

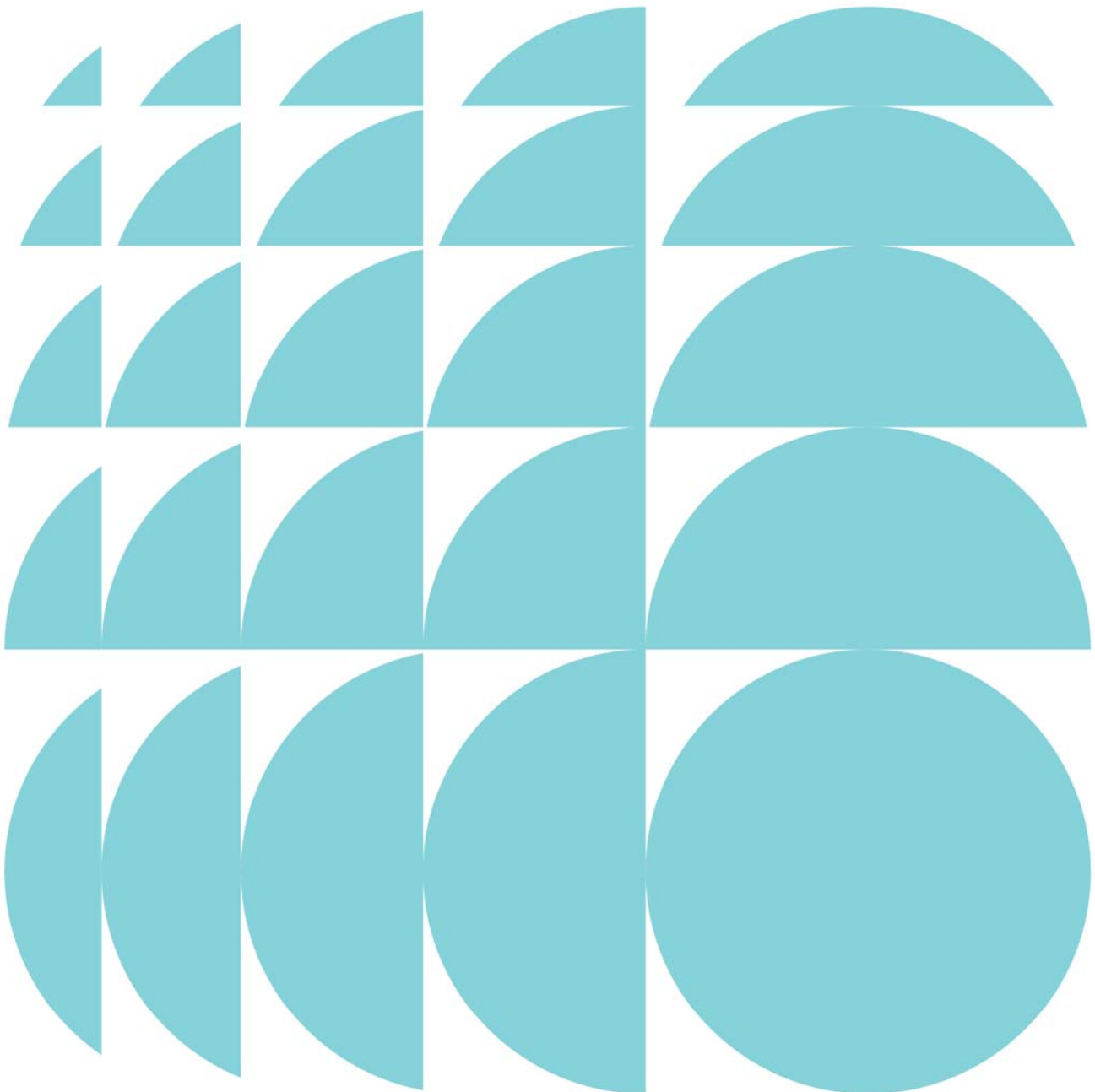
ETHOS URBAN

State Significant Development SSD 8816

Precinct 4A, Royal North Shore Hospital
St Leonards Health Organisations Relocation
(SHOR)

Submitted to Department of Planning & Environment
On behalf of NSW Health Infrastructure

January 2018 | 16611



CONTACT

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Joia Mathew

25 January 2018



Angus Halligan

25 January 2018

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REVISION BY J.M

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Provided under a Separate Cover

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Statement of Validity

Development Application Details

Applicant name	Health Infrastructure on behalf of Health Administration Corporation
Applicant address	Level 6, 77 Pacific Highway, North Sydney
Land to be developed	Precinct 4A, Royal North Shore Hospital Campus
Proposed development	St Leonards Hospital Organisations Relocation (SHOR) Development as described in Section 3.0 of this Environmental Impact Statement
Prepared by	
Name	Angus Halligan
Qualifications	BPlan
Address	173 Sussex Street, Sydney
In respect of	State Significant Development - Development Application

Certification

I certify that I have prepared the content of this EIS and to the best of my knowledge:

it is in accordance with Schedule 2 of the Environmental Planning and Assessment Regulation 2000;

all available information that is relevant to the environmental assessment of the development to which the statement relates; and

the information contained in the statement is neither false nor misleading.

Signature



Name Angus Halligan

Date 25/01/2018

1.0 Executive Summary

Purpose of this Report

This submission to the Department of Planning and Environment (Department) comprises an Environmental Impact Statement (EIS) for a State Significant Development Application (SSD Application) under Division 4.1 of Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

This application is SSD by way of Ministerial declaration pursuant to Section 89(C) of the EP&A Act, the order for which was published on 13 October 2017.

A request for the issue of the Secretary's Environmental Assessment Requirements (SEARs) was made on 16 October 2017 and the SEARs were issued on 31 October 2017. The SEARs were reissued on 22 November 2017 to include new biodiversity requirements under the *Biodiversity Act 2016*. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses those issues raised in the SEARs.

Overview of the Project

The SSD Application seeks approval for the construction of a new commercial building on Precinct 4A as part of the ongoing redevelopment of the Royal North Shore Hospital (RNSH Hospital). Specifically, this proposal seeks approval for the following:

- Construction of a 10-storey building at Precinct 4A with a total GFA of 30,977m² comprising of the following uses:
 - 28,615 m² of health-related employment generating uses;
 - 658m² lobby;
 - 241m² café;
 - 902 m² child care facility;
 - 561m² basement storage and miscellaneous.
- Construction of 2 basement levels with 115 car parking spaces and 1 car wash bay;
- Subdivision of the existing land parcel into the following additional allotments:
 - Proposed Lot 41 (Area 8,049 m²);
 - Proposed Lot 42 (Area 64 m²); and
 - Proposed Lot 40 (Residue Lot comprising the RNS hospital precinct)
- Improved east-west connectivity across the precinct (between Precinct 4A and 4B) through an at grade pedestrian access way interconnecting Herbert Street (east) to Reserve street (west);
- Creation of an additional easement along the southern alignment of the site for unrestricted vehicular access; and
- Associated public domain and landscaping works.

A Review of Environmental Factors (REF) pursuant to the *State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) as works to be undertaken as 'development without consent' in prescribed zones was prepared and assessed by NSW Health Infrastructure in September 2016 in accordance with Part 5 of the *Environmental Planning and Assessment Act 1979* for works within the RNSH Campus (legally described as Lot 210, DP 1172133) including:

- Disconnection of utilities and services to buildings proposed for demolition or relocation;
- Demolition of seven (7) buildings and associated structures, being buildings 7, 9, 34, 37, 38, 51 and 52, including driveways, pathways, stairs, and surface structures;
- Removal of all trees within the works area (63) including relocation of three (3) Palms between buildings 38 and 51 to Reserve Road (subject to condition, longevity and health/safety assessment); and

- Regrading of land for proposed landscaping in place of demolished buildings.

The subject site, Precinct 4, is taken to be fully cleared and with no remaining vegetation for the purpose of this EIS.

Concept Plan Approval

In April 2007, a Concept Plan was approved under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act 1979) for renewal and consolidation of the Royal North Shore Hospital Campus.

Based on their proposed land uses, redevelopment was proposed through staged renewal of eight precincts and a six-stage construction and delivery strategy. The subject site for this proposal is Precinct 4 (comprising of Precinct 4A and 4B) and adjoining public domain grounds.

Approval for demolition of existing buildings in proximity of the subject site was obtained as part of a Review of Environmental Factors (REF) under Part 5 of the *EP&A Act 1979*, dated September 2016. The Part 5 approval also included associated landscaping works and earthworks including relocation of the existing avenue of Date Palm trees. Other works that have been carried out on site, and were covered under the REF include refurbishment of the existing Douglas Building and other civil infrastructure upgrades. Refer to **Appendix AA** for a copy of the approved assessment of REF.

The Concept Plan has undergone several modifications, with the most recent modification relating to the subject site. Modification 7 (MP 06_0051 MOD 7 - Modification to Concept Plan building footprint in Precinct 4a) was lodged in December 2016 and approved by the DP&E on 20 July 2017. The modification amended the building footprint originally approved for site 4A under the Concept Plan and consolidated the commercial floor plate design, allowing a more efficient floor plate and an improved design response for the site.

The Site

The RNSH Campus is situated approximately 6.5 km north of Sydney CBD and 3 km south west of Chatswood. The RNSH precinct is located within Willoughby City Council LGA, less than 200 metres from St Leonards Station.

The subject site (Precinct 4) is located at the southern edge of the RNSH Campus with direct frontage to Reserve Road (west of the site).

The land is owned by the Health Administration Corporation. Precinct 4 currently forms a part of the Royal North Shore Hospital campus, legally described as Lot 210 under DP 1172133. Total site area of the existing campus is 11.38 hectares.

Planning Context

Section 6.0 of the EIS considers all applicable legislation in detail. The proposal is consistent with the requirements of all relevant State Environmental Planning Policies. The site is zoned SP2 Infrastructure under the provisions of the Willoughby Local Environmental Plan 2012. The proposal is permissible with consent within the zone and will meet the relevant objectives of this zone.

Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the project in accordance with the revised SEARs issued 22 November 2017 and sets out the undertakings made by Health Infrastructure to manage and minimise the potential impacts arising from the development.

Conclusion and Justification

The EIS addresses the SEARs, and the proposal provides for the significant improvement of key hospital services at the Royal North Shore Hospital. The potential impacts of the development are either minor or are able to be managed. Given the planning merits of the proposal, the proposed development warrants approval by the Minister for Planning.

2.0 Introduction

This Environmental Impact Assessment (EIS) is submitted to the Department pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of a State Significant Development Application (SSD) for the commercial building at Precinct 4A of the RNSH Campus.

This application is SSD by way of Ministerial declaration pursuant to Section 89(C) of the EP&A Act, the order for which was published on 13 October 2017. This proposal is also prescribed development under Schedule 1 of SEPP (State and Regional) Development 2011.

This proposal relates specifically to the construction of a new building on the south-western edge (identified as site 4A under the Concept Plan) of the RNSH Campus. Uses proposed include health-related commercial uses and other uses (retail and a child care centre) that will support the ongoing use and operation of the precinct as a Hospital and Medical Centre. Some works are also proposed across the wider Precinct 4 to improve connectivity across the site.

A request for the issue of Secretary's Environmental Assessment Requirements (SEARs) was sought on 16 October 2017. Accordingly, the SEARs were issued on 31 October 2017. The SEARs were reissued on 22 November 2017 to include new biodiversity requirements under the *Biodiversity Act 2016*. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs. This EIS should be read in conjunction with the supporting information and plans appended to this report. The report includes the following information:

- An overview of the site and the proposed development;
- An outline of the key strategic and statutory planning framework;
- An assessment of the environmental issues associated with the proposal; and
- An overview of consultation undertaken to date for the proposal with authorities and the public.

2.1 Overview of Proposed Development

This application seeks approval for the following development:

- Construction of a 10-storey building at Precinct 4A with a total GFA of 30,977 m² comprising of the following uses:
 - 28,615 m² of health-related employment generating uses;
 - 658m² lobby;
 - 241m² café;
 - 902 m² child care facility;
 - 561m² basement storage and miscellaneous.
- Construction of 2 basement levels with 115 car parking spaces and 1 car wash bay;
- Subdivision of the existing land parcel into the following additional allotments:
 - Proposed Lot 41 (Area 8,049 m²);
 - Proposed Lot 42 (Area 64 m²); and
 - Proposed Lot 40 (Residue Lot comprising the RNS hospital precinct)
- Improved east-west connectivity of the 4A+4B precinct through an at grade pedestrian access way interconnecting Herbert Street (east) to Reserve street (west);
- Creation of an additional easement along the southern alignment of the site for unrestricted vehicular access; and
- Associated public domain and landscaping works.

2.2 Background to the Development

The subject site (Site 4A) is located within the hospital grounds of Royal North Shore Campus, at 1 Reserve Road, St Leonards.

The site forms a part of a wider Concept Plan approval for the redevelopment and renewal of RNSH (Concept Plan 06_0051). On 13th April 2007, approval was granted primarily to the overarching master plan, including proposed building envelopes (height, bulk, scale), associated GFA and land use, site preparatory works (demolition and excavation), and access road network designs.



Figure 1 - Concept Proposal (indicative extent of the Precinct 4 shown outlined in red)

Source: Concept Plan 06_0051, Major Project's Website

The Concept Plan proposed staged renewal of the entire campus through the nomination of eight precincts and a six-stage construction and delivery strategy. Since concept approval, redevelopment of the following buildings has been completed:

- Kolling Institute Research Building;
- Acute Services Building;
- Clinical Services Building;
- Community Health Building; and

- Multi-Storey Car Park with capacity for 567 spaces.

Under the Concept plan, the subject site is identified as Precinct 4, comprising of Site 4a and Site 4b.

Approval for demolition of existing buildings in proximity of the subject site was obtained as part of a Review of Environmental Factors (REF) under Part 5 of the *EP&A Act* 1979, dated September 2016. The Part 5 approval also included associated landscaping works and earthworks including relocation of the existing avenue of Date Palm trees. Other works that have been carried out on site, and were covered under the REF include refurbishment of the existing Douglas Building and other civil infrastructure upgrades.

Modification 7 Concept Plan amendment relating to Site 4a

Under the Concept plan, the subject site is identified as Precinct 4, comprising of Precinct 4A and Precinct 4B. The Concept Plan has undergone several modifications, with the most recent modification relating to the subject site. Modification 7 (MP 06_0051 MOD 7 - Modification to Concept Plan building footprint in Precinct 4A) was lodged in December 2016 and approved by the DP&E on 20 July 2017.

The modification amended the original building footprint approved for Site 4a under the Concept Plan and consolidated the two separate floor plates into a single floor plate, allowing a more efficient building design for the provision of services and optimising the site use.

The modification also clarified the intent of condition M7.1 relating to the maximum building height and setback requirements for Precinct 4A. The maximum height permitted under the approved MOD7 is the lesser of RL 126 metres or a 13 storey building. The building is also required to be setback a minimum of 8 metres from the southern boundary.

The proposed development is consistent with the concept plan approval and subsequent modifications. It proposes a 10 storey building. Refer to **Section 6.2** of this report for a detailed consistency analysis against the applicable requirement of the Concept Plan.

2.3 Objectives of the Development

The main objectives of this development are to:

- Facilitate the colocation of all NSW Health staff to deliver efficiencies of scale and improve state-wide health service delivery;
- Create a modern office building facility of an adequate floor plate size and design that offers a contemporary open plan office setting;
- Create a flexible conference and training facility for rooms of varying sizes and technology to allow different uses;
- Provide a new child care centre facility to service the needs of staff; and
- Ensure consistency with the overall Concept Plan (MP 06_0051) as modified under MOD 7.

2.4 Analysis of Alternatives

Strategic need for the proposal

The precinct currently consists of mix of existing, refurbished and heritage buildings that cater to the primary function of the precinct as a health facility. Recent works across the campus have provided core health infrastructure facilities.

The proposed building on completion will accommodate NSW Health staff and other health related organisations. Co-locating these entities in proximity to each other, and other hospital facilities, is seen as an opportunity to foster new synergies and cater to improving efficiency and innovation in health care.

The proposed building has been designed to allow for future flexibility and varying needs as the building and the wider hospital precinct evolves.

It introduces new contemporary features to the campus, including a new meeting/training facility at Level 1. Through a modular design approach, this level is designed to accommodate functions of varying sizes and formalities.

Alternative Options

Three options are available to Health Infrastructure in responding to the identified need for the redevelopment of its facilities.

Option 1 – The Proposal

Option 1 involves undertaking the proposed development as outlined in this SSD Application (refer to **Section 3** of this report). The proposal will allow for the delivery of a well-designed commercial building within RSNH grounds that supplements the health function of the RNSH. The commercial building is designed with the intent to co-locate state-wide health related entities/organisations. The floor layout and internal design creates a platform for flexibility, collaboration and innovation in the health sector.

Option 2- Do Nothing

Under the 'Do Nothing' scenario the existing facilities on site would be retained and the campus will continue to operate as business as usual. NSW Health organisations would need to be relocated into disparate locations across Sydney and surrounds, losing efficiency benefits required by Government that are achieved by colocation. The 'Do Nothing' scenario does not meet the requirements of the Concept Plan approval which applies to the wider hospital campus. It fails to adequately plan for future growth and opportunities of innovation/ efficiency in the health sector. It also contradicts the strategic directions to support health related land uses around RNSH.

Option 3 – Alternative Designs

The proposed design as set out under the attached Architectural Plans, prepared by BVN, is an outcome of robust design testing and careful consideration of the site's surrounding context. The facades composition and materiality complement the site surrounding environs and is sympathetic to the heritage buildings located north of the site.

The present design offers an efficient commercial floor plate size and layout with an approximate GFA of 3,225m² on each floor. The building is designed in accordance with the Concept Plan modifications for Precinct 4. Given that the existing design exhibits high architectural and design quality, an alternative design is considered unnecessary.

2.5 Secretary's Requirements

In accordance with section 89G of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 31 October 2017. Revised SEARs were issued on 22 November 2017 to include new biodiversity requirements under the *Biodiversity Act 2016*. A copy of the reissued SEARs is included at **Appendix A**.

The SEARs require that the EIS include the documents listed in Schedule 1 of the EP&A Regulations and it must meet the requirements of Schedule 2 of the Regulation, in particular the form specifications in Clause 6 and the content specifications in Clause 7. Several stakeholders were identified with whom consultation must occur during the preparation of the EIS (see **Section 4.0**).

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 – Secretary's Requirements

Requirement	Location in Environmental Assessment
General	
The Environmental Impact Statement (EIS) must address the <i>Environmental Planning and Assessment Act 1979</i> and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000.	Environmental Impact Statement
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 7.0– Section 8.0
Where relevant, the assessment of the key issues below, and any other significant issues identified in the 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; and • The EIS must also be accompanied by a report from a qualified quantity surveyor providing: – a detailed calculation of the capital investment value (CIV) of the development (as defined in clause 3 of the Environmental Planning and assessment Regulation 2000), 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 development during construction and operation; and – certification that the information provided is accurate at the date of preparation	Refer to Section 6.18 of this report.
Statutory and Strategic Context 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.55 – Remediation of Land; • State Environmental Planning Policy No. 64 – Advertising and Signage; and • Willoughby Local Environmental Plan 2012. Address the relevant planning provisions, goals and strategic planning objectives in the following: • NSW State Priorities; • A Plan for Growing Sydney; • Draft Greater Sydney Regional Plan 2017; • NSW Long Term Transport Master Plan 2012;	Refer to Section 6.0 of this report.

Requirement	Location in Environmental Assessment	
• Sydney's Cycling Future 2013; • Sydney's Bus Future 2013; • Sydney's Walking Future 2013; • Greater Sydney Commission's Draft North District Plan; and • Healthy Urban Development Checklist, NSW Health.		
Built Form and Urban Design • Address the height, density, bulk and scale, setbacks of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces (incl. Gore Hill Oval and Park). • Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials, colours and Crime Prevention Through Environmental Design Principles. • Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.	Refer to Section 4.0 of this report. An assessment of the report against CPTED principles is provided at Section 6.22 and Appendix O .	
Environmental Amenity • Detail amenity impacts including solar access, acoustic impacts, visual privacy, view loss, overshadowing, reflectivity from building facades and wind impacts. A high level of environmental amenity for any surrounding residential land uses or public open space (incl. Gore Hill Oval and Park) must be demonstrated.	Refer to Section 6.3 of this report.	
Key Issues	Report / EIS	Technical Study
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, 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 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, 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 in consultation with Roads and Maritime Services and Transport for NSW and identify measures to integrate the development with the transport network; • details of any upgrading or road improvement works required to accommodate the proposed development; • details of travel demand management measures to encourage sustainable travel choices and details of programs for implementation; • 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 the need/associated funding for upgrading or road improvement works, if required (note: traffic modelling is to be undertaken with scope to be agreed by TfNSW and RMS in advance); • the proposed active transport access arrangements and connections to public transport services; • the proposed access arrangements, including car and bus pickup/ drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, 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; • the proposed car and bicycle parking provision, including end-of-trip facilities, which must be taken into consideration of the availability of public transport and the requirements of Council's relevant parking codes and Australian Standards;	Refer to Section 6.4 of this report.	Appendix F

Requirement	Location in	Environmental Assessment
- proposed bicycle parking facilities in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance; - details of the proposed number of car parking spaces and compliance with appropriate parking codes and justify the level of car parking provided on-site; - 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 (incl. Council works on Gore Hill Oval and Park and Sydney Metro); - impacts on essential services to and from the hospital, with particular regard to emergency services vehicles accessing Reserve Road from the Pacific Highway; - an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic 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, - construction workers to and from the site, emergency vehicles and service vehicle; - 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 the preparation of a draft Construction Traffic 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).		

