is complete and sufficient car parking is available on-site to meet the demand generated by both the operational and construction activities.

### 4.17 Flora and Fauna

Cumberland Ecology was engaged to assess the potential impacts of the development on flora and fauna and if required, provide recommendations to mitigate any identified impacts to protect the environment. Cumberland Ecology was engaged to undertake this work based on their detailed knowledge of the site arising from their past work in association with the Wahroonga Estate Concept

Plan and the associated Biodiversity Management Plan. A copy of the Flora and Fauna Impact Assessment is attached as **Appendix V**.

Overall, the assessment concludes that there will be minimal ecological issues, taking into account the existing site conditions. As such, there is no need to conduct any detailed ecological assessments in association with the proposal. A number of recommendations are provided to facilitate the protection and management of the habitat areas in accordance with the Biodiversity Management Plan and avoid unnecessary impacts on canopy trees in the general location of the new oxygen tanks. Each of these recommendations has been incorporated into the Draft Statement of Commitments in **Section 5.2**.

## 4.18 Noise and Vibration

Heggies was engaged to undertake a quantitative assessment of the potential demolition, construction, operation and traffic noise impacts of the project in accordance with the provisions of the DGRs. A copy of the Acoustic Report is attached as **Appendix W**.

The key findings and recommendations are summarised below:

- Any increase in noise arising from the proposed site activities is unlikely to be detected at nearby residential receivers. Noise from fixed plant will be adequately controlled using conventional measures.
- Road traffic arising from the proposed development should not exceed the relevant criteria (ie increase in noise of more than 2dB). There is unlikely to be any increase in helicopter movements.
- The acoustic impacts arising from the operational phase will not result in any unacceptable impacts on hospital patients or surrounding residents.
- A noise and vibration management plan will be required to identify noise mitigation measures that reduce noise emissions from the demolition and construction activities to acceptable levels, and where this is not achievable, identify noise management practices to reduce potential impacts.
- Noise and vibration monitoring will be required during demolition and construction at the nearest and most impacted noise and vibration sensitive receivers to ensure compliance with noise levels and safe working distances.

A structural engineering report was also prepared by SCP Consulting Pty Ltd to assist the project team advance the detailed design for Stage 1A, in anticipation of obtaining approval under Part 3A. A copy of this report is attached as **Appendix F**. An extract is provided below with regard to potential vibration impacts and associated design requirements:

*Vibration due to plant should not be structurally critical or unacceptable to occupants. SCP assumes all plant to be base isolated on spring and damper mounts.*

*Floors shall be designed to ensure that they comply with the recommended acceleration and velocity limits in the relevant Standards. SCP will use the R factor method outlined in Annex A of AS 2670.2 and Appendix A of BS 6472.*

*SCP proposes to subdivide the Hospital floor usage into four (4) separate areas for dynamic assessment and design.*

Zone 1 –	Sensitive Equipment Max accelerations and velocities to be supplied by the equipment specifier, nominal R factor = 1.0
Zone 2 –	Operating Theatres R factor = 1.0
Zone 3 –	Night Wards R factor = 1.4

- Zone 4 – Normal office areas, public space, waiting areas, consultation rooms (without critical equipment)  
R factor = 4 to 7

Generally, the vibration zoning can be described as follows:

- Zone 1 – Areas for sensitive equipment, this should include any areas where there will be MRI's, CT scans etc that are usually affected by floor vibration.
- Zone 2 – Areas such as operating theatres where important procedures are taking place and vibration is limited so that it cannot be sensed by staff inside the theatre.

Zone 1 and 2 areas may be interchangeable subject to acoustic advice from an accredited acoustic consultant, as they have the same limits.

- Zone 3 – Areas where vibration at night is to be limited so that patients lying horizontally cannot feel the bed shake as a result of staff walking near them.

When large groups are moving around the wards (usually during the daytime), some vibration may be felt, but this would be limited.

- Zone 4 – Normal / General areas where admin, consultation, waiting room and any other normal activity takes place where some vibration can be felt and tolerated. These floors are to be designed like normal office type floors where vibration is not critical to everyday function. Most likely, vibration will not even be felt at all unless someone is sitting still and there is a large group of people walking nearby.

From a flexibility view point, Zone 1 and Zone 2 are interchangeable, and in most cases Zone 3 could be also used to support operating theatres, with further vibration analysis.

Overall, it is considered that the potential noise and vibration impacts are acceptable and/or can be satisfactorily mitigated through the adoption of the recommended mitigation and management measures. These have been included within the Draft Statement of Commitments.

## 4.19 Waste

Morris Bray Architects has prepared a Waste Management Report that addresses the demolition and construction phases of the development, including:

- Details of waste material from the demolition and the reuse and recycling of building materials.
- A Waste Tracking System (WTS) to ensure the appropriate management of demolition material.
- Requirements for demolition, excavating, transporting, stockpiling, reuse and consolidation of waste material.
- Identification of transport routes for shifting material off-site.
- Management of surface runoff.

A copy of the Waste Management Report is attached as **Appendix X**.

AECOM was engaged to respond to the operational phases, including the measures to manage disposal of nuclear waste and contaminated and potentially contaminated biological and sewage waste. A copy of the Biological and Trade Waste Review is attached as **Appendix Y**. The key findings and recommendations are summarised below:

- The hospital uses only limited nuclear materials, mainly related to medical administered drugs that are used in X-Ray and scanning procedures. These drugs are administered to patients and retained within the patient's system (body), rapidly diminishing in strength until they are discharged via normal sewage systems in a non-radioactive condition. The discharge of these materials has been established with Sydney Water Corporation (SWC) as part of the trade waste agreement currently in use at the hospital. The expanded facilities will use the same procedures. This existing trade waste agreement will be extended to cover the discharge of trade wastes from the scanning areas in the upgraded sections. It is reiterated that the waste materials are non-radioactive when discharged from the body into the trade waste system.

