



Northern Beaches Health Service Redevelopment
A new wave in healthcare



Northern Beaches Hospital
State Significant Infrastructure (SSI) Application
Environmental Impact Statement for Stage I including
Concept Design, Site Clearance & Preparatory Works

October 2013



Health
Infrastructure



Health
Northern Sydney
Local Health District



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Glossary

Acronym	Description
AHO	Aboriginal Heritage Office
AEC	Area of environmental concern
APZ	Asset protection zone
BAL	Bushfire attack level
BBAM	NSW BioBanking Assessment Methodology
BFPL	Bush Fire Prone Land
CEMP	Construction Environmental Management Plan
CIV	Capital investment value
DFEC	Duffys Forest Ecological Community
DGRs	Director General's environmental assessment requirements
DP&I	NSW Department of Planning and Infrastructure
EEC	Endangered ecological community
EIS	Environmental Impact Statement
EP&A Act	<i>Environmental Planning and Assessment Act 1979 (NSW)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
EPI	Environmental planning instrument
GFA	Gross floor area
HAC	Health Administration Corporation
HI	Health Infrastructure
IDC	Inter Departmental Committee
IRG	Interface Reference Group
IMT	Information Management and Technology
LEP	Local Environmental Plan; a type of planning instrument made under Part 3 of the EP&A Act
LGA	Local Government Area
mAHD	metres (above) Australian Height Datum
MLALC	Metropolitan Local Aboriginal Land Council
NBH	Northern Beaches Hospital
NBHS	Northern Beaches Health Service
NSHLD	Northern Sydney Local Health District

Acronym	Description
OEH	NSW Office of Environment and Heritage
RFS	NSW Rural Fire Service
RMS	NSW Roads and Maritime Services
RNSH	Royal North Shore Hospital
SEPP	State Environmental Planning Policy; a type of planning instrument made under Part 3 of the EP&A Act
SMF	Synthetic mineral fibre(s)
SQID	Stormwater quality improvement device
SRD SEPP	<i>State Environmental Planning Policy (State and Regional Development) 2011</i>
SSI	State Significant Infrastructure
TfNSW	Transport for New South Wales
TSC Act	<i>Threatened Species Conservation Act 1995 (NSW)</i>

Statement of Validity

Environmental impact statement prepared by:

Name: Chris Masters
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Qualifications: BA, MA(Hons), MEngSc, MBA (Tech Mgt)

Address: c/- SMEC Australia Pty Ltd
20 Berry Street
North Sydney, NSW 2060

Proposed development:

Applicant: Health Infrastructure

Applicant's address: PO Box 1060
North Sydney, NSW2059

Land to be developed: The area of land bounded generally by Frenchs Forest Road West, Wakehurst Parkway, Warringah Road, and The Forest High School at Frenchs Forest, Sydney.

Legal description: Lots 1–11, DP 26087; Lots 11–15, DP 792918; Lot 1, DP 119383

Project description: Staged development of the Northern Beaches Hospital, with Stage I comprising:

- Concept for the proposal; and
- Site clearance and preparatory works, incl. biodiversity management.

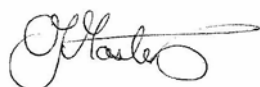
Declaration

This environmental impact statement:

- Has been prepared in accordance with the matters specified in Schedule 2 to the *Environmental Planning and Assessment Regulation 2000*;
- Contains all available information that is relevant to the environmental assessment of the proposed development; and
- Does not contain any information that is false or misleading.

Name: Chris Masters

Signature:



Date: 25 October 2013

Executive Summary

Purpose of this report

The proposed Northern Beaches Hospital at Frenchs Forest is designated State Significant Infrastructure (SSI) through the effect of *State Environmental Planning Policy (State and Regional Development) 2011*, and therefore subject to assessment under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

Health Infrastructure (HI) has determined to proceed with a staged infrastructure application for the Northern Beaches Hospital under Section 115ZD(1) of the EP&A Act as follows:

- Stage 1: concept design for the proposal, and site clearance and related preparatory works; and
- Stage 2: construction, commissioning and operation of the hospital.

This environmental impact statement (EIS) has been prepared to address the Director General's environmental assessment requirements (DGRs) relating to the overall concept for the proposal, and the site clearance and preparatory works for the Northern Beaches Hospital, and to support the SSI application for Stage 1 planning approval.

Need for the project

The need for the hospital is being driven principally by the following factors:

- Manly and Mona Vale Hospitals are among the smallest hospitals in metropolitan NSW by throughput and as such are impeded in their ability to provide the range of services required by the Northern Sydney Local Health District (NSLHD) on a cost-effective basis;
- The current fragmentation of services and the unavailability of certain specialist services at Manly and Mona Vale Hospitals means in many instances patients and carers are required to travel between the two hospitals to access services, and in some cases also have to travel outside the Northern Beaches Health Service (NBHS) catchment, e.g. to Royal North Shore Hospital (RNSH);
- Manly and Mona Vale Hospitals suffer from ageing facilities that are not well configured and are unable to be reconfigured cost effectively to provide contemporary models of care;
- Existing health facilities are not well located in relation to the NBHS catchment. A single, centrally-located hospital would enable provision of a wider range of services of higher role delineation, reducing the need for patients to travel outside the NBHS catchment. This central location will also reduce pressures on RNSH by redirecting demand for non-tertiary care; and
- Community health services are spread across a number of small facilities that are not well designed for the work they do. The growth in chronic disease requires investment in community health services that can work together with primary care to meet the needs of the ageing population whilst reducing the need to admit patients to hospital.

Project objectives

The primary objectives of the Northern Beaches Hospital development are to:

- Deliver the best quality integrated health services and clinical outcomes to the community of the Northern Beaches of Sydney and NSW Health;

- Integrate public and private health care into a single facility to maximise the range and breadth of services available to the community of the Northern Beaches of Sydney;
- Provide health care teaching, training, education and research within the Northern Beaches Hospital as part of an integrated NSLHD;
- Consolidate existing services at the Frenchs Forest location to create critical mass, thus improving accessibility to health services by establishing the Northern Beaches Hospital; and
- Address the demand and cost impact of current and future health services by enabling a sustainable health system by changing the patterns of supply and demand. This will be achieved by utilising the location of the hospital, its operational and design innovation and digital hospital technologies.

Project overview

The Northern Beaches Hospital will comprise a Level 5 facility providing a range of services including emergency, critical care, operating theatres, acute in-patient (overnight, day, and extended day only), maternity and neonatal, paediatrics and adolescents, mental health and drug and alcohol, sub-acute, primary health care, ambulatory, clinical support, other support, and associated administrative and front of house services.

The Northern Beaches Hospital would be designed, built, operated and maintained by a private or not-for-profit operator. The hospital would treat both public and private patients. Funding would be guaranteed for public patient services through a long term contract with the hospital operator.

An interdepartmental working group involving local councils, NSW Health, Roads and Maritime Services (RMS), Transport for NSW (TfNSW) and the Department of Planning and Infrastructure (DP&I) has been established to resolve traffic and transport issues surrounding the site. TfNSW and RMS are currently finalising the preliminary traffic and transport planning work to support the Northern Beaches Hospital. A number of supporting road works solutions are presently being developed by TfNSW and RMS for consideration by Government.

The site

The Northern Beaches Hospital site is strategically located at the intersection of Wakehurst Parkway and Warringah Road, Frenchs Forest, approximately 12 kilometres north of the Sydney CBD, and generally in the centre of the NBHS catchment. The site is bounded by Frenchs Forest Road West to the north, Wakehurst Parkway to the east, Warringah Road to the south, and The Forest High School to the west. The northern section of Bantry Bay Road currently traverses across the site but will eventually be closed and its status as a public road removed.

Much of the site is extensively vegetated and the endangered ecological community Duffys Forest Ecological Community (DFEC) has been confirmed as occurring across much of the site. The ecological investigation has identified the condition of this as 'moderate/good' as per the definition provided under the NSW BioBanking Assessment Methodology.

There are also various area of land, most fronting Bantry Bay Road, that formerly contained houses or other buildings, and which have since been demolished.

Consultation

Consultation has been undertaken with a variety of stakeholders in relation to the delivery of the Northern Beaches Hospital, both prior to and during preparation of the EIS. Substantial consultation has been undertaken with TfNSW, RMS, and DP&I with regard to related issues beyond the immediate hospital site such as the effect of the hospital on the surrounding road network and broader precinct planning issues.

HI contributed to the two Community Visioning Workshops conducted by DP&I in December 2012 as part of the community engagement process for the Northern Beaches Hospital Precinct. Issues raised relating to the hospital development have been considered in the Stage I EIS.

Consultation has also occurred with other stakeholders such as Warringah Council and the local community. Consultation activities would continue during all stages of the project through to opening of the hospital in 2018.

Site clearance and preparatory works

The site clearance and site preparatory works are intended to prepare the hospital site ahead of it being handed over to the hospital operator for construction of the hospital. The principal environmental impact associated with the works would be the removal of up to 4.9 ha of DFEC. Impacts on this endangered ecological community have been assessed using the NSW BioBanking Assessment Methodology with a view to mitigating impacts through the NSW BioBanking Scheme administered by the Office of Environment and Heritage.

A biodiversity offset strategy has been prepared to mitigate impacts and is provided as Appendix D to the Stage I EIS. This comprises the purchase and retirement of all the ecosystem and species credits associated with a 10 ha site at Belrose adjoining Garigal National Park. At the time of preparation of the EIS, HI was in the process of purchasing these ecosystem and species credits, for subsequent retirement. The biodiversity offset strategy will ensure permanent protection of a number of vegetation communities including one equivalent to DFEC. It will also facilitate the addition of land with significant biodiversity values to Garigal National Park to be formally managed as a conservation reserve.

The Stage I EIS has assessed other likely and potential impacts associated with the site clearing and related preparatory activities, and identified appropriate mitigation and management measures to address these impacts. Where relevant, these have been developed to align with future works on the site.

Conclusion and justification

The Northern Beaches Hospital would:

- Deliver the best quality integrated health services and clinical outcomes to the community of the Northern Beaches of Sydney and NSW Health;
- Integrate public and private health care into a single facility to maximise the range and breadth of services available to the community of the Northern Beaches of Sydney;
- Provide health care teaching, training, education and research within the Northern Beaches Hospital as part of an integrated NSLHD;
- Consolidate existing services at the Frenchs Forest location to create critical mass, thus improving accessibility to health services by establishing the Northern Beaches Hospital; and

- Address the demand and cost impact of current and future health services now and into the future by enabling a sustainable health system by changing the patterns of supply and demand. This will be achieved by utilising the location of the hospital, its operational and design innovation and digital hospital technologies.

I Introduction and Background

I.1 Background to the proposal

The Northern Beaches Hospital is identified as a key State Government priority in a number of current and previous strategic planning documents including:

- The *NSW State Infrastructure Strategy 2012–2032* (State Infrastructure Strategy);
- The *Metropolitan Plan for Sydney 2036* (Metropolitan Plan); and
- The *North East Subregional Strategy*.

The *Draft Metropolitan Strategy For Sydney To 2021* (Draft Metropolitan Strategy) identifies the Frenchs Forest Health Potential Specialised Precinct as a metropolitan priority for the North Subregion to ‘capitalise on the growing cluster of hospital and health-related uses with associated research/business park opportunities to stimulate local jobs’.

While not specifically referenced in *NSW 2021: A Plan to Make NSW Number One* (NSW 2021), delivery of the Northern Beaches Hospital would support a number of the health-related initiatives outlined in the Plan.

Within the Health portfolio, the hospital is identified in the Northern Sydney Local Health District (NSLHD) *Strategic Plan 2012–2016* (NSLHD 2012a) and *Clinical Services Plan 2012–2016* (NSLHD 2012b). The hospital is presented as a key element in improving efficiencies in delivering health care services for the Northern Beaches community.

Delivery of the Northern Beaches Hospital is being undertaken through the Northern Beaches Health Service Redevelopment project. The project will deliver a health solution that:

- Provides acute and outpatient services at a new hospital at Frenchs Forest providing critical mass and optimisation of the delivery of health services across the Northern Beaches Health Service (NBHS) catchment;
- Retains and redefines the Mona Vale Hospital to provide sub-acute services and other health services complementary to those at the new hospital (including demolition of redundant building stock so as to unlock land utilisation);
- Reconfigures the community health services across the NBHS catchment such that they are consolidated and located at the strategically identified sites of Dalwood, Mona Vale Hospital and a site to be identified in the Brookvale area; and
- Ceases the provision of health services from the Manly Hospital site.

The project has the following key outcomes:

1. Development of the new Northern Beaches Hospital at Frenchs Forest, combining public and private health care delivery so the Northern Beaches community has improved access and choices with regard to quality and sustainable health care.
2. Redesign of community health services on the Northern Beaches, with a new Northern Community Health Centre at Mona Vale, a new Southern Community Health Centre in the Brookvale area, and enhanced child and family specialist services at Dalwood in Seaforth.

3. Redevelopment of Mona Vale Hospital and cessation of services at Manly Hospital to bring together acute health services onto one site, creating the opportunity to expand contemporary models of care, increase clinical collaboration, provide a broader range of professional opportunities, and implement sustainable service delivery. Mona Vale Hospital will provide complementary services including a 24 hour, seven day a week urgent care centre supported by easy access to diagnostic services, such as pathology and medical imaging along with sub-acute, rehabilitation, community and palliative care services.

Delivery of the project is being managed by Health Infrastructure (HI). HI is a public authority responsible for the delivery and management of major capital works projects on behalf of the NSW Ministry of Health.

The need for the hospital is being driven principally by the following factors:

- Manly and Mona Vale Hospitals are among the smallest hospitals in metropolitan NSW by throughput and as such are impeded in their ability to provide the range of services required by the NSLHD on a cost-effective basis;
- The current fragmentation of services and the unavailability of certain specialist services at Manly and Mona Vale Hospitals means in many instances patients and carers are required to travel between the two hospitals to access services, and in some cases also have to travel outside the NBHS catchment, e.g. to Royal North Shore Hospital (RNSH);
- Manly and Mona Vale Hospitals suffer from ageing facilities that are not well configured and are unable to be reconfigured to provide contemporary models of care without significant capital expenditure;
- Existing health facilities are not well located in relation to the NBHS catchment. A single, centrally-located hospital would enable provision of a wider range of services of higher role delineation, reducing the need for patients to travel outside the NBHS catchment. This central location will also reduce pressures on RNSH by redirecting demand for non-tertiary care; and
- Community health services are spread across a number of small facilities that are not well designed for the work they do. The growth in chronic disease requires investment in community health services that can work together with primary care to meet the needs of the ageing population whilst reducing the need to admit patients to hospital.

The Northern Beaches Hospital would be constructed and operated by a private or not-for-profit operator on behalf of the NSW government. The government would purchase services from the hospital operator with the hospital treating public as well as private patients.

HI is presently undergoing a tendering process for selection of the hospital operator with the following indicative timetable:

- Fourth quarter 2013 – issue of tender documentation;
- Second quarter 2014 – receipt of tenders;
- Second quarter to fourth quarter 2014 – evaluation of tenders and identification of a preferred hospital operator; and
- Fourth quarter 2014 – appointment of the preferred hospital operator.

Subject to obtaining all necessary planning approvals (including for Stage 2), construction is planned to commence in the first quarter of 2015.

An interdepartmental working group involving local councils, NSW Health, Roads and Maritime Services (RMS), Transport for NSW (TfNSW) and the Department of Planning and Infrastructure (DP&I) has been established to address traffic and transport issues surrounding the site. TfNSW and RMS are currently finalising the preliminary traffic and transport planning work to support the Northern Beaches Hospital. A number of supporting road works solutions are presently being developed by TfNSW and RMS for consideration by Government.

1.2 Objectives of the proposal

The primary objectives of the Northern Beaches Hospital development are to:

- Deliver the best quality integrated health services and clinical outcomes to the community of the Northern Beaches of Sydney and NSW Health;
- Integrate public and private health care into a single facility to maximise the range and breadth of services available to the community of the Northern Beaches of Sydney;
- Provide health care teaching, training, education and research within the Northern Beaches Hospital as part of an integrated NSLHD;
- Consolidate existing services at the Frenchs Forest location to create critical mass, thus improving accessibility to health services by establishing the Northern Beaches Hospital; and
- Address the demand and cost impact of current and future health services by enabling a sustainable health system by changing the patterns of supply and demand. This will be achieved by utilising the location of the hospital, its operational and design innovation and digital hospital technologies.

1.3 Consideration of alternatives

Identification of a preferred site for the new hospital has been undertaken with reference to a range of factors including:

- State Government planning strategies such as the Draft Metropolitan Strategy;
- Existing and predicted demographic characteristics of the NBHS catchment;
- Reduction of patient travel times by providing Level 5 services in a new facility centrally located;
- Location relative to other health facilities within the wider NSLHD, health services currently provided across these facilities, and priorities for future clinical and community health, and Mental Health Drug and Alcohol services; and
- Proximity to major transport routes.

The site selection process also incorporated community and local councils input resulting in the Frenchs Forest site being selected as the preferred option. Frenchs Forest is well placed generally in the centre of the NBHS catchment, and in regard to Manly and Mona Vale Hospitals. It is adjacent to the major transport routes of Warringah Road and Wakehurst Parkway, and in close proximity to Forest Way.

As indicated in Section 1.1, construction and operation of the hospital would be undertaken by a private or not-for-profit operator on behalf of the NSW government. Prior to this decision, HI undertook a masterplanning process for the site with reference to a suite of planning principles

(refer Section 5.1). This process investigated three site layouts that also considered site constraints and opportunities including:

- Known public transport planning strategies;
- Adjacent land uses;
- Existing services and utilities;
- Site topography;
- Existing ecological values, notably the presence of DFEC on the site, and retention of site vegetation where practicable for 'green space';
- Bushfire risk;
- Connectivity (within and to the site); and
- Sustainability initiatives, such as Water Sensitive Urban Design.

From this, a reference concept design was developed for the site to serve as the general basis for the concept approval application and the assessment documented in Section 7. The reference concept design has also considered issues raised by the community with regard to consultation undertaken by DP&I as part of the precinct planning process (refer Section 6.5).

The 'do nothing' option is not considered acceptable by Government due to the current infrastructure and building stock condition at Manly and Mona Vale Hospitals. This would prevent achievement of the proposal objectives stated in Section 1.1 with increasing operational inefficiencies across the NBHS catchment, and increasing costs associated with maintaining ageing infrastructure at Manly and Mona Vale Hospitals.

1.4 Planning approval pathway

Through the effect of Order 2012 No. 537, dated 16 October 2012, made under Section 115U(4) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), an amendment was made to Schedule 4 of *State Environmental Planning Policy (State and Regional Development) 2011* (S&RD SEPP). This designates any development carried out by or on behalf of a public authority within the Northern Beaches Hospital Precinct (as defined on the State Significant Infrastructure Sites Map), and that has a capital investment value (CIV) of more than \$30 million, to be State Significant Infrastructure (SSI). As the Northern Beaches Hospital meets these criteria (refer Section 7.1.1), it therefore falls under Part 5.1 of the EP&A Act.

Division 3 of Part 5.1 provides for a staged infrastructure application. Section 115ZD(1) defines this as:

an application for approval of State significant infrastructure under this Part that sets out concept proposals for the proposed infrastructure, and for which detailed proposals for separate parts of the infrastructure are to be the subject of subsequent applications for approval. The application may set out detailed proposals for the first stage.

HI has determined to proceed with a staged infrastructure application for the Northern Beaches Hospital under Section 115ZD(1) of the EP&A Act as follows:

- Stage 1: concept proposal, and site clearance and related preparatory works; and
- Stage 2: construction, commissioning and operation of the hospital.

This EIS is intended to support the planning approval application for the concept proposal, and for the site clearance and related preparatory works. A separate EIS will be prepared to assess impacts associated with Stage 2 which will be the subject of a separate planning approval application.

Further details with respect to each of these two stages are provided in Section 5.1.

1.5 Structure of the EIS

This environmental impact statement (EIS) has been prepared by SMEC Australia Pty Ltd on behalf of HI to address the Director General's environmental assessment requirements (DGRs) relating to Stage 1 for the proposed Northern Beaches Hospital at Frenchs Forest, i.e. the concept proposal, and the site clearance and preparatory works. The EIS supports an SSI development application for planning approval under Part 5.1 of the EP&A Act with respect to Stage 1.

The EIS is structured as follows:

- Section 1: Provides the background to the hospital proposal, its objectives, considers alternatives (including the 'do nothing' option), and outlines the statutory context for the stage infrastructure application;
- Section 2: List of the DGRs related to the concept proposal assessment and to the site clearance and preparatory works assessment, and provision of cross references to relevant sections of the EIS where specific matters are addressed;
- Section 3: Analysis of the preferred hospital site at Frenchs Forest with respect to both local and regional contexts;
- Section 4: Environmental risk analysis for the concept proposal, and for the site clearance and preparatory works;
- Section 5: Description of the overall development, covering construction and operation of the hospital;
- Section 6: Summary of consultation undertaken with respect to the hospital development;
- Section 7: Assessment of issues related to the concept proposal with respect to the matters identified in the DGRs;
- Section 8: Assessment of impacts related to the site clearance and preparatory works with respect to the matters identified in the DGRs, and identification of appropriate mitigation and management measures;
- Section 9: Conclusion and justification for the overall hospital development and for the site clearance and preparatory works; and
- Section 10: Reference material consulted in preparation of the EIS.

2 Director General's Requirements

The DGRs for the environmental assessment of the proposed Northern Beaches Hospital were issued on 19 June 2013, and a copy is provided in Appendix A. The DGRs reflect the staged development of the proposal and this EIS has been prepared to address:

- The concept for the proposal for the hospital development; and
- Site clearance and preparatory works.

The matters specified in relation to Stage 2 will be addressed in a separate EIS. The following table provides a summary of the DGRs as they relate to the above two matters, and identifies where in the EIS individual matters are addressed.