Requirement	Location in Environmental Assessment	
Ecologically Sustainable Development (ESD) - 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 that 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.	Refer to Section 6.5 of this report	Appendix G
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 NSW Heritage Manual.	Refer to Section 6.6 of this report	Appendix E
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.	Refer to Section 6.7 of this report	Appendix H and Appendix CC
Sediment, Erosion and Dust Controls Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.	Refer to Section 6.8 of this report	Appendix K
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.	Refer to Section 6.10 of this report	Appendix J
Utilities - Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation 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.	Refer to Section 6.11 of this report	Appendix L
Contributions Address Council's Section 94A Contribution Plan and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development	Refer to Section 0 of this report	
Drainage Detail drainage associated with the proposal, including stormwater and drainage infrastructure.	Refer to Section 6.12 of this report	Appendix K
Flooding Assess any flood risk on site (detailing the most recent flood studies for the project area) 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.	Refer to Section 6.13 of this report	Appendix S
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.	Refer to Section 6.14 of this report	Appendix I
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.	Refer to Section 6.16 of this report	Appendix H

Requirement	Location in Environmental Assessment
Biodiversity Biodiversity impacts related to the proposal and the preparation of a Biodiversity Assessment are to be addressed in accordance with the requirements of the Biodiversity Conversation Act 2016.	Refer to Section 6.1 of this report
Consultation During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular, you must consult with: - Willoughby City Council; - Transport for NSW; and - Roads and Maritime Services. 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 5.0 of this report

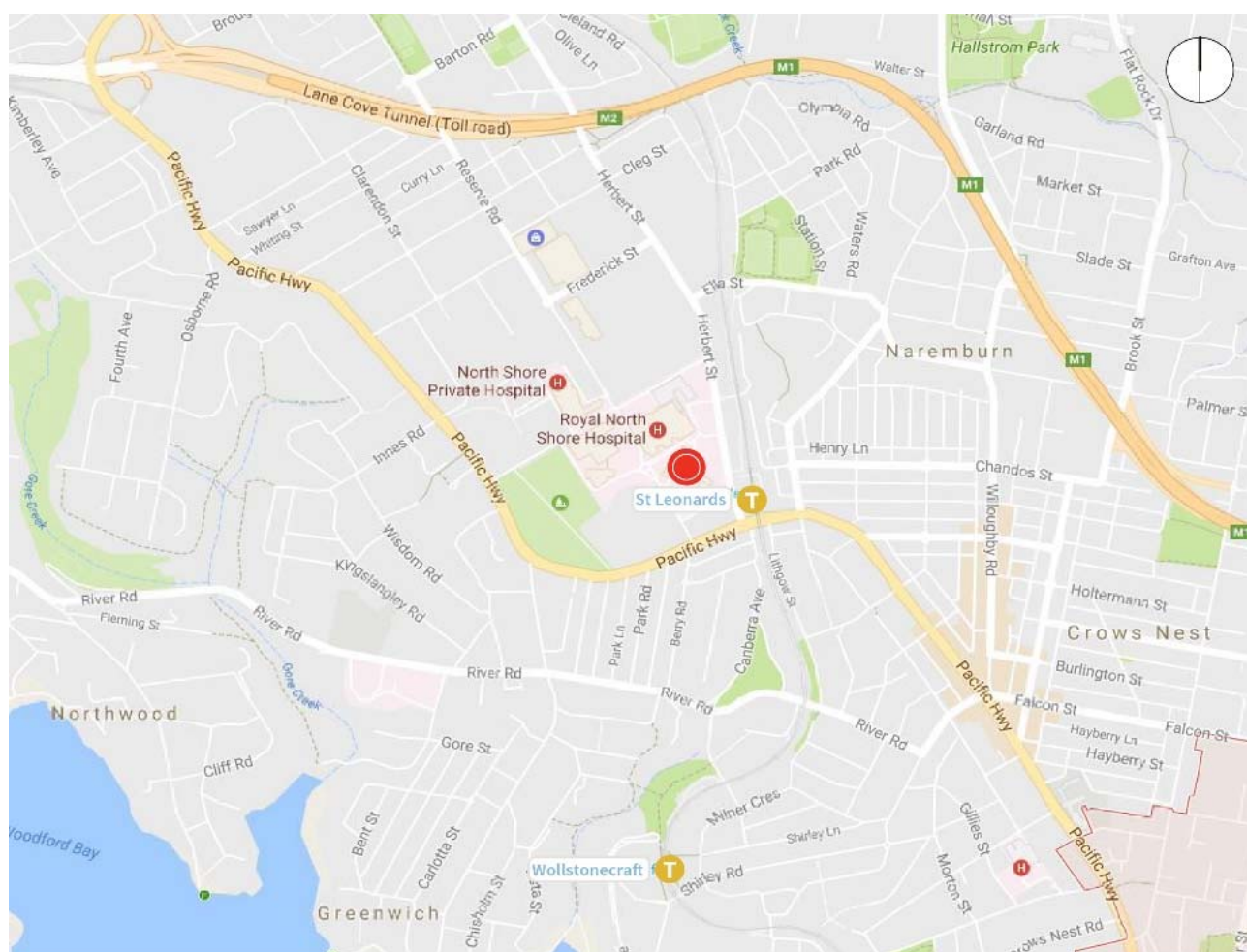
3.0 Site Analysis

3.1 Site Location and Context

The RNSH Campus is situated approximately 6.5 km north of Sydney CBD and 3 km south west of Chatswood. The RNSH precinct is located within Willoughby City Council LGA, less than 200 metres from St Leonards Station.

The subject site (Precinct 4) is located at the southern edge of the RNSH Campus with direct frontage to Reserve Road (west of the site).

The site's locational context is shown at **Figure 2**



 The Site

Figure 2 - Locational context

3.2 Site Description

The land is owned by the Health Administration Corporation. Precinct 4 currently forms a part of the Royal North Shore Hospital campus, legally described as Lot 210 under DP 1172133. Total site area of the existing campus is 11.38 hectares. A survey plan, prepared by ADW Johnson Surveyors is located at **Appendix C**.

The subject site comprises of Precinct 4 in its entirety and some adjoining public domain land owned by HAC (for which some landscaping works are proposed).

The aerial photo at **Figure 3** below illustrates the extent of Precinct 4 and the subject site within the existing hospital campus grounds. The site boundary for the purposes of this SSD application follows the dashed yellow boundary line (refer to Figure 3 below).

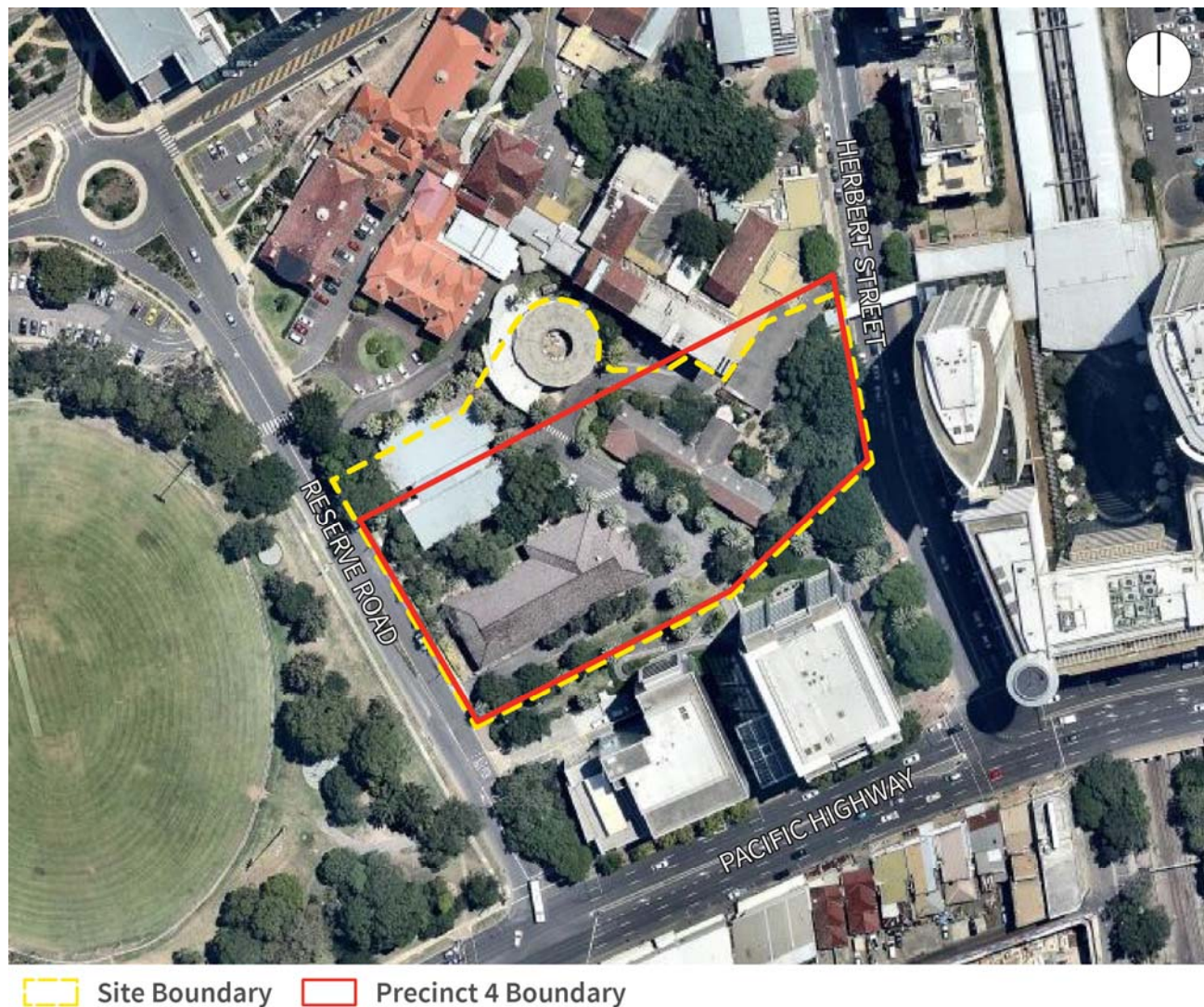


Figure 3 - Aerial Map

Existing Built Form

The subject site currently contains several one (1) and two (2) storey buildings. These include:

- Building 51 (School of Nursing facility)
- Building 38 (existing Child Care Centre)
- Building 52 (Admin/Accounts facility)
- Building 34 (Cummins Unit Psychiatric Ward)
- A part of the southern portion of Building 37 (oncology); and
- Southern extent of Building 36 (Radiation Oncology)

The existing buildings within the site consist of mostly aged buildings. These structures are mostly masonry buildings with pitched roofs, with the exception of Building 52 which is a metal framed weatherboard structure. As mentioned earlier within this report, approval for demolition of these structures was obtained under Part 5 of the *EP&A Act 1979*.



Figure 4 - View of existing Building 52 (left); View of existing Building 51 from Reserve Road



Figure 5 - Avenue of Date Palm trees currently located centrally within Precinct 4 (left); View south west along existing vehicular ingress from Reserve Road (right).



Figure 6 - Existing location of child care centre at Building 38 (left); existing pedestrian connection from Precinct 4 to Herbert Street (east) (right).

Vegetation

The existing landscaping on site comprises of tree clusters, shrub planting and fringe landscaping. Approval for tree removal including relocation of some Date Palm trees was obtained as part of the Part 5 approval works (Refer to **Appendix AA**) for the wider RNSH campus.

Topography

The site slopes significantly towards its southern extent, with a gradient fall of approximately 7 metres along the north-south ground plane axis. A change in ground elevation is also noted along the east-west ground plane. A fall of approximately 4.4 metres is noted from Reserve Road (west) to Herbert Street (east). Refer to **Appendix C** of this report for a detailed site survey plan.

Existing Drainage System

A 900 mm diameter stormwater main runs through the southern edge of the campus boundary. This captures flow from areas west of Reserve Road including Gore Hill Memorial Cemetery and Gore Hill Park. Running parallel to it is a 525mm diameter stormwater main that drains the Reserve Road catchment.

A 300mm drain runs diagonally through the site (Precinct 4A) and captures flows from the existing building on site and much of the surrounds. It connects to the 900mm diameter stormwater main.

Easements

The site contains an existing 3 metre wide drainage easements associated with the above stormwater infrastructure and also runs east-west along the southern boundary of the site.

3.3 Transport and Access

Vehicular Access and Parking

Vehicular access is currently provided off Reserve Road via an internal access road that runs along the southern boundary. The access road wraps around Building 51 and 52 and connects to the Cummins unit building (Building 34) located centrally within the campus. Visitor car parking is provided at the multi-storey car park, west of the main acute services hospital building.

Railway

The site is highly accessible by rail transport with St Leonards Railway Station being less than 200 metres from the Precinct 4A. Direct pedestrian access from the station is provided via the Herbert Street pedestrian overbridge. Alternatively, ground level access is available via the signalised crossing at Pacific Highway and Herbert Street. A through site link provides direct access to the site via the southern boundary.

The new Crows Nest Metro Station is proposed approximately 600 metres south east of the site. The station forms part of the Sydney Metro City and South west works which on completion will deliver a new metro line between Chatswood Railway Station to Sydney City via Crows Nest and North Sydney (Victoria Cross Station).

Bus

Several bus stops are located within the immediate 400 metre locality of the Site. These stops are serviced frequently by a number of bus routes that run along Pacific Highway (both northbound and southbound).

These routes connect the site suburbs across metropolitan Sydney including Western Sydney suburbs which are serviced by the Hills Bus Services (Route 602X, Route 612, Route 622 and Route 653). Other bus services include routes between Chatswood and Manly (Route 143 and 144) Epping (Route 140, 290 and 291), Ryde (Route 287) and Lane Cove (Route 265 and 252).

A bus stop servicing Route 144 (Chatswood to Manly via RNSH) is located directly across from the site on Reserve Road within the RNSH campus.

Bicycle Network

A designated cycle path is provided along the length of Herbert Street. An existing off road/shared cycle path is also provided along Carlotta Street, between Pacific Highway and Herbert Street.

3.4 Surrounding Development

To the South

Immediately to the south are two commercial office buildings known as 'Space 207' with street frontage to Pacific Highway. The buildings take the form of a part 7/part 4 storey building and a 12 storey building and include a pedestrian through site link form Pacific Highway to the RSNH campus.

To the West

Further west, across Reserve Road is Gore Hill Park, which runs north-south access road across the entire length of the RNSH campus. This park currently comprises of an oval sports ground. Council is currently carrying out preparatory works to reorient of the existing oval field to address true north and upgrade the car parking and sport amenities on the site. Stage 2 of the Gore Hill redevelopment is proposed to include a multi storey indoor recreational centre facility to the south of the field fronting Pacific Highway. Access to the centre including underground car parking is intended to be off Reserve Road.

To the East

To its east, across Herbert Street is the 38 storey 'Forum' building above the St Leonards Rail Station. A pedestrian over pass provides pedestrian access from the RNSH campus to the railway station.

To the North

North of the subject site, within the RSNH hospital grounds, is a cluster of 2-3 storey heritage listed hospital buildings. These include:

- Pavilion Wing Building, Block 1B;
- Pavilion Wing Building, Block 1A;
- Vanderfield Building;
- Ansto—Body Protein Building; and
- Orthotics Building.



Figure 7 - View of existing commercial buildings south of the subject site at 207 Pacific Highway; Heritage listed Vanderfield building situated to the north.

The northern parts of campus have undergone significant upgrades as per the approved Concept Plan with redevelopment/ refurbishment completed for the following facilities:

- Kolling Institute Research Building (northern extent of the RNSH campus fronting Westbourne Street);
- Acute Services Building (main central fronting Reserve Road);
- Clinical Services Building (northern extent of RNSH campus fronting Westbourne Street);
- Community Services Building (eastern extent of the RNSH campus fronting Herbert Street); and
- Refurbishment of the Douglas Building (west of Precinct 4);



Douglas Building and multi storey car park located west of the subject site (left image); Pavilion Wing Building is a part of a cluster of heritage listed buildings north of the subject site (right image)



Acute Services Building located north of the site



View facing north towards Herbert Street and the pedestrian overbridge (left image); View of Gore Hill Park west of the site

Figure 8 - Surrounding development within the RNSH Campus

4.0 Description of the Development

This chapter of the report provides a detailed description of the proposed development. Architectural drawings are included at **Appendix B**.

This application seeks approval for the following development:

- Construction of a 10-storey building at Precinct 4A with a total GFA of 30,977 m² comprising of the following uses:
 - 28,615 m² of health-related employment generating uses;
 - 658m² lobby;
 - 241m² café;
 - 902 m² child care facility;
 - 561m² basement storage and miscellaneous.
- Construction of 2 basement levels with 115 car parking spaces and 1 car wash bay;
- Subdivision of the existing land parcel into the following additional allotments:
 - Proposed Lot 41 (Area 8,049 m²);
 - Proposed Lot 42 (Area 64 m²); and
 - Proposed Lot 40 (Residue Lot comprising the RNS hospital precinct) .
- Improved east-west connectivity across Precinct 4 through an at grade pedestrian access way interconnecting Herbert Street (east) to Reserve street (west);
- Creation of an additional easement along the southern alignment of the site for unrestricted vehicular access; and
- Associated public domain and landscaping works.



Figure 9- Photomontage of the Health Services Building

Source: BVN

4.1 Development/Urban Design Principles

The guiding design principles adopted for the proposed development are as follows:

- Deliver a built form that responds to the site settings and complements its surrounding environs;
- Create an architecturally distinct building along the southern entry point of the RNSH campus;
- Create a contemporary and well-designed commercial building with an efficient, flexible and modern internal layout;
- Improve east-west pedestrian connectivity and circulation across the wider campus and the adjoining St Leonards Station; and
- Deliver a building that adheres to high sustainability standards.

4.2 Numerical Overview

The key numeric development information is summarised in **Table 2**.

Table 2 – Key development information

Component	Proposal
Total GFA	30,977 m ²
Height of Building (top of parapet)	RL 121
Height of Building (including plant)	RL 126
Building Height (storeys)	10 storeys above ground + roof plant
Boundary Setbacks • North • South • East • West	• Integrates a 7.5 metre– 20-metre-wide forecourt; • 9-10 metres; • Built to alignment; and • within Precinct
• Basement Parking (Total) • Child care • Motor cycle • Loading bays • Bicycle parking	• 115 spaces • 19 spaces • 5 spaces • 3 spaces • 176 bicycle parking

4.3 Site Preparation Works

The demolition plan (AR-A-00-05A), provided within the Architectural package at **Appendix B** identifies the extent of demolition proposed on site.

It should be noted that approval for above ground site preparatory works including demolition of existing buildings on site, tree removal and regrading of land for the purposes of landscaping was obtained under Part 5 approval of the *EP&A Act 1979* and accordingly is not considered under this application.

Refer to **Appendix AA** for a copy of the Assessment of Review of Environment Factors dated 26 September 2016.

Excavation is proposed as part of this application to accommodate the basement levels. Proposed excavation depth at the north western corner of the building is 5.5 metres. Since basement level 1 and 2 are predominantly located above ground at the south eastern corner of the building footprint, minimal excavation (approximately 1 metre in depth) is proposed to this end of the site.

4.4 Built Form

The proposed commercial building is oriented to address north. It incorporates a large public forecourt area north of the building. The built form comprises of five (5) distinct vertical elevations. Each façade elevation frames the street edge and offers improved outlook to the west being Gore Hill Park and to the north being the cluster of heritage listed buildings.

Building length along the northern elevation is maximised to improve internal solar access. The first two levels, being the ground level and level 1, are partially recessed along this elevation, creating an entry foyer space with an undercroft element. The entry design is reinforced through the use of large 'V' shaped support columns that run along the length of the building.

The ground level along the western and southern elevation of the building is recessed to provide a covered balcony/ play area for the child care centre component.

An external balcony is introduced along the south-western elevation at level 1. The balcony partially extends over the building footprint but is accommodated wholly within the site boundary.

The uppermost level will accommodate the building's services and lift overrun and is recessed from the parapet edge to minimise building bulk.

