



Environmental Impact Statement

State Significant Development Application SSD 9113
Randwick Hospitals Campus Redevelopment - Stage 1

21 August 2018

Level 17, 141 Walker St
North Sydney NSW 2060
Australia

301015-03835

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Project No: 301015-03835 – Environmental Impact Statement: State Significant Development Application SSD 9113 Randwick Hospitals Campus Redevelopment - Stage 1

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BVN
- E** Landscape Design Report and Plans
Aspect Studios
- F** Preliminary Construction Management Plan
Lendlease
- G** Noise and Vibration Impact Assessment
Acoustic Studio
- H** Wind Desktop Study
Arup
- I** Transport Assessment
Arup
- J** Sustainability Schematic Design Report
LCI
- K** Biodiversity Development Assessment Report
Eco Logical Australia
- L** Arboricultural Impact Assessment
Eco Logical Australia
- M** Heritage Impact Statement
Advisian
- N** Historical Archaeological Assessment
Casey and Lowe
- O** Preliminary Aboriginal Archaeological Assessment and Aboriginal Cultural Heritage
Assessment Progress Letter
Mary Dallas Consulting Archaeologists
- P** Civil Report
Enstruct
- Q** Structural Certification
Enstruct



R	Preliminary Geotechnical Investigation <i>Douglas Partners</i>
S	Preliminary Site Investigation for Contamination <i>Douglas Partners</i>
T	Utility Management Plan Electrical Services <i>AECOM</i>
U	Integrated Water Management Plan <i>ACOR</i>
V	Access Report <i>Iaccess Consultants</i>
W	BCA Compliance Statement <i>BM&G</i>
X	Communications and Engagement Consultation Report <i>HI</i>
Y	Waste Management Plan (Construction) <i>Lendlease</i>
Z	Prince of Wales Hospital Waste Management Plan (Operation) <i>SESLHD</i>
AA	Helicopter Approach and Departure Paths and Airspace Approval Status <i>AviPro</i>
BB	Hazardous Chemicals (Dangerous Goods) Matters Advice <i>Safety Engineering & Technical Services</i>



Statement of Validity

State Significant Development Application Details

Applicant Name	NSW Health Infrastructure
Applicant Address	Level 14, 177 Pacific Highway, North Sydney NSW 2060
Land to be developed	The land that encompasses a total of 53 lots (either in whole or in part) plus part of Eurimbla Avenue (no lot and Deposited Plan (DP)), located at Randwick, NSW, 2031 as described below. Part Lot 1 DP870720 (Randwick Hospitals Campus being for two pedestrian bridges over Hospital Road and landscaping) Lot 7 DP13997 (71 Botany Street) Lot A DP167106 (73 Botany Street) Lot B DP167106 (75 Botany Street) Lot C DP167106 (77 Botany Street) Lot D DP167106 (79 Botany Street) Lot A DP33161 (81 Botany Street) Lot B DP33161 (83 Botany Street) Lot C DP33161 (85 Botany Street) Lot D DP33161 (87 Botany Street) Lot E DP33161 (89 Botany Street) Lot F DP33161 (91 Botany Street) Lot 1 DP741639 (93 Botany Street) Lot 2 DP1134643 (95 Botany Street) Lot A DP439101 (97 Botany Street) Lot B DP439101 (99 Botany Street) Lot 3 DP302329 (101 Botany Street) Part Lot 2 DP13995 (27 Eurimbla Avenue) Lot 3 DP13995 (29 Eurimbla Avenue) Lot 4 DP13995 (31 Eurimbla Avenue) Lot 5 DP13995 (33 Eurimbla Avenue) Lot 6 DP13995 (35 Eurimbla Avenue) Lot 7 DP13995 (37 Eurimbla Avenue) Lot 8 DP13995 (39 Eurimbla Avenue) Lot 9 DP13995 (41 Eurimbla Avenue) Lot 10 DP13995 (43 Eurimbla Avenue)



Lot 11 DP13995 (45 Eurimbla Avenue)
 Lot 12 DP13995 (47 Eurimbla Avenue)
 Lot 13 DP12909 (34 Eurimbla Avenue)
 Lot 14 DP12909 (36 Eurimbla Avenue)
 Lot B DP441943 (38 Eurimbla Avenue)
 Lot A DP441943 (40 Eurimbla Avenue)
 Lot 1 DP1182570 (42 Eurimbla Avenue)
 Lot 2 DP1182570 (44 Eurimbla Avenue)
 Lot 23A DP434935 (46 Eurimbla Avenue)
 Lot 23B DP434935 (48 Eurimbla Avenue)
 Lot 1 DP522596 (50 Eurimbla Avenue)
 Lot 2 DP522596 (52 Eurimbla Avenue)
 Lot 1 DP501682 (54 Eurimbla Avenue)
 Lot 2 DP501682 (56 Eurimbla Avenue)
 Lot 3 DP513339 (58 Eurimbla Avenue)
 Lot 4 DP513339 (60 Eurimbla Avenue)
 Lot 19 DP7745 (62 Eurimbla Avenue)
 Lot 18 DP7745 (64-64A Eurimbla Avenue)
 Lot 52 DP7745 (64R Eurimbla Avenue – pedestrian walkway)
 Lot 1 DP74860 (66 Eurimbla Avenue – also known as 6 Magill Street)
 Lot 11 DP806091 (66A Eurimbla Avenue)
 Lot 1 DP307266 (2 Magill Street)
 Lot 12 DP806091 (4 Magill Street)
 Lot 7 DP975640 (8-8A Magill Street)
 Lot 1 DP11351 (10 Magill Street)
 Lot 2 DP11351 (12 Magill Street)
 Lot 3 DP11351 (14 Magill Street)

Proposed Development

Randwick Hospitals Campus Redevelopment – Stage 1 Acute Services
 Building (construction and operation) as described throughout this
 Environmental Impact Statement.



Environmental Impact Statement prepared by:

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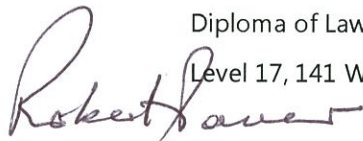
Declaration

I declare that I have prepared the content of this Environmental Impact Statement and to the best of my knowledge:

- (i) the statement has been prepared in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000;
- (ii) the statement contains all available information that is relevant to the environmental assessment of the development to which the statement relates; and
- (iii) that the information contained in the statement is neither false nor misleading.

Name Robert Power
Qualifications Diploma of Law (Solicitor's Admission Board)
Address Level 17, 141 Walker Street, North Sydney, NSW

Signature



Date 21-08-2018



Acronyms and Terms

Acronym/Term	Definition
AHIMS	Aboriginal Heritage Information Management System
AHIP	Aboriginal Heritage Impact Permit
ARI	Annual recurrence interval
ASB	Acute Services Building
BCA	Building Code of Australia
BC Act	<i>Biodiversity Conservation Act 2016 (NSW)</i>
BDAR	Biodiversity development assessment report
BOH	Back of house
Campus	Randwick Hospitals Campus
CBD	Central Business District
CIV	Capital Investment Value
CLM Act	<i>Contaminated Land Management Act 1997 (NSW)</i>
PCMP	Preliminary Construction Management Plan
CPTED	Crime Prevention Through Environmental Design
Council	Randwick City Council
CNVMP	Construction Noise and Vibration Management Plan
CSSD	Central Sterilising Service Department
CPTMP	Construction Pedestrian and Traffic Management Plan
DA	Development Application
DCP	Randwick Development Control Plan 2013
DD Act	<i>Disability Discrimination Act 1992 (Commonwealth)</i>
DP	Deposited Plan
DP&E	Department of Planning and Environment (NSW)
ED	Emergency Department
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning & Assessment Act 1979 (NSW)</i>
EP&A Regulation	<i>Environmental Planning and Assessment Regulation 2000 (NSW)</i>
EPA	Environment Protection Authority (NSW)
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
ESD	Ecologically sustainable development
ESMHS	Eastern Suburbs Mental Health Service
FOH	Front of house
FSR	Floor space ratio
FTS	Future Transport Strategy 2056
GFA	Gross floor area
Precinct Masterplan	Greater Randwick Urban Masterplan
GSC	Greater Sydney Commission
GSRP	Greater Sydney Regional Plan
HAC	Health Administration Corporation
HI	NSW Health Infrastructure
HIS	Heritage Impact Statement
HLS	Helicopter Landing Site
HV	High voltage
ICU	Intensive Care Unit



Acronym/Term	Definition
ISEPP	<i>State Environmental Planning Policy (Infrastructure) 2007 (NSW)</i>
IPU	Inpatient Unit
IWMP	Integrated Water Management Plan
LEP	<i>Randwick Local Environmental Plan 2012</i>
LGA	Local Government Area
Light Rail	CBD and South East Light Rail
MAU	Medical Assessment Unit
MNES	Matters of National Environmental Significance
NCC	National Code of Construction
NPW Act	<i>National Parks and Wildlife Services Act 1974 (NSW)</i>
NSW	New South Wales
OEH	Office of Environment and Heritage (NSW)
OLS	Obstacle Limitation Surface
OSD	On-site stormwater detention
PANS-OPS	Procedures for Air Navigation Services – Aircraft Operations
POEO Act	<i>Protection of the Environment Operations Act 1997 (NSW)</i>
POWH	Prince of Wales Hospital
POWPH	Prince of Wales Private Hospital
Precinct	Randwick Health and Education Precinct
Project	Randwick Hospitals Campus Redevelopment
Proposed development	Stage 1 of the Project comprising the construction and operation of the ASB
RAHSCM	Randwick Academic Health Science Centre Masterplan
REF	Review of Environmental Factors
RHC	Randwick Health Collaboration
RHW	Royal Hospital for Women
RL	Reduced level
RMS	Roads and Maritime Services
SACL	Sydney Airport Corporation Limited
SCHN	Sydney Children's Hospital Network
SEARs	Secretary's Environmental Assessment Requirements
SEPP	State Environmental Planning Policy
SESLHD	South Eastern Sydney Local Health District
SHR	State Heritage Register
Site	Bound by part Eurimbla Avenue to the north, Botany Street to the west, Hospital Road (including part of the Campus) to the east and Magill Street to the south
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011 Development) 2011 (NSW)</i>
SSDA	State Significant Development Application
TfNSW	Transport for NSW
UMPES	Utility Management Plan Electrical Services
UNSW	University of New South Wales
WSUD	Water sensitive urban design



Executive Summary

Purpose of the EIS

Advisian has been commissioned by NSW Health Infrastructure (HI) (the applicant) to prepare an Environmental Impact Statement (EIS) to accompany State Significant Development Application Number SSD 9113 (SSDA) pursuant to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to be submitted to the NSW Department of Planning and Environment (DP&E).

The EIS has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning and Environment (DP&E) under covering letter dated 12 March 2018 (Appendix A) pursuant to Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

In combination with statutory and strategic planning framework requirements, the EIS seeks to ensure that all reasonably known environmental impacts of the SSDA have been identified, evaluated and mitigated through the adoption of the measures proposed in Section 9 and detailed in Table 9.1. Comprehensive stakeholder and community consultation has also been undertaken (and is still ongoing) to ensure the SSDA design, construction and operation is aligned to critical Randwick Health and Education Precinct (the Precinct) outcomes and benefits.

Project Overview

The Randwick Hospitals Campus Redevelopment Project (the Project) is an important component of the vision of the NSW Government and the Randwick Health Collaboration (RHC) for the creation of the Precinct. Population forecasts indicate that over the next 10 years the existing Randwick Hospitals Campus (the Campus) will face a significant increase in demand for health services.

The Project will deliver critical health outcomes and benefits through:

- Actioning key first steps towards realising the vision of the NSW Government and the RHC for the creation of an innovative health, research and education precinct.
- Implementing a primary objective of the SESLHD's Asset Strategic Plan 2012 – 2017 to expand POWH, thus responding to a growing population, increased demand for integrated health services and patient-focused models of care.
- Creating a centre of excellence in the provision of health, research and education services to meet professional and community expectations.
- Effective mitigation of potential environmental impacts to maintain balance between environmental and community wellbeing.

To best address the anticipated pressures from the projected growth, several development options have been considered for the Project. This included the examination of two options: Option A - redevelopment only within the existing Campus boundaries; and Option B - expansion of the Campus to the west.

Option A was discounted through the detailed evaluation and master planning process that demonstrated that the existing Campus is too confined and congested to meet the projected increase



in the health needs of the community. Without expansion, there is little room for the creation and offering of additional health services, health related education, teaching and important research opportunities. The result being that the full promise of the Precinct as an integrated Health Precinct will not be realised.

Option B was chosen as the preferred option to facilitate the delivery of the Project and realise the vision of the NSW Government and the RHC for the creation of the Precinct. The delivery of the Project will occur through a multi-stage redevelopment program which will be realised as follows:

1. Acquisition of the land to the immediate west of the existing Campus which is bordered by High, Botany and Magill Streets and Hospital Road and the land that constitutes the local road known as Eurimbla Avenue, Randwick. The acquisition of the land is the subject of an ongoing acquisition program by the Health Administration Corporation. It is proposed that the land will ultimately be consolidated with the lands on which the existing Campus is located.
2. Carrying out of early works (Precursor Works) which are the subject of separate planning approvals. Details of the Precursor Works and their planning approval pathways are set out in Section 1.2.
3. Obtaining development consent for the construction and operation of an Acute Services Building (ASB), as a SSD, which represents Stage 1 of the multi-stage redevelopment program.
4. Construction of additional health education, training and research facilities and clinical service facilities necessary to meet the requirements of the Campus. These additional facilities will be the subject of future planning approvals.

The Proposed Development

The SSDA seeks development consent for the construction and operation of a 13 level ASB (the proposed development). The proposed development will provide facilities that include: an Adults' Emergency Department; Operating Theatres; Central Sterilising Service Department; Intensive Care Unit, Inpatient Units; Ambulance Bays and a Helipad. A full description of the proposed development is contained in Section 3.

The site the subject of the proposed development is bound by Botany Street to the west, Hospital Road (including part of the Campus) to the east, Magill Street to the south and part Eurimbla Avenue to the north. It encompasses a total of 53 lots (either in whole or in part), located at Randwick, NSW, 2031.

Statutory and Strategic Planning Framework

Part 4, Division 4.7 of the EP&A Act establishes an assessment framework for SSDAs. The proposed development is declared to be a SSDA as a "hospital" and "health, medical or related research facilities" in accordance with Clause 14 of Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* with a CIV of more than \$30million. Section 4.12(8) requires the SSDA to be accompanied by an EIS, which is assessed against the provisions of Section 4.15.

The EIS has been prepared in accordance with the requirements of Part 3 of Schedule 2 of the EP&A Regulation, the relevant Commonwealth and State legislation and statutory planning controls (refer to Section 4).



The proposed development is consistent with the relevant NSW Government Policies and Plans including the *Better Placed* policy that realises the public value and long-term social, economic and environmental benefits of good design processes and outcomes for NSW.

Consultation

Using its communications and engagement principles for capital projects, HI has built its Communications and Stakeholder Engagement Strategy for the Project to work closely with SESLHD, Sydney Children's Hospital Network, University of NSW and other Campus partners in leading the strategy, coordination and delivery of the Project. In this regard, HI has and is working closely with Government Agencies including Randwick City Council, Roads and Maritime Services, Transport for NSW (including Sydney Buses, Sydney Coordination Office and CBD and South East Light Rail) to inform the proposed development.

A Communications and Engagement Consultation Report in Appendix X provides detailed information on the following:

- HI's strategy and approach for engaging stakeholders.
- Identification of stakeholders, their area of interest, the communication objective and typical engagement methods.
- Summary of stakeholder engagement and consultation activities undertaken to date and that which are ongoing.
- Details of the issues raised, resolved or are being resolved and where the design of the proposed development was amended during the consultation.

In accordance with Clause 49(2) of the EP&A Regulation, HI, as a public authority, will arrange for the placement of a newspaper advertisement within 14 days of lodging the SSDA in lieu of obtaining land owner's consent.

Justification and Conclusion

A key driving factor in the formulation of the design of the proposed development is the vision proposed for the RHC within the Collaborative Framework as signed by the SESLHD, SCHN and UNSW which states that:

"We will be a world renowned model for the integration of high quality primary, secondary and tertiary clinical care, innovative education programs and enabling original and translational research that supports wellness across the community."

As such, the desired outcome is the creation of a centre of excellence in the provision of health services and care, health education and physical and mental health research.

Therefore, in particular, the following is noted:

- The EIS has addressed the SEARs issued by DP&E for SSDA 9113;
- The EIS has been informed quite comprehensively by: (i) the supporting technical advice contained in the Reports in Appendices A to BB; and (ii) consideration of matters raised by the



community and stakeholders through HI's ongoing consultations under its Communications and Stakeholder Engagement Strategy.

- In examining the change in land use and the consequential change in form and scale from the existing development on the site to that of the proposed development, it is considered there is strong justification for the Project. The grounds for justification are summarised in Section 10 and supported by consideration of the relevant objects of the EP&A Act addressed in Section 4.1.1 and relevant NSW Government Policies and Plans in Section 5.
- The justification for the development is supported by the identification and rigorous assessment of likely impacts and of appropriate sound and implementable mitigation measures. These arise from due consideration of the technical advice and the Reports and the matters in Section 4.15 Evaluation of the EP&A Act that is also addressed in Section 4.1.1 of the EIS.
- The potential environmental impacts as identified and assessed in Section 7 and residual impacts in Section 8 are considered to be acceptable. This conclusion is subject to the diligent implementation of the mitigation measures as specified in Sections 7, 8 and 9 during the design, construction and operational phases of the proposed development.

It is recommended that SSDA 9113 be approved.



1 Introduction

Advisian has been commissioned by NSW Health Infrastructure (HI) (the applicant) to prepare an Environmental Impact Statement (EIS) to accompany State Significant Development Application (SSDA) Number SSD 9113 pursuant to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The EIS has been prepared in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning and Environment (DP&E) under covering letter on 12 March 2018 (Appendix A) and pursuant to Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

The SSDA seeks development consent for the construction and operation of a 13 level Acute Services Building (ASB) (the proposed development) which represents Stage 1 of a multi-stage redevelopment program, known as the Randwick Hospitals Campus Redevelopment (the Project). The proposed development will provide facilities that include: an Adults' Emergency Department (ED); Operating Theatres; Central Sterilising Service Department; Intensive Care Unit, Inpatient Units; Ambulance Bays and a Helipad. A full description of the proposed development is contained in Section 3.

The site the subject of the proposed development is bound by Botany Street to the west, Hospital Road (including part of the Randwick Hospitals Campus (the Campus)) to the east, Magill Street to the south and part Eurimbla Avenue to the north. It encompasses a total of 53 lots (either in whole or in part), located at Randwick, NSW, 2031.

The purpose of the EIS is to:

- Describe the site and its environs.
- Provide a full description of the proposed development.
- Identify potential environmental impacts, if any, of the proposed development and carry out an assessment of them.
- Recommend mitigation measures to manage and as far as possible minimise/ameliorate the identified potential environmental impacts.

The information relied upon in the preparation of the EIS has been sourced wherever possible from recent literature, published by specialists and government agencies. Peer reviewed literature has been utilised where available. The EIS and supporting specialist studies have been prepared by qualified and experienced personnel.

In accordance with Clause 49(2) of the EP&A Regulation, HI, as a public authority, will arrange for the placement of a newspaper advertisement within 14 days of lodging the SSDA in lieu of obtaining land owner's consent.

1.1 Project Background

The site occupies a key position between the western boundary of the Campus and the eastern boundary of the University of New South Wales (UNSW) as shown in Figure 1-1. The Project is an important component of the vision of the NSW Government and Randwick Health Collaboration's (RHC) vision for the creation of the Randwick Health and Education Precinct (the Precinct).

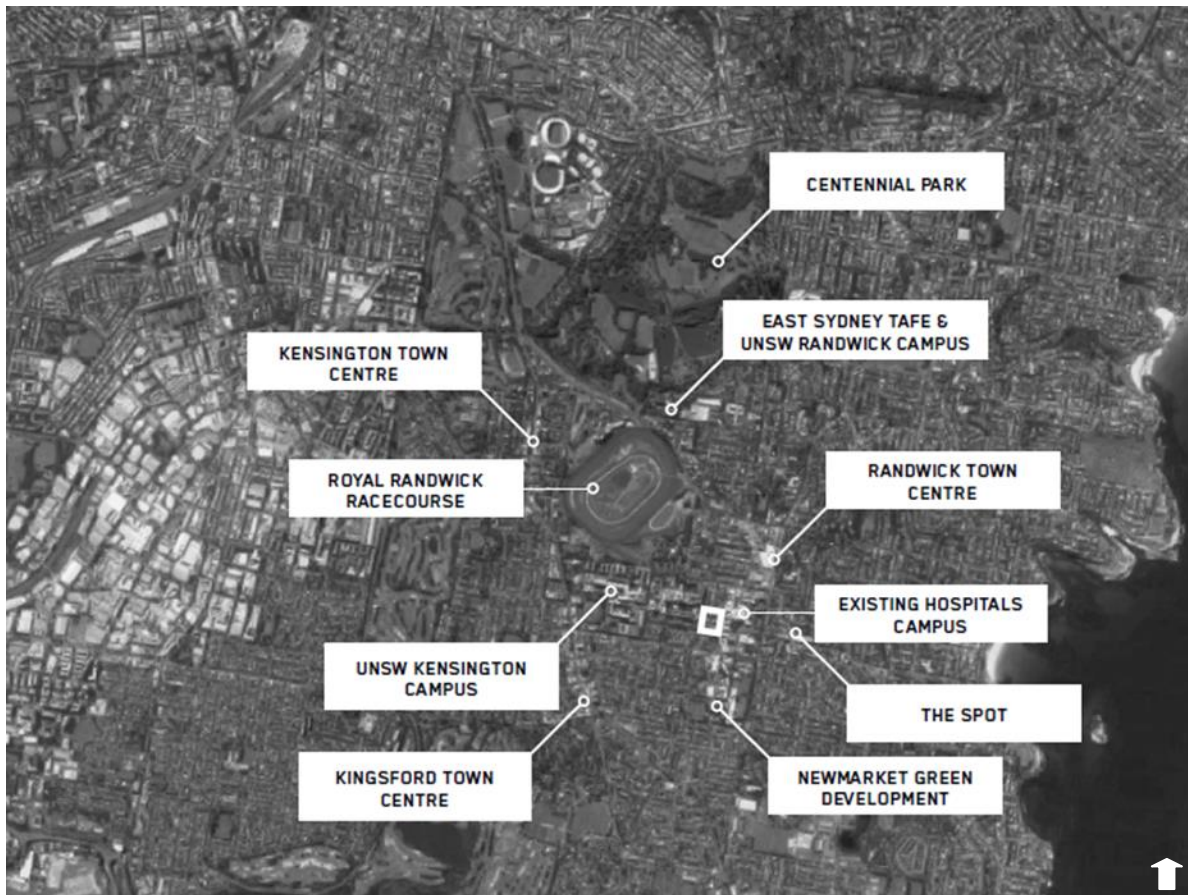


Figure 1-1 Location map with the Stage 1 site identified in white (Source: BVN, 2018).

The RHC is an alliance between the Prince of Wales Hospital (POWH), Royal Hospital for Women (RHW), Eastern Suburbs Mental Health Service (ESMHS), Sydney Children's Hospitals Network (SCHN) and UNSW. These institutions, together with the Black Dog Institute, Neuroscience Research Australia, the Bright Alliance and a number of other nearby research and health service providers form the Precinct.

The vision proposed for the RHC within the Collaborative Framework as signed by the SESLHD, SCHN and UNSW states that:

"We will be a world renowned model for the integration of high quality primary, secondary and tertiary clinical care, innovative education programs and enabling original and translational research that supports wellness across the community."

In March 2015, the then NSW Premier and NSW Minister for Health announced \$500 million of funding "to undertake the first major redevelopment of POWH in 20 years". A further \$220 million of



funding was committed in June 2017 as part of the NSW Budget 2017-2018. The Project is one of the primary objectives of the South Eastern Sydney Local Health District (SESLHD) Asset Strategic Plan 2012 – 2017.

Population forecasts indicate that over the next 10 years POWH faces a significant increase in demand for health services. The SESLHD predicts that with the current overnight average occupancy rate running at between 91-94%, POWH is expected to exceed 100% occupancy by 2017/18. With this projected growth in mind, it is considered that POWH needs to expand its services urgently to meet the above stated vision as an internationally recognised centre of excellence in delivering patient-centred quality health care, health education and research facilities and opportunities as well as realising its potential as an important employment hub for the area.

A Greater Randwick Urban Masterplan (Precinct Masterplan) completed in 2017 considers the Precinct in the context of the surrounding area and supporting infrastructure at a local, city and regional level. The aspirational masterplan has been developed by the RHC as a high level urban framework to guide the priorities for investment in health and education services in the Precinct. Further, it responds to the Greater Sydney Commission's (GSC) strategy for Eastern Sydney. The masterplan has been endorsed by Precinct stakeholders, with support from the Council. Further, the Randwick Academic Health Science Centre Masterplan (RAHSCM) has been developed to guide the staged development of the Campus. The plan aims to identify potential locations and services to meet future requirements of the Precinct partners while considering the outcomes from the Precinct Masterplan.

To best address the anticipated pressures from the projected growth, several development options have been considered for the Project. This included the examination of two options: Option A redevelopment only within the existing Campus boundaries; and Option B expansion of the Campus to the west.

Option A was discounted through the detailed evaluation process because it was considered to lead to a significant compromise in realising the vision, a continued dislocation in the delivery of health services and a development outcome not only unduly disruptive but also substantially limiting the opportunities to meet the foreseen needs for expansion. Without those opportunities for expansion, there is little, if any, room for the creation of a centre of excellence in the provision of additional health-related education, teaching and research facilities to meet professional and community expectations. As a consequence, the Campus would not be able to realise the full potential of the Precinct. In addition, expansion of the Campus to physically link with the UNSW Campus is a critical consideration to realising the Precinct's employment generating potential, where it is estimated that up to 15,000 new jobs would be created in the long-term.

Option B was chosen as the preferred option to facilitate the delivery of the Project and realise the vision of the NSW Government and RHC for the creation of the Precinct. The delivery of the Project will occur through a multi-stage redevelopment program which will be realised as follows:

1. Acquisition of the land to the immediate west of the existing Campus which is bordered by High, Botany and Magill Streets and Hospital Road and the land that constitutes the local road known as Eurimbla Avenue, Randwick. The acquisition of the land is the subject of an ongoing acquisition program by the Health Administration Corporation (HAC). It is proposed that the land will ultimately be consolidated with the lands on which the existing Campus is located.
2. Carrying out of early works (Precursor Works) which are the subject of separate planning approvals. Details of the Precursor Works and their planning approval pathways are set out in Section 1.2.

3. Obtaining development consent for the construction and operation of the ASB, as a SSD (refer Figure 1-2), which represents Stage 1 of the multi-stage redevelopment program.
4. Construction of additional health education, training and research facilities and clinical service facilities necessary to meet the requirements of the Campus. These additional facilities will be the subject of future planning approvals.

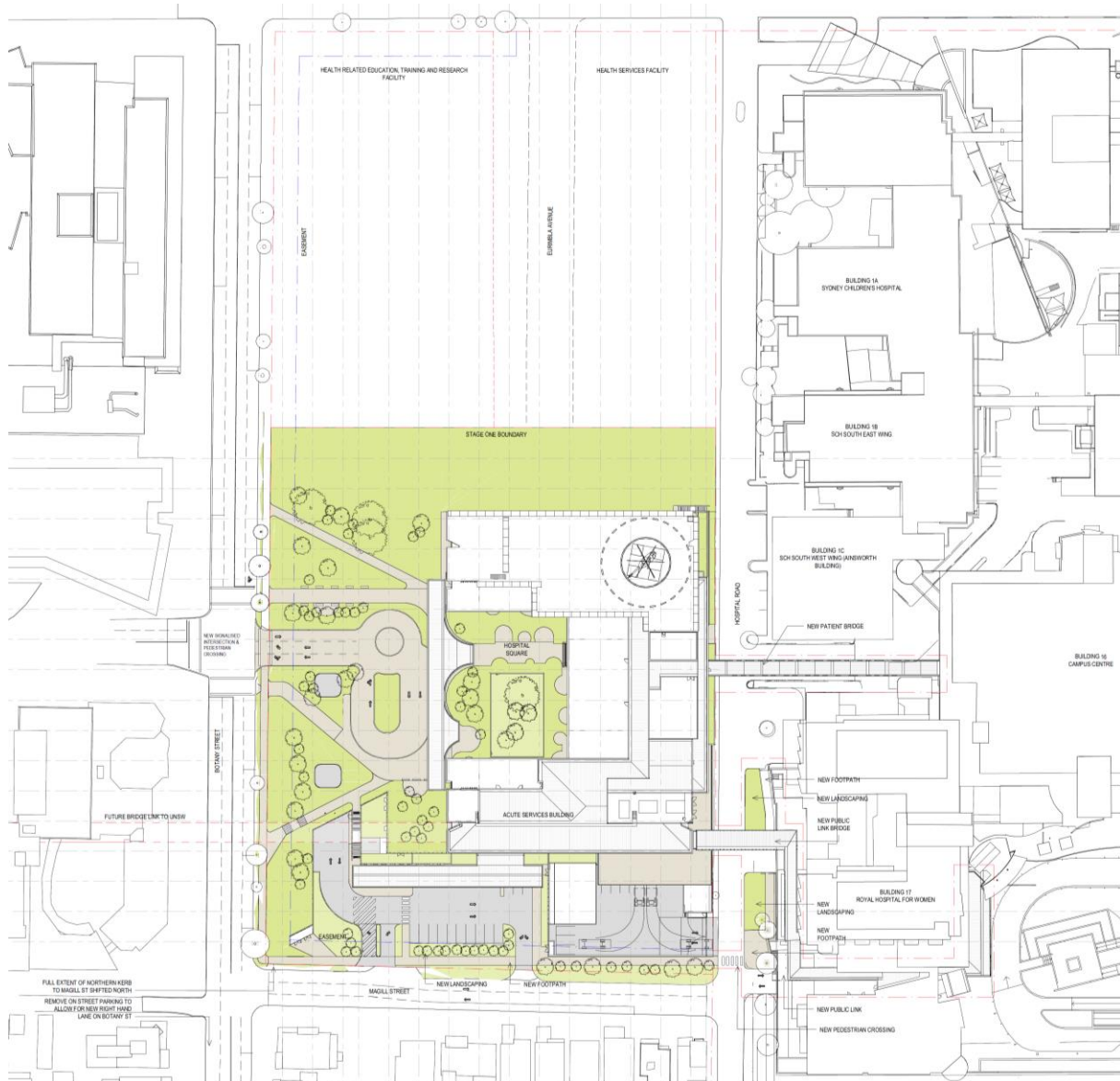


Figure 1-2 Proposed Site Plan (Source: BVN, 2018).



1.2 Approvals for Precursor Works under Parts 4 and 5 of EP&A Act

The Precursor Works have involved obtaining planning approvals for the works as set out below.

A Development Application (DA) under Part 4, Division 4.1 of the EP&A Act was lodged by HI with Randwick City Council (the Council) on 18 April 2018. The DA seeks development consent for the following works:

- Demolition of 92 buildings and ancillary structures.
- Removal of vegetation.
- Site remediation.

The DA site comprises land bound by High Street to the north, Botany Street to the west, Hospital Road (including part of the Campus) to the east and Magill Street to the south. The purpose of the DA is to enable the preparation of the Project site for the construction of the ASB, and facilitate the future development of additional health education, training and research facilities and clinical service facilities necessary to meet the requirements of the Campus. The DA is under assessment by the Council.

Reviews of Environmental Factors (REF) prepared for other components of the Precursor Works for the Project under Part 5 (Division 5.1) of the EP&A Act include the following:

- REF for services diversions (sewer and stormwater) and tree removal – determined by HI.
- REF for demolition of Eurimbla Avenue road and pavements, tree removal and other works to Eurimbla Avenue – in preparation by HI.

It is noted that separate to the above:

- Ausgrid is undertaking trenching and installation for new High Voltage (HV) feeders, installation of new street lighting and other related power services under the provisions of *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP).
- An REF for refurbishment works to Building 16 (Campus Centre) and Building 17 (RHW) is to be prepared in the future by HI.

1.3 Objectives of the Proposed Development

The objectives of the proposed development are to:

- Implement one of the primary objectives of the SESLHD's Asset Strategic Plan 2012 – 2017 which is to urgently expand POWH to respond to a growing population, projected increase in demand for integrated health services and continue to deliver patient-centred quality care.
- Create a centre of excellence in the provision of additional health-related education, teaching and research facilities to meet professional and community expectations.
- Ensure that the potential environmental impacts are minimised, appropriately managed and do not adversely impact on the environment or the community.



- Facilitate the implementation of an important first step in realising the vision of the NSW Government and RHC vision for the creation of the Precinct.

1.4 Estimated Capital Investment Value (CIV)

The CIV of the proposed development has been calculated by a qualified quantity surveyor, Altus Group to be \$358,673,682 (excluding GST). Refer to CIV Report in Appendix B.

1.5 Construction and Operational Jobs

An estimate of the jobs that will be created by the future development during the construction and operational phases of the development was calculated by Altus Group in the CIV Report (Appendix B) as follows:

- Construction – 1,213 jobs.
- Operational – 260 jobs.

1.6 Analysis of Feasible Alternatives

As outlined in Section 1.1 above, several development options have been considered for the Project. This included the examination of two options: Option A redevelopment only within the existing Campus boundaries; and Option B expansion of the Campus to the west.

Under the “Do Nothing” scenario, the Campus would continue to operate on a “business as usual” basis. The “Do Nothing” scenario does not adequately respond to the forecasted significant growth/increase in demand for health services at POWH.

Master planning has demonstrated that the existing Campus is too confined and congested to meet the growing and expanding health needs of the community. These factors, coupled with the age, functionality and configuration of the Campus infrastructure, limits the ability of the SESLHD to fully implement its health service vision. By 2037, the Campus is estimated to require up to a threefold increase in gross floor area, ranging from approximately 158,000m² to 474,000m², in order to meet the demand for health, education and research services.

Therefore, without the opportunities for expansion, there is no room for the creation of the required health services and associated additional health-related education, teaching and research facilities to meet professional and community expectations. Further, as a consequence, the Campus would not be able to realise the full potential of the Precinct as envisaged by the NSW Government and RHC as referred to above. The proposed ASB facilitates the implementation of an important first step in the expansion of the Campus with a gross floor area of approximately 49,000 m².

In terms of alternative ASB designs, the preferred design as set out in the attached Architectural Drawings (Appendix D), prepared by BVN, is the outcome of robust design testing, consultation, and careful consideration of the site’s context and setting and the Precinct Masterplan. It is to be noted that the positioning of the clinical core of the ASB at the eastern edge of the site minimises the distance between the ASB and the Campus and supports the creation of a spine of clinical connections running north and south from this core. Given that the proposed ASB design exhibits high architectural and design quality, an alternative design is considered unnecessary.

1.7 Secretary's Environmental Assessment Requirements

The SEARs were issued on 12 March 2018. A copy is provided in Appendix A. The key issues identified within the SEARs have been given priority in the identification and assessment of environmental matters. Table 1-1 outlines individual matters and the Sections where they have been addressed in the EIS.