Requirement	Where addressed
The EIS must meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 to the <i>Environmental Planning and Assessment Regulation 2000</i>	Page v
The EIS must include an environmental risk analysis to identify potential impacts associated with the infrastructure.	Section 4 Section 9.3
Where relevant, assessment of key issues and other relevant issues must include:	
▪ Adequate base line data	Noted
▪ Consideration of cumulative impacts due to other development in the vicinity	Sections 7.14, 8.7.4
▪ Measures to avoid, minimise and, if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	Section 8.8
Key issues: Northern Beaches Hospital Concept Proposal	
1. Statutory and Strategic Context	Section 7.1
▪ Consideration of all relevant environmental planning instruments, including identification and justification of any inconsistencies with these instruments	
▪ Address the relevant planning provisions, goals and strategic planning objectives in the following:	
○ NSW 2021	
○ Draft Metropolitan Strategy for Sydney to 2031	
2. Concept Proposal Built Form and Urban Design	Section 7.2
▪ Integration of the development with existing built form through the establishment of appropriate development controls including:	
○ Gross floor area	
○ Building footprints	
○ Height and massing/building envelopes	
▪ Indicative plans and elevations for the concept proposal to detail design, height, density, bulk and scale, setbacks of the proposal in relation to the surrounding development, topography and streetscape	
▪ Consideration of the overall site layout, axis, vistas and connectivity, open spaces and edges, interface with the public domain, primary elements and gateways	

Requirement	Where addressed
3. Amenity Preliminary analysis of perceived amenity impacts including noise and vibration, solar access, privacy, and analysis of significant views and vistas that would be impacted by the concept proposal.	Section 7.3
4. Transport and Accessibility Undertake an assessment of the traffic impact of the concept proposal, with particular regard to: <ul style="list-style-type: none"> Existing road capacity , traffic conditions , expected impacts, including consideration of any additional requirements at times when Wakehurst Parkway is flooded Road and intersection upgrade requirements, including options to offset the impact of the future hospital development on the road network Determine the adequacy of the development to meet the future demand for increased public transport services Daily and peak traffic movements and impacts on intersections Access arrangements to and within the site, including the appropriateness of the location of the main access point Delivery , servicing and loading arrangements Pedestrian and bicycle linkages to and within the site Access for emergency vehicles 	Section 7.4 Appendix C
5. Flora and Fauna <ul style="list-style-type: none"> Address impacts on flora and fauna , including known and potentially occurring threatened species, populations and endangered ecological communities, including Duffys Forest EEC, and their habitats, in accordance with DECC's Biodiversity Survey and Assessment: Guidelines for Developments and Activities (2004). Any steps taken to mitigate or offset any identified impacts to the environment should also be detailed in the EIS. The EIS should include a detailed survey (using a variety of survey methods by a suitably qualified person) for the threatened flora and fauna likely to be present on the site. 	Section 7.5 Appendix D
6. Bushfire A bushfire hazard assessment and report that addresses the requirements of clause 44 of the <i>Rural Fires Regulation 2008</i> and the requirements for Special Fire Protection Purpose Development as detailed in Planning for Bush Fire Protection 2006 guidelines.	Section 7.6 Appendix E
7. Staging Details regarding the staging of the proposed development.	Section 7.7
8. Aboriginal Heritage The EIS shall address Aboriginal Heritage in accordance with the Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation 2005 and Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010, where relevant.	Section 7.8 Appendix F

Requirement	Where addressed
<p>9. Heritage</p> <p>A statement of significance and an assessment of the impact on the heritage significance of any heritage items and/or conservation areas should be undertaken in accordance with the NSW Heritage Manual, where relevant.</p>	<p>Section 7.9 Appendix G</p>
<p>10. Contamination</p> <p>Demonstrate the site is suitable for the proposed land use in accordance with State Environmental Planning Policy No.55 – Remediation of Land</p>	<p>Section 7.10 Appendix H</p>
<p>11. Drainage</p> <p>Prepare a Stormwater Management Strategy and Plan that addresses drainage associated with the proposal, including stormwater and drainage infrastructure and any augmentation requirements and incorporating water sensitive urban design principles, water harvesting techniques with particular attention to the issue of on-site retention/detention. Stormwater drainage should be designed to avoid any adverse impacts on downstream properties.</p>	<p>Section 7.11 Appendix I</p>
<p>12. Utilities</p> <p>In consultation with relevant agencies the EIS shall address the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure through the preparation of an Infrastructure Management Plan.</p>	<p>Section 7.12 Appendix J</p>
<p>13. Hazards</p> <p>A description of the proposed storage, use and management of any hazardous materials and measures to be implemented to manage hazards and risks associated with the storage.</p>	<p>Section 7.13</p>
Key issues: Site Clearance and Preparatory Works	
<p>14. Noise and Vibration</p> <ul style="list-style-type: none"> Identify and provide a quantitative assessment of the main noise and vibration generating sources and activities during site clearance and preparatory works. Outline measures to prevent, control, minimise and mitigate noise and vibration impacts on surrounding occupiers of land, including The Forest High School. 	<p>Section 8.3 Appendix K</p>
<p>15. Transport and Accessibility</p> <ul style="list-style-type: none"> Detail proposed car parking arrangements, including parking requirements for site clearance and preparatory works. Provide accurate details of daily vehicle movements and assess the impacts of the traffic generated on the local road network, including impact on nearby intersections and any potential need for upgrade or road works (if required). 	<p>Section 8.4 Appendix C</p>
<p>16. Sediment, Erosion and Dust Controls</p> <p>Prepare a Soil and Water Management Plan that details measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles.</p>	<p>Section 8.5 Appendix L</p>

Requirement	Where addressed
<p>17. Servicing and Waste</p> <ul style="list-style-type: none"> Preparation of a Waste Management Strategy that identifies, quantifies and classifies the likely waste streams to be generated during site clearance and preparatory works 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. 	<p>Section 8.6 Appendix N</p>
Plans and Documents	
<p>The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the <i>Environmental Planning and Assessment Regulation 2000</i>. In addition, the EIS must include the following:</p>	
<ul style="list-style-type: none"> A Quantity Surveyors Certificate¹ 	Refer footnote below
<ul style="list-style-type: none"> Details of full-time construction and operational jobs 	<p>Section 5.2 Section 8.1.5</p>
<ul style="list-style-type: none"> Concept Proposal Drawings 	Section 5
<ul style="list-style-type: none"> Site Survey Plan, showing existing levels, location and height of existing and adjacent structures/buildings and boundaries 	Section 5
<ul style="list-style-type: none"> Site Analysis Plan 	Section 3.2
<ul style="list-style-type: none"> Stormwater Concept Plan 	Appendix I
<ul style="list-style-type: none"> Concept Shadow Diagrams 	Section 7.3
<ul style="list-style-type: none"> View Analysis/Photomontages 	Section 7.3
<ul style="list-style-type: none"> Preliminary Construction Management Plan, inclusive of a Preliminary Construction Traffic Management Plan 	Appendix O
Consultation	
<p>During the preparation of the EIS, HI must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular HI must consult with:</p>	
<ul style="list-style-type: none"> Warringah Council Roads and Maritime Services Transport for NSW Office of Environment and Heritage Environment Protection Authority Air Services Australia NSW Rural Fire Service Local Aboriginal Land Council and stakeholders Local Heritage Group/s, where relevant. 	Section 6
<p>The EIS must describe the consultation process and the issues raised; and identify where the design of the infrastructure has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.</p>	

¹ This has been provided separately to DP&I due to the commercial-in-confidence nature of the project value with respect to procurement of the hospital operator which is not expected to be completed until Q3, 2014.

3 Site Analysis

3.1 Regional context

The Northern Beaches region generally covers the local government areas (LGAs) of Warringah, Manly and Pittwater, and includes the key centres of Manly, Brookvale, Dee Why and Mona Vale. The ABS 2011 Census recorded a statistical area population of 237,640 people. In terms of land use, the region is predominantly made up of residential uses, as well as significant areas of open space, natural and recreational areas including the Ku-Ring-Gai Chase, Garigal and Sydney Harbour National Parks. The region is well known for its beaches including Manly, Curl Curl, Dee Why and Collaroy.

The NSLHD extends from Sydney Harbour to Sydney's upper north shore and includes Sydney's Northern Beaches, Hornsby and Ku-ring-gai, Ryde and Sydney's North Shore (Figure 1). The NSLHD contains Manly and Mona Vale Hospitals. Manly Hospital provides acute care services including critical care, emergency medicine, pregnancy and birth, medical, psychiatric, surgical and orthopaedic services. Non-acute services include cancer, day program for aged care rehabilitation,



Figure 1 Northern Sydney Local Health District

drug and alcohol services, stroke management, cardiac rehabilitation and podiatry. Community health services includes child, adolescent and family services, drug and alcohol, HIV prevention, mental health and health promotion services.

Mona Vale Hospital provides acute care services, including orthopaedic, medical, surgical, paediatric and emergency care. Non-acute inpatient services include adolescent counselling, dental and podiatry clinics, rehabilitation and aged care services.

Frenchs Forest is part of the Northern Beaches region of Sydney and contains a predominant residential land use, with supporting commercial, special and industrial uses. At the time of the Australian Bureau of Statistics (ABS) 2011 Census, Frenchs Forest had a population of 13,192. Geographically, the suburb covers an area of approximately 9.1 square kilometres.

3.2 Site location and context

The Northern Beaches Hospital site is strategically located at the intersection of Wakehurst Parkway and Warringah Road, Frenchs Forest, approximately 12 kilometres north of the Sydney Central Business District (Figure 2).

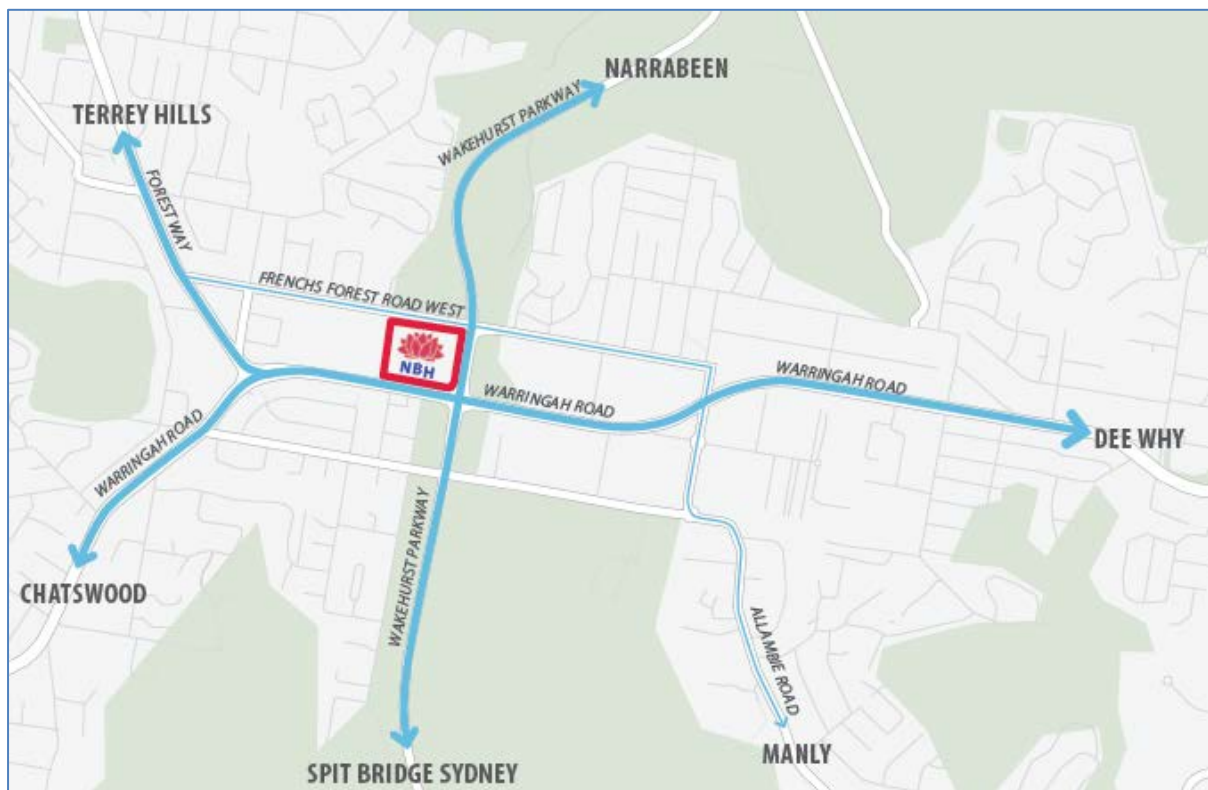


Figure 2 Location of proposed Northern Beaches Hospital

The site is bounded by Frenchs Forest Road West to the north, Wakehurst Parkway to the east, Warringah Road to the south, and The Forest High School to the west. Part of Bantry Bay Road cuts across the site. While the road is presently still open to the public, its status as a public road has been removed through the land acquisition process for the hospital, and it would be closed prior to the commencement of the site clearance and preparatory works. Key features on and around the hospital site are shown in Figure 3.

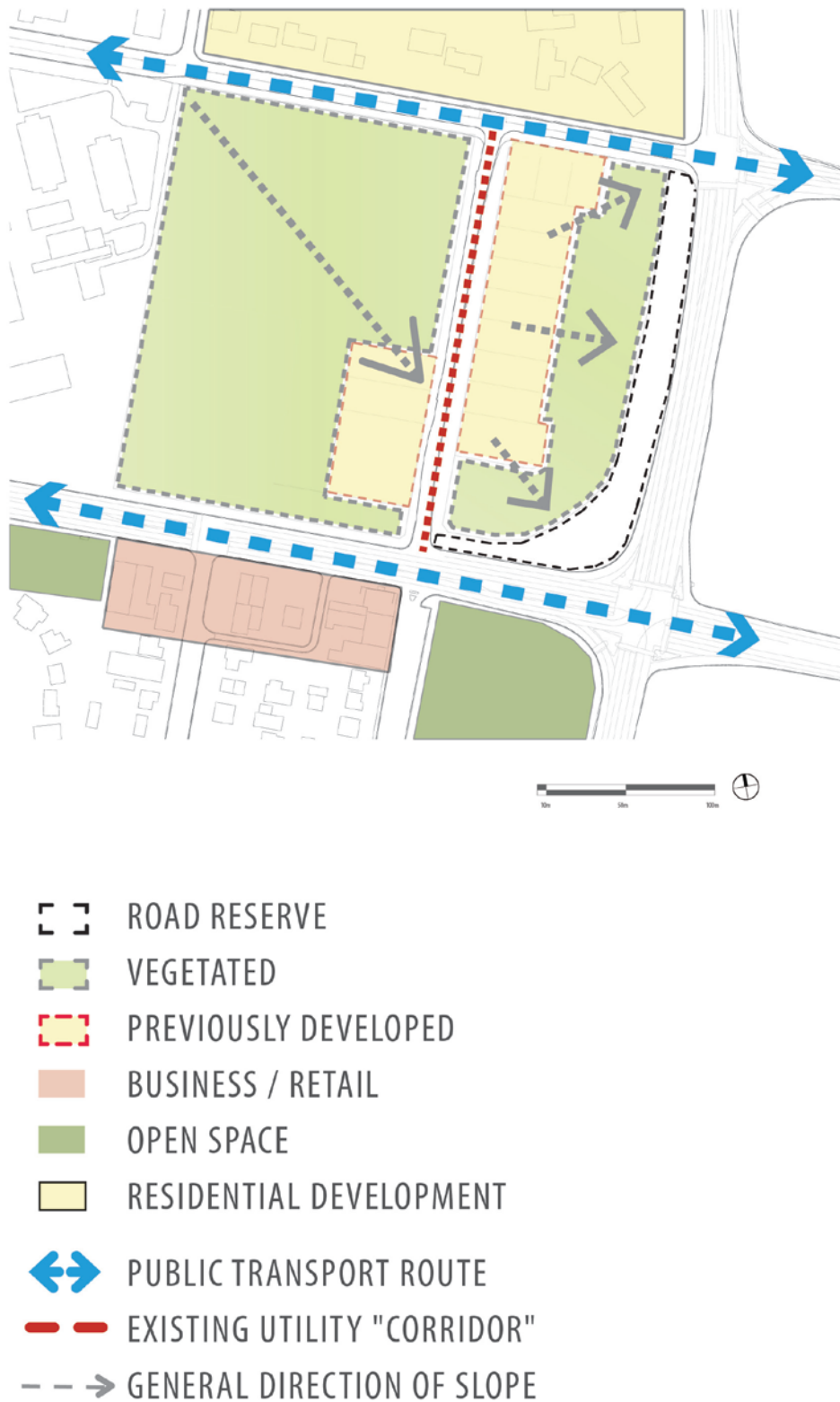


Figure 3 Site analysis plan

Existing development

The majority of the hospital site is presently undeveloped. Development that has occurred has been principally for residential purposes, the majority of this located adjacent to Bantry Bay Road.

Previous recent land uses on the hospital site include:

- Residences, principally on the eastern side of Bantry Bay Road (since demolished);
- A community health facility at 28 Bantry Bay Road that was closed in late 2012 and the building subsequently demolished; and
- A reserve (Blinking Light Reserve) located generally between the rear of the former residences on the eastern side of Bantry Bay Road and the road reserve adjacent to Wakehurst Parkway.

Foundations and concrete pads associated with the former buildings are still present on the site and would be removed as part of the site clearance and preparatory works. The remainder of the site is undeveloped and occupied by vegetation.

Topography

The hospital site is situated on a relatively high point in the landscape comprising an east–west trending ridgeline/plateau. To the northeast, the land descends down to the general locality of Narrabeen Lagoon. To the southeast, and primarily to the east of Wakehurst Parkway, the land trends down to Manly Dam Reserve.

The local topography across the hospital site is shown in Figure 4 (following page). There is a 12 metre difference in elevation across the site, ranging from about 164 mAHD in the northwest of the site to 152 mAHD in the southeast. Figure 5 shows three long sections (A, B, C) for the roads immediately adjacent to the hospital site.

Vegetation

Native vegetation across the hospital site comprises a mosaic of open-woodland to open-forest with a dominant regenerating shrub layer in more recently disturbed parts and a well-developed shrub-sedge dominated ground layer elsewhere. Canopy species are variable across the site with Smooth-barked Apple (*Angophora costata*) the most common and widespread species. Broad-leaved White Mahogany (*Eucalyptus umbra*), Silvertop Ash (*E. sieberi*) and Red Bloodwood (*Corymbia gummifera*) occur at moderate frequencies, generally over the western third of the site. Other eucalypt species occur on the site (*E. resinifera*, *E. globoidea*, *E. capitellata*) but are more localised.

Vegetation reflects underlying geology with shale three to six metres thick across most of the site (presence of Red Mahogany and White Stringybark) and a small patch with sandstone influence in the north east (presence of Scribbly Gum). There are high levels of weed invasion along the perimeter of the site, along tracks and in the vicinity of previous dwellings.

The majority of the undeveloped portion of the hospital site contains Duffys Forest Ecological Community (DFEC). This is a listed endangered ecological community under the NSW *Threatened Species Conservation Act 1995* (TSC Act). The ecological survey undertaken for the hospital has characterised the condition of the DFEC as ‘moderate/good’² across most of the site.

² As per the definition provided under the BioBanking Assessment Methodology. This is discussed in detail in Appendix C to the Biodiversity Offset Strategy (Appendix D to the Stage 1 EIS).

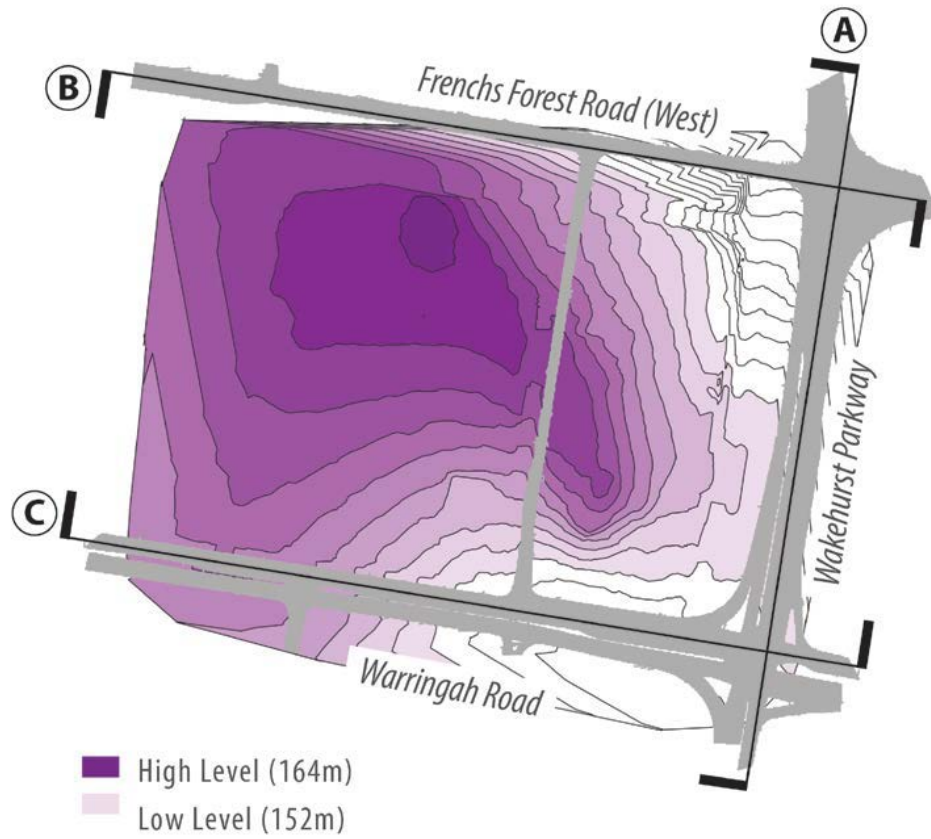


Figure 4 Local topography across hospital site



Figure 5 Adjacent road long-sections

Historic heritage

Historically, the site has been used for various purposes including timber supply (mid-19th century), market-gardening (early to mid-20th century) and residential development (mid-20th century). There is one item of local heritage significance listed under the Warringah LEP (Former Holland's Orchard Trees) within the vicinity of the hospital site. The two trees are located in the nature strip adjacent to Warringah Road, about 80 metres to the west of the hospital site.

Aboriginal heritage

The hospital site falls within the boundaries of the Metropolitan Local Aboriginal Land Council (MLALC). The coastal strip of NSW extending from Lane Cove to Lake Macquarie is the traditional lands of the Wanangine/Guringai Peoples. The Aboriginal heritage investigation (refer Section 7.8) did not identify any Aboriginal sites on the hospital site but noted the potential for heritage material to occur with regard to an area of sandstone outcrops in the north east part of the site adjacent to the intersection of Frenchs Forest Road West and Wakehurst Parkway.

3.3 Land tenure and zoning

The hospital site is completely owned by the Health Administration Corporation (HAC). The legal description is as follows: Lots 1–11, DP 26087; Lots 11–15, DP 792918; Lot 1, DP 119383. At the time of preparation of this EIS, HI was in the process of amalgamating all acquired parcels of land into a consolidated plan.