- The hospital currently operates two separate waste systems which will be expanded to accommodate the proposal:
  - The contaminated and biological waste system is not connected to the sewage discharge system. It consists of solids and liquid containers for retention of wastes on-site. These containers are collected by a registered and approved biological hazards waste contractor. “SteriHealth” is currently used for the biohazards waste management operations at the hospital. This contract will be extended to cover the expanded facilities at the hospital.
  - General sewage from the expanded facilities will be connected to the Sydney Water Corporation Sewer. Only general sewage articles will be permitted for discharge to the sewer. Staff will be trained to dispose of contaminated and potentially contaminated wastes (including biological hazard wastes) into the appropriate receptacles for collection by the biowastes and contaminated wastes contractor (SteriHealth). Signs will be placed on all discharge points indicating that “Non-Hazardous Wastes Only” shall be discharged to sewer points. The discharge procedure and signage provisions will be included in the waste management training.

## 4.20 Hazards

AECOM was engaged to undertake a SEPP 33 review of the proposal, taking into account the dangerous goods to be stored on site in association with the additional buildings and structures. A copy of the SEPP 33 review is attached as **Appendix Z**.

The review concludes that the threshold levels are not exceeded for the dangerous goods proposed to be stored and as such, SEPP 33 does not apply to the proposal.

## 4.21 Consultation

A significant amount of community and stakeholder consultation was undertaken in association with the Wahroonga Estate Concept Plan and State Significant Site listing, including:

- Community Reference Group (CRG): this group provided a forum for stakeholders to access information and prepare detailed and informed submissions throughout the process. The CRG also aimed to assist the Department of Planning gain a better understanding of key stakeholder concerns.
- Consultation with government agencies: a number of government agencies were consulted during the preparation and assessment of the Concept Plan. Formal responses were provided to the Department of Planning to input into the preparation of the Director-General’s Environmental Assessment Requirements. Additional dialogue occurred in preparing specialist reports including:
  - Department of the Environment, Water, Heritage and the Arts.
  - NSW Department of Environment and Climate Change.
  - NSW Rural Fire Service (RFS).
  - NSW Department of Health.
  - NSW Roads and Traffic Authority.
  - NSW Transport and Infrastructure.
  - NSW Heritage Council.
  - Railcorp.
  - Sydney Buses.
  - Hornsby Council.



□ Ku-ring-gai Council.

- **Community consultation:** Johnson Property Group (JPG), the Australasian Conference Association (ACA) and the Sydney Adventist Hospital (SAH) conducted staff information and consultation sessions to inform the Estate community and end users of the proposal and obtain knowledge and opportunity for constructive feedback. Consultation was also undertaken with the surrounding residents and land owners, with Ku-ring-gai Council representatives in attendance, and including a letterbox drop and public information day arranged by the proponent and the formal exhibition of the Concept Plan by the Department of Planning.

The Sydney Adventist Hospital was represented by Jordan Roddy (Project Management Office) at each of the community meetings. Philip Currie (Chief Operations Officer/Deputy Chief Executive Officer) and Dr Leon Clarke (Chief Executive Officer) also attended a number of these meetings.

The Project Application is generally consistent with the provisions of the Concept Plan approval and as such, additional consultation was limited to the following:

- **Health NSW:** a meeting was organised by the Sydney Adventist Hospital to brief Health NSW regarding the proposed expansion and upgrade of the existing hospital campus. The meeting was attended by Jordan Roddy, Annette Baldwin and Moran Wasson (SAH), Garry Bray (Morris Bray Architects), Allison Heller (Urbis) and Sandra Townsend (NSW Health). The purpose of the meeting was to ensure that Health NSW were informed of the proposed hospital expansion at an early stage. The meeting also established the Health NSW requirements for SAH to progress the application following the issue of the required planning approval, including preparation of a business case.
- **NSW Roads and Traffic Authority:** the RTA has been consulted on an ongoing basis during the preparation of the Project Application and more recently, regarding the Deed of Agreement required in association with the Concept Plan approval. This Deed needs to be executed prior to the release of the first Construction Certificate and the Hospital has taken a lead role in engaging with the RTA to ensure the necessary requirements can be met to enable the staged additions to the hospital.
- **NSW Rural Fire Service:** Australia Bushfire Protection Planners actively engaged with the NSW Rural Fire Service during the assessment of the Wahroonga Estate Concept Plan and the finalisation of the development plans associated with this Project Application. This consultation is outlined in detail in the Bushfire Protection Assessment report attached as **Appendix U**.
- **Servicing Authorities:** Warren Smith & Partners has undertaken consultation with Sydney Water to establish the water and sewer requirements and with Jemena regarding the provision of natural gas. Connect Infrastructure has consulted with Energy Australia to establish their requirements for power supply. Umow Lai has confirmed the existing and likely required telecommunications infrastructure with Telstra.

The proposed alterations and additions comply with the development controls in the Major Development SEPP and the Wahroonga Estate Concept Plan, which have been the subject of previous community engagement initiatives, as outlined above. As such, it was resolved that the community consultation in association with the Project Application could be undertaken through the formal public exhibition of the Environmental Assessment.

## 4.22 Summary Table

The following table summarises the responses to each of the key issues listed in the Director-General's Environmental Assessment Requirements.