Table 1-1 Secretary's Environmental Assessment Requirements

Requirement	Where Addressed
General Requirements	
The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of clauses 6 and 7 of Schedule 2 of the <i>Environmental Planning and Assessment Regulation 2000</i> (the Regulation).	This EIS
Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Section 8
Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include: • Adequate baseline data; • Consideration of potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and • Measures to avoid, minimise and, if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	Section 7
The EIS must be accompanied by a report from a qualified quantity surveyor providing: • A detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Environmental Planning and Assessment Regulation 2000) of the proposal, including details of all assumptions and components from which the CIV calculation is derived; • An estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and • Certification that the information provided is accurate at the date of preparation.	Section 1.4 and Section 1.5 Appendix B
Key Issues	
1. Statutory and Strategic Context – including Address the statutory provisions contained in all relevant environmental planning instruments, including: • State Environmental Planning Policy (State & Regional Development) 2011; • State Environmental Planning Policy (Infrastructure) 2007; • State Environmental Planning Policy No 33 – Hazardous and Offensive Development; • State Environmental Planning Policy No 55 – Remediation of land;	Section 4



Requirement	Where Addressed
- State Environmental Planning Policy No 64 – Advertising and Signage; and - Randwick Local Environmental Plan 2012 <i>Permissibility</i> Detail the nature and extent of any prohibitions that apply to the development. <i>Development Standards</i> Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards.	Section 4.3.2 Section 4.4
2. Policies Address the relevant planning provisions, goals and strategic planning objectives in the following: - NSW State and Premier Priorities; - Draft Greater Sydney Regional Plan 2017; - Draft Future Transport Strategy 2056 and supporting plans; - Crime Prevention Through Environmental Design (CPTED) Principles; - Planning Guidelines for Walking and Cycling; - Healthy Urban Development Checklist, NSW Health; - Greater Sydney Commission's Draft Eastern City District Plan; and - Better Placed – An integrated design policy for the built environment of NSW 2017.	Section 5
3. Built Form and Urban Design - Address the height, density, bulk and scale, setbacks of the proposal in relation to the hospital campus, surrounding development, topography, streetscape and any public open spaces. - Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, heritage significance, materials, colours and Crime Prevention Through Environmental Design Principles. - Demonstrate how the proposed development could integrate with any potential future expansion of the campus or any potential surrounding health precinct. - Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. - Demonstrate how high-quality design will be achieved with reference to Better Placed – An integrated design policy for the built environment of New South Wales and in accordance with a strategy developed in consultation with the Government Architect of NSW.	Section 7.2 Appendix D
4. Environmental Amenity Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing, reflectivity from building façades and wind impacts. A high level of environmental amenity for any surrounding residential properties or areas of public open space must be demonstrated.	Section 7.3 Appendices D, G and H



Requirement	Where Addressed
5. Transport and Accessibility Include a transport and accessibility impact assessment, which details, but not limited to the following: • Accurate details of the current daily and peak hour vehicle (including point to point transport), public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development; • An assessment of the operation of existing and future transport networks including the bus network and Sydney Light Rail and their ability to accommodate the forecast number of trips to and from the development; • Details of estimated total daily and peak hour trips generated by the proposal, including vehicle (including point to point transport), public transport, pedestrian and bicycle trips; • The adequacy of public transport, pedestrian and bicycle networks and infrastructure to meet the likely future demand of the proposed development; • The impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site, including Sydney Light Rail and bus network, and identify measures to integrate the development with the transport network and surrounding education and health facilities; • Details of any upgrading or road improvement works required to accommodate the proposed development, including any new proposed signalised intersections; • Details of travel demand management measures (for staff and visitors) to encourage sustainable travel choices and details of programs for implementation and monitoring (including provision of green travel plans and wayfinding strategies); • The impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity and for a 10-year horizon, and the need/associated funding for upgrading or road improvement works, if required; • The proposed active transport access arrangements and connections to public transport services, including Sydney Light Rail and bus services; • The proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport (including Sydney Light Rail), pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones; • Measures to maintain road and personal safety in line with CPTED principles; • Details of the existing car parking capacity across the existing hospital campus and the occupancy rate during peak demand periods (based on a parking occupancy and turnover survey); • Details of the proposed number of additional car parking spaces to be provided for staff and visitors and compliance with appropriate parking codes and justification for the level of car parking provided on-site;	Section 7.4 Appendices I and V



Requirement	Where Addressed
• Detail measures to be implemented to discourage staff and visitors parking on surrounding residential streets; • Details of the proposed number of bicycle parking spaces (in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance) and the provision of end-of-trip facilities; • Details of emergency vehicle access arrangements; • An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures; • Service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); • In relation to construction traffic: ○ Assessment of cumulative impacts associated with other construction activities (including Sydney Light Rail and UNSW projects); ○ An assessment of road safety at key intersection and locations subject to heavy vehicle construction movements and high pedestrian activity; ○ Details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process; ○ Details of anticipated peak hour and daily construction vehicle movements to and from the site; ○ Details of access arrangements of construction vehicles (including work zones), construction workers to and from the site, emergency vehicles and service vehicles; ○ Details of temporary cycling and pedestrian access during construction; ○ Details of proposed construction vehicle access arrangements at all stages of construction; and ○ Traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including preparation of a draft Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact (which must include vehicle routes ,number of trucks, hours of operation, access arrangements and traffic control measures for all demolition/construction activities). ➔ Relevant Policies and Guidelines: • <i>Guide to Traffic Generating Developments (Roads and Maritime Services)</i> • <i>EIS Guidelines – Road and Related Facilities (DoPI)</i> • <i>Cycling Aspects of Austroads and Guides</i> • <i>NSW Planning and Guidelines for Walking and Cycling</i> • <i>Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development</i> • <i>Standards Australia AS2890.3 (Bicycle Parking Facilities)</i>	



Requirement	Where Addressed
6. Ecologically Sustainable Development - Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development. - Demonstrate the development has been assessed against a suitably accredited rating scheme to meet industry best practice. - Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.	Section 7.5 Appendix J
7. Biodiversity Biodiversity impacts related to the proposal and the preparation of a Biodiversity Development Assessment Report are to be addressed in accordance with the requirements of the <i>Biodiversity Conservation Act 2016</i>. ➔ Relevant Policies and Guidelines: <i>Policy and guidelines for fish habitat conservation and management (2013)</i>	Section 7.6 Appendix K
8. Heritage Include a Heritage Impact Statement that addresses the significance of, and provides an assessment of the impact on the heritage significance of any heritage items on the site and in the vicinity, and/or conservation areas and/or potentially archaeologically significant areas, in accordance with the guidelines in the <i>NSW Heritage Manual</i>.	Section 7.7 Appendices M and N
9. Aboriginal Heritage Address Aboriginal Heritage in accordance with the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.	Section 7.8 Appendix O
10. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation and outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. ➔ Relevant Policies and Guidelines: <i>Noise Policy for Industry 2017 (EPA)</i> <i>Interim Construction Noise Guideline (DECC)</i> <i>Assessing Vibration: A Technical Guideline 2006</i> <i>Development Near Rail Corridors and Busy Roads – Interim Guideline (Department of Planning 2008)</i>	Section 7.9 Appendix G
11. Sediment, Erosion and Dust Controls - Detail measures and procedures to minimise and manage the generation and off-site transmission of vapours, sediment, dust and fine particles. - Prepare a Sediment and Erosion Control Plan detailing type of sediment and erosion control measures, location of material stockpiles and storage areas and location of building operations and equipment.	Section 7.10 Appendix P



Requirement	Where Addressed
➔ Relevant Policies and Guidelines: • <i>Manage Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom)</i> • <i>Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)</i> • <i>Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)</i>	
12. Contamination Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. ➔ Relevant Policies and Guidelines: • <i>Managing Land Contamination: Planning Guidelines – SEPP 55 Remediation of Land (DUAP)</i>	Section 7.11 Appendix S
13. Utilities • Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure. • Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	Section 7.12 Appendices T and U
14. Contributions Address Council's S94 Contribution Plan and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.	Section 7.13
15. Drainage • Detail drainage associated with proposal, including stormwater and drainage infrastructure. • Prepare a Drainage Infrastructure Management Plan for the extended development site (bordered by Botany Street, Magill Street, Hospital Road and High Street). The management plan must identify all existing drainage infrastructure within the extended development site and fully document changes to the infrastructure required to facilitate construction of the proposed development. • Details measures to minimise operational water quality impacts on surface waters and groundwater and outline measures to not cause surface water flows or flows within the Council owned drainage network to be transferred from one catchment or sub-catchment to a different catchment or sub-catchment, nor change the time of concentration for each sub-catchment as pre-development and post-development hydrographs. ➔ Relevant Policies and Guidelines: • <i>Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)</i>	Section 7.14 Appendix P



Requirement	Where Addressed
16. Flooding Assess flood risk on site (based on the Draft Birds Gully and Bunnerong Road Flood Study) and 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 7.15 Appendix P
17. Groundwater Assess the existing groundwater regime for the development site. The design of any basement structures must consider the impact of the structures on groundwater (seepage flows and/or water table) and preclude the need for permanent/extended periods of dewatering of the site in dealing with seepage flows or building within the water table.	Section 7.16 Appendices P and R
18. Waste Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.	Section 7.17 Appendices Y and Z
19. Construction Hours Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.	Section 7.18
Plans and Documents	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Environmental Planning and Assessment Regulation 2000. Provide these as part of the EIS rather than as separate documents. In addition, the EIS must include the following:	This EIS
- Architectural drawings including but not limited to the following requirements: - Dimensioned and including RLs; - MGA co-ordinates; and - Site and context plans that demonstrate active transport linkages with existing, proposed and potential footpaths and bicycle paths and public transport links.	Appendix D
Site Survey Plan, showing existing levels, location and height of existing and adjacent structures / buildings and boundaries.	Appendix C
Site Plan.	Appendix D
Site Analysis Plan.	Appendix D
Drawings identifying location of any Departure and Approach Procedures for any helipad proposed on the site (if relevant).	Appendix AA
Stormwater Concept Plan.	Appendix P
Sediment and Erosion Control Plan.	Appendix P



Requirement	Where Addressed
Shadow Diagrams.	Appendix D
View Analysis/photomontages, including from public vantage points.	Appendix D
An integrated Landscape Plan/Strategy (including identification of any trees to be removed and trees to be retained or transplanted).	Appendix E
An integrated public domain/urban design plan including: active transport; existing, propose and potential footpaths and bicycle paths and link to surrounding public transport.	Appendix D
A physical materials sample board (no larger than A3) with correct proportional representation of materials.	<i>Provided separately</i>
Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan detailing vehicle routes, number of trucks, hours of operation, access arrangements and traffic control measures.	Appendices F and I
Geotechnical and Structural Report.	Appendices Q and R
Acid Sulfate Soil Management Plan.	<i>Not applicable</i>
Accessibility Report	Appendix V
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups, special interest groups including local Aboriginal land councils and registered Aboriginal stakeholders, and affected landowners. In particular, you must consult with: - Randwick City Council; - Sydney Light Rail; - Roads and Maritime Services; and - Sydney Coordination Office within Transport for NSW. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	Section 6 Appendix X

1.8 Applicant and Project Team

Applicant

The applicant for this SSDA is NSW Health Infrastructure.

Project Team

The project team is outlined in Table 1-2.



Table 1-2 Project Team

Discipline	Consultant
Consultant Project Manager	PwC
Consultation	HI
Architect	BVN
Town Planner	Advisian
Landscape Architect	Aspect Studios
Land Surveyor	LTS Lockley
Quantity Surveyor	Altus Group
Mechanical and Vertical Transport Engineer	LCI
Electrical Engineer	AECOM
Traffic and Transport Engineer	Arup
Noise and Vibration Engineer	Acoustic Studio
Civil and Structural Engineer	Enstruct
Geotechnical Engineer	Douglas Partners
Accessibility Consultant	Iaccess Consultants
BCA Consultation	BM&G
Hydraulic Engineer	ACOR
Sustainability	LCI
Arboricultural and Biodiversity	Eco Logical Australia
Heritage	Advisian
Historical Archaeology	Casey and Lowe
Aboriginal Archaeology	Mary Dallas Consulting Archaeologists
Aviation Consultant	AviPro
Construction Management	Lendlease
Waste Management (construction)	Lendlease
Waste Management (operation)	SESLHD
Contamination	Douglas Partners
Wind Engineer	Arup
Hazardous Goods and Chemicals	Safety Engineering & Technical Services

2 Site Analysis

2.1 Regional Context

The site is located in the Randwick Local Government Area (LGA), adjacent to the Campus, some 6 kilometres (km) southeast of the Sydney Central Business District (CBD) and approximately 5 km from Sydney Airport. Figure 5-1 provides a regional context map of the site showing its location with regard to the Sydney CBD and nearby centres.

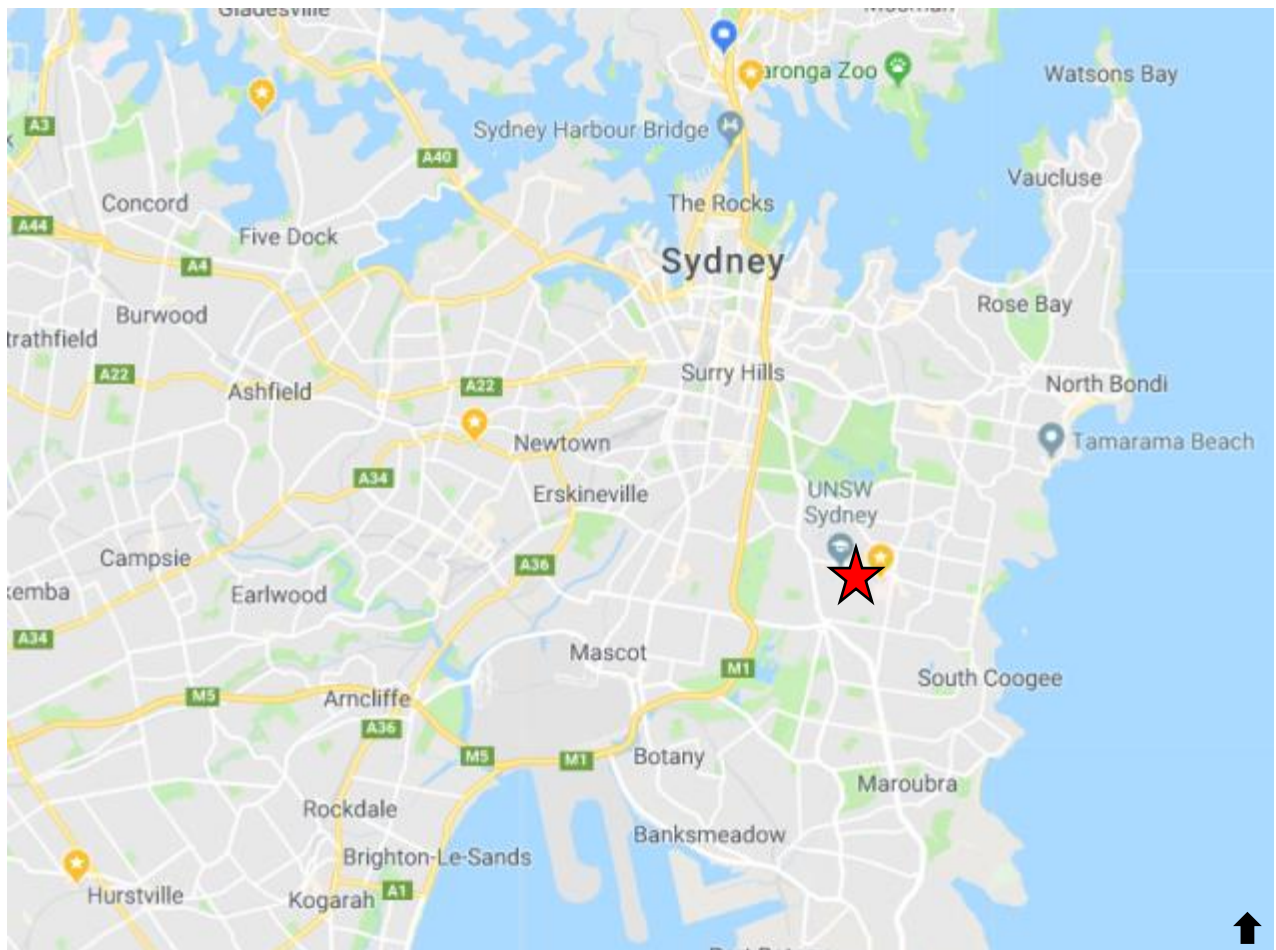


Figure 2-1 Regional overview with the site location indicated by red star (Base Map: Google Maps, 2017).

The site forms part of the SESLHD, which is one of 19 Local Health Districts and Specialty Health Networks in NSW. The SESLHD covers the LGAs of Woollahra, Waverley, Randwick, Botany Bay, the City of Sydney, Lord Howe Island, Rockdale, Kogarah, Hurstville and Sutherland (Figure 2-2). In total, the SESLHD services approximately 830,000 people. The Campus is the primary servicing health precinct within the northern sector of the SESLHD.

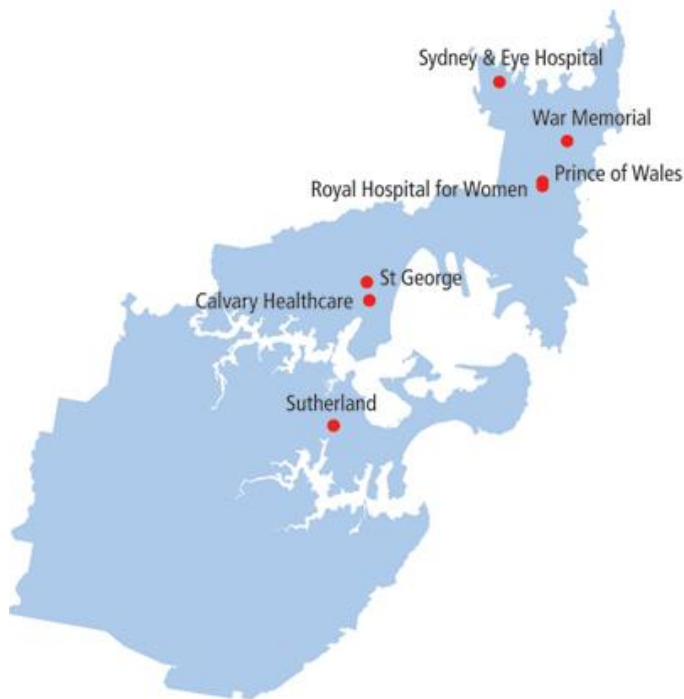


Figure 2-2 SESLHD Catchment (Source: NSW Health).

Construction of the new CBD and South East Light Rail (Light Rail) along High Street is well under way, with it anticipated to be operational in 2019. High Street is a major frontage for both the Campus and the UNSW. The Light Rail is seen as a key driving factor for revitalising the High Street frontage. Thus, it presents a major opportunity for the Precinct. Further, it will, drive a change in transport modality across the Precinct and will require planning of access points for existing services, including to the Sydney Children's Hospital's ED.

2.2 Local Context

The existing Campus has an area of approximately 13.26 hectares (ha). It is legally described as Lot 1 DP 870720 with a zoning of SP2 Infrastructure (Health Services Facilities). Its extent is defined by High Street to the north, Barker Street to the south, Avoca Street to the east and Hospital Road to the west. Existing development within the Campus includes original sandstone Victorian buildings of exceptional heritage significance, low-rise brick structures and modern multi-storey and multi-disciplinary facilities. Figure 2-3 features a site analysis diagram.

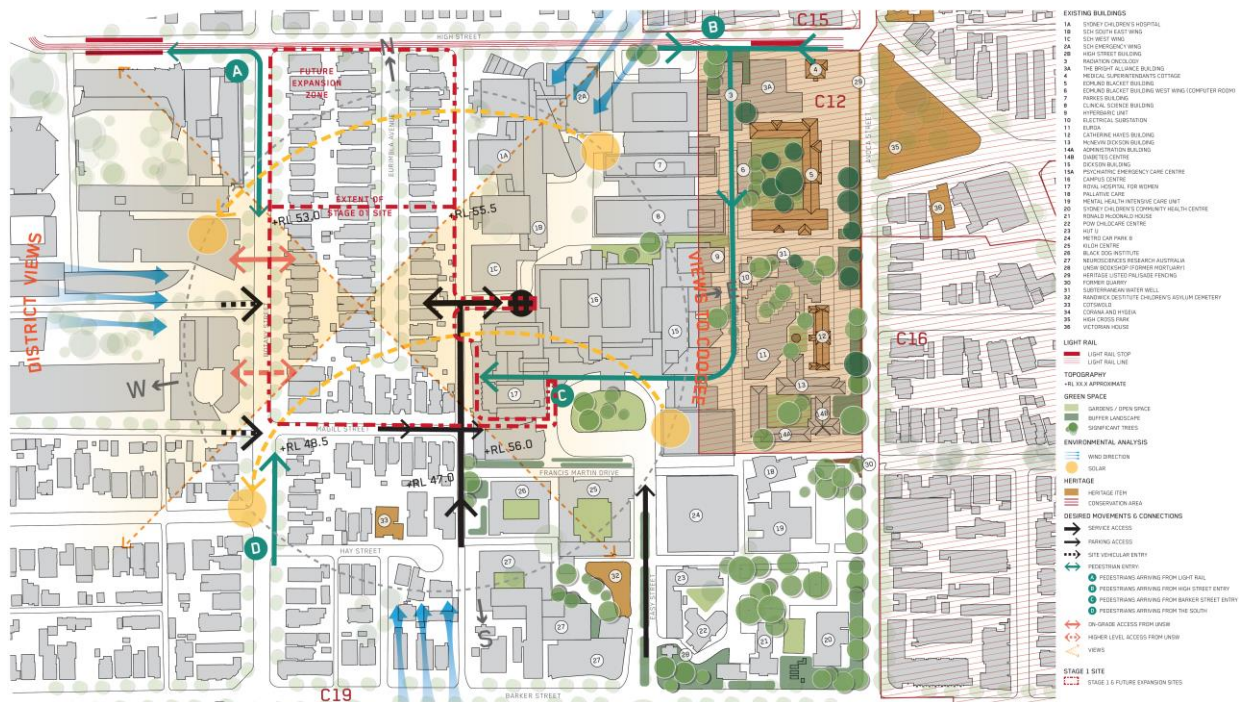


Figure 2-3 Site Analysis Diagram (Source: BVN, 2018).

Four hospitals presently share the Campus: Sydney Children's Hospital, Randwick (part of the SCHN), the RHW, POW Public Hospital (POWH), and the POW Private Hospital (POWPH). Collectively, these institutions supply a variety of health services (BVN, 2018), including: Acute; Ambulatory; Community; Cancer; and Mental Health Services.

Further, three leading research institutes coexist with the abovementioned institutes which specialise in the following services:

- Black Dog Institute: world-leading institute for the diagnosis, treatment and prevention of mental illness.
- Neuroscience Research Australia: an independent medical research institute that specialises in research pertaining to the prevention, treatment and cure for brain and nervous system diseases, disorders and injuries.
- The Bright Alliance: Cancer research, clinical care and education facility, integrated with the Nelune Comprehensive Cancer Centre and the Scientia Clinical Research project (formerly known as the Australian Advanced Treatment Centre) and SCHN.

The Kensington Campus of UNSW is located directly to the west of the site across Botany Street, partly on Lot 3 DP1104617 and Lot 1 DP510271 and is zoned SP2 Infrastructure (Educational Establishment). It features a diverse range of buildings, ranging from original Victorian buildings, light-weight huts, and low-rise brick structures, through to more recent multi-storey, multi-disciplinary facilities (BVN, 2018).

The Randwick Junction Town Centre, located approximately 350 m north-east of the site contains a mix of retail, commercial and civic buildings. As discussed in Section 2.1 construction of the Light Rail is under way along High Street.



The Project site has an area of some 3.5 ha and is bounded by Hospital Road to the east, Botany Street to the west, residential properties and non-residential uses up to High Street to the north, and Magill Street to the south. The boundary of the proposed development site as shown in Figure 2-4 has an area of approximately 2 ha.

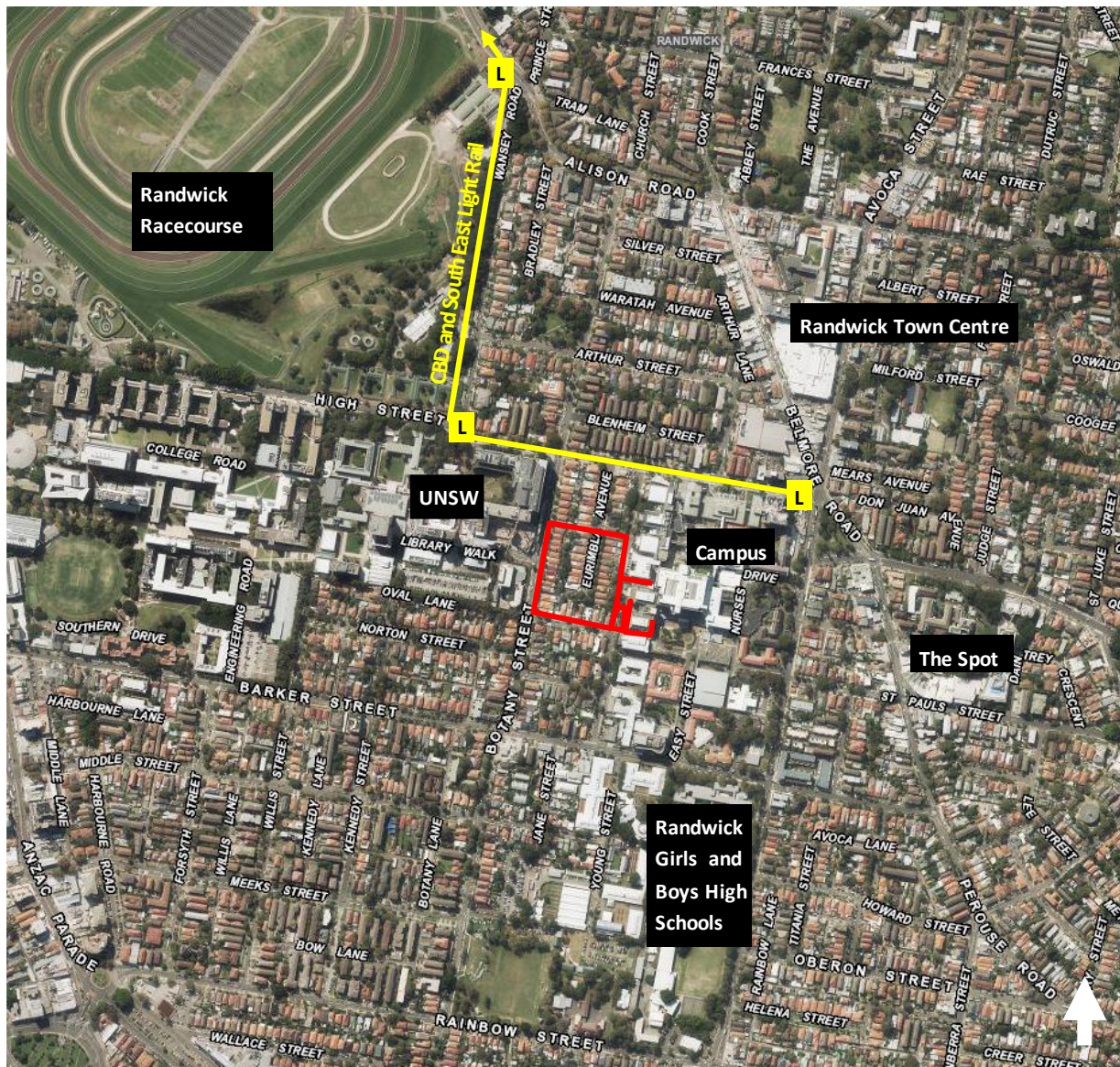


Figure 2-4 Locality map with ASB site outlined in red (Base Map: SIX Maps, 2017).



2.3 Site Description

2.3.1 Legal Description

As identified in Table 2-1, the site the subject of the proposed development encompasses a total of 53 lots (in whole or part) plus part of Eurimbla Avenue (that has no lot and Deposited Plan (DP)).

Table 2-1 Lot and DP numbers for properties the subject of the proposed development

Lot/DP
Part Lot 1 DP870720 (Randwick Hospitals Campus being for two pedestrian bridges over Hospital Road and landscaping)
Lot 7 DP13997 (71 Botany Street)
Lot A DP167106 (73 Botany Street)
Lot B DP167106 (75 Botany Street)
Lot C DP167106 (77 Botany Street)
Lot D DP167106 (79 Botany Street)
Lot A DP33161 (81 Botany Street)
Lot B DP33161 (83 Botany Street)
Lot C DP33161 (85 Botany Street)
Lot D DP33161 (87 Botany Street)
Lot E DP33161 (89 Botany Street)
Lot F DP33161 (91 Botany Street)
Lot 1 DP741639 (93 Botany Street)
Lot 2 DP1134643 (95 Botany Street)
Lot A DP439101 (97 Botany Street)
Lot B DP439101 (99 Botany Street)
Lot 3 DP302329 (101 Botany Street)
Part Lot 2 DP13995 (27 Eurimbla Avenue)
Lot 3 DP13995 (29 Eurimbla Avenue)
Lot 4 DP13995 (31 Eurimbla Avenue)
Lot 5 DP13995 (33 Eurimbla Avenue)
Lot 6 DP13995 (35 Eurimbla Avenue)
Lot 7 DP13995 (37 Eurimbla Avenue)
Lot 8 DP13995 (39 Eurimbla Avenue)
Lot 9 DP13995 (41 Eurimbla Avenue)
Lot 10 DP13995 (43 Eurimbla Avenue)



Lot/DP
Lot 11 DP13995 (45 Eurimbla Avenue)
Lot 12 DP13995 (47 Eurimbla Avenue)
Lot 13 DP12909 (34 Eurimbla Avenue)
Lot 14 DP12909 (36 Eurimbla Avenue)
Lot B DP441943 (38 Eurimbla Avenue)
Lot A DP441943 (40 Eurimbla Avenue)
Lot 1 DP1182570 (42 Eurimbla Avenue)
Lot 2 DP1182570 (44 Eurimbla Avenue)
Lot 23A DP434935 (46 Eurimbla Avenue)
Lot 23B DP434935 (48 Eurimbla Avenue)
Lot 1 DP522596 (50 Eurimbla Avenue)
Lot 2 DP522596 (52 Eurimbla Avenue)
Lot 1 DP501682 (54 Eurimbla Avenue)
Lot 2 DP501682 (56 Eurimbla Avenue)
Lot 3 DP513339 (58 Eurimbla Avenue)
Lot 4 DP513339 (60 Eurimbla Avenue)
Lot 19 DP7745 (62 Eurimbla Avenue)
Lot 18 DP7745 (64-64A Eurimbla Avenue)
Lot 52 DP7745 (64R Eurimbla Avenue – pedestrian walkway)
Lot 1 DP74860 (66 Eurimbla Avenue – also known as 6 Magill Street)
Lot 11 DP806091 (66A Eurimbla Avenue)
Lot 1 DP307266 (2 Magill Street)
Lot 12 DP806091 (4 Magill Street)
Lot 7 DP975640 (8-8A Magill Street)
Lot 1 DP11351 (10 Magill Street)
Lot 2 DP11351 (12 Magill Street)
Lot 3 DP11351 (14 Magill Street)

2.3.2 Ownership

A component of the Project involves acquisition by the HAC (currently underway) of all properties not already in its ownership (being a mix of private freehold and UNSW owned properties) within the site, as listed in Table 2-1. The land which constitutes Eurimbla Avenue is to be acquired from the Council under a separate process. The Campus is owned by the HAC.



2.3.3 Existing Development

The site comprises the following:

- Part of the private (HAC owned) Hospital Road located within the Campus and the adjacent Building 16 (Campus Centre), RHW (Building 17) which are proposed to be linked by elevated pedestrian bridges from the ASB (over Hospital Road).
- Non-residential buildings and structures, a mix of detached and semi-detached residential buildings, outbuildings/structures and vegetation in which their removal are the subject of separate planning approval as detailed in Section 1.2.
- Vegetation located adjacent to Hospital Road.

2.3.4 Road Network, Access and Parking

Eurimbla Avenue is a two-way, no-through local road, which extends north-south from High Street. As noted above, Hospital Road is a private road owned by HAC and travels in a north-south direction and borders the western boundary of the Campus. Botany Street is a two-way collector road, owned by the Council. Magill Street is a two-way, no-through local road. A pedestrian walkway is located toward the southern end of Eurimbla Avenue which runs in an east-west direction and connects to Botany Street.

There are approximately 2,300 off-street car parking bays available to staff and the public at the existing Campus, accessed via Easy Street or Hospital Road. Conversely, on-street car parking counts conducted by Arup (2018) found there to be approximately 222 car parking spaces currently available. This figure represents a mix of time restricted and unrestricted car parking options.

For further discussion on existing road network, access and parking, refer to Section 7.4.2.

2.3.5 Public Transport

Randwick is a district hub for buses in Sydney's Eastern Suburbs. A number of bus routes provide regular services to and from Randwick. The majority of these buses provide frequent services to the CBD. Some buses also provide services to surrounding areas, including Green Square, Mascot, Bondi Junction, Maroubra Junction as well as express services between UNSW and Central Station. The CSLER is anticipated to be operational in 2019 and as discussed in the Transport Assessment (Arup 2018) (Appendix I) will drive a change in transport modality across the Precinct.

2.3.6 Active Transport

The Council has mapped the extent of on-road and off-road cycling and walking routes in the LGA. Figure 2-5 illustrates the current routes available to the site. The Council has also developed a network of priority cycling routes that are to be implemented as part of Randwick's 20-year City Plan. A total of eleven routes have been identified, including a route between Kensington and Coogee via High Street.

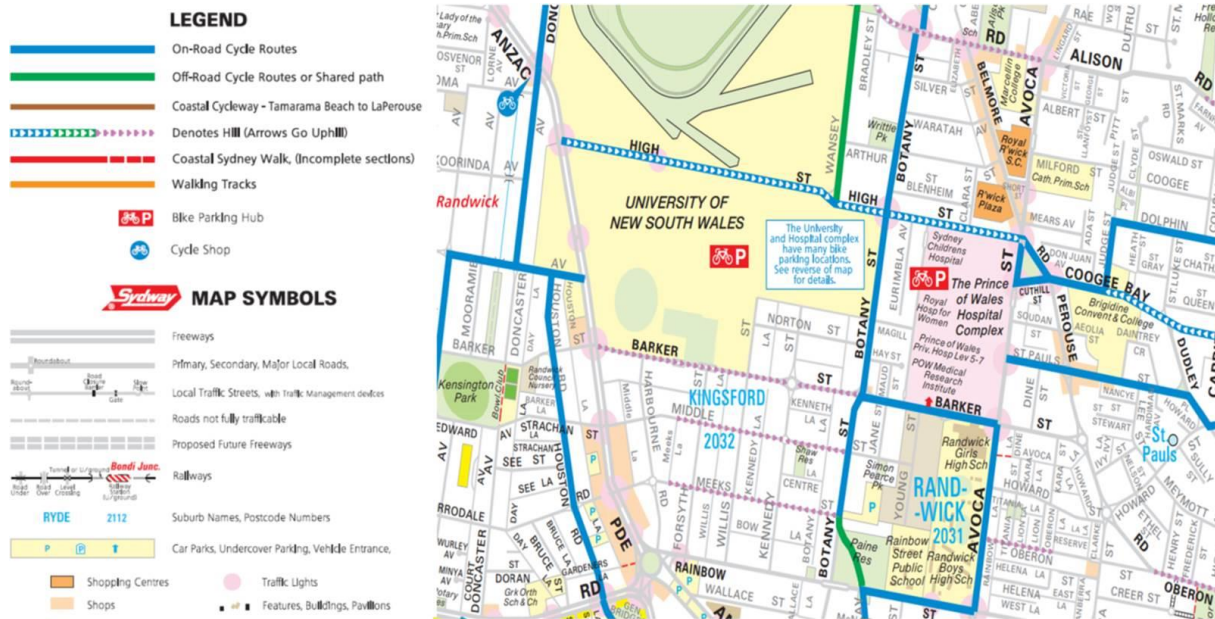


Figure 2-5 Current on-road and off-road cycling and walking routes (Source: Sydney Publishing, 2010).

2.4 Site Photos

Photographs of the site and its surrounding context are contained in Figure 2-6 to Figure 2-13.



Figure 2-6 Eurimbla Avenue; looking south (Source: Advisian, 2017).



Figure 2-7 Pedestrian walkway at southern end of Eurimbla Avenue; looking west to Botany Street (Source: Advisian, 2017).



Figure 2-8 Botany Street; looking north from the Botany and Magill Street intersection
(Source: Advisian, 2017).



Figure 2-9 UNSW Gate 11 at Botany Street; looking east from UNSW across the site to the Campus
(Source: Advisian, 2017).



Figure 2-10 Magill Street; looking east toward Hospital Road (Source: Advisian, 2017).



Figure 2-11 Magill Street; looking west toward Botany Street (Source: Advisian, 2017).



Figure 2-12 Intersection of Hospital Road and Magill Street; looking north towards Campus buildings
(Source: Advisian, 2017).



Figure 2-13 Hospital Road; looking south from Ainsworth Building (Source: Advisian, 2017).