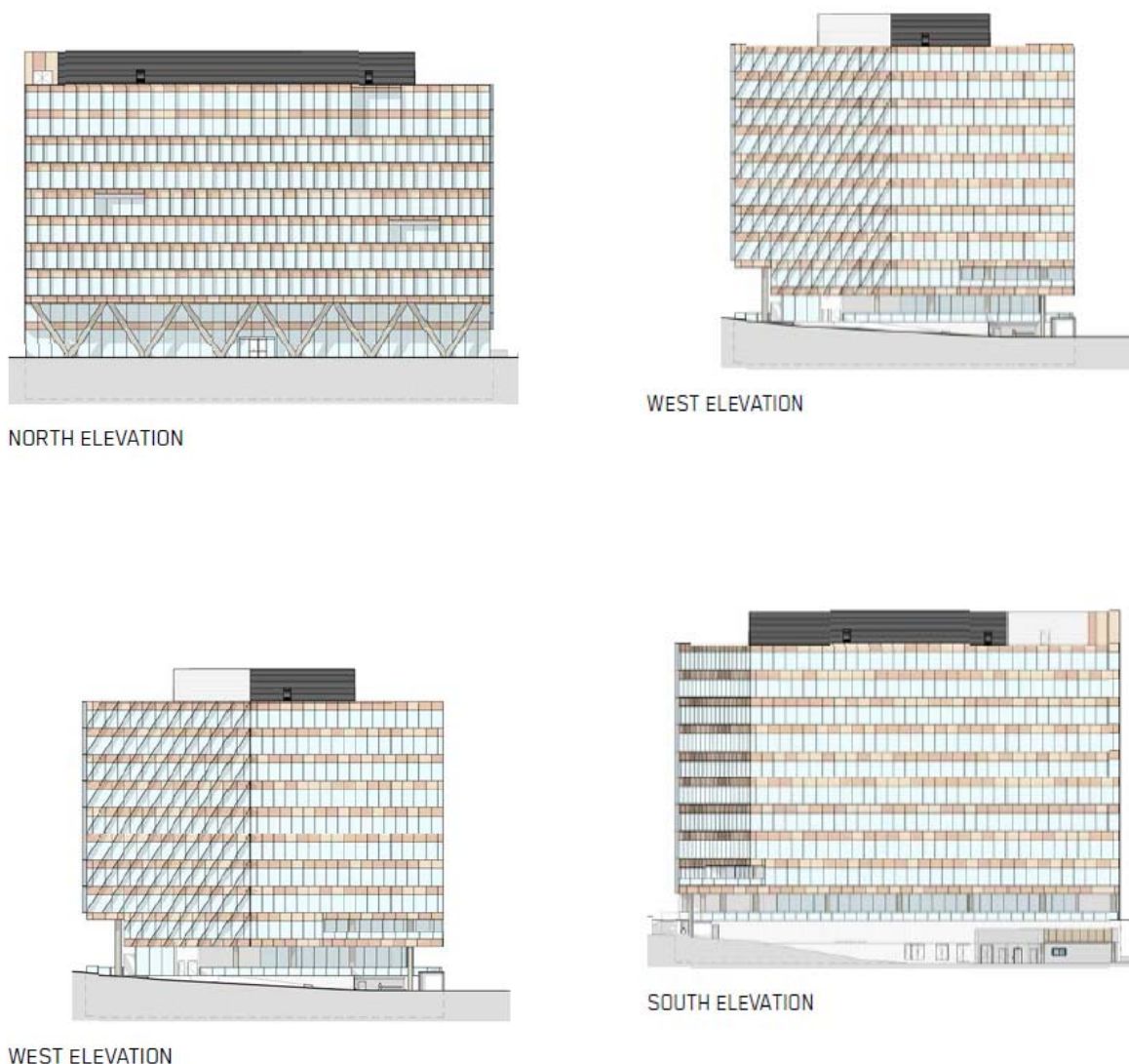


Figure 10- Building elevations

Source: SSD Report, BVN

Building Height

The built form presents as a 10 storey building with a 5 metre high roof plant above the 10th storey. At the highest point, the building achieves a maximum height of RL 126.

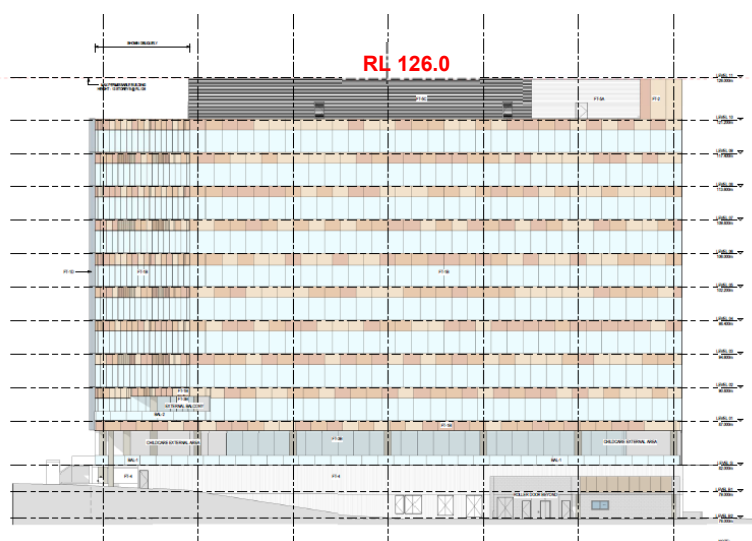


Figure 11- South East elevation

Source: Architectural Plans, BVN

Basement

The proposed commercial building integrates two (2) basement levels being an above ground mezzanine level (Basement 1) and a partly subterranean, partly ground level basement level (Basement level 2)

Basement 2 is located partly below ground and partly at ground level and primarily accommodates a substation (ground level), a waste storage area, bin wash room, a building manager's room and delivery vehicle parking bays.

Basement 1 is designed as a mezzanine level above basement level 2 and is largely located above ground. It comprises of an end of trip (EOT) facility, car parking spaces, and a child care drop off and staff parking area. The EOT on this level comprises of a security controlled storage room with bicycle parking for 176 bicycles (11 bicycle racks), 45 bicycle lockers and male and female change room facilities.

The basement levels are designed to satisfy all relevant Australian Standards (AS) relating to car parking design, ramp designs and circulation. A detailed assessment is provided as part of the Traffic Impact Assessment report provided at **Appendix F**.

4.5 Vehicular Access and Parking

Separate basement entries are provided for services vehicles, delivery vehicles, private cars and end of trip facilities. Vehicular access for private cars is provided directly off Reserve Road. The end of trip facilities entry and access ramp is also provided off Reserve Road.

4.5.1 Services and Delivery Vehicle Entry

Services vehicle entry is proposed via the internal access road south of the site. The loading bay is located at basement level 2 (ground level), access to the loading zone is provided by way of an access ramp with a maximum grade of 1:6.5 in accordance with relevant AS requirements. A minimum headroom of 4.5m is provided directly above the loading zone area (incorporated as a void at basement level 2) to offer sufficient clearance levels for Light Rigid Vehicles and Medium Rigid Vehicles.

Swept path analysis provided as part of the Traffic Impact Assessment Report (refer to **Appendix F**) demonstrates the functionality of the proposed servicing and loading bay. Servicing trucks entering the site off Reserve Road is proposed to reverse into the loading zone using the end of the internal road. The waste storage room is located within less than 3 metres of the loading zone. The trucks will exit the site in a forward facing direction.

The services basement entry is access controlled. A perforated roller door is proposed and will limit access to just service vehicles. A separate delivery vehicle loading bay area is proposed with three parking spaces capable of accommodating light vans (courier vehicles). Separate entry is proposed adjacent to the services vehicle basement.

4.5.2 Parking

A total of 115 car parking spaces are proposed as part of this proposal and accommodated within the two basement levels. Of the 115 car parking spaces, 19 spaces are allocated for the child care facility (9 spaces for staff parking and 10 pickup/drop off spaces).

Two disabled parking spaces are proposed within basement level 1.

Car parking located within the child care drop off/pickup area is designed as a Class 3A (5.4 x 2.7 metre) space. Parking for commercial parking and staff parking for the child care is designed as Class 1A (5.4x 2.4 metre) space. Disabled parking spaces are designed to satisfy relevant AS provisions.

4.6 Pedestrian Access

The main entry for the building is located via the northern forecourt. Pedestrian access to the forecourt is intended to be provided from Reserve Road via an indicative pedestrian crossing across the width of the road. However, the pedestrian crossing works are subject to future discussions with Willoughby City Council and separate approval process if necessary.

As shown in **Figure 12** below, a separate access path provides direct at grade access to the forecourt from the adjoining precinct, improving connectivity and permeability across the wider campus.

A separate pedestrian walkway connects Precinct 4A to St Leonards Station. A suspended pedestrian bridge is proposed at the end of the walkway providing a continuous at grade path of travel to the existing Herbert Street pedestrian bridge.

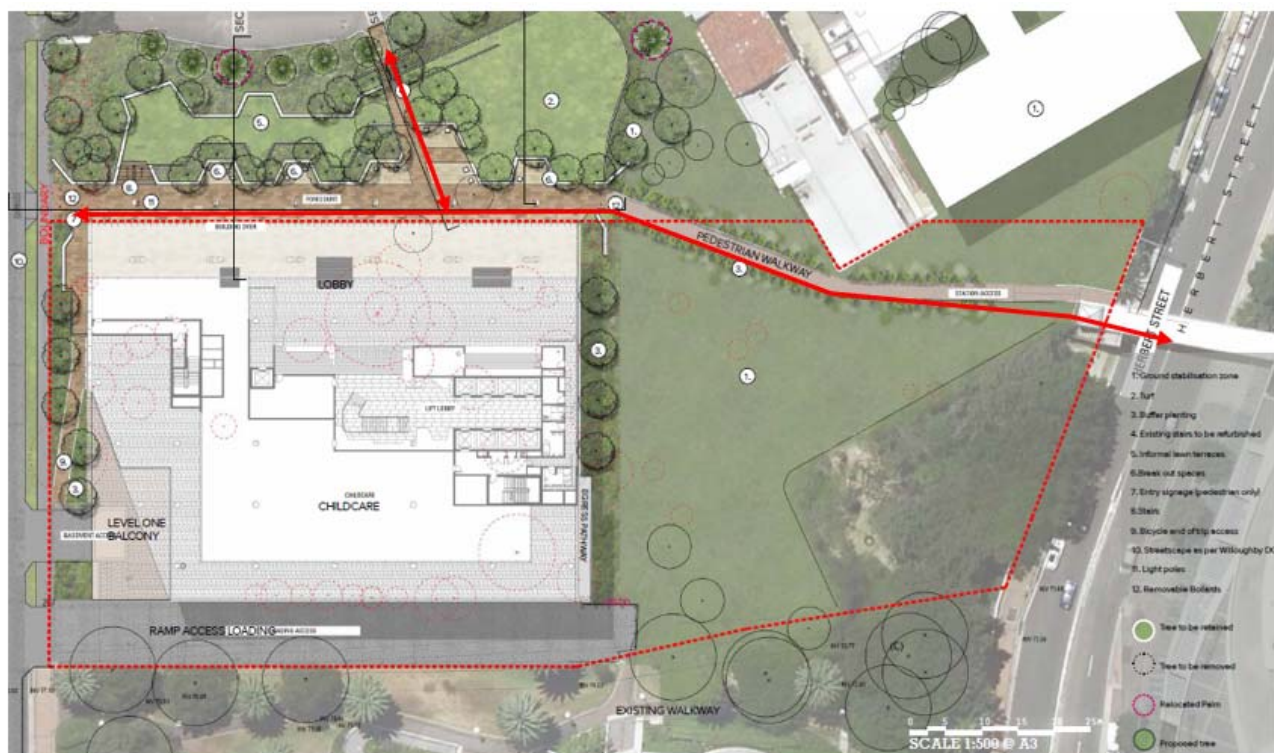


Figure 12- Pedestrian access strategy

Source: Base image, Arcadia

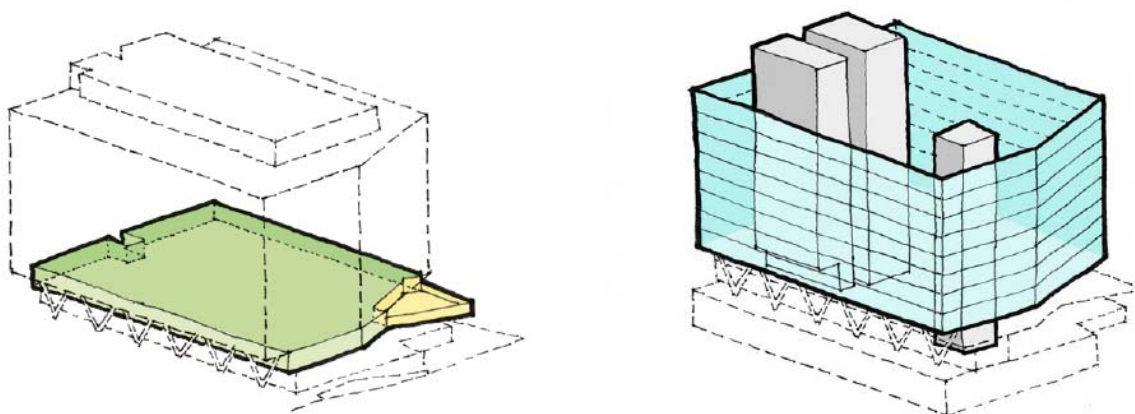
4.7 Land Use

The commercial development accommodates a 902m² child care component with a capacity for up to 100 children and 241m² café tenancy at ground level. Approval is only sought for use of these components (café and child care) with detailed fitout subject to separate future applications.

Level 1 is designed as a dedicated conference floor which can facilitate meeting and conference rooms of various sizes and levels of formality.

Level 2 to 9 are proposed as flexible office spaces.

Level 10 is designated as a building services level and accommodates the mechanical plant services, the lift overruns, the WC chiller room, generator room.



Proposed conference floor at level one (left); office level at level two –nine (right)

Figure 13- Components of the proposed building

Source: Design Report, BVN

4.8 Typical office floor plan

The typical office level is designed as a single large floor plate of 2,983m². The building incorporates a central atrium between the ground floor level and the conference level with opportunity for a common atrium with a stair well interconnecting the levels (subject to detail design).

The office levels also integrate high floor to ceiling heights to improve daylight access across the office floors. As illustrated in **Figure 14** below, office floors are designed to accommodate work space areas generally within 12 metres of an immediate natural daylight source.

These spaces are designed with an open floor plan layout to improve both solar access and outlook from various vantage points across the typical commercial floor plan.

The building core is located to the eastern edge to maximise the efficiency of the floor plate.

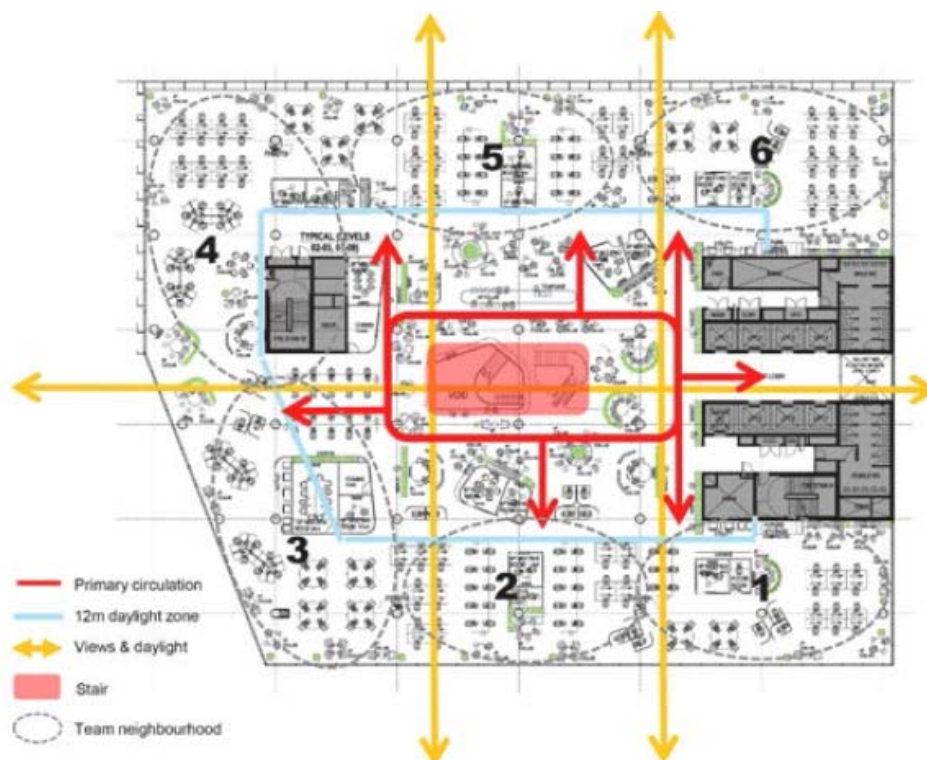


Figure 14- Typical office floor plan

Source: Design Report, BVN

4.9 Public Health Emergency Operations Centre (PHEOC)

A PHEOC facility will be provided within the new building and will replace the current centre located at Level 7 of the Ministry of Health offices at 73 Miller Street, North Sydney. The design meets all relevant BCA provisions.

The design and requirement for PHEOC centres is outlined within the NSW Public Health Services Supporting Plan and other health legislative and policy documents. Additional details regarding the PHEOC is provided under a separate cover within this application.

4.10 External Materials and Finishes

The proposed materials and finishes scheme is of good quality and design. This primarily comprise of curtain wall glazing which is articulated through the use metal spandrels to create a strong horizontal definition to the built form. Each of these horizontal panels are then vertically defined through the installation of 600 mm deep vertical screen panels for sun shading to the north and west (partial).

The materiality and colours of the spandrels have been considered in response to the surrounding landscaping. The gold, bronze and copper sheeting proposed create a visual connection with the iconic Date Palm trees proposed along the forecourt/plaza space.

At upper levels, the built form incorporates distinct rectangular shaped recesses. The soffits of the recesses are framed using red brick tiles in response to the heritage buildings located immediately to the north.

The western elevation of the building uses metal fins placed diagonally to create a sense of complexity and visual diversity to the additional façade. The metal fins also function as sun shading devices. A detailed list of the proposed external material and finishes is provided as part of the Architectural Package at **Appendix B**.

4.11 Landscaping and Public Domain

The proposed landscaping concept for the development prepared by Arcadia is at **Appendix D**. The concept strategy proposes to create a stepped landscape that increases the area of the landscaped public domain space. The proposed landscape plan envisages the following for the site:

- Improved access and connectivity that responds to the site's setting and maximises opportunities for collaboration, relaxation and interaction;
- An at grade east-west pedestrian walkway along the northern front of the site, interconnecting Reserve Road to Herbert Street;
- An accessible path of travel to the forecourt entry area from the adjoining public domain areas of Vanderfield Building;
- A curtilage of landscaping along access path and proposed pedestrian walkways;
- A stepped informal lawn terrace space for casual relaxation and interaction;
- Mass ground cover (ground stabilisation work) is proposed for much of the eastern portion of the precinct (4B). This is temporary until such time as 4B is developed;
- A forecourt terrace area fronting the main entry of the building with outdoor break out spaces;
- Fringe landscaping with canopy/feature trees along the western elevation to serve as road buffer, in addition to ensuring privacy is retained along future users of the balcony space at level 1;
- Verge planting with canopy/feature trees are also proposed along the eastern alignment of the built form.

It should be noted that approval for tree removal (63 trees), tree relocation (3 trees) and regrading of land was obtained under Part 5 approval of the EP&A Act. As such, approval under this SSD application seeks consent for only landscaping works.

Notwithstanding the above, an Arborist Report prepared by Tree IQ is provided with this application (refer to **Appendix T**) identifying trees that are proposed to be retained and trees that will be integrated with the building.

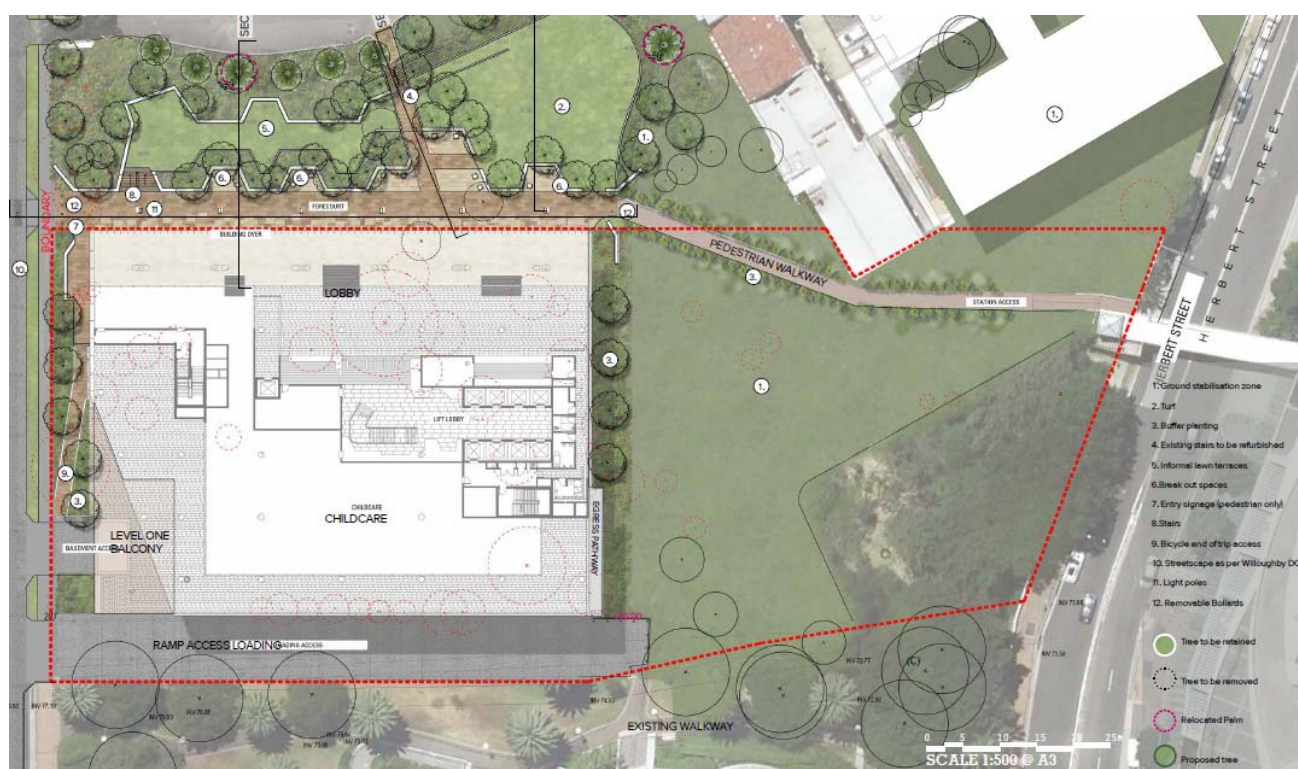


Figure 15- Proposed landscape plan for the site and surrounds

Source: Landscape Plans, Arcadia

4.12 Proposed Plan of Subdivision

The Site (Precinct 4) currently forms a part of a single allotment that covers the entire RNSH Campus grounds. The site is legally described as Lot 210 under DP 1172133 with a total site area of 11.38 hectares.

This application seeks consent for a draft plan of subdivision to subdivide the existing allotment into the following additional allotments:

- Proposed Lot 41 (Area 8,049 m²);
- Proposed Lot 42 (Area 64 m²); and
- Proposed Lot 40 (Residue Lot comprising of the remaining RNSH campus).