The hospital site is located within the Warringah LGA, with development usually subject to the provisions of the *Warringah Local Environmental Plan 2011* (Warringah LEP). The following zones apply to the site:

- R2 Low Density Residential;
- RE1 Public Recreation; and
- SP2 Infrastructure.

Figure 6 (following page) identifies the locations of these zones on the site, together with zones applying to the area surrounding the hospital site.

Under the LEP, hospitals are not permitted in the RE1 or SP2 zones. However, Section 115ZF(2) of the EP&A Act provides that Part 3 and environmental planning instruments generally do not apply to SSI.

3.4 Surrounding land use and development

Surrounding land use comprises residential, commercial, educational (The Forest High School), and open space/undeveloped land.

In the immediate vicinity of the hospital site, residential development is limited to the northern side of Frenchs Forest Road West. In the wider vicinity, residential development also occurs on the northern side of Frenchs Forest Road East, and to the south of Warringah Road generally to the east of Bantry Bay Road.

There is a small area of retail shops and commercial premises on the southern side of Warringah Road extending from Bantry Bay Road to just west of Hilmer Street. This area also extend a short

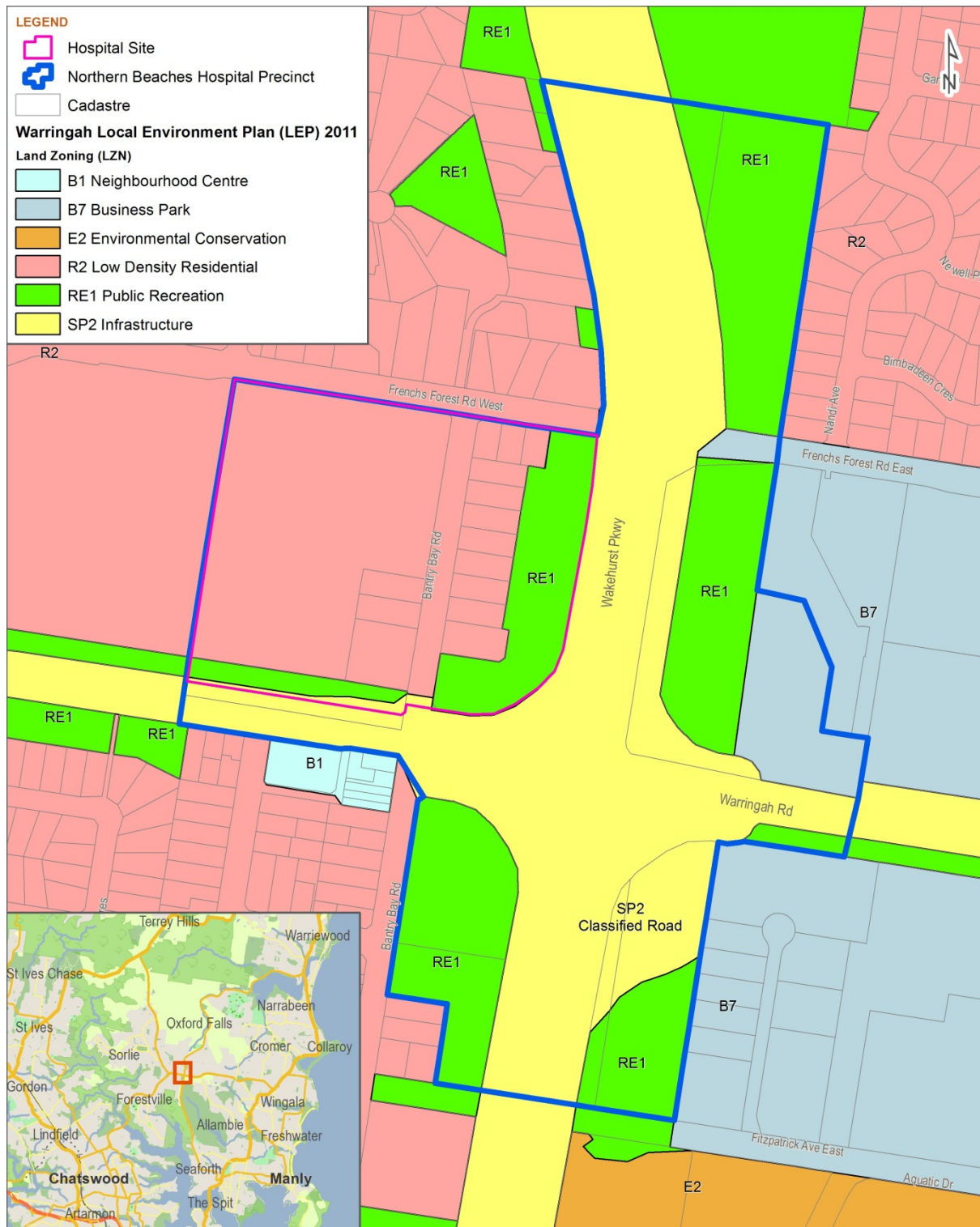


Figure 6 Warringah Local Environmental Plan 2011 zonings

distance down Bantry Bay Road. The Forestway Shopping Centre is located to the east of the hospital site on Forest Way, just north of the Warringah Road intersection.

To the east of Wakehurst Parkway, business parks and light industrial areas have become established on both sides of Warringah Road, the majority set within green, 'park-like' settings. One of these,

the Skyline Business Park located between Frenchs Forest Road East and Warringah Road, contains a number of businesses providing health-related services.

Open space in the general vicinity of the hospital includes Brick Pit Reserve on the southern side of Warringah Road between Wakehurst Parkway and Bantry Bay Road. There is also a small linear area of parkland on the southern side of Warringah Road west of Hilmer Street that extends west, past the Forest Way intersection to Fitzpatrick Avenue East. More widely, principally to the south, there are other areas of open space such as Forestville Park, Ararat Reserve and Manly Dam Reserve.

There is an area of undeveloped land owned by RMS on the eastern side of Wakehurst Parkway opposite the hospital site.

4 Environmental Risk Analysis

The DGRs require the EIS to include an environmental risk analysis to identify potential environmental impacts associated with the proposal. This is provided in this section. The analysis undertaken comprised a qualitative assessment consistent with AS/NZS ISO 31000:2009 *Risk management—Principles and guidelines* (Standards Australia 2009). The level of risk was assessed by considering the potential impacts of the proposed hospital prior to application of any mitigation or management measures. Comment on residual risk (the remaining level of risk following implementation of mitigation and management measures) is provided in Section 9.

The analysis has drawn on a number of information sources including the visioning workshops undertaken by DP&I in December 2012 (Urbis 2013) in relation to planning issues within the hospital precinct. It should be noted that this is not intended as an exhaustive analysis, rather it focuses on key impacts.

Risk comprises the likelihood of an event occurring and the consequences of that event. For the proposal, the following descriptors were adopted for 'likelihood' and 'consequence'.

Likelihood:

- A Almost certain
- B Likely
- C Possible
- D Unlikely
- E Rare

Consequence:

- 1 Widespread irreversible impact
- 2 Extensive but reversible (within 2 years) impact or irreversible local impact
- 3 Local, reversible (within 2 years) impact
- 4 Local, reversible, short term (<3 months) impact
- 5 Local, reversible, short term (<1 month) impact

Risk levels for likely and potential impacts were derived using the following risk matrix.

Table 1 Risk matrix

		Likelihood				
		A	B	C	D	E
Consequence	1	High	High	Medium	Low	Very Low
	2	High	High	Medium	Low	Very Low
	3	Medium	Medium	Medium	Low	Very Low
	4	Low	Low	Low	Low	Very Low
	5	Very Low	Very Low	Very Low	Very Low	Very Low

The results of the environmental risk assessment are presented in Table 2 and Table 3 (following pages) for the concept proposal, and the site clearance and preparatory works respectively. The risk assessment (and following impact assessment) has been based on information available to HI at the time of finalising the Stage 1 EIS (30 September 2013).

Table 2 Risk assessment – Concept Proposal

Aspect	Potential impact	Likelihood	Consequence	Risk level
Amenity	Overshadowing from hospital buildings on land outside of the hospital site	C	2	Medium
	Visual appearance of hospital buildings	A	2	High
	Inadequate setbacks of hospital buildings from Frenchs Forest Road west	C	2	High
	Loss of bushland setting and screening vegetation on hospital site	A	3	Medium
	Noise emissions from hospital plant	C	3	Medium
	Noise from helicopter operations	C	5	Very Low
Transport & accessibility	Contribution to further congestion on local roads and wider road network from hospital traffic	B	2	High
	Loss of local north-south access from closure of Bantry Bay Road (north of Warringah Road)	A	5	Very Low
	Inadequate building setbacks constrain/prevent roadway adjustments for supporting road works	C	2	Medium
	Reduced access via public transport	D	4	Low
Flora and fauna	Additional impacts on Duffys Forest Ecological Community beyond initial site clearing	C	2	Medium
Bushfire	Increased bushfire risk level	D	4	Low
Aboriginal heritage	Damage to Aboriginal sites or artefacts	D	2	Low
Historic heritage	Damage to historic heritage sites	D	2	Low
Contamination	Spill of hazardous liquids/materials	D	3	Low
Drainage	Reduced water quality from poor quality runoff from hospital site	C	3	Medium
	Localised flooding from increased stormwater runoff from hospital site	C	3	Medium
Waste management	Pollution from inappropriate disposal of waste	D	3	Low

Table 3 Risk assessment – site clearance and preparatory works

Aspect	Potential impact	Likelihood	Consequence	Risk level
Flora and fauna	Removal of Duffys Forest Ecological Community	A	1	High
	Removal of habitat for listed threatened species	A	2	High
	Removal of fauna habitat	A	2	High
Noise & vibration	Reduced amenity for adjacent residences on Frenchs Forest Road West	A	4	Low
	Disruption to school activities	A	4	Low
Transport & accessibility	Reduced efficiency of local traffic movements	C	5	Very Low
	Disruption to public transport movements	C	5	Very Low
Soils	Erosion of unconsolidated material and transport offsite	C	4	Low
	Spill of fuel/hazardous materials	C	4	Low
Servicing & waste	Inappropriate disposal of residual demolition waste	D	4	Low
Heritage	Damage to Aboriginal sites or artefacts	D	5	Very Low
	Damage to historic heritage sites	D	4	Low
Air quality	Emissions from construction plant/equipment	A	5	Very Low
	Significant greenhouse gas emissions	D	5	Very Low
Energy conservation	Significant demand on energy resources in short supply	E	4	Very Low

5 Description of the Proposal

5.1 Overview

The Northern Beaches Hospital is being undertaken as a staged SSI development as follows.

Stage 1

- Concept for the proposal (refer discussion in Section 5.2); and
- Site clearance and preparatory works generally comprising:
 - Establishment of site office, including temporary connection to services (water, sewer, power);
 - Closure of Bantry Bay Road to the public and establishment of construction traffic management controls;
 - Removal of existing temporary fencing and installation of construction fencing;
 - General clearance of site vegetation including tree stumps, but with retention of the area of vegetation broadly consistent with the former Blinking Light Reserve at the eastern end of the site;
 - Thinning of the understorey in the aforementioned area of vegetation;
 - Chipping of cleared vegetation (excluding weed species) to use on site for ground stabilisation/erosion control in the period prior to commencement of Stage 2;
 - Offsite disposal of surplus cleared vegetation to green waste recycling facility or other beneficial reuse;
 - Removal of foundations, concrete pads, etc. associated with former buildings and subsequent disposal of these materials to an appropriate receiving facility;
 - Site stabilisation (such as establishment of erosion and sediment controls) in preparation for Stage 2; and
 - Site management in the period between completion of the site clearance and preparatory works, and commencement of Stage 2.

Stage 2

- Main construction works that may include:
 - Bulk excavation works, including a sub-level structure for a loading dock and limited car parking;
 - Construction of the new hospital;
 - Utility and services amplifications works;
 - Any additional car parking for staff, patients and visitors; and
 - External site works such as landscaping, pathways, etc.
- Hospital commissioning and operation.

Services provided would include emergency, critical care, operating theatres, acute in-patient (overnight, day, and extended day only), maternity and neonatal, paediatrics and adolescents, mental health and drug and alcohol, sub-acute, primary health care, ambulatory, clinical support, other support, and associated administrative and front of house services. The hospital would cater for both public and private patients.

It is anticipated that submission of the Stage 2 SSI application would occur in the third quarter of 2014. Subject to obtaining all necessary planning approvals, construction is planned to commence in the first quarter of 2015

5.2 Description of the concept proposal

HI has undertaken a masterplanning process for the site with reference to the following planning principles:

- Provision of safe, high quality, patient-centred care;
- Efficient access and way-finding, providing efficient, clear and unambiguous points of entry and direction;
- Capacity to accommodate current and future changes in health care service delivery and technology;
- Support for teaching and learning to facilitate the delivery of quality patient care;
- Optimisation of operational efficiencies and a whole-of-building approach to the delivery of health and support services;
- Provision for a fully integrated Information Management and Technology (IMT) system that supports staff in delivering care across a range of settings and clinical environments;
- Incorporation of features that provide for the wellbeing of staff, support shift workers, and include amenities that optimise staff experience; and
- Fit within the urban context, particularly with regard to creating a sense of place and identity.

From this, a reference design has been developed to serve as the basis for the concept proposal assessment. This reflects opportunities, constraints and other relevant issues with reference to the above planning principles.

The final design developed by the hospital operator may differ from the concept proposal presented in this EIS but would be generally consistent with the above planning principles and the design outcomes noted in this section.

The key features of the concept proposal reference design include the following:

- A building envelope generally comprising:
 - A minimum setback distance of six metres from all site boundaries (refer Section 7.2 for individual distances for each boundary);
 - Building mass of six to ten storeys (excluding plant level) including lower ground floor, ground floor and first floor;
 - Massing of two storeys on approach and entrance (Frenchs Forest Road West) and three storeys at the southern end of the site (Warringah Road side); and

- Approximate gross floor area (GFA) of 70,000 square metres (which will be subject to refinement during the ongoing planning process).
- Primary access from Frenchs Forest Road West and secondary access (left in, left out only) from Warringah Road, with ambulances able to access the hospital from both points;
- A helipad located on top of the main hospital building;
- Partial retention of vegetation at the eastern end of the site adjacent to the existing road reserve (understorey vegetation would be removed to assist in managing bushfire risk); and
- A public walkway at the western end of the site adjacent to the school providing pedestrian access between Frenchs Forest Road West and Warringah Road to facilitate connectivity within the hospital site and to the broader precinct.

The hospital is likely to have up to 1,000 full time equivalent (FTE) employees. The number of jobs associated with construction of the hospital would not be known until after completion of the tendering process for selection of the hospital operator. It is anticipated that information this would be provided in the Stage 2 EIS.

A full description of the site clearance and preparatory works is provided in Section 8.1, together with an assessment of impacts associated with these works.

5.3 Capital investment value

The CIV of a project is defined in clause 3 of the *Environmental Assessment and Planning Regulation 2000* as follows:

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

- (a) amounts payable, or the cost of land dedicated or any other benefit provided, under a condition imposed under Division 6 or 6A of Part 4 of the Act or a planning agreement under that Division,
- (b) costs relating to any part of the development or project that is the subject of a separate development consent or project approval,
- (c) land costs (including any costs of marketing and selling land),
- (d) GST (within the meaning of A New Tax System (Goods and Services Tax) Act 1999 of the Commonwealth).

The CIV for the Northern Beaches Hospital is commercial-in-confidence due to the procurement process for the hospital operator currently underway, but has been provided separately to DP&I as part of the documentation associated with lodgement of the SSI application.

5.4 Design outcomes

With reference to the planning principles in Section 5.2, the site layout and built form features of the reference design for the proposed Northern Beaches Hospital are summarised as follows:

- A number of massing options have been considered; these have included consideration of building footprints and minimising massing toward the northern (Frenchs Forest Road West) end of the site without compromising achievement of required clinical functionality, and limiting

capacity for potential future expansion; the options are in alignment with issues raised at the Community Visioning Workshops conducted in December 2012;

- Provision for potential future expansion, generally at the southern (Warringah Road) of the site, and to the south east part of the site;
- Location of noise-generating plant generally towards the southern end (Warringah Road) of the site away from residential receivers and school buildings;
- Provision of access for ambulances at both the north and south of the site; the access from Frenchs Forest Road West would be separate from the general access for staff, patients and visitors; the access from Warringah Road would be shared with delivery vehicles with ambulances having priority;
- Restriction of development on the site immediately fronting Frenchs Forest Road West to provide for potential future road widening as part of the supporting road works;
- Separation of access for delivery vehicles from general access for staff, patients and visitors;
- Car parking for staff, visitors and patients;
- Retention of an area of vegetation at the eastern end of the site adjacent to the existing road reserve in Wakehurst Parkway that would be managed as part of the overall hospital operations;
- Appropriate consideration of bush fire risk with regard to design development and establishment of asset protection zones, and ongoing landscape management; and
- Internal pedestrian routes that provide appropriate functionality for access within and through the hospital sites, and provide connectivity to external access points including existing bus stops; this would include a pathway at the western end of the site providing connectivity between Frenchs Forest Road West and Warringah Road.

5.5 Access and parking

Access

Specific details regarding access arrangements for the proposed Northern Beaches Hospital are the subject of ongoing design development, including consultation with RMS with regard to design of the supporting road works. This notwithstanding, the following design principles have been agreed with RMS and TfNSW:

- A main signalised access off Frenchs Forest Road West at the western end of the site that would provide ambulant access as well as general vehicle access to car parking; this access would likely be signalised and allow for all turning movements
- A second access (unsignalised) off Frenchs Forest Road West, a minimum of 65 metres to the east of the main access that would provide access for ambulances only; this would allow for all turning movements to and from Frenchs Forest Road West
- Access would be provided from Warringah Road but would generally be restricted to left in, left out only, with use limited to ambulances, staff and delivery vehicles; this access would be located generally between Hilmer Street and the western site boundary, with the exact location to be determined as part of design development.

RMS has given in-principle agreement to allow right-turn egress movements by ambulances via an emergency all red signal phase at the Hilmer Street intersection (and a fourth/northern approach to this existing signalised intersection). This would be investigated further as part of design development and would include consultation with RMS.

Pedestrian access to the site would be available from Frenchs Forest Road West and from Warringah Road. Access points would connect with an internal pedestrian network. Specific locations would be confirmed during design development and as a general design principle would, as far as practicable, connect to existing road crossing points such as the pedestrian crossing at Hilmer Street.

Access to the hospital would also be available via public transport (bus). There are existing westbound and eastbound bus stops immediately to the west of Bantry Bay Road on Warringah Road, and on Frenchs Forest Road West between Bantry Bay Road and Gladys Avenue. Sydney Buses runs a number of services through the hospital precinct as follows:

- 136, 137, L60 – these use Warringah Road, and Frenchs Forest Road (West and East); and
- 169, E69, and 173 – these use Warringah Road and Wakehurst Parkway.

Forest Coach Lines runs one service (Route 280) along Warringah Road through the hospital precinct.

The Stage 2 EIS would include development of a sustainable travel demand management strategy within the context of wider public transport planning for the Warringah Road corridor, and with regard to any relevant strategies and actions arising out of the *Northern Beaches Bus Rapid (BRT) Pre-Feasibility Study* (TfNSW 2012).

Parking

The traffic assessment for this EIS has assumed a minimum of 900 car park spaces on the hospital site based on the reference design. The eventual number of car park spaces would be dependent on the hospital operator's final design, and the impacts would be assessed in detail in the Stage 2 EIS.

Options for car parking on the hospital site comprise at-grade (on the surface), underground, above ground (multi-storey), or a combination of these. Specific details would not, however, be known until finalisation of the design by the hospital operator.

6 Consultation

6.1 Background

The DGRs include the requirement to undertake consultation with the following stakeholders with regard to both the concept proposal, and the site clearance and preparatory works:

- Warringah Council;
- Roads and Maritime Services;
- Transport for NSW;
- Office of Environment and Heritage;
- Environment Protection Authority;
- Air Services Australia;
- NSW Rural Fire Service;
- Local Aboriginal Land Council and stakeholders; and
- Local heritage groups where relevant.

The DGRs further require the Stage 1 EIS to describe the consultation process and the issues raised, and identify where the design of the infrastructure has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.

The DGRs include advice from the following agencies with respect to matters to be considered in the Stage 1 EIS:

- Warringah Council;
- Roads and Maritime Services / Transport for NSW (combined);
- Office of Environment and Heritage;
- Environment Protection Authority;
- NSW Rural Fire Service; and
- Sydney Water.

These are included with the DGRs in Appendix A.

As a general comment, a significant number of issues raised relate to the second stage of the hospital development. A detailed response would be provided in the Stage 2 EIS once specific details are known following completion of design development by the hospital operator. This notwithstanding, preliminary responses have been provided in the Stage 1 EIS with respect to the concept proposal.

6.2 Government stakeholders

In mid-2012, an Inter Departmental Committee (IDC) was established to facilitate interagency coordination at executive level in relation to the Northern Beaches Hospital project. Membership of the IDC comprises representatives from HI, RMS, TfNSW, DP&I, NSW Ministry of Health, NSW

Treasury, NSLHD, Infrastructure NSW, Department of Premier and Cabinet, and Shore Regional Organisation of Councils (SHOROC). The IDC has met eight times since June 2012.

In late 2012, HI established an Interface Reference Group (IRG) with membership comprising HI, TfNSW, RMS and DP&I. The purpose of the IRG is to complement IDC activities, and to facilitate a coordinated approach to planning issues related to delivery of the hospital and supporting infrastructure. The IRG met generally fortnightly from early October 2012 through to April 2013 and has met as required since then.

Table 4 summarises the range of consultation activities undertaken for the proposed hospital and with regard to the stakeholders identified in the DGRs.

Table 4 Summary of consultation activities and outcomes

Agency	Nature of Consultation	Outcome
Warringah Council	Acquisition of Council-owned land (Blinking Light Reserve) for incorporation into hospital site Briefings (31 Jul 2013, 5 Sep 2013) on status of hospital project, including procurement model, project timeframe, services diversions, wider road network issues, EIS scope and timeframe and related hospital planning matters	Land acquisition completed in April 2013. Council updated. Ongoing consultation with Council occurring.
RMS/TfNSW	HI has undertaken regular consultation with RMS and TfNSW, principally via the IRG. This has covered a range of issues including: <ul style="list-style-type: none"> ▪ The operational impact of the hospital on the local and wider road network ▪ Hospital access arrangements and future network improvements ▪ Provision for integration with future public transport initiatives 	Responses to issues of relevance to the concept proposal, and site clearance and preparatory works are provided as follows: <ul style="list-style-type: none"> ▪ Site integration with existing and future transport network – Section 7.4 ▪ Construction traffic management – Section 8.4 and Appendix C.
OEH	Ecological survey design with respect to maximising likelihood of detection of threatened species potentially occurring on the hospital site Preliminary feedback on proposed biodiversity offset strategy	Survey design for spring and summer surveys revised as per OEH advice. Refer Appendix D in Biodiversity Offset Strategy (Appendix D). Biodiversity offset strategy report prepared to address all relevant matters in OEH interim policy for assessing and offsetting biodiversity impacts (refer Section 7.5 and Appendix D).
Sydney Water	Interfacing with Sydney Water infrastructure with regard to water and sewer works.	Relevant matters have been addressed in design development. Refer also to Infrastructure Management Plan (Appendix J).