**Table 10 – Summary Table**

Key Issue	Requirement	Response
<b>1. Relevant EPI's policies and Guidelines to be Addressed</b>	<p>Planning provisions applying to the site, including permissibility and the provisions of all plans and policies including:</p> <ul style="list-style-type: none"> <li>▪ Objects of the EP&amp;A Act;</li> <li>▪ State Environmental Planning Policy (Major Development) 2005;</li> <li>▪ State Environmental Planning Policy No.55 – Remediation of Land;</li> <li>▪ State Environmental Planning Policy No.33 – Hazardous and Offensive Development;</li> <li>▪ State Environmental Planning Policy (Infrastructure) 2007;</li> <li>▪ State Environmental Planning Policy No.19 – Bushland in Urban Areas</li> <li>▪ NSW State Plan;</li> <li>▪ Sydney Metropolitan Strategy 'City of Cities';</li> <li>▪ Draft North Subregion Draft Subregional Strategy;</li> <li>▪ Ku-ring-gai Planning Scheme Ordinance</li> <li>▪ Relevant Development Control Plans; and</li> <li>▪ Nature and extent of any non-compliance with relevant environmental planning instruments, plans and guidelines and justification for any non-compliance.</li> </ul>	<p>The proposed development has been designed to be fully compliant with the planning provisions that apply to the site.</p> <p>The proposal is permissible in the SP1 Special Activities – Health Services Facility zone under the provisions of the Major Development SEPP. Further, it complies with the height and gross floor area restrictions that apply to the hospital precinct under the provisions of the SEPP.</p> <p>The proposal also complies with the other state and local planning controls and is consistent with relevant state, metropolitan and sub-regional planning policies.</p>
<b>2. Concept Plan</b>	<p>Consistency with the terms of approval of Concept Plan MP07_0166 and justify any areas of inconsistency.</p>	<p>The proposed development includes 27,993m<sup>2</sup> of additional hospital floorspace and 3,490m<sup>2</sup> for the Education Centre, which complies with the provisions of the Concept Plan approval.</p> <p>The only minor inconsistency relates to Figure 39 in the PPR which included an indicative schedule of buildings to be retained and demolished. This schedule was based on an outdated preliminary concept plan for the hospital and should not have been included within the PPR. The proposed demolition of the Shannon Wing (which was proposed to be retained in Figure 31) is supported by the heritage impact statement prepared by Graham Brooks &amp; Associates.</p>

Key Issue	Requirement	Response
<b>3. Built Form and Urban Design</b>	<ul style="list-style-type: none"> <li>Height, bulk and scale of the proposed development within the context of the Sydney Adventist Hospital Campus and adjoining development;</li> <li>Details of proposed open space and landscaped areas; and</li> <li>Design quality with specific consideration of the façade, massing, setbacks, building articulation, appropriate colours/materials/finishes, landscaping, safety by design and public domain.</li> </ul>	<p>Overall, the proposed alterations and additions have been designed to achieve the core mission of the Sydney Adventist Hospital – Caring, Uniting, Educating, Sharing and Healing.</p> <p>The height, bulk and scale of the proposed development are consistent within the local context and comply with the relevant controls.</p> <p>The proposed landscape works are designed to enhance the existing campus-style development and established landscaped setting, as well as incorporate the heritage elements identified in the Interpretative Strategy.</p> <p>The design quality of the development is evident in the architectural drawings prepared by Morris Bray and the supporting specialist documentation, including the ESD Concept Design, Façade Concept Design, Accessibility Assessment and the like.</p>
<b>4. Environmental and Residential Amenity</b>	<ul style="list-style-type: none"> <li>Impacts of the proposal on solar access, acoustic privacy, visual privacy, view loss and wind impacts on surrounding development and environment; and</li> <li>Details of the measures to be implemented to achieve a high level of environmental and residential amenity.</li> </ul>	<p>The assessment of the proposed development has demonstrated that is unlikely to result in any unacceptable off-site impacts with regard to solar access, acoustic privacy, view loss or wind.</p> <p>The proposed buildings have been designed to achieve a high level of amenity, taking into account ESD and other measures.</p>
<b>5. Visual Amenity</b>	Impacts on views into/out of the site.	<p>A comprehensive assessment has been undertaken of both views to the site and views from the site.</p> <p>The impact assessment undertaken by Morris Bray of the views from the site has concluded that the proposed development is acceptable.</p> <p>The recommendations arising from the visual impact analysis of views to the site have been incorporated into the Draft Statement of Commitments.</p>
<b>6. Transport and Accessibility Impacts (Construction and Operational)</b>	<p>Provide a Transport &amp; Accessibility Study prepared with reference to the Metropolitan Transport Plan – Connecting the City of Cities, the NSW State Plan, the NSW Planning Guidelines for Walking and Cycling, the Integrated Land Use and Transport policy package and the RTA's Guide to Traffic Generating Development, considering the following:</p> <ul style="list-style-type: none"> <li>Demonstrate how users of the development will be able to make travel choices that support the achievement of relevant State Plan targets;</li> </ul>	<p>A comprehensive package of documentation has been prepared in response to the potential transport and accessibility impacts, including:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Assessment of Transport, Traffic and Parking Implications</li> <li><input type="checkbox"/> Transport Access Guide</li> <li><input type="checkbox"/> Workplace Travel Plan</li> <li><input type="checkbox"/> Sustainable Transport Initiatives</li> <li><input type="checkbox"/> Pedestrian and Cycling Opportunities Map</li> </ul> <p>Overall, it is considered that the proposed development provides an appropriate response to the transport related issues</p>

Key Issue	Requirement	Response
	<ul style="list-style-type: none"> <li>Detail the existing pedestrian and cycle movements within the vicinity of the site and determine the adequacy of the proposal to meet the likely future demand for increased public transport and pedestrian and cycle access;</li> <li>Identify potential traffic impacts during the construction stage of the project, and measures to mitigate these impacts;</li> <li>Describe the measures to be implemented to promote sustainable means of transport including public transport usage and pedestrian and bicycle linkages in addition to addressing the potential for implementing a location specific sustainable travel plan;</li> <li>Daily and peak traffic movements likely to be generated by the proposed development, including the impact on nearby intersections and the need / associated funding for upgrading or road improvement works (if required). The traffic impact assessment should consider base models with future traffic generated by the Sydney Adventist Hospital; and</li> <li>Appropriate levels of on site car parking for the proposed development having regard to the Concept Plan Approval (MP07_0166), local planning controls and RTA guidelines (note: The Department supports reduced parking provisions, if adequate public transport is available to access the site).</li> </ul>	<p>and includes a comprehensive range of measures to:</p> <ul style="list-style-type: none"> <li>Encourage the use of non-car based transport, including public transport, cycling and walking</li> <li>Improve linkages between the site and the surrounding residential development</li> <li>Mitigate potential impacts on the local and regional road network through upgrade of intersections and associated works</li> <li>Meet car parking demand generated by the site activities balanced with initiatives to encourage other forms of transport, where viable and practical</li> </ul> <p>The Workplace Travel Plan will be implemented over two years and progress/change will be evaluated by repeat survey and audit after three years and five years.</p>
<b>7. Ecologically Sustainable Development (ESD)</b>	<ul style="list-style-type: none"> <li>Detail how the development will incorporate ESD principles in the design, construction and ongoing operation phases of the development;</li> <li>Include a description of the measures that would be implemented to minimise consumption of resources, water and energy, including an Integrated Water Management Plan which details any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design; and</li> <li>Demonstrate that the development can achieve a minimum 4 Green Star rating, or any other suitably accredited rating scheme.</li> </ul>	<p>The proposed development can achieve a minimum 4 Green Star Rating through the use of a combination of initiatives. A range of other sustainable development measures have also been included which may not contribute to the Green Star rating.</p> <p>A comprehensive assessment of Stage 1A building has been designed to establish a façade concept design that can be replicated in the detailed design for the future stages.</p>