Several new easements are also proposed on site. These include:

- An easement to drain water of variable width benefit Lot 40;
- An easement for footway variable width along the proposed east-west pedestrian walkway;
- The existing right of way and easement along the western boundary (for electricity purposes) is proposed to be extinguished and replaced with a new right of way and electricity easement of variable width along the southern campus boundary; and
- An easement for services along the southern boundary of the campus benefiting Lot 40 and 42.

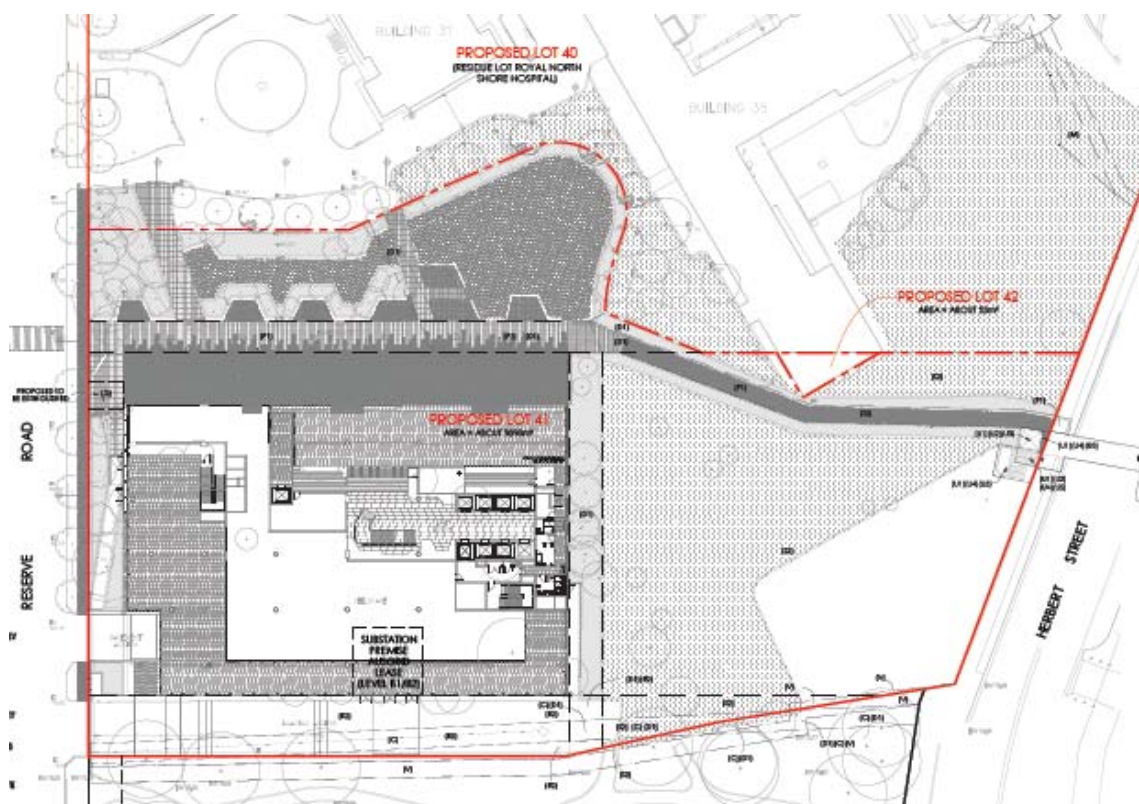


Figure 16 - Proposed plan of subdivision (extent of subdivision is shown outlined in red)

Source: ADW Johnson

A draft plan of subdivision, prepared by ADW Johnson, and detailing existing and proposed easements are provided with this application at **Appendix P**.

5.0 Consultation

Schedule of consultations held, and intended future consultations, has been provided below. Health Infrastructure is continuing consultation with the relevant environmental agencies during the assessment of the EIS.

Those issues raised during consultation undertaken have been detailed in Table 3 below. In addition, several consultants have undertaken additional consultation with relevant parties during the preparation of their reports.

Table 3 – Summary of Issues Raised and Response

Agencies/Authorities	Comments
Willoughby City Council	Surveyor 31/1/2017 Preliminary enquiry RE Status of Herbert Street: Council advised that Herbert Street is a Council road. Traffic Engineer Meeting held on 31st January 2017 between John Mulhaire (JM) from Ason Group, Jeff Apitz from Health Infrastructure and Matthew Rose and Scott Kavanagh from WCC regarding the Gore Hill Oval redevelopment. Initial phone call conversation (16/11/2017) with Holly Cowdery (HC), Open Space Projects Officer at WCC, to request information regarding the operational and construction information regarding the Gore Hill Oval redevelopment. Email correspondence from HC, dated 17/11/2017, providing information regarding the closure of car parking around Gore Hill Oval redevelopment to facilitate the commencement of construction activities on-site and a copy of the Road Safety-Audit prepared for the proposed development. The RSA did not have specific relevance to the subject SSDA, and related to Pacific Highway access only. Email correspondence from HC, dated 27/11/2017, providing the details for three options they have proposed to RNSH for managing construction traffic to and from Gore Hill Oval redevelopment. It is understood that no operational TIA report has been prepared for the Gore Hill Park redevelopment. Although the construction methodology has not formally been completed or received (by 6 December 2017) Construction information has been provided in relation to projected traffic generation and likely access routes. This information has been adopted and considered in the cumulative construction assessment. Health Infrastructure Consultation meeting was held on 14/11/17 from 1:00pm – 2:20pm at WCC offices with Leone McEntee, Marcus Moscos and Ian Arnott/Craig O'Brien to discuss Section 94A contributions. It was resolved that HI would be seeking to pay S94A contributions for the development at 1% of the CIV. Other consultation meetings were held during 2016 and 2017 at which the proposed development was outlined to Council planning officers, including discussions on traffic, car parking and uses. The building mass and other issues such as setbacks, height, pedestrian access and the precinct open space were also discussed. Many of these issues were documented by Council in its correspondence with DPE during the process for Mod 7, with the outcomes documented within that Mod and the subsequent SEARS.
Roads and Maritime Services	Traffic Engineer Email dated 20/10/2017 from JM to Pahee Rathan, Senior Land Use Manager North Precinct, requesting RMS feedback regarding the initial findings of transport assessment and whether further discussions were required – no response received. JM sent a follow-up email on 31/10/2017 requesting a response at PRs earliest convenience, no response was received. Email correspondence dated 14/11/2017 requesting confirmation from PR of the verbal discussion where JM stated that as he understood it, PR did not think a formal meeting with RMS was necessary to discuss the project further, as requested in SEARS. No response was received. Further to this a formal meeting was requested with TfNSW, Sydney Metro and RMS.

Agencies/Authorities	Comments
Transport for New South Wales	Consultation with Roads and Maritime (RMS) was undertaken in May Traffic Engineer Consultation meeting held on 22nd November 2017 to discuss SEARs, namely: 1) the impact of the development on the surrounding public transport infrastructure in consultation with RMS & TfNSW 2) the impact of the development on the nearby intersections, considering cumulative impacts of other approved developments; and 3) the assessment of cumulative impacts associated with other construction activities on nearby projects (Gore Hill Oval, Sydney Metro). PR could not attend the meeting but RMS representatives did attend. With regard for Point 1, Ason provided an overview of the future employee population of the development and the likely demand of the commercial/office building. Ason highlighted that the development is, it is future form – extremely well connected to the transport network with: • pedestrian overbridge connection to the train station; • direct pedestrian access to Herbert Street; and • signalised pedestrian crossings which would assist with pedestrian connectivity to the future Metro Station (650m to Crows Nest Stations). Ason confirmed that they would document the likely impact upon public transport and stated that there are limited (if any) opportunities to further integrate the development with the public transport network. TfNSW specifically requested that the Temporary Transport Plan be included in the traffic report which is scheduled for implementation in late 2018 and impact the ST Leonards Train Station. Temporary rail replacement bus services for the closure of the Epping to Chatswood rail service. With regard for Point 2, the traffic modelling scope and assessment undertaken by Ason was discussed. JM advised of the primary intersections which would accommodate all development traffic are Pacific Highway/Reserve Road and Pacific Highway/Westbourne Street. TfNSW (Mark Ozinga, MO) highlighted that RMS would usually comment on the modelling scope but he queried if a SIDRA network assessment should be undertaken with Herbert Street/Pacific Highway and Christie Street/Pacific Highway intersections. In addition to the Reserve Road/Pacific Highway intersection. Ason (JM) qualified that the modelling assessment had demonstrated that the primary demand on the Reserve Road/Pacific Highway intersection related to the east approach, right turn bay. And the modelling assessment identified that there was sufficient capacity for the demand to be accommodated with limited impact on the overall intersection Level of Service (LoS). JM stated that a network assessment, given the traffic generation of the development was considered unnecessary. RMS (HPM) stated that justification should be documented and SIDRA files should be provided with the application for review. With regard for Point 3, the request to undertake a cumulative impact assessment of the construction activities for Gore Hill Oval and Park and Sydney Metro. In relation to Sydney Metro, Peter Bourke (Sydney Metro) confirmed that the EIS Traffic and Transport Assessment undertaken for Sydney metro was the appropriate document to assess and document in the subject TIA report to inform our assessment. RMS (Ken Ho, KH) raised the Private Hospital Tower (Dexus Development) which is on exhibition. Ason (JM) highlighted that the development would have limited impact on the primary site access via Reserve Road. Although not yet approved, TfNSW requested that this proposed development be considered in the TIA report. On 29/11/2017, Ason Group (JM) followed-up with an email requesting further comments/clarification on the traffic modelling scope undertaken for the SSDA. No formal response has been received (6th December).

Agencies/Authorities	Comments
	All matters discussed in the meeting held on 22 November 2017 have been included in the Transport and Accessibility report.
Telstra	ADW 7/2/2017 Meeting with Damian Bonsar. Telstra confirmed they may have assets within P4. Service location has been completed and plans issued by ADW Johnson.
NBN	10/2/2017 Kenny D'Cruz provided email correspondence that there may be NBN in the Telstra conduits. NBN are also taking over some of the Telstra pit & pipe in this area soon. No date provided.
LHD Internal Services	3/2/2017 & 9/2/2017 Site meeting with Bob McPherson & Paul McDonald RE status of assets.

The proposed development will be placed on public exhibition for 30 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

6.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Section 6.2 – Section 6.19**).

It also assesses and responds to the environmental impacts of the proposed SSD Application and addresses those matters for consideration set out in the SEARs (see **Section 2.5**). The Mitigation Measures at Section 6.0 complement the findings of this section.

6.1 Relevant EPIs, Policies and Guidelines

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in **Table 4**.

Table 4 – Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	The NSW State Priorities were determined as significant overarching goals for the state, to provide high quality public services and infrastructure, while protecting those most vulnerable in our society. The proposal is considered to be in-keeping with these priorities by supporting the provision of improved government services and creating opportunities to improve the performance of health care by co-locating health related uses in proximity to primary hospital infrastructure. This proposal creates a platform for the public health care sector to interact with private health entities and improve the overall efficiency of services provided by the health care sector in NSW.
A Plan for Growing Sydney	The site forms a part of the Royal North Shore Hospital precinct which is identified to operate as a major health facility within Sydney's North Shore area. The strategy includes recommendations to support health related land uses and infrastructure uses within the precinct. The proposal will contribute to achieving the four goals identified in the Plan through: • Goal 1: A competitive economy with world-class services and transport: in providing a contemporary commercial building that will provide well-designed, well-equipped and efficient office spaces for the health sector. The commercial building is designed with the intent to accommodate a mix of public and private health entities in proximity to other health infrastructure to foster innovation and create new partnership opportunities within Sydney's health sector. • Goal 2: A city of housing choice, with homes that meet our needs and lifestyles: This proposal seeks to provide employment opportunities within land that is not identified for residential use. The proposal is in line with the recommended health –related uses within the RNSH precinct at St Leonards. • Goal 3: A great place to live with communities that are strong, healthy and well connected: The proposal provides improved building infrastructure within a hospital campus precinct. The proposed commercial development is located within close proximity to active transport options encouraging healthy travel behaviour. The proposed built form provides well designed modern internal office environment for future occupants, and also offers vibrant landscaped outdoor relaxation environments. • Goal 4: A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources: as identified in the below sections of this report, the proposed development will protect and manage the subject site so as to protect and conserve the environmental values of the site and adjoining land.
Draft Greater Sydney Regional Plan 2017	St Leonards is identified as health and education precinct under the draft regional plan. Health and education precincts are identified as employment rich centres, earmarked for growth. St Leonards is identified to form a part of the Eastern Economic Corridor. The plan promotes the growth of a '30 minute city' where jobs, housing, transport and access to essential health and social facilities are provided in proximity to each other. In this regard, the proposed development will reinforce existing health based economy of St Leonards and provide additional jobs within the locality close to housing, transport and other health related services.

Instrument/Strategy	Comments
Draft North District Plan	The <i>Draft North District Plan</i> has been amended and changed into the <i>Revised Draft North District Plan</i>. The Revised Draft North District Plan identifies St Leonards as a Health and Education precinct and forecasts a job growth potential of 14.6% to 25%. The SHOR development will consolidate and concentrate health related jobs within St Leonards and contribute to its growth as a Health and Education precinct in Sydney's North Shore area. The development proposal is also consistent with the principles of integrated land use planning – by providing jobs close to homes and public transport. As such the proposal is consistent with the directions and objectives of the Revised Draft North District Plan.
NSW Long Term Transport Master plan 2012	This master plan sets the framework for the NSW Government to deliver an integrated transport system and identifies those needs to be addressed in order to support the State's economic and social performance over the next 20 years. The proposed development is consistent with this document as: - It co-locates employment generating uses in proximity to existing well serviced public transportation nodes. - The proposed development is located in an easily accessible location and is anticipated to encourage active travel behaviour.
Healthy Urban Development Checklist, NSW Health	The proposed development is seen to improve existing infrastructure, open space quality and access within the RNSH Campus. It is considered to be consistent with the intent of the Healthy Urban Development Checklist by facilitating a modern commercial/office building with well-designed office environments and open plan layouts to encourage worker interaction. The development also delivers a vibrant outdoor forecourt area with break out spaces and outdoor relaxation areas. Given the proximity of the site to existing transport nodes and the convenient direct access that the development offers to these nodes, the proposal is anticipated to encourage active travel behaviour. The building is also designed with end of trip facilities at basement levels encouraging alternative travel modes to work. Given the above, it is considered that the proposal largely upholds the health characteristics and objectives set out under the NSW health Checklist.
Sydney Cycling Future 2013	Sydney Cycling Future sets out the business case for improved cycle infrastructure across Sydney. The Site is easily accessible by existing separate or off road cycle infrastructure. The proposed development will include an end of trip facility, storage lockers and bicycle parking to encourage cycling.
Sydney Bus Future 2013	The Site is highly accessible by bus with a number of services operating along Reserve Road, Herbert Street and Pacific Highway. The frequency of these services are one every 10 mins to 30 mins. Travel survey indicate that approximately 9.3% of future workers will rely on bus transport to access the site. This, in turn, will improve bus patronage in the locality.
Sydney Walking Future 2013	Sydney Walking Future outlines measures to promote walkability, connectivity and pedestrian safety across Sydney. The proposed development is consistent with the policy as: - Staff will be provided with a green travel plan identifying pedestrian access routes to and from public transport stops; and - It will promote active transport and encourage good travel behaviour.
State Legislation	
EP&A Act	The proposed development is consistent with the objects of the EP&A Act for the following reasons: - The proposed development is consistent with the objectives of the EP&A Act, in particular: - the scheme encourages intensification of uses, improving the social and economic welfare of the immediate community through integrating complimentary uses (office/commercial, retail, child care) and delivering a contemporary well-designed built form that has been informed by the surrounding context. - it facilitates coordination and orderly use of existing land within the RNSH Campus for health related employment and use; and - the proposed development is in accordance with the principles of ecologically sustainable development. The proposed development is consistent with Division 4.1 of the EP&A Act, particularly for the following reasons: - the development has been declared to have state significance; - the development is not prohibited by an environmental planning instrument; and

Instrument/Strategy	Comments																																				
	the development has been evaluated and assessed against the relevant heads of consideration under section 79C.																																				
Biodiversity Conservation Act 2016	In accordance with Section 7.9 of the <i>Biodiversity Act 2016</i> , a waiver for the requirement of a Biodiversity Development Assessment Report has been granted by the Department of Planning & Environment and the Office of Environment & Heritage (provided under a separate cover). The waiver confirms that the development is not likely to have any significant impact on biodiversity values.																																				
EP&A Regulations	The EIS has addressed the specification criteria within clause 6 and clause 7 of Schedule 2. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 5.5). As required by Clause 7(1)(d)(v) of Schedule 2, the following additional approvals will be required in order to permit the proposed development to occur. <table> <tr> <th>Act</th><th>Approval Required</th></tr> <tr> <td colspan="2">Legislation that does not apply to State Significant Development</td></tr> <tr> <td>Coastal Protection Act 1979</td><td>N/A</td></tr> <tr> <td>Fisheries Management Act 1994</td><td>N/A</td></tr> <tr> <td>Heritage Act 1977</td><td>N/A</td></tr> <tr> <td>National Parks and Wildlife Act 1974</td><td>N/A</td></tr> <tr> <td>Native Vegetation Act 2003</td><td>N/A</td></tr> <tr> <td>Rural Fires Act 1997</td><td>N/A</td></tr> <tr> <td>Water Management Act 2000</td><td>Yes</td></tr> <tr> <td>Biodiversity Conservation Act 2016</td><td>N/A</td></tr> <tr> <td colspan="2">N/Legislation that must be applied consistently</td></tr> <tr> <td>Fisheries Management Act 1994</td><td>No</td></tr> <tr> <td>Mine Subsidence Compensation Act 1961</td><td>No</td></tr> <tr> <td>Mining Act 1992</td><td>No</td></tr> <tr> <td>Petroleum (Onshore) Act 1991</td><td>No</td></tr> <tr> <td>Protection of the Environment Operations Act 1997</td><td>No</td></tr> <tr> <td>Roads Act 1993</td><td>No</td></tr> <tr> <td>Pipelines Act 1967</td><td>No</td></tr> </table>	Act	Approval Required	Legislation that does not apply to State Significant Development		Coastal Protection Act 1979	N/A	Fisheries Management Act 1994	N/A	Heritage Act 1977	N/A	National Parks and Wildlife Act 1974	N/A	Native Vegetation Act 2003	N/A	Rural Fires Act 1997	N/A	Water Management Act 2000	Yes	Biodiversity Conservation Act 2016	N/A	N/Legislation that must be applied consistently		Fisheries Management Act 1994	No	Mine Subsidence Compensation Act 1961	No	Mining Act 1992	No	Petroleum (Onshore) Act 1991	No	Protection of the Environment Operations Act 1997	No	Roads Act 1993	No	Pipelines Act 1967	No
Act	Approval Required																																				
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Pipelines Act 1967	No																																				
SEPP 55	Clause 7 specifies that a consent authority must not consent to the carrying out of any development on land unless it has considered whether land is contaminated, and if the land is contaminated, it is satisfied that the land is/can be suitable for the proposed development. A detailed site investigation was undertaken by Coffey. The findings are detailed under Appendix J. This assessment has been summarised in Section 6.7 of this Report. In summary, the Plan considers that the site is suitable for the proposed commercial development with a child care component provided the implementation of an unexpected finds protocol is exercised in the event that contaminated materials are identified during excavation.																																				
SEPP (Infrastructure)	The aim of this SEPP is to facilitate the effective delivery of infrastructure across the State, including providing for consultation with the relevant authorities about certain development during the assessment process. The relevant matter for consideration under this SEPP is the referral requirements for Traffic Generating Development (Schedule 3). Commercial developments located near classified roads and of a size of 2500m ² and greater are considered as Traffic Generating development. These applications will need to be referred to Roads and Maritime Services and require concurrence. Refer to Section 5.0 of this report regarding ongoing consultation with RMS.																																				
SEPP (State and Regional Development)	Pursuant to Section 89C (3), the site is State Significant Development by way of ministerial declaration, the order for which was gazetted on 13 October 2017. Accordingly, provisions (9) - (11) apply to the site.																																				