Agency	Nature of Consultation	Outcome
RFS	Bushfire risk assessment in relation to initial hospital concept	<p>Discussion with regard to preliminary consideration of bushfire risk is provided in Section 7.6 and a bushfire constraints assessment is provided in Appendix E.</p> <p>RFS has provided general advice with regard to appropriate management of infrastructure on the hospital site. A further bushfire risk assessment would be undertaken by the hospital operator as part of design development.</p>
EPA	No specific consultation has been undertaken with the EPA. The issues raised by the EPA have been recognised from the outset of the project and it is noted that many relate to the Stage 2 works and to operation of the hospital.	<p>Responses to issues of relevance to the site clearance and preparatory works are provided as follows:</p> <ul style="list-style-type: none"> ▪ Contamination – Section 7.10 ▪ Air quality during construction – Section 8.7.2 ▪ Construction noise and vibration – Section 8.3 ▪ Water quality – Section 8.5 ▪ Waste management – Section 8.6 and Appendix N ▪ Soil erosion and sedimentation – Section 8.5 ▪ Energy conservation – Section 8.7.3 ▪ Cumulative impacts – Section 8.7.4
Department of Education and Training / The Forest High School	Presentations made to DET and TFHS on 19 Sep 2013 and 20 Sep 2013 respectively.	DET and TFHS informed of works undertaken to date, planned works associated with the services diversions and the site clearance and preparatory works, and HI's program with regard to determination of the concept proposal, and site clearance and preparatory works application.
Air Services Australia	ASA requirements have been reviewed with regard to likely helicopter flight paths.	It was assessed that there were no specific requirements necessitating consultation with ASA. An assessment of aviation airspace issues is provided in Appendix P.

6.3 Aboriginal stakeholder consultation

Aboriginal stakeholder consultation was undertaken by Australian Museum Business Services (AMBS) in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. The outcomes of the consultation activities with the various stakeholders are summarised in the following table.

Table 5 Aboriginal stakeholder consultation activities and outcomes

Stakeholder	Nature/outcome of consultation
Warringah Council	<ul style="list-style-type: none"> Advised that AHO provides advice to Council on Aboriginal heritage matters
Aboriginal Heritage Office (AHO)	<ul style="list-style-type: none"> Registered interest to be consulted on the project Advised that as AHO was not an Aboriginal community organisation, it was not able to provide feedback on cultural heritage matters Provided written response to AMBS on matters considered of relevance to managing potential impacts on Aboriginal heritage
OEH	<ul style="list-style-type: none"> Advised that the following should be contacted: Metropolitan Local Aboriginal Land Council, Darug Aboriginal Cultural Heritage Assessments, and Scott Franks (Yarrawalk/Toomwall)
Office of the Registrar, Aboriginal Lands Rights Act 1983 (ORALRA)	<ul style="list-style-type: none"> Advised that there are no registered Aboriginal owners for the study area.
Metropolitan Local Aboriginal Land Council (MLALC)	<ul style="list-style-type: none"> Registered interest to be consulted on the project
Darug Aboriginal Cultural Heritage Assessments (DACHA)	<ul style="list-style-type: none"> Invited to register for consultation on the project. Invitation declined; DACHA advised that the study area was not within its areas of interest.
Guringai Tribal Link Aboriginal Corporation (GTLAC)	<ul style="list-style-type: none"> Responded to Manly Daily advertisement (28 June 2012) inviting expression of interest to be involved in the Aboriginal heritage assessment process for the project Representative participated in field survey undertaken on 21 August 2012
Professor Dennis Foley (University of Newcastle)	<ul style="list-style-type: none"> Responded to Manly Daily advertisement (28 June 2012) inviting expression of interest to be involved in the Aboriginal heritage assessment process for the project Registered interest to be consulted on the project Provided written response to AMBS on matters considered of relevance to the assessment
Yarrawalk/Toomwall	<ul style="list-style-type: none"> Registered interest to be consulted on the project Representative participated in field survey undertaken on 21 August 2012
Darug Land Observation	<ul style="list-style-type: none"> Registered interest to be consulted on the project Representative participated in field survey undertaken on 21 August 2012 Provided written response to AMBS following field survey on matters considered of relevance to managing potential impacts on Aboriginal heritage

Further detail on the Aboriginal consultation process and outcomes is provided in the Aboriginal Heritage Impact Assessment appended to this EIS (Appendix F), and in Section 7.8.

6.4 Local heritage groups

Historic heritage investigations for the proposed hospital have been undertaken by AMBS, and the outcomes documented in Section 7.9 and Appendix G. The investigation comprised a review of existing information sources and a site assessment. This was deemed sufficient to adequately characterise likely and potential historic heritage issues associated with the hospital site and, as such, no specific consultation with local heritage groups or organisations was undertaken.

6.5 Department of Planning and Infrastructure

Extensive consultation has occurred with DP&I in relation to both the Northern Beaches Hospital and broader precinct planning activities for the development. HI has actively engaged with DP&I and other key agencies to ensure a holistic planning approach is taken in regards to the broader precinct.

As part of DP&I's community engagement process for the Northern Beaches Hospital Precinct, two Community Visioning Workshops were conducted in December 2012. The forums invited participants to deliberate together on their aspirations for the future of the precinct and the range of issues to be considered in planning for the precinct. Some 200 community representatives attended the sessions which included presentations from DP&I, HI and RMS in relation to the precinct.

The majority of forum participants were residents living within the immediate suburb of Frenchs Forest. A number of health practitioners also attended the forums as did representatives from local community and special interest groups, including:

- Bantry Bay Road Neighbourhood Group;
- Frenchs Forest Public School Parents and Citizens Association;
- Friends of Narrabeen Lagoon Catchment Committee;
- Garigal Landcare;
- Mona Vale Hospital Auxiliary;
- NSLHD;
- Probus;
- Save Mona Vale Hospital Committee;
- Shore Regional Organisation of Councils (SHOROC);
- The Forest High School Parents and Citizens Association;
- The H.E.A.L. Network (Community Healing Hub) Northern Beaches;
- NSW Wildlife Information Rescue and Education Service (WIRES);
- Warringah Council; and
- A number of property development companies.

The following table notes the key issues raised at the workshops and the Northern Beaches Hospital project planning team's responses to those issues raised.

Table 6 Visioning Workshops: key issues and planning responses

Key issues	Planning response
Traffic, access and parking	Government has acknowledged the importance of the Northern Beaches Hospital to the region and has established an IDG and IRG of key agencies to ensure a holistic approach to planning for the hospital and associated road and transport infrastructure is undertaken. The Project acknowledges the need for the site to cater and manage parking requirements within the hospital site.
Area amenity and environmental preservation	A Masterplanning Constraints Document has been prepared for the site to ensure appropriate consideration of issues around access, setbacks, building form and height, massing and creation and maintenance of green space is retained on-site. There is also an acknowledgement that the site should interface with the community with various activation areas to be considered as part of the hospital design process.
Transport and related infrastructure	Government has acknowledged the importance of the Northern Beaches Hospital to the region and has established an IDG and IRG of key agencies to ensure a holistic approach to planning for the hospital and associated road and transport infrastructure is undertaken. TfNSW and RMS are currently undertaking detailed planning for an integrated roads and transport infrastructure solution.
Precinct facilities and supporting uses	The new Northern Beaches Hospital will deliver a range of Level 5 health services which will enhance access for the community of the Northern Beaches in a single facility offering greatly improved services to patients.
Precinct planning	HI has been working and will continue to work with DP&I in relation to the broader Precinct planning to ensure associated services and infrastructure are planned accordingly.
Resident impact	The Visioning Workshops clearly articulated the community's concerns around issues such as building height, setbacks from residential properties, parking, access, noise, campus amenity and traffic. As previously mentioned a Masterplanning Constraints Document has been developed which sets some principles around these planning issues and will be used as a basis for tenderers to respond to through the Request for Proposal process for the new hospital.
Housing	This issue will be considered as part of the broader precinct planning process and further consultation would occur with DP&I and the community in regard to this planning issue.
Hospital campus: location and funding	<p>The location of the new hospital took into account factors including future population distribution, travel time, availability of sites and the catchment required to ensure a critical mass of patient demand. Consultation occurred with the community and local councils which resulted in Frenchs Forest being selected as the preferred location.</p> <p>The NSW Government will make a capital contribution to the development of the Northern Beaches Hospital Project for facilities and infrastructure which will be used by the hospital operator to provide public patient services.</p>

7 Concept for the Proposal

This section of the EIS provides an overview of the Northern Beaches Hospital development, and consideration of the issues specified in the DGRs as they relate to the concept proposal.

7.1 Statutory and strategic context

This following subsections identify the relevant environmental planning instruments (EPIs) relating to the concept proposal, and discuss the manner in which they apply to the proposal. Consideration is also given to the relevant planning provisions, goals and strategic planning objectives in the Metropolitan Plan, NSW 2021 and the Draft Metropolitan Strategy.

7.1.1 Environmental Planning and Assessment Act 1979

The EP&A Act is the prevailing planning legislation applying to most forms of development and environmental assessment within NSW. The Act establishes a statutory framework for the environmental assessment of the project and the majority of development types within the State. It also establishes planning instruments to guide development in a manner which is environmentally, socially and economically responsible.

Through the effect of an amendment made to *State Environmental Planning Policy (State and Regional Development) 2011* (refer Section 7.1.2), the proposed Northern Beaches Hospital is subject to Part 5.1 of the EP&A Act. This part of the Act relates to the assessment and approval regime for SSI. Under Section 115U(3) of the EP&A Act, development that may be declared to be SSI is development that a SEPP permits to be carried out without development consent under Part 4 comprising:

- (a) *infrastructure*
- (b) *other development that (but for this Part and within the meaning of Part 5) would be an activity for which the proponent is also the determining authority and would, in the opinion of the proponent, require an environmental impact statement to be obtained under Part 5.*

HI is the proponent for the proposed Northern Beaches Hospital. The development would have a number of significant impacts (such as on DFEC, an endangered ecological community) that would require preparation of an EIS if Part 5 applied.

Section 115U(4) of the EP&A Act, states:

Specified development on specified land is State significant infrastructure despite anything to the contrary in this section if it is specifically declared to be State significant infrastructure. Any such declaration may be made by a State environmental planning policy or by an order of the Minister (published on the NSW legislation website) that amends a State environmental planning policy for that purpose.

Division 2, Part 5.1 of the EP&A Act designates the Minister for Planning and Infrastructure as the approval authority for SSI and that the Director General is to provide the environmental assessment requirements in respect of the proposed infrastructure. In terms of assessment, Section 115Y(2) states that the environmental assessment requirements must require an EIS to be prepared in accordance with the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

Section 115ZG of the EP&A Act identifies authorisations that are not required for approved SSI³. These are:

- Concurrence under Part 3 of the *Coastal Protection Act 1979* of the Minister administering that Part of that Act;
- A permit under sections 201, 205 or 219 of the *Fisheries Management Act 1994*;
- An approval under Part 4, or an excavation permit under Section 139, of the *Heritage Act 1977*;
- An Aboriginal heritage impact permit under Section 90 of the *National Parks and Wildlife Act 1974*;
- An authorisation referred to in Section 12 of the *Native Vegetation Act 2003* to clear native vegetation or State protected land;
- A bush fire safety authority under Section 100B of the *Rural Fires Act 1997*; and
- A water use approval under Section 89, a water management work approval under Section 90 or an activity approval (other than an aquifer interference approval) under Section 91 of the *Water Management Act 2000*.

Under Section 115ZH(1) of the EP&A Act, certain approvals that may normally be required for carrying out certain development 'cannot be refused if it is necessary for carrying out approved State significant infrastructure...', these being:

- An aquaculture permit under Section 144 of the *Fisheries Management Act 1994*;
- An approval under Section 15 of the *Mine Subsidence Compensation Act 1961*;
- A mining lease under the *Mining Act 1992*;
- A production lease under the *Petroleum (Onshore) Act 1991*;
- An environment protection licence under Chapter 3 of the *Protection of the Environment Operations Act 1997* (for any of the purposes referred to in Section 43 of that Act);
- A consent under Section 138 of the *Roads Act 1993*; and
- A licence under the *Pipelines Act 1967*.

None of the above approvals would be required for the proposal. The section of Bantry Bay Road within the hospital site ceased to be a public road on formal gazettal of the land acquisition in April 2013. As such the Section 138 consent would not be required.

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

State Environmental Planning Policy (State and Regional Development) 2011 (S&RD SEPP) is the prevailing EPI applying to the Northern Beaches Hospital Project. Clause 15 states that development specified in Schedule 4 is declared to be SSI for the purposes of development assessment. Through the effect of Order 2012 No. 537, dated 16 October 2012, made under Section 115U(4) of the EP&A Act, an amendment was made to Schedule 4 to the S&RD SEPP. The purpose of the order was to identify certain 'specified development' within the Northern Beaches Hospital Precinct to be SSI.

³ Under Section 115ZG(4), 'approved SSI' includes investigations or other activities that are required to be carried out for the purpose of complying with any environmental assessment requirements under Part 5.1 in relation to seeking approval to carry out the SSI.

The criteria for development to be declared SSI under Schedule 4, for the Northern Beaches Hospital Precinct and the proposed development's relationship to this schedule are confirmed in Table 7.

Table 7 Schedule 4, Part 2 of the S&RD SEPP

Schedule 4, Part 2 requirement	Response
Development carried out by, or on behalf of a public authority...	<p>HI is a service component of NSW Health, a public authority administered under the <i>Health Administration Act 1982</i>.</p> <p>For the purposes of the concept proposal, and the site clearance and preparatory works, HI is the proponent (and will be the applicant for planning approval).</p>
...that has a capital investment value of more than \$30 million...	<p>Capital investment value is defined in clause 3 of the EP&A Regulation as being:</p> <p><i>capital investment value of a development or project includes all costs necessary to establish and operate the project, including the design and construction of buildings, structures, associated infrastructure and fixed or mobile plant and equipment, other than the following costs:</i></p> <ul style="list-style-type: none"> (a) <i>amounts payable, or the cost of land dedicated or any other benefit provided, under a condition imposed under Division 6 or 6A of Part 4 of the Act or a planning agreement under that Division,</i> (b) <i>costs relating to any part of the development or project that is the subject of a separate development consent or project approval,</i> (c) <i>land costs (including any costs of marketing and selling land),</i> (d) <i>GST (within the meaning of A New Tax System (Goods and Services Tax) Act 1999 of the Commonwealth).</i> <p>The proposed development has a CIV in excess of the \$30 million threshold. The actual value is commercial-in-confidence due to the procurement process currently underway, but has been provided separately to DP&I as part of the documentation associated with lodgement of the SSI application.</p>
...on land identified as being within the Northern Beaches Hospital Precinct on the State Significant Infrastructure Sites Map.	The hospital site is wholly on land that is within the Northern Beaches Hospital Precinct.

Accordingly, the proposal would comprise SSI.

7.1.3 State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (Infrastructure SEPP) aims to facilitate the effective delivery of infrastructure across NSW by applying a consistent planning regime for certain types of development under the EP&A Act.

Clause 56 of the Infrastructure SEPP defines 'health services facilities' as follows:

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

- (a) day surgeries and medical centres,
- (b) community health service facilities,
- (c) health consulting rooms,
- (d) facilities for the transport of patients, including helipads and ambulance facilities,
- (e) **hospitals**.

Clause 57 of the Infrastructure SEPP states that ‘development for the purpose of health services facilities may be carried out by any person with consent on land in a prescribed zone’. A prescribed zone does not include either R2 Zone or the RE1 Zone as outlined in the LEP.

While the proposed development is not consistent with the Infrastructure SEPP, the S&RD SEPP is the prevailing planning instrument that permits the proposed hospital with the approval of the Minister for Planning in accordance with Part 5.1 of the EP&A Act.

7.1.4 Warringah Local Environmental Plan 2011

Development within the Warringah LGA is generally subject to the provisions of the Warringah LEP. However, as demonstrated in Section 7.1.2, the proposed Northern Beaches Hospital is designated SSI through the effect of the S&RD SEPP. As such, the provisions of the LEP do not apply. However, the planning provisions of the LEP have still been considered as part of this EIS, as required by the DGRs.

The relevant (combined) zoning objectives for the site, as well as the proposed hospital are outlined in Table 8.

Table 8 Relevant LEP zoning objectives

Relevant zone objective	Comment
To enable other land uses that provide facilities or services to meet the day to day needs of residents (R2 zone)	The future hospital would provide for the day to day needs of residents by providing a range of medical-related services within close proximity to a residential area. Furthermore, the proposed development would serve a regional role in terms of providing health-infrastructure to residents within the Warringah LGA, as well as the north-east subregion.
To ensure that low density residential environments are characterised by landscaped settings that are in harmony with the natural environment of Warringah (R2 zone)	The future hospital would be designed in a manner that considers the aesthetic natural values of the Warringah LGA and the north-east subregion. The landscaped setting would form a key component and consideration of the future base building and its compatibility to the characteristics of the surrounding area.

Under the permitted land uses of the R2 zone, ‘hospitals’ are a use that is permissible with the development consent of Warringah Council. Under the RE1 and SP zones, ‘hospitals’ are not identified as a use that is permissible with development consent and accordingly are prohibited within that zone. However, Section 115ZF(2) of the EP&A Act provides that Part 3 and environmental planning instruments generally do not apply to SSI.

Further, with regard to development that is designated SSI, the LEP is also overridden by the planning provisions of the S&RD SEPP. Clause 7 of the S&RD SEPP states the following:

Subject to Section 74(1) of the Act, in the event of an inconsistency between this Policy and another environmental planning instrument, whether made before or after the commencement of this Policy, this Policy prevails to the extent of the inconsistency.

The LEP contains planning provisions relating to items of local heritage significance. There are no items of local significance within the boundaries of the Northern Beaches Hospital Precinct. Discussion of heritage matters relating to the concept proposal is provided in Section 7.9.

7.1.5 Other environmental planning instruments

Table 9 identifies other environmental planning instruments of likely or potential relevance to the proposed Northern Beaches Hospital, and provides comment in this regard.

Table 9 Other potentially relevant environmental planning instruments

Environmental planning instrument	Response
State Environmental Planning Policy No. 19–Bushland in Urban Areas	<p>Clause 6 of SEPP 19 requires consent be obtained for development that would disturb bushland zoned or reserved for open space.</p> <p>The need for consent is removed through the effect of Section 115ZF(2) of the EP&A Act and the S&RD SEPP, however, the assessment has considered the impact of the proposed hospital development on bushland (refer Section 8.2)</p>
State Environmental Planning Policy No. 44–Koala Habitat Protection	<p>SEPP 44 specifies a number of matters that a consent authority (a council) must take into consideration when determining a development application that could affect potential core koala habitat or actual core koala habitat.</p> <p>The need for development consent is removed through the effect of Section 115ZF(2) of the EP&A Act and the S&RD SEPP, however, the assessment has considered the impact of the proposed hospital development on fauna including koalas (refer Section 8.2)</p>
State Environmental Planning Policy No. 55–Remediation of Land	<p>SEPP 55 requires that land not be rezoned or developed unless contamination has been considered and, where relevant, land has been appropriately remediated.</p> <p>This is addressed in Section 7.10.</p>
State Environmental Planning Policy No. 71–Coastal Protection	<p>SEPP 71 applies to the coastal zone which is defined under the <i>Coastal Protection Act 1979</i>. The hospital site lies outside land designated as ‘coastal zone’.</p>

7.1.6 Environment Protection and Biodiversity Conservation Act 1999

Under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on matters of national environmental significance (NES) or the environment of Commonwealth land.

There are currently nine NES matters as follows:

- World Heritage properties;

- National heritage places;
- Wetlands of international importance (listed under the Ramsar Convention);
- Listed threatened species and ecological communities;
- Migratory species protected under international agreements,
- Commonwealth marine areas;
- The Great Barrier Reef Marine Park;
- Nuclear actions (including uranium mines); and
- Water resources, in relation to coal seam gas development and large coal mining development.

Assessment of the proposed hospital's impact on NES matters determined that there is unlikely to be a significant impact on relevant NES matters. Similarly, there would not be any impact on the environment of Commonwealth land. Accordingly, the proposal has not been referred to the Department of the Environment.

7.1.7 The State Infrastructure Strategy 2012–2032

The State Infrastructure Strategy was prepared by Infrastructure NSW to provide independent advice to the NSW Government on specific infrastructure investments and reforms recommended to make NSW 'number one' again. The Strategy focuses on the strategic investments and reforms that Infrastructure NSW has assessed as being likely to have most impact over the 20 year period to 2032. In this regard it comprises recommendations for:

- investment in specific major projects; and
- wider policy and market reforms to improve how infrastructure is planned, procured and delivered, particularly reforms that introduce competition and increase private sector involvement and offer an opportunity for innovation and for greater efficiency.

With regard to health infrastructure, the Strategy notes that the NSW health system is facing considerable challenges to meet growing demand driven by an ageing population, lifestyle diseases and new care technologies. It further notes that the NSW Government is delivering a prioritised capital program that will establish proactively planned 'health care precincts' with easy access to related private and public health services delivered by both government and non-government providers. The Strategy recommends that the Northern Beaches Hospital be developed using this approach and delivered in the period 2012–2017.

7.1.8 NSW 2021: A Plan to Make NSW Number One

NSW 2021 replaced the *NSW State Plan: A New Direction for NSW*, as a key strategic planning document aimed at delivering planning and infrastructure priorities across the State, and contains five key 'strengths':

- Rebuild the NSW economy;
- Return quality services;
- Renovate infrastructure;
- Strengthen our local environment and communities; and
- Restore accountability to government.

A total of 32 goals relate to each of these strengths, however the key aim for 'health' is outlined under the 'Return quality services' strength. This aim is as follows:

Our goal is to restore confidence in the public health system by rebuilding hospitals and health infrastructure, re-engaging medical practitioners, and giving communities and health care providers a strong and direct voice in improved patient care.