Key Issue	Requirement	Response
<b>8. Contributions</b>	Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement.	<p>Council's Section 94 Contribution Plans do not apply to the proposed development. Further, it is acknowledged that child care facilities and all on-site car parking are provided within the development.</p> <p>A Deed of Agreement is to be entered into with the RTA in accordance with the provisions of the Concept Plan and in association with the planned upgrade of the relevant intersections.</p>
<b>9. Contamination</b>	Demonstrate compliance that the site is suitable for the proposed use in accordance with SEPP 55.	<p>The previous site contamination investigations have indicated that the site is suitable for the proposed use.</p> <p>The Draft Statement of Commitments includes provision for additional investigations, if considered necessary.</p>
<b>10. Heritage</b>	Consider any potential impacts of heritage, including a Heritage Impact Statement in accordance with the NSW Heritage Office publication "Statements of Heritage Impact".	The Heritage Impact Statement has concluded that the potential impacts of the proposed development are acceptable. An Interpretation Strategy has been prepared and many of the recommendations have been incorporated into the final architectural and landscape design plans.
<b>11. Aboriginal Heritage</b>	The EA shall address Aboriginal Heritage in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005.	An Aboriginal Cultural Heritage Survey undertaken in association with the Wahroonga Estate Concept Plan. Based on the findings of this report, it is concluded that no additional investigations are warranted to facilitate the proposed additions to the hospital. A Draft Statement of Commitment has been included to provide for appropriate management of any potential relics detected during the demolition and construction phases.
<b>12. Drainage</b>	<ul style="list-style-type: none"> <li>Drainage issues associated with the proposal including stormwater and drainage infrastructure; and</li> <li>Detailed plans of the proposed erosion and sediment control measures during demolition, construction and operation.</li> </ul>	<p>The stormwater management system has been designed to meet key objectives also outlined in the Biodiversity Management Plan and Flora and Fauna Impact Assessment, including no increase in peak runoff, no increase in frequency of runoff and no adverse impact on downstream.</p> <p>Erosion and sediment control measures are proposed to avoid any detrimental impacts on the waterway.</p>
<b>13. Flooding</b>	An assessment of any flood risk on site in consideration of any relevant provisions of the NSW Floodplain Development Manual (2005) including the potential effects of climate change, sea level rise and an increase in rainfall intensity.	The stormwater assessment has concluded that there is no flood risk on site in accordance with the relevant provisions, taking into account the site topography and location of the proposed buildings.

Key Issue	Requirement	Response
<b>14. Bushfire</b>	Demonstrate compliance with the relevant provisions of Planning for Bushfire Protection (PBP) 2006.	A comprehensive assessment of the relevant bushfire protection measures has concluded that the proposed development is acceptable, subject to adoption of relevant requirements, which are included within the Draft Statement of Commitments.
<b>15. Utilities</b>	In consultation with relevant agencies, the EA shall address the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure works.	All required services can be provided to the site, either through capacity in the current network or through augmentation of existing services. Ongoing liaison will be undertaken with the relevant service authorities throughout the approval, construction and operational phases.
<b>16. Staging</b>	Details regarding the staging of the proposed development including impacts within the context of Sydney Adventist Hospital Campus and surrounding development.	All documentation provided with the Project Application incorporates the proposed staging of the development, with progressive upgrade or enhancement of existing site and local infrastructure as the proposed buildings/structures are constructed. While it is unclear as to when the other components of the Wahroonga Estate Concept Plan will be advanced, it is acknowledged that the temporary car park will remain in place until such time as sufficient permanent car parking is available on site to accommodate the demand generated by the operational and construction activities.
<b>17. Flora and Fauna</b>	<ul style="list-style-type: none"> <li>Address impacts on flora and fauna, including threatened species, populations and endangered ecological communities and their habitats and steps taken to mitigate any identified impacts to protect the environment; and</li> <li>Consistency with Biodiversity Management Plan as required under the approval of Concept Plan MP07_0166 (as modified).</li> </ul>	<p>The flora and fauna impact assessment has concluded that the proposed development is acceptable. The Draft Statement of Commitments include the recommendations provided within the report to avoid any unacceptable impacts on flora and fauna.</p> <p>It is acknowledged that the Biodiversity Plan will be required to be approved prior to the release of the Construction Certificate and this matter is well advanced to avoid any unnecessary delays in this regard.</p>
<b>18. Noise and Vibration</b>	Provide a quantitative assessment of the potential demolition, construction, operation and traffic noise impacts of the project.	<p>A Noise and Vibration Management Plan will be required to manage the demolition and construction acoustic impacts. This has been included within the Draft Statement of Commitments.</p> <p>The operational noise impact assessment concludes that there will not be any unacceptable impacts on hospital patients or surrounding residents.</p> <p>The structural engineering assessment has included specific recommendations to avoid internal vibration impacts, having specific regard to the sensitive uses within the hospital.</p>