Instrument/Strategy	Comments
SEPP(Hazardous and Offensive Development)	State Environmental Planning Policy No.33 – Hazardous and Offensive Development (SEPP 33) requires specific matters to be considered for proposals that are ‘potentially hazardous’ or ‘potentially offensive’ as defined in the policy. ‘Potentially hazardous industry’ is defined as: <i>A development for the purposes of any 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 pose a significant risk in relation to the locality:</i> <i>(a) to human health, life or property, or</i> <i>(b) to the biophysical environment, and includes a hazardous industry and a hazardous storage establishment.</i> ‘Potentially offensive industry’ is defined as: <i>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 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.</i> The proposed commercial development is not defined as potentially hazardous industry or potentially offensive industry under the above definition as is therefore not subject to the provisions of SEPP 33.
SEPP (Education Establishments and Child Care Facilities) 2017	This application seeks concept approval for a 100 place child care facility at ground level of the SHOR building. Approval for detailed design (fitout and operation) will be subject to a separate future application once a suitable operator has been appointed by HI. Any future fitout application will be prepared in accordance with the <i>Child Care Planning Guidelines</i> and the provisions of this SEPP.
Local Planning Instruments and Controls	
Willoughby Local Environmental Plan 2012	Clause 2.1 – Zone The site is zoned ‘SP2 Infrastructure’ for the purposes of a hospital. The objective of this SP2 zone is to facilitate development that is compatible with the proposed hospital infrastructure zoning applied to the site. This proposal seeks to develop a modern commercial administrative building that will support the health care functions of the campus.
	Clause 2.6– Subdivision consent requirements Subdivision of land is only permitted with development consent. A draft plan of subdivision prepared by ADW Johnson is provided at Appendix P with this application and seeks consent for subdivision of Precinct 4 to create proposed lot 41, lot 42 and residue lot 40.
	Clause 4.1– Minimum subdivision lot size No minimum subdivision lot size applies to the site.
	Clause 4.3 – Height of Buildings No maximum building height control applies on the site under the WLEP 2012. The concept plan (MP 06_0051) defines the built form controls applicable to the site. Refer to Section 6.2 of this report.
	Clause 4.4 – Floor Space Ratio There is no maximum FSR control on the site. The concept plan (MP 06_0051) defines the maximum GFA permissible for Precinct 4. Refer to Section 6.2 of this report.
	Clause 5.10 – Heritage Conservation This clause sets out requirements in relation to heritage conservation, including the preparation of heritage impact statements and conservation management plans. The subject site is not identified as a heritage item and is not located in a heritage conservation area. It does, however, overlook several local heritage items north of the site, within the RNSH campus including: • Pavilion Wing Building, Block 1B; • Pavilion Wing Building, Block 1A; • Vanderfield Building (including original interiors);

Instrument/Strategy	Comments	
		- Ansto—Body Protein Building; and - Orthotics Building. This proposal also seeks to subdivide land on which the above heritage items are located. A Statement of Heritage Impact has been prepared by Graham Brooks & Associates and is submitted with this report at Appendix E in support of the SSD Application. A summary of the impact assessment is also provided at Section 6.4 of this report.
	Clause 6.1 Acid Sulfate soils	The site is identified to contain Class 5 Acid Sulfate soils. However, the site is not within 500 metres of land containing class 1, 2, 3 or 4 type acid sulphate soil. Accordingly, an acid sulfate management plan is not required for the proposed excavation works.
	Clause 6.3 – Flood Planning	A Flood Assessment report, prepared by Lyall & Associates has been provided with this application at Appendix S . The findings of the flood report demonstrate that habitable floor levels of the building are above flood planning levels. Basement level 2 is also located 210mm-300mm above peak flood levels. Refer to Section 6.12 of this report.
Willoughby Development Control Plan (DCP) 2012	It is noted that Development Control Plans are not a matter for consideration in the assessment of SSDAs by virtue of Clause 11 of SEPP SRD, which states that "Development control plans ...do not apply to...state significant development".	

6.2 Consistency with the Concept Plan

The proposed building is largely consistent with the Concept Plan Approval (MP 06_0051) and subsequent modifications (MOD 7) approved for the site. **Table 5** and **Table 6** below demonstrates consistency of the development with conditions that apply to the Precinct 4 and Precinct 4A. A copy of the Concept Approval Conditions is provided at **Appendix X** to this application.

Table 5 – Numerical consistency check of key built form controls

Key numerical controls	Concept Plan/MOD 7	Proposed	Compliance
Precinct 4 GFA	46,345 m ²	30,977 m ²	Yes
Height of Building (RL metres)	126	126 (including roof plant)	Yes
Height of Building (storeys)	13 storeys (as amended under MOD7)	10 storeys+ roof plant	Yes
Setback to southern boundary	8 metres	8-10 metres	Yes

Table 6 – Consistency with Concept Plan approval conditions

Condition		Consistency
Concept Approval (MP_06_0051)		
Condition M1.1 (a)-subdivision	Subdivision of the site into hospital precincts and other development precincts	The concept plan provides approval for subdivision of the wider campus into various precincts. This proposal considers subdivision of precinct 4 largely in accordance with the concept plan approval.
Condition M1.1 (c)-GFA	A maximum GFA of 178,370m ² across the development precincts (3, 4, 5, 6 and 7)	The proposed GFA of site 4A is 30,977 m ² (17.3% of the total GFA permitted).
Condition M1.1 (d)-Precinct GFA	A maximum GFA per development for Precinct 4 is 46,345 m ²	The scheme is for a GFA of 30,977 m ² , which is within the maximum permissible for Precinct 4.

Condition		Consistency
		Nothing under the Concept Approval conditions apply an upper maximum GFA limit on Precinct 4A in particular. Accordingly, the proposal is consistent with this condition. This proposal is consistent with current strategic planning directions and policies to increase the supply of employment generating uses (and in particular health related uses) within St Leonards precinct.
Condition M1.1 (f) (ii)- Use	Precinct 4 shall be developed for employment generating land use and may include residential and temporary accommodation	The nominated use for the subject site is consistent with this condition in that the proposed scheme considers a commercial office building.
Condition M1.1 (g)- Road Design	An east-west at grade pedestrian access (referred to as yellow road in the concept plan) is to be provided connecting reserve road to Herbert Street.	The proposed development is consistent with this condition and provides an at grade pedestrian access between Reserve Road and St Leonards Station via a pedestrian walkway and suspended pedestrian bridge.
Condition M1.1 (j)- Car parking	Provision of car parking is to be in accordance with the terms of C.4.1, C.4.2 and C.4.3 of Part C – General Development Guidelines, Willoughby Development Control Plan 2006	The proposal provides a maximum of 115 car parking spaces. This is below the maximum permitted under the provisions of the Willoughby DCP 2012. Refer to Section 6.4.1 of this report.
Condition M5.2 (a) (ii) & (iii)	Subsequent applications following the concept plan approval is to assess: • Electromagnetic radiation (EMR) impacts upon human health and safety (including employees on-site, residents, construction workers etc); • Impacts of electromagnetic interference (EMI) upon electrical equipment and goods, particularly medical equipment and household goods; and • Mitigation of any potential ghosting and multi-path impacts to signals.	An Electromagnetic Analysis Report, prepared by Kordia is provided with this application at Appendix U . The report confirms that the proposed development, being the furthest building within the RNSH campus from the broadcast transmission tower will have relatively minimal exposure to electromagnetic radiation. Maximum exposure levels have been determined as less than 5% of the public's reference level. The consistency of the proposal against the requirements of this provision is discussed further at Section 6.2.4 of this report.
Condition M6 Planning Agreement	A legally binding agreement between the proponent of non-hospital related development and Council/RTA shall be prepared and executed prior to or concurrent with lodgement unless otherwise determined by the Director General	This condition does not apply to this application on grounds that it involves 'hospital related' development and will accommodate various health entities that will support the hospital functions of the RNSH campus. Contribution for the development, in consultation with Willoughby City Council, are proposed to be paid as a S94A contribution levy. Refer to Section 0 of this report
Condition M8.3 Urban design outcomes	Any subsequent applications for development within Precincts 4, 5, 6 and 7 should achieve the following urban design outcomes and principles	Refer to Section 6.2.3 below.
Condition M9 Public Transport Provision	Adequate transport provision to be demonstrated as part of any subsequent application	Capacity of existing transport services to accommodate additional public transport demand was analysed as part of the Transport Impact Assessment Report. Refer to Section 6.4.3 below
M13 Development Staging	A staging programme is to demonstrate consistency with the Concept Plan	The Concept Plan Approval identifies Precinct 4A as Stage C, being the third stage that follows the delivery of the Research and Education Building and the main Hospital Buildings. Refer to Section 6.2.2 below
M15 Herbert Street Pedestrian Overbridge	Visual appearance shall be improved in terms of design and visual impact so as to achieve a desirable urban design outcome	As set out under the Concept Plan, refurbishment including realignment of the existing pedestrian overbridge is to be undertaken as part of Precinct 4B redevelopment works. Works proposed under this application is limited to providing a suspended bridge extension. The extension will provide at grade access from Precinct 4A to the pedestrian

Condition		Consistency
		overbridge until such time as realignment/refurbishment of the bridge occurs.
MP 06_0051 Modification 7		
Schedule 1	the consolidation of Site 4a building envelopes in Precinct 4 into a single building envelope;	The proposed development provides a single building footprint.
Condition M1.1 (e) (v)	A minimum of 7,500 m ² of temporary accommodation shall be developed in Precinct 4	While not part of this proposal, nothing in this application prevents the adjoining land (site 4b) in Precinct 4 from being redeveloped for the purposes of temporary accommodation. Approximately 15,368 m ² of GFA is available for the purposes of temporary accommodation, residential, or employment related uses (retail).
Condition M1.1 (e) (vi)	A minimum of 77,500 m ² shall be developed for employment generating uses (<i>across the entire campus</i>).	This proposal provides approximately 29,758 m ² of employment generating uses on site (Precinct 4A).
Condition M7.1	The maximum height of the envelope in Site 4a of Precinct 4 must be no greater than 13 storeys or RL 126, whichever is the lesser, and setback a minimum eight metres at its southern extremity. The design of future built form within Site 4a of Precinct 4 must also comprise articulation and modulation that provides a satisfactory contextual urban design response to the adjoining development to the south and its surroundings.	The proposed building achieves a maximum of 11 storeys (10 storeys+ roof plant). The maximum building height achieved at the top of the plant is RL 126 metres. The building is setback approximately 8-10 metres from the site's southern boundary. Accordingly, the proposal satisfies this provision. The design includes articulation and modulation that provides a satisfactory contextual urban design response to the adjoining development to the south and its surroundings.
Condition M10.1	A detailed transport, traffic and accessibility study and traffic management plan, inclusive of a work place travel plan, must be submitted with each subsequent development application for new built form.	A detailed transport, traffic and accessibility study and traffic management plan, prepared by Ason is provided with this application. Refer to Appendix F or Section 6.4 of this report. A workplace travel plan is also prepared for the site as part of the assessment.
Condition M12.7	Future applications for development in Precinct 4 must be accompanied by a Heritage Impact Statement that addresses the significance of, and provides and assessment of the impact on the heritage significance of heritage items on the site and in the vicinity, in accordance with the guidelines in the NSW Heritage Manual.	A Heritage Impact Statement, prepared by GBA Heritage is provided with this application. Refer to Appendix E or Section 6.4 of this report.

6.2.1 Consistency with the Statement of Commitments

The Statement of Commitments (SoC) outlined within the Concept Plan Approval have been translated into conditions within the approval instrument (refer to **Appendix X**). For completeness, and in order to respond to the requirement of the issued SEARs, an assessment against all relevant SoCs is provided below.

- **Planning Agreement:** As mentioned previously in reference to Condition M.6 in **Table 6** above, contributions for the proposed development are to be provided by way of a S94A contributions levy.
- **Child Care:** The proposal provides for a new child care facility with a capacity of 100 child care spaces. Fitout of this facility is subject separate future application once a suitable operator has been selected by HI.
- **Traffic and Transport:** Proposed Transport Plans and documents have been prepared in consultation with Willoughby City Council, Roads and Maritime Services and Transport for New South Wales (TfNSW). The Traffic Accessibility Report (refer to **Appendix F**) has also undertaken cumulative assessment of operation and construction traffic to ensure that plans respond to surrounding development of the locality. The proposal is considerate of transport changes proposed in the locality and includes a green travel plan to adequately manage transport demand.
- **Drainage:** Based on the proposed building footprint and overland flow conditions during flood events (1% AEP and PMF), an appropriate stormwater strategy has been prepared for Precinct 4A, with necessary upgrades to

the existing on-site drainage network. Flood modelling undertaken by Lyall & Associates confirm that the proposed drainage network can adequately manage overland flows during 1% AEP and PMF flood events. Refer to **Appendix K** or **Section 6.12** of this report. As part of this proposal, adjoining Precinct 4B site will be maintained as open space. A stormwater strategy will accordingly be submitted by proponents of any future application for developing the adjoining site.

- **Vegetation:** A Landscape Plan prepared by Arcadia is provided with this application and identifies all trees that will be retained and integrated within the landscaping concept. Refer to **Appendix D** of this application.
- **Arborist report:** An Arborist report is provided with this application at **Appendix T** to satisfy this requirement. It should however be noted that approval for tree removal was obtained by way of an REF (refer to **Appendix AA**).
- **Contamination and Geotechnical:** A detailed site investigation of the site and its immediate surrounds was undertaken by Coffey. The investigation findings are provided at **Appendix J** of this application. A summary of the report is also provided at **Section 6.10** of this report. The findings confirm that the site is suitable for the proposed commercial use.

A Geotechnical assessment of the site was also undertaken by Coffey. The findings are documented within the Geotechnical Report at **Appendix R**. The findings have informed the basement setting and design will inform the excavation methodology and engineering during the construction phase. Refer to **Section 6.9** of this report for a summary of the report findings.

- **Herbert Street Pedestrian Bridge:** Works proposed under this application will provide a continuous path of travel from Precinct 4A to the existing Herbert Street bridge by way of a suspended bridge addition within Health land. It is envisaged that the refurbishment of the bridge will be undertaken as part of the development works for Precinct 4B.
- **Dedication of Land:** No land dedication is proposed as part of this application.
- **Waste Management Plan:** A Waste Management Plan, prepared by Arup has been provided with this application at **Appendix I**. A summary of this report is provided at **Section 6.14** of this report.
- **Construction Management Plan:** A Construction Management Plan and a separate Construction and Vibration Noise Management Plan is provided with this application at **Appendix H** and **Appendix M** respectively.
- **Design Character:** An excerpt of the Precinct 4 Character Statement under Section 7.6 of the Concept Approval plan is provided below:

"Precinct 4 will be a distinctly commercial precinct, but with up to half of the GFA being potentially available for use as a 'medi-hotel', serviced apartments or some other form of temporary accommodation....."

....Precinct 4 is the most significant opportunity for connection between St Leonards Railway Station and the hospital. A new, sunny and active plaza is therefore proposed on a pedestrian link between the railway station and Precinct 3. This will be a place for staff, patients, clients and the general public to meet, greet, eat, drink, shop and relax while enjoying views of the significant heritage of the site. The square will be accessible to the public 24 hours a day, every day of the year. The level of the square will generally accord with that of the Herbert Street pedestrian bridge, such that accessible pedestrian grades are provided between the pedestrian bridge and the pedestrian crossing of Yellow Road."

The proposed development is largely consistent with the envisaged character for Precinct 4. In accordance with the above character statement, the site is developed as a hospital-related commercial precinct. The scheme incorporates a large forecourt in front of the building and provides at grade access via a pedestrian accessway to the existing Herbert Street pedestrian overbridge. It is considered that the adjoining site, Precinct 4B will be developed in the future and will complement the commercial building and the open space provided as part of the development, and collectively will satisfy the precinct character proposed under the concept approval plan.

- **Compatibility of Existing and Proposed Architecture:** A Design Report prepared by BVN is appended with this application at **Appendix B**. The Report outlines the key design principles that have informed the building design. The building has been designed to seamlessly integrate with the wider campus. The building setting, massing and materials is sympathetic and complementary to its surrounds.
- **Services:** A detailed infrastructure services report prepared by Enstruct is provided with this application. The report details existing services and utilities infrastructure within and surrounding the site. Augmentation of services and utilities to support the proposed development will be carried out as part of this development. This

will be carried out in discussions with relevant services authorities. Refer to **Appendix L** or **Section 6.11** of this report.

- **Noise and Vibration:** A Noise and Vibration Management Plan, prepared by Renzo Tonin and Associates is provided with this application and outlines the strategy to manage potential noise and vibration impacts during construction, excavation and demolition phases of the development. Refer to **Appendix H** or **Section 6.7** of this report.

6.2.2 Staging

The concept approval plan includes a staging and delivery programme. As shown in Figure 17 below, Precinct 4A is identified as Stage C being the third stage, following the redevelopment of the Education and Research building (Stage A) and the Acute Services Building and surrounding hospital buildings (Stage B).

The proposal provides a 10 storey building with two basement levels at Precinct 4A (Stage C). This proposal will be delivered as single development and delivery within this precinct is not proposed to be staged.

As set out by the Concept Approval's staging programme, Precinct 4B is identified as the subsequent stage of redevelopment following Stage C. Redevelopment of Precinct 4B will be undertaken as part of a separate future approval.



Figure 17- Proposed Staging Plan (Precinct 4 shown outlined in red)

Source: Concept Approval Plan

6.2.3 Urban Design

The proposed commercial building is well designed and is of good urban design and architectural quality. The building design is a result of contextual site analysis and design testing. The guiding design principles that have informed the building scheme are documented in the Architectural Design Report prepared by BVN (refer to **Appendix B**). The built form is also consistent with the Concept Plan Approval and subsequent modifications. **Table 7** below demonstrates consistency of this proposal against the urban design requirements of condition M8.3 of the concept approval.

Table 7 - Consistency with urban design principles under the concept approval

Conditions	Consistency
(a) Effective transition between public and private space.	Precinct 4A accommodates a semi private commercial building to support the hospital function of the campus. The proposed design offers an effective transition between the public park (Gore Hill), the semi public-private forecourt area and landscaped terrace, and the private commercial building. As detailed within the CPTED Report at Appendix O, the proposed transition is effective, well designed and in accordance with CPTED principles of territorial reinforcement and access control. It promotes safety and offers clarity through design cues.

Conditions	Consistency
	The forecourt and landscaped terrace area is designed to foster opportunities for public interaction and relaxation while limited access will be offered beyond the commercial lobby and the café.
(b) Activation of the ground level streetscape.	The primary frontage of the building overlooking the proposed forecourt provides an activated edge at ground level. This level (along the northern elevation) comprises of the building's commercial lobby, a separate lobby for the child care facility and a café tenancy.
(c) Articulation and modulation of building facades.	The proposed built form is modulated to create a pentagonal shaped building with a unique fifth façade responding to the various edges of the site and maximising outlook opportunities for the future office levels. While, the fifth façade significantly reduces massing along the south-western corner of the site, the built form will provide a distinct and architecturally unique building. The building facades are articulated through the use of vertical and horizontal elements that add visual complexity and diversity to the building. A variety of high quality materials are proposed to be used for the building. The façade materials directly respond to the site's surrounding environs, providing a sympathetic interface.
(d) Increased building separation in proportion to building height.	The proposed building is consistent with the maximum building height and side setbacks (to the south) envisaged for the site under the concept plan and subsequent modifications.
(e) Creation of secondary upper level setbacks.	The building is designed as a 10 storey commercial development. No upper level setback is proposed. This is consistent with the modified concept approval plan for Precinct 4A.
(f) Minimisation of overshadowing into the streetscape.	The building is consistent with the scale and density envisaged for the site under the concept plan approval. The building has been modulated along the south- western corner, minimising overshadowing impacts. Given the dense urban context of the site, some additional overshadowing of adjoining buildings is unavoidable. Notwithstanding this, the proposed forecourt and landscaped domain are provided to the north of the building, minimising overshadowing of the proposed future public realm. Refer to Section 6.3.7 of this report
(g) Provision of street landscape character (including tree planting).	A detailed landscape report is provided with this application at Appendix D and outlines the proposed landscape strategy for Precinct 4A. The strategy creates a unique landscape character that complements the proposed built form and surrounding character of the RNSH Campus.

6.2.4 Electromagnetic Radiation Impacts

The electromagnetic radiation impacts on the site from the broadcasting station and transmission tower at 217 Pacific Highway, St Leonards have been assessed as part of this application. The assessment was undertaken by Kordia (previously THL Australia) who also prepared the original EMF Report for the Concept Plan Approval. A copy of the report is provided with this application at **Appendix U** of this report. The assessment findings confirm that the proposal can adequately satisfy the requirements of Condition M5.2 (ii) - (iv) of the Concept Approval and concludes that:

- Current and future EMR exposure levels on site is calculated as being less than 1% and 5% of the general public reference level (As defined by Australian Radiation Protection and Nuclear Safety Agency) respectively. Due to the low levels of EMR exposures, future employees and construction workers will not be affected.
- Maximum EMI exposure levels calculated in accordance with the broadcasting tower's future needs is 6V/m on the roof of the SHOR building. Most electrical hospital equipment has an EMI immunity of either 3 V/m (standard equipment) or 10 V/m (critical medical equipment). Notwithstanding this, exposure levels inside the building will be significantly lower than on the roof as a result of attenuation by building material.
- Potential ghosting and multi-path impacts are no longer an issue with the newer digital TV services active, and the older analogue TV services turned off.

Accordingly, this proposal is consistent with the requirements of Condition M5.2 of the Concept Approval.

6.3 Environmental Amenity

The proposed building design has undergone thorough design testing. The outcome is a scheme that aims to minimise adverse environmental impacts on its surrounding environs while improving internal amenity and providing an efficient floor plate.

The proposed development considers the impact of the proposal with specific regard to acoustic impacts, solar access, view loss, visual privacy, reflectivity, wind impact and overshadowing. These have been discussed in detail in **Section 6.3.2 to 6.3.7** below.

6.3.1 Acoustic Impacts

A detailed Operational Noise Assessment report, prepared by Renzo Tonin & Associates is provided with this application at **Appendix CC** and confirms that the development can, through appropriate attenuation of building services equipment and mechanical plant ensure compliance with relevant external noise criteria to nearby developments. Refer to **Section 6.7.2** of this report for more detail.

6.3.2 Solar Access

As discussed in **Section 6.3.7** below, overshadowing as a result of the proposed building is acceptable and contained largely within the site boundaries, adjoining roads, or the roof/ building facades of buildings.

While the Gore Hill Sun Access Plane proposed under the concept plan does not currently control the building height, it is noteworthy that the building is generally wholly accommodated within the sun access plane.

Given the proposed realignment of Gore Hill Oval, solar access loss to the Oval is not expected.

Solar access loss to the peripheral edges of the park is noted, however, this is minor and considered acceptable. Refer to discussion under **Section 6.3.7** of this report.

The proposed building will likely impact solar access to the commercial buildings to the south. However, given the proximity of the site to the adjoining lot, some solar access loss is inevitable. It is unreasonable to restrict development of the site on this basis.

Given the separation of the SHOR building from other residential development in the wider locality, the development will not impact these sites.

6.3.3 View loss

The proposed development is consistent with the built form approved for the site (Precinct) under the concept plan as modified under MOD 7.

As such the proposal will not result in additional view loss impacts than that already considered at concept/modification stages.

6.3.4 Visual privacy

The building is located along the southern edge of the RNSH Campus and is generally not immediately surrounded by any sensitive residential uses. The nearest residential developments are located along Herbert Street including the upper levels of the 'Forum' building.