3 Proposed Development

3.1 Overview

The construction of the ASB represents Stage 1 of a multi-stage redevelopment program, which comprises a gross floor area of approximately 49,000 m² as shown in plan form in Figure 1-2.

Development consent is sought for the following:

- Bulk excavation.
- Site preparation works including shoring and piling.
- Construction of a 13 level ASB comprising:
 - Level -02 Adults' Emergency Department (ED) and Back of House (BOH) services
 - Level -01 Front of House (FOH)
 - Level 00 Front of House
 - Level 01 Operating Theatres
 - Level 02 Plant, Central Sterilising Service Department (CCSD) and Logistics Interchange
 - Level 03 Intensive Care Unit (ICU) and Medical Assessment Unit (MAU)
 - Levels 04 to 08 Inpatient Units (IPU)
 - Level 09 Plant
 - Level 10 Helipad
- Loading dock and ambulance bays.
- Three level bridge over Hospital Road for clinical and operational connections to the existing hospital campus.
- One level public bridge over Hospital Road for public link connection to existing hospital campus.
- Upgraded road infrastructure at Magill Street and Botany Street including potential signalised intersection and pedestrian crossing on Botany Street.
- Capacity for a potential future pedestrian bridge link over Botany Street from the ASB to UNSW.
- New circulation roads to be constructed on the newly excavated grade to the west and south of the new building.



- Capacity for additional internal access road to be constructed to the northern part of the Project site.
- Hospital square with vehicular access and public drop off areas.
- Building services infrastructure and connections to utilities as described in detail in Section 3.9.
- Stormwater drainage infrastructure including on-site detention as described in detail in Section 3.9.
- Site landscaping.

Photomontages of the ASB are presented in Figure 3-1 to Figure 3-3.



Figure 3-1 Photomontage view from junction of Botany Street and Magill Street looking east (Source: BVN, 2018).



Figure 3-2 Photomontage view from Botany Street looking south-east (Source: BVN, 2018).



Figure 3-3 Photomontage view from Hospital Road near junction with Magill Street looking north (Source: BVN, 2018).

3.2 Design Principles

Stage 1 of the Project is informed by a significant body of preceding work which sets the framework for future development in the Precinct. The body of work includes the following key items:

- Precinct Masterplan – outlines urban design principles ensuring the long-term success of progressive infrastructure development within the Precinct. This integration is particularly important between the Campus and UNSW, where new partnerships are anticipated to attract greater capital investment, research funds and commercial opportunities.
- The principles developed in the RAHSCM including zonal master plans, proposed staging, building areas, and high-level blocking and stacking.
- The Integrated Planning Framework and Functional Design Brief, which synthesise the future functional requirements for health service delivery by the POWH, RHW, SCHN, POWPH and ESMHS, along with clearly defined requirements for Campus-based health education and health research facilities and opportunities.
- The Greater Randwick Integrated Health Services Plan.

The Precinct Masterplan established four overarching principles. They are: (1) green and healthy, (2) connected, (3) integrated; and (4) responsive – as presented in Figure 3-4.

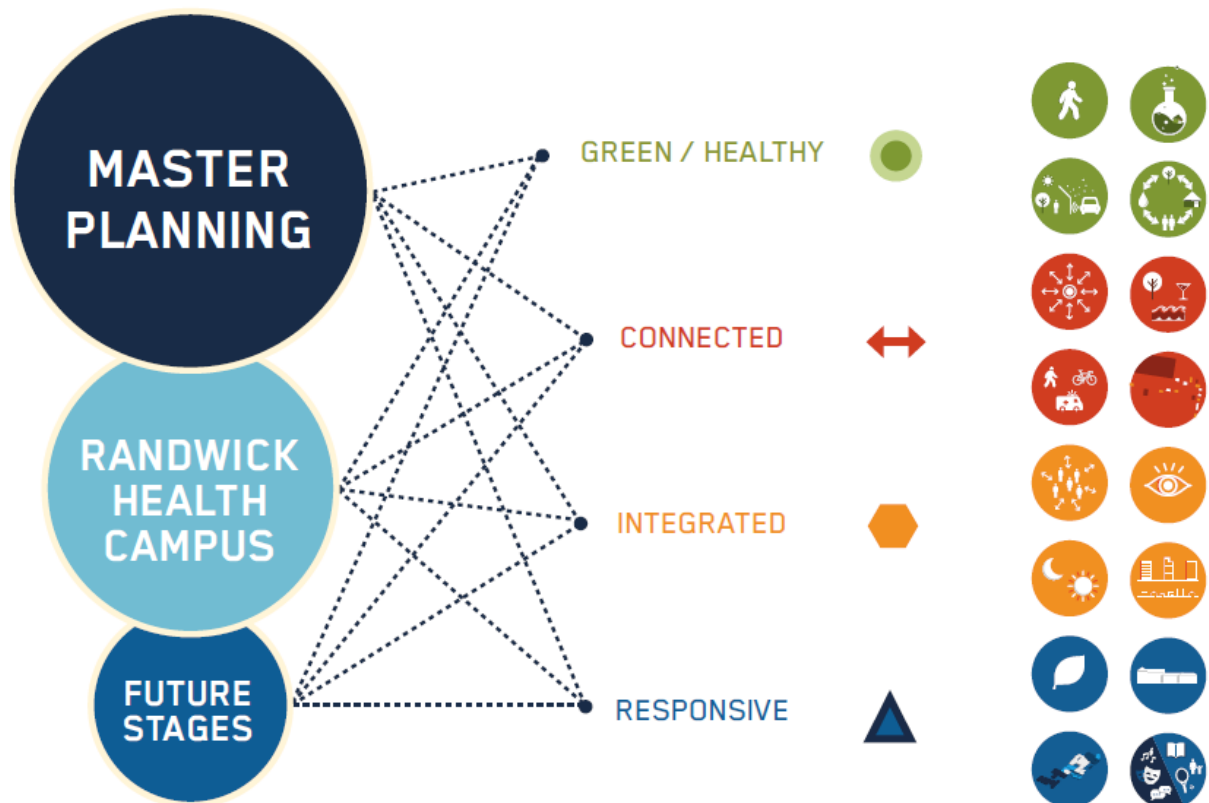


Figure 3-4 Four overarching Precinct Masterplan principles guiding ASB design (Source: BVN, 2018).



Sitting under the umbrella of each of these key aspirations is a series of detailed principles that have directly informed the design of the ASB. They include:

- Creating a centre of excellence in the provision of health, research and education services to provide a strong identity as a welcoming and responsive site.
- Effective mitigation of potential environmental impacts to enhance the existing natural qualities of the site and maintain balance between environmental and community wellbeing.
- Implement sustainable building measures and design initiatives that encourage a healing urban environment and network of quality, interconnected public spaces through the Precinct.
- Strategic expansion of the POWH under the SESLHD's Asset Strategic Plan 2012 – 2017 to urgently accommodate a growing population and increasing demand for integrated care.
- Providing a diversity of urban characters responding to individual locality and setting and professional and community expectations.

3.3 Development Data

The key numeric ASB development information is summarised in Table 3-1.

Table 3-1 Key development information

Component	Proposal
Gross floor area (approx.)	49,000 m ²
Effective height (indicative)	54.2 m (RL 101.2 – RL 47.0)
Height (top of the lift core)	RL 111.0
Building height (storeys)	10 storeys above ground plus roof helipad
Boundary setbacks	North – northern façade is designed to front a future public space at RL 56.0, and interface with future additional health services facilities at RL 52.0 South – 7 m East – 0 m West – more than 40 m
Car Parking	No additional parking except for ED drop-off parking and 12 time-limited parking spaces (including two accessible spaces)
Ambulance Bays	10 spaces
Satellite Loading Dock	6 spaces for cars and vans and loading area for 2 x 8.8 m medium rigid vehicles



3.4 Construction Methodology and Program

A Preliminary Construction Management Plan (PCMP) has been prepared by Lendlease (Appendix F). The PCMP provides details on the proposed construction methodology for the SSDA and outlines the proposed mitigation strategies to be implemented.

An outline of the key components of the proposed construction methodology and program are provided below.

3.4.1 Indicative Program

Table 3-2 provides a summary of the construction program.

Table 3-2 Indicative construction program

Component	Start Date	Finish Date
Precursor Works (<i>subject of separate planning approvals</i>)	October 2018	Early 2019
SSDA Construction Works: • Site preparation • Piling • Bulk excavation and foundations • Structure and concrete cores • Floors, façade and roof • Internal works • Landscape and external works	Early 2019	2022

3.4.2 Hours of Work

The following hours of work are proposed for the construction works:

- Monday to Friday: 6am – 6pm
- Saturday: 8am – 5pm
- Sunday and public holidays: No work

Refer to Section 7.18 for further discussion on the proposed hours of work.

3.4.3 Site Preparation

Site preparation works will involve the establishment of the site for SSDA approved construction works following completion of the Precursor Works. The construction works will require the mobilisation and use of two tower cranes.

3.4.4 Construction Traffic and Pedestrian Management

A preliminary Construction Traffic and Pedestrian Management Plan has been prepared by Lendlease (2018) as part of the PCMP. This Plan ensures:

- Minimal disruption of pedestrian and traffic routes to surrounding roads and buildings with site entries and exits (Figure 3-5) to be managed by Lendlease Traffic Controllers.
- Existing vehicular and pedestrian entry and exit points to the Precinct remain unobstructed.
- 24-hour access is maintained to the ambulance drop-off area.

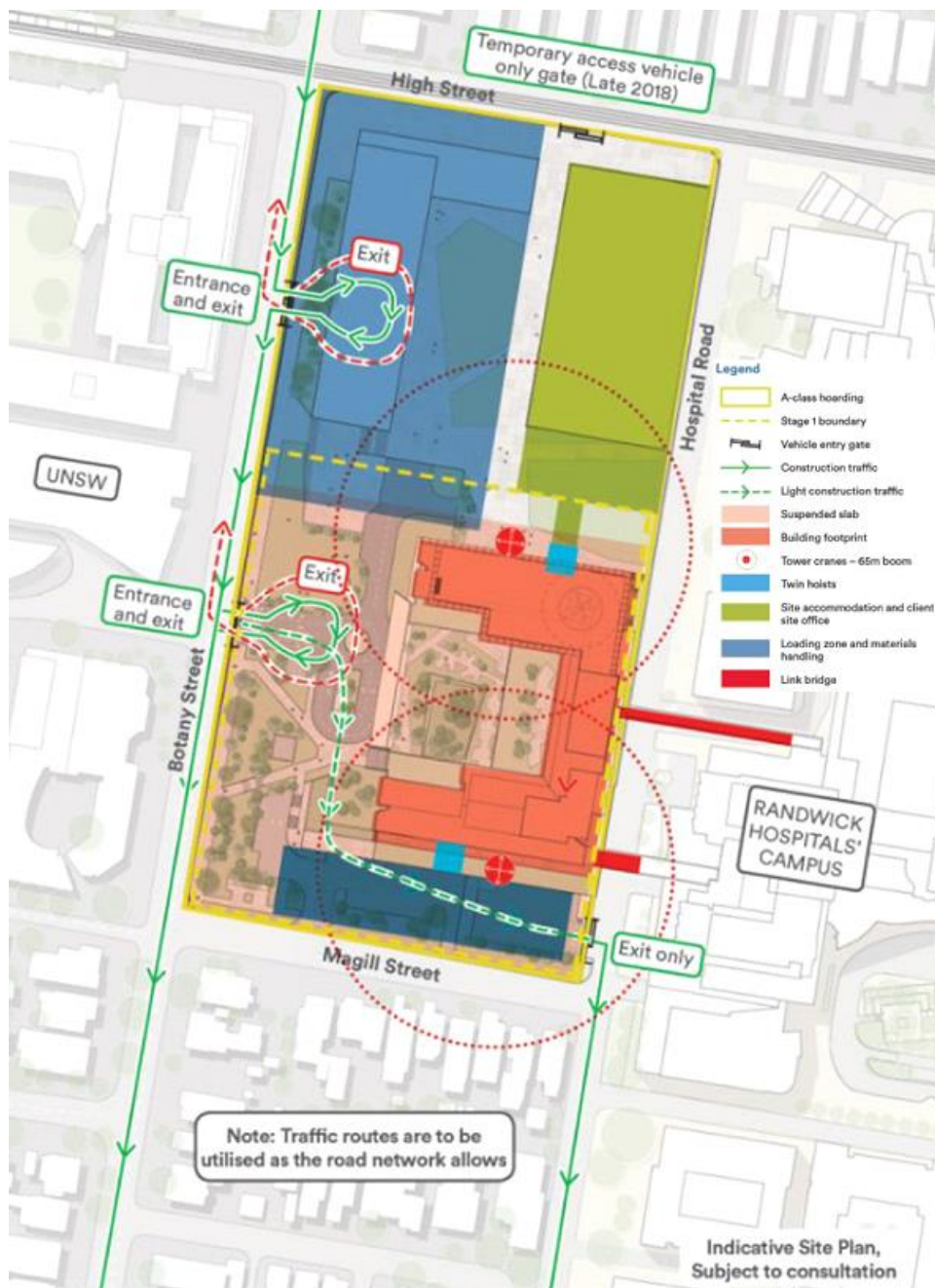


Figure 3-5 SSDA construction traffic and pedestrian circulation routes (Source: Lendlease, 2018).



3.4.5 Bulk Earthworks

The ASB site will require excavation to an RL of approximately 46.6 m AHD totalling an excavation volume of approximately 40,000 m³. Retaining walls will be necessary along the western edge of the site at Botany Street and the northern edge of the ASB.

3.4.6 Structural Details

The proposed structural systems for the ASB include:

- A combination of high level pad foundations (northern end of the site) and piled foundations (southern end of the site).
- Concrete framed building.
- Shear wall / core lateral system.
- Elevated links between buildings will be steel framed trusses with composite concrete floor plates on metal deck sheeting. Movement joints will isolate the links from the existing structure, and link bridges are designed to a limiting fire temperature of 500 degrees (as per fire engineer requirements).

A Structural Certification is provided in Appendix Q that confirms that the structural design will be undertaken in accordance with normal engineering practice and will meet the structural requirements of the Building Code of Australia (BCA) 2016 and relevant Australian Standards.

3.5 Built Form and Scale

The highest point of the ASB, to the top of the lift core, is RL 111.0. The ASB's height establishes the building as a reference point, enabling it to be seen and appreciated within the surrounding urban landscape (to an appropriate scale). The design enables the provision of open public spaces at ground level while facilitating future additional health services facilities on the remainder of the Project site adjoining immediately to the north. The ASB's built-form is supported by a central core that serves 2 IPU wings and satisfies the HI standard of an 8.4 m grid. The IPUs are oriented to maximise north and south light and create a U-shaped opening onto Botany Street that breaks down the building's bulk (Figure 3-6).

The stepped podium and recessed entry levels create an inviting ambiance within the central courtyard and main entry. A colonnade traverses around three sides of the courtyard, providing shelter to the main entry and café seating areas. The courtyard's western edge is enclosed by the canopy, also providing shelter to pedestrians. The ASB's scale and façade looking north will grow in significance as future additional health services facilities to the north is realised. It will then become the southern boundary of a new health precinct, incorporating health services delivery buildings and open public space, and incorporating a second entry point at Level 00.

Due to the extended setback from the Magill Street boundary, public levels are able to be recessed along Magill Street, providing further opportunities for a landscaped outlook and buffer to the neighbouring residential properties. An overhang provides shelter to the Emergency drop-off below. The Hospital Road façade predominately comprises transitional spaces. This is intentional in order to avoid overlooking of the existing Campus.

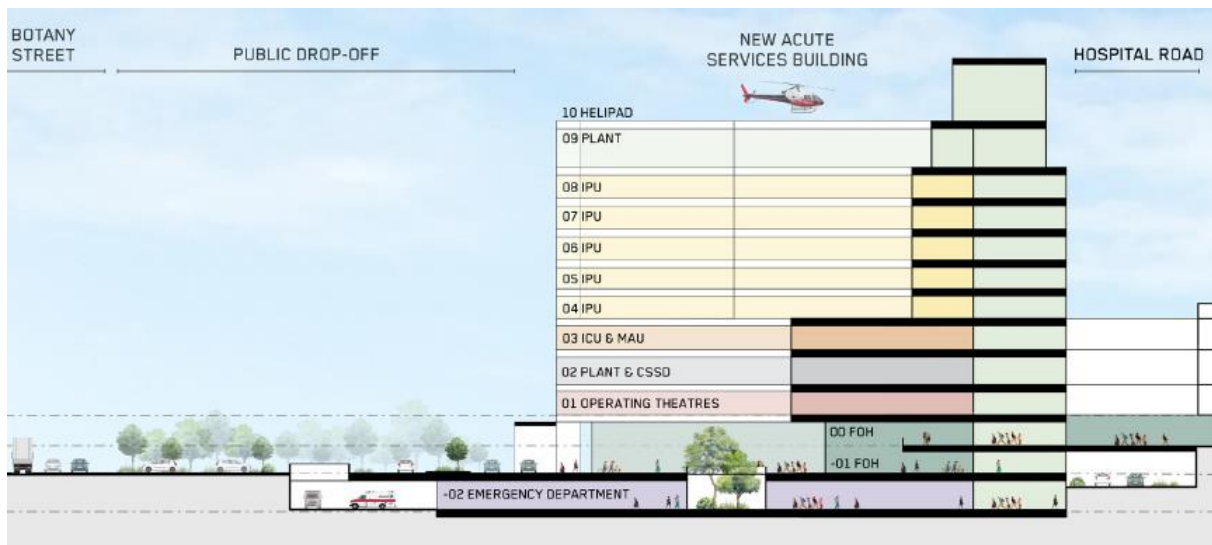


Figure 3-6 ASB diagrammatic section (Source: BVN, 2018).

Details of the built form and scale are provided in the Architectural Design Statement and shown in the Architectural Drawings in Appendix D.

3.6 Functional Relationships and Circulation

Functional planning and circulation considers the block and stack of the ASB and associated internal functional and circulation relationships to optimise the flow of patients, visitors and materials.

3.6.1 Block and Stack

The ASB block and stack of the building levels described in Section 3.1 is driven by the following principles:

- On-grade access to the ED from Magill Street.
- Separate on-grade access from Botany Street to the ASB main entry.
- Locating front of house, incidental retail and education spaces on the main entry level to activate the ground floor and capitalise on the site's proximity to UNSW.
- Aligning operating theatres with the existing Campus perioperative suite on Level 01 (RL 60.50) to ensure a direct, level connection.
- Locating the CSSD above operating theatres to create a direct, vertical connection.
- Locating plant above operating theatres to reduce large risers likely to constrain upper floor plates.
- Locating ICU beds in closest proximity to operating theatres.



3.6.2 Response to Levels and Topography

The ASB utilises the existing topography to provide separate on-grade, easily identifiable entrances for the main entry, and the ED. The design reflects the principles in the Precinct Masterplan of being Connected, Integrated and Responsive. It creates a sense of arrival. The design responds to the following key levels:

- RL 47.0 – this is the level at the southern entrance to the site from Magill Street, which is the primary point of access for both ambulances and members of the public arriving via car to the ED level. This sets the datum for Level -02.
- RL 52 – this is the level on Botany Street west of the ASB, at the main point of arrival for members of the public arriving on foot or via car. This sets the datum for Level -01, the lower of the two public floors.
- RL 56.3 – ‘ground’ level at the existing Easy Street entry. This datum sits above four levels of parking and extends to the north-west corner of the Campus. This is the predominant level of the campus-wide pedestrian deck proposed in the Precinct Masterplan, and connects directly in to the ASB via a level internal public link bridge over Hospital Road. This sets the datum for the public mezzanine floor, Level 00.
- RL 60.5 – existing Operating Theatres, which remain operational beyond Stage 1 and are connected directly to the new ASB Operating Theatres via a level bridge. This sets the datum for Level 01.

3.6.3 BCA Compliance

A BCA Compliance Statement has been prepared by BM+G (Appendix W) which concludes that any amendments required to the design documentation in order to comply with the BCA can be addressed in the preparation of detailed documentation for Crown Certificate without giving rise to significant changes to the proposed development as submitted for the SSDA.

3.7 Access and Traffic

3.7.1 Main Vehicle Entry

The main vehicular entry point to the ASB is from Botany Street at Level -01 (Figure 3-7). The drop-off loop is located west of the ASB, providing direct access to the building’s main entry and front of house/reception facilities via the entrance canopy and covered colonnade. This route brings visitors into the south of the U-shape building, and directly past the central courtyard.

Vehicles can recirculate around the drop-off loop if required, or return to Botany Street and access the existing Campus basement car park via Magill Street. The roundabout is designed to enable an access road to be constructed for future additional health services facilities development immediately north of the ASB.

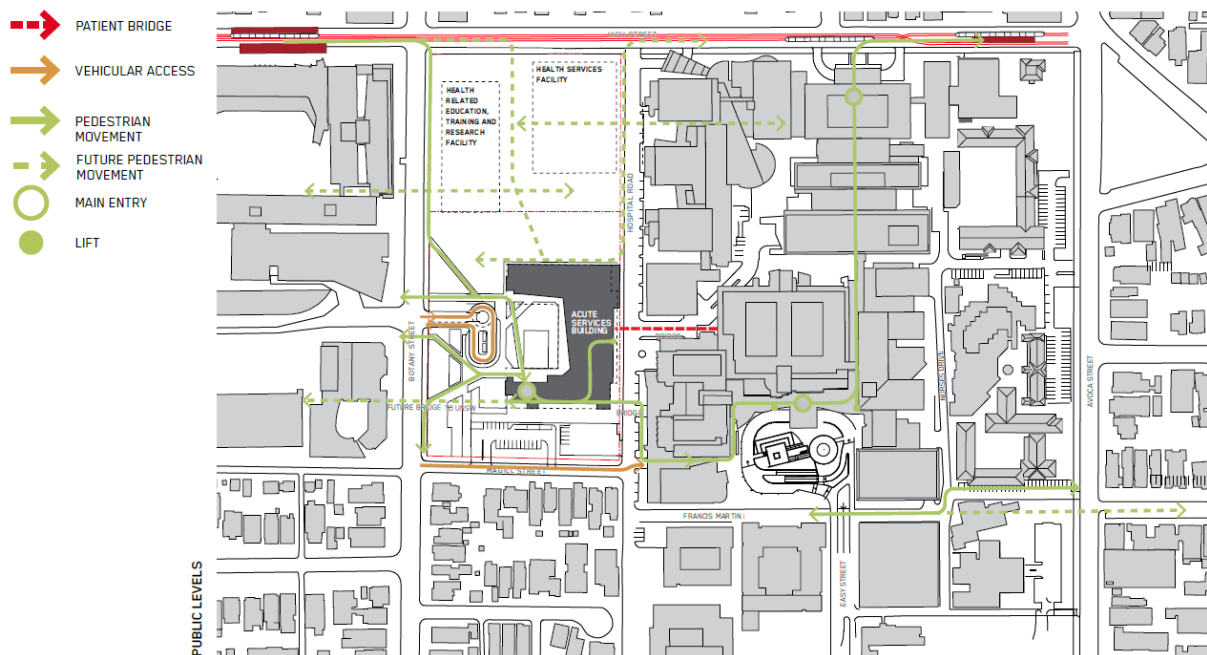


Figure 3-7 Access routes for vehicles, internal patients/visitors and pedestrian movements from Level -01 and 00 perspective (Source: BVN, 2018).

3.7.2 Public Access to Emergency Department

A separate dedicated entrance to the ED is accessed via Magill Street (Figure 3-8). A shared vehicular entrance point provides access for ambulances and public vehicles. Direct, covered access to the ED entrance from the drop-off parking spaces is provided.

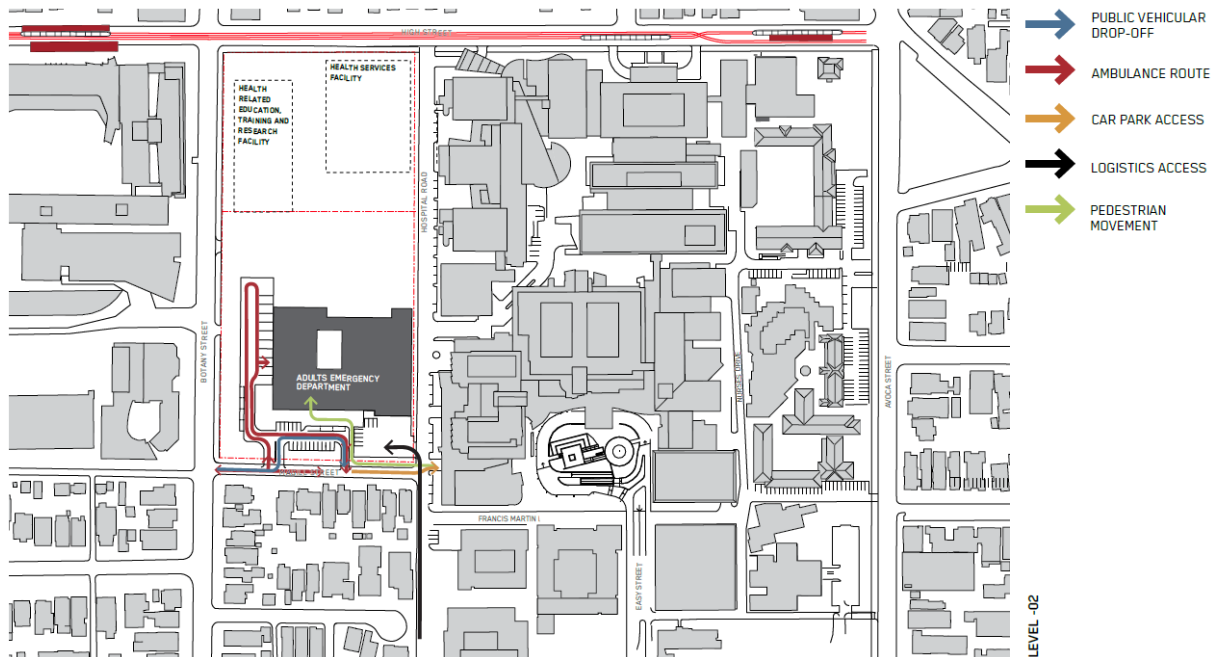


Figure 3-8 Access routes for ambulance, public vehicles, logistics and car parking from Level -02 perspective (Source: BVN, 2018).



3.7.3 Ambulance Access

The ambulance bay is located to the west of the ASB and provides reverse-in spaces for 10 ambulances. Ambulances enter and exit off Magill Street

3.7.4 Car Parking

The existing Hospital Campus contains approximately 2,300 on-campus car parking spaces, available to staff and the public. No additional car parking is proposed to be provided except for ED drop-off parking and 12 time-limited parking spaces (including two accessible spaces) on Level -02.

3.7.5 Pedestrian Flows and Secondary Entries

Multiple entrances on different levels are provided to facilitate pedestrian movements anticipated from multiple directions.

Many visitors to the ASB will arrive via the existing basement car park, into the current Barker Street entrance at Level 00 via the car park lifts. An internal public connection from the ASB over Hospital Road is proposed. This link brings pedestrians into the upper public floor of the ASB (Level 00). Visitors can then access the ASB main entry and reception area on Level -01 via a generous stair or the lift core.

Visitors arriving at the High Street Campus entry will follow the existing internal route at Level 02, take the lift to Level 00 and then move via the bridge over Hospital Road to access the ASB.

The primary light rail stop for the ASB will be the High Street stop near the corner of Botany Street (opposite UNSW). Pedestrians will then move south along Botany Street, and approach the ASB on grade at Level -01, arriving at the main entry. A signalised pedestrian crossing over Botany Street is proposed at the Library Walk/ASB entry intersection to facilitate this movement, and to allow pedestrians crossing to and from UNSW.

A direct pedestrian route from the basement car park entry and exit points on Hospital Road to the main entry one level above is provided via an external stair on Magill Street. Lifts are provided at the ED entry, opening directly opposite the reception desk on Level -01. These lifts also enable a direct connection to the ED for visitors who may have arrived at the main entry, or the High Street or Barker Street entries.

3.7.6 Patient Flows

The design proposes two clinical connections from the ASB into the existing Hospitals Campus. The first is a level bridge connection over Hospital Road at Level 01, linking the ASB Operating Theatre floor to the existing Operating Theatres and associated functions in the Campus Centre. The second is an additional bridge link at Level 03 connecting the ED to existing cardiac theatres in the Campus Centre. The middle level (Level 02) of this bridge is primarily intended to function as a back of house/logistics connection.

3.7.7 Logistics

The ASB will utilise the existing Campus loading dock (located off Hospital Road) for supply, food, linen and general waste. A satellite dock is provided at Level -02 to enable select deliveries of supplies,



shuttling of general waste and dirty linen to the dock and the direct collection of hazardous waste. The satellite dock is accessed via Hospital Road and enclosed to limit its visual and acoustic impact on Magill Street residences. New planting along the street edge provides additional screening. A staging area is located on Level 02. These areas are connected over Hospital Road to the existing dock via the middle level of the patient bridge (Level 02).

3.7.8 Road Infrastructure Improvements

Adjustments to the existing road arrangements are required to facilitate the operation of the ASB.

Improvements to Botany Street will include:

- Signalisation of the upper main entry access/ egress point opposite Library Walk (Gate 11) on the UNSW Campus. This will improve the intersection capacity and improve pedestrian amenity. The intersection will require a 60 m right turn lane from Botany Street south to prevent right turning movement blocking through movements.
- Introduction of a right turn lane on Botany Street at the southern ED entrance. This requires the removal of some on-street parking on Botany Street, south of Magill Street.
- Improving streetscape and public domain.

Improvements to Magill Street will include:

- A 3-lane intersection at Magill Street.
- A 10 m left turn lane from Magill Street to Botany Street south.

3.7.9 Future Connections

Design of the public levels allows for a future additional main entry on Level 00 (RL 56.0), accessed via a new public deck envisaged in the Precinct Masterplan, extending to High Street and engaging with future additional health services facilities on the Project site immediately north of the ASB. The internal layout of Level 00 Education, Training and Research spaces has been configured to enable this future entrance.

Positioning of the clinical core of the ASB at the eastern edge of the site minimises the distance between the ASB and the Campus and supports the creation of a spine of clinical connections running north and south from this core. This will facilitate clinical connections to the future additional health services facilities to the north.

An important additional point on linkages is the proposed public link bridge over Hospital Road that is to align with a potential future pedestrian bridge over Botany Street to UNSW as proposed in the Precinct Masterplan's principles of Connected, Integrated and Responsive. The ASB has been designed to accommodate this potential future pedestrian bridge with its location and alignment to be agreed by the relevant parties in the future and will be the subject of a separate approval.



3.8 Materials and Finishes

The massing strategy and façade performance makes use of various materials and finishes. The façade will operate at both the macro-and micro-scale: whilst it addresses the surrounding urban context, materials and openings respond to the human scale to create a building that is welcoming and responsive. The building mass is broken into smaller sections of interconnected vertical solids. Façade type variations correspond to the massing strategy and are developed within a consistent façade system and materiality.

The overall number of façade types is minimised for clarity as well as construction efficiencies. Key façade types retain flexibility within the system to further articulate façades and adjust for internal planning changes. Façade studies grouping the façade composition into bands of 2 and 3 storeys improve the perceived scale of the building rather than articulating each of the 10 levels.

Key façade materials include the following:

- Equitone cladding is the primary cladding material having a natural tonal variation which will offset the 'flat' elevations resulting from the general building massing. The Equitone panel is through-coloured and preferred to 'painted' materials due to its very low maintenance requirement.
- Ribbed metal cladding (such as Longline) with a high base metal thickness is used for plant rooms and specific areas of the façade.
- Exposed western fire stairs would be rendered and stained to retain their sense of solidity.
- A canopy provides shelter to the drop-off and is designed to create a welcoming address appropriate to the project aspirations of wellness and permeability.
- Plant room louvres are generally integrated into the primary façade.

Further details of the proposed materials, finishes and colours are shown in the Architectural Drawings (refer elevations and sections) in Appendix D, in Section 3.5 of the Architectural Design Statement in Appendix D and the provided physical materials sample boards.

3.9 Building Services Infrastructure

Building service infrastructure is essential to sustain critical ASB functions.

3.9.1 Civil Services

On-site stormwater detention (OSD) is required by Council to ensure there is no increase in discharges from the site resulting from storm events up to the 20-year annual recurrence interval (ARI) event. Two OSD tanks will be provided for the ASB development. The larger OSD tank will be located near the north western corner of the site. It will receive the flows from the roof and podium areas. The smaller OSD tank will be located in-ground at the lowest point of the site to ensure the capture of runoff from the ground areas and minimise any bypassing flows. It will be located near the site's south eastern corner.

The stormwater system proposed for the site will discharge into Council's drainage pipe. The development will achieve the pollution reduction targets by utilising water sensitive urban design



(WSUD) treatment initiatives. A hydrocarbons trap or separator will be required to treat runoff generated from the helipad. The nominated proprietary product will be specifically designed to provide high removal efficiencies of suspended solids and their associated pollutants, oil, and floatables over a wide range of flow rates. As per HI requirements, a gross pollutant trap unit has been included in the ASB's treatment strategy. This will be located immediately upstream of the belowground OSD tank to service the ground vehicular movement access roads and internal car parking areas.

The combination of vegetated buffer, bioretention swales, vegetated swales, and filtration devices will be used through a treatment train approach to improve water quality before any stormwater discharges from the site. These elements are designed to achieve all the pollution reduction targets (Gross Pollutants, Total Suspended Solids, Total Phosphorus and Total Nitrogen) required to discharge stormwater to Council's stormwater network.

Refer to Section 7.14 and Appendix P for further details.

3.9.2 Hydraulic and Fire Services

The ASB requires new hydraulic services infrastructure connections into authority utilities and new fire services infrastructure for both wet and dry fire protection and detection systems. The scope of services includes:

- Sanitary and trade waste drainage systems.
- Domestic cold/warm/hot water supplies.
- Non-potable water supply (cold and hot).
- Natural gas supply systems.
- Roof water collection and disposal.
- Fire hydrant and hose reel protection.
- Automatic fire sprinkler protection.
- Fire detection.
- Portable fire extinguishers and blankets.
- Fire Control Room.

Refer to the Integrated Water Management Plan in Appendix U for further details.

3.9.3 Mechanical and Vertical Transport Services

The key mechanical and vertical transport systems and services within the ASB include:

- Air conditioning and ventilation systems.
- Exhaust systems.



- Smoke management ventilation systems.
- Building management and controls.
- Chilled water systems.
- Heating hot water systems.
- Domestic hot water calorifiers.
- Steam generators.
- Medical gases.
- Lifts for all forms of foot traffic including staff, patients, services and trolleys.

3.9.4 Electrical and ICT Services

A range of electrical services are proposed as follows:

- New HV feeders will be installed to the site to supply new chamber substations located on Level -01: Substation 1 – 3 x 1500 kVA and Substation 2 – 2 x 1500 kVA.
- Each substation is to have dedicated switch room which will supply the building via a series of dedicated electrical risers and distribution boards.
- Two separate generator systems to be installed on Level 09 to provide backup power supply to the two chamber substations in the ASB.
- An approximate 20,000 litre double skin fuel tank will be buried underground external to the building adjacent to the new loading dock facing Magill Street to supply the generator systems.

New ICT infrastructure is designed for high availability and capacity. A new Campus Distributor will be installed on Level -02, connecting to:

- Building 2B Campus distributor.
- Building 6 Data Centre.
- High Street lead-in.
- Barker Street lead-in.

The new ASB Campus Distributor will also serve as a new server room, housing all systems headend and server equipment. This room will accommodate communication, network and server equipment.

Refer to the Utility Management Plan Electrical Services in Appendix T for further details.



3.9.5 Security services

The ASB requires new security systems comprising of sub-systems such as:

- Security Management System, interfaced to third party systems including fire detection and lift management systems.
- Electronic Access Control System.
- Intruder Alarm System.
- Closed Circuit Television System.
- IP Intercom System.
- Fixed Duress Alarm System.
- Wireless Duress Alarm System.

3.9.6 Helipad services

The proposed Helicopter Landing Site (HLS) is located on top of the northern wing of the ASB, allowing for a number of approach/departure paths depending on the prevailing wind. The HLS will support the operation of one emergency services helicopter with provision for a parking position. The HLS is well-positioned for patient access to the new ED via a HLS deck lift. The existing HLS located on the Campus will be decommissioned once the ASB is operational.