The best health policy government can deliver is one that keeps people out of hospital. By focussing on illness prevention, we can reduce the burden of chronic disease on the health system and keep our community active and healthy.

The development of the Northern Beaches Hospital would assist in achieving this aim through incorporation of the following:

- Providing a new hospital within Sydney's Northern Beaches region; and
- Providing a medical-related cluster development that would have the potential to support a range of health-related ancillary services including research aimed at promoting active and healthy lifestyles.

7.1.9 Metropolitan Plan for Sydney 2036

The Metropolitan Plan was released in December 2010. It will be replaced by the Draft Metropolitan Strategy once it is finalised (anticipated to be late 2013).

The Metropolitan Plan identifies a range of challenges facing Sydney, and sets out various strategic directions and key policy settings to respond to these challenges. It identifies locations for 'Potential Specialised Centres', these being places to perform vital economic and employment roles across the metropolitan area. These would include major airports, ports, hospitals, universities, and clusters of research and business activities.

Frenchs Forest is identified as one such location for a Potential Specialised Centre. The Plan notes (p67):

The Frenchs Forest Potential Specialised Centre would be focused upon land near the intersection of Warringah Road and the Wakehurst Parkway. It would build upon opportunities presented by the existing employment area and a potential new hospital for the northern beaches. The centre would have the potential to become a focus for greater employment including health-related jobs. Subject to detailed strategic planning and urban design investigations, there would also be potential for some associated retail and residential uses. A new centre will increase employment opportunities, thereby containing local trips and potentially maximising the use of bus services along existing strategic bus corridors.

7.1.10 Draft Metropolitan Strategy for Sydney to 2031

The Draft Metropolitan Strategy outlines a series of outcomes aimed at delivering the Sydney metropolitan area over 20 years as one of the most desirable places to live. These outcomes are as follows:

- Balanced growth;
- A liveable city;
- Productivity and prosperity;
- Healthy and resilient environment; and
- Accessibility and connectivity.

In addition to the key outcomes, the Draft Metropolitan Strategy also outlines goals and actions related to the outcome delivery. The proposed development of the Northern Beaches Hospital would assist in achieving a large number of the objectives including:

- Objective 2: Strengthen and grow Sydney's centres;
- Objective 10: Provide capacity for jobs growth and diversity across Sydney; and
- Objective 16: Achieve productivity outcomes through investment in critical and enabling infrastructure.

Importantly, the Draft Metropolitan Strategy seeks to establish the State Government's strategic planning foundation to meet the changing needs of the Sydney metropolitan area. Figure 20 in the Draft Metropolitan Strategy explicitly identifies the Frenchs Forest Health Precinct as a key specialised precinct within the metropolitan north subregion. The precinct also lies on a potential extension for transit linking Brookvale/Dee Why with Chatswood.

7.1.11 Northern Sydney Local Health District

As noted in Section 1.1, the hospital is identified in the *NSLHD Strategic Plan 2012–2016* (NSLHD 2012a) and *Clinical Services Plan 2012–2016* (NSLHD 2012b). The latter notes that over the next decade, the role of each acute facility and clinical network within NSLHD would be aligned to ensure the clinical sustainability of key services such as intensive care, emergency, surgical sub-specialties, maternity and paediatrics. The hospital is identified as a key component in facilitating more efficient distribution of services across the NSLHD.

7.1.12 Frenchs Forest Specialised Centre State Significant Site Study

Cox Richardson (2010) prepared a study for DP&I and HI for a potential Specialised Centre on Sydney's Northern Beaches in recognition that the proposed hospital presented an opportunity to plan for complementary health care services. The study aimed to develop a conceptual vision for the study area in terms of appropriate locations for a private hospital, ancillary health, professional suites, imaging services, biomedical research education, employment, retail and residential uses.

The study was undertaken to support a proposal to rezone an area of Frenchs Forest to support the emergence of a specialised centre focused on the proposed Northern Beaches Hospital and to accommodate expected growth in the region. The proposal was subsequently abandoned in 2011.

7.2 Concept proposal and built form design

HI has undertaken a masterplanning process for the site. This examined a number of site layouts reflecting opportunities and constraints, and other relevant issues. The reference design for the concept proposal is based around a radial plan of inpatient towers with primary access from Frenchs Forest Road West. The design to be prepared by the hospital operator may differ from that discussed in this section but would still be consistent with the design principles noted in Section 5.4.

Site layout

The concept proposal provides for a main building located generally on the north west quadrant of the site but set back from Frenchs Forest Road West. This layout provides for site access from both Frenchs Forest Road West to the north and Warringah Road to the south. The main entrance to the hospital would be off Frenchs Forest Road West providing access to the hospital's Main Entry and Ambulatory facilities.

Access to the Emergency Department (ED) would be off Frenchs Forest Road West. Dedicated building entrances would be provided to ensure safe, efficient ED access to both ambulances and the ambulant. A separate access would be provided off Warringah Road to accommodate the material and support service flows that would sustain the hospital's operation.

The developable area for hospital buildings on the site is defined by the following indicative setbacks from existing site boundaries:

- Western and southern boundaries: 11.6 metres;
- Northern boundary: 22.6 metres; and
- Eastern boundary: 55 metres.

The above distances comprise the minimum six metre distance specified by the Building Code of Australia plus allowances for other requirements such as services easements (and joint shared paths), potential supporting road works, and retained vegetation.

Indicative building footprints of the main hospital building and other buildings on site based on the reference design are shown in Figure 7.

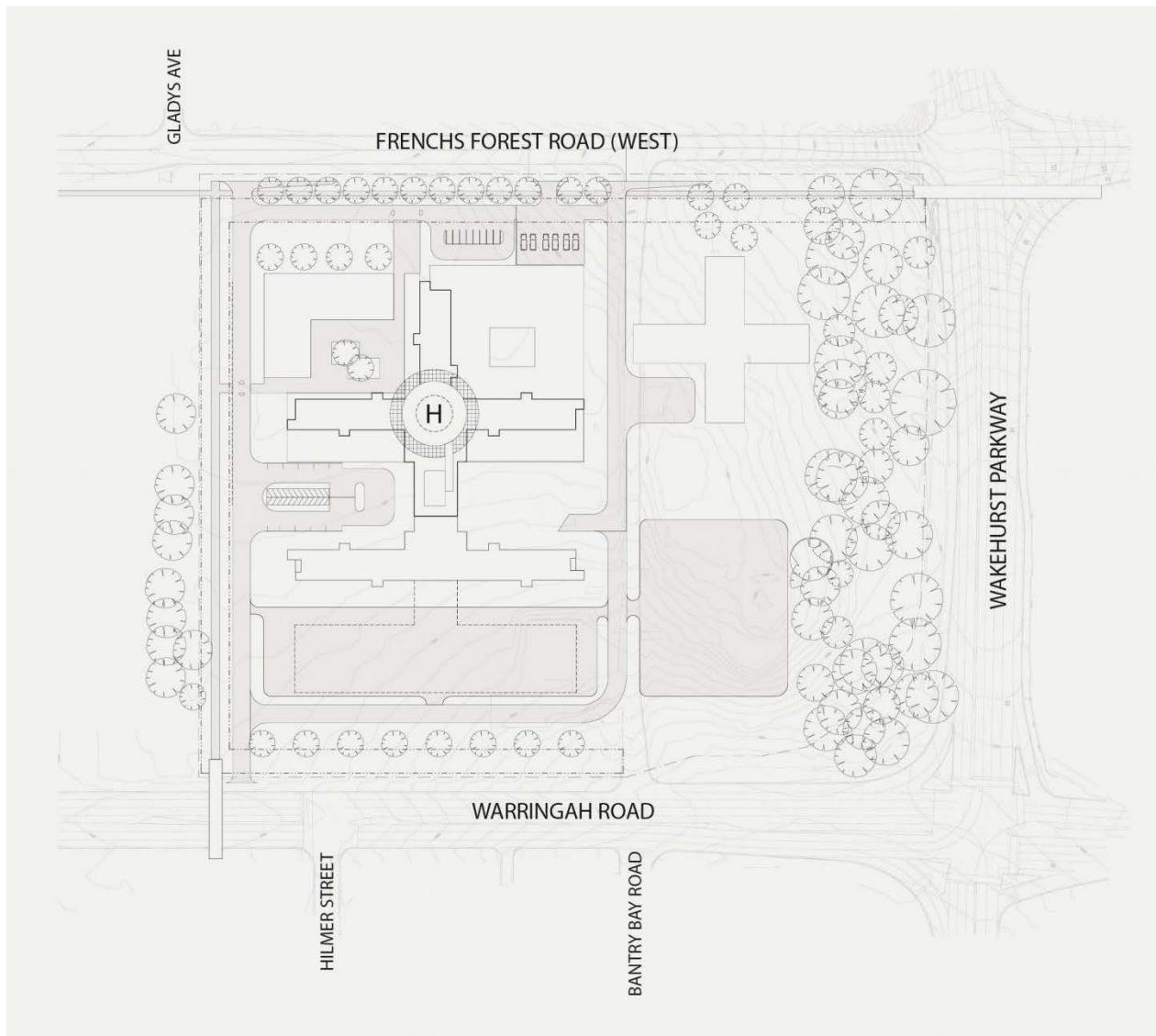


Figure 7 Indicative layout of hospital site based on reference design

Floor space

The hospital site has a developable area of approximately 6.5 ha. The hospital development would provide about 70,000 m² of hospital floor space including acute and sub-acute facilities, emergency medicine, imaging and ancillary uses such as retail and car parking.

Cox Richardson (2010) examined floor space ratios as part of the SSS study and proposed the following within the SSS study area:

- Residential land use: 1.5–2:1; and
- Commercial: 2–2.5:1.

Height and massing/building envelopes

The height of the main hospital building would be in the range of 6–10 storeys, this being the optimum for operational efficiency. This is also consistent with community expectations as raised in the Visioning Workshops conducted in December 2012.

While subject to final design, the hospital floor layout would generally comprise:

- Below ground level: Loading docks and back of house non-clinical support;
- Ground floor: main entrance, non-clinical support, emergency and part ambulatory care;
- Level 1: Non-clinical support, clinical support and remainder of ambulatory care;
- Level 2: Perioperative unit and Critical Care; and
- Levels 3–10: Inpatient units including Medical and Surgical, Mental Health, Women's and Children's units, Medical Assessment unit.

Masterplanning for the hospital site noted that building height should be sensitive to existing and proposed uses, and the proposed height limits in the Cox Richardson (2010) SSS study. This proposed a height limit for medium-density residential development to the north, south and west of the site of four storeys (13 metres). The proposed height limit for the commercial core to the east across Wakehurst Parkway was 10 stories (40 metres). The current concept is generally consistent with this proposed height limit.

The masterplanning process recommended a 'cone' strategy of low building mass at the site perimeter rising to a high point at the centre. It noted that buildings at the site's perimeter should be in scale with the proposed medium density residential height limit of 13 metres. Taller buildings should be closer to the south of the site, adjacent to the high-traffic volume Warringah Road.

The current concept is consistent with these layout and massing principles. Figure 8 and Figure 9 (following page) provide indicative locations and building massing for the reference design from the general perspectives of the front and rear of the site respectively.

7.3 Amenity

Noise and vibration

The design of the hospital would ensure that operational noise emissions from the site would address and comply with the relevant matters specified in the *NSW Industrial Noise Policy* (EPA 2000). With regard to minimising operational noise emissions from the site, guiding design principles would include, but not be limited to:

- Locating noise-generating plant generally located towards the Warringah Road end of the site away from residential receivers and school buildings; and
- Locating facilities such as the loading dock at the rear of the site, i.e. facing Warringah Road.

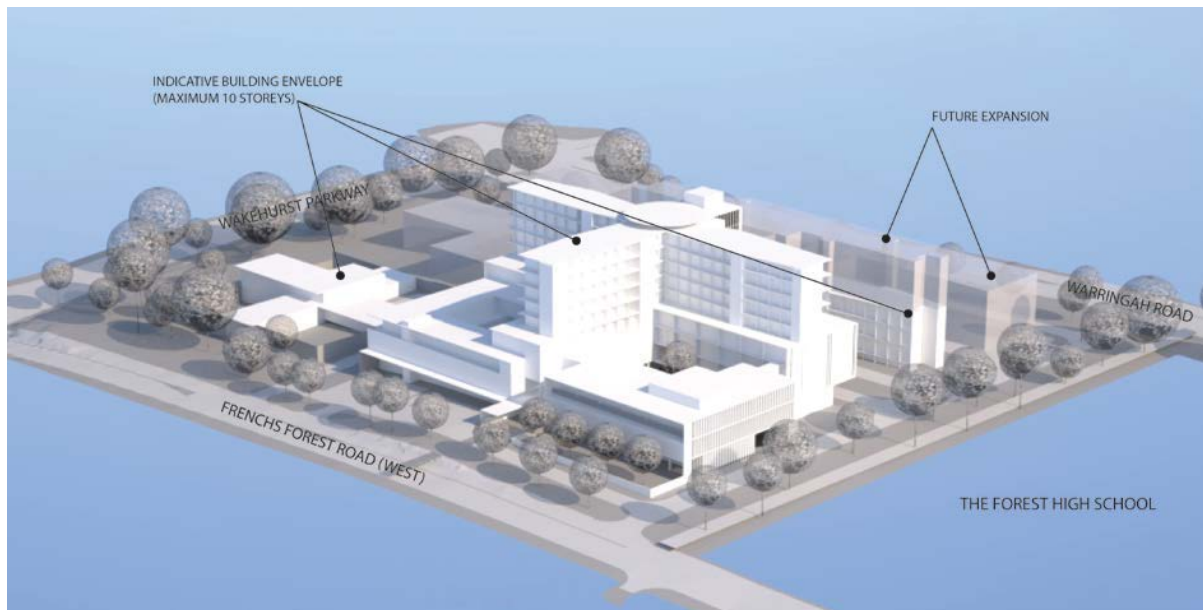


Figure 8 Indicative view from north-west of site layout and building massing

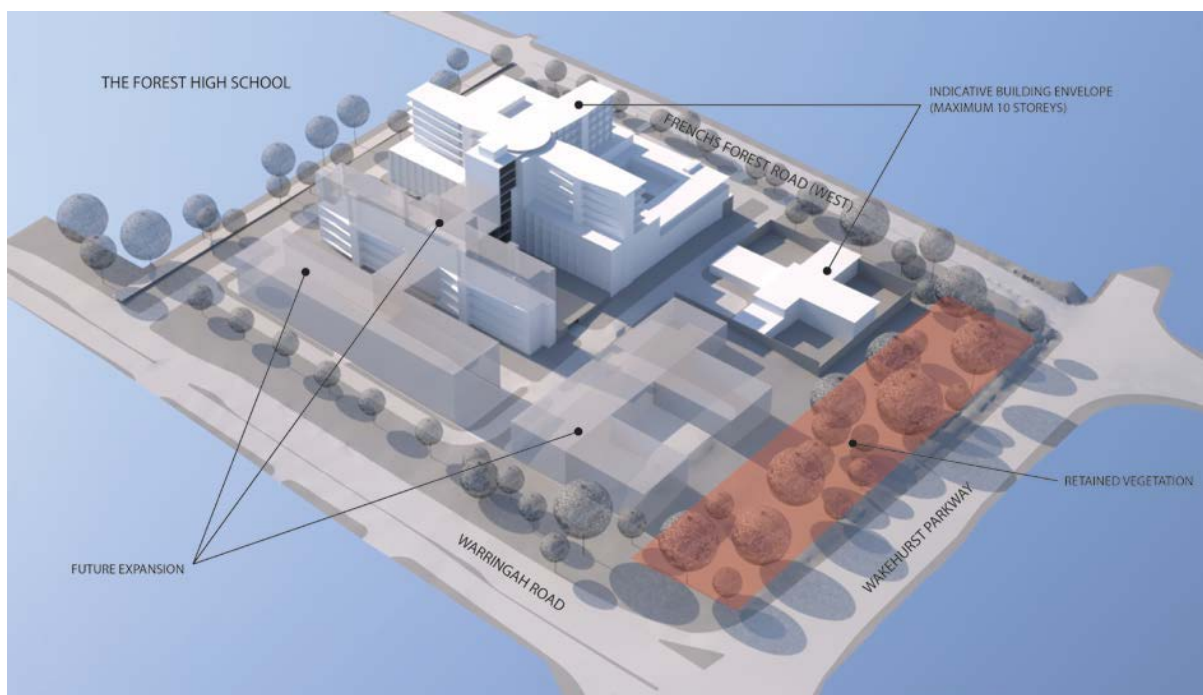


Figure 9 Indicative view from south-east of site layout and building massing

Detailed plant selection has not yet occurred but would involve consideration of noise and vibration emissions with regard to nearby receivers. Based on similar developments, it is noted that there are also practicable and cost-effective acoustic treatments available such as lining of ductwork, use of variable speed controllers and time switches, and installation of acoustic screens that could be used to mitigate impacts if required.

Solar access

An assessment has been undertaken of the potential shading effects based on a 10 storey building with a height of 40 metres above local ground level. Figure 10 shows (plan view) the shadow footprint for the winter solstice (around 20 June), this being when the sun is lowest in the sky and when shadow length would generally be at a maximum.



Figure 10 Shadow diagram for hospital site

As can be seen, shadows fall toward the south and mainly across the hospital site. The exception to this is the period 8.00-9.00 am when there would be overshadowing of the south-eastern portion of the school site, including the gymnasium and tennis courts, and a short section of Warringah Road. There would also be some overshadowing of Wakehurst Parkway around 4.00 pm.

Privacy

The principal receivers with respect to potential privacy issues are the residences on Frenchs Forest Road West opposite the hospital site. Many of these residences have established trees along their front boundaries which filter views of the hospital site. Hospital buildings would be set back from the Frenchs Forest Road West boundary which would assist in limiting views into residential properties. Landscaping on the hospital site would further serve to filter views to residences, particularly from lower hospital levels. The potential for privacy impacts is considered low.

Significant views and vistas

The hospital site is located on a high point in the local landscape and the hospital would represent a significant new built feature in the landscape. At up to 10 storeys in height, it would be the tallest building in the area, and the upper levels would be visible from multiple viewpoints in the surrounding area. The Forest High School and residences on Frenchs Forest Road West would be the closest fixed receivers to the hospital.

Retention of vegetation at the eastern end of the site would assist in filtering views, particularly of the lower levels, from Wakehurst Parkway, from Warringah Road east of Wakehurst Parkway, and from Frenchs Forest Road East. Views into the hospital site would be available from Warringah Road, Frenchs Forest Road West and from the adjacent school. Landscaping on the hospital site would serve to filter views from these localities.

Views from the site would be dependent on the location of the viewer. The retained vegetation at the eastern end of the site would limit views to the east. At ground and lower levels, views to the south would be of Brick Pit Reserve and the existing commercial development. Views to the north would be of residential development and to the west, of the school. A much greater vista would be available from the upper levels, and potentially in all directions.

7.4 Transport and accessibility

A Traffic and Transport Impact Assessment has been prepared by Hyder and is included as Appendix C. This provides a transport overview for the concept proposal based on information available to HI at the time of preparation of the EIS (up to the end of August 2013), and examines the various matters specified in the DGRs. The assessment acknowledges the traffic-generating potential of the hospital, and considers issues and impacts within the context of the existing local and wider road network. The assessment draws on earlier work undertaken by AECOM (2011a, 2011b).

The likely and potential impacts on the road network have been acknowledged by HI from the outset of the hospital development, particularly with regard to existing capacity constraints. In recognition of this, HI has engaged in regular consultation with RMS and TfNSW through an Interface Reference Group (IRG) that was established in October 2012 (and whose membership also includes DP&I).

RMS and TfNSW have been investigating and developing options for the supporting road works, cognisant of hospital access requirements, existing network capacity constraints and strategic planning considerations such as Wakehurst Parkway flooding issues and public transport enhancement opportunities. At the time of preparation of this EIS, identification of a preferred supporting road works solution (including possible staging options) had yet to be confirmed but was anticipated to occur by the end of 2013. It is expected that a preferred option would be confirmed by TfNSW prior to preparation of the Stage 2 EIS for construction and operation of the hospital.

7.4.1 Existing environment

Local road network

The local road network around the hospital site comprises:

- Warringah Road, a State Road (MR306) under the care and management of RMS;
- Wakehurst Parkway, a State Road (MR397) under the care and management of RMS; and
- Frenchs Forest Road West/East and Naree Road, local roads under the care and management of Warringah Council.

Warringah Road is the main east-west transport route in the area while Wakehurst Parkway and Forest Way are the main north-south routes. Frenchs Forest Road (and Naree Road) is an important secondary east-west route that runs parallel to, and to the north of, Warringah Road.

The majority of movements on the major road network are through traffic, however some are associated with the commercial business parks and shopping centres in the area.

Existing traffic conditions

As noted in Appendix C, Warringah Road currently carries approximately 70-80,000 vehicles per day with high levels of congestion in the morning peak, and average peak period travel speeds of around 20 km/h. Traffic volumes (2011) along Warringah Road during AM and PM peak periods are essentially at the capacity of the road. Traffic volumes increase considerably further to the west.

RMS has three counting stations in the area. Available data from these stations has been used to develop annual average daily traffic (AADT) estimates for 2013 (refer Table 10).

Table 10 Existing traffic volumes

Station ID	Location	2002 AADT	2013 projected AADT
55.041	Wakehurst Parkway, south of Warringah Road	20,198	24,645
55.048	Warringah Road, east of Forest Way	80,508	98,220
55.051*	Forest Way, north of Warringah Road	46,865	57,180

* Station 55.051 is a permanent counting station that records traffic volume data continuously

The Traffic and Transport Impact Assessment includes a consideration of the time distribution of traffic over a 24 hour period relative to midblock capacity for Station 55.051. This shows the following peaks:

- For southbound traffic from about 6.00 am through to about 5.30 pm (with a small dip to 60 per cent available capacity from 12.30–2.30 pm); and
- For northbound traffic from about 2.00 pm through to about 6.30 pm.

Table 11 (following page) presents a range of performance parameters for key intersections in the local road network for existing AM and PM peaks. As can be seen from Table 11, intersection performance is generally poor, reflecting the significant volumes of traffic during both AM and PM peak periods. The intersections of Warringah Road with Wakehurst Parkway, and Warringah Road with Forest Way are both operating at the maximum limits of their designed capacity and cannot be expanded any further as at-grade intersections (AECOM 2011b).