However, The SHOR building located on Precinct 4A is separated from residential uses by Precinct 4B and Herbert Street.

As such the proposal is not expected to affect the visual privacy of any residential developments. It should also be noted that the building locates its services core towards the eastern edge to minimise visual privacy impacts to any future development to the east.

Its neighbours include Gore Hill Park to the west, a commercial building (207 Pacific Highway) immediate to its east and a cluster of heritage listed hospital buildings.

The building has been designed to maximise views to Gore Hill Park. This will improve natural surveillance of the park and is considered good practice from a CPTED perspective.

The built form is setback from the southern boundary by 8-10 metres, which is in excess of that required by the Concept Approval Plan. Given the commercial nature of the development to the south, the setback is considered acceptable.

The built form has been setback from the northern boundary to minimise any heritage impacts consistent with the requirements of the HIS.

6.3.5 Reflectivity

A Reflectivity Report prepared by Surface Design is provided with this application at **Appendix N**. The report documents the findings of reflectivity and glare assessment resulting from the building's surface design and proposed materiality.

The proposed building development has been assessed from four viewpoints of drivers and pedestrians in order to determine potential risk of any reflections. The proposed building materiality and façade treatment is not considered to result in rogue reflections with a significant disability glare. Disability glare associated with a rogue reflection from Viewpoint 2 (being a driver travelling east on Pacific Highway) is noted for approximately 1 hour between 5 pm and 7 pm in November and February each year (at a 240 degree angle to the façade). This reflection is currently mitigated by trees flanking the eastern alignment of Pacific Highway and Gore Hill Park.

It is noted that in the future, the proposed indoor sports facility will be located along the southern edge of the park fronting Pacific Highway. Accordingly, the building will obstruct any potential rogue reflections that may occur at this viewpoint. It is also noted that the resulting light reflectivity at this viewpoint (being a driver travelling east on Pacific Highway) will in any case not exceed 20% reflectivity.

6.3.6 Wind Impacts

A Wind Impact Report prepared by CPP is provided with this application at **Appendix V**. The report assesses the affect of the proposed SHOR development on existing local wind conditions and concludes that the building will only have a marginal effect on local wind conditions and on average wind conditions are expected to be satisfy the Lawson Comfort criteria for pedestrian standing or walking in a majority of location in and around the site. All locations pass the distress criterion.

The oblique orientation of the building is expected to further limit the downwash flow generated by encouraging the flow to pass around. Surrounding buildings within the campus and immediate vicinity are generally of the same building height. These will shield and reduce wind conditions across Precinct 4A. Development of the adjoining Precinct 4B site, will further insulate Precinct 4A from potential strong winds. The proposed landscape strategy will further ameliorate any potential adverse wind conditions as a result of the development.

6.3.7 Overshadowing

Shadow testing was carried out for the proposed scheme to determine potential overshadowing impacts. The outcomes are illustrated on plan and form a part of the architectural package (DWG AR-X-XX-01-01) at **Appendix B**. Overshadowing impacts was tested for winter solstice, summer solstice and September equinox at three hour intervals between 9 am and 3 pm. Resulting impacts on adjoining properties and Gore Hill Park are discussed below.

Summer Solstice (21 December)

Overshadowing impacts are considered nominal at midday and afternoon hours during summer solstice with shadows being contained largely within the southern bounds of Precinct 4. Overshadowing at morning hours (9 AM, 21 December) fall within the outer eastern edge of the Gore Hill Park. The shadow extent is marginal and limited to the periphery of the park.

Winter Solstice (21 June)

Given the urban context of St Leonards and the close proximity of adjoining development, some additional overshadowing as a result of the proposed building is inevitable during winter solstice which illustrates the worst case scenario.

Notwithstanding this, the shadows cast on to the adjoining Gore Hill Park are acceptable given that the shadows will largely fall on the built form, roof and facade of the proposed indoor recreational centre envisaged for the southern extent of the Gore Hill Park area and Reserve road. The facility is proposed to be built as part of the Stage 2 Gore Hill Park redevelopment works.

While some additional overshadowing is observed to the commercial development immediately south of the site, the additional overshadowing is limited and, given the proposed commercial use of the building, the impact is considered acceptable.

September Equinox (21 September)

Some overshadowing is noted to the adjoining commercial-office development at 207 Pacific Highway during afternoon hours. However, given the commercial use of the existing building, overshadowing impact is considered acceptable during afternoon hours, which generally marks the end of a business day. The adjoining site at Precinct 4B is only marginally affected during afternoon hours.

Overshadowing impacts of the proposed development are considered to have an acceptable impact given that:

- the proposed built form is largely in accordance with that envisaged for the Precinct at Concept Approval;
- The built form has since been refined and articulated (recessed south western corner) to ameliorate shadow impacts;
- Shadows resulting from the proposed development will not impact any residential developments in the vicinity of the site; and
- Impacts on Gore Hill Park are marginal and largely limited to the park's peripheral edges or future buildings on site.

6.4 Transport and Parking Assessment

A Traffic Impact Assessment has been prepared by Ason Group in accordance with the requirement of the SEARs and is provided with this application at **Appendix F**. A summary of the assessment and proposed measures for mitigation of any resulting impacts is provided below.

6.4.1 Car Parking

Car parking is provided in accordance with WDCP 2012 provisions as required by Condition M1.1 (j) under the Concept Plan Approval. It is noted that parking provisions under the WDDCP are neither a maximum nor a minimum. As demonstrated by **Table 8** below, the proposal is consistent with the maximum parking spaces permitted on site but provides a lower number of commercial and retail parking spaces.

Table 8 - Off street parking provisions

Parking Rates under the WDCP 2012	Required	Proposed
Car Parking		
• Commercial: 1 space/110m ²	• 267 spaces	• 96 spaces
• Child Care Staff: 1 space/ 2employees	• 9 spaces	• 9 spaces
• Child Care drop off/pick up: 1 space/ 10 children	• 10 spaces	• 10 spaces
• Café: 1 space/ 75 m ²	• 3 spaces	• nil

Given the ease of access and variety of active transport options available in close proximity to the site, reduced off street car parking is generally considered acceptable. Reduced car parking is also in accordance with NSW Health's policy for Healthy Built environments, which is expected to influence travel behaviour and encourage up take of active transport options. Health Infrastructure (HI) is also committed to developing a Green Travel Plan (GTP), a Workplace Travel Plan and Travel Access Guide as part of any detailed design application for the site. The

proposed GTP framework is outlined under the Traffic Report at **Appendix F**. Accordingly, as discussed within the Traffic Impact Assessment report, reduced car parking on site is considered acceptable on the basis that:

- The proposal is consistent with the parking spaces required for the 100 place child care facility;
- No parking is provided for the cafe component as it is intended to supplement the commercial development rather than be a destination/ traffic generating use; and
- The location of the subject site in close proximity to high frequency existing and proposed rail transport, bus services and relatively well-connected cycle infrastructure, which justifies the reduction in the number of private vehicle parking on site. It is noted that the WDCP 2012 allows for a variation car parking numbers in such circumstances. This proposal is also accompanied by a draft Workplace Travel Plan which will promote the use of public transport consistent with the directions of state government policies.

6.4.2 Loading and Servicing Bays

While the WDCP 2012 does not include provisions for number of loading bays, RMS guidelines provide indicative service vehicle parking rates. As per the RMS rates, a total of six loading zones, three of which are proposed to be designed for trucks is required for the proposed development.

This proposal incorporates a total of 5 loading bays, two of which are suitable for 8.8 metre long Medium Rigid Vehicles (MRV). The remaining three spaces are designed to accommodate delivery vans (LRV). As identified under the Transport Assessment Report, RMS technical directions (TDT 2013/04a) identifies precedents of office developments (of a similar scale and size) in North Sydney and Parramatta, operating with only one and three loading bays respectively.

The five (5) loading bays proposed for this development will provide sufficient loading space for servicing the building. In addition, the five loading zones proposed exceed the operational requirements of the existing Health Infrastructure facility and accordingly in this instance the proposed servicing arrangements is considered sufficient.

A Loading Dock Management Plan is proposed to be prepared as part of any future application to manage any potential servicing conflicts.

6.4.3 Pedestrian, Bicycle and Public Transport Access

Travel mode shift associated with the proposed commercial development was ascertained by undertaking a travel survey. A survey questionnaire was sent to existing staff from the various health agencies that are proposed to relocate to this centre. The survey results provided an understanding of existing travel behaviour. The results were amended as necessary to reflect localised transport options available within the area. As such, persons that currently travel to work using ferry services were assumed to switch to train services/ bus services.

On the basis of Ason's analysis, it is predicted that travel by train will account for 46.4% of the total mode share, with 13.5% relying on the bus network, 12% by train and bus, 7% by bicycle network, 9% by walking and 8.7% by car – either driver or passenger. Based on the above data, capacity of existing transport services within the locality was assessed:

- Assessment of the train occupancy data for St Leonards train route (provided by TfNSW) confirmed, that the train line has the capacity to accommodate the demand for the projected train usage during peak hours. It is also noteworthy that the proposed Sydney Metro development is expected to alleviate pressures on the existing train line and improved capacity, connectivity and variety of rail transport options available in the locality;
- Bus occupancy data demonstrated sufficient capacity to accommodate bus trips generated by the development; and
- The existing pedestrian infrastructure in the vicinity of the site is in good condition. The site is currently highly accessible (with appropriate gradients) from nearby transport stops via pedestrian footpaths, a separate pedestrian bridge over Herbert Street and signalised intersections for safe pedestrian crossings.

6.4.4 Operational Traffic

Operational traffic impact was assessed on the basis of parking spaces. Given the lower car parking provision proposed under this application, in this instance, an assessment based on 'vehicles trips per parking space' is

considered and expected to provide a more accurate traffic generation impact than one based on development's GFA. The following rates were applied to determine traffic impact:

- AM: 0.32 Vehicle trips per parking space;
- PM: 0.24 Vehicle trips per parking space; and
- Daily: 1.31 Vehicle trips per parking space.

Based on the above rates, **Table 9** below identifies peak AM and PM traffic volumes associated with the SHOR building and subsequent net traffic generation impact.

Table 9 - Traffic generation impact

Development	Parking	Traffic Generation (vehicles/hr)	
		AM	PM
Existing Building and Internal car park	32 spaces	33	40
Proposed SHOR Development	115 spaces	111	96
Net Increase	83 spaces	78	53

The resulting traffic impact from a net increase in vehicles during AM and PM hours by 78 vehicles/hr and 53 vehicles/hr respectively is considered nominal and equates to approximately 1.3% to 2% volume increase at the Pacific Highway/Reserve Road intersection.

Intersection Performance

A SIDRA analysis was carried out to determine impacts of the resulting traffic on key intersections in close proximity to the site being Pacific Highway/ Reserve Road/ Berry Road (Intersection 1) and Pacific Highway/Westbourne Street (Intersection 2).

As identified by the Traffic Assessment Report, the Level of Service (LoS) at both intersections will continue to operate at relatively high efficiency (LoS B for Intersection 1 and LoS A for Intersection 2) with only a marginal increase in the average vehicle delay for Intersection1 during AM peak hour. The delay is relatively minor.

Cumulative Traffic Impact

Potential cumulative traffic impacts were assessed based on predicted traffic volumes anticipated from the Gore Hill Park. It is generally considered that peak traffic periods associated with Gore Hill Park, being 6pm and onwards on weekdays and typically 9 am to 1 pm on weekends, is outside of the AM (7am to 9 am) and PM (4 pm to 6 pm) peak traffic hours of the proposed commercial development.

Potential traffic impacts from the proposed development of 12 Frederick Street (SSDA lodged for approval) within the RNSH campus was also considered. The traffic impact report (prepared by GTA consultants) estimated that the development will result in 58 vehicles and 80 vehicles during AM and PM peak hours respectively. Notwithstanding this, the report concludes that the development will have no impact on Intersection 1 (Pacific Highway/ Reserve Road).

Cumulative operational traffic impact on existing intersections in proximity to the site, and in particular Intersection 1, is ascertained to be acceptable on the basis that these intersections currently operate at a high level of efficiency and have demonstrated capacity within the road network to accommodate an increase in traffic volumes.

6.4.5 Construction Traffic

A detailed construction traffic impact assessment of the proposed development was undertaken. The assessment is based on the construction management plan and proposed construction timeframe being approximately 16 months for excavation and structural works and 9 months fitout works.

The CMP will manage movement of vehicles by scheduling deliveries to minimise number of heavy vehicles accessing the site during peak traffic hours. Proposed haulage routes are illustrated at **Figure 18** below.

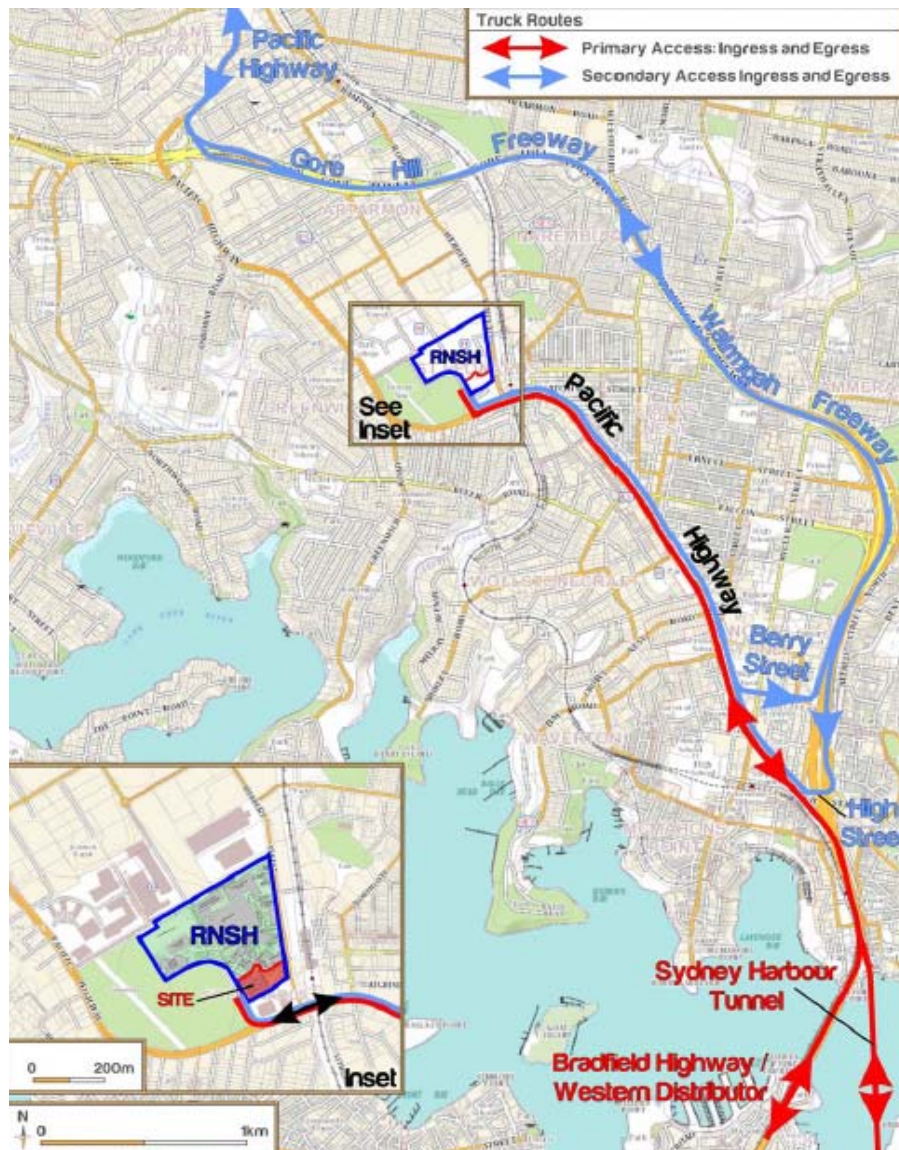


Figure 18- Proposed Haulage Route during Construction Phase

Source: TIA Report, Ason Group

While the construction contractor will be required to develop plans and manage all construction traffic impacts, a summary of mitigation measures is outlined below, which will be developed in detail to manage potential traffic impacts:

- Traffic control will be introduced to manage and regulate traffic movements during construction;
- Intensive deliveries will be scheduled outside of peak hours to minimise disruptions;
- Construction and delivery vehicles will be limited to use Reserve Road/Pacific Highway intersection;
- All vehicles to enter and exit the site in a forward direction with reverse movements to occur only as necessary.

A detailed CTMP will be prepared will be undertaken in consultation with Willoughby City Council and in accordance with RMS requirements.

This will also manage potential pedestrian conflicts from construction traffic and increased bus services from the TfNSW proposed Temporary Transport Plan associated with the heavy rail upgrade works between Epping and Chatswood.

Cumulative Construction Traffic Impacts

Construction schedules of nearby developments including Gore Hill Oval Redevelopment, Sydney Metro Construction and Temporary Transport Plan Operations (TTP) (bus replacements for the Epping to Chatswood rail line) were assessed to determine cumulative construction traffic impacts. A detailed analysis of the construction traffic is provided within the Transport and Accessibility Report at **Appendix F** and a summary of cumulative construction traffic findings is provided below:

- 9 two way heavy vehicles per hour during the AM peak associated with Sydney Metro
- 8 additional bus trips per hours during AM peak associated with the TTP
- 2 outbound heavy vehicles per hour (6 expected between 7 am and 10 am) servicing the Gore Hill Development; and
- 7 two way vehicle movements associated with the construction of the Proposal (plus 12 daily truck vehicles during excavation).

This will result in 42 additional vehicles during the morning peak period and traverse through the Reserve Road/Pacific Highway intersection. However, it should be noted that the assessment depicts the worst-case scenario should no construction traffic management measures be implemented by these developments.

Impact of cumulative construction traffic on the Reserve Road/Pacific Highway intersection was also modelled. The average vehicle delay marginally increased resulting in a change in the level of service from A to B during the AM peak hours. No change was noted in the intersection's level of service during PM peak hours (LOS B). As such the intersection will continue to operate at a good level of service with acceptable delays and spare capacity in both peak hours.

It should be noted that a detailed construction traffic management plan will be prepared at Construction Certificate stage when an appropriate builder has been engaged. Detailed assessment of construction traffic impact will be undertaken in consultation with relevant authorities and Willoughby City Council.

6.5 Ecologically Sustainable Development

A range of significant sustainability targets have been established for the commercial building. At a minimum, the building seeks to achieve a 5 star Green Star as built rating, 5 Star NABERS base building and tenancy energy rating, a 4 star NABERS water rating, adoption of WELL Building standards and Green Star interiors and Green Star Performance concepts. An assessment of the building against the Ecologically Sustainable Development (ESD) requirements set out by the SEARs has been carried out by Wood & Grieve. A copy of the ESD Report is provided at **Appendix G**. The ESD reports sets out the proposed initiatives to achieve the above targets. A summary of proposed measures is provided below:

- Energy efficiency initiatives proposed for the building include design façade shading and high performance glazing to improve overall thermal comfort and reduce energy demands required for cooling and heating the internal environments. The proposal is also designed with the capacity to accommodate solar PV in the future. Proposed mechanical equipment will be selected with regard to energy demand and performance.
- Water efficiency is proposed to be achieved by way of targeting a 4 star NABERS rating. This target is proposed to be met and enforced by reducing the building's demand for potable water by:
 - Installing utility meters in accordance with metering guidelines and development a water consumption monitoring system that will help detect any early leaks; and
 - Installing low-flow utilities and water fixtures in all bathrooms and kitchens and an on-site rainwater tank with the intent to reuse rainwater collected for the cooling tower or for irrigation purposes;
- The proposed scheme will undergo a 'future proofing' risk assessment at detailed design stage to identify the building's vulnerabilities to potential impacts of climate change including flooding, extended periods of high temperatures, rises in utility infrastructure costs. Risks identified as a relevant or high concern will be addressed and mitigated;
- The proposal includes measures to promote the use of sustainable transport modes to access the site. It also provides end of trip facilities and bicycle parking to encourage future tenants and employees to rely on active transport;

- The building proposes to minimise waste generation at both the construction and demolition phase and the operational phase. A 90% waste recycling target is proposed for all construction and demolition waste; and
- Materials will be selected on the basis of carrying out a life cycle analysis to determine environmental impacts associated with each material. Other measures considered include:
 - Use of low-VOC paints, PVC-free plastics, low embodied energy products, recycled or green rated products; and
 - Use of insulants in walls that are low or zero ozone depleting (ODP) and low global warming potential (GWP).

An analysis of the proposal against the principles of ESD set out in the EP&A Regulation is provided in **Section 9.3** of this report.

6.6 Heritage Impact

A Heritage Impact Statement (HIS), prepared by GBA Heritage in accordance with the requirements of the SEARs, is provided with this application at **Appendix E**. As previously mentioned within this report, Precinct 4A is located near to the hospital buildings constructed circa early 1900s, identified as items of local heritage significance and listed under Schedule 5 of the WLEP 2012.

'The heritage significance of these building are generally associated with the buildings being important and rare surviving example of early twentieth century Federation hospital architecture and design.'

In the wider vicinity of the site is also the Gore Hill Memorial Cemetery which is listed as an item of State heritage significance.