The proposed HLS is located within the Sydney Airport control zone (near the extended runway centreline of runway 05/27). It is likely that the AW139 helicopter may remain on the HLS until airway clearance is granted by Sydney Tower. The new flight path routes (Appendix AA) are indicative only. Helicopter movements from the HLS are subject to the prevailing wind conditions and Sydney Tower airway clearances.

The NSW Ambulance AW139 helicopters' modern design and five-blade main rotor system will significantly reduce noise and vibration for surrounding residents. The HLS will also allow helicopters to use prevailing wind conditions to minimise power requirements for approach and landing, further reducing noise impacts. A typical helicopter event includes a 3-minute arrival and 3-minute departure time, creating an elapsed noise event of approximately 6 minutes.

Refer to Appendix AA for further details on the proposed approach and departure procedures.

3.10 Landscape

The proposed development includes new landscaping and public domain works over numerous building levels. Key features of the landscape design strategy include:

- Magill Street landscape and internal courtyard (central) at the ED and satellite dock department (Level -02).
- Botany Street park, central courtyard, internal courtyard (north-east) and northern boundary vegetation at FOH department (Level -01).

- ICU courtyard at ICU and MAU department (Level 03).
- Trafficable rooftop courtyard and non-trafficable rooftops at IPU department (Level 04).

The landscape concept plan (Figure 3-9) highlights strategic opportunities for a landscaped outlook and interface along Botany and Magill Street and Hospital Road. Public levels along Magill Street are recessed which provides an opportunity to create a landscaped outlook and buffer to neighbouring residential properties. Further details on landscaping can be found in the Landscape Design Report in Appendix E.

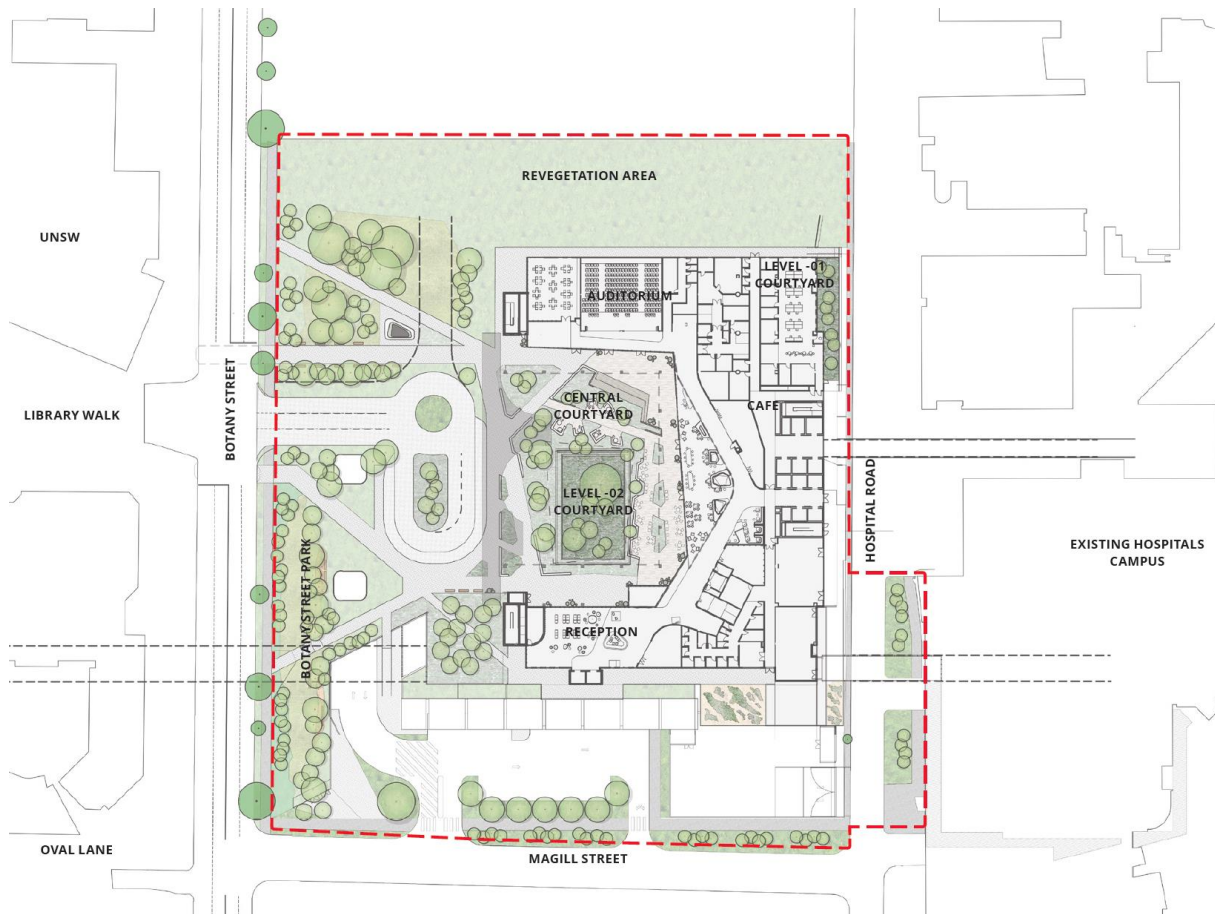


Figure 3-9 The landscape concept plan (Source: Aspect Studios, 2018).

3.11 Hours of Operation

The site will operate 24 hours a day and 7 days a week in accordance with the existing Campus arrangements.



4 Statutory Planning Framework

4.1 NSW Legislation

4.1.1 Environmental Planning and Assessment Act 1979

Planning Approval Process

Part 4, Division 4.7 of the EP&A Act establishes an assessment framework for SSDAs. The proposed development is declared to be a SSDA as a “hospital” in accordance with Clause 14 of Schedule 1 of the *State Environmental Planning Policy (State and Regional Development) 2011* (SRD SEPP) with a CIV of more than \$30million. Section 4.12(8) requires the SSDA to be accompanied by an EIS, which is assessed against the provisions of Section 4.15 (refer below).

Section 1.3 – Objects of the EP&A Act

Consideration of the proposed development against the relevant Section 1.3 Objects of the EP&A Act is outlined in Table 4-1.

Table 4-1 Consideration of the proposed development against the relevant Objects of the EP&A Act

Object of the EP&A Act	Comment
a) to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State’s natural and other resources	The proposed development promotes the social and economic welfare of the community that is aligned with NSW Government strategies and the Precinct Masterplan for delivering an innovative Precinct through the provision of expanded public health and education and training services. This will help cater for the predicted growth in local jobs and population in the region. The social and economic benefits of the proposed development are discussed in Section 10. The proposed development has been designed to promote the proper management of the environment. A detailed identification and assessment of potential environmental impacts, together with details of any appropriate mitigation measures, are detailed in Section 7.
b) to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment	Ecologically sustainable development (ESD) has been addressed in Sections 7.5 and 10.3. The proposed development incorporates a range of design measures to facilitate ESD during the construction and operation phases.
c) to promote the orderly and economic use and development of land	The proposed development is located on a site that occupies a strategic position between the Campus and UNSW as outlined in Section 1.1. Without the opportunities for expansion of the existing Campus, there is little, if any, scope



Object of the EP&A Act	Comment
	or opportunity for the creation of a centre of excellence in the provision of additional health-related education, teaching and research facilities to meet professional and community expectations.
e) to protect the environment, including the conservation of threatened and other species of native animals and plants, ecological communities and their habitats	The proposed development will have no significant impacts on threatened and other species of native animals and plants, ecological communities and their habitats. Refer to Section 7.6.
f) to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage)	The proposed development will promote the management of built and cultural heritage (including Aboriginal cultural heritage) in accordance with best practice and relevant guidelines. Refer to Sections 7.7 and 7.8 for further details.
g) to promote good design and amenity of the built environment	The proposed ASB has had regard to the <i>"Better Placed Guidelines"</i> by the Government Architect Office of NSW. It promotes design quality and excellence which is appropriate to its context and setting and carefully considers environmental amenity of the site and surrounding areas. Built form and urban design is addressed in detail in Section 7.2 and environmental amenity in Section 7.3.
h) to promote the proper construction and maintenance of buildings, including the protection of the health and safety of their occupants	The construction methodologies of the ASB described in Section 3.4 and in the PCMP in Appendix F will be undertaken in a manner to ensure the protection of the health and safety of its occupants. The ASB will be maintained in accordance with SESLHD policies.
j) to provide increased opportunity for community participation in environmental planning and assessment	Extensive community participation has been carried out by HI prior to the lodgement of the SSDA and will be ongoing through the delivery of the Project (refer to Section 6). Further consultation will also be carried out during the public exhibition of the SSDA, which is exhibited to the public for at least 30 days.

Section 4.15 – Evaluation

The proposed development has been evaluated and assessed against the relevant heads of consideration under Section 4.15(1) of the EP&A Act. Table 4-2 identifies the matters for consideration under Section 4.15 that apply to SSD, in accordance with Section 4.40 of the EP&A Act.

Table 4-2 Section 4.15(1) Matters for Consideration

Section 4.15(1) of the EP&A Act	Comment
(a)(i) any environmental planning instrument	Consideration of all relevant SEPPs and the LEP is contained in Sections 4.3 and 4.4, respectively. The proposed development is considered to be consistent with all relevant provisions.



Section 4.15(1) of the EP&A Act	Comment
(a)(ii) any proposed instrument	Not applicable.
(a)(iii) any development control plan	Pursuant to Clause 11 of the SEPP SRD, the provisions of a Development Control Plan (DCP) do not apply to SSDAs.
(a)(iia) any planning agreement	Not applicable.
(a)(iv) the regulations	This SSDA together with its supporting technical reports is considered to satisfactorily meet the relevant requirements of the EP&A Regulation with regard to the requirements for the preparation of the EIS in Schedule 2.
(a)(v) any coastal zone management plan	Not applicable.
(b) the likely impacts of that development	The likely impacts of the proposed development have been considered in Section 7 of this EIS.
(c) the suitability of the site for the development	The assessments carried out for the EIS, coupled with master planning establish the site is suitable for the proposed development. They include the following key considerations: • there is sufficient area within the site to enable the proposed works to be carried out; • there are no significant environmental limitations to the proposed development, provided that all mitigation measures and recommendations are adopted and followed as contained within the appended technical reports; and • the proposed development raises no adverse impacts or consequences in regards to the principles of ESD and is considered to be an appropriate use of the land in terms of social, economic and environmental criteria.
d) any submissions	Any submissions received will be considered by DP&E post-exhibition of the EIS.
(e) the public interest	The proposed development is considered to be significantly in the public interest because of the important social and economic benefits from the expansion of the Campus to meet the growing and expanding health needs of the community as discussed in Section 1.1. Further, the EIS demonstrates that the proposed development does not result in any adverse environmental impacts subject to adopting the recommended mitigation measures. On balance, the proposed development is very much in the public interest.



4.1.2 Environmental Planning and Assessment Regulation 2000

The EIS has been prepared in accordance with the requirements of Part 3 of Schedule 2 of the EP&A Regulation.

In relation to Clause 7(1) (d) (v) of Schedule 2 for approvals required for the proposed development, it is noted that Section 4.41(1) and (2) of the EP&A Act provides that the following approvals do not apply to a SSDA that is authorised by a development consent:

- “(b) a permit under section 201, 205 or 219 of the Fisheries Management Act 1994,*
- (c) an approval under Part 4, or an excavation permit under section 139, of the Heritage Act 1977,*
- (d) an Aboriginal heritage impact permit under section 90 of the National Parks and Wildlife Act 1974,*
- (f) a bush fire safety authority under section 100B of the Rural Fires Act 1997,*
- (g) a water use approval under section 89, a water management work approval under section 90 or an activity approval (other than an aquifer interference approval) under section 91 of the Water Management Act 2000.*
- (2) Division 8 of Part 6 of the Heritage Act 1977 does not apply to prevent or interfere with the carrying out of State significant development...”*

Section 4.42 of the EP&A Act requires the following approvals to be applied consistently with a SSD development consent:

- “(a) an aquaculture permit under section 144 of the Fisheries Management Act 1994,*
- (b) an approval under section 15 of the Mine Subsidence Compensation Act 1961,*
- (c) a mining lease under the Mining Act 1992*
- (d) a production lease under the Petroleum (Onshore) Act 1991,*
- (e) an environment protection licence under Chapter 3 of the Protection of the Environment Operations Act 1997 (for any of the purposes referred to in section 43 of that Act),*
- (f) a consent under section 138 of the Roads Act 1993,*
- (g) a licence under the Pipelines Act 1967.”*

It is considered that only approval required from the above approvals to be applied consistently is a consent under Section 138 of the *Roads Act 1993*. Refer to Section 4.1.8 for further details.

Section 7.5.2 contains an assessment of the proposed development against the principles of ESD as required in Clause 7(4).

4.1.3 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) came into force on 25 August 2017, repealing the *Threatened Species Conservation Act 1995*. The purpose of the BC Act is to maintain a healthy, productive and resilient environment for the greatest well-being of the community, now and into the future consistent with the principles of ESD.

Section 7.9 requires a biodiversity development assessment report (BDAR) to accompany a SSDA unless the *“Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values.”* A BDAR has been prepared by Eco Logical Australia (ELA) and is contained in Appendix K.

Biodiversity is addressed further in Section 7.6.

4.1.4 Heritage Act 1977

The *Heritage Act 1977* contains the provisions for listing sites or places on the State Heritage Register (SHR) and the protection of relics. There are no items on the SHR, Section 170 Heritage and Conservation Registers or covered by an Interim Heritage Order that is either within the site or located within the vicinity of the site.

The *Heritage Act 1977* defines a “relic” as follows:

“relic means any deposit, artefact, object or material evidence that:

(a) relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and

(b) is of State or local heritage significance.”

There are no previously recorded relics that have been identified as having State or local heritage significance within the site.

Whilst the provisions of Section 139 of the *Heritage Act* do not apply to SSD, the potential for archaeology to be present at the site has been considered. The Historical Archaeology Assessment prepared by Casey and Lowe (2018) has identified within the SSDA boundary, areas of low to moderate archaeological potential (refer Appendix N).

Non-Aboriginal heritage is considered in further detail in Section 7.7.

4.1.5 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act 1974* (NPW Act) provides controls in relation to the protection of land reserved under the NPW Act as well as controls in relation to the protection of items of cultural heritage. It is an offence under the NPW Act to ‘harm’ Aboriginal objects or sites of Aboriginal significance without an Aboriginal Heritage Impact Permit (AHIP).

There are no previously recorded Aboriginal sites that have been identified within the site. The preliminary Aboriginal Archaeology Assessment prepared by Mary Dallas Consulting Archaeologists (MDCA) (2018) has identified that for management purposes, the site is considered to retain Aboriginal archaeological sensitivity (refer Appendix O).

Aboriginal heritage is considered in further detail in Section 7.8.

4.1.6 Contaminated Land Management Act 1997

The *Contaminated Land Management Act 1997* (CLM Act) establishes a process for investigating and remediating land that the Environment Protection Authority (EPA) considers to be significantly contaminated as per Division 2 of Part 3 of the CLM Act.

A Preliminary Site Investigation for Contamination has been prepared by Douglas Partners (2018). A search of the EPA public notices by Douglas Partners (2018) confirmed that the site is not declared a contaminated site or subject to a management order, voluntary management proposal, or a site audit statement under the CLM Act (refer Appendix S).

Contamination is considered in further detail in Section 7.11.

4.1.7 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) is the main piece of legislation administered by the EPA. The management of environmental impacts in relation to air, noise and water quality fall under the provisions of the POEO Act. The POEO Act identifies a number of pollution offences, including offences relating to:

- Wilful or negligent disposal of waste in a manner that is likely to harm the environment.
- Wilful or negligent causing of a substance to leak, spill or otherwise escape in a manner that harms or is likely to harm the environment.
- The pollution of water.

Under the provisions of the POEO Act, HI is required to notify the EPA if a 'pollution incident' occurs that causes or threatens 'material harm' to the environment.

"*Scheduled activities*" are listed under Schedule 1 of the POEO Act and are required to hold an environmental protection licence governed by the EPA.

Clause 20 of Schedule 1 identifies "*helicopter-related activities*" as a scheduled activity. Under the POEO "*helicopter-related activities*" is defined as:

"The landing, taking-off or parking of helicopters (including the use of terminals and the use of buildings for the parking, servicing or maintenance of helicopters), being an activity"

- a) That has an intended use of more than 30 flight movements per week (where take-off and landing are separate flight movements) and*
- b) That is conducted within 1 kilometre of a dwelling not associated with the landing, taking-off or parking of helicopters,*

But not including an activity that is carried out exclusively for the purposes of emergency aeromedical evacuation, retrieval or rescue".



As per Clause 20 of Schedule 1 of the POEO Act, helicopter use “*exclusively for the purposes of emergency aeromedical evacuation, retrieval or rescue*” is excluded from the definition of “*helicopter-related activities*” under the POEO Act.

4.1.8 Roads Act 1993

The *Roads Act 1993* outlines the processes involved with the opening of roads, road levels, closing of public roads, roadwork and regulation of traffic by Roads Authorities, entry onto land and financial assistance to Roads Authorities.

Under Section 138, consent is required from the Council for the following:

- “(a) erect a structure or carry out a work in, on or over a public road, or*
- (b) dig up or disturb the surface of a public road, or*
- (c) remove or interfere with a structure, work or tree on a public road, or*
- (d) pump water into a public road from any land adjoining the road, or*
- (e) connect a road (whether public or private) to a classified road,”*

The proposed development will involve works to public roads, Botany and Magill Streets and accordingly requires an approval from the Council under Section 138 of the *Roads Act 1993*. Work undertaken on what is now Eurimbla Avenue will not require approval, as that land will no longer be a public road (having been acquired by HAC).

4.2 Commonwealth Legislation

4.2.1 Commonwealth Environment Protection Biodiversity Conservation Act 1999

Under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on matters of national environmental significance (MNES) or the environment of Commonwealth land. One vulnerable species has been determined to occur within the site, the Grey-headed Flying fox

The proposed development is unlikely to have a significant impact on any listed threatened species. Therefore, a referral is not expected to be required.

Potential impacts to these biodiversity matters are also considered in Section 7.6.

4.2.2 Airports Act 1996 and the Airports (Protection of Airspace) Regulations 1996

Sydney Airport is located approximately 6.5 km south-west of the Campus. Flight paths dictate height limits over the site, specifically the Obstacle Limitation Surface (OLS) and Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS). The OLS varies from approximately RL 85.0 to RL 95.0 across the site. The PANS-OPS extends from approximately RL 109.0 to RL 114.0 over the site.



The site will penetrate the primary prescribed airspace which includes Sydney Airport's OLS. In December 2017, a request for approval of OLS and PANS-OPS airspace penetration was submitted to Airspace Protection at Sydney Airport Corporation Limited (SACL). In March 2018, SACL rejected the requested height of the two tower cranes and nominated a maximum RL of 126.4 for the site. A revised request for a crane elevation of RL 131.0 for approval as short-term controlled works (three months maximum) was submitted to Airspace Protection and forwarded by SACL to the Commonwealth Department of Infrastructure, Regional Development and Cities for determination on 19 April 2018. Revised building elevation and associated drawings of the ASB at RL 110.8 was also submitted for approval for penetration into the OLS. Following clarification requests from CASA on 21 May 2018, an updated submission was provided to SACL and they have distributed the submission to the necessary stakeholders for determination. Refer to statement of status in Appendix AA.

4.3 State Environmental Planning Policies

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

The SRD SEPP identifies development which is declared to be State Significant. Clause 14 of Schedule 1 of the SRD SEPP provides that:

"Development that has a capital investment value of more than \$30 million for any of the following purposes:

- a) hospitals,*
- b) medical centres,*
- c) health, medical or related research facilities (which may also be associated with the facilities or research activities of a NSW local health district board, a University or an independent medical research institute)."*

As the proposed development is for the purposes of a "hospital" and "health, medical or related research facilities" that has an estimated CIV in excess of \$30 million as indicated in Section 1.4, it is considered to be a SSD.

It is noted that pursuant to Clause 11, the provisions of a DCP do not apply to SSD.

4.3.2 State Environmental Planning Policy (Infrastructure) 2007

Permissibility

The ISEPP assists the NSW Government in providing infrastructure such as hospitals, roads, railways, emergency services, water supply and electricity delivery. It provides specific planning provisions and development controls for 25 types of infrastructure works or facilities.

The ISEPP defines (via the Standard Instrument) "health services facility" as:

"A facility used to provide medical or other services relating to the maintenance or improvement of the health, or the restoration to health, of persons or the prevention of disease in or treatment of injury to persons, and includes the following:



- a) *Day surgeries and medical centres,*
- b) *Community health service facilities,*
- c) *Health consulting rooms,*
- d) *Facilities for the transport of patients, including helipads and ambulance facilities,*
- e) *Hospitals”.*

In accordance with Clause 57(1) of the ISEPP, “development for the purpose of health services facilities may be carried out by any person with consent on land in a prescribed zone.”

The site is zoned part R2 Low Density Residential and part SP2 Health Services Facility under the LEP as shown on Figure 4-1. These land use zones are identified as “prescribed zones” as per Clause 56 of ISEPP.

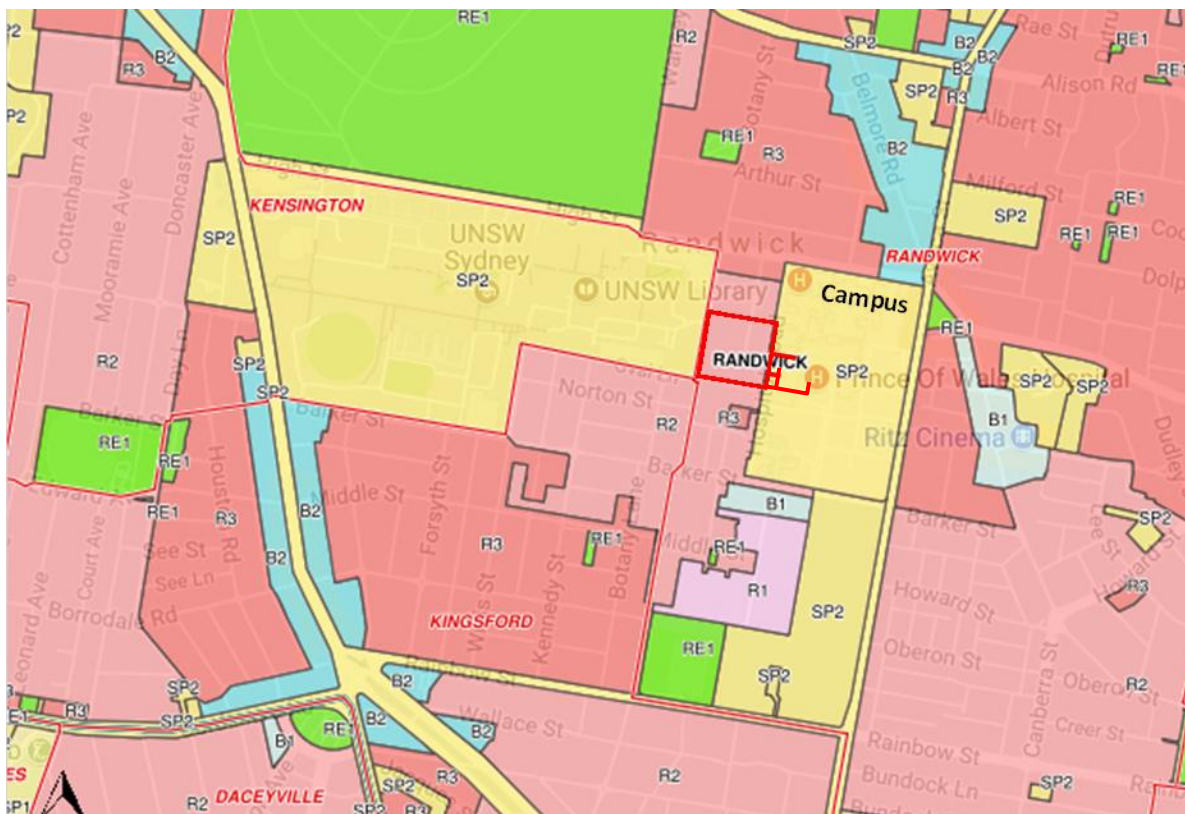


Figure 4-1 Existing zoning of the site (Source: Randwick Local Environmental Plan 2012).

Traffic Generating Development

Clause 104 of ISEPP requires the consent authority to give written notice to RMS for any application that is traffic generating development as per the requirements of Schedule 3 of ISEPP. The proposed development is “traffic generating development” as it is for the purpose of a “hospital” that will provide more than 200 beds with access to any road.



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

Clause 11 of *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* (SEPP 33) applies to:

- Development for the purposes of a potentially hazardous industry.
- Development for the purposes of a potentially offensive industry.
- Development notified in the Gazette as being a potentially hazardous or potentially offensive development.

A “potentially hazardous industry” is defined as:

“A development for the purpose of any industry which, if the development were to operate without employing any measures (including, for example, isolation from existing likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would pose a significant risk in relation to the locality:

- a) To human health, life or property, or*
- b) To the biophysical environment*

And includes a hazardous industry and a hazardous storage establishment”.

A “potentially offensive industry” is defined as:

“A development for the purposes of an industry which, if the development were to operate without employing any measures (including, for example, isolation from existing or likely future development on other land) to reduce or minimise its impact in the locality or on the existing or likely future development on other land, would emit a polluting discharge (including for example, noise) in a manner which would have a significant adverse impact in the locality or on the existing or likely future development on other land, and includes an offensive industry and an offensive storage establishment.”

Advice in relation to hazardous chemicals (dangerous goods) and the applicability of SEPP 33 to the proposed development has been prepared by Safety Engineering & Technical Services (Appendix BB).

In assessing whether the proposed development is a “potentially hazardous industry”, a manifest of the class and quantities of dangerous goods that may be stored and handled at the ASB was developed. The screening method outlined in *Applying SEPP 33* (Department of Planning, 2011) was applied to the manifest. The results of this process found that the proposed development will not exceed the screening method thresholds and therefore is not classified as a “potentially hazardous industry”.

The proposed development will not involve any emission of pollution discharge that would cause a significant level of offence and does not require an environment protection licence pursuant to Chapter 3 of the POEO Act. It is therefore not a “potentially offensive industry” as defined in SEPP 33.

As a consequence, being neither a potentially hazardous nor a potentially offensive industry, SEPP 33 does not apply to the proposed development and a Preliminary Hazard Analysis is not required.

4.3.4 State Environmental Planning Policy No. 55 – Remediation of Land

The primary objective of the *State Environmental Planning Policy No. 55 – Remediation of Land* (SEPP 55) is to provide a State-wide approach to the remediation of contaminated land. Category 1 and Category 2 of SEPP 55 specifies the type of remediation work that does and does not need consent respectively.

Clause 7 of SEPP 55 states that:

- 1) *“A consent authority must not consent to the carrying out of any development on land unless:*
 - a) It has been considered whether the land is contaminated, and*
 - b) If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and*
 - c) If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for the purpose”.*

As soils are removed during bulk excavation (noting that soil up to 1m in depth will be removed as part of the Demolition and Site Clearance Works DA), progressive site testing of the soil and surrounding surfaces are to be undertaken to ascertain the classification of the fill material so as to ensure that the soil is taken to an appropriately licensed waste disposal facility (Lendlease, 2018). If contaminated soil is found, it will be managed in accordance with the requirements of SEPP 55, relevant legislation and the measures outlined in Section 7.11.

4.3.5 State Environmental Planning Policy No. 64 – Advertising and Signage

State Environmental Planning Policy No. 64 – Advertising and Signage (SEPP 64) applies to all signage that, under an Environmental Planning Instrument, can be displayed with or without development consent and is visible from any public place or public reserve.

Wayfinding signage will be required as part of the operation of the ASB. This signage is to provide a high level of functionality for the occupants, staff, patients, students and visitors to the site. A signage strategy/guideline document is under development and is to serve as an efficient solution for the wider Precinct given the nature of the site and anticipated future staging of development.

Having regard to the above, an assessment under SEPP 64 is not required at this stage.

4.3.6 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

The *State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017* (Vegetation SEPP) came into effect in NSW on 25 August 2017.



No removal of vegetation is proposed under the SSDA. Vegetation requiring removal from the site is the subject of separate planning approvals.

4.4 Randwick Local Environmental Plan 2012

4.4.1 Zoning and Permissibility

The site is zoned part R2 Low Density Residential and part SP2 Health Services Facility under the LEP (refer to Figure 4-1).

Under the R2 zone, the proposed development is prohibited whilst it is permissible in the SP2 zone. However, in accordance with Clause 57(1) of the ISEPP, the proposed development is permissible with development consent as discussed in Section 4.3.2. Therefore, the permissibility and consent provisions of the LEP do not apply.

A Planning Proposal will be submitted separately by HI which is intended to “formalise” the zoning as SP2 (for that part of the Project site presently zoned R2 and R3 Medium Density Residential) and remove the “development standards” provisions.

4.4.2 Assessment of LEP Compliance

Notwithstanding that the permissibility and consent provisions of the LEP do not apply, consideration has been given to the relevant LEP clauses. Table 4-3 assesses the compliance of the proposed development against those provisions of the LEP. Further, it is noted that applying the provisions of Clause 5.12 of the LEP, the proposed development is not subject to compliance with any LEP development standards.

Table 4-3 LEP Compliance

Provision	Compliance and Comment
4.3 Height of buildings (2) The height of a building on any land is not to exceed the maximum height shown for the land on the Height of Buildings Map.	Not applicable: The Campus does not have a maximum building height whilst land zoned R2 has a maximum height of 9.5m with setback of 30m along the Hospital Road boundary. Applying the provisions of Clause 5.12 of the LEP (refer below), the proposed development is not subject to this development standard and therefore a Clause 4.6 variation is not required as a result of the height of the proposed ASB.
4.4 Floor space ratio (2) The maximum floor space ratio for a building on any land is not to exceed the floor space ratio shown for the land on the Floor Space Ratio Map.	Not applicable: The Campus does not have a maximum floor space ratio (FSR) whilst land zoned R2 has a maximum FSR of 0.5:1. Applying the provisions of Clause 5.12 of the LEP (refer below), the proposed development is not subject to this development standard and therefore a Clause 4.6 variation is not required as a result of the FSR of the proposed ASB.



Provision	Compliance and Comment
5.10 Heritage conservation (1) Objectives The objectives of this clause are as follows: (a) to conserve the environmental heritage of Randwick, (b) to conserve the heritage significance of heritage items and heritage conservation areas, including associated fabric, settings and views, (c) to conserve archaeological sites, (d) to conserve Aboriginal objects and Aboriginal places of heritage significance.	Complies: The proposed development will have no direct or indirect impacts on heritage items located within the vicinity of the site. Refer to Sections 7.7 and 7.8 for further discussion on Heritage and Aboriginal Heritage matters, respectively.
5.12 Infrastructure development and use of existing buildings of the Crown (1) This Plan does not restrict or prohibit, or enable the restriction or prohibition of, the carrying out of any development, by or on behalf of a public authority, that is permitted to be carried out with or without development consent, or that is exempt development, under State Environmental Planning Policy (Infrastructure) 2007. (2) This Plan does not restrict or prohibit, or enable the restriction or prohibition of, the use of existing buildings of the Crown by the Crown.	Complies: The proposed development is to be carried out by a public authority as development permitted with consent in accordance with Clause 57(1) of ISEPP. On this basis, the provisions of Clause 5.12 of the LEP apply to the SSDA.
6.1 Acid sulfate soils (1) The objective of this clause is to ensure that development does not disturb, expose or drain acid sulfate soils and cause environmental damage.	Complies: The site is not known to contain any acid sulfate soils.
6.2 Earthworks (1) The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.	Complies: Bulk earthworks are proposed under the SSDA. It is considered that with the implementation of appropriate mitigation measures in the PCMP (Appendix F), the proposed development will not have any detrimental impacts.
6.3 Flood planning (1) The objectives of this clause are as follows: (a) to minimise the flood risk to life and property associated with the use of land,	Complies: the proposed development site is not on land identified as "Flood planning area" on Council's Flood Planning Map. However, based on previous flood studies and the Draft Birds Gully and Bunnerong Road Flood Study,



Provision	Compliance and Comment
(b) to allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change, (c) to avoid significant adverse impacts on flood behaviour and the environment. (2) This clause applies to: (a) land identified as "Flood planning area" on the Flood Planning Map, and (b) other land at or below the flood planning level.	the site is affected by overland flooding that is generated from the upstream catchment. Refer to Section 7.15 for further details.
6.4 Stormwater management (1) The objective of this clause is to minimise the impacts of urban stormwater on land to which this clause applies and on adjoining properties, native bushland and receiving waters. (2) This clause applies to all land in residential, business and industrial zones. (3) Development consent must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development: (a) is designed to maximise the use of water permeable surfaces on the land having regard to the soil characteristics affecting on-site infiltration of water, and (b) includes, if practicable, on-site stormwater retention for use as an alternative supply to mains water, groundwater or river water, and (c) avoids any significant adverse impacts of stormwater runoff on adjoining properties, native bushland and receiving waters, or if that impact cannot be reasonably avoided, minimises and mitigates the impact.	Complies: The proposed development will install a range of civil services for stormwater management purposes as described in Section 3.9.1. A discussion of potential impacts is contained in Section 7.14. The construction works will involve the disturbance to soils. To manage potential impacts from these works, a Preliminary Erosion and Sediment Control Plan has been prepared as outlined in Section 7.10.
6.8 Airspace operations (2) If a development application is received and the consent authority is satisfied that the proposed development will penetrate the Limitation or Operations Surface, the consent authority must not grant development consent unless it has consulted with the relevant Commonwealth body about the application.	Complies: It is noted that under this clause, the consent authority is to consult with the relevant Commonwealth body. A formal application to SACL and the Commonwealth Department of Infrastructure, Regional Development and Cities has been submitted and is currently under assessment as noted in Section 4.2.2 and in Appendix AA.



Provision	Compliance and Comment
6.10 Essential services Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the development are available or that adequate arrangements have been made to make them available when required: (a) the supply of water, (b) the supply of electricity, (c) the disposal and management of sewage, (d) stormwater drainage or on-site conservation, (e) suitable vehicular access.	Complies: It is considered that the proposed development will have adequate arrangements for the supply of the required essential services as discussed in Sections 3.9, 7.4, 7.12 and 7.14.
6.11 Design excellence (3) Development consent must not be granted to development to which this clause applies unless the consent authority is satisfied that the proposed development exhibits design excellence.	Complies: The proposed development is considered to exhibit design excellence. Refer to the Architectural Design Statement in Appendix D.
6.12 Development requiring the preparation of a development control plan (1) The objective of this clause is to ensure that development on certain land occurs in accordance with a site-specific development control plan. (2) This clause applies to development on land: (a) that has a site area of at least 10,000 square metres, or (b) identified as "DCP required" on the Key Sites Map.	Not applicable: The proposed development is subject to the provisions of Clause 5.12 of the LEP (refer above).



5 Strategic Planning Framework

5.1 NSW State Priorities

The 18 State Priorities allow the NSW Government to monitor and deliver projects that support a strong economy, build infrastructure, protect vulnerable groups, provision of better services and safer communities.

The proposed development is aligned with three priorities that seek to:

1. Halve the assessment time to determine planning applications for SSDs.
2. Increase government transactions via digital channels.
3. Reduce waiting times for planned surgeries.

Item two from the abovementioned priority list is aligned with embedding eHealth solutions into everyday models of care to create a more connected and integrated healthcare system, as outlined in the *Greater Sydney Regional Plan – A Metropolis of Three Cities* (refer Section 5.3 below). The third priority involves reducing waiting times for planned surgeries, which reflects on hospital system performance and patient experience.

5.2 NSW Premier Priorities

The NSW Premier has established a dozen priorities based on the *NSW State Plan*. The proposed development is consistent with three of these priorities as it will:

1. Create jobs (during construction and operation).
2. Deliver infrastructure.
3. Improve service levels in hospitals.

In contrast to earlier iterations of the NSW State Plan, a key component of the focus on health was to restore community confidence in the public health system by rebuilding hospitals and health infrastructure. The expansion of the Campus will (a) increase the capacity of the public health system in this region and (b) help realise this key focus to enable better socioeconomic outcomes, consistent with the priorities.