Public transport

Sydney Buses runs a number of services through the hospital precinct:

- 136, 137, L60 – these use Warringah Road, and Frenchs Forest Road (West and East); and
- 169, E69, and 173 – these use Warringah Road and Wakehurst Parkway.

Forest Coach Lines also runs one service (280) through the hospital precinct.

The NSW Government completed the *Northern Beaches Bus Rapid Transit (BRT) Pre-Feasibility Study* (TfNSW 2012) to consider the public transport performance of North-South (Northern Beaches and Sydney CBD) and East West (Chatswood and Dee Why) transit corridors. The two main issues with public transport services in the region are reliability and travel time variability of current bus services, and slow travel speeds of buses in peak periods.

Consideration of public transport planning matters in the hospital precinct (and wider Northern Beaches region) is being facilitated through TfNSW's participation on the IRG.

Table 11 Existing intersection performance¹

Intersection	LoS ²	DoS ³	Maximum queue length (m)	Average delay(s)
Warringah Road/Forest Way – existing case AM peak	F	2.461	2818	326
Warringah Road/Forest Way – existing case PM peak	F	6.570	4432	956
Wakehurst Parkway/Warringah Road – existing case AM peak	D	0.888	277	48
Wakehurst Parkway/Warringah Road – existing case PM peak	F	1.047	512	83
Wakehurst Parkway/French Forest Road – existing case AM peak	D	0.899	162	43
Wakehurst Parkway/French Forest Road – existing case PM peak	C	0.895	201	42
Forest Way/Naree Road – existing case AM peak	F	1.544	181	23
Forest Way/Naree Road – existing case PM peak	F	3.281	697	112

1 Based on SIDRA modelling (refer Appendix C)

2 LoS: Level of Service, ranging from A (best) to F (worst) and related to average delay

3 DoS: Degree of Saturation, the ratio of demand flow to capacity. As it approaches 1.0, extensive queues and delays could be expected. For a satisfactory situation, the DoS should be less than the nominated practical degree of saturation, usually 0.9.

7.4.2 Traffic generation and distribution

Traffic generation associated with operation of the hospital would generally comprise:

- Staff trips to/from work by car, bus, bicycle and walking;
- Servicing and maintenance including deliveries, supplies, waste management including a significant proportion of trucks;
- Patient movements including self-driven, 'kiss and ride', bus, walking and ambulance; and
- Trips generated by visitors.

An analysis of parking accumulation and supply based on the reference design for the hospital identified a peak parking accumulation on the site of 800-900 spaces, and a daytime (6.00 am to 4.00 pm) average of 670 spaces. The analysis was used to forecast potential traffic generation for the hospital site, and assessment of traffic impacts associated with access/egress from the site. Vehicle movements are predicted to peak over a three hour period between about 1.30pm and 4.30 pm.

As many of the clinical services for the Northern Beaches Hospital would be transferred from Manly and Mona Vale Hospitals, the spatial distribution of staff trips from these two hospitals was considered for the traffic impact analysis for Northern Beaches Hospital. This assumes that the relative distribution of trips for the Northern Beaches Hospital would be similar to these two existing hospitals. Figure 11 summarises this spatial distribution as applied to the Northern Beaches Hospital. The analysis assumes that journey patterns associated with patients and visitors would generally be equally distributed across all principal access routes.

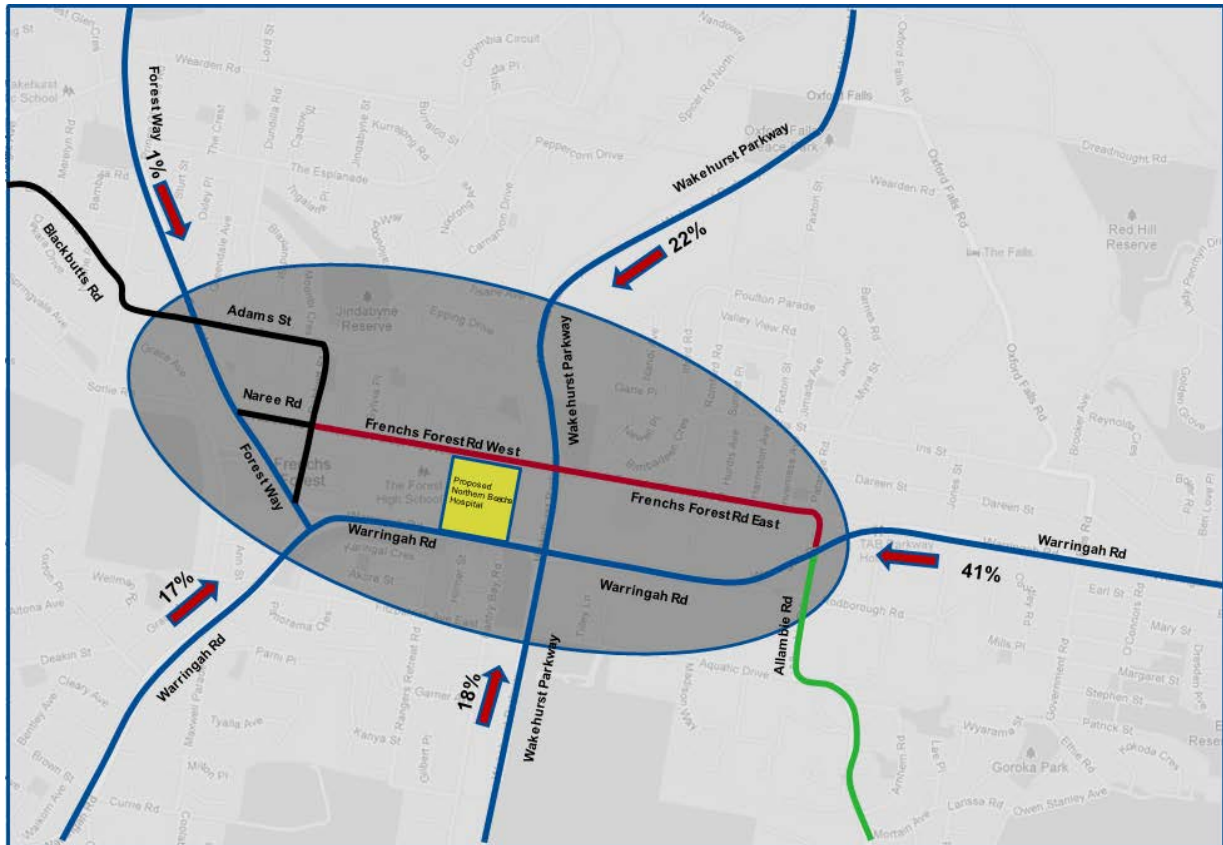


Figure 11 Predicted spatial distribution of hospital staff journeys

7.4.3 Traffic impacts

HI has been consulting regularly with TfNSW and RMS with regard to managing the operational impacts of the hospital on the local and wider road network, and constraints that the efficiency of the road network could potentially impose on hospital operation. As previously noted, at the time of preparation of the EIS, the development of a preferred solution by TfNSW for the supporting road works had yet to be confirmed.

In the hospital opening year of 2018, there could be up to 900 outbound trips generated by the hospital in the PM peak. Frenchs Forest Road West and Warringah Road have a combined capacity to accommodate 1,320 vehicles per hour. This level of outbound trips from the hospital is considered to be conservative and would likely be lower, and spread across the PM peak.. The capacity limitations of the existing major intersections to absorb hospital traffic would exacerbate existing high levels of congestion experienced during the PM peak period.

7.4.4 Access

As indicated in Section 5.2, the principal access to the hospital site would be from Frenchs Forest Road West with secondary access (left in, left out only) provided from Warringah Road to the west of Hilmer Street.

Two access points would be provided from Frenchs Forest Road as follows:

- At the western end of the site, which would serve as a general access for staff, patients and visitors (primary access); and
- About 65 metres east of the main access, with use restricted to ambulances only.

As noted in Section 5.5, the Warringah Road access would generally be restricted to left in, left out only, with use limited to ambulances, staff and delivery vehicles. This access would also allow for right-turn access by ambulances under emergency conditions only.

There are existing bus stops on both Warringah Road and Frenchs Forest Road West immediately adjacent to the hospital site.

The service diversion works⁴ include construction of a shared path for pedestrians and cyclists between Warringah Road and Frenchs Forest Road West immediately adjacent to the high school boundary. This would replace an existing informal trodden path in this general location as well as the section of Bantry Bay Road that would be closed.

Specific details regarding pedestrian access to the hospital site would be confirmed during the next design phase. Access points would be developed with consideration given to existing features such as the signalised crossings at Warringah Road/Hilmer Street and Frenchs Forest Road/Wakehurst Parkway. Design would also address pathways through the hospital site considering both internal and external access requirements and opportunities.

7.5 Flora and fauna

Impacts on flora and fauna would largely be associated with the site clearance and preparatory works, and are discussed in detail in Section 8.2. It is anticipated that there would be limited issues relating to flora and fauna in relation to the subsequent construction and operation of the hospital.

A biodiversity specialist report prepared by SMEC has informed an independent biobanking assessment report prepared by Teresa James Flora Consultant. Both documents are attached to the proposed biodiversity offset strategy (Appendix D). The strategy addresses biodiversity impacts associated with the overall proposal notwithstanding, as noted above, these being principally related to site clearance and preparatory works.

As noted in Section 5.2, the concept proposal provides for the retention of an area of vegetation at the eastern end of the site, but with the understorey largely removed. This area would be managed as part of the overall site landscape management, and is anticipated to have limited habitat value with regard to flora and fauna.

⁴ These works are being assessed via a separate assessment and determination process, and do not form part of the scope of work that is the subject of this Stage I SSI application.

7.6 Bushfire

The DGRs require the EIS to address the requirements of clause 44 of the *Rural Fires Regulation 2008*. This clause relates to the application for a bush fire safety authority in accordance with Section 100(B) of the *Rural Fires Act 1997*. A bush fire safety authority is an authorisation provided by the Commissioner of the NSW Rural Fire Service (RFS) for development on bushfire prone land for a special fire protection purpose, which includes a hospital. The hospital site and adjacent land parcels are designated Bush Fire Prone Land (BFPL) under the certified Warringah Bush Fire Prone Land Map 2010. However, as previously noted in Section 7.1.1, Section 115ZG (f) of the EP&A Act provides that a bush fire safety authority is not required for approved SSI. The project has been confirmed as approved SSI as per discussion in Section 7.1.2.

The advice provided to DP&I by RFS with regard to the environmental assessment for the Northern Beaches Hospital noted three specific matters. These are listed in Table 12 and responses provided to each matter.

Table 12 Consideration of RFS issues

Issue	Response
The EEC located to the east of the site should be managed to the standard of an asset protection zone	Currently, it is planned to retain the area of vegetation at the eastern end of the site but substantially reduce the understorey. This would materially contribute to reducing bush fire risk for the site.
Buildings located on the eastern part of the site should be set back from the bush fire hazard in accordance with <i>Planning for Bush Fire Protection 2006</i> .	This would be identified as a site development constraint in the tender documentation. Asset protection zones at the north east and south east of the hospital site are identified in Appendix E.
In the absence of detailed plans, no assessment can be made at this stage.	The hospital operator would be required to consider bush fire risk as part of design development and undertake appropriate consultation with RFS.
Further advice is required on the use of the remainder of the Northern Beaches Hospital Precinct located to the east of Wakehurst Parkway south of Warringah Road.	The land referred to is outside of the hospital development site and not managed/owned by HI. This is considered to relate to wider precinct planning and an issue for DP&I to respond to along with the owners/managers of the relevant parcels of land.
The removal or suitable management of the vegetation may result in the development site not being considered bush fire prone land.	Noted. However, given the current presence of this vegetation, a precautionary position has been taken with regard to assessing and managing bush fire risk.

An assessment of bushfire constraints has been undertaken for the hospital site by EcoLogical and is provided as Appendix E. This identifies asset protection zones (APZ) at the eastern end of the site together with the bushfire attack level (BAL) applying to the site with respect to the minimum design standard for hospital buildings. Development of the hospital design by the hospital operator would be undertaken with appropriate consideration of these constraints.

The bushfire risk assessment would be revisited as part of the environmental assessment for the Stage 2 EIS once specific details on the proposed hospital buildings and their location on the site are confirmed.

7.7 Staging

The indicative timeframe for the staging of the proposal is as follows:

- Enabling works – completion by end Q4 2014;
- Site clearance and preparatory works: mid 2014 (approximately three months duration); and
- Construction): early 2015 to 2017 (three years).

Opening of the hospital is planned for 2018.

7.8 Aboriginal heritage

Summary of findings

An Aboriginal Heritage Impact Assessment has been prepared by Australian Museum Business Services (AMBS) and is included as Appendix F. The report documents the Aboriginal heritage investigations undertaken on and around the hospital site, and provides a range of measures to mitigate impacts. The assessment was prepared with appropriate reference to relevant NSW and Commonwealth legislation.

The assessment noted the following:

- Aboriginal community consultation was undertaken with key stakeholders in accordance with the NSW Office of Environment and Heritage's (OEH) *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*. Details of this consultation have been noted in Section 5.3.
- No Aboriginal sites were identified during a survey of the study area.
- There are no Aboriginal items of State significance listed under either Part 3A (State Heritage Register) or any register kept by RMS under Section 170 (Heritage Conservation Register) of the *Heritage Act 1977* within the study area or in its vicinity.
- There were no Aboriginal heritage items listed on the National Heritage List or Commonwealth Heritage List identified within the study area or in its vicinity.
- There are no Aboriginal heritage items listed on the Warringah LEP within the study area or its vicinity.
- There are no Aboriginal heritage items listed under either the Register of the National Estate or the National Trust Register within the study area or its vicinity.
- The high level of disturbance observed within the major component of the study area and the apparent lack of substantial intact topsoil, indicates that there is unlikely to be any archaeological potential for intact or substantial Aboriginal stone artefact deposits. Accordingly, it is considered there is low potential for the recovery of in situ Aboriginal objects and low research potential.
- Despite having low recovery potential, it is possible that art/engravings may be present on the sandstone outcrops in the north eastern section of the study area, where the ground surface is currently obscured by vegetation.
- A search of the Aboriginal Heritage Information and Management System (AHIMS) search was undertaken on 6 June 2012, which identified 120 registered Aboriginal sites within a two kilometre radius of the study area. No Aboriginal sites were registered within the study area.

The AMBS report notes the potential for impacts to the currently obscured sandstone outcrops in the north eastern section of the hospital site i.e. adjacent to the Wakehurst Parkway/Frenchs Forest Road intersection) and makes the following recommendations in this regard:

- Pre-construction vegetation and soil clearing should be undertaken in this area to allow an appropriate level of archaeological inspection for any art/engraving sites.
- Vegetation and soil clearance should be undertaken with care, to limit any disturbance to any unidentified Aboriginal art/engraving sites that may be present.
- Once cleared, the area should be inspected for Aboriginal art/engraving sites by an archaeologist, in conjunction with registered Aboriginal stakeholder representatives.
- If any Aboriginal sites are identified during this inspection, they should be recorded, and an appropriate course of action for the mitigation of construction impacts should be determined, prior to any disturbance of the sandstone outcrops.

This area is largely outside of the hospital site in the road reserve. At present, there are no plans to undertake work in this area other than thinning of understorey vegetation within the hospital site. This would be undertaken with appropriate care to avoid disturbance to the ground surface.

The AMBS report noted that remainder of the hospital site is unlikely to retain Aboriginal objects. However, should any Aboriginal objects be exposed during construction works, then excavation or disturbance of the area should cease and the Cultural Heritage Division of OEH should be informed in accordance with Section 91 of the NPW Act. Works would not continue without the written agreement of OEH.

Mitigation measures

Prior to the commencement of works on the site, a Construction Environmental Management Plan (CEMP) would be prepared that would incorporate the requirements of the recommendations outlined above. The management strategies would include:

- Undertaking pre-construction vegetation and soil clearance with care to enable inspection for any art/engraving sites, should any potential impact be proposed to the north eastern section of the study area.
- Inspection of the north eastern section of the study area for any art/engraving sites once cleared and if any sites are identified, ensure these are recorded in accordance with appropriate procedures.
- Should any Aboriginal objects be exposed during construction works, then excavation or disturbance of the area would cease and the Cultural Heritage Division of OEH would be informed in accordance with Section 91 of the NPW Act. Works would not continue without the written consent of OEH.

7.9 Historic heritage

Summary of findings

An Historic Heritage Impact Assessment has been prepared by AMBS and is included as Appendix G. The report documents the historic heritage investigations undertaken on and around the hospital site, and provides a range of measures to mitigate impacts. The assessment was prepared with appropriate reference to relevant NSW and Commonwealth legislation.

The assessment noted the following:

- The site has previously been used for a number of purposes including timber supply (mid-19th century), market-gardening (early to mid-20th century) and residential development (mid to late 20th century).
- There is one item of local heritage significance listed under the Warringah LEP within the vicinity of the hospital site. This is 'Former Holland's Orchard Trees' and is located in the nature strip adjacent to Warringah Road about 80 metres to the west of the hospital site.
- There are no items of State significance listed under either Part 3A (State Heritage Register) or any register kept by RMS under Section 170 (Heritage Conservation Register) of the *Heritage Act 1977* within the study area or its vicinity.
- There are no heritage items listed under either the Register of the National Estate or the National Trust Register within the study area or its vicinity.
- While no potential heritage items have been identified by the background research undertaken by AMBS, based on review of 1943 aerial photographic imagery, there is considered to be potential for evidence associated with a former building complex, adjacent to the south-east corner of the hospital site, to be present. This location is in the general vicinity of the parcel of land formerly comprising 17 Bantry Bay Road.

The AMBS report recommends that construction activities associated with the project be managed in accordance with heritage best practice, as outlined in the Historical Archaeology Code of Practice and the Archaeological Management Strategy referenced in the AMBS report. In this way any archaeological resources associated with the building complex would be realised.

Mitigation measures

Prior to the commencement of works on the site, a CEMP would be prepared that would incorporate the requirements of the recommendations outlined in the AMBS report. This would address the following matters:

- Where excavation is required within the vicinity of the former building complex (broadly 17 Bantry Bay Road), an Excavation Director whose experience complies with the Heritage Branch criteria of the Heritage Council (2011) document *Criteria for the Assessment of Excavation Directors*, should be nominated to advise on archaeological procedures.
- Prior to activities associated with the initiation of ground breaking works, the Excavation Director would develop information for induction to brief contractors on the 'relics' provisions of the *Heritage Act 1977*. The Excavation Director would be contracted in the first instance to verify significance of any archaeological features or relics that are exposed during works.
- Construction activities for the project have potential to expose archaeological relics associated with the former building complex. The Excavation Director would be on call to monitor, supervise and record the process, as required.
- Provision would be made in the works program to allow for open area excavation, where the physical remains associated with the former building complex warrant this approach. This would be determined by the Excavation Director in consultation with the Heritage Branch and HI.
- All archaeological deposits, features and relics that are exposed during the works associated with the proposed Project would be recorded in accordance with heritage best practice standards and Heritage Branch guidelines by, or under the supervision of, the Excavation Director.

- It is unlikely that works associated with the project would expose State significant relics. However, should unexpected relics which are identified as having State significance by the Excavation Director be exposed, work would be required to cease and the Heritage Branch would be informed, to determine the appropriate management strategy. The duration of this would depend on the integrity and significance of the relic.
- Following completion of all archaeological investigations, the Excavation Director would prepare a report detailing the results of the fieldwork and post excavation analysis. The report would be prepared in accordance with current heritage best practice guidelines as identified by the Heritage Council of NSW, and would address the relevant research questions.

7.10 Contamination

Investigations and findings

A Phase 1 contamination assessment was undertaken for the proposed hospital site by Douglas Partners (Appendix H). The principal objective of the assessment was to identify areas of environmental concern (AEC) with respect to contamination through a review of desktop and database information, and by undertaking limited intrusive soil sampling focusing on the identified AECs.

The Phase 1 contamination assessment provided the following results, conclusions and recommendations:

- Researched historical information indicates that large sections of the site have not been developed and have remained as bushland;
- Subsurface conditions encountered at the sample locations indicate relatively shallow filling/topsoil overlying natural clays with no signs of gross contamination observed (e.g. odours, staining);
- Based on the desktop information and previous assessments by others, the potential for chemical contamination is considered low;
- The potential presence of asbestos-impacted materials on the site was identified by a previous consultant during demolition works at five of the former residential properties;
- Asbestos and, to a lesser extent, synthetic mineral fibres (SMF) and lead containing materials may still be present on the former residential areas where demolition has occurred. As such, it is recommended that during initial demolition/earthworks on the Lots which had been subject to development and demolition (Lots 1-11 in Deposited Plan 26087 and Lots 13-14 in Deposited Plan 792918), these areas be cleared for asbestos by a suitable qualified occupational hygienist; and
- Visual inspections and sampling in the heavily vegetated bushland area was necessarily limited. Based on observations in limited accessible areas and desktop information, the area does not appear to have been subject to development and hence is not of concern with respect to contamination.

In line with the report recommendations, an unexpected finds protocol would be incorporated into the demolition/earthworks contractors' procedures, so that appropriate management procedures can be undertaken in an effective manner if suspected contamination is encountered during the clearing of the bushland. This protocol would also apply to those previously developed lots prior to clearance being received by the occupational hygienist.

The Phase I contamination assessment included the recommendation that a hazardous materials survey be undertaken on former Community Health Centre building at 28 Bantry Bay Road prior to its demolition. This was undertaken by SMEC Australia and informed the subsequent demolition of the building. The following observations were made in this regard:

- Lead paint was not detected for paint used within the building;
- Electrical fittings within the building were unlikely to contain PCBs;
- Material used for insulation in the roof space contained SMF;
- A number of electrical devices on site were likely to or did contain asbestos materials including one electrical box, and old heaters located on the walls in the waiting room, meeting room and two offices;
- Asbestos was not detected in walls and ceiling inspected within the building;
- With the exception of the electrical box and the old heaters within the building, it was considered unlikely that asbestos was present as part of the building structure; and
- Soils under the building may have been impacted with organochlorine pesticides (from past pest management activities).

Consideration of SEPP 55 matters

State Environmental Planning Policy No 55—Remediation of Land (SEPP 55) requires that land not be rezoned or developed unless contamination has been considered and, where relevant, land has been appropriately remediated. SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment:

- By specifying when consent is required, and when it is not required, for a remediation work;
- By specifying certain considerations that are relevant in rezoning land and in determining development applications in general and development applications for consent to carry out a remediation work in particular; and
- By requiring that a remediation work meet certain standards and notification requirements.