Key Issue	Requirement	Response
<b>19. Waste</b>	<ul style="list-style-type: none"> <li>Identify, quantify and classify the likely waste streams to be generated during construction and operation;</li> <li>Describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste;</li> <li>Describe the measures to be implemented to manage the disposal of nuclear waste, if required; and</li> <li>Describe the measures to be implemented to manage the disposal of contaminated and potentially contaminated biological and sewage waste.</li> </ul>	<p>A waste management report has been prepared to outline the relevant waste management procedures during the demolition and construction phases.</p> <p>Appropriate measures are included to address operational waste, including nuclear waste and contaminated and potentially contaminated biological and sewage waste.</p> <p>The Draft Statement of Commitments includes requirements to address demolition, construction and operational waste.</p>
<b>20. Hazards</b>	<ul style="list-style-type: none"> <li>An assessment against State Environmental Planning Policy No 33 – Hazardous and offensive Development; and</li> <li>A description of the proposed storage, use and management of any hazardous material and measures to be implemented to manage hazards and risks associated with the storage.</li> </ul>	<p>The SEPP 33 review prepared by AECOM identifies the dangerous goods to be stored within the wards and theatres. The review concludes that the threshold levels are not exceeded and as such, SEPP 33 does not apply to the proposal.</p>
<b>21. Consultation</b>	<p>Undertake an appropriate and justified level of consultation in accordance with the Department's Major Project Community Consultation Guidelines October 2007.</p>	<p>An appropriate level of consultation has been undertaken, having regard to the extensive consultation previously completed in association with the Wahroonga Estate Concept Plan and the compliance of the current proposal with the Concept Plan approval.</p>





## 5 Impact Assessment

### 5.1 Assessment of Potential Impacts

The potential environmental, social and economic impacts arising from the proposed development are identified and discussed below. A draft Statement of Commitments outlining the proposed measures to minimise these potential impacts is provided in **Section 5.2**.

#### 5.1.1 Environmental

The potential environmental impacts arising from the proposal, taking into account both the natural and built environments, are identified and discussed below:

- **Design Quality/Visual Impact** – the proposed development has been designed to be compatible with the existing campus-style hospital development and the local context. The buildings have been located and designed to achieve an appropriate external appearance and a high level of internal amenity. The visual impact analysis undertaken by Urbis has confirmed that the view impacts to the site are minimal and/or acceptable, subject to the adoption of the recommended mitigation measures during the detailed design phase. Each of these recommendations has been incorporated into the Draft Statement of Commitments. The visual impact analysis undertaken by Morris Bray Architects has confirmed that the proposed development will not result in any unacceptable impacts with regard to views from the site.
- **Landscape** – the landscape concept design has been prepared on the basis of a detailed context analysis, underpinned by the overarching philosophy of the hospital, the history of the site and the existing landscaped setting, adjacent to a conservation area. The proposed planting will provide a number of benefits, including recuperation areas for patients, recreation areas for staff and visitors, screening of the multi-deck car parking structure and an enhanced entry treatment through improvements to the village green and main access road.
- **Flora and Fauna** – the impact assessment undertaken by Cumberland Ecology has concluded that there will be no impacts on flora and fauna, provided the recommendations provided within the report are complied with. These recommendations have been included within the Draft Statement of Commitments and as such, it is envisaged that there will be no detrimental impacts.
- **Transport, Traffic and Car Parking** – a comprehensive package of documentation has been provided with regard to transport, traffic, access and car parking to encourage the use of sustainable travel modes, avoid significant impacts on the operation of the local road network and provide appropriate on-site car parking that meets the specific needs of the hospital activities. Overall, it is concluded that the implementation of the recommended measures, as outlined in the Draft Statement of Commitments, will avoid any unacceptable environmental impacts arising from the proposal.
- **Noise and vibration** – The demolition and construction acoustic impact assessment undertaken by Heggies has concluded that mitigation measures will need to be developed with the construction contractor as part of a Noise and Vibration Management Plan. There will not be any unacceptable impacts on hospital patients or the surrounding residents arising from the operational phase. The structural engineering assessment has included specific recommendations to avoid internal vibration impacts, having specific regard to the sensitive uses within the hospital. Each of the noise and vibration requirements is provided in the Draft Statement of Commitments.
- **Stormwater and Flooding** – a comprehensive stormwater management concept has been proposed which aligns with the Biodiversity Management Plan being prepared in association with the Wahroonga Estate Concept Plan. The integration of stormwater with the other biodiversity measures will avoid any unacceptable impacts on the local waterways, taking into account both post-development flows (quantity) and treatment prior to discharge) quality.

- **Ecologically Sustainable Development (ESD)** – a suite of documentation has been provided in association with the proposed development, including both concept designs to facilitate the staged construction of the proposed buildings and detailed design of buildings in Stage 1A to demonstrate the way in which the initiatives outlined in the concept design can be realised in the detailed design of future building (ie prior to release of Construction Certificates). In addition to the built form measures, ESD initiatives have been incorporated into each of the specialist reports and documentation, including landscaping, stormwater, transport and the like.
- **Site contamination** – environmental site assessments have been undertaken on a number of occasions and have concluded that the site is suitable for the proposed use, subject to a number of recommendations. These recommendations and a commitment to undertake further required investigations are included within the Draft Statement of Commitments.
- **Geotechnical** – geotechnical investigations were undertaken by Coffey Geotechnics (attached as **Appendix AA**) across the development site, including the existing car park and the temporary car parks, in association with an earlier development scheme. Further investigations have been undertaken across the Stage 1A development site by Jeffrey & Katauskas Pty Ltd (attached as **Appendix BB**), including the CSB expansion, services area and temporary car parking area. The recommendations provided in these reports have been included within the Draft Statement of Commitments in **Section 5.2**. It is also proposed to undertake further geotechnical investigations, as required, including following demolition of the existing Shannon Wing.
- **Waste Management** – waste management reports have been prepared to address the demolition, construction and operational phases of the development. Particular consideration has been given to the procedures and mitigation measures associated with the storage, handling and disposal of nuclear and contaminated/potentially contaminated biological and sewage waste.

Overall, it is considered that the potential environmental impacts are either positive, negligible and/or can be satisfactorily managed or mitigated through the provisions outlined in the Draft Statement of Commitments.

### 5.1.2 Social and Economic

The primary social and economic impacts arising from the proposed development are expected to be as follows:

- Construction impacts on existing residents surrounding the development site (eg noise, dust, heavy vehicles, etc).
- Impacts of the operational phase of the development on existing and likely future residents in the surrounding residential areas (eg visual, traffic).
- Construction and operational impacts on the existing and likely future employees at the Sydney Adventist Hospital (similar to the items identified above).
- Impacts on the local and wider community (eg increased local employment, increased access to health services, etc).