5.3 Greater Sydney Regional Plan 2017

The *Greater Sydney Regional Plan* (GSRP) was prepared by the Greater Sydney Commission (GSC) and provides various new policy initiatives for consultation and consideration by the NSW Government. The purpose of the GSRP includes the following:

- *“Set a 40-year vision (up to 2056) and establish a 20-year plan to manage growth and change for Greater Sydney in the context of economic, social and environmental matters*
- *Inform district and local plans and the assessment of planning proposals*



- *Assist infrastructure agencies to plan and deliver for growth and change and to align their infrastructure plans to place-based outcomes*
- *Inform the private sector of the vision for Greater Sydney and infrastructure investments required to manage growth*
- *Inform and engage the wider community so the draft Plan can best reflect the values and aspirations of all."*

The GSRP identifies essential services, such as health and education, to be imperative for the growth of the Sydney Region. The Precinct is recognised for its potential as a major growth industry for health care and education. Objective 21 of the GSRP is to provide *"internationally competitive health, education, research and innovation precincts"*. Planned investment into major health facilities across the Sydney Region, including Randwick, will create an opportunity to provide significant growth in jobs and ancillary services.

The GSRP follows the earlier, *A Plan for Growing Sydney* (the Plan), that was released in 2014 and designed to guide land use planning decisions for the next 20 years. The Plan had identified the *"Randwick Education and Health"* Precinct as one of Sydney's strategic centres.

5.4 Draft Future Transport Strategy 2056 and Supporting Plans

Future Transport Strategy 2056 (FTS) defines a 40-year vision guiding future transport investment in NSW, building upon the generational transport and infrastructure investment pipeline outlined in the 2012 Long Term Transport Master Plan. The strategy responds to technology-driven transformation in the delivery and long-term planning of transport. Six state outcomes provide a framework for network planning and investment in a more dynamic transport system:

- *"High customer satisfaction and user experience*
- *Integrated transport and land use planning in communities*
- *Efficient transport connectivity that facilitates growing the economy*
- *Environmentally sustainable and cost-effective network*
- *Whole-of-journey accessibility, and*
- *Safe and reliable transport system"*

Forward planning and sustainable transport investments underpin the liveability of NSW communities and the ability of Government to respond to needs in health and other services. These critical decisions, exemplified by Sydney Light Rail, will help to activate public spaces, broaden the economic corridor and integrate transport networks to the Randwick health and education precinct.

Implementation of the FTS will be guided by a series of supporting plans. The supporting plans are intended to assist in generating a shift from individual modes of transport towards integrated solutions that build the character of communities and achieve service outcomes defining the 40-year vision. These plans are also intended to provide strategic planning detail under the Regional NSW and Greater Sydney Services and Infrastructure Plans. Supporting plans identified in the overarching FTS include:



- The Movement and Place Framework to guide corridor and place plans and be developed as supporting plans.
- Disability Inclusion Action Plan 2018 – 2022, Older Persons Transport and Mobility Plan, and Social Access Plan which collectively aim to improve accessibility of services.

5.5 Crime Prevention Through Environmental Design (CPTED) Principles

CPTED principles aim to deter criminal behaviour and crime risk through sound environmental design applied to the built-environment. There are four CPTED principles that, when executed correctly, will ensure the safety and security of ASB users and the community (DUAP, 2001):

- *“Surveillance*
- *Access control*
- *Territorial reinforcement, and*
- *Space management.”*

The proposed development has considered the CTPED principles to increase the perception of risk to criminals and effort required to commit crime, reduce potential rewards of crime and encourage normal social behaviour. These outcomes are critical given the development is integral to public health services delivery and will see constant vehicular and pedestrian movement. Refer to the Architectural Design Statement in Appendix D.

5.6 Planning Guidelines for Walking and Cycling

The *Walking and Cycling Program Guidelines 2018-2019* demonstrates the NSW government’s commitment to work alongside local Councils in encouraging a walking and cycling culture. This is supported by NSW Planning Guidelines (2004) to create more sustainable communities with easy walking and cycling access to urban services and public transport. To help achieve this vision, planning instruments (LEPs and DCPs) enacted by Councils are advised to integrate applicable State and local policies, specifically pedestrian and bicycle plans. Contemporary neighbourhood walking and cycling design and planning principles will assist in:

- *“Urban renewal*
- *Creating compact mixed-use accessible centres (around public transport points), and*
- *Fostering a safe, comfortable and enjoyable walking and cycling environment.”*

These outcomes will be leveraged by planned investment into major health facilities at Randwick, creating an internationally competitive health and education precinct, as outlined in Objective 21 of the GSRP. Execution of walking and cycling strategic planning objectives in the Randwick precinct is also necessary to accommodate transport infrastructure changes from the Sydney Light Rail initiative currently under development.



5.7 Healthy Urban Development Checklist, NSW Health

NSW Health's Checklist aims to assist planners to understand the health impacts of policies, plans or proposals on communities, and provide constructive advice during the urban planning and development stage. Effective social (health) infrastructure planning and provision supports vibrant and healthy communities by reflecting local community needs and building social capital. The major barriers to provisioning social infrastructure in Greater Sydney include:

- Meeting the needs of a growing population.
- Equity of provision of services and facilities.
- Coping with growing population demands on existing services and facilities.

In combination with delivering its core health services, the ASB development must:

- Support a cluster community with nearby shops, schools and other activity centres.
- Locate services and facilities in central locations to public transport.
- Demonstrate flexible design to respond to changing community needs.

Strategic and integrated planning is required to achieve health infrastructure provisions. This involves active community planning to determine critical needs and master planning to embed local community facilities within the urban fabric of the ASB, respectively.

5.8 Eastern City District Plan

The *Eastern City District Plan* provides a 20-year plan to manage growth and achieve the 40-year vision, while enhancing Greater Sydney's liveability, productivity and sustainability into the future. It has been developed by the GSC in collaboration with State agencies, the community and councils. It outlines management for economic, social and environmental growth in the Eastern City District. This includes the LGAs of Bayside, Burwood, Canada Bay, Inner West, Randwick, Strathfield, City of Sydney, Waverley and Woollahra.

The *Eastern City District Plan* identifies the Precinct as a Collaboration Area (Figure 5-1). The collaboration of the Campus with UNSW is a key Planning Priority (E8) of the Eastern City District Plan, which will provide an opportunity for services and facilities within the Randwick Collaboration Area. This will result in a further integration and evolution into an Innovation District along the maturity pathway. These outcomes are in-line with projected job targets of 32,000 – 35,500 in 2036.

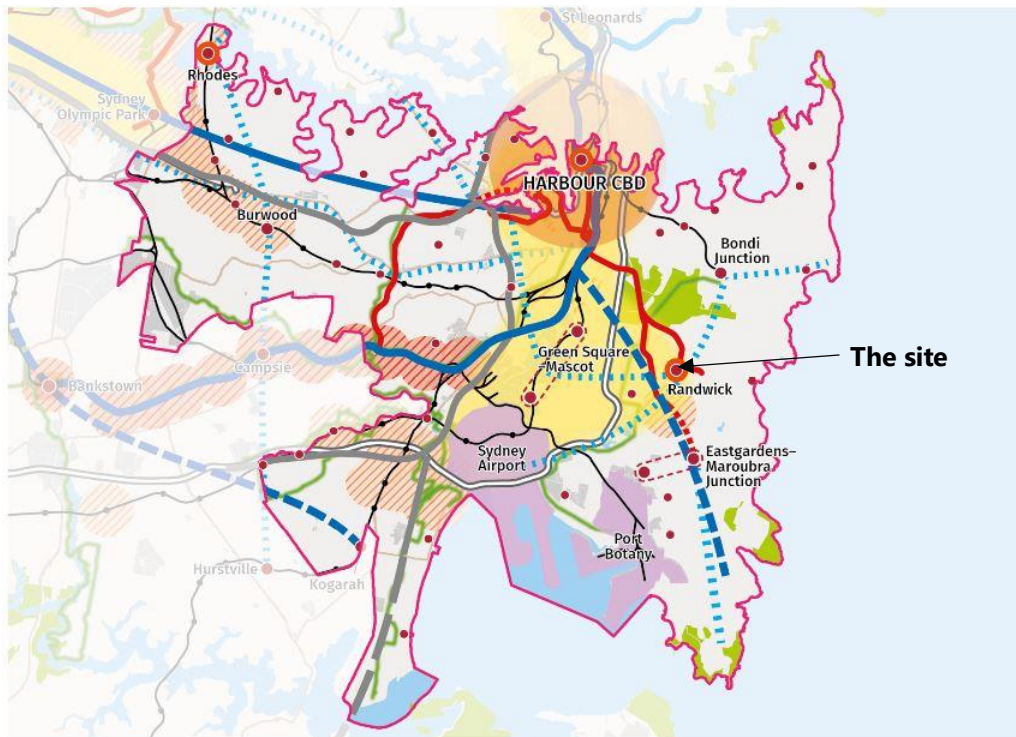


Figure 5-1 Regional context map of the site (Source: The Eastern City District Plan, 2018).

5.9 Better Placed – An Integrated Design Policy for the Built-Environment of NSW 2017

The *Better Placed* policy has arisen out of the latest amendments to the EP&A Act in late 2017 which introduced “Better Design” as an Object of the Act. The Better Placed Guidelines prepared by the NSW Government Architect’s Office are the first step to realising that Object of the Act. It realises the public value and long-term social, economic and environmental benefits of good design processes and outcomes for NSW. The overarching principles of a well-designed built environment are advocated through statutory and strategic planning processes to create more responsive, integrated, equitable and resilient communities. This framework lies at the intersection of state government priorities, mechanisms of planning (statutory, non-statutory and regulatory) and is underpinned by industry expertise and commitment. The Government Architect emphasises good design to address key challenges for NSW, including:

- A rapidly growing population.
- Infrastructure and urban renewal.
- Changing lifestyles and demographics.

The ASB and Light Rail are key developments in close proximity to each other, as well as being within the Government’s portfolio of infrastructure upgrades and urban renewal. Good design processes, enabled through early integration between design, planning and development, maximise health infrastructure benefits in the public domain. These benefits are aligned to seven core ‘better’ design objectives to define a legacy that has NSW better placed. For a more detailed consideration of the Objectives, refer to the Architectural Design Statement in Appendix D.



5.10 NSW State Health Plan

The vision of the *NSW State Health Plan: Towards 2021* (NSW Ministry of Health, 2014) is to deliver *"the right care, in the right place, at the right time"*. The vision is underpinned by three Directions and four Strategies to create a patient-focused, innovative and sustainable NSW health network.

The three Directions are facilitators of models of healthcare innovation. The Directions drive the shared vision for future NSW healthcare services. They are:

- *"Keeping people healthy.*
- *Providing world-class clinical care; and*
- *Delivering truly integrated care."*

The four Strategies target key investment opportunities that leverage the three Directions and vision. The Strategies address key priority issues and establish change initiatives. They are:

- *"Supporting and developing our workforce.*
- *Supporting and harnessing research and innovation.*
- *Enabling eHealth; and*
- *Designing and building future-focused infrastructure."*

The ASB is aligned to the Plan's asset management objective of creating healthcare precincts that integrate multipurpose facility functions and accommodate predicted growth in demand for health services. The investment in health services, the workforce and NSW infrastructure as proposed in the SSDA facilitates implementation of the Plan.

Implementation and ongoing revision of the Plan is supported by immediate patient feedback, evaluation programs and active monitoring of performance to ensure NSW Health objectives are met.



6 Consultation

The “Consultation” section of the SEARs sets out the steps to be taken and matters to be addressed by HI during the preparation of this EIS which is to accompany the SSDA. Compliance with the SEARs is contained in the “Communications and Engagement Consultation Report” (the Report) (Appendix X) prepared by HI’s Communications Team. The Report simply and succinctly describes the consultation processes, the issues raised and resolved or are being resolved and where the design of the development was amended during the consultation.

HI, in working closely with SESLHD, SCHN, UNSW and other Campus partners, has applied its guiding communications and engagement principles for capital projects to lead the strategy, coordination and delivery of engagement which covers areas such as planning, design, property acquisition and the commencement of construction planning. In this regard, HI has been working closely with Government Agencies including the Council, RMS, TfNSW (including Sydney Buses, Sydney Coordination Office and Light Rail) to inform the proposed development.

Engaging with and forming partnerships with consumers and community remains a core communication objective in planning for the Project, so that HI can deliver a new hospital that responds to the needs of patients, carers, families and the community. A specific communications and engagement plan has been developed by HI for each area/phase of the Project including Stage 1, to ensure the specific needs of impacted or interested parties are appropriately addressed.

HI’s guiding communications and engagement principles for capital projects have been used to build the Communications and Stakeholder Engagement Strategy for the Project. They include proactive stakeholder engagement, transparent communications, coordinated and accessible information and collaboration.

The Communications and Engagement Consultation Report (Appendix X) provides detailed information on the following:

- HI’s strategy and approach for engaging stakeholders.
- Identification of stakeholders, their area of interest, the communication objective and typical engagement methods.
- Summary of the comprehensive stakeholder engagement and consultation activities undertaken to date and that which are ongoing.
- Details of the impact of stakeholder engagement.

6.1 Summary of Consultation Activities

In summary, the Project team has undertaken a wide range of activities to engage with the large and complex stakeholder groups including:

- Regular clinical and staff consultations to design the future models of care and the design of the ASB, this has included workshops, staff forums, information pop ups, newsletters and user group meetings.



- The establishment of a Consumer and Community Advisory Committee and inclusion of consumers and community members in the design of the ASB and consultation programs.
- Conversations with Aboriginal community members and groups, in particular the La Perouse Local Aboriginal Land Council.
- Delivering opportunities for culturally and linguistically diverse communities to access project information through translation services.
- Workshops with education institutions, clinicians, designers, consumers and community to inform project planning.
- Regular and informative door knocks with immediate neighbours, property owners, residents and businesses.
- Briefings with community-based stakeholders including local schools and the Council's Precinct Committee.
- Regular reporting and consultation through the Project governance structure for decision making and endorsement of key project deliverables.
- Consultation with the Council at all levels.
- Consultation with a wide range of government and statutory bodies, including those outlined in the SEARs as priority stakeholders.
- Extensive engagement with Transport for NSW and Light Rail during the planning phase, facilitated through a number of forums.

6.2 Key Issues Raised by Stakeholders

A summary of the issues raised to date from consultation activities and how the design of the development has been amended in response to the issue raised is presented in Table 6-1.

Table 6-1 Examples of changes to the design as a result of stakeholder engagement

Issue raised	Stakeholder Group	Forum/avenue	What changed as a result
Overshadowing from the building	Residents of Magill Street	Door knocks	The ASB was moved further to the north.
Site location, relationship of new ASB to existing health services, connectivity to the clinical core of the campus	Staff, clinicians, design experts	Health and urban master planning	Site location, patient and public direct link bridges connecting to clinical core of the Campus and wayfinding.
Stronger involvement of the Aboriginal people in the design and	Aboriginal groups, including La Perouse Local Aboriginal Land Council, La Perouse	Face-to-face meetings	A commitment to the following: • Aboriginal community members in Project User



Issue raised	Stakeholder Group	Forum/avenue	What changed as a result
planning process	Alliance and Aboriginal Health Alliance		Groups. • Acknowledgement of traditional owners in a prominent location. • Display of Aboriginal art work in prominent location. • Maintain four flagpoles that have both the Aboriginal flag, the flag of the Torres Strait Islands, NSW and Australian flags.
Response to culture and heritage	Government Architect Office NSW	Formal feedback	Consultation will be undertaken with the local Aboriginal community and the Archaeologist responsible for Aboriginal Archaeological and Culture Heritage for guidance on creating identity within context of the building.
Problems with wayfinding around the precinct	Consumer and community	Pop-ups and community survey	Held a wayfinding workshop with consumers and community members to feed into the precinct wayfinding strategy.
Problems with wayfinding around the precinct	Government Architect Office NSW	Formal feedback	All pedestrian flows, including between and through UNSW, the Hospitals' Campus, transport connections and stations, will be included in the Wayfinding Strategy.
Effective stormwater management to ensure the appropriate amount of overland flow and rain water is held and discharged	Randwick City Council	Face to face meetings	The stormwater design takes into consideration privately owned hospital assets that assist the overarching overland flow and stormwater management for the Project to ensure non-worsening.
Need to revise truck haulage routes on local road network to and from the construction site, to minimise impacts on local traffic flow	Randwick City Council	Face to face meetings, Formal briefing at Traffic Committee meeting.	Commitment to reduce impacts on local road network, with provision for haulage route changes during peak and off-peak periods, truck volume minimisation during peak periods and use of state road network where possible, subject to road



Issue raised	Stakeholder Group	Forum/avenue	What changed as a result
and nearby residents			network congestion.
Extent of tree removal along Botany Street and Magill Street and selection of appropriate approval pathway	Randwick City Council	Face-to-face meetings	Trees not required to be removed for access or to allow installation of in ground services will be retained on Botany Street. Trees requiring removal along Botany Street and Magill Street (within Council land) have been included in a Review of Environmental Factors following consultation with Randwick City Council.
Request that the project considers the temporary retention of trees in the northern part of the site (in area of Contractor's accommodation and logistics zone) to improve amenity during construction	Randwick City Council	Face-to-face meetings	The Project will endeavour to only remove trees in the northern part of the Project site as they are required to be removed in order to establish and maintain a safe and efficient construction site.
Concerns raised regarding access, construction haulage routes, capacity to accommodate onsite and localised construction worker parking	Transport for NSW Sydney Coordination Office NSW Roads and Maritime Services	Face-to-face briefings, written correspondence	Road haulage routes and truck operation hours modified in the Construction Traffic Management Plan to minimise impact on state road network operations. Provision of offsite parking with shuttle buses.
Need to promote how consumers can get involved and provide meaningful feedback	Consumers; Patients, relatives and visitors	Information packs, calling cards, face-to-face meetings, displays	Monthly meetings with frontline staff managers (including volunteers' manager). Calling cards for frontline staff to direct queries to the project team. Displays near main entrances and throughout the hospital with project contact information.
Concerns around travel distances within the campus	Consumers	Project user groups	Provision for resting spots in linkways.
Issues around pedestrian safety	Consumers and community	Project user groups	A commitment to make provisions for footpaths and pedestrian



Issue raised	Stakeholder Group	Forum/avenue	What changed as a result
on Hospital Road due to increased foot traffic between the new ASB and existing campus	representatives		crossing to improve access and safety.
Concerns around appropriate cultural spaces in the existing ED	Aboriginal Community Representatives	Face-to-face meetings	Commitment to incorporating appropriate acknowledgment of local Aboriginal culture through art.
The proposed operation of tower crane operation (TC1) is greater than 3 months, it is not considered a short term controlled activity under the Airports (Protection of Airspace) Regulation 1996, and therefore AirServices cannot support such an extended intrusion into prescribed airspace.	Civil Aviation Safety Authority, Sydney Airport Corporation Limited	Face-to-face briefings, written correspondence	The Project team re-evaluated the construction crane methodology to allow for a short-term controlled activity (three months or less) with the revised crane height of RL131.00.
Concern raised about increased traffic/change of function of Magill Street	Project neighbours and residents	Doorknocks and project updates to project neighbours	Magill Street is not proposed to be used for construction access. The satellite loading dock access was moved from Magill Street to Hospital Road and a solid wall with additional landscaping considered by the landscape concept plan. Detailed design phase to further consider specific design features to manage interface.



7 Environmental Impact Assessment

7.1 Overview

In addition to the statutory and strategic context and policies addressed in Sections 4 (SEAR 1) and 5 (SEAR 2) of the EIS, the SEARs state that the potential environmental impacts of the key issues be considered. This section contains: (a) the identification and assessment of environmental impacts; (b) other relevant considerations; and (c) recommended mitigation measures where necessary. Each matter raised within the SEARs is addressed separately below.

7.2 Built Form and Urban Design (SEAR 3)

7.2.1 SEAR

SEAR 3 requires that the application:

- *Address the height, density, bulk and scale, setbacks of the proposal in relation to the hospital campus, surrounding development, topography, streetscape and any public open spaces.*
- *Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, heritage significance, materials, colours and Crime Prevention Through Environmental Design Principles.*
- *Demonstrate how the proposed development could integrate with any potential future expansion of the campus or any potential surrounding health precinct.*
- *Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.*
- *Demonstrate how high-quality design will be achieved with reference to Better Placed – An integrated design policy for the built environment of New South Wales and in accordance with a strategy developed in consultation with the Government Architect of NSW.*

7.2.2 Assessment

The Architectural Design Statement prepared by BVN (2018) describes the principles and concepts that drive the ASB's urban design and development (refer Appendix D).

Height, Density, Bulk, Scale and Setbacks

The proposed building is 13 storeys in height including a rooftop helipad. The ASB will have:

- An effective height (indicatively) of 54.2 m (RL 101.2 – RL 47.0).
- A maximum height (top of the lift core) of RL 111.0.
- A total floor area (approximate) of 49,000 m².



The Precinct in which the ASB is located differs in character and scale to the low-density residential landscape to the south. Notwithstanding, it is in harmony with the form and scale of the buildings in the UNSW Precinct to the immediate west. The ASB's bulk is broken into interconnected vertical solids of an appropriate scale within its urban context. The building's form is derived from a central core which branches into two IPU wings. The scale of the ASB highlights its importance within the immediate precinct and greater community. The significance of this façade will increase as future developments to the north are completed.

The proposed development provides a range of setbacks, summarised in Table 7-1.

Table 7-1 Setback descriptions of the proposed ASB (BVN, 2018)

Street Frontage	Description
Botany Street (west)	The podium tower of the ASB is setback more than 40 m from Botany Street. This creates a substantial zone for public open space and vehicle drop-offs. A services easement of approximately 7 m is provided along the Botany Street edge of the site.
Magill Street (south)	The services easement continues east along Magill Street. The public Emergency drop-off is set back from the street, allowing a landscaped buffer zone between Magill Street and the vehicular area. The building footprint and coupled with its materials and finishes is designed to minimise overshadowing, visual privacy, lighting and reflectivity impacts to Magill Street residences. Logistics areas are screened from the public and accessed via Hospital Road, which is designated as the primary logistics and services access route to the Campus.
Hospital Road (east)	A zero setback is provided to Hospital Road, due to the significant clinical driver for proximity to the existing Campus clinical core. The landscape strategy replaces on-street parking on the eastern side of Hospital Road with a more generous footpath and landscaped edge.
Northern façade	The northern façade has been designed to front a future public space at RL 56.0, and to interface with future developments at RL 52.0.

Design Quality

The design quality of developments within the Precinct is dependent on key principles identified in the Precinct Masterplan:

- Green and healthy.
- Connected.
- Integrated.
- Responsive.

The Precinct Masterplan guiding principles and the *Better Placed* built-environment design framework are considered in the formation of six design principles underlying ASB design. The development will:



- Provide a **human-centred** experience that promotes healing, health and wellbeing.
- Incorporate **sustainable** elements and materials that improve building performance.
- Maximise **connectivity** across the Campus and UNSW.
- Ensure **health integration** with existing Campus clinical departments.
- Respond to its core clinical functions and embody an architectural style that reflects **an identity within the greater context** of the Campus and UNSW Campus.
- Create a physical environment that **blurs boundaries** between the Randwick Campus Redevelopment and UNSW.

Integration with Future Expansion

A key consideration in the ASB design has been to create an interactive environment that while standing in its own right in the Stage 1 development of the Project site, supports greater collaboration between health services delivery organisations and UNSW. Thus, provisioning internal connections, entrances, and external decking enables integration with future additional health services facilities north of the ASB. The northern façade has also been designed to interact with future public spaces and developments as referred to in Table 7-1 above.

Public open spaces are also designed to facilitate integration with future public spaces in the northern expansion zone. Design of the public levels provides for a future additional main entry on Level 00 (RL 56.0), accessible via a new public deck outlined in the Precinct Masterplan, extending to High Street and engaging with future additional health services facilities north of the ASB. The internal layout of Level 00 Education, Training and Research spaces has been designed to enable this future entrance.

Positioning of the clinical core of the ASB at the eastern edge of the site minimises the distance between the ASB and the Campus and supports the creation of a spine of clinical connections running north and south from this core. This will facilitate clinical connections with the future additional health services facilities to the north, which are intended to be developed following the use of the northern portion of the site as a construction zone.

The public link bridge over Hospital Road is aligned with the potential link over Botany Street to UNSW.

Integration of Services into Design

An on-floor plant strategy is adopted to improve building resilience by eliminating the need for large on-floor risers. IPU tower floors are serviced by on-floor mechanical plant rooms. This minimises risers to best allow future re-planning and expansions on these levels. Levels -02 through to Level 03 are served by an interstitial plant floor (Level 02). This provisions a mechanical plant directly above the operating theatre floor (Level 01), removes plants on public levels and reduces the need to accommodate an air-handling plant with the basement areas of Level -02.

The ASB will utilise the existing Campus loading dock array for general waste, supply, food and linen. A satellite dock is provisioned on Level -02 to enable supply deliveries, transport of waste and dirty linen to the dock array, and direct collection of hazardous waste.



Design Strategy with the Government Architect of NSW

A pre-lodgement briefing was held between HI and the Government Architect of NSW on 16 May 2018. The pre-lodgement comments of the Government Architect of NSW have been reviewed and addressed in Section 6 of the EIS.

Potential impacts such as overshadowing and visual privacy have been mitigated through the application of design principles and concepts into the ASB design. This ensures the development is aligned to Government Architect of NSW requirements in *Better Placed* and other key overarching frameworks guiding sustainable, responsive and integrated design of the built environment.

7.2.3 Recommended Mitigation Measures

No further mitigation measures are recommended.

7.3 Environmental Amenity (SEAR 4)

7.3.1 SEAR

SEAR 4 requires that the application:

- *Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing, reflectivity from building façades and wind impacts. A high level of environmental amenity for any surrounding residential properties or areas of public open space must be demonstrated.*

7.3.2 Assessment

Solar Access and Overshadowing

Shadow diagrams have been prepared by BVN (refer Appendix D) for hourly intervals between 8am and 4pm as at 21 June (winter solstice) and 9am, 12pm and 3pm for 21 December (summer solstice) time periods. The lot boundaries overlaid onto the shadow diagrams were extracted from the NSW cadastral information from the GIS database.

The diagrams distinguish between the shadows cast by the proposed development (ASB) and Existing Buildings. For the purposes of this assessment, "Existing Buildings" means the Hospital Campus buildings to the east, the UNSW Campus buildings to the west and each building and outbuildings at Nos. 1-15 Magill Street and Nos. 103-109 Botany Street, Randwick.

As stated in Section 4.3.1, because of the provisions of Clause 11 of the SRD SEPP, the provisions in the Randwick DCP 2013 do not apply. The provisions of the Randwick DCP 2013 have been used as a **guide** only in the assessment of solar access to living areas and private open spaces between 8am and 4pm. The provisions are as follows:

"Solar access to neighbouring development:

- iii) A portion of the north-facing living area windows of neighbouring dwellings must receive a minimum of 3 hours of direct sunlight between 8am and 4pm on 21 June.*



iv) The private open space of neighbouring dwellings must receive a minimum of 3 hours of direct sunlight between 8am and 4pm on 21 June. The area covered by sunlight must be capable of supporting passive recreation activities."

"Living areas" (LA) is defined in the Randwick DCP 2013 (C1 Low Density Residential, p. 30) as *"indoor space[s] occupied for extended periods of time such as a living room, lounge room, dining room, family room and/or other open plan living areas"*.

"Private open space" (POS) is not defined in the Randwick DCP 2013, however is described as providing *"outdoor living areas for recreational activities of residents. Private open spaces should be located and designed to maximise solar access, privacy, accessibility and useability"* (Randwick DCP 2013, C1 Low Density Residential, p. 9).

In applying the above provisions, it is considered that a 50% 'portion' of the north-facing living area windows will maintain acceptable levels of solar access to living areas.

In relation to the winter solstice, Table 7-2 provides an analysis of:

- The extent of potential impacts on solar access generated by the proposed development (ASB) to buildings and outbuildings at Nos. 1-15 Magill Street and Nos. 103-109 Botany Street, Randwick.
- The extent of potential cumulative impacts on solar access generated by the proposed development (ASB) and "Existing Buildings" (as defined above) to buildings and outbuildings at Nos. 1-15 Magill Street and Nos. 103-109 Botany Street, Randwick.



Table 7-2 Analysis of potential impacts on solar access by the proposed development (ASB) and the potential cumulative impacts on solar access by the proposed development (ASB) and Existing Buildings on LA and POS areas of buildings and outbuildings at Nos. 1-15 Magill Street and Nos. 103-109 Botany Street, Randwick

1 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	90%	✓	10%	100%
9am	90%	25%	10%	75%
10am	90%	30%	10%	70%
11am	45%	15%	5%	35%
12pm	✓	✓	10%	35%
1pm	✓	✓	10%	35%
2pm	✓	✓	10%	30%
3pm	✓	✓	10%	25%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	1.6 hrs	0.7 hrs	-	-
% of Total Time IN Shadow of ASB	20%	9%	-	-
Total Time NOT in Shadow of ASB	6.4 hrs	7.3 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	1.4 hrs	5.05 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	18%	63%

Cumulative Impacts – 1 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	5 hrs	2.25 hrs



3 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	70%	✓	30%	100%
9am	80%	30%	20%	70%
10am	80%	40%	20%	60%
11am	80%	35%	20%	50%
12pm	10%	10%	15%	40%
1pm	✓	✓	15%	45%
2pm	✓	✓	20%	50%
3pm	✓	✓	30%	60%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	1.6 hrs	1.15 hrs	-	-
% of Total Time IN Shadow of ASB	20%	14%	-	-
Total Time NOT in Shadow of ASB	6.4 hrs	6.85 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	1.85 hrs	5.75 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	23%	72%

Cumulative Impacts – 3 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	4.55 hrs	1.1 hrs



5 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	✓	✓	100%	100%
9am	90%	15%	☑	85%
10am	95%	20%	5%	80%
11am	90%	45%	10%	55%
12pm	85%	15%	15%	50%
1pm	✓	✓	50%	50%
2pm	✓	✓	70%	60%
3pm	✓	✓	80%	65%
4pm	✓	✓	90%	100%
Total Time IN Shadow of ASB	1.8 hrs	0.95 hrs	-	-
% of Total Time IN Shadow of ASB	23%	12%	-	-
Total Time NOT in Shadow of ASB	6.2 hrs	7.05 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.6 hrs	6.45 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	33%	81%

Cumulative Impacts – 5 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	3.6 hrs	0.6 hrs



7 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	✓	✓	100%	100%
9am	95%	15%	5%	60%
10am	100%	50%	☑	50%
11am	100%	70%	☑	30%
12pm	100%	35%	☑	30%
1pm	95%	15%	☑	45%
2pm	✓	✓	50%	60%
3pm	✓	✓	60%	75%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	3.95 hrs	1.85 hrs	-	-
% of Total Time IN Shadow of ASB	49%	23%	-	-
Total Time NOT in Shadow of ASB	4.05 hrs	6.15 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.6 hrs	5.5 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	33%	69%

Cumulative Impacts – 7 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	1.45 hrs	0.65 hrs



9 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	✓	✓	100%	100%
9am	✓	5%	25%	80%
10am	80%	20%	20%	80%
11am	80%	35%	20%	65%
12pm	80%	40%	20%	60%
1pm	80%	20%	15%	60%
2pm	✓	5%	15%	60%
3pm	✓	✓	10%	60%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	1.6 hrs	1.25 hrs	-	-
% of Total Time IN Shadow of ASB	20%	16%	-	-
Total Time NOT in Shadow of ASB	6.4 hrs	6.75 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.6 hrs	6.65 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	33%	83%

Cumulative Impacts – 9 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	3.8 hrs	0.1 hrs



11 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	✓	✓	100%	100%
9am	✓	✓	80%	100%
10am	70%	✓	20%	80%
11am	90%	25%	20%	70%
12pm	90%	15%	10%	65%
1pm	90%	10%	5%	60%
2pm	90%	10%	20%	65%
3pm	✓	✓	35%	80%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	2.15 hrs	0.6 hrs	-	-
% of Total Time IN Shadow of ASB	27%	8%	-	-
Total Time NOT in Shadow of ASB	5.85 hrs	7.4 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.95 hrs	7.2 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	37%	90%

Cumulative Impacts – 11 Magill St		LA	POS
Total Time NOT in Shadow of ANY Buildings		2.9 hrs	0.2 hrs



13 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	✓	✓	100%	100%
9am	✓	✓	95%	100%
10am	✓	✓	10%	70%
11am	90%	20%	10%	65%
12pm	90%	20%	10%	75%
1pm	90%	15%	10%	80%
2pm	90%	15%	10%	70%
3pm	✓	✓	40%	60%
4pm	✓	✓	100%	95%
Total Time IN Shadow of ASB	1.8 hrs	0.7 hrs	-	-
% of Total Time IN Shadow of ASB	23%	9%	-	-
Total Time NOT in Shadow of ASB	6.2 hrs	7.3 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.9 hrs	7.15 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	36%	89%

Cumulative Impacts – 13 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	3.3 hrs	0.15 hrs



15 Magill St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	✓	✓	100%	100%
9am	✓	✓	90%	100%
10am	✓	✓	20%	45%
11am	5%	5%	25%	50%
12pm	90%	35%	20%	60%
1pm	80%	30%	20%	65%
2pm	80%	30%	25%	65%
3pm	15%	15%	25%	70%
4pm	✓	✓	75%	100%
Total Time IN Shadow of ASB	1.35 hrs	1.15 hrs	-	-
% of Total Time IN Shadow of ASB	17%	14%	-	-
Total Time NOT in Shadow of ASB	6.65 hrs	6.85 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.5 hrs	6.55 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	31%	82%

Cumulative Impacts – 15 Magill St	LA	POS
Total Time NOT in Shadow of ANY Buildings	4.15 hrs	0.3 hrs



103 Botany St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	100%	40%	☒	60%
9am	100%	70%	☒	30%
10am	✓	40%	☒	15%
11am	✓	✓	☒	10%
12pm	✓	✓	5%	15%
1pm	✓	✓	5%	15%
2pm	✓	✓	5%	30%
3pm	✓	✓	10%	40%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	2 hr	1.5 hrs	-	-
% of Total Time IN Shadow of ASB	25%	19%	-	-
Total Time NOT in Shadow of ASB	6 hrs	6.5 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	1.1 hrs	3.15 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	14%	39%

Cumulative Impacts – 103 Botany St	LA	POS
Total Time NOT in Shadow of ANY Buildings	4.9 hrs	3.35 hrs



105 Botany St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	60%	20%	40%	80%
9am	50%	40%	50%	60%
10am	50%	30%	50%	60%
11am	✓	✓	40%	50%
12pm	✓	✓	30%	50%
1pm	✓	✓	30%	60%
2pm	✓	✓	40%	70%
3pm	✓	✓	50%	80%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	0.8 hrs	0.9 hrs	-	-
% of Total Time IN Shadow of ASB	10%	11%	-	-
Total Time NOT in Shadow of ASB	7.2 hrs	7.1 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	2.65 hrs	6.1 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	33%	76%

Cumulative Impacts – 105 Botany St	LA	POS
Total Time NOT in Shadow of ANY Buildings	4.55 hrs	1 hr



107 Botany St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	40%	5%	60%	95%
9am	40%	10%	60%	90%
10am	40%	15%	60%	85%
11am	✓	✓	60%	60%
12pm	✓	✓	60%	55%
1pm	✓	✓	60%	60%
2pm	✓	✓	50%	65%
3pm	✓	✓	50%	65%
4pm	✓	✓	100%	100%
Total Time IN Shadow of ASB	0.6 hrs	0.3 hrs	-	-
% of Total Time IN Shadow of ASB	8%	4%	-	-
Total Time NOT in Shadow of ASB	7.4 hrs	7.7 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	3.3 hrs	6.75 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	41%	84%

Cumulative Impacts – 107 Botany St	LA	POS
Total Time NOT in Shadow of ANY Buildings	4.1 hrs	0.95 hrs



109 Botany St	ASB		Existing Buildings	
Time	LA	POS	LA	POS
8am	65%	✓	40%	100%
9am	60%	30%	35%	70%
10am	5%	20%	40%	45%
11am	✓	✓	50%	40%
12pm	✓	✓	50%	35%
1pm	✓	✓	50%	50%
2pm	✓	✓	60%	60%
3pm	✓	✓	75%	70%
4pm	✓	✓	100%	90%
Total Time IN Shadow of ASB	0.65 hrs	0.5 hrs	-	-
% of Total Time IN Shadow of ASB	8%	6%		
Total Time NOT in Shadow of ASB	7.35 hrs	7.5 hrs	-	-
Total Time IN Shadow of Existing Buildings	-	-	3 hrs	5.6 hrs
% of Total Time IN Shadow of Existing Buildings	-	-	38%	70%

Cumulative Impacts – 109 Botany St	LA	POS
Total Time NOT in Shadow of ANY Buildings	4.35 hrs	1.9 hrs

Legend:

% = percentage of time in shadow of the proposed development (ASB) or Existing Buildings.