Section 115ZF (2) provides that EPIs do not apply to or in respect of SSI other than in relation to two specified matters, neither of which apply to the proposal. As such SEPP 55 does not apply to the proposal.

However, as previously noted, a Phase I contamination assessment has been undertaken for the site, and did not identify any issues of significant concern. A hazardous materials survey has been undertaken for the former community health centre building at 28 Bantry Bay Road and similarly did not identify any issues of significant concern.

Both investigations recommended that an Unexpected Findings Protocol be developed and implemented in case potentially contaminated, hazardous or unsuitable material such as stained or odorous soils, asbestos, SMF or other materials were encountered during the development. This recommendation has been incorporated into the Preliminary Construction Management Plan (Appendix O).

On the basis of the findings, assumptions and identified limitations of the Phase I contamination investigation, and the hazardous materials survey of 28 Bantry Bay Road, the site is considered compatible with the proposed use as a hospital.

7.11 Drainage

A conceptual Stormwater Management Strategy and Plan (SMSP) has been prepared by Arup and is included as Appendix I. The SMSP addresses the following DGRs:

- Stormwater and drainage infrastructure;
- Water sensitive urban design (WSUD);
- Water harvesting;
- On site retention/ detention; and
- Avoiding impacts on downstream properties.

The SMSP notes the following:

- Currently, stormwater runoff from the site sheet flows to the surrounding road network where the water is captured by a pit and pipe network;
- The proposed stormwater drainage system would be designed in accordance with the procedures outlined by DP&I and the relevant design standards (e.g. Australian Standards, Australian Rainfall and Runoff);
- On-site detention is required to mitigate the increase in runoff from the site and the design would accord with Warringah Council's requirements;
- In terms of any future discharge, it is proposed to limit the proposed peak site discharge to that of the existing site for storm durations ranging from five minutes to three hours and for recurrence intervals of 5, 20 and 100 years. These criteria eliminate any adverse impacts of the proposed development but are not intended to resolve any pre-existing deficiencies in the downstream network;
- The detailed design for the site would explore opportunities for providing storage below or above ground, or a combination of both. Below ground options include proprietary storage devices or bespoke cast in-situ tanks. Above ground storage may be incorporated into car parks and/ or soft landscaping by appropriate grading. Alternatively, rooftop storage is an option that could be explored further (as part of the detailed design for Stage 2);
- As part of the detailed design, opportunities for WSUD would be explored further given the development of criteria that would be clearer at that stage. At this conceptual stage however, potential opportunities could include:
 - Roof water and stormwater harvesting systems;
 - Bioretention systems, tree pits and rain gardens;
 - Proprietary stormwater quality improvement devices (SQIDs);
 - Gully baskets/ pit inserts; and
 - Permeable pavements.
- Stormwater harvesting is a potential option that could be explored further as part of the WSUD aspects of a detailed design. However, due to its requirement for a dedicated pipe network, its viability would need to be considered against initial and long-term costs.

7.12 Utilities

An Infrastructure Management Plan (IMP) has been prepared by Steensen Varming and Warren Smith and Partners, and is included as Appendix J. The IMP outlines the proposed infrastructure for the hospital with respect to electrical, telecommunications, hydraulics and fire engineering services.

Natural gas

An existing 160 mm diameter 210 kPa high pressure natural gas main situated on the northern side of Warringah Road is available for connection to supply natural gas to the hospital.

An existing 200 mm diameter 1050 kPa natural gas main in Frenchs Forest Road West and Bantry Bay Road is at full capacity and is not available for connection. This main would be diverted around the southern and western site boundaries, reconnecting back to the existing main in Frenchs Forest Road West at the western end of the hospital site. The redundant section of main in Bantry Bay Road would be removed as part of the Stage 2 works.

Electrical and telecommunications

There are several existing 415 V, 11 kV and 33 kV cables adjacent to the hospital site. However, none are adequate to support the anticipated maximum demand load of the hospital.

Augmentation of supply to the site via 33 kV transmission lines or 11 kV lines was investigated. While the 33 kV option is possible, it would incur additional costs and require infrastructure such as a zone substation or new 33 kV / 415 V transformers without any technical advantage.

Based on discussions with Ausgrid, a maximum demand of 10 MVA or more was identified as tipping point for the requiring a 33 kV supply arrangement. Based on the analysis undertaken during masterplanning for the site, the anticipated maximum demand is considered to be less than 10 MVA. As such, it is proposed to supply the hospital site via 11 kV high voltage lines.

It is proposed that two diverse high voltage feeders from the one zone substation (Beacon Hill, about 1-2 kilometres away) utilising the redundancy available at that zone substation be provided. Two feeders would be fed from different sections of the zone substation switchboard and would following a slightly different cable routes to the site.

The existing Beacon Hill Zone Substation presently does not have the capacity to supply the proposed development. However, Ausgrid has advised that it is planning to install a third zone transformer in 2013–14 to increase the zone substation's capacity. This is expected to provide for the hospital's requirements at opening in 2018.

There are several existing telecommunications services within the area, however, none are adequate to support the new hospital. Telstra is currently the incumbent supplier for the Local Area Health. The actual lead in services will be coordinated with the future 'Health WAN' masterplan. Links to Telstra's exchange would be included consisting of relevant optical fibre, multi-core copper PSTN lines and ISDN services from the Frenchs Forest Exchange.

Additional private microwave links to Royal North Shore Hospital and other health facilities are also being considered.

Water and sewer

The main sewer drainage connection point for the hospital would be the existing Sydney Water sewer access chamber situated adjacent to the southern side of the site at the existing intersection of Warringah Road and Bantry Bay Road. The sewer drainage system from the hospital would gravitate and connect to the existing 300 mm diameter Sydney Water sewer main.

The sewer main passes under Warringah Road and reduces to 200 mm diameter. Sydney Water has advised that the 200 mm diameter section would need to be disconnected and a 300 mm diameter extension installed. This would gravitate south along Bantry Bay Road and extend along Aquatic Drive to connect to the existing 300 mm diameter Sydney Water sewer in the parkland south of the Warringah Aquatic Centre. This augmentation would be undertaken as part of the Stage 2 works.

There is an existing 250 mm diameter water main and a 450 mm diameter water main on the southern side of Frenchs Forest Road West. Sydney Water has advised that both are available for connection of domestic cold water supply and fire services for the hospital. Both water mains are part of the same pressure zone and given the larger 450 mm water main, a far greater flow rate for the hospital would be available.

Fire services

A fire hydrant service would be provided to the building as part of a combined fire sprinkler/fire hydrant service. The water supply and pumps configuration would be as follows:

- Adequately sized combined water supplies from the 450 mm diameter Sydney Water town main in Frenchs Forest Road West;
- New fire and rescue NSW booster arrangement;
- On-site water storage tank;
- Diesel and electric driven main pumps; and
- Automatic jacking pumps.

All pumps would be connected to the hospital building management and control system.

Service relocations

Diversion of the following services is planned for completion by the end of 2014:

- 33 kV high voltage transmission line;
- 11 kV high voltage transmission line;
- 415 V transmission line;
- High pressure gas pipeline; and
- Telecommunications.

As part of these works, water and sewer services, and a 32 mm diameter natural gas main that presently traverse the site would be capped at the site boundary. Redundant sections of these services on the site would be removed as part of the Stage 2 works.

These service diversions have been assessed separately through an REF prepared under Part 5 of the EP&A Act.

7.13 Hazards

Potentially hazardous substances and dangerous goods would be used in many areas of the hospital including cleaning, disinfection, laundering, medical imaging, maintenance, anaesthesia and laboratory analysis. The design of the hospital would facilitate prevention of incidents associated with the use of hazardous substances and dangerous goods, and would provide for effective and timely response to incidents should they occur.

Approved separate storage facilities for hazardous materials would be provided for relevant hospital departments including:

- Loading dock;
- Pathology;
- Nuclear medicine;
- Pharmacy; and
- Building maintenance.

Department level security and building service isolation would be implemented for the management and decontamination or containment of bio-hazardous contamination or hazardous waste. Hazardous waste streams would be contained separately to general waste streams. Waste segregation would be done at the point of source. This segregation of waste would be facilitated through a suitable receptacle system with holding spaces in areas such as kitchens, kitchenettes, beverage bays, pantries, public areas and disposal rooms and loading dock for the separation of waste.

Waste management would include the collection, holding and dispatch of the main waste streams, these being clinical, chemical, radioactive, cytotoxic, recyclable, organic, liquid and general and including sharps wastes. Clinical (including infectious waste), cytotoxic, pharmaceutical, chemical and radioactive wastes would be classified as hazardous wastes. Clinical waste would be managed in accordance with NSW Health policy and guidelines.

7.14 Cumulative impacts

Cumulative impacts can arise when two or more planned or approved developments occur in close proximity and/or occur concurrently or overlap/follow in time.

With regard to the hospital, the greatest potential for cumulative impacts is considered to relate to the supporting road works. These would likely need to occur prior to hospital opening in 2018 and would therefore generally happen at the same as construction of the hospital.

As noted in Sections 5.5 and 7.4.3, TfNSW and RMS have been investigating potential design solutions for the supporting road works that would address both the hospital requirements, and existing capacity and efficiency issues in the local road network. However, specific details regarding the preferred option were not available at the time of preparation of this Stage 1 EIS but are expected to be confirmed prior to preparation of the Stage 2 EIS.

8 Assessment of Site Clearance and Preparatory Works

The objectives of the site clearance and related preparatory works are to prepare the site for the future construction of the Northern Beaches Hospital. This section considers the impacts associated with these works, and identifies mitigation and management measures to avoid or minimise these impacts.

8.1 Description of works

The site clearance and preparatory works would generally comprise the following:

- Establishment of site office, including temporary connection to services (water, sewer, power);
- Closure of Bantry Bay Road to the public and establishment of construction traffic management controls;
- Removal of existing temporary fencing and installation of construction fencing;
- General clearance of site vegetation including tree stumps, but with retention of the area of vegetation broadly consistent with the former Blinking Light Reserve at the eastern end of the site;
- Thinning of the understorey in the aforementioned area of vegetation;
- Chipping of cleared vegetation (excluding weed species) to use on site for ground stabilisation/erosion control in the period prior to commencement of Stage 2;
- Offsite disposal of surplus cleared vegetation to green waste recycling facility or other beneficial reuse;
- Removal of foundations, concrete pads, etc. associated with former buildings and subsequent disposal of these materials to an appropriate receiving facility;
- Site stabilisation (such as establishment of erosion and sediment controls) in preparation for Stage 2; and
- Site management in the period between completion of the site clearance and preparatory works and commencement of Stage 2.

8.1.1 Plant and machinery

The following plant and equipment may be used for the works:

- Bulldozer, backhoe and excavator;
- Articulated and fixed trucks;
- Mobile crane;
- Chainsaw/brush cutter; and
- Wood chipper.

8.1.2 Site access

Access to and from the site would be via Bantry Bay Road which would be permanently closed to the public prior to the commencement of works. As far as practicable, access would principally be from Warringah Road would be limited to left in only (for traffic safety reasons). Access to and from

Frenchs Forest Road West would provide for all movements but would be limited to minimise impacts on road users and adjacent receivers.

Entry to and exit from the site would be under an approved construction traffic management plan.

Public access between Warringah Road and Frenchs Forest Road West would be available via the shared path that would be constructed adjacent to the western boundary following completion of the services diversion works.

8.1.3 Duration and timing of works

Clearing of vegetation on the site and other works would take approximately three months. This would occur in 2014.

8.1.4 Construction hours

The site clearance and preparatory works on the hospital site would be undertaken during standard working hours as per the recommended standard hours in Section 2.2 of the *Interim Construction Noise Guideline* (ICNG) (DECC 2009). These are:

- Monday to Friday, 7.00 am to 6.00 pm;
- Saturday, 8.00 am to 1.00 pm; and
- No work on Sundays or public holidays.

Liaison has commenced with The Forest High School in relation to the site clearance and preparatory works. The sequencing and locations of site clearance works would be reviewed with appropriate consideration given to avoiding or minimising disruption to classes and examination periods. HI and the Managing Contractor will continue to work with the school to position disruptive activities outside of school hours.

The ICNG identifies five categories of works that might be undertaken outside of the recommended standard hours:

- The delivery of oversized plant or structures that police or other authorities determine require special arrangements to transport along public roads
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours
- Public infrastructure works that shorten the length of the project and are supported by the affected community
- Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours.

Of these, the fourth category could apply to the works with regard to extending working hours on Saturdays such as to reduce the duration of impacts on the school. The need and justification for any works outside of standard hours would be the responsibility of the Managing Contractor.

8.1.5 Construction workforce

It is anticipated that the workforce for the site clearance and preparatory works would be a maximum of 10 personnel.

8.2 Flora and fauna

The significant impact of the site clearance and preparatory works on flora and fauna, particularly DFEC, was recognised from the outset of the project. In view of this, assessment of the impacts was undertaken via the NSW BioBanking Assessment Methodology (BBAM) with a view to mitigating impacts through the NSW BioBanking Scheme administered by OEH.

A biodiversity specialist report prepared by SMEC has informed the subsequent independent biobanking assessment report prepared by Teresa James Flora Consultant. Both documents are attached to the proposed biodiversity offset strategy (Appendix D). As noted in Section 7.5, the strategy addresses biodiversity impacts associated with the overall proposal notwithstanding these being principally related to site clearance and preparatory works.

Summary of findings

The hospital site contains ecologically significant flora and fauna communities, including DFEC. As previously noted, this is a listed endangered ecological community under the NSW TSC Act. Ecological surveys have confirmed the presence of DFEC across the majority of the undeveloped portion of the site, with the condition of this being assessed as 'moderate/good' as per the definition provided under the BBAM. In addition, a large number of hollow-bearing trees were recorded on the site. Hollows can provide valuable shelter and nesting habitat for mammal, bird, reptile and frog species.

No threatened flora species were identified on the site. However, the presence of two threatened fauna species was confirmed by the surveys, with the Grey-headed Flying-fox (*Pteropus poliocephalus*) and Powerful Owl (*Ninox strenua*) detected. The extent of potential impacts resulting from the hospital development was assessed in relation to specific ecological requirements for each species. It was concluded that the development would be unlikely to have a significant impact on either species, and as such would not be significant constraints to development of the site.

The hospital site contains good quality habitat suitable to sustain the viable population of Long-nosed Bandicoot (*Perameles nasuta*) identified on site. This species is not listed as threatened under either NSW or Commonwealth legislation.

Potential foraging and nesting habitat is available within the hospital site for two threatened fauna species: the Southern Brown Bandicoot (*Isodon obesulus*), listed as endangered under both NSW and Commonwealth legislation, and the Eastern Pygmy Possum (*Cercartetus nanus*), listed as vulnerable under NSW legislation. Targeted surveys for these two species were undertaken as part of spring and summer surveys, however, neither of these species were identified on the site.

The principal ecological impact of the proposed hospital would be the removal of up to 4.9 ha of DFEC. There would also be a loss of potential habitat for the two aforementioned listed threatened species. A resident population of Long-nosed Bandicoot would be impacted through loss of habitat. While two other threatened species (Grey-headed Flying-fox, Powerful Owl) may use the site for foraging, the hospital development would not have a significant impact on either of these species.

An independent biobanking assessment has been undertaken for the hospital development and related activities that could impact on biodiversity values. This identified that 317 ecosystem credits would be required in relation to impact on DFEC, and 121 species credits in relation to impact on Powerful Owl habitat.

Proposed biodiversity offset strategy

The proposed biodiversity offset strategy (Appendix D) has been developed with reference to and in accordance with the NSW OEH *interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects*. The interim policy provides for a tiered approach to offsetting based on the BBAM with preference given to Tier 1, then Tier 2 and lastly Tier 3. The proposed hospital is SSI development and therefore mitigation of impacts on biodiversity can be considered under the interim policy.

The proposed strategy identifies that the Tier 1 and Tier 2 pathways are not practicable options for the hospital development, as explained in Appendix D. Consequently it is based on the Tier 3 pathway which comprises a 'Mitigated Net Loss' approach as per the interim policy. Full justification for the proposed strategy with reference to all relevant matters in the interim policy is provided in Appendix D.

The proposed biodiversity offset strategy comprises the purchase of the entire ecosystem and species credits associated with BioBanking Agreement ID number 55 (Agreement 55) and to retire all of these. This agreement relates to a 10 ha site at Belrose owned by Waste Assets Management Corporation (WAMC). The site adjoins Garigal National Park. The site contains 77 ecosystem credits, of which 30 directly equate to DFEC on the hospital site, and 46 species credits. At the time of preparation of this EIS, HI was in the process of purchasing the entire amount of ecosystem and species credits, with the intention of subsequently retiring them.

The proposed offset strategy is considered to be fully consistent with the interim policy. It provides an opportunity to retire biodiversity credits for a whole site as part of the NSW BioBanking Scheme. The biodiversity offset strategy will ensure permanent protection of a number of vegetation communities including one equivalent to DFEC. It will also facilitate the addition of land with significant biodiversity values to Garigal National Park to be formally managed as a conservation reserve.

NSW Government offset principles for major projects

The NSW Government has developed seven principles to be used in assessing impacts on biodiversity and determining acceptable offsets for SSI projects. These are discussed as follows with respect to the hospital development.

- I. Before offsets are considered, impacts must first be avoided and unavoidable impacts minimised through mitigation measures. Only then should offsets be considered for the remaining impacts.
- Avoid:*
- As noted in Section 1.3, the Frenchs Forest site is considered well placed being generally in the centre of the NBHS catchment, and also in relation to Mona Vale and Manly Hospitals. The site is also adjacent to the major transport routes of Warringah Road and Wakehurst Parkway, and in close proximity to Forest Way.
 - Avoidance of impacts on the site's biodiversity values would only be possible through use of an alternative site. It is considered there are no suitable alternative sites with regard to the required operational aspects for the hospital and the broader health planning strategy for the Northern Beaches. As such, avoidance is not considered a practicable course of action.

- Minimise:*
- Given the relatively small size of the site, operational requirements, and constraints imposed by adjacent land use, there are considered to be limited practicable options to minimise biodiversity impacts on the site without unnecessarily restricting site development.
 - A comprehensive ecological survey, with the methodology developed in consultation with OEH, has been undertaken to accurately characterise biodiversity values on the site, and to inform development of management and mitigation measures.
 - An area of vegetation at the eastern end of the site adjacent to the road reserve adjoining Wakehurst Parkway would be retained and managed as part of the hospital site.
- Offset:*
- As previously noted, the significant impact of the site clearance and preparatory works on flora and fauna, particularly DFEC, was recognised from the outset of the project.
 - It was further recognised that there would be limited practicable opportunities to fully mitigate impacts on site, and therefore it would be necessary to offset impacts off site.

2. Offset requirements should be based on a reliable and transparent assessment of losses and gains.

Assessment of biodiversity impacts and subsequent determination of offset requirements has been undertaken using the NSW BBAM which is considered best practice. The assessment has been undertaken by an experienced, accredited biobanking assessor and the associated report is provided as an appendix to the Biodiversity Offset Strategy attached to this EIS.

3. Offsets must be targeted to the biodiversity values being lost or to higher conservation priorities.

The biodiversity offset strategy has been developed with reference to the OEH interim policy on assessing and offsetting biodiversity impacts which acknowledges that offset sites that are exactly like-for-like may not be reasonably available. As such, offsets may include vegetation communities of a similar type or a type of a higher conservation priority, or threatened species of a higher conservation priority.

The 10 ha site at Belrose includes ecosystem credits that equate (in terms of biodiversity values) to the DFEC present on the hospital site. The biodiversity offset strategy involves the retirement of the full complement of ecosystem and species credits on this site.

To the best of HI's knowledge, there are currently no other suitable 'like for like' offset sites available through the biobanking scheme.

4. Offsets must be additional to other legal requirements.

To the best of HI's knowledge, there are no other legal requirements pertaining to the Belrose site.

5. Offsets must be enduring, enforceable and auditable.

OEH notes that for terrestrial offsets, a biobanking agreement or addition to the NSW national parks system are the preferred mechanisms for securing an offset site. The purchase and retirement of biodiversity credits under the BioBanking Scheme, where appropriate credits are available, also meets the requirement for good governance arrangements.

The biodiversity offset strategy involves the acquisition and retirement of the entire package of ecosystem and species credits for the Belrose site, with the site subsequently to be incorporated into Garigal National Park.

6. Supplementary measures can be used in lieu of offsets.

Noted, however, it is not considered there is a need for any supplementary measures to the biodiversity offset strategy for the hospital development.

7. Offsets can be discounted where significant social and economic benefits accrue to NSW as a consequence of the proposal.

The Northern Beaches Hospital will represent a significant community asset to NSW. It addresses a range of existing and future health and health-related planning objectives. The hospital will form the key piece of infrastructure for the Northern Beaches Hospital Precinct at Frenchs Forest and serve as the driver for the development of health-related services and industries that would be expected to deliver a range of social and economic benefits to NSW.

Site clearance management activities

The remaining biodiversity issues that would need to be managed with regard to the site clearance and preparatory works comprise:

- Minimising impacts on fauna associated with vegetation clearing, particularly with regard to felling of hollow-bearing trees;
- Mitigating impacts on the existing Long-nosed Bandicoot population; and
- Minimising the risk of transfer and spread of invasive species (including weeds) and disease both to and from the site.

An environmental work method statement (EWMS) would be prepared prior to the commencement of works on site. This would cover both pre-clearing and clearing activities.

The EWMS would address, but not be limited to, the following matters:

- Procedures for felling of hollow-bearing trees, including handling of any fauna species found to be using hollows;
- Relocation of Long-nosed Bandicoots (to be confirmed – refer following paragraph);
- Re-use of woody debris and any bush rock encountered;
- Management of weed species (also addressed via the Waste Management Strategy); and
- Managing the risk of spread of *Phytophthora cinnamomi* (infected soil/root material can be dispersed by earth moving equipment).

Mitigating impacts on the Long-nosed Bandicoot population may comprise relocation to another suitable area or to stage clearing across the site and allow them to disperse naturally to areas outside of the hospital site. The preferred strategy would be documented in the final CEMP, and would be developed in consultation with OEH. The Long-nosed Bandicoot breeds throughout the year so limiting clearing to outside the breeding season is not a practicable management option.

8.3 Noise and vibration

A Noise and Vibration Impact Assessment for the site clearance and preparatory works has been prepared by Acoustic Logic and is included as Appendix K. The report documents the existing ambient noise environment and establishes construction noise management goals, assesses likely and potential noise and vibration impacts associated with the site clearance and preparatory works, and identifies a range of management measures to mitigate these impacts. Traffic noise, particularly from Warringah Road, is a significant contributor to existing noise levels in the area.