The potential construction and operational impacts can be satisfactorily managed or mitigated through the provisions outlined in the Draft Statement of Commitments and as outlined in **Section 5.1.1** above. The potential impacts on the local and wider community are addressed in detail within the Social and Economic Benefits Assessment prepared by Urbis and attached as **Appendix CC**. The key findings arising from this report are summarised below:

- **Economic benefits** - the proposed expansion and upgrade of the existing hospital facilities offers significant employment opportunities aligned with state government policy for clustering of knowledge industries to provide local and regional employment benefits. The potential economic benefits will extend to medical and nursing professionals, as well as allied health professional and trades that support the hospital services, including administration, cleaning, catering and retail. The enhanced education and training facilities will also provide benefits to the local population into the future.

- **Social and health benefits** - the improved and expanded facilities and services will meet a demonstrated and growing demand in the locality and wider region. The socio-economic characteristics of the population in the locality of the hospital indicate significant and growing demand for private health care services. Meeting this demand will provide direct benefits to this community, as well as taking pressure of the wider public health system. The development is aligned with a broad range of state and local government policies related to the provision of health and medical services, and the provision of services to an ageing population. It will also meet government objectives for improving the experiences of those using the health system.
- **Linkages with existing buildings and services** - the central concourse will improve amenity and access within the hospital. It will act as a linking artery, providing a new main entrance to the hospital and access to adjoining buildings (CSB and San Clinic) and through these to 90% of the hospital facilities on the site. The concourse will also link to multi-storey car park via the podium, providing direct access to the hospital. The proposal will enable the separation of patients and visitors, to improve privacy and amenity for both parties. It will also improve amenity for new visitors, providing clear directions to all hospital facilities and services.
- **Social impacts** - consultation with hospital administration has indicated an urgent need for new facilities and services to address capacity issues and its associated impacts on staff morale, health care provision and employment opportunities. The local community has also expressed support for the services offered at the hospital, which is a highly regarded and long established institution in the region. The development of the new and expanded facilities will enable the hospital to improve service provision/quality and meet current and future projected community demands. Retention of some existing hospital buildings and the staged construction of new buildings on the site is planned to minimise disruption to hospital operations during construction.

Overall, it is considered that the social and economic benefits of the proposal will be positive, provided that the potential environmental impacts are appropriately mitigated through the Statement of Commitments and/or approval conditions.

## 5.2 Draft Statement of Commitments

The following outlines the Statement of Commitments proposed by the Sydney Adventist Hospital (SAH) as the proponent for the proposed alterations, additions and upgrade to the existing hospital development.

The draft Statement of Commitments incorporates recommendations provided in the specialist consultant reports. It also identifies measures to mitigate for any environmental impacts, monitor the environmental performance and achieve a positive environmentally sustainable outcome.

### 5.2.1 Built Form and Landscaping

The SAH commits to:

- Implementing the recommendations in the Visual Impact Analysis prepared by Urbis and dated June 2010 and including:
  - ☐ Careful selection of colours, material and finishes particularly on upper storeys to avoid reflectivity, visual prominence and disturbance to views. Colours, material and finishes that assist with softening the interface between the vegetated ridgeline should be adopted.
  - ☐ Retaining existing vegetation and individual valuable trees on site where possible and practical, to soften the visual prominence of development from edges of site and retain the existing visual character.
  - ☐ Off-setting any clearing with replanting, as considered appropriate.
  - ☐ Retaining trees that contribute to the vegetated ridge line as experienced from views identified in the Visual Impact Analysis report.

- Preparing further detailed design landscape drawings prior to release of Construction Certificates for individual stages, generally in accordance with the Landscape Drawings prepared by Site Image and dated 12 July 2010 and the accompanying Landscape Design Statement prepared by Site Image and dated 27 June 2010.

### 5.2.2 Ecologically Sustainable Design

The SAH commits to:

- Achieving a minimum 4 Star Green Star Rating (or equivalent rating) for each building by using an appropriate combination of the initiatives outlined in the ESD Concept Design Report, prepared by Umow Lai and dated 12 July 2010, and/or any additional initiatives appropriate and relevant at the time of the detailed design for each stage. Details shall be provided with the construction certificate for each stage.
- Updating and implementing the Façade Concept Design (Stage 1A) Report for each future stage including the second stage of the CSB extension, the Concourse, Education Centre and the new Shannon Wing. Details shall be provided with the construction certificate for each of the future stages.
- Incorporating initiatives to reduce potable cold water demand within each stage of the project (as relevant), including:
  - On-site potable cold water storage tanks to reduce peak demand supply from the water main. Water tanks will provide a minimum three hours storage to provide a continuous supply of potable cold water during maintenance procedures or water main failure.
  - On-site rainwater harvesting through run-off from all new major roof areas being directed to a recycling/non potable water storage tank. Non potable water will be used for irrigation purposes and sanitary flushing throughout the CSB extension.
  - Water saving conservation devices, including:
    - 3/4.5 Litre WC cisterns
    - 0.8 L/sec automatic urinal flushing
    - Low flow tapware and appliances

### 5.2.3 Bushfire Protection

The SAH commits to complying with the requirements of the Bushfire Protection Assessment, prepared by Australian Bushfire Protection Planners and dated 7 July 2010, including:

- Installation of static water supply tanks to provide a potable water supply to the Hospital and a fire fighting water supply for structural fires and bushfire events.
- Installation of a hydrant supply for structural fire fighting in accordance with AS 2419.2-2004.
- Provision of a separate hydrant ring main to the perimeter of the precinct for bushfire fighting operations.
- Progressive updates of the Estate Fire Management Plan to address the provision of Asset Protection Zones and fuel management of residual vegetation. A copy of the updated Estate Fire Management Plan shall be provided to the Hornsby District Office of the NSW Rural Fire Services and the NSW Fire Brigade.
- Establishing a sub-committee from the members of the Emergency Liaison Committee to oversee the implementations of the recommendations of the Estate Fire Management Plan with the Chairperson of the sub-committee responsible for liaison with the Hornsby Ku-ring-gai Bushfire Management Committee and attendance at Bushfire Management Committee meetings.