The HIS undertakes a detailed assessment of the proposal against the relevant conservation management policies provided under the *Conservation Management Plan (CMP)* dated February 2017, the guidelines of the NSW Heritage Division and the heritage provisions of the WLEP 2012. Impacts of the proposed building on significant heritage views are also assessed as part of the application. The assessment concludes that proposed development has an overall acceptable impact given that:

- The proposed building is of a scale and built form envisaged for the site under the Concept Plan Approval;
- The proposal is consistent with the conservation policies under the CMP;
- The proposed forecourt and landscaping design improves views to the heritage buildings particularly the Vanderfield Building (centrepiece of the historical group) when approaching from the south along Reserve Road;
- While the proposed building will be visible in the background of heritage buildings, no important views of these buildings will be obscured;
- The heritage cluster will continue to remain a visually prominent feature and the proposal will not adversely impact their heritage significance;
- The building is designed as a contemporary architectural development that complements the heritage buildings through materiality and architectural elements such as the colonnaded verandah; and
- Precinct 4A is separated from the cemetery by Gore Hill Park and Reserve Road. Gore Hill Park is also planned to undergo significant upgrades including the construction of a new indoor sports facility to the southern boundary of the park which will also partially block views of the proposed building from the cemetery grounds. Given the physical and visual separation of the site from the cemetery, the proposed SHOR building is not considered to result in any adverse heritage impacts on the cemetery.

6.7 Noise and Vibration

A Construction Noise and Vibration Impact Assessment and an Operational Noise Assessment report, prepared by Renzo Tonin & Associates, is appended with this application at **Appendix H and Appendix DD**. The assessment is carried out in accordance with the relevant noise Policies and Guidelines as well as other requirements raised under the SEARs.

6.7.1 Construction Noise

A quantitative assessment has been undertaken in accordance with the NSW Interim Construction Noise Guidelines (ICNG).

A list of construction equipment and their respective corresponding sound power levels proposed for the development works is also provided as part of the noise report. Accordingly, these levels were used to determine extent of noise associated with the proposed construction activities. Sound power levels were applied in accordance with the Australian Standard 2436 - 2010 'Guide to Noise Control on Construction, Demolition and Maintenance Sites', the ICNG and information from past projects.

In an unmitigated state, construction noise levels will potentially exceed the management noise levels recommended under the ICNG. Predicted noise levels may also exceed the 'highly noise affected' criteria set under the ICNG guidelines for certain noise sensitive receivers such as Building 31(R1) and Building 36 (R2), depending on the location of the construction equipment and combination of works being undertaken.

Predicated noise levels to the adjoining commercial building at 207 Pacific Highway may also exceed this criterion but only marginally by 1dB(A).

Accordingly, a construction noise management plan outlining mitigation measures has been prepared for the site. Proposed measures are in accordance with the Australian Standard 2436-2010 "Guide to Noise Control on Construction, Demolition and Maintenance Sites". It should be noted that effectiveness of noise control measures to reduce noise in practice are applied conservatively using noise reduction levels recommended by Renzo Tonin & Associates. These levels are lower than that recommended by the Australian Standards. A summary of noise reduction measures proposed to ameliorate construction noise is provided below:

- Use of physical noise control measures such as solid hoarding/ noise screens around the perimeter of the construction site;
- Regular periodic monitoring of noise levels. Where potential noise impacts are predicted to be within 10-15 dB(A) of the noise management level, noise monitoring is to be undertaken within two weeks of commencement of construction works to confirm compliance with maximum noise management levels. Appropriate noise reduction measures to be introduced if necessary. Where noise levels are predicted to be more than 15dBA, all reasonable and feasible noise control measures to be implemented prior to commencement of construction works. Monitoring of all equipment and activities to be tested. Noise levels to be monitored and where exceeded, further noise reduction measures to be implemented such as restrict working hours and use of silencing equipment;
- Other general noise management measures recommended under the management plan include:
 - *Use of less noisy plant and equipment, where feasible and reasonable;*
 - *Plant and equipment should be properly maintained;*
 - *Provide special attention to the use and maintenance of 'noise control' or 'silencing' kits fitted to machines to ensure they perform as intended;*
 - *Strategically position plant on site to reduce the emission of noise to the surrounding neighbourhood and to site personnel;*
 - *Avoid any unnecessary noise when carrying out manual operations and when operating plant; and*
 - *Any equipment not in use for extended periods during construction work should be switched off.*
- A Noise and Vibration Complaints Management Procedure is provided as an appendix E of the Noise and Vibration Report (at **Appendix H**) and outlines the protocol for managing any noise complaints. Complaints are to be investigated and where noise levels are found to exceed management levels, appropriate amelioration measures enforced to avoid future reoccurrences. Where noise level exceedances cannot be avoided for certain construction activities, time restrictions are to be put in place and periods of respite are to be provided. The building contractor engaged for the construction of the development will be responsible for implementing the complaints management procedure.
- Where a certain plant equipment results in exceedance, limit the use of such equipment's to certain periods of the day where feasible and reasonable and to be negotiated with Council and residents.

Construction Vibration

The construction vibration impacts have been assessed as part of this application in accordance with the DECC 'Assessing Vibration; a technical guideline'. Potential vibration impacts to nearby receivers were assessed as low to medium. However, potential for medium to high human disturbance for Building 36 (Radiation and oncology Building) within the RNSH campus and the adjoining commercial building at 207 Pacific Highway given that these buildings share a boundary with the site.

Equipment likely to generate the highest risk of vibration impacts are excavator activities including rock hammering and digging. Measures to monitor and control vibration impacts are provided below:

- Determine vibration emission levels of each plant prior to commencement of regular use on site;
- Apply minimum buffer distances when works are in proximity to sensitive receivers to avoid building damage;
- Carry out periodic vibration monitoring at all critical and sensitive areas and assess vibration levels for compliance;
- Where vibration levels are excessive, management measures should be considered to ameliorate impacts and ensure vibration compliance is achieved;
- Ensure vibration complaints are noted, investigated and appropriately addressed in accordance with complaints handling procedure; and
- Prepare a dilapidation report detailing the state of nearby buildings before, during and after excavation, demolition and construction phases is recommended to determine potential impacts of works.

6.7.2 Operational Noise and Vibration

A thorough assessment of potential noise impacts during the operational phase of the development was also undertaken. Potential noise sources identified for the development include:

- Noise emitted from the use of the external ground level terrace by the child care centre; and
- Noise generated from the mechanical and building services equipment located above the 10th storey of the building.

Nearest noise sensitive receivers identified nearby include:

- Two commercial buildings at 207 Pacific Highway, St Leonards located approximately 20 metres south of the site;
- Building 36 within the RNSH campus located approximately 20 metres north east of the site;
- Building 31 located 30 metres north of the proposed building; and
- Residential buildings at 3 Herbert Street, St Leonards located approximately 82 metres east.

The assessment concluded that:

- Predicted noise levels from the child outdoor play area comply with the project noise criteria at the nearest affected residential and commercial receivers. No additional acoustic treatment to the outdoor play area is necessary; and
- Predicted cumulative noise levels from the mechanical and building services level were determined and suitable measures for noise attenuation (suitable construction materials with acceptable Rw ratings, acoustic wall barriers at south western corner of services level etc) are provided in detail within the Operational Noise Report at **Appendix CC**. Measures to ameliorate potential vibration impacts are also provided. Treatment of the plant equipment and the services room as set out under the Noise report will ensure compliance with the EPA Noise criteria.

6.8 Sediment Erosion and Dust Controls

A sedimentation and erosion control plan has been to be developed to manage erosion during earthworks associated with the development.

A detailed plan is provided as an appendix with the Stormwater Management Report at **Appendix K** of this application and includes measures such as a sediment pond, catch drains to direct run-off to the sediment pond, sediment fences surrounding disturbed areas, sandbags at all existing pits collecting stormwater runoff from disturbed areas and a truck shaker tray at each point of access to the work area.

The plan is indicative and final details relating to the sediment erosion plan, including appropriate measures for proper implementation will be carried out by the successful construction contractor.

Dust emission control measures proposed are as follows:

- Limiting the area of land exposed to erosive forces through:
 - phasing of works;
 - provision of a protective ground cover including mulches, vegetation, organic binders or dust reductants; and
 - keeping the ground surface damp (but not wet).
- limiting traffic movement within disturbed areas;
- applying a suitable hydraulic soil stabiliser to the soil surface; and
- installation a 40% porous open weave barrier fence on the windward side.

6.9 Geotechnical

A geotechnical assessment of the site was undertaken Coffey who was also involved in assessment of the RNSH concept development. The findings of the geotechnical assessment are provided as part of this application at **Appendix R**. A summary of the assessment findings and considerations are provided below:

- Interpreted geotechnical conditions were extrapolated based on soil samples collected from borehole drilling. Predicted geotechnical conditions for the site includes fill (Unit 1) for depths at surface levels, residual soil (Unit 2) from 0.65 metres to 2.5 metres, weathered shale (Unit 3) was encountered at depths between 2.5 metres and 4.5 metres and sandstone (Unit 4) from depths of 5 metres to 9 metres;
- Based on data collected from three boreholes (BH202, BH204, BH205) at the north-western corner, south-western corner and eastern extent, groundwater levels were noted at RL 74.3 - RL 77.8 metres;
- Excavation up to depths of 5.5 metre (up to RL 75.5 metres) is proposed to accommodate the basement levels along the north western corner. Excavation is likely to encounter ground water levels along this extent;
- Extent of excavation induced ground movement impacts should be considered prior to undertaking excavation works. This of particular relevance given the close proximity of adjoining developments. Magnitude of adjacent ground movement will depend on several factors including ground conditions, design lateral pressure, adopted shoring system and construction methodology;
- Batter slopes less than 3 m vertical height is recommended for temporary excavation works above ground water or unsupported excavation;
- Excavation to accommodate the basement will expose either Unit 3 Weathered Sandstone or Unit 2 Residual Soil toward the east of the site. It is recommended that the basement structure is supported on the same unit to reduce differential settlement. All footings should be found on Unit 3 or Unit 4 rock; and
- Soil aggressivity was tested as non-aggressive to mild towards buried concrete, and non-aggressive towards buried steel. Groundwater test results indicate non-aggressive to moderate conditions towards buried steel. While concentrations of sulphates and chlorides in water suggest mild conditions towards buried concrete, pH levels suggest moderate to very severe condition to buried concrete.

Having undertaken a detailed geotechnical assessment, the report concludes that the proposed development is considered feasible from a geotechnical perspective.

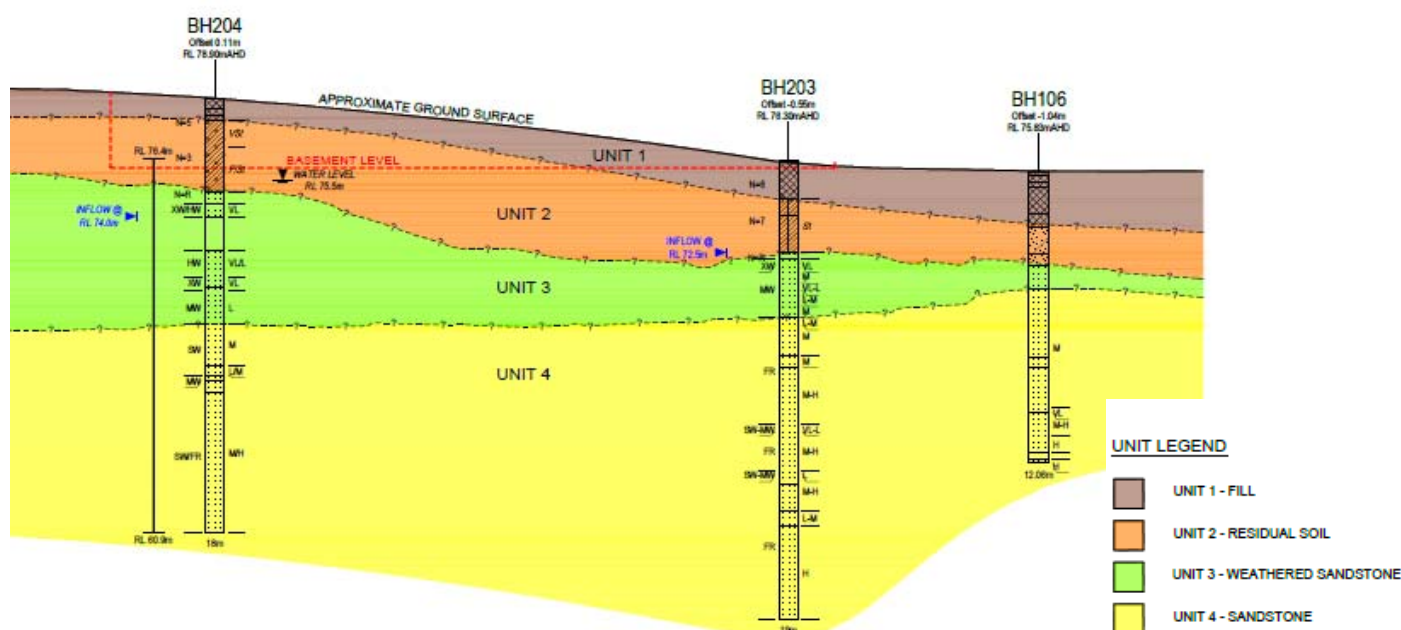


Figure 19- cross section (west-east) illustrating extent of excavation required on site

6.10 Contamination

A preliminary contamination review of the site, including areas around Building 51 and Building 52, was carried out by Coffey in 2016. At the time, the fill covering a large portion of the site was found to contain potential chemicals of concern. Accordingly, a detailed investigation and assessment was undertaken by Coffey, the results of which are documented as part of a Detailed Site Investigation Report at **Appendix J** of this application. The assessment undertakes an assessment of the soil and ground water and confirms that the site is suitable for the proposed commercial use.

The proposed child care centre use is considered acceptable given that it will be located at the ground floor level within the building footprint and above the basement of the building. Accordingly, the centre will not have exposure to underlying soils.

Ground water testing indicated that heavy metal concentration was below acceptable ground water contamination levels with the exception of Lead, Copper, Nickel and Zinc. Minor concentrations of F3 fraction were also detected. Accordingly, a human health risk assessment was undertaken. The resulting hazard quotient for possible exposure scenarios was found to be below 1, indicating low risks which are unlikely to cause unacceptable health risks for future construction workers.

Contamination risk of the surrounding environment as a result of groundwater discharge during basement construction is considered to be low given that the ground water chemical concentrations associated with regional levels. These levels are typical of historical suburban areas and is not considered to be site specific contamination.

The report also undertakes a preliminary waste classification assessment for off-site disposal of excavated fill resulting from the basement works.

6.11 Services and Utilities

A Services and Utilities Infrastructure report prepared by Wood & Grieve is provided with this application at **Appendix L**. The report includes an assessment of existing infrastructure on campus and its capacity to support the proposed SHOR development. A summary of the report's findings and necessary augmentations is provided below.

Electricity

Ausgrid currently supplies electricity to the site at Precinct 4A via the electrical substation (# S8079) at Reserve Road. Ausgrid confirmed that a chamber substation consisting of 2 x1,500 kVA transformers is required to support

the new development. Accordingly, a new substation designed to comply with Ausgrid network standards is provided at ground level along the southern edge of the development (near the services vehicle entry).

A 1,000 kVa standby generator is proposed as part of the new development and is located and designed in accordance with relevant Australian Standards. The generator will undergo suitable attenuation and is proposed to be fitted with a suitable silencer to mitigate any potential operational noise impacts.

Telecommunication

The site is currently serviced by Telstra. The existing Telstra services pit at Reserve Road is proposed to be relocated and a new NBN compliant pit will be provided from the property boundary at Reserve Road. Connections from the new pit are proposed to the new Site Main Communications room located at Basement level 1.

Hydraulics

A 63,000 L on-site cold water storage tank is also proposed to be located at basement level 2. Cold water will be extended to the rainwater harvesting system to provide top up for non-potable uses during periods of low rainfall. Cold water connection to Sydney Water mains is proposed via Reserve Road at an existing 150mm connection to the north of the building inside RNSH property or to the south of the building at the neighbour's property.

Natural Gas

The proposal will connect to the existing gas main along Reserve Road.

Main and sub gas pressure regulators are proposed to reduce gas pressure to consumer levels and vents. The gas system will be designed to be reticulated to mechanical plant heaters on the roof, domestic hot water heaters in the basement, café on the ground level and on each of the commercial office floors for future kitchens.

Drainage

The new sanitary drainage system will collect sewage from all the new sanitary fixtures by way of a gravity collection system and will reticulate the sewage to the discharge to the existing sewer drainage system connection which is located at the south boundary of the site adjacent to the new easement road leading from Reserve Road to vacant lot 4B.

A sewer pump out system will be provided to serve the new End Of Trip wet areas and other wets areas in the basement that cannot be gravity drained.

Fire Services

The building is designed to satisfy relevant Australian Standards and BCA fire services requirements and will include an automatic sprinkler protection system and a combined fire brigade valve assembly.

Refer to the Utilities and Services Report at **Appendix L** of this application for more detail.

6.12 Drainage and On site Stormwater Detention

Enstruct has undertaken a review of the site's existing stormwater drainage system. Based on the proposed building footprint and potential flood conditions (PMF and 1% AEP), new stormwater infrastructure is proposed to augment the existing network and minimise potential overland flooding. A copy of the proposed stormwater strategy and plan is provided at **Appendix K** of this application.

Stormwater Upgrades in proximity to the site

It should be noted that a 4000m³ on site stormwater detention system is proposed to be located beneath the realigned Gore Hill Oval as part of Willoughby City Council's Gore Hill Park redevelopment works. The purpose of the detention basin is to reduce impacts of flooding downstream of the oval.

Proposed Stormwater Upgrades

A stormwater line is proposed along northern and western boundary of the site and will drain stormwater flows from the forecourt and the western edge and discharge them into an OSD tank (180 m³ tank located below the basement entry ramp at the south-western corner).

Another line is proposed to run along the eastern boundary and will capture excess flows from the larger OSD tank (208 m³ tank located at basement 2) and areas north of Precinct 4. This line will connect to the existing 900mm diameter stormwater line near the southern edge of the site.

The existing 300 mm diameter line within the building footprint is proposed to be removed. The upstream section will connect to the eastern stormwater line. The Stormwater Management Report includes a hydraulic analysis of the two blockage scenarios (50% and 100% blockages) using DRAINS modelling output.

It should be noted that no drainage works are proposed to be carried out for adjoining Precinct 4B. The site will be retained as a landscaped lawn (permeable deep soil area) until such time as the site will be developed by respective proponents of the site. Accordingly, necessary stormwater upgrades for the adjoining site be undertaken as part of a future application to redevelop the site.

The findings of the flood assessment report, prepared by Lyall and Associates (refer to **Appendix S** or **Section 6.13** below) have also informed the Stormwater Management Strategy for the site. Based on the flood modelling input, building design and public domain changes have been made to ameliorate potential pooling of stormwater /overland flows during a Probable Maximum Flood (PMF) or a 1% AEP flood event. These include:

- Driveway design modifications to remove low points at the eastern end of the driveway, minimising any potential pooling at this point. A one-way crossfall is introduced along the length of the driveway and will direct stormwater away from the building;
- Setting the substation finished floor levels (RL 76.00) above the driveway levels (RL 75.88) as per Ausgrid's requirements;
- A retaining wall approximately 750mm and a top of wall at RL 76.00 is proposed at the eastern end of the driveway. This will prevent any overland flows from moving into the site;
- The basement entry ramp is designed to minimise any overland flows from entering the basement levels of the building; and
- A surcharge pit set at RL 75.55 will be provided near eastern boundary that will allow backflows coming from a low point near Herbert Street to surcharge. The surcharge pit is grass lined further downstream which will convey and discharge surcharging flows in the low point. The area around the pit will be shaped to encourage flows to be directed eastward to the low point.
- Extension of concrete wall along the eastern boundary of Precinct 4B at an elevation of RL 76.15 metres.

6.13 Flooding

Lyall and Associates were engaged to undertake a detailed flood assessment of the Precinct 4 and its surrounds under existing and post development conditions. Hydraulic (DRAINS) modelling was carried out to identify and map out extent of potential overland flooding in various flood events including 100 year ARI flows and the Probable Maximum Flood (PMF) event.

As outlined within the flood report, flood conditions for the site and its surrounds have largely improved post development as a result of the proposed stormwater drainage upgrades. A copy of the Flood Assessment Report is provided at **Appendix S**. A summary of the report's findings is provided below:

- Maintaining natural surface levels along the Reserve Road frontage will ensure that the overland flow will be confined to the road reserve for all storms up to the 0.2% AEP event;
- A marginal increase in flood levels is only noted at a low point along the north-eastern corner of the adjoining at 207 Pacific Highway. The increase is limited to a 20% AEP flood event and the overall increase is by up to 500mm. The resulting increase is not considered to have an adverse impact as the additional flooding is limited to a portion of the site that is away from the building and comprises of raised planter beds and landscaping. The basement level for the existing building is above the flood planning level;

- The existing concrete wall that runs along the Herbert Street frontage of 207 Pacific Highway will also be extended into the site along the eastern boundary of Site 4B at an elevation of RL 76.15 m AHD where it will tie into high ground.
- As per the findings of the modelling, basement level 2 (RL 76.00) at the eastern end of the site will be approximately 210mm above the peak flood levels during a 1% AEP flood event (RL 75.79 metres);
- All habitable floor levels (ground floor level and above) are located well above the flood planning level (500mm plus peak flood level) at RL 82.00 and above;
- It is also considered that stormwater upgrades undertaken as part of the Gore Hill redevelopment works and future development of Precinct 4B will further ameliorate flood conditions at this point within the site as well its surrounds; and
- While the footprint of the new building will increase, its extension in a northerly direction by up to 30 m and in an easterly direction by up to 10 m will not impede the passage of overland flow. As a result, the new building will not adversely affect drainage patterns in adjacent development

Climate Change Impacts

Lyall and Associates have also undertaken modelling to determine potential impacts of climate change on flood levels. As identified under the Flood Report, the site is located over 1 km inland and 75 metres above sea level and as such impacts from sea level rise are unlikely.

Flood impacts as a result of increased rainfall intensity has been considered. In accordance with the Office of Environment & Heritage guideline 's - *Practical Considerations of Climate Change (DECC, 2007)*, 10% and 30% increase in the 100 year ARI rainfall intensities was assessed to determine impact of climate change on the peak flood levels.