The principal sensitive receivers are the residences (both single storey on the northern side of Frenchs Forest Road West and the adjacent high school. Within the northeast corner of the school grounds, there is a double storey classroom adjacent to the hospital site.

The majority of vegetation clearing would be done using a backhoe and/or bulldozer. Where access is constrained, such as adjacent to the school boundary fence, it may be necessary to use chainsaws.

Given the size of the hospital site, noise levels at receivers would vary depending on the location of the noise source(s) on the site. These would be greatest in the northwest corner of the hospital site and adjacent to Frenchs Forest Road West, and associated with the use of plant such as chainsaws and the wood chipper. The assessment identifies that in general, noise management goals would be exceeded for all types of plant with respect to the identified receivers. The degree of non-compliance would depend on the distance between the noise source and the receiver.

Site clearing and related preparatory works are unlikely to generate vibration with the potential for building damage.

Mitigation measures

The noise and vibration assessment report identifies a range of mitigation strategies. It notes that given the size of the hospital site and the fact that the school classroom building and a number of residential properties are double storey, the potential acoustic benefit provided by noise screens would be limited as the required height for the screen would be impractical with regard to providing benefit to receivers on the first floor.

The greatest acoustic benefit would be achieved through careful scheduling of works in critical areas (i.e. when close to residential and school property boundaries). However, excessive use of respite periods should be avoided as they would simply prolong the duration of the works.

Planning with regard to sequencing and locations of site clearance works would be undertaken with due consideration to disruption to classes and examination periods. Ongoing consultation would be undertaken with the school to schedule disruptive activities outside of school hours as far as practicable.

8.4 Transport and accessibility

Bantry Bay Road provides existing access to the site from Warringah Road (left in, left out only) and from Frenchs Forest Road West (all turning movements to and from Bantry Bay Road permitted). As noted in Section 8.1.2, as far as practicable Warringah Road would form the principal access to the site.

The site clearance and preparatory works would involve closure of Bantry Bay Road to the public. Appropriate signage would be established in advance of the closure.

Parking for all vehicles would be available within the site, most likely along Bantry Bay Road.

Given the intention to chip cleared vegetation (excluding weed species) and use this material on site to assist in managing dust generation and erosion risk in the period prior to commencement of Stage 2 works, there would be minimal truck movements from the site. Traffic movements would relate principally to arrival and departure of workforce personnel, and removal of residual demolition waste.

Movements of vehicles to and from the site would be managed through an approved Traffic Management Plan. Preparation of the Plan would include appropriate consultation with RMS and Warringah Council.

Haulage routes are yet to be determined, however, as a general principle, heavy vehicles would be restricted to arterial and sub-arterial transport routes. Heavy vehicles exiting into Frenchs Forest Road West would turn right and enter the local road network via Wakehurst Parkway. Otherwise, use of suburban streets would be avoided as far as practicable.

Movements of heavy vehicles would, as far as practicable, be scheduled to occur outside of peak hours to minimise impacts on traffic. On school days, use of the Frenchs Forest Road West exit at the beginning and end of the school day would be avoided as far as practicable.

The intersections of Frenchs Forest Road/Wakehurst Parkway and Warringah Road/Wakehurst Parkway are signalised. The movements of all vehicles associated with the site clearance and preparatory works would be fully accommodated under existing traffic network arrangements. There would not be any need to undertake any road works in relation to the site clearance and preparatory works. The potential traffic impacts of the works would be minimal with less than 10 vehicle movements expected to be generated per day (including site personnel travelling to and from the site daily). During discussion with TfNSW/RMS, these works have not been raised as a concern in terms of traffic impacts on the surrounding road network.

A Preliminary Construction Management Plan has been prepared for the site clearance and preparatory works and is provided as Appendix O. This also covers transport and traffic management issues associated with the site clearance and preparatory works.

8.5 Sedimentation and erosion

A Soil and Water Management Plan (SWMP) has been prepared for the site clearance and preparatory works, and is provided as Appendix L. This has assessed the site with reference to the guideline *Managing Urban Stormwater—Soils and Construction*, 4th Edition (Landcom 2004). The SWMP is targeted at effective management of the site with respect to erosion risk during the works and in the intervening period following completion of these works and the planned commencement of the Stage 2 works in 2015.

Potential sedimentation and erosion impacts relate to the risk of mobilisation of unconsolidated material (e.g. soils, vegetation) by rainfall/runoff, and transportation of this material off the hospital site via formal or natural drainage paths. Spills of hazardous materials such as fuel is another potential risk that could impact on soils and local groundwater.

Key management measures include:

- Preparation and implementation of an erosion and sediment control plan in accordance with the SWMP and *Managing Urban Stormwater—Soils and Construction*;
- Establishment and maintenance of appropriate sediment controls across the site;
- Managing vehicles access to, from and within the site to limit the amount of material that could be picked up on wheels and tracked off site onto local roads; and
- Implementation of appropriate measures (e.g. wheel cleaning stations) to prevent/limit material being tracked onto local roads.

As a waste reduction strategy (refer Section 8.6), the use of chipped vegetation as a mulch material on site would be maximised to assist in stabilising exposed areas of ground and reduce the risk of entrainment of unconsolidated material by wind or runoff.

Consideration of dust generation and management is provided in Section 8.7.2.

8.6 Servicing and waste

A Waste Management Strategy has been prepared for the site clearance and preparatory works and is provided as Appendix N. This identifies the anticipated waste streams from the works, management options to handle waste materials, and related matters such as training.

The principal waste streams would comprise:

- Green waste (cleared vegetation);
- Residual demolition waste; and
- Site office refuse and sanitary waste.

The preferred management strategy for green waste is to chip suitable cleared vegetation (excluding weed species) on site and use it as an organic mulch to minimise dust emissions, and to manage erosion and sedimentation risk in the interval between completion of the site clearance and preparatory works, and commencement of the Stage 2 works. This material would also represent a potential resource for future landscaping works.

Other management options for green waste include beneficial offsite reuse, disposal to landfill, or a combination of these. In the event that offsite disposal occurs, chipping would greatly reduce the number of vehicle movements from the site.

Residual demolition debris would be collected and removed from the site for disposal/reuse at an appropriate receival facility. With regard to managing demolition materials potentially containing asbestos:

- A NSW licensed Asbestos Removalist as per the *Code of Practice for the Safe Removal of Asbestos*, Safe Work Australia (2005) would be engaged to remove any asbestos present on site; and
- An Unexpected Findings Protocol would be established and implemented in case potentially contaminated, hazardous or unsuitable material were encountered during the site works.

With regard to managing sanitary waste, a section of the existing sewer (at the southern end of Bantry Bay Road) would be retained on site and a temporary connection made from the construction site facilities. Similar use would be made of the existing reticulated water supply water.

As such, there would not be a need for portable ablution facilities and associated waste disposal requirements.

Office and kitchen waste would be collected on site, and be separated into recyclable and non-recyclable waste. This would be removed regularly and disposed of to a suitable receiving facility. Transfer of wastes to collection vehicles would occur wholly within the hospital site. Loading and unloading of plant would also be undertaken fully within the hospital site. It is anticipated the Managing Contractor would designate a specific area(s) for this activity, and for waste handling activities.

8.7 Other relevant issues

8.7.1 Heritage

The Aboriginal heritage assessment (Appendix F) notes the high level of disturbance across the majority of the hospital site and the apparent lack of substantial intact topsoil, indicating that there is unlikely to be any archaeological potential for intact or substantial Aboriginal stone artefact deposits. It concluded that there was low potential for the recovery of in situ Aboriginal objects and low research potential.

However, it also noted the presence of sandstone outcrops in the northeast part of the site, and where the ground surface was currently obscured by vegetation. Despite having low recovery potential, it noted there was a possibility that art/engravings may be present in this area. This location is within the area of vegetation that would be retained on the site. Works in this location would be limited to thinning of understorey vegetation, and minimal disturbance of the ground surface is anticipated. The Aboriginal heritage assessment has identified a range of measures that would adequately manage this issue and which would be adopted.

8.7.2 Air quality

Vegetation clearing would expose bare soil which would represent a potential source of dust emissions that could impact on nearby receivers if not appropriately managed. Vegetation clearing would be limited to areas where no development has previously occurred. As such, it is unlikely that there would be potential for mobilisation of particulate matter that could represent a potential health concern. Dust emissions would largely comprise a nuisance impact.

Operation of plant and machinery would have associated emissions, however, the volume of these would not be of material concern and would be readily dispersed. Emissions from traffic on nearby roads would likely be a much greater influence on local air quality.

Dust emissions would be managed by minimising the extent of bare ground exposed at any one time during clearing works. The potential for dust emissions from exposed bare ground would be minimised such as through the use of watering and mulching. Following completion of clearing works, the entire site would be stabilised and managed to minimise the potential for dust emissions.

The Soil and Water Management Plan (Appendix L) referred to in Section 8.5 includes measures to manage air quality during the site clearance and preparatory works.

8.7.3 Energy conservation

Given the relatively small scale and duration of the site clearance and preparatory works, it is anticipated that there would be limited practicable options to implement energy conservation measures. Cleared vegetation would be chipped for reuse on site as part of soil conservation works thereby reducing the number of truck movements that might otherwise have occurred with offsite disposal.

The Waste Management Strategy (Appendix N) includes a number of recommendations directly relevant to energy conservation including the following:

- Consideration of fuel efficiency in selection of plant and equipment;
- Minimising periods of idling plant;
- Maintenance of plant and equipment to efficient levels; and
- Planning logistics to minimise movement of material.

The strategy would guide preparation of a waste management plan that in turn would detail energy efficient work practices to be adopted, including selection of plant and equipment to minimise energy use and greenhouse gas emissions associated with construction where feasible and reasonable.

8.7.4 Cumulative impacts

Minimal to no cumulative impacts are anticipated with regard to the site clearance and preparatory works. At the time of preparation of the EIS, it was anticipated that the supporting road works would occur well after completion of these works (i.e. 2015 or later but prior to hospital opening).

8.8 Mitigation measures

Management measures to mitigate identified and potential impacts associated with the site clearance and preparatory works are summarised in Table 13 (following page). These are drawn from the assessment documented in Sections 8.2 to 8.7 inclusive and relevant appended reports. These management measures would be implemented under the general umbrella of a CEMP. The CEMP would be prepared by the Managing Contractor with reference to the Preliminary Construction Management Plan (refer Appendix O), and may include additional management and mitigation measures as considered appropriate.

The CEMP would provide appropriate details regarding ongoing consultation with affected residents, The Forest High School, local businesses and other relevant stakeholders, particularly with regard to advance notification of activities that could affect amenity.

Table 13 Site clearance and preparatory works management measures

Aspect	Comment
Flora and fauna	<ul style="list-style-type: none"> Impacts on DFEC and Powerful Owl would be mitigated through implementation of the biodiversity offset strategy Preparation and implementation of EWMS to cover all pre-clearing and site clearing activities
Noise and vibration	<ul style="list-style-type: none"> Management of noise impacts would be in accordance with the measures identified in the attached acoustic assessment prepared by Acoustic Logic for the site clearing works
Transport and accessibility	<ul style="list-style-type: none"> Bantry Bay Road would be closed to vehicles and pedestrians prior to commencement of works As far as practicable Warringah Road would form the principal access to the site Heavy vehicles exiting the site to Frenchs Forest Road West would, as far as practicable, be limited to right turn only to avoid travelling on suburban streets Movements of vehicles to and from the site would be managed through an approved Traffic Management Plan Preparation of this Plan would include appropriate consultation with RMS and Warringah Council. Use of local roads by heavy vehicles would be avoided as far as practicable As far as practicable, heavy vehicle movements would be scheduled for outside of peak hours Use of the Frenchs Forest Road West exit would be avoided or minimised on school days, at the beginning and end of the school day
Sedimentation and erosion	<ul style="list-style-type: none"> The Managing Contractor would prepare an erosion and sediment control plan consistent with the attached Soil and Water Management Plan and <i>Managing Urban Stormwater—Soils and Construction</i>
Servicing and waste	<ul style="list-style-type: none"> Management of waste would be undertaken in accordance with the attached Waste Management Strategy A NSW licensed Asbestos Removalist as per the <i>Code of Practice for the Safe Removal of Asbestos</i>, 2nd ed. [NOHSC: 2002 (2005)] would be engaged to remove any asbestos present on site An Unexpected Findings Protocol would be established and implemented in case potentially contaminated, hazardous or unsuitable material were encountered during the site works
Heritage	<ul style="list-style-type: none"> The recommendations of the Aboriginal heritage assessment and historic heritage assessment would be implemented
Air quality	<ul style="list-style-type: none"> Management of dust generation would be undertaken in accordance with Section 8.5 of the attached Soil and Water Management Plan
Energy conservation	<ul style="list-style-type: none"> The recommendations in Section 4.1 of the attached Waste Management Strategy would be implemented

9 Conclusion and Justification

9.1 Summary

This EIS has been prepared in accordance with the requirements of Part 5.1 of the EP&A Act to consider the likely and potential environmental, social and economic impacts of the concept proposal, and the site clearance and preparatory works for the proposed Northern Beaches Hospital. The Stage 1 EIS has addressed the relevant matters specified in the Director General's Requirements, and accords with the matters specified in Schedule 2 to the *Environmental Planning and Assessment Regulation 2000*.

On the basis of the assessment documented in this EIS, together with the identified measures to mitigate unavoidable impacts, it is considered the proposal is justified with specific reference to the following matters.

The Northern Beaches Hospital would:

- Deliver the best quality integrated health services and clinical outcomes to the community of the Northern Beaches of Sydney and NSW Health;
- Integrate public and private health care into a single facility to maximise the range and breadth of services available to the community of the Northern Beaches of Sydney;
- Provide health care teaching, training, education and research within the Northern Beaches Hospital as part of an integrated NSLHD;
- Consolidate existing services at the Frenchs Forest location to create critical mass, thus improving accessibility to health services by establishing the Northern Beaches Hospital; and
- Address the demand and cost impact of current and future health services by enabling a sustainable health system by changing the patterns of supply and demand. This will be achieved by utilising the location of the hospital, its operational and design innovation and digital hospital technologies.

The hospital development is consistent with health-related objectives and strategies in the State Infrastructure Strategy, the Metropolitan Plan, the North East Subregional Strategy, *NSW 2021* and the *Draft Metropolitan Strategy for Sydney to 2031*.

The EIS has identified appropriate mitigation and management measures to address the impacts associated with the site clearing and related preparatory works. Where relevant, these have been developed to align with future works on the site.

9.2 Ecologically Sustainable Development

Clause 7(1)(f) of the *Environmental Planning and Assessment Regulation 2000* requires an EIS to provide justification for a development with specific reference to the principles of ecologically sustainable development (ESD) as set out in the Regulation. This is provided in the following table.

Table 14 Project justification with regard to ESD

ESD principle	Comment
The precautionary principle	<p>A range of detailed investigations has been undertaken to characterise relevant issues and identify appropriate mitigation and management strategies.</p> <p>The potential transport impacts of the hospital development are well appreciated and HI has consulted with relevant stakeholders including RMS and TfNSW to develop a coordinated, whole of government response to transport-related issues. These would be further examined in the Stage 2 EIS, and in the separate TfNSW/RMS environmental assessment for the preferred supporting road work solution. Ecological impacts have been investigated and accurately characterised, and appropriate mitigation measures developed.</p> <p>It is considered that the risks of serious or irreversible environmental damage from the proposed hospital development due to lack of scientific certainty are sufficiently understood and that such risks are manageable.</p>
Inter-generational equity	<p>The drivers for the hospital development recognise the significant existing shortcomings in community health services across the Northern Beaches region. They similarly recognise the opportunities that the proposed hospital would provide for the community both in the short term and the long term including expanding contemporary models of health care, increased clinical collaboration, provision of a broader range of professional development opportunities, and implementation of sustainable service delivery.</p>
Conservation of biological diversity and ecological integrity	<p>The proposed hospital development would have an unavoidable impact on an endangered ecological community (DFEC). An offset strategy has been developed with reference to and consistent with the <i>NSW OEH interim policy on assessing and offsetting biodiversity impacts of Part 3A, State significant development (SSD) and State significant infrastructure (SSI) projects</i>. This would involve the purchase and retirement of a package of ecosystem and species credits for a 10 ha parcel of land adjoining Garigal National Park.</p> <p>Masterplanning for the site provides for the partial retention of an area of vegetation at the eastern end of the site that would be managed on an ongoing basis as part of the hospital operation.</p>
Improved valuation, pricing and incentive mechanisms	<p>The concept design provides for a range of sustainability initiatives including reducing resource consumption in construction and operation such as through on site water harvesting and reuse, and energy efficient heating and cooling mechanisms.</p> <p>Masterplanning has considered existing public transport matters as well as planning strategies, and would not preclude implementation of these.</p> <p>Impacts on biodiversity would be offset through the biobanking process, with HI purchasing and retiring ecosystem and species credits with a market value of \$700,000.</p>

On the basis of the above comments, it is considered that justification for the proposal is consistent with the identified ESD principles.

9.3 Residual risk analysis

Residual risk refers to the level of risk remaining following treatment, i.e. implementation of mitigation and management measures. The following residual risk analysis is based on AS/NZS ISO 31000:2009 *Risk management – Principles and guidelines* (Standards Australia 2009). This is qualitative and is based on the significance of impacts and their anticipated manageability. The following definitions are adopted in this regard.

Significance of impacts:

Extreme	Undisturbed receiving environment; type or extent of impacts unknown; substantial level of community concern
High	Sensitive receiving environment; type or extent of impacts not well understood; high level of community concern
Moderate	Resilient receiving environment; type or extent of impacts understood; community interest
Minor	Disturbed receiving environment; type or extent of impacts well understood; some level of local community interest
Low	Degraded receiving environment; type or extent of impacts fully understood; negligible level of local community interest

Manageability of impacts:

Complex	Extensive/complicated range of mitigation measures required; safeguards or technology are unproven; adaptive management not appropriate
Substantial	Significant mix of mitigation measures required; limited evidence of effectiveness of safeguards; adaptive management feasible
Straightforward	Straightforward range of mitigation measures required; good understanding of effectiveness of safeguards; adaptive management readily applicable
Standard	Simple range of mitigation measures required; substantial evidence for effectiveness of safeguards; adaptive management unlikely to be required
Minimal	Minimal/no mitigation measures required; safeguards are standard practice; adaptive management not required

Residual risk levels have been derived using the above definitions and the following residual risk matrix (Table 15). The results of the residual risk analysis are provide in Table 16 and Table 17 for the concept proposal, and the site clearance and preparatory works respectively.

Table 15 Residual risk matrix

		Manageability of impacts				
		Complex	Substantial	Straightforward	Standard	Minimal
Significance of impacts	Low	Medium	Low/Medium	Low/Medium	Low	Low
	Minor	High/Medium	Medium	Low/Medium	Low/Medium	Low
	Moderate	High/Medium	High/Medium	Medium	Low/Medium	Low/Medium
	High	High	High/Medium	High/Medium	Medium	Low/Medium
	Extreme	High	High	High/Medium	High/Medium	Medium

Table 16 Residual risk profile – Concept proposal

Aspect	Significance	Manageability	Residual risk
Amenity	High	Straightforward	High/Medium
Transport and accessibility	High	Substantial	High/Medium
Flora and fauna	Moderate	Straightforward	Medium
Bushfire risk	Moderate	Standard	Low/Medium
Aboriginal heritage	Minor	Standard	Low/Medium
Historic heritage	Minor	Standard	Low/Medium
Contamination	Minor	Standard	Low/Medium
Drainage/water quality	High	Standard	Medium
Waste management	Moderate	Standard	Low/Medium

Table 17 Residual risk profile – site clearance and preparatory works

Aspect	Significance	Manageability	Residual risk
Flora and fauna	High	Straightforward	High/Medium
Noise and vibration	High	Straightforward	High/Medium
Transport and accessibility	Minor	Standard	Low/Medium
Soils	Minor	Standard	Low/Medium
Waste management	Minor	Standard	Low/Medium
Heritage	Minor	Standard	Low/Medium
Air quality	Minor	Standard	Low/Medium
Energy conservation	Minor	Standard	Low/Medium

The analysis for the concept proposal assigns a high/medium level of residual risk for amenity, and transport and accessibility. The remaining issues generally have a medium to low/medium level of risk remaining after treatment. The environmental risk analysis would be reviewed and revised as required in the Stage 2 EIS. There would be a much greater level of detail available at this time, including in relation to a preferred supporting road works solution.

The analysis for the site clearance and preparatory works confirms the principal risks relate to impacts on flora and fauna, and to management of noise emissions associated with site clearing activities. There is a low/medium level of risk associated with the remaining issues.

10 References

- AECOM (2011a) *Frenchs Forest Specialised Centre Strategic Traffic Assessment*, draft report prepared for Transport for NSW, Sep 2011.
- AECOM (2011b) *Frenchs Forest Specialised Centre Local Traffic Assessment*, draft report prepared for Transport for NSW, Oct 2011.
- Cox Richardson (2010) *Frenchs Forest Specialised Centre State Significant Site Study*, report prepared for NSW Dept. of Planning and Health Infrastructure, Dec 2010, Sydney.
- Dept. of Environment and Climate Change (2009) *Interim Construction Noise Guideline*, NSW Government and Dept. of Environment and Climate Change, Sydney.
- Environment Protection Authority (2000) *NSW Industrial Noise Policy*, Jan 2000, EPA, Sydney.
- Infrastructure NSW (2012) *The State Infrastructure Strategy 2012–2032*, Sydney.
- Landcom (2004) *Managing Urban Stormwater–Soils and Construction*, 4th Edition, Sydney.
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- Northern Sydney Local Health District (2012b) *Clinical Services Plan 2012–2016*, NSLHD, October 2012, Sydney.
- NSW Health (2005) *Waste Management Guidelines for Health Care Facilities – August 1998*, NSW Health, 25 Jan 2005, Sydney.
- Safe Work Australia (2005) *Code of Practice for the Safe Removal of Asbestos*, 2nd ed [NOHSC:2002(2005)], Australian Government, Canberra.
- Standards Australia (2009) *AS/NZS ISO 31000:2009 Risk management – Principles and guidelines*, SAI Global, Sydney, NSW, Australia.
- Transport for NSW (2012) *Northern Beaches Bus Rapid Transit (BRT) Pre-Feasibility Study*, TfNSW, Sydney.
- Urbis (2013) *Northern Beaches Hospital Precinct Community Visioning Forums – 6 and 10 December 2012 Outcomes Report*, report prepared for the Dept. of Planning and Infrastructure, Feb 2013, Sydney.