- Construction of Class 7 buildings (Car Park/Offices, etc) to withstand 29kW/m2 radiant heat loadings on the exterior of the building.

#### 5.2.4 Flora and Fauna

The SAH commits to:

- Complying with the Biodiversity Management Plan for the Wahroonga Estate, including the stormwater management objectives listed below:
  - ☐ Maintain existing runoff flow regimes including:
    - No increase in peak runoff
    - No increase in frequency of runoff
    - No adverse impact on downstream
  - ☐ Runoff from site to have no increase in pollutant loads or concentrations.
- Locating the new oxygen tanks In Stage 1A so as to avoid removal of the existing Sydney Turpentine-Ironbark Forest trees.

#### 5.2.5 Heritage

The SAH commits to:

- Providing details with the construction certificate for each stage of the project documenting the implementation of the Interpretation Strategy, including location of interpretative devices and appropriate media. This shall include heritage plaque(s), interpretive panels and interpretive text, relocation of 'Bethel' and its curtilage elements and the housing of the archival photographic recording as part of the Merritt Kellogg Collection.
- Supervising and recording in detail the clearance works associated with the proposed development by the nominated excavation director in accordance with Heritage Branch requirements.

#### 5.2.6 Transport and Access

The SAH commits to:

- Undertaking road upgrade works relative to the stages of the hospital development as outlined in the Accessibility of Transport, Traffic and Parking Implications, prepared by Transport and Traffic Planning Associates and dated July 2010. These works include:

##### Stage 1A

- ☐ Initial upgrade at The Comenarra Parkway/Fox Valley Road intersection.
- ☐ Install 'No Parking' along Fox Valley Road in accordance with the requirements of the Ku-ring-gai Traffic Committee and Council.

##### Stage 2

- ☐ Upgrade the hospital access intersection with an additional egress lane (LT 'slip lane').

##### Stage 3

- ☐ Ultimate upgrade at The Comenarra Parkway/Fox Valley Road intersection.
- ☐ Upgrade scheme at Pacific Highway/Fox Valley Road intersection.

- Preparing and submitting Traffic Control Plans for intersection upgrades and associated roadworks to the relevant roads authority for approval prior to issue of Construction Certificates for the associated upgrades/roadworks.
- Preparing and submitting detailed Construction Traffic Management Plans prior to issue of Construction Certificates for each stage.
- Providing a temporary car park that accommodates 258 cars for use until such time as sufficient permanent car parking is provided to meet demand associated with both operational and construction activities.
- Designing the car parking areas (including bays, ramps, aisles, etc) to comply with AS 2890.1 and AS 2890.6.
- Constructing the pedestrian and bicycle connections located within the Sydney Adventist Hospital site as identified in the Pedestrian and Bicycle Opportunities Plan, prepared by GTA Consultants.
- Providing bicycle storage facilities and end-of-trip facilities (ie lockers and showers) for use by staff, nurses and doctors.
- Implementing the Workplace Travel Plan over two years and evaluating progress/change by repeat survey and audit after three years and five years.

### 5.2.7 Stormwater Management

The SAH commits to implementing a stormwater management system that incorporates the following features described in the Stormwater Management Plan, prepared by C&M Consulting Engineers Pty Ltd and dated July 2010, and as listed below:

- A pipe network system to collect minor storm runoff from surface areas and minimise nuisance flooding.
- An on-site stormwater detention system to detain storm flows so they can be slowly released over time to ensure peak flows do not exceed that of the existing site and/or overload the existing drainage infrastructure.
- Bio-retention basins to provide significant water quality treatment to runoff from impervious areas and provide additional stormwater detention.
- Stormwater Quality Improvement Devices (SQIDs) including:
  - Hydrodynamic separation via Humeceptor Device(s) to provide water quality treatment to runoff from road and car park areas by removing sediment, oils and hydrocarbons.
  - EnviroPods installed in pits in car parking areas to capture gross pollutants at source;
- Rainwater harvesting and retention system to allow rainwater reuse, as well as providing improvement to the quality and volume of stormwater runoff from the site.
- Vegetated swales to convey storm flows while providing water quality treatment via filtration.
- Overland flow paths (such as roads and swales) to carry major storms through the site without causing damage to property from flooding.

### 5.2.8 Noise and Vibration

The SAH commits to:

- Preparing a Noise and Vibration Management Plan with construction contractor in accordance with the provisions of the Construction Noise Impact Statement, prepared by Heggies and dated 13 July 2010, prior to the release of construction certificates for each stage.



- Implementing the Noise and Vibration Management Plan throughout the demolition and construction phases, with a copy of the report to be retained on site at all times in order to guide the construction contractor regarding management of noise and vibration issues.
- Monitoring noise and vibration monitoring during demolition and construction at the nearest and most impacted noise and vibration sensitive receivers to ensure compliance with noise levels and safe working distances.
- Complying with the requirements outlined in the Structural Engineering Report, prepared by SCP Consulting Pty Ltd and dated 16 June 2010, including:
  - ☐ All plant is to be base isolated on spring and damper mounts.
  - ☐ Floors shall be designed to ensure that they comply with the recommended acceleration and velocity limits, using the R factor method outlined in Annex A of AS 2670.2 and Appendix A of BS 6472.