Under the above climate change scenarios (10 and 30% increases), peak 100 year ARI flood level in the trapped low point in Lot 11 DP 1013030 would increase to RL 75.63 m AHD and RL 75.87 m AHD, respectively, reducing the available freeboard to the finished floor level of the basement to 370 mm and 130 mm, respectively.

6.14 Waste

A Waste Management Plan has been prepared by Arup and is appended with this application at **Appendix I**. The report outlines the proposed construction, demolition and operational waste strategy at each of the respective phases. A summary of its findings is provided below:

Operational

Operational waste volumes are calculated using Willoughby City Council waste generation rates to determine waste storage and collection requirements. Waste generation rates applied to the building. Estimated waste volumes (based on the proposed land use and GFA) and equivalent number of bins are detailed in **Table 10** below.

Table 10 – Operational waste specifics

Types	Commercial/ Office	Retail (including child care)	Public realm	Bins	Collection Frequency
General Waste	2,927 L/day of	1,698 L/day	N/A	8X660 L 1 X 240 L (public realm waste)	5 times per week
Co- mingled recycling	110 L/day	359 L/day	240L/ day	2x 660 L and 1 X 240 L (public realm waste)	3 times per week
Paper and Cardboard	2,818 L/day	566 L/day	N/A	11x 660 L	3 times per week
Food and Garden Organics	N/A	359 L/day	N/A	3x 120 L	

- A total of 8 bins (4 x 60L general waste and 4 x 60L co-mingled waste) is proposed to be located within the surrounding public realm. This has been adopted in consultation with Local Government NSW and has been ascertained based on general practice of locating a bin every 30 metres;
- Details of waste collection during the operational phase is provided as part of the Waste Management Plan. The proposed strategy seeks to enforce a 70% landfill diversion target for operational waste. Individual bins will be provided at office levels, shared spaces and retail spaces. Nominated cleaning/building management staff will be responsible for transfer of waste from the receptacles to the waste room at Basement level 2. Waste contractors will be responsible for collection of waste. The waste trucks can access the loading zone via the internal road along the southern boundary; and
- The proposed waste storage room is located on basement level 2 adjacent to the proposed loading bay zone. Waste storage room has a minimum area of 137 m² and is designed to satisfy the requirements of the WDCP 2012, BCA and relevant Australian Standards. Design will ensure the room is adequately ventilated, includes relevant signage, and is designed to minimise odour and noise impacts.

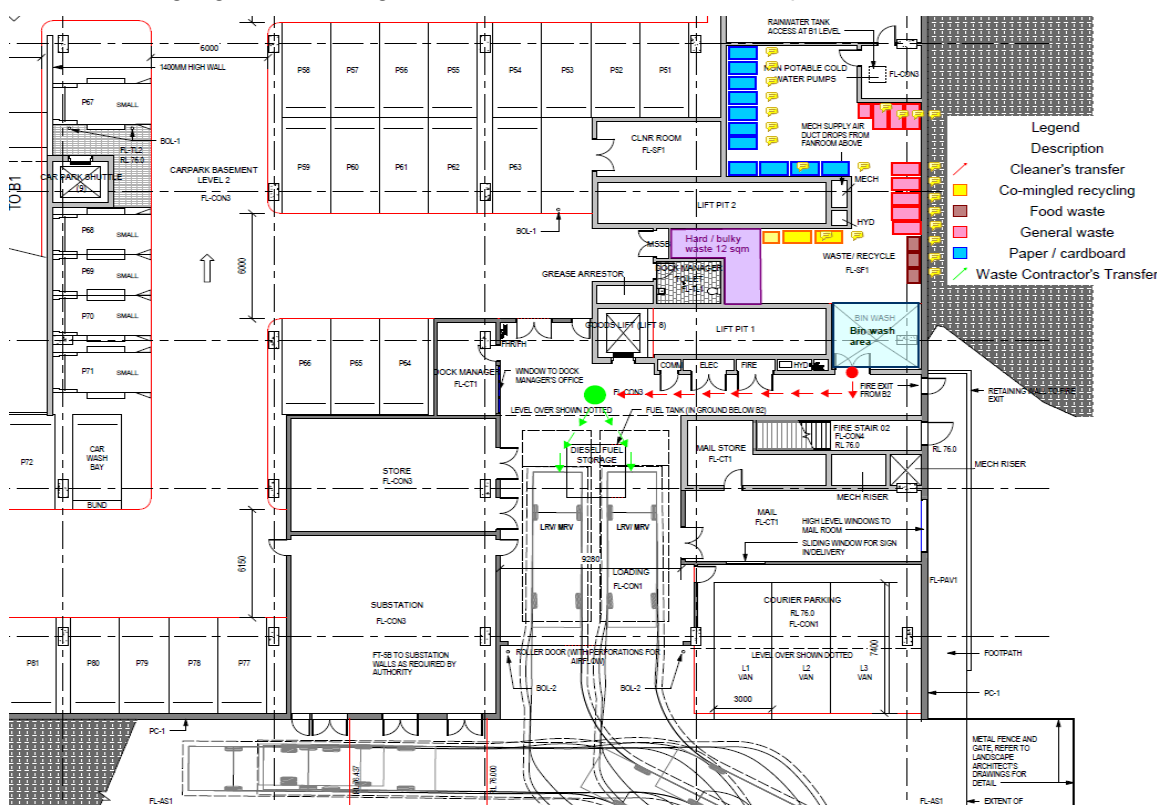


Figure 20- Waste transfer and servicing strategy

Source: ARUP, WMP

Construction and Demolition Phase

- Waste generated during construction and demolition will be reused and recycled as a priority, and only disposed to landfill when unavoidable;
- Materials that are to be recycled during both construction and demolition phases include timber, concrete and metal. Glass generated demolition phase is also proposed to be recycled. Specific separated areas on site will be allocated for storage of demolition and construction waste. Waste that is unable to be reused or recycled will be disposed of offsite at an EPA-approved waste management facility following classification;
- A construction waste management plan is to be prepared at detailed design stage. This is a requirement under Green Star and will enable the achievement of the 90% recycling target for construction and demolition phase.

6.15 Section 94A Contributions

Contributions for the proposed development has been agreed upon in discussions with Willoughby City Council to be paid in accordance with Council's relevant Section 94A fixed levy contribution plan 'Willoughby City Section 94A Contributions Plan 2011'.

In accordance with the above plan, the Section 94A levy payable is as follows:

S94 Levy= \$1,201,300.00 [1% x \$120,130,000]

A cost of works summary, prepared by RLB Quantity Surveyors, in accordance with the requirement of Section 94A of the EP&A Regulations 2000 is provided under a separate cover to this application. Payment of contributions by way of a S94A Development Contributions has been agreed in principle at a consultation meeting between HI and Willoughby City Council on 14 November 2017.

6.16 Construction Hours

Due to the close proximity of noise sensitive receivers within the immediate vicinity of the site, this proposal limits construction hours to the following times as set out below:

- Monday to Friday: 7 am to 6 pm;
- Saturdays: 7 am to 5 pm; and
- Sundays and public holiday: No works proposed.

Instances where works may be undertaken outside of these hours are addressed below:

- the delivery of materials is required outside these hours by the Police or other authorities;
- it is required in an emergency to avoid the loss of life, damage to property and/or to prevent environmental harm;
- variation is approved in advance in writing by the Director General or his nominee; and
- Construction access onto site will be off Reserve Road with trucks turning on site.

6.17 Construction and Environmental Management Plan

A Construction and Environmental Management Plan is prepared for the site by Savills and is appended with this application at **Appendix M**. The plan outlines protocols for ongoing monitoring of potential construction and environmental impacts during the construction phase of the development and sets out management requirements to adequately address and ameliorate impacts.

6.18 Capital Investment Value

A Quantity Surveyor Report prepared by RLB Consultants in accordance clause 3 of the Environmental Planning and Assessment Regulations 2000 is provided with this application under a separate cover.

The estimated Capital Investment Value (CIV) for commercial building is \$ 120,130,000.

The estimated jobs created by the future development during construction phase is 413 jobs. Additionally, the number of new operational jobs generated by the completed building is estimated to be nil. This is because all personnel who will occupy the new building are presently employed by the various existing health departments which will be relocated from their current sites and the net increase in employment is estimated to be zero.

6.19 Building Code of Australia

Building Code of Australia (BCA) Assessment has been prepared by McKenzie Group Consulting and is included at **Appendix Z**. The assessment identifies the areas of the development including fire resistance, egress, fire services and equipment, ventilation, lift services, sanitary facilities, access and energy efficiency that either comply with the BCA requirements or are to be the subject of a performance based alternative solutions.

Due to the size and nature of the building, it is anticipated that the building would feature alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA. The alternate solutions will be resolved

at detailed design stage and will be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.

6.20 Aviation Assessment

Potential interference impacts of the proposed commercial building on the hospital's helicopter operations have been assessed by Avipro. The assessment identified that the proposed building sits outside the established arrival/departure flight path direction. The maximum building height of the SHOR building (RL 126 metres) will be approximately 2.5 metres below the height of the existing helicopter landing site. Accordingly, the building (post development) will not obstruct operations. Low intensity red obstruction lights will need to be positioned on the SHOR building.

However, during the construction phase of the development, the location of cranes may potentially obstruct the flight path. An Aviation Management Plan is to be prepared to manage any potential conflicts that may arise during the construction phase of the project. The preferred location of construction cranes is either the northern or southern edge. The proposed cranes should be white/red in colour and should be fitted with low intensity obstruction lights on their extremities and highest points.

A copy of the assessment letter, prepared by Avipro is provided at **Appendix BB** of this report.

6.21 Accessibility

McKenzie Group carried out an Accessibility Design Review (Access Report) of the proposed building design in accordance with the *Disability Discrimination Act 1992*, access provisions under the BCA and other relevant Australian Standards. A copy of the assessment and its findings, considerations and recommendations is provided at **Appendix Y** of this application.

The proposed building design satisfies all relevant access requirements, or has the capacity to achieve compliance with some minor variations, as identified under the Access Report. No alternative performance based solution is considered necessary at this stage.

6.22 Crime Prevention through Environmental Design (CPTED)

A CPTED assessment of the proposed development was undertaken by Ethos Urban in accordance with the requirements of the SEARs (refer to **Appendix O**). The proposed scheme is generally well designed from a CPTED perspective and incorporates consideration for CPTED principles including surveillance and access control. The assessment identifies the following additional opportunities to further improve safety and security achieved under the scheme:

Surveillance

- Ensure opportunities for natural and incidental surveillance are maintained through effective lighting, access control and environmental maintenance.
- Ensure concealment opportunities are reduced especially in areas that do not benefit from natural surveillance.

Lighting and Technical Supervision

- Ensure all public areas have adequate CCTV coverage, and that the CCTV infrastructure is consistently managed and maintained.
- In the basement car park, lighting should maintain an average of 50 Lux and also should have a uniformity level of 0.5 Uo. It is noted that a standby lower lux level is acceptable after hours for power saving reasons. A standby average of 25 Lux brightening to 50 Lux in sections where motion is detected is recommended.
- It is recommended that ceilings within car parking areas be finished in a light colour that does not interfere with the Colour Rendering of lighting.
- All lighting, including outdoor lighting is recommended to have a minimum Colour Rendering Index (CRI) of 60.
- CCTV to be installed in the back-of-house areas that includes the loading docks, waste areas and corridors.
- Ensure CCTV and Convex Safety Mirrors are installed in the EOT corridors.

Territorial Reinforcement

- Wayfinding signs are to be provided throughout the publicly accessible areas.

Environmental Maintenance

- Ensure that landscaping does not create concealment opportunities and does not restrict sightlines from the development overlooking public open spaces.
- Ensure a prompt response is incorporated within environmental maintenance procedures.
- Control the growth of planting/landscaping within the proposed development, ensuring that plants/shrubs should not achieve a mature height of more than 1m above ground, or in the case of trees, a minimum canopy height of 1.8m when mature. It is recommended that the pruning maintenance of these landscaping strips ensure sightlines are maintained and concealment opportunities are minimised.
- Use high quality materials for construction to lessen the likelihood of damage and help reduce maintenance costs and frequency.

Activity and Space Management

- Ensure the proposed development is incorporated in any existing Plan of Management of the precinct and details on-going maintenance procedures.
- Ensure the development's Plan of Management details procedures for the clear management of the carpark and after-hours security.
- Ensure wayfinding strategies are incorporated in basement car parks and public lobbies, reducing disoriented of building users.

Access Control

- Ensure public access to the proposed development is in-line with tenant's operating hours.
- All entrances/exits be secured after hours and are only accessible by security card/key.
- Ensure access to restricted areas is not created by environmental conditions (i.e. tall trees and climbable seating).
- As the goods lift provides access to all building levels, ensure that access to the lift is adequately monitored by CCTV. Furthermore, it is recommended that access to this lift is security controlled with swipe pass or similar entry. Building security may need to grant access to this lift per use.
- Provide secure electronic access (card/key controlled entries/intercoms) to prevent unauthorised access into lifts and lift lobbies, carparks, back of house facilities, waste disposal, loading areas and any area deemed restricted from public access.
- The basement carpark and the loading dock driveway to be lockable and secured to both vehicles and persons after hours.

Design, Definition and Designation

- Maintain the current design definition demonstrated in the proposed development. Ensure clarity of ownership, tenancy and management are clearly understood by users of the development.
- Ensure that the built form and operational procedures align with the relevant NSW Health Policies.

7.0 Environmental Risk Assessment

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

In accordance with the SEARs, the ERA addresses the following:

- the adequacy of baseline data;
- the potential cumulative impacts arising from other developments in the vicinity of the Site; and
- measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Figure 21 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- the likely community response to the environmental consequence of the project;

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; and
- 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 21 – Risk Assessment Matrix

Table 11 - SHOR Development Environmental Risk Assessment

Potential Environmental Impacts				Risk Assessment		
Item	Phase	Potential Environmental Impact	Proposed Mitigation Measures and / or Comment	Significance of Impact	Manageability of Impact	Residual Impact
Noise and Vibration	C + O	Increase in noise and vibration levels during construction activities	- A Noise and Vibration Management Plan outline measures to ameliorate and manage significant noise impacts. - Implementation of Construction Noise and Vibration Measures which considers the construction methodology and details specific mitigation measures in accordance with the DECCW Interim Construction Noise Guideline. - Appropriate mitigation measures to be implemented to ensure vibration levels will not compromise human comfort or result in building damage. - Appropriate sound minimisation measures to be incorporated within the plant and mechanical areas.	2	2	4 (Low/Medium)
Traffic	C + O	Increase in construction traffic on local roads. Increase in traffic and parking on local roads during operation.	Additional parking is proposed. A Construction Traffic Management Plan has been prepared detailing measures to minimise any adverse impacts arising from construction traffic.	C = 2 O = 1	C = 2 O = 1	C = 4 (Low/Medium) O = 2 (Low)
Heritage	O	Reduce heritage significance or obstruct significant heritage views to nearby heritage items	- The proposed scheme provides an adequate setback from the heritage listed building and improves views to prominent items of the heritage cluster. - Sympathetic materials and colours have been selected for the proposed scheme	1	1	2 (Low)
Sediment, Erosion and Dust Control	O		The Sediment and erosion control measures outlined in the Erosion and Sediment Control Plan (refer Civil Report) will be installed prior to commencement of any work on the site and maintained throughout the duration of the works and/or until any areas that require to be turfed and landscaped have been completed.	1	1	2 (Low)
Aviation	C	Potential obstruction of the hospitals flight approach/departure path by construction cranes	Impact can appropriately be managed through the appropriate locations of construction cranes outside of the flight path and the preparation of an Aviation Management Plan	3	1	4 (Low/Medium)

Potential Environmental Impacts					Risk Assessment	
EMF Analysis	O	Electromagnetic Interference on electrical equipment	- Electromagnetic levels to the building roof are acceptable (6 V/m). Standard electrical equipment will not be affected by this level. - The building façade and materials will further reduce waves entering the building and affecting electrical equipment.	2	1	3 (Low)

8.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 12** below. These measures have been derived from the previous assessment in Section 5.0 and those detailed in appended consultants' reports.

Table 12 – Mitigation Measures

Mitigation Measures
Construction Noise and Vibration Recommendation as set out under the Construction Noise and Vibration Management Plan (Appendix M), including regular monitoring of noise intensive construction activities such as demolition, excavation etc or as set out under the management plan should be enforced on site. A Complaint Management Procedure is provided with this application (Appendix E of the Construction Noise and Vibration management Plan) and outlines a strategy to appropriately address any construction/vibration related noise complaints from nearby residents, tenants etc.
Traffic Management measures as outlined under the Construction Traffic Management Plan and Green Travel Plan should be exercised during the construction and operational phases of the development
Geotechnical Appropriate excavation tools, methods and basement materials best suited for site's geotechnical conditions are proposed. An experienced geotechnical
Building Code of Australia Alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA should be considered. The alternate solutions should be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.
Construction and Environmental Management Plan The management plan protocols and associated sub-plans should be implemented during the construction phase of the development.
Aviation Assessment An Aviation Management Plan should be prepared for the site to manage any potential conflicts arising from the location of construction cranes and the hospital's helicopter operations.

9.0 Justification of the Proposal

In general, investment in major projects can only be justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits, and not simply those that can be easily quantified. As a result, the EP&A Act specifies that such a justification must be made having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development.

This means that the decision on whether a project can proceed or not needs to be made in the full knowledge of its effects, both positive and negative, whether those impacts can be quantified or not.

The proposed development involves delivery of a 10 storey commercial office development for the purposes of a health administrations building within the RNSH campus. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

Various components of the biophysical, social and economic environments have been examined in this EIS and are summarised below.

9.1 Social and Economic

RNSH is a major health precinct within Sydney's North Shore region and a major emergency trauma health centre within NSW.

The proposed SHOR development will supplement the health functions of the campus by relocating various health entities with research, education and administrative functions to a central location. The proposal will also deliver 28,615 m² of health related employment floor space in St Leonards locality, which is identified as a major 'health/education' precinct within Sydney's Northern District. The proposal reinforces the planning directions for the district and will accordingly bring about several economic and social benefits associated with co-locating the health organisations with the hospital.

This proposal also offers to deliver economic benefits arising from co-locating public health services/entities, creating opportunities for new synergies, knowledge sharing and innovation.

Progress and innovation in health sector offers significant social benefits to the wider public. The proposed development is also designed to maximise public benefits through:

- the provision of open space within the campus;
- A child care facility component for staff;
- An energy efficient and architecturally unique building;
- Co-location with existing and future public transport; and
- Protection of heritage items in the vicinity of the site.

9.2 Biophysical

Section 5.0 of this EIS contains a thorough assessment of the likely biophysical impacts of the proposed development. The environmental risk assessment contained at **Section 6.0** demonstrates that the proposed development will not result in any significant anticipated environmental impacts that cannot be appropriately addressed through standard conditions of consent or the current mitigation measures included at **Section 7.0**.

The environmental impact assessment of the proposed development has demonstrated that:

- All environmental impacts associated with the construction phase of the development can be appropriately managed and mitigated including any potential construction traffic impacts, noise and vibration impacts;
- Water management measures will be implemented to ensure that there are no adverse water, drainage, stormwater or groundwater impacts; and

- The proposal has been carefully designed to mitigate any adverse environmental impacts to the adjoining Gore Hill Park and nearby residential developments.

9.3 Ecologically Sustainable Development

The EP&A Regulation lists 4 principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

An analysis of these principles follows.

Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

This EIS has not identified any serious threat of irreversible damage to the environment and therefore the precautionary principle is not relevant to the proposal.

Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- implementing safeguards and management measures to protect environmental values;
- protecting and positively addressing heritage listed item adjoining the site for future generations to appreciate and enjoy;
- facilitating job creation in close proximity to public transport and homes; and
- Improving the public domain and amenity within the RNSH campus and wider St Leonards precinct.

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration.

This EIS has demonstrated that the proposal will not have any significant anticipated effect on the biological diversity and ecological integrity of the site and surrounding area. The potential impacts associated with development identified by the expert consultant reports (see **Section 5.0**), particularly those associated with construction impacts, have been incorporated into the mitigation measures at **Section 7.0** of this EIS.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation

measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

10.0 Conclusion

The Environmental Impact Statement (EIS) has been prepared to consider the environmental, social and economic impacts of the proposed SHOR development at Precinct 4A, RNSH campus.

The proposed building is designed as a high quality, flexible, low energy, sustainable office development for the purposes of a new single administrations building for NSW Health and ten other health entities. The SHOR development has the potential to foster new synergies and efficiencies between these various health agencies and a common platform for innovation in the health sector.

The building is designed as a 10 storey (plus roof plant) building with an architecturally unique form. It will provide 30,977 m² of employment floor space including 241 m² for a café tenancy and 902 m² for a child care facility at ground level. The detailed fitout of these spaces will be subject to a separate future application.

The EIS has addressed the issues outlined in the Director-General's Requirements (**Appendix A**) and accords with Schedule 2 of the EP&A Regulation with regards to requirements for an environmental impact statement. Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- The built form and density proposed for the site is consistent with that approved for the south-western edge of the campus under the Concept Plan Approval and subsequent MOD 7 approval;
- The building is well designed and architecturally unique and will present as a landmark building to a significant entry point of hospital campus;
- The building is considerate of its surrounds and complements its setting through articulation of the built form and sympathetic choice of good quality materials;
- The proposal integrates a large public forecourt with terraced landscaping that will provide future staff, hospital workers and visitors with a new open space on campus for relaxation and casual interaction;
- The proposal improves pedestrian connectivity and permeability across the campus; and
- The proposal will introduce 30,977m² of employment floor space in St Leonards for hospital related purposes and some ancillary uses in line with State Government policies and planning directions for St Leonards Precinct.

Given the merits described above it is requested that the application be approved.