✓ = time not in shadow of the proposed development (ASB).

“Existing Buildings” = as defined above. Note the analysis takes into account the shadow cast by each neighbouring building and outbuildings onto its own space.

☑ = time not in shadow of Existing Buildings.

Total Time NOT in Shadow of ANY Buildings = 8 hours* – (Total Time IN Shadow of ASB + Total Time IN Shadow of Existing Buildings).

* **Note:** 8 hours = 8am to 4pm

Note: Vegetation in POS areas has not been included in the analysis.

Note: the shadow diagrams also confirm that an acceptable level of solar access is maintained to Nos. 111 and 111A Botany Street and Nos. 4, 12, 14 and 16 Hay Street.

The analysis shows the potential cumulative impacts on solar access are likely to be highest at Nos. 7-15 Magill Street, Randwick where the minimum 3 hours of solar access is not achieved.

The minimum 3 hours of solar access to living area is not achieved at No. 7 Magill Street (1.45 hours) and No. 11 Magill Street (2.9 hours).



The minimum 3 hours of solar access to private open space is not achieved at No. 7 Magill Street (0.65 hours), No. 9 Magill Street (0.1 hours), No. 11 Magill Street (0.2 hours), No. 13 Magill Street (0.15 hours) and No. 15 Magill Street (0.3 hours).

In relation to the above analysis and properties, it is noted that Randwick DCP 2013, C1 Low Density Residential, Section 5 Amenity provides:

"The required level of solar access may not be fully achievable in certain circumstances due to issues such as subdivision pattern, allotment orientation and site topography. In these cases, development proposals must be designed to maximise solar access and simultaneously minimise overshadowing upon the neighbours through responsive and skilful solutions."

Careful consideration was given to the site's context and setting in the development of the Precinct Masterplan. Various building siting and massing arrangements were evaluated during the Schematic Design phase to maximise solar access to properties on the southern side of Magill Street and on Botany Street. Accordingly, the building was moved 25 m north of its originally intended location, as defined in the Precinct Masterplan.

The positioning of the clinical core of the ASB at the eastern edge of the site minimises the distance between the ASB and the Campus and supports the creation of a spine of clinical connections running north and south from this core.

Expansion of the Campus to physically link with the UNSW Campus is a critical consideration to realising the Precinct's employment generating potential, where it is estimated that up to 15,000 new jobs would be created in the long-term.

In conclusion, the cumulative impact on solar access to the above referred to properties is noted. In doing so, it is important to acknowledge the differences in degree of impact on solar access of the ASB and "Existing Buildings".

In the circumstances of this SSDA, it is considered that the test "still maintain acceptable solar access" includes consideration of the SEAR "potential cumulative impacts due to other developments in the vicinity" is a "planning merit" test. Consideration has been given to the four shadows in play - the ASB shadow and the three that compose the definition of "Existing Buildings".

It is considered that the properties maintain an acceptable level of solar access.

It is considered that the proposed development will not generate any overshadowing impacts to neighbouring properties at the summer solstice.

Acoustic Impacts

The acoustics component of the Noise and Vibration Impact Assessment prepared by Acoustic Studio (2018) considers noise impacts for community and land uses surrounding the site, and existing infrastructure within the Campus and UNSW. Acoustic impacts during the construction and operational phases of the development are detailed in Section 7.9 Noise and Vibration (SEAR 10) and Appendix G.

Visual Privacy

The proposed development is the first phase of proposed significant changes in the visual landscape of the site and its context and setting, as the site transitions from residential to hospital uses. It is



noted that this change is not dissimilar to and echoes that which has occurred in the recent development in the UNSW campus to the immediate west. In this regard, for the purposes of this assessment, impacts on visual privacy are considered on a two phased basis: Construction and Operation.

Construction

The construction visual impacts are considered to be transitional in nature. The construction works would be visible from neighbouring residences from the north, south and southwest (High, Magill and Botany Streets, respectively). Further, both the buildings situated on western edge of the Campus (RHW, Sydney Children's Hospital and Ainsworth Building) and the eastern edge of UNSW (Wallace Wurth Building, Biological Sciences Building and The Australian Graduate School of Management Building) may have some visual sensitivity and limited views to the works.

The extent of the works visible from the public domain would be contained within temporary fencing as outlined in the PCMP (Appendix F). Where necessary, privacy screens will be erected to scaffolding to minimise privacy impacts. Truck and plant vehicles would be visible beyond the fencing. Short-term static views of the fencing containing the proposed construction works would be featured.

Operation

The design of the ASB has carefully considered its relationship to its context and setting including the proximity of residences in Botany and Magill Streets and Campus buildings in relation to preservation of visual privacy with regard to height, scale, setbacks and materials including window and glazing designs as discussed in Section 7.2. The satellite dock is enclosed to minimise its visual and acoustic impact on Magill Street residential properties. Further, the public levels along Magill Street are recessed, providing a buffer to surrounding residential properties.

All external lighting on the site to be implemented as part of the operation of the development will be required to have regard to the location of nearby residential dwellings and is to be minimised to the extent possible.

View Loss

As noted above under 'Visual Privacy', the visual landscape will change with the implementation of the proposed development from "low density" to "health services", initially with construction site works and once the ASB is operational as a built structure. On that basis, view loss is more accurately characterised as one of "low density residential" to a built form consistent with the adjoining Campus as well as that in the immediately adjoining UNSW Campus to the west.

Reflectivity

The use of matt-finish materials (Equitone) and limited areas of glazing minimise reflectivity. Further, the building is set back from Botany and Magill Streets, thus further minimising potential impacts to residential properties from glare.

Wind Impacts

A qualitative wind engineering assessment was prepared by Arup (2018) which can be found in Appendix H. The assessment has provided qualitative advice on aspects of the ASB's design related to

wind engineering. It has included pedestrian wind comfort, helipad wind impacts, façade and structural loading and exhaust dispersion.

Wind conditions at all locations are expected to pass the safety criteria, defined by Lawson (1990) and which has been adopted in the Central Sydney Planning Strategy 2016 – 2036 and applied to the site as the Randwick DCP 2013 has no specific criteria. Comfort levels are suitable for the intended use of space. However, due to the building's exposed, rectangular massing and absence of a significant awning or podium to protect the ground plane from downwash, it is expected the site will experience elevated wind speeds compared to the approach flow.

The impact of helicopter downwash on wind conditions will be minor on the ground plane, minimal on the terrace levels and significant for roof access. Structural pressures created by helicopter downwash are significantly lower than structural and façade design capabilities.

Summary

It is considered that the respective assessments of environmental amenity matters demonstrate that a high level of environmental amenity will be achieved for surrounding residential properties.

7.3.3 Recommended Mitigation Measures

Potential visual and privacy impacts from construction are to be mitigated with the implementation of the strategies contained in the PCMP (Appendix F).

All external lighting on the site to be implemented as part of the operation of the development is to have regard to the location of nearby residential dwellings. Lighting impacts are to be minimised to the extent possible, and comply with *AS 4282:1997 – Control of the Obtrusive Effects of Outdoor Lighting* and relevant Australia Standards in the series *AS/NZ 1158 – Lighting for Roads and Public Spaces*.

Protocols restricting roof and terrace access during helicopter operations are to be implemented.

Acoustic mitigation measures are detailed in Section 7.9 Noise and Vibration (SEAR 10).

7.4 Transport and Accessibility (SEAR 5)

7.4.1 SEAR

SEAR 5 requires the SSDA to include a transport and accessibility impact assessment, which details a range of matters relevant to traffic, parking and accessibility. Given their length, these requirements are not reproduced below. Refer to Table 1-1 for the full list of requirements.

7.4.2 Assessment

A Transport Assessment has been prepared by Arup and is included at Appendix I. It provides an assessment and high-level review of potential construction and operational traffic impacts. An Access Report has been prepared by Iaccess Consultants and is included at Appendix V. A summary of the reports are provided below.

Existing Transport Context

A review of existing transport conditions by Arup (2018) investigated current travel behaviours, relative to mode of travel for staff, visitors and patients. It was ascertained that over 40% of staff live within 5 km of the Campus and 12% reside within the suburb of Randwick. The majority of those accessing the Campus use private vehicles as a primary mode of transport, however, public transport consumption by staff is relatively high, compared to other hospitals.

The Campus is bound by Avoca Street to the east, a State-owned arterial road. Barker Street is a collector road and sits to the south of the Campus, linking the main HAC owned hospital access roads on the west boundary (Hospital Road and Easy Street) to the arterial road network. High Street plays a similar role and is located at the northern boundary of the Campus. However, with the development of the Light Rail, function of that road will likely transition to a more transit-focussed corridor.

Intersection modelling was undertaken using SIDRA, the industry standard static modelling software package on all key intersections within the study area to provide an understanding of the existing performance of the nearby road network. The majority of intersections are currently performing within practical capacity. However, the key intersections along Avoca Street, mainly with Barker Street and Alison Road, are at capacity during peak periods. A copy of the SIDRA outputs for each intersection is presented in Appendix C to the Transport Assessment (Appendix I to this EIS).

There are approximately 2,300 on-Campus car parking bays available to staff and the public. Parking demands are at peak during the middle of the day (11am – 2pm) and is considered to be at capacity, however, outside of this peak period, there is considered to be sufficient parking spaces available.

Randwick is a district hub for buses to service Sydney's eastern suburbs. A number of bus routes frequent the area. The majority of these buses provide all-day services to the CBD. Some buses also provide access to surrounding areas, including Green Square, Mascot, Bondi Junction and Maroubra Junction.

Proposed Development Access

As per the scope outlined in Section 3, the ASB will include a new intensive care unit, operation theatres, extra beds and a new Adults' ED.

The proposed vehicle access to the ASB encompasses the following areas:

- **Main Entry** – This is proposed by way of a new signalised intersection on Botany Street, opposite Library Walk (UNSW Gate 11). Visitors who wish to proceed to on-site car parking facilities after accessing the main drop-off area will be required to exit back onto Botany Street and proceed via Magill Street, through to Hospital Road Entrance to the main Campus car park.
- **Ambulance Access** – Ambulances are proposed to access the facility via Magill Street, on a shared driveway with the ED drop-off. Exiting ambulances will then traverse through the ED drop-off and exit via a shared driveway. The ambulance bays will provide reverse-in spaces for approximately 10 ambulance vehicles.
- **Emergency drop-off** – access to the Adults' ED is proposed by way of a shared entrance on Magill Street. The exit driveway is proposed to be shared with ambulances.



- The ASB will utilise the existing Campus' loading dock, which is accessed via Hospital Road. A satellite dock is provided in the south-west corner of the ASB site. Access to this facility is provided via Hospital Road. Access to the satellite dock will be avoided via Magill Street so as to limit the impact on local residents and maintain a clear servicing strategy for the Campus via Hospital Road.

Transport Strategy

Based on the current trends, it would be expected that the number of beds at the Campus will increase by 58 beds to 2022, and 111 beds to 2027. Assuming a business-as-usual approach, an additional 151 parking spaces would be needed by 2022 and 289 parking spaces by 2027.

Previous parking assessments have been undertaken by PTC (2014). The findings of the assessment identified a suppressed parking demand of 350 – 450 parking spaces. The figure was ascertained based on a review of current staff parking waiting lists and travel mode shares. Based on the current travel patterns and trends, any additional parking provided to address the suppressed demand will likely lead to a mode shift away from current public transport consumption.

The ASB is currently proposed to provide no additional parking. However, based on current trends, travel behaviours are unlikely to propagate. Further, based on the TfNSW's investment in public transport improvements in the area (for example Light Rail), coupled with Sydney's strategic shift towards more sustainable transport modes, there is a pragmatic opportunity to reduce private car dependence by way of improvements to the public transport paradigm and appropriate travel demand measures.

Potential mode share shifts that could offset the additional parking requirement for the ASB are summarised in Table 7-3.

Table 7-3 Potential future mode share shift (Source: Arup, 2018)

Mode	Existing Staff Mode Share	Potential Staff Mode Share	Difference
Driver	52%	46%	-6%
Car (Passenger)	6%	7%	+1%
Public Transport	25%	28%	+3%
Walking	14%	14%	Nil.
Other (incl. Cycling)	3%	5%	+2%

In review of the above table, the following justification of the relevant mode share shifts is summarised as follows (Arup, 2018):

- Car (Driver) – a -6% reduction in driver mode shift has the potential to negate the 289 additional parking bay requirement for the ASB.
- Car (Passenger) – with the introduction of car pool programmes, coupled with potential incentives to registered car pool vehicles, a +1% increase in mode share is considered reasonable.



- Public Transport – as discussed above, given the NSW Government’s investment in public transport (for example Light Rail, Sydney Metro etc), this mode has the greatest propensity for change. The introduction of the Light Rail will improve the legibility of transport services to the Campus from the CBD. Furthermore, the subsequent potential improvements to the north-south bus services towards the south of the Campus are likely to increase the current public transport mode share in this area. Based on Arup’s observation, analysis indicates that if improved public transport services were to increase, staff usage of public transport would increase from 12% to the Campus average of 25% - an overall increase of 6% can be expected to staff public transport mode shares. As a result, a +3% increase in mode share is likely reasonable.
- Walking – analysis of staff postcodes, relative to reasonable walking distances, indicates that this mode is likely saturated. Hence, a mode shift is not expected.
- Cycling – analysis of staff postcodes, relative to reasonable cycling distances, indicates that there is a key opportunity to promote cycling as a mode of transport for staff. Further, 9% of staff, living within an active transport catchment of the Campus, is currently using modes other than walking or cycling. As a result, a +2% increase in mode share is likely reasonable.

Construction Traffic Impact Assessment

As a general principle, construction works will be staged to minimise impacts to traffic and other modes of transport. Some key principles for traffic management include (Arup, 2018):

- Maintaining access to properties and hospitals.
- Limiting interaction of construction traffic with the existing Campus traffic (especially ambulance routes).
- Maintaining capacity on the surrounding road network.
- Provision for pedestrian movements.
- Minimising impact on local streets (e.g. Magill Street).
- Managing interactions with the Light Rail construction traffic.

The reduction in traffic generation in relation to the removal of the existing 92 existing residential dwellings (subject of a separate DA) is likely to offset any increases in traffic associated with construction activities.

Any associated works along the surrounding road network is to maintain the availability of on-street car parking supply where possible and to maintain two-way traffic flow. Any road closures are to be conducted outside of peak periods and construction traffic should be separated from the Campus operations where possible. Further assessment of construction traffic impacts are to be conducted as part of the ongoing development of the Construction Pedestrian and Traffic Management Plan (CPTMP), in liaison with the Sydney Coordination Office.

Construction Traffic Management

Prior to the commencement of construction, a Construction Pedestrian and Traffic Management Plan (CPTMP) will be prepared to ensure the safest possible management of construction access and



appropriate mitigation measures. The CPTMP would be prepared by the Construction Contractor and address:

- The likely construction vehicle numbers and frequency.
- Approach and departure routes.
- Parking access arrangements during construction.
- Provision of acceptable pedestrian management measures.

A preliminary Construction Traffic Management Plan (CTMP) has been prepared in Appendix I alongside the PCMP and follows the following framework:

- Description of proposed works.
- Impact of proposed measures.
- Effects on existing and future developments.
- Detail of provisions made for emergency vehicles, heavy vehicles and cyclists.
- Measures to ameliorate impacts.
- Public transport services affected.
- Public consultation.

Operational Traffic Impact Assessment

With the construction of the ASB, it is assumed that activity along High Street and Hospital Road will largely remain unchanged (Arup, 2018). However, with the relocation of hospital services to the ASB, a proportion of traffic currently using Easy Street for drop-off and pick-up will likely relocate.

32% of traffic currently utilising the Easy Street drop-off is expected to relocate to the new ASB drop-off. Applying this to current peak hour volumes along Easy Street (176 vehicles per hour), a peak hour volume of 56 one-way trips are forecasted for the ASB drop-off. Based on these movements, it is assumed that 80% of the trips will then be required to access the car park via Botany Street, Magill Street and Hospital Road.

In its current iteration, Magill Street functions as a local access street, with daily volumes of approximately 300 vehicles per day (vpd) and principally provides access to residential lots. However, with the development of the ASB, the function of Magill Street is likely to evolve. New access points for ambulance set-down areas and ED drop-offs are proposed via Magill Street. The RMS guide for environmental capacity of minor streets indicates that local streets should have a maximum daily vehicle throughput of 3,000 vpd. The forecasted daily traffic volumes for Magill Street (2,500 vpd) is expected to be less than the 3,000 vpd threshold. As a result, these forecast volumes are deemed to be acceptable, given the intended function and capacity of Magill Street (Arup, 2018).

As no additional parking is provided as part of the proposed development, traffic generation is therefore not likely to be significant. As a result, the following key intersections pertaining to access to the ASB facility has been assessed for relevant traffic impacts (Arup, 2018):



- Botany Street / ASB Access Road / UNSW Gate 11 intersection – to be signalised with appropriate turning bays.
- Botany Street / Magill Street – this intersection will operate as a priority intersection with a right-turn bay located in Botany Street.

The expected level of traffic activity for the ASB is similar to that generated by the existing 92 dwellings that are to be removed by the development (subject to a separate DA). The additional traffic activity is predominantly a relocation of drop-off and pick-up activity and therefore will not impact on the wider road network. The future expansion area to the north of the ASB will utilise the same intersection located on Botany Street (Botany Street / ASB Access Road) and a hypothetical traffic generation modelling has been conducted by Arup (2018). The results of the modelling show that the proposed intersection will be suitable. The wider traffic impacts of the future expansion area are to be assessed by a future development application.

Access Report

The Access Report provides key performance guidance on issues of technical compliance in relation to the building's design for internal and external access with regard to the relevant provisions of the (Commonwealth) *Disability Discrimination Act 1993* (DD Act), the *Disability (Access to Premises - Buildings) Standard 2010* and AS1428.

7.4.3 Recommended Mitigation Measures

Prior to the commencement of construction, a CPTMP is to be prepared by the Contractor in consultation with the TfNSW Sydney Coordination Office and submitted for approval by the Council and HI.

A Green Travel Plan will be prepared and completed by HI in consultation with TfNSW and SESLHD for the operation of the proposed development. The Green Travel Plan will be submitted to DP&E post-exhibition of the EIS. The Green Travel Plan will contain a package of measures to be introduced to promote the use of public transport, walking and cycling by visitors, patients, staff and supplier/service personnel for travel to and from visiting, treatment, work and for business related trips.

An accessibility policy is to be developed in consultation with Campus management and user groups as outlined in the Access Report (Appendix V). The purpose of the accessibility policy is to define the use and function of identified specialist areas and determine the suitability for full, partial or managed accessibility to achieve the intent of the DD Act.



7.5 Ecologically Sustainable Development (SEAR 6)

7.5.1 SEAR

SEAR 6 requires that the application:

- *Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development.*
- *Demonstrate the development has been assessed against a suitably accredited rating scheme to meet industry best practice.*
- *Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.*

7.5.2 Assessment

Consideration of the principles of ESD in regard to the design and ongoing operation of the proposed development is shown in Table 7-4.

Table 7-4 ESD principles as defined in Clause 7(4) of Schedule 2 of the EP&A Regulation

ESD principle	Comment
Precautionary principle The precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by: (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and (ii) an assessment of the risk-weighted consequences of various options	Technical specialists were engaged to carry out environmental assessments and identify and evaluate likely key impacts of the proposed development. This has helped to gain a thorough understanding of the existing environment within the site, identify and assess the potential impacts associated with the proposed development and to develop measures to avoid or mitigate identified impacts. An Environmental Risk Assessment was carried out to identify any residual risks by reviewing the significance of the potential environmental impacts and the ability to manage those impacts (refer Section 8). An assessment of 'worst case' impacts was carried out. It is anticipated that through the implementation of mitigation measures and through continuation of detailed design, the identified impacts will be further reduced. On that basis, it is considered that the precautionary principle has been implemented in determining the potential environmental impacts of the proposed development.



ESD principle	Comment
Inter-generational equity Inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations	The proposed development will contribute to inter-generational equity by making the ASB a sustainable and integral component of the expanded Campus, and contributing to the continual growth of the Precinct. Mitigation measures are proposed to avoid or minimise identified impacts. The environmental impact assessment carried out for the SSDA has shown that the identified impacts are to be managed in accordance with sound environmental management practices and therefore will not result in significant impacts on the environment.
Conservation of biological diversity and ecological integrity Conservation of biological diversity and ecological integrity, namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration	The proposed development is unlikely to have a significant impact on any listed threatened species as the site does not contain any significant biodiversity values as discussed in Section 7.6 and Appendix K.

A Sustainability Schematic Design Report was prepared by LCI (2018) in Appendix J. The Report discusses the proposed ESD initiatives that are to be embedded within the ASB's design, development and ongoing operational phases. The proposed development will achieve a theoretical 4-Star Green Star rating and a high level of sustainability performance aligned to industry best practice and standards including the National Construction Code (NCC) / BCA – Section J), DCP and NSW Health Engineering Services Guideline (June 2016). The underlying drivers for sustainable design initiatives are lower energy costs and peak electricity demands, improved patient outcomes and staffing amenity, and environmentally responsible corporate citizenship.

Based on LCI (2018) findings, the following design measures will be implemented to minimise consumption of resources, water and energy aligned to ESD principles:

- Long-life light emitting diode (LED) technology and potential future photovoltaics (PV).
- Variable speed drives maximising energy efficiency by matching the building demand profile.
- Passive heating and cooling systems.
- Efficient water fixtures and fittings.
- Modular façade design to increase panel efficiency and minimise construction waste.
- Courtyards, light wells and floor-to-ceiling glazing for daylight penetration.
- PT construction slabs and recycled concrete aggregates.

The design measures outlined above ensure the proposed development is designed in accordance to ESD principles and industry best practice.



It is proposed that the ASB will achieve a 5% improvement on NCC Section J minimum performance requirements. Further detail of design measures and sustainability initiatives are found in Appendix J.

7.5.3 Recommended Mitigation Measures

ESD principles and initiatives are embedded throughout the ASB design, construction and operational phases. Consequently, the proposed development will be adhering to industry best practice and standards to maximise sustainability performance.

7.6 Biodiversity (SEAR 7)

7.6.1 SEAR

SEAR 7 requires that the application:

- *Biodiversity impacts related to the proposal and the preparation of a Biodiversity Development Assessment Report are to be addressed in accordance with the requirements of the Biodiversity Conservation Act 2016.*

Relevant Policies and Guidelines:

- *Policy and guidelines for fish habitat conservation and management (2013)*

7.6.2 Assessment

A BDAR (Appendix K) has been prepared by ELA in accordance with the BC Act. It is noted that no approval to remove vegetation is being sought under the SSDA. However, the BDAR has been prepared in response to SEAR 7.

A summary of the assessment is found below:

- No remnant vegetation occurs within the site.
- No threatened flora or fauna was recorded within the site.
- No ecosystem credits are required based on the application of the Biodiversity Assessment Method.
- Short-term indirect biodiversity impacts during construction may include:
 - Sedimentation and contaminated and/or nutrient run-off.
 - Inadvertent impacts on adjacent vegetation.
 - Transport of weeds and pathogens from the site to adjacent vegetation.

Further, an Arboricultural Impact Assessment (Appendix L) was also prepared by ELA. 11 trees were assessed. Several adjacent street trees have been shown on the Tree Impacts Map as “No Impact” (Figure 7-1). Where trees were less than 4m in height, they did not require an arboricultural impact assessment. It is noted that the remaining trees located along the road verge of Eurimbla Avenue will be assessed under a separate REF.

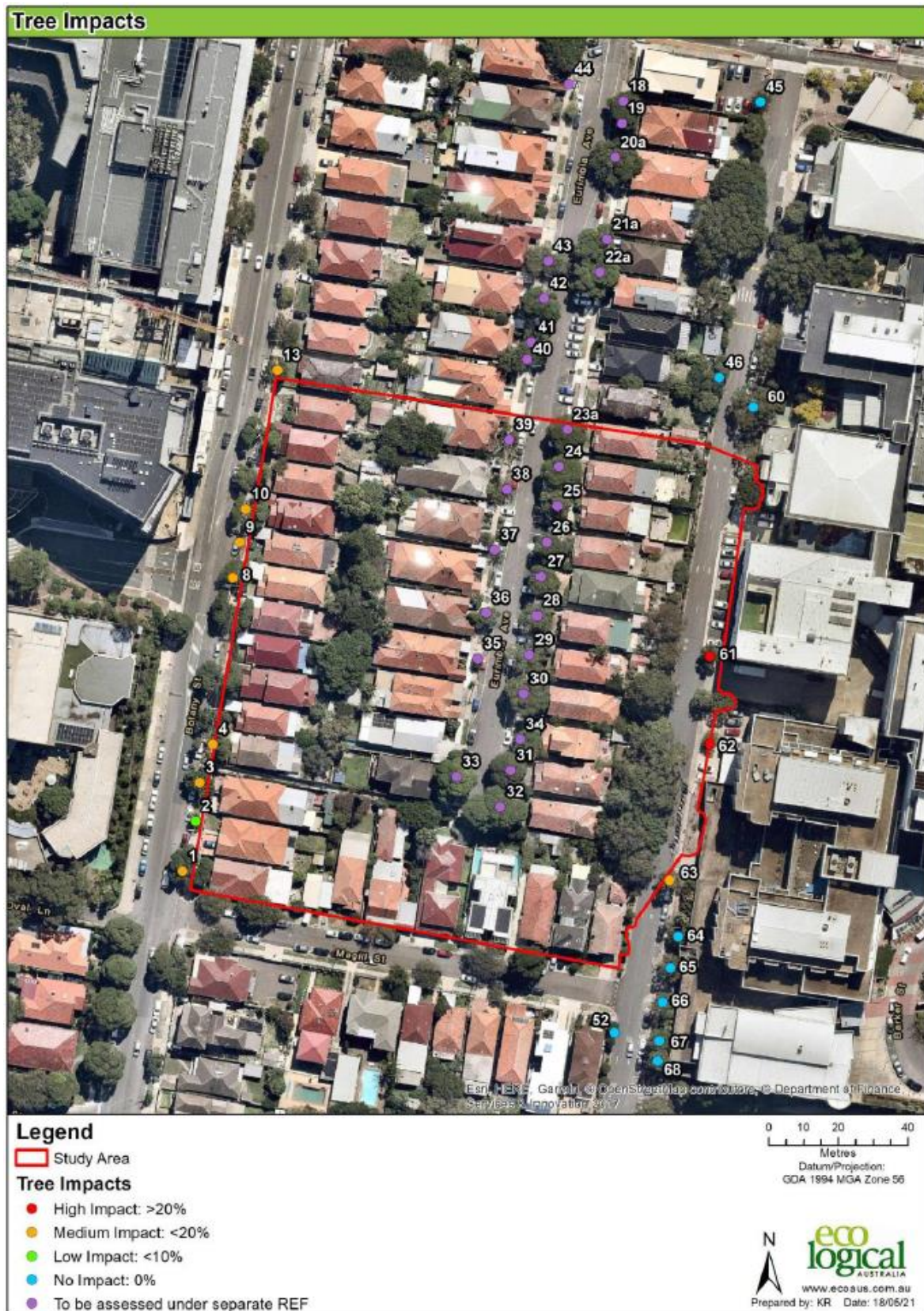


Figure 7-1 Tree Impacts Map (Source: ELA, 2018).



A summary of the assessment is found below:

- High impact (>20%): 2 trees will be subject to a high impact (>20%) of the Tree Protection Zone (TPZ). Of which one has a high and one a medium retention value.
- Medium impact (<20%): 8 trees will be subject to a medium impact (<20%). Further detailed assessments will be required to retain these trees. Trees proposed for further detailed assessment have the following retention values:
 - 1 tree with a low retention value.
 - 7 trees with medium retention value.
- Low impact (<10%): 1 tree will be subject to a minor encroachment (<10%). No significant impacts to the subject trees are foreseeable under the proposed development; therefore these trees can be successfully retained.
- No impact (0%): 9 trees were identified outside the footprint of the proposed development. No impacts to the subject trees are foreseeable under the proposed development; therefore these trees can be successfully retained.

7.6.3 Recommended Mitigation Measures

Further detailed assessments (root mapping) via non-destructive methods are required to determine suitability for retention of the trees subject to a high, medium or low impact.

A tree protection plan is to be prepared for all trees proposed to be retained and trees that are located within 10 m of any construction activities. Additional tree protection measures are identified in Section 5 of Appendix L.

Sediment barriers or sedimentation ponds are to be implemented during construction to control the quality of water released from the site into the receiving environment.

Hygiene protocols are to be implemented during construction to prevent the spread of weeds or pathogens between any infected areas and uninfected areas.

7.7 Heritage (SEAR 8)

7.7.1 SEAR

SEAR 8 requires that the application:

- *Include a Heritage Impact Statement that addresses the significance of, and provides an assessment of the impact on the heritage significance of any heritage items on the site and in the vicinity, and/or conservation areas and/or potentially archaeologically significant areas, in accordance with the guidelines in the NSW Heritage Manual.*

7.7.2 Assessment

A Heritage Impact Statement (HIS) has been prepared by Advisian (Appendix M) that provides an "assessment of the impact to the heritage significance of any heritage items on the site and in the vicinity, and/or conservation areas...in accordance with the guidelines in the NSW Heritage Manual".



The HIS concluded that:

- There are no heritage items or heritage conservation areas within the site.
- The proposed development will not impact on the conservation values of the heritage items and heritage conservation areas located “within the vicinity” of the site.

The Historical Archaeology Assessment prepared by Casey and Lowe (2018) in Appendix N has identified through historical research and the results of a site inspection the potential for archaeological remains to exist within the SSDA boundary. They have mapped areas of low to moderate archaeological potential (Figure 7-2) for locally significant archaeology, which may include:

- Alterations to the area’s pre-existing landscape, including infilling of a swamp as an unofficial rubbish tip area from the mid nineteenth century (precise position unknown but based on the probability that its location was chosen to fill in the swampy area of the site).
- Occupation remains within the extant pre-1872 ‘Violet Hall’ property at 4 Magill Street.

Other potential archaeological remains within the SSDA boundary area are not considered to meet the threshold for local heritage significance, having negligible research potential due to their limited ability to address substantive archaeological research questions. These include the Plant nursery remains associated with the Pearce family (1850s-1872) and Michael Magill (1878 and 1881), including sheds, glasshouses, fences, paths, wells, ponds and garden beds.

The extant buildings within the site, constructed mainly between 1921 and 1943, many having since been modified or rebuilt, are considered to have nil to low research archaeological potential due to their limited ability to address a range of archaeological questions. The archaeological resource associated with this phase of site use is not considered to meet the local heritage significance threshold. It is noted that the extant buildings are proposed to be removed under the Demolition and Site Clearance DA.

The location for the proposed development is partly on lands identified by Casey and Lowe (2018) as containing a low to moderate archaeological potential. As the proposed development involves subsurface disturbance through bulk excavation and other site works, further Historical archaeological advice is to be sought regarding any archaeological testing, salvaging (if required) and reporting and mitigation of impacts that may be required prior to works commencing at the site.

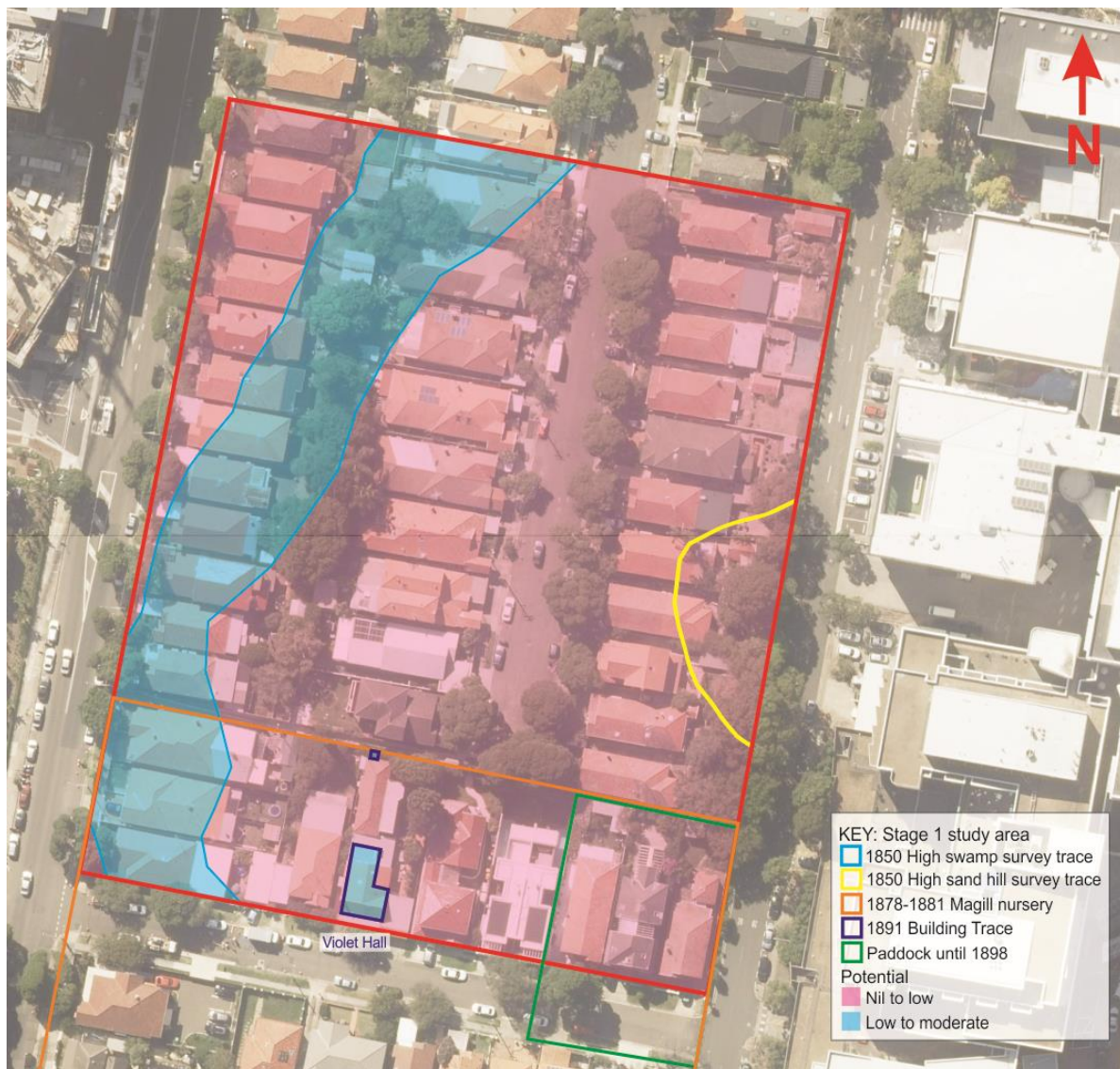


Figure 7-2 Map of archaeological potential within the SSDA boundary (Source: Casey and Lowe, 2018).

7.7.3 Recommended Mitigation Measures

Further Historical archaeological advice is to be sought regarding any archaeological testing, salvaging (if required) and reporting and mitigation of impacts that may be required prior to works commencing at the site.

In the event that any potential archaeological relics are disturbed and identified within the site during works, a minimum requirement to mitigate potential impacts is that **all work in the area will cease forthwith** and the NSW Heritage Division and a qualified archaeologist will be consulted to determine an appropriate course of action prior to the recommencement of work in the area of the relic.



7.8 Aboriginal Heritage (SEAR 9)

7.8.1 SEAR

SEAR 9 requires that the application:

- *Address Aboriginal Heritage in accordance with the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010.*

7.8.2 Assessment

A Preliminary Aboriginal Archaeological Assessment prepared by MDCA (2018) in Appendix O presents the preliminary results of an Aboriginal Archaeological Assessment of the site in accordance with the *Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales* (DECCW, 2010). It accords with Section 2 of the *Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW* (OEH, 2011).