### 5.2.9 Services

The SAH commits to:

- Submitting a Section 73 Application to Sydney Water to confirm adequacy of the Sydney Water mains to supply the new development, taking into account initiatives to reduce the potable cold water demand.
- Potable and non potable cold water service will be designed and constructed in accordance with AS 3500.1, National Plumbing and Drainage Part 1: Water Supply, New South Wales Code of Practice and Sydney Water requirements.
- Submitting a Section 73 Application to Sydney Water to confirm adequacy of the Sydney Water main to drain the new development.
- Designing and constructing the sewer drainage systems in accordance with AS 3500.2, National Plumbing and Drainage Part 2: Sanitary Plumbing and Sanitary Drainage, New South Wales Code of Practice and Sydney Water requirements. A number of waste water systems will require pre-treatment prior to discharge into Sydney Water's sewer drainage system.
- Continuing to liaise with Energy Australia in respect to the augmentation and extension of Energy Australia's network to meet the additional load of the proposed development. It is anticipated that additional substations will be placed in strategic locations throughout the development, connected by a high voltage underground ring main cable to provide a reliable supply.
- Continuing to liaise with Jemena regarding the provision of natural gas supply to the proposed additions by utilising the existing capacity in the local network.
- Liaising with the relevant telecommunications provider to extend the existing services as required to the new additions.

### 5.2.10 Demolition Works

The SAH commits to undertaking all demolition work in accordance with:

- Demolition Site Plan, prepared by Morris Bray Architects and dated 9 July 2010.
- Sydney Adventist Hospital Redevelopment Demolition Report, prepared by Morris Bray Architects and dated 5 July 2010 (Issue A).
- Sydney Adventist Hospital Redevelopment Waste Management Report prepared by Morris Bray Architects and dated 5 July 2010.

### 5.2.11 Excavation and Earthworks

The SAH commits to:

- Addressing the recommendations in each of the following geotechnical reports:
  - ☐ Geotechnical Investigation for Proposed Stage 1 Phase 1 Expansion Works, prepared by Jeffrey & Katauskas Pty Ltd and dated 8 July 2010.
  - ☐ Geotechnical Investigation and Report for San Hospital Wahroonga, prepared by Coffey Geotechnics and dated 30 April 2008.
- Addressing the recommendations in each of the following site contamination reports:
  - ☐ Stage 1 Environmental Site Assessment for Proposed Hospital Upgrade Development (Stage 1), prepared by Environmental Investigation Services and dated April 2009.
  - ☐ Contamination Assessment, prepared by Coffee Environments and dated 30 May 2008.
- Undertaking further geotechnical and site contamination investigations, if required, following demolition of the Shannon Wing in Stage 3.
- Implementing the earthworks and sediment and erosion control measures outlined in the Civil Engineering Works, prepared by C&M Consulting Engineers and dated 15 July 2010.

### 5.2.12 Construction Management

The SAH commits to:

- Preparing a Construction Management Plan for each stage of the project (or updating a prior Construction Management Plan, as appropriate) that addresses the following matters:
  - ☐ Erosion and sediment control.
  - ☐ Dust control.
  - ☐ Noise and vibration management.
  - ☐ Construction traffic.
  - ☐ Water quality control.
  - ☐ Complaints handling.
- Implementing the Sydney Adventist Hospital Redevelopment Waste Management Report prepared by Morris Bray Architects and dated 5 July 2010.

### 5.2.13 Operational Management

The SAH commits to:

- Storing and handling dangerous goods in accordance with the SEPP 33 Review, prepared by AECOM and dated 14 July 2010.
- Extending the existing trade waste agreement to cover the discharge of trade wastes from the scanning areas in the upgraded sections.
- Extending the existing contract for biohazards waste collection on a staged basis to incorporate the expanded sections of the hospital.
- Implementing staff training regarding operational waste management procedures, including discharge procedure and signage provisions.

## 6 Summary and Conclusion

The proposed staged alterations and additions to the Sydney Adventist Hospital are considered to be appropriate and entirely suitable for the site for the following reasons:

- The proposed development is permitted with consent in the SP1 Special Activities (Health Services Facility) zone and complies with the relevant zone objectives listed in the Major Development SEPP.
- The proposed buildings comply with each of the controls listed in Part 25 of Schedule 3 of the Major Development SEPP, including the maximum height of buildings and floor space ratio.
- The proposal is entirely consistent with State, regional and local strategic planning policy, including:
  - ☐ Improved access to quality healthcare through the upgrade of and additions to an existing hospital.
  - ☐ Increased participation in education and training through the Faculty of Nursing building.
  - ☐ Increased employment within close proximity of residential areas.

The potential environmental impacts have been identified and assessed in detail within the Environmental Assessment (refer to **Section 4** and **Section 5.1.1**) and are considered to be either positive or able to be mitigated through the adoption of appropriate measures to minimise their potential impact. A Draft Statement of Commitments outlining each of these requirements is provided in **Section 5.2**.

The proposed development will result in considerable social and economic benefits (refer to **Section 5.1.2**) through the provision of expanded health services, substantial improvements to the internal amenity of the existing hospital and increased employment opportunities in health and allied services.

Overall, the proposed development is considered to be in the public interest as it will result in a number of significant benefits for existing and future employees, the local community and the wider population as outlined previously in this report.



# Appendix A      QS Certificate

# Appendix B      Director General's Environmental Assessment Requirements

# Appendix C      Site Analysis, Survey Plan and Architectural Drawings

# Appendix D      Landscape Concept Plan and Report



# Appendix E    Access Report

# Appendix F      Structural Engineering Report

# Appendix G    Visual Impact Analysis

# Appendix H      Assessment of Transport, Traffic and Parking Implications

# Appendix I      Transport Access Guide and Workplace Travel Plan

# Appendix J      Sustainable Transport Initiative

# Appendix K      ESD Concept Design Report

# Appendix L      Façade Concept Design Report



# Appendix M   Coffey Contamination Assessment

# Appendix N      EIS Environmental Site Assessment

# Appendix O    Heritage Impact Statement

# Appendix P     Archival Recording Report

## Appendix Q Interpretation Strategy

## Appendix R    Aboriginal Heritage Survey

# Appendix S      Stormwater Management Report

# Appendix T      Civil Engineering Report



# Appendix U      Bushfire Protection Assessment

# Appendix V      Flora and Fauna Impact Assessment

# Appendix W    Acoustic Report

# Appendix X    Waste Management Report

# Appendix Y      Biological and Trade Waste Review

# Appendix Z      SEPP 33 Review

# Appendix AA Coffey Geotechnical Report

# Appendix BB Jeffrey & Katauskas Geotechnical Report



# Appendix CC Social and Economic Benefits Assessment





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