The preliminary assessment involved a review of environmental, historical and archaeological contextual information, a site inspection undertaken in conjunction with representatives of the La Perouse Local Aboriginal Land Council), an assessment of the likely nature of Aboriginal archaeological sensitivity to exist within the site and recommendations for the appropriate management of Aboriginal remains if they are found to occur within the site. The Preliminary Aboriginal Archaeological Assessment was reviewed by the La Perouse Local Aboriginal Land Council and their response is included.

MDCA conducted an Aboriginal Heritage Information Management System (AHIMS) Search on 13 February 2018 which found no previously recorded Aboriginal sites within the site. The nearest and only known site within 500m of the site is a significant open campsite containing a series of deflated hearths and a small number of stone artefacts and manuports. This recorded site is situated in an aeolian sand ridge within and along the western boundary of the former Prince of Wales Destitute Children Asylum Cemetery which lay about 100m to the east of the Project site.

MDCA's (2018) preliminary assessment of the Aboriginal archaeological sensitivity of the site indicates that:

- The likelihood of identifying intact significant Aboriginal occupational evidence is related to the presence/absence and level of historical disturbance to the original dune profile.
- The site is underlain by aeolian dune deposits which have been demonstrated in the past to contain significant Aboriginal archaeological remains about 100m to the east. In the recent past, the central portion of the study area appears to have been a swale between two dunes, characterised by the freshwater swamp of Bird's Gully.
- Portions of the site which may have represented dry land on the margins of the Birds Gully swamp in recent centuries could contain archaeological evidence of past Aboriginal use, most likely in any remaining original topsoil (A1) Horizons.
- Geotechnical testing does not provide sufficient resolution to determine whether any such horizons are present, however evidence of historical fill and other activities suggest that they



are unlikely to have survived historical impacts such as tree clearance, house and road construction and associated earthworks, and the installation of subsurface services. It seems unlikely then, that evidence of relatively recent Aboriginal use of the study area, over the past 500 to 1000 years, would have survived.

- Considerable older Aboriginal archaeological evidence may survive deeper within the dune profile, namely in surviving white A2 Horizon sands (below historical fill and existing services) above B Horizon coffee rock which appear to vary in thickness across the site based on geotechnical testing. It is noted that the A2 Horizon is absent in the north-eastern corner, around the intersection of Hospital Road and High Street, where sandstone bedrock is found very close to the surface.
- As it is currently not clear how far south of High Street the shallow sandstone bedrock extends, so for management purposes, the entirety of the site is to be considered to retain Aboriginal archaeological sensitivity.

The proposed development will involve subsurface disturbance particularly through bulk excavation works. Based on MDCA's preliminary assessment, there is the potential for Aboriginal archaeological evidence to exist at the site.

Based on the results of the Preliminary Aboriginal Archaeological Assessment, MDCA has commenced on behalf of HI, a consultation process with Aboriginal stakeholders in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (the consultation requirements). The consultation requirements set out a four stage process with minimum required timeframes for each stage.

A progress letter on the consultation process has been prepared by MDCA (refer Appendix O). The preparation of the Draft Aboriginal Cultural Heritage Assessment (ACHA) Report is underway (Stage 4). It will be forwarded to Registered Aboriginal Parties for a 28 day review period as required by the consultation requirements. Once the review period has lapsed, the final ACHA will be produced. The date for completion of the final ACHA Report is forecasted for mid to late September 2018.

7.8.3 Recommended Mitigation Measures

Further Aboriginal archaeological advice will be informed by the consultation process with Aboriginal stakeholders that are in progress.

In the event of any materials of Aboriginal archaeological significance being discovered at the site, a minimum requirement to mitigate potential impacts is that **the following mitigation measures must be implemented:**

- If suspected Aboriginal material has been uncovered as a result of works within the site:
 - Work in the surrounding area is to stop immediately.
 - A temporary fence is to be erected around the site with a buffer zone of at least 10 metres around the known edge of the site. An appropriately qualified archaeological consultant is to be engaged to identify the material.
 - If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the Office of Environment and Heritage (OEH) guidelines: *Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)*.



- Should human remains be located at any stage during works within the site, all works must halt in the immediate area to prevent any further impacts to the remains. The site is to be cordoned off and the remains themselves left untouched. The nearest police station, the La Perouse Local Aboriginal Land Council and the OEH are all to be notified as soon as possible.

7.9 Noise and Vibration (SEAR 10)

7.9.1 SEAR

SEAR 10 requires that the application:

- *Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation and outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land.*

Relevant Policies and Guidelines:

- *Noise Policy for Industry 2017 (EPA)*
- *Interim Construction Noise Guideline (DECC)*
- *Assessing Vibration: A Technical Guideline 2006*
- *Development Near Rail Corridors and Busy Roads – Interim Guideline (Department of Planning 2008)*

7.9.2 Assessment

A Noise and Vibration Impact Assessment has been prepared by Acoustic Studio for the proposed development. A copy of the Noise and Vibration Impact Assessment is presented in Appendix G. It provides a quantitative assessment of potential construction and operational noise impacts.

The Noise and Vibration Impact Assessment has comprised the following:

- Characterisation of the existing ambient and background noise environment at noise sensitive receivers on and surrounding the site in accordance with the Noise Policy for Industry (NPI) (EPA, 2017).
- Establishment of site-specific noise and vibration assessment criteria.
- Identification of the main noise and vibration generation sources.
- Assessment of relevant criteria compliance and, where applicable, recommending mitigation measures to minimise potential impacts.

The purpose of the Noise and Vibration Impact Assessment was to assess the impact on noise-sensitive receivers in the vicinity of the proposed development as shown in Figure 7-3.



Figure 7-3 The site in relation to the location of noise-sensitive receivers. In addition to unattended long-term noise monitoring, attended short-term noise measurements were also carried out at Locations 1 to 3 (Source: Acoustic Studio, 2018).

The assessment has been undertaken in accordance with the SEARs. A summary of the report is provided below.

Potential Construction Impacts

The proposed development will contribute to an increase in noise and vibration impacts to the surrounding environment during the construction phase of the ASB. Typically, this is resultant of intermittent noise generated from construction equipment and plant that are commonly used on construction sites (Acoustic Studio, 2018).

A summary of the construction noise and vibration impacts are provided below.



Noise

The following potential noise impacts have been noted for the construction stage of the proposed development (Acoustic Studio, 2018):

- Noise sensitive receivers at Residential Catchments A and B are the most sensitive receivers to the site. Existing buildings on the Campus and at UNSW are also identified as sensitive receivers.
- At times, construction works are likely to exceed the stated criteria, particularly when works occur in the areas closest to the sensitive receivers. These exceedances vary depending on the nature of the activities taking place, the equipment being used plus the times and location of where the works are being carried out.
- During the recommended standard hours (refer to Section 7.18), noise level exceedances by up to 29 dB(A), and by up to 37 dB(A) when used outside these hours, are predicted for certain construction and excavation plant including excavators and the demo/circular saws. In these cases, noisy activities are to be rescheduled to less sensitive times to alleviate potential noise impacts.
- For construction works activities / plant outside recommended standard hours (only those works proposed for 6am – 7am, Monday to Friday), the worst-case predicted noise levels at residential receivers in Catchment A and B plus receivers in the existing Campus are above both the Sleep Disturbance Screening Criteria and Sleep Awakening Levels. Exceedances of the Sleep Disturbance Screening Criteria and Sleep Awakening Levels could be up to 37 dB (A) and 20 dB (A), respectively, depending on the activities, equipment used and the locations of the out-of-hours-works. Therefore, for any works that are to occur during the night time period (i.e. 6am – 7am) that have the potential to affect residential receivers, all reasonable and feasible mitigation measures are required to be exercised in order to reduce the construction works noise levels as far as is practicable. However, residual noise impacts may still occur, even when mitigation measures are in place. As such, additional noise management measures may be required for works that are conducted during the night time period.
- The predicted noise levels exceeding the relevant criteria is not considered unusual, given the nature of heavy plant and machinery (such as excavators) that is required to be used and the proximity to the receivers.
- Noise and vibration levels from the proposed construction works affecting sensitive receivers will be on par with the noise and vibration levels from the current Light Rail construction works. Where construction works occur in proximity to the Light Rail construction works and are of a similar nature (i.e. similar activities, tools and/or plant used, during the same time period), the cumulative noise impact may result in an increase (i.e. less than 3 dB increase) of the predicted noise levels, which is just perceptible.
- Construction traffic noise levels along the roads surrounding the site will have no adverse impact on nearby receivers during the day time period.
- The worst-case predicted construction traffic noise levels at the residential receivers surrounding the site are above the Sleep Disturbance Screening Criteria by up to 20 dB(A). Based on further sleep disturbance study and analyses, the predicted L_{AFmax} noise levels at the receivers exceed the Sleep Awakening Level by up to 13 dB(A). As such, the noise levels may



have the potential to awaken people that are asleep. If noise levels greater than L_{AFmax} 75 dB (A) occur more than once or twice during the night time period, they have the potential to affect the health and wellbeing of the residents.

- Noise levels from construction traffic on High Street and Botany Street during the 6am to 7am time period, when assessed at the High Street and Botany Street residential receivers, will typically be no higher than noise levels from existing heavy vehicle movements. Therefore, we consider that construction traffic will not worsen the Sleep Disturbance and Sleep Awakening impacts on the High Street and Botany Street residential receivers.
- Hospital Road and Magill Street currently have minimal heavy vehicle movements during the night time. Therefore, the predicted construction traffic noise levels at the Magill Street and Hospital Road residential receivers have the potential to cause sleep disturbance and affect the health and wellbeing of the residents.
- Management of the timing of construction traffic movements shall be planned and managed wherever possible to:
 - Avoid Magill Street and Hospital Road during early morning and out of standard hours; and
 - Limit the frequency of construction vehicle movements to keep any increase in equivalent continuous traffic noise levels to a minimum. It has been noted that construction vehicle access is not permitted along Magill Street.
- If, during the course of the construction works, an item of equipment or works being performed exceeds the stated airborne noise criteria at any sensitive location, the additional noise measures presented in Section 9.4.4 of the Noise and Vibration Impact Assessment, together with construction best practices presented in Section 9.4.1 of the Noise and Vibration Impact Assessment, are to be reviewed and implemented so as to minimise the noise impacts on the neighbourhood.

Vibration

The following potential vibration impacts have been noted for the construction stage of the proposed development (Acoustic Studio, 2018):

- Based on the scope of works and typical equipment required, some structural and human perception vibration impacts are expected – particularly from the use of piling rigs (during piling works) and excavators with hammers (during excavation and foundation works). Furthermore, there is potential for vibration impacts to occur on sensitive equipment within the existing Campus and UNSW buildings. The significance of these impacts is to be ascertained as part of the Construction Noise and Vibration Management Plan (CNVMP).
- The CNVMP is to ensure that the equipment-specific vibration criteria are adhered to and managed accordingly at the both Catchment A and B residential receivers and the relevant UNSW and Campus buildings where sensitive equipment is operated.
- The Contractor is to carry out a vibration assessment at the commencement of operations for each vibration-generating activity so as to determine whether the existence of significant vibration levels justifies a more detailed investigation. If the assessment indicates the vibration levels are to exceed the relevant criteria, then appropriate vibration mitigation measures will



be required to ensure that vibration impacts are minimised using all reasonable and feasible measures and will allow for the planning of works around the use of sensitive equipment and operations within the buildings located in the Campus and UNSW.

Potential Operational Impacts

Once completed, the ASB will operate 24 hours a day, seven days per week.

Traffic Noise Generation

- The ambulance bay and ED drop-off operational noise emissions are predicted to satisfy applicable noise criteria during day (7am to 6pm), evening (6pm to 10pm) and night time (10pm to 7am) periods. Furthermore, assessment results indicate that the operations are unlikely to cause sleep disturbance.
- Loading dock noise emissions due to vehicle movements and loading / unloading operations are predicted to satisfy NPI operational noise criteria during day, evening and night time periods.
- Based on a sleep disturbance study, although predicted noise levels at the Magill Street receivers exceed the Sleep Disturbance Screening Criteria by up to 6 dB(A), the L_{AFmax} noise level is within the Sleep Awakening Level. This indicates that the night time noise levels from the loading dock are unlikely to cause awakening from sleep or affect health and wellbeing of receivers.
- A solid wall is provided along the south and west boundaries of the loading dock area to provide shielding to the Magill Street residential receivers.
- It is noted that in this assessment of the loading dock, it is only the noise from truck reversing alarms that triggers the Sleep Disturbance Screening Criteria although the alarm noise levels may vary considerably. Further assessment identifies that the predicted absolute noise levels are unlikely to generate sleep awakening, however HI is to consider implementing administration controls to manage beeper noise, i.e. non-tonal reversing alarms or “quackers”.
- General traffic generated on High Street, Botany Street and Hospital Road, as a result of the ASB operation, is unlikely to have adverse noise impacts on receivers surrounding the site.
- Traffic noise levels generated on Magill Street will result in exceedances of 3 dB (A) and 6 dB (A) over the day time and night time traffic noise criteria respectively. Furthermore, an increase of 11 dB(A) relative to the existing noise levels is predicted, which is in excess of 9 dB(A) over the criteria for relative increase in traffic noise.
- The night time noise levels on Magill Street are expected to exceed the Sleep Disturbance Screening Criteria by up to 19 dB(A). According to further sleep disturbance study, the predicted L_{AFmax} noise levels at the receivers exceed the Sleep Awakening Level by up to 12 dB(A). This indicates that the noise levels may awaken people from sleep. If noise levels higher than L_{AFmax} 75 dB (A) occur more than once or twice during the night time, they have the potential to affect health and wellbeing of the receivers.
- The design and development phase will be used to inform and implement feasible and reasonable noise mitigation measures.



Emergency Helicopter Operations

- Residential Catchment A – The noise levels from helicopter movements associated with the new HLS are predicted to be $L_{Amax(slow)}$ 88 to 92 dB(A) at these receivers, which is 10 to 15 dB(A) above the current noise exposure from the existing HLS at this catchment location.
- Residential Catchment B / Educational (Catchment D) – The predicted noise levels from helicopter movements associated with the new HLS are expected to be similar to current helicopter noise levels at these catchment locations.
- Existing Campus – The noise levels from helicopter movements associated with the new HLS at some Campus buildings, particularly to the south and east, are expected to be lower than existing noise levels. However, noise levels along the west façade of buildings located along Hospital Road are predicted to be $L_{Amax(slow)}$ 89 to 93 dB(A) which is 10 to 15 dB(A) above the current noise exposure from the existing HLS.

Mechanical Plant

- Recommendations have been made by Acoustic Studio (2018) for external noise controls for buildings services proposed for the ASB including plant rooms, cooling towers, emergency generators and fans.

7.9.3 Recommended Mitigation Measures

A CNVMP is to be prepared by the Contractor at the detailed design stage based on the proposed plant, equipment and methodologies to be employed.

All practical means are to be exercised to minimise impacts to affected buildings and occupants from any activities generating levels of vibration that exceed the relevant criteria on site. The following matters are to be taken into account (Acoustic Studio, 2018):

- Modifications to excavation and construction equipment used.
- Modifications to methods of excavation and construction.
- Rescheduling of activities to less sensitive times.

The design and development phase will be used to inform and implement feasible and reasonable noise mitigation measures with regard to impacts to Magill Street in the night time period as result of general traffic noise during operation as identified in the Noise and Vibration Impact Assessment (Appendix G).

Recommendations have been made by Acoustic Studio (2018) in the Noise and Vibration Impact Assessment (Appendix G) to mitigate external noise controls for building services proposed for the ASB, including items such as plant rooms, cooling towers, emergency generators fans and so forth.



7.10 Sediment, Erosion and Dust Controls (SEAR 11)

7.10.1 SEAR

SEAR 11 requires that the application:

- *Detail measures and procedures to minimise and manage the generation and off-site transmission of vapours, sediment, dust and fine particles.*
- *Prepare a Sediment and Erosion Control Plan detailing type of sediment and erosion control measures, location of material stockpiles and storage areas and location of building operations and equipment.*

Relevant Policies and Guidelines:

- *Manage Urban Stormwater – Soils & Construction Volume 1 2004 (Landcom)*
- *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA)*
- *Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)*

7.10.2 Assessment

A Soil and Water Management Plan (SWMP) is to be prepared as part of the Contractor's Construction Environmental Management Plan (CEMP). The SWMP is to include an Erosion and Sediment Control Plan (ESCP), which is to be prepared in accordance with the 'Blue Book'.

A preliminary ESCP has been prepared by Enstruct and is included in Appendix P. The ESCP provides soil and water management notes in accordance with the SEAR to manage off-site transmission of sediment, dust and fine particulate matter. The preliminary ESCP includes:

- The use of sandbag sediment traps and temporary construction exits/entrances (railway iron grid).
- The provision of adequate truck wash facilities and the treatment of trapped water to be compliant with all EPA's standards.
- The protection of stockpiles.
- The use of sediment fences.

The Civil Report prepared by Enstruct (2018) also includes details for stormwater quality, overland flooding and drainage. A copy of the Report is provided at Appendix P and is discussed at Sections 7.14, 7.15 and 7.16.

Stormwater dewatering may be required following significant rainfall within the excavated area and any sediment basins. Potential impacts on water quality could occur if dewatering activities are undertaken in an uncontrolled manner. Based on available data, excavation dewatering may require treatment to reduce the amount of suspended solids prior to disposal to local stormwater connections. Refer to Section 7.14 for further details.



Particulate matter (dust) may arise as a result of processes associated with construction works, as well as wind and airborne concentrations.

Vehicle exhaust emissions such as sulfur dioxide (SO₂), nitrogen oxide (NO), nitrogen dioxide (NO₂) and ozone (O₃) may be generated from emissions from vehicle exhausts during construction works. Further, diesel particulate matter (DPM) may also be generated by vehicles and plant during these works.

7.10.3 Recommended Mitigation Measures

Prior to the commencement of excavation works, a SWMP is to be prepared as part of the Contractor's CEMP to the satisfaction of HI and in accordance with the preliminary ESCP and the Landcom *Managing Urban Stormwater, Soils and Construction Guidelines* (the 'Blue Book'). The SWMP will be implemented, and updated (as required), during construction.

The Person Conducting a Business or Undertaking (PCBU) is to prepare a Safe Work Method Statement (SWMS) for all required activities to ensure an appropriate Risk Assessment (RA) has been undertaken. The RA is to consider risks of generating airborne contaminants and the potential impacts they may have on workers, other site occupants and the general public in the vicinity. The SWMS is to identify the controls that are to be adopted to eliminate the generation of airborne contaminants or to reduce them to the fullest extent possible.

Dust monitoring measures will be implemented to manage and mitigate the impacts of airborne dust and fine particulates generated during construction on surrounding residents and nearby Campus facilities including the RHW.

7.11 Contamination (SEAR 12)

7.11.1 SEAR

SEAR 12 requires that the application:

- *Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55.*

Relevant Policies and Guidelines:

- *Managing Land Contamination: Planning Guidelines – SEPP 55 Remediation of Land (DUAP)*

7.11.2 Assessment

A Preliminary Site Investigation for Contamination Report has been prepared by Douglas Partners (2018) and can be found in Appendix S. A summary of the report's findings are as follows (Douglas Partners, 2018):

- The site history suggests that the site has been primarily used for residential purposes with largely the same layout to the present layout, since prior to 1943.
- A desktop study of the site's historical information, previous site records, and regional mapping suggested the following potential contamination sources may include:



- Imported filling.
 - Hazardous building materials in existing dwelling structures.
 - Chemicals associated with on-site and nearby commercial / retail businesses (e.g. UNSW and the POWH).
- Elevated concentrations of some contaminants such as metals, Total Recoverable Hydrocarbons (TRH), Benzo(alpha)pyrene (B(a)P) and Polycyclic Aromatic Hydrocarbons (PAH) were found in several roadbase samples.
- Minor ecological investigations exceedances were reported (primarily in metals and PAH). The impacts of such are to be assessed as part of future investigations.
- During a hand-auguring in one borehole (BH106) exercise, traces of asbestos were detected in a fragmented fibreboard that was discovered.
- The site in general has a low potential for contamination with respect to the proposed development, albeit further investigations and assessments were recommended.

As soils are removed during bulk excavation (noting that soil up to 1m in depth will be removed as part of the Demolition and Site Clearance Works DA), progressive site testing of the soil and surrounding surfaces are to be undertaken to ascertain the classification of the fill material so as to ensure that the soil is taken to an appropriately licensed waste disposal facility (Lendlease, 2018). If contaminated soil is found, it will be managed in accordance with the requirements of SEPP 55 and the recommendations contained in the Preliminary Site Investigation for Contamination Report (Douglas Partners (2018).

It is noted that building hazardous materials has been addressed as part of the Demolition and Site Clearance Works DA.

7.11.3 Recommended Mitigation Measures

In the event that contamination and/or hazardous materials are found, the following documents are to be prepared to the satisfaction of HI (Douglas Partners, 2018):

- Remediation Action Plan (RAP) – to detail the necessary remedial work or management required to render the site suitable for the purposes of the proposed development / land use.
- Site Remediation and Validation Report (SRVR) – documents the completeness of the remedial work.



7.12 Utilities (SEAR 13)

7.12.1 SEAR

SEAR 13 requires that the application:

- *Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation and easement requirements of the development for the provision of utilities including staging of infrastructure.*
- *Prepare an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.*

7.12.2 Assessment

In terms of infrastructure management, the EIS is informed by a Civil Report in Appendix P, a Utility Management Plan Electrical Services (UMPES) in Appendix T and an Integrated Water Management Plan (IWMP) in Appendix U. These documents detail information on existing capacity and any augmentation and easement requirements for the provision of utilities including staging of infrastructure. It is noted that consultation with relevant authorities has been undertaken and will continue during the next phases of the development.

A summary of the proposed development's utility requirements is outlined below.

Civil Services

Section 7.14 contains detail on proposed drainage infrastructure including details of the diversion works that are the subject of the Early and Enabling Works REF.

Power and Communications Services

The UMPES prepared by AECOM (2018) relates to power and communications infrastructure. Existing power infrastructure will not meet maximum ASB demands, estimated at 5.4 MVA. Power will be supplied to two on-site chamber substations via a new 11 kV network from Ausgrid Kingsford Zone substation (approximately 3 km south-west of the ASB). Easements related to these substations will be registered and transferred into Ausgrid ownership, and additional easements ought to be registered where Ausgrid cables are situated within the property boundary. Two generator systems on Level 09 will provide back-up power to the two on-site chamber substations.

Decommissioning of the existing Ausgrid overhead network, undergrounding of existing Ausgrid overhead lines on Botany Street, and replacement of existing street lighting will form part of a separate REF. Trenching and installation works for new HV feeders connecting Kingsford Zone substation to the site will be conducted as a separate work package by Ausgrid.

Existing communications infrastructure will not meet ASB requirements. The proposed Campus Distributor located on Level -02 will connect to:

- Building 2B Campus Distributor.
- Building 6 Data Centre.



- High St and Barker St telecommunication lead-in exchanges.

Decommissioning of existing telecommunications services and discretionary upgrades of such services along Botany Street and Magill Street, form part of the HV feeder works REF.

Hydraulic Services

The IWMP prepared by ACOR (2018) details proposed alternative water supplies, end uses of potable and non-potable water, and water sensitive urban design compliant with the NCC, all relevant Australian Standards and local authority requirements. The plan includes a detailed assessment of the following hydraulic services:

- Potable and non-potable water.
- Fire hydrants and sprinklers.
- Sanitary plumbing and drainage.
- Roofwater plumbing and drainage.
- Domestic hot water.
- Efficient fixtures, fittings and tapware.

Potable water will be supplied via the Sydney Water main on Botany Street and filtered before reticulation throughout the ASB. No other water supply alternatives are proposed. A sewer diversion and new connection to Sydney Water's sewer drain is required to accommodate additional ASB loadings.

The proposed end uses of potable water include human consumption, personal hygiene, toilet flushing, cooling tower and hot water plant, retail tenancies, reverse osmosis (RO) unit, process equipment and fire building services.

The proposed end uses of non-potable water are directed towards mechanical services plant and dirty utility rooms. Roofwater will collect in OSD before discharge into the civil stormwater trunk main via two connections. ACOR (2018) notes the RO discharge to the sanitary drainage system is estimated at 20,000 L per day. The suitability of the captured RO waste water for reuse for landscape irrigation is to be assessed by a landscape architect. At this stage of the project, it is unlikely that water reuse will be implemented due to matters such as infection control, capital cost and ongoing maintenance costs. The RO waste water will be conveyed and discharged to the sanitary drainage system.

Natural Gas

The extinguishment of the existing low pressure gas services along Eurimbla Avenue and Magill Street are being undertaken as part of the Early and Enabling Works REF. It is proposed that localised adjustment to the existing, high pressure (1050 kPa) natural gas supply main in Magill Street is to be undertaken in accordance with Jemena requirements (subject of a formal application).

7.12.3 Recommended Mitigation Measures

The UMPES describes ESD initiatives minimising ASB energy consumption to be implemented, including:



- Energy metering, daylight dimming and motion sensing.
- Potential roof-mounted PV installation, subject to a payback period of less than five years.

Generator flues will exhaust away from the helicopter flight path (AS1668.2) and flue locations to ensure non-interference with residential properties in Magill Street and the existing Campus. Air and diesel particulate filters will be installed to satisfy EPA and Council requirements. The 20,000 L double-skin fuel tank will be fitted with leak detection and alarm, and containment perimeter.

The IWMP highlights key ESD design initiatives, including:

- Water metering.
- Mechanical plant waste heat applied to hot water plant.
- Increased thermal insulation thickness across all hot water piping/supplies.

Water monitoring by subsidiary meters also helps identify leakage and can facilitate manual isolation under disaster or equipment failure scenarios.

Plumbing and drainage crossing sensitive receptors will be treated to minimise acoustic transmission.

The natural gas connection for the site is to be connected according to Jemena's requirements.

7.13 Contributions (SEAR 14)

7.13.1 SEAR

SEAR 14 requires that the application:

- | |
|---|
| <ul style="list-style-type: none"> • <i>Address Council's S94 Contribution Plan and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.</i> |
|---|

7.13.2 Assessment

The contributions plan for the site is the Randwick City s94A Development Contributions Plan, effective since April 2015. The plan allows for a waiver from contributions to be considered for a variety of public amenities and services. The proposed ASB is clearly exempt from the payment of a levy as a condition of development consent as a public hospital (clause 13.2.1). Other recent projects by HI on the POWH site have been fully exempted from payment of contributions.

7.13.3 Recommended Mitigation Measures

No mitigation measures are required.



7.14 Drainage (SEAR 15)

7.14.1 SEAR

SEAR 15 requires that the application:

- *Detail drainage associated with proposal, including stormwater and drainage infrastructure.*
- *Prepare a Drainage Infrastructure Management Plan for the extended development site (bordered by Botany Street, Magill Street, Hospital Road and High Street). The management plan must identify all existing drainage infrastructure within the extended development site and fully document changes to the infrastructure required to facilitate construction of the proposed development.*
- *Details measures to minimise operational water quality impacts on surface waters and groundwater and outline measures to not cause surface water flows or flows within the Council owned drainage network to be transferred from one catchment or sub-catchment to a different catchment or sub-catchment, nor change the time of concentration for each sub-catchment as pre-development and post-development hydrographs.*

Relevant Policies and Guidelines:

- *Guidelines for development adjoining land and water managed by DECCW (OEH, 2013)*

7.14.2 Assessment

A Civil Report has been prepared by Enstruct (Appendix P) detailing the existing stormwater infrastructure services at the site, as well as the proposed stormwater design. Enstruct (2018) made the following observations relating to stormwater infrastructure and drainage arrangements for the site:

Existing Stormwater Infrastructure

- Two existing stormwater drainage lines which run from north to south currently exist within Eurimbla Avenue and will require removal, prior to commencing excavation for the proposed development.
- The main stormwater pipes are in the order of 600 mm and 1100 mm in diameter and service the drain catchments from the north of High Street and the existing Eurimbla Avenue stormwater runoff.
- The Light Rail project will connect into these drainage lines.
- Stormwater drainage diversion works will be carried out under the Early and Enabling Works REF (refer below for further details).

Early and Enabling Works REF

Details are provided in this section for the purposes of responding to SEAR 15 – which requires the preparation of a Drainage Management Plan. Based on the information provided by Enstruct (2018), the stormwater drainage diversion works can be summarised as follows:

- A diversion system (see Figure 7-4 for a schematic diagram), consisting of a variable depth of 1,800 mm wide box culvert diversion system, is proposed; originating from the High Street low point and will run west along High Street and then south along Botany Street.
- A flood storage tank is also proposed north-west of the ASB footprint, for the purposes of servicing the diverted stormwater received from High Street and will discharge via a 1,050 mm diameter pipe along Botany Street, towards Magill Street. The pipe diversion connects to the two existing Council-owned stormwater pipes and runs along Magill Street, contained within the site boundary.
- The southern portion of the two existing stormwater pipes located along Eurimbla Avenue are to be decommissioned and removed to make way for the construction of the ASB. As such, the northern portion of the existing stormwater system will continue to service the northern section of the ASB site (herein defined as 'future expansion area'). The remaining stormwater pipes will connect to a new stormwater pit which is located at the low point of the access road, north of the ASB which will be connected to the diversion pipe.
- Any overland flows generated from the 'future expansion area' will discharge into the stormwater pit located to the north of the ASB site. If required, additional OSD tanks may be provided to attenuate flows leaving the buildings within the future expansion area to the north of the ASB, however, this would be subject to a separate application.

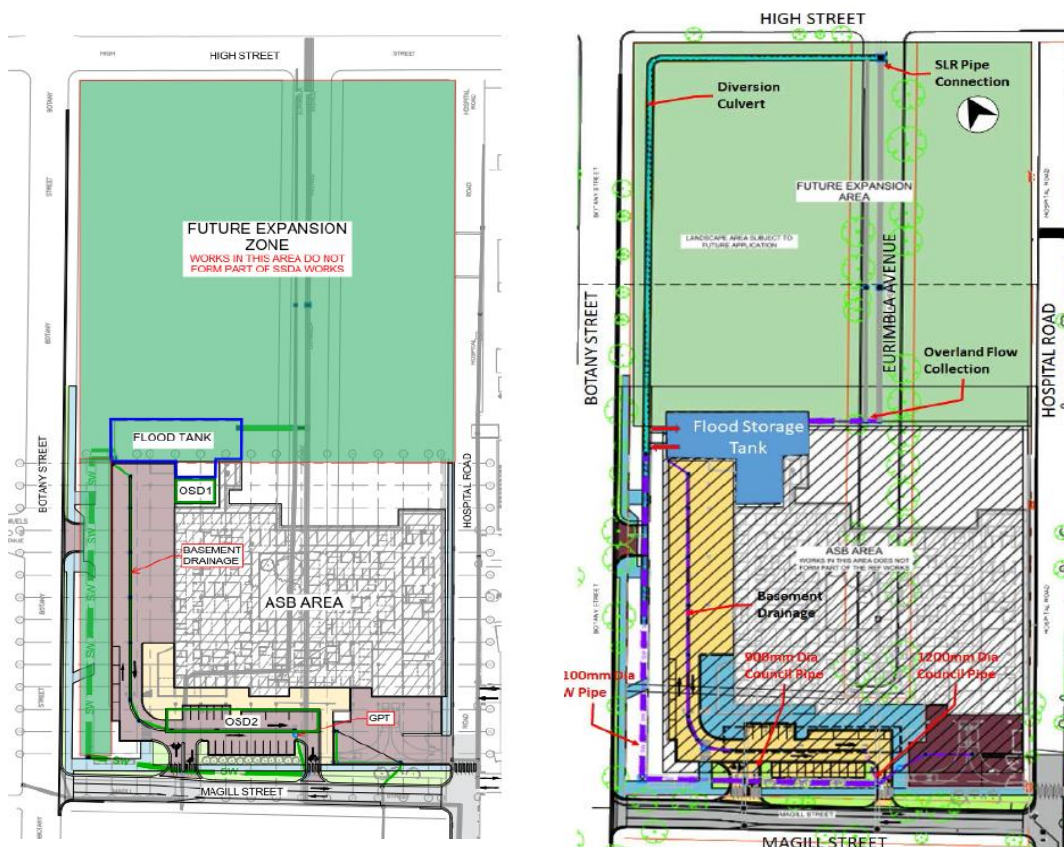


Figure 7-4 Stormwater plan for the proposed development (left) and Stormwater diversion layout (right)
(Source: Enstruct, 2018).



Proposed ASB Drainage System

- A minor site drainage system (see Figure 7-4) will be designed in accordance with the LEP requirements (Clause 6.3 and 6.4).
- The required OSD volumes and orifice sizes are tailored based on hydraulic modelling so as to restrict peak post-development discharges for storms up to the 20-year Average Recurrence Interval (ARI) storm event. The ARI storm event is to coincide with the permissible site discharge (PSD) level specified by Council. As such, the estimated OSD volumes will allow the proposed development to comply with Council's OSD requirements.
- Two on-site detention (OSD) tanks are proposed to service the ASB. The first OSD tank will be located in the north-west corner of the site and will service any runoff conveyed from the building hydraulics system from potential sources such as the roof, podium levels and helipad. Conversely, the second OSD tank will be located in-ground in the south-east corner of the site which is also the lowest point. This strategic location is to ensure capture of the runoff from the ground areas, thereby minimising any bypassing flows.
- A series of pits and pipes will be installed to collect any runoff generated from the ground areas. The southern portion of the ASB and ambulance bay area sections close to the southern OSD tank will directly discharge into the tank.
- Rain that could not be collected by the OSD tanks will drain towards Magill Street and, prior to discharge, the runoff will pass through a silt arrestor pit or GPT.

Water Quality

For protection of groundwater and receiving waters, the threshold concentrations are based on the ANZECC *Water Quality Guidelines for Fresh and Marine Waters 2000* which are 95% freshwater.

The combination of vegetated buffer, bioretention swales, vegetated swales, and filtration devices will be used through a treatment train approach to improve water quality before stormwater discharges from the site. These elements of the Stormwater Quality Management Strategy for the proposed development will achieve all the pollution reduction targets (Gross Pollutants, Total Suspended Solids Total Phosphorus and Total Nitrogen) required to discharge stormwater to Council's stormwater network.

Groundwater dewatering is not expected for the proposed development. However, stormwater dewatering of the excavated area is anticipated. Management options for potential dewatering activities as outlined by Enstruct (2018) include:

- Pumping, transport and disposal off-site at a licensed liquid waste facility.
- On-site treatment and discharge to stormwater connections in accordance with acceptable criteria (for example the 'Blue Book' and ANZECC *Water Quality Guidelines for Fresh and Marine Waters 2000*).
- On-site treatment and discharge to Council stormwater drains to criteria acceptable to relevant authorities.
- Treated dewatering effluent may be allowed to be used for dust suppression.



Monitoring of discharged water will also be required to demonstrate compliance with the acceptable criteria.

7.14.3 Recommended Mitigation Measures

Construction and operation of the proposed drainage system is to comply with Council's OSD requirements.

The potential impacts of stormwater dewatering are to be managed by the Contractor during bulk excavation.

7.15 Flooding (SEAR 16)

7.15.1 SEAR

SEAR 16 requires that the application:

- *Assess flood risk on site (based on the Draft Birds Gully and Bunnerong Road Flood Study) and 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.*

7.15.2 Assessment

The Civil Report prepared by Enstruct (2018) in Appendix P, notes the following:

- The site is located within the Birds Gully and Bunnerong Road Catchment.
- A flood immunity and mitigation study was undertaken by SLR Consulting in May 2017 (as cited in Enstruct, 2018), which found that the results of the modelling were consistent with the preliminary flood and modelling review conducted by Enstruct.
- A catchment-wide food study is currently being conducted by Council and is understood to be available mid-to late-2018.
- It was found that all flood studies concurred that the site is affected by overland flooding that is generated from the upstream catchment of approximately 14 ha. Another overland flow path, bound by Botany Street, drains a 3.6 ha catchment that is located to the west of Botany Street.
- Eurimbla Avenue is lower than its parallel, adjacent running roads, Botany Street and Hospital Road, and is considered as the main overland flow path. As such, under current conditions, the overland flow from the larger catchment converges at the High Street low point then flows along Eurimbla Avenue and then through the existing residential dwellings before discharging into Magill Street (Enstruct, 2018).
- According to the 1-in-100-year event storm event, a maximum depth of 0.5 m was observed for flooding along Eurimbla Avenue. However, depths exceed 0.5 m on existing properties located at the southern end of Eurimbla Avenue as a result of obstruction of flows (Figure 7-5).

- During the Probable Maximum Flood (PMF) event, it was found that Eurimbla Avenue has a maximum depth of 1.0 m and the Magill Street low-point has a maximum depth of 2.0 m (Figure 7-5).

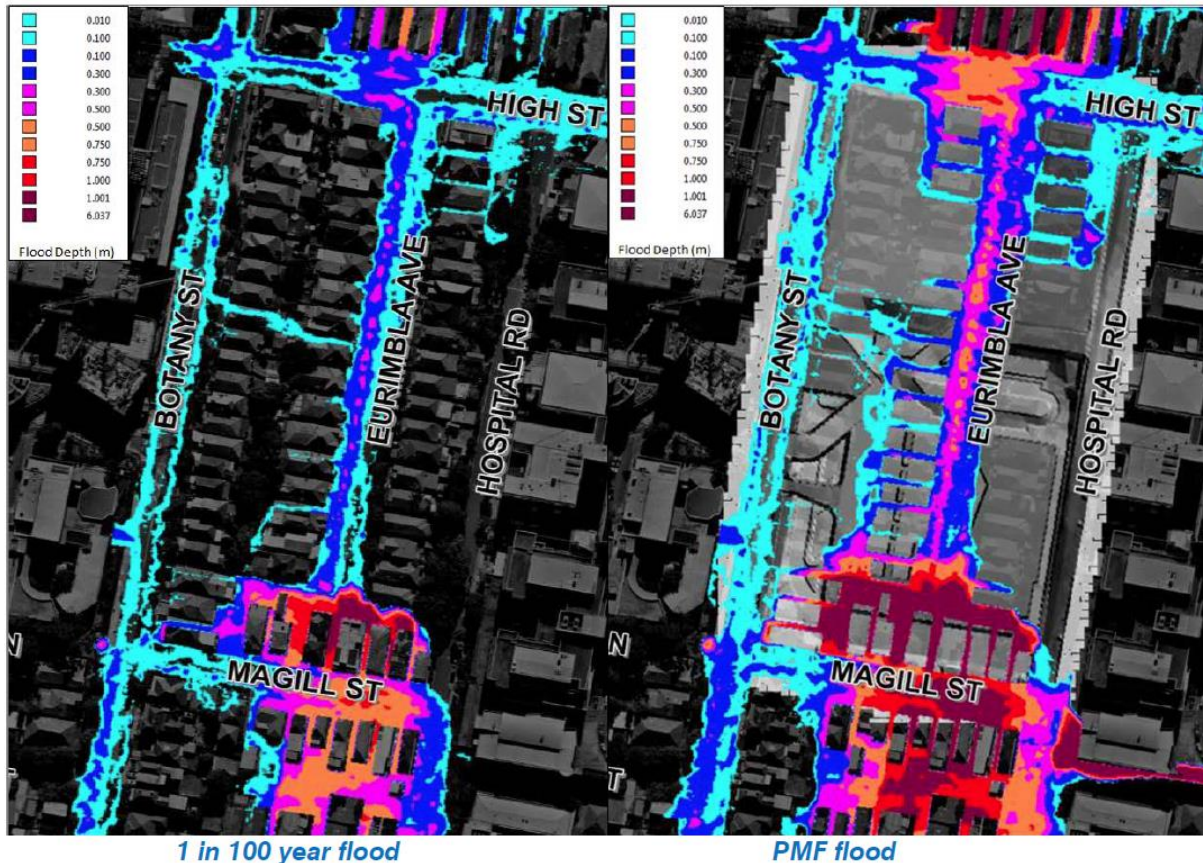


Figure 7-5 Overland flooding under current conditions for the 1-in-100-year flood and PMF events (Source: Enstruct, 2018).

- The goal of the flood mitigation design is to keep overland flow within road reserves and prevent entry to ASB access driveways; while maintaining continuous ASB operation during PMF event.
- It is also noted that the site is not located within a “Flood Planning Area” pursuant to the LEP.
- A review of the existing and post-development site flooding conditions (Figure 7-6) indicates that there is significant overland flow within the site area. Enstruct (2018) observed the following:
 - The impact of the 1-in-100-year flood event shows minor impacts, generally less than 5 cm, on Hospital Road.
 - The design of the proposed development does not increase flooding impacts (or levels) to private property neighbouring the site during rainfall events up to, and including, the 1-in-100-year event.
 - It was observed that the PMF level at Magill Street, near Hospital Road, is critical for the operation of the ASB during emergency operations and is approximately 0.6 m lower than the existing conditions. However, modelling results show that flood levels

increase by up to 30 cm at the High Street low area. A similar increase is observed along Botany Street from the surcharge point of high-level bypass to Barker Street. Elsewhere, the levels increased by 5-10 cm. PMF events are shown to be contained within road reserve.

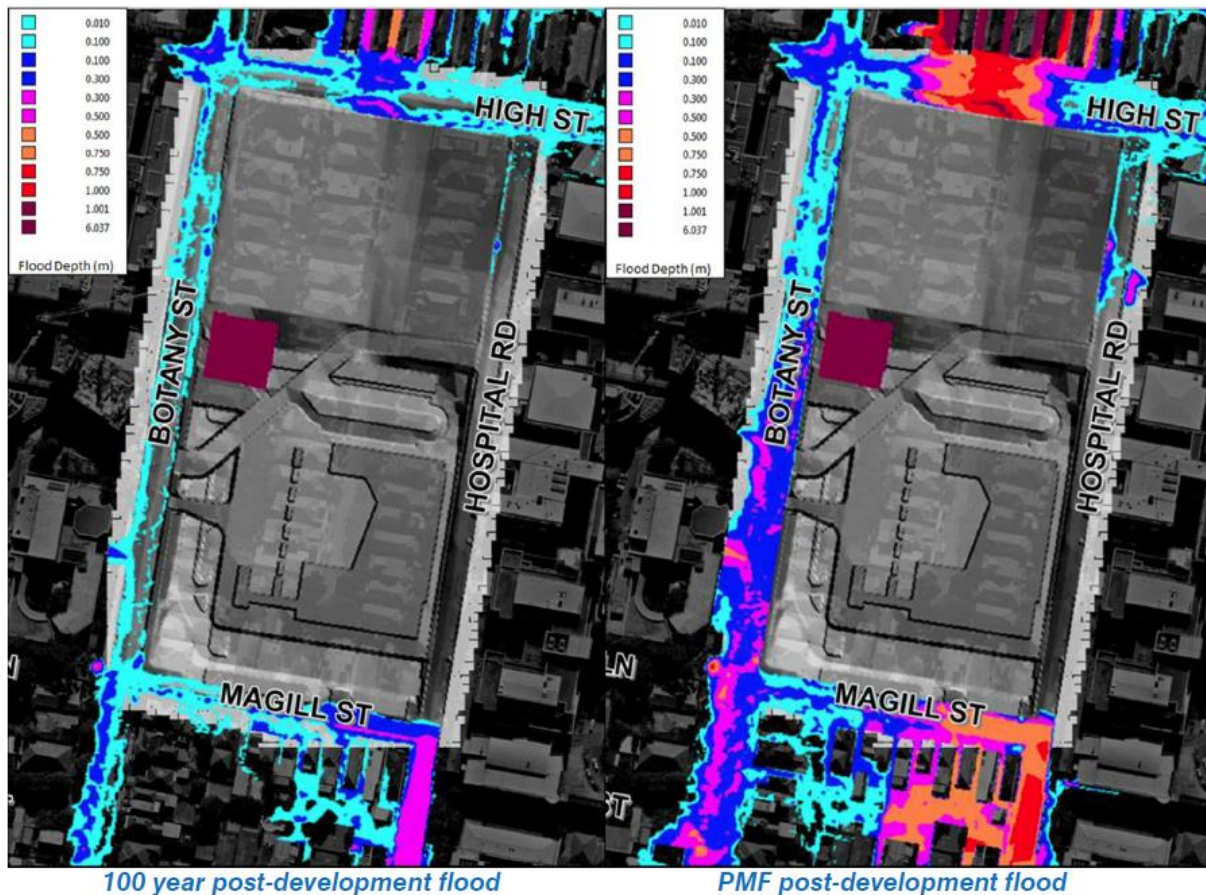


Figure 7-6 Overland flooding under flood mitigation conditions for 100 year and PMF events (Source: Enstruct, 2018).

Refer to Section 7.14 for discussion on the details of the Early and Enabling Works REF and proposed drainage system to address flood mitigation.

7.15.3 Recommended Mitigation Measures

Construction and operation of the proposed drainage system is to comply with Council's OSD requirements.



7.16 Groundwater (SEAR 17)

7.16.1 SEAR

SEAR 17 requires that the application:

- *Assess the existing groundwater regime for the development site. The design of any basement structures must consider the impact of the structures on groundwater (seepage flows and/or water table) and preclude the need for permanent/extended periods of dewatering of the site in dealing with seepage flows or building within the water table.*

7.16.2 Assessment

Groundwater is the water contained within rocks and sediments below the ground's surface. The ability to extract water from the ground referred to as 'yield' and the salinity of the water can vary widely and is dependent on the geology.

The Preliminary Geotechnical Investigation report, prepared by Douglas Partners (2018) in Appendix R, provides a detailed assessment and investigation of the subsurface conditions across the site. The purpose of the Report was to: (a) assess site contamination potential based on past and present site use; and (b) to recommend any further investigation and/or management of contamination. The report noted the following:

- The investigation included:
 - A desktop study of previous rock-cored boreholes in proximity to the site and regional mapping.
 - The drilling of nine rock-cored boreholes (BH1 to BH9) across the site (where access was readily available to drilling rigs).
 - The installation of a 20.5 m groundwater monitoring well within BH7 to allow for the measurement of groundwater levels.
 - Laboratory testing to analyse the results and findings for geotechnical purposes.
- The subsurface conditions revealed a sandy filling and ripped sandstone filling of varying thickness, overlying mostly medium dense, non-plastic sand and Hawkesbury Sandstone bedrock. The rock is initially extremely low to low strength, becoming consistent medium and high strength sandstone at depths between 3.9 m and 8.8 m.
- Based on the site topography, published mapping data available and subsurface conditions encountered, saline soils and acid sulfate soils are unlikely geotechnical issues for the site.
- Groundwater is expected at levels between RL 49 m and RL 52m. Groundwater seepage is anticipated for most of the site at the soil and rock interface and within bedrock along rock joints and highly weathered bedrock bands. At the low-lying (southern) end of the site, a water table is expected within the sand profile below the basement excavation depth. For preliminary design purposes, groundwater may rise by 1 m following heavy periods of rain.

It is noted that the Civil Report in Appendix P has considered the results of the Preliminary Geotechnical Investigation in relation to groundwater dewatering.



7.16.3 Recommended Mitigation Measures

Groundwater Management is to be carried out in accordance with recommendations in Douglas Partners (2018) (Appendix R) which includes the following:

- For deep excavations, a secant pile shoring wall embedded into bedrock is recommended to cut-off water flow. Alternatively, a contiguous pile wall, with the gaps between the piles plugged with dry-pack grout upon excavation to retain soil, together with a drainage plenum around the site perimeter for collection and subsequent discharge of groundwater is considered to be a feasible retaining system, as proposed by Enstruct. Along sections of the proposed basement and possible future regrading of Hospital Road, where the top of bedrock is relatively shallow, a contiguous pile wall may be suitable instead of a secant pile wall.
- A tanked basement comprising water-tight walls and floors would eliminate the requirement for permanent dewatering and approval from regulatory authorities. Alternatively, a drained basement may be suitable, however further assessment of the groundwater conditions and further estimation of groundwater inflow to the basement excavation is required for design. Based on the current preliminary information on groundwater at this site, groundwater inflow to the northern end of the basement excavation is estimated to be approximately 3 m³/day. The volume of groundwater ingress will ultimately depend on the soil permeability, rock fracturing and prevailing weather conditions. Greater volumes of groundwater ingress may also be experienced if leaking stormwater systems are present in the surrounding sandy soils or heavy continuous rainfall is experienced.
- It is expected that a combination of shallow pad or strip footings and deep pile footings bearing in bedrock will be required to support the heavily-loaded building columns. Beyond the ASB basement excavation, it may be possible to support lightly-loaded structures on shallow, pad or strip footings bearing on loose to medium dense sand.
- A preliminary flexible pavement thickness design was undertaken, resulting in a minimum pavement thickness of 300 mm.
- For detailed design, further geotechnical investigation including rock-cored boreholes and groundwater monitoring wells is recommended to further characterise the subsurface conditions post-demolition of existing buildings.

7.17 Waste (SEAR 18)

7.17.1 SEAR

SEAR 18 requires that the application:

- *Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site.*



7.17.2 Assessment

A Waste Management Plan (WMP) for the construction phase has been prepared by Lendlease (2018), a copy of which is in Appendix Y. The key waste streams are provided in Appendix 1 of the WMP. Activities associated with construction of the proposed development have the potential to generate liquid and non-liquid waste materials during the construction phase. No gaseous wastes are anticipated to be generated during the construction phase.

For the operational phase, the SESLHD currently implements the POWH WMP which contains procedures for disposing, storing or transporting any waste material (liquid, solid, chemical, biological, paper etc) at the POWH. A copy is at Appendix Z. The WMP applies to all staff, contractors and volunteers at the POWH and Sydney Children's Hospital.

7.17.3 Recommended Mitigation Measures

For the construction phase, the Contractor is to implement the strategies in the WMP.

For the operational phase, a detailed ASB WMP is to be prepared to the satisfaction of the SESLHD prior to the commencement of operation.

7.18 Construction Hours (SEAR 19)

7.18.1 SEAR

SEAR 19 requires that the application:

- *Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.*

7.18.2 Assessment

The "recommended standard hours" for "normal construction" as proposed in the *Interim Construction Noise Guideline* (ICNG) are:

- Monday to Friday: 7am – 6pm
- Saturday: 8am – 1pm
- Sunday and public holidays: No work

The following hours of work are proposed for the construction works:

- Monday to Friday: 6am – 6pm
- Saturday: 8am – 5pm
- Sunday and public holidays: No work

The proposed hours of work are considered to be a "reasonable" variation or departure from the "recommended standard hours". The basis for this conclusion is to be found in: a) the definition of



“reasonable” in the ICNG; and b) the analysis of the source/type of noise likely to be generated by the proposed development.

The analysis of the source/type of noise is to be found in the Noise and Vibration Impact Assessment, prepared by Acoustic Studio, a copy of which is in Appendix G and summarised in Section 7.9. Specifically, Section 9.2.1 of the Noise and Vibration Impact Assessment identifies the source/type of noise and Sections 9.2.5 and 9.4 provide suggestions regarding the “design” of the proposed development to minimise noise impacts. The design suggestions are considered to satisfy the spirit and intent of “reasonable” in the ICNG.

7.18.3 Recommended Mitigation Measures

For any works that occur during the night time period (10pm-7am) that have the potential to affect residential receivers, all reasonable and feasible mitigation measures are required to be in place in order to reduce the construction works noise levels as far as is practicable.

8 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of the potential environmental impacts and the ability to manage those impacts. The ERA for the proposed development has been adapted from *AS4369.1999 Risk Management and Environmental Risk Tools*.

Figure 8-1 indicates the significance of the identified impact and assigns a value between 1 and 10 based on the following factors:

- The receiving environment.
- The level of understanding of the type and extent of impact.
- The likely community response to the environmental consequences of the proposed development.

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- The complexity of mitigation measures.
- The known level of performance of the safeguards proposed.
- The opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 8-1 Risk Assessment Matrix (Source: adapted from AS4369.1999).

The ERA for the proposed development is set out in Table 8-1.



Table 8-1 Environmental Risk Assessment

Item	Potential Environmental Impact	Phase	Recommended Mitigation Measure	SoI	MoI	RI
Transport and Accessibility	Increase in construction traffic on local roads.	C	Prior to the commencement of construction, a CPTMP is to be prepared by the Contractor in consultation with the TfNSW Sydney Coordination Office and submitted for approval by the Council and HI.	3	2	5 (Low/Medium)
	Increase in traffic on local roads during operation.	O	A Green Travel Plan will be prepared and completed by HI in consultation with TfNSW and SESLHD for the operation of the proposed development (refer Section 7.4.3).	1	1	2 (Low)
Biodiversity	Potential for impact on trees that are to be retained and that are in proximity to construction activities.	C	Further detailed assessments (root mapping) via non-destructive methods are required to determine suitability for retention of the trees subject to a high, medium or low impact. A tree protection plan is to be prepared for all trees that are proposed to be retained and trees that are located within 10 m of any construction activities.	3	3	6 (Medium)
Noise and Vibration	Generation of noise and vibration during construction activities.	C	A CNVMP is to be prepared by the Contractor at the detailed design stage based on the proposed plant, equipment and methodologies to be employed.	3	3	6 (Medium)
	Impacts to Magill Street in the night time period as result of general traffic noise during	O	The design and development phase will be used to inform and implement feasible and reasonable noise mitigation measures with regard to impacts to Magill Street in the night time period as	3	3	6 (Medium)



Item	Potential Environmental Impact	Phase	Recommended Mitigation Measure	SoI	MoI	RI
	operation.		result of general traffic noise during operation as identified in the Noise and Vibration Impact Assessment (Appendix G).			
Heritage	Potential archaeological relics present within the site.	C	Further Historical archaeological advice is to be sought regarding any archaeological testing, salvaging (if required) and reporting and mitigation of impacts that may be required prior to works commencing at the site.	3	3	6 (Medium)
Aboriginal Heritage	Potential Aboriginal objects present within the site.	C	Further Aboriginal archaeological advice will be informed by the consultation process with Aboriginal stakeholders that are in progress.	3	3	6 (Medium)
Sediment, Erosion and Dust Controls	Increase in particulate matter, SO ₂ , NO, NO ₂ , O ₃ and DPM generated as a result of construction vehicle and plant used for works.	C	The Person Conducting a Business or Undertaking (PCBU) is to prepare a Safe Work Method Statement (SWMS) for all required activities to ensure an appropriate Risk Assessment (RA) has been undertaken. The RA is to consider risks of generating airborne contaminants and the potential impacts they may have on workers, other site occupants and the general public in the vicinity. The SWMS is to identify the controls that are to be adopted to eliminate the generation of airborne contaminants or to reduce them to the fullest extent possible. Dust monitoring measures will be implemented to manage and mitigate the	1	1	2 (Low)



Item	Potential Environmental Impact	Phase	Recommended Mitigation Measure	SoI	MoI	RI
			impacts of airborne dust and fine particulates generated during construction on surrounding residents and nearby Campus facilities including the RHW.			
Contamination	Potential for contaminated soils to be found.	C	In the event that contamination and/or hazardous materials are found, the following documents are to be prepared to the satisfaction of HI (Douglas Partners, 2018): - Remediation Action Plan (RAP) – to detail the necessary remedial work or management required to render the site suitable for the purposes of the proposed development / land use. - Site Remediation and Validation Report (SRVR) – documents the completeness of the remedial work.	1	1	2 (Low)
Drainage and Flooding	Potential for overland flooding and stormwater dewatering impacts on site.	C + O	Construction and operation of the proposed drainage system is to comply with Council's OSD requirements. The potential impacts of stormwater dewatering are to be managed by the Contractor during bulk excavation.	3	2	5 (Low/Medium)
Waste	Waste generation and disposal during construction.	C	For the construction phase, the Contractor is to implement the strategies in the WMP.	1	1	2 (Low)

Legend

Phase: C = Construction and O = Operation

SoI = Significance of Impact, MoI = Manageability of Impact, RI = Residual Impact



9 Mitigation Measures

The measures required to mitigate the potential impacts associated with the proposed development are detailed in Table 9-1. The measures have been derived from the assessments in Section 7.

Table 9-1 Summary of recommended mitigation measures

Issue	Mitigation Measure	Phase(s)	EIS Ref.
Environmental Amenity	Potential visual and privacy impacts from construction are to be mitigated with the implementation of the strategies contained in the PCMP (Appendix F).	Construction	Section 7.3
	All external lighting on the site to be implemented as part of the operation of the development is to have regard to the location of nearby residential dwellings. Lighting impacts are to be minimised to the extent possible, and comply with <i>AS 4282:1997 – Control of the Obtrusive Effects of Outdoor Lighting</i> and relevant Australia Standards in the series <i>AS/NZ 1158 – Lighting for Roads and Public Spaces</i> .	Operation	Section 7.3
	Protocols restricting roof and terrace access during helicopter operations are to be implemented.	Operation	Section 7.3
Transport and Accessibility	Prior to the commencement of construction, a CPTMP is to be prepared by the Contractor in consultation with the TfNSW Sydney Coordination Office and submitted for approval by the Council and HI.	Pre-Construction	Section 7.4
	A Green Travel Plan will be prepared and completed by HI in consultation with TfNSW and SESLHD for the operation of the proposed development. The Green Travel Plan will be submitted to DP&E post-exhibition of the EIS. The Green Travel Plan will contain a package of measures to be introduced to promote the use of public transport, walking and cycling by visitors, patients, staff and supplier/service personnel for travel to and from visiting, treatment, work and for business related trips.	Pre-Operation	Section 7.4
	An accessibility policy is to be developed in consultation with Campus management and user groups as outlined in the Access Report (Appendix V). The purpose of the accessibility policy is to define the use and function of identified specialist areas and determine the suitability for full, partial or managed	Pre-Operation	Section 7.4



Issue	Mitigation Measure	Phase(s)	EIS Ref.
	accessibility to achieve the intent of the DDA.		
Biodiversity	Further detailed assessments (root mapping) via non-destructive methods are required to determine suitability for retention of the trees subject to a high, medium or low impact.	Pre-Construction	Section 7.6
	A tree protection plan is to be prepared for all trees proposed to be retained and trees that are located within 10 m of any construction activities. Additional tree protection measures are identified in Section 5 of Appendix L.	Pre-Construction	Section 7.6
	Sediment barriers or sedimentation ponds are to be implemented during construction to control the quality of water released from the site into the receiving environment.	Construction	Section 7.6
	Hygiene protocols are to be implemented during construction to prevent the spread of weeds or pathogens between any infected areas and uninfected areas.	Construction	Section 7.6
Heritage	Further Historical archaeological advice is to be sought regarding any archaeological testing, salvaging (if required) and reporting and mitigation of impacts that may be required prior to works commencing at the site.	Pre-Construction	Section 7.7
	In the event that any potential archaeological relics are disturbed and identified within the site during works, a minimum requirement to mitigate potential impacts is that all work in the area will cease forthwith and the NSW Heritage Division and a qualified archaeologist will be consulted to determine an appropriate course of action prior to the recommencement of work in the area of the relic.	Construction	Section 7.7
Aboriginal Heritage	Further Aboriginal archaeological advice will be informed by the consultation process with Aboriginal stakeholders that are in progress.	Pre-Construction	Section 7.8
	In the event of any materials of Aboriginal archaeological significance being discovered at the site, a minimum requirement to mitigate potential impacts is that the following mitigation measures must be implemented: • If suspected Aboriginal material has been uncovered as a result of works within the site: ○ Work in the surrounding area is to stop	Construction	Section 7.8



Issue	Mitigation Measure	Phase(s)	EIS Ref.
	immediately. ○ A temporary fence is to be erected around the site with a buffer zone of at least 10 metres around the known edge of the site. An appropriately qualified archaeological consultant is to be engaged to identify the material. ○ If the material is found to be of Aboriginal origin, the Aboriginal community is to be consulted in a manner as outlined in the Office of Environment and Heritage (OEH) guidelines: <i>Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010)</i>. ● Should human remains be located at any stage during works within the site, all works must halt in the immediate area to prevent any further impacts to the remains. The site is to be cordoned off and the remains themselves left untouched. The nearest police station, the La Perouse Local Aboriginal Land Council and the OEH are all to be notified as soon as possible.		
Noise and Vibration	A CNVMP is to be prepared by the Contractor at the detailed design stage based on the proposed plant, equipment and methodologies to be employed.	Pre-Construction	Section 7.9
	All practical means are to be exercised to minimise impacts to affected buildings and occupants from any activities generating levels of vibration that exceed the relevant criteria on site. The following matters are to be taken into account (Acoustic Studio, 2018): ● Modifications to excavation and construction equipment being or to be used. ● Modifications to methods of excavation and construction. ● Rescheduling of activities to less sensitive times.	Construction	Section 7.9
	The design and development phase will be used to inform and implement feasible and reasonable noise mitigation measures with regard to impacts to Magill Street in the night time period as result of general traffic noise during operation as identified in the Noise and Vibration Impact Assessment (Appendix G).	Design and Development	Section 7.9



Issue	Mitigation Measure	Phase(s)	EIS Ref.
	Recommendations have been made by Acoustic Studio (2018) in the Noise and Vibration Impact Assessment (Appendix G) to mitigate external noise controls for building services proposed for the ASB, including items such as plant rooms, cooling towers, emergency generators fans and so forth.	Pre-Operation	Section 7.9
Sediment, Erosion and Dust Controls	Prior to the commencement of excavation works, a SWMP is to be prepared as part of the Contractor's CEMP to the satisfaction of HI and in accordance with the preliminary ESCP and the Landcom <i>Managing Urban Stormwater, Soils and Construction Guidelines</i> (the 'Blue Book'). The SWMP will be implemented, and updated (as required), during construction.	Pre-Construction and Construction	Section 7.10
	The Person Conducting a Business or Undertaking (PCBU) is to prepare a Safe Work Method Statement (SWMS) for all required activities to ensure an appropriate Risk Assessment (RA) has been undertaken. The RA is to consider risks of generating airborne contaminants and the potential impacts they may have on workers, other site occupants and the general public in the vicinity. The SWMS is to identify the controls that are to be adopted to eliminate the generation of airborne contaminants or to reduce them to the fullest extent possible.	Pre-Construction and Construction	Section 7.10
	Dust monitoring measures will be implemented to manage and mitigate the impacts of airborne dust and fine particulates generated during construction on surrounding residents and nearby Campus facilities including the RHW.	Construction	Section 7.10
Contamination	In the event that contamination and/or hazardous materials are found, the following documents are to be prepared to the satisfaction of HI (Douglas Partners, 2018): • Remediation Action Plan (RAP) – to detail the necessary remedial work or management required to render the site suitable for the purposes of the proposed development / land use. • Site Remediation and Validation Report (SRVR) – documents the completeness of the remedial work.	Construction	Section 7.11



Issue	Mitigation Measure	Phase(s)	EIS Ref.
Utilities	The UMPES describes ESD initiatives minimising ASB energy consumption to be implemented, including: • Energy metering, daylight dimming and motion sensing. • Potential roof-mounted PV installation, subject to a payback period of less than five years. Generator flues will exhaust away from the helicopter flight path (AS1668.2) and flue locations to ensure non-interference with residential properties in Magill Street and the existing Campus. Air and diesel particulate filters will be installed to satisfy EPA and Council requirements. The 20, 000 L double-skin fuel tank will be fitted with leak detection and alarm, and containment perimeter. The IWMP highlights key ESD design initiatives, including: • Water metering. • Mechanical plant waste heat applied to hot water plant. • Increased thermal insulation thickness across all hot water piping/supplies. Water monitoring by subsidiary meters also helps identify leakage and can facilitate manual isolation under disaster or equipment failure scenarios. Plumbing and drainage crossing sensitive receptors will be treated to minimise acoustic transmission. The natural gas connection for the site is to be connected according to Jemena's requirements.	Pre-Construction, Construction, Pre-Operation, and Operation	Section 7.12
Drainage and Flooding	Construction and operation of the proposed drainage system is to comply with Council's OSD requirements.	Construction and Operation	Sections 7.14 and 7.15
Drainage	The potential impacts of stormwater dewatering are to be managed by the Contractor during bulk excavation.	Construction	Section 7.14
Groundwater	Groundwater Management is to be carried out in accordance with recommendations in Douglas Partners (2018) (Appendix R) which include the following: • For deep excavations, a secant pile shoring	Design Development, Pre-Construction and	Section 7.16



Issue	Mitigation Measure	Phase(s)	EIS Ref.
	wall embedded into bedrock is recommended to cut-off water flow. Alternatively, a contiguous pile wall, with the gaps between the piles plugged with dry-pack grout upon excavation to retain soil, together with a drainage plenum around the site perimeter for collection and subsequent discharge of groundwater is considered to be a feasible retaining system, as proposed by Enstruct. Along sections of the proposed basement and possible future regrading of Hospital Road, where the top of bedrock is relatively shallow, a contiguous pile wall may be suitable instead of a secant pile wall. • A tanked basement comprising water-tight walls and floors would eliminate the requirement for permanent dewatering and approval from regulatory authorities. Alternatively, a drained basement may be suitable, however further assessment of the groundwater conditions and further estimation of groundwater inflow to the basement excavation is required for design. Based on the current preliminary information on groundwater at this site, groundwater inflow to the northern end of the basement excavation is estimated to be approximately 3 m³/day. The volume of groundwater ingress will ultimately depend on the soil permeability, rock fracturing and prevailing weather conditions. Greater volumes of groundwater ingress may also be experienced if leaking stormwater systems are present in the surrounding sandy soils or heavy continuous rainfall is experienced. • It is expected that a combination of shallow pad or strip footings and deep pile footings bearing in bedrock will be required to support the heavily-loaded building columns. Beyond the ASB basement excavation, it may be possible to support lightly-loaded structures on shallow, pad or strip footings bearing on loose to medium dense sand. • A preliminary flexible pavement thickness design was undertaken, resulting in a minimum pavement thickness of 300 mm. • For detailed design, further geotechnical investigation including rock-cored boreholes	Construction	



Issue	Mitigation Measure	Phase(s)	EIS Ref.
	and groundwater monitoring wells is recommended to further characterise the subsurface conditions post-demolition of existing buildings.		
Waste	For the construction phase, the Contractor is to implement the strategies in the WMP.	Construction	Section 7.17
	For the operational phase, a detailed ASB WMP is to be prepared to the satisfaction of the SESLHD prior to the commencement of operation.	Operation	Section 7.17
Construction Hours	For any works that occur during the night time period (10pm-7am) that have the potential to affect residential receivers, all reasonable and feasible mitigation measures are required to be in place in order to reduce the construction works noise levels as far as is practicable.	Construction	Section 7.18



10 Justification for the Development

Major investment projects are typically executed to satisfy measurable requirements. Business case development and feasibility analysis determine whether resources committed to pursuing a project will generate benefits and rewards that exceed input costs. This is the logic behind interpreting the justification of projects.

Project justification enables investors, stakeholders and the wider community to make informed decisions given full knowledge of likely project outcomes, limitations and constraints.

The proposed development involves the design, construction and operation of a 13 storey ASB as part of Stage 1 of the Project. The assessment must therefore identify and evaluate the effects of the proposed changes within the context of an integrated Precinct.

Components of the social, economic and biophysical environments and of ESD identified and evaluated in this EIS in relation to the proposed development are summarised below.

10.1 Social and Economic

The Precinct comprises the Campus and UNSW. The Campus is the primary health servicing precinct within the northern sector of the SESLHD. The Eastern City District Plan (2017) highlights the Precinct as a Collaboration Area with the potential for local services and facilities to integrate, mature and transform the precinct into an Innovation District.

The ASB will be an important first step to support the expansion of the Campus' capacity to meet the health needs of the community and execution of the SESLHD Health Service Plan. The ASB will deliver an increase of approximately 49,000 m² of floor area and reinforces the planning directions for the Precinct, thus realising long-term aspirations of social and economic benefits for the region.

The proposed development promotes the social and economic welfare of the community, aligned with NSW Government strategies and the Precinct Masterplan by innovation of the precinct through the provision of expanded public health services, health education and training services and health research facilities. This will help cater for the predicted growth in local jobs reaching 32,000 – 35,500 by 2036, via future investment and sound land-use planning.

In addition to the above, the ASB is also designed to maximise public benefits through:

- The provision of interconnected public open spaces.
- Façade design and full height glazing to maintain connection with external areas.
- Welcoming and engaging landscape design.
- Integration and connection to UNSW and future light rail stops.



10.2 Biophysical

The environmental risk assessment in Section 8 indicates that the proposed development will not result in any environmental impacts that cannot be adequately addressed through sound, reasonable and feasible mitigation measures outlined in the preceding sections of this EIS, especially as encapsulated in Section 9.

It is considered that the environmental impact assessment for the ASB has demonstrated that:

- All construction phase environmental impacts can be managed and thus mitigated by the proposed measures, including potential transport and accessibility, biodiversity, noise and vibration, and contamination impacts.
- An Integrated Water Management Plan, Drainage Infrastructure Management Plan and flood mitigation measures will be implemented ensuring undesirable stormwater, groundwater, drainage and water quality impacts are avoided.

10.3 Ecological Sustainable Development

The EP&A Regulation defines ESD in Clause 7(4) of Schedule 2 as part of the content of an EIS. These principles are:

- The precautionary principle.
- Inter-generational equity.
- Conservation of biological diversity and ecological integrity.
- Improved valuation, pricing and incentive mechanisms.

Analysis of these principles is provided below.

Precautionary Principle

The precautionary principle describes that in situations under threat of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. This principle is valuable when uncertainty surrounds potential environmental impacts.

The EIS has not identified any instances of scientific uncertainty or serious or irreversible environmental damage. Thus, the precautionary principle does not apply to the proposed development.

Inter-generational equity

Inter-generational equity describes that the present generation should ensure the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposed land use and the design of the ASB for the purposes of an expansion of the Campus benefits existing and future generations by:



- Supporting anticipated future job creation and local population growth.
- Accommodating significant future increases in the demand for POWH health services, health education and research.
- Integrating landscaped areas, public open spaces, the public domain and amenity with the POWH campus, UNSW Campus and future light rail connections.

The ASB design and development is informed by a significant strategic planning framework (Section 5) which envisages strategic objectives that deliver long-term social, economic, environmental and ESD values to the area.

Conservation of biological diversity and ecological integrity

This principle states that conservation of biological diversity and ecological integrity should be a fundamental consideration.

The proposal will not have significant impacts on biological diversity and ecological integrity of the site, or the surrounding Precinct.

Improved valuation, pricing and incentive mechanisms

This final principle states that environmental factors should be included in the valuation of assets and services, particularly those directly affected by the project including air, water and biodiversity.

Exhaust flues will be fitted with emission control devices to maintain air quality during operation.

Modular façade design and use of sustainable construction materials will minimise construction material waste.



11 Conclusion

The EIS has been prepared in accordance with Part 4, Division 4.7 of the EP&A Act and other relevant legislative, statutory and non-statutory planning controls and due consideration of a substantial New South Wales Government strategic planning framework.

A key driving factor in the formulation of the design of the proposed development is the vision for the RHC within the Collaborative Framework as signed by the SESLHD, SCHN and UNSW which states that:

"We will be a world renowned model for the integration of high quality primary, secondary and tertiary clinical care, innovative education programs and enabling original and translational research that supports wellness across the community."

As such, the desired outcome is the creation of a centre of excellence in the provision of health services and care, health education and physical and mental health research.

Therefore, in particular, the following is noted:

- The EIS has addressed the SEARs issued by DP&E for SSDA 9113.
- The EIS has been informed quite comprehensively by: (i) the supporting technical advice contained in the Reports in Appendices A to BB; and (ii) consideration of matters raised by the community and stakeholders through HI's ongoing consultations under its Communications and Stakeholder Engagement Strategy.
- In examining the change in land use and the consequential change in form and scale from the existing development on the site to that of the proposed development, it is considered there is strong justification for the Project. The grounds for justification are summarised in Section 10 and supported by consideration of the relevant objects of the EP&A Act addressed in Section 4.1.1 and relevant NSW Government Policies and Plans in Section 5.
- The justification for the development is supported by the identification and rigorous assessment of likely impacts and of appropriate sound and implementable mitigation measures. These arise from due consideration of the technical advice and the Reports and the matters in Section 4.15 Evaluation of the EP&A Act that is also addressed in Section 4.1.1 of the EIS.
- The potential environmental impacts as identified and assessed in Section 7 and residual impacts in Section 8 are considered to be acceptable. This conclusion is subject to the diligent implementation of the mitigation measures as specified in Sections 7, 8 and 9 during the design, construction and operational phases of the proposed development.

It is recommended that SSDA 9113 be approved